



answers

- 1 492—The business has become so complicated we had to look this one up ourselves.
- 2 Only 5 proved of any importance.
- 3 Competition between the oil companies— By 1939, when Germany invaded Poland, U. S. oil companies had already developed 100 octane

to the point where they could produce it in volume on an economical basis.

- **4** \$5,537,329 is a lot of money, but it was divided among a lot of people—31,652. So it averaged just \$174.94 per stockholder.
- 5 This isn't official, but we've done a lot of research and we can't find more than five—cigarettes, gasoline, electricity, home gas and interest rates.
- 6 20½¢—It takes taxes to win a war. The average Union Oil employee made \$211 per month in 1942; but the tax collector got more of your dollar last year than all 8,192 of our employees put together (20½¢ to taxes—20¢ to wages) and 4 times as much as the stockholder-owners.
- 7 \$35,696—The machine age has made our tools of production rather expensive.

This series, sponsored by the people of the Union Oil Company, is dedicated to a discussion of how and why American business functions. We hope you'll feel free to send in any suggestions or criticisms you have to offer. Write: The President, Union Oil Co., Union Oil Bldg., Los Angeles 14, Calif.

UNION OIL COMPANY

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THE DESERT MAGAZINE

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DESERT

Close-Ups

- With this issue Desert Magazine begins its seventh year. Over there in North Africa where Desert's editor is serving with the armed forces, this anniversary despite the fast moving war scene, will bring back memories to Randall Henderson—especially that first birthday of Desert's, when we boasted around a thousand subscribers. Today, on our sixth birthday, Desert's reader-family is fast approaching the 100,000 mark. That's a record for a magazine with no promotion or publicity department. It's a tribute too to the ideals and imagination and judgment of Desert's founder—Randall Henderson.
- Next treat in store for desert rock-hounds is an imaginary trip into time—two million years back, into a strange world of volcanic activity, forests, rhinoceri, three-toed miniature horses and camels—in the Mojave desert! That's the setting Jerry Laudermilk has described with dramatic realism for his story of petrified wood.
- · Sidney Armer this month relates the humorous experiences encountered when he and his wife Laura Adams Armer established their home in the remote Navajo country of northern Arizona. He studied art in San Francisco and until 1940 most of his work was illustration. More recently he has been occupied with painting California wildflowers. Visitors to Los Angeles museum of art will see a group of 60 of these paintings in the permanent exhibit. Navajo sandpaintings mentioned in this month's story wete made by Laura for Mary Cabot Wheel-wright as part of the most important and complete collection of sandpainting reproductions in the world, now housed in the Museum of Navajo Ceremonial Art in Santa Fe, New Mexico.
- "The Gods Walked Up There" is a genuine desert Christmas story-the Navajo story of creation and the beginning of the world as told to Richard Van Valkenburgh by the Mountain Chant Singer. It will be illustrated with a set of panels created especially for this story in tempera by Van Sinajinih. This Navajo artist has achieved the finest work of his career in beautiful simplicity and gentle color. Van (the writer) savs his technique is strikingly like that used by Little Sheep, the primitive Navajo artist (-1835) whose polychromes have been found on the walls of Canyon del Muerto. With Charles Keetsie Shirley and Hoke Denetsoi, Van Sinajinih ranks as one of the foremost Navajo artists. In addition to being an exceptionally fine muralist, he also has illustrated a number of books and articles dealing with his people.



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Fort Lowell Ruins

By J. WILSON McKENNEY Merced, California

To quell Apache Indian troubles, Fort Lowell was established by army order March 23, 1873, and became center of Tucson's brilliant social life. A few crumbling

walls remain of the once extensive adobe post. Seven miles north of Tucson, Arizona, this scene looks north toward Rillito creek and Catalina mountains beyond.



Members of Julius F. Stone's 1938 Colorado river expedition at Lee's Ferry. Left to right—Charles Kelly, Frank Swain, George Stone, William A. Cryst, Dr. A. L. Inglesby, Julius F. Stone and Dr. Russell G. Frazier.

Lee's Ferry on the Colorado

If Painted Desert were the climax of your Arizona trip, and you were on your way to the Utah parks of Zion and Bryce, you would cross the Colorado river over beautiful Navajo bridge, on U. S. highway 89. You probably wouldn't notice the dim road turning off downstream at the service station just north of the bridge . . . And you thereby would miss one of the most interesting places on the Colorado river, a point known to river explorers since 1776. Although it has been the supply station since early times for every group of voyagers along the entire length of the Colorado, it is best known to the public for its association with John D. Lee. Fleeing Utah in 1872 to escape punishment for his part in the Mountain Meadows massacre, Lee with two of his numerous wives settled at what is now known as Lee's Ferry. Charles Kelly sketches the history of this historic site and he relates the tragic end of the man who is called Arizona's first Indian trader.

By CHARLES KELLY

OUNDING a bend in the Colorado river about a day's journey south of the Utah-Arizona state line, we saw an opening in the high canyon walls which had enclosed us for many days. Drifting downstream we passed a log cabin on the right bank and on the opposite side saw traces of an old road. Five of us, in two canvas boats, had come down the river with Dr. Julian H. Steward on an archeological expedition for the University of Utah.

We were all happy to realize we had reached Lee's Ferry, terminus of our voyage. It had been excessively hot in the canyon, we were badly sunburned, and a month's exploring for ancient ruins had exhausted our grub supply. Landing below the old cabin we beached our boats and crawled beneath some nearby willows whose shade afforded but little relief from the temperature of 130 degrees.

Having arrived one day ahead of schedule we had time to explore the vicinity of

the famous old ferry before Frank Beckwith and Maurice Howe arrived with cars to take us back home. It was time well spent, both from a scenic standpoint and because the place was important in pioneer history. Since then I have visited it many times, by river or overland, collecting facts on its early history.

Lee's Ferry has been the terminus for many boating expeditions on the upper Colorado river, the starting point for even more expeditions through the wild rapids of Grand Canyon, and the supply station for every group of voyagers through the whole length of the Colorado. Major Powell first visited it by boat in 1869, and again in 1871.

Nathan Galloway, trapper, landed there with many bales of beaver furs. Julius F. Stone, with Galloway, stopped there in 1909 only to find his supplies had not arrived, and was forced to continue on short rations. It was the supply station for several U.S.G.S. mapping expeditions. Dr. Russell G. Frazier used it as the starting point for the third leg of his river journey. In more recent years it has seen Norman Nevills begin several voyages through Grand Canyon. Since it is the only point between Greenriver, Utah, and the foot of

Bright Angel trail where supplies can be obtained, it always has been an important stopping point for every river voyager.

To most persons the fame of Lee's Ferry lies principally in its connection with the personality of its first settler, John D. Lee. But it was geographically important in pioneer times because it was the only possible crossing of the Colorado for wagons between Gunnison's crossing on the Green and Pierce's Ferry below Grand Canyon.

At the mouth of Paria river, where the old ferry is located, the canyon walls break down sufficiently to allow wagons to reach the river and get out on the opposite side. But the crossing is not a ford. Instead, the river runs deep and swift, with a rapid just below the Paria's mouth.

The history of this spot runs back to 1776, when Father Escalante, first white man to visit Utah, decided to turn back to Santa Fe rather than continue on to California. His return route was obstructed by the Colorado's deep canyon, but Indians told him they sometimes crossed at the mouth of the Paria. When he reached that place and looked at the muddy swirling waters and the rapid below, he was afraid to attempt a crossing since he could not swim. He continued 40 miles upstream before finding the old Ute crossing where he was able to ford without swimming his horses.

Eighty-one years passed before any white man is known to have again visited the place. Early trappers may have seen it, particularly Jim Baker in 1841, but if so they left no record. In 1857 two Mormon scouts, C. A. Huntington and C. E. Holladay, reached the Colorado at that place, although they probably did not cross. Their names were discovered on a rock above the river in 1938 by Billie Weaver, daughter of Leo Weaver.

The next visitor, so far as we know, was Major John W. Powell, who stopped there to repair his boats in August, 1869, before continuing on through Grand Canyon. Powell says he recognized the place from





Above—Robert B. Hildebrand in front of the old log pier which elevated the ferry cable. Note landing across the river and old emigrant road leading right to the Little Colorado river. Below—Original John D. Lee cabin. The author, right, with Mr. Hildebrand who as a boy spent a year with Lee at Lee's Ferry.

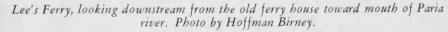
a description given him by a Mormon missionary, probably Huntington.

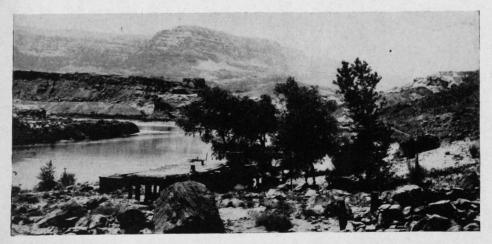
In October of the same year Jacob Hamblin, famous Mormon pioneer missionary to the Indians, crossed the Colorado at that point, swimming his horses and raft-

ing his supplies. Previously he had made several trips from Utah to the Moqui villages, using the old Ute ford or Escalante crossing, but on this occasion he was scouting a possible wagon road into Arizona. He found evidence that Navajo Indians had been crossing the river on their raids into Utah.

Traveling overland Major Powell crossed the Colorado at Lee's Ferry in 1870 on a visit to the Moquis, using an old boat, the Cañon Maid, abandoned in 1869. This was the first known crossing by boat. On his second expedition Powell reached the crossing on October 23, 1871, the end of his explorations for that year. One of his battered boats, the Nellie Powell, was used to ferry over Jacob Hamblin, who had just arrived from another trip to the Moquis. This might be called the beginning of ferry service.

In the summer of 1872 some of Powell's men were sent back to the mouth of Dirty Devil river to bring down a boat cached there the previous year. When they reached Lee's Ferry on July 13 they were surprised to find John D. Lee and one of



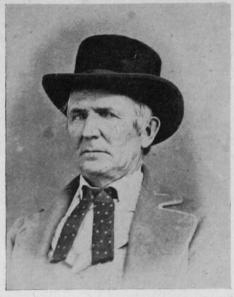


his numerous wives living in a rude log cabin built early that spring. He called the place appropriately "Lonely Dell."

Back in 1857 John D. Lee, with about 75 others, had taken part in the Mountain Meadows massacre, when a party of 145 emigrants had been almost completely exterminated. For 15 years nothing had been done to punish the perpetrators of that crime. But by 1872 the government finally began gathering evidence and hunting for some of the men involved. Lee was advised to leave Utah Territory, so he selected Lonely Dell as his hideout, then one of the most isolated spots in the West.

During the following winter Lee built a two-room stone house, and later another strong stone building known as Lee's Fort. A high hill nearby still is known as Lee's Lookout, although it is doubtful if he used it for that purpose. To this hidden spot Lee moved two of his wives, Rachel and Emma, with their families, leaving 17 others scattered in various parts of Utah. In 1873 a number of other men implicated in the massacre, feeling they might be safer outside Utah, decided to move south to the Little Colorado in Arizona. The only place they could cross the Colorado with wagons was at the mouth of the Paria, where it was determined to locate a ferry. Fifty men were sent to assist Lee in constructing a trail up the cliffs on the left bank.

The original ferry was a heavy barge built of cottonwood logs and operated by sweeps large enough to accommodate one team and wagon. When it was swept away



John D. Lee. From a rare old photograph in the collection of Edna Lee Brimhall.

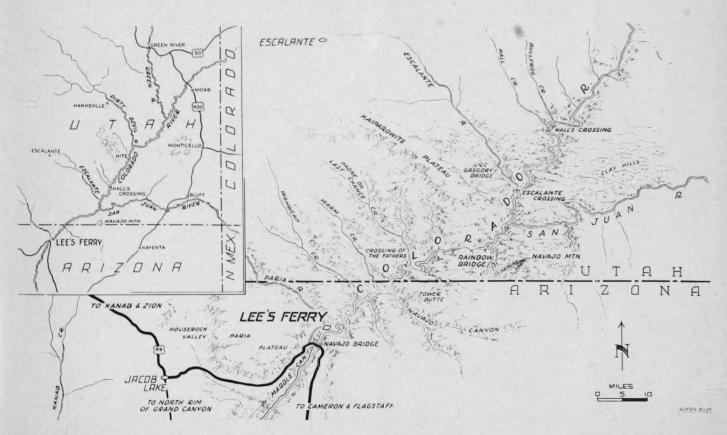
by one of the Colorado's annual floods another was built to accommodate three wagons. It was lost with its cargo in 1876, one man being drowned. A number of other ferry boats suffered the same fate.

When the ferry was in operation Brigham Young ordered a number of families to cross the Colorado and settle in northern Arizona. For several years afterwards each summer saw long lines of Mormon emigrant wagons waiting to cross the river at Lee's Ferry in order to reach Moenkopi, Sunset, Snowflake and many other pioneer settlements on the Little Colorado, Salt and Gila rivers. Although some settlements failed, most of them succeeded and a majority of the early settlers, grandparents of many prominent Arizonans, crossed the Colorado at Lee's Ferry.

Soon after it began operating, a large number of Navajo came to the river and wanted to cross on the new ferry. Lee carried them all without charge in order to keep them friendly if possible. In order to make a profit on this operation, he opened an Indian trading post, said to be the first in Arizona. Jacob Hamblin, sent to the river to prevent the Indians from raiding Mormon herds, also traded with them during one winter while Lee was absent.

In November, 1874, while visiting some of his wives in Panguitch, Utah, John D. Lee was arrested by United States officers. Tried in Beaver, the jury disagreed and he was released on bail, returning to the ferry. At his second trial he was convicted and in March, 1877, executed at Mountain Meadows, the only man to suffer punishment for the massacre.

His wife Emma operated the ferry alone for a year or two but was forced to leave when Brigham Young turned it over to the Johnson family, some of whom remained there until recently. In later years it was moved about a mile upstream where an easier out was found on the south bank and where a log ferry house was built. At



this location where the river was narrower, a heavy rope was stretched, making operation of the ferry barge easier and presumably safer.

When Frank Beckwith met us there in 1932 he brought with him Mrs. Chris Gronning, a woman past 60 years of age. Her family had crossed on the old ferry in 1879. "The river was extremely high when we reached here," Mrs. Gronning told us, "and we had to wait a week for it to go down. Father took sick, our cattle ran off, and we had a pretty tough time of it. Although I was only eight years old, I had to drive one of the ox teams while mother drove the other. I was scared to death when we got the wagons on the old ferry boat, expecting to be drowned every minute, but we got across safely. That was 53 years ago, but the place looks just about like it did then."

Two or three years before construction was started on Navajo bridge, the old ferry cable broke while the barge was in midstream. Swept down by high flood waters the loaded craft overturned, was smashed on the rocks below and several persons drowned. The cable never was replaced and no ferry has operated there since.

Navajo, Lee's Ferry or Marble Canyon bridge, as it is variously called, was finished in 1929. It spans the head of Marble canyon seven miles downstream from the old ferry, on U. S. highway 89. At the service station just north of the bridge a dim rough road leads to the site of old Lee's Ferry, but few travelers know about it and few ever visit the historic spot.



"We dug out of the sand all that remains of Major Powell's old river boat abandoned at Lee's Ferry in 1871."

Although some of the old buildings have been destroyed, Lee's original oneroom log cabin fortunately has been preserved. Behind it stands his old blacksmith shop, where horses were shod and
emigrant wagons repaired, with giant
leather bellows still in working order. The
old dugway up the cliff at the original
crossing is still visible although partly
washed away, while at the top are remains
of emigrant wagons abandoned there many
years ago.

On their arrival at Lee's Ferry in 1938, the Julius F. Stone expedition, of which I was a guest, were entertained royally by the Weaver family, who recently had acquired the old Lee ranch. Sitting by the fireplace that evening Leo Weaver asked Mr. Stone if he knew anything about an old river boat called the *Nellie Powell*.

"Certainly," replied Mr. Stone, who despite his 83 years has a remarkable memory. "That was the boat abandoned here in 1871 by Powell's second expedition. Why do you ask?"

"Because," Weaver said, "I found that old boat half buried in the sand when we took over this place."

"Do you mean to say the old Nellie Powell is still here?" Dr. Frazier shouted.

"Yes, Doctor, it's lying in a patch of willows not over a hundred yards from where we sit."

"Come on, boys, let's go!" shouted Frank Swain, our head boatman, as he started for the door.

Although it was nearly midnight we all grabbed flashlights and rushed outside. Weaver took us to the spot he remembered, but seemed to have difficulty in finding what he sought. Scratching in the sand I finally unearthed a bit of wood, but it was burned on the edges. Then Dr. Frazier turned up a piece, also charred. Further search revealed more fragments. Then Weaver recalled that a man working on the place had set fire to the clump of willows in which the old boat had rested and everything above ground had been burned. But he remembered seeing the name Nellie Powell painted on the bows when he first found it.

In the morning we made a more careful search and finally dug up a section about three feet long and two feet wide. It was made of cedar, reinforced by many small oak ribs, all held together with handmade square copper nails. Each of us took a small bit of wood, but the larger piece was sent by Weaver to the Grand Canyon museum where it now rests with other relics of the Powell expeditions.

For several years a water gauging station has been maintained at Lee's Ferry. But it is a lonely spot and hotter in summer than the well known hinges, for which reasons water gaugers soon ask for a transfer. The assistant gauger, however, seems to be a permanent fixture. Frank Dodge, famous river boatman and champion swimmer, loves the great river and hopes to spend the rest of his days on its banks. Something of a hermit, Frank loves solitude.

Anyone with a genuine interest in the river and its history will find it worth while to drive the seven miles from U. S. 89 to old Lee's Ferry and listen to Frank's stories of fighting the rapids in Grand Canyon. They're tall tales—but he has photographs to prove them.

Lee's Fort. Built with thick stone walls, high small windows and loopholes, it provided a strong defense against attack. Photo by Julius F. Stone, 1909.



The Souths have come home. After a year of wandering in the deserts of Utah, Nevada, Arizona and California, they have returned to Yaquitepec—that home atop Ghost Mountain, looking east across the Colorado desert to the craggy ranges of Arizona. Through the anxious months of searching for an ideal home site, they knew that somewhere it existed. It did. On the very mountain top from which they had set out upon their quest.

Desert Refuge

By MARSHAL SOUTH

CROSS the dim trail, between a bristling cholla and a bunch of withered mescal stalks, stretched a slender cable of gleaming silver. From its center swung a tiny bell of white silk—a fairy bell swaying gently in the faint stirring of the desert air. A good omen. There in the silence and the warm glow of the late afternoon sunshine it seemed to be ringing a glad welcome. Carefully we turned from the path and stepped around it to avoid injuring the work of the little desert spider whose home it was.

A hush held all the desert. On the horizon the mountains rose up warm and glowing like the rim of a golden bowl—a golden bowl filled with a wine of silence spiced with the fragrance of creosotes and junipers and sage. The whole world was so still one walked as in a dream. We did not speak. No one—not even the irrepressible Victoria—wanted to break that hushed peace. The click and clatter of occasional stones rolling from beneath our feet sounded startlingly loud.

The trail wound up the mountainside, cresting ridges and doubling back across tiny plateaus. Soon we were clambering among frowning boulders—clambering and panting, for we had grown out of practice with steep trails. An inquisitive chipmunk eyed us from a rock top as we rested a moment. Then with a saucy flirt of his tail scuttled for safety. There were junipers here, and bisnagas and the bristling bayonets of rank on rank of guarding mescals. We went on more slowly. For we knew we were drawing near to something.

"I see the roof!" Rudyard shouted all at once. "Look, daddy! The roof an' the chimney an'—"

"—An' the 'ittle bird house!" Victoria shrilled in a sudden wild excitement that periled her perch upon my shoulder. "The 'ittle bird house in the twee. It's still there!"

"Yes," Rider said. "That's the roof. And the bird house." He drew a deep, quick breath. "Yaquitepec," he said softly. He darted away, ostensibly to see if his special cistern had any water in it. Rider's feelings are deep and sensitive. But he likes to hide them.

And so, through the junipers and the tall swaying mescal stalks, on that warm, still desert afternoon, we came HOME. Home to Yaquitepec—and to the end of our long trail of wandering and of search. The quest was over. The dream place had been found. Nor does it lessen the satisfaction that we found our ideal on the very spot from which we had set out. Rather it adds to the importance of the search and to the solid joy of the final discovery.

It was not a noisy or exuberant homecoming. The hearts of



This is Yaquitepec, the South home on Ghost Mountain, to which they have returned after a year of wandering.

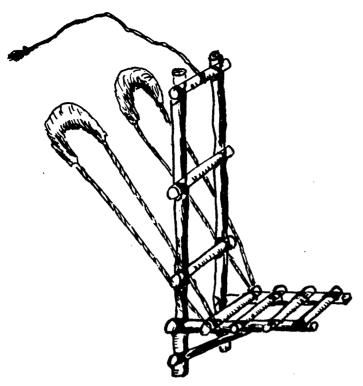
all of us were too full for demonstration. For a long while we did not enter the house. We just sat under the ramada and rested. And drank in the far vast blue-distance of the desert extending east from the foot of the mountain, far below. Everything was still. Hushed and peaceful and sunny. Even the faint stirring of a drowsy breeze along the edge of the western cliff seemed immeasurably far away. And in the midst of the deep, solemn peace the little house, hemmed by its toylike junipers and clutter of giant boulders seemed to hold out invisible welcoming arms to us.

It might have been but yesterday that we had gone. So little had changed. As we began to move about, treading on tip-toe as though reluctant to break the hush, it almost seemed that our whole wandering trail of the past months had been a dream. With a sort of wonder we picked up familiar objects, resting still where we had laid them down on the last day of our going. Save that there were weathered patterns beneath them and faint outlines where the drifting days and infrequent storms had traced their imprints, we might have placed them there just a few minutes before.

There had been visitors to the little house in our absence. But they had been kindly visitors and desert friends. They had disturbed little. Some of the old toys that had been scattered beneath the ramada were ranged in ordered ranks which plainly told that some of the visitors to the little house had been children. And along the edge of the terrace someone had arranged some of our colored rock specimens in a way that bespoke not only artistic appreciation but also loving interest. Several panes of glass had been shattered in one of the front windows. But that evidently had been a prank of the wind.

We went inside after awhile. The front door, which someone had managed to unfasten, was held shut by a prop and several rocks. This loving service, together with the securing of the unfastened front window and the barricading of a loose rear shutter, had been the work of the artist, Thomas Crocker, at the time when he had climbed Ghost Mountain to transfer Yaquitepec to canvas. On the table lay a wide thin piece of clean white board, evidently part of the side of an apple box. It had been headed, in pencil, "Great Register" and upon it several Yaquitepec visitors had inscribed their names. To this improvised visitors' book Mr. Crocker also had added a few lines of friendly appeal to subsequent callers to keep doors and windows securely fastened.

We had expected to find rats' nests and a wild litter of cholla scraps and mescal pods which these industrious little rascals generally haul in to empty houses. But even the rats seemed to have realized that we eventually would return. There was no trace of their activities. On the shelves where we had left them.



Marshal South sketched the carrying chair, or pack board, which he made from mescal stalks and fiber to carry supplies up the steep trail to Yaquitepec. Note padded shoulder ropes and top hand-hold rope.

a few trinkets still stood in orderly array. A couple of pictures hung on the walls. Silence and a thin filming of desert dust.

The house contained but one native tenant . . . a big, philosophic "Tittums 'pider" (Victoria's rendering of Tarantula spider) who sat beside the fireplace regarding our intrusion with a stoical indifference which wasn't in the slightest ruffled when we carefully herded it into an old can and carried it out to a place of safety among the rocks.

Tanya began to open windows and dust tables and chairs—a multitude of little preliminary tasks towards the job of reestablishment. With the beginning of such first tasks something of the unreality vanished. We began to realize that we actually were home once more. With full hearts and a happiness greater than anything we had known since the day of our leaving we all turned to the big job ahead of us.

And it was a big job. Every pound of our personal posssesions, which we so laboriously had carried down Ghost Mountain when we had gone away, had to be re-carried up the trail. That was going to be a strenuous job. But it was not particularly this task which gave us concern. Our chief anxiety was the old question of water. That was vital. Hastily we took stock of the situation.

It turned out to be considerably better than we had anticipated. The carefully corked five gallon bottle which, from sheer force of desert habit, we had left in the house on our departure, had not been molested. And the regular inside water barrel still contained about 10 gallons of pure liquid. We went out to inspect the cisterns.

Evidently a heavy thundershower had passed across Ghost Mountain about a week or ten days previous to our homecoming. Evidences of the brief downpour were visible in cut channels in the gravel and in the mud stains in now dry catch holes. Also the overflow pool, to which the roof guttering had been con-

nected, was still about a quarter full of water. It wasn't good water because the open cemented pool had become cluttered up with trash during our absence. Still it was water.

Our main drinking water cistern was dry, except for a slime-crusted puddle in which a defunct centipede reposed peacefully amidst a litter of other "animalitos." Another smaller cistern likewise was bone dry. The same was true of a couple of other containers. But to our great joy a carefully covered tank still retained, bug-free and pure, the 60 gallons or so of water which we had left in it. This store, with the water in the house, gave us a head start on the water question of about 75 gallons. We suddenly felt our chief worry evaporate.

There still was much to be done. On that first trip up the mountain we had been unable to bring much in the way of supplies. So Rider and I hurried down the long descent to the car and trailer. Here we hastily collected a few blankets and essentials and started up the mountain again, taking note, on the way up, of several stout mescal stalks which, on the morrow, could be pressed into service for the making of a "carrying-chair."

Dusk was closing in by the time we returned. Tanya had the lantern lit and a sketchy camp supper on the table—to which we did more than justice. Weary and gloriously happy we all turned in to drowse contentedly towards slumber, lulled by the song of the old, well-remembered desert wind, harping across the cliff edge and the roof-top.

"Towards" slumber, I said. For suddenly, in the still night, there was a crash. Bamm! Wham! Clatter-te-clatter-te-clomp! Bam! Slam! Tanya sat up with a startled jerk. Rudyard said "Ouff?" in a scared, inquiring voice. From the depths of her covers Victoria snuffled and yawned: "That is onwy thee owd pack wat. He comed home to his house on thee woof," she observed sleepily. Of course. Temporarily we had forgotten the old pack rat who has his dwelling up in a little pocket under an overhanging roof-eave.

Next day, having fashioned a pack chair from mescal poles and fiber, we settled to the job of carrying in real earnest. A big job. It isn't finished yet. But there is joy in the labor. When you have swung around the circle, and finally proved that your heart lies in the location you started from, the satisfaction of the knowledge far outweighs any physical toil.

For, in summing up, there is for us but one Yaquitepec. No other place, no other scene, in all the desert empire we have traversed, can compete with it. We saw solitudes and beauty. We found wells and waterholes. We gladdened our hearts beside the silver trickles of springs, singing their cool song beneath the glowing lift of desert cliffs. But we found no peace and no contentment like the peace and tranquillity that wraps around the little home that perches on our bald mountain summit. Yaquitepec!

The granite crest shoulders back the driving winds. The ravens wing above it and the savage chollas crouch in the spaces between the tumbled rocks. It is barren and sun scorched and storm harried. And there is no water. But—it is HOME.

CONTENTMENT

Who knows content? Not the exceeding rich.
Nor yet the prosperous. Nor e'en the poor—
For it is never worldly substance which
Brings sweet content to grow within our core.
Contentment is a spiritual thing,
Nurtured by mental viewpoint and by goal;
The outcrop of imaginings that bring
An understanding peace to heart and soul.
—Tanya South.



Carlsbad Caverns

Photo courtesy New Mexico Tourist Bureau One of the beautiful new caves in Carlsbad Caverns national park, New Mexico, still not open to the public. Thirty-two miles of connecting underground chambers have been explored; well-lighted trails lead through seven miles of the limestone fairyland of stalagmites and stalactites.



Toli, adored by governors, senators, actors, painters. Milner portrait.

ELL me a story of our people, Grandfather," little Squaw-poose begged the grandfather. He looked at the child snuggled against him. With a baby's blessed gift of acceptance, she was at home and an Indian.

Dusk had settled down on the pueblo of Laguna, sprawled on its grey rocky hill-side beside the San Jose river in northern New Mexico. Against the crimson sunset the tower of the ancient mission loomed stern and uncompromising, a bulwark against too much moderness. Laguna was the last settled of the Keresan pueblos, dating back to 1697. There are perhaps 200 dwellers in the town but three thriving villages composed of Laguna farmers and herders lie within a radius of 20 miles. Paguate, seven miles away, is the largest of these, and it was there that the grand-

father of Toli tilled his fields and kept his sheep.

The old man began his story in the soft Laguna tongue, but seeing only blankness on Squawpoose's face he turned to stumbling English that she might understand.

"Our people first came from a land in the north, where all Indians lived in a great underground chamber. Mother of all was Beautiful Corn, and when a great power created the earth, the moon, the stars, and all things alive, there was still something missing, the sun! Beautiful Corn stood on a high hill and said, 'There must be light,' and the Great Power created the sun. But he left it floating around loose in the sky, plaything of each wind that blew. Beautiful Corn, being a tidy person, decided it must be anchored, it must be placed where it would do the most

From birth until her fifth year. Toli Sombrero (Shining Face Big-Hat), Laguna Indian baby, was a member of the White Mountain Smith household in Petrified Forest national monument. Arizona. and Grand Teton national park, Wyoming. Hundreds of famous people knew and loved little "Squawpoose" as she called herself. (She explained gravely that "squaw" meant Indian woman, and "poose" Indian baby, and that she was an Indian woman baby!) Wallace Beery, Ann Rutherford, Leo Carrillo, Chief Thundercloud (Tonto of Lone Ranger fame), were her devoted friends. Jessica Dragonette and Lily Pons sang gay baby songs to her. Governors, senators, painters, photographers adoringly pictured her in her gay scarlet dress and cowboy boots. While Toli lived with her white friends, her young mother spent the years in nurses training at Sage Memorial hospital, Ganado, Arizona. The time came when Squawpoose had to return to her own people in the ancient Indian pueblo of Laguna, New Mexico.

Toli Goes Back to Laguna

By MARGARET STONE

good with its light and warmth. And, like all women, she wanted it to hang where it would be the most becoming to the earth.

"Well, she had it rise in the north, but it didn't look well there. South was just as unpleasing, and for awhile she thought she would leave it stuck on top of one of the nearby mountains in the west. But when it glowed at midday it threw too much light and heat down against a big rock where she liked to sit and rest.

"Beautiful Corn angrily snatched it from the western sky and tossed it out of sight over the rim of the earth in the east. Tired of all this sun-moving she stretched herself against Mother Earth and fell into a deep sleep. When she opened her eyes the first timid rays of the sun were falling on her, from where it peeked meekly over the earth's edge.

"'Come on up where all can see you, Sun,' cried Beautiful Corn, 'but when we are weary of your light and heat, sink back out of sight until we are rested.' And that is why the sun comes up in the east and goes out of sight in the west at night. It never has learned how to turn around in the sky and just has to keep traveling all night long to be back in the east when Beautiful Corn wants to see it again."

Every day, every hour in the Indian village was an adventure to little Squaw-poose. She followed her grandfather into the fields where he cleaned the tumble-weeds and silt from the irrigation ditches, as he explained gravely to her that unless water could reach the roots of the corn and wheat and peppers he planned to plant, they could not grow and produce food. It no food grew all the Indians would be hungry.

What crops the Laguna Indians raise in their small irrigated fields are hardly earned. They have some wheat and corn, pumpkins and beans and melons which they store for their winter's food. Laguna Indians are typically desert people, pro-

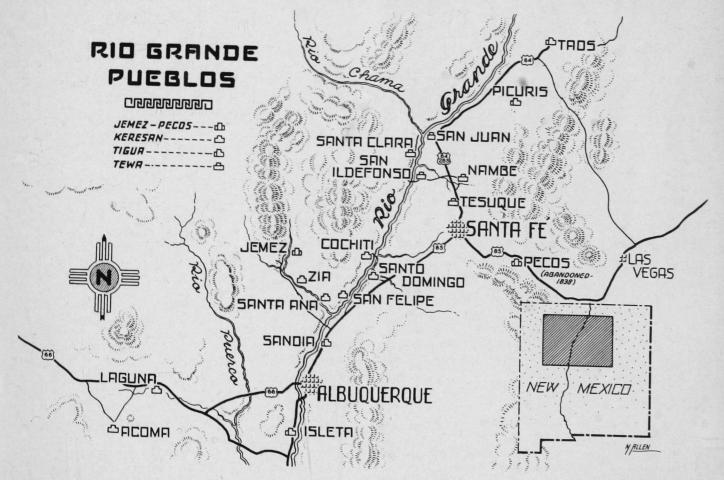


Pueblo Laguna sprawls on the grey rocky north bank of San Jose river, 45 miles west of Albuquerque, New Mexico. Department of Interior photo.

duced by living for generations where living is a full-time job. They have hard enduring bodies, made so by the tough coarse food they must eat and by the demands of a harsh environment. They never have quite enough food to satisfy their hunger, never the necessary clothes, never sufficient heat in winter nor shade in summer.

But they are honest, hard working and uncomplaining.

What real money comes into their possession is through the chili peppers they raise and truck to far-off towns and from the pottery the women make and sell to tourists traveling along U. S. highway 66, which passes through their pueblo. When





Laguna pottery is beautiful in design, but fragile due to poor quality of clay in the region. U.S. Indian Service photo.

the crops are harvested many of the men go to the machine shops of the Santa Fe railroad even as far away as Needles, California.

Laguna pottery is attractive and interesting but quite fragile. The clay in this section of the country is too sandy, and although their design and color are fine, Laguna women never have learned how to fire pottery properly. Small two-headed bird ash trays and little baskets with twisted handles, black and red on white background, are the chief items they offer for sale. The older women and children have erected stone and brush shelters along U. S. highway 66, and day after day they patiently offer poor pottery and bright flashing smiles to passing tourists.

In the fall when the peppers are harvested they are strung on heavy cord and hung to dry. These strings cover the sunny sides of every grey adobe in the pueblo—and there is no more colorful a sight. Artists travel from remote places to paint them, and miles of colored films are squandered on the peppery landscape by movie fans. They pay dearly for the privilege of taking such pictures, as the Lagunas are not famous for their "Welcome"

on the doormat. They know too much about the extremely poor manners of curious tourists to encourage them.

Back some hundreds of years ago the Spanish soldiers and priests came to live in their midst and the Lagunas have found that hospitality to other races does not pay! At that time, according to legend and to records left by the Spanish, there was a large body of water in the valley held there by a landslide which had blocked the canyon through which the river flowed. When Toli begged for another story while Grandfather rested on the low stone step before his door, listening to the homey sounds of the village, he told her about this water and about the sacred serpent that had lived in it.

Almost all the Southwest Indians have a legend of a winged serpent in one form or another. The story of the Laguna sea serpent is to be found in government reports.

"Once, long ago," Grandfather began, "plenty of water lived in our valley. That was when the Spanish priests and soldiers came to this land looking for gold and wealth. One winter the soldiers from across the great water lived in the houses

of our people here in Laguna. They are the ones who told us to call the pueblo 'Laguna'. They said in their language it meant 'lake' or place in the ground where water collects and stays.

"This water stayed happily with us, held from going on down the valley by a big bank of earth and rocks down where the canyon is narrow. It was the lifeblood of our people. Our fields were always full of growing corn and beans and pumpkins, and in the wintertime we were never hungry because we had all the storerooms full of what we had saved from summertime. The Spaniards gave us sheep and they never went far away to graze because grass was everywhere.

"Our fathers tell us stories of a great sea serpent that lived in the lake, but we treated him kindly and he caused no trouble. If now and then a lamb drinking at the edge of the water disappeared, nothing was said about it because after all the sea serpent could just as well have taken one of our children when they waded and played in the water.

"We watered our fields from the lake and it was a fruitful land. Too fruitful for our own good I guess because a tribe living not far away had no beautiful lake with a kindly sea serpent, and they were unable to bear with fortitude the good fortune of the Laguna people. One stormy night there was no moon, and even the stars hid away among the clouds. The envious Indians came and tore away the high dike at the end of the valley where the lake lay imprisoned. The life-giving water rushed madly down the canyon and was lost forever.

"Our old people say the wind wailed and whipped the loose desert sand around trying to stop the water from leaving, but all they could do was in vain. The sand only covered the tracks of the wicked Indians so that in the morning we could not see which way they went. And even now, when there is no moon and the wind calls sadly along the houses in the terraced village the older men say they can hear the despairing cries of our friendly sea serpent as he was swept away from us in the darkness."

Little Squawpoose listened that night, as she lay snug and warm in her blankets, for the sound of the sea serpent. She was ready to hide her smooth black head under the covers, but the next thing she knew it was morning and Grandfather told her she could go across the sandy hills to the farming village of Paguate.

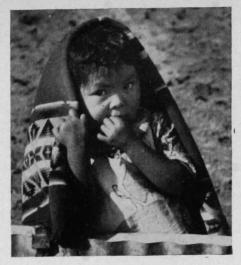
That day they looked over the flocks of sheep, and the little girl played with the mischievous lambs bounding around the warm desert. When they went home to eat the hot stew and crusty bread baked in an outside oven by Grandmother, a small motherless black lamb went along in the wagon to be the joy of the little girl's heart—and the despair of the neat house-keeping Grandmother.

Now and then the small Indian girl would feel a little homesick for her foster people and then she would try to tell her grandfather about living close to snowcrowned mountains, and going out in boats on deep blue lakes where bears came to the edge of the water and ate huckleberries from the bushes. Of the great sulky moose that used to stand outside the door of the big log house where she lived, and kept her from playing in her swing hung on the limb of a huge pine tree. And she would remember the proud doe that brought her twin babies to look in at the window while Squawpoose and Bill of the household ate their breakfast. Or maybe she'd talk about the pet antelope always begging bread from the kitchen door. She asked if Grandfather knew her friend Wallace Beery or Tonto of the Lone Ranger stories? But Grandfather, wise in the way of homesick children, would take her into the fields with him and she'd be happy again.

She liked to go to the meadow where the grass grew tall and sweet and watch the men cut it with scythes so that it lay in smooth windrows and cured in the sun. In this field it was that her Uncle Felipe almost stopped being alive! He came there one hot day with Grandfather to help cut and rake the hay. But a sudden thunderstorm broke and Felipe was sent to seek shelter under the wagon until the rain would stop.

There was a blinding flash, and when the smoke cleared away one of the horses tied close to the wagon was killed by lightning and the little boy lay senseless with his small face turned up heedless of the beating rain. Grandfather did not forget the laws of his tribe. He longed to snatch the small body in his arms and try to bring back a spark of life into this, his only son. But he stood some distance away, his tears mingling with the falling rain and waited for the medicine man to come and clear away the wicked spirit of the storm. Otherwise it might follow the little lad into the world where he seemed to have gone, and harm him again there.

Minutes dragged by while the village was searched for the medicine man. Friends and neighbors gathered in the rain and gazed sadly at the boy, and many of them wailed softly, adding their grief to that of the mother. The father stood alone and never took his eyes from his child. All at once a small arm moved and then a sound reached the crowd, "Father, I am cold." There was no more waiting for



Squaw poose, when she was 3½ years old.

anything. The stunned boy, brought out of his coma by the cool driving rain in the face, was carried in triumph to the village, and even today he is the object of awe from his very old grandmother who knows he is something sacred.

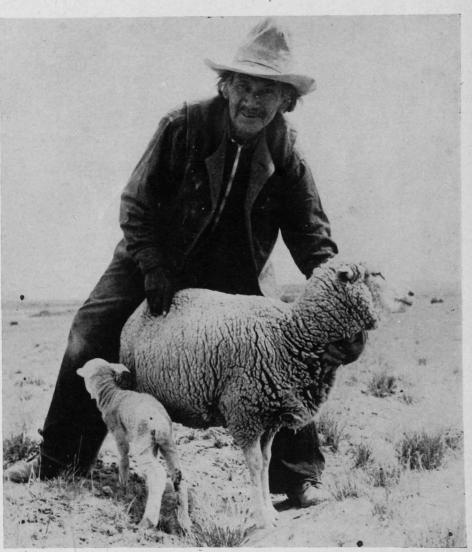
The low whitewashed ceiling of Grand-mother's kitchen was always fascinating to the little girl. Here among the strings of peppers were hung bunches of dried sweet corn, the husks stripped back from the kernels and tied together. Now and then an ear would be taken down, the husk chopped off and the ear put to soak overnight. The next time little Squawpoose saw it the corn was part of a rich mutton stew.

Dried pumpkin and dried peaches and apples, strings of green beans dried in the sun and in the wintertime round green melons wrapped in grass and hung in nets added to the food store. When the dry red peppers were being ground to a fine powder in a stone bowl, the little girl always found something to do elsewhere. The pepper got into her nose and made her sneeze, and tears streamed from her eyes.

Every week the Indian women made homeground wheat into loaves to be baked

Toli would go out to the fields where the old man tended the ewes and their lambs.

U. S. Indian Service photo.



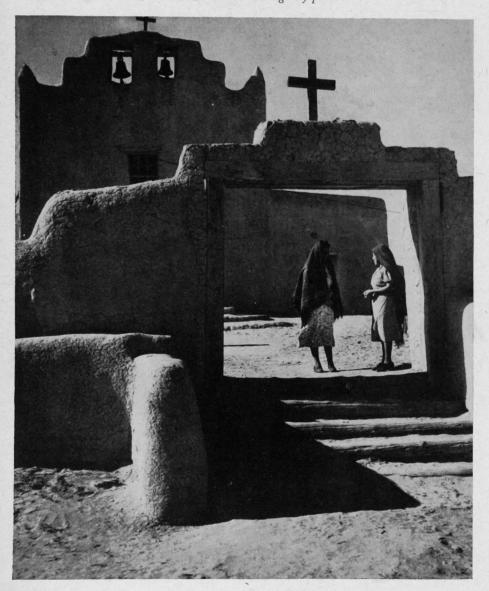
in the outdoor ovens. It was fascinating to see a fire of dry wood built in the little adobe oven shaped like a chocolate drop. A thin stone was placed tightly against the oven door to keep the heat inside. When the fire was burned to coals the ashes were pulled out with a wooden hoe and the floor wiped clean with juniper boughs dipped in water. Right down on the hot floor went the loaves, the stone door shut again, and after awhile when Grandmother saw the sun reach a certain mark on the wall, she opened the door and there was a most delicious smell of hot crusty bread. Sometimes Squawpoose kneaded a special little loaf herself and insisted on Grandfather sharing it with her. The inside of the loaf as not as fine and white as those Grandmother made, but the old man bravely choked it down and told her she was a fine little cook.

Sunday, with prayer-book in hand, the little girl and her grandparents entered the grim old mission, cool and dark and quiet inside. She liked the smell of burning incense and the songs from the choir loft, and it was amusing to turn around and around and look at all the painted angels on the ceiling and the strange hungry-looking saints on cracked canvas backgrounds.

That was nice, but she liked best to go back to the plaza where Indian dancers moved to the thump of a drum and sang songs not taught to them by a white man's church. As they stamped the hard earth and chanted age-old songs to their red gods, imploring them for rain on the parched fields, a chord of memory was stirred in the heart of the child and her own small feet moved in the rhythm of the drums. Toli is Indian!

Little Squawpoose liked the smell of burning incense and the painted angels on the ceiling in the cool darkness of the grim old church—but she was attuned to the rhythm of the drums as her own people chanted age-old songs to their ancient gods.

United Pueblos Indian agency photo.



Sez Hard Rock Shorty of Death Valley By LON GARRISON

"Oh sure—we have cold weather here in Inferno sometimes!" stated Hard Rock Shorty. "Not that today's any sample o' course but I've seen it get just as cold as you can take it!"

Hard Rock looked out over the landscape shimmering with the rising heat waves and shivered a bit thinking of his last blizzard.

"Why, the last time it got real good an' cold here the cold weather saved my life! That's a fact.

"It was 14-15 years ago. The dude business was goin' good over to the Fried Egg Canyon hotel an' I got so interested in the stories about the feather beds an' the fancy-pants waiters that I went over to look. They give me a room up on the fourth floor an' that was nearly fatal.

"Along durin' the night I heard folks a-hollerin' outside an' bangin' an' runnin' around an' when I opened my door to see what the commotion was all about I found out the hotel was on fire! Yes Sir—burnin' right up an' me there in it an' the stairway blocked so I only had a fourth floor window to get out of!

"I went over to the window an' pulled it up an' looked out. That ground was sure a long ways off! They had ladders up gettin' folks out o' the lower rooms but they sure couldn't reach me. I didn't have no rope — the beddin' wasn't long enough to get me down to the ladder an' I was really just about to join Wing 'A' o' the Fried Egg Canyon hotel in the ashes when I noticed how dad-blamed cold it was outside.

"Yup—it'd really got cold quick an' watchin' the water freeze as it come out o' the fire hoses give me the idea that saved my life. I grabbed the water pitcher, run over to the window, poured the water out the window, an' then after I put my pants on, I slid down the icicle!"

LETTERS . . .

Not Enough Facts in Desert . . .

Twentynine Palms, California

Editor Desert Magazine:

I read Desert Magazine because thereby I enlarge my contacts with the desert and obtain information which is otherwise unavailable to me. However, I find too little in it of the FACTS of the desert and too much of the superior white's account of his contact with the desert, with much airy nonsense about his appreciation of its beauties and so-called hardships.

The human element in the desert, especially the white man element, is a comparatively minor part of it, and is greatly overshadowed by its faunae, flora, climate, geology, etc. My interest is in the straight factual articles you do not, as a matter of policy care to publish. I have to wade through much extraneous matter to get at the facts which are thinly scattered throughout. Occasionally you do publish a largely factual article despite your announced policy and I suppose that is why I continue my subscription though I sometimes think to let it lapse.

The factual type of article need not be a bone-dry affair. It can and does appeal to many of us (I hope to most of us.) You have published articles by Prof. Laudermilk, Mary Beal and Marshal South which contained much meat to interest the non-specialist general reader. To my mind, a good fact is worth more than columns of esoteric descriptive matter written for the fuzzy thinkers. A travelog of a superior white visiting the world of the simple desert Indian wherein the traveler writes of his personal reactions to his "discoveries" of a very few sketchy facts he thinks he is uncovering, heavily watered with much detail of the minutiae of his trip, is almost not worth the wading through to get at those few facts.

Marshal South's early articles, wherein he describes his experiences in establishing himself and his family on the desert, his accounts of building, pottery making, mescal roasting, experiments with natural desert foods, etc., are more interesting than his later diatribes against the artificialities of conventional civilization.

I realize my particular interests are not necessarily the same as those of all the other subscribers of Desert but I do think my tastes are those of the average moderately educated person who constitute the larger part of your subscription list and who continue to read the magazine year after year because we really are interested in the desert. I do think that if more articles are included containing FACTS of the life and struggles of the real desert dwellers, the animals, the birds, the insects, the plants, the Indians, together with environmental data on the geology, climate, etc., that we readers can supply the drama and appreciation, each to his own ability and need.

You may have some subscribers who enjoy reading the dramatized travel agency accounts of our Southwest Indians but I think most of us would like more Indians and no travelers, more about our chipmunks, kangaroo rats, snakes, cactuses, palms and cloudbursts and less about the ephemeral whites who come in occasional contact with them.

The account of Willy Boy's final adventure was enjoyed by most of us despite the few who complained. We who are adult surely know that most of the early whites were not plaster saints. While I am not advocating a diet of yellow journalism I think Desert should reflect the desert as a whole as it is and not as our pollyannas would like it—all cleaned up with the "stickers" trimmed, the "immoralities" hidden and with wordy bursts of eloquence over the hardy individuals who brave its hardships bolstered with an automobile, vacuum bottles, elaborate camping equipment.

MERRITT W. BOYER







Upper photo shows Mr. Simonson at Hieroglyphic canyon, Utah, as it was in 1920. Middle, same petroglyphs today disfigured by vandals. Lower, another group of petroglyphs in same canyon, showing work of "chiseler clan."

Utahn Scores Destruction of Indian Art . . .

Green River, Utah

Editor Desert Magazine:

My first visit to Hieroglyphic canyon, in southeastern Utah, on the Green river was about the year 1920. At that time the many petroglyphs were free from the obnoxious work of vandals. It is obvious from one of the pictures that those responsible for the mutilation, cared little for the work of our early Indians.

In spite of the laws which carry stiff penalties for tampering with such antiquities the destruction continues unabated, not only in this canyon but in others. I have also seen pictographs that were ruined by those who have painted their names over the pictures or who have bombarded this ancient work with a six gun or rifles.

To stop the devastators from this outrage is not an easy matter. It will require the cooperation of every individual who appreciates and wants to see the work of our Indians remain on the walls of the canyons.

JOHN P. SIMONSON

Desert Tops With Pioneer . . .

Dear Sir:

Buckeye, Arizona

Enclosed find money order for D. M. for one year. We have been reading it for three years but miss it sometimes at the stand.

We think it is tops, as we have lived on the desert for 40 years and appreciate it very much.

A. R. PHILLIPS

About Cactus "Wool" Crop

Brookline, Massachusetts

Dear Mr. Henderson:

Enclosed is a sample fiber from a cactus in Rose Park greenhouse in Hartford, Connecticut. It feels like wool. Through hybridization could not a cactus produce a vegetable wool? I've heard of wool plants in Hawaii found in volcanoes.

MRS. EDNA CLAIRE DAVIS

Dear Mrs. Davis—We asked artist-mineralogist-cactophile John Hilton about possibilities of producing cactus-wool commercially, and below is his answer.—L. H.

Thermal, California

Dear Miss Harris:

Species of Cephalocereus from Mexico and Orocereus from South America do produce (hair) which is soft and tough and has been used by primitive tribes for weaving, as have the fibers themselves after the flesh has been cleaned away. The skeletons of many of the tropical cereus species are used today for manufacturing small tools, brushes and even the roofs of houses. Only drawback to commercialization is relatively small range of the plants and fact that it would take from 20 to 100 years

to produce additional plants large enough to harvest. Interesting as the hairy and wooly cacti are I think I shall just keep mine for decoration and get someone to shear the wool off a sheep, which will live most anywhere and grow much faster.

JOHN W. HILTON

No Hope for Cactus Wool

St. Louis, Missouri

Dear Miss Harris:

Several thrifty-minded persons have suggested the use of cactus hair as a possible economic product, but in my estimation there is no possibility of it ever being put to commercial use. All the hairy cacti are rather slow growers and have to be many years old before reaching appreciative size. Then too the amount of hair or wool produced on an individual is negligibly small.

LADISLAUS CUTAK, Missouri Botanical Garden

Coast Guard Made Homesick

U. S. Coast Guard Cape Blanco, Sixes, Oregon

Dear Sirs:

The U. S. O. brought a number of magazines to our unit last week for the boys to read. Among them was a copy of your March, 1941, issue of the Desert Magazine. I'm a native Californian as well as a desert lover, and I think your magazine is tops.

The only trouble is that it causes me to get a bit homesick. I used to love to travel over the desert and take pictures—the photography in your magazine is excellent.

LAWRENCE E. MORRIS, Sea. 1c

The Final Chapter . . .

- The people of Imperial Valley will soon write the final chapter in a thrilling story of progress that has been twenty-five years in the making.
- For a quarter of a century they have fought to secure the future of this fertile valley—to insure the vital water supply—to guarantee the economic future by full development of the great natural resource of power on the All American canal.
- Water they now have in abundance thanks to the All American canal and Boulder dam —danger of flood or drouth is past—soon the story will be completed as full development of the power resource is assured and payment of the canal debt by power sales become possible.
- By purchase of the competing power system —by elimination of this costly competition by securing a market for double their present sales—the program will be completed and the final chapter written in this saga of progress.



The Roadrunner

By Carrita Lauderbaugh Pacific Palisades, California

Does anyone know where the roadrunner's gone Who used to sit on my fence, His Halloween noise-maker call sounding out, So raucous, cheerful, intense?

If anyone hears that he's fighting the war Or working in our defense, Please tell him for me to fight firmly and long, But come, come back to my fence!

POETRY OF THE DESERT

By Marie Zetterberg Jelliffe Claremont, California

Poetry of earth within the desert lives Through bright-hued clouds against a sea-blue sky.

Its cadence fills the hearts of many flowers.

Its rhythm thrills the birds that upward fly
Toward golden suns and moons; the sifting
sands

Bejewel themselves in glints of passing light. Their meter flows along the curving strands. The mountains raise their gold-lit heads in song. The lonely plains, the silent waiting trails Re-echo verse, and melodies prolong. All Nature's scroll unrolls the musicales Of stars that sing in chorus to the night. Each measure in creative glory swells Where God the Master of all beauty dwells.

VIEWPOINT

By LANORA RUSSELL WHARTON Long Beach, California Together, side by side they rode the bus, Each watching desert landscape gliding back.

To one, the road stretched velvety and black, A ribbon, through the sagebrush and the flowers,

Exciting wonder at each bend and curve. The mountain hues gave testimony mute, Inviting introspection of the soul . . . A tuneful lure that sang and filled her heart.

The other chewed her gum, then restless, spoke: "My Gawd! This desert sand sure gets my goat!"

DESERT GLAMOUR

By KATHARINE BUOY Portland, Oregon

Back to the desert my spirit is flying, Over high mountains of pine-crested green, Over white glaciers on lofty peaks lying, Over wild spaces where storm winds are sighing,

Over low valleys where rain elves are crying, Crossing all barricades lying between;

Over barbed cacti in sandy wastes growing Under the desert sun, fervidly glowing, Warming the winds from mountain-tops blow-

Over the chollas' illusory sheen.

Purple or lavender colors the shading, Changing through hours until daylight is fading,

Bringing out stars in a matchless parading, Waving bright torches on midnight's blue screen.

Back to the desert I find so enchanting, Silences leaving my spirit serene. Shadows now lengthen as day is levanting Over the mountains where shining rays' slanting Hushes my breath and my heart's restless panting,

Conscious of entities here, though unseen!



-Photo by V. Stanley-Jones, Garnet, California.

GRAND CANYON

By Frances Hopkins Newark, New Jersey Here in the first Golden solitude, God left one sunset And a desert dawn Held in stone-cut color, Unfading and eternal As beauty and wisdom, Fresh as wonder, Primitive as song.

DESERT NIGHT

By Melissa Dickson Riverside, California

There is a majesty to space—
This endless, boundless, soundless place.
There is a dignity of star,
Untouchable and so far,
Among this infinite expanse.
I pause to ask my soul, Perchance
Can I alone and in the dark
Make just one mark, one faint small mark?

CREED OF THE DESERT

By JUNE LEMERT PAXTON Yucca Valley, California

The desert broods over troubled times, And waits for a change that will be; It waits for the day of the new-born age— The age to set souls free.

MOIAVE FUEHRER

By S/SGT. MARCUS Z. LYTLE San Diego, California Disordered lines of cloud are smashed; The conqueror breaks forth, Leading a blitzkrieg of the sky Out of the stark hot north.

His war-song echoes through the hills, He looses fierce white fire Of parching sun upon the town, The trees bow to his ire.

His marching cloak flames through the air, Metallic, desert blue; Unchecked, his panzers swirl the dust Down every avenue.

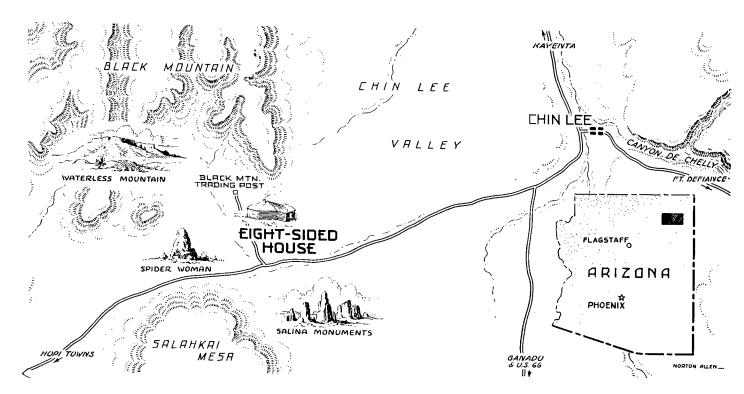
As once Attila conquered France And Timur stalked through Sind, This fuehrer overruns our land— Mojave desert wind!

MAGNITUDE

By LELA M. WILHITE
El Centro, California
No land can hold a dread emptiness
Whose solitude is a mute caress
That calmly lies in the evening's haze
To the far horizon revealed in a sunset blaze.

Beyond the wind-etched grey, blown sand, As if they were a benediction to the serrate land, Are signals reared, as hope would rise, The gaunt mountains towering to the skies,

Westward, above the capricious mould Across the desert, with its floor of tawny gold. All the earth of empty space can hold no more Of fullfilled dreams than the desert's store.



Desert Garden in Navajo Land

"All that trouble for a bunch of hosh—and Heart-twisters at that!" was the scornful exclamation of the Navajo Indians who watched Mister Cactus, as they called Sidney Armer, collect native cactus and shrubs to add to his garden. But as they helped him find rare plants about the mesas and canyons of Black Mountain country in northeastern Arizona, a new interest was added to their lives. Soon they were participating as enthusiastically as city Victory Gardeners—and now they know it does make a difference whether a clump of cactus grows here or there in the desert.

By SIDNEY ARMER

N THE northeastern corner of Arizona, 6,000 feet above the level of the sea, the flat-topped ridges of the Black Mountains enclose a vast stretch of desert wilderness. It is a bleak area of sandstone wastes, with a scattering of small pine trees and wind-bent junipers. Navajo horsemen ride among broken hills and gullies. Navajo flocks pour in grey rivulets over the crests of barren ridges. A bleak area—and the last place in the world one might choose for the making of a garden. Yet that is the setting we chose for our garden of native shrubs and plants.

We had built our house at Black Mountain Trading post because Laura, my wife, knew that a mine of riches lay beneath the forbidding exterior of that area. She had found the desert her chief source of inspiration for her books. Here too she fraternized with medicine men and made copies of their ceremonial sandpaintings.

As a dwelling place a Navajo hogan is romantic but it is apt to leak. If we were destined to live where domestic comfort

was unknown, Laura proposed to introduce at least a bit of it. At her order, Navajo wagons began to haul logs and rock from remote mountains. In due time an eight-sided house was built. Facing the east, it stood on a rise of ground 100 yards from Black Mountain Trading post in the circle made by the road which approached the post from the east and wound out again so the trucks did not need to turn. It was a hogan enhanced by the requirements of soft civilization. The Navajo looked at it in solemn admiration and murmured, "Nezhoni hogan" (Beautiful house).



Waterless Mountain . . . in a vast stretch of desert wilderness . . .

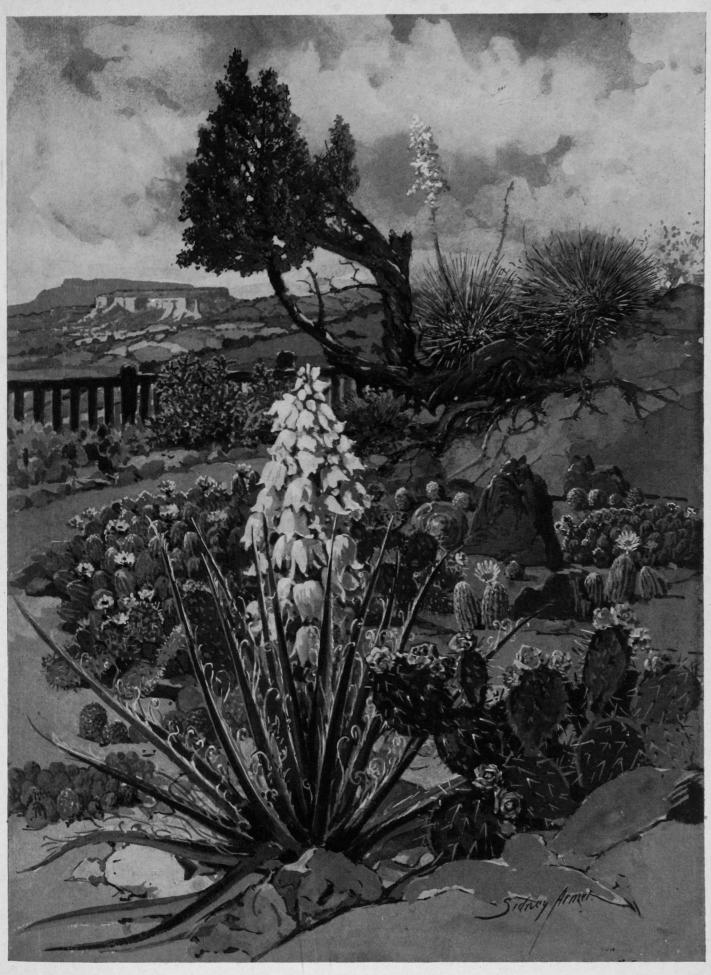
The high altitude and drought condition limited our garden to the plants native to our own district, but we scented adventure in experiment. Whereas Navajo prayers for rain might bring no results, we proposed to see what could be done by causing dishwater to do double duty.

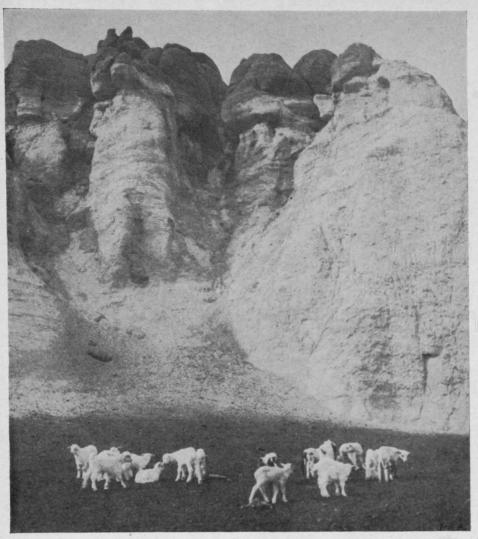
Our first trophy was the Heart-twister cactus, Echinocereus coccineus. Bah-tso, a Navajo boy, helped us collect it. We started out with a shovel and a large square of canvas, having first arranged with Charlie-Many-Goats who was going down the valley with a wagon after mutton to pick us up on the homeward trip.

Bah-tso's store of English was limited to the words, "Over there." I happened to know the Navajo word for cactus—"Hosh." With this equipment we started out, nor did we waste any time with irrelevant conversation. The boy led me for a mile or two up the sandy wash, then by signs indicated that we must make for the mesa top. A stiff climb brought us up on the flat. Bah-tso, with a sweeping gesture gave me to understand that our quest was ended, that here were the cactus plants, and he was ready for instructions.

I looked about. There were indeed many clumps of opuntias, both the flat and the cylindrical species, but no Hearttwisters were there. Fortunately, I had heard the old legend which tells of the

Right—Sidney Armer painted a corner of his native desert garden.





Tuhle said, "How could there be any flowers where the sheep eat everything."

Navajos' experience with the Hearttwister cactus. I made a movement as it pulling a hair from my head, another as if I were placing it upon a cactus clump. Bah-tso beamed his understanding and proudly voiced his entire stock of English. "Over there," he said. And over there we went.

The Navajo say that many years ago there was famine in the land and the tribe had to subsist on the meager fruits of desert growth. The yellow-green fruits of the Heart-twister attracted them. Its delicious fragrance was reassuring, but alas, deceptive. For a brief moment their hunger was stayed but a violent twisting of the heart followed the eating of the fruit. Then one, wise in the lore of living things, gave counsel. "Pluck a hair from the head," he said, "and offer it in sacrifice, praying to the Hosh that it does not twist the heart."

Bah-tso shared my delight in the great mound of plants which he had discovered. Mine was the joy of the gardenlover who had treasured a single plant and now was in possession of a clustered mass of two to three hundred plants. Sixty-six scarlet flowers spread their velvet petals over the spiny mound. If the cluster had grown outward from the center, it must have thrived for a hundred years.

We made a litter of our canvas, placed

the thorny mass upon it and cautiously made the descent. Later, the wagon came rolling along and took us on board. There was much merriment among the Indians. "All that trouble for a bunch of hosh—and Heart-twisters at that! And why was not a cluster of hosh just as good in one place as another?"

But for all their merriment, a new idea and a new interest had come to our Navajo friends by way of our developing garden. Hardly a day passed without some friendly gesture in form of a gift. Once it would be a cactus brought with difficulty from Canyon de Chelly, 25 miles away. Again it would be a worthless weed, earthed in a tomato can—presented with a bashful kindliness.

Our old friend Moqui-tso, a dignified medicine man, tied his horse to the juniper tree at our gate. He came up to our screened porch where a group of Navajo had gathered, and said, "Hasteen, upon that mesa top are fine flowers."

He pointed to the north with his lips. "I will go with you to that place. I will talk to the flowers in Navajo, so that they

will grow for you.'

Then and there an expedition was organized. Bah-tso would furnish the wagon and horses. His wife Tuhle, who spoke good English arranged that. Then Moquitso remembered that he was to preside at a healing ceremony for which he needed three colors of paint. After all, he would be unable to go with us. He got his paint and left.

Then Tuhle said, pointing to her husband, "This feller says the Indians don't want you up-on-top."

We hardly were surprised at this show of unfriendliness, as we knew Tuhle resented our presence at Black Mountain. Tom Armijo the trader came in just then. We turned the interpreting over to him.



"It was Honogani who told us many Indian stories which account for the picturesque names of desert plants. And it was he who nicknamed me Mister Cactus."

He reported that the boy said nothing about our not being wanted up-on-top. It was as we had suspected. Laura was annoyed at the reception. Tuhle was told she was not to be included in the expedition. She left the group in a huff.

On the appointed morning we looked across the hills and saw Bah-tso's camp stirring. Presently we saw the wagon leave and head toward our house. When it arrived Tuhle was mounted up on the seat. She was smiling and greeted us with happy innocence.

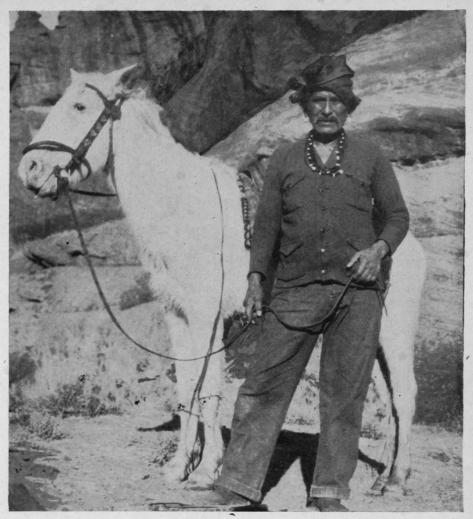
Secretly, Laura and I discussed the primitive mind, observing that each day is a new day to the Indian. We forgave her, but demoted her from the spring seat. We loaded the wagon with pick, shovels, food and canteens of water. Then we were off, rumbling and jolting across the valley.

In a couple of hours we had traveled across the flat and had climbed up to the mesa top. A wide plain lay before us. We asked Tuhle where we were headed. She was a bit more serious now. We sensed a hesitancy in her answer, "Over there. There are flowers over there." Her expression did not show any enthusiasm.

I recalled that Nestsili-hegay, Big Man, lived in this neighborhood. In an hour we were at his camp, where we learned from Tuhle that this was the terminus of our journey. We looked at the barren country—then at Tuhle. We told her that while we were delighted to be at Big Man's camp, we nevertheless were compelled to notice one outstanding fact, namely, that there were no flowers there.

Tuhle hardly could have missed the sarcasm in our tone. She replied with withering scorn, "How could there be any flowers where the sheep eat everything and run all over this country here?"

Her answer was so convincing that for a second we questioned whether we had not been guilty of stupidity. Unable to



"Mister Tall Singer could not whole-heartedly approve the rocks we had brought in to the garden."

fathom the eccentric workings of Tuhle's mind we left her, mistress of the day.

But her victory was only a partial one. High up among the tumbled rocks where knotted junipers clung perilously and where the sheep had been unable to penetrate with their devastation, Laura discovered a thriving colony of Yucca baccata, the broad-leaved yucca. Also some hardy plants of the evening primrose, good specimens of the scarlet penstemon and Gilia aggregata (Hummingbird food).

Later, we discovered why this expedition had terminated at a Navajo camp. Tuhle had brought three beautiful blankets which she had woven. These she had hidden carefully in the wagon and here she was, trading them to Big Man for sheep and lambs. It was a clever stroke to have used the expedition for her own ends while she permitted us to pay for the hire of horses and wagon.

But we refused to let her think she had outwitted us. We exhibited our plants with pride, vowed that 'the outing had turned out better than our expectations, and expressed our pleasure that Tuhle had brought us there. Once embarked on the homeward trip all memory of friction vanished. The best of good nature prevailed. Bah-tso broke into a happy Navajo song, which meant according to Tuhle's translation, "All us cousins are trotting

ound. That evening while setting out the



Tuhle and her man Bah-tso brought a tub of blooming yucca for the garden.

yuccas and other plants, I looked across the flat, in the direction of the monuments of Tse-lani. I caught a glimpse of a truck. Tsosi had arrived with a load of mill-slabs from the government sawmill at Fort Defiance. We were pleased to have the slabs to finish our house of logs, but doubly pleased to have the use of Tsosi's truck. Now we should be able to get a load of rocks for our garden. It was arranged that we take the truck over in the direction of Mesa wash.

We would need a helper. Our choice fell naturally upon Honogani. Naturally, because of his interest in our garden, because it was he who told us many Indian stories which account for the picturesque names of desert plants. He it was who had nicknamed me *Hasteen Hosh*, Mister Cactus.

Tsosi thought that the most beautiful rocks would be found near the Spider Woman, about five miles west of the post. He explained that the Spider Woman was a pile of rocks built up to its present height by the placing of votive offerings of juniper sprays, each held down by a rock placed upon it. Navajo passing the spot halt a moment on their journeys and place the juniper offering with a prayer that their mission might prove fruitful.

Our quest took us to a mesa edge where big squared masses of rock lay each to each, like a pueblo village of square-built houses, lacking only windows and chimney-pots. The rocks were mottled with gorgeous lichens ranging in color from deepest orange to pearly grey, their own greens and reds and golden yellows mingling with the lichens in fantastic patterning.

There was a great amount of broken pottery all about—ancient relics of a people gone since many centuries. There were interesting wild grasses growing between the rocks. I gathered some roots for the garden. "That grass," said Tsosi, "is called 'Afraid of Summer.' In a month it will turn brown even if the rains come. It knows when summer is coming and it gets afraid."

A load of beautiful rocks was piled upon the truck. When after much persuasion the truck drew up at our garden gate, curious Navajo stood about to contemplate and comment on our folly. The Badger Man's son thought the rocks might not after all be a total loss, and he proceeded to explain how we could remove the lichens with boiling water.

There was plenty of volunteer help in placing the rocks in our garden. Little by little curiosity grew into interest, and interest into approval. Two or three of the Navajo drew apart and conversed quietly. Presently one approached and said, "If the Mister and my Mother wish it, we will, after the next sun-up, bring to them a great tree."

On the afternoon of the next day their wagon arrived. They unloaded great



"Our first trophy was a great clump of Heart-twisters."

smooth slabs of petrified wood, vertical sections of a giant tree that in centuries past had turned to stone. It made a capital pavement for our garden walks, a boardwalk indeed, converted into stone.

Our desert garden is flourishing now. In early springtime the yucca bells and the cactus blooms, endless in variety, dispel all thought of drought or of aridity. One of our opuntias (hystricina) is in itself a festival of color. We have gathered many of these plants and the variety of their flowers is a matter of constant surprise. They range from lemon yellow through chrome to apricot and golden brown, from laven-

der-pink to red, approaching crimson. In a single day, one specimen will change from a pale green-yellow in the early morning, to orange in mid-afternoon, then to a brown, approaching chocolate.

There is more than visual beauty in our desert garden, for every plant recalls the kindliness of some Indian friend, or tells the tale of age-old myth which brings the land, the people and the plants into one beautiful unity. We called the fellowship complete upon that day when Tuhle and her man Bah-tso, staggering with the weight of a big dishpan, brought us a mass of cactus pads covered with yellow blooms. Tuhle herself had grown them from seed, expressly for our desert garden. She called them "wide cactus with thorn-rimmed fruit," *Opuntia stenochila*.

Our Navajo friends rest their arms upon our fence of peeled poles and silently regard each plant and lichened rock. They have found that it *does* make a difference whether a cactus clump is growing here or there upon the desert.



"Bah-tso's store of English was limited to the words, 'Over there'—and over there we went."

William Caruthers, in Desert Magazine's personal adventure prize story series, tells about his experience in hunting for the Lost Chinamam mine with Shorty Harris, famed single-blanket prospector of Death Valley country. Shorty had been out of the hospital but a short time — and Caruthers was dubious about heading into the broken waterless Panamint where Shorty was positive he'd find a mine of pure gold . . . But Shorty had "learned a few things from the Pahutes."

Shorty and the Lost Chinaman

By WILLIAM CARUTHERS

ATER, you have heard, is life on the desert. Curiously—even fatefully, I was thinking of it that day as I sat on a slab bench in front of Shorty Harris' crumbling adobe cabin in the ghost town of Ballarat.

Shorty, dean of Death Valley prospectors, was urging a trip we'd planned for three years. He waved toward a long sweep of the Panamint. "I'm telling you it aint been scratched." His voice was vibrant, his blue eyes eager. "If there aint a million dollars waiting up there, I'm not a single-blanket jackass prospector."

I reminded him that he had been out of the hospital less than a month after a major operation, the second in two years, and that the doctor had ordered him to stay out of the hills for at least six months. I had brought him home only the day be-

"Those doctors—" he scoffed . . . "they don't know how tough I am. Why hell—I'm losing a million dollars a day. Think I'm going to sit around here with my feet itching? No sir. I'm going to put another town on the map." He rose, danced a jig to prove his fitness.

Thirty years before, he had walked up a little canyon near Buck springs on the Amargosa desert, knocked a piece of green quartz from a ledge. It was a prospector's dream. Picture rock. One of the most amazing stampedes of the West followed. Towns sprang up. Bullfrog. Rhyolite. Beatty. Gold-mad men jammed the newmade trails across that burning stretch of hell. A railroad came. Shorty was on top of the world. The Big Boys who wanted



Cabin at ghost town of Ballarat where Shorty "holed in."

his claim, feted him, and one "morning after," he woke to find he'd signed away for a song the famous Bullfrog mine—the discovery strike that had turned the barren desert slope into a seething town.

It didn't faze Shorty. He simply followed his burros into the hills again and put Harrisburg on the map, and now in his seventies his one ambition was to start another boom.

The jig finished, Shorty's golden laughter rang out on the desert air. "Don't tell me I'm not fit. Let's get going . . ."

Our purpose was to locate the Lost Chinaman, which ranks with the Lost Breyfogle in the legends of Death Valley mines.

Shorty Harris as guest at a Death Valley picnic held in Wilmington, California. Frashers photo.



Shorty started to tell me more about the Lost Chinaman. I didn't protest, though I'd heard him tell it innumerable times to tourists sitting under the spell of his tall tales.

"I was working at Searles Lake for old man John Searles," Shorty said. "One day I saw a fellow stagger down from the Slate Range and flop on the edge of the lake. I thought he was drunk, but it turned out he was a Chinaman who'd got sore at the boss over at Eagle Borax works and started out afoot. The Pahutes told him to take a short cut over the Panamint, but he lost his way and ran out of water.

"We had him on his feet in a day or so, but he got the idea he was going to croak and wanted to get back to China so he could be buried with his ancestors. Salty Bill, John Searles' teamster, was taking a load of borax to Mojave. So we threw the Chink on the wagon. I tossed his bag up and started away. The Chink called me back, dug into the sack, pulled out a piece of ore and gave it to me. I couldn't believe my eyes. It was dam' nigh pure gold. Maybe 15 pounds. He tried to tell us where he'd found it. 'In the big timber,' he said, 'where a steep canyon pitches down into Death Valley.'

"John Searles and Salty Bill searched five years for that gold. No go."

Then Shorty tapped his breast importantly: "I know." He pointed to the peaks. "See that sawtooth? Over and down. There's your Lost Chinaman. And those doctors telling me to sit around here! Why, migod—with ten million dollars in sight . . . maybe twenty . . ."

I yielded to his ingratiating persistence and agreed to set out next morning.

Shorty of course, knew every trail in the country, but I was not sure that he could stand the arduous climb. I knew nothing of that part of the Panamint, but I'd talked with Fred Gray and learned there were places where we'd have to go on hands and knees and that there was no known water



Shorty's grave, with epitaph written by the author at request of government officials. Frashers photo.

in the district we expected to explore. As I didn't want a cripple on my hands, I did considerable worrying.

Sitting on the bench in the mid-afternoon, I saw a Pahute, whom I'd known over at Shoshone, stop at the well behind the old saloon. I went over.

Now a Pahute knows his desert — its moods, its chary tolerance of life. He knows where the sheep hide and the fat lizards crawl, where the drop of water seeps from the lone hill. I asked him about springs. He knew of none where we were going. "If Pahute lose his way, he look around for animal tracks going same place. Maybe water."

It must have been a blessed urge of fate that led me to question the Pahute. In broken English he went on to tell me what else the Pahute did about water on the desert. If he came to a spring, he would skim the water from the surface, dash it upon a rock and smell it. If there was an odor of onion he knew it contained arsenic, and let it alone. He knew also he would find an Indian sign about and would look for it. One of these would be a broken circle of stones with the opening pointing toward the next water. The distance to that water would be indicated by stones inside the circle. If there were two, for instance, he knew it was two days' journey, because each stone represented one sleep.

If more than one trail led from the water, the one that led to the nearest spring would be indicated by an oblong stone placed conspicuously along the right path. In addition, the kind of water to be expected there would be indicated by the color of a small rock placed on the oblong one. If it were white the water at that next spring would be good. If brown or red or dark, it would be poison.

Frequently there would be other useful

information for the wayfarer. Perhaps picture writing on a boulder. The crude drawing of a lone man indicated that the country about was uninhabited. If, upon the pictured torso there were marks to indicate the breasts of a woman, he knew there was a settlement with squaws, children and food. If he found a feather under a stone with a hole punched through it or notched, he knew that an Indian had been there who had killed his man. Since there was a difference between the moccasins of the tribes, the dust about often would inform him whether the buck who went before was friend or enemy.

The Lost Chinaman? Well, it's still lost. We ran out of water and Shorty, enfeebled from overexertion so shortly after the operation, collapsed. I had to leave him under a bush and set out, terror stricken, for water and help. Trusting to him as guide, I had taken no bearings. I looked out over the gutted range below me, and had a panicky feeling even before I started.

The sun was about three hours high. I ran into one blind canyon after another, only to struggle out with a desperate sense of futility, as I aimlessly headed for lower reaches, confused everywhere by a crisscross of wild burro and sheep trails. The terrific heat, the high altitude took toll of my already depleted strength. The exertion of climbing one precipitous wall, only to tackle another with the agony of thirst always with me, started my lips swelling and my throat tightening. My legs dragged. I could hear the quick thumping of an overtaxed heart and threw my shirt away.

Hopeless, I finally sat down on a boulder to rest, to fight off the constant dread that in a minute I would see a phantom pool of water and start running around in a circle. Below was a diminu-

tive flat valley between almost perpendicular hills. As I glanced in my desperation, at those forbidding walls, I noticed a trail on the floor. Then another—then another. They seemed to converge at the end. What the Pahute had said flashed over me and in frantic haste I let myself down, ran along the nearest one, eyes strained ahead. Suddenly I came upon black ooze and seepage. I started digging with bare hands—saw water rise in the little hollow I'd scooped out. And then things went black. For how long I could only guess.

I heard a stir in the brush, felt a tug at my sleeve, looked. There stood Shorty

Harris.

"How the devil—" I managed to say, "did you get here?"

Shorty looked at me with a sort of tolerant chagrin. "A million dollars... yes—twenty, maybe—and me with a punk on my hands..."

"How did you get here?" I repeated.
"When I came into this country 50
years ago," Shorty said calmly, "I learned
a few things from the Pahutes."

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THE DESETT MAGAZINE

636 State St.

El Centro, California

Mines and Mining..

Phoenix, Arizona . . .

More efficient work and closer cooperation between federal government and Arizona mine workers is the result this year of work done by state department of mineral resources, J. S. Coupal, director, has announced. Department has aided in obtaining development loans, access roads application approval, mineral surveys and has been active in industrial salvage program.

Eureka, Nevada . . .

Allocation of \$100,000 will reopen drilling on Richmond Eureka mines on Ruby Hill. Program includes drilling of five additional holes to depths of 2000 feet or more to establish extent of ore bodies there.

Missoula, Montana . . .

First deposit of quartz crystals known in United States to be acceptable for manufacture of radar equipment reportedly has been discovered on Diamond Point mountain, six miles northwest of Hot Springs, Montana, by James Lozeah and J. L. Waylette. Estimated value is said to be "enormous" since crystals are worth \$10 per pound and were formerly imported from Brazil. Work in the deposit will be supervised by U. S. bureau of mines to insure correct handling of excavations in consideration of the extreme strategic value of the crystals.

Tonopah, Nevada . . .

Reduction plant is being planned by Basic Refractories, Inc., to reduce weight of brucite now being shipped at the rate of 6000 tons per month from Luning. Building will be part of their plans for post-war production.

Washington, D. C. . . .

Uncle Sam is sending out prospectors to search from Alaska to Texas and Maine to California for wartime metals. No gold or silver will be sought in the \$3,900,000 program but only such minerals as zinc, copper, tungsten, vanadium, mercury, tin, iron, and manganese. Harold L. Ickes, secretary of interior, reported that government-subsidized prospectors will hunt for new mines to aid the war effort.

Prescott, Arizona . . .

Nearly 100 small mine operators met with Arizona senator Ernest W. McFarland to draft resolutions opposing present premium price quota system for mineral production. Resolution recommended establishing higher prices to encourage greater production among small mines.

Reno, Nevada . .

Nearly 3000 more miners are working in Nevada's 251 operating mines this year than last. Report issued by Matt Murphy, state inspector of mines, shows that number of employes in all large mines has increased during this fiscal year.

Las Vegas, Nevada . . .

Herbert C. Hoover is reported to be promoter of large capacity chemical process plant which soon may be constructed near Pioche, Nev., for treatment of ore in mines of Combined Metals Reduction company. Mr. Hoover recently visited and inspected the mines, accompanied by L. K. Requa, mining engineer who is named as one of the directors of the new company.

Las Vegas, Nevada . . .

There is growing doubt whether the critical shortage of manpower in non-ferrous metal mines of the West can be met by release of soldiers to work in them. First experiment of that kind failed according to Mining Press, because most of the men were totally inexperienced or physically unfit for the labor. Manpower shortage still is causing considerable lag in war metal production.

Paradise Valley, Nevada . .

Large scale development program is underway at Cahill quicksilver properties, 25 miles southeast of here, and new ore has been discovered at Cordero land near McDermitt. Large crews are busy operating the high-grade cinnabar mines which have not been active for the past year.

Winnemucca, Nevada . . .

Efforts are being made in Washington to close all small mining operations for the duration according to J. S. Coupal who has been requested to make immediate survey of Arizona's small mines. Reasons supporting this plan are that more labor, machinery and supplies would be released for larger concerns.

Independence, California . . .

Persons having information about iron ore deposits were urged to get in touch with representative-elect Clair Engle, at his office, Washington, D. C. Engle, in message to Second District residents, said that funds had been provided by congress to explore deposits and supply technical information needed by prospective steel and mining operators on the west coast. Information, Engle said, will be turned over to special committee empowered to recommend such explorations.

Tonopah, Nevada . . .

Free assays, five in any 30-day period, are being provided prospectors in this state by University of Nevada under new ruling. Designed to increase search for vital war minerals and ores, assays without charge are not given operating mines, engineers sampling mines, or assays to check other assays. Only prospectors are entitled to this service.

Window Rock, Arizona . . .

New helium plant on Indian reservation has been named Navajo Helium plant in recognition of the patriotic spirit and cooperation shown by the natives. Great interest has been evidenced in this project since it is only the second such gas plant in United States, the other being in Amarillo, Texas.

Lovelock, Nevada . . .

John T. Reid, 72, one of Nevada's best known mining men, died September 14. Besides engaging in mining activities which embraced many phases and properties, he was developing a mathematical system based on ancient Mayan Indian system, he was a collector of rare artifacts and books, and was an active friend of Nevada Indians.

Pasadena, California . . .

California Institute of Technology has postponed tuition-free evening mining course enrollment date to October 15. Course conducted by G. A. Schroter, Los Angeles consulting mining engineer, will include development of mines and prospects, ore extraction, milling methods, strategic minerals, mining law and financing. Apply to War Training Office, California Institute of Technology, Pasadena 4.

Tiger, Arizona . . .

Employees of Mammoth-St. Anthony, Ltd., lead and zinc mine here have been granted 40 cents per shift wage increase retroactive to June 11, 1943, by nonferrous metals commission of NWLB. Directive brings base pay to \$6.40 per day.

Holbrook, Arizona . . .

Test well is being drilled 27 miles southwest of here by Union Oil Company of California and Continental Oil company. Site is part of 54,000 acre block of land held jointly by the oil companies. It is in virgin wildcat territory, some 200 miles from any proven oil field. Supervisor is Union Oil company's geologist R. W. Burns.



Trailing Milkweed, showing characteristic habit of twining, its slender stems forming into ropes. Photo by the author.

Meet the Trailing Milkweed

By MARY BEAL

EARLY everyone knows the upstanding common Milkweed but I doubt if everyday folk are familiar with the less conspicuous, trailing species. This does not add a noticeable accent to its surroundings but does vary the monotony of vegetation enough to be worthy of attention.

The Indians, never overlooking possible uses for plants, found the young pods a palatable addition to their diet. But don't let that give you the idea of trying out the edibility of any likely-looking Milkweed you happen to run across, because some species with the most promising appearance are poisonous to livestock and may prove to be injurious to humans.

The genus to which the Trailing Milk-weed belongs is Philibertia, the name honoring the early French botanist Philibert, author of a botanical dictionary published in 1804. Discarding this early classification, some more recent botanists use the name Funastrum, evolved from the star-like flowers and ropes of twisted stems. The genus also was classified formerly as Sarcostemma. Townula sometimes is used as a common name. Philibertia has the characteristic milky juice of the Milkweed family.

Philibertia hirtella sends its slender fibrous stems rambling widely about, each from 2 to 10 feet long, often twining

through and over low shrubs, or just trailing over the ground. I've seen a vigorous Townula in such complete possession of its supporting bush that only the exuberant vine was in evidence. After enveloping one hospitable bush it is prone to trail off across intervening ground toward another promising host. In the course of their rambles several stems often twine together into ropes as you may observe in the picture.

Both stems and leaves are downy with fine soft hairs but the fiber of the stems is tough. Leaf-nodes are quite far apart, the leaves linear and apt to be pointed at both ends, 1 to 3 inches long, on short petioles. The small fragrant flowers grow in umbels on rather long stems springing from the leaf axils. When the pale greenish-yellow corolla spreads out its 5 ovate lobes it forms a perfect 5-pointed star. At flowering time, about April and May, nearly every axil, from beginning to end of the long stem, puts forth a star cluster.

Have you ever observed closely the complex structure of Milkweed blossoms? It's interesting to see how the stamens and style combine to form a column which is attached to a narrow ring at the base of the corolla. Mostly this column bears appendages or hoods above and is further elaborated at the sides, between the anthers, by glands with slits which aid in cross-polli-

nation by catching the feet of visiting insects and scraping off the pollen, as they come and go from one flower to another. The slender tapering pods are spindleshaped and downy with short spreading hairs. This is common along dry washes and draws from low to moderate altitudes in the Colorado desert, central and eastern Mojave desert and Inyo county in California, eastward into western Arizona and southern Nevada.

Philibertia heterophylla (Funastrum heterophylla)

This is similar to the preceding but more of a climber, taking larger shrubs and even small trees in its stride. Its herbage is entirely bald or sparsely hairy and quite green, the stems 3 to 8 feet long, the leaves linear to lanceolate, sometimes with eared lobes at base, 1 to 2 inches long on short petioles. The flowers are 1/3 to 1/2 inch long, about twice the size of the first species, the corollas purplish, with purpleveined lobes. The pods are slightly hairy, about 21/2 to over 3 inches long, widest below the middle. Rather common on dry flats and slopes and along wash-banks from very low elevations up to 2,000 feet in the Colorado desert, south to Lower California and Mexico. Eastward through Arizona and New Mexico to western Texas it sometimes reaches an altitude of 5,000 feet. It may be found in flower from March to September according to its eleva-

Philibertia crispum (Funastrum crispum)

This species is absent from the California deserts but is found in southern Arizona and New Mexico, western Texas and Mexico. It may be identified by its short peduncles and thickish, somewhat broader lanceolate leaves with sagittate or halberdshaped bases, the margins usually wavy. The herbage is ashy-grey with a generous covering of soft hairs but the pods are smooth, varying in length from $3\frac{1}{2}$ to $6\frac{1}{2}$ inches, tapering to a long slender point at apex. It blooms in summer and favors a canyon habitat from 4,000 to 6,000 feet elevation.

Philibertia cynanchoides (Funastrum cynanchoides)

This has about the same range as the last species but at moderate altitudes slightly overlapping the other's higher range. It climbs over shrubs in washes and along stream banks, the blooming season from May to September. The herbage is bald or sparsely hairy. The thin leaves are decidedly broader than those of the other species, from broadly lanceolate to broadly ovate, noticeably heart-shaped or sagittate at base, the apex sharply pointed. The flowers are white, the umbels on rather long peduncles. The pods are finely ridged, usually less than 4 inches long.

.. on the Desert

ARIZONA

Indian's Rights Upheld

PHOENIX - Arizona Indians have won another right as citizens, the right to operate as public carriers, by decision of Justice R. C. Stanford of state supreme court. Refusal of Arizona Corp. Commission to issue Lee A. Bradley, Navajo, contract carrier permits on the sole grounds that he was an Indian was declared unconstitutional by unanimous decision of the

Farm Program Successful . . .

MESA—Farm production program at Gila River war relocation center will require \$1,000,000 worth of food to be produced by Japanese during the next fiscal year for local consumption. Last July's output in pounds was the greatest since establishment of the project, with most production in watermelons which were sold to the

Dust-Proofing Tests Made . . . PHOENIX — Experiments in dustproofing motorized equipment for the army are being staged by General Motors Corp. "somewhere on the Arizona desert." Engineers in Army Ordnance Dept. proving ground say that dust, dirt and mud often are more destructive than enemy fire to equipment, and protection of vehicles, shafts, radiators, electrical instruments and other items is being sought.

Water Rights Denied .

PHOENIX—Salt River Valley Water Users association rejected proposal of Phelps Dodge Corp. to pump water from Black river for use in expansion at Morenci copper plant. Chief objection to this plan was that such encroachment on valley water supply ultimately would destroy the means of livelihood, homes and investments of others dependent on it.

Sight-Seeing By Air .

GRAND CANYON—Navy pilot Lt. Leland T. Johnston has asked civil aeronautics board for permission to operate sight-seeing air service from Grand Can-yon national park, via Rainbow Bridge monument to Canyon de Chelly. He asked also for hourly "elevator" service to bottom of Grand Canyon.

Power Rates Reduced .

YUMA—With arrival of Parker Dam power here, electric power users of Yuma mesa and valley received rate reductions totalling \$92,890. This action was the result of conferences held between Commissioner William Petersen and representatives of local companies. Also new power line hookup to station near army hospital has been completed recently.

Buyer Escapes Death .

KINGMAN — Wallace Woolley, ore buyer, nearly lost his life when his car became stuck in sand some distance from Yuma and he tried to make his way there on foot. After 23 hours of hiking he arrived completely exhausted and felt no better when told he was the first ever to make the trek and come out alive. His car was towed in by two soldiers from a distant bombing range, and he was said to be recovering quickly.

Arizona's eighth annual elk hunting season will open November 1 and end November 30.

Tucson has been selected as 1944 American Legion convention city, meeting to be held sometime between August 10 and 20.

Javelinas, wild pigs or peccary, native to Arizona, range on cactus covered mountains from elevations of 1,000 to 6,000 feet and are more numerous in southern part of state. Principal diet is cactus, from which they are able to obtain sufficient moisture when far from water. Average weight is about 50 pounds.

CALIFORNIA

Chalfant Honored

BISHOP-W. A. Chalfant, editor and author of California books, recently was notified of his election to honorary membership in the International Mark Twain society. Recognition was for his contribution to American history in his new book, "Tales of the Pioneers" and the notification was signed by Cyril Clemens, president of society and relative of Mark Twain.

Water Holes Covered . . . BRAWLEY — Desert travelers are warned not to depend on old waterholes for this winter's fravels since army maneuvers have obliterated many of the trails and excessive rain has covered many of the waterholes, Henry L. Jackson has announced. Already one prospector nearly died from depending upon Hayden's well for water only to discover it was filled up-he had to travel back to the railroad to receive

Date Growers Progress . . .

INDIO—California Date growers association has made outstanding record in low cost crop handling with securing of better prices and wider distribution this year. Despite high expenses and shortage of labor and supplies, marketing methods were improved. Good effects will be felt by entire industry and general public.



A point about our points

Maybe you've found that some railroads serve more meat dishes than Southern Pacific. Well, this is why:

We are allowed .93 of a point per meal per person, to cover meats, and all the rest. If we served only civilians, this would go 'round better. We serve more military meals than any other three railroads combined!

Men who have been going through hard training grinds need meat, and plenty. When they get theirs, our .93 of a point takes quite a beating before we start serving our civilian passengers.

So, when you don't get yours, you know why. The point is, we believe you wouldn't have it any other way.

THE FRIENDLY SOUTHERN PACIFIC

950A

Aged Indian Passes . . .

INDEPENDENCE — ''P a n a m i n t George' Hanson, 103-year-old Pahute Indian, died September 19 in Panamint Valley where he was well-known and respected by old-time residents. Born over a century ago, George saw the struggling Jayhawker Party and other early expeditions into Death Valley and surrounding deserts and mountains of Inyo. See Desert Magazine, Feb. 1940.

Flyers Cheat Death . . .

DEATH VALLEY—Two Army flyers narrowly escaped death from thirst and heat when they crash-landed their trainer plane on Salt Flats. One reached help at Furnace Creek 20 hours later, the other was rescued soon after. Both were taken to emergency hospital and recovered rapidly. They had drunk salt water from brackish pools, their hands were lacerated by attempts to dig for water in the rocky soil.

Bonds Voted for Power Purchase . . .

EL CENTRO—Voters of Imperial Irrigation district approved \$6,000,000 bond issue to purchase the Imperial and Coachella power properties of privately-owned California Electric Power company. Bonds already have been sold to syndicate of 39 members headed by Blyth, Kaiser and Nuveen companies. District Secretary Evan T. Hewes expected complete transfer of properties to take place by October 15.

Champion Alfalfa Grower . .

CALIPATRIA — Imperial county, according to recent census compilation, is first among all U. S. counties in acreage and production of alfalfa. California was first state, with second and third places going to Minnesota and Wisconsin. Imperial county's production was 340,894 tons from 114,164 acres. Yield of two tons per acre was national average; California average was 4.11 tons.

The Desert Trading Post

Classified advertising in this section costs five cents a word, \$1.00 minimum per issue— Actually about 11/2 cents per thousand readers.

MISCELLANEOUS

FOR SALE-12 beautiful perfect prehistoric Indian arrowheads, \$1; 10 tiny perfect translu-cent chalcedony bird arrowheads, \$1; 10 per-fect arrowheads from 10 different states, \$1; perfect stone tomahawk, \$1; 4 perfect spear-heads, \$1; 5 stone net sinkers, \$1; 10 perfect stemmed fish scalers, \$1; 7 stone line sinkers, \$1; 4 perfect agate bird arrows, \$1; 5 perfect flint drills, \$1; 7 perfect flint awls, \$1; 10 beautiful round head stunning arrowheads, \$1; 4 fine perfect flying bird arrowheads, \$1; 4 fine perfect drill-pointed arrowheads, \$1; 4 fine perfect queer shaped arrowheads, \$1; 4 rare perfect double notched above a barbed stem base arrowheads, \$1; 5 perfect double notched above a stemmed base arrowheads, \$1; 12 small perfect knife blades of flint, \$1; rare shaped ceremonial flint, \$1; 3 flint chisels, \$1; 7 quartz crystals from graves, \$1; 10 arrowheads of ten different materials including petrified wood, \$1. All of the above 23 offers for \$20. Locations given on all. 23 ofters for \$20. Locations given on all. 100 good grade assorted arrowheads, \$3.00 prepaid. 100 all perfect translucent chalcedony arrowheads in pinkish, red, creamy white, etc., at \$10.00. 100 very fine mixed arrowheads all perfect showy colors and including many rare shapes and types such as drill pointed, double notched, saw edged, gueer shapes etc. location and name of types queer shapes, etc., location and name of types given, \$25.00 prepaid. List of thousands of other items free. Caddo Trading Post, Glenwood, Arkansas.

FORTUNE: Complete File, unbound \$55.00 postpaid. ESQUIRE: Complete file, unbound \$40.00 postpaid. N. A. Kovach, 712 So. Hoover St., Los Angeles, Calif.

WANTED—One copy federal writers project New Mexico State Guide. Write Box NA, Desert Magazine, El Centro, California.

25 Genuine Indian arrowheads, \$1.00; Tomahawk head, .50. Cat. of Indian relics, crystals and ore specimens. Geo. Holder, Glenwood, Ark.

FOR SALE—Year Round Resort Hotel and Cottages in excellent condition. 2 acres with family fruits. Hot water heat, Oil Burner. City water, finest in America. Completely furnished, kitchen modern. Paved road, right at city limits. Wonderful view of Columbia river and mountains. Old established business and needs younger owner. Plenty business right now. Price \$13,500. Address R. E. & Tom Scott, Hood River, Oregon.

MANUSCRIPTS MARKETED — Books, stories, plays, photoplays, articles. Circular D-11 Free. OTIS ADELBERT KLINE, Literary Agent, Established 1923, 507 Fifth Avenue, New York, 17, New York.

DESERT LAND INVESTMENT—40 acre irrigated farm 7 miles from Yuma, Arizona, in Federal Project. Well located on highway 1 block from church, school and store. Soil well adapted to alfalfa. Ample cheap river water ready for use. Clear title \$2900. A. Ellerman, Box 1537, Yuma, Ariz.

LIVESTOCK

KARAKULS producers of Persian Lamb fur are easy to raise and adapted to the desert which is their native home. For further information write Addis Kelley, 4637 E. 52 Place, Maywood, California.

Karakul Sheep from our Breeding Ranch are especially bred to thrive on the natural feed of the Desert. For information write James Yoakam, Leading Breeder, 1128 No. Hill Ave., Pasadena, California.

REAL ESTATE

Cork Trees Planted . . .

INDIO—U. S. forest service will plant 100,000 cork oak trees this fall to determine best methods of growing such trees in Southern California. Cork is an excellent pasture tree, its acorns making good stock food. Several locations will be planted in Cleveland national forest in Riverside and San Diego counties.

More Vegetables Grown . . .

BLYTHE—Palo Verde valley soon may become one of desert's biggest salad bowls, with an increase of 700 more vegetable-planted acres than last year. Fall plantings of winter vegetables show a total of 2,320 acres of lettuce, carrots, onions, cauliflower and cabbage.

NEVADA

U. N. Head Chosen . . .

RENO — Charles H. Gorman, vice-chairman and comptroller of University of Nevada, has been named acting vice-president to succeed the late Dr. Leon W. Hartman. Gorman will serve until the new president is chosen.

Boulder Fund Paid . . .

CARSON CITY—State general fund was increased by \$300,000 when Treasurer Dan W. Franks received a check from federal treasury for sixth payment of Boulder dam fund. This sum brought account up to May, 1943.

Ship Honors "Borax" . . .

RENO—Liberty ship soon to be launched from Richmond shipyards will bear the name "Borax" Smith in honor of the man famous for the 20-mule team of Death Valley. Smith was the first to develop nonmetallic resources of Death Valley, and later became an important figure in California finance.

State Population Gain . . .

RENO—Influx of war workers in the past three years has boosted civilian population of state by 22 percent, according to census bureau. This is unusual since in that period civilian population for United States dropped from 131,300,000 to 128,200,000, reflecting growth of armed services. Greatest gains were in localities where strategic metals are being mined.

Darker and Richer . . .

WINNEMUCCA—Because of changes in feeding practices of hens, egg yolks darker and vitamin-richer are now on the market according to L. E. Cline of agriculture extension service. Less protein and additional green feed is said to cause darker egg yolks.

Property Value Rises . . .

CARSON CITY—Value of privately owned lands in Nevada during past year rose \$317,460 reports George Allard, state tax commission statistician. As before, Clark county showed greatest increase in value per acre, 20 per cent over 1942 records.

NEW MEXICO

Summer Camp Exciting . . .

ALBUQUERQUE—Summer camp for Espanola Boy Scouts proved highly eventful, as encounters with bears, porcupines and snakes kept things exciting for youthful campers. Also an embryo forest fire started by some careless person was quickly extinguished when the whole camp turned out with tools, buckets and sacks to fight it.

American Research Gift . .

SANTA FE—Dr. Edgar L. Hewett, educator and archeologist, has presented the School of American Research with \$100,000 gift, school officials report. It is comprised of real estate, personal holdings, art collections and library, and will be used to establish the Hewett Foundation.

Ranch Deal Closed . . .

ALBUQUERQUE — Sale of 33,700 acres of Rio Arriba ranch property was made to Alvin McGilvray of Iran, Texas, last month. It included ranch houses, furnishings and equipment and 750 head of cattle.

Huge Bone Found . . .

DEMING—Construction company employes in September unearthed what appeared to be a six-foot leg bone, possibly that of a dinosaur. Bone, found in a gravel pit, will be offered to New Mexico Archaeological society for inspection.

Fan Seeks Indian's Autograph . . .

GALLUP — World-wide CBS short-wave broadcast of Gallup Inter-Tribal Indian ceremonial inspired autograph fan, Lionel Athersych of Leicester, England, to write "His Excellency, the Chief of the Navajo" for his signature. Mr. Athersych stated that he had always been interested in the Navajo and thought the autograph of the chief would provide a valuable souvenir.

Speed Limit Boosted . . .

SANTA FE—State highway commission has increased wartime speed limit to 45 miles an hour, abandoning the 35-mile limit suggested by office of defense transportation. Governor J. J. Dempsey said that the 35-mile limit was uneconomical, difficult to enforce and a hardship on trucks and buses. And it was discovered that motorists were going on an average of 44 miles an hour anyway.

Farm Income Increases . .

GALLUP—Department of Agriculture reports show New Mexico's farm income for first six months of this year is nearly \$10,000,000 higher than last year for the same period. Vegetables marketed at almost twice as much, poultry and eggs 44 per cent higher, dairy products 24 per cent higher and livestock 14 per cent higher.

UTAH

Bumper Beet Crop . . .

LOGAN—Approximately 78,000 tons of sugar beets will be harvested in Cache county this year, predicted D. E. Smith, superintendent of Lewiston factory. Although only about 5700 acres have been planted, tonnage is expected to be nearly the same as last year's because of a bumper crop.

Aircraft Courses Given . . .

OGDEN—Weber college is now offering training in aircraft and engine mechanics to public, officials recently announced. Federal government has provided \$200,000 worth of tools and equipment and \$500,000 worth of airplanes and engines. Over 300 employes of various war plants are taking the supplementary training.

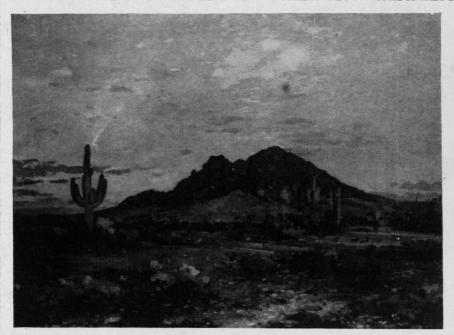
Famed Architect Dies .

SALT LAKE CITY—Funeral services were held in September for Richard K. A. Kletting, noted western architect. The 84-year-old designer was fatally injured in a pedestrian-automobile accident. He had been dean of Utah and western architects and designer of state capitol building and others throughout the West.

A WESTERN THRILL

"Courage," a remarkable oil painting 20x60 feet, the Covered Wagon Train crossing the desert in '68. Over a year in painting. On display (free) at Knott's Berry Place where the Boysenberry was introduced to the world and famous for fried chicken dinners with luscious Boysenberry pie.

You'll want (1) A 4-color picture of this huge painting suitable for framing. (2) A 36-page handsomely illustrated souvenir, pictures and original drawings, of Ghost Town Village and story of this roadside stand which grew to a \$600,000 annual business. (3) Two years subscription (12 numbers) to our illustrated bi-monthly magazine of the West. True tales of the days of gold, achievements of westerners today and courageous thoughts for days to come. Mention this paper and enclose one dollar for all three and get authentic western facts. Postpaid. G HOST TOWN NEWS, BUENA PARK, CALIF.



"SUNLIGHT ON THE MOUNTAIN" . . .

Desert artist Lon Megargee's color lithograph of Camelback Mountain in natural red-gold and smoky azure of Arizona. Each 16x12 print signed by the artist and printed on white mat suitable for framing. A colorful bit of the Southwest for your living room, a beautiful gift for your desert-minded friends. \$3.00 postpaid.

Also available a limited number of Megargee's black-and-white lithographs and block prints of "Conservation," "So What," "Wild Horses," "Mule Colt," "Burros," "Sheepherder," "Hopi," "Siesta." \$5.00 each.

California buyers add 21/2% tax.

Send orders to . . . DESERT CRAFTS SHOP, El Centro, California

DESERT QUIZ There are reports that former Sand Dune Sages have fallen back into the plain Desert Rat classification during the past few months in Desert Quiz class. So

this month we've prepared a simple review lesson designed to help them regain their former dignified status. Nearly all answers to this month's quiz will be found in issues of the past 12 months of Desert. If your score is at least 10, you belong automatically to the Desert Rat fraternity; if 15 or more, sit right down in that seat reserved for Sand Dune Sages. If you score less than 10, better get out the past year's Deserts and brush up on your desert knowledge. Answers on page 35.

- 1-Kaibab bridge, which crosses Colorado river at point between Kaibab Trail and Phantom Ranch, northern Arizona, is which type of bridge-Steelarched...... Suspension...... Cantilever...... Concrete pontoon.......
- 2—Bullfrog mine, near Beatty, Nevada, was so named because—A frog led the discoverers to the site...... Ore was colored like bullfrog...... Frog was considered good luck mascot by the prospectors...... Rock formation nearby resembled bullfrog......
- 3—Taos, Santa Fe, Carlsbad and Bernal have at least one point in common. They are all—Noted art centers...... In same state...... Early cattle towns...... On Santa Fe Trail.....
- -Yucca plant sometimes is called—Soapweed...... Greasewood...... Sandfood...... Sagebrush.....
- -Jet is likely to be found in—Copper mine dumps...... Coal veins...... Quartz veins..... Iron deposits......
- -First white European according to historical record to search for Seven Cities of Cibola was—Coronado...... Marcos de Niza...... Cortez....... Cabeza de Vaca....
- 7—Arizona's famous Camelback mountain is seen from—Flagstaff...... Nogales...... Phoenix...... Tucson......
- 8—Dieguenos is the name of—Pioneer settler in Borrego valley...... Indian tribe...... Geological stratum...... Crude type of brush shelter......
- -Correct spelling of the flame-flowered candlewood plant is—Ocatilla...... Ocotillo...... Ocatillo...... Occatilo...... Ocotilla......
- 10—Amethyst is a violet-colored—Feldspar...... Agate....... Quartz........ Calcite....
- 11-Hualpai Indians of northwestern Arizona are most noted for their-Basketmaking...... Belt-weaving.... Belt-weaving....
- 12—Goldfield, famed Nevada mining center, is coming into prominence today for its production of -Gold Hydro-electric development...... Agriculture......
- 13-Pronuba is the name of-Arizona giant ant...... Moth...... Pink-flowered annual...... Small desert bird......
- 14—Devil's Golf Course is in—White Sands national monument...... Death Valley...... One of the passageways in Carlsbad Caverns...... Along Bonanza Highway in Nevada.....
- -Petroller is name for—An oil driller...... Rock collecting maniac...... Petrified-shell collector...... Road-grading machine......
- -White Shell Woman is—Title of a book...... Navajo mythical character...... Noted pottery maker...... Rock formation......
- 17—"Tales of the Pioneers" was written by—Frank C. Lockwood...... Sharlot Hall...... W. A. Chalfant...... Edmund C. Jaeger......
- 18—Robber's Roost, famous outlaw hideout, is located in—Arizona Strip...... Lincoln county, New Mexico...... Near Colossal Cave, Arizona...... Southeastern Utah.....
- 19—Glory Hole is a name for—Death Valley's lowest point...... Open pit produced by surface mining...... Meteor Crater in Arizona...... Grand Can-
- 20-One of these Hopi pueblos is on First Mesa, northern Arizona-Oraibi...... Walpi..... Shungopovi..... Hotevilla.....

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, AND MARCH 3, 1933
Of The Desert Magazine published monthly at El Centro, California, for October, 1943.

STATE OF CALIFORNIA COUNTY OF IMPERIAL

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Lucile Harris, who, having been duly sworn according to law, deposes and says that she is the associate editor of the Desert Magazine and that the following is, to the best of her knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher, Desert Publishing Co., El Centro,

Editor, Randall Henderson, El Centro, California.

Business Manager, Bess Stacy, El Centro, Cali-

Editor, Randall Henderson, El Centro, California.

Business Manager, Bess Stacy, El Centro, California.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)

Bess Stacy, El Centro, California; Edna B. Clements, Long Beach, California; Lucile Harris, El Centro, California: Randall Henderson, El Centro, California:

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.)

Bank of America, El Centro, California.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. Tha

BESS STACY (My commission expires April 4, 1944.)

On Desert Trails

With EVERETT RUESS

The story and letters of Everett Ruess, young artist-vagabond who disappeared on one of his beloved desert exploration trips

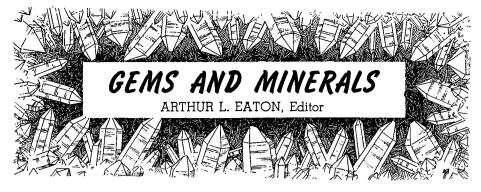
IN BOOK FORM

Includes his desert letters, reprints from his diary and illustrations of Everett's own block prints.

MAILED POSTPAID FOR \$1.50 (Add 4c tax in California)



EL CENTRO, CALIFORNIA



FEDERATION MEMBERS TO AID MINES BUREAU REPORT

C. D. Woodhouse, president of California federation of mineralogical societies sends this message to federation members through September federation bulletin, Mineral notes and news:

"The State of California, through its Bureau of Mines, has asked each member of the California federation to help in the revision of Bulletin 113. Each society will receive this fall a number of cards which members are asked to fill out if they know of new minerals or localities which have not been recorded. This is a service which we all should be proud to do and I suggest to each president of the member societies that this work be made the first order of business at each meeting."

PIMA COUNTY MINE HISTORY AVAILABLE TO PUBLIC

Eldred D. Wilson, geologist for the Arizona bureau of mines, has compiled and published, through the Tucson chamber of commerce, the first condensed history of Pima county mines ever to be made available to interested persons. This history can be obtained from the chamber of commerce by anyone interested enough to write for a copy.

In this pamphlet is a map which shows each of the mining districts in the county and what metals have been discovered in each, with explanations of the chief geographic features of the county. According to the pamphlet, in the years between the time when Pima county first entered the mining game and the year 1940, the county produced more than \$222,000,000 worth of precious and semi-precious metals.

MEXICAN MINING LAWS TRANSLATED TO ENGLISH

Mineral survey of Mexico D. F., Mexico has published an English translation of the mining laws of Mexico, complete to February 28, 1943 Publisher is P. C. Escalante. The book is divided into the following chapters: mining law; regulation of mining law; mining police and safety regulations; mining tax law; sampling and assaying; tariff or fees as payable to mining agents for registrations in public mining register; instructions to applicants for filing of applications for prospect and exploitation concessions.

This is a most useful book for anyone operating or planning to operate in Mexico.

STANNITE

A little known tin ore, sometimes found in the United States, is stannite. This ore has been found in several Southwestern localities, including the El Capitan district in San Diego county, California. The common color is greenish grey, although the addition of pyrite often gives it a brassy color. Luster is metallic and streak blackish. Hardness is four and specific gravity about four and one-half. The brittle massive ore breaks quite unevenly. It is Cu2.FeS.SnS2.

COLORFUL MINERALS

INDIUM

Indium(In), so named because of the indigo color in its spectrum, has been known for 80 years, but only now is coming to the fore as an important mineral in war work. It is used with non-ferrous metals to strengthen and toughen them.

One of the first uses of indium was to prevent tarnishing of table silver. In the course of experimentation it was found that indium not only increased tarnish resistance but it also hardened the silver. At the time, about 20 years ago, none of the metal was produced in this country. William S. Murray was commissioned by Oneida, Ltd., to examine zinc ores in Western smelters and mines for the mineral. He located a zinc mine in the Chloride mining district of northwest Arizona which was rich in indium. This nation's first indium was produced there in 1927.

Indium is soft, malleable, silver white. It feels oily to the touch. Specific gravity 7.4; atomic weight 114.8.

Indium alloy plating on engine bearings enables bombers to increase their loads and to make quicker take-offs because they do not have to be warmed up so long.

MONTANA IS CHAMPION GEM STONE PRODUCER

Montana led the entire country for the year 1942 in production of gem stones, with the states of Nevada, Oregon, Wyoming and California placing with smaller values. Montana sapphires, mostly destined for industrial uses, made up 31 percent of the entire value, while turquoise made up 21 percent, and the quartz family minerals 20.

B. F. Couch reports that the Smith mine of Beowawe, Nevada, was the largest single producer of turquoise, with 13,033 pounds, a total value of \$32,000, while other Nevada turquoise miners produced only 350 pounds with a total value of about \$4,000.

JEWELRY INDUSTRY HAS GONE TO WAR

The jewelry industry has been converted to war work. Silverware plants are making munitions. Some jewelry firms are making quartz plates for radio work, and some watch factories are turning out jewels for instruments.

By discouraging jewelry manufacture the government attempts to divert to war bonds money normally spent on jewelry; also to discourage exportation of easily converted wealth, and to prevent critical materials and skilled labor from producing unessential merchandise.

Bureau of mines, department of interior, reports that production of gem stones in U. S. was 40 percent less in 1942 than in 1941.

WHAT DOES THAT NAME MEAN ...

Cobalt—from German kobold—a goblin or demon.

Platinum—from Spanish platina—diminutive of plata, silver.

Helium—from Greek helios sun, because first discovered on sun.

Chlorine—from Greek chloros, green. Bromine—from Greek bromos, stench.

One unexpected development of the war is the employment of many Navajo Indians to work on the railroad right of ways of Southern California. Some of these Indians are expert silver workers, jewelry makers and weavers. The increased pay has drawn them away from their jewelry work on the reservations in northern New Mexico and Arizona, but it has not decreased their love of turquoise and the attractive rings, pins and necklaces made from it. They are not working at their trade now, but they are taking the opportunity to acquire cut and uncut turquoise for use on their return to their reservation.

CHRISTMAS GIFTS

In order to assist you in making your selection, we are offering the following suggestions from our comprehensive stock:

HEARTS AND PENDANTS

These are all double cabochon cut and highly polished on two sides. Yellow Gold or Sterling Silver bails are attached to best blend in with the character of the gem material. In size they vary from 11/4 in. to 13/8 in.

BROOCHES AND CHARMS

Yellow Gold Filled neck chains \$1.25. 10 Kt. Gold \$6.00, Sterling Silver at 35c and 50c. These chains are sold only with the hearts, pendants and charms.

APPROPRIATE GIFTS FOR THOSE IN THE SERVICE OF OUR COUNTRY

Our suggestion would be either books or a yearly magazine subscription, listed in our 1943 Jubilee Catalogue.

MINERALIGHT QUARTZ TUBE LAMPS

For best results in the home, laboratory, or for prospecting. Fully described in a 12-page circular. Write for your FREE copy today. In offering fluorescent minerals, we can supply first quality material with strong fluorescent or phosphorescent effects.

SPECIAL CHRISTMAS GIFT OFFER Two Large Sized Polished Oregon Agate Nodules (\$2.00 value)\$1.00

Our 1943 JUBILEE CATALOG contains 100 pages of information you will find of value. In order to distribute this catalog to those most interested, we are asking you to send us 15c IN STAMPS.

WARNER & GRIEGER

405 Ninita Parkway PASADENA 4, CALIFORNIA Our Phone Number is SYcamore 6-6423

HERE'S HOW TO . . .

Obtain the specific gravity of small irregularly shaped specimens of non-soluble ores or rocks. Take a small glass graduate, graded in centimeters and large enough to hold the specimen. Place enough water in the graduate to cover the rock. Note the amount carefully. Then place the rock in the graduate and note the exact increase in the amount of water. Next, weigh the rock carefully in grams. Divide the number of grams weight out of water by the difference in the amount of water in the graduate without the stone and with the stone. This gives a fairly accurate estimate of the specific gravity.

ICELAND SPAR WARTIME VALUE ABOVE GOLD

William Hamilton, a miner of iceland spar and beryl, claims that in war time iceland spar is much more valuable and more easily saleable than most types of gold ore. Hamilton is a brother-in-law of the cowboy picture star Bill Jones. The clear, rhombohedral crystals are doubly refractive. They are used in many optical instruments because of this quality. When placed on a sheet of paper over a single straight line, two lines are seen. These crystals are used in spectroscopes, refractometers, and it is believed that they also are used in bombsights for the purpose of picking out the target to be attacked.

AMONG THE ROCK HUNTERS

Ann Pipkin was general chairman of Searles Lake hobby show, held October 16-17 at Trona unified school. Exhibits were entered in various classes such as art, needlework, motion picture photography, minerals and miscellany.

Chanite is the name given to a new alloy said to be suitable for making cutting tools, according to American iron and steel institute. It will release cobalt, tungsten and other hard metals for more important war needs. The composition of chanite is to remain secret until after the end of the war.

Imperial Valley gem and mineral society resumed its meetings October 2. Member Arthur L. Eaton spoke on his trip into Mexico and studies of the new Mexican volcano El Paricutín.

Jack Ryan, research department of American potash and chemical corporation, talked on the Flin Flon, Manitoba, Canada, area at September 15 meeting of Searles Lake gem and mineral society. Flin Flon district produces gold and copper.

GEM MART ADVERTISING RATE 5c a Word — Minimum \$1.00

Swisher Rocks and Minerals, also Corals, Shells. Statues, etc. We also buy mineral species and woods. Must be good. Swishers, 5254 So. Broadway, Los Angeles 37, Calif.

20 mixed fossils for a dollar bill. 100 ancient Indian arrowheads \$3.00. 10 tiny bird arrowheads \$1.00. List Free. Lear Howell, Glenwood, Ark.

\$2.50 brings you prepaid six rare and beautiful crystallized Arizona minerals. Vanadinite, Dioptase, Wulfenite, Willemite, Chrysocolla, Azurite. Specimens 1½x2 or larger. Wiener Mineral Co., Box 509, Tucson, Arizona.

INDIAN RELICS, Curios, Coins, Minerals, Books, Old Buttons, Old Glass, Old West Photos, Weapons, Catalog 5c. Lemley Antique Store, Osborne, Kansas.

Minerals, Fossils, Gems, Stamps, Coins, Pistols, Glass, Bills, Indian Relics, Bead Work. Catalogue 5c. Las Cruces Curio Store, Las Cruces, New Mexico.

Montana Moss Agates in the rough for gem cutting \$1.00 per lb. plus postage. ELLIOTT'S GEM SHOP. Petrified Picture Wood and Moss Agate Jewelry Hand Made in Sterling Silver Mountings—Rings, Bracelets, Necklaces, Brooches, Tie Slides, etc. Mail orders filled anywhere in U.S.A. 25 Jergins Arcade, Long Beach, Calif.

PLUME AGATE—Rough pieces for gem cutting \$1.00 up postpaid. Bishop's Agate Shop, North Bonneville, Wash.

CABOCHON CUTTERS with our unnamed mixture of good cutting material sawed ready to shape cut and polish you can finish several fine stones. 25 cents for two ounces and with money back guarantee. Gaskill, 400 North Muscatel, San Gabriel, Calif.

HERE ARE BIG BARGAINS . . .

Rare Crystals of all kinds, \$1.50 and up. Montana Sapphires, cutting quality, 60c a carat. Sawed California Geodes, 25c and 50c each. Send for my Gem List, 10c, cost returned on first order. Specimens can be returned if not satisfactory. The Desert Rats Nest, 2667 E. Colorado, E. Pasadena, Calif.

ANTIQUE JEWELRY — Lockets, brooches. chains, rings, etc. 12 assorted, \$3.00. B. Lowe, Box 311, St. Louis, Mo.

AGATES, Jaspers, Opalized and Agatized woods, Thunder eggs, polka dot and other specimens. Three pound assortment \$1.50 postpaid. Glass floats, price list on request. Jay Ransom, 1753 Mentone Ave., Pasadena, Calif.

ZIRCONS—OPALS—CAMEOS—3 Genuine diamond cut Zircons (total 2½ carat) \$2.75. Twelve Genuine Opals \$1.50. Twelve Genuine Cameos \$2.50. B. Lowe, Box 311, St. Louis, Mo.

100 JEWELRY STONES removed from rings, etc., assorted \$2.00. B. Lowe, Box 311, St. Louis, Mo.

ROCK COLLECTORS ATTENTION—GET ACQUAINTED OFFER—Send two dollars war stamps or coin, for five showy specimens of Rainbow Rock, Tourmaline, Chalcanthite, Limonite Pseudomorphs, Iron Pyrite, Inclusion QTZ. XL., Fluorite, Beryl, Hematite XLS., Martite, Pecos Diamond, Quartzoid, Neptunite, Topaz. Iceland Spar. All 15 for \$5.00. The Rockologist Chuckawalla Slim, 627 E. Garvey Blvd., Garvey, Calif.

WANTED—16 in. diamond saw and lap wheel with or without motors. Write Box FS. Desert Magazine, El Centro, Calif.

Sequoia mineral society met September 1 at Reedley city park. Reedley members furnished the program.

Northwest federation of mineralogical societies, Tenino, Washington, has purchased \$93.50 worth of war bonds.

E. T. Hodge, Oregon state college, Corvallis, Oregon, has issued a 75-page bulletin on the geology of north central Oregon.

Utah reports large deposits of alunite in Piute county. Much of the vein material is pure white, while surrounding areas are of lower grade. Alunite yields alumina for the manufacture of aluminum, potassium sulphate and sulphuric acid.

Kenneth Garner, for several years secretary of California federation of mineralogical societies, has been promoted to radio technical inspector. He is located at Romulus, Michigan.

Dr. John Montanus was host of West Coast mineral society at September 14 meeting. Dr. Montanus displayed over 70 compartment boxes filled with specimens.

Mineral notes and news has begun a series of articles on the fossil woods of California. The first article, by George F. Beck, Central Washington college of education, Ellensburg, Washington, deals with the Calistoga petrified forest, north of San Francisco.

Reports continue about extensive scheelite tungsten deposits in Lower California. Rich ore has been found in many locations in the northern district of the peninsula. Some of it already is being shipped to points in United States for refining.

Santa Rosalia district, south of Ensenada, Lower California, produces some fine turquoise. An old mine, after being idle for several years, once more is in production, although not yet on a large scale.

Sulphide ores, smelted at Garfield and Tooele, Utah, yield large quantities of arsenic oxide, which is collected by the Cotrell process from flue dust. Arsenic compounds are used in insecticides.

Potassium salts are being recovered commercially from salt deposits southwest of Great Salt Lake. These salts are used with phosphates and ammonium sulphate in manufacture of commercial fertilizers.

Chemical engineer Adrian Nagelvoort estimates that sufficient fossil resins can be recovered from the coals of Utah to meet the needs of United States for a century. These resins are used in varnishes.

Utah claims a natural monopoly on Gilsonite, a solid asphalt used in acid proof paints, insulating materials, plastics and mastics.

D. Tucker of mineralogical society of southern Nevada reports that war conditions have made it necessary to separate the club into three groups, meeting in Las Vegas, Boulder City, and Basic townsite. Las Vegas kept up meetings until July, when they were discontinued because of intense heat. Meetings were resumed September 13. Short field trips, which have proved profitable this past year, will be enjoyed as soon as weather permits.

Julia Ellen Rogers was speaker at September 10 meeting of Long Beach mineral society, held at the Nine Hole clubhouse.

THE DESERT MAGAZINE

Dr. D. H. Clark spoke on past field trips at September 12 meeting of Orange Belt mineralo-gical society, held in Pinetum, Sylvan park, Redlands. He also discussed iron, stressing lode-

Orange Belt mineralogical society discussed quartz minerals at October 7 meeting, held in science building, San Bernardino junior college.

Chuck Jordan and Rocky Moore have dissolved partnership and now Chuck is conducting the rock business on his own at 201-202 Broadway Arcade, Los Angeles. He is ably assisted by his niece Violet Crowther. Chuck introduced Utah wonderwood to Desert readers through a name contest. This interesting wood is as yet unidentified. Some specimens show beautiful carnelian replacements.

Texas mineral society, Dallas, has changed meeting date to second Tuesday of each month. President Thos. D. Copeland has appointed Prof. Lynch program chairman and Mr. Jarvis membership chairman. Anyone interested is invited to attend meetings held at Baker hotel.

Searles Lake gem and mineral society held a pot luck dinner at home of Mr. and Mrs. Harry L. Jewel on Bonewits ranch near Inyokern, September 26.

TALC HAS IMPORTANT ROLE IN POTTERY MAKING

Pottery is coming to the fore as a substitute for metal cooking utensils. Baking dishes, skillets and top of the stove kettles are available to take the place of scarce iron or aluminum ves-

Students in the ceramics department of USC have been experimenting for the past two years with various clays. They have found that 10 or 15 percent talc, combined with a potassium carbonate clay, gives most satisfactory results. Talc does not expand or contract when exposed to heat, is inert to most corrosive agents, and serves as a catalyst during the firing process.

DESERT QUIZ ANSWERS

Questions on page 32

1-Suspension type bridge.

2-Discoverers Shorty Harris and Ed Cross thought the greenish-blue ore resembled color of bullfrog.

-All are in New Mexico.

- -Yucca is called soapweed, or amole, and is used by Indians for soap especially in ceremonial rites.
- Jet is associated with coal deposits.
- -Marcos de Niza.

Phoenix.

- -Indian tribe of Yuman origin, inhabitants of western Colorado desert and Warners Ranch area, San Diego county
- 9-Ocotillo. Not an "a" in the whole word.
- -Ouartz.
- 11—Basket-making.
- 12-Cinnabar, ore of mercury.
- -Moth which brings about pollination of yucca plant.
 Death Valley.
- 15-Rock collecting maniac. See DM, February, 1943.
- 16-Navajo mythical character.
- -Most recent book by W. A. Chalfant, winning for him membership in International Mark Twain society.
- Southeastern Utah.
- -Open pit produced by surfacing mining.

20-Walpi.

Cogitations

Of a Rockhound By LOUISE EATON

Standin' night watch in a observation post is sort uv like spendin' the night campin' on th' desert on a field trip. Yu can watch th' big dipper's revolution 'n hear night noises—after radios 'n auto-mobiles goes to bed. Yure alone with yur thots 'r problems, surrounded by limitless space, 'n inspired by heaven's star pattern. But if yu spots a star movin' steadily acrost th' sky it's time to stop dreamin' 'n call army Flash—cause that kind uv starz is airplanes.

Sum rockhouns seems to find good rox jus' by Instink. Like horses locates water in a dry country. These lucky peepul seems to know xactly where to dig f'r geodes 'r whitch hill to clime f'r good agate. They can be drivin' along ('r could be before we got this Duration) 'n suddenly spot a place where there's Speciments, when to th' fella without a rockhoun's instink th' flat looks jus' like all th' rest of th' malapai roundabout.

H. A. Trexler from S. M. U., spoke on agates and their localities at Sepember 3 meeting of Texas mineral society. Roy Yeager, Bell telephone company of Dallas, showed his facet cutting and polishing equipment at October 12 meeting.

Professor D. Jerome Fisher and Alfred Chi-dester have been sent by U. S. geological sur-vey into the Hemet-San Jacinto district to prospect for beryllium (glucinum) and tantalum to be used in the war effort. Small deposits of both minerals were located. These metals are used

Most visitors to Queretaro, state of Queretaro, Mexico, come away with the impression that the crude ore for the beautiful Mexican opals which have been polished and sold there for many years is actually a product of the mountains in the vicinity of that city. This is not quite the truth, at least in recent years. The Indians who cut and polish the ore usually go by train to the smaller town of San Juan del Rio. about 30 miles south of the city on the railroad, and from thence to the opal mines. The ore is purchased from the mines, brought back to Queretaro, polished and sold there.

ZINCITE

Zincite is not only a colorful mineral but one rich in zinc, as it generally carries more than 80 percent of that valuable metal. It seldom crys talizes, but is nevertheless very attractive, as its foliations usually appear in rich red colors, or orange yellow, due to the presence of small quantities of manganese oxide. It is a soft brittle ore, with almost adamantine luster. It occurs, mixed with franklinite and willemite, at Franklin Furnace, New Jersey. Its most attractive form is when brilliant red lamellar masses are mixed with massive pink calcite. If a large piece can be secured, try it under the ultra-violet or black lamp. This test will guarantee it a place with the very choicest specimens.

Production of gem stones in the United States during 1942 dropped almost 40 percent from the high point of 1941, according to reports of the bureau of mines. Uncut stones, used in jewelry and related industries, were estimated to have a value of about \$150,000. When cut and polished, they were worth about \$400,000. The same industries, in 1941 purchased \$240,-000 worth of uncut stones, which had a value of \$750,000 in the finished state.

CUTTING SPECIALS...

This month we are featuring a selection from our stock of nodules. Certain types of them may be increasingly hard to get in the near future, as some localities, notably that of Lead Pipe Springs, are now in Military zones.

- 1. Oregon Agate Nodules—We will select you nice ones from the Priday ranch of Central Oregon at 30c per lb.
- 2. Geode-Nodules Chocolate Mtns. of Calif.—Some of these are crystal filled geodes, while some are completely filled with agate. 30c per lb.
- 3. Blue Agate Nodules -These are one of the most beautiful of the many nodule forms. These are usually blue with white banding.
- 4. Assortment of one each of above in good cutting size, \$1.00.

SNOWFLAKE OBSIDIAN

This beautiful material has been so popular that we have decided to feature it again at \$1.00 per lb.

Above prices do not include postage.

The West Coast Mineral Co.

1400 Hacienda Blvd. LA HABRA HEIGHTS, CALIF.

LA HABRA HEIGHTS, CALIF.

14 mile North of Hwy. 101 on State 39, between Whittier and Fullerton, at the corner of Avacado Crest road and Hacienda Blvd., 1400 Hacienda Blvd. The Junction of Hwy. 101 and Hwy. 39 is about 1½ miles West of the La Habra turnoff on 101. We are NOT located at the town of La Habra.

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Mailing Address: LA HABRA, CALIF.

ROCKHOUNDS

We have a large stock of Cabinet specimens, Gem material, Cut stones, Mineral books. We want to buy good gem material and specimens. Come and see us and join our Rockhound Colony.

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On U.S. Highway 99, Ten Miles South of Indio

ACROSS FROM VALERIE JEAN DATE SHOP. P. O. ADDRESS, THERMAL, CALIF.





Covington Lapidary Engineering Co. Redlands, Cal.



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AMATEUR GEM CUTTER

is for those who have, or aspire to have, their own gem cutting

This page of Desert Magazine

and polishing equipment. Lelande Quick, who conducts this department, is former president of the Los Angeles Lapidary society. He will be glad to answer questions in connection with your lapidary work. Queries should be addressed to Desert Magazine, El Centro, California.

By LELANDE QUICK

This section would have no reason for being if it did not stimulate interest in gem cutting or furnish ideas that helped experienced cutters do better lapidary work. The best evidence that it fulfills its purpose is the correspondence I receive. This does not find its way into the "Let-ters" section because it is largely personal or contains questions the answering of which would be redundant or questions that are answered directly in the column with the name of the writer mentioned. All letters I receive are answered direct unless the reply contains something original of help to gem cutters or something that is not merely fundamental and then the replies get into the column in an informal manner.

But I need to hear more of the readers' experiences because I never receive such letters but that I cull something of value from them, something I want to try myself. Give me a few "helps and hints" as Mr. Kane does this month. Give me ideas I can illustrate such as Herbert Monlux and Albert Hake have given me.

Peter Zodac, editor of Rocks and Minerals magazine tells me "your column in Desert Magazine always attracts my attention and I hope you will continue it.

Dr. Dake, editor of the Mineralogist magazine advises, "It is possible to cut cabochons from a good many of the strongly fluorescent minerals. When viewed under ultraviolet light they are really something magnificent. A cabochon cut from the red fluorescent calcite and green willemite gives a combination of colors that takes the eye. One reason the fluorescent gems are so vivid is that a smooth surface on a mineral is free of pits and shadows. The fluorescent effect is much improved by a smooth or polished surface." Mr. Zodac's kind remarks and Dr. Dake's interesting suggestions are appreciated.

C. L. McCullough of Modesto, California, wrote me some time ago that he has an iris opal and that is something I want to see. He says he bought it from Wendell Stewart but when he later showed it to him Stewart said he'd never seen anything like it before. Has any other reader such a stone? If as many as 25 readers advised me by postal of the most unusual gem in their collection I would have a mighty interesting page some month.

. . .

Louise Eaton, who writes that delightful whimsey on another page entitled "Cogitations of a Rockhound" always has a delightful bit of philosophy. I agree with her that field trips are a safety valve for the high pressure of livingand how we need them now. It is true, as she says, that almost every rockhound desires to own a jeep after the war. Those things were made for field trips but they tell me they do need a spring or two in the driver's seat. I don't know how many will be available but they say there are 10,000 rockhounds in Los Angeles county alone and that's a starter. The jeep will become the modern burro.

Think how the next 10 years will affect the field trip. You will probably be able to leave Los Angeles on a Saturday night and travel all night on a lighted highway at any speed that doesn't scare you for the speed limits on certain highways will be very high. You will travel on divided multi-laned highways on tires good for perhaps 70,000 miles of driving and with gasoline good for 50 miles per gallon. You'll have a trailer with refrigeration and the jeep will be hitched behind the trailer so that you'll have your own caravan. In a small box you'll take enough dehydrated food to eat for a week and by noon on Sunday you'll be parked on a side road in the far reaches of Utah or northern New Mexico. Then you'll take the jeep and explore for gem materials in locations that have never heard the ring of a mineralogist's hammer nor seen a beer can. Fantastic? Not a bit of it. Check up on this in 10 years and see if I'm wrong. And I haven't even mentioned helicopters.

When almost no spot is immune to the rockhound will some of the charm go out of the desert? Lots of the romance of the desert is in its unattainability. Speed and convenience do not always bring content but I look forward

DID YOU KNOW . . .

- Some of the finest chrysoprase ever found came from Tulare county, California. It exists at Yokohl, on the eastern slope of the Venice hills, on Tule river and Deer creek and one mile east of Lindsay.
- · Kunz found ruby spinel near San Luis Obispo in 1905.
- · Catalinite, found on Catalina Island, is a mottled jasper and onyx.
- · Psilomelane takes a beautiful polish. curs in 37 California counties and I'll tell you where it occurs in your county if you send me a postal request.
- · Brown zircons "heat treated" in air turn golden or colorless. If treated in an atmosphere deficient in oxygen they turn blue.

LAPIDARY HELPS AND HINTS . . .

(Contributed by William J. Kane of San Francisco who has cut one of the best collections of cabochons to be found in that area.)

In mounting transparent, semi-transparent and translucent stones for display polish them on the back and place them over the colored portions of magazine advertisements until you find the color that best complements the stone with its reflection. Cut the paper to fit and cement to the back of the stone with Du Pont Duco cement. Many lifeless agates come alive with this method and patterns show more vividly. Tin foil is an excellent backing agent if you can get it.

A well-worn piece of No. 100 sanding cloth will polish cabochons better and last many times longer than the No. 220 cloth.

Clean sanders occasionally by using a piece of sponge rubber at running speed.

Polish flats with No. 00 or No. 000 flint type sandpaper on a disc wheel running at 400 R.P.M. The disc must be slightly convex or it will quickly undercut and the flats should be held off center. Flint usually being the same hardness as the flat acts as a buffer but only stones of quartz hardness (7) are successfully polished with this type paper. It causes a heavy drag and a firm grip with even pressure must be maintained.



WRITER LEARNS NAVAJO WEAVING FIRST HAND

In SPIDER WOMAN, a story of Navajo weavers and chanters, Gladys A. Reichard gives an intimate account of her life among the Navajo. Dr. Reichard, a young professor at an eastern college, spent several summers among them to learn rugweaving. Her experiences while learning the complicated craft are told with rare humor.

She explains the various stages and operations from the time the wool is spun and dyed until the rug is completed and taken from the loom, promoting a keen appreciation of the skill employed in creation of the Navajo rug. She tells how the designs are worked out in color and motif—some of the designs being created as the rug progresses while others are copied from sandpaintings.

Her sincerity and interest caused the Indians to adopt her into their family thus permitting an intimate study of their character and customs and an opportunity to learn the language. She describes two of the more sacred ceremonies—a "sing" for the silversmith's daughter and a Navajo wedding ceremony.

To the reader who is interested in a human and fascinating picture of the Navajo, this book is truly an ethnological treat.

The Macmillan company, New York, 1934. Illus, 287 pp. \$3.50.

—Evonne Henderson

THE FANTASTIC CLAN



As enjoyable as a good travelog.
Tells you how to "call by name" the odd members of the spiny clan of the desert.

THE FANTASTIC CLAN by Thornber and Bonker, describes with charm and accuracy the strange and marvelous growth on the desert. An informal introduction to the common species in their native habitat, including notes on discovery, naming, uses and directions for growing. Many excellent drawings, paintings and photographs, some in full color. Endmaps, glossary, pronouncing vocabulary, index.

\$3.50

DESERT CRAFTS SHOP 636 State St. El Centro, California CACTUS-SHARP WIT IN DESERT RAT'S BOOKLET

Harry Oliver, whose wit is "... sharp as desert cactus.." has compiled articles from his newspaper column Desert Briefs into an attractive booklet called 99 DAYS IN THE DESERT... WITH SANDY WALKER. History, travel, odd bits of information are written with dry humor, and seasoned with the fresh simple philosophy of an imaginary character, Sandy Walker, who probably is a rough characterization of the author himself. Attractively covered in brown art paper with hand block prints, 42 pp., end map. 25c.

---A. M

TENDERFOOT HAS MORE ARROWHEAD ADVENTURES

Continuing the exciting chronicle of young Peter Stirling's Arizona adventures, W. H. B. Kent recently completed RANGE RIDER. This volume follows THE TENDERFOOT, written the previous year, which first introduced to Western fans the former Yale man who came West to make good, heroine-ranch owner Gail Gordon, amusing Saturnino, memorable ranch cook Footless and other Arrowhead ranch characters.

Fast moving story opens with a murder, and soon involves Peter in rustling and range war action, in which he again disproves that a tenderfoot from the East need remain a tenderfoot.

The Macmillan company, New York, 1943. 193 pp. \$2.00.

--Flo Sibley

FOR TYPICAL WESTERN RANGE WAR IS BACKGROUND

When Connie Dickason, head-strong and courageous, and her foreman, the brave and bitter Dave Nash find themselves teamed against unscrupulous cattlemen in a grim battle of the range, unexpected things begin to happen. Luke Short tells a story of vengeance and gun play in his new Western novel, RAM-ROD, with plenty of action and emotion.

The Macmillan company, 1943. 232 pp. \$2.00.

—A. M.

DESERT BOOKS . . .

FOR CHILDREN

. TO READ AND ENJOY

Choose some child a gift from the following list of desert books, carefully selected for youngsters of all ages to enjoy. Beautifully written and illustrated. They will fascinate and inform youthful readers, and will be treasured long after the story is known by heart. Desert cards will be enclosed with each gift order.

A NEW MEXICAN BOY, Helen Laughlin Marshall. Day dreaming Juan finds adventure with his baby burro Paco. Charming and authentic picture of Spanish life in New Mexico. Many watercolor illustrations. Ages 8-12 \$2.00

BIRDS OF THE ARIZONA DESERT, Gusse T. Smith. Commonest birds described in their desert setting. Bird drawings, desert sketches. Index, paper...\$1.00 GETTING ACQUAINTED WITH MINERALS. English. Fine introduction to mineralogy. Teen age readers on...\$2.50

CALICO, THE WONDER HORSE, Virginia Lee Burton. Hank, the top cowpuncher and Calico, the fastest smartest horse, find high adventure when Stewy Slinker and his bad men try to disturb the peace of Cactus country. Comic strip pictures in many colors. Ages 8-12..\$1.00

DUSTY DESERT TALES. Louise McKee, Richard Summers. Ancient Indian myths and legends retold in the simple style of the native storyteller. Background to the culture of Pima, Apache, Hopi and Yuma Indians. Many photographs and illustrations. All ages _______\$2.50

THE TRADER'S CHILDREN, Laura Adams Armer. Drama enters the lives of three lively children at Black Mountain Trading Post in Arizona. True story of fun and adventure with desert background. Ages from 8 on. Half tone illustrations \$2.50

OUR COUNTRY'S NATIONAL PARKS, Irving R. Melbo. Informal, often humorous description of historical and natural background of 26 national parks. Adds new significance to natural wonders and monuments of America. All ages. Many photographs and maps, index. Two volumes. Each Vol.........\$2.00

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Desert Crafts Shop

El Centro, California



By RANDALL HENDERSON

I've seen the daddy of all the deserts—the Sahara. The opportunity came when I was transferred from Bushtown to a new permanent station in another part of the African continent.

For many hours I looked down on a vast panorama of desert—some of it so barren of vegetation or topographic features that our travel involved much the same problems of navigation as in crossing an ocean.

At other times we passed over a terrain that resembled so closely the mesa between El Centro, California, and Yuma, Arizona, I instinctively glanced around the horizon in search for the Algodones sand dunes or the Chocolate mountains. I wondered if those tiny bushes and trees on the desert floor below have any resemblance to the creosote and ironwood of my home desert.

We passed over mesas that recalled to my mind the three mesas of the Hopi Indians in Arizona, and rocky escarpments and playas and malpai flats and arroyos—only they do not call them arroyos here. They are wadis.

There were no clouds in the sky as we crossed the great African desert, but there was a yellow haze around the horizon that blended perfectly with the sand below and then softly faded into the blue of the sky above. At no time could we see a sharp clear-cut skyline. It was as if the desert sands simply rose up in a distant wall that completely surrounded us, and we were flying in a great yellow bowl, with only the terrain directly below us clearly visible.

A range of mountains loomed ahead, and as we headed for the pass through which we were to fly, the air became so bumpy some of the passengers fastened their safety belts. The co-pilot came back through the cabin reeling like a sailor on a stormtossed sea. There was an extra heavy lurch.

"Must have hit a rock," he remarked. Some of the soldiers grinned.

"Oh yes," he added, "the sand storms up here lift huge boulders right up into the sky and it always makes rough riding for the passengers." I suspect that some of those in the plane were sick enough just then to believe he was telling the truth.

Once we stopped at an oasis for refueling. I cannot tell you the devious route nor the means by which high octane is brought into this remote desert settlement—but a crew member told me it cost Uncle Sam \$6.00 a gallon to refuel his planes at this point.

We left the plane for a few moments while the tanks were being filled. And I can assure you there was one passenger who really enjoyed the blast of 115-degree desert air that hit us. It was the most homelike feeling I have experienced since I came to Africa. After six months in the humid air of the tropics I was glad again to be in a place where my clothes would not forever have the musty smell of stale bread.

We have palm oases on the Southern California desert—but not like these on the Sahara. The native palms of my desert are Washingtonias. Here they are date palms, tall ragged trees that look as if they might have been supplying food for the Arabs for thousands of years. This is Mohammedan country, and the white domes of mosques, nestling among the palms, bear testimony to the religious devotion of these wild desert tribesmen.

During our brief stop, I walked across the field to a wadi that bordered it on one side—and wished John Hilton was there to explain the strange erosions in the limestone rocks. They made me think of the rillensteine described by Jerry Laudermilk in the December, 1940, issue of Desert Magazine, except that these erosion grooves were always in concentric circles. They looked so much like the weathered cross-section of an old piece of timber that some of the passengers insisted they were petrified wood. But obviously that was not the answer. I wanted to take a specimen along for my collection, but when one's entire kit for military service overseas is limited to 55 pounds, it is no time to be gathering rocks.

Camel caravans thread their way along the trails that cross this desert. Camel transportation is picturesque. But frankly, I prefer to do my desert exploring in my old jalopy. I've now tried both kinds of locomotion and I think a camel is a fine institution—for the Sahara. At that, I am afraid this grand old four-legged ship of the desert is going to have to give way sooner or later to these big-tired jeeps.

Eventually we reached our destination, and I was billeted that night in a little stucco cottage surrounded by palms, agave, almond, bougainvillea, pepper, eucalyptus and geraniums. It was a little bit of Southern California—but the people spoke a strange language and on the street we passed donkeys and camels and clumsy two-wheeled carts, and a few automobiles powered from charcoal burners.

I've had my glimpse of the Sahara, but I'll not want to remain here when the war is over. The place is too big. It is too far between waterholes. I want to be where I can drop in occasionally and say "howdy" to George Perkins and Jack Mitchell and Steve Ragsdale and Russell Nicoll and Charles Kelly and Katherine and Bill Wilson and a thousand other good friends who speak the language of the desert—but a language that I know. And besides, I don't think I would ever get used to riding these camels.

At a future date, when they are passing out laurels to the airplane pilots who shot and bombed the enemy out of the war, I want to put in a word for the transport pilots who every hour of the day and night are carrying great loads of personnel and supplies across the wide expanses of ocean and desert. Combat pilots, in cooperation with ground forces and the navy, will win the war—but the end will come much sooner because of the skill and courage of these unsung pilots and navigators and radio operators of the transport service.

THE

MAGAZINE

917.906 P75



BIOGRAPHY SAYS WEST STILL ROMANTIC BUT NOT SO WILD

The vast plains and rocky gorges of Colorado, 'Utah and Arizona long have furnished the setting for stories of heroic drama on the vanished American frontier. But to one man at least, the West of today is just as romantic and colorful—but not so wild—and the life of a cowboy still is as exciting as yesterday's. This man, David Lavender, in his informal biography, ONE MAN'S WEST, pictures with charm and humor a region where heroism and adventure are not things of the past.

Lavender, as a young man, set out to win a fortune in the gold mines of Ouray, Colorado. From that beginning the record of his travels and contacts with the West is long and varied. In telling the story of his life as miner, rancher, cowboy and wanderer, the authentic flavor of plains, mountains and desert permeates his tales of modern pioneers, tall stories and humorous anecdotes. Lavender brings vividly to life the outposts of America and proves that they have not been completely claimed from wilderness nor completely conquered by modern civilization.

Doubleday, Doran & Co., 1943. Line drawings. 298 pp. \$2.50.

-Aliton Marsh

MEXICAN MAID TELLS OF HISTORIC TUCSON

The reminiscences of Atanacia Santa Cruz, as told to Dr. Frank Lockwood, furnish many of the colorful and historic episodes related in LIFE IN OLD TUC-SON—1854 to 1864, published in 1943 by Tucson Civic Committee.

Atanacia, a little Mexican maid, lived her whole life in Tucson, from 1840 until 1934. For Dr. Lockwood she recalled the exciting days following the Gadsden Purchase in 1854 and the "American occupation of Tucson" by the courageous pioneers who participated in the social and political development of the town.

Typical of these pioneers was Charles D. Poston, who, although a cosmopolitan figure identified with civic and social affairs in Washington, D. C. and the Orient, did much to further the civic interests of Arizona.

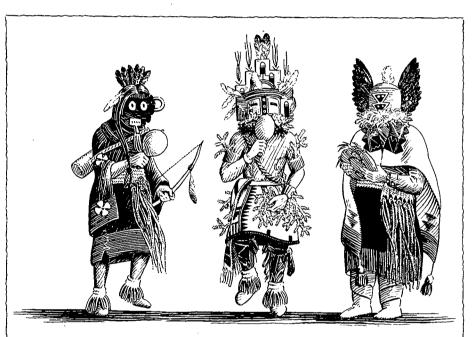
Poston arrived in Tucson in 1856 to organize an exploring and mining company. He stayed until the spring of 1861, at the opening of the Civil War when United States troops were ordered out of the territory. A period of lawlessness and terror,

during which many of his associates were robbed and murdered by Apaches and Mexican bandits, caused him to flee to the Pacific coast. From there he sailed to the Atlantic coast, spending the next year in Washington attempting to bring about the establishment of civil government in Ari-

zona. His mission was successful, the territory was organized and Poston was appointed Superintendent of Indian Affairs. He later became the first man to represent Arizona in Congress.

Samuel Hughes was another of the early arrivals in Tucson whose life was full of action and romance. It is said that "it was Hughes' distinction to be the first man who came to Tucson for his health." Five years after his arrival in 1858 he married Atanacia. He became one of Tucson's best known citizens, and did much to further civic interests such as churches, schools and fraternal organizations. Ward Ritchie Press, Los Angeles. 255 pp. 13 illus.

-Evonne Henderson



DISTINGUISHED BOOKS FOR SPECIAL GIFTS . . .

CEREMONIAL COSTUMES OF THE PUEBLO INDIANS, Roediger. Evolution, design, significance in prayer-dramas of Hopi, Zuñi and Rio Grande tribes. Superbly illus. from author's paintings of costumes, turquoise dance moccasins, headdresses, masks. 40 plates full color, 25 figures black-and-white, colored map. Notes, appen., biblio., 268 pp. 73/4x11.\$15.00

ANCIENT LIFE IN THE AMERICAN SOUTHWEST, Hewett. Archaeologists' fascinating story of prehistoric Indian life in Southwest. History recreated with imagination of artist and authority of a scientist. Many illus., endmaps. 392 pp. Limited number copies. \$5.00

INDIAN BLANKETS AND THEIR MAKERS, James. Navajo and Pueblo weaving art. Types, development, technique, historical background. De Luxe edition, 7½x10¼, 64 illus., 32 color plates. 213 pp. Boxed. \$3.00

MY ADVENTURES IN ZUNI, Cushing. Limited ed. of distinguished scientist's experiences in Zuñi. Beautifully illus. in line drawings and hand-colored marginal paintings. 8x9 in. Limited edition.\$7.50

THE RAIN-MAKERS, Coolidge. Absorbing story of Southwest Indian civilization. Comprehensive, scientific, vivid. History, social life, arts and ceremonials, mythology. Photos, endmaps, index. 326 pp.\$4.00

THE DESERT, Van Dyke. Classic never equaled for description of mystery and color of desert. Southern California, Arizona and Sonora. Photos, 257 pp.\$3.00

DESERT CRAFTS SHOP

636 STATE STREET

EL CENTRO, CALIFORNIA

DESERT

Close-Ups

- On the back page of this issue of Desert is part of a story which began the weekend of December 7, 1941, up in the Sheep Hole mountains north of Salton Sea. Desert's Editor Randall Henderson, his daughter and son Evonne and Rand were hiking back to their car after an exploring trip with the Sierra club. Into the still atmosphere of the desert anyon a radio brought sudden strange words — "Hawaii and Philippines bombed!" . . . They drove away from the quietness and peace in silence. That evening Rand said, "I plan to enlist as soon as my place can be filled in the office." And now his siters Evening and And now his sister Evonne carfice." ries on as circulation manager of Desert. And somewhere out there in the far Southwest Pacific Rand serves with the Marine Corps. On some of the quiet suspense-filled evenings he looks out the flaps of his tent at a moon which he knows is silvering the sand dunes and sifting a radiance on tall palms that move slightly in a whispering rustle above a dead campfire in a faraway desert to which he longs to return—as soon as "it is finished.'
- After many months' work on a mining project in the war effort, John Hilton is back at his art and gem shop on Highway 99 a few miles south of Indio, California. John says he will start writing and painting again, spending part of his time and all of his gas to prospect for minerals needed by the government.
- Dorothy L. Pillsbury who this month tells about a Christmas she spent on Acoma mesa in New Mexico is a new contributor to Desert's pages, but she is known to readers of Christian Science Monitor, Coronet, Sea Magazine and many other publications. Most of her life has been spent in California, where she graduated from Pomona College. For 15 years she was a social worker in and around Los Angeles. Five years ago she went to New Mexico for a vacation, and like many other residents there, "just stayed." Now she has her own adobe house and her own wedge of adobe soil. Her special interest is in Indian and Spanish-American cultures of the Southwest, which she has studied in University of New Mexico, Old Mexico and Puerto Rico.
- Theron Marcos Trumbo who wrote the story of Guadalupe Day ceremony in this issue is another new contributor. Although he has been writing trade articles and poetry for 13 years he considers this his first "important sale." His ambition always has been to portray Indians and Mexicans in the Southwest both in articles and fiction. But until ill health brought him to New Mexico his environments in Kansas and Michigan afforded little opportunity to develop this interest. Now he has "dusted off the old dreams," and is writing and painting while paying the grocer and landlady out of a salary earned as statistician.



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RANDALL HENDERSON, Editor. LUCILE HARRIS, Associate Editor.

BESS STACY, Business Manager. — EVONNE HENDERSON, Circulation Manager.

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Monument Valley, Utah. Photo by G. E. Barrett.

DWELLERS IN THE SHADOWS

By EDYTHE HOPE GENEE Hollywood, California Grey shadows creep across the mountain-sweep

of rock and sand,

Encircling tiny dwellers close in their embrace; Forever in the shadows, where no errant trace Of sun can ever cross their path in all this lonely

Tiny stem and flower, unknown to all but God alone.

Patterned by the smoke tree's needled plume, the white

Of sage protesting to the sun-only the shine Of a million desert stars to beckon and to call their own.

Burn, desert sun, down the highest mountain's golden bars!

Blow, desert wind, across a lonely waiting heart!

For we who dwell in shadows, know a counterpart

Of sun and wind and beauty that transcends the stars!

ARIZONA DUSK

By S/SGT. MARCUS Z. LYTLE San Diego, California Gloaming of purple simmers on the cliffs Burnt to dead cinder like a Yaqui pyre; On the bronze sky, Amole's darkened tooth, Jagged and broken, chills the sun's low fire.

Here I would gather blue between new stars Stabbing their javelins among hot cloud, Gather before the cirrus cools to ash Spun over summits where saguaros crowd.

Wind dry as cedar, thin as lonely space, Unseal my ears that I may know each tone Pressed from the lips of bending grama grass Shadowed in moonrise on the desert stone.

NEW MEXICO MORNING

By JANE BLACKBURN Santa Monica, California I saddled old Feathers at the edge of the butte, He shied at the saddle and kicked at my boot, Reared when I touched him, snorted at the sand But I mounted him as gently as a top cowhand.

And I rode that pony to the crest of the hill, Rode him alone when the wind cut chill, Stayed with him proudly, held the reins high -Alone on a hilltop, Feathers and I.

We started at the dawn and grinned at the

whistled a song to the cottonwood trees, Brandished my hat at the whitening sky -And we rode back in splendor, Feathers and I!

WHITE HOLLY

By MARY PERDEW Santa Ana, California White holly decks the canyons When desert winds are chill. Each spray is flecked with star dust Upon its rock-strewn hill.

White holly wreaths at Christmas Are misty moonlit grey. They add a touch of magic To that glad holiday.

But on the grim old desert White holly is at home. It shines in that weird setting Like drifts of wind-tossed foam.

I'll decorate with pine tips With cheery ribbon frills, And leave the desert holly To bloom upon the hills.

DESERT LONGINGS

By CORA C. WILLIAMS Alamosa, Colorado

Mojave, I will come back to you some day And in your arms forget I ever went away Forget I ever wandered from your desert wild. A wayward and an oft rebellious child. Oh, could I see the moon with silver spill A flood of light that covers vale and hill, Could I behold the Joshua trees so grey with age

It would the longing of my soul assuage. Mojave, I would lay my body on your breast, Forget the weary war-torn years, and rest, And live again those happy hours free. I fear my heart would break with ecstacy! Oh, desert old, so long the separation seems, While I must find a solace in sweet dreams.

THE TALL WATCHERS

. .

By LUELLA BENDER CARR Proctor, Minnesota

The great saguaros wait with arms upraised Here on a vast and cactus covered plain. As if on guard, they seem to watch amazed The traffic passing through their queer domain.
Two hundred years they've lived here . . . guarded well

This hot and lonely Arizona land While history unrolled. If they could tell What thrilling tales we'd hear. How once a band

Of Indians attacked white travelers Enroute by covered wagon. Or they slew Their own kind in sly raids. Saguaros were On watch when tracks were laid . . . first trains passed through. With majesty the great saguaros stand

And guard eternally their sun-drenched land.

Desert Buttes

By LESLIE RODGER Old Forge, New York

For ages now these ancient peaks Have raised their crests against the sky; Pensive, mute, in silent watch They look across the burning sands Where glimmering shadows fall and drift, And note the slowly passing years-Monarchs of a long lost past And witness to the ages gone.

Now, like the holy priests of old, With turbaned fog about their brow, They stand to offer sacrifice On unseen altars builded there. How small our greatest efforts seem! How slow our waiting, faltering steps, As aeons of the years that were Look down upon us standing there!

A pillar high of cloud by day They stand to point forgotten paths; While golden stars, a band by night, Encircle wide each lofty brow. Spread now thy healing lasting calm Across each earnest upturned face, And fill our yearning suppliant hearts With thy serene abiding peace.

FEELING FOR BEAUTY

. .

By T5 DALE E. WINN, U.S.A. Australia

I ain't the guy what learned from books What beauty is nor how it looks; Me and artists ain't no kin at all, My best writin's jest a scrawl; But I got a feelin' I'd like to tell If you hear me out for jest a spell-

It's a feelin' comes in the early dawn When the day ain't come but the night is gone, When the desert hills're black as night But the sky beyond's all rosy bright, And somethin' whispers, "The world's all And somethin' whispers, right."

It's a feelin' comes at the high of noon When the heat swells up from the white sand dune,

When the ridge is hard against the sky, And the sun's white-hot where it burns on high, And the air is parched and still and dry.

It's a feelin' comes with the settin' sun When the shadows sprawl and the day is done, When the gold you sought in the rocks all day Spills over the hills in the sun's last ray, And the wind goes mournful along its way.

It's a feelin' comes in the dead of night When the fire dies down but the stars're bright, When the tiny critters come out to prowl, And a lone coyote gives a lonely howl And you hear the cry of a huntin' owl.

I ain't the guy what learned from books What beauty is nor how it looks; But where other folks can paint or tell, I got a feelin' that serves as well.

CREED OF THE DESERT

By JUNE LEMERT PAXTON Yucca Valley, California

The desert moon is growing thin, I see her eyes set deep; Methinks she broods o'er a troubled world, And for our grief, may weep.



The Navajo singer, when asked where his ancestors had emerged from the Underworld to the Visible World, always would look into the north toward the blue haze that marked the southern Rockies, and answer evasively, "Maybe it's up there somewhere?"

Photo by Randall Henderson.

"The Gods Walked Up There"

"In the beginning there was nothing. There was no light, no vegetation, nor living thing . . ." Thus did the Mountain Chant Singer begin the story of Navajo creation. Reluctantly had he begun unfolding the sacred words—words which but a few of the oldest hathli, or singers now remember. The two men—one a member of the U. S. Indian Service at Fort Defiance, Arizona, and the other a grizzled Navajo chant singer, had been watching the last golden glints fade from the 14,000-foot peaks of the Sierra La Plata in southern Colorado. "The gods walked up there," the hathli had murmured. But not until four frosts had passed had the singer been ready to relate the story of his ancestors, from the time of Creation in the Underworld until the time of their Emergence at Hadjina, a sacred lake far up among the peaks on which they had gazed. Here is the story as it was told to Van Valkenburgh at the chanter's command to "Get your writing stick. Let's get the story of Hadjina down on paper. Make copies for my son, his sons, and then their sons."

By RICHARD VAN VALKENBURGH Murals in tempera by the Navajo, Van Sinajinih

gods walked up there!"

Dzilked ji hathli, the Mountain
Chant Singer, murmured as he watched the shades of night blot out the last golden tints of sunset on the 14,000-foot peaks of the Sierra La Plata in southern Colorado.

"La! This is Digin bitxa, the old Holy Land of the Navajo. For it is up there—

deep in these northern sacred mountains of *Dibetsa*, the Mountain Sheep Range, that lies *Hadjina*, the Place of Emergence. In my youth I made a Pilgrimage up there with my kinsman *Bahazhun* who was the greatest of all *hathli*."

Hadjina! The Nirvana of the Navajo. In all important rite-myths I had heard of this sacred place. But when I questioned

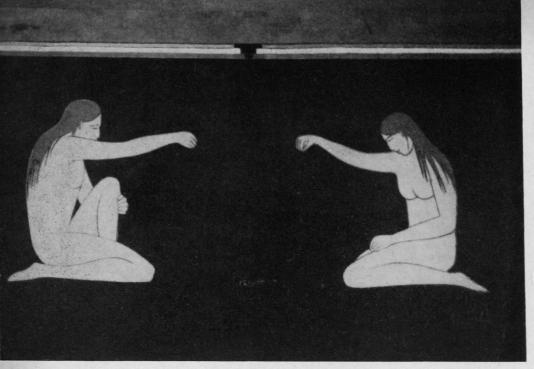
the *bathli*, they always looked into the north toward the blue haze that marked the southern Rockies as they answered, "Hola? Maybe it's up there somewhere?"

"What's it like up there, Grandfather?" I asked.

"It's right on top. Four peaks of the banded grey and tan of *badáho-náyet* (aragonite), the 'mirage stone' pierce the cloud layers to enter the upper heaven. Inside of these are four peaks the color of *tsélichii*, the garnet. In the center there is a lake of *dotlizhi* of deepest turquoise. And in the center of all there is a cone-shaped island of *bazhini*, or black jet.

"La! It was through this beautiful place that the *Digin dine'é*, our divine ancestors came into this world. It was from here that everything started. All good and evil started up there. Today, few Navajo dare go to *Hadjina*. For the ancient talismen for protection against the Spirit People are known by only a few old men."

When on the next morning we reached Durango on the Rio de las Animas, I casually suggested that we turn north into the mountains on the Silverton road. *Dzilkedji hathli* smiled as he firmly objected, "Dota! Curious Bilakana. We won't go to



"In the beginning there was nothing. Only First Man and First Woman had life. In the Black Underworld they took earth and created Black Ant. Being the first human created he led the other people upward from darkness into light by prayer . . ."

Hadjina now. For that's what you're up to"

Noting my grousy reaction he added, "It will be a long time before we can go up there—even talk any more about it. First, there will have to be four frosts. Then after the snakes, bears, lightning and whirlwinds have gone to sleep, I will tell you of the place where the gods walk."

I saw nothing of Dzilkedji hathli during the weeks that followed our return to Fort Defiance in Navajoland. The cottonwoods turned to yellow. Then the "small winds" rustled down Tséhotso and plucked away their leafy dress. One cold morning when Bonito creek turned from a gay little stream to a sluggish trickle, forcing her way through the ice cap edging out from the banks, the old hathli pitpatted into my study.

After kowai the old man spread his blanket on the cot that stood in the corner. When stretched out, his voice came from the darkness, "Get your 'writing stick.' Let's get the story of *Hadjina* down on paper. Make copies for my son, his sons, and then their sons!"

Thus Dzilkedji hathli told the story of Navajo creation:

"Djini. They told this.

"In the beginning there was nothing. There was no light, no vegetation, nor living thing. In the deep silence of *Saadlhai*,

This episode depicts the prelude to the Navajo version of the Great Flood. The panel shows Coyote wading into Chabikeho, the Right-Whirling Pool, to steal the Water Babies. In the background the Water Monster watches. the Black Underworld, all was void. Only Atsé Hastin, the First Man, and Atsé Asdzaan, the First Woman, had life.

"In this Black Underworld the First Ones toiled. With earth they created Wolázhin, the Black Ant. Alone he moved in the jetty darkness. In time he came to a pool of water just the size of his body. Swelling, it grew in size until it filled the vault.

"On the crest of the rising water Wolázhin was carried upward. Soon he touched the hard ceiling of the dahunka or vault.

The beginning of Navajo creation, as conceived by the Navajo artist Van Sinajinih. This panel shows First Man and First Woman creating Black Ant in the Black Underworld. Above this world is the crust which separates it from the dim blue world that had the blue of "water before dawn."

For twelve days he dug upward. Then he broke through into the dim light of *Saadnaki*, the Blue World that was the blue of water before dawn.

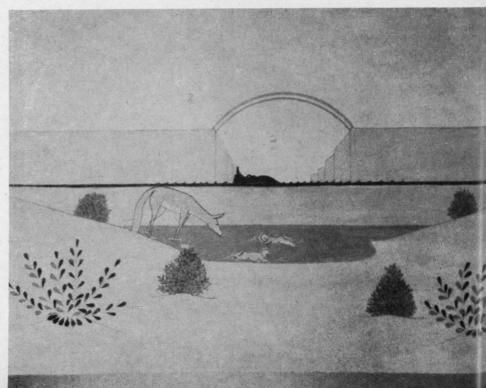
"In time he found *Wolachi*, the Red Ant. They called each other brother. Soon the flood reached them. Floating upward they reached the ceiling of the Blue World. For 12 days they took turns digging upward. On the last day they reached the dim light of *Saadtxa*, the Yellow World.

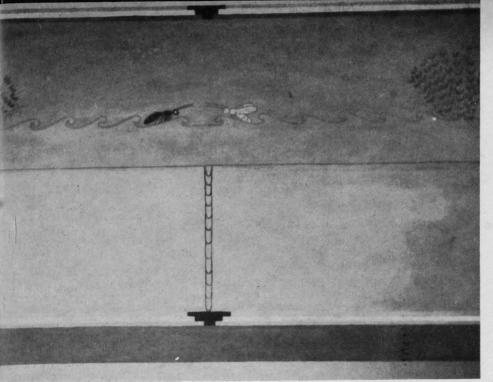
"In the dim light that was the yellow of twilight they saw other people. From the east a great river flowed through the center of the world to be swallowed in the Cave of the West. Towering above all were four sacred mountains that marked the outer edges of the world. Upon these dwelt *Hasjelte*, the Talking God, and *Hasjahogan*, the House God.

"Then First Man's voice filled the world, 'My children! Your mother made you all. We made the Ant people, the Locust People, the Snake People, the Yucca People, the Cacti People, the Fly People, the Spider People, Nik'e'ni, the Beautiful Owl, Ma'idotlizh, the Blue Fox, the birds, and all the beasts.'

"Then First Woman spoke, 'You were

"While snooping around, Coyote found the Water Babies of the Water Monster. His greed overcame his wisdom as he stole the babies, wrapping them in the rags of the Black God of Poverty and hiding them in the reeds. For this the Water Monster caused the world to be flooded . . ."





"Black Ant, rising from the jet darkness of the Black Underworld, broke through to the dim light of the Blue World. There he found Red Ant. They called each other brother . . ."

created to populate the world that is coming. As you take human form, you shall gain reason and wisdom. By being our first born, *Wolázhin*, the Black Ant, shall lead you. He shall guide you upward from darkness into light by the word of prayer.'

"Then the people built homes. Wolázhin built the hogan dotozhi, the peaked home. Woláchi, the Red Ant, built the hogan dakahanzhi, the rounded home. Today's hogan alchi'desa'i, the forked stick hogan, represents the first hogan built by Wolázhin. And our hogan ya'dakahanzhi, the rounded top hogan, was copied from that built by Woláchi.

"After this the gods began to make rules. First they taught the people how to live in a peaceful way. After this they taught them how to plant corn and other seeds that make food. After this they were shown how to play such games as bouncing sticks, dice, hoop and pole, and football.

"Soon the peace was broken. Wolf Woman made love to Mountain Lion. The people sought to settle this. Four hogans were built in the center of the world. Then Wolf, Mountain Lion, Coyote, and Badger were chosen to dwell in them. These were the first *natani* or headmen.

"These hogans were called Nataa hogan,

In this panel Van shows Wolf Woman, who became the first of the witches, leading the women back across the river to the men. In the crossing she and twelve of her followers are sucked down by the Water Monster and carried to his home in the Waters of the West.

speaking-in-peace hogans. In them the people held their first council. After a long talk about Wolf Woman and Mountain Lion, they reached no agreement. It was then that they found they lacked wisdom. So they sent *Ma'ii*, the Coyote to First Man.

"Ma'ii came back with First Man's message, 'It's in your hands—in your minds. Find it there!'

"So the headmen went to Talking God who had wisdom. Taking earth from the sides of each of the four sacred mountains he laid it on their bodies as he prayed:

'For Wolf, White Wisdom of the East, For Mountain Lion, Blue Wisdom of the South, In this panel the artist shows the meeting of Black Ant and Red Ant in the Blue Underworld. Below is the hole up through which Black Ant dug into the Blue Underworld from the Black Underworld.

For Coyote, Yellow Wisdom of the West

And for Badger, Black Wisdom of the North.'

"Then the headmen carried their wisdom back to the people. For some time there was peace and happiness. To break this the headmen themselves killed sacred animals belonging to the gods. The holy ones were angered. For this was stealing. Nor had the people been taught in the ceremonial way to kill and skin animals.

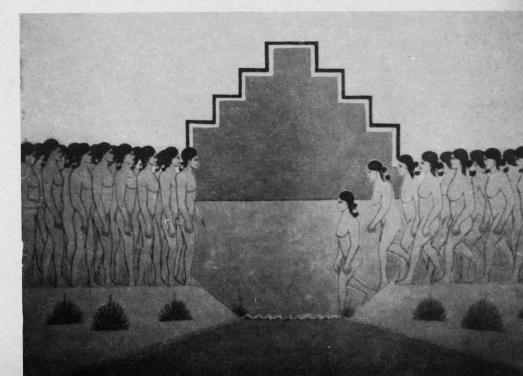
"Then Coyote made love to Wolf Woman. But she said 'Dota! The gods made you headman. Now you try to break the law. When a headman does this, the people expect to do the same. Then everyone will get into trouble again!"

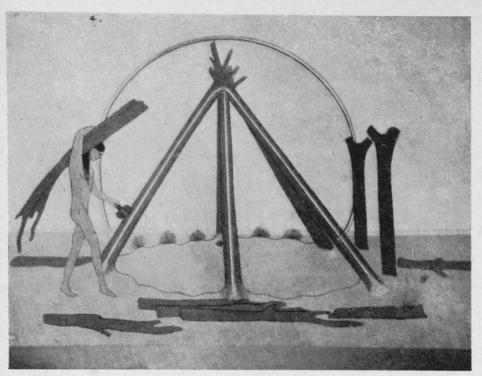
"Frisking around, Coyote answered, 'Why even today we headmen broke the law. We killed sacred deer and other animals. The gods did nothing. We broke one law. What's the difference if we break another——?'

"Coyote's smooth talk persuaded Wolf Woman. This was not hard to do. For she had no sense of family or clan. Even today there are women like her—they keep no law. They just hang around trading posts or run around camps making trouble between men and their wives.

"When this was discovered Wolf called a council. Angrily he accused Wolf Woman, 'You have been unfaithful again. If

"After four years of separation Wolf Woman leads the women back to the men . . ."





"To help the people First Man built the first hogan. Bending rainbows he formed the main beams. Under the east he placed white shell, under the south he laid down turquoise, in the west he placed abalone, and in the north he laid down jet . . ."

started to cross the river. When they reached the middle, *Ti'holtsodi*, the Water Monster, pulled them down.

"As they were carried into the Cave of the West, Wolf Woman called back, 'There will always be wrong. There will be death!'

'Happily the rest of the women safely returned to the men. Together husband and wife dwelt in hogans. With their children they kept the laws and lived in peace. To help them the gods sent the Flute Players. Some medicine men call them adeschinih, the Gourd Children. The divine sons of At'ed Digin, Holy Girl, they brought good to the people.

"In this time of peace the people learned many things. Labor was divided between the men and women. Purification was learned by the use of the *tache* or sweathouse. Herbs were found to be remedies for disease, poison and evil spirits. The first song-prayers and 'medicine' started at

and healthy the clans were formed of unrelated people.

"Wolf Woman joined the family of *Ti'holtsodi*. With her evil ways she became the first witch and the Keeper of the Death

this time. And to keep the Navajo strong

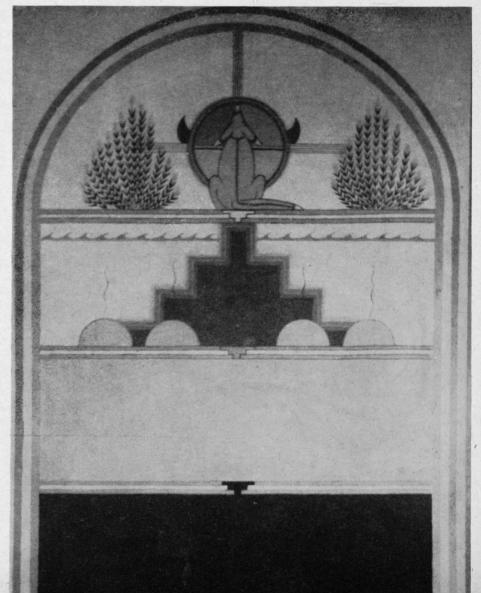
we all did this everyone would be mixed up. Again, you have broken the rules of the gods!'

"Wolf Woman growled, 'Why should women be faithful? Men are always running around. We do all the work. We can take better care of ourselves without you!"

"It was then decided that the men and women should separate. Wolf Woman led the women to dwell on the south side of the river. The men remained on the north side. Everyone agreed that this was wisdom. They would see who could be most successful—the men or the women.

"Both sides worked hard. While the men prospered the women suffered and knew privation. Four years passed. Finally Wolf Woman had to agree to return the women to the men. With 12 women she

In the lower vault is the Black Underworld. In the vault above is the Blue Underworld devoid of all things. Above is the Yellow Underworld with the four hogans of the first headmen. The stepped-up triangle leading to the roof of the vault to Hadjina, Place of Emergence, represents the mountains and the flutes through which the Navajo emerged. Across the top of this world is the streak of water which represents the flood. On top, and in the dim White World, sits Coyote. The artist has gone further than the story as told in this issue of DESERT in that he shows by the sun symbol and vegetation that the Visible White World has been created. This section of the Navajo Genesis will be told in a later issue



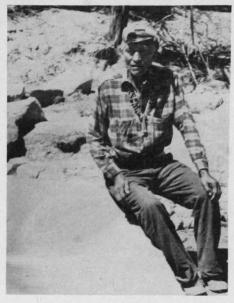
Vault. With this power she laid a trap for the people. Taking cuticle from her breasts she formed two perfect babies. Then she placed them in *Chabikeho* the first right-whirling pool.

While snooping around Coyote found the babies. Running back to camp he bragged of what he had found. The headmen warned him, 'Keep away from those babies.' But every day he sneaked away and coveted the babies. On the fourth day his greed overcame his wisdom. Wading into the pool he grabbed the babies. Wrapping them in the rags of *Hashkejinni*, the Black God of Poverty, he hid them in the reeds.

"On the next day a great silence filled the world. Frightened, the headmen hurried to *Chabikeho*. An angry foam swirled around the surging pool. On the second day whirlwinds howled overhead. On the sixth day sacred birds flew overhead and croaked, 'Beware!'

"From every direction great grey walls rose. Coyote was sent out to see what they were. Running back with his tail straight out he cried, 'It's a great wall of water moving in on us!' Then the headman went to see. Moving toward them was a great flood of water tipped with white foam!

"Everyone hurried to climb the sacred mountains. When they reached the top the water was right behind them. Hurrying



Dzilkedjih Hathli, the Medicine Man. In time of the crusted snow he told the story of Navajo Creation. Photo by the author.

they tried every kind of magic. The lizards tried, the squirrels tried, and the fowl tried, but the water still rose. Today, one can see the marks of the foam on the tail of *Tazhi*, the Turkey.

"Not wishing to have all his children drowned, First Man brought his magic. Slowly the mountains began to grow. From the peaks of the east and west there rose two great pillars of stone. With the people crowded on top they finally came to a stop in the yellow heavens.

"Then Koz, the Crane, dove to the base of the sacred mountains. Bringing up earth he laid down a pile on each pillar. Then the Gourd Children took their four-holed flutes. With prayer they placed them upright in the piles of sacred earth.

"By magic the people separated according to color. Those with light brown skins went into the flute of the east. Those with the dark brown skin entered the reed on the west. Then the reeds began to grow towards the ceiling of the Yellow World.

"For 12 days the reeds grew. On the last day they touched the ceiling of the world. Looking down the people saw that the water still was rising. Digging as fast as they could Badger and other burrowing animals dug upward. On the fourth day they dug through to a small island. In every direction endless waters covered the new world.

"In the pale light of Saadeen, the Dim White World, the people peeked out. Like a great black cloud Chiztelki, the Monster, came towards them. In his claws were two

Hadjina, Place of Emergence. Most holy of Navajo shrines, known by the white men as Island Lake, in the Ice Lake region high in La Plata mountains about eight miles west of Silverton, Colorado. So sacred that few Navajo ever have seen the place so often mentioned in their rite-myths. Photo by H. L. Standley, Colorado Springs, Colo.



magic killing arrows. Woneschindi, the Locust, went out to meet him. Chiztelki fletched his arrows.

"They glanced off Locust's unblinking eyes. Then *Chiztelki* challenged Locust to impale himself with arrows. Easily Locust did this. Then he ran them in from side to side. By this *Chiztelki* knew that Locust had greater power than he. Fleeing, he was never seen again. Thus Locust, who today shows the holes in his sides, won the right for the people to enter this world.

"Then the Insect People went out on the water and played. As they could not swim, the animals started to worry. Then they prayed. Finally, *Ganskidi*, the Water

Pourer, came to help. With his great horn he scooped out great furrows in the earth. Slowly the water drained off. Today, one can see these furrows at the Canyon de Chelly and other deep canyons in Navajoland.

"Then the Wind People brought warm winds to dry off the mud. Soon the people started to move southward. Those with the dark brown skins separated from them. In time they divided among themselves to build stone houses on the Rio Grande river and on the Moqui mesas. Today, we call these people the *Kinsani*, or Old House People.

Coyote ran back to take one last look

at the hole from whence they emerged. Hurrying back he told the people that the flood still was following them. Then the headmen searched him for the babies. He did not have them. Then they searched everyone. Finally they came to Black God. Hidden in his rags were the babies!

"The voice of *Ti'holtsodi* rumbled from the hole, 'We punished you for stealing our babies. We caused the great flood that drove you from your home in the Underworld. For this—you shall always know fear. With good there shall always be evil!"

"The headmen hurried to lay the babies between the horns of the Monster. As he sank back downward he called, 'One woman has looked down this hole. She will never return to you. For she is dead! Never again look down into this place from whence you came into light from darkness. For—if you do, you shall return forever to the home of the Wolf Woman which is the Land of the Dead!'

"La! This is how we *Dine* came into this world through the hole we call *Hadjina*. What happened in this Visible World is another story. As I told you on the Rio de las Animas, in my youth I made my one and only trip to this most holy of Navajo shrines. For even today—the Gods walk up there!"

Dzilkedji hathli's story of Navajo origin brought considerable reflection. Where did the Navajo obtain their flood concept? Did this evolvement from darkness into light have some bearing on the original Navajo homeland in Asia? Was this an embellished and symbolic story of the long trek from the sunless tundras of Siberia to the sunlight home in the American Southwest?

Sometime later that winter I was reading my Denver Post. In the rotogravure section I came upon a striking scenic view captioned ISLAND LAKE, LA PLATA MOUNTAINS, SOUTHERN COLORADO. Nestling in the midst of four towering peaks there was a small lake. And in the center of the lake there was a conical islet!

Writing the photographer, H. L. Standley of Colorado Springs, I awaited his answer. It promptly came, "Island Lake is located some eight miles west of Silverton, Colorado. It is one of the several lakes in the Ice Lake region and is just south of U. S. Grant Peak in San Juan County—."

Anxiously I awaited the next visit of Dzilkedji hathli. In the time of the "eaglets" of Bilakana February, he came in. Taking the print sent me by Mr. Standley, I laid it before the old "singer." For a moment he dead-panned. Then looking at me with a smile, said, "You Bilakana have a magic way of finding out things. This is Hadjina!"

Desert Philosopher . . .

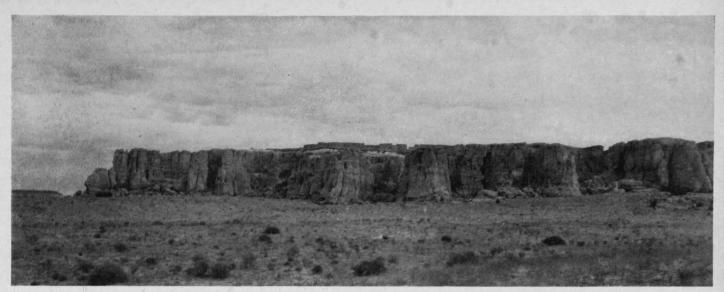
SOLILOQUIES OF A PROSPECTOR
Drawing by Frank Adams

• Text by Dick Adams

GOLDEN NUGGETY GLEAMING VELLOW

GOLDEN NUGGETS GLEAMING YELLOW I FIND REMAINING IN THE PAN PRECIOUS SHINING FRUITS OF LABOR WHEN I'VE WASHED AWAY THE SAND.

LIFE HAS BROUGHT ME MANY FRIENDSHIPS BUT WHEN THE SANDS I TOOK FROM THESE FEW REMAINED - BUT THOSE REMAINING ARE GOLDEN IN MY MEMORIES "



"Four hundred feet straight up in front of us reared the cliffs of the rock of Acoma." New Mexico State Tourist Bureau photo.

Christmas Trail to the Sky City

Trying to ascend Acoma by the rock trail had been Abigail's idea—and now she was spread out in that prehistoric chimney like a scientist's bug on a pin. She and Dorothy backed down, then again attacked the forbidding precipice of the Sky City—this time by the unromantic horse trail up which they ploughed knee-deep in sand. At the top a shawlwrapped little girl materialized from behind an orange-colored butte. She was shy and a big front tooth was missing in her smile—but her message was open sesame to an Indian Christmas on the ancient rock of Acoma.

By DOROTHY L. PILLSBURY

HIS is no place for two lone, middle-aged women," Abigail said, looking back wistfully at our decrepit *Fordcito* parked where the road ended in a welter of rocks. It was Christmas Day and we were alone on the New Mexican desert, 20 arroyo-dipping, dubious miles from the highway.

Four hundred feet straight up in front of us reared the beetling cliffs of the rock of Acoma. By tilting our necks back to the breaking point we could see the sun-glazed adobe houses where our Indian friends, Ana, Marta and Elena lived. We had visited them many times before, but this Christmas expedition was by very special invitation. "We'll be the only white folks there," worried Abigail. "Do you think we'll fit into an Indian Christmas?"

The wind was cat-calling across the barren sand-drifted wasteland. Clouds scudding over the bright blue New Mexican sky kept blotting out the sun. The shifting cloud shadows and the sand in the air made everything look out of proportion and unreal.

"Let's not go up the way we always do, by the sand trail," rebelled Abigail, overcome by the unusualness of the occasion. 'Tve always wanted to try the rock trail. It's the one the Acomans use. If Ana, Marta and Elena can prance up it with a baby on the back and a water olla on the head, we should be able to crawl it."

Climbing the rock trail was like scaling a 400-foot chimney flue. It was a crevice in the solid rock with toe and handholds worn slick and smooth by hundreds of years of Indian coming and going. I had my doubts, but Abigail started out like a rocket. "Remember your vertigo," I warned, but my voice was lost in the gibbering of the wind.

As my feet felt for hollowed out footholds, I thought of the other feet which had done the same thing—Spanish conquistadores, brown-robed Franciscans and marauding Apaches. On top of the rock, the Acomans 400 years ago had crouched and watched crested Coronado pass close by in his search for the seven golden cities of Cibola.

Then I heard a scream. It was Abigail. "I'm stuck," she cried above the howling of the wind. "I can't go ahead and I can't back down."

There she was in her expensive tweed walking skirt, smart sweater and Knox hat,

spread out in that pre-historic chimney like a scientist's bug on a pin. By ordering her to shut her eyes and by guiding first one foot and then the other by main force, I finally managed to get her backed down where we started from.

Defeated in a romantic approach to the Sky City, we ploughed knee deep in sand up the old familiar horse trail. Almost at the very top, a shawl-wrapped little girl materialized like a ghost from behind an orange-colored butte. She was shy and a big front tooth was missing in her smile, but we gathered we were to go first to Ana's house. That was bad because Ana lived in a skyey penthouse three stories up from bedrock. We always had done our visiting in Marta's lower stratum home.

Down the uneven rocky street, between the tierred Indian apartment houses we went with the wind trying to use us for kites. Little boys popped out of ancient doorways to follow us as if we were some kind of Christmas Pied Pipers. Mangey dogs followed the little boys. A lop-eared burrito joined the procession and a vicious looking billy goat brought up the rear.

The houses set in long rows like giants' steps. The roofs of the lower stories were used for the porches of the second and the roofs of the second for the porches of the third. A rough ladder led from the ground to the second layer of houses, and narrow far-apart steps cut in the adobe led from the second to the third. Ana, swathed to the eyebrows in a scarlet and orange shawl smiled at us from the third story doorway.

"Maybe," I hissed to Abigail, "you can make it going up if you take it fast, but



Rough ladders lead from the ground to second story. N. M. Tourist Bureau photo.



... Homy sights and sounds. New Mexico Tourist Bureau photo.

how will you ever get down? Remember your vertigo!'

"I won't," she croaked in sheer desperation, sailing up the rickety ladder. have to spend the rest of my life up therejoin the pueblo, I guess."

Ana's brilliant shawl almost covered her Hollywood style near-silk dress. For comfort's sake she was wearing her white buckskin botas which made her feet look the size of a doll's. She had decorated herself like a walking Christmas tree with all her jewelry. There were a dozen bracelets of heavy hand-wrought silver set with turquoise, a silver rosary of big hollow beads with an enormous turquoise cross, strings of coral and old wampum, earrings of turquoise beads strung in a loop and many silver rings piled to the first joint of her small brown fingers.

Ana's ancient penthouse, like herself, showed the encroachment of modern America. In place of the tiny adobe fireplace was an old-fashioned iron cook stove. In place of the pile of sheepskins and mantas on the floor were hideous brass beds. In place of the family tinajas for communal mealtimes on the floor, were tables with oil cloth tops. There was even

an 1880 sewing machine.

Despite modern inventions, the place had an atmosphere of old forgotten days. It was in the strands of scarlet chile hanging from the age-blackened vigas against whitewashed walls. It was in the pungent smell of burning pinyon wood. It was in the fragrance of fresh crisp bread still warm from the outside estufa. It was in the wafer-thin ceremonial piki made from the sacred blue corn.

"We go now to Marta's house," Ana directed. "Marta she have surprise for

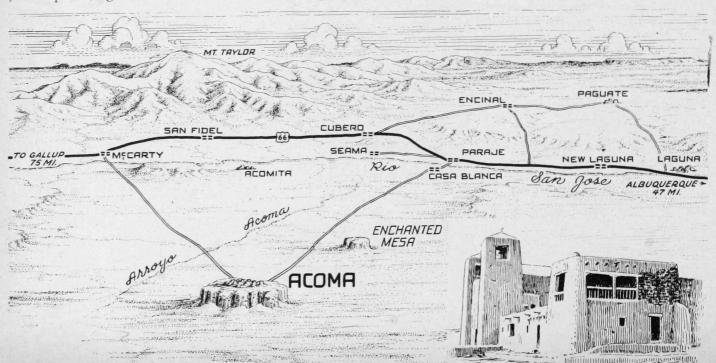
Marta did have a surprise for us. It was a baby—the loveliest baby I ever had seen. Its skin was golden biscuit color and its amazing shock of long black hair was like a little black rabbit's. She was on a cradle board, but the board was soft with a modern pillow.

"What are you going to call her?" asked Abigail.

What you think good name?" questioned Marta, ignoring the breach in Indian etiquette by our inquiring into names.

"Rosemary," answered Abigail. "Rose because she is one, and Mary for Christ-

There were nods and smiles of approval. 'You Catholic?' asked Marta. We had to say no and to this day we grieve over the



thought that we might have been godmothers to an Indian baby on the rock of Acoma

All the time we were talking there had come to our ears the weird, rhythmic, incessant beat of the *tombe* from the sacred kiva. Ana and Elena hurried away to don their ceremonial clothes. Marta wrapped herself and Rosemary in a gorgeous shawl and led the way to the church.

What a place it was for a Christmas celebration! Its 10-foot thick walls dating from 1700, soared 60 feet above us. Ceiling vigas 40 feet long and 14 inches through supported the roof. Between the vigas were yucca stalks colored blue and red and yellow laid in herringbone pattern. The few backless benches had been pushed against the wall. The altar was dark and lifeless

The wail of the *tombe* came nearer. The dancers filed in two by two. We hardly recognized Ana and Elena with the bright crimson circles painted on their cheeks. They made a kaleidoscope of color in their native ceremonial clothing—short fringed skirts, gay back kerchiefs, gorgeous calico sleeves, snowy boots and a profusion of barbaric jewelry.

The dance gained in tempo to the rhythm of the drums, the rattle gourds and the resonant chant of a letter-perfect chorus. The men did most of the dancing. The women simply kept the rhythm with their feet and went through intricate motions with their hands and arms. Each hand held a sprig of evergreen. Each motion, each gesture had a deep religious significance.

Perched up under the sky on the rock of Acoma, we felt we no longer were in the United States of America. We were in the Orient. We were in Burma. Hour after hour of the pom-pom of the drums and the never ceasing pat-pat of precise feet gave the peculiar sensation that the whole 70 acres of rock-ballasted Acoma was swaying like a gently moving hammock. I kept a firm hold on Abigail's sleeve. There were times when I felt she was about to take off and join the ceremonial.

Shadows filled the dim old church. Candles made pin pricks of light in dark corners. The pagan celebration of Christmas stopped. The Christian began and that without benefit of clergy.

In little groups, the Indians of Acoma walked to the altar and knelt before a manger scene they had erected. Old white haired grandfathers and stiff-legged children and gorgeous-shawled women crowded the altar steps. In a growing heap they left their gifts for the Child. There were vases and bowls and ollas made by their own skillful hands. There were ears of blue and purple corn and strings of scarlet chile and little golden squashes. There were cans of milk and boxes of soda crackers.

On each side of the altar stood an In-



Abigail almost joined the pueblo of Acoma. Susan E. Dorr photo.

dian boy perhaps 14 or 15 years old. They were dressed in the blue overalls, stout clumsy shoes and gay woolen shirts of modern Western America. Despite their clothes, they were First American in expression and bearing. Each boy had in his hands a long rifle of Civil War vintage. They were there to protect the Child.

Ana, Marta and Elena walked to the edge of the Rock with us. Where the horse trail dips down to the valley below, they stopped. From under their shawls they

brought out their beautiful handmade pottery.

'This is for you," said Ana.
"This is for you," said Marta.
"This is for you," said Elena.

Down the long trail we went laden with gifts. Burros lost under loads of pinyon wood passed us. Belated stragglers, returning to the old home Rock, stopped their horses to adjust a baby or two on the saddle or to retie a yawning bundle.

"Buenas noches. Feliz Navidad."

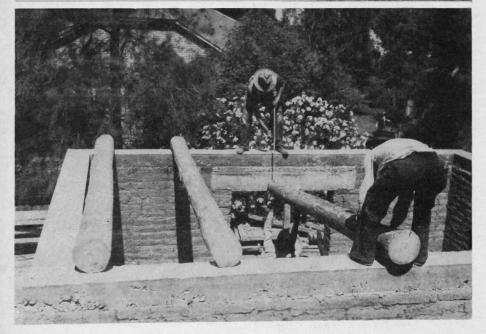
The women kept the rhythm with their feet and went through intricate motions with their hands and arms. Each hand held a sprig of evergreen.

Museum of New Mexico photo.









Adobe

Start your desert home now! Not literally, but start planning and dreaming it. Make your sketches, clip everything you see that looks good, pencil notations as ideas come—pool them in a box or notebook. This collection will be the groundwork for your ultimate building plans. From them the architect can turn out a home vibrant with you, a home ideal for your own pattern of living . . . This is the advice of the Oren Arnolds, who followed their own advice when they created their Casa Ventura in Phoenix, Arizona. Here is the story of how they built their home without benefit of contractor, conventional materials or labor.

By ADELE and OREN ARNOLD

HOME in the desert country? We yearned for it, over the years; we needed it more and more. But apparently we just never would get rich.

Today we have one, with a great deal of beauty, a surprising amount of room, and a delightful all-around livability, for we have given it a 10-months test. Authorities tell us it is one of the finest adaptations of pueblo architecture in the Southwest. And we used very little money. It cost about half what people estimate, and it has nothing that you can't equal or improve on when you start to build.

Pearl Harbor still was an impossibility when we decided to let the contract. We actually signed in February, 1942—and then began a struggle. The contractor died, materials were frozen and labor evaporated. Upshot was that the Arnolds did a large part of the building with their own hands, or by directing whatever high school boys and aged Mexicans they could lure to the site. In the end, this personal touch added infinite charm to the dwelling, so much so that we recommend it no matter what conditions you may encounter.

Today our "Casa Ventura" stands as a striking handmade dwelling, finished without the expense of custom built houses and without the freakishness that untutored

Adobe brick came from the desert soil, massive beams were cut from native Arizona pines, flat rocks of the desert made flagstone floors. Indians mixed straw and mud with their bare feet to make the adobe bricks—which then were laid by the slow and careful hands of Mexicans.

Home

hands sometimes allow. The bricks are of adobe, made by Indians who mixed straw and mud with their bare feet, laid by Mexicans who were similarly close to nature in all its literal and sentimental meanings.

The vigas (pole beams) are pine trees from the forests that edge our desert lands. Flat desert rocks make beautiful flagstone floors. The design is Indian pueblo, the most truly American architecture on this continent.

We chose the adobe pueblo not just because it is American and highly practical, but because it is closest by heritage to the desert region. Why do otherwise normal people come out here and erect a plantation house from deep Mississippi, or an English cottage, or an atrocity from Cape Cod? Why not, as well, adorn our desert with a Chinese pagoda or a graceful igloo!

We believe that only the pueblo, the Spanish, the rancho, or some combination of these architectural styles, ought to be permitted in the Southwestern country. To a large degree California and New Mexico have demonstrated the common sense of this, and Arizona gradually is coming to it. Those three styles offer infinite latitude in convenience and adaptability, and by far the greatest beauty potential the world has ever known.

Our humble example offers — as you approach it—the usual flat roofed effect, with rooms that are squarish or rectangular and stacked with pleasing setbacks and offsets. They are instantly softened by "bullnosed" or rounded corners, and straight lines were deliberately plastered so as not to be too straight. Thus is severity avoided, and a softer more inviting picture achieved.

A 36-foot Hopi ladder (made of tamarisk limbs and baling wire) leans against the front entrance hallway, like those kiva ladders you see in old Oraibi or in Taos. A huge red olla is on one skyline corner, and another hangs with real drinking water in the rear.

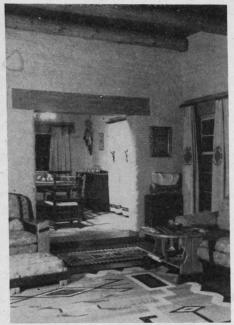
False vigas are six to eight inches in diameter and protrude with only reasonable uniformity as to slant, length and chopped ends. We felt that the perfectly

Indian women made the curtains, the rugs, some of the upholstery. Ranchers and cowboys and artist friends made their contributions to the adornment and construction of the Arnold home. Decorative designs—thunder bird, sun god, cattle brands—are part of the desert's heritage.













All beds are handmade by the Arnold family. Judy, the 15-year-old, made her bed of four planks and short 2x4 blocks on rollers, then finger painted it in Spanish roses to match her dressing table and drapes. Eight-year-old Rosemary can reach her double-deck Monterrey bed by a Hopi style ladder.

sawed ones were too artificial. Also this larger size gives an effect of massiveness and strength. Real vigas, inside as exposed ceiling beams, do not come all the way through the walls, because this is unsound construction—it permits water to seep in and crack plaster or melt adobe walls. Short false vigas outside seal perfectly and look no different.

Outside walls of our place are plastered in adobe tint only, not the full chocolate brown. But that is a matter of personal choice. Inside, the wall tint varies from a pinkish adobe (beautiful) in living and dining room, through pastel blues, ivory and green in the bedrooms.

The charm of these inside walls is in the finish. There is no plaster. The bare adobe was simply rubbed smooth, painted with skim milk for hardening, then painted with color as desired. This gives a fine character to the walls, and is F.H.A. approved. Each main room except the living room has one knotty pine wall, finished natural, to lend variety with a novel touch, also to gain a bit more floor space.

Floors are of turquoise cement, red cement, or flagstones in green. Floor plan as a whole becomes a Spanish design, around a patio, with a total of about 2,000 square feet. Indian fireplaces, picturesque and economical to operate, adorn the living room, dining room and master bedroom. Heating is from a central hot air furnace, and there is a 2500-cubic-foot cooler for each wing of the house, on the roof

In the furnishings, however, came much of the skill and imagination. This was supplied partly by ourselves and partly by ranch folk, Indians, Mexicans, friends. Living room drapes are Indian Thunderbird and Sun God designs, cross-stitched in gorgeous colors on heavy monk's cloth by a Hopi woman named Katchin Vencie. Adele adapted that same technique for the dining room, to make beautiful curtains of cows' heads and cattle brands. Spanish motif holds for the bedroom curtains, except one that is of cattle brands to match the bedspreads.

We went all-out cowboy in the dining room, because all of our income is from writing and much of it is about ranch life. Roby Goff, a ranch friend who also is skilled at metal craft, made a wonderful chandelier of five real branding irons. Hand tooled leather adorns the rancho table and chairs, hand made. Large sepia

photographs, all of salon quality 11x14 in size, form a panel in the knotty pine wall of the dining room, and all are of ranch action and scenes. A chart of 1,000 typical regional brands and an oil painting of wild mustangs complete the wall hangings.

Throughout the house, chandeliers are hand made. Mostly they are wrought iron lanterns. One is a 20-point star, Mexican tin and glass. One is a Pima bread basket turned upside down for a reflector. All switch plates, too, are hand made, of sheet iron in Indian designs. All doors carry wrought iron hinges and thumb latches or ranch latches with rawhide draw strings. The front door bell was once worn by a cow, porch stools once were saguaro cactus on the desert, wood boxes are nail kegs painted colorfully in Indian or cattle brand



Oren is a prolific Western writer. Little wonder they went all-out cowboy in their dining room.

designs, and paper baskets are decorated boxes made by the Arnold children from builder's scrap.

All beds are hand made, by the Arnold family. In Rosemary's (the eight year old's) room are double-deck beds that can become twins. They are of "two-by-heavies" for massive looks and strength, and are given antique Monterrey finish. End boards of one show cutouts of nearby Superstition mountain, and the other shows Camelback mountain. A Hopi style ladder leads a child to the upper bunk. Two large drawers for storage are under the lower bed.

Judy, the 15-year-old, made her bed of four planks and short 2 x 4 blocks on rollers, and finger painted it in Spanish roses to match her dressing table and drapes. Plasterer's wire net she cut into a fan shape, as a place for souvenirs on her wall. Enlarged photos of high school youths on the desert make wall pictures.

Parents' bedroom has the Indian fireplace, and becomes a secondary living room when "high school" is dancing or

making whoopee in the big 17 x 25 living room. Here, temporarily, is the bed for baby Gail, age 2, but she will move in soon with Rosemary. Double bed here was made of pine planks and strap iron, an-

tiqued, Spanish style.

Several chairs were made of cactus and tooled leather. (The Arnolds were taught leather tooling by a cowboy, can be easily learned from books.) Rugs are all Indian made-Navajo. So are some of the wall hangings. One large colored map shows all important routes of the early Spanish conquistadores in this region-and one other delightful map shows a "New Yorker's Idea of the United States."

This latter, you can well imagine, is good for an hour of laughter, particularly in what it does to the desert zone. Distinguished Arizona artists are represented in other wall hangings, most of them gifts of friendship and love. This latter item must not be overlooked in your house planning. If you have not lived long enough or fully enough to have talented friends who love you at least a little, then

you are not ready to build. Beyond that, our home has a growing assortment of "miscellany." A section of petrified log, with a knot showing. A floor lamp made from a breechloader rifle of 1866, found beside a soldier's skeleton in the Estrella mountains. A cavalry bridle from Geronimo's day. Two Indian death hammers. A mountain lion's skin. Serapes and pillows and oddments of western travels de luxe ad lib-all of which we have shunted to the big patio screened porch as our "museum" or rumpus room, which has become our favorite living quarters in spring and fall. We take siestas there on a painted-over wicker couch. We enjoy the radio on the table there. We dine informally at the kitchen end, which

We have but one more word of advice: start your desert home now.

becomes a delightful breakfast nook, out-

doorsy and colorful and cool.

Not, perhaps, with literal building, but with thinking, planning, getting ready! Ours we would change hardly at all, which is remarkable. This is because we planned it and dreamed it and almost lived it for years before a single adobe brick was laid.

Make your sketches, clip everything you see that seems good, make a thousand or more penciled notes of ideas. Pool all these in a box, as we did. Lean on them as you sketch your ultimate building plans, and your architect can turn out a marvelnot a bookish or conventional design but a thing vibrant with you and your individuality, a place ideal for your particular purpose and pattern of living, a home to delight you all the years.

Adele's creative ability adapted the atmosphere of cattle ranches to the design of her curtains.



Oren says, "Only the pueblo, the Spanish, the rancho, or some combination of these styles, ought to be permitted in the Southwestern country."



For 363 days of the year the village of Tortugas in southern New Mexico is a dreamy lazy little Spanish-American community a few dozen humble adobe huts like a brood of yellow chicks gathered in the protection of the grey walls of the mother-church. But here, two days of the year, are brought to light age-old secrets of its people. To the thunder of ancient tom-toms they move in the pattern of intricate dances, punctuated with the rhythm of old chants. And through the years, as Spanish, Mexican and American each have exerted their influences, a strange blending of pagan and Christian rites may be seen in the Guadalupe Day ceremony.

Fiesta in Tortugas

By THERON MARCOS TRUMBO Photos by Rives Studio, Las Cruces

"UR VIRGIN GUADALUPE sometimes she gets angry with us when we do not do as she wishes!" Margaret's laughing brown eyes suddenly turned sober as if clouds hid the sunshine within. "Once a woman she promised the Virgin she would dance on Guadalupe Day, but she was ashamed to be seen by the people. She didn't come to practice most of the time and said she couldn't remember the steps. She didn't come to the dances on Guadalupe Day and our Virgin she was very angry with her. Soon afterward the woman got sick in her legs and she couldn't walk any more."

It was December 11, very early in the morning. The ancient adobe Pueblo House of Tortugas was dimly lit by ruddy gleams from the fires in the yard about which hovered the dark shadows of the people trying to keep warm. All night long these people had been dancing in the Pueblo House, while the Virgin of Guadalupe smiled serenely down on her subjects stepping and whirling before her.

But now the dances were over for the night and everybody was sauntering out into the yard. While we waited I became acquainted with Margaret Walters, a typical Tortugas Indian girl, about 18 years old. The Tortugans are so mixed with other races that one can hardly tell them



The aged, the crippled and the sick moved slowly up the rocky trail on their annual pilgrimage of atonement. At night a trail of fire blazed from the top of the mountain to the bottom, crossed with a flaming horizontal bar to form a gigantic cross.

Atherton Aerial photo.

from their Spanish-American neighbors. This was true of Margaret. Her mother is Spanish-Indian and her father a white man. For 11 years Margaret has followed this one tradition of her Indian ancestors by dancing in the Guadalupe ceremonies.

The village of Tortugas, a few miles south of Las Cruces, New Mexico, has the same appearance as any other little Spanish-American community—a few dozen humble adobe huts, like a brood of yellow chicks, gathered in the protection of the grey walls of the mother-church. For 363 days of the year it is a dreamy, lazy little

"Zoot-suiters" change to stoical Indians during Guadalupe fiesta.



village nestled on the edge of the mesa, beyond an irrigation ditch. Yet here, on those
other two days of the year, come to light
the age-old secrets of its people, traditions
that were born in the darkness of prehistoric times. On Guadalupe Day, December
12, and on the day preceding it, they present to the public the last remnants of their
Indian heritage—ceremonial dancing. The
fiesta of Tortugas is a mellow blending of
three races, three ages and three religions,
with a result that is both quaint and satisfying.

Tortugas' story goes back to those times when much of New Mexico was still an unmapped wilderness. A few of the Indians had intermarried with the Spanish colonists around Santa Fe, so when the Great Rebellion of 1680 occurred, in which the Indians threw off the yoke of Spanish tyranny, there were many who were sympathetic with the conquerors. The Spanish governor and the colonists of Santa Fe escaped massacre by fleeing towards Old Mexico.

They were joined by a small band of friendly Indians from Isleta Pueblo near Albuquerque. Among these people were men, women and children of all ages, and the journey being very hard and trying, many grew ill and discouraged. After the caravan was beyond imminent danger, a halt was called for a rest in what is now Mesilla valley. The sick Indians and the very old felt they could go no farther and decided to stay in the broad fertile valley. These Indians founded the Pueblo of Tor-

tugas, but the balance of the tribe remained with the Spaniards until they reached the safety of El Paso del Norte, beyond which they founded the Pueblo of Ysleta del Sur.

By now the people in the yard were making preparations for their annual pilgrimage of atonement to Mountain "A," five miles across the mesa land. It was still dark, only a little after six o'clock, but we could see them starting out on the dim desert trail, moving slowly because everyone was going — women, children, the aged and the crippled, even the sick. Spanish-Americans from all over the valley and even a few white people had gathered to join in the procession.

"Tell me, Margaret, why do your people make this pilgrimage to the mountain each year?"

She looked at me, puzzled.

"I don't really know," she answered slowly. "It is just our religion. We make a promise to the Virgin that we will climb the mountain and then she will do most anything we ask of her. We've just always climbed El Cerro."

And so we joined the procession. After several weary hours we reached the foot of the mountain which apparently had been nameless until the State College placed a huge letter of white stones on its summit. It stands alone on the mesa a bald smoothlooking hump, like the back of an elephant. It had figured in Indian ceremonials long before Mesilla valley was colonized by the Spanish.

We started climbing. The trail was not so smooth now, and the procession slowed down to a few steps at a time. The going was especially difficult for the children and the old ones. Glancing down, I noticed a few splotches of blood on the stones. Someone had made a vow to go up barefooted or perhaps on their knees. Ahead of me, Margaret tripped on a sliding stone and twisted her ankle. She only smiled and kept on going, limping a little.

Men called "officers" stood by the side of the trail with long whips, and once when there was a burst of childish laughter, I heard the obvious swish-swish of them. Everybody must be reverent here. Another time we had to stop because a woman up ahead had fallen down over the rocks. Someone volunteered to assist her to finish the painful climb. Later she had to be carried down the same tedious path, but now she wouldn't give up.

Noon arrived before the whole procession finally reached the top of the mountain. After everyone had eaten lunches and rested, mass was held for the Virgin. The afternoon was spent in various activities. The men dispersed to gather wood and stacked it in small piles over the side of the



Costumes of this group of dancers known as "Don Santos" show blending of Indian, Mexican and American.

mountain, to be lit at night. The women fashioned crowns of creosote brush and decorated them with crucifixes and other ornaments carved from the roots of the sotol plant. The crowns and similarly decorated staves were to be used in the final procession down the mountain.

The day passed quickly and when dusk

Chief of the "Matachinis" who perform one of the fiesta dances.



descended the numerous fires were lit. The people down in Mesilla valley saw a straight path of fire blaze down the mountain from top to bottom. Then miraculously as if a giant hand had traced it with flame, the horizontal bar of a gigantic cross appeared. There on the side of the mountain burned a huge cross, a symbol of the Tortugans' faith.

Back at the village each house was lit by the traditional *luminares*, or candles placed in paper bags partly filled with sand. Each flat roof was outlined with these homemade lanterns. It was a quaint sight, as if flocks of softly-colored fireflies had settled in meticulous rows upon the roofs, winking and blinking at the passerby.

That night, upon their return from the mountain, the weary Indians held one more dance.

Guadalupe Day blossomed forth crisp and clear with brilliant skies and warm sunshine. A typical American carnival with all its hurly-burly had pitched its gaudy tents beside the church and already the merry-go-round was grinding out its wearisome tunes. Two armed guards were stationed at the church door and at frequent intervals fired their guns into the air as mass was said within. Could this have been to scare away evil spirits?

Presently the people thronged out of the church and the dances began. One group of men, women and children formed in front of the church and went through a graceful dance to the thunder of an ancient tom-tom, while several men intoned the thrilling old chants.

"These are called just 'Indians' or



In fiesta costumes. Older girl recently joined the WAC.

Indios," Margaret told me as she joined them. "With these I have danced six

Perhaps the most interesting part of this dance was the small boys of seven or eight going through the traditional steps with much precision and soberness.

Another group of dancers called the Aztecos were performing in two columns before an ornate shrine at one side of the church. Although all of them were men they were grotesquely dressed in kneelength skirts of brilliant silk. Each wore an apron from Old Mexico, embellished with such signs as Juarez or Viva Mexico. A silk cape with the picture of the Virgin of Guadalupe floated behind. Crowning all was an elaborate headdress of feathers, crepe-paper flowers, mirrors and fluttering ribbons. All carried gourd rattles and huge fans. The colors were as brilliant and striking as possible, and the first view of the dancers was breathtaking.

The music was furnished by a drum and a fiddle, the tune quaintly pleasing. The steps themselves, possibly derived from Spanish folk dances, were similar to the American musical game "Skip to My Lou, My Darling." Three or four abuelos or grandfathers danced independently in and out the two columns and kept the crowd laughing with their clever buffoonery. One fellow attracted special attention by performing a number of difficult steps with untiring rhythm.

All of these dances revolved about a small girl who stood before the shrine, clothed in a white cape on which was embroidered La Malinche.

In the culminating dance of this group we could see a definite meaning—the temptations of the soul and the resurrection from sin. One of the medicine-men tied a green ribbon around his waist and La Malinche held onto it while the abuelos guarded the sides. A masked dancer stepped from his line and pursued them. All in time to the throbbing drum, yet separately from the other performers, these dancers played a sort of tag in which the

masked figure tried to insert his fan between La Malinche and the medicine-man. Some years, so I've been told, he doesn't succeed, but this year he did after several strenuous encounters. La Malinche was immediately laid down on a bit of carpet before the shrine. As the dance continued, each performer surrendered his fan, headdress and rattle to be placed tent-fashion over the small girl in a solid, colorful bier. When they had finished, the air was filled with a deep mournful tolling of the church

"Aye, aye, ayeeee!" The abuelos wept in such a frenzy that the crowd could not help laughing.

Everyone rested for perhaps ten minutes. When the dance continued, each performer reclaimed his adornments as he danced, until La Malinche finally was uncovered. Now the church bells rang out triumphantly, for the soul was saved. Immediately from the church door emerged a hymn-singing procession carrying in front of it the altar and candelabra. The dancers who has been performing in front of the church, bowed before the altar, backed away, and bowed again, leading this jubilant parade up and down the village streets. When at last they returned to the church, all of the dancing stopped abruptly. For nearly six hours these Indians had danced with only brief intervals of rest every half hour or so. All of them were exhausted and the little girl who was La Malinche hardly could stand any longer.

Before the day was over a thousand or more people had crowded the narrow streets which usually accommodate only a couple hundred inhabitants. The activities were not confined to the churchyard, but were spread over the whole village. Women had little booths where they sold candies, scarves and magazines from Old Mexico. There were fruit stalls, cafes and even hamburger stands. Two Mexicans regaled their audience with Spanish ballads sung to guitar accompaniment.

When the sun went down in a blaze of gold, the evening was spent in Mexican dances in which everyone took part, but soon the night turned crisp and cool, and everywhere tired people started homeward. Guadalupe Day was at its close. Tomorrow Tortugas would be only a little adobe town dreaming in the southern sun for another year.

"Will you stop dancing after you are married?" I asked Margaret Walters, as she prepared to leave for home.

"No, I don't think so," she replied, "It is good to dance for our Virgin Guadalupe, and I shall dance for her just as long as I can."

Small boys go through traditional steps with much precision and soberness.





Old rope grey, smoky black, buff, golden amber and tortoise-shell brown make a quiet and beautiful combination. Petrified palmwood.



Tomato red, terra cotta, mustard yellow, maroon and boiled rice white. Sounds terrible but actually as beautiful as an oriental rug. Agatized wood, Arizona.



Dove grey in four shades with white. Light stripes show late wood of growth rings; wider and darker part, early wood. Petrified oak.

Over the Mojave desert hung a brownish haze. The air felt like hot jelly. At times the ground quivered like a live animal. A herd of little three-toed horses sought relief from the heat in the forest of locust, oak and fan-palms—but there was no relief. The air thickened, the sky darkened, the ground shuddered like the skin of a fly-stung pony. Then the wind struck. And the fury of the storm was like the raging of a herd of crazy mastodons . . . This was two million years ago in Horse valley up Last Chance canyon. It is the setting for the story of Petrified Wood, which began back there in the era which geologists call the pliocene.

Wood, Time and Stone

By JERRY LAUDERMILK
Drawings by the author
Photomicrographs by Dave Howell
Polished Petrified Specimens in J. G. Talbot collection

OU wouldn't recognize the scene I am about to describe as a California landscape but that is what it was—over towards Last Chance Gulch about two million years ago early in the epoch geologists call the pliocene.

It was late in the afternoon of what had started out to be a bright clear summer day. Although it still lacked several hours until sunset it was beginning to get dark. A brownish haze, hanging like a dirty curtain in the western sky and drifting toward the east, was cutting off the light. This was dust shot high into the air by a newly erupted volcano in the range of mountains about 10 miles west of the place I call Horse valley. Here, in a meadow bordered stream, a pair of hornless rhinoceri splashed and wheezed in refuge from the heat. The sultry air lay like a hot and stifling blanket over everything. Something was definitely wrong with the entire situation. At times the ground quivered like a live animal and waves of pressure from the detonations deep in the crater showed that another steam explosion had taken place as she coughed out dust and cleared her throat.

All the animals felt the change, especially the herd of three-toed horses, *Hipparion*, about the size of small deer which came galloping from the cover of the forest where trees of locust, oak, and a scattering of fanpalms stretched back toward the foothills. These foothills and the mountain range beyond long have been gone. Today their remnant lies scattered far and wide mixed with the alluvium and conglomerates of the Rosamond formation. But in the days I write about they were the biggest things in sight. The present Sierra Nevada had not yet been shoved up. This was an event to come a million years later.

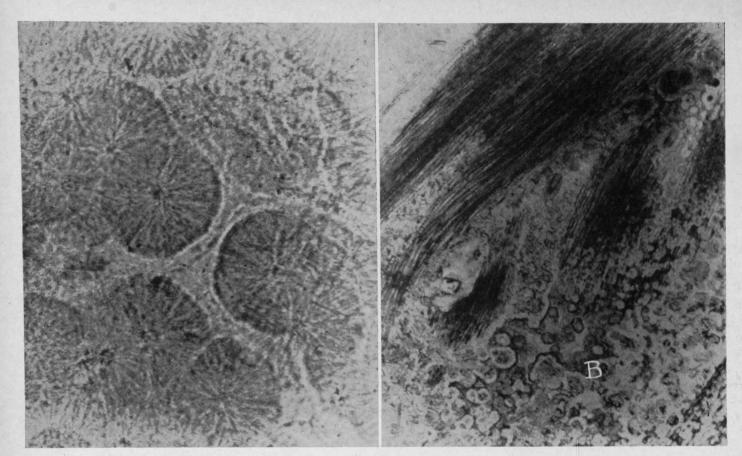
At first, when the day began to go wrong, the horses sought relief from the heat in the shade of the forest, but now it was hotter there than in the open meadow. The leader paused for a moment's recon-

naissance and then, as at a signal, the whole herd trotted in the direction of an old giant locust, the scratching post of the herd, which grew close to the stream. The shade of this old tree lay upon both land and water and always had been a cool symbol of the horse paradise which was the meadow valley. This ordinarily peaceful scene was abruptly broken by the great change which had come upon things.

The interruption was not so much a sound as it was a mighty concussion or pressure that struck like a shove. For an instant the air felt like a hot jelly. It seemed to thicken, the sky darkened and the ground shuddered like the skin of a flystung pony. The horses whinnied with fright, kicked up the sod with their hooves and disappeared over a small rise of land toward the east. Then the wind struck.

The random fury of the storm was like the raging of a herd of crazy mastodons. The palm trees were bent nearly horizontal but from the toughness of their fibrous trunks only a few were broken. With the oaks and locusts things were different. Many were ripped out by their roots and thrown flat and the old locust scratching post heeled over in a shower of pebbles and soil from its roots, and with a threshing of branches and crackling of splintered wood it splashed into the stream. Rolling over and over it began a journey toward the south where, had things followed an uninterrupted course, it would have ended its days in quiet decay in the swamp miles below. But things were definitely changed and with them the course of the stream.

A landslide had dammed the watercourse with dirt and rocks and the pond so made was rapidly filling with the backup from the stream. Here the old scratching post, in company with a thousand logs and branches of oak, pine, palm and other locust trees began to circle round and round in the backwash. Now and then the glint of lightning as it split the hot twilight gave



Left—Area of Joshua tree section with rapidly deposited silica gel showing included carbon particles in radiating lines about a nucleus. Radiation probably is interfaces of lines of radiating quartz crystals in chalcedony. Right—Another area of Joshua tree section showing different type of fibers. At B are parts where deposition has been too rapid for molecular replacement.

the wet logs a phosphorescent look. Then it began to rain,

The rain that fell was hot mud. At first big gouts, then as the sweltering night darkened the rain poured in torrents of muddy water. Through the wet curtain a red glow in the west showed the center from which all this disturbance radiated—the volcano.

All that night and the next day and for several days it rained and the stream swelled to a great muddy waste fed by the millions of rivulets that scoured their way down the slopes of the adjacent foothills. Finally the dam gave way under the pressure of the millions of tons of backed up water and in a mad jumble, mud, logs, carcasses of horses, camels, rhinoceri, ancestral pigs and even a few sabertooth cats were swept into the original stream bed. Finally, the excess of the water drained away and all settled down into a bed of volcanic mud.

This was only the beginning. A new set of conditions had been imposed by the volcano upon Horse valley. Other cones erupted and as the years passed so great became the accumulation of ashes that trees which had escaped the destructive winds of the first cataclysm were buried alive still standing upright. Many feet of powdered rhyolite and pumice were deposited in

layer upon layer above them and now, to all purposes, they were locked up in a matrix of rock, a tuff which, although compact, was still permeable to percolating groundwater. Years stretched out into decades, centuries and millenia while the obscure chemistry of petrification went on in the fibers of the buried logs.

At the beginning, in fact for the first few hundreds of years, the logs simply were soaked through and through by the underground water. But this was not ordinary water. In the first place it was highly mineralized with chemicals dissolved out of the powdered pumice. Some of the most abundant of these salts were the alkalies, soda and potash, combined with silica. The

Salmon pink, wheat straw yellow, mulberry and white. Polished tangential section through petrified root.



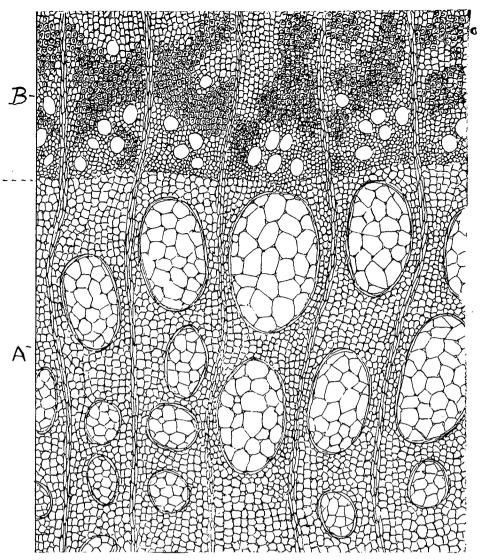
water also was distinctly warm, perhaps hot, but nowhere near boiling. It is probable that the change from wood to stone took place at a relatively shallow depth—not more than 50 feet and likely much less. We know all these things by interpretation of the evidence.

Anything that has lasted long enough carries its history written upon it by the marks of its experiences. These marks or signatures are evidence. After its proper interpretation by comparison of natural conditions with the same conditions produced artificially, it frequently is possible to reconstruct a picture of the things that have happened in a specific case. For instance, it can be shown that during the entire lifetime of the old locust scratching post nearly a hundred years of climatic peace endured in Horse valley - no droughts, no severely cold winters, no accidents such as forest fires or floods. We can deduce this from the condition of the rings of growth which nearly all are uniform and even in contour. These growth rings are the concentric circles of alternately dark and light wood we see in the end of a sawed log. The darker and wider portion of the growth ring is composed of the open-textured, rapidly grown spring and summer wood, while the lighter, more dense and compact wood is a tissue built up in winter. When these growth rings are even and uniform, even and uniform seasons are indicated.

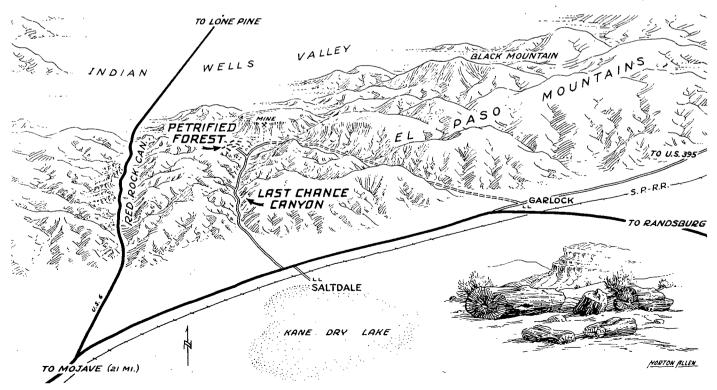
We can tell that the water which petrified the log was not excessively alkaline by the fact that decay took place and the bacteria which cause wood to decay flourished, which they would not have done in a strongly alkaline solution. From the same evidence we also can tell that the water was not excessively hot. Also, the reactions took place at a relatively shallow depth because the cellulose - dissolving bacteria never have been found at depths greater than 50 feet. Beyond this depth pressure and lack of oxygen preserve wood against bacterial action and what is called mummified wood is formed. This is a change of the wood to a black and coaly material which retains all the microscopic structure of the wood fibers. By proper treatment mummified wood can be blezched, softened, sliced and stained for examination just like a piece of fresh wood. Such wood is not petrified.

In the case of our locust log, petrification took place by what is called molecular replacement. When bacteria attack woody tissue they not only attack the substance cell by cell and fiber by fiber but molecule by molecule. Wood is composed of a compound of carbon, hydrogen and oxygen called cellulose. A cellulose molecule is the smallest cluster of carbon, hydrogen and oxygen atoms that can cling together in the right proportions to have the properties of woody fiber or cellulose. Such a molecule is many thousand times—perhaps a million times, too small to be shown by the most powerful microscope.

During their growth and reproduction



Microportrait of thin section petrified locust wood from Last Chance canyon. Although specimen is completely chalcedonized, every detail of structure is preserved. A and B are the two zones of a single growth ring. A shows woody tissue built up during spring and summer. B is fall and winter wood.



bacteria feed, that is, they take in and utilize food materials. For the particular types of bacteria that cause wood to decay (there are about 50 species) the cellulose first has to be dissolved before it can be assimilated. This is brought about by chemical substances called *enzymes* secreted by the living bacteria. The enzymes break up the cellulose molecules into simpler compounds some of which have acid reactions. One of these is carbonic acid. These acids cause silica replacement, a process that takes place about as follows:

The water that soaked into the old log contained much dissolved silica and penetrated by way of the pores and ducts naturally provided in the woody tissue of the log for the conveyance of sap. The silica was present as the silicates of soda and potash in solution. So long as the water stayed alkaline, everything was all right—

the silica stayed in solution. But when the water became acid, things began to happen. Part of the soda and potash molecules let go of their silica in favor of stronger and more romantic acid loves. The silica which had been jilted in this fickle manner was precipitated from solution as a gel.

Now imagine that you have a pair of super-microscopic X-ray eyes so that you can see what went on in the locust log when it petrified. The first thing you notice is the effect of local action. This is an interesting phenomenon which takes place in many geochemical reactions and means just what its name implies. Suppose you have a large volume of alkaline water—in this case our percolating groundwater. Now suppose that a second solution with an acid reaction is being continuously added in tiny amounts to the first solution. The reaction takes place on a tiny scale and

only at the neighborhood of the point where the acid solution blends with the alkali.

Now when our locust log began to petrify, the bacteria, enormous things when compared with molecules, filled the cells of the decaying wood with their colonies and each bacterium was surrounded by an area of acidity. In between the colonies and their areas of acidity there remained unattacked stretches of woody tissue through which the alkaline water could percolate. But in the acid areas which were molecular films on and in the cells of the dissolving cellulose, silica was deposited molecule by molecule.

This replacement was very slow. It can be illustrated by the following comparison: Suppose you have a pavement made of wooden blocks placed so as to form a pattern. You want to replace these wooden blocks with blocks of stone of the same size but you don't want to disturb the original pattern. Instead of tearing up the pavement and starting from scratch you pull out one block today and maybe two or three blocks tomorrow and the only constant system you observe in these operations is that the instant you take out a wooden block you replace it with one of stone. Eventually all the wooden blocks will have been replaced by stone and you have in fact petrified your pavement block by block. This is what took place in the locust log. Every detail of the pattern was preserved as perfectly as if it had been a section of fresh wood. Sometimes even the bacteria were caught out, died and also were replaced by the silica, leaving petrified microbes.

Where this replacement has occurred on a submicroscopic scale, slowly, preservation of detail has been perfect. In cases where local action has been rapid, the silica has been deposited in large blobs of silica gel and the condition is, to go back to the pavement example, as if you started out patiently to do the job block by block, then you tried to rush things, tore out blocks by the tier and filled the vacant places with concrete poured in by the bucketful. You finish the job, but do it in a sloppy way and preserve none of the pattern in the hasty places. These two conditions are shown in the photomicrograph of the petrified joshua tree from Yermo.

In this locality at about the same time there was so much excitement over in Horse valley, many joshua trees and other types were buried and petrified in much the same way as the locust log. But for some reason in the section shown, while part of the silica was deposited molecule by molecule, other areas close by were

Section of mummified oak from very deep gravels of Colorado river, Arizona. Although specimen is extremely old, possibly as old as the chalcedonized wood from Last Chance canyon, it still is essentially wood fiber. Bacterial action was prevented by depth and pressure and lack of oxygen.



finished with a rush and structure has been lost in the lumpy mass of silica gel. An interesting feature of these lumps is the presence of carbon derived from the decayed yucca wood and arranged in radiating lines. There are other interesting phases to this decay and silicification of wood.

Sometimes specimens, big logs, are found where only one end of the log has been buried in sand or ash favorable to silicification and the other end has been buried in clay or soil. The log then will show one end changed to stone and the other to lignite or brown coal through ordinary processes of decay such as take place in peat bogs.

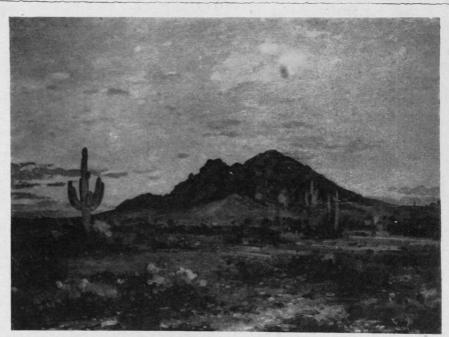
Proof that slow decay in the presence of silicious water was definitely the cause of the precipitation of the silica is shown by a specimen of agatized wood from Arizona now in the geological museum of Pomona College. Part of this log had been charred, and although the rest of the specimen changed to agate, the charcoal stayed in its original condition. It can be chipped off, and when heated, it glows and burns like any other sample of charcoal. The ash that remains does not show a great deal of silica in its composition, only slightly more than in the ash of ordinary charcoal. This indicates that the bacteria which decayed the original wood could find nothing to feed upon in the charcoal and that there was no local action and no replacement of charcoal by silica.

This also tells something about the degree of alkalinity of the petrifying solution in this case. Charcoal has the property of absorbing or binding down certain substances on the inside of its pores. This is different from absorption where the absorbed substance fills up the pores like water fills a sponge. If the water had been very alkaline a greater amount of both alkalies and silica would be found in the ash.

The striking colors frequently shown by polished specimens of petrified wood generally are due to oxide and hydroxide of iron carried along in the mineralizing solution. But sometimes in the case of dark smoky brown and blackish specimens, the color is due to finely scattered particles of carbon dispersed throughout the colorless chalcedony matrix.

The logical question to ask here is, "Is wood being petrified at the present time?" The answer is "Yes." Wherever the proper conditions occur—that is, wood, silicious alkaline water, bacterial action and plenty of time—pertification will take place just as it did in those far-off days when Hipparion galloped through Last Chance canyon,





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Sez Hard Rock Shorty

Death f Valley $f \Gamma$



"That Baldy Williams," complained Hard Rock Shorty, "is sure an embarassin' guy to go out with. I've talked some about him before but he sure can think o' more darn ways to get you into trouble than any other seven fellers in Inferno.

"Now, of course, Baldy's real interestin' company. If he wouldn't do these fool things-but let me tell about the last time we was in Los

Angeles-

"We'd been there too long an' was gettin' homesick an' Baldy went in to a fancy bakery he seen along the street an' just for comp'ny started talkin' to the baker. The baker was a funny guy with a little moustache but he didn't know much about the desert. Baldy was admirin' some o' the scenery that was decoratin' the

cakes an' he says—
"'Yuh know, them cakes're purty but they ain't as purty as the sun goin' down over back o' the Panamints an' the view from the store

porch in Inferno.'

'Sput!' says the baker. 'I weell make that on a cake too!'

"'What?' says Baldy. 'You'll trim the cake with desert scenery?'

'But of course,' says the baker. "So we go back tomorrer an' there's the cake, purty as a little red wagon an' lookin' good enough to roll in. Baldy looks it over real careful.
"'I'm disappointed,' he says.

" 'What?' screams the baker. 'Dis-

appointed?'
"'Yup,' says Baldy. 'There ain't enough red in that sunset — the desert don't look like that.'

"'Sput!' says the baker. 'Come

back tomorrer.'

'So we go back tomorrer an' this cake really looks just like the view over the blacksmith shop only pur-

tier.
"'Gosh!' says Baldy. 'That's per-

'Sput!' says the baker. 'Of course! Where shall I send it to?'

'Send it?' asks Baldy. 'Oh-I'll just eat it right here.' "

TRUE OR FALSE

Quiz for this month is another "easy" one. It is mainly a set of review questions on material published during the past six

months in Desert Magazine. If you've been reading Desert that long, you should score at least 50 per cent correct, making you a full-fledged member of the Desert Rat fraternity. If you score 15 or more, sign your name hereafter followed by "S.D.S." (Sand Dune Sage) Answers on page 30.

- 1-Dinosaur tracks may be seen in Split Mountain canyon, in Vallecitos area of Borrego valley. True...... False......
- 2-Meteorites are very smooth, having polished effect, from great heat and speed. True..... False......
- 3-Albuquerque and Santa Fe, leading New Mexico cities, are situated on Rio Grande river. True False
- 4—Arizona Strip is north of Grand Canyon. True...... False......
- -Since Navajo Indians do not have full citizen rights, they are not inducted into armed services. True...... False......
- 6-Yuma and Tucson, Arizona cities, are located on same U. S. highway. True..... False.....
- 7-Mojave Indian tribe's home is confined to Mojave desert, California. True False
- 8-Red-tail hawk can be trained as a falcon, or hunting bird. True...... False......
- 9—There are no fish in Pyramid Lake, Nevada. True...... False......
- 10—Incienso is another name for Desert Encelia. True...... False......
- 11-Chief ore to come from famed Yellow Aster mine of Randsburg, California, was copper. True...... False......
- 12—Emeralds have a hardness of seven in the Mohs scale. True...... False......
- 13—Most of "jewels" in cheaper watches are garnets. True...... False......
- 14—Red Ant Chant is a Zuni folk song. True...... False......
- 15—Poison of Gila Monster is secreted in lower jaw. True..... False......
- 16—Kangaroo rat is a nocturnal rodent. True...... False......
- 17-Mirages are optical illusions due to refraction or reflection of light rays as they pass through layers of atmosphere of unequal density. True......
- 18—Diamond is only precious gem to occur at great depths. True...... False.......
- 19—Salton Sea, in Colorado desert, is approximately 25 miles long. True...... False.....
- -Jedediah Smith was outstanding leader in Mormon church. True...... False.....

Volcanic Bombs Described .

FLAGSTAFF—Prehistoric bombing of Arizona is the subject of an article, "Cored Bombs From Arizona and California Volcanic Cones," by Major L. F. Brady of Museum of Northern Arizona, and Dr. Robert M. Webb, professor of geology at UCLA now teaching army personnel at ASTC, in August-September issue of Journal of Geology. Study deals with volcanic bombs which in contrast to type now raining down on the earth, do not explode after landing. They are chunks of hot and plastic lava ejected with tremendous force during a volcanic eruption. Paper describes various types, their origin, composition and occurrence.

IS DESERT LATE? . . .

Wartime problems both on the production and circulation "fronts" have slowed down delivery of DESERT to its readers. Please wait until after the first of the month to notify us of non-delivery. But FIRST be sure you have given us your present address BEFORE the 5th of the month, so we will have had time to make the change on our mailing list. Otherwise there may not be an extra copy left for you. Because of paper shortage we must limit number of copies printed

We are sure we can count on the co-operation of our DESERT friends in regard to address changes. If your address in the near future is uncertain, ask us to HOLD your copy for you.



The Souths have been home from their wanderings a month now—busily packing their household goods up the trail from the foot of Ghost Mountain to Yaquitepec, cleaning and repairing the cistems in which they hopefully expect to catch a water supply, and making new plans for building next spring. They thought life had settled down to almost normal—but a night of peaceful slumber suddenly was broken with a ghoulish hubbub. Bang! Crash! Skreek! Clatter! There was a hammering and beating and grinding and creaking and the chilly jangling of chains. They rushed half-awake to the unfinished room, as Rudyard who is noted for his excessively cheerful imaginings, shrilled, "A mounting lion! He's escaped into the house an' he's dewouring someone. He's cwunching up bones!" When the family solved this mystery, they cleared up the case of the missing knife, the colored pencils and toys.

Desert Refuge

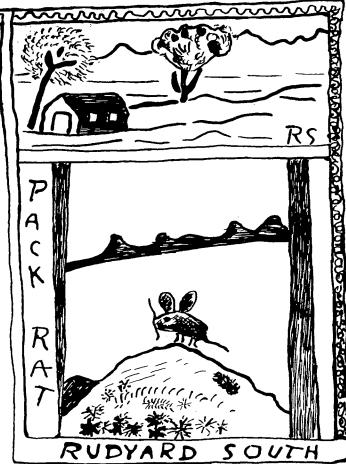
By MARSHAL SOUTH

BIG whiptail lizard moves slinkily across the noonglinted stretch of white gravel before the house. In the shadows of the gnarled old juniper tree, where the sifting sunlight makes fretted patterns of gold upon the bluishbrown mosaic of fallen ripe berries, Rudyard and Victoria sit close together, intently turning the pages of an old picture book.

There is a sense of hush and stillness over everything, despite the restless stirrings of a wandering little desert breeze that harps a low sleepy song of solitude with its swaying of an open window. Tanya and Rider are away off down the trail somewhere, doing their daily part in the water carrying program, a task in which we all share. Above the somnolent lullaby of the rasping, wind-swaying window hook, lifts the occasional hushed murmur of voices from the two engrossed youngsters under the juniper tree. The peace of the desert lies over everything like a crystal bowl. Ghost Mountain and all of the vast stretch of the shimmering wastelands beyond are a-drowse in the sun.

But in all the wide-flung desert sky there is no hint of rain. And rain we need desperately. All the desert needs it. Even the chollas and the mescals are beginning to look a bit discouraged. Cleaned and new tarred our empty cisterns wait. But in vain. The days march past on brassy feet. Dry, fine, thirsty dust is upon the creosotes and upon the yuccas and each sunset the dispirited clumps of beavertail seem to shrink a little smaller within their wrinkling skins. Still it does not rain.

Oddly enough dry conditions do not seem to have had a depressing effect upon our bird visitors during the past nesting season. Rather the reverse. For the first time in our records, all of the little houses we had provided were used, even the oldest and least pretentious ones. There had been such a demand for



quarters that some of the late comers had had to construct hogans and wickiups for themselves. This they had done in the precarious summits of junipers and under the sagging bundles of mescal poles that span our ramada. It must have been an interesting colony. Evidently we missed something by not being at home.

Judging by the varied types of building material used in different nests, several new varieties of birds had joined the usual crowd. Our old friends the olive-sided flycatchers, who have a permanent lease upon the little red-roofed house in the juniper by the cisterns, had been back, of course. And the desert sparrows. And the canyon wrens had occupied every one of the hollowed mescal butts tucked away in the shadowy places. And the house of the purple finches had been lived in too, as had the domiciles of all the other old timers.

But we could not figure out what little desert sprite had resided in the diminutive bungalow way up on the summit of the pole above the ramada. Nor could we determine the builders of the new wickiups. Birds are as definite as humans in their architectural designs. But, as we made the rounds, cleaning out the nest boxes and getting things ship-shape for next season, we could not decide who the newcomers had been. Maybe they'll come back next year. Anyway we're glad that while we were away adventuring on far trails, our little house here among the swaying mescal blooms had its loneliness cheered by the constant bustlings and twitterings of a glad company of feathered friends.

Life at Yaquitepec is back almost to normal. Not quite, for there is much arranging and contriving and even new construction to be done before we can thoroughly drop back into a smooth course. We had feared there might be a few wistful regrets over the memories of frogs and minnows and waving green cattails and the murmurous gurgle of running springs. But not a bit of it. The children have enjoyed their wanderings. They have known what it is to have water in abundance. They have expanded their horizons and have added to memory's storehouse scores of localities which before were just names on the map. I think Victoria neatly sums up the feelings of all three: "Twips," says Victoria, "are pwetty goot. But it is gooder to get back home to Yak-a-pek. I LIKE Yak-a-pek."

Ghost Mountain juniper berries are good and ripe. In fact the crop is about over—a fact to be noted with regret by the coyotes who by moonlight and starlight have come trotting up our precipitous trails to enjoy them. Coyotes at this season of the year seem to make juniper berries their chief article of diet. When you get them just right, the berries are good. A bit woody, but sweet and tasty, with a flavor reminiscent of St. John's bread.

The Indians appreciated them and ate them not only "as is" but also ground into meal and baked into little cakes. The tiny little hard, filbert-like kernel—the part you discard—has a diminutive, meaty interior which the chipmunks like. But one almost needs to be a chipmunk to get the benefit of the morsels. They are so tiny you never get a proper taste of them, however patient you are.

To the furry little rock dwellers, though, the size is just about right. From the open doorway of my writing house among the rocks I often have watched some little grey rascal, his tiny white-trimmed brush of a tail arched pertly over his back, squatting on the summit of a branch-shaded boulder, enjoying a hearty meal of juniper-berry kernels, scampering back and forth to help himself to the berries from the heavily laden branches, cracking the kernels expertly and letting the empty shell halves tumble down into the rock crevices below him. It is all very simple. But when you try to crack a juniper berry kernel yourself all you get is a smashed whiff of something which is just tantalizingly good enough to urge you to repeat the experiment again and again. And always with discouraging results.

Pack rats like juniper berries too. They work overtime to lay in a generous supply for winter. The big rat, who for so long has made his home under an overhanging eave of our roof, is no exception. He is a far-seeing thrifty individual. A few days ago he decided that his roof storehouses were inadequate. So he came down into the house, taking advantage of a hole where, during our absence, a chunk of mud plaster had fallen out. He is a big handsome rat with an expensive-looking waistcoat of cream colored fur. An old tenant of ours of several years' standing, we felt rather benignly disposed towards him. So, although we saw him flitting to and fro and hurrying importantly along shadowy wall bases in the lamplight we took no "steps." It was true that on several occasions we heard mysterious noises in the dead of night that linked themselves with our flitting visitor. But we dismissed the matter tolerantly.

Thus, in our role of gullible Simple Simons we drifted along, suspecting nothing. Not even when Tanya began to worry over the disappearance of her pet table knife—the one with the red handle. Or when Rider complained that a plaster mould, in which he made clay ducks, was missing. Or when Rudyard accused Victoria of having taken, and lost, a little red metal toy auto, on which he set great store—an accusation which she vociferously denied, entering a counter complaint that "Rudggy" had "tooked my wed an green pencils."

Then one night came the grand finale. We had gone to bed in peace and goodfellowship with all the world. Only to be torn from slumber around about the witching hour of midnight by a ghastly hubbub. Tumbling from our covers, to the accompaniment of Rider's startled exclamations, Rudyard's shouted questions and Victoria's lusty yells, we were aware of an awful noise proceeding from the gloom-shrouded north archway, the one that leads into the unfinished room. Right now the archway, temporarily walled about by a lath and tar-paper cubby hole,

serves as a sort of storage space. It was from the depths of this cavern of shadow that the racket proceeded . . . hammering and beating and grinding and creaking and the chilly jangling of chains. "A mounting lion," Rudyard puffed breathlessly, scrambling at our heels as we snatched the dim-burning night lantern from its hook and dashed towards the scene of commotion. "A mounting lion! He's escaped into the house an' he's dewouring someone. He's cwunching up bones!" (Rudyard is noted for his excessively cheerful imaginings.)

But it wasn't a mountain lion. It was our old friend the packrat. In the flickering lantern-light, as we peered among the piled trunks and boxes inside the archway, all we could see was a glittering litter of smashed glass, a tumble of overturned tin cans and a wild scatter of spilled nails, screws and small bolts, in the midst of which confusion, jerking back and forth upon the surface of a big flat slab of rock, like a dumpy tugboat buffeted by a choppy sea, moved a battered old graniteware pot, upside down. Bang! Crash! Skreek, clatter! It would advance and retreat. And go sideways, lifting every once in a while and clanking back upon the stone as though all the jumping beans in Mexico had taken refuge beneath it. The thing seemed possessed.

"Ha!—the rat!" Rider said, his sleepy tones holding something of the melodrama of Sherlock Holmes of Baker street. "He's been on the shelf and he's upset that tippery carton of glass jars and nails and things. And the old pot has fallen down on him. He's under it."

And he was. All we saw of him, as we gingerly lifted the pot was a flash of expensive fur waistcoat—a whizzing pale streak that hurtled away into the shadows. To be followed later by a bamming plunk as his scrambling body hit the iron roof outside. He was gone.

But he left the evidence of his misdeeds behind him. For there at the foot of a big pile of earth which he had burrowed out from beneath the flat rock slab, lay Tanya's red handled knife, Rider's duck mould, Rudyard's tiny toy auto and Victoria's pencils, together with a varied collection of other trifles we hadn't missed. And under the stone, strategically disposed in a half dozen little nooks and corners amidst the piled boxes about it, were heaps and heaps of carefully gathered juniper berries. You'd never have dreamed that one rat could have lugged in so many berries in such a few days. In the morning, when we came to clear things up, we took out five tomato cans full of them.

After which, heartlessly, we took a little of our precious water and mixed it with some good desert clay into a thick mud. And we plugged the hole up under the beam. We believe in conservation and in industry. But there are limits.

Now, nightly, we hear our friend of the expensive fur waist-coat wandering disconsolately up and down on the roof outside the plugged hole. He does not enjoy being relegated to the region of outer darkness. His feelings, I imagine, are akin to those of humans who, every once in a while, are rudely awakened by Fate to a startled realization that they cannot forever trample insolently on the toes of God.

PROGRESSION

Progression is an inward thing.
It matters not what clothes we wear,
What homes our varied incomes bring:
The soul must feed on different fare.
On wisdom gleaned from kindness given,
On thoughts of Truth and Life profound.
By such—and how we've loved and striven—
Is measure of true progress found.

—Tanya South.

LETTERS ...

Black Butte Map . .

San Francisco, California

Dear Editor:

I read with interest about the present popular search for a "black butte" in the region of the Chocolate mountains, wherein is said to occur a valuable mineral deposit. (D. M., August and October, 1943.)

I have a map showing a Black Butte apparently between the Chocolate mountains and the Chuckawallas in eastern Riverside county. Hence, if you know some reliable and seasoned desert prospector who might want the opportunity to inspect this butte on my land, please have him write me and the matter can be discussed. . . Of course, I do not know if this butte has any mineral deposits.

HENRY J. BLOOM

Dear Mr. Bloom—Any letters from interested prospectors will be forwarded to you.—L. H.

Rattlesnakes and Desert Sunshine . . Encinitas, California

Dear Miss Harris:

It is often said that 20 minutes of direct sun rays will kill a rattlesnake. My personal experience refutes this claim. In 1915 I was sent to a location about eight miles southwest of Thermal in Coachella valley to build a house on a claim.

Close by, some well-drillers had a camp. We were warned not to sleep on the ground because of the sidewinders which traveled at night, so we stuck some poles in the ground and swung our hammocks to them. Every morning we would find sidewinder tracks under our beds and around camp. These we followed and while most of them led to kangaroo rat holes where we dug out and killed many of the rattlers, on several occasions we found the snakes tightly coiled up in a neat depression which they had hollowed out with their bodies.

These snakes were out in the open sand entirely exposed to the full glare of the sun, and as this was about 8 o'clock in the morning I have no doubt that they would have stayed there throughout the day. The sun at that time was burning hot, so this proves the 20-minute theory erroneous.

EDWARD P. KINCAID

More Approval for Pilgrimage Story. Cathedral City, California

Dear Miss Harris:

I greatly enjoyed Thomas Crocker's article "Pilgrimage to Yaquitepec" in the August issue, and hope someday to see his painting. If he paints as well as he writes I want to see his work.

KURT REINEMAN

Exposure to DM is "Four Star Take"... San Diego, California

Dear Staff:

Several weeks ago I was exposed to two volumes of Desert Magazine, and the result has been a 4-star "take." Why doesn't somebody tell me these things?

Your magazine is one of life's good things which this desert fan cannot afford to miss. Enclosed is two years subscription to take care of its continuance in the future. As for the past, I should like to catch up with other Desert readers and buy a copy of each available back issue.

Here, perched on an arc of San Diego's blue bayshore, is a lovely place to be, but in time of stress my heart goes back to the calming fastness of our Southwestern desert. In this, Desert Magazine is like the outstretched hand of an old friend.

Marshal South's articles and Tanya's poems are the highlight of each issue. Their spirit is a flickering candle flame, a tiny beacon of reassurance in a confused and troubled world . . . Your task must now be one with many handicaps. I salute you, and thank you for Desert.

MARY E. McVICKER

Explaining the Poets . .

Pacific Beach, California

Dear R. H.: Yes, poets are a peculiar tribe And merit many an editor's jibe. They are like other creative guys With feet on earth and heads in the skies-Painters, musicians and architects And founders of new religious sects. When the spell is on they've got to write Surely as an Irishman must fight. You can dam up a continental river But the flood of poets-Mon Dieu, niver! Why don't they keep their trash at home? Well, why does a youngster have to roam? Why does a poor man want to be rich When nature meant him to dig a ditch? Alas, each thinks he writes for the ages Though he ends up in the D. M.'s pages! Each poetaster who plays with rime Hopes he will be a Whitman in time, A Masefield or at least a Benet-Each dog, he says, must have his day. Time was when a poet was somebody,

shoddy.
But in these times of science-wonder
It's not the fashion to dream and ponder.
Yet poets will keep on singing songs
As long as they feel joys or wrongs.
But I'm with you—when they get erratic
They and their verse should stay in the attic.

His wares brought more than just bum

Verse-making now is a hobby indoor And should not torture the editor.

CARROLL DeWILTON SCOTT



Who Can Identify Graves? . . .

Barstow, California

Kind Friends:

Enclosed photo of two graves was taken about one mile south of Hidden Springs, San Bernardino county, and about 100 yards east of what remains of an old road.

I thought some of the Desert Magazine readers could give the history of them. Have just read Edwin Corle's "Desert Country" and wondered if these could be phony graves referred to on page 307 as having been "planted" by Death Valley Scotty. I am inclined to believe they are.

G. R. WILLIAMSON

Collecting on a Coral Reef . . .

Vista, California

Dear Miss Harris:

In regard to a letter from "A Rockhound on a Coral Reef" in your October issue. Being a rockhound from the southeast coast of Florida, please allow me to suggest that if the rockhounds do some digging about, they should find crystallized shells and other things ever of interest to a rockhound.

D. C. ORTH

Six Years of Desert Covers . . . Alhambra, California

Dear Miss Harris:

I have written before to tell you what I think of your wonderful covers and ever since the September number of Desert I have said I just must write again and tell the staff how much I like the covers of the August and September numbers, then came October with its so interesting Navajos and now Totem Pole with its shaft of vivid red against a desert sky.

It seems to me that never have you produced four consecutive numbers with covers so fine and that August and November are two of the best. Then I turn to September and its glorious desert sunset, compare it with that very first cover of November, 1937, and say to myself, "What's the use, when they are all so fine."

Six years of the most interesting and beautiful covers ever produced by any magazine, and inside these covers—well, others are telling you about that every month. Keep it up.

WILL H. THRALL

Travels Via Desert .

Los Angeles, California Dear Desert Magazine:

I want to tell you that I think the Desert Magazine is the grandest magazine of its kind that has ever been published. I read everything in it from cover to cover, even the ads.

I am too old to follow the desert trails, but when I read the wanderings of the explorers and desert rats I am right by their side and what a grand time "we" have.

CARRIE B. MOORE

Sailor Will Head for Desert . . .

Utility Squadron 1 FPO, San Francisco

Gentlemen:

I would like to renew my subscription to your fine magazine. The sectional maps that have appeared with some of the stories will be a valuable guide to me, for I am making many plans to visit that country after the war.

Hunting Indian relics is my hobby. When I read of potsherds, arrowheads and flakes of flint, or an ancient Navajo watch tower, I locate and mark the spot on the map so I'll know just where to start when I get to the desert. When I see pictures of Monument Valley, I often wonder how many fine spears and arrows are lying at the base of those tall spires of rock. I have learned that eroded land and

shifting sand dunes are the best places to look. Monument Valley seems to have both.

Being a native of Wisconsin didn't stop me from learning about the desert. When my favorite campsites were covered with winter snow, I spent my spare time in the library reading about the cliff dwellings and the Indians of the Southwest.

On my way to the coast shortly after December 7th I saw the desert for the first time and wrote an 18-page letter home describing and sketching it as we traveled through. When we stopped at Gallup, I thought, Boy! I'm coming back to this town someday—definitely.

The brilliant colored sunrises and sunsets, the sheer red cliffs streaked with white, the broad expanse of sage and cactus are something that will use up rolls and rolls of 35mm Kodachrome film . . . Already a shipmate of mine from Phoenix has told me of some caves about 50 miles west of there, with walls blackened from smoke and the floor strewn with bits of broken pottery, flint chippings and corn

The only experience I wouldn't want to encounter is that of Tom Terriss in "The Canyon of Death" (July issue). That was by far the greatest story of all past 11 issues. Dig into your files and let's have some more like that.

VERNON G. LEUDTKE, AMM 2/c

TRUE OR FALSE ANSWERS

Quiz on page 26

- 1—False. What appear to be dinosaur tracks are concretions.
- -False. Meteorites are much pitted and crusted. See DM, Dec. 42.
- -False. Only Albuquerque is on Rio Grande.
- 4—True. Strip lies between north rim of Grand Canyon and Utah state line.
- —False.
- -True. Both are on U. S. highway 80. -False. Mojaves live largely in three groups today: Colorado river reservation south of Parker, Arizona; Fort Mojave reservation and near Needles, California.
- -True. See DM, Mar. 43.
- -False. Land-locked salmon called trout weighing 20 to 30 pounds, and many cui-ui are found in Lake Pyramid.
- -True.
- 11-False. Yellow Aster is noted for
- gold production. -False. Emeralds have hardness of 8.
- -True.
- 14—False. Rare Navajo healing ceremony, highlight of which is swallowing of live red ants in hot water by patient. See DM, July 43. 15—False. Location of poison is one
- reason Gila Monster is not as dangerous as analysis of venom would indicate.
- -True. 17—True. 18—True.

the West.

-False. Salton Sea is 45 miles long. -False. Jedediah Smith was one of earliest explorers and mappers of

Achievement

- On October 15, 1943, purchase of the electrical properties of the California Electric Power Company in Imperial Valley and the area in Coachella Valley destined to be served by the All-American Canal was completed, and Imperial Valley Irrigation District became the sole distributing agency for electrical energy in these areas.
- Thus was achieved a goal toward which the people of Imperial and Coachella Valleys have united their efforts for a quarter of a century. Full development of the power resources on the great All-American Canal now seems assured and both water and power will be put to the common usage of developing these two fertile reclaimed desert valleys.

SHARING THE BENEFITS OF WATER AND THE PROFITS OF POWER, IMPE-RIAL AND COACHELLA VALLEYS ARE IN TRUTH GOOD NEIGHBORS LINK-ED BY BONDS OF MUTUAL INTERESTS AND NECESSITIES.



HHH ... on the Desert

ARIZONA

Fiesta Planned for February . . . TUCSON — Fiesta de los Vaqueros, cancelled this year for the first time in 18 years, will live again February 19 and 20, 1944, according to plans of chamber of commerce rodeo committee, headed by M. H. Starkweather. Prize money will be less, use of local stock will be emphasized. But new features such as chariot races and competitions for servicemen and units from near-by posts and stations are planned.

Poston Authority to Change . . .

POSTON—Colorado River relocation center here will be transferred January 1 from department of interior to war relocation authority, it was announced October 29 by W. Wade Head, project director. Poston center was first of 10 built by war department to house Japanese evacuated from military areas of Pacific coast. WRA will continue to develop land for production of food. About 2000 acres were under cultivation late this fall.

Navajo Language Gains .

PHOENIX—Indian Service development of written Navajo alphabet is basis of dictionary compiled by Robert W. Young, specialist in Indian languages. This in turn has led to printing of Navajo newspaper, title of which means "Those things in the process of occurring" and to translation of booklet, "War With the Axis." The 300 copies of newspaper, which is translated by Willie Morgan, Navajo youth, and printed in Phoenix Indian school, are distributed to trading posts, missions and schools on the reservation. Special type was made by Mergenthaler company, adding one new letter and excluding F, P, Q, R and V. New letter uses L with slanting bar across the perpendicular, to represent the hissing sound by expelling air laterally with tip of tongue against roof of mouth without using voice box. Some of the letter sounds are varied with different accents and other signs, such as a small hook placed at bottom of A, to represent its nasal sound commonly referred to as a grunt.

Bighorn Sheep Increase .

QUARTZSITE - Bighorn sheep in Kofa game refuge south of here and in Cabeza Prieta game refuge are making amazing comeback according to Geo. Amundson, in charge Arizona fish and wild life service. Bighorns had been almost exterminated five years ago, when vast refuges in Pima and Yuma counties were established to protect them. Great numbers of lambs have been observed in every flock seen by Amundson.

Mexico Road Nears Completion . . .

NOGALES-International highway to Rocky Point, Sonora, Mexico, is scheduled for completion by January 1. Last links on American side are being rushed to completion. Paving on Mexican side is completed to railroad, one and a half miles from Gulf of California, where town of Punto Penasca is rapidly growing. Daily (except Sunday) train service to Point from Mexicali has been scheduled for several months. Commercial fishing season in Gulf began October 20. Deep-water harbor facilities are being developed, and plans are underway for bus service from southern Arizona to the Gulf.

Hospital Given Community . . .

TUCSON—Desert Sanatorium, valued at more than \$1,000,000 and world-known for scientific research and famous patients, has been made gift to this community by board of trustees for estate of its founder A. W. Erickson and his widow. Provision requires that operation shall be by nonprofit corporation. Tucson Medical Center, Inc., now is in process of being formed. Mass meetings will be held for discussion of plans for hospital, repairs and expansions, and raising of \$250,000 as contingency operating fund.

Montezuma Monument Enlarged . . .

PRESCOTT—House of representatives passed amended bill (\$378) for acquisition of about 180 acres Montezuma Well area as addition to Montezuma Castle national monument. Also added to monument were 80 acres of Coconino national forest land. Amendment limited to \$25,-000 the amount to be appropriated for land.

Cactus Stolen From Park . . .

PHOENIX—Hundreds of rare cactus specimens have been stolen from Phoenix Botanical garden in 400-acre Papago park. Appeal to Arizonans to cooperate in preventing the vandalism is made by Gustav Starck, one of the founders of the project, and Mrs. Gertrude D. Webster, present Arizona Cactus and Native Flora society. Project is important state asset which when completed will be collection of flora from deserts of North and South America, Africa, Asia and Australia, growing in approximate natural surroundings.

Thomas E. Whitcraft, who succeeded White Mountain Smith in May, 1940, as superintendent Petrified Forest national monument, left in October to be inducted into army.

Neri F. Osborn, 87, territorial pioneer and father of Sidney P. Osborn, governor of Arizona, died in October of a heart ailment at his Phoenix home.





San Antonio Date Shop

INDIO, CALIFORNIA

Located on Rancho San Antonio in the Famous Coachella Valley near Indio, California. On Highway 111 between Indio and Palm Springs. The first shop out of Indio driving toward Palm Springs. Look for the San Antonio Date Shop as soon as you leave Indio.

P. O. BOX 278

INDIO, CALIF.

CALIFORNIA

Dad Fairbanks Dies . .

BAKER—Death came to 86-year-old Ralph Jacobus ("Dad") Fairbanks October 3 at Nightingale sanitarium, Los Angeles. After a half century in wild Death Valley country, rescuing miners and travelers and gaining confidence of native Indians as have few white men, he had assumed an almost legendary status. Born in Utah of covered-wagon parentage, he first settled in Shoshone and afterward operated a resort-service station at what is now Baker. He was buried in Santa Paula beside his wife who had died in 1938. A few of the many colorful events of his life were told in DM, May, 1943.

Photos Verify Tall Tales . . .

BLYTHE—Alligator mystery of Colorado river has been solved after months of 'tall tales' growing out of reports of huge reptile sighted along river in vicinity of Blythe. Late in October Martin and Ed Hoover, W. H. Russell and E. E. Crook, local ranchers, discovered the alligator asleep on a sandbar and killed it. It measured 10 feet, 3 inches and weighed estimated 500 pounds. Men took 26 pictures to prove their story. Explanation of its presence still is not cleared up. But 50 years ago, Santa Fe railroad in Needles had several alligators on exhibit, some of which might have escaped to river.

The Desert Trading Post

Classified advertising in this section costs five cents a word, \$1.00 minimum per issue— Actually about 1½ cents per thousand readers.

MISCELLANEOUS

FOR SALE-12 beautiful perfect prehistoric Indian arrowheads, \$1; 10 tiny perfect translu-cent chalcedony bird arrowheads, \$1; 10 perfect arrowheads from 10 different states, \$1; perfect stone tomahawk, \$1; 4 perfect spearheads, \$1; 5 stone net sinkers, \$1; 10 perfect stemmed fish scalers, \$1; 7 stone line sinkers, \$1; 4 perfect agate bird arrows, \$1; 5 perfect flint drills, \$1; 7 perfect flint awls, \$1; 10 beautiful round head stunning arrowheads, \$1; 4 fine perfect saw edged arrowheads, \$1; 4 fine perfect flying bird arrowheads, \$1; 4 fine perfect drill-pointed arrowheads, \$1;
4 fine perfect queer shaped arrowheads, \$1; 4 rare perfect double notched above a barbed stem base arrowheads, \$1; 5 perfect double notched above a stemmed base arrowheads, \$1; 12 small perfect knife blades of flint, \$1; rare shaped ceremonial flint, \$1; 3 flint chisels, \$1; 7 quartz crystals from graves, \$1; 10 arrowheads of ten different materials including petrified wood, \$1. All of the above 23 offers for \$20. Locations given on all. 100 good grade assorted arrowheads, \$3.00 prepaid. 100 all perfect translucent chalcedony arrowheads in pinkish, red, creamy white, etc., at \$10.00. 100 very fine mixed arrowheads all perfect showy colors and including many rare shapes and types such as drill pointed, double notched, saw edged, queer shapes, etc., location and name of types given, \$25.00 prepaid. List of thousands of other items free. Caddo Trading Post, Glenwood, Arkansas.

FORTUNE: Complete File, unbound \$55.00 postpaid. ESQUIRE: Complete file, unbound \$40.00 postpaid. N. A. Kovach, 712 So. Hoover St., Los Angeles, Calif.

WANTED: Complete Lapidary Equipment. State what you have and price wanted. Write Box JE, Desert Magazine, El Centro, Calif.

25 Genuine Indian arrowheads, \$1.00; Tomahawk head, .50. Cat. of Indian relics, crystals and ore specimens. Geo. Holder, Glenwood.

MANUSCRIPTS MARKETED: Books, stories, plays, photoplays, articles. Write for Free Circular D-12. OTIS ADELBERT KLINE, Literary Agent, 507 Fifth Avenue, New York 17. New York.

FOR SALE—Year Round Resort Hotel and Cottages in excellent condition. 2 acres with family fruits. Hot water heat, Oil Burner. City water, finest in America. Completely furnished, kitchen modern. Paved road, right at city limits. Wonderful view of Columbia river and mountains. Old established business and needs younger owner. Plenty business right now. Price \$13,500. Address R. E. & Tom Scott, Hood River, Oregon.

FAIRY FLAMES PINE CONES—Amazing and bewitching fireside enchantment. Fairyland colors of orchid, cobalt blue, apple green, turquoise. 15 to 20 chemically treated, extremely long burning pine cones, \$1.00 postpaid California, Arizona, Nevada. \$1.10 elsewhere. (Cash or money order.) FAIRY FLAMES, 1104 So. Monterey St., Alhambra, Calif.

Beautiful hand carved lifelike burros in hardwood. \$7.00 to \$20.00. Photo on request. Grail Fuller. 1336 16th St., Santa Monica. Calif. .

LIVESTOCK

KARAKULS producers of Persian Lamb fur are easy to raise and adapted to the desert which is their native home. For further information write Addis Kelley, 4637 E. 52 Place, Maywood, California.

"Karakul Fur Sheep—America's Great Live-stock Opportunity—You can be a part of this fascinating business and have your Karakuls cared for in California, by experienced ranchers. Write for details, James Yoakam, National Distributor, 1128 No. Hill Ave., Pasadena, California."

REAL ESTATE

Butte County, California, \$250 acre. 160 acres beautiful meadow land, many large oaks and pines; trout stream running length of property. Carries valuable mineral rights. Located on county road within 20 minutes of Oroville. Address owner: 1780 Warwick Rd., San Address owner: Marino, Calif.

For Imperial Valley Farms -W. E. HANCOCK "The Farm Land Man" Since 1914

EL CENTRO -----– California

Salton Sea Beaches Planned . .

NILAND-Plans are underway to develop two bathing beaches on shores of 45mile-long Salton Sea for service men. At present only beach available is Gus Eilers' Palm Beach resort, visited by as many as 2000 men in a single day. Acceptance already has been made of \$107,836 bid of W. J. Disteli, Los Angeles, for construction of training swimming pool at Camp Dunlap, Marine corps base here, it was announced by 11th Naval District.

Mark Rose Quits District .

EL CENTRO—For first time since 1919 Mark Rose will not be candidate for director on Imperial Irrigation district board. Since 1901 he has been outstanding figure in development of Imperial Valley. He was among first to conceive and work for construction All-American canal and was member of first delegation sent to Washington to secure federal financing for project. It is reported retirement is due to his objections to recent purchase by district of California Electric power company for \$4,900,000, amount which he argued was excessive for system and outmoded equipment.

New Melon For Nation

WESTMORLAND — Nation's cantaloupe consumers are due for treat in 1944, when newest and best melon will reach market. "Powdery Mildew Resistant Cantaloupe No. 5" was developed from powdery mildew resistant, inedible stock imported from India crossed with market melons susceptible to the mildew. No. 5 has disadvantages of tendency to "sugar crack," lack of uniformity in size and shape and later maturity than popular varieties, says farm advisor Beyschlag. Breeding is being continued to correct these defects.

Desert Museum Opened . . . PALM SPRINGS—Desert Museum, featuring exhibits of desert plant and animal life, was opened to public for winter season in October. While Director Sam Hinton is on leave of absence at Torney General hospital here, management is under Mr. and Mrs. T. D. A. Cockerell, who are arranging special exhibits, motion picture programs and field trips for next seven months.

NEVADA

Pelican Island Ducks Dying . . .

FALLON — Many ducks in Pelican island area north of Stillwater are dying of botulism, probably deadliest poison known, according to Ray Alcorn who examined some of the dead birds. This is not the same type of botulism which attacks humans through tainted food but is technically Clostridium botulinum. On area of 30 acres Alcorn and Vernon L. Mills, state game warden, identified 550 dead birds. On one little island, 50 by 20 feet in size, 33 carcasses were found.

Promotion for Guy Edwards . . .

BOULDER CITY-Guy D. Edwards, who was superintendent of Boulder Dam recreational area for several years and has been serving as captain in army engineers corps since May, 1942, has been given temporary promotion to major, according to announcement from Washington, D. C. He was transferred to Pacific northwest several months ago.

Nevada Alloted More Water .

CARSON CITY—Nevada in October was granted right to withdraw additional 200,000 acre feet of water from Lake Mead, Boulder dam reservoir. In announcing approval of state contract, A. M. Smith, state engineer, said amount would entitle state to total of 300,000 acre feet.

Deerskins for Alaska Gloves .

WINNEMUCCA—Deerskins donated by Humboldt county residents and shipped to San Francisco tannery will be made into gloves or aviation jackets for soldiers in Alaskan area. Latest shipment of 75 skins is said to be one of largest single consignments from any one county in western

New postoffice at Henderson, Basic Magnesium, Inc. town, will be ready for business about December 1.

NEW MEXICO

Silver Arrives for Jewelry . .

GALLUP-More than a ton of silver metal, valued at \$24,000, arrived here in October from New York City. M. L. Woodard, secretary United Indian Traders association now has job of distributing silver to Indian traders for silversmith work. Although coin silver always has been favored by native workers, there is slight difference between it and sterling. Sterling is 92½ per cent silver, coin silver 90 per cent due to addition of hardening alloy.

Wolf Hunter Retiring . .

ALBUQUERQUE—James A. Young, professional hunter for U.S. fish and wildlife service, is retiring after 24 years hunting predatory animals in New Mexico. His bag of 3669 coyotes is believed to be a record. He also accounted for 37 wolves, four mountain lions and 514 bobcats.

Teacher Shortage Acute . .

SANTA FE—Teacher shortage is major problem of New Mexico educational association, according to executive secretary R. J. Mullins. Recent survey revealed over 25 per cent turnover of teachers last term, compared with normal seven per cent. Mullins declared, "All available qualified married women and retired teachers have been called back into service, and many schools have been able to keep classes going only by employing wives of army officers who are temporarily in the town?

Arabians Learn Navajo Methods . . .

ALBUQUERQUE --- Royal party of Prince Faisel and Prince Khalid, sons of King Aziz Ibn Saud of Saudi Arabia, were conducted on inspection tour of New Mexico and Arizona sheep raising areas during recent continental trip. They are particularly interested in American methods of sheep breeding and wool weaving. They were given demonstrations of wool shearing, scouring, carding, spinning and weaving. Most such operations in Arabia are still in primitive state.

Navajo's Letter Puzzles Censors . . .

CRYSTAL—Pvt. William Peshlakai, Navajo with armed forces in Southwest Pacific, mailed a letter to his father Andrew Peshlakai last April. It was delivered in October after a tour which included Australian censors, Smithsonian Institution in Washington and Navajo agency at Window Rock, Arizona. Written in Navajo language, it had the censors and Smithsonian experts baffled. Indian service officials censored the letter and forwarded it to the father.

Shalako Ceremony Date Set . . .

ZUNI-Annual Shalako, dramatic "house-blessing" ceremony of Zuni Indians, will be held this year December 10. Zunis will hold open house and welcome both white and Indian visitors. Masked dancers representing the gods will arrive in village at sunset and ceremonies will last through the night.

Navajo Silversmiths in Alaska . . .

GALLUP-Navajo Indians serving in armed forces in Alaska have requested silversmithing equipment be sent them so spare time may be devoted to this craft. Chamber of commerce is attempting to supply them. Introduction of silversmithing in Alaska suggests interesting possibilities as ethnologists believe Navajo and Eskimos are of common Mongolian origin.

Desert Engineers in Italy . .

SOCORRO-Two New Mexico officers are in army engineer detachment building highway in Italy which has been considered an impossible job for centuries. They are Maj. James O. Gibbons, Socorro, commander of detachment, and Capt. A. T. Chavez, Albuquerque. Road, designated Highway 36, has defied engineers since Roman empire days. Maj. Gibbons, when given the job, walked up the mountainside, told his men to "put her there"and the men are carrying out his orders.

William Penhallow Henderson, 66, Santa Fe artist and architect, died of heart attack October 15. He and his wife, Alice Corbin Henderson, the poet, were the first Anglo residents along the street which they named Camino del Monte Sol.

UTAH

Christmas Trees Limited . . .

LOGAN—Few Christmas trees will be available to general public, but Cache national forest according to supervisor James O. Stewart will supply a limited number to churches, hospitals and schools in northern Utah and southern Idaho. No commercial cutting permits have been issued for several years.

Population Soars .

SALT LAKE CITY—Salt Lake metropolitan area (Salt Lake county) is now estimated to have more than 275,000 population, says Gus. P. Backman, executive secretary chamber of commerce. Figure represents 40,000 increase since 1940.

OPA Helps Wood Cutters . . .

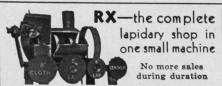
LOGAN-Intelligent cutting of trees can help allay threat of coal shortage in Utah this winter say specialists of agricultural extension service. State, forest service and grazing service officers will cooperate with persons wanting to cut deadwood from public lands. Office of price administration it is declared is cooperating in supplying gasoline for fuel-cutting trips.

Indians Win Retrial . . . SALT LAKE CITY—Second degree murder conviction of two Navajo Indians was reversed October 23 by state supreme court because of errors in lower court proceedings, and case was remanded to district court of San Juan county for new trial. The Indians, Jack Crank and John Chief, both of northern Arizona, were arrested in 1941 presumably for violation of Taylor grazing act, as they roamed at will across Utah-Arizona border. While in jail they assertedly confessed to murder some 10 years before of white prospector whose name was unknown. They were then charged and convicted of second degree murder, after which appeal was made to state supreme

A WESTERN THRILL

"Courage," a remarkable oil painting 20x60 feet, the Covered Wagon Train crossing the desert in '68. Over a year in painting. On display (free) at Knott's Berry Place where the Boysenberry was introduced to the world and famous for fried chicken dinners with luscious Boysenberry pie.

You'll want (1) A 4-color picture of this 100 If Want (1) A 4-color picture of this huge painting suitable for framing. (2) A 36-page handsomely illustrated souvenir, pictures and original drawings, of Ghost Town Village and story of this roadside stand which grew to a \$600,000 annual business. (3) Two years subscription (12 numbers) to our illustrated his more than the page of the standard of the standar numbers) to our illustrated bi-monthly mag-azine of the West. True tales of the days of gold, achievements of westerners today and courageous thoughts for days to come. Mention this paper and enclose one dollar for all three and get authentic western facts. Postpaid. GHOST TOWN NEWS, BUENA PARK, CALIF.



W. A. FELKER 3521 Emerald St., Torrance, California





ROCKHOUNDS

We have a large stock of Cabinet specimens, Gem material, Cut stones, Mineral books. We want to buy good gem material and specimens. Come and see us and join our Rockhound Colony.

THE COLORADO GEM CO. Bayfield, Colorado



JOHN W. HILTON, Owner

On U.S. Highway 99, Ten Miles South of Indio

ACROSS FROM VALERIE JEAN DATE SHOP. P. O. ADDRESS, THERMAL, CALIF.

AMATEUR GEM CUTTER

to have, their own gem cutting and polishing equipment. Lelande Quick, who conducts this department, is former president of the Los Angeles Lapidary society. He will be glad to answer questions in connection with your lapidary work. Queries should be addressed to Desert Magazine, El Centro, California.

By LELANDE QUICK

As I have visited lapidaries through the years I have been almost as much interested in the various methods of displaying gems as I have in the gems themselves. I have seen few good methods and I have seen many poor ones. I find that too many amateur lapidaries have given little or no thought to displaying their treasures with safety or convenience or showing them to the best advantage.

To encourage the proper display of gem specimens the Los Angeles lapidary society always has given a certain percentage in judging at their shows for what they call "showmanship" which is another term for the proper and tasteful viewino of the lapidary art. Many lapidaries are also "handy men" and can build their own display cabinets. Many others have friends who are cabinet makers with an understanding of the problems involved. However most of us have to depend on salvaged boxes and makeshift ma-

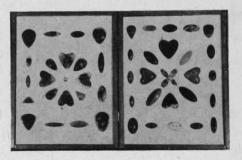
About the only commercial display cases available everywhere are the Riker specimen mounts which can be bought through any scientific or laboratory supply house. These mounts, intended for butterflies, beetles, etc., are blackbound cases filled with medicated cotton to preserve the specimens and they have a removable glass lid. They come in many sizes and are very satisfactory for displaying gems. Because of the medicated cotton, which sometimes gives a film to the stone, it is wise to remove it and replace it with unmedicated cotton which can be pur-chased in large rolls at drug stores. These mounts are readily portable.

For a time I had a fine portable case divided into 144 equal size squares in which I carried my stones. I discarded this scheme as unsatisfactory when I found that I was cutting all cabochons to a size to fit the case rather than cutting them to fit the material at hand. A cabinet of drawers is fine but it has the disadvantage of being stationary and it seldom is a tasteful piece of furniture. Like all chests of drawers it usually dominates a room without adding to the decor.

William J. Kane of San Francisco has solved the problem of housing his gems in such a way that they can be put away and yet be hauled about when the occasion warrants. His case, illustrated on the right, allows the lapidary to arrange the cabochons to the best advantage, to use a variety of shapes and sizes and to avoid a stodgy museum effect. He offers the follow-

ing explanation:
"My cases are 12 x 15 inches, hinged in pairs so that they fold together like a book. They are light weight, portable and display my gems to the best advantage. The bottom of the cases are Masonite 1/8 inch thick. Small sections of this material usually can be bought from secondhand building supply dealers, or plywood of the same thickness can be substituted but this is heavier. The sides of the cases are 1/2 inch wide strips of any hard wood. If you have no power tools get the dealer to saw the materials to size. The bottoms of the cases are lined with standard picture framing cardboard. The cream colored stippled cardboard is the most effective. I glue the stones to the cardboard with Du Pont's Duco cement which I have found is the most satisfactory glue for the purpose. I enamel the outside of my cases.

This is a splendid idea and I am going to try it myself. I think the cases could be more ef fective, however, if the cardboard was covered with cloth. For instance black silk certainly would enhance a case of opals, monk's cloth



This page of Desert Magazine

is for those who have, or aspire

would be fine for woods and jaspers, blue silk for moonstones and agates, white or yellow silk for sagenitic gems, etc.

The problem of showing one's gems is solved by this arrangement too for you can show one kind of material at a time and the case can be held conveniently on one's lap or set before him on a table with good light for a thorough inspection. They are safe from filching (certainly people do that - I lost one of four matched rubies and an opal that way) and yet they are not viewed through a glass which always de-tracts from the beauty of a gem. To get the full beauty of transparent stones I have seen a similar case in which the stones were glued to glass Moore push pins and the pins set in the case to suit the fancy. This permits ready interchange of gems. Has someone else good ideas on this subject?

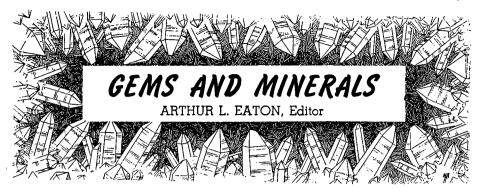
Amateur lapidaries naturally gravitate in many instances to metal work for the creation of settings for their gems. Just as they do not cut the expensive gems because of the expense and the fear of bungling they do not work in gold and platinum for the same reasons. But I often have wondered why their efforts are confined to silver when copper is available bearing present priorities in mind, of course.

For many stones copper would make a more attractive setting. I saw a lady the other day wearing a belt with an intricate copper buckle set with turquoise that was far more entrancing than any so-called "Indian jewelry" of silver and turquoise that I have ever seen. I think a well balanced copper ring with lapis lazuli would be unusually attractive. Has any reader had much

experience with copper jewelry?

DID YOU KNOW . . .

- · The pearl is a form of aragonite (carbonate of lime).
- Green, yellow and blue pearls come from the gulf of California, black pearls from the gulf of Mexico and pink pearls from Florida
- Black pearls often are imitations made of small polished spheres of hematite.
- The diamond is the only gem that does not produce a "Beilby layer" which is a minutely shallow amorphous flow layer formed when a gem is polished.
- · Amber may be stained any color.
- · The index of refraction of the diamond and zircon cannot be measured on a normal refractometer. It must be measured on a spectrometer by the method of minimum devia-



ARTHUR FLAGG, PHOENIX, AGAIN ROCKY MOUNTAIN PRESIDENT

Junius J. Hayes, president of the Mineralogical Society of Utah, reports that Arthur L. Flagg, Phoenix, Arizona, was chosen to succeed him-self as president of Rocky Mountain federation of mineral societies. President Flagg under powers granted by the constitution, filled va-cancies in other offices: Arthur L. Flagg, Phoe-nix, president; Mrs. Charles W. Lockerbie, Salt Lake City, Utah, vice-president; Humphrey S. Keithley, Phoenix, secretary-treasurer.

Due to war conditions the Rocky Mountain federation was unable to hold a convention this

SCARCITY OF LARGE QUARTZ CRYSTALS IS EXPLAINED

Careful study shows that the scarcity of large, perfect quartz crystals in Herkermire county, New York, as well as in many other places, is due to the presence of many small water cavities. Examination of numerous crystals and parts of crystals has disclosed that water in the small cavities has frozen, expanded, and either forced large flaws or broken the crystal to pieces. When water freezes, it increases in size only about 1/7 over its original volume, but pressure on the surrounding rock is more than 2000 pounds per square inch. This is an essential, natural process in breaking up and weathering hard rocks into soil for man's use.

PHOENIX GROUP STARTS **NEW SEASON OCTOBER 7**

Officers for 1943-44 season of Mineralogical Society of Arizona are Arthur L. Flagg, president; Luther Steward, vice-president; George G. McKhann, secretary; H. B. Holloway, treasurer; Humphrey S. Keithley, membership; Luther Steward, program; Scott Norviel, nominating.

First meeting of the season was October 7 at the regular meeting place, Arizona Museum, West Van Buren St. at 10th Ave., Phoenix. Scheduled meetings are first and third Thursdays, and the public is cordially invited. A course in determinative mineralogy will be the principal subject for future meetings. Those interested are welcome to attend these meetings. There are now 48 adult and eight junior members on the roster.

LUSTER TYPES DEFINED

Metallic-The luster of metals (lead, tin, gold, platinum).

Non Metallic-All luster not like metal. Adamantine-Like a diamond, sapphire,

Vitreous-Like the edge of broken glass (quartz).

Waxy-Like wax (opal, amber). Greasy-Like oil or grease (graphite). Pearly—Like pearl or mother of pearl. Silky—Like silk (asbestos, tiger eye, or other fibrous substances).

WASHINGTON, D. C., CLUB HAS ACTIVE PROGRAM

Mineralogical Society of the District of Columbia is not only actively campaigning for new members but has a constructive program for increasing interest in field of mineralogy among its present members. Windsor B. W. Stroup, chairman of the membership committee, is stimulating such interest by encouraging (1) regular reading of mineral literature; (2) specialized activities such as cutting and polishing, fluores-

activities such as cutting and polishing, fluorescence and luminescence, identification, meteors; (3) fostering junior society as a "future feeder."

Current officers are C. H. Robinson, president; F. W. Horton, vice-president; French Morgan, secretary; W. B. Stroup, treasurermembership. Monthly meetings are held at U. S. National museum, Rm. 43, Natural History building, 10th and Constitution Av., N. W., Washington, D. C. except July August and Washington, D. C., except July, August and September when field trips are sponsored.

SOUTHWEST MINERALS STUDY RELEASED BY L. A. CHAMBER

Complete war minerals survey of Southwest is available in "War Minerals-Metals" published by domestic trade department of Los geles county chamber of commerce under direction of G. A. Joslin. Study covers production, marketing and governmental aids to mining industry.

Strategic minerals covered in report include aluminum, antimony, chromium, copper, iron ore, lead, magnesium, manganese, mercury, tungsten, zinc. Aids to miners are in such sections as: state aid to miners in California, Arizona and Nevada, Metals Reserve company, purchase depots and stockpiles, priority informa-tion, purchases of strategic minerals in Mexico.

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MAGNESIUM PROCESS DISPLAY **BOARD AT NEVADA MUSEUM**

Mrs. Percy Train, curator of Nevada state museum, has succeeded in having a magnesium process display board placed on exhibit in the mineral room of Nevada state museum, Carson City. The chart shows by means of glass vials filled with various concentrates, chlorides and acids the processes necessary to produce pure

magnesium from raw ore.
F. O. Case, general manager of Basic Magnesium, Inc., gave the chart to the museum. Another exhibit is a full size magnesium "cheese," nine inches high, 12 inches in diameter, which was cast from the initial run made at Las Vegas August 31, 1942.

The question again has been asked: What are the soft, acicular masses of crystals found in geodes in the black buttes of northeastern Imperial county, California? In the amygdoloidal basalts in these mountains several zeolites have been found. There is some natrolite but most of the whitish or pinkish cottony substance is probably mesolite, associated with other zeolites.

COLORFUL MINERALS

WAVELLITE

Wavellite which was named for the father of Field Marshal Wavell is of particular interest to all at the present time. In several places in Pennsylvania and Arkansas fine specimens are found. It occurs as single round balls or groups of spheres. When opened, the interior structure is found to be perfectly radiated. The color varies from white to yellow, green or brown, with brilliant vitreous luster. When several spheres in a group are opened so as to show the radiating structure and colors it makes a very striking exhibit.

NEGATIVE QUARTZ CRYSTALS FOUND IN MOABI PEAK AREA

Among crystals of quartz brought recently from the Moabi Peak region of San Bernardino county, California, were some groups containing "negative" crystals. Negative crystals are due to the manner of growth of quartz crystals. One crystal forms outside or over another. It the inner crystal becomes loose and drops out it leaves a hollow crystal, the inside being exactly the shape of the missing crystal.

Gift Suggestions...

We have made extensive preparations in making it easier for you to select your Christmas gifts. Our stock is brimful of appropriate gift items.

PYRITE from Utah. Just received a new lot. The most beautiful we have had. These are in either individual crystals or showy crystallized specimens.

Prices ranging at 25c, 50c, \$1, \$1.50, \$2, \$2.50, \$3.50, \$5.00.

Several large specimen pieces at \$10, \$15 and \$25

TOURMALINE CRYSTALS - Mesa Grande, Calif. Seven crystals nicely arranged in a glass topped gem display case at

\$1.00, \$2.00, \$3.00 and \$5.00

The \$3.00 and \$5.00 grades contain crystals with good terminations.

Special Christmas Gift Offer

Two large sized Polished Oregon Agate Nodules (\$2.00 value)....\$1.00

MINERALIGHT QUARTZ TUBE LAMPS For best results in the home, laboratory, or for prospecting. Fully described in a twelve-page circular. Write for your FREE copy to-day. In offering fluorescent minerals, we can supply first quality material with strong fluorescent or phosphorescent effects.

fluorescent or phosphorescent effects.

JUBILEE CATALOGUE, 100 pages, listing:
Rough gem materials, choice gem stock in
sawed slabs suitable for polished specimens,
cabochons, hearts and pendants; also our
large stock of gem materials cut into finished
cabochon sets of all shapes and sizes, mineral
specimens, fossils, fluorescent minerals,
rough and cut gems, books and magazines,
diamond saw blades, sanding drums, polishing buffs, abrasives, polishing agents, sanding cloth and etc., is still available. In order
to distribute this catalogue to those most interested, we are asking you to send us 15c

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GEM MART

ADVERTISING RATE 5c a Word — Minimum \$1.00

- Swisher Rocks and Minerals, also Corals, Shells, Statues, etc. We also buy mineral species and woods. Must be good. Swishers, 5254 So. Broadway, Los Angeles 37, Calif.
- 20 mixed fossils for a dollar bill. 100 ancient Indian arrowheads \$3.00. 10 tiny bird arrowheads \$1.00. List Free. Lear Howell, Glenwood, Ark.
- \$2.50 brings you prepaid six rare and beautiful crystallized Arizona minerals. Vanadinite, Dioptase, Wulfenite, Willemite, Chrysocolla, Azurite. Specimens 1½x2 or larger. Wiener Mineral Co., Box 509, Tucson, Arizona.
- INDIAN RELICS, Curios, Coins, Minerals, Books, Old Buttons, Old Glass, Old West Photos, Weapons, Catalog 5c. Lemley Antique Store, Osborne, Kansas.
- Minerals, Fossils, Gems, Stamps, Coins, Pistols, Glass, Bills, Indian Relics, Bead Work. Catalogue 5c. Las Cruces Curio Store, Las Cruces, New Mexico.
- Montana Moss Agates in the rough for gem cutting \$1.00 per lb. plus postage. ELLIOTT'S GEM SHOP. Petrified Picture Wood and Moss Agate Jewelry Hand Made in Sterling Silver Mountings Rings, Bracelets, Necklaces, Brooches, Tie Slides, etc. Mail orders filled anywhere in U.S.A. 25 Jergins Arcade. Long Beach, Calif.
- PLUME AGATE—Rough pieces for gem cutting \$1.00 up postpaid. Bishop's Agate Shop, North Bonneville, Wash.
- CABOCHON CUTTERS with our unnamed mixture of good cutting material sawed ready to shape cut and polish you can finish several fine stones. 25 cents for two ounces and with money back guarantee. Gaskill, 400 North Muscatel, San Gabriel, Calif.
- MANY OF OUR FRIENDS have written us that they were delighted with their order of 25c a pound cutting material. We were able to get quite a lot of material cheaply enough to make this offer; and with each order we select the best of the remaining material. Mostly California materials—and good measure. We are also continuing the slab price before advertised—20 square inches, five different materials, for \$2.00. A GIFT FOR THE CUTTER. CHUCK JORDAN, 201 Broadway Arcade, 542 So. Broadway, Los Angeles 13, California.
- Beautiful agate, flower jaspagate, picture jasper and dinosaur bone. Assorted lots of cutting material, gem quality, ten pound package \$10.00. Four pound package \$5.00. Send postage. Mrs. Richard Fischer, Box 555, Grand Junction, Colo.
- INTRODUCTORY OFFER—One dollar each lot. Five all different Fluorescent Agates—polished. Thirty rough Mexican Opals. Fifty nice pieces Turquoise. Twenty different polishing specimens. Postage ten cents. Minerals and gems on approval. DR. RALPH MUELLER, Professional Building, Kansas City, Missouri.

- Tourmaline matrix, in quartz crystals, \$1.00 to \$30.00, tourmaline pencils, 50c to \$5.00, Essonite garnet-green-clusters, 50c to \$3.00, unique specimens. Sagenite agate, \$1.00 to \$4.00, specimen rough nodules. Gem list 10c. Return specimens if not satisfactory. The Desert Rats Nest, 2667 E. Colorado St., East Pasadena, Calif.
- ANTIQUE JEWELRY Lockets, brooches, chains, rings, etc. 12 assorted. \$3.00. B. Lowe. Box 311, St. Louis, Mo.
- Radium, Uranium or Quartz rock. Something new for fluorescent collectors. Valley Art Shoppe, 21108 Devonshire Blvd., Chatsworth, California.
- We have cut a lot of Rhodochrosite in this shop, but this is the best we have ever seen. Beautiful watermelon colored material, it will add color to your slab collection or make showy gems. Let us send you a slab—at 30c a square inch. You will like it—everybody who sees it wants a slice. CHUCK JORDAN, 201 Broadway Arcade, 542 So. Broadway, Los Angeles 13, California.
- Ask for my approval selection of cut and rough gems in rare Garnets, Starolites, precious Topazes, Sapphires, Agates, Turquoise and many other types. Star Sapphires at \$1.50 per carat. Rare cameos, stickpins, ring-mountings. ERNEST MEIER, Church St. Annex, P. O. Box 302, New York 8, New York.
- 100 JEWELRY STONES removed from rings, etc., assorted \$2.00. B. Lowe, Box 311, St. Louis, Mo.
- ZIRCONS—OPALS—CAMEOS 3 Genuine diamond cut Zircons (total 2½ carat) \$2.75. Twelve Genuine Opals \$1.50. Twelve Genuine Cameos \$2.50. B. Lowe, Box 311, St. Louis, Mo.
- ROCK COLLECTORS—ATTENTION! Special Christmas Offer. For \$5.00 you get showy specimens of fluorite xls, pyrite xls, amethyst phantom xl, chalcanthite, azuremalachite, limonite pseudomorphs, petrified twigs, drusy qtz. xls, ferro-molybdite & molybdenum, enargite, garnets in ryolite, vanadinite xls, wulfenite xls, turquoise, Mexican opal (fire). An Xmas gift of a polished spec. free with every order. The Rockologist (Chuckawalla Slim) Paradise Trailer Court. 627 Garvey Blvd., Garvey, Calif.
- AGATES, Jaspers, Opalized and Agatized woods, Thunder eggs, polka dot and other specimens. Three pound assortment \$1.50 postpaid. Glass floats, price list on request. Jay Ransom, 3852 Arboleda Ave., Pasadena 8, Calif.
- HAVE YOU PURCHASED YOUR SKY-BLUE FLUORITE SPECIMEN YET? We have a shipment from New Mexico of the prettiest Fluorite we have had in a long time. The crystals are in good condition, and many of the specimens carry Barite or Cerrusite. An excellent gift for your collector friend—and don't forget one for yourself. Will gift-wrap if requested. Priced \$1.00 to \$6.00, with one fine big one for \$15.00. CHUCK JORDAN, 201 Broadway Arcade, 542 So. Broadway, Los Angeles 13, California.

EVERYONE WHO LIKES FINE JASPERS WILL BE INTERESTED IN THIS ONE. This is probably the most colorful Jasper yet found on the Mojave Desert, which is well known for its colorful stones. A brecciated Jasper, it has an unusual distribution of the Xmas colors—red and green. Because of this its owner has named it "Mojave Xmas." There was only a small amount of this stone, so it has all been made up and mounted into rings and brooches by a competent silversmith. This would be a gift to be prized by any rock-minded woman-or by any woman. We can send you very fine brooches and rings from \$5.00 to \$15.00. Special brooches, with picture, for \$25.00. A ring and brooch to match for \$9.50. Better get your order in—this will move fast. CHUCK JORDAN, 201 Broadway Arcade, 542 So. Broadway, Los Angeles 13, California.

Lapis Lazuli from Italian Mt., Colorado. Sawed slabs 3/16 inch thick with hard white matrix at \$2.00 per ounce. Finest quality sawed slabs deep ultramarine blue with matrix of gold pyrites at \$4.00 per ounce. Head of department geology of prominent university states. "This lapis compares most favorably with the best lapis lazuli in any country." Massive grossularite, green garnet, from the same locality, 2 ounces for \$1.00. Iceland Spar (calcite) crystals, an unusual collection of clear, pink and yellow each 1 inch by 1 inch. All three for \$1.00. High grade silver specimens, argentite, etc., for \$1.50 per ounce. Steel Galena, the high grade lead ore that looks like broken steel, 2 ounces for \$1.00. END-NER'S, Gunnison, Colo.

MINERAL BOOKS ...

There's no more fascinating a hobby than collecting minerals. For your education so that you can thoroughly enjoy this study, Desert Magazine has a complete list of books, a few of which are given below.

THE ART OF GEM CUTTING, complete second edition, Fred S. Young, gemmologist. Contains information on cabochon cutting, facet cutting, methods to test stones, the value of gem stones and useful lapidary notes. Index. 112 pages.

GETTING ACQUAINTED WITH MINERALS, G. L. English. Fine introduction to mineralogy. 258 illus., 324 pp\$2.50

HANDBOOK FOR THE AMATEUR LAPIDARY, J. H. Howard. One of the best guides for the beginner, 140 pages. Good illustration ______\$2.00

QUARTZ FAMILY MINERALS, Dake, etc. New and authoritative handbook for the mineral collector. Illustrated. 304

Mailed Postpaid

Add 3% tax in California



El Centro, California

AMONG THE ROCK HUNTERS

Orsino C. Smith gave an illustrated talk on simplified mineral analysis at November 12 meeting of Pacific mineral society held at Hershey Arms hotel, 2600 Wilshire Blvd., Los Angeles. Smith is refinery superintendent for Richfield oil company.

Lloyd E. Richardson, Holtville, was elected third-time president of Imperial Valley gem and mineral society; Charles G. Halliday, Holtville, vice-president; Mary Jane Neal, El Centro, secretary; Arthur L. Eaton, advisor. Pot (point) luck supper and swap game entertained members November 6 at home of Mr. and Mrs. N. Conner, Holtville.

Mr. and Mrs. Ed Matteson, Phoenix, were honored with a surprise party August 26 by members of Mineralogical Society of Arizona. Mattesons have moved to Brea, California. When Matteson removed his mineral display from the Phoenix chamber of commerce window, the space was allotted to Mineralogical Society of Arizona for their displays.

Orange Belt mineralogical society discussed quartz minerals at October 7 meeting held in San Bernardino junior college. E. C. Cline spoke on opal, Howard Fletcher on geodes, I. V. Graham on palm wood and D. H. Clark on iris. Twenty-eight members attended.

Roy Milligan of Pacific mineral society, Los Angeles, surmises that Los Angeles may stage a world fair after the war is won and that California federated mineral groups should begin to look forward to staging a comprehensive and complete show of California minerals. Pacific mineral society wishes to go on record as sponsoring the idea.

Midwest federation of geological societies held their third annual convention at Chicago, October 2. Marquette geologists' association of Chicago was host. The Midwest federation consists of three groups: Marquette geologists, Wisconsin Geological Society of Milwaukee, and the Joliet mineralogists.

Los Angeles Lapidary society voted Oct. 4 to increase membership to 200, double the dues, and make it mandatory for each active member to exhibit at least five new specimens of work each year and to attend at least one meeting and one field trip yearly to maintain active membership.

Recently Mineralogical Society of Arizona welcomed 12 new members. Among those coming from other cities are: E. S. Emmerson, San Bernardino, Calif.; Dr. Truman H. Kuhn, Golden, Colo.; Esker Mayberry, Bisbee, Arizona; Dr. Stuart A. Northrup, Albuquerque, N. M.

East Bay mineral society, Oakland, California, enjoyed a picnic and auction October 24 at Tilden Park caves picnic grounds. Members contributed specimens for the auction. Proceeds were donated to a service organization.

Long Beach mineral society held its regular meeting October 2 at Nine Hole clubhouse. Mineralight company sent a speaker to the meeting to demonstrate various lights.

Sequoia mineral society, Parlier, Calif., opened the fall sessions with a rock sale. Members furnished the specimens.

Due either to war conditions or (more likely) to crass carelessness, Louise Eaton has lost her little brown book containing names and addresses of officers of all mineral societies with whom Desert corresponds. She will be grateful if secretaries will send names and addresses of officers and time and place of meeting to Mrs. A. L. Eaton, Box 353, Holtville, California.

Fred Stein, Mineralogical Society of Arizona, states that the finest Hungarian opals come from Marmaros in the Nagy Banya district about 200 miles from Czernowitz which is the center where the opals are cut and sold.

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Recently elected officers of San Diego mineralogical society are John Dyson, president; R. D. Alexander, vice-president; Hazel M. Wedgewood, secretary; R. D. Rowland, treasurer; C. A. Scott, Dr. Paul E. Wedgewood and Chas. Ingles, directors.

Selma, California, lapidary class now meets twice a week, Mondays and Wednesdays.

Searles Lake mineral news states that Belair shipyard plans to use names of minerals for 26 reinforced concrete barges being constructed for the Maritime commission. First completed will be called the Agate. Others will be named Chromite, Flint, Granite, Graphite, Gypsum, Mica, Onyx, Quartz, Silica and Slate.

Henri Withington, instructor of Trona mineralogy class, has gone to Mexico on vacation. Classes will not be held until further notice.

Rudolph von Hueve lectured on action of various grinding and polishing agents on gem materials at October 4 meeting of Los Angeles lapidary society. Von Hueve, staff member of California institute of technology, used several high power microscopes to illustrate his talk.

Lawrence Roe discussed lead and zinc mining in the middle western states at October 20 meeting of Searles Lake gem and mineral society. Second annual hobby show was held October 16-17 in Trona unified school. Restoration of Indian Joe's continues. Harvest yielded approximately two tons figs, 1½ tons grapes, 14 bushels apples and ten bushels of pears. The group enjoyed a field trip October 31 to Chris Wick's in the Panamints and thence to Panamint city.

Bill Trickett, charter member Sequoia mineral society, on furlough from South Pacific, displayed some of his over-seas souvenirs at the September meeting.

Fred W. Cassirer, mineral dealer from Czechoslovakia, spoke on noted collections in Europe and gave ancedotes of his travels at the October 5 meeting of New Jersey mineral society, Plainfield, N. J.

Professor W. Ellis Shuler, geology professor at S. M. U., lectured on crystallization at November 9 meeting of Texas mineral society, Dallas, held on the mezzanine floor of Baker hotel. Members furnished specimens for an impromptu mineral show.

Professor Charles L. Camp, V. C., gave an illustrated talk on adventures in the painted desert at October 7 meeting of East Bay mineral society, Oakland. Orlin J. Bell spoke on reading the story of the Book of Rocks at the October 21 meeting. East Bay bulletin is now supplemented by a news sheet called the Rockpile.

Dr. Alfred Livingston of Los Angeles city college talked on our vanishing beaches at October 8 meeting of Pacific mineral society, Los Angeles.

Cogitations .

Of a Rockhound
By LOUISE EATON

On account uv no fieldtrippin' rockhouns is gettin' sorta bleached out 'n pale so they can scarcely be distinguished frum peepul. If they don't take to victry gardnin' 'r sun bathin' they'll pritty soon hafta eat vitimun pills cause uv lack uv enuf sunshine. To say nuthin bout what happens to figgers when folkes omits exercizin.

No two 'r more rockhouns can get together f'r eny length uv time 'n not begin to moan 'n talk over past field trips 'n plan future wuns.

Kind uv substitoot fieldtrippin is to sort over rox on hand, carry um around 'n label um. If yu moves enuf rox 'n stoops offen enuf, 'n lifts heavy boxes aroun, yu can get good twinges in the fieldtrippin muscles.

Therz wun nice thing about short winter days: yu can injoy th' splendor uv sunrize with no extry effort uv wakin' up early. Most folkes has to be up 'n busy before December sunup — especially when we use war time 'stead of God's.

Mojave Desert Gem and Mineral Shop . . .

On Highway 91, 11 Mi. East of Barstow One Mile West of Yermo, California E. W. SHAW, P. O. Box 363, Yermo, Calif.

CHRISTMAS . . .

Will soon be with us, and what finer gift could one give a rock collector than fine minerals, in red and green—Christmas colors?

- l—Dioptase—Fine, minute transparent green crystals on light, hard Matrix from Mammoth district, Ariz.—50c, \$1.00, \$1.50, \$2.00, and some higher.
- 2—Vanadanite Red Crystals, on Mottramite, forming a solid coating. From Globe, Ariz.—30c, 50c, \$1.00, \$1.50, \$2.00 and up.
- 3—Green Garnets, Ariz.—Not a bright green. These show nice crystallization of the rare green Andradite form. Nice ones at \$1.00-\$1.50. Others from 25c to \$3.00.
- 4—Realgar—Manhattan, Nevada—Nice red Realgar showing occasional crystals on matrix of calcite or quartz 75c, \$1.00, \$1.25, \$2.00 and up.

CUTTERS' SPECIAL

Snowflake Obsidian—Just the thing to make those lovely Christmas rings. Polishes easily and is beautiful. \$1.00 per pound.

WEST COAST MINERAL CO.

P. O. BOX 331

LA HABRA, CALIF.



By RANDALL HENDERSON

ITH THE ALLIED FORCES IN AFRICA—My present station is in an important city on the northern coast of Africa. From my third story billet in a French rooming house I watch the sun come up over the blue-green waters of the Mediterranean. Just over the coastal range to the south is the Sahara.

From the air, this French-owned coastal region reminds me of California. Below is an orderly checkerboard of vineyards and orchards and citrus groves, with well-kept farm houses surrounded with gardens and flowers. Where the terrain is too steep or arid for farming, the rolling brown hills are sprinkled with trees that might be California oaks. The fruits and flowers are all familiar—oranges, figs, grapes, lemons and peaches—oleanders, bougainvillea, geranium and hibiscus.

Here we are literally between the desert and the deep blue sea. And we are quite conscious of both of them. The panorama of a beautiful harbor spreads cut before us constantly. We cannot see the desert, but every few days during summer and early fall a hot blast rolls over the hills to remind us that the Sahara is not far away. The sirocco, as the natives call this desert wind, continues for a few days and then the cooling breeze from the Mediterranean gains supremacy again. But it is never uncomfortably warm for us desert folks—I mean the Arabs who occupy the native quarter, and myself.

Here the veiled women and the turbaned men of the Near East mingle in narrow crowded streets with the uniforms of the armies and navies of all the United Nations. Americans, British and French predominate, but there are also Canadians, South Africans, Australians, Norwegians, Greeks, Dutch, Danes, Poles, Jugoslavs, and the blacks and whites and browns of the African colonies. Then of course we have the WACS and the women of the British and French auxiliaries. I long ago gave up being able to identify the different kinds of uniforms and insignia. It is enough to know that they are all on our side.

Once a week the American Red Cross here holds a Town Hall meeting, at which guest speakers discuss interesting phases of civilian life and affairs in this and other war theaters. Quentin Reynolds of Colliers spoke at one of these meetings recently. He told us the war correspondents had taken a poll and decided among themselves that the three outstanding discoveries of the present war are (1) The Jeep, (2) Ernie Pyle, (3) The Red Cross. Those who have read Pyle's intensely human newspaper stories from the front will understand this selection. Americans at home perhaps do not realize the fine job the Red Cross is doing here and on other war fronts in the matter of service and entertainment for the soldiers.

The ARC provides club rooms, picture shows, reading and writing lounges, snack bars, information bureaus, shower rooms, radio programs—and if a soldier misses the last bus to camp at

night they'll supply a ride in the emergency. Overseas soldiers in Africa always will have a kindly feeling for the Red Cross, and I presume it is the same in other theaters.

* * *

At another Town Hall session the speaker discussed the life and customs of the Arab population in this part of the world. Most of them are Moslems, and since their bible, the Koran, places much emphasis on cleanliness, one of the questions asked the speaker was: "Why do the Arabs have such a complete disregard for soap and water?" The answer was: "You know soap is very scarce in this part of the world, and besides, not many Arabs can read their Koran."

Out on the great American desert we have always had to forego the luxury of chocolate bars in summertime. The chocolate melts. But the problem has now been solved. One of the most popular items in the overseas Post Exchange is Hershey's Tropical Bar. It never weakens, however high the temperature. A similar chocolate bar is issued for emergency use as field rations to soldiers. It is one item of confection which I hope will be available for desert dwellers in USA after the war is over. It is good food for hikers, and a chocolate candy that will never melt.

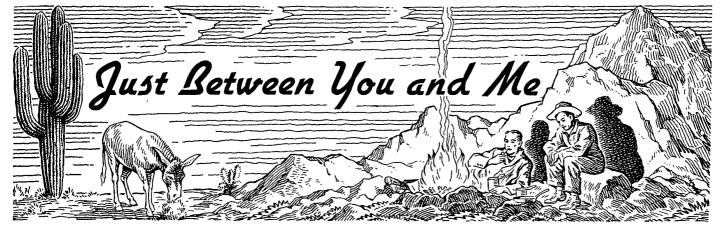
To the American soldier here it appears that as soon as an Arab youngster is old enough to walk, he gets a little box and a brush and becomes a shoe-shine. The streets swarm with them. They are good-natured little pests. Also, they are very persistent, but always stop just short of actual rudeness. They've learned a little English and their sales talk goes as follows: "Shine? ... 'Merican polish! Veree good!" Generally they do an atrocious job of shining, but it costs only a franc or two, and their good humor is so infectious that no one ever complains.

A letter from Marshal South brings word that he and Tanya and the little Souths are on their way back to Yaquitepec. I am sure that other Desert Magazine readers will share my pleasure at this news. They will never find another home that means as much to them as the little cabin they built with their own hands on Ghost mountain.

The Souths personify that element in the human family which puts independence above security. The soldier who volunteered immediately after Pearl Harbor is in the same classification. If the time ever comes when a preponderant number of humans in this civilized world value their security more highly than their liberty—then the world will go back to barbarism.

The folly of those 25 years between World War I and World War II was that too many Americans valued their security more highly than their freedom. We nearly lost both, before the Japanese jarred us out of our smug complacency.

We like and admire the Souths because we know instinctively that theirs is the kind of faith and courage that will keep freedom alive in this world.



By RAND HENDERSON, U.S.M.C.

OMEWHERE IN THE SOUTHWEST PACIFIC—
"Their youthful faces and idle chatter belied the fact that they were the toughest and most ruthless land combat troops in the world." So wrote a correspondent of the Christian Science Monitor referring to the Marines who spearheaded the attack against New Georgia island. The Marines get a kick out of reading items like that. It's one of the factors that keeps morale high and good humor prevalent. They feel proud that their fighting ability is being recognized even if it be in the light of notoriety.

But too much of that type of praise is apt to have an opposite effect on wives, mothers, sisters and sweethearts at home. These men aren't tough so much as they are well-conditioned and trained. They aren't "ruthless" so much as they are well-disciplined and ably led. They are essentially the same fellows who left home one or two or three years ago, and they long to return to those homes just as men in uniform around the world do. If they fight ruthlessly, it's because they know that the sooner they kill more Japs the sooner they can return to those they love.

At present our outfit is not on active combat duty. Our schedule is full, but for the most part not rigorous. We pass leisure hours doing the same thing as men in service around the world—writing letters, movie-going, gaming, reminiscing, dreaming of home, and just "shooting the bull."

Men living together, under conditions of weather and discipline not always favorable, are subject to a strain on nerves and self-control, but on the whole general unity and optimism are dominant. We all have found that the prime secret of contentment over here, as the world around, lies in maintaining a cheerful outlook and a bubbling sense of humor.

One argument that prevails wherever men assemble is over the relative merits of "back home where I come from." I naturally uphold the desert Southwest, but often I feel like a missionary in a strange land, who understands neither the language nor the customs of the people he is trying to convert. Take a fellow from green, lake-dotted, forested Upper Michigan, to whom water scarcity is nothing but a storybook situation to be overcome by the hero—and make him feel the joy and gratitude that fills a desert rat when he stumbles across a palm-fringed water hole. He will listen politely, but obviously he'd rather be reading the storybook . . . But I'll keep trying.

Ingenuity and aggressiveness are two outstanding traits with which Allied and Axis commanders alike credit American fighting men. These qualities extend beyond their fighting methods and into their manner of speech. With typical Yankee disregard for tradition and the past masters, our men have undertaken to improve on Webster, and I'm not the one to say they haven't done a good job. Three interesting words which have been cre-

ated to speed up conversation are "gizmo," "snafu," and "guk" or "gook."

The spelling of this last word baffles me. I don't remember ever having seen it written, and a poll among my friends shows opinion evenly divided as to "gook" and "guk." Anyhow, the word never was created to embellish literature, so I'll use the simplest spelling. GUK—Of or pertaining to anything native of a foreign island or country, including the inhabitants thereof. "Guk" money, "guk" food, "guk" clothes, "guk" children—in fact, anything not Yankee is classified as "guk." And, among fellows who have been out of the States many months, anything American is facetiously referred to as "guk."

"Gizmo" is an all-inclusive substitute for any object for which the speaker can't remember the name. A "gizmo" may be anything from the name of an old girl-friend to a flavor in an icecream soda. As a substitute in the nomenclature of a rifle or field-piece it can't be beat. However, a private whom I overheard receiving a first-class tongue-lashing from an old-time sergeant for using the word during a test. probably won't agree with me on that.

"Snafu" is the abbreviation of five good English words—Situation Normal, All Fouled Up. When orders come through to pack up and prepare for marching orders, only to be cancelled after feverish activity has enabled the men to get ready in time, then up goes the cry, "SNAFU!" And it generally helps to restore good humor in the ranks.

If the resolutions I hear fellows make are held to, the universities of the country will be well-filled after this war. Travelling, seeing different races of people, different customs, different habits, is arousing a new curiosity and interest among these fellows. Also, in this age of mechanical and technical warfare, thousands of young fellows are getting training and education in new fields to which they never would have been exposed in civilian life.

Many of them want to go on and learn more about engineering, accounting, radio, languages, and a multitude of other subjects which they have been taught a little about in the service. Of course, the greater number will have to support themselves and perhaps families. But they will find a way to advance their learning . . . Correspondence and night schools will do well to expand their facilities in anticipation of a great post-war demand for higher education.

As I write I can look out the open flaps of the tent at the glowing disc of a full moon, and it brings the desert close to this distant land. The old familiar silhouettes of cholla and ocotillo and greasewood are replaced by a less distinctive and varied type of vegetation, but the Old Man up there is still the smiling old gent who used to sit in on our campfires in desert washes and oases. Soon he'll be looking at those old familiar places—and I envy him.



Five Pounds of Assorted Dates, Date Candy and Date Roll. (Also Date Cake when materials are available for baking this item.)

. . . and in the . . . THREE POUND SIZE



Valerie Jean's

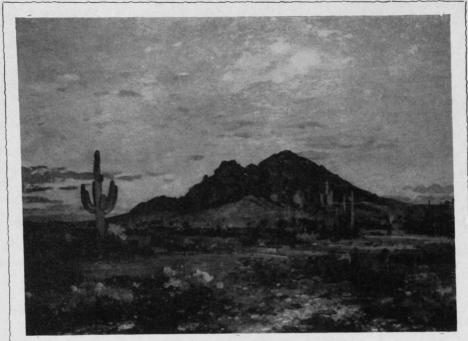
THERMAL, CALIFORNIA

THE



JANUARY, 1944

25 CENTS



Camelback Mountain, near Phoenix, Arizona. Color lithograph by Lon Megargee.

OUR RAINY SEASON

By EMMA J. C. DAVIS San Bernardino, California

Slowly—day after day—grey mists arise, Veiling our mountain peaks, our turquoise skies, 'Til comes a night, dark, starless, overcast When we awake, to hear at last—at last, The little rain-drums, beating through the hours, Ceaseless reveille to the sleeping flowers.

Day after day, for us who dwell below, The welcome rain; while on far heights we know

Falls silently the ever deepening snow,
Filling our winter storehouse all unseen,
With treasure trove to keep our summers
green.

Swiftly, majestically, swept aside,
The vast cloud curtains part some eventide;
Wide-flung celestial gates, that to our eyes
Disclose a radiant earthly paradise;
With rainbow colors softly snow-empearled;
A re-created and transfigured world!

Ensanguined in the ruddy sunset glow,
Saints Bernardino and Gorgonio,
Shoulder to shoulder stand,
And greet, across the land,
Lone, lordly, shining San Antonio.
"Sangre de Cristo!" Blood of Christ! one cried,

Seeing some distant range so glorified.

Kaleidoscopic in the low sun's rays,
Shifting and scintillating as we gaze,
Ruby and emerald and chrysoprase,
A fire opal great, that glimmering gleams,
Mysterious San Jacinto sleeps—and dreams!

DESERT NIGHT

By ENOLA CHAMBERLIN Pacific Beach, California

The shadows, hungry wolves that eat the light, Slip from the shelter of the rocks and brush And creep across the sand until They merge and take it captive with a rush.

A wind half wakes and whimpers in the chill; The greasewood rustles, stirring up a brew Of poignant incense. Nighthawks dip. And a loneliness tears the heart in two.

BEAUTIFUL ALIENS

By CECILE J. RANSOME Riverside, California

Great is the loveliness revealed At noon where the stately egrets pose Deep in the riant barley field.

Shimmering whiteness unconcealed, Rigid as statuettes in rows, Great is the loveliness revealed.

Carven like lilies on a shield Mother of pearl that faintly glows Deep in the riant barley field.

All of their folded wings are steeled To soar the roughest wind that blows, Great is the loveliness revealed.

Strange that this desert land appealed To birds of water wise as those Deep in the riant barley field!

Beauty like this has always healed The heart of all its futile woes; Great is the loveliness revealed Deep in the riant barley field.

WELCOME THE WIND

By EMILY PATTERSON SPEAR Seattle, Washington

Welcome the wind, it tells me of its roamings, It brings me stories I might never know. Today it came, a wild and searching presence, Bringing the praise of virgin fields of snow.

It seemed in reckless haste to sweep the valley, It bent tall slender saplings to the ground, Then lifted them and brushed their flying tresses,

And left them with a beauty newly found.

Tomorrow it may tell of tided oceans, Or deserts where horizons meet the sun, Or how the deserts, prodigal of beauty, The glory of the cacti wooed and won.

Welcome the wind, and if in boisterous greeting,

On windharps tuned to waiting desert tale, Or scarcely heard when rain is softly falling, Or silver shod it come on moonlit trail, Welcome the wind.

Camelback Mountain

By Nancy Zue Spangler Warren, Arizona

Kneeling, patiently waiting, For the master that never will come, Looming tall in the wastes of grey brown sand 'Neath the glare of the desert sun.

Hewed by a chisel and hammer, The tools of the wind and storm, Silently waiting through pages of time, A broken and weary form.

The form of a camel, head bent low, Outlined against the sky, Hewed from a mound of age-old rock, The art of a Power on high.

RENDEZVOUS WITH PEACE

By WILLIAM CARUTHERS Ontario, California

Sing me no song of asphalt lanes And regimented thrills. For me a desert canyon leads Into the timbered hills.

Sing me no song of carnival Along a great white way— The masquerade of harried souls In cocoons of decay.

For me a silvered stream leaps down From crags to gorge below, To send along the kiss of life Where white-belled flowers grow.

Sing me no song of seething mart Where slave and master meet, For I have seen the padded chains That mute the leaden feet.

I'll let you drain its vapid dregs, Blow bubbles from its froth. And you may beat your wings against The flames that kill the moth.

For me, a virgin trail that winds Where far horizons call. And far from patterned life, a tryst Beside a waterfall.

A rock that lifts, a log that leans, A willow-scented breeze, Dark pools that keep a holy hush In temples of the trees.

And foolish though my dreams may be— The universe my lease— I'll watch the world go by and keep A rendezvous with peace.

SNOWSTORM ON THE MOJAVE

By S/Sgt. MARCUS Z. LYTLE San Diego, California

The desert waits beneath a furry sky
To shear the clouds' deep winter coats;
A cold wet wind brings their protesting cry
As down the mesa, fluffy ermine floats.

CREED OF THE DESERT

By June LeMert Paxton Yucca Valley California

The "cock of the desert" is a name ofr applied

To sleek roadrunner, light hearted and free.

With his tail as a guide, down a hill he can glide,

And scarcely a creature can run fast

DESERT

Close-Ups

- This month's cover is a portrait of Miriam Marmon, beautiful Laguna Indian girl who has been the model for a number of photographers. She has served as principal of the government Indian school in her home town of Laguna Pueblo, New Mexico. She also taught in the Indian school at Dulce and on the Jicarilla Apache reservation in northwestern New Mexico. Her dress is authentic Laguna.
- Desert's editor, who has been sending his "Just Between You and Me" page from Africa for almost a year, is turning into a Desert fan. He rates his favorite fare as follows: 1—Letters, 2—Close-Ups, 3—Marshal South. So this month's Desert, in deference to his number one choice, is carrying two full pages of Letters.
- Although he is an army signal corps photographer stationed at Fort Bliss, Texas, George McClellan Bradt and his wife Sis continue studying their hobby of birds. They not only spend every spare minute tracking down illusive desert birds but they have aroused both the interest and participation of other Fort Bliss personnel. This month's story on Roadrunners is illustrated with the best photographs of this member of the Cuckoo family which have ever come to this office.
- Clifford Bond, who has furnished many beautiful photographs for Desert including covers for August issues of 1940 and 1941, now is Pho. M 2/c USN. He also wrote the pictorial article "Magic of the Navajo Medicine Man" in August, 1940, issue.
- Jerry Laudermilk, who wrote this month's story on Sand, isn't just a professor who translates a technical subject into ordinary language. Desert readers have noticed the pen-and-ink and wash drawings with which he has illustrated his stories during the past year on the Yucca Moth, Geodes and Thundereggs. Desert Color, Mirages and Petrified Wood. At one time Jerry made art his profession but he confesses, "I didn't do very well because I couldn't get along with the arty and empty-headed people whose patronage I was supposed to cultivate." But his pen and ink drawings were collected by such notables as Ruth St. Denis and Lord Dunsany, the playwright. Although he quit the world of art, as a business, he never let himself get out of practice with his pen.
- Charles Kelly has another article for Desert readers, to appear in the February issue. The setting is lonely Fremont Island, in the Great Salt Lake, Utah. It is the unusual story of a family who were forced to abandon a gay social life on the mainland, to make their home on the five-mile long crescent-shaped island for five years. It will be accompanied by a map drawn by Norton Allen.



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Rubbery Milkweed Clan

By MARY BEAL

OT LONG ago the Milkweeds were looked upon as weeds, some of them even classed as noxious pests—a term few of them really deserve. In the family are several which have earned the respect now accorded any plant con-

taining an appreciable amount of rubber.

Many native plants have been investigated as rubber producers, even before the present emergency. Among those discovered to rank high in rubber content are several species of Milkweed which belong to the genus Asclepias—a genus named for the Greek god of healing, Asklepios, alias Aesculapius in ancient Rome. Of the several species used in the government milkweed experimentation tests, the common Desert Milkweed (Asclepias erosa) stands at the head of the list. Most of the specimens averaged 7 to 11 percent latex, some yielding over 13 percent. The leaves contain 90 percent of the rubber. Maximum content is reached at maturity in the fall.

With their usual ingenuity the Indians used the fresh milky juice as a remedy for warts and also made a chewing gum of it. Perhaps you think it would be a sticky mess sure to glue up the teeth, but the collection of sap was kept until it solidified and had a rubbery consistency, chewable for some time. It might not

suit your taste but the Indians liked it.

Asclepias erosa

Mature plants of this herbaceous perennial average 3 or 4 feet in height. Well-favored individuals may shoot up into sixfooters. Tall or short they are noticeable. The stout, sparselybranched, erect stems may be few or numerous, up to 20 from one root. The plant starts out finely coated with white down, which wears off in age so it is practically hairless when mature. The numerous ovate-lanceolate leaves, in opposite pairs, are 6 to 81/2 inches long, somewhat chewed along the margins. The flowers are pale cream or greenish, borne in umbels at the end of the shoots. They display the usual complex structure of the Milkweed family, the stamens and style united into a column surrounded by a crown of hood-like appendages, with horns protruding from the hoods, curving over the center. This elaborate arrangement rises above the turned-down corolla lobes. The pods are 21/2 to 31/4 inches long, covered with fine white hairs, the flat seeds tipped by a tuft of silky hairs.

Native only in the arid regions of the Southwest, it ranges from Mexico northward through Arizona, the Colorado and Mojave deserts, beyond the Death Valley area into Nevada and Utah. It has a tendency to scatter about in groups of a dozen, more or less, along dry gravelly stream beds and shallow washes, and on low hills, from low elevations up to 5000 feet. Sometimes it assembles in greater numbers, 50 to 75 individuals in a group, a series of these groups perhaps extending for miles, following the depressions along highways and railway embank-

ments.

Asclepias mexicana

Known as Mexican Whorled Milkweed also as Narrow-Leaf Milkweed, this is No. 2. Milkweed in rubber potentiality. Give it due credit for that valuable economic possibility because it is also on the Black List of plants definitely proven to be dangerously poisonous to livestock, especially sheep. Fortunately it has a bad taste, so grazing animals pass it by unless other forage is very scarce. Sometimes it invades hayfields where it becomes a menace, because in drying much of the disagreeable taste is lost, but not the poisonous properties.

It is identified easily by its slender smooth stems and narrow leaves in whorls of 3 to 6 at the nodes. The erect stems rise 2 to 6 feet from a woody base above a deep extensive root system, putting out stout horizontal branches deep underground. The leaves are linear or narrowly lance-shaped, 2 to 6 inches long,



Mexican Whorled, or Narrow-leaf Milkweed. Number 2 rubber producer among the milkweeds.

Photo by the author.

often folded together. The numerous small flowers are greenish-white or purplish, soft short-hairy, in long-stalked, umbrella-shaped clusters at the stem ends or in the upper leaf axils. Above the 5 down-turned corolla lobes, the crown of 5 erect open hoods encircles the stamen tube, the long, linear horns projecting from the hoods. The smooth narrow pods are somewhat spindle-shaped and erect, 2 to 4 inches long, the flat brown seeds having the usual silky tuft of hairs. The Indians developed an adhesive gum from the white sap.

It inhabits dry plains and foothills in sandy, gravelly, rocky soils, thriving on newly disturbed or eroded areas, from Mexico (where it first was collected) northward through interior California and western Arizona to Nevada and Utah, from low up

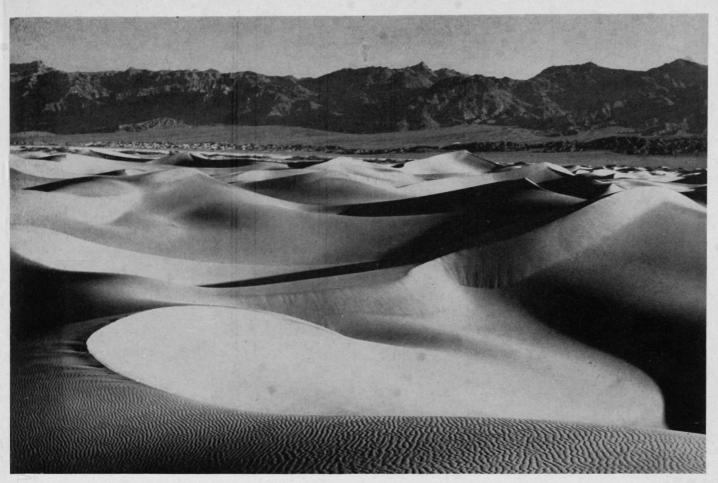
to rather high elevations.

Asclepias subulata

Bush Milkweed is quite an innovation, its clumps of naked stems apparently masquerading as a rush, until a closer look discloses the family characteristics. Its many stems, usually 20 or more, rise erectly 3 to 8 feet, greenish-white and rush-like. For a very short time in early spring a few thread-like leaves may be found but they die young and soon disappear. Atop each stem are several umbels, liberally flowered. The greenish-white or yellowish corollas are crowned by elongated hoods folded together at the sides and flaring rather widely above, barely showing the sharp tip of the wing-like horn. The slender pods vary from 2 to 5½ inches in length, tapering to a long-pointed apex. The many-stemmed clumps of this promising rubber-producing milkweed may be found in bloom from May to October along washes on dry slopes, mesas and plains in the Colorado and eastern Mojave deserts, southern Arizona and Mexico. Below the Border the milky juice is valued for medicinal purposes.

Asclepias albicans

Known also as White-Stemmed Milkweed and doubtless the most conspicuous. Its waxy-white upright stems not infrequently grow up 10 feet, but average 5 to 8 feet, almost or entirely naked for most of the year. Sometimes as many as 50 of these tough stems, pliant as whips, spring from one root, favoring dry volcanic slopes and rocky wash banks, especially striking on steep craggy masses of boulders. It vies with the Rush Milkweed in its stingy allotment of short-lived, very narrow leaves. The flowers are disposed in terminal panicles, the corollas white, tinged with purple or brownish, the short pouch-like hoods yellowish, the slender horns just peeking out. Waxy too are the slender pods, about 4 inches long. It grows in the southeastern Mojave and Colorado deserts, southwestern Arizona and northwestern Mexico.



Death Valley Sand Dunes. Photo by W. G. Martin, Huntington Park, California.

Sand -- Why Take It for Granted?

Those who come to the desert occasionally or merely admire it from a distance generally associate with it the beautiful curve of the dunes or the infinite variety of wind-rippled patterns in the sand. Desert dwellers are likely to have a less picturesque reaction, for they have felt the stinging cutting violence of a sand storm. But whether one's attitude is romantic or realistic, the nature of sand too often is taken for granted. Jerry Laudermilk's purpose this month is to give Desert's readers, rockhounds and others, a scientific basis for the appreciation of sand. Jerry believes that the more one knows about this "ground up rock that looks sorta like sugar" the more one will enjoy the beauty of the desert's most-advertised feature.

By JERRY LAUDERMILK Drawings by the author

AND! There were acres of it—ridges, dunes and mountains of it. Miles of it! On both sides of the road the sand stretched away like a sea of solid water in wind-cut waves as monotonous as a landscape in burlap. Monotonous—but there is magic in this common stuff. Mystery and the power to fascinate are part of each tiny grain, like sorcery in some magic jewel.

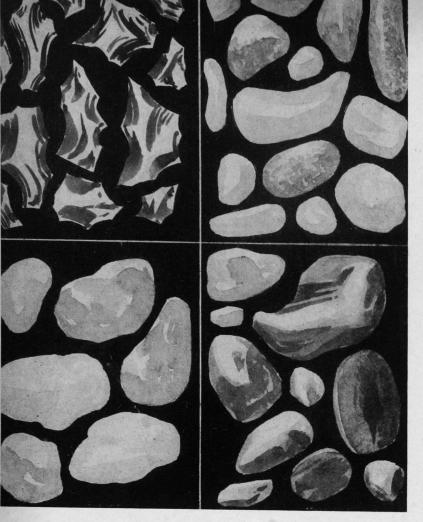
I looked at a handful gathered at random. My microscope showed me a throng of rounded grains like the faces of a mob or the tops of ten thousand bald heads. Each grain had a personality of its own, stamped with the marks of its history. This was dune sand at the height of an active career. But there are other kinds—young, inexperienced sands and old, retired sands with a past.

We are likely to take sand too much for granted. Ask someone what he means by "sand" and the chances are, unless he is a rockhound, he will be puzzled for an answer. Generally, his reply goes about like this, "Why sand is sand, little pieces of ground up rock that looks sorta like sugar." Crowd him further and he may counter with, "Well, all right, what is sand?"

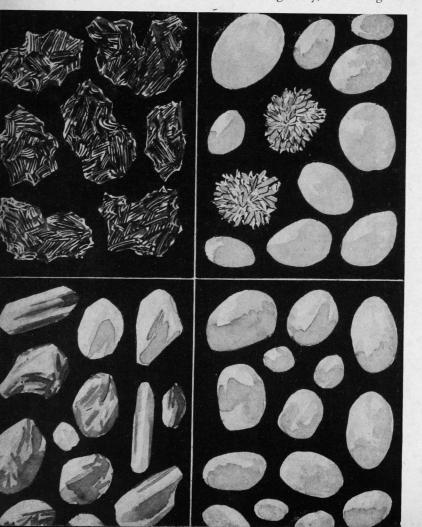
Sand, to be precise, refers to small pieces of rock of any kind, not more than 1.5 nor less than .05 millimeter in diameter. One and a half millimeters is roughly the diameter of the lead in an ordinary pencil, five hundredths is just visible against a dark background. Anything above the top limit is classed as fine gravel, anything below the lower figure qualifies as silt or clay. The name has nothing to do with the mineralogy of the grains but unless otherwise specified, quartz sand is understood since this is the most common variety.

Shape of Sand Grains

Like so many other things sand has to be understood to be appreciated. Under the microscope sand always is interesting and sometimes beautiful. Any sample will fit into one of three categories as to grain shape. The shape of the particles tells



much about the adventures encountered by them after having left the parent rock-mass. Either the grains will be clean-cut with sharp edges and corners, or angular. Or they may be slightly rounded with indications of the angularity, or sub-angular.



Four characteristic types of sand. Upper left—Volcanic sand in sharply angular grains, from near Ogilby, California. Upper right—Aeolian sand from Pisgah crater, California. Lower left—River sand from near Whitewater, California. Lower right—Dune sand from near Riverside, California.

Or they may be smooth and polished, then they are described as rounded. This sounds simple, and the impulse is to say, "And so what?"

Well, the plot thickens a little. Sands with angular grains are either the result of disintegration due to slow decay or of fragmentation from violence—commonly volcanic action. Sand with angular grains has not been transported far by either wind or water. This is young sand with no experience, the raw material from which the other types are made. Disintegration sand is common in the mountains and near weathered masses of granite but may occur wherever rocks fall to pieces from natural decay.

The source of disintegration sand usually is granite but it may be a gneiss or other coarse-grained rock. The remaining grains of quartz, tourmaline, magnetite, garnet, etc., represent the most resistant parts of the rock-mass and have kept their chemical identity while the rest of the rock went to pieces.

Sub-angular grains are the result of moderate handling of disintegration sand by either wind or water. Glacial sand also shows sub-angular grains. This is especially true of glacial sand that has been transported.

Rounded grains are the result of long-continued polishing of grain against grain by either wind or water—especially wind. Roundness indicates an old experienced sand. Rounded sands are common on dunes which have traveled far, as in the Sahara. Sands of any of the three types may be mixed. When this has happened it indicates that more than one factor has been an agent in its deposition.

There is a limit to the amount of polishing a sand grain can take. This is the result of size. In water, any grain less than .72 millimeter cannot be rounded further. Angular particles of this size or less remain angular. This polishing limit is the result of the weight of the grains and the buoyancy of the water. The grains tend to stay in suspension when the water is in motion and the impact of grain against grain is cushioned by intervening layers of water. The size limit to wind-polishing is .15 millimeter since the dust blast is effective down to that small size. It generally is true that any well-rounded grain less than .75 millimeter is wind-polished, or aeolian sand. Under a high magnification the surface of aeolian sand frequently shows frosting due to battering, and grains may be chipped by knocking together, showing typical conchoidal fractures on a minute scale.

Production of Sand

One of the most effective ways by which mineral fragments are released to form sand is through weathering, or rock-rot. A solid block of granite kept in a vacuum at a very low temperature probably would last forever. This condition exists in the case of the rocks on the moon's surface. Selenographers know with a fair degree of certitude, the general types of lunar rocks. They determine this from the way in which lunar rocks behave when photographed by ultra-violet and infra-red light. Terrestrial rocks of the same types react in the same way. But under ordinary conditions, rock-rot begins to some extent soon after a fresh surface is exposed to atmospheric action. Without doubt, the most effective large-scale factor is vegetation. Vegetation

Unusual types of sand: Upper left—Disintegration sand from devitrification of obsidian, from near Newberry, California. Upper right—Aeolian sand from Zion national park. Clumps of crystals are gypsum. Lower left—Sand from a sand crystal with conchoidal fractures. Lower right—Aeolian sand from Syrian desert, Palestine.

THE DESERT MAGAZINE

Porosity and packing of sand grains. Upper left—Open arrangement of ideally spherical grains. Porosity is 47.64 percent. Upper right—Close arrangement, porosity 26 percent. Lower left—Unsorted sand from concretion. Lower right—Mosaic arrangement of same type sand showing small porosity. Sand grains mosaic when wet.

from a microbe to a giant redwood can contribute to the demolition of a solid granite boulder.

All rocks contain joints or cracks or will develop them after passage of time. Eventually, water seeps into these weak places, leading to final breakup of the rock-mass. Plants secrete carbonic acid as a by-product of their growth. Water containing this acid becomes a powerful agent in dissolving out iron, manganese, lime, the alkalies and other elements from the feldspars, micas, chlorite, etc. So whenever either colonies of bacteria or roots of higher plants penetrate the cracks and fissures, breakup begins. Lichens also help in this work. We can imagine a granite boulder being broken up and partly dissolved on the inside by root acids while its outside, attacked by lichens, constantly is being scaled off in flakes exposing fresh surfaces to further action.

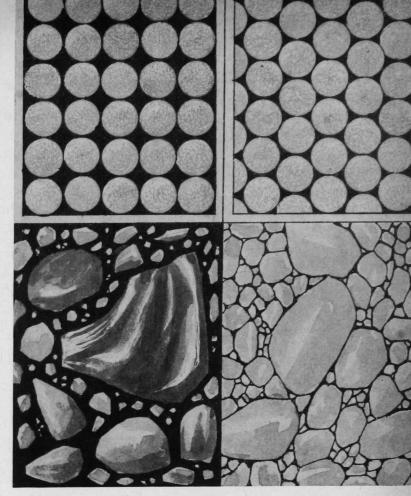
The final product of rock-rot is a pile of decomposed granite. If decomposition has reached the limit, all that remains is a lot of clay from the breakdown of the feldspar and angular tragments of disintegration sand from the quartz. Ordinarily rock-rot doesn't go so far in one operation. Crystalline rocks like granite, granite porphyry, pegmatite, etc., are likely simply to crumble, much of the quartz and feldspar being left intact to form sand.

The chemistry and mechanics of rock-rot are interesting. In fresh rock, crystals of quartz and feldspar will be mixed in every possible combination. The crystals are not held together by any cementing substance but simply cling together through the effect of cohesion of the molecules of adjacent crystal faces. These interfaces are the weakest part of the rock and while they press together so closely they may not show even a microscopic joint, water can creep in between the crystals. When this takes place between quartz and feldspar and the water contains carbonic acid, the surface layers of the feldspar crystals are attacked and softened to a tremendously thin film. Sometimes pebbles and cobbles from ancient flood plains have decomposed in place so slowly that although they appear perfectly sound they actually are rotten all the way through and can be crushed with the bare hands. Sand which has resulted in such cases frequently will show signs of the original crystalline structure of the grains.

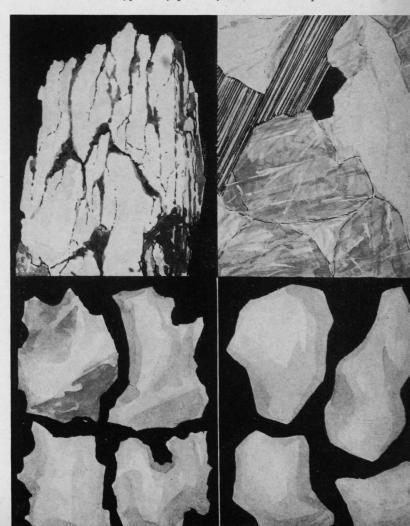
Not only is rock-rot the result largely of chemical action but the mechanical effect of pressure by growing roots which have forced their way into cracks also is effective in furthering disintegration. Hydration of certain minerals sometimes causes the surface layers of a boulder actually to swell and shell off in large flat pieces. This effect is called exfoliation. Another agent thought by some to be effective is insolation, or alternate chilling and heating of a rock so that its structure is weakened. Cold also does much work in certain climates. In Canada polished granite monuments do not last long because during the winter, moisture that has penetrated the outer layers freezes and the surface scales away in flakes. In any of these cases the final result is disintegration sand.

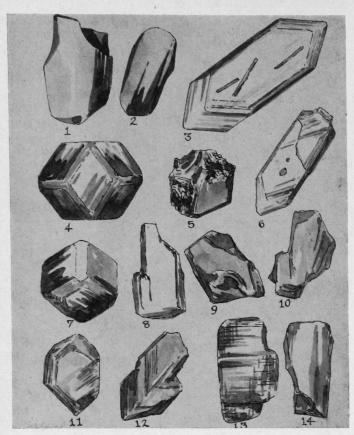
When, from any cause, disintegration sand finds its way into

Granite-and-sand story. Upper left—Decomposed granite crumbling from solution of feldspar. Upper right—Thinsection of fresh granite. White areas are quartz, grey are feldspar and striped areas are biotite mica. Breakup of granite releases quartz unchanged as disintegration sand. Lower left—Disintegration sand. Lower right—Sand slightly rounded by beginning of stream action.



a stream bed some rounding soon begins but does not go far until the water has had a long time to get in its work. At first sub-angular grains form but eventually the running water makes rounded grains. The round, highly polished grains are typical of wind action. When grains of this type are found mixed with sands of other types they probably have been transported



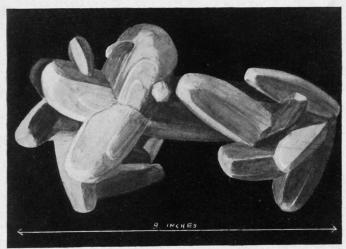


Minerals from a black sand after removal of magnetite. 1 and 2 are Tourmaline. 3 and 6 Zircon. 4, 5, 7 and 8 Garnet. 9 and 10 Epidote. 11 Sphene. 12 Rutile, 13 Microline. 14 Zoisite.

from a foreign source. This is not always true. Sometimes sand on the dry, upper part of a beach may be tossed about by the wind and the grains rounded, and this later may be mixed with the sub-angular grains of the wet beach.

Sand formation probably has gone on continuously since dry land first appeared. Well rounded quartz pebbles less than a quarter of an inch in diameter occur in some of the pre-Cambrian formations of Utah and it is reasonable to suppose that the same rounding process applied to sand grains in favor-

Cluster of sand crystals. Sometimes when calcite crystallizes from solution in presence of much free sand, crystals may be composed largely of sand grains enclosed in crystal structure. Specimen shown, from Snake Butte, Montana, contains 71.42 percent sand.



able situations. Aeolian sand undoubtedly was formed as far back as the Silurian period.

Distribution of Sand

The vast accumulations of sand in the Sahara and other deserts is of continental origin—not the remains of old sea-bottoms as is sometimes thought. In fact, deserts are normal features of the earth's surface. As Weldon Heald says in his paper "Why Deserts?" (Desert Magazine, August, 1942) they probably have existed some place during every geological age. Like all surface features of the earth, the Sahara is filled with contradictions. There was a Sahara as far back as the Silurian, yet as lately as the last Ice Age the Sahara was well watered. Its present state is the result of prolonged dessication and erosion of the old rocks which themselves, as E. F. Gautier in his work "Sahara the Great Desert" shows, mainly were sandstones made up from even more ancient deposits.

The dunes of our own Colorado desert are sand from the ancient delta of the Colorado and, to a smaller extent, from the sands of ancient lakes. The wind has been the most important factor in this case as it is in all desert deposits.

Light winds merely roll the rounded grains up the gentler slope of the dune or at most lift it but a few inches. But high winds carry both dust and fine sand great distances and aeolian sand may be found in deposits far from its place of origin. One night in the winter of 1915 at Kansas City, Missouri, there were three falls of snow. Sandwiched in between two white layers was a layer of red snow more than an inch thick. I collected a dishpanful of this and recovered much brick-red sediment. Microscopic examination showed it to consist of sand and dust rich in hematite. Later, its source was traced to the iron mine region of Minnesota about 500 miles away. Besides transporting sand through the air, the wind moves enormous volumes more slowly as dune sand.

Composition of Sand

Several paragraphs back I said that quartz was the principal mineral in any sand. This is so, first because silicon and oxygen are the two most abundant elements on the earth's surface, and second because silicon dioxide (quartz) is unchanged by weathering. J. W. Retgers in 1892 made a study of the dune sands of Holland and found 23 minerals to be present. In most cases 95 percent of the grains were quartz. In places where there was a concentration of heavy minerals, it was possible to walk along the strand and distinguish areas red with garnet and others black with magnetite. Enrichment by heavy minerals is common and the concentrates generally are dark due to iron oxide but sometimes to hornblende.

If one of these black sands is spread out on a piece of smooth paper and a magnet applied beneath, the magnetic fraction can be segregated and the residue is likely to be astonishingly beautiful under the microscope. Viewed by reflected light it may show glittering, highly colored fragments and crystals of garnet, tourmaline, epidote, zircon, vesuvianite and other minerals.

Light colored sand like the silvery tan sand of the Hassayam-pa river of Arizona generally shows much mica. Tenderteet sometimes have been fooled by this mineral. Biotite, when looked upon with eyes of hope, frequently resembles gold, especially if seen through a layer of water. I once was called upon to act as technical referee in a gold recovery scheme where the end product was a nice showing of biotite. Even a fire-assay failed to convince these people that their's was but "fool's gold." In fact, I was accused by all interested parties of having jinxed the demonstration by "holding bad thoughts."

Geology Clues in Sand

Aside from mica, other minerals may tell much about a sand's origin. The mica in the Hassayampa has, in all probability, weathered out of the granites of the Bradshaw mountains and doubtless an expert in sedimentary petrography could by a study of the sands give a reliable description of the geology of the country upstream.

Thin-sections of sandstone and quartzite. Upper left—Red sandstone from Yermo, California. Color due to particles of earthy material between the grains in the cementing material. Upper right—Pink sandstone from Yermo. Angular grains, probably volcanic, are cemented as a mosaic by calcite containing scattered particles of claylike material. Lower left—Banded Uinta sandstone, Utah. Dark area shows part of one of the red bands. The red particles occur in evenly spaced layers among the aeolian grains. Lower right—Pink quartzite from Yermo. Sand in this area evidently is from an ancient beach. The rounded grains are firmly cemented with silica.

Some minerals such as gypsum and calcite are too soft to be transported far. Their presence in a sand indicates nearness of the parent rock-mass. Minerals like tourmaline and staurolite always indicate a derivation from metamorphic rocks which may be far away since these minerals will bear much transportation.

Tracing an unusual mineral to its source sometimes is a matter of importance. One case in my experience concerned certain crystals of ruby (corundum). Once ruby of gem quality had been found. Other corundum of low grade was frequent. As I worked my way up stream the mineral became more common and pebbles of corundum syenite began to occur. These finally gave place to boulders and then, abruptly, there were no more traces of the mineral. This indicated that I had passed the tributary which carried the float into the main wash.

The canyon finally was located. It was very small but had abundant traces. I was making encouraging headway until again there were no more traces nor any place for a tributary canyon. Finally the source was located high up on the side of

the canyon as a wet-weather waterfall.

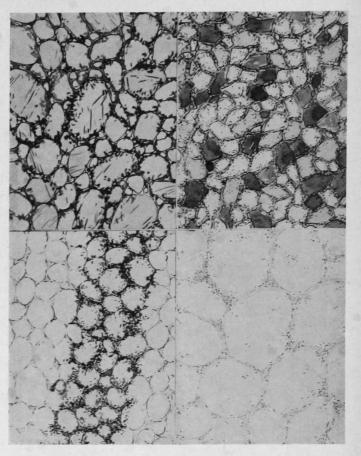
Scaling this took me to a higher stretch of canyon, which was steep, wild and rugged but full of corundum which reached its greatest abundance at the foot of a landslide where this debouched into the main canyon. Farther on there were no more traces but up the slope in the direction indicated by the slide was the source. One coming upon it from any other approach easily might have overlooked the interesting nature of the rock since it was thickly overgrown by brush and the outcrop itself covered with moss and lichens.

Sands which are typical from the presence of some unusual mineral will be recognized later if once they have been studied carefully. This is important in some criminal cases where the scene of a crime must be located by identification of the type of soil. I once was called upon to identify the previous place of concealment of a cadaver which had been found in a gunny sack. The only type material I had was about half a teaspoonful of sand which accidentally had been scraped up between the pages of a book the victim had had with her at the time of the murder. The sand finally was traced to a spot known to have been frequented by the victim.

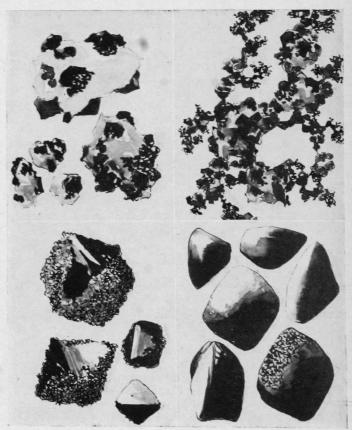
Porosity of Sand

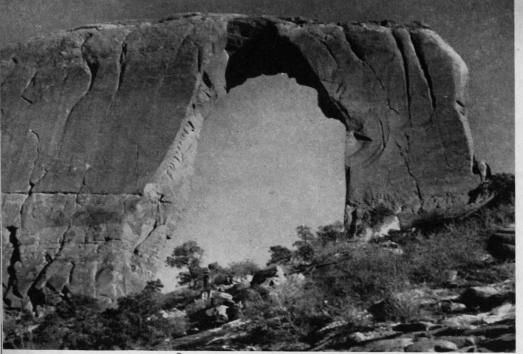
One more interesting feature about sand has to do with porosity and water storage capacity. A sand of uniformly spherical grains can pack only in one of two ways. Either each grain is bounded by six adjacent grains stacked one above the other like eggs in a crate or they stack with each grain over the space left between three adjacent grains like stacking cannon-balls. In the first system the porosity or space between the

Magnetite. Upper left—Crystals of magnetite "panned" from decomposed granite. Crystals partly embedded in grains of quartz. Upper right—Clumps of self-magnetic grains of magnetite from disintegrated granite. Lower left—Octahedral crystals of magnetite from disintegration sand. Lower right—Rounded grains from typical black sand.



grains amounts to about 47 percent of the total volume. In the second system it amounts to about 26 percent. The remarkable feature is that the size of the individual grains makes no difference. If they all are spherical and of the same size the porosity for any volume of sand, whether the grains are large, medium or even microscopic, remains the same.





Queen of the Red Sandstones is Ben Wittick natural arch, sometimes called Royal Arch. Carved in red Chinle sandstone, it rises some 300 feet above the sheer walls of Prayer Stick canyon. Photo by the author.

Black Horse of the Red Rocks

HREE of us camped under the long shadows of Round Rock near the old trading post at *Bisdotlizhi des'ahi* the Blue Clay Point in northeastern Arizona. Across the flickering firelight sat Jerry, my interpreter. Squatting beside him was Hastin Tsosi, one of the oldsters who for a square meal and plenty of "smokes" delighted in telling of the lore of their country.

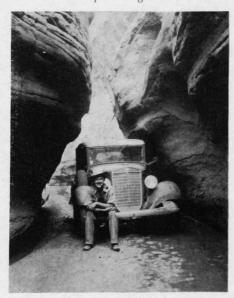
At twilight the old *hastui* had started with mystical tales of local monsters and heroes. Then he told of the Navajo-Mexican fights over slaves and plunder. When the fire died and the gleaming coals cast red shadows on his leathery face, his eyes gleamed as he told the story of *Bili lizhin*, the old chief whom white men called Black Horse.

"Bili lizhin never liked white men. He placed them with the Mexicans who had killed his old grandfather and made slaves of his kinswomen. As a young man he helped the chief Francisco Capitan keep the gold hunters out of the Carrizo mountains. For the old-time Navajo believed that digging holes in sacred mountains would bring bad luck to the tribe.

"Just 73 years ago Aadlohi, the Lassoer, whom the Bilakana called Kit Carson, came to "round up" the Navajo. Bili lizhin and a band of young warriors got

away from him. They moved their women and sheep into the Red Sandstones and hid that winter. In the summer they moved up

No car travels across the Red Sandstones. Deep canyons soon pinch in to halt car travel. Navajo horsetrails cut deep in the slick sandstone are the only routes from Chinle valley to Shiprock region.



Black Horse hated white men as passionately as he hated Mexicans, who had killed and enslaved his kinsmen. Never did he submit to the law of the Bilakana, not even when Kit Carson, 70 years ago, rounded up his people and drove them to Bosque Redondo in New Mexico. He and a band of young warriors escaped into the little known Red Sandstone country of northeastern Arizona. After the Navajo were allowed to return home, the first school for Navajo was built at Fort Defiance, and white men began to "steal" the Indian children to take them to school. Then it was that Black Horse came out of his Red Rocks, again to defy the white men who, he fiercely claimed, had put irons on their childrens' legs and brutally whipped them. This is the story of how Black Horse, hater of white men, was instrumental in bringing about a humane and intelligent supervision of Indian education—as told to the author by a Navajo who rode with Black Horse into the Red Rock refuge.

By RICHARD VAN VALKENBURGH

mountains."

"Which Red Sandstones, Grandfather?" I asked.

into the deep forests of the Lukachukai

"Right up there," answered the old Navajo as he pursed his lips eastward towards the main massif of the Red Rock strip rising to line out a sharp black horizon against the pale blue blanket of the evening sky.

Not well known to the casual traveler of Navajoland, Black Horse's hiding place has been explored only by a few natives and archaeologists. The 30-mile strip of weathered and bared Chinle sandstone which links the spruce and aspen covered Lukachukai mountains with the Carrizo range appears from the vicinity of Round Rock in the Chinle valley like a smooth sea of rolling rock punctuated by eroded and spired monuments.

Actually steep-walled box canyons slash deep into the sandstones. Tucked in high walls are numerous *Anasazih* folk cliff dwellings. In the vicinity of these simple monuments to the long-vanished hunters and farmers green oases mark tiny springs that seep forth from seams in the sandstone.

Cut deep in the slick sandstone Navajo horse trails traverse the strip from the Chinle valley to the Shiprock region.



Fort Defiance. Photo taken soon after Round Rock melee. It was the mistreatment of Navajo children in large building on left that caused Black Horse to attack Agent Dana Shipley at Round Rock in 1892.

until we go against the white men! "Black Horse was ready when Smelly Goat came. With him were Chee Dodge, a missionary named Alfred Hardy, and seven Navajo policemen. On the swell

hesitate to hurt you. I will save my magic

right here the Navajo sat on their horses and watched. When Smelly Goat started to take away 30 of our children, Black Horse yelled, 'Let those children go right now!'

"Black Horse then moved near. The agent said, 'Let's go inside and talk it over.'

"So they started a council inside the store. Smelly Goat, Alfred Hardy, and

Winding over bald ridges they rise and drop abruptly in and out of bowl-shaped parks where scant mantles of earth give precarious footing to vegetation. It still is a wild country!

Old Tsosi went on with his story:

Black Horse and his band hid from the Nago dildoni those-who-shoot-from-theside. Then after four years the Lassoer let all the Navajo walk home from Hwelte at Fort Sumner way over in New Mexico. They were badly cowed and did just what Washington told them to do.

'But to Black Horse it was just the same as in the free days. Sometimes he led his band across the San Juan river to steal horses from the Mormons and greasy Pahute. When the bluecoats came down from Fort Lewis his trail faded into the Red Sandstones.

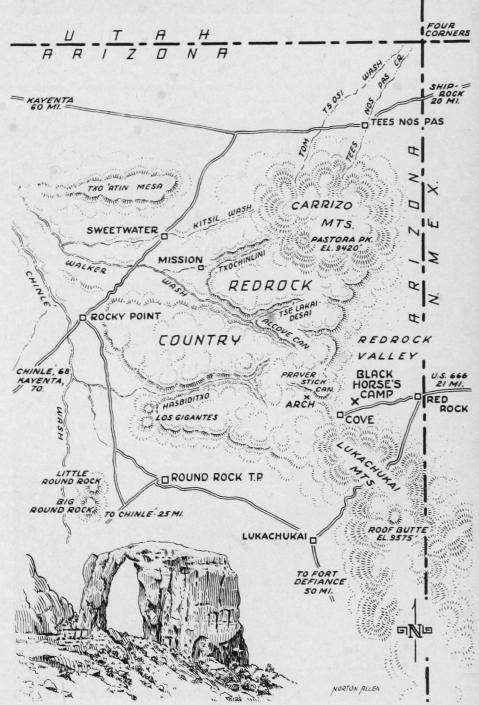
Sixty years ago they built a stone school house at Fort Defiance. Then the agent sent out word that the Navajo must send in all of their children between six and 16 summers. Some of the Navajo did but most of them were scrubs. They kept the good ones home to herd sheep.

'About 50 years ago an agent called Tlizi Chon, Smelly Billy Goat, started to steal our children. The white men called him Dana Shipley. News came that he had gone down on the Rio Puerco and had stolen some children. When Black Horse heard about this he called for a war council at a place called Kabizhi, Barrel Cacti. Today the white men call it Cove.

'Navajo rode in from everywhereeven as far as Ganado. Horses swarmed and great clouds of dust rolled over the country. Smoke spirals arose all over the mountains. All the chiefs gathered inside of Black Horse's summer hogan. Everyone was talking about war.

"A man named Rope Thrower from Lizard springs near Ganado spoke to Black Horse, 'I've heard great things about Black Horse. They say he has war magic. It is said he is going on the war trail. He says he is going to swallow all the white men. I want to be sure before I go to war. Swallow my head first, right now!'

"Black Horse answered, 'Aaa, haa! I





In the summer Black Horse hid his women and sheep from Kit Carson's Utes and Mexicans in the spruce-covered heights of Lukachukai mountains of northeastern Arizona. Photo by Milton Snow.

Charley Hubbell the storekeeper were the only white men there. Soon the store was filled with Navajo. After they quieted, Smelly Goat said, 'I came for these children. I am going to take them back to school at Fort Defiance today!'

"Black Horse yelled, 'I'll close that school. I am going to run all of you white men out of the Navajo country. I hate them all and will kill any of them that come into the Red Sandstones!"

"Everyone got madder. They talked louder. Then they started to yell. They talked so fast that even Chee Dodge could not interpret. So they did not know what the other said. The Navajo started moving around. Then all at once they grabbed Smelly Goat and pulled him outdoors yelling, 'Kill Smelly Goat—kill all the white men! Don't leave one to tell the story!'

"Then they all tried to kill the agent. He was beaten with sticks and stones. But the Navajo piled on top of him so thick that they were hitting each other. All at

once someone yelled, 'Look! A policeman is riding in!'

"The Navajo all jumped off and scattered out. Black Horse sent some men after the agent. He did not want him to get away to tell the soldiers who were camped on Tsalee creek. When they looked for the agent he was gone . . ."

Hastin Tsosi paused. While he rattled around the canteens for a drink I remembered the version of Shipley's escape as told me long before by Henry Chee Dodge:

"It looked bad for Shipley. After Black Horse dragged him out the door Charley Hubbell and I barricaded the window and doors of the post. We got ready to make a stand. The only weapons we could find was a carbine with 50 rounds and a small revolver with one load.

"Tall Policeman and I looked out the window. Black Horse's band was piled on top the agent. All we could see was his

shoes sticking out from under the pile of howling Navajo.

"Tall Policeman slipped out the door. He grabbed Shipley's legs and had him inside before the infuriated Navajo knew what happened. The agent's nose was smashed and he was bruised all over. Tall Policeman had severe head wounds, but he had saved Shipley's life."

The low voice of Hastin Tsosi interrupted my thoughts as he picked up the threads of his story—

"Black Horse's men moved across the creek from here. They held council, Knowing that there were guns in the store they hesitated to make a direct attack. They did not want too many killed. So they waited around until night. Then they got ready to set the roof on fire. That would drive the white men out and then they could kill them.

"They got ready to attack. Someone looked southeast towards Tsalee butte. A line of horsemen strung out against the sky. When they drew near they saw that they were soldiers. Black Horse said, 'Let me talk to them alone—before they hear the other side and the agent's lies.'

"So Black Horse rode right into the middle of the soldiers. From their hiding places in the rocks his men could see him sit down with the captain. Black Horse said, 'This agent you have at Fort Defiance will have to go away. He is causing too much trouble.'

"The soldier captain was not excited as he told Black Horse, 'You had ought to be more peaceful. The bluecoats might come again and run all over you like they did 30 years ago. You had better let Smelly Goat take the children down to Fort Defiance. Then come in—we will hold a council with the number one soldier at Fort Wingate."

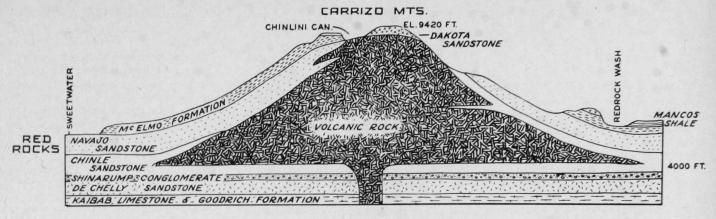
"Believing that there might be more soldiers around, Black Horse let the agent start off with the children. Then he promised the captain that he would come into Fort Defiance for council. But he did this only to get away. Followed by his band, he went up the *Haspiditxo*, the Dove Water canyon, and disappeared in the Red Sandstones.

"Later two Navajo came into the Red Stones and told Black Horse that he was to come in to Fort Defiance for a council. But he was too smart. He knew they wanted to throw him in jail—maybe hang him. He said, 'No! I'll stay right here—let them come to me. Then a lot of us will be dead!"

"So the army officers from Fort Wingate held a council with Ganado Mucho, Marriana, Gordo and Chee Dodge, who then were the head men of the tribe. Everyone was mad at the school. The chiefs feared that another war would start and a lot of Navajo would be hurt. They all said Black Horse was right in many ways—for the school was a bad place, children had

Red Sandstone country from Chinle valley. Round Rock in foreground. Thirty-mile saddle of Red Sandstone strip, background, that links the 11,000-foot Carrizo and Lukachukai mounains.





GEOLOGICAL FORMATION OF CARRIZO MOUNTAINS AND RED ROCK COUNTRY.

Dakota sandstone—Conglomerate with quartzite pebbles of buff, grey and red, contains petrified wood.

Mancos shale—Grey calcareous shales changing to buff and drab, contains fossils.

McElmo formation—Light colored sandstone, massive and cross-bedded.

Navajo sandstone—Red sandstone, massive, excessively cross-bedded.

Chinle sandstone—Chocolate colored shales at base, succeeded by purple, lavender, green and red shale, contains fossil forests.

Shinarump conglomerate—Conglomerate of quartzite pebbles, contains petrified wood.

De Chelly sandstone—Massive, excessively cross-bedded brown sandstone.

Goodrich formation—Bedded buff and brown limestone and sandstone. After Gregory.

irons put on their legs, and were brutally whipped.

"Then Gordo got up and spoke, 'When we put our little children in school it is like giving our hearts up. When the agent abuses them, it hurts very much. We Navajo do not whip children. The name we have given this agent is *Tlizi Chon*, Smelly Billy Goat. For a billy goat is always butting the rest of the sheep and pushing them around. We think that is a good name for him!"

"Soon after the council Smelly Billy Goat got fired. An army officer took his place. He was a better man. He made the school good. Then the Navajo did not worry about sending their little children in. But Black Horse showed that they would never be forced to."

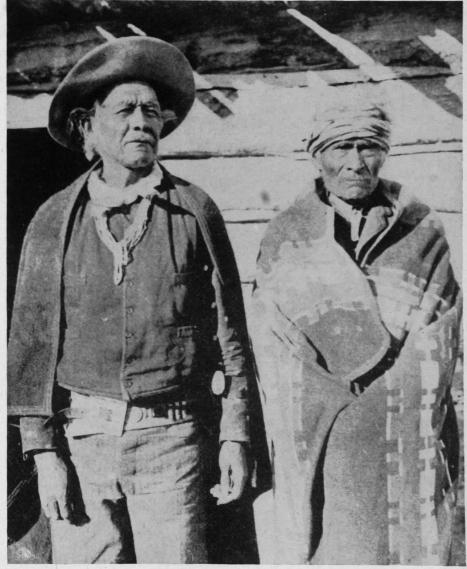
"Did Black Horse ever give up, Grandfather?" I asked.

"Dota! Never," answered Hastin Tsosi as he stretched out and curled up in his robe. "He stayed up there in the Red Sandstones. Until he died a few years ago he never liked white men!"

Browsing there under the Red Sandstones and on the scene of the Round Rock melee, I realized that for all his bad reputation, Black Horse in his hatred of white men unwittingly had brought about great good for his people. His attack on Dana Shipley had ended a vicious practice. And from that time began the slow development towards humane and intelligent education for the Navajo.

Looking across the dying fire to where Hastin Tsosi was a bump under his robe, an afterthought came to me. I asked, "Grandfather, how come you know so much about this affair?"

The old Navajo poked his head out and raised to his elbow as he answered, "I should! For I rode with Black Horse!"



Black Horse and Taioni one of his followers. Courtesy Franciscan Fathers.

LETTERS

Welcome to Iceland Spar Prospectors

Camp Wood, Arizona

Dear Desert Magazine:

Here are two subscription orders. I tried to buy Desert in Prescott but for the last four months straight they had sold out like hot cakes.

I notice in your November issue, page 34, the item about iceland spar. My claims, at the Arrowhead mine, are iceland spar claims although they also contain other minerals. I know of iceland spar deposits in 10 different sections in this township. It is isolated, and I would be glad to see other miners and prospectors come in. I would be glad to show others where locations may be had if they will contact me (no charge).

Also opal could be mined here by the ton-not all fire opal but some of it is alive with fire.

MRS. BERTHA E. SCHELL . . .

Asks Aid in Petroglyph Record . . . La Jolla, California

Dear Sirs:

The letter describing vandalism and destruction of petroglyphs (November issue, page 17) prompts me to do something I have intended for some time. For several years I have been photographing and collecting information regarding petroglyphs and pictographs in the Southwest. These activities are out now, but I hope to resume them when the war is over.

In the meantime I would like to collect as much information as possible regarding locations of petroglyphs. Probably many of your readers in the course of their desert travels have found Indian inscriptions. I would appreciate the use of your columns to ask them to send me any information they might have.

It would be most helpful if the information covered the following items: details on how to reach the site, whether inscriptions are petroglyphs or pictographs, type of rock on which they occur and general direction in which inscriptions face. Any other details and a small snapshot would

be very useful.

I hope in time to have a complete and representative collection, and am anxious to photograph as many as possible before they are forever lost through vandalism. FELIX SAUNDERS

Desert Picture Worth More . . . Chandler, Arizona

Desert Crafts Shop:

Thank you for sending "Sunlight on the Mountain" color lithograph. The picture certainly is worth more than the price.

1st LT. LEROY J. ANDERSON

Salute to Dad and Son . . .

Escondido, California

Dear Miss Harris:

I was thrilled when I found the Just Between You and Me written by Rand Henderson of the U.S.M.C. in the December issue, as I have been looking for something from him ever since he left the staff to join our armed forces. More power to Rand, and I hope we hear more from him. Liked the new sketch by Norton Allen for Randall Henderson's regular page. More power to both Dad and Son.

FLOYD D. RICHARDSON

• • • Want Geology Correspondents . . .

Ann Arbor, Michigan

Dear Miss Harris:

My son and nephew who are now in the service are students of geology and mineralogy, and would find much relaxation in corresponding with others on those subjects. My nephew Jack Foster, in the marine corps, has just finished a radar course at Harvard, having studied geology at Dartmouth. Our son Richard was in University of Colorado until last July, when he was sent to University of New Mexico V-12 navy course. Both will soon have changes of address, but any correspondence with them may be sent to me for forwarding.

MRS. FRED BEIDLEMAN

Souths Welcomed Home . . .

Santa Monica, California

Dear Miss Harris:

It was good news to learn that after a year spent in search of a new Shangri La, the Marshal Souths had returned to their

beloved Yaquitepec.

Although we have enjoyed vicariously all their adventures in new desert country, there remained in the hearts of many friends a sympathetic pang for that little deserted home among the junipers and boulders on top of Ghost mountain. And I wonder if the force of this thought had something to do with our little family of nature lovers turning their backs on further adventure and causing them to retrace their steps to the peace and beauty of Yaquitepec, a home they built and dedicated to the love and enjoyment of glorious sunrises, golden sunsets and radiant panoramas of desert scenery.

I take this opportunity to send them a hearty welcome, with a prayer that the rain gods will send a bountiful supply of water. I also send greetings to Mr. Henderson in his far away African camp and hope before another year closes he will be back at his desk in his own beloved desert.

KATHRYNE LAWYER

December Cover is "Ugly" . . .

Tucson, Arizona

I write to make a vigorous protest about the December cover picture. By no stretch of the imagination can I see it as a cover subject any time, much less December. It is nothing but some scattered shadows, not the slightest bit of interest, good design or suggestion of Christmas. Never have I seen such an ugly thing. Surely you could do better. Many abandoned buildings are beautiful but you will have to talk mighty fast to prove that one is.

For some reason your December issues have about the only poor covers you ever put out. Last year's was good but far more suited to the vacation season than December. An old desert church or shrine, an Indian mother and baby, even animals and their young, make beautiful December

MRS. WILLIAM McFARLAND

Rebuttal from Fuzzy Thinkers . . .

San Diego, California

Desert Magazine:

All my life I have had a sneaking suspicion there was something very wrong with me. At last I know what it is-I am a "fuzzy" thinker. It took Mr. Merritt Boyer's letter in the November issue to show me the light.

If other readers and true friends of Desert felt as I did on reading Mr. Boyer's letter, they sputtered and tumed periodically for the next week. Most of them, after subsiding to occasional subterranean rumblings, will reread the letter, as I did, and decide it was a sincere criticism. They will strive to construct a worthy rebuttal.

I have been acquainted too short a time with Desert to do a bang-up job, but I would like to put in my two cents' worth for the "defense." The informed atmosphere you have achieved and maintained through the personal approach to desert life with its many facets is delightfulnear perfect. I should not like to see Desert become fictional. Equally would I dislike it frozen into an encyclopedia of facts. Just keep brewing your magic formula and you will continue to find a growing host of friends.

MARY E. McVICKER

Paging Norton Allen . . .

Oakland, California

Dear Editor:

When I receive my monthly copy of Desert, I quickly glance through it to be sure Norton Allen has a map there. Then I take a deep breath, and settle down to enjoy each page, secure in the knowledge that after this war old friends once again will gather around the campfire on the desert, recalling past experiences, telling tall tales and dreaming of tomorrow's find.

GERTRUDE LOFGREN

Fears Boyer Has Factomania...

Gambier, Ohio

Dear DM:

A few lines in answer to Merritt W. Boyer's unjust and harsh judgment. If my diagnosis is correct, Mr. Boyer is seriously afflicted with Factomania. I can picture him reading and devouring page after page of the Congressional Record, or some other such unseasoned recording of facts.

Mr. Boyer's ideas of good composition are grossly contrariwise to authoritative concepts of successful nonfiction. According to no less an authority than Professor Walter S. Campbell, University of Oklahoma, the fundamental prerequisite of successful nonfiction is to "present fact with passion, or to present your words in such a way as to arouse the emotions of the reader."

Majority of DM's readers are more or less emotional, and our love for the desert is a passionate one. We can recall many times when a writer presented his subject to harmonize with our own emotions or memories, thus making the presentation far more than one of mere words or facts, something to treasure and cherish.

Haven't we all turned back to read and reread well written nonfiction? Don't we first leaf through a new magazine for a title appealing to our personal fancy? And aren't we disappointed if the author's rendition is purely factual and void of emotion-provoking properties? With few exceptions, I would say that DM's editing policy strikes a "happy medium."

B. J. PURDY

Congratulates Boyer Criticism . . .

Pasadena, California

Editor Desert Magazine:

May I congratulate Mr. Boyer on his letter in the November issue and Desert Magazine for publishing it. We hope you go one step further and do something about it.

The account of Willie Boy is a matter of historical record and should be viewed as such by the readers of DM. Those who do not care for Willie Boy may skip him and turn to Marshal South's pattern for living.

HELEN SCHWARTZ

Money Well Spent . . .

Yuma, Arizona

Dear Friends:

Enclosed is \$4.50 for two year's subscription. I really get more pleasure out of reading Desert than any other magazine—and I've read a lot of them since 1879. I can truthfully say I get more pleasure, entertainment and profit out of the money I spend for Desert than for a like amount spent on any other form of entertainment in the whole U.S.A.

JOHN L. WALTERS

Another Request for Facts . . .

Los Angeles, California

Dear Miss Harris:

I am glad you published Merritt W. Boyer's letter in your November issue. I agree with him, but feel that he is lacking in sympathetic understanding of the difficulties you may face in getting high class material. He did not show appreciation, either, for the fine photographs you print, nor the interesting items under Mines and Mining, and Here and There on the Desert.

I would like to see more material under Desert Books, with some mention of older books with which readers may not be familiar. Perhaps the readers would like a list of books each month which would constitute a reading course on some phase of desert lore. How about an article on the games played by Indians?

I liked the personal accounts of exploration of little-known spots on the desert. But would like more factual articles too. Although I think Mr. Boyer's criticism is severe, I agree with him that space in Desert Magazine should not be wasted on ecstatic descriptions of the beauties of nature. That's something you either feel or don't feel—and reading about it doesn't help those who don't feel—and annoys the ones who do.

I hope while Mr. Henderson is in the army he will take a special interest in all the equipment and material which can be adapted to desert travel and camping, especially light-weight stuff for walking trips. Is it too soon to start a little column about equipment and ideas for camping for those of us who are day dreaming about desert trips.

Your poetry is pretty lousy. It isn't more than rhyme. But if others like it, I won't object too much.

HELEN KNUPP

Says Boyer Insults Readers Too...

Fultonville, New York

Dear Miss Harris:

I want to register a great big, unladylike and emphatic RATS! in answer to Merritt W. Boyer, in November Letters page. There are plenty of facts between its covers. Seems to me he used a lot of words to find fault not only with the magazine but the readers as well. How does he know the readers are "fuzzy" thinkers. That letter riled my Dutch temper.

DM can't always suit everyone. But the magazine is one anyone could be proud of. If Mr. Boyer wants "Willy Boy" stories, there are plenty on the market.

I'll be sending my check soon for renewal to the magazine Mr. Boyer thinks needs more facts. But how many want it turned into a scientific magazine. Not I. I enjoy it too much as it is. (Better send Mr. Boyer a list of your fact books.)

MRS. ANNA C. BOSTWICK

Not Enough Snakes, Spiders . . .

Boulder City, Nevada

Editor Desert Magazine:

I agree with Mr. M. W. Boyer's letter in November issue that there are not enough articles or pictures of desert life.

I came to the desert last May, a stranger to desert life, and naturally I bought Desert Magazine to learn more about plants, cacti, bugs, etc., but up to now there has been very little. We need more on desert life—such as poisonous snakes, spiders, lizards, cacti and flowers and general conditions on the desert. Our friends all have the same complaint. We need more stories on the beauty of sunsets and how the birds, rats, snakes, foxes, etc., manage to live on a dry sandy waste. Stories telling about people making a home on the desert—with all the modern conveniences—are not good reading for those who like the desert "as is."

MRS. VEVA BERRY

DM is "Ice Cream, not Potatoes" . . .

Salt Lake City, Utah

Editor Desert Magazine:

I can sympathize with Mr. Boyer (November issue) to a certain extent when he asks for more "facts" and less hokum in DM. I like facts. Yet, while I sometimes smile inwardly at the ultra-enthusiasm of some of the writers, I like that enthusiasm, too. What if we do gush a little and overcolor the thrills, dangers and hardships? That is part of the fun! We must have a little escape valve for the romanticism that is in all of us.

There are plenty of sources for hardboiled facts if one prefers the intellectual side of it. Even if there were not, DM does a very good job in itself, supplying a wide range of informative articles and many excellent pictures to hold up Nature's end of the story. I regard DM not as an encyclopedia, supplying a diet of meat and potatoes to the intellect, but as a rich dessert to be savored, rolled about on the tongue and enjoyed as a sheer luxury. DM is the ice cream of the meal. Like ice cream, it is lapped up all too soon. But it has this advantage over ice cream: it can be brought out in a few months and be enjoyed all over again. With an entirely friendly wave to Mr. Boyer, I'll take my DM unchanged.

RUFUS D. JOHNSON

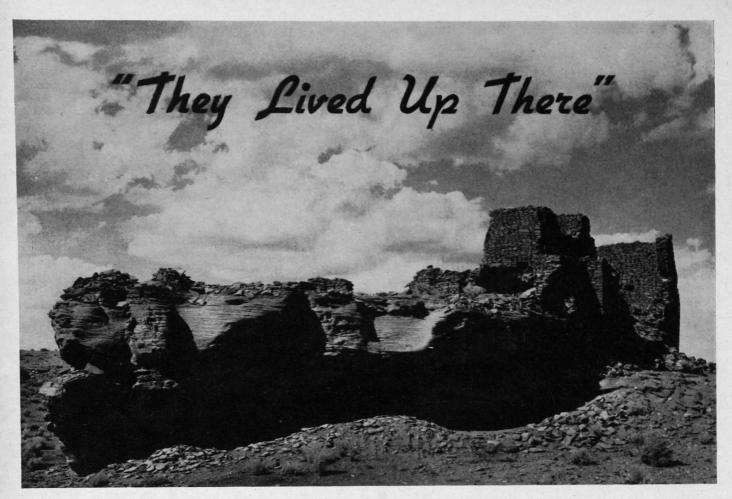
Back to the Desert . . .

South Bend, Indiana

Dear Sirs:

Your magazine is one of the best I have ever run across. The pictures and stories make me homesick for the desert. I am coming back to live in the desert when the war is over—and hope to meet some of the rockhounds out there. I worked two years on Boulder dam.

REES ZIRKLE



The walls of Wukoki tower at one end of a red sandstone ledge, overlooking the Little Colorado river and the Painted Desert to the north.

Remote and quiet and empty are the cities "up there." Sheltered high in deep cut caves of sheer canyon walls, towering fortress-like on mesa tops, these dwellings of ancient peoples remain as the only evidence of a civilization which came to an abrupt end about 1300 A. D. There are few clues to the mystery of the sudden exodus of the former inhabitants. The most definite evidence has come from applying the tree ring dating method developed by Prof. A. E. Douglass of the University of Arizona. This aid has led to the belief that a 23-year drought, from 1276 to 1299, forced the Pueblo people to migrate to the southward. Each year, as more excavation is being done, additional material is being uncovered—bits of evidence that gradually are being fitted into the picture of the Great Pueblo period. These remarkably preserved cliff dwellings extend through much of the Southwest, some of the finest examples being found in northern Arizona, southern Utah and southwestern Colorado.

By JOYCE ROCKWOOD MUENCH Photographs by Josef Muench

ORTH of Flagstaff, Arizona, past spectacular Sunset Crater, is Wupatki national monument. Against a black basalt background are the ruins of red sandstone pueblos. Several thousand habitation sites have been located in the area, most of which are believed to have been occupied between the 11th and 12th centuries. They were discovered in 1851 by Captain Lorenzo Sitgreaves who was on a mission from Washington

to determine whether the Zuñi and Little Colorado rivers were navigable to the sea.

Less known but in some ways more remarkable than the main Wupatki group is the structure called by the Hopi, "Wukoki," or Big House. Its three stories stand perilously on the edge of a red sandstone ledge. Once Wukoki covered the entire rock. Now the remains of crumbled walls lie all about. It apparently was used both as living quarters and as a watch tower.

Its strategic position affords a broad view of the Little Colorado to the north, and the Painted Desert far beyond.

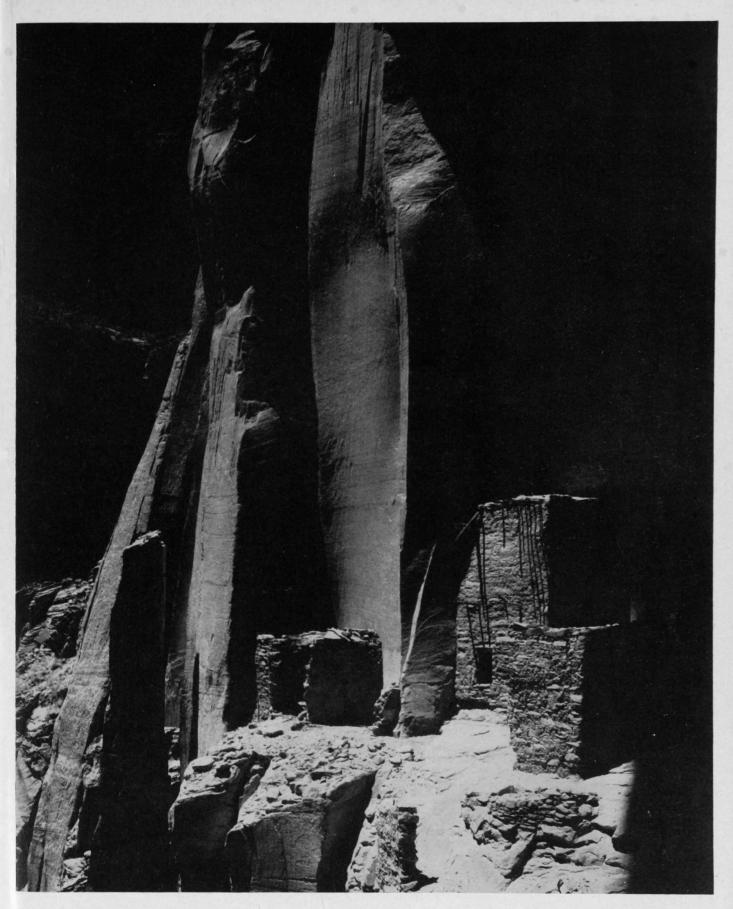
It was after the eruption of Sunset Crater, 885 A. D., that the "Old Ones" came to this area. The Havasupai claim it as their ancestral home. Hopi Indians of the Snake clan say it has an important part in their mythology, and some Hopi say it was a traditional stopping place for the Parrot clan of the Zuñi tribe.

This latter is especially interesting since ceremonially buried parrots and macaws were found in some of the excavations. Although parrots are known to range into the Chiricahua mountains of southeastern Arizona it is believed that macaws were traded in from Old Mexico. Copper bells of known Mexican origin were found, as well as pottery, wood, turquoise, shell and textiles.

Navajo Indians believe the Wupatki pueblos were destroyed by "rain, lightning and whirlwinds" as punishment for greed.

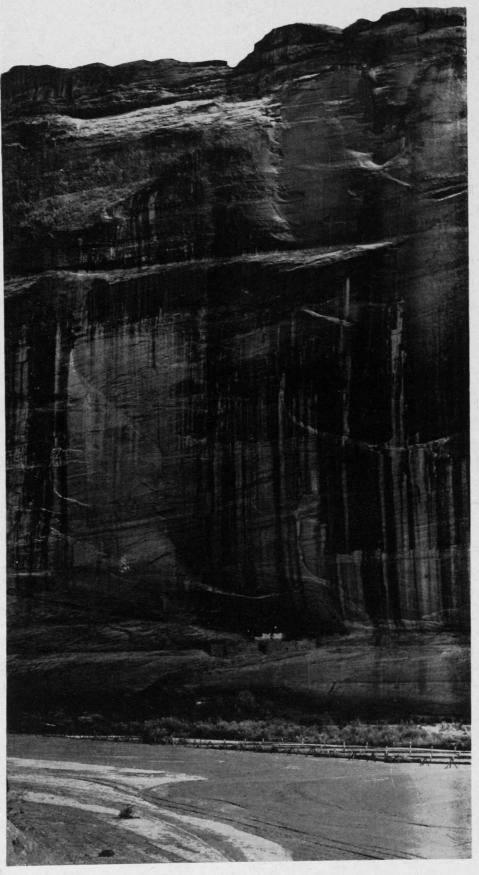
Houses in the Rock Shelf

The peace of the ages lies upon Betatakin, Houses in the Rock Shelf. In moonlight it is a never-to-be-forgotten dream city. The bold black shadows are deepened by the silver streams of light on the sand-



Ruins of Betatakin

Photo by JOSEF MUENCH Santa Barbara, California Betatakin by moonlight is sheer magic. The black and silver walls blend with the strangs stillness to form a recipe for a delightful kind of madness, a spell from which there is no escape.



The red sandstone cliffs of Canyon de Chelly rise a sheer 1200 feet, dwarfing the White House ruins nestled in a lower ledge. Ruins seen at base of cliff once were connected by a roof-and-ladder system to upper ruins, which now are inaccessible.

stone verticals. It is motionless and timeless, untouched by struggle or change in the world about it.

Betatakin is a great arched cave which, when discovered in 1909, was found to contain the remains of some 130 rooms. They were abandoned about 800 years ago. The cave is 450 feet long with a maximum depth of 150 feet. A heavy rainstorm brings a curtain of water down across the face of the canyon without falling into the cave. On the face of the cliff are paintings of a horned animal and of a mythical being called by the Navajo, the Bat Woman. This ruin, with Keetseel and Inscription House, comprise the three major ruins located in Navajo national monument, in northeastern Arizona.

Ruins of Deserted Valley

Hovenweep, from the Ute meaning Hidden or Deserted valley, is a delightful group of ruins built around the heads of several small box canyons in San Juan county, Utah, almost on the Colorado line. A remarkable state of preservation can be noted in the building seen across the canyon, as well as in the one to the right of foreground.

Its name is an appropriate one, for in all directions a dreary sage plain stretches, interspersed with scattered pinyon and juniper. But once, more than 600 years ago, it supported a large population. Evidences show that the inhabitants were skilled farmers who built dams and irrigation ditches to water their fields of corn. In the ruins were found kitchen ware, including stone knives. Corn still remained in some of the rooms.

Most of the Hovenweep buildings are in Ruin canyon, sometimes called Square Tower, which drains into San Juan river. It is a steep-walled little canyon, dropping abruptly 300 to 500 feet. The ruins are along the ledge of the mesa, in coves of the canyon wall and along its base. The "Deserted" ruins were passed by Padre Escalante in 1776, and they were rediscovered a century later by the Hayden expedition.

White House Cliff Ruins

Far to the east, almost to the New Mexican border, is Canyon de Chelly. Across the great sandy floor of the sheer-walled canyon, White House ruins are visible high in the "wall pocket." The group of ruins is so-named from the top tier of rooms, whose whitewashed walls are in striking contrast to the red sandstone of the canyon sides.

Today the cliff ruins are inaccessible. But formerly the ruins at the base of the cliff were probably four or five stories high, and ladders extended from the roof to the upper building. The towering walls, which form their background, are 1200

feet high, and as straight as a plumb line would make them. One of the earliest dated timbers in the Southwest was found in this ruin—348 A. D. Later dates in the same group were from the 13th century.

Montezuma's Pink Castle

Montezuma's Castle, one of the best preserved of all the Southwest ruins, causes confusion because of its name which was given erroneously by some early settler or visitor. It should not be associated with the Aztecs for their culture did not reach this part of the country.

It has a superficial resemblance to the mud walls of a hornet's nest. The structure sets above a 46-foot talus slope and includes about 20 rooms. The ash-pink adobe castle is reached by a series of ladders. The roofs were constructed with syca-

Far from traveled roads in the midst of a dreary sage plain is the little group of ruins known as Hovenweep, or Deserted Valley.



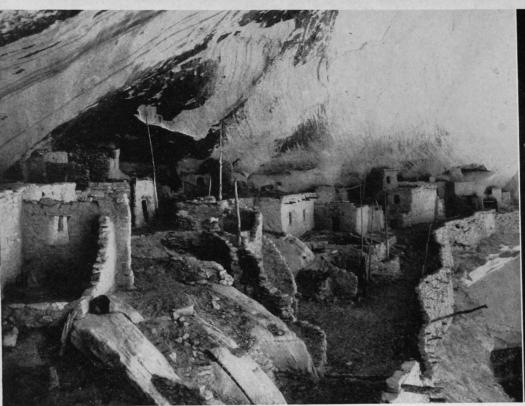


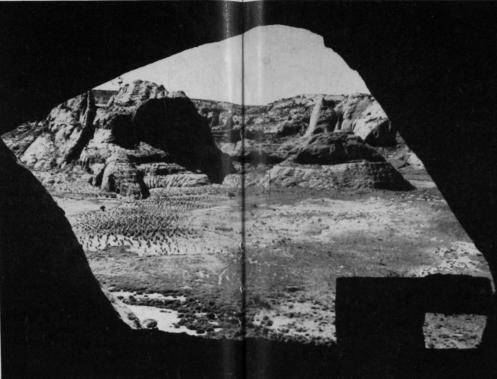
more beams and successive toppings of small sticks, reeds and a thick layer of adobe—this served as the floor of the story above. The whole building is about 40 feet high, the fifth story reaching the very top of the natural cave.

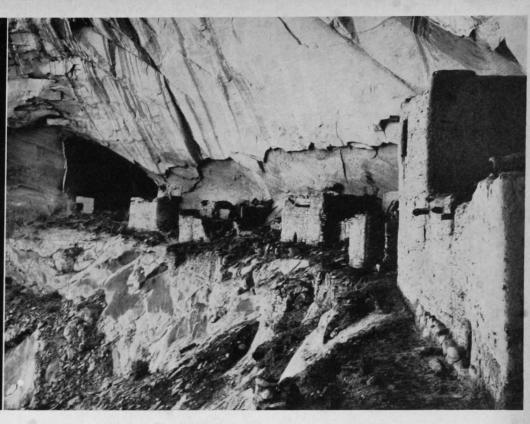
There is evidence of five periods of successive occupation and construction. Perhaps 100 people lived in this "apartment house" as early as 1100 A. D. It is believed to have been abandoned about 1425 A. D., or before the Spanish invasion.

The story goes that a cowpuncher once traded his saddle horse for Montezuma's Castle, then swapped it off for two saddle ponies.

The Southwest has its "Brooklyn bridge story" too. Story goes that a cowpuncher once traded his saddle horse for Montezuma's Castle, then swapped it off for two saddle ponies.







Above, left to right-Keetseel, Nitsie canyon, Inscription House.

Cave of the Broken Pottery

Little sunlight ever penetrates the shadows of Keetseel, Cave of the Broken Pottery. High on the ledge of a remote canyon in Navajo national monument, John Wetherill, veteran archaeologist and Indian trader, first discovered this beautiful ruin. Some of the pottery found here still may be seen in the room to the left.

There are 250 rooms in the cave, which is 350 feet long and but 50 feet deep. It is nine miles, over a rough trail, from Betatakin ruin.

Inscription House Ruins

Third of the major ruins of Navajo national monument is Inscription House, named for an unidentified inscription found there. It usually is written as "S-hapeiro Ano Dom 1661," and is believed to have been left by some Spanish explorer or missionary.

With the dark cave entrance, at the extreme end of Inscription house ruin, as a frame one may view a section of sleepy little Nitsie canyon. Its scattered fields of sparse corn are punctuated occasionally given the occupation dates of 900 to 1100

with the crude summer shelter of modern Navajo Indians. One such hogan is faintly distinguishable in the middle of the accompanying photograph.

Caves of Walnut Canyon

In 20-mile-long Walnut canyon near Flagstaff, Arizona, ruins of 300 one-story houses have been found. They are built in shallow limestone caves, protected by narrow over-hanging ledges. Remains of forts on five promontories in the canyon also have been found.

Timbers from the cave section have

A. D. Bits of broken stone hoes still are whose homes they built. At least three disfound in the little fields which once were cultivated in the open spaces of the juniper forest surrounding the area.

Restoration of Kinishba

The restored walls of ancient Kinishba rise from the dust of White River valley, in northeastern Arizona. Dr. Byron Cummings, who directed the restoration work, is seen in lower center photograph pointing out some interesting rock construction to Joyce Muench.

The pueblo people who built Kinishba, formerly known as Fort Apache ruin, had been preceded by an earlier people upon tinct cultures have been revealed.

The wealth of material found here has made this an excellent training ground for archaeology students of the University of Arizona, who have done most of the excavating. Fourteen kinds of pottery, more than 1000 gypsum pendants, abundant shell jewelry, inlaid shell pendants, turquoise and coral and other ornaments have been uncovered.

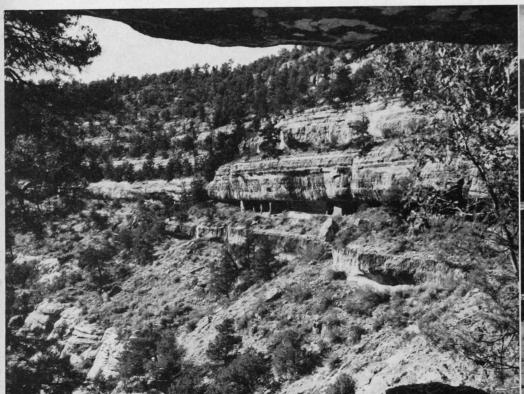
The evidence of sudden abandonment would indicate some major catastrophe. Apache legend says it was an earthquake.

Spruce Tree House

When Josef Muench took the photograph of Spruce Tree House, it was raining, yet the cave was entirely protected. Spruce Tree House, shown partially restored, is in Mesa Verde national park, southwestern Colorado.

The round structures are outlines of kivas, or ceremonial chambers, one for each of the clans. Records found in this area indicate habitation extending from as early as 2000 years ago to about 1300

Below, left to right-Walnut canyon ruins, Kinishba, Spruce Tree House.











Here he is—call him roadrunner, chaparral cock, snake-killer, churca, ground cuckoo, correcamino, lızard-bird, paisano—or what you will.

Desert's Cuckoo Bird

By GEORGE McCLELLAN BRADT Photos by the author

AVE you ever seen a small, two-legged cloud of dust racing down a desert road? Or a large feathered lizard dashing through the desert thickets? If you have you've seen a roadrunner. If not—you've missed the most fascinating bird of them all.

You won't believe the first one you see. "There just ain't no such bird." He's half tail, half body, and all of him about two

Below left—Six large white eggs lay on the nest's thin lining of dry grasses. Right—It's hard work breaking out of a shell. Note tiny wings and large foot typical of terrestrial roadrunner.

feet long. His unbirdlike wings are short and rounded, his pale blue legs long and thin. Almost directly behind a pinocchiobeak are brilliant yellow-brown eyes surrounded by areas of naked blue and orange skin. A dark, bristly crest adorns his head. Brown, black, olive, purple and whitish feathers, all of a coarse quality, clothe his slim body. He looks like a bird whose mother had been badly frightened by a large striped snake when he was but an egg.

The roadrunner's feeding and nesting habits are quite as outlandish as his personal appearance. Practically omnivorous, his diet consists of about everything from snakes and mice to tarantulas and bird's eggs. Occasionally it is varied with insects,

Roadrunners belong to the Family Cuculidae, which also includes the Cuckoos and Anis. The roadrunner really is a ground cuckoo. Some of the European species of cuckoos are notoriously parasitic, laying their eggs in the nests of other birds. The American species are not so inclined. The roadrunner should be protected, for although he at times does steal eggs and young birds, these foravs seldom are of harmful proportions. As a unique member of our Southwestern bird life he should be given every consideration. Egg dates for California are from the middle of March into July.

fruits and seeds. But whatever the fare it usually is swallowed whole. This habit makes the ingestion of a snake or lizard a lengthy and spectacular process. A sworn enemy of desert reptiles the roadrunner accounts for many a small but deadly rattler. But that he builds a cactus corral about the unlucky vipers, wherein they wear themselves out and fall easy prey to their captor, is pure "yarn."

The roadrunner's strange meals are captured on foot, for seldom does this fantastic bird take to the air. He prefers to remain on the ground, to run about the desert on his skinny legs, and save his capable wings for instant flight in case of danger. He stalks his prey over the sandy cactus wastes as silently as a cat. Cautiously sneaking up to within a few yards of his proposed victim he suddenly makes a final, fatal sprint which usually ends with the quarry held firmly in his stout beak. A little efficient hammering on the hard ground renders the captive unconscious, and the swallowing process is begun.

While a roadrunner's physical appearance and food tastes may be learned from a little quiet observation beneath a shady mesquite, a knowledge of the bird's nesting activities can be acquired only by con-





siderable field work and much patience. This we learned after tramping many a sandy mile among the spiny vuccas. During two desert nesting seasons we discovered the occupied nests of three pairs of these elusive creatures. The nests were located within a few miles of each other north of Fabens, Texas, some 40 miles east of El Paso. Since roadrunners range from Kansas westward to northern California and south into central Mexico, our notes on their nesting habits apply fairly generally to the species wherever found.

The discovery date of our first nest was March 30, 1942. It was well hidden among the prickly leaves of a low yucca about four feet above the desert floor. The rough structure was made of small twigs, dead leaves and rootlets. Six large white eggs lay close together on a thin lining of dry grasses. Hurriedly we photographed the find and left the area to let the adults return to incubate their precious roadrunners-to-be.

So far from home was the nest and so rough part of the road, it was not until April 15 that we had an opportunity to return to the nest-yucca. So instead of the shiny white eggs the nest now contained a half dozen black-skinned baby birds. They were probably about a week old. Their pale blue-grey feet and legs were extremely weak, their eyes still were closed, their oily-looking black skin naked except for stiff white hairs and a few blood quills in wings and tail. They were far from pretty babies but there was something appealing about them. Perhaps it was because they were so helpless and alone. The only protection they had from the enemies that roamed the desert day and night was their home's secret location.

Two days later we returned. Of the six babies only one remained! Here was a pathetic example of the struggle for survival on the desert.

Another two days passed and we again visited the baby roadrunner. As on all previous visits we failed to see an adult bird, however quietly we approached.

On the 26th, we found the little fellow already sprouting soft brown and white feathers on wings and tail. The moment he



Adult roadrunner incubating. Beneath warm feathers the baby roadrunner the author later photographed in the process of hatching lies well protected.

sighted us he tried to hide by flattening himself in the nest and "freezing." Not a feather or muscle moved. Although we watched for five long minutes not once did he take his dark, unblinking eyes off ours. His color pattern was an admirable example of avian camouflage. Thanks to his mottled plummage he lost all semblance of shape. Had we not known of his existence I doubt if we could have seen him.

Our last trip to the nest was made four days later, one month after the discovery of the eggs. Our little friend was now well fledged and about ready to leave home. When he saw us approaching this last time he didn't bother to hide in the nest but nimbly hopped out and landed in a feathery heap on the sand. Apparently slightly skeptical of the efficacy of camouflage he had decided to trust to his long legs instead. The moment he hit the ground he scrambled to his feet and disappeared headlong into the mass of dead yucca leaves surrounding the base of the plant.

Before endeavoring to retrieve him we set up the camera. Then I began to pull him backwards out of his prickly hideaway by his thin legs. Although he didn't struggle much he did let out one harsh, rattly, rasping sound of such an unexpected and startling nature that I almost threw him bodily from me in my eagerness to put as much desert as possible between me and that unearthly sound. I've handled some funny things in my desert wanderings but that was the first, and I hope last, time I ever had grabbed a noise covered with feathers. As he continued this racket until he had been redeposited in his nest we were able to find out that he made the uncanny sound by rubbing together his hard mandibles.

When we started to take his final pic-

Below left—Where white shining eggs had been now black-skinned, white-haired baby roadrunners huddled together. Single survivor of a desert tragedy. Well-feathered birdling almost ready to leave nest.



ture we faced a problem. So well did his queer plummage blend with his surroundings it would have been a photographic impossibility to have shown just where roadrunner began and nest left off. The problem was partially solved by placing the bird on an old glove to give the proper separation between subject and background. As soon as we had the picture we left nest and birdling for the last time. Although we returned a week later for a final check and to look for other nests we did not expect to find the nest occupied. It wasn't.

This final trip did net us another roadrunner nest however. Not more than three miles from the first we found this second one also in a low yucca. It was completely hidden from view by the plant's cruel leaves. We happened to find it only because we flushed an adult from the nest. Since the only way to reach it was from the ground directly below it was quite impossible to photograph it without first removing the greater part of the protecting foliage. We contented ourselves with a peek at the nest and its occupants. It contained one young bird almost fully fledged and ready to leave the nest, one tiny black baby, and one unhatched egg. We had read about the staggered laying of the roadrunners, but this was the first time we had seen an example of it.

The third nest of our study was discovered last spring. Late one afternoon in April, just before Retreat, I received a terse message from my bird-conscious friends, the Signal Corps Pigeoneers. In the form of a short note left for me at the photo lab it read: "We've a hawk nest for you, see Sgt. Jones." The first thing I did next morning was to "see Sgt. Jones." Bobby Jones, along with Jim Caspar and the other pigeoneers had professed undying hatred for all hawks, believing that they killed their precious pigeons. But after I had pressed upon them several books on hawks and shown them my trained ones they did a splendid about face and ceased hunting our valuable birds of prey.

As soon as I had tracked Jones to the pigeon loft he began telling me about the great find. Several of his men had taken their birds out to our lonely yucca area to give them a test flight to the Post. There they had found the nest. As they approached it a dark bird had hopped to the ground nearby. Apparently in an effort to lure the soldiers away it feigned mortal injury. But they were not to be fooled and went on to the nest which contained four white eggs.

Except for the mention of the bird's strange actions near the nest it did sound as if they really might have found a hawk's nest. But when I asked Jones if the nest

were in a yucca and received for an answer, "No, it's in an old shed near a windmill," I knew something was queer. A hawk's nest in a covered building was something I had to see for myself. To be certain of locating this eighth wonder of the bird world I had Jones draw a detailed map of the area complete with intersections, cattle-guards, arroyos and other landmarks.

The nest had been discovered April 23. Six days later Sis and I drove to the old roadrunner area late in the afternoon and managed to decipher the map sufficiently to find the shed and windmill. At the base of the whirring mill was a large iron tank into which water was pumped for the cattle that frequented the country roundabout. The little shed, old and well-weathered by desert winds and sand, was covered with a rusted corrugated iron roof, and housed a small pump.

As we approached the shed we noticed two strange sets of tracks in the sand. Each print resembled a small letter "x." It was impossible to tell from looking at the impressions the direction their maker had been traveling. What wouldn't a murderer give for feet like these. From his footprints you couldn't tell whether he was coming or going. But these prints were made by feet belonging to no criminal. They were the yoke-toed feet of an adult roadrunner. His four toes are paired—two point forward, two backward.

On reaching the shed we peered around one corner to try to find the nest without flushing the adult. It took some few minutes to accustom our eyes to the semi-darkness within, and a few more to locate the nest. Little more than a platform of coarse sticks wedged between a couple of old beams, it lay only a few inches below the sun-baked roof. On it sat a large dark bird—the pigeoneers' "hawk"—an adult roadrunner.

While the brooding bird had seen us long before we had discovered it, we approached to within six feet of the nest before it hopped off and disappeared through a hole in the back of the shed. The nest contained three eggs and one baby roadrunner. Since it was impossible to photograph the nest's occupants because of its inaccessible position we decided to concentrate on a picture of an adult bird at a later date. To get it we would need our remote control set-up plus a good many free daylight hours in the vicinity.

Sunday, May 2, found us again at the nest-shed. When we arrived we crept in quietly to get another look at the incubating parent. But neither adult was to be seen. In the nest now were two baby roadrunners and two unhatched eggs. No wonder the adults were not on the nest. Hungry infants such as these had to be fed

often and the necessary lizards were to be found only far afield. For a few minutes we watched the little black creatures stretch their thin necks, open pink mouths, and cry unavailingly for food.

Just before we left to set up our camera equipment a faint ticking sound riveted our attention on the nest. A second later a thin black crack appeared in one of the remaining eggs. Fascinated we watched the crack lengthen and widen until we were able to see the naked birdling within. At this point the little prisoner took time out—it's hard work breaking out of a shell, especially if you're no stronger than a baby roadrunner.

After a short siesta he fell to work again. Before he stopped a second time he succeeded in poking his blunt beak through the shell. Then appeared in rapid succession the rest of his blind, scantily-haired head, one shoulder, a tiny claw-like wing, thigh, leg, and bluish foot. This maneuver accounted for the better part of half an hour. The shell was hard and the protecting membranous lining tough. At this point I gently lifted the little fellow out of the nest and placed him on Sis' hand. We shot his picture, replaced him, and left the shed to arrange for photographing a parent bird.

In the sketchy shade of an old mesquite we watched the underbrush about the windmill, shed and tank for signs of an adult roadrunner. Two hours passed before our vigil was rewarded with a distant view of an approaching "Paisano," as he is affectionately known in northern Mexico. Over the hot sands he raced, his head and tail held low in a straight line with the rest of his body. A few yards from the windmill he halted and carefully reconnoitered the little strip of no-man's-land between him and his shed. Compared with his reptilian appearance while running he now looked like a totally different bird. His head was held high and the coarse feathers of his crest stood on end like the plumes of an ancient helmet. Every second or two he flicked his long tail, while holding it at a rakish angle.

Satisfied that no enemy lurked in his path he lowered head and tail and dashed for the shed. As the camera was focused to include only a brooding bird we were forced to wait until the feeding was completed before releasing the shutter. But as soon as the adult settled onto the nest we shot the picture.

This wound up our business with the roadrunner family. Knowing that by late afternoon the adults would have three babies to feed we left the area to give them a free hand. If they were going to capture enough food for their hungry offspring they would have little time for cameras or prying ornithologists.

Ross Santee couldn't sell even a ten dollar sketch down editorial lane, and he couldn't earn his beans washing dishes in New York. So he bummed his way to the wild western state of Arizona to learn to be a cowboy-and forget all about art. But one day while wrangling horses out on the range he started sketching for fun, forgetting the art teachers, the Big Names, the editors and critics . . . That was 30 years ago. Since then he has produced some 30,000 sketches of horses and cowboys and Indians. They are drawn with a simplicity, a remarkable perspective and a deep understanding which Oren Arnold says no other artist in black-and-white media ever has exceeded.

He Did It For Fun

By OREN ARNOLD Sketches by Ross Santee

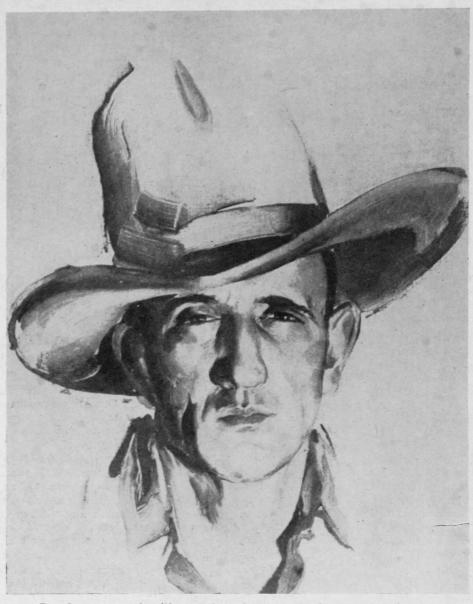
OSS Santee was having trouble lighting his cigarette. The tobacco was damp with sweat. The match burned short before he puffed it out but he didn't toss it away. One leg was curled up around the saddle horn. He was wearing new chaps of light tan. With the black match he began sketching.

He wasn't consciously sketching. He was watching a young stallion toss his head, shake his mane, snort and paw up the soil. It was a bit of beauty and Ross wanted to preserve it. The burned match were down, but in five minutes there on the chaparajos was a perfect drawing.

"Hmmm!" grunted Ross, in a new satisfaction.

He looked off at the 100 horses he was wrangling. He looked back down toward his knee with critical eye. The sketch was original. It had honesty, subtle touches of his own. He felt an inward glow, the incomparable zest of creation.

In the 30 years that have elapsed since that morning Ross Santee must have made 30,000 sketches of horses. He has thrown away all except a handful, but each one has been as original as that first, each has had Santee individuality to set it apart. Ross Santee today is one of the noted Western



Ross Santee—a perfect likeness of a rather severe cowboy in a 10-gallon hat.

artists, a product of the desert region which has spawned many individualists.

Arizona can claim Santee. Most of the scenes he has depicted are of Arizona life, and most of them are of cowboys and horses and Indians in the desert areas drained by the Gila river and the Salt. No artist in black-and-white ever has exceeded him in depicting these characters, and perhaps only one ever has equaled him. That one is the late Will James, whose range was far to the north. The two men had much in common.

Three characteristics of Santee sketches attract both the trained critic and the layman. First is the utter simplicity. Santee has no flourishes, no wasted motions or supports or lines. Each drawing is as compact and condensed as an article in Reader's Digest—indeed his sketches often suffer from too much simplicity. But it is characteristic of the man himself, as I have learned from months of working beside him and from traveling long days

with him. He is the most direct man I ever have known.

Second is his remarkable flair for perspective. A little Santee sketch on the flap of an envelope can lead your eye back across 50 miles of desert plains and mountains. This reveals that he has observed perspective in the desert land itself. Because of our heights and skies and crystalline air, the far horizons out here are picturesque. We are awed by the apparent closeness of a mountain that actually is hours of travel away. We can stand on an eminence and look into neighboring states. We can read a cattle brand across a canyon, and feel companionship with a lone butte far off in the sunset, and count runaway horses moving like ants a mile below. These things Ross Santee captures with a few quick lines and shadows.

Finally, Santee drawings have another quality which all can admire. It is his abiding love for the lowly people, the men who live close to the rocks and moun-



... the things of a typical ranch that color a cowboy's life ...

tains and have loneliness for their daily fare. You see it in his sympathetic handling of some old Indian humped over against the rain, or a horse wrangler day dreaming on the saddle horn. You sense it even in his sketches of a crumbling windbattered house where some homesteader lived. Ross loves to draw one little shack standing defiantly on the open desert, a black spot surrounded with great areas of white paper. In such a thing he manages to convey great feeling—hope and courage and laughter and sorrow and frustration and pain.

Beyond that he depicts the things he knows best and loves best from everyday living—and this means the things of a typical ranch that color a cowboy's life. For Ross Santee is first and forever a cowboy.

He was not always such. He was born in Thornburg, Iowa, August 16, 1889, apparently destined for a business man's career. Even as a kid in knee breeches he objected to persons who tried to mold his life for him, and at the same time he built up his own ideas of what was desirable and good. Sketching began when he saw a prize winner at a county fair. It was a black crayon of a horse's head, copied from the Breeder's Gazette.

"I could do a picture better'n that," Ross scoffed.

His pal, Butch Watson, challenged, "Why don't you, then? You ain't tied

Ross went to work on a drawing of a Hereford bull, copied also from the Gazette. When finished, he showed it to his pal in triumphant pride.

Butch eyed it critically, spat to one side and said in effect, "It ain't worth a damn." That saved Ross from the first threat him by claiming to be a friend of John T. McCutcheon, great cartoonist of that time. He talked to Ross, spreading it on rather thick. Then Ross took up cartooning.

"Failures swarmed around me like flies

of egotism. Later a sign painter "inspired"

"Failures swarmed around me like flies around a dead horse," Ross admits now. "I had a sum total of no talent. Going through Moline, Illinois, high school, one of the subjects I flunked was drawing. I gave up art work again and devoted my serious energies to perfecting my game of pool.

"Then chance took me to Chicago to see a football game. It led me and two friends into the Chicago Art Institute where I unexpectedly came onto an original McCutcheon cartoon. All at once the old urge hit me anew. Then and there I swore to go to the Institute myself and learn cartooning. Somehow or other I managed it. It was the first real art schooling I ever had."

The "somehow or other" included earning his own expenses. This required him to sweep acres of classrooms, wait on tables, wash dishes, usher in a theater and handle stage scenery. He scarcely had heard of Arizona and the desert then. His goal was the goal of all art students—New York.

In time he arrived in New York. The city did not open its golden arms. It required Ross Santee, long and gangly and very Middle Western, to peddle his cartoons humbly up and down editorial lane. A fellow student from Chicago, Rolf Armstrong, encouraged him to be persistent, and this kept him from actual hunger. He sold one cartoon, astonishingly unfunny, to the editor of Collier's. It brought \$10. He sold a few more to Judge, then a good comic magazine. Life, a rival comic, couldn't see him at all.

Armstrong began clicking. So did other friends, including Neysa McMein, Lucille Patterson, and Anita Parkhurst. But still another friend, the now famous Tom Benton, was having as hard a time as Ross and being just as hard-headed about it. Each one was licked at that moment, and neither would admit it. One day Tom saw some of Santee's sketches on the floor.

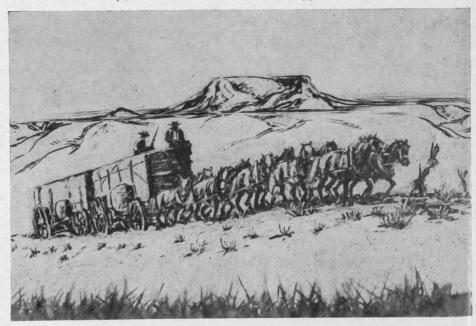
"That doesn't look like your style," Tom mentioned.

"Nope," said Ross.

"At the Institute, they taught us to imitate the successful artists, and not to bother to work out something of your own."

"I tried," Ross admitted. "But shucks,

... no flourishes, no wasted motions or supports or lines ...





... one little shack standing defiant on the open desert ...

I was just doing these for fun. Not for selling."

Tom Benton considered that. "All right, then. You go to the library and get a book of drawings by Daumier. He sketched for fun, too; not imitating anybody, ever."

Santee got the book. Daumier was a great individualist. Ross Santee instantly sensed a kinship. He did not imitate Daumier but began to draw as he wished to draw, avoiding the precedents set by McCutcheon and other Big Names. Moreover, he swore never to copy anybody again, from the Breeder's Gazette on up or down!

But he soon found he couldn't sell a sketch for even \$10, and he couldn't earn beans washing dishes in New York. Disheartened, he fell back on an old boyhood yearning, a kind of last grasp at happiness—he'd just bum his way out West, dadgum it, and learn to be a cowboy.

The Cross S ranch in the wild western state of Arizona could use a horse wrangler. It does not take an experienced hand for this job. Any kid who can stay in a saddle soon can learn to keep the horses in hand. Even a dude can learn it. Ross got the job.

There was no glamour. There seldom is to cowboying. There was much hard work, much loneliness, much doing without the things of luxury. But Ross Santee was bullheaded as usual. His old trade with pen and ink now held no lure. He wanted to forget all that time wasted on "art."

He began to like cowboying—as any real man will like it. The song of the hills became audible to him, and the spell of the range crept into his heart. Money? He got 40 bucks a month and grub. What more did any man need. He had friends. They were uncouth but loyal fellows of good

humor and generous minds. He had found a place where he felt he belonged. Maybe in decades to come he could amount to something. And that's about the time he made the sketch of the stallion on his brand new chaparajos, using a burned match.

"It was the first art work I'd done in five years," Ross confessed. "But the urge for it all poured back on me in five minutes. That night I sent some money in to town by one of the boys. He brought me back some brushes and ink that a Chinese had used to mark laundry.

"I was happy to get them. I found some paper and went to work. That first week I must have made a thousand drawings. I had to stop twice and whup hell out of two of my friends who joshed me to distraction, but they didn't stay mad and neither did I. I threw all those drawings away, about as fast as I made them. But they were mine. Mine! I wasn't imitating. I was drawing exactly what I wanted to draw with no thought of what any critical fellow student, instructor or art editor would say. I was drawing solely because it was fun."

Ross Santee had found himself and knew it He continued to express himself in pen and brush without inhibitions or restraint. The St. Louis Post-Dispatch "discovered" him, printing some of his drawings. Other editors saw them. Life magazine (the old Life, which was an important periodical much like England's Punch) bought drawings—not cartoons—from him just 11 years after he had first tried to peddle his work there. Century took some. Then Boy's Life, then Leslie's. Also it was Boy's Life and Leslie's which started him writing stories of the range to go with his drawings.

Since then there have been many personal ups and downs, but the Santee star has continued rising. Many fine short stories have come from his pen—literally, for he does not use a typewriter—and at least one short short, called "Water," was included in the O'Brien prize story collection after its appearance in Collier's. Last one I saw was in the Red Book for January, 1943. Also on my desk are the Santee books to which I turn periodically for salty simple lore of the rangeland, for vicarious adventure and thrill. These include "Men and Horses," "Cowboy," "Spike," "Sleepy Black" and "The Bar X Gold Course." Best portrait I have of Ross is the one drawn by his old friend Rolf Armstrong, and used a few years ago

... the things he knows best and loves best from everyday living ...



on the cover of The Saturday Evening Post. It is a perfect likeness of a rather severe cowboy in a 10-gallon hat.

Another portrait I have of him is on 8 mm. movie film, taken in color when he and I were touring Arizona together in his coupe, before the war. We went from Phoenix to the northern boundary, along the Utah line. Then we went to Yuma. We traveled de luxe. When we wanted to stop, we did so. We cut across the Navajo and Hopi Indian reservations and chinned with the natives. We stayed in hotels or auto courts and we ate by the side of the road if we felt like it, and we were in no hurry at all. It was on this trip that I got acquainted with Ross Santee, and learned to like him all the way through.

I can testify that he is the best traveling and camping companion anybody could want. He embarrassed me by wanting to over-do generosity. His idea of a fifty-fifty trip was for him to bear four-fifths of all costs and camp duties.

His conversation sparkles as brilliantly as his sketching and his writing. On that trip, he told me enough good true stories to make a dozen books-of-themonth, and periodically since then I have bawled him out for not writing them. He is always going to, but literary laziness is his foremost sin. This is partly because he would rather draw pictures that sing than use verbs that do so.

Sez Hard Rock Shorty of Death Valley

By LON GARRISON

"You remember old Ike Aldershot used to live over next to the blacksmith shop?" asked Hard Rock Shorty. "Alkali Ike they used to call 'im an' he was the feller from Montana that was always hot an' always sweatin' an' never minded lettin' ever'body know how uncomfortable he was."

"I can't remember Ike without seein' him moppin' his face an' cussin' the weather an' wishin' he was up at the North Pole but still not makin' any plans to get there.

"Then one day he was over to the Fried Egg Canyon dude hotel layout an' with a few shots of tangle-foot aboard he wandered back in the cold storage room an' somehow fell

in the ice tank. Wasn't nobody around an' the first they knowed it, was when they pulled the ice an' there was old Ike, cooled off at last, smilin' as happy as could be an' froze up solid in a block o' ice.

"Well, sir, the hotel wasn't ornery about it at all—they let his wife buy the ice with Ike in it an' even deducted Ike's weight off of it. But the problem of buryin' really split the community! Some thought she'd ought to build a coffin around the whole thing, some voted to thaw 'im out, but the final plan was to plant 'im just as was.

plant 'im just as was.
''The funeral was r

"The funeral was really somethin' to see! The calaboose was full o' guys that tried to knock chunks out o' Ike's ice to take home, an' all the kids follered along hopin' the pall bearer's tongs'd slip. But they got im put away all right an' even put up a tombstone. You can still read it down in the old Inferno cemetery if your eyes are good—

"Sacred to the Memory of 500 Pounds of

KRYSTAL KLEAR ICE Containin' all what was mortal of old Isaac Aldershot

He's playin' on his harp of gold—Goodbye Ike—Your tale is told."

Achievement

- On October 15, 1943, purchase of the electrical properties of the California Electric Power Company in Imperial Valley and the area in Coachella Valley destined to be served by the All-American Canal was completed, and Imperial Valley Irrigation District became the sole distributing agency for electrical energy in these areas.
- Thus was achieved a goal toward which the people of Imperial and Coachella Valleys have united their efforts for a quarter of a century. Full development of the power resources on the great All-American Canal now seems assured and both water and power will be put to the common usage of developing these two fertile reclaimed desert valleys.

SHARING THE BENEFITS OF WATER AND THE PROFITS OF POWER, IMPERIAL AND COACHELLA VALLEYS ARE IN TRUTH GOOD NEIGHBORS LINKED BY BONDS OF MUTUAL INTERESTS AND NECESSITIES.



First task to claim attention of the South family, when they returned to their home on Ghost mountain after a year's vain search for a more ideal location in the desert, was to carry water up the steep trail. Now that cold weather is due, according to the calendar, they are spending their time gathering mescal butts and dead juniper wood for winter fires. And they have taken on the new job of building a storage house, combining the construction ideas of the ancient Indian pit houses and the Navajo hogan. Marshal tells how he and Rider and Rudyard are building their composite pit-hogan.

Desert Refuge

By MARSHAL SOUTH

UR desert world marches on through fall and toward winter. Already the gusty storm gods have made preliminary attacks upon Ghost mountain, and the cliff-edge junipers have breasted their windy clamor with threshing, defiant branches. But the heavy weather, if there is to be any this winter, is not yet.

This may be an exceptionally severe winter, as has been predicted, or it may be quite the reverse. But we can take no chances. Every spare moment these days, Tanya and the two boys trail off across the ridges and return carrying high piled baskets of dead mescal butts and sagging shoulder-loads of their tall, dry flower stalks. And on every possible occasion Rider and I fare forth with ropes and pack boards to those distant sections of the mountain where dead juniper wood still may be found.

There are compensations, though, which far outweigh the labor involved. There is a fountain of health in vigorous outdoor exercise that far exceeds the virtues of any nostrum dispensed in bottles or capsules. Especially when such exercise can be taken without the body-choking impediment of clothing. Work and sweat are healthy honest things. And when free beings labor with their own hands to supply their own simple wants there is no slavery even in the hardest toil.

There is another joy to fuel gathering too. For it is on these expeditions that we come very close to the heart of the desert. And the heart of the desert is deep and full of constant surprises. No matter how much you think you know a particular locality you discover something new each time you visit it. Maybe not a dinosaur's egg or the lost Pegleg mine. But something which will thrill you. For instance the carefully concealed bird's nest in the summit of the old storm-gnarled juniper.

We had passed that spot a score of times and each time had admired the old tree, its tints of green, its sturdy ruggedness and the fantastic shapes into which the winds of hundreds of years had twisted its branches. We had even loitered beside it, picking and munching sweet dry juniper berries from it and peering about the limbs and trunks for bits of exuded, ambercolored gum.

But we never had seen the bird's nest. And it had been there all the time. It was left for Rudyard, who has a positive genius for finding things, from lost pins to desert snails, to make the discovery. He announced the find one day with a startled shout that brought us running. It was a beautifully constructed last



The storage house the Souths are building is a combination pit house and Navajo hogan. Rider tamps the mud while Rudyard plasters it on the wall.

season's nest of a cactus wren. It was the first cactus wren's nest that we had seen in a juniper. Its camouflage was perfect. Even after we had touched it and admired it we could step back a pace or two and completely lose it again. It was this fact that particularly intrigued us. Before a bit of art like that human efforts at camouflage are clumsy.

Most of the Ghost mountain days still are balmy and delightful despite the official season of the year. Delicate little white butterflies with brown and black wing decorations hover here and there above the ramarillo bushes. Nimble lizards stalk flies upon the warm surface of sun-bleached granite boulders. Curtsying rock wrens hop from point to point on the stern welter of jumbled stone that surrounds the house. And their sisters, the canyon wrens, give us occasional trills of sweet song as they perch upon the topmost twigs of junipers or flit, like tiny grey shadows, from tree to tree. Ghost mountain always has been, to a certain extent, an "island." Many quirks and variations of climate are exclusively its own.

But "if winter comes" so also comes Christmas. We were reminded of this important fact when an earnest, eager-faced deputation came this morning to remind us that it was about time we were giving some thought to bringing in the Christmas tree. "You know, daddy," said the spokesman, "last year we were on the trail. It wasn't a really-truly Christmas. But now that we're home again—and you remember, that tree just down from the top of the ridge?"

Yes, I remembered the tree. It was only a few days after we had returned to Yaquitepec that they had picked it out—looking forward, even then, to the most wonderful day of the year. It was a big, sprawly tree, possessing several large symmetrical branches which, as Victoria cannily observed, "thee twee won't, not never, miss."

Yaquitepec Christmas trees never entail the destruction of a living juniper. The children, trained conservationists, would be horrified at such a thought. But we build our festal "trees" from branches selected from trees that won't miss them, binding them together with concealed lashings until the finished product does duty as a complete tree.

We think Santa Claus doesn't mind this. And we are certain that the scheme is beneficial to our clan of Ghost mountain junipers—many of which were here before Columbus started the prows of plunder towards the New World. Perhaps our "composite" trees may even claim something, too, in the way of symbology. For the evergreen Christmas tree symbolizes everlasting life. And surely everlasting life is composite, built up of many conditions and experiences.

So in a few days we will go down and get the "tree." We will plant it in the old, weathered oaken tub which has done duty for several Christmases. And we will haul out the little box of carefully saved trimmings and decorations, which each year emerge from their obscurity, and we will trim it, with the silver star of Hope upon its topmost twig.

If Tanya and I, as we trim it, are conscious of the black shadow of sorrow which war has spread over the world, we will not let such thoughts dim the joy of those whose eager young fingers assist us. Sorrow comes early enough to everyone.

Gladly, if it were in our power, would we send forth the light of our Christmas candles and the message of the Star into all the world, to cheer and comfort the aching hearts of those of every creed and nation, that they might, in realization of their common brotherhood, cease their childish battlings and brutalities in the broad bond of an understanding peace. But this we cannot do. We shall strive therefore to build peace and understanding and joy and hope in those young lives which the Great Spirit has placed in our immediate keeping.

Our desert turtles have gone to sleep. Wearying of chewing up bunch grass and specially raised young wheat shoots and in taking long rambles over rocks—during which they often had to be rescued from up-ended tumbles upon their backs—they finally hunted themselves a nice warm spot under some old sacking, and pulled the bedclothes over their heads for the duration of the cold season. Along with bears and certain other creatures they are able to hibernate. Not an unhandy gift at times. But we miss them. Somehow they always had about them an air of profound wisdom. But perhaps it was just plain stupidity.

One of several new projects which have been added to the regular work since we returned to Yaquitepec is the building of a storage house. We have needed this for a long time. Now the job is well under way. For a construction plan, we hit upon a combination of the Navajo hogan and the ancient pit dwelling, a scheme which offers the maximum construction returns for the minimum of invested labor.

In a convenient earth hillock we started to dig a pit with a connecting entrance open cut. As the earth was loosened and dug up we mixed it with water, trampled and worked the mud thoroughly with our bare feet, as in the primitive preparation of earth for adobe bricks, then built the mud handful by handful up around the edges of the circular pit as mud walls. In this way the building progresses two ways at once—upwards and downwards.

This type of wall isn't quite as strong as one made of sunbaked adobe bricks, nor is it nearly as substantial as one made of damp earth rammed between wooden forms (which is the strongest of all earthen construction). But it is a method used in all arid countries. And the walls so built last surprisingly well. Some at Yaquitepec have stood ten years exposed to the elements with comparatively little damage.

We have added a little California fox to our list of Yaquitepec animal friends. A shy graceful little fellow who comes in the early twilight and in the moonlight to forage for tid-bits of food upon the leveled earth terraces near the ramada. Yesterday evening he did not come, and the children, who look forward to his visits, were disappointed. "Somefing may have eated him up," Victoria said uneasily. She went to bed greatly worried.

About midnight I awoke. Unable to sleep I arose noiselessly, took a chair and went and sat by the window. There was a bright moon and its glow brimmed the bowl of the world in a luminous white mist of ghostly silence through which the savage granite ridges with their dotting of tumbled boulders and shadowy junipers lay against the sky like the unreal mountains in a dream. Black shadows of jutting beams made ebony patterns upon the outside walls of the house, each little hollow in the rough adobe a dark dimple in the white light, like hammer marks left by a silversmith in a beaten bowl. It was very still. The moonlight held everything in a flood of mystery, and through it, in the immensity of the sky, the stars gleamed upon a ghostly world of utter hush that might have been quite lifeless—a desert of hammered silver upon a planet dead and forgotten.

And then it was that I saw the fox. He came out of the shelter of a ramarillo bush and paused a moment upon the white surface of a granite boulder. His large ears were thrust forward, listening, his handsome, fluffy tail brush low, held with a grace that seemed to soften and accentuate every line of his slenderly fashioned body. His searching eyes were for a moment a flash of twin diamonds in the moonlight, and every hair of his coat seemed touched with frosted silver. Soundlessly like some desert wraith, he stepped down daintily upon the terrace, picked up the few scraps that had been laid there on an old plate for him and slipped away into the bushes with such swift, shadowy grace that it was an instant before I quite realized he was gone.

The moonlight beat down and the silence held everything in its cloak of phantom mystery. After awhile I went back to bed, feeling infinitely richer for my midnight session of window gazing. And in the morning I was able to make Victoria very happy with the knowledge that her little friend was quite safe and that no one had "eated him up."

Tanya is busily grinding flour. Rudyard has his nose wrinkled over a new sketch. Victoria is on the bed, an old dictionary held upside down in her hands, as she wrestles with the job of giving her doll, Barbara, what she calls "an eju-kashun." And Rider, with little screws and bolts and odds and ends and bits of tin and wood, is working with another of the mechanical inventions on which he spends every minute of his spare time. Rider is seemingly headed for the field of invention and engineering. But I am going to drag him away from his beloved bolts and screws presently. For we have to pack home some more loads of juniper wood from away off across the southern ridges.

SUBSTANCE

Form? What is form? 'Tis not enough!
I seek the inner, spirit stuff,
The highest height!
Only the crest can satiate
A hunger that will not abate
For Truth and Light!

The wisest men were poor indeed,
And never overmuch did heed
The quirks of style.
But how they prayed and toiled and strove
To fill their lives with Light and Love—
These are worth while!

—Tanya South

Hell ... on the Desert

ARIZONA

Seeking Desert Perfumes . . .

TUCSON—Study of perfumes and related compounds in more than 500 desert plants will be undertaken at University of Arizona. Fellowship grant of \$1,000 annually for two years from Hudnut and Warner research institutes of New York City will finance work, to be directed by Dr. T. F. Buehrer, professor of agricultural chemistry. Aromatic oils have been found in numerous desert plants during state experiment station's search for rubber producing species.

Indians Without Feathers? . .

WINDOW ROCK—When Sgt. Tim Touchin, Navajo hero of 25 bombing missions over Germany, returned home on furlough, his people wanted to know what the English thought of the Indians. He said they treated them with great respect but were curious to know "where the feathers were." Tim, who now wears the oak leaf cluster, has been serving as tail gunner in an army bomber which included Frankfurt and Schweinfurt as its targets.

Search For Buried Treasure .

PHOENIX—Frank H. Trego of Hollywood, California, is planning to search for buried treasure "somewhere in Arizona." Being cautious, he is concerned about legal aspects should he discover it. He wrote to Joe Conway, Arizona attorney general, inquiring if one who finds buried treasure must place it in escrow or share it with state. He mentioned gold and silver bullion "buried by the Jesuits in the period of 1548-1658" at an undisclosed place.

Plans for Postwar Air Travel...

NOGALES — William Beatus, new owner of Rancho Grande hotel and recently of U. S. ferry command, in announcing purchase of the large hotel property, visualized this border city as an important air base for international transportation. His belief in important role of postwar air transportation with the special advantage of Nogales' location, "was a big factor" in his purchase. He plans to welcome guests who fly to Nogales, provide facilities for storing and servicing their planes.

It "Rains" Dust in Arizona .

LEUPP—Water of the Little Colorado river draining the 16,000,000-acre Navajo and Hopi reservations, is so muddy that when it pours over 600-foot Grand falls 18 miles west of here, it sends up a muddy spray. Moisture so quickly evaporates in dry desert air that particles of silt are suspended in a dust-cloud above the waterfall. Wind has blown the dust over a wide area, depositing it as loess.

Gift to Geronimo in Museum . . .

TUCSON—Geronimo's beaded bag in which he carried his amulet and tinder, is now in Arizona's pioneer's society museum at University of Arizona, gift of Lt. Comdr. Delos H. Smith, Jr., Washington, D. C., whose father was stationed at Ft. Apache, Arizona, in 1877. The bag had been given the Apache chief in an attempt to persuade him to surrender. Decorated with beads and crude silver bangles, bag once carried the inscription, Geronimo, Chiricahua Apache, March 17, 1884.

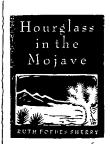
First Missionary to Navajo Dies...

TUBA CITY—William R. Johnston, called by the Navajo Kin-la-chee, died recently in Glendale, California, aged 92. One of the most devoted friends the Navajo ever had, he began his missionary work among them in 1896, continuing to drive his car over the reservation until he reached his ninetieth year. He had made many trips to Washington, D. C., visiting Indian department, White House and members of congress to seek aid to protect rights and interests of the Navajo.

Gila 'Mums Go to White House . . .

RIVERS—From the Gila river war relocation center, Itaro Nakata has sent a box of chrysanthemums to Mrs. Eleanor Roosevelt, keeping a promise made during her visit last April. Although the climate here is too hot and dry, Nakata, one of the nation's outstanding growers of this flower, has 120 varieties under cultivation in a plot of less than one-tenth of an acre. One of the varieties is Golden Treasure which he spent seven years developing.

Carl Mayhew, owner of Oak Creek lodge near Flagstaff, died Nov. 4.



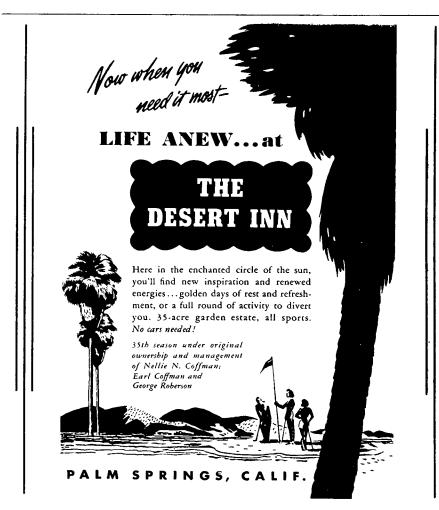
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Delightful Wallace Cook Block-Prints in Color.

SEND \$1.03 NOW TO

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Cotton Gets Chemical Defoliation . . .

TUCSON—Mass removal of leaves from cotton plants by aerial dusting with calcium cyanimid has proved successful in its first test in Pima county. Chemical compound causes leaves to wither and drop, exposing cotton boll for easy, clean picking, and does not harm the plant.

Drainage Canals for Gila Valley . . .

YUMA—Following complaint of damage to croplands in North Gila valley by seepage from Gila canal, work is expected to start soon on construction of drainage canals, says announcement by L. J. Foster, bureau of reclamation engineer in charge of Gila project construction.

Famed Hotel Westward Ho, near Phoenix, recently was sold to W. R. Wayland, managing director, John B. Mills, Dallas, and R. H. Hawn, Corpus Christi, transaction involving about one million dollars.

Examples of Hopi Indian arts and crafts, including a katchina doll, pottery and basketry, have been donated by Museum of Northern Arizona to Geneva Children's Museum, Alabama.

CALIFORNIA

Fires Burn San Jacinto Area . . .

PALM SPRINGS—Seven fires starting in May valley, swept over 8,000 acres on southwest slope of San Jacinto mountains in November. Mountain Center, Keen Camp and Tahquitz lodge, according to the Desert Sun were "burned to the ground." Flames were driven by 75-mile-per-hour gale, forcing 300 residents of Idyllwild to flee for their lives and imperiling summer homes of many local residents. Entire mountain and foothills, from Idyllwild to near bottom grade on both sides of highway 74 were burned, said the Sun.

A Cube of Orange Juice, Please! ...

BANNING—America may be taking its orange juice via cubes, if inventions of Ralph R. Sutherland are used by citrus industry to which plans have been submitted. Sutherland, who has invented juice extracting and rapid freezing machines each with eight-hour capacity of 25,000 gallons, claims frozen orange juice when thawed out is as full of flavor and rich in vitamins as freshly-extracted juice and that a cube filling an 8-ounce glass should cost but a nickel.

The Desert Trading Post

Classified advertising in this section costs five cents a word, \$1.00 minimum per issue— Actually about 11/2 cents per thousand readers.

MISCELLANEOUS

FOR SALE-12 beautiful perfect prehistoric Indian arrowheads, \$1; 10 tiny perfect translucent chalcedony bird arrowheads, \$1; 10 perfect arrowheads from 10 different states, \$1; perfect stone tomahawk, \$1; 4 perfect spear-heads, \$1; 5 stone net sinkers, \$1; 10 perfect stemmed fish scalers, \$1; 7 stone line sinkers, \$1; 4 perfect agate bird arrows, \$1; 5 perfect flint drills, \$1; 7 perfect flint awls, \$1; 10 beautiful round head stunning arrowheads, \$1; 4 fine perfect saw edged arrowheads, \$1; 4 fine perfect flying bird arrowheads, \$1; 4 fine perfect drill-pointed arrowheads, \$1; 4 fine perfect queer shaped arrowheads, \$1; 4 rare perfect double notched above a barbed stem base arrowheads, \$1; 5 perfect double notched above a stemmed base arrowheads, \$1; 12 small perfect knife blades of flint, \$1; rare shaped ceremonial flint, \$1; 3 flint chisels, \$1; 7 quartz crystals from graves, \$1; 10 arrowheads of ten different materials including petrified wood, \$1. All of the above 23 offers for \$20. Locations given on all. 100 good grade assorted arrowheads, \$3.00 prepaid. 100 all perfect translucent chalcedony arrowheads in pinkish, red, creamy white, etc., at \$10.00. 100 very fine mixed arrowheads all perfect showy colors and in-cluding many rare shapes and types such as drill pointed, double notched, saw edged, queer shapes, etc., location and name of types given, \$25.00 prepaid. List of thousands of other items free. Caddo Trading Post, Glenwood, Arkansas.

25 Genuine Indian arrowheads, \$1.00; Tomahawk head, .50. Cat. of Indian relics, crystals and ore specimens. Geo. Holder, Glenwood, Ark.

FOR SALE—Year Round Resort Hotel and Cottages in excellent condition. 2 acres with family fruits. Hot water heat, Oil Burner. City water, finest in America. Completely furnished, kitchen modern. Paved road, right at city limits. Wonderful view of Columbia river and mountains. Old established business and needs younger owner. Plenty business right now. Price \$13,500. Address R. E. & Tom Scott, Hood River, Oregon.

MANUSCRIPTS WANTED—Books, stories, plays, articles, for domestic and foreign sale. Motion picture rights placed. Circular D-14 Free. OTIS ADELBERT KLINE, Literary Agent, 507 Fifth Avenue, New York 17, New York.

LIVESTOCK

KARAKULS producers of Persian Lamb fur are easy to raise and adapted to the desert which is their native home. For further information write Addis Kelley, 4637 E. 52 Place, Maywood, California.

"Karakul Fur Sheep—America's Great Livestock Opportunity—You can be a part of this fascinating business and have your Karakuls cared for in California, by experienced ranchers. Write for details, James Yoakam, National Distributor, 1128 No. Hill Ave., Pasadena, California."

REAL ESTATE

For Imperial Valley Farms —

W. E. HANCOCK

"The Farm Land Man"

Since 1914

EL CENTRO — — — CALIFORNIA

Fire Ruins Willis Palms . . .

THOUSAND PALMS—Every native Washingtonia palm in Willis palm oasis one mile north of here was damaged early in November by a fire which started while a Universal studio motion picture company was working on a desert war picture in the vicinity. According to Harry Oliver, writer, who reported the fire, some of the trees were burned to their roots while others merely lost their fronds, but as Oliver expressed it, "a Washingtonia without its beard is like a lion without its mane."

Water for More Desert Land . . .

BLYTHE—Owners of tracts on Palo Verde mesa and in Chuckawalla valley are considering annexation to Palo Verde irrigation district in effort to develop their land, according to district's attorney, Arvin B. Shaw, Jr. He stated he had been informed by Donald Dun and A. E. Nichols, officials of a group of desert landowners, that sufficient signers had been obtained to make formal application. Land in this area would have same rights to Colorado river water as that in Imperial Valley, it was said.

Bill Chalfant is Mourned . . .

BISHOP—W. A. Chalfant, dean of western editors and historian of eastern California and Death Valley, died at his home here November 5. He had served his community for almost 60 years, editing the Register which he and his father started in 1885. He was born in Virginia City, Nevada, in 1868, son of P. A. Chalfant, member of Manly Death Valley party. Well known are his books, "Death Valley, the Facts," "Story of Inyo," "Outpost of Civilization" and "Tales of the Pioneers." (See Desert Magazine, April, 1943.)

Desert Fur Crop . . .

BRAWLEY—Strange as it seems, desert Imperial Valley is a fur producing area. State game warden Frank Burns said recent survey showed catch of 5359 trapped animals valued at \$2995.03. Sand rats variety of muskrat, led list with reported 4889 pelts averaging 53 cents each. Next on list were striped skunks, wild cats, coyotes, grey fox, opossum.

East Mesa May Be Shelved . . .

CALEXICO—Although it was indicated by steps taken at November convention of American Legion in Indianapolis that the Legion's influence will be used to begin development of East Mesa desert, it is believed that Arizona will make strong attempt to impede such action at present. If Arizona succeeds in opening desert lands to be irrigated by Colorado river water before the East Mesa tracts are opened, it is believed that state could establish a strong priority claim to water supply.

NEVADA

Heavy Duty Cars Head List . .

CARSON CITY—Average age of Nevada passenger cars is 5.9 years, according to results of recent questionnaire of public roads administration. Occupational classification of cars showed 19.3 percent to be owned by persons engaging in construction and related maintenance. Next on list was transportation, communication and other public utilities, with 15 percent. Government vehicles accounted for 12.8 percent. Survey is to help government determine rationing procedures and secure spare parts inventories.

New Colorado River Record . . .

BOULDER CITY — Harry Aleson, who has conducted many Colorado river boat expeditions, set a new record for upstream travel in November, when his party of three reached mile 218, between Diamond creek and Parashont wash. His companions were Ward Vickers and R. Moore, of Long Beach and the naval training unit at California institute of technology. Aleson, who hopes to go all the way to the Parashont later, carried loads of gasoline upstream, depositing it for later use on long-range upstream trips.

Hunters—Save Those Feathers . . .

RENO—Now it's feathers that Nevada's hunters are asked to save for the war effort. Bernard Hartung, secretary state salvage committee, said feathers of ducks and geese were "urgently needed in manufacture of sleeping bags, vests and other warm clothing" for armed forces in Arctic areas.

Mutton Crop Dwindles . . .

CARSON CITY—State sheep population for 1943 was less than one half million head, decrease of 27,500 over previous estimate. Reduction was blamed by department of agriculture on high prices of feed grain and hay and difficulty of obtaining them.

Latest estimate of Reno's population, based on ration book number four, is 25,-520, increase of about 525 in 17 months.

Death came November 26 to C. L. Osterlund, pioneer of Ely, "typical Nevadan, who never overlooked an opportunity to help someone." He had engaged in mining since early "railroad days."

NEW MEXICO

Indian Traders to Be Aided . . .

GALLUP—Surety bonds for licensed Indian traders now will cost 25 percent less. Another advantage to traders will result if Navajo agency recommendation of five-year period licenses are granted. They now are on one to three year basis. Changes will affect some 100 traders on Navajo, Hopi and Zuñi reservations.

Nazis Fear Indian "Cannibals" . . .

ALBUQUERQUE — Associated Press story from North African Allied head-quarters says one advantage held by "fighting 45th" division in Sicily was the war of nerves they were able to maintain over Nazis. Division is made up largely of men from New Mexico, Colorado and Oklahoma. More than 1,000 of them are Indians, of whom Germans have a particular dread, believing them to be cannibalistic. One Indian sergeant had the time of his life pretending to have a voracious appetite whenever new German prisoners were brought in. Sounds like Hitler's "new anthropology" is boomeranging.

Rodeo Hand Turns "Radio Ham" . . .

TOHATCHI — When Edison Bowman, Navajo bronco buster, joined the army 18 months ago he reported he was a "rodeo hand." The officer nodded, repeating, "radio ham." Now he credits his western accent for his assignment as radioman on a bomber.

Ice Age Mammoths Once Here . . .

DEMING—Four-foot-long fossil bone recently found in gravel pit at army air field here has been identified by Dr. Stuart Northrup of University of New Mexico geology department as right thigh bone of a mammoth, probably the Colombian Mammoth, which roamed over North America near end of Ice Age. Animal attained height of 12 to 13 feet, had tusks about 13 feet long.

Hopi-Navajo Land Contested . . .

GALLUP—Chambers of commerce of Winslow, Holbrook and Flagstaff are making an effort to increase grazing lands of Hopi Indians, at expense of the Navajo, according to James M. Stewart, superintendent Navajo Central agency. Original Hopi reservation, set up in 1882 by President Arthur, was about 2,000,000 acres larger than present Hopi grazing district No. 7 set up in 1937—a change to which Hopi never consented. Stewart said contested area now is occupied by 4,500 Navajo and 3,400 Hopi.

Black pottery of San Ildefonso made famous by Maria and Julian Martinez, still is signed "Maria and Julian" despite his death about a year ago.

UTAH

Utah Has Big Chemical Store . . .

OGDEN — Chemical ammunition stored at army service forces depot here is sufficient to meet any possible axis attack, according to information released in November. Other types of ammunition stored here are incendiary bombs for air forces, smoke screens, flame throwers and decontaminating apparatus.

One of the Lost Mines? . . .

SALT LAKE CITY—Vision of gold and fabulous wealth vanished for two men involved in Utah's "dream mine" fraud when sentences were upheld against Louis C. Deluke, Wilmington, Delaware, and Patrick T. Henry, Marysvale, Utah, for misuse of mails and conspiracy to defraud. It was charged they had conspired to sell stock in a Utah mine that a theological student "had seen in a vision."

Presses Must Roll . . .

SALT LAKE CITY—More than 100,000 readers of Tribune and Telegram newspapers received unique sheets during strike of Salt Lake Typographical Union No. 115, which suspended regular publication for first time in 50 years. Substitute was printed from full-page engravings made from typewritten copy and pasted-up photos. Walk-out involved 60 members of local union.

A WESTERN THRILL

"Courage," a remarkable oil painting 20x60 feet, the Covered Wagon Train crossing the desert in '68. Over a year in painting. On display (free) at Knott's Berry Place where the Boysenberry was introduced to the world and famous for fried chicken dinners with luscious Boysenberry pie.

You'll want (1) A 4-color picture of this huge painting suitable for framing. (2) A 36-page handsomely illustrated souvenir, pictures and original drawings, of Ghost Town Village and story of this roadside stand which grew to a \$600,000 annual business. (3) Two years subscription (12 numbers) to our illustrated bi-monthly magazine of the West. True tales of the days of gold, achievements of westerners today and courageous thoughts for days to come. Mention this paper and enclose one dollar for all three and get authentic western facts. Postpaid. GHOSTTOWNNEWS. BUENA PARK, CALIF.



Mines and Mining..

Washington, D. C. . . .

Silver manufacturers have been authorized to buy nearly 23,000,000 ounces of treasury silver since congress released this amount for consumptive purposes, Senator Green (D, Rhode Island) announced in November. Green, author of the controversial silver legislation enacted last July, made the statement based on information from war production board.

Silver Peak, Nevada . . .

The 200-ton mining plant of Desert Silver, Inc., for the past five years Nevada's largest silver producer, was to be sold at auction in November. Actual cost of the plant was \$263,000. Shortage of manpower, and other war conditions forced stoppage of operations.

Salt Lake City, Utah . . .

First plant to produce alumina from raw materials other than bauxite started production in November, according to announcement by J. M. Olin, vice-president of Olin corporation which controls several companies engaged in war production. Local plant of Kalunite, Inc., was constructed at cost of \$4,500,000 for Defense Plant corporation to determine economics of producing aluminum from domestic raw materials, thereby relieving United States of dependence on imported bauxite, from which bulk of nation's aluminum is made.

Globe, Arizona . . .

That high grade iron-free Arizona asbestos soon will be serving in the war effort, was indicated in announcement by J. S. Coupal, director of state department mineral resources, that custom asbestos purchasing station and processing plant here have been assured by defense plant corporation and reconstruction finance corporation. Pine Top Asbestos company, directed by J. S. Michault of Globe, is to be provided funds by RFC to develop mines in the area, assist other prospective shippers and erect plant near here where all asbestos mined in the area can be sold and processed and graded for market.

Los Angeles, California . . .

New process for refining 100-plus octane aviation gasoline from mineral extracted from white chalky clay from eastern Arizona was announced here by Filtrol Corp., which originated process. The mineral, originally a volcanic ash, is in form of pellets which look like vitamin tablets. Process is being used in a Texas refinery; pellets are being made in California and Mississippi plants.

Shiprock, New Mexico . . .

Government bureau of mines helium plant here has doubled capacity recently as result of new discoveries of helium bearing natural gas, it was disclosed late in November. Although discovery first was made more than two years ago, development started only last summer, when a large community of houses and plant buildings were erected here, and named for the Navajo Indians on whose land the wells are located. Besides helium, a non-explosive lighter-than-air gas, nitrogen, an explosive-inflammable gas also is produced

Hawthorne, Nevada . .

Harry Eugene Springer, discoverer of brucite deposits of Gabbs valley, died November 11 at veterans hospital, Livermore, California. He had been engaged in Nevada mining business for many years. At time of his big discovery the Gabbs deposit is said to have been the only real white brucite to be found in America or Europe.

Phoenix, Ārizona . . .

Large mines and smelters head Arizona list of priority firms for essential workers, according to Henry K. Arneson, state director war manpower commission. Next in order are lumber companies and mills, Navajo ordnance depot, smaller mining establishments, manufacturing and fabricating firms. One exception is that "local" firms, such as manufacturers, have first priority on manpower in their specific areas.

New York City . . .

Supply of vital metals has now been replaced by manpower shortage as number one war problem, according to Herald Tribune's economics analyst Raymond Hoadley. According to WPB, he said, magnesium now is "even coming out of our ears." Copper has reached stage of "rough balance" between supply and demand. Production of aluminum, lead, tin and zinc has allowed government to accumulate stockpiles.

Washington, D.C. . . .

Federal Aids for War Mineral Production is 42-page bulletin issued by war production board, informing public how to get help from government for developing and increasing output of mineral properties. It includes chapters on war minerals and ores, prospecting and exploration assistance, machinery and supplies, priority assistance, reconstruction finance corporation mining loans, marketing assistance, priorities system, and lists regional and district offices of war production board.

Lovelock, Nevada . . .

Option on what may prove to be one of the world's most valuable highgrade fluorspar properties was obtained late in November by Cooper Shapley, engineer for General Chemical company, subsidiary of Allied Chemical and Dye company, from R. T. Hamilton. Option covered 12 claims of acid spar in Black canyon where deposit was first discovered in 1929 by Joseph Witcher, a Southern Pacific dispatcher. Present price of material is \$40 to \$42, a 2000-pound ton. Post-war price predicted to be \$25. Principal source has been Kentucky and Illinois.

San Francisco, California . . .

Kenneth C. Peer, chief chemist, and Donald E. Thorpe, associate chemist, of Raggoland-Broy Laboratories, 758 Natoma street, have written a paper of value to prospectors and developers of beryl ores. It is an aid to classifying and determining value of these ores, which are difficult for the average miner to identify. Most accurate determination discovered by the writers is through application of quantitative spectrographic methods.

Virginia City, Nevada . .

Deposits of scheelite, ore of tungsten, in Potosi district of Osgood range, again have been examined and maps brought up to date by geological survey, reports interior department. Deposit has been known since 1917 but little tungsten was produced until 1942, when part of a large gold mill was converted to tungsten treatment.

Needles, California . . .

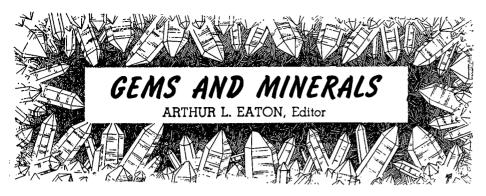
Four tungsten claims in New York mountains near here have been sold for \$150,000 to Warren T. Potter and Clarence S. Potter of Pasadena, according to former owner Joe Dorr whose family in 1920 homesteaded a 640-acre tract in the range.

Tombstone, Arizona . . .

Charleston Lead mines company, seven miles from here, will go into immediate production of lead and zinc, it is announced. Company headquarters are in Pasadena, California; Superintendent is H. L. Zebold of Tombstone. Shattuck-Denn company of Bisbee will float the concentrates and separate the lead and zinc. Ore also carries some silver and copper.

San Francisco, California . . .

California journal of mines and geology, January 1943 edition, just issued, includes survey of mines and mineral resources of Santa Cruz county with 15 pages halftone photos and two folding maps. Also included is current survey of strategic minerals of other counties, including Inyo, Kern, Mono, Riverside, San Bernardino, San Diego.



GOVERNMENT STILL WANTS GOOD QUARTZ CRYSTALS

Miscellaneous minerals division, war production board, temporary R building, Washington, D. C., again requests that they be notified if anyone owns or knows location of perfect quartz crystals at least one inch in diameter and three inches long. Crystals must be water clear and absolutely free from inclusions of any nature whatsoever, and free from all flaws and imperfections.

QUARTZ IN WAR IS NEW JERSEY TOPIC

Dr. Elizabeth Armstrong of the Bell laboratories, one of the country's best qualified speakers on the subject, discussed the importance of quartz in wartime, at December 7 meeting of New Jersey mineralogical society, Plainfield. Lecture was illustrated with slides.

Plainfield library, where meeting was held, and Plainfield Trust company displayed quartz specimens the week preceding lecture, with invitation to the public.

EAST BAY PROVIDES RIDES TO INSURE ATTENDANCE

George H. Needham, well known Pacific Coast microscopist, spoke on microscopic inclusions in minerals at Dec. 2 meeting of East Bay mineral society. Talk was illustrated with microscopes and special equipment furnished by the speaker.

Preholiday social meeting was scheduled for December 16, with entertainment, contests and mineral grab bag.

To insure continuance of good attendance record effort will be made to provide transportation for all members otherwise unable to attend. They are requested to phone President Geo. Higson or Secretary Ida Chittock.

Among the many interesting opal specimens from the state of Queretaro, Mexico, which attract attention of scientists are opals with inclusions. Commonest of these inclusions are large round cavities containing water, or carbon dioxide in water. This often coats the inner surface with a whitish tinge and offers materials for interesting cabochons. Other Queretaro opals contain slender, dark colored, acicular crystals of rutile. These are somewhat rare and much in demand, especially if the stone also shows a play of color. Some few specimens show what the natives declare to be "just sticks and grass."

Many "pecos diamonds," quartz crystals from the Pecos river valley of New Mexico, are almost snow-white in color. An analysis of these crystals shows that the whitish color is due to inclusions of dolomite, Ca Mg C03. This is explained easily as the crystals formed in masses of dolomite along the present course of the tiver.

. .

EASY TEST FOR DOLOMITE . .

Dolomite, calcium magnesium carbonate. Ca Mg (C03) 2, which is a close relative of calcite, can be easily distinguished from it by placing it in hydrochloric acid. Calcite effervesces instantly and fully in the cold acid. Dolomite reacts very little if at all in the cold acid. However, powder a small amount of the suspected dolomite, and place it in hot hydrochloric acid and the result is different. In the hot acid it effervesces fully as much as the calcite did in the cold acid.

VERMICULITE

Vermiculite (from Latin vernis, worm) is practically a new metal, states Carl J. Travernman in Goldfield, Nev., News. It was not used commercially until 1924 when only two tons were produced in U. S.

Vermiculite or jefferisite is a greenish black mineral, composed of highly inflammable hydrogen and magnesium in combination with potash, aluminum and silica. The result is fireproof. When heated, vermiculite seems to come to life and wriggle like a worm. Remember the "snakes-in-grass" fireworks of your childhood?

The heated product is about six times as bulky as the raw mineral. It is used for insulation, to make wallboard, outside building board, cement, roofing, refrigerating equipment and in open hearth furnaces of steel mills. Used in house walls its insulating value equals a five-foot brick or seven-foot concrete wall. Nearly all talkies make use of vermiculite as it is sound proof and makes a room echoless. It is now being tested in airplane construction to deaden sound of the motors. Trade name is Zonolite.

Vermiculite is mined in Montana, North Carolina, Colorado, Wyoming and Pennsylvania. 26,000 tons were produced in 1937, but it is estimated that much more will be used this year. Montana is source of a large part of the mineral. In order to mine vermiculite a heavy uncommercial overburden is removed by bulldozers and fresnos, picks and shovels. Then a combined rotary screen and loader is backed into the face of the ore pile. The screened product is taken by truck to a milling plant, which ships both raw material and expanded product.

SUGGESTED TABLE TO SHOW DIFFERENCES IN DIAMONDS

Much difference seems to develop in the degrees of hardness of diamonds of different colors and from different continents. The following table, to show this difference, has been suggested:

Hardness (compared to Moh's scale).

36—Carbonado and colored diamonds.

37.8—Congo grey African diamonds.

41-Congo yellow diamonds.

42-Brazilian diamonds. Black diamonds.

COLORFUL MINERALS

CORUNDUM

Very little need be said about the general nature of corundum as it is already too well known as emery and sapphire. Its hardness of nine is second only to diamond, but it is the great range of colors of this fine stone that makes it notable. It produces every known shade of black and grey, red, pink, blue, green, purple, yellow, orange, etc. The black and grey varieties are used for corundum wheels and emery paper in industries, but the other colors produce many named varieties:

Red—pigeon blood ruby.
Light red—oriental ruby.
Grass green—oriental emerald.
Colorless—oriental sapphire.
Dark blue—sapphire.
Light blue—oriental aquamarine.
Bright blue—corn flower.
Yellow green—oriental chrysolite.
Yellow brown—oriental topaz.
Aurora red—oriental hyacinth.
Violet red—oriental amethyst.

Note—the word oriental, as applied to these stones, means that it is a member of the sapphire family, not that it came from the Orient.

Beautiful Fluorescent Rocks

with Tungsten, Powerlite, Green and White mixed. Makes rocks very pretty. \$1.00 PER POUND

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Vreco Diamond Blades...

Give you better performance, longer life, faster cutting. Enjoy sawing with the new improved Vreco Blades.

6-in. Blade--\$ 4.50 8-in. Blade--\$ 5.50 10-in. Blade--\$ 6.80 12-in. Blade--\$ 8.75 14-in. Blade--\$11.00 16-in. Blade--\$13.75

Arbor Holes—1/2, 5/8, 3/4, 1 in. Postage and Insurance Extra

BYFIELD FELT POLISHING BUFFS

We stock these fine Byfield Felt Buffs because of their superior quality.

SPANISH FELT BUFFS—6x1 in.—\$4.25 plus post. 2 lbs.—8x1 in.—\$7.25, post. 3 lbs.

HAIR FELT BUFFS—6x1 in.—\$2.25 plus post. 1 lb.—8x1 in.—\$3.75, post. 2lbs.

Arbor Holes— $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, 1 in.

ORIENTAL JADE POLISHING POWDER

This is a specialized polishing agent which will properly polish Jade, Lapis, Rhodonite, Onyx, Agate, Jasper, Tiger Eye, etc.

\$1.00 per lb. plus postage on 2 lbs.

TWO LARGE SIZED POLISHED OREGON AGATE NODULES (\$2.00 Value)\$1.00

Our JUBILEE CATALOGUE gives a more complete listing of our stock—15c stamps.

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Randall Henderson writes from Africa that because army kits are limited to 55 pounds he must resist the temptation to gather rocks. One suspects, however, that he may jettison wearing apparel and acquire at least a few interesting specimens.

Charles Dirdak talked on diamonds and diamond cutting at November 17 meeting of Searles Lake gem and mineral society. Dirdak, a native of Holland, was in the diamond cutting industry in Amsterdam for ten years. A chrysocolla specimen was profitably auctioned.

GEM MART

ADVERTISING RATE 5c a Word — Minimum \$1.00

- ROCK COLLECTORS—ATTENTION! Special Christmas Offer. For \$5.00 you get showy specimens of fluorite xls, pyrite xls, amethyst phantom xl, chalcanthite, azure-malachite, limonite pseudomorphs, petrified twigs, drusy qtz. xls, ferro-molybdite & molybdenum, enargite, garnets in ryolite, vanadinite xls, wulfenite xls, turquoise, Mexican opal (fire). An Xmas gift of a polished spec. free with every order. The Rockologist (Chuckawalla Slim) Paradise Trailer Court, 627 Garvey Blvd., Garvey, Calif.
- AGATES, Jaspers, Opalized and Agatized woods, Thunder eggs, polka dot and other specimens. Three pound assortment \$1.50 postpaid. Glass floats, price list on request. Jay Ransom, 3852 Arboleda Ave., Pasadena 8,
- Radium, Uranium on Quartz rock. Something new for fluorescent collectors. Valley Art Shoppe, 21108 Devonshire Blvd., Chats-worth, California.
- Cabochon Cutters: I have some fine gem quality Wyoming jade in green or black. Slabbed for cabochons. 35c per square inch. You are to be satisfied or your money back. Gaskill, 400 No. Muscatel, San Gabriel, Calif.
- From Beautiful Colorado come to you six of her rock beauties. Prepaid six dollars. Specimens run from 3x3 or larger. Hand picked, every one different, every one full of color. In addition as a gift to you I will place six pre-historic lizard scales. You will be pleased with this miniature collection. Jack The Rockhound, P. O. Box 86, Carbondale, Colorado.
- 50 Genuine and Synthetic slightly damaged stones assorted \$7.50. Genuine Zircons blue or white 3 for \$3.75. Twelve genuine Cameos or Opals \$2.50. B. Lowe, Box 311, St. Louis, Missouri.
- CABOCHON CUTTERS with our unnamed mixture of good cutting material sawed ready to shape cut and polish you can finish several fine stones. 25 cents for two ounces and with money back guarantee. Gaskill, 400 North Muscatel, San Gabriel, Calif.
- Lapis Lazuli from Italian Mt., Colorado. Sawed slabs 3/16 inch thick with hard white matrix at \$2.00 per ounce. Finest quality sawed slabs deep ultramarine blue with matrix of gold pyrites at \$4.00 per ounce. Head of department geology of prominent university states, "This lapis compares most favorably with the best lapis lazuli in any country." Massive grossularite, green garnet, from the same lo-cality, 2 ounces for \$1.00. Iceland Spar (cal-cite) crystals, an unusual collection of clear, pink and yellow each 1 inch by 1 inch. All three for \$1.00. High grade silver specimens, argentite, etc., for \$1.50 per ounce. Steel Galena, the high grade lead ore that looks like broken steel, 2 ounces for \$1.00. END-NER'S, Gunnison, Colo.

- Tourmaline matrix, in quartz crystals, \$1.00 to \$30.00, tourmaline pencils, 50c to \$5.00, Essonite garnet-green-clusters, 50c to \$3.00, unique specimens. Sagenite agate, \$1.00 to \$4.00, specimen rough nodules. Gem list 10c. Return specimens if not satisfactory. The Desert Rats Nest, 2667 E. Colorado St., East Pasadena, Calif.
- Swisher Rocks and Minerals, also Corals, Shells, Statues, etc. We also buy mineral species and woods. Must be good. Swishers, 5254 So. Broadway, Los Angeles 37, Calif.
- 20 mixed fossils for a dollar bill. 100 ancient Indian arrowheads \$3.00. 10 tiny bird arrowheads \$1.00. List Free. Lear Howell, Glenwood, Ark.
- \$2.50 brings you prepaid six rare and beautiful crystallized Arizona minerals. Vanadinite, Dioptase, Wulfenite, Willemite, Chrysocolla, Azurite. Specimens 11/2x2 or larger. Wiener Mineral Co., Box 509, Tucson, Ari-
- INDIAN RELICS, Curios, Coins, Minerals, Books, Old Buttons, Old Glass, Old West Photos, Weapons, Catalog 5c. Lemley Antique Store, Osborne, Kansas.
- Ask for my approval selection of cut and rough gems in rare Garnets, Starolites, precious Topazes, Sapphires, Agates, Turquoise and many other types. Star Sapphires at \$1.50 per carat. Rare cameos, stickpins, ring-mountings. ERNEST MEIER, Church St. Annex, P. O. Box 302, New York 8, New York.
- 100 Jewelry Stones removed from rings, etc., \$2.00. 12 articles of Antique Jewelry, rings, pins, etc., \$3.00. B. Lowe, Box 311, St. Louis, 1. Missouri.
- Minerals, Fossils, Gems, Stamps, Coins, Pistols, Glass, Bills, Indian Relics, Bead Work.
 Catalogue 5c. Vernon D. Lemley Curio Store, Las Cruces, New Mexico.
- Montana Moss Agates in the rough for gem cutting \$1.00 per lb. plus postage. ELLIOTT'S GEM SHOP. Petrified Picture Wood and Moss Agate Jewelry Hand Made in Sterling Silver Mountings — Rings, Bracelets, Necklaces, Brooches, Tie Slides, etc. Mail orders filled anywhere in U.S.A. 25 Jergins Arcade. Long Beach, Calif.
- Beautiful agate, flower jaspagate, picture jasper and dinosaur bone. Assorted lots of cutting material, gem quality, ten pound package \$10.00. Four pound package \$5.00. Send postage. Mrs. Richard Fischer, Box 555, Grand Junction, Colo.
- INTRODUCTORY OFFER-One dollar each lot. Five all different Fluorescent Agates— polished. Thirty rough Mexican Opals. Fifty nice pieces Turquoise. Twenty different polishing specimens. Postage ten cents. Minerals and gems on approval. DR. RALPH MUELLER, Professional Building, Kansas City, Missouri.

AMONG THE ROCK HUNTERS

A bulletin from New Jersey mineralogical society, Plainfield, New Jersey, states that war conditions have tremendously accelerated research in the field of phosphors, the tiny crystals that convert invisible radiations into visible light. Energy applied to phosphor crystals can light. Energy applied to phosphor crystals create light by changing the atomic structure of the crystals.

Bob Carlter, member of Searles Lake gem and mineral society, has sent the society a specimen of vivianite from somewhere in Alas-

So far as is known at the moment, there are no quartz crystals in Arizona having desired piezo electric qualities.

Bill Shand, from California institute of technology, was speaker at November 12 meeting of Long Beach mineral society. Joint meeting of the old and new boards was held at the E. S. Bond home.

Robert K. Foster addressed Los Angeles Dana mineral clubs on minerals associated with different rock types at their dinner meeting November 12. Prizes were awarded in a game of identifying mineral specimens. Dana club meets every third Saturday for study. They are learning to identify minerals and rocks in view of future field trips.

British central scientific office, 907 Fifteenth street, Northwest, Washington 5, D. C., wants black tourmaline crystals at least one inch in their shortest diameter. The price offered is five dollars per pound.

Approximately 300 fine specimens have been added to the mineral collection of Mineralogical Society of Arizona.

W. Scott Lewis, 2500 N. Beachwood drive, Hollywood 28, in his October mineral bulletin lists a "season opener" special of blue fluorite crystals from New Mexico. Specimens also contain other minerals, notably barite.

Mineralogical Society of Arizona is continuing its course in determinative mineralogy. Speakers in November were Luther Steward and George G. McKhann.

At its December meeting Imperial Valley gem and mineral society began a series of 15minute talks by Arthur L. Eaton on different minerals and means of identification. •

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The Texas mineral society will hold its monthly meeting in parlor two, Baker hotel, in Dallas, Texas, December 14. Each member and visitor is asked to bring a specimen wrapped in newspaper for an exchange of specimens. Prof. S. A. Lynch, from North Texas agricultural college at Arlington, will show pictures and lecture on the subject of mines.

Southeast hobby society, announces Mrs. A. E. Allard, will have an evening of entertainment January 25, 1944, for those interested in gems, minerals and conchology. Public is invited. Many beautiful specimens will be displayed. Meeting will be held 7:45 p. m. at Southeast Y.M.C.A., 3355 East Gage avenue, Huntington Park, California.

THE DESERT MAGAZINE

On a recent trip to Queretaro, Mexico, we were presented with a small piece of Mexican opal which may be the answer to many questions. This unpolished opal much resembles any colorless hyalite in its normal state. However, when this stone is left for an hour or two soaking in cold water, its appearance begins to change noticeably. It takes on a pale blue color, and at times, in the sunlight, shows a rather brilliant bluish fire or play of color which was not apparent in the dry stone.

Los Angeles mineralogical society, at its October meeting, unanimously elected the following officers: Richard R. F. Lehman, president; A. J. McArthur, first vice-president; Mrs. Fern Schwartz, second vice-president; S. G. Benedict, secretary; Ledona B. Koppen, treasurer; O. C. Barnes, field trip chairman; B. Gordon Funk, federation representative; R. R. Newell, business manager; Victor J. Robbins, editor.

Retta E. Enders, 3961 Third street, Riverside, California, reports finding near Riverside a specimen of rare green chalcotrichite, pseudomorph after amphibole. She describes the specimen as occurring in cavities filled with tiny grass green, hairlike crystals, which appear in clusters much like a sheaf of wheat. She is unwilling to break or divide the specimen, but anyone wishing to acquire a fine large cabinet specimen might be able to make a deal for the whole piece.

Officers of Texas mineral society, of Dallas, Texas, are Thomas D. Copeland, president, 2007 W. Tenth street; W. H. LaDew, vice-president, 7667 Forest Hill boulevard; Mrs. A. L. Jarvis, secretary-treasurer, 353 W. Jefferson avenue. All addresses are in Dallas, Texas.

October meeting of Los Angeles mineralogical society was held in Boos Bros. cafeteria, with Gordon Funk, retiring president presiding. The speaker of the month was B. S. Grany, engineer of the Los Angeles department of water and power. Grant gave an interesting talk illustrated with slides on operation and maintenance of Los Angeles aqueduct.

In the December issue of this column under heading 'Scarcity of Large Quartz Crystals Explained," appeared the name Herkermire." This should read "Herkimer," a county in New York.

H. W. Pierce of Long Beach mineral club is bereaved by the recent death of his wife who once was an active member, sharing many field trips with her husband.

A special use of rutile and ilmenite, states W. Scott Lewis, is in the manufacture of titanium tetrachloride to produce smoke screens.

Dinuba lapidary class, instructor Charles Freeman, began meetings November 16. They will continue to meet at Dinuba, California, on Tuesdays, from seven to nine p. m.

Members Merritt and Clark invited Searles Lake gem and mineral club, California, to visit their mine in Sand canyon, November 26. Some azurite was found, as well as other types of minerals.

Magnesium is the fourth most abundant mineral in the world. It was first isolated in 1805 and first produced commercially in France in 1857. Electrolytic production dates from 1896. In 1915, the annual production in this country was 87,500 pounds, valued at \$5 a pound. Today, the price is 22½ cents per pound, and millions of pounds are produced.

Cogitations . .

Oi a Rockhound
By LOUISE EATON

When the Duration is over 'n our soldiers come back, they're all goin' to love U.S.A. better 'n ever. The more they sees of other places 'n ways of livin', th' more they likes their own home towns. It's not cause it's what they're used to, nor cause it's home where they grew up. It's just the feel of bein' an American on his own stampin' groun'. He may not know 'xactly what he wants, but he sure knows what he does not want—positively. He wouldn't trade one square inch of home for all th' rest of th' world.

Didja ever lissen to three folks a talkin' when one of 'em was a unrockhoun'?
The unrockhoun' tactfully tries to switch
th' conversation to something he knows
about too. But the rockhouns is hardly
ever polite, at least for very long. They
just goes on comparin' notes about field
trip locations. 'r specimens, 'r the rocks
in sight, 'r what rocks some other fella's
got, leavin' th' poor unrockhoun to his
own thoughts, if he doesn't wanta lissen
to rock talk.

It's sortta nice to be a rockhoun' in a small town where you knows everybody in his specimens. But it would be kinda interestin to live in a big place in meet new folks in trade for rocks from different localities that they've visited in you haven't.

ROCKHOUND'S CREED

By Chas. G. Schweitzer Los Angeles, California

"Here, take a lot of rocks." he said, And all too gladly I was led Where piles of rocks, a treasure store Of agates, nodules, quartz and more Were waiting for the cutter's wheel To fashion them with felt and steel. "So fill your sack, I like to start Just such as you in the cutting art; And think not I am over-kind, For there are many whom you find Will gladly share and gladly show The tricks of trade that you should know. One thing we pass on—don't forget, The more you give, the more you get."

Dr. Olaf P. Jenkins spoke on geological story of the Franciscan chert at November 4 meeting of East Bay mineral society, Oakland, California. Julian A. Smith discussed crystals and why they belong to particular crystal systems at November 10 meeting.

Leland S. Chapman acted as auctioneer at the annual rock auction of East Bay mineral society of Oakland. The auction netted the club \$35 which was donated to a local service organization.

Cleavage in iceland spar is so perfect that actual fractures are comparatively rare. Fine quality spar cleaves or breaks easily into almost perfect rhombohedrons, and even cloudy poor grade material shows the same cleavage. Many poor grade rhombohedrons show what apparently is a fracture, but the imperfection is due to weathering or injury done to the original mass of spar and not to the single cystal. Iceland.spar has a hardness of only three, so that weathering, tubbing and scratching damage it easily.

New Jersey mineralogical society observed an exchange night November 9. Members took their surplus specimens for trade. The Wirtz collection of Hawthorne, New Jersey, specializing in zeolites, was offered for sale to members. An additional day, November 14, was devoted to sale of mineral specimens for members.

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AMATEUR GEM CUTTER

This page of Desert Magazine is for those who have, or aspire to have, their own gem cutting and polishing equipment. Lelande Quick, who conducts this department, is former president of the Los Angeles Lapidary society. He will be glad to answer questions in connection with your lapidary work. Queries should be addressed to Desert Magazine, El

Centro, California. By LELANDE QUICK

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ACROSS FROM VALERIE JEAN DATE SHOP. P. O. ADDRESS, THERMAL, CALIF.

Merry Christmas to all! You CAN make it merry despite all that has happened and is happening for we still have the spirit of Christmas with us. This is our third "war" Christmas and the feeling is strong upon me that come next Christmas we shall be at peace again. I am hoping to spend Christmas away out on the desert if accommodations can be had. But in early November, as this is written, everyone says out" so popular is the desert this year for "getting away from it all." The first Christmas was on the desert and I want to get that "feel" by being there on Christmas eve. Phillips Brooks had that idea once and went all the way to Bethlehem itself to get the true Christmas eve atmosphere. It put him in the mood so well that he wrote one of the most beautiful and enduring of all Christmas carols "O Little Town of Bethlehem

It will not be a Christmas that brings many of the gifts we amateur gem cutters want to re-ceive in the way of rocks and equipment because equipment is not to be had and good rocks are scarce items with the dealers. I do believe that many folks have equipment they would like to sell and the realization must have come to many that they have stored away more saw blades than they need, more sanding cloth than they can use and they would be willing to let some of their supplies go to someone else who needed them if they only knew where they were.

Elphage J. Mailloux of 9536 Otis street, Southgate, California, comes up with the splendid and unselfish idea that he will act as a clearing house for all exchange items. This is purely an altruistic endeavor on his part. He will sell nothing, he will buy nothing, he will act merely as go-between without charge to buyer or seller. If you have a saw blade you can spare, drop him a card and tell him so. If you want a saw blade, drop him a card and register your wish. Then Mr. Mailloux will write a card to Joe Jasper who has a blade for sale and tell him that George Geode wants to buy-and then he's out of the picture. Look around your shop and see what surplus material you can spare, perhaps a pulley belt or even a motor, some surplus grits or paper, some extra tin oxide or perhaps you want to sell the whole she-bang because you're tired of the hobby or you're moving to the Virgin Islands. List it all with Mr. Mailloux and send him postage and wait and see. Perhaps you want to buy a lap wheel or a felt wheel or need a motor for some piece of equipment you do have. Cry on Mr. Mailloux' shoulder (with some postage) and register your wants and see what happens. Don't write to me or to Desert Magazine about it, write only to Mr. Mailloux who is deserving of the highest gratitude from the gem cutting fraternity for the generous contribution of his time. I feel that he is going to be busier than he wants to be

Weather instead of climate has come to Redondo and the "moon stones" are churning on the beach so that those of us in the Los Angeles area can spend a Sunday afternoon scampering away from the waves as we try to retrieve a likely piece of gem material. If only the stuff looked as good when you get it home as it does when you get wet feet just because you must have that particular rock! I expect people to show their usual impatience with me when they show me a flower stone and I say so what." I expect to come home with a sugar sack of pebbles that I'll never cut. I expect to

catch a cold from the fog and wet feet but I wouldn't miss it for a bucket of gold.

There must be folks who like it because it is sold but I don't know why. I refer to lucite "jewelry," scrap pieces of lucite with scraps of gems imbedded. In my opinion the rings we used to make from horse shoe nails when I was a boy had more aesthetic value than these lucite baubles. What a way to desecrate an opal! I agree with the dealer who said "every time I sell a piece of it I can't digest my lunch." stuff should be suppressed.

Have you been cutting any of the new Wyoming jade? It really is jade and it really is fine and because it is quality material the prices asked by the dealers are reasonable, although they are high in proportion to other materials. This find is important and it has commanded the attention of Big Business. The Wall Street Journal itself recently said, "discoveries of green and black jade (nephrite) in the vicinity of Landau and black jade (nephrite) in th der, Wyoming, are reported by the bureau of mines to be so extensive that 'it is by no means improbable that after the war American jade will be exported to China.' Boulders of jade. some of which weigh almost a ton, have been reported in an area 20 miles long and three miles wide. The black jade occurs in granite, the green almost wholly in boulders. Burma has been one of the principal sources of jade for Chinese artisans.

DID YOU KNOW . . .

· There is lots of jasper in northern California too—on Red mountain at the head of Prospect peak in Trinity county; yellow and brown jasper at Shaw's Flat in Tuolumne county; red, brown and green jasper is common in the serpentine of San Francicso; banded red and green jasper is found west of Meadow valley in Plumas county; red jasper abounds on Mt. St. Helena in Napa county and on the Reed ranch in Marin county.

LAPIDARY HELPS AND HINTS ...

(As told by Rudolph Von Huene of California Institute of Technology)

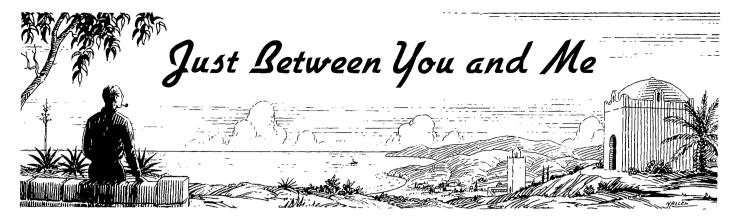
Brittle materials should be ground with loose and not fixed abrasive. In other words use a lap wheel instead of a sander for materials like obsidian.

Don't overcrowd the abrasive. The professional lapidary uses as much grit as would cover the thumbnail to do one stone; amateurs use as much as an ounce.

After many years of research on all materials at the California Institute of Technology it was decided that of all materials within reach of the amateur lapidary ordinary boiler plate was best for lap wheels.

Never run a lap wheel faster than 800 r.p.m. If you want to increase the cutting speed increase the diameter of the wheel rather than the r.p.m.

The drum sander is better for flats than the disc type because the waste material falls away and does not remain to cause scratches.



By RANDALL HENDERSON

ITH THE ALLIED FORCES IN AFRICA—To prewar tourists, the narrow cobble-paved streets in the crowded North African city where I am now stationed were "picturesque." But to those of us who now find it necessary to drive U. S. army cars along these crooked streets, they are a headache. After bucking this traffic for a couple of months I would tackle the rockiest, sandiest, ruttiest trail on the great American desert—and call it a vacation.

These Arabs still are living in the horse and buggy age. Their horses are mostly skin and bones, and their "buggy" generally is a two-wheeled cart with jittery wheels. When the load is heavy and the hill steep, the driver and his helpers unload. Part of them push the cart, and the others pull the horse. Even then, they sometimes get stalled.

You can imagine the confusion when this happens in the middle of a narrow street, with a long procession of GI jeeps and recons and trucks and French jalopies strung out behind waiting for the Arabs to clear the right-of-way and honking their encouragement to the horse.

There are no stop and go signals here, and not many traffic cops. The pedestrian crouches on the curb, waiting for a chance to dodge through the parade to the other side of the street—just as it was in American cities in the old days when the motorist was king of the road and if those on foot did not get out of the way it was their own funeral.

Yes, even that tortuous washboard trail that winds through the dunes and rocks and greasewood up the canyon to Hidden Springs in Southern California's Orocopia mountains will be a restful jaunt after this experience.

I never did care much for the city anyway. Just why these free born Arabs left the sheltering date palms of their oases on the great Sahara to come and huddle together along the dark alleys of the native quarter in this city, will always remain a mystery to me.

The white-haired old lady who runs the French rooming house where I am billeted thinks I am the world's dumbest human because I cannot understand her language. I did take the trouble to learn a few words of French, but when I use one of them she immediately assumes I know the whole vocabulary and starts chattering away as if I were a long lost son just returned. And when I finally get her stopped, and explain in my meager phrases that I do not understand a word she says, she turns away in utter disgust. In her estimation, anyone who cannot understand French is either half-witted or wholly uncivilized. I doubt if the thought ever occurred to her that she might learn a few words of English.

This region is the original home of the date. The natives were growing them thousands of years before America was dis-

covered by the white man. After seeing the way the fruit is handled and marketed over here I appreciate more than ever the fine job being done by the date growers in California's Coachella valley in the processing and packaging of their product. I have just about lost my appetite for the dates that come from the old world. But I am looking forward to the day when I can stop at Valerie Jean's and quench both my thirst and my hunger with one of those delicious date milk shakes and then stuff my pockets with the fruit that comes from Coachella's palms.

In fact I am sure the men and women in this expeditionary army would vote unanimously that we do everything a little better than it is done on this side of the globe. Despite the shortages of many things which Americans regard as essential, they still are living in a world of abundance compared with the civil population here in Africa. And Africa is a land of plenty compared with the occupied countries of Europe at the present time.

How we will all appreciate the good things of this earth when this conflict is ended.

Often, when there is a lull in the day's routine, the boys who have been overseas for several months start telling about the things they will do first when they return home. Food generally is the No. 1 subject—the chicken dinners, the T-bone steaks, the pumpkin pies, the ice cream sundaes and the cokes.

Next in interest come the picnics and motor trips. They all are planning to take a trip to the lakes or mountains or go fishing before they settle down to the job. They have a yearning just to see and have the feel of being in American atmosphere—of having dinner cooked by the womenfolks at home and yelling "ham and eggs" at the waiter in the short-order restaurant, or "cherry coke" at the soda fountain. They want to motor over the hills and renew their contact with the good earth in the place they call Home.

Most of the Americans with whom I work are eastern or southern boys. Few of them ever have been as far west as New Mexico or Arizona. When it comes my turn to tell about the things I want to do when I return home, I mention my old jalopy and my sleeping bag and steaks barbecued over hot coals of ironwood, and the crisp mornings when I crawl out of my bedroll and hover around the fire while I lace my shoes, and then fry crisp bacon and eggs-over-easy. And then tramp along a strange arroyo looking for mineral specimens or petroglyphs or the first blossom on the beavertail cactus.

Having the typical easterner's ignorance of the real desert, my companions never are quite sure whether I am crazy or merely kidding them.

I get along very well on the army food. I never did like to wrestle with a T-bone in polite society where you have to use knives and forks. But I do sometimes have a great yearning for the sun and the sand and the solitude of the desert which is my home.

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POETIC STUDY LIFTS MASK FROM DESERT

In Laura Adams Armer's SOUTH-WEST, there is a charm and spirit which are rare in today's books. The author has penetrated the extraneous, obvious material at hand and gone deep into the inscrutable Southwest with its "60 million yesterdays."

At first one might suspect its development into a travel book, although Mrs. Armer states that it is neither that nor a historic treatise. In a way it is both. There is movement throughout, but the movement is in the form of subtle migrations of an understanding spirit. The mask of hardness and drabness often concealing the real desert is lifted from its gaunt face.

The author has lived among the Indians, has tasted of their sorrows without herself becoming sorrowful. She has seen the magic of the Navajo healings, the power of the rain dances, never doubting the cosmic forces that have performed miracles from the beginning of time.

Two things particularly remain with the reader: the exquisite beauty of diction, the charming choice of words to describe even the commonplace; and the author's understanding love and reverence for the arid land—its people and its glory. Her chief fear is that "greedy hands will crush its ephemeral beauty," causing the loss of a great heritage.

The illustrations from paintings by the author display the same rare delicate impression which permeates the text.

Longmans, Green and Co., New York, 1935. 224 pp. \$3.00.

TRACY M. SCOTT

LOCKWOOD ADDS TO HIS ARIZONA PORTRAIT GALLERY

To supplement his publication entitled ARIZONA CHARACTERS, now out of print, Dr. Frank Lockwood has prepared a new volume entitled MORE ARIZONA CHARACTERS. This little volume is in the form of one of the quarterly bulletins issued by the University of Arizona.

In it Dr. Lockwood reviews the highlights in the lives of four Arizona pioneers—Horace C. Grosvenor, mine superintendent; Al Sieber, early day army scout in northern Arizona; Captain John Hance, guide at Grand Canyon for many years and John L. Hubbell, Navajo Indian trader. 79 pp. 40c.

-Е. Н.

CONQUEST OF COLORADO RIVER BY COLLEGE MEN

Going DOWN THE WORLD'S MOST DANGEROUS RIVER long had been Clyde Eddy's secret ambition. In 1927, with a group of 12 young college men he fulfilled his dream by daring the Colorado river's 300 bad rapids from Greenriver, Utah, to Needles, California.

Having but 50 successful predecessors, and as many more who failed, Eddy and his crew in three flatbottomed row-boats set a remarkable record, coming through the ordeal with loss of one boat being the only mishap.

His achievement was all the more remarkable when it is considered his men had been selected by mail from applicants throughout the United States who had little advance information and no experience.

The expedition was in no sense a scientific one. It was high adventure. The men faced death a dozen times a day. There were back-breaking days when the boats had to be carried around the most dangerous rapids. There were days of discouragement and moments of near-mutiny.

Eddy's style, while not outstanding, holds the reader's close attention because of its sheer excitement. Its simplicity and adventure make it an enjoyable reading experience for youth; its intense excitement will catch the interest of the fiction reader, and it is sufficiently informative and accurate to suit the more critical reader.

Frederick A. Stokes Co., New York, 1929. Photos, endmaps, 293 pp. \$2.50. —RAND HENDERSON

CONDENSED GROWING GUIDE FOR CACTI AND SUCCULENTS

Scott E. Haselton, from whose Abbey Garden Press in Pasadena have come such practical guides for hobbyists as CACTI FOR THE AMATEUR and SUCCULENTS FOR THE AMATEUR, has just written and published a profusely illustrated 68-page booklet CACTI AND SUCCULENTS, And How to Grow Them, for only a quarter. It has the same practical approach as the other books, but in more condensed form.

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DESERT Close-Ups

- Winsome little Navajo girl on this month's cover is a cousin of Cathley and Lily, dairymaid sisters of "Nomads of Inside-the-Rocks" on page 17 of this issue. John Blackford, in trying for this shot, lifted her up into the hole-in-therock, which is about 150 yards south of the goat corral seen on page 21. Immediately a high wind sprang up, "whipping her hair in her eyes, driving sand into mine, as well as into the camera." She apparently has no English first name, and the family made it plain they did not want to disclose her native given name.
- We think Jerry Laudermilk was indulging in some professorial humor when he said we all would go raving up the street, tearing our hair, when we read his latest "excursion into the past." At the very least, he promises all Desert readers they never will be the same after reading about the Rock from Hades. This is another treat soon to appear especially for rockhounds, but everyone will be spellbound by the terrifyingly realistic recreation of the era when Pisgah Crater in the Mojave desert came into being.
- Black Canyon in northwestern Mojave desert rarely is visited. In prehistoric times it was the home of Indians who showed considerable artistic skill. Only knowledge of them seems to have been derived from an examination of been derived from an examination or etchings they left on canyon walls. These tell of their daily lives, their clothing and occupations. Vernon Smith of Laguna Beach, California, has described, photographed and made tracings of many of the petroglyphs for Desert readers. Over a period of years he has made an intensive study of petroglyphs throughout the Southwest. Just now he is serving as expert consultant with U. S. signal corps on training films. His mapped story will be published soon.
- Desert readers are going to meet the Spiderweb Lady in an early issue. Nan Songer is directing the efforts of Black Widows and other spiders in war work. She has a large "crew" of them spinning silk threads. Not content with the fineness of them, she proceeds to split them. sometimes into strands as fine as five one hundred thousandth of an inch. Government uses spider silk for microscopes; instruments for taking blood count; survey, astronomical and navigation instruments; range finders; bomb sights; gun sights and in any telescopic instrument requiring precision.

CREED OF THE DESERT

By JUNE LEMERT PAXTON

Yucca Valley, California Man made the cities-perhaps they are needed:

For each, there's a place that is best. But there was a cry that long went unheeded

So God kept the desert for quiet and rest.



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RANDALL HENDERSON, Editor. LUCILE HARRIS, Associate Editor. BESS STACY, Business Manager. - EVONNE HENDERSON, Circulation Manager.

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Remains of the Wenner home on Fremont Island. Still visible is remnant of top window where Mrs. Kate Wenner used to signal. Clyde Anderson photo.

They Built an Island Home in the Desert

By CHARLES KELLY

OW'D you like to take a boat ride on Great Salt Lake tomorrow?" a voice asked over the phone one day as I sat in a stuffy office in Salt Lake City.

"Fine!" I replied, glad of an opportunity to forget business a few hours. "Who's speaking?"

"Johnny Jones," the voice replied.
"Meet me at the Saltair pier at nine o'clock."

I already had made one delightful voyage on the lake with Thomas C. Adams, in a specially constructed flat bottomed boat, an experience which whetted my desire to see more of that mysterious body of water. John E. Jones, a prominent business man, had just completed another boat and this was to be its maiden voyage. I knew we were in for a wonderful time.

"Where are you bound for?" I asked Johnny when I met him at the pier next morning.

"Nowhere in particular," he replied. Where would you like to go?"

"If we have time," I said, "I'd like to visit Fremont island. An old prospector told me he found a cross cut in the rock on top of the island in early days. I'd like to see if it's still there."

"Sounds interesting," Johnny agreed. "Maybe we could find an old date or something. Cast off!"

So that's how I happened to visit Fremont island in Great Salt Lake. We found the cross cut in the rock and later identified

This is the story of a family who lived on desert island-not in the South Seas, but in Great Salt Lake, Utah. Although their island home was but 20 miles from the mainland, they were at times as effectively marooned as if they had been surrounded by the ocean. During high storm winds, the great salt waves made a crossing too dangerous to attempt. A sail boat brought their mail and food supply once a month. Their primitive existence on the little crescent-shaped island was in direct contrast to the gay social life they had enjoyed on the mainland, but as they adapted themselves to the new environment they began to realize that much of their previous life had been wasted on the trivial details of the outside world.

Kit Carson as the man who cut it, as told in a previous article in Desert Magazine (February, 1942). But another strange story came to light as a result of that trip.

While exploring the summit of the island that day Johnny Jones noticed a small bay in the shoreline and some distance back from the beach a dark object which looked like the ruins of an old house. Borrowing my glasses he studied it for a few minutes.

"It is an old house," he said as he handed me the glasses. "A two-story rock house. Who do you suppose ever lived on this desolate island?"

John E. Jones and Miss Blanche Wenner enroute to Fremont Island, 1943. Miss Wenner's first voyage, in 1886, in an open sail boat, required three days and nights.

Photo by Clyde Anderson, Salt Lake City.





John E. Jones (left) and group of friends who accompanied Miss Wenner to her old island home, seen in background. Clyde Anderson photo.

"Don't know," I replied, "but I've heard a family once lived here. Maybe we can dig up the story some day."

That was several years ago. Subsequently Jones made another trip to the island. Remembering the ruined stone house he anchored in the little bay and climbed the slope to visit it. He found near the ruin a flowing well, evidences of sheep ranching activities, and nearby a small plot enclosed in an iron fence. Inside was a grave with the initials "U. J. W." outlined with colored stones. On returning from this voyage he began making inquiries about the lone grave and the ranch on Fremont island and eventually was fortunate enough to get the whole story from the woman who helped build that stone house—a story written just before her death a year ago at the age of 85.

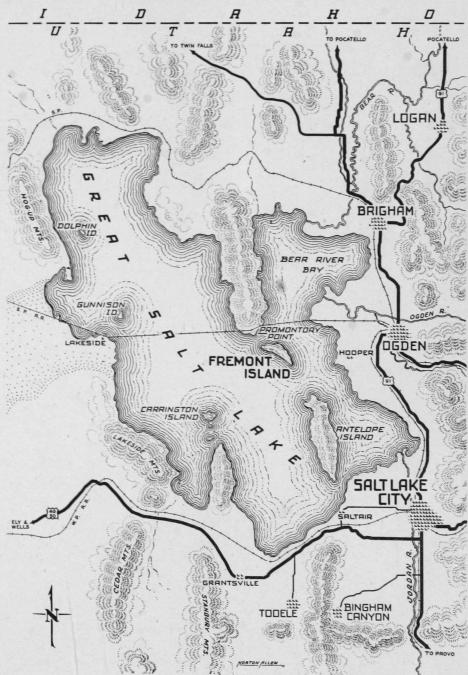
It was about 1880 when a young man from the east, U. J. Wenner, came to Salt Lake City with his bride to begin a career as a lawyer. In those days Utah's capital was experiencing a big mining boom. Everyone was making money, and the city social life was gay and exciting. Mr. Wenner soon established a profitable legal practice and built a beautiful home. The couple participated in all the social activities of the city, where young Mrs. Wenner, educated in Europe, was a favorite. Speculating in mining stocks, as everyone did, they accumulated a small fortune. Two children were born and life seemed just about perfect.

But after five years of gay and strenuous living, "Judge" Wenner, as he was known, began to feel tired and worn out. Consulting his physician he was told he must take a complete rest from business, get away from the city and live in the open where he would have plenty of sunshine and fresh air. The doctor said it was a

matter of life or death. Without hesitation the couple gave up their business and social activities and began to look for some place on the desert where the husband might mend his broken health.

Eventually they decided on Fremont island in Great Salt Lake as the location of their new home, where it was believed Mr. Wenner would be benefited by desert sunshine, salt breezes and complete isolation from the affairs of the world. So they sold their beautiful home in the city and bought the entire island.

Fremont, one of several large islands, lies a few miles off the point of a promontory in the northeast part of Great Salt Lake. It has an area of several square miles and a shoreline of 17 miles. From a low shoreline toward the south and east it rises





On the summit of Fremont Island Charles Kelly discovered the cross chiseled by Kit Carson in 1843.

to a height of nearly a thousand feet above the lake. Its vegetation in those days consisted of sagebrush, greasewood, and a good covering of native grasses, but there were no trees of any kind.

John C. Fremont, the explorer, first visited the island in 1843, with a few of his men including Kit Carson, in a rubber boat which nearly collapsed. He called it Disappointment island because he failed to find any of the strange things trapper legend has credited to that lonely place. No one ever had thought of living there. It was a barren desert island without trees or animal life, with only a few small springs of brackish water.

On the shores of this desolate island Judge Wenner landed with his family, a hired girl and one helper, on a summer day in 1886, after a harrowing three day voyage in an open sailboat. With two tents, bedding, and a small supply of food, they were starting life again, almost from scratch. Within a few days a shelter was made of driftwood. Later a small cabin was built with lumber brought from the mainland

At first it had been planned to remain on the island during the summer and return to the city before winter. But Mr. Wenner's health improved so rapidly that the family decided to remain. During that first winter they built a comfortable twostory house of native stone, the walls of which had attracted Johnny Jones' attention on his first trip to the island.

Mrs. Wenner, in her story of their experience, remembered that she had forgotten to bring a mirror with her to the island, and it was six months before she got one. Because of this, she believed, her hired girl left at the first opportunity. From that time on she did all her own work.

Lack of water on the island made it impossible to raise a garden, so all food supplies had to be brought from the mainland by boat. After a few months they bought a boat and Judge Wenner or his helper made monthly trips for supplies and mail. Each trip was an adventure, as the heavy salt water often kicked up dangerous waves. The nearest place where supplies could be bought was a small settlement called Hooper, an all-day trip. The nearest city was Ogden, Utah, about 100 miles to the northeast.

After their stone house was finished the Wenners brought out some of their furniture and all their library. Life on the lonely island was a sudden and drastic change from what they previously had known, but they soon learned to enjoy every minute of it. They went on little exploring expeditions to various parts of their island kingdom, always finding something of interest, including evidence of previous habitation by Indians.

For pets, the little boy and girl, four and two years old, had a pelican, horned toads, lizards, and in time a burro, two Shetland ponies, goats and a shepherd dog. Their education was not neglected. mother taught them from books in her library. She even conducted her own lit-

tle Sunday school.

One time their baby son disappeared.



Rock cairn on Antelope Island containing metal tube left by Capt. Howard Stansbury during Great Salt Lake survey of 1850. Shaped like a spearhead over 15 miles long, it lies south of Fremont. Osborne Russell, a trapper, was first to report buffalo and antelope on the island, in 1841. An old Indian chief told him buffalo used to pass from mainland to island without swimming.

They searched in every direction, on foot and horseback. The children always had been told that, if lost, they were to follow the shoreline home. After half a day's search the child was seen far off, keeping very close to every little curve of the shore. His father soon had him in his arms. "He was a sorry sight with his tear-stained, dirty face," wrote his mother in her journal. "And he told us, 'Sometimes I laid down on the shoreline and said, Now I lay me down to sleep. I pray the Lord my soul to keep. And then I got up and went on."

"There was so much to do," continued Mrs. Wenner, "so much to think about in this new life away from the world that I began to feel much of my life would have been wasted in the outside world, imitating fashions, wondering about our neighbors' affairs, worrying about my children's companions. We learned to know ourselves, enjoy ourselves, our children and our books."

Some sheep were brought to the island the next spring, the nucleus of what in time became a large herd and a source of revenue. The island was an ideal sheep range abounding in fine pasture, while no herders were needed to tend the flocks.

During the next five years Mrs. Wenner left the island only once—just before the birth of her third child. Dressed in her old finery she remembered with amusement the stares of women as she passed down the streets of Ogden in an expensive dress three years out of date, followed by her children with their pet pelican.

To change to an outdoor life had seemed to benefit Judge Wenner, who had



Judge Wenner's boat Argo. Copied from an old photograph taken when sails were tattered and salt-encrusted after a hard voyage to the mainland for supplies.

(Collection of George Knauss, Ogden.)

hopes of a complete recovery. But suddenly one stormy night he died.

Their helper had taken their boat to the mainland the day before for supplies and a high wind had come up making it impossible for him to return. For two days and nights the distracted woman waited for help, building signal fires on the summit of the island. Her signals were seen, but the waves were too high to risk a crossing.

At sundown of the third day the wind subsided and the helper returned with their boat. That night he built a rough coffin which Mrs. Wenner lined with a treasured shawl. Next morning they buried Judge Wenner in a plot near the island home he loved so well. At the head of the grave the children formed the letters "U. J. W." from colored beach pebbles, and below spelled out the word "LOVE." Later an iron fence was put around the grave. When Johnny Jones saw it 50 years later, the letters still were visible except the first two in the word "Love."

After her husband's death Mrs. Wenner left the island and later remarried. But she retained ownership of her little island kingdom as long as she lived. She died at the age of 85, soon after she sent Mr. Jones the memoirs of her island experience.

On June 13, 1943, Miss Blanche Wenner, of Seattle, Washington, only surviving child, came to Salt Lake City bearing the ashes of her mother. John E. Jones and a party of friends took her back to Fremont island, her childhood home, where she buried the ashes of her mother beside her father's grave, fulfilling Mrs. Wenner's last request.

When the war is over Miss Wenner hopes to return to Fremont island, rebuild the old house, restore the ranch and make it her summer home. Certainly there could be no more ideal spot in which to forget the outside world.

Far to southwest of Fremont is circular isle of Carrington, about two miles across. This is triangulation point erected in 1850 by Capt. Stansbury, who named island for Albert Carrington who assisted with 1850 survey.



It isn't a source of turpentine and it is not a broom—yet this little desert mountain shrub smells like turpentine and its switch-like branches make it look like a broom. Strangely enough, it belongs to the fragrant-flowered citrus family. But the oil yielded by its blister-like glands is a powerful irritant and has been used by Indian medicine men to induce strange visions. Mary Beal describes the two species found in the Southwest.

Shrub That Smells Like Turpentine--But Isn't

By MARY BEAL
Photo by the author

T IS NOT one of the gay assembly that marks the spring flower parade with arresting color, but this odd little shrub, leafless for most of the year, attracts notice by its interesting peculiarities, most compelling of which is the odor. It may stretch the imagination of a novice to associate turpentine odor with the fragrance of orange-blossoms. Actually this rank-smelling little shrub is a cousin of the citrus fruits, both belonging to the Rue family. It is also a relative of the Spice Bush, *Cneoridium dumosum*, best known in San Diego county, California.

The common name of Turpentine Broom is rather misleading, for it is quite unrelated to our source of commercial turpentine, which are species of the Pine family. But it produces a good imitation of turpentine odor although it is not as persistent as that of its namesake. Freshly-bruised stems give off a strong offensive odor at first but it dries to a sweet delicate aroma similar to that of lemons, or as some describe it, a cocoanut-like scent

Its genus name comes from the Greek *thamnos*, bush, and *osme*, odor, and its specific name *montana* is from the Latin for mountain, or as we would say, "odorous bush of the mountains." It was reported by Fremont on his Rocky Mountain expedition of 1845.

Such a highly aromatic plant naturally would be considered to have medicinal qualities. The blister-like glands yield an oil which is a powerful irritant. This was found by the Indians to be valuable in the healing of wounds, as well as a remedy for certain diseases.

Brewed into a tea its tonic effect could be increased to induce visions which the medicine men could utilize to good advantage in some cases. Jaeger quotes an old Indian woman who described the effect: "They soon went crazy like coyotes, but when they were that way they could find things long lost."

It is a low yellow-green shrub of arid mountain slopes, not more than a foot or two high and somewhat spiny. The many tough, switch-like branches are smooth and hairless, set with tiny blister-like glands, partly embedded in the tissues. Leafage is scanty and soon deciduous. The few little leaves are oblanceolate, half inch or less long, and only sparingly glandular.

The flowers are quite an oddity, the corollas a dark purpleblue, almost black, which fades as it ages, urn-shaped or oblong-cylindric, half an inch long or less, on short scaly peduncles. The 4 erect convex petals almost close but are rolled



Turpentine Broom. It smells like turpentine but it isn't.

out at the very tip, leaving only a tiny opening, through which the style peeks out. The fruit is a leathery capsule not quite a half inch broad, deeply parted into 2 globose lobes, the embedded glands giving it the texture and appearance of orange or lemon skins. The seeds are smooth or somewhat wrinkled, about 1/5 of an inch long.

The flowering season is variable. You may find plants in bloom from January to April or even as late as May in some years. They flourish, often in local abundance, on dry stony hills and mesas in mountain areas from 2000 to 5000 feet elevation, in the Colorado and Mojave deserts, the Death Valley region, Nevada, southern Utah, Arizona, and New Mexico.

In Arizona Turpentine Broom is found in Grand Canyon area of Coconino county, in Yavapai, Mohave, Pinal, Maricopa and Yuma counties, nearly always at 4500 feet or lower, on desert mesas and slopes. It reaches across the international line into Mexico in the states of Sonora and Baja California.

Thamnosma texana

This is an herbaceous, leafy perennial, very different in aspect from Turpentine Broom. Woody at base and only slightly bushy, it has no spines and the green of the herbage is whitened with a bloom. The numerous small leaves are linear to thread-like, and persistent. The bell-shaped corolla is very small, 1/8 to 1/5 inch long, the petals yellowish or brownish-purple. The capsule is conspicuously 2-lobed as in the preceding species but the tiny seeds aren't more than half the size, and tuberculate. It too is found on dry rocky slopes and mesas, above 2000 feet, ranging from southern Arizona and northern Mexico east and north to west Texas and Colorado. In Arizona it is found in Coconino, Pinal, Cochise, Santa Cruz and Pima counties from 2000 to 4000 feet elevation. It usually blooms from March to June. The Texas turpentine bush was described in a U. S.-Mexico boundary report in 1859.

This is the story of a lovely Indian artist. She is painter, potter and singer. She has traveled far from her sun-drowsy pueblo home in New Mexico to sell war bonds. She has donated "tons" of her pottery souvenirs to bond buyers. She has been asked thousands of times if Indians still scalp people, what she eats and if she knows the Indians Longfellow wrote about in "Hia-watha." She has sung for them and danced for them and "talked Indian" for them . . . And now she is going home to Tesuque. For Blue Water has not forgotten the wise old ways of her people. Her baby son will learn the first steps of the Eagle Dance. She will go back to painting murals and making pottery - and wait for her husband who is "Somewhere in the Pacific."

Blue Water --Artist of Tesuque

By MARGARET STONE

N THE tiny Indian pueblo of Tesuque, New Mexico, the warm spring sun drove the Indian women into the shade of the huge cottonwoods where they paint their pottery. As they worked they talked of Rufina, the best potter of them all, and wondered where she was and when she'd be home again.

In Chicago, Rufina or *Po-Sha-Wa*, Blue Water Girl of the Tesuques, sat with me by a wide window overlooking the grey cold waters of Lake Michigan. She wore the ageless tribal dress of her native pueblo. Over a long sleeved white blouse was belted the hand-woven woolen black robe that Tesuque women have worn since their village was first visited by Coronado's army centuries ago. The belt was red and white of finely spun yarn woven into a girdle by her grandfather. He had made her moccasins, too, the soft white covering over her small feet, and had kill-



Her white friends call her Rufina. Genevieve L. Peck Studio, Chicago.

ed two deer, tanned and bleached their hides to make the long wrap leggings which reached above her knees. Over one shoulder was draped a silk shawl of brilliant colors and she was weighted down with silver and turquoise and inlay work for which the silversmiths of the Southwest are famous.

Tucked in the soft folds of her shining black hair was a creamy gardenia, and I suddenly realized that during the two weeks past while she graciously greeted thousands of Chicago art lovers, I had never seen her without a gardenia. A desert girl and a gardenia!

She turned from the restless water and said: "I'm homesick." Tears filled her eyes and for a moment her brilliant smile

was shadowed. "But I am going home next week. My work here is done. I have shown your race that we Indians are doing our part in this terrible war. Seems like I've talked to thousands of people about buying Victory bonds, and about giving time and money and blood to the Red Cross. I've made and donated tons of little rain gods and ash trays and small bowls with my name on them, one to each buyer of a bond. Thousands of school children have asked me if Indians still scalp people and what I eat and if I knew the people Longfellow talks about in Hiawatha. I've sung for them and danced for them and talked 'Indian' for them. Now I'm going home to my own little Benny. I wish you'd come with me, away from this cold crowded city. Your Indian friends all miss you and they wonder why you stay away so long from the desert and from them." I wondered too, there in the great salon of Marshall Field's.

Tesuque, Place of the Red Willows, is one of the Rio Grande pueblos. Nine miles north of fabled Santa Fe, it was ancient when that proud city was settled. Thousands of curious tourists from Santa Fe visit Tesuque where the Indians greet them with courtesy, sell them inferior pottery in the shape of the small grotesque rain gods, or ash trays, fashioned for just such souvenir seeking travelers. When the visitors depart the Indians brush the white taint from their hands and turn again to their own tribal affairs. White civilization passes harmlessly over their heads. Only about 160 Tesuques live in their ancient village—that is, when they are all at home. Now that most of the young men are fighting with the armed forces 125 will include the old men, women and children.

They raise a little wheat and beans, have a few cattle grazing on their pitifully small pastures, produce enough chili peppers to give indigestion to the entire Southwest, and eke out their frugal existence by the sale of pottery and gaily painted toy drums.

But this is the story of Blue Water, girl artist and potter of that little canyon pueblo of Tesuque.

"One summer morning when I pushed my blanket aside and sat up on the sheep skins placed on the raised ledge in our home, I saw that the room was full of people and that my mother was not there. During the night she had gone to our Place of Souls. From then on I remember only my grandmother in our home and her goodness to me. She was one of the best potters in our tribe, and the lovely bowls she made were not placed among the brightly painted ashtrays, rain gods and small jars in the plaza, for the souvenir hunting tourists to grab. They were tucked away in a storage room and brought out only for discriminating buyers.

"Each piece of pottery she made was shaped with loving care, and the paints, mixed with oil from melon seeds, were applied in the old designs which mean so much to our people. Perhaps she painted the outlines of one of the stately mountains pushing into the blue sky behind our home. Or it might be a cloud dripping

with rain, or the sun's rays on a blue background, but as she shaped and painted she talked to me, a small motherless girl nestled against her knee, of what the painting meant and how good the Great Spirit had been to the Tesuque people to let them live under New Mexico skies in the colorful desert near snowcrowned mountains.

"It was from her I absorbed my love of color and design, and I never make the simplest bowl without seeing her sensitive hands caressing the pliant clay. I never draw my yucca fiber brush across the smooth surface without remembering her voice as she talked to me about the sacred colors, and what they mean to the Tesuque." Blue Water, with the fragrant gardenia tucked behind her ear forgot that we were in one of the biggest dreariest cities in the world, and she smiled to herself as she dwelt on her childhood memories.

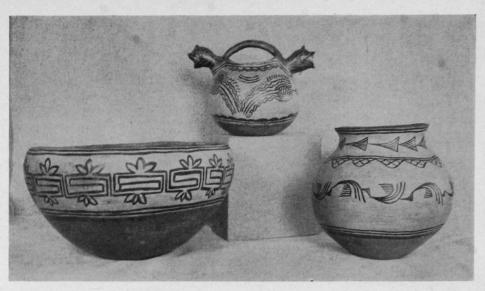
"Grandmother was good to me and to my older sister. She made the good cornbread we liked, she sang songs to us as she worked, and whenever she sold one of her precious bowls she bought some little treat for us. Sister did not care for the Indian ways. She slipped away to talk to the white visitors and just as soon as she was old

Watercolor painted by Rufina, depicting San Juan Day procession. San Juan is being being carried to the Sacred Bower.



enough she begged so hard to go to the big school in Santa Fe that Grandmother let her go. I remained with my grandmother. Soon I was helping her dig clay for the making of pottery. This was found about a mile from our home, down in a canyon under a layer of sand blown there by the desert winds. When I can first remember we spread our shawls on the ground and piled the lumps of damp clay on them as we dug it.

"Then we carried it back to the village and spread it on the flat rooftop of our house where it dried quickly in the hot sun. It then was pounded as fine as possible with a stone hammer and soaked in water we carried from the one small spring which then furnished water for all the people living in Tesuque. You may be sure we never wasted any water! When the clay was soft enough my grandmother and I would plunge our hands down into it and sort out all hard particles and bits of rock. Then it was allowed to sink to the



Old Tesuque pottery. Wedding Jar in center is used in tribal marriage ceremony, the bride drinking from one mouth of the vessel and the bridegroom from the other. Rufina says, "I think it teaches that husband and wife should share the sweet and bitter waters of life together."

Tesuque grandmother and child. U. S. Indian Service photo.



bottom in a smooth soft mass. The water was carefully drained off and the clay laid on flat rocks to reach a dryness where it could be kneaded like bread. I have modeled with the finest commercial clay since then, but there is something in the feel of our own pottery clay that inspires me far beyond anything that can be bought.

Grandmother loved to make the wedding jars, those two mouthed vessels with a gracefully twisted handle by which to lift them. But it was many years before she thought I knew enough to shape or paint one of them. Even now when I begin to make a wedding jar I seem to feel her sharp old eyes on me, and I am careful that the vessel is not marred. This is the jar used in our tribal marriage ceremony, the bride drinking from one mouth of the vessel and the bridegroom from the other. I think it teaches that husband and wife should share the sweet and bitter waters of life together. Our pottery is the soft brown shade of the desert sand, and my grandmother would paint designs in blue, deep orange of the sunset and the red of our evening sky. So beautiful were the colors that I used to ache inside to try my hand at painting with them. But it was many years before I was allowed to paint a wedding jar. One must be a good potter before such work is permitted.

"As I grew older I went to the school for Tesuque children and the white teacher thought my name of *Po-Sah-Wa* was a heathenish name. So she called me 'Rufina,' the name I use with white friends. It didn't please me much when she told me later that she named me after a pet pony she had back east!

"At this school I was given crayons and colored chalks, the first I had seen, and I



Governor Julio Abeyta of Tesuque, one of the 19 ancient pueblo villages in New Mexico. Each is a distinct political unit, electing a tribal council headed by a governor who serves without pay. U. S. Indian Service photo.

am afraid the rest of the things the kind teacher brought to my attention were sadly neglected. Many years later I spent days painting a mural for the schoolroom and it gives me pleasure to know that my sister's children can see it there as they learn their lessons from white school books. I stayed in that school for many years, stayed until my grandmother died, and then I went to the art school at Santa Fe. This school was organized by wise artists who recognized the fact that Indians have an original style of their own and that any effort to make them conform to conventional rules merely stifles native talent. There I began to draw and paint pictures which were sold by the organization. Sometimes I would work a week on one picture, having no pattern except the mental images remembered from my grandmother's stories of our people and their gods. I was a very excited girl when a picture was sold for \$25 and the money, 25 silver dollars, poured into my lap."

"What did you do with the money, do you remember?"

"Do 1? I bought myself some clothes, the kind of Sunday clothes the other girls wore. We were allowed to wear our own dresses on Sundays and holidays, provided we had any to wear, and always before I had worn the school uniforms, lacking clothes of my own. Do you know that a girl can't be entirely happy unless she is dressed in the same way her companions are?

"I bought a clear yellow linen dress and a brown linen coat and brown oxfords and yellow anklets. No matter what fine things I may be able to wear during my lifetime I'll never be as dressed up as I was then."

Rufina Blue Water stopped. She seemed to think that her story was told, but I knew the rest of it, having known her from childhood days. After that first sale she went on to a modest fame among real lovers of Indian art. Her symbolic paintings were in great demand at the local

art shops, and almost any little sketch with its "Rufina" in the corner was quickly sold. There was a subtle touch of inspiration which set her paintings apart. I have one of her earlier pictures hanging in my living room, and as certain lights strike it the figures seem to come alive. A long-legged fawn, its sensitive head held high, is ascending a mountain facing the rising sun. Behind the fawn is a rainbow, a perfect gem of color. For some reason, she would never tell me the fable this picture illustrates.

The little Tesuque girl was the fashion among Santa Fe artists. And then something happened that broke her heart and took the very soul out of her work. The paints were scornfully thrown away, the easel broken, and Rufina went home to her own race. She shunned white visitors and when friends from the art school came seeking her, she was all Indian. Slender and proud and distant she faced them across an abyss they could not bridge.

But genius burned too strongly to be ignored. She turned to the pottery making learned from her grandmother in the happy years of childhood. Little by little the calm unhurried life of the village stilled the storm and she was happy again. She lived in the low whitewashed house of her sister, dressed like other Tesuque women, and shared their every task and pleasure. For months she fought the urge to use her canvas and paints again, remembering the despair of months before. Each morning she'd watch the men go out to their tiny fields to cultivate the crops. Each evening she'd watch them come home and greet their wives and children. Every Indian woman baking her crusty loaves of bread in the outdoor oven, each one shaping and painting pottery in the shade of the cottonwoods, cried out with a picture she longed to paint.

She returned to the art school. And from there she went to the Dells in Wisconsin with other Indian artisans. Hundreds of white visitors listened to her singing as they sat around the nightly campfire, and she could not paint pottery and pictures fast enough for their demands. She was happy again, because she was doing her own kind of work-and she was in love. At the Dells she met a Winnebago lad, as ambitious and high bred as herself. It was a perfect love story. When summer ended they were married and went back to Tesuque. They worked so hard they were granted the right to build their own home on tribal land, and in the meantime they made an abandoned house into a studio where both were always busy, she with her sculpture and painting, he with the silverwork and leather he turned

into belts and moccasins and hatbands. Through his interest in the tribal dances she began to put on paper the intricate movements of their colorful ceremonies.

"I like best to paint the Eagle Dancers, just as I like best to watch that dance. There is something so graceful and dramatic about it, and then I think I like it best because I know of all the hard work that must be done before a dancer can qualify. Do you know the story of our Eagle Dance?" she asked me. When I shook my head, wishing to hear her version of it, she lost herself again in memories and her voice fell into the soft minor cadence of the older Indian women. I knew she was repeating word for word her grandmother's legend of the dance.

"Long, long ago no rain fell on the fields of our people for many months. The little children fretted and wailed in the shade of the cottonwoods where their mothers took them to try to relieve their suffering. After awhile even the cottonwoods died of thirst. All the people grew thin and ill and when a sickness struck the pueblo there was no healing rain to wash away the evil spirits. The older people fasted and prayed to our gods to send rain.

"Because we always had been a peaceful people and never harmed other tribes, the Great Spirit heard the cries for help and he hid himself among the feathers on the back of an eagle and came to see just how badly we needed help. He was so sorry for us that he had the eagle call other eagles and they flapped their wings and drove all the clouds in the country to a place right over Tesuque. Then the Thunderbird was summoned, and he shot lightning into the clouds with lightning arrows so that the rain poured through the holes and wet all the land around the village. Where there were no holes in the clouds the eagles flew and shook raindrops from the tips of their wings until all the fields were refreshed. Since that day we have honored the eagle so that we may not again suffer drought. We dance to show him our appreciation. Is that not a beautiful reason for a beautiful dance?"

Rufina and her husband Ben lived in their ancient house while they earned money for the new home they planned. A little son, brown eyed and happy as his pretty mother joined the family. "Benny" was the pet of the pueblo, and dressed in tiny velvet shirt, white linen trousers and small silver trimmed moccasins, he danced for admiring white visitors. His smooth black hair was bound with a scarlet hand-kerchief and I often wondered why Rufina looked anywhere else for a subject when she picked up her brushes and paint.

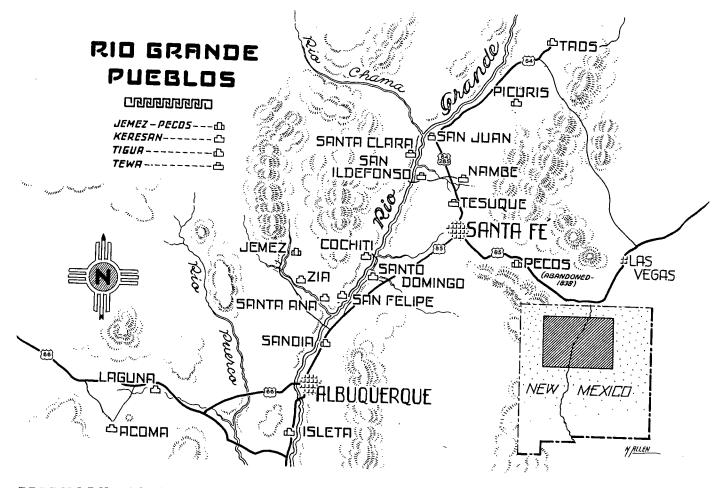
"Why have you never painted a picture of Benny?" I asked her as we sat there in Chicago.

"Because I am Indian enough to feel that it would be dangerous to draw attention of the spirits to him in any way. I love him so much I try to act as though I hardly see him so that *chindees* won't notice him."

The family was perfectly happy there together. Then came Pearl Harbor and Ben along with a dozen other young men from Tesuque went to fight for a country that has not always deserved loyalty from its red children.

"I was so lonely I thought I would die," said Rufina. "But I looked at Benny and remembered that a little child needs its own mother. I thought of Ben somewhere far away fighting to keep cruel men from coming to our land, and so I said to my sister, "I must not stay here doing nothing. There is some way that I can help so that Ben and the other boys can come safely home again. Will you keep my baby safe and happy while I work for all of us?" The sister agreed. After her white schooling she was more than willing to go back and be a Tesuque Indian woman.

"I left while my boy was asleep, and I took the only picture I have of Ben and a very small one of Benny that his father



snapped when I wasn't watching, and I went to the art school and asked them how I could help. They said the Victory Bond Drive needed me. I went everywhere it seemed and told white people how the Indians had gone across the sea to fight for America, and how the Indian women are giving a day's work each week on pottery and baskets and beaded rabbit feet to the Red Cross, and how many of us have given blood to be used on the battlefields." Here she stopped and looked impish. "What would happen if one of our peaceful Tesuque boys was given a transfusion of fighting Apache blood? Would it make him go on the warpath sure enough?

"Everybody seemed to buy bonds. I know, because I said I would make a little sketch or donate a small bowl of my making to each buyer. I think I must have used a ton of clay. I drew pictures of Indian ponies and Thunderbirds and chili peppers against 'dobe walls until I'm almost cross-eyed. From that work I came to Chicago. Here, as you know, I have made pottery and painted it for the public to see. And I have made water color sketches of things I remember in our pueblo for people who didn't want pottery. Out of each dollar I earn I take ten cents and give it to the Red Cross because maybe Ben will be hurt and they can help him if they have plenty of money. He is somewhere in the Pacific. See, here is his last letter." From the blouse of her Indian dress she took a crumpled letter warm with her heart beats and laid it in my hand.

'Dear Wife: I wish I could tell you where I am, but that might cause some of our brave men to be killed by the Japs. I can tell you that your brother Felipe is in Uran, and that he was wounded but is almost well. The news came to me through the Red Cross. I think always of you and Benny and the house we will build when this war is over and I can come back to the ones I love. When you pray in the mission ask our saints to watch over me so that I can come back, just as I always pray that you and Benny will be safe and well and guarded while I am gone.'

I couldn't read more. I gave it back to Rufina and she opened a round gold locket hidden under her Indian jewelry. It held two pictures, one of Ben and the other of little Benny, his arms tight around an un-

happy puppy.

Tomorrow I will write my sister I'm coming home. I have saved enough money to build our house when Ben comes back, but I won't tell him so. I want to surprise him. I'll go back and take care of my son, and I'll ask my grandfather to teach him the first steps of the Eagle Dance. My sister will make some cornbread for me like Grandmother used to make, and I'll paint and make pottery and wait for Ben." She took the fragrant gardenia from her hair and looked at it wistfully. "I wish gardenias grew in Tesuque."

DESERT QUIZ Here's a bit of geology and mineralogy, Indian life and legend, history and archeology, geography, plant and animal life. If you do not know the cor-

rect answers off-hand, you might do one of two things --- start reviewing your Desert Magazine "lessons" for the past several months, or make some lucky guesses. If you score 10 right answers you are as good as the average person interested in the Southwest. Quiz editor will rate you a "Desert Rat." If you answer 15 or more correctly, you belong to S.D.S., that exclusive fraternity which draws so many of its members from among Desert Magazine readers. Answers on page 36.

- -During the year Marshal South and his family were away from their home on Ghost Mountain, they were—Hunting for the Lost Dutchman mine...... Traveling for pleasure...... Looking for another home...... Seeking local color and material for a new novel......
- 2-Meteors are found in-Volcanic areas only...... Anywhere on earth...... Just in the desert...... In temperate zone only.......
- 3—Author of "Cowboy" is—Clarence Budington Kelland...... Zane Grey....... Ross Santee...... J. Frank Dobie......
- 4—Laguna, one of the Rio Grande Indian pueblos in New Mexico, is located on-Rio Grande river...... Rio Puerco river...... San Jose river...... Pecos
- -Starlite is-Artificially colored blue zircon...... Asteriated quartz...... "Fairy Crosses"..... Low-grade sapphire......
- 6-Entire length (nose to tail-tip) of Kit fox, or Desert swift, is most likely to be—18 inches...... 25 inches...... 36 inches...... 45 inches......
- 7—Navajo Indians believe the legendary Holy Twins—Were the first beings created...... Saved the world from evil...... Were the chief mischief-makers among the Navajo gods...... Are responsible for safe birth of children......
- 8—Among miners, highgrading is Condoned Condemned Ignored...... Non-existent......
- 9—Monument to Hadji Ali (Hi Jolly), camel driver for Lt. Edward F. Beale, is located in which Arizona town—Ehrenberg...... Quartzsite...... Salome......
- 10-Rampart Cave, in the cliffs above Lake Mead, is interesting because it-Has been created by national park service for recreational purposes...... Was home of extinct giant ground-sloth...... Yielded remains of prehistoric Indians...... Was hiding place for Hole-in-Wall gang......

-To become petrified, wood must be subjected to one of these conditions-Highly alkaline water solution..... Exceedingly low temperatures...... Depths greater than 50 feet...... Areas where bacteria flourish......

- 12-When Roadrunners are first hatched they are Soft and white with no feathers or down...... Semi-covered with speckled feathers...... Covered with white down...... Black and almost naked......
- 13—If you were in Phoenix, Arizona, and you wanted to go to the Mexican border by way of Tombstone to see the Bird Cage theater, which U. S. highway would you choose—60...... 66...... 80...... 89......
- 14—Hualpai Indians live—In a deep Arizona canyon...... On level plain near base of Shiprock, in New Mexico...... On land adjoining Papago Indian reservation...... On plateau northwest of Flagstaff, Arizona....

-Chrysocolla is-Colorful variety of quartz crystal...... Silicate of copper...... Iron oxide..... Sulphate of strontium.....

16-Montezuma's Castle is-Remains of a "bonanza king's" home in a Nevada ghost town...... Relic of northernmost point of Aztec civilization in the Southwest...... A reminder of Coronado's expedition in 1540...... "Apartment house" constructed by unknown Indians in Southwest......

17—For material to be considered as sand, diameter of the grains must be no more

than—1.5 millimeters....... 5 millimeters....... 1/4 inch....... 1/10 inch....... -Papago Indians of southern Arizona are called "Bean People" because— Beans are principal commercial crop of the tribe...... It is translation of their Indian name........ Certain steps in their tribal dances require a jerking motion which white people jokingly compare with the Mexican jumping bean...... A species of bean is common native plant on their reservation......

-Jet is found in—Coal deposits....... Volcanic strata...... Saline lake beds.......

Limestone country......

20-Lee's Ferry, famed way-station for river explorers, is located on-Shores of Lake Mead...... Colorado river...... Little Colorado river...... San Juan river.....



"Helplessly we watched the stream surge higher and higher . . ."

Escape from Navajo Land

In northern Arizona a vast high desert plateau is drained by the San Juan and Little Colorado rivers. There lies a silent empire. Silent—remote—timeless. Its far bright cliffs hold the secrets of antiquity. Life in this Indian Country moves slowly, uneventfully. But when the gods of earth and sky are moved, a swift change of tempo may bring vivid and tragic events, in dramatic contrast to the quiet, motionless landscape. Such an experience is told by Lynda R. Woods of San Jose, California, in this last of a series of nine prize-winning adventure stories published during the past year.

By LYNDA R. WOODS Illustration by John Hansen

HEN we decided to extend our two weeks tour of the Southwest we were excited with anticipation of thrilling days ahead. The romantic and fanciful names—Chilchinbito, Dinnehotso, Tonalea, Canyon del Muerto and Canyon de Chelly—evoked thoughts of high adventure. Not many hours passed before we were to encounter adventure beyond anything we had imagined.

There were four of us in the party—my husband Don and our nine-year-old son David, our aunt Elizabeth and myself. We

were at Kayenta, in northeastern Arizona, when we turned east to start on the 77-mile drive to Canyon de Chelly, planning to return by way of the Hopi Indian villages of Oraibi and Walpi.

Just three hours later, as a wounded bird plummets ingloriously to earth, our joyous and memorable vacation buried its nose in murky flood waters, coming to a climactic end. We were an hour out of Kayenta when Don stopped the car abruptly saying, "I think that's the road we want but let's make sure. Dinnehotso isn't far." Thus a simple unmarked fork in a desert road led to disaster.

Just as the roofs of Dinnehotso came into view a large mudhole blocked the road and we were stuck. Don ran to the trading post and in 15 minutes, for the munificent sum of 50 cents the kindly trader had pulled us out and started us back to the turnoff and on towards Canyon de Chelly. We passed a windmill nine miles from the trading post. A sudden shift of wind brought clouds directly overhead and changed a sunny sky-blue day into sodden greyness. Five miles beyond the windmill a heavy drenching shower descended upon us. For ten minutes it poured. Then as the rain slackened a sharp turn in the road revealed a small narrow wash. We tested the sand and found the roadbed satisfactory. The water was only a few inches deep and about a foot wide, but the farther bank was sandy and steep. We remained out of the car to lighten the load.

Driving carefully Don safely crossed the narrow stream. But

the car wouldn't take the steep bank, so he backed down for a better run. Then IT HAPPENED. The rear bumper and the exhaust buried themselves in the sandy bank causing a loss of power. The back wheels began to spin in the shallow water. Repeated tries brought no results. We decided to wait a while, then try again.

Getting into the car to put on dry clothes we were startled by David's sudden cry, "Where does all this water come from?" One glance at the swiftly rising torrent disclosed our peril. Don made a broad jump to the bank. From there he urged us to hurry. Carrying our shoes we waded ashore barefooted—all but David, who in the excitement left his shoes in the car.

Calamity, striking suddenly. left us speechless on the farther bank. One moment we noticed the water level was falling rapidly and the next an angry rising flood was swirling around the car. For us the rain was over but the stench-laden waters rushing past us came from a cloudburst on Black Mesa some 30 miles away, effectively blocking our escape toward Dinnehotso.

Helplessly we watched the stream surge higher and higher, find its wav into a back window, and begin pouring out on the opposite side. Food, clothing, drinking water, down beds, air mattresses, a stove and a tent, were now hopelessly beyond our reach. But our lives were more valuable to us than our possessions, so there was nothing to do but let the torrent take its toll.

As we turned sorrowfully away a sudden ghastly sound rent the desert stillness. In this isolated spot the long continuous blast of the auto horn was a sound that pulled at our heartstrings. Then some 20 minutes later with the same startling suddenness, the horn stopped. Curious, we hurried back, for the water had receded some. We discovered Elizabeth's suitcase floating up on the steering wheel had caused the horn to blow.

Seeing the lowered water level Don slipped off his clothes and wading waist deep mounted the upstream running board to fish out from the car whatever he could reach. We spread the rescued dripping clothing on nearby weeds hoping it and the mud-encased kodaks might dry between showers.

Darkness came quickly. David dropped wearily upon the wet earth with only his half-soaked mackinaw as insulation. Elizabeth threw her wool slacks over him and I covered him with a mound of sticky suffocating Russian Thistle. This diverted much of the now recurrently falling rain and he lay quietly while we three huddled shiveringly beside him. Through four successive thunderstorms we huddled, shifting and turning to find a softer or a dryer spot.

The tedium of the long dreary hours was cut sharply when in the blackest part of the night the pile of weeds moved suddenly and David's terror-stricken voice cried out, "Mother, are any of us going to DIE?" To comfort him I sang. Twice through the stanzas of "God Will Take Care of You" my quavering voice faltered. Then all was quiet and I knew he slept.

The chill wind of morning began to blow. Gradually the grumblings of the Thunder God ceased. The first glimmer of dawn revealed the holocaust strewn about on the bank beside us. Protruding from the mound of weeds were David's feet encased in a pair of his father's shoes tied fast to the ankles. In the morning light I saw that the water was low enough to wade across the road, the only direction where help lay.

We threw our shoes to the farther bank and Don led David through the swiftly flowing stream. But it was not with the hopelessness of the night before that we were leaving. Even though help was 18 muddy miles away our hopes were rising. Slowly our little cavalcade started back over the road we had traveled so light-heartedly the day before. Today we were a group of refugees plodding along the road, each carrying a pathetic little bundle of possessions.

With pools alongside, each step on the almost level road brought up a load of tenacious gumbo mud. It pulled the shoes off Elizabeth's feet and part of the time she walked barefooted. With great effort David pushed his clumsy shoes along. But despite difficulties progress was made. Slowly the hours passed with no break in the monotony save when a flock of Mourning doves flew alongside and when the single orange was divided four ways.

At last Don spied the dim outlines of the windmill and soon afterward he saw an Indian hogan nearby. He set out at once to interview the inhabitants. Weary, lame and hungry we reached the windmill one by one and had our first drink in 24 hours. While an Indian went for his horse we ate a can of spaghetti, one of grapefruit, and a small can of salad fruits. We opened the cans with a pocket knife and ate with the blunt end of a nailfile.

When the Indian returned with his horse Don gave him all our small change, \$1.75. The Navajo diligently counted the quarters, nickels and dimes and held up four fingers saying "Pesos." In desperation we decided to add a check. The Indian smiled, spoke a long unintelligible paragraph and started off towards the hogan. We thought our cause was lost. David consoled us saying, "He's not angry. He smiled when he did all that talking."

As we started wearily down the trail we met the Indian returning at a rapid pace. He took the money and a note Don had written to the trader, and after carefully scrutinizing the check he nodded and rode quickly toward Dinnehotso.

By 2:30 we began to look for signs of a rescue party. Three o'clock came, then 3:30 and 4:00. Still there was nothing on that silent desert road but ourselves. The hours since noon had seemed endless. The afternoon was hot. Our faces were burning. We were all thirsty. We had let David drink from a rain puddle but the water was red and tasteless. Hope of rescue had been abandoned. Soon David sank down almost too exhausted to move. I dropped down beside him thinking we would have to let the others go on though we had resolved we would not separate.

Suddenly I sprang to my feet. I heard the most glorious sound in the world—the sound of a motor in low gear. I pulled David to his feet and supported him as he shuffled along toward the truck. Mr. Bloomfield's cheery voice called out, "Come on, old fellow! You're only five miles from food and shelter." There beside him sat the Indian who had carried our message.

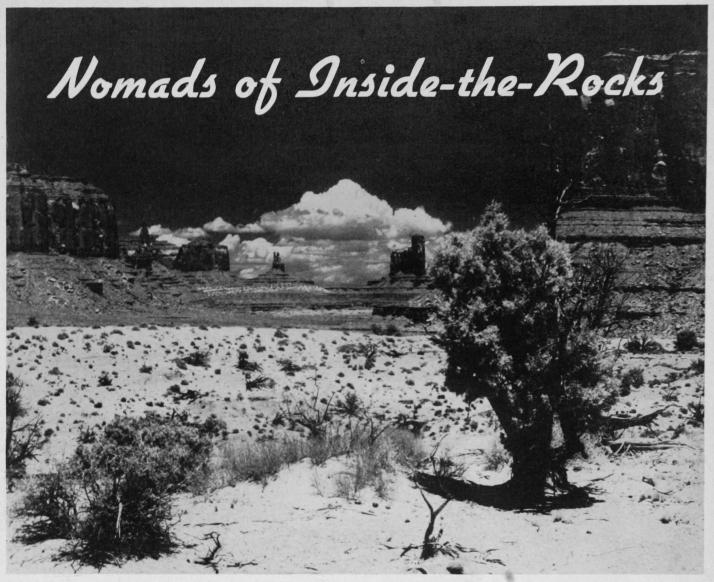
At the trading post a lady offering hot water, clean clothes, food and beds caused the weight of centuries to drop off our shoulders. Gratefully we sank into our pillows and slept.

But our tribulations were not over. After a gruelling Sunday at the fatal wash, Bloomfield, Don and three Indians had to abandon the car a second time. Another cloudburst had washed it a half mile from where we had left it Saturday morning. Collecting the silted contents of the car they returned to the trading post in the truck.

Here we were, four stranded souls and a pile of muddy luggage in the loneliest section of the United States without transportation. All roads to Dinnehotso were blocked by the widespread storm. Only the one to Farmington, New Mexico, via Mexican Water trading post offered an escape. We were cut off from the rest of the world except for a slender line of wire, yet that slender thread carried our cry for help hundreds of miles away. Sunday at midnight came the assuring words from San Jose, California, "Your insurance covers."

Tuesday a government truck going to Farmington had room for Elizabeth. Don piled bedding into the back of the truck and bounced his way along that 132-mile roughest-road-of-all. Luckily, David, the luggage and I were transported later by the Gibsons of Mexican Water. Wednesday morning four disheveled persons boarded the bus for Gallup, New Mexico, thence to Los Angeles.

As we left the strange Navajo world, which is guarded by Shiprock at its eastern edge, our harrowing experiences already were lessening in our minds. Unanimously we said, "Let's go again. Just as soon as we can!"



"I had at last reached the heart of Tsey-begeh . . . Through stony gates loomed the fantastic buttes and cliffs of Monument Valley . . . Colorful walls lunged upward a thousand feet from the sandy desert floor . . . White-flowered shrubs scented the air . . ."

As John Blackford drove away from Harry Goulding's trading post, he went even deeper into a fantastic land which would have been more believable in a legend. Canyons ran criss-cross through red rock, mesa walls rose a thousand feet sheer from the desert floor, spires and monoliths cut red gashes from a May-blue sky. But when he reached the very heart of Inside-the-Rocks he found a secret age-old paradise . . . Here Leon and his family dwell, tending their herds of sheep and goats, grinding their multi-colored corn, weaving their blankets—yet so unencumbered they can move from pasture to pasture with the seasons, relinquishing none of their precious freedom—except when Leon has to ride in to the trading post to sign for his ration card!

> By JOHN LINDSEY BLACKFORD Photographs by the author

OR a dozen miles out from Goulding's trading post the car straddled cavernous washes, scraped over sharp rims of rocky arroyos, and churned across powdery sand. Back beyond the post a score of miles dozed Kayenta, Ari-

zona, America's most isolated postoffice. Farther back were Marsh pass, lonely Cow springs, the tawny, drifting, treacherous sands of Tonalea; then Moencopi and Tuba City. Past all of them, I had at last reached the heart of Tsay-begeh.

This tongue-teasing Navajo name means Inside-the-Rock. And that is where I found myself. Cavernous canyons gashed the red sandstone in every direction. Colorful mesa walls lunged upward a thousand feet from the sandy desert floor. Behind and beyond, through stony gates loomed the fantastic buttes and cliffs of Monument Valley. No more alluring land can be imagined in which to become acquainted with the Navajo way of life.

'Taniyazi's sister-in-law,' as my Navajo guide Leon spoke of her, was at road's end

to bring me to his hogans.

"Yah-ah-tey, hello," I said, and in a moment pointed to my camera. The slender Navajo girl, standing at the curving crest of a dune, presented an irresistible picture. Quickly I captured the scene, while the wind tossed her hair and the sand sifted

"Lah-ah, hogan-go," I struggled with the few "Navvie" words I knew. Soon



Taniyazi's sister-in-law looks on while his wife works at the loom, weaving a beautifully patterned dee-yo-ki, or blanket.

she was leading the way mounted on her wiry pony.

Ghostly grey trees just coming into leaf leaned against the precipitous wall of the mesa. White-flowered shrubs scented the air. Dark black brush stretched away endlessly down canyon corridors. Soon we passed a diminutive dam braced across a narrow gorge that hoarded scanty winter run-off from the mesa top. Later I was to discover the great, sprawling tracks of a blue heron in wet sand below the pool—a

mystery here beneath sheltering cliffs, unnumbered miles from any mentionable body of water. Upon rounding a shoulder of the rock, we glimpsed three hogans humped on a broad dune between towering canyon walls.

"Hogan," I pointed. Then stroking her pony's sleek shoulder as we paused, I inquired for the Navajo word by turning to my companion with tongue-tied expression.

"Klheenh," she volunteered.

Grandmother was grinding many-colored Indian corn on her metate.



I tapped her saddle questioningly. "Klheenh-begeh." We laughed as I tried the nasal syllables. Literally they say "rock-on-horse." I touched the bridle.

'Zah-tee."

A Navajo prefers to greet you silently. I merely sat down upon a wagon box on arriving, while Grandfather, who saw me first, went on trying to coax a nosebag over the suspicious ears of his unruly mount. Less stoical about palefaces, the horse reared, dragged the old fellow off his feet, and with a distrustful snort raced off wildly shaking corn from the feed bag. Grandmother came smiling to the door of the adobe-covered, Mandan-type structure that is the perfect home for these nomadic people. Then granddaughters Cathley and Lily, six and seven, peeped roguishly from behind the doorway blanket. Unable to restrain curiosity longer, they soon were sitting for photographs—and candy.

Within the countless miles of the spacious Navajo reservation, time has brought little change from the past. Life still is nomadic, centering about the hardy flocks of sheep and goats that provide livelihood in this desolate land. Seldom are more than two or three neighboring hogans grouped together. A family head builds several hogans, and ranges between the different locations with his herds as seasons and pastures dictate. Sometimes corn is cultivated at the summer hogan. but usually the freedom-loving Navajo refuses to bind himself to his thirsty soil. Instinctively he has preserved his way of life, and continues to tread the ancient paths.

Once, as hunters and raiders, Navajo roamed widely over four states. Pushed back from waterhole to waterhole, they discerningly took from the white man's advancing civilization those things that bulwarked their own; all else they rejected. Herding was early borrowed from invading Spaniards. Silversmithing and gem-setting from itinerant Mexican craftsmen. Weaving they say was taught them by Spider Woman, but long before they practiced it, this art was known to their sedentary puebloan neighbors.

Children, especially little girls, quickly accept responsibility for the flocks. Leon came silently from a neighboring hogan, and together we followed the youngsters to the corral to watch the morning milking before the herd moved out to graze. Leon's corral is a natural wonder—a deep cavern eroded in the mesa rock, a hundred yards across, almost as high. Such a huge cavity is not unusual in Tsay-begeh, but this one is distinguished by a giant stone bridge arching magnificently over it. Roving sand particles, hustled along by gusty desert winds, have chiseled and etched the cross-

bedded sandstone into many intriguing forms.

A mounting sun beat hotly upon the sandy floor of the great cave. Goats and sheep milled in noisy confusion as Cathley, Lily and their little cousin raced in among them. Together they chased a nanny enthusiastically about until she escaped into the wooly, blatting mob or else they had her securely by the horns. Then, while one or two held the she-goat in neutral, the third dairy maid pumped vigorously on the animal's short teats. Every minute or so she thwacked the old goat's udder with flattened palm to hasten the nanny's "giving down" of her milk. Meanwhile the carnival progressed with the riotous bunting and scrapping of agile kids, the blearyeyed staring of patriarchal old billies, and the customary idiocy of frightened sheep.

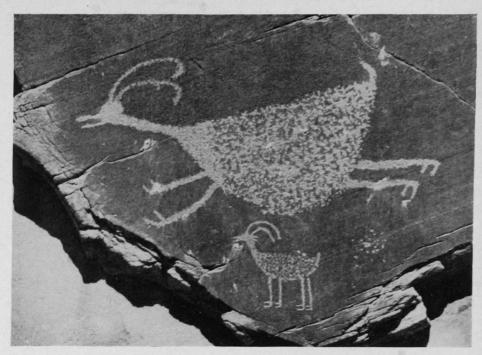
"You like pictures up there?" inquired Leon, pointing up to the huge red stone arch that cut a blue circle from the sky above the corral. He led up a steeply sloping ledge some distance away. His lithe figure was sinewy in tight-fitting levis and jacket, topped by coiled black hair and tall, black, uncreased cowboy hat. The wall bulged sharply outward as we scrambled along, half-leaning against the rough rock. A smooth, dry groove showed where infrequent rain wore deep into the stone, and spilled in a thin, ephemeral waterfall to the sand two hundred feet below.

"Had-i-twoh?" I grinned, using the Navajo phrase Leon had taught me when asking for water. "Deh-bah-si-lee, I'm thirsty."

To my surprise he motioned ahead. "Ah," he said, "Yes." We mounted to a little shrub-bordered dell, then on to deep tinajas or potholes in the rock. Some were 15 feet across. They were limpid, emerald pools reflecting high circular rims and the cloudless May sky. Climbing on again, we saw the Totem Pole and other majestic monoliths rise superbly against the rusty rim of the desert. Heat wrinkled the mysterious distances.

Atop the bare mesa, two wind-embattled junipers crouched in a shallow, rocky dale. Their clutching roots strove to hold every particle of earth gathered beneath low protecting crowns. Suddenly a large Arizona spotted owl sailed from his verdant retreat deep within their gnarled branches and banked off steeply on curved pinions into the dizzy canyon depths.

Within this little paradise against the sky, cool breezes allayed the heat of sun and barren rock. I could hardly suppress the urge to stretch out on my back and stare up endlessly into the dreamy blue that canopied our high oasis. Leon indi-

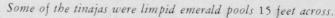


Leon took me to the red sandstone bluff where weird long-horned beasts leaped across the face of the rock.

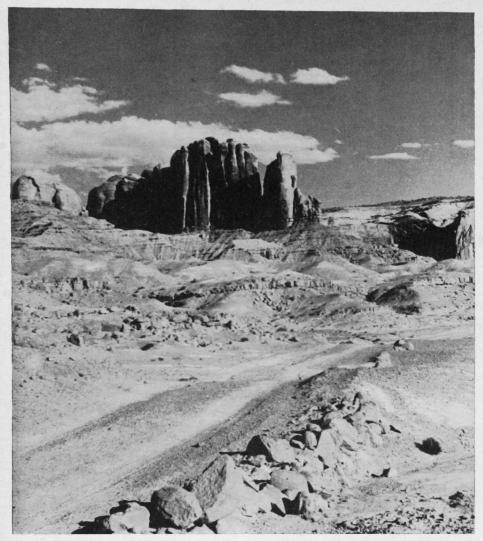
cated the cropped herbage within the vale and remarked that the ponies sometimes roamed the mesa top, ascending over the same steep-shelving rock as we had done. Although aware of their agility, I was astonished at this uncommon deftness of foot.

Now we slid down to stand at the precipitous wall of the sheep corral. The stone bridge swung up its curving span before us. Far down below, the flock rested on the yellow sand. A shout in Navajo to its small caretakers aroused the herd into swirling motion. I set the Speed Graphic at 1/00 sec. and captured the unique picture; then shot again as the wooly current eddied around the dune against the farther wall. As we descended, the dark green pools cradled in the rock glinted in the shimmering sunshine and beckoned us in for a swim.

Half a mile away a second cave invited. It arched a stony dome above two curious, prehistoric pueblos. One, round like a watch tower squatted near the lip of the cavern. The other, of two circular rooms,







John Blackford followed the sandy rocky road beyond Goulding's trading post to road's end, where Taniyazi's sister-in-law met him and led the way to Leon's hogans.

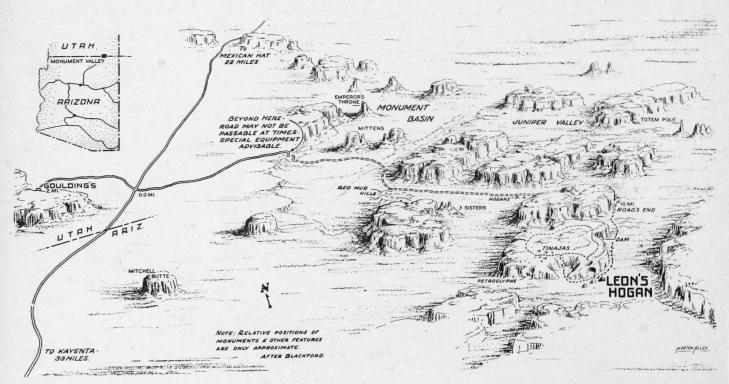
hugged the recesses where the roof slanted abruptly upward. There we lingered in cool shade.

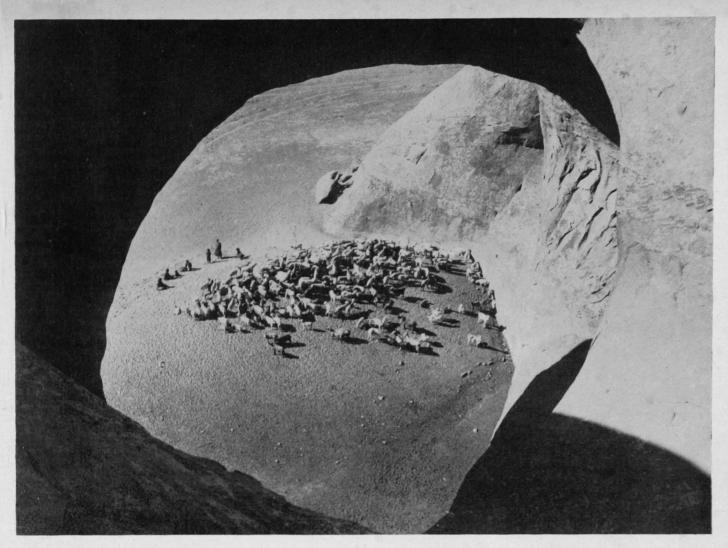
"Show me the pictures-on-rock, Leon," I urged as he drew weird animals in the sand, illustrating rock writings on an ancient cliff. Again we plodded over the rippled dunes and flinty floor of the canyon corridors. Where slabs of a red sandstone bluff had cleaved flatly away, providing a perfect plane for the mural, long-horned beasts leaped across the face of the rock. The figures, chipped out in profile, with long, recurved horns, resembled gazelles more closely than native pronghorn antelope, adding to the strangeness of the petroglyphs and the mystery of those forgotten artists.

Back at the hogan, Grandmother had been grinding many-colored Indian corn on her metate. Leon and I lounged upon sheep pelts covering the sand floor, while she poured batter into a black iron kettle. A length of stovepipe descended through the crossed roof logs to stand on the sand. Its base had been split and spread to contain the coals of a small fire that glowed against it, sending fragrant juniper smoke curling up the battered pipe. This simple device made the most handy portable "stove" I had seen.

To delicious corn cakes and balls from meal of her own grinding, Grandmother added boiled mutton, karo syrup, and strong black coffee.

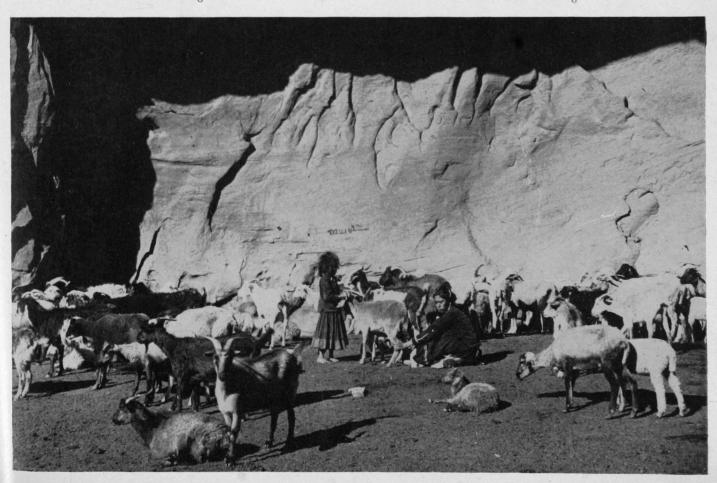
Beside me the children busied themselves putting out a small wash, its irrepressible yucca suds bubbling out of the pan. Cathley and Lily buried jet-bright eyes beneath untamed shocks of hair and giggled infectiously when I held up their





Leon's corral is a natural wonder—a deep cavern eroded in the mesa rock, a hundred yards across, almost as high.

They chased the nanny until they had her securely by the horns, then while one held her in neutral the other did the milking.





Lily and Cathley are but seven and six but already they are experienced little dairy maids.

pet and, with a foamy yucca root, demonstrated how the kitten might be given a beauty bath.

"Perhaps Taniyazi's wife will show us her weaving, Leon?"

'She ready now," he agreed, and soon led the way to her roomy hogan. It wasn't long until I found myself conducting the show. Only the young matron and I were interested in the beautifully patterned dee-yo-ki, or blanket, that she was creating upon her rough loom. All the others, including men and boys, crowded within to watch the camera being adjusted on its tripod, to note the synchro-flash mounted part by part, and to comment jocularly about the nervous shutter-shooter. Everyone blinked and laughed as the bulbs flashed, but the swift batten of the weaver moved unhesitatingly to draw the woof down firmly.

One evening, while camped at my car, Grandfather put in a sudden appearance. To entertain him I turned through the pages of a Pow Wow program. He at once went into a long speech, gesturing and semaphoring emphatically—which I took to mean that he was acquainted with some of the pictured braves. But he departed somewhat frustrated. Promptly the next time Leon was in camp, he rode in and again unburdened himself. Grandpop wanted his picture took!

Just at dusk a caravan of sheep, goats and strange Navajo swept by, with only the sound of soft scuffling of hoofs in the yielding sand. I was opening a package of dates, and seeing this an ancient, skinny elder detached himself from the motley procession. Sitting his delapidated mount,

he rubbed his sunken belly impressively, an almost painful expression reflected on his weathered face. At the same time the other hand, in its vigorous gyrations, seemed about to be thrust down his throat. My faith in sign language revived immeditely.

In these remote, red canyons are scattered some of the most hospitable people in our fortunate country. Secure now among us in their own way of life, it is not inappropriate then that even on their far, wind-combed, desert ranges America's new fight for freedom has not passed these sturdy nomads by. Tall young Navajo leave familiar seats of their high Spanish saddles for bucking backs of jeeps and tanks. As I steered back through the shifting sands of Tsay-begeh, it was to take Leon out to the trading post to sign for his ration card.

Desert Philosopher . .

SOLILOQUIES OF A PROSPECTOR

Drawing by Frank Adams

Text by Dick Adams



Boomer is a lizard. He is out on the desert now, where he first was discovered by Lucille and Keith Boyd. But he proved he could adapt himself to city life when for a brief period they "adopted" the little collared lizard. Boomer did more than entertain the Boyds and their friends—he helped dispel the idea that he was a "dangerous character" and he made more than one person conservation-minded.

Adventure of Boomer

By WELDON D. WOODSON

EITH BOYD and his wife, Lucille, were out in their favorite desert retreat—a stretch of country near the California-Arizona line north of Needles. They had reveled in their study of plant and animal life native to the region, and, being entomologically minded, had taken special note of the insects nestled close to the earth. They had just bent down on their knees to scrutinize the markings of a species of beetle unfamiliar to them, stood up and were about to resume their ramblings when Lucille said, "Look! What are those men doing?"

Keith peered some quarter of a mile distant and saw two men and a boy about 14 years of age get out of a car and cautiously walk over to one side of the road. They arranged themselves in a sort of huddle and directed their gaze upon an object that apparently lay at their feet.

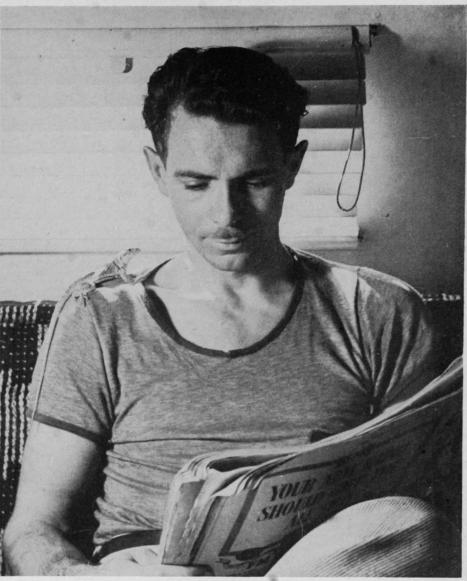
Keith said, "I wonder what they're looking at? Let's find out."

When they were within ear-shot they heard the boy exclaim, "Let's kill it!"

"Kill what?" Keith summarily said as he nudged his way in. He is an ardent advocate of the conservation of desert wild animal life, and few things can arouse his ire more than to hear anyone suggest their destruction.

"Kill this poisonous lizard," answered the elder of the two men, who evidently was the boy's father. "It's deadly."

The Boyds looked down and there on a slab of rock cringed a greyish, spotted lizard. Its tail was turned up part way around its body. If it had been outstretched, the creature's entire length would have been fully 10 inches. Its fore-legs were



While Keith read the evening paper, Boomer would perch himself upon his shoulder.

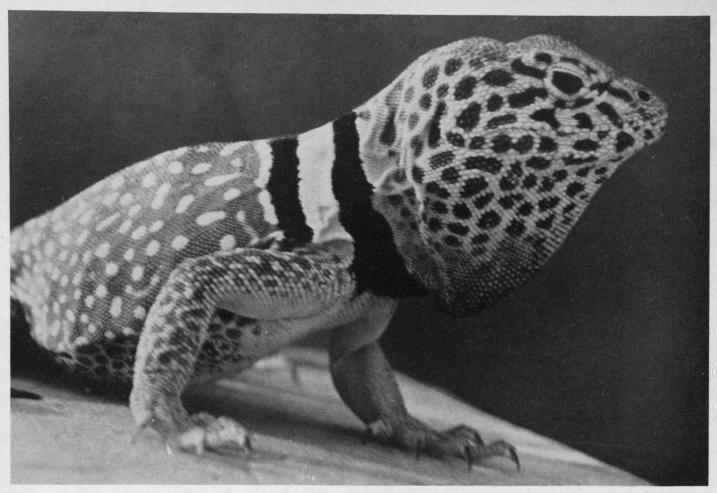
short, its hind ones long and powerful. Two black bands separated by a whitish space formed a double collar about the upper portion of its neck. Its eyes were bright and prominent, and it periodically opened and closed its eyelids. It possessed a distinct and well shaped neck, which joined onto a squared head that seemed huge when compared with the remainder of its body.

It opened wide its mouth and revealed a black throat, which caused the two men to shudder and the boy to declare, "See! Its dangerous."

"No, that's where you're wrong," countered Keith. "It's a collared lizard and harmless as a lamb. It opens its mouth that way when scared. Sure, if you annoy them much they might hurt you. But they certainly aren't poisonous. It's a wonder it hasn't skeltered away. Now don't move and I'll show you something."

He stealthily crouched down, extended his cupped hands, and with a quick thrust clamped them upon the lizard. The creature was not hurt but it was momentarily stunned with surprise. Keith carefully got to his feet, gently held his hands enclosed about the lizard, and remarked, "Take a peep at it." He spread apart his thumbs, and each in his turn looked in.

Then he told them about some of the characteristics and life habits of the collared lizard. Its name was due to the two black stripes across its neck which suggest a collar. Their color varies from grey, bright green and orange to yellow, with polka dots of brick red, white or brown. The male is of a livelier color than the female, but at the time of mating both may take on brighter tints. The female collared lizard during the month of August deposits within a little depression in the desert sand from 15 to 21 eggs. Each egg is about half an inch in diameter, and of a whitish color and delicate texture. Only a small proportion of those which hatch will reach maturity for they are



Close-up of Bailey's Collared lizard, taken a moment after having swallowed a Sand lizard. The two black shoulder bands easily distinguish it from other harmless desert lizards.

Photo by Joe Orr, Los Angeles, California.

preyed upon by natural enemies, such as the larger snakes.

Keith further told his audience, while keeping the creature comfortably caged in his clasped hands, that collared lizards are found not only in the country round about them, but also in Utah, Nevada, Arizona and New Mexico. They may dig a burrow under flat stones, where they retreat shortly before sunset and remain until the sun is well up the next day. They invariably remain in this hide-out during cloudy and rainy days. They have an enormous appetite, but find little difficulty in obtaining ample food due to the unusual variety of their diet. It includes swifts, horned lizards, young snakes, grasshop-pers, crickets and mealworms. They even may eat the blossoms and tender leaves from desert plants. They tuck their food down into their cavernous mouth by means of their front feet.

"Suppose I were to turn this lizard loose," Keith concluded. "Do you know what would happen? Well, it probably would take one squint at us and skim away, to attain full speed after a few feet. Its tail would rise sharply, the fore-part of its body would rear up, and on its hind legs, kangaroo-fashion, it probably would

run for 75 feet or more. Should it encounter a hole or small ditch, it would press its body snugly against the ground, fold its hind legs like a frog, and leap across the gap and land on the other side."

The boy and his father nodded, and the other man said, "And to think that I had always thought of Boomers—that's the name I have known them by—as deadly poisonous! Well, we'll never kill any again. So long."

They climbed into their car and sped away. Keith exclaimed, "Boomer! Did you hear that? That's its name. Hello, Boomer! I think I'll take you home and learn more about you. And you'll have plenty of nice juicy worms to eat, too. Won't he, Lucille?"

She smiled tolerantly at his enthusiasm. She didn't know that shortly she too would be as interested in Boomer as he.

The lizard readily adapted itself to its new home. The Boyds loosed it in their front room and soon it selected for its nest the right corner of an overstuffed chair along the cushion and arm. It would retreat to its den at sunset, coming from a window ledge, down the curtain or wherever it might be. It would not scurry out the next morning until the house was

warm, either from the sun or stove. Once it made its appearance, however, it would spend the livelong day scurrying here and there, and often would perch upon Keith's shoulder as he read the evening newspaper.

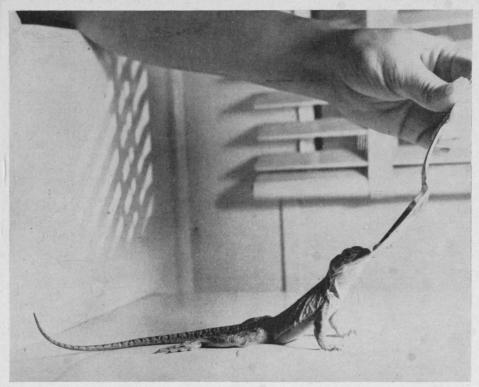
And Boomer was a source of fascination to visitors at the Boyds' home. Once the pastor of their church called, sat down in Boomer's chair, and launched into a friendly discussion of the happenings about the parish. The conversation began to lag after a bit, and Lucille asked, "Do you like lizards?"

"Lizards!" commented the reverend gentleman, a little taken aback by the abrupt turn of conversation. "Why, certainly. I enjoy all of nature. Surely, I like lizards."

"Well, you are sitting on one," Lucille quietly informed him.

"Ooooh!" exclaimed the otherwise calm minister as he arose from his chair. He looked back down at the vacant space, perceived no lizard of any shape or form, and with a little embarrassed laugh said, "Oh, well, that was a good joke on me. I thought for a moment there actually was one in the chair."

Lucille then revealed that Boomer was



Boomer on the kitchen table taking water from a teaspoon.

ensconced in the niche provided for him, down in the right side corner of the arm chair. This incident aroused the minister's interest in desert life, and upon every possible occasion he joins the Boyds in their explorations in Arizona and neighboring states.

Boomer's eating habits kept the Boyds entertained. At times they would feed it black crickets. It would grasp one by its forelegs, cram it part way into its mouth, scamper up the back of the sofa and straddle the top. Here at its leisure it would

work the insect down. At other times they gave Boomer green tomato worms, as big as one's second finger, from their garden. It would grab onto the worm, thrust it into its mouth head foremost until about half of it remained out, then slam it against the floor like a fox terrier with a rat until the worm was weak and could be handled with ease. The Boyds confess that their tomato crop was ruined because they permitted the tomato worms to thrive so there would be plenty for Boomer.

Even its procedure of drinking water

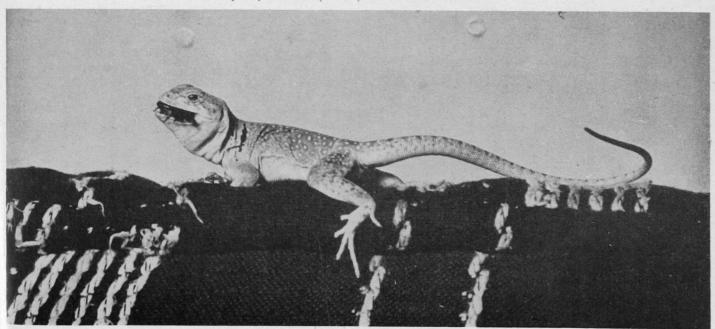
fascinated the Boyds. Keith would let it rest upon the back of his left hand, hold a teaspoonful of water in his right, and give it a sip at a time. It would hold up its head and let the water run down like a bird. Lucille would quench the lizard's thirst in a similar manner, only she would place it upon the kitchen table. At other times it would greedily take a drop of water off the finger tip.

Keith once focused a No. 2 photo flood lamp in a metal reflector upon it as it lay on the carpet. A plate of water stood nearby. The lizard would bask under the light. Then when the temperature grew too hot, it would run over to the water, take a drink, and come back for some more of the heat. It repeated this performance half a dozen times.

There came a day, however, when the Boyds decided to take a trip to the vicinity where they had found Boomer. They took it along as a companion. They had hardly reached the range of its former home before it held up its head and seemed to sniff the clean refreshing desert air. They drove on a few miles and Keith lapsed into silence. Lucille sensed his thoughts. They stopped their car, got out, and Keith placed Boomer down upon the earth. It sat there for a few seconds as if undecided. Then off it raced, first on four feet and then in kangaroo-fashion upon its hind legs.

Keith and Lucille since that time have encountered scores of collared lizards (they now call them Boomers), but they never think of capturing them. They have been converted to the belief that Boomer, as well as all natural life should be permitted to run free and unmolested in the desert environment.

Boomer would grasp a cricket by its fore-legs, cram it part way into its mouth, then scamper up the back of the sofa to work the cricket down.



Mines and Mining..

Denver, Colorado . . .

Joint meeting of western division, American mining congress, and Colorado mining association was scheduled here for January 27, 28 and 29. Wartime problems of the industry were to head discussion topics. Howard I. Young, president of the congress, is serving on war production board as director of minerals bureau and director minerals resources coordinating division.

Washington, D. C. . . .

War production board, under Green act which authorized treasury to sell "free" silver (metal not held as backing for currency) to essential war industries, has authorized use of \$25,000,000 worth as substitute for scarce metals in engine bearings, brazing alloys, solder and other war items

Phoenix, Arizona . . .

Five of Arizona's largest mining companies were assessed \$1,495,609.14 in uncollected income taxes for 1940, 1941 and 1942 by state tax commission. Interest charge was additional \$135,624.01. Failure to collect the tax before has cost taxpayers several million dollars because state is prohibited by law from collecting on earlier income. The additional assessments were made on that proportion of the net income charged off to depreciation, for it was stated the companies long ago depreciated their properties to the full value allowed by law, making their entire net income, less federal taxes, subject to the state tax. Phelps Dodge corporation, operators of four large mines, was heaviest

Winnemucca, Nevada . . .

Rebuilding of 250-ton concentration plant of Nevada-Massachusetts company which was destroyed by fire on Armistice Day will start soon, according to Charles H. Segerstrom, president, and Ott F. Heizer, manager. Mill was leveled by flame in one hour, burning on the 25th anniversary of its existence. Mining continues at property, ore being stockpiled.

Niland, California . . .

Lease of 520 acres state-owned land bordering north shore of Salton sea was voted in December by state lands commission to Pure Oil company of Chicago for wildcat oil drilling. Under 20-year agreement company will pay \$5 an acre plus royalties ranging from 12.5 to about 50 per cent of any oil produced. Company further is obligated to drill a well on other state-owned land adjoining lease territory, within 18 months.

Gallup, New Mexico . . .

Navajo tribal council recently passed a resolution calling upon Indian service to explore and develop large coal deposits in their 16,000,000-acre reservation. It has been apparent for some time, said James M. Stewart, general superintendent, that sheepherding and farming are inadequate to support rapidly increasing Navajo population, and situation will become even more acute upon return after war of 12,000 members of the tribe now in service. The millions of tons of high grade coal thought to exist there are considered not only as source of cash and labor for Navajo who will mine it but also as basis for industrial development.

Geneva, Utah . . .

Coke has been produced for first time in by-products ovens of Geneva steel company, a U. S. Steel subsidiary, at \$180,000,000 steel plant designed to supply steel plates for west coast ship building. The 1600-acre plant site was cleared of farm buildings in April, 1942.

Shiprock, New Mexico . . .

Ellis M. Frost Jr., 42, chemist at Navajo helium plant, and William M. Deaton, 45, Columbia, Mo., have been cited by Secretary of Interior Ickes for their joint work in developing an apparatus which aids handling of natural gas under pressure and in the production of helium. The men are in the technological-petroleum and natural gas division of bureau of mines.

Lone Pine, California . . .

Potential ore reserves of "several hundred thousand tons" are indicated in geologic formations of Darwin area, according to an article by L. Kenneth Wilson, geologist for E. L. Cord mining interests, published in November issue Society of Economic Geologists bulletin, Yale University, New Haven, Conn. Discovery of high-grade body of scheelite ore by Curley Fletcher of Darwin in 1940 was followed in 1941 by acquisition of 23 tungsten claims by the Cord interests which has brought production to 30,940 tons. Wilson estimates reserve of 26,000 tons of 0.60 per cent tungstite.

Mexico City . . .

Mexico's mining program calls for resumption of silver shipments to United States beginning May 1, 1944. No silver consignments have been made to United States since March, 1943. "Bootlegging" across the line in form of coins or crude jewelry is believed to have diminished.

San Francisco, California . . .

The series of papers issued in recent months on "Commercial Minerals of California," Bulletin 124, is now available for public distribution, according to Walter W. Bradley, state mineralogist. These papers have been made up in loose leaf form to fit standard binder. Supplemental papers of same size will be printed from time to time. Some 50 subjects are included in the bulletin, including the strategic minerals listed by U. S. Army and Navy Munitions Board. Orders will be filled for \$1 each plus sales tax; binders are \$1.20. Send order and remittance either to Ferry Building, San Francisco, or State Building, Los Angeles.

Washington, D. C. . . .

War production board continues its urgent request for quartz crystals or their locations. They are needed for making quartz oscillator plates for radios. Present supply from Brazil is insufficient. Quartz must be perfectly clear, flawless, at least an inch thick and three inches long, weigh. at least one-half pound, preferably one to four pounds. While whole crystal need not be perfect, the bad part of the crystal must not be more than twice the volume of the perfect portions. Iron stain on outside does no harm. Light smoky quartz can be used, but otherwise it must be colorless. Anyone owning or knowing location of such material is requested to send a sample of several crystals to Miscellaneous Minerals Division, WPB, Temporary "R" Building, Washington, D. C.

Las Vegas, Nevada . . .

Construction at Basic Magnesium, Inc., has been completed. G. P. Smallwood, general superintendent of construction, and Ed Ball, general labor superintendent, of McNeil construction company of Los Angeles, who saw crew grow from one man to more than 10,000, have returned to the Los Angeles office.

Tucson, Arizona . . .

J. W. Bingham believes there's gold in them hills at the city dumps. He filed application with D. L. Bouse, district manager smaller war plants office in Phoenix for \$10,000 to finance metals excavation. He believes lead, zinc, copper and gold lie hidden beneath the strata of junk.

Winnemucca, Nevada . .

Discovery of a rich cinnabar deposit in East range of Goldbanks district, 46 miles southwest of here, has been announced by Walter Low, mining man interested in Mount Tobin district. Low has named his discovery, which consists of five claims, the Jack Pot Mercury mine. He located it in November after prospecting for a week by tracing and panning. Two retorts show quicksilver runs 20 per cent or 400 pounds to a ton.

The storm gods are raging around the stronghold of Ghost Mountain these winter days. But members of the South family are ready for their fiercest blasts. For among their numerous wall-building projects is a newly completed one of granite blocks set in mud mortar which protects the southwest corner of their home. This month Marshal describes various types of wall construction with which they have experimented in the ten years they have been building Yaquitepec.

Desert Refuge

By MARSHAL SOUTH

TORM and the roar of storm. Wind thundering up the mountain and shouting through the threshing junipers with the deafening tumult of ten thousand titan harps. Through the yuccas and the creosotes and the ocotillos of the desert lowlands rush a hundred screaming eddies which flail the branches and strike yelling discord from a myriad whistling thorn spines. Against the ragged grey rim of the distant sierras moves a sullen sea of cloud. The towering masses of it, like the packed ranks of an advancing army of giants, press upon the peaks and spill avalanches of driving squall into the canyon deeps. Through rifts in the slow moving, ominous pall, rare shafts of the discouraged sun flicker like ghostly searchlights, the grey gleam of them laced with the steel stitching of driving rain.

And over all the wind. The wind is a living thing. It seems to shake the mountain with its gusty thunderings. The low sprawled ramarillo bushes and the stocky shapes of the ephedras cringe and flatten to the blast. Whooping maelstroms scream and clamor among the giant boulders. The little house at Yaquitepec seems to hunch down more solidly upon its foundations as it braces itself against the maniac fury that roars above its roof.

"Do you think, Daddy," asks Rudyard, cocking a speculative eye at quivering beams, "that the roof will blow off?"

But we do not think the roof will blow off. That humming sheeting of iron overhead is held down not by nails but by long screws. Nails would have failed long ago. Nails are a poor thing to use anywhere in the savage climate of the desert. But these screws have ridden out many a storm and will ride out many another. Reassured, Rudyard goes back to his cushion on the hearthstones before the big fireplace where Rider and Victoria are. In the ruddy glow of the flames that leap from blazing mescal butts the three of them sit, a graduated row of squatting Buddhas. The firelight turns the smooth skin of their naked sun-tinted bodies to bronze and fills their eyes with mysterious lights of dreaming.

But these winter storms that at intervals come charging down upon Ghost Mountain and our desert usually are short lived. Even the most savage of them, when to the trumpeting of the wind is added the iron-chill fusillade of driving sleet and hail. When the fury of the tempest has died and the sun comes out again in a sea of glory, every indrawn breath of the keen fresh air makes one rejoice and tingle in the sheer pleasure of being alive.

Snow comes to Ghost Mountain too, in winter. Sometimes



Tanya ignores a light snow fall as she walks among the boulders and mescals of Ghost Mountain.

the fall is heavy, sometimes only a flurry. But in every case it is something to delight in, with junipers and rocks and mescals and gaunt chollas decked in a coating of fairy ermine. Eager little faces line along inside the windows, noses flattened to the glass, despite the cold. Intent eyes are held fascinated by the drifting, fleecy curtain that veils the mountaintop as in the fluttering dance of myriad white moths. Our three desert-bred youngsters make no secret of the fact that they love winter—its storms and all. And we do too. But all of us are equally enthusiastic over spring and summer and fall. To us the desert climate is as near perfection as one could find anywhere on earth.

Christmas has come and gone. Its slow approach was productive of many small fingerprints upon the calendar and many worried puckerings of childish brows. Now it has been taken down, wrapped in tender thoughts and tied with a golden string and laid away in the great storehouse of memory. The tree has been taken down too, and its silver star put back into the little box to wait for next year. But not the gleam of it. We didn't put that away. The bright gleam of it is in our hearts.

It was a good Christmas. Not yet have all the cards and gifts and letters of friendship which lay beneath our tree on Christmas morning been personally acknowledged. But they will be. And, in the meantime, dear friends, our thanks and every sincere New Year's wish.

The ancient Romans, judging by accounts of their doings, were always building arches and walls. And it seems to us that in this respect we are like them. Not so much in the matter of arches, though we have built a few (arches are convenient in doorway construction where the scarcity of wood makes the use of lintels impossible). But in wall building we feel that we are close runners-up of Caesar and his industrious legions.

It seems that we always are building walls. Even though there are few completed walls to show for the labor. Lack of water makes construction progress by unbelievably slow degrees. We add a bit to this one and a bit to that, as the water supply permits. Once, in a particularly long rainless period, we built an entire archway and partition wall with just the mud made each day from less than a quart of water saved from kitchen and cooking operations. Now that it's finished and whitewashed we sometimes find it hard to believe the handfulby-handful way in which it was built.

But not all our walls go up quite so slowly. A section, almost two feet thick and built of granite blocks set in mud mortar, on the southwest end of the house, made faster progress, notwithstanding the fact that a lot of the water for mud mixing had to be hauled. Of this recent bit of construction, which enables us to straighten out a long-standing, inconvenient "jiggle" in the south room, we are somewhat childishly proud. Especially in these storm periods, when we listen to the wind snarling and raging impotently at the outer face of the barrier. Elemental satisfaction, perhaps. But deep rooted. Only a little while ago we noticed Rudyard and Victoria standing with their backs to it and all their senses keyed to the beat of the tempest on the other side. They explained that they were doing that "just to feel solid an' comfortable." Which gives one some glimmer of insight into what must have been the triumphant feelings of primitive man when he first discovered how to construct dwellings that would defy the elements.

This recent wall building had an unexpected side issue which threw light upon another method of construction—that of making walls from moist earth rammed between forms. "Rammed earth" is a very old building device. It dates back at least to the times of the ancient Romans, who used it a great deal in the construction of watch-towers and forts. It is suited to a wide range of climate, but especially to dry areas like the desert. When we first began the building of Yaquitepec we experimented with it, but gave it up in favor of adobe bricks and mud. These aren't so strong, but are less work. Also we lacked the solid planking of which to build the forms.

But we did make several foundation sections by this method. In our recent building operations we ran against one of these fragments of wall which had been laid down in accord with an early plan of the house. One which long ago had been abandoned. The bit of time-seasoned "ramming"—over ten years old—was in the way of present construction and had to be removed.

And we learned from it. That little fragment of wall about eighteen inches high, a foot wide and about a foot long, provided one of the toughest problems we had tackled in a considerable time. It would not yield to tools. Crowbars and pickaxes struck sparks of fire from the mass, and bounced back at us. Dust and slivers came away. It was like battering at concrete.

Yes, "rammed-earth" is tough. We did manage to get rid of our unwanted bit of it, finally. But only because it was such a small section. Had it been of considerable area the story would have been different. However, we now can give an "unsolicited testimonial" to rammed earth construction. If you have any building to do, and are interested in this type of work, it might pay you to investigate. It's cheap and durable. The government publishes (or used to publish) a booklet of clear instructions. And I believe the University of California, at Berkeley, does also.

Pottery making hasn't got back into swing yet, at Yaquitepec. Since our return there has been much to do, and we have had little time. However, unable to keep "itching fingers" entirely away from the satisfying feel of moist clay we did make a few hasty pieces—things we needed. We were penalized for our haste by almost total failure. Not in the drying or in the decorating, but in the firing. This is always a tricky operation. And in our impatience we neglected to shelter the ware from the too-fierce heat of the flames—something accomplished in primi-

tive methods by propping up little strategic barricades of sections of old broken pots. So most of the stuff cracked. All that came from the fire intact was one plate and one cup and a little bowl. "More haste, less speed." Anyway we have chilly satisfaction in the knowledge that our predecessors, the old desert Indians, often must have felt as we did. Judging by the amount of shards, in different sections, the mortality among their pots must have been high. Higher, perhaps, than our own.

Still, though this last venture was largely a failure, we do have the one plate and the cup and the little bowl. And that is something. And we do not forget the joy that we had in fashioning the pieces from the moist clay, and in decorating them. For the chief reward lies in creation. In the striving toward a goal, rather than in the somewhat static satisfaction of a height attained. This is, or should be, the case with all work. It is particularly true of handicrafts.

For there is, about those arts which depend directly upon the hands, a fascination which is unique. Handmade things have a "soul" which machine manufactured objects lack. There is, too, in such primitive home industries as spinning, weaving, pottery making and the construction of furniture, a restful close-to-nature feeling which is soothing to jangled nerves. If I ever were to direct the affairs of a colony or community I would insist that every article of domestic use, wherever possible, should be made by hand. It is by hand work that the artisan, under natural, non-commercial conditions, develops not alone his skill at his craft but himself as well. The old days, to which so many tired moderns look back with longing, hold bright pages of sincere and honest crafts and of artisans who worked for love of their work and not alone for money.

Grey shadows lean heavier upon the blusterings of the wind, and the day wanes. With the long iron poker Rider beats the dying mescal butts to a new life in a whirling tempest of sparks. There is a tinny rattle as Tanya drags out the sheet of flattened coal-oil can and sets it in place on its grid above the coals. There will be hot whole-wheat tortillas tonight, cheered with a great steaming brew of squaw tea. Tortillas toasted to toothsome savoriness upon the flattened strip of thin metal that once surrounded five gallons of kerosene. Primitive? Yes, but practical. Not upon any of the gadgets of your finest electric ranges can you cook tortillas so satisfactorily. But of course not everyone yearns to cook tortillas. The tortilla is a primitive thing, the friend and mainstay of primitive peoples and those "semibarbarians" who prefer deserts and waste places for their habitations. Yet the tortilla is not without sterling virtues. No less an authority than that prince of desert explorers, Carl Lumholtz, has written enthusiastically of the tortilla-and of the flattened kerosene can.

HANDICRAFT

Give me the feel of a handmade thing. Though crude and rough it be, A soul and purpose seem to cling, Unto its form for me.

The high perfectional results Machines can bring to bear My instinct cherishing insults By mass production fare.

A fevered "factory output" goal Machine work may demand, But there is greater charm and soul To things all made by hand.

-Tanya South.

LETTERS ...

Desert in English Camps . . . Berkeley, California

Gentlemen:

I want to repeat a few lines Mrs. Gordon Campbell, of Southam, Warwickshire, England, wrote in appreciation for a package of Desert Magazines which I sent to a childrens' home in England: "They are most interesting; they show a part of American life which is unknown to most of us. They will be most appreciated by all who will read them. The magazines will be sent to a military convalescent hospital and most probably from there to the men of an air force station."

BEATRICE ATHERTON

Poetry in December Cover .

Riverside, California

Dear Editors:

I am sorry that Mrs. William McFarland (in January Letters page) can see no beauty in the December cover picture, for I was so entranced by the beauty and symbolism that a poem immediately formed in my mind. Here is what I see in the December cover:

. . .

LOOK TO THE EAST

Beyond the ruined dwelling, Where tortured branches bend, A burst of dawn is spelling That night must always end.

And humble windows showing The East on Christmas morn Can lead our hearts in knowing Our Savior . . . manger born.

While clouds that dot the ceiling Of skies, above the scene, Will leave the Desert kneeling Refreshed, revived, and clean.

It seems to me we get enough "pretty," pretty" pictures on the well known hometype magazines. Let's keep our Desert Magazine a bit different. Let's have the symbolism, and majesty, yes, even the loneliness of the desert on all our covers and leave the merely conventional to less distinguished magazines.

CECILE J. RANSOME

Four-star Reading . . . Denver, Colorado

Gentlemen:

Enclosed find subscription order. We desire you to know that your magazine for the year 1943 has been most sincerely appreciated. Its articles, composition and conditions of interest are Four-Star reading matter. Its TRUTH is its most inspiring feature to us.

HARVEY W. BAILEY, Basic-Research Laboratories System Correction for Quiz Fans .

Hollywood, California

Dear Editor:

In the true or false quiz, page 26 of December issue, statement 15 is, "Poison of gila monster is secreted in lower jaw." Answer is given as false.

Raymond Ditmars, who was the greatest authority on reptiles until his recent death, described the dentition of the family Helodermatidae to which the gila monster belongs, on page 89 of "Reptiles of the World." He says, "The teeth are recurved, fang-like and swollen at base; those on the lower jaw are strongly grooved on both front and rear surface. At the bases of these teeth are a chain of glands containing a venom very similar in its composition to that secreted by the poisonous snakes, and sufficiently powerful to produce death with men."

On page 13 of Desert for July, 1943, Mr. Weldon D. Woodson states, "They discovered that poison is contained in saliva secreted from the lower jaw."

W. SCOTT LEWIS

Daggett, California

Dear Miss Harris:

Have you not had protests about No. 15 in December quiz? I think the answer must have been a "slip." Here is a quotation from a well-known reptile book: "The grooved fangs are on the lower jaw, four on either branch of both maxilla and mandibular, in back part of jaw, not in front. The four separate ducts from the elongated submaxillary glands lead to the base of the grooved teeth. If seized only by the front teeth or the animal does not turn over on its back while biting, none or very little of the poison may enter the wound. Snake venom and the saliva of the Heloderma are almost identical in chemical composition."

MARY BEAL

You both are right. Answer to No. 15 is true, and was a slip on part of quiz editor.—LH.

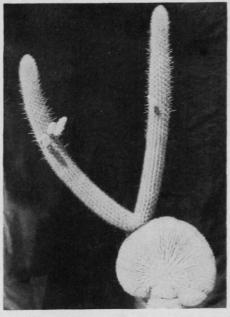
How Does Norton Allen Do It? . . .

Los Angeles, California

Dear Desert Magazine:

Please don't overlook my renewal to your indispensable magazine plus two gift subscriptions. Your publication contains many interesting articles about the desert but nothing as to the staff. Those drawings and maps made by Norton Allen deserve some consideration. How about letting us in on how he goes about his work?

MARJORIE JONES



Wm. Bright's cactus grew a V atop a crest.

More Cactus is Coming . . .

Los Angeles, California

Desert Magazine:

Am sorry you no longer have a section devoted to cactus. Nothing could be more appropriate for a magazine of the desert. Anyway your readers have not lost interest in cactus. Here is a picture of a *Cleistocactus baumannii* which took on a crest then reverted to normal growth, and in doing so formed a perfect V—a V-for-victory in nature

WM. O. BRIGHT

Desert Promotes Social Ideals . . .

San Francisco, California

Dear Friends:

Enclosed is \$10 for two years subscription and back copies to complete my file.

Of all the many fine magazines I have enjoyed, Desert is by far the most satisfying. In every issue there is transmitted a spirit found nowhere else—a friendly spirit of sharing, the free spirit of nature, making her devotees more conscious of universal harmony and beauty. It is Mother Nature's knack of manipulating relationships that does the trick of causing us to blend our personal interests with the social by wanting to share our discoveries.

From Desert's every issue and page she speaks to us—from the splendid photographs, the field trips and their tempting maps, the page of desert poetry, Desert Refuge, news from here and there, pages on gems and minerals, the well-written historical and scientific articles, to the final good-will chat by Randall Henderson. Even Desert's ads carry their share of interesting allure.

W. A. LAUGHERY

DM Scarce in Africa . . .

Somewhere in Africa

Dear Evonne:

There is a Red Cross lady here who wheels a cartload of books through the hospital wards. I asked her yesterday for the Desert Magazine. She replied, "When Randall Henderson was here we had all the copies we needed, but just try to find one now!"

Charlie Rose of Bordertown has made all New Jersey "Desert Magazine conscious." On a recent visit to see him I discovered that like so many others DM is his favorite.

How are the Souths doing? Please tell them Hello for me.

LT. LEONARD B. HUISH, A/C

Identifies Two Graves . . .

San Gabriel, California

Dear Sir:

On page 29 of December number of Desert is a photo of two graves. I first discovered these graves when on May 25, 1907, my partner and I located a lode claim about two miles southeasterly of Hidden Springs, near Robbers Roost shaft, known as Walter Scott's claims. Scotty's locations were dated January 1, 1907. Both Scotty's and our location were made on abandoned claims that were first located January 1, 1897.

In 1907 these graves had the appearance

of having been there a long time. Some years later I asked Shady Myrick if he knew their history. He did not know the names of the men but said they were victims of thirst. They had not died at Hidden Springs but were brought there for burial from towards Death Valley.

Two years ago Fred Rogers and I were returning from a trip to Death Valley, and while passing the graves we decided to prop up the headstones which had toppled over onto the graves. Before that the passerby seldom had noticed them.

A. F. EADS

Wants DM to Thaw Him Out . . .

c/o Fleet P. O., New York City Dear Sir:

I have had the good fortune to come across a copy of your splendid Desert Magazine. I read it through and through and was very much impressed and a little homesick because of it. I come from Southern California and I love the Southwestern desert country. At present I am stationed in a climate which is the direct opposite—thanks to a couple of undesirables by the names of tojo and hitler. So you can see why your magazine appeals to me. Please start my subscription as soon as possible so I can thaw out a bit.

CHARLES W. FORREST, S F 3/c USN

Desert Helps Population Growth . . .

Chicago, Illinois

Dear Friends:

At last, due to the influence of friends and relatives in California and as the result of a great many hours spent in delightful reading of your grand magazine we are pulling up our roots here and are on our way to California.

MR. AND MRS. L. E. DAVIS

Taming a Roadrunner . . .

Kingman, Arizona

Dear Sirs:

I read Desert Refuge in your September issue—and I would like to tell my experience with a roadrunner. We live in a busy section of Kingman on Highway 66, near the railroad, where there is considerable traffic and noise.

One morning, after we had had a cold rain and some snow I noticed a roadrunner in the yard. He stayed quite a while, then went away but returned the next morning. I put out some food which he ate, then left but again returned the following morning. This continued all winter. He would come to the doorstep and make a cooing noise like a dove. If I did not come to the door immediately he would fly up on the window sill and look in. When I opened the window he would come in and eat pieces of meat from my hand.

MRS. ALICE NEGERS

Achievement . . .

- On October 15, 1943, purchase of the electrical properties of the California Electric Power Company in Imperial Valley and the area in Coachella Valley destined to be served by the All-American Canal was completed, and Imperial Valley Irrigation District became the sole distributing agency for electrical energy in these areas.
- Thus was achieved a goal toward which the people of Imperial and Coachella Valleys have united their efforts for a quarter of a century. Full development of the power resources on the great All-American Canal now seems assured and both water and power will be put to the common usage of developing these two fertile reclaimed desert valleys.

SHARING THE BENEFITS OF WATER AND THE PROFITS OF POWER, IMPERIAL AND COACHELLA VALLEYS ARE IN TRUTH GOOD NEIGHBORS LINKED BY BONDS OF MUTUAL INTERESTS AND NECESSITIES.



HERE ... on the Desert

ARIZONA

Suggests Yuma as Seaport . . .

PHOENIX—Dredging the lower Colorado river to create a seaport at Yuma was among economic developments of Arizona urged by Frank Pool, pioneer businessman, at Hiram Club in December. He pointed out that the Gadsden purchase by which Arizona acquired the area south of Gila river reserved to the state the use of the lower Colorado for navigation.

Sanguinetti Incorporates . .

YUMA — This community's oldest business has become its youngest corporation, upon completion of incorporation of E. F. Sanguinetti, Inc. E. F. Sanguinetti, who founded the business 56 years ago, remains president and director. A. O. Broussard is first vice-president and general manager; E. Francis Sanguinetti, Jr., second vice-president; Charles D. Hayes, third vice-president; Norman R. Adair, secretary-treasurer. A number of older employees have become stockholders, shares of common stock having been given them in recognition of service. It is the corporation's intention that eventually the employees shall acquire full control.

State Highway Progress . . .

FLAGSTAFF — Major highway construction undertaken in 1943 was U. S. highway 66 link between Parks and Grand Canyon Junction, a section 6.7 miles long, to facilitate transportation of military supplies and equipment. A second project completed was 2.8 miles concrete pavement on highway 66 between Flagstaff and Winslow, first link in a major improvement of highway between these two points.

Buffalo Hunt in February . . .

GRAND CANYON—Annual buffalo hunt in House Rock valley on North Rim has been set by state game department for February 12 and 13. Applications of 35 hunters and alternates were to be selected by Arizona game and fish commission, Phoenix, January 22. The herd is the only free-roaming one in existence, has furnished background for many historical motion pictures.

Half Million Population . . .

PHOENIX—Arizona's civilian population has reached more than a half million, increase of 16.9 percent for the period May 1, 1942, to March 1, 1943. The estimated 578,756 was based on registrations for War Ration book 2. Census bureau said increase was due chiefly to influx of war industrial workers.

Arizona Changes Time . . .

PHOENIX—Arizona on January 1 returned to pre-war Mountain time, which corresponds with Pacific war time. Joe Conway, state attorney general, has upheld Governor Osborn's proclamation, stating that change does not affect common carriers engaged in interstate commerce, their time having been fixed by congress January 20, 1942. Change was made especially for convenience of farmers and school children and for saving electricity.

Mesquite Growing Rampant . . .

TUCSON—Southwest forest and range experiment station, department of agriculture, has issued booklet on control of mesquite to increase grazing capacity of ranges. Kenneth W. Parker, who prepared the study, advocates control rather than eradication, pointing out that in many areas original open woodland has been converted to thickets by unrestricted growth of the tree. Practicable methods of control are suggested.

Frank L. Fish, 41, custodian of Chiricahua national monument (Wonderland of Rocks) for past seven years, died December 29 after illness of one month.

Z. B. Stiles, 42, Indian trader at Keams Canyon, died of heart attack December 14.

CALIFORNIA

National Monuments Proposed . . .

PALM SPRINGS—A proposal to set aside Mt. San Jacinto and Mt. San Gorgonio as national monuments has been made to President Roosevelt by Harry C. James, president Trailfinders, an outdoor organization for boys in Altadena. The two peaks rising abruptly from the desert floor to 10,805 and 11,485 feet respectively, are unique in having a climatic crosssection of North America from Alaska to Canada and in providing biologists a field for study of animal and plant life ranging from Lower Sonoran to Arctic-Alpine life zones. They also are landmarks in history of Southern California from days of De Anza and Jedediah Smith to early Mormon scouts. Present status as primitive areas under United States forest service, and in the case of San Jacinto, as state park, leaves possibility, James says, of introducing commercial enterprises. To preserve our wilderness heritage for public recreation only, James urges all lovers of outdoors to write immediately to the President, Newton B. Drury, director national park service, or to their congressman or senator.

Who Knows Lost Mines? . . .

SAN DIEGO—P. A. Bailey, 3348 Dumas street, San Diego 6, author of a book about lost mines of the southwest, is on the trail of more information about the Lost Soldier mine, sometimes called the Lost Belle McKeaver mine, and the Lost Frenchman mine. Information on these two mines will be welcomed by Mr. Bailey.

Irish Desert Rat is Citizen . . .

DEATH VALLEY—Thomas McGee, 80-year-old desert rat who has lived here most of his life and who was an employee of Pacific Coast Borax company for 25 years, at last has become an American citizen. He came from Ireland as a boy.

Imperial Valley Gets Wet . . .

EL CENTRO—December rainfall in Imperial county broke a 16-year record. Through December 19 rainfall was 2.45 inches, bringing yearly total to 3.74 inches. December, 1927, total was 2.92 inches.

A WESTERN THRILL

"Courage," a remarkable oil painting 20x60 feet, the Covered Wagon Train crossing the desert in '68. Over a year in painting. On display (free) at Knott's Berry Place where the Boysenberry was introduced to the world and famous for fried chicken dinners with luscious Boysenberry pie.

You'll want (1) A 4-color picture of this huge painting suitable for framing. (2) A 36-page handsomely illustrated souvenir, pictures and original drawings, of Ghost Town Village and story of this roadside stand which grew to a \$600,000 annual business. (3) Two years subscription (12 numbers) to our illustrated bi-monthly magazine of the West. True tales of the days of gold, achievements of westerners today and courageous thoughts for days to come. Mention this paper and enclose one dollar for all three and get authentic western facts. Postpaid. G HOST TOWN NEWS, BUENA PARK, CALIF.



Chuckawalla Prospector Dead . . .

BRAWLEY—George "Scotty" Byron, 66-year-old prospector, died at Aztec Wells in the arms of a fellow prospector December 22, making a final request to be buried under the rugged peaks of the Chuckawalla mountains where he had hunted gold for more than quarter of a century. News of his death was phoned to Deputy Coroner Seymer by "Desert Steve" Ragsdale of Desert Center who had known Scotty about 20 years.

Coachella Population Estimates . . .

INDIO—Coachella valley population according to recent ration book estimates is 12,072, announced Harry Harper, secretary Riverside county chamber of commerce. Riverside city population was given as 59,169. Banning, 5353; Beaumont, 4011; Blythe, 6283; Hemet, 7009; Palm Springs, 7435; Indio, 12,072.

Mrs. Nellie N. Coffman, founder and co-manager of famed Desert Inn, Palm Springs, is recuperating after delicate eye operation at Good Samaritan hospital, Los Angeles, in December.

NEVADA

Postwar River Development . .

CARSON CITY—As part of a postwar economic plan, Governor E. P. Carville has outlined Nevada river improvements at a cost of almost 22 million dollars. He believes the plan not only would add much to state's natural resources but would aid demobilization period, when returning service men and women must have emergency work. Improvements would affect Muddy river and tributaries, Humboldt and Little Humboldt rivers, Truckee-Carson system and West-Walker waterways.

ION Cut-off Complete Soon .

WINNEMUCCA—Completion of U. S. highway 95, the Idaho-Oregon-Nevada cut-off, is assured for early next summer with opening in December of bids for oiling a 60-mile stretch in Oregon. With this final improvement Winnemucca will become the cross-roads of two U. S. highways-No. 95 extending north and south from Canada to Mexico, and No. 40, nation's leading transcontinental highway from Atlantic to Pacific.

The Desert Trading Post

Classified advertising in this section costs five cents a word, \$1.00 minimum per issue-Actually about 11/2 cents per thousand readers.

MISCELLANEOUS

FOR SALE-12 beautiful perfect prehistoric Indian arrowheads, \$1; 10 tiny perfect translucent chalcedony bird arrowheads, \$1; 10 perrect arrowheads from 10 different states, \$1; perfect stone tomahawk, \$1; 4 perfect spearheads, \$1; 5 stone net sinkers, \$1; 10 perfect stemmed fish scalers, \$1; 7 stone line sinkers, \$1; 4 perfect agate bird arrows, \$1; 5 perfect flint drills, \$1; 7 perfect flint awls, \$1; 10 beautiful round head stunning arrowheads, \$1; 4 fine perfect saw edged arrowheads, \$1; 4 fine perfect flying bird arrowheads \$1: 4 fect arrowheads from 10 different states, \$1; 4 fine perfect flying bird arrowheads, \$1; 4 fine perfect drill-pointed arrowheads, \$1; 4 fine perfect queer shaped arrowheads, \$1; 4 rare perfect double notched above a barbed stem base arrowheads, \$1; 5 perfect double notched above a stemmed base arrowheads, \$1; 12 small perfect knife blades of flint, \$1; rare shaped ceremonial flint, \$1; 3 flint chisels, \$1; 7 quartz crystals from graves, \$1; 10 arrowheads of ten different materials including petrified wood, \$1. All of the above 23 offers for \$20. Locations given on all. 100 good grade assorted arrowheads, \$3.00 prepaid. 100 all perfect translucent chalcedony arrowheads in pinkish, red, creamy white, etc., at \$10.00. 100 very fine mixed arrowheads all perfect showy colors and including many rare shapes and types such as drill pointed, double notched, saw edged, queer shapes, etc., location and name of types given, \$25.00 prepaid. List of thousands of other items free. Caddo Trading Post, Glenwood. Arkansas.

Will trade the following items for guns or obsolete ammunition: 3½x4¼ Graphlex camera in fine condition, Heidescop Stereoscopic camera, two perfect Sioux Eagle Feather War Bonnets. Spencer Lab. Microscope 66B. with sub-stage lamp (New condition with case). Dr. Roy S. Horton, 113½ North Main St.. Santa Ana, California.

25 Genuine Indian arrowheads, \$1.00; Tomahawk head, .50. Cat. of Indian relics, crystals and ore specimens. Geo. Holder, Glenwood,

For Sale-To Close Estate: Chemicals and Apparatus of research chemist's private laboratory. Contact Admx-1203 West Cucharras, Colorado Springs, Colo.

Wanted to Buy-Genuine pre-historic Indian obsidian arrowheads and spears. Lynn Crandall, Box 697, Idaho Falls, Idaho.

Wanted-Ouantity dried decorative weeds. seed clusters, stalks, pods, branches, desert material, etc. Write for information. E. Mann, Inc., 1845 Broadway, New York 23, N. Y.

For Sale-Beautiful Flower Pots, made with different colored rocks, 8 inches in height. \$5 each. Miniature sample 50 cents. Address Desert Novelties, Searchlight, Nevada.

LIVESTOCK

KARAKULS producers of Persian Lamb fur are easy to raise and adapted to the desert which is their native home. For further information write Addis Kelley, 4637 E. 52 Place, Maywood, California.

"Karakul Fur Sheep—America's Great Live-stock Opportunity—You can be a part of this fascinating business and have your Karakuls cared for in California, by experienced ranchers. Write for details, James Yoakam, National Distributor, 1128 No. Hill Ave., Pasadena, California.

REAL ESTATE

For Imperial Valley Farms -E. HANCOCK "The Farm Land Man" Since 1914 EL CENTRO — — — CALIFORNIA

Pine Nut Crop Harvested . . .

HAWTHORNE—Nevada's 1943 crop of pinyon nuts went on sale in December. State center of pinyon trees is Ione sector in southern Lander county and northern Nye county, now part of Toiyabe national forest. Another important section is Nevada national forest in White Pine and Nye counties, where over 200 tons of nuts a year often have been picked. National crop has amounted to 8,000,000 pounds, worth about \$2,000,000.

Housing Project Starts . .

PIOCHE-According to word received from Senator Pat McCarran, construction of project for 112 family units for miners of this district was to begin early in January. Modern houses, recreation and administration buildings, are to be constructed on 14-acre site adjoining courthouse at cost of about \$500,000.

Nevada Crop Records Made . . .

CARSON CITY—Nevada ranchers set all-time record for barley crop during 1943. Total was 984,000 bushels, while ten-year average is 384,000 bushels. State average yield was 41 bushels per acre, compared with national average of 21.9 bushels per acre. State also produced largest potato crop since 1930, with 585,-000 bushels, although potato crop for 25 years prior to 1930 had been larger than current year. Average bushels per acre was 195 while national average was 139.5.

University Sets Summer Sessions . .

RENO-Dr. Harold Brown, summer session director, has announced that University of Nevada will offer a 12-week summer school consisting of two six-week periods, the first beginning June 5, the second on July 17. Total of 15 credits may be earned during the 12-week session.

Airport to be Enlarged . .

BATTLE MOUNTAIN — Additional \$450,000 has been appropriated by congress for another runway and other facilities for local airport, according to announcement by Senator McCarran. When completed it will accommodate the largest aircraft in the world, it is reported.

New Dam Approved . . .

LAS VEGAS-White Narrows dam on Muddy river, two miles above Moapa Valley Indian reservation, has been approved for immediate construction by war production board, it was revealed in October by state engineer Alfred Merritt Smith. Project plans include building of reservoir on reservation at cost of about \$200,000, serving 600 acres Indian land and 3200 acres for white farmers.

Nevada hunters during 1943 deer season killed 3,986 animals, an increase of 500 over total for 1942.

NEW MEXICO

Pioneer Cattleman Dies . . .

CARLSBAD—"Uncle Bill" Washington, 90, who drove 15,000 cattle and 1200 horses to this area 60 years ago and founded forerunner of Circle R ranch, died at his home 40 miles southwest of here in December. He was one of the early explorers of Carlsbad Caverns.

Pueblo Suit Dismissed . .

SANTA FE—Ending a chapter in a long period of internal strife, a civil suit filed by Pueblo de Isleta corporation and a few individual Indians against Dr. Sophie D. Aberle, superintendent of United Pueblos agency, was dismissed in December by Federal Judge Colin Neblett. Charges, which Pueblo Governor John R. Abeita stated represented the sentiments of a very small group of Isleta Indians, included too much interference with internal pueblo affairs, methods used in giving non-Indian positions in Indian service, mismanagement and waste of funds, and curtailment of free speech.

More Navajo for War Work . . .

GALLUP—On basis of questionnaires to all Indian service superintendents and Indian traders on Navajo reservation, it is estimated that there are between four and five thousand Navajo capable of taking war jobs off the reservation. Main reasons this supply has not been used are family ties and responsibility for sheep and crops, importance of ceremonial dances and sings which the Navajo would miss, possession of money already earned on jobs they have quit, sickness, and lack of information regarding available jobs.

Lion Hunter to Save Deer . . .

SANTA FE—To stop killing of deer and mountain sheep in Sandia mountain region by lions, state game department has assigned Kenneth Shellhorn, mountain lion hunter, to the area. The herd of mountain sheep was planted in the Sandias by the department.

Too Few Doctors in State .

SANTA FE—It has been disclosed, by figures compiled for senate during consideration of public health service bill, that New Mexico has but one doctor for each 2450 patients. State total was 200 compared with 310 in 1942. Only Nevada, with 90, has fewer physicians than this state.

Indian Traders Elect . .

GALLUP—At a two-day session here in December. United Indian Traders reelected all officers: Jack Cline, Fruitland. president; Howard Wilson, Gallup, and Marshall Drolet, Tohatchi, vice-presidents; M. L. Woodard, secretary-treasurer. Committee of eight was named to study post-war development of hand-made Indian jewelry trade and possible revision of standards.

Rabbit Hunt on Main Street . . .

ROY—Residents of this town need not hike out in the fields and waste ammunition hunting rabbits, for the rabbits are coming to town. "Record" says it is a common sight to see townsmen and dogs engaged in a rabbit chase down main street. Heavy blanket of snow covering countryside was cited as reason for jackrabbit invasion.

Horse-and-Buggy Bus . .

CANJILON—This remote Rio Arriba county community is seeking communication with outside world by horse and buggy. After one bus broke down on the not-so-good road from the main highway, Chama Valley bus line asked state corporation commission for authority to use horse and buggy to carry passengers and mail over the route.

Gallup's 23rd Inter-Tribal Indian Ceremonial has been set for August 11, 12 and 13, 1944.

UTAH

City Budget Increased . . .

SALT LAKE CITY—Municipal budget for 1944 has been set at \$4,496,235, an increase of \$65,592 over 1943. Budget is predicated on a 16-mill levy (\$1.60 per \$1000 assessed valuation). Commissioners and auditors hope rate can be cut to 15 mills by late summer, as was done last year.

Hospital is Experimental Center . . .

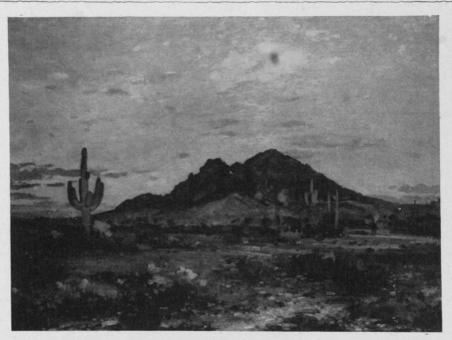
BRIGHAM CITY — Bushnell general hospital has been named one of four general army hospitals in this country to carry out intensive clinical studies of malaria, it has been disclosed by Col. Robert M. Hardaway, commanding officer. In service only 15 months, it already has been designated one of five amputation centers, one of seven plastic and maxillo-facial surgical centers, army's first proving ground for penicillin and one of few neuro-surgical centers. A new approach to treatment of malaria, "America's wartime public enemy No. 1," is being used, said Lt. Col. James S. Sweeney, chief of medical service.

Junior Ski Tournament Set . . .

ALTA — Intermountain junior fourway combined ski tournament has been set for February 12-13. Events will include downhill, slalom, giant slalom and jumping. Meet is limited to skiers 16 years and younger. The Snow Cup giant slalom, usually staged in December, was tentatively set for January 29.

Plans 100 Utah Airports . . .

SALT LAKE CITY—Five-year plan for improvement of 50 Utah airports and construction of 50 more has been outlined to regional officials of civil aeronautics administration. Joe Bergin, state aeronautics director, said program calls for 20 new airports a year, cost to "run into millions."

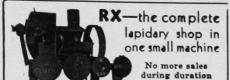


"SUNLIGHT ON THE MOUNTAIN" .

Desert artist Lon Megargee's color lithograph of Camelback Mountain in natural red-gold and smoky azure of Arizona. Each 16x12 print signed by the artist and printed on white mat suitable for framing. A colorful bit of the Southwest for your living room, a beautiful gift for your desert-minded friends. \$3.00 postpaid.

California buyers add 21/2% tax.

Send orders to . . . DESERT CRAFTS SHOP, El Centro, California



W. A. FELKER 3521 Emerald St., Torrance, California

Covington LAPIDARY EQUIPMENT

GRIT BUY WITHOUT PRIORITY

We made a lucky buy of a ton of grit without priority and are passing our good luck on to you in this . . .

SPECIAL

10-lb. package 300 (FF) grit for use with Old Miser only and one jar Old Miser Lapping Compound, all for . . .

\$3.50 F.O.B. Redlands

COVINGTON LAPIDARY ENG. CO. Redlands, California

ROCKHOUNDS

We have a large stock of Cabinet specimens, Gem material, Cut stones, Mineral books. We want to buy good gem material and specimens. Come and see us and join our Rockhound Colony.

THE COLORADO GEM CO. Bayfield, Colorado

HILTON'S Art and Gem Shop

JOHN W. HILTON, Owner

On U.S. Highway 99, Ten Miles South of Indio

ACROSS FROM VALERIE JEAN DATE SHOP. P. O. ADDRESS, THERMAL, CALIF.



ULTRA-VIOLET PRODUCTS, INC.

AMATEUR GEM CUTTER

is for those who have, or aspire to have, their own gem cutting and polishing equipment. Lelande Quick, who conducts this department, is former president of the Los Angeles Lapidary society. He will be glad to answer questions in connection with your lapidary work. Queries should be addressed to Desert Magazine, El

This page of Desert Magazine

By LELANDE QUICK

James Forbes of Lynwood, California, has taken several prizes for novelties at gem exhibitions and many folks have wondered how he made his mantel clocks of onyx, lighted geodes, large spheres, button sets, etc. Mr. Forbes is an oil well driller and he has applied oil well drilling principles to massive lapidary work.

Centro, California

The coring machine frame, illustrated at right, is made from 2x3 boards. It stands 36 inches high and is 29 inches wide, but size is optional. The shaft (2) is made of ½-inch pipe and with a 2-inch swedge nipple (1) on the top into which a mixture of mud and grit is poured by hand. The bottom of the shaft is bushed to 3/4-inch pipe (5). The bearing (4) is made from 1-inch pipe, filled with babbitt between it and the 1/2-inch shaft. Adjustable clamps (6) hold any size rock. An 8-inch pulley (3) is fastened with an Allen set-screw for adjustment. A pan (7) is filled with a mixture of mud and No. 80 or No. 100 grit, and a can on a stick is used as a dipper to transfer the liquid abrasive to the revolving nipple at the top (1). The shaft revolves about 300 RPM and its own weight drives it through the rock as the abrasive spills over the rock into the pan (7) for re-use.

An extra 6-inch pipe (9) is on hand for swedging to the shaft for drilling large blocks fastened to another adjustable clamp (8), such as clock mounts. The cores from larger rocks can be cut into large spheres while the cores from geodes or smaller rocks can be sliced into

button sets on the diamond saw.

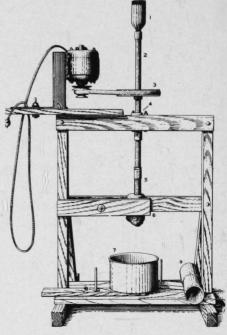
By having an assortment of pipe sizes a lapidary is prepared to drill any size hole and Mr. Forbes' arrangement is simple, inexpensive and highly efficient. With the exception of the motor it can be assembled even in these times from any scrap yard.

Many amateur lapidaries have little idea of the weight of a carat and its relation to the ounce. In last April's Desert Magazine I said an ounce was 141.75 carats which was according to the old scale but the "metric carat" of 200 milligrams is now the universal standard. Since there are 28 grams to the ounce, or 28,000 milligrams, an ounce is therefore exactly 140 carats. Gems used to be weighted with seeds but different seeds were used in different gem cutting centers so that the carat varied slightly in widely separated gem marts. The diamond carat is divided into 100 parts, each of which is called a point so that a 3/4 carat diamond is termed 5 point stone.

The gold karat (note the "k") is something else. Pure gold is 24 gold karats fine and it is too soft for jewelry. It must have a hardening alloy. One karat is therefore 1/24 part and 18 karat gold is 18/24 or 75 per cent pure gold or 3/4 gold and 1/4 something else.

Not since the first issue of this page in the August, 1942, issue of Desert Magazine have I discussed the term "lapidary." In spite of the continued use of the term in advertisements and occasionally in magazine items it is incorrect to use the terms lapidist or lapidarist when lapidary is intended. A lapidist or a lapidarist is a connoisseur of gems and skilled in his knowledge, but a "gemologist" has succeeded the use of the older words. Seldom does a lapidarist know how to cut a gem.

A diamond cutter is just that—skilled in the methods of cutting only the diamond whose physical properties are different from any other gem. A lapidary is a person who cuts and

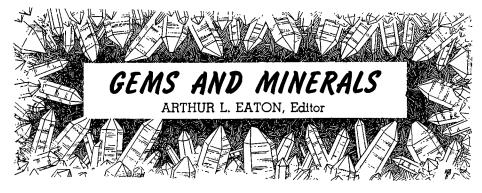


polishes all gems other than diamonds while a gem cutter (as defined at Idar-Oberstein, the great gem cutting center in Germany) is a per-son who cuts stones of a hardness no greater than 7 and who uses water power to do it. When he uses carborundum wheels and electrical power then he is promoted to the "lapidary" class. We amateur gem cutters in America are therefore lapidaries but seldom do we earn the distinction of being a lapidarist or a gemologist, which requires years of scientific study.

Perhaps you missed the exchange idea last month. Briefly, if you have any item of lapi-dary equipment for sale, or surplus materials you unselfishly want to get into the hands of people who need them, record them with your asking price and send the information to Mr. Elphage Mailloux, 9536 Otis street, South Gate, California. If there is something you wish to buy register your wish with Mr. Mailloux. In both cases send him postage for replies. He will attempt to bring buyer and seller together and it is a free service. If you are tired of the hobby why not sell your equipment to someone who really wants to cut and can't get it because of the shortage? Remember, this service is for the exchange of equipment only-not rocks.

DID YOU KNOW-

- Sterling silver is 92½% silver and 7½% copper while coin silver is 90% silver and 10% copper. American coins are of coin silver while British coins are sterling.
- 18 karat yellow gold is 75% pure gold and 121/2% each silver and copper.
- 18 karat white gold is 75% pure gold, 17% nickel, 2½% copper and 5½% zinc.
- 18 karat green gold is 75% pure gold, 22½% silver, 1½% nickel and 1% copper. Green gold, therefore, contains the greatest value in metal.
- Any gold less than 12 karats (half gold) is not properly considered gold.



LIBERTY SHIP NAMED FOR SEARLES, BORAX PIONEER

Richard W. Emery of Calship news bureau, Wilmington, California, releases the information that a 10,500-ton liberty ship launched December 2nd was christened the S. S. John W. Searles, in honor of John W. Searles who discovered borax in 1873, and founded the borax industry in United States. Searles built a crude borax refinery at Searles lake and hauled the product overland to San Pedro with the famous 20-mule team. He shipped the borax by boat from San Pedro to San Francisco.

BLUEJACKETS WORK ON NON-SKID JEWEL DECKS

Semi-precious stones now are being used to good advantage on the decks of United States warships, to steady the feet of rapidly moving bluejackets in time of battle, and to surface the flight decks of great carriers to prevent accidents when the planes take off in wet or foggy weather. Goodyear tire and rubber company crushes garnets to a coarse grain, and uses them to coat the decks and gun emplacements of war-ships. They make this "Dektred" covering by mixing the garnet gravel with a special fire-resistant plastic or synthetic resin binder that is capable of sticking to the smooth deck of a bat-tleship or carrier. The mixture of garnet and plastic can be spread either with a trowel or spray gun, and renders wet decks much safer in the wet weather so common in the tropics.

WHITE PHOSPHORUS USED IN NEW HAND GRENADES

Among the newer deadly weapons being used by American soldiers against the Japs, with great effectiveness, is a bomb or hand grenade containing white phosporus. Red phosphorus becomes dangerous only when exposed to open dangerous manner. White phosphorus, however, must be kept wet or airtight. When the white, dry substance reaches the open air from a bursting grenade, regardless of outer heat, it instantly bursts into livid, blistering flame. The Japs seem to be particularly "allergic" to this form of phosphorus, and pile out of their shell or fox holes instantly, when the fumes are detected.

DIAMONDS RECOVERED BY WEIGHT IDENTIFICATION

A carat, the standard used in weighing most precious stones, weighs 205 milligrams, or four grains avoirdupois, or 3.21 grains troy. Five carats weigh slightly more than one metric gram. A carat of diamond is divided into 200 points. The weight of fractions of carats often is expressed in these points. Each point is almost exactly one milligram. Identification of lost stones often depends on a previous knowledge of the exact weight in carats, points, and even fractions of points. A very valuable stone, stolen by robbers in Mexico, was recovered, identified, and restored to its owners recently because they had an exact record of its measurements and weight.

NU-LITE

R. E. Hoffman, metallurgist of Boise, Idaho, announces discovery of a new metal 40 percent lighter than aluminum which he calls nu-lite metal. He says that nu-lite can be manufactured from metals now produced in quantities in the western states. Its metallurgical formula is secret. Nu-lite, it is claimed, does not rust or corrode. It can be made any tensile strength up to 185,000 pounds to the square inch. It can be made malleable or harder than steel and absolutely bullet proof. Cost of manufacture is from five to 30 cents per pound according to type of material produced.

Did You Know That Hematite . . .

- 1-Is iron trioxide?
- -Varies in hardness from 6.5 down to one?
- -Is found in most countries?
- Is found in Cumberland, England, as 'kidney ore?'
- Scratches red?
- -Ranges in color from red to black?
- -Has a specific gravity of 5.2? -Is cut and sold as both "Alaska black diamond" and "Mexican black diamond?
- 9—Sometimes has micaceous cleavage? 10—Furnishes color for rouge, lipstick and
- cosmetics?
- 11-Is the red color in rubies, jasper, etc.?
- 12—Is used to color red paint?
- 13-Sometimes forms long, slender, curved needles?
- -Has metallic luster?
- -When exposed to extreme heat and pressure becomes magnetic?
- Causes bright red colors in the Grand
- Canyon, Bryce canyon, etc.? 17—Is the chief source of United States steel and iron supply?
- 18—Sometimes forms radiating masses?
- -Is sometimes found in the desert in masses weighing from a few grams to hundreds of pounds?
- -Is the most common American iron ore?
- 21-Averages 70 per cent iron?

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ANTIQUES

In our house you will find Trash and Treasure of every kind. Choose with care the things in quest. Old things with memories seemeth best. From Grandma's mantle o'er the hearth Come trinkets cherished since our birth. Pattern glass and china old Bring to collectors joys untold.

GEM STONES

In nature's magic workshop Behind an emerald screen Are forged precious jewels To crown a Fairy Queen. You'll find them at our Hobby House, A karat, slab or ton. Gorgeous rainbow colors—hues of setting sun. Cabinet specimens, gems in the rough, Thunder eggs and geodes that really do their stuff.

THE GREATEST COLLECTION OF SUN-COLORED GLASS IN THE WORLD

Says One Rockhound to Another—"Come Over and See Us Sometime"

COLORFUL MINERALS

ZIRCON

Zircon, in tiny crystals, is scattered all over the earth as colored specks in granite and other common rocks. Minute but very beautiful crystals are found in the sands of the Florida coast. These crystals are usually square prisms with low, four sided pyramids on each end. The color ranges through red, yellow, reddish brown, green, blue, grey to almost black. The reddish crystals ere known colloquially as hyacinth. Colorless, red, blue or green stones are popular as gem stones, the deep blue stones bringing a very high price. The hardness of 7.5 and high index of refraction make them very desirable. Gem zircons of many colors occur in the U. S. A., Australia, Ceylon, India, France, Siam, and other countries. No collection is complete without zircons in all colors, both as crystals and as cut and polished gem stones.

AMONG THE ROCK HUNTERS

1944 officers of Long Beach mineralogical society are: Elvin S. (Jim) Bond, president; Ralph E. Houck, vice-president; E. F. (Bill) Carlson, secretary; J. E. Webb, treasurer; Milo Potter, member of executive committee. December board meeting was held at the home of President Bond, 1521 Gardenia avenue. Regular meeting place of the group is the 9th Hole clubhouse. At pot luck Christmas party members brought rock gifts for exchange. Several door prizes were awarded.

Paul Van der Eike, editor of Mineral notes and news, official publication of California federation of mineralogical society, has changed his address. Communications should be sent to Rt. 5, Box 177, Bakersfield, California.

Fifty-one of the 104 active members of Sequoia mineral society were present at the regular November meeting.

Isabel Westcott and Elmer Eldridge have arranged an exhibit of strategic minerals to be displayed in the geology department of Fresno state college.

Montana claims first discovery in United States of a deposit of quartz crystals acceptable for manufacture of war radio equipment. James Lozeah and J. L. Waylette, of Paradise, Montana, located the deposit. Crystals are worth ten dollars a pound. Production is under supervision of United States bureau of mines.

Los Angeles mineralogical society picnicked and field-tripped January 9 at Sycamore grove and Southwest museum. They also visited the Lummis home and old Spanish adobe.

Membership in Mineralogical Society of Arizona reached the 100 mark November 5. when Dr. J. A. Lentz joined the group. The juniors number 12. Meetings are held first and third Thursdays at Arizona museum, 1002 West Van Buren street, Phoenix. Society maintains an exhibit in the chamber of commerce window. Current display consists of a selection of ores of aluminum and type specimens of the ores of the principal alloy metals magnesium, chromium and copper; also examples of fabricated aluminum produced by plants in the Phoenix metropolitan area.

Los Angeles mineralogical society celebrated the holiday season with a party at West Ebell clubhouse, December 16. Speakers and entertainers were volunteer members. They had a grab bag and swapfest. President Richard Lehman has appointed Ben Schwartz historian to record the progress of the society.

GEM MART

ADVERTISING RATE 5c a Word — Minimum \$1.00

- INTRODUCTORY OFFER-One dollar each lot. Five all different Fluorescent Agatespolished. Thirty rough Mexican Opals. Fifty nice pieces Turquoise. Twenty different polishing specimens. Postage ten cents. Minerals and gems on approval. DR. RALPH MUELLER, Professional Building, Kansas City, Missouri.
- AGATES, Jaspers, Opalized and Agatized woods, Thunder eggs, polka dot and other specimens. Three pound assortment \$1.50 postpaid. Glass floats, price list on request. Jay Ransom, 3852 Arboleda Ave., Pasadena 8,
- Tourmaline matrix, in quartz crystals, \$1.00 to \$30.00, tourmaline pencils, 50c to \$5.00, Essonite garnet-green-clusters, 50c to \$3.00, unique specimens. Sagenite agate, \$1.00 to \$4.00, specimen rough nodules. Gem list 10c. Return specimens if not satisfactory. The Desert Rats Nest, 2667 E. Colorado St., East Pasadena, Calif.
- Swisher Rocks and Minerals, also Corals, Shells, Statues, etc. We also buy mineral species and woods. Must be good. Swishers, 5254 So. Broadway, Los Angeles 37, Calif.
- 20 mixed fossils for a dollar bill. 100 ancient Indian arrowheads \$3.00. 10 tiny bird arrowheads \$1.00. List Free. Lear Howell, Glenwood, Ark.
- \$2.50 brings you prepaid six rare and beautiful crystallized Arizona minerals. Vanadinite, Dioptase, Wulfenite, Willemite, Chrysocolla, Azurite. Specimens 1½x2 or larger. Wiener Mineral Co., Box 509, Tucson, Ari-
- 100 Jewelry Stones removed from rings, etc., \$2.00. 12 articles of Antique Jewelry, rings, pins, etc., \$3.00. B. Lowe, Box 311, St. Louis, 1, Missouri.
- CABOCHON CUTTERS with our unnamed mixture of good cutting material sawed ready to shape cut and polish you can finish several fine stones. 25 cents for two ounces and with money back guarantee. Gaskill, 400 North Muscatel, San Gabriel, Calif.
- News of Rocks and Minerals every week in "Popular Hobbies," big new newspaper for collectors. \$1.00 per year, sample copy 5c. Box 710, Los Angeles 53, California.

- INDIAN RELICS, Curios, Coins, Minerals, Books, Old Buttons, Old Glass, Old West Photos, Weapons, Catalog 5c. Lemley Antique Store, Osborne, Kansas.
- I have sold my place near Banning known as "Desert Gems" and am opening a new place. A large building on D and 3rd St. in La Verne, California, 3 miles north of Pomona, where I will be happy to welcome all old friends. Geo. W. Hilton.
- ROCK COLLECTORS, ATTENTION! A COLORFUL COLLECTION — 5 slabs Cuttables, \$1.00; Sky Blue Fluorite Xls., \$1.00; Azur-Malachite, \$1.00; Chalcanthite, \$1.00; Amethyst Phantom Xl., \$1.00; Iron Pyrite and Qtz. Xl. group, \$2.50. Realgar & and Qtz. XI. group, \$2.50. Realgar & Orpiment XIs. on Calcite, \$2.00; Purple Dumortierite Radiating XIs., \$1.00; White Aragonite Stalactites, \$1.00; Silky Asbestos, \$1.00; Vanadinite Xls., \$1.00. Free polished specimen. All the above postpaid \$8 00. December offer still good. The Rockologist, (Chuckawalla Slim), Paradise Trailer Court, 627 E. Garvey Blvd., Garvey, Calif.
- Water Clear Quartz Crystals of the finest quality, single points from 5c to \$2.50 each. Clusters or groups from 25c to \$25 00 each. Beautiful Cabinet specimens at \$5.00, \$7.50 and \$10.00 each. Wholesale and retail. Satisfaction or money back guarantee. Delivery charges extra. Jim Davis, 303 Ward, Hot Springs, Arkansas.
- 50 Genuine and Synthetic slightly damaged stones assorted \$7.50. Genuine Zircons blue or white 3 for \$3.75. Twelve genuine Cameos or Opals \$2.50. B. Lowe, Box 311, St. Louis. 1. Missouri.
- Minerals, Fossils, Gems, Stamps, Coins. Pistols, Glass, Bills, Indian Relics, Bead Work. Catalogue 5c. Vernon D. Lemley Curio Store, Las Cruces, New Mexico.
- Montana Moss Agates in the rough for gem cutting \$1.00 per lb. plus postage. ELLIOTT'S GEM SHOP. Petrified Picture Wood and Moss Agate Jewelry Hand Made in Sterling Silver Mountings — Rings, Bracelets, Neck-laces, Brooches, Tie Slides, etc. Mail orders filled anywhere in U.S.A. 25 Jergins Arcade. Long Beach 2, Calif.

DESERT QUIZ ANSWERS Quiz on page 14

- -Souths were searching for new homesite, with better water supply.
- -Meteors may be found nearly anywhere.
- -Ross Santee.
- -Laguna pueblo is on bank of San Jose river.
- Starlite is trade name for artificially colored blue zircon.
- -About 25 inches.
- -According to legend, Holy Twins destroyed mythical monsters, thus saving the world from evil.
- -Highgrading, or stealing rich ore from mines by numerous clever devices, is condemned in the best circles.
- Ouartzsite.
- 10—Home of giant ground sloth. No human remains have been found
- 11-Conditions must permit bacterial
- growth.
 -Skin of newly-hatched Roadrunners is oily-black, with a few stiff white hairs.
- -Highway 80 would take you through Tombstone.
- -On plateau northwest of Flagstaff. -Chrysocolla is silicate of copper.
- -Five-story structure in Arizona was built by unknown prehistoric Indians.
- -Sand consists of small pieces of rock of any kind not more than 1.5 millimeters nor less than .05 millimeter in diameter.
- Bean People is English version of Papago name for themselves— Papah-oo-tam.
- -Jet occurs in veins of coal.
- 20-Lee's Ferry is on Colorado river.

Tacoma agate club, Tacoma, Washington, announces that the following officers were elected December 2: Aubrey A. Porter, president; Tom Morgan, vice-president; Bertha Reiter, secretary; Juanita Savisky, treasurer; Art Farrell, director. The club meets first and third Thursdays at Plymouth Congregational church South 45th and Park avenue. Visitors are welcome. The new president's address is 6515 South Tacoma avenue, Tacoma 4, Washington.

Thomas F. López, Fresno attorney, gave an eyewitness account of Mexico's new volcano, El Paricutín, at December 7 meeting of Sequoia mineral society, held in Parlier.

Imperial Valley gem and mineral society tested their wits with some clever rock games devised by Mary Jane Neal, secretary, at December meeting held in the home of Mr. and Mrs. Harry Seaman, Holtville. First prize, a sagenite agate heart, went to Eva Wilson. January meeting took place at the Searcy residence in Holtville. ville. The group hopes that with the lifting of dimout regulations meetings may be resumed in the courthouse in El Centro, a more central lo-

Rocky Mountain federation of mineral societies, like many other similar organizations, has found it impractical to attempt holding its annual meeting and election of officers. How-ever, in order to keep the organization intact and active, circular letters were sent to each of the 14 member societies. In this way, officers for the following year were chosen. President Arthur L. Flagg, of Phoenix, Arizona, was reelected and filled the other offices as follows: Mrs. Charles W. Lockerbie, Salt Lake City, Utah, vice-president, and Humphrey S. Keithley of Phoenix, secretary-treasurer.

W. Scott Lewis' December bulletin has an article on the mystery of the missing electron, dealing with fluorescence. He also reports that he has obtained some specimens that apparently are franklinite, but which do not come from New Jersey. The ore was found in one of the houses in Little Tokyo, Los Angeles.

Copper was the subject discussed at December 3 meeting of Orange Belt mineralogical society, held at San Bernardino junior college. Mrs. Peter W. Burk talked on the use of copper and industrial uses of copper in the United States. E. C. Cline told the story of copper. January topic was calcite.

Pacific mineral society, inc., enjoyed a Christmas party with a grab bag (contents furnished by members) at Hershey Arms hotel. December 12. Three members gave short informal talks: Roy Martin, on volcanic gases; Harold Eales, housing a collection; and Roy Correll, new developments in concentration.

BIRTHSTONES

American national jewelers' association adopted the following "official" list of birthstones in August, 1912:

- January-garnet.
- February—amethyst.

 March—bloodstone or aquamarine.

 April—diamond or sapphire.
- 4.
- May—emerald.
 June—agate, pearl or moonstone.
- July-ruby.
- August-sardonyx or peridot.
- September-sapphire or chrysolite
- 10. October—opal or tourmaline.
- 11.
- November—topaz.

 December turquoise or lapis lazuli

Cogitations

Of a Rockhound By LOUISE EATON

Rockhouns is beginnin' to wunder if there'll be eny speciments left in their favorite field-trippin' territory after the duration is over. Shurely so many soljers can't all be unrockhouns. Therz undoubtedly at least sum hammar houns amungst 'um. Practice bommings, too, isn't 'xactly what rockhouns'd order for their precious hunting grouns. Only thing to do is wait. Good news is that civilians may

purchase jeeps when peace cumz. Readin' Desert Magazine is sortta like eatin' a nawfully good dinner. Yu jus wades in 'n injoys it without eny thots about the wurk back uv it. But both takes lotsa preparation ahead uv time. Not only duz the eatables have to be cooked 'n fixed up for the meal, they has to be grown 'r dug 'r concockted 'n gathered together. Consider sage 'r salt 'r turkey 'r butter. Desert's articles n stories has mutch purposive effort behind um too. To say nuthin' about problems uv paper, printin', transportation, etc. But everywun appreciates Desert when it arrives.

DESERT MOSAIC

By JEANNE HOWARD Reno, Nevada

The garnet, the ruby, the emerald are the stones

in a streambed dry, The turquoise and matrix of piled pearl becomes

the vaulted sky; The mossy green of the junipers inlaid against

salmon sand, The chameleon sage of the desert in this ever-

changing land. Silver-tipped in the moonlight, amethyst in a

dying sun;
Dusty green with a copper sky—and the desert mosaic is done.

Parlier lapidary class under Chris Andersen has started recently, and meets Monday and Thursday evenings from 7:30 to 9:30.

December mineral notes and news continues its articles on fossil woods of California, as well as its studies in crystals.

It has been estimated that aluminum constitutes 73 per cent of the earth's crust.

San Fernando valley mineral society has postponed its usual excellent mineral show until war conditions moderate to the extent of giving members more time and gasoline.

Lassen rocks and minerals society, Susanville, California, is now a member of the California federation of mineralogical societies. George M. McDow, Jr., is secretary.

JADE AND "MEXICAN JADE"

Much of the costume jewelry sold both in this country and in Mexico as "Mexican jade" actually is calcite colored green. The color often is quite different from that of true jade. There is true jade for sale in the United States and a small amount for sale in Mexico, but most of the Mexican variety is calcite. A simple test is hardness. True jade is seven hardness while calcite is only three, easily scratched with a pocket knife. Also a drop of hydrochloric acid effervesces on the calcite, but not on jade.

December Sequoia bulletin continues the history of Sequoia mineral society. A previous chapter was published in bulletin 23, May, 1940. Another installment is promised soon.

Mojave Desert Gem and Mineral Shop . . .

On Highway 91, 11 Mi. East of Barstow One Mile West of Yermo, California E. W. SHAW, P. O. Box 363, Yermo, Calif.

Specials for February...

Here's something for you cutters while you are shut in for the winter-

- 1. PALM ROOT—This palm root is from the old finds at Yermo. And if you know palm root you know that the Yermo material is among the best. 75c per Lb.
- 2. NODULES—Our recent nodule offers were so popular that we are offering further selections from our nodule stock. Beautiful Chocolate Mtn. stock. Beautiful Chocolate Mtn. Black Nodules, or odd types from Idaho.

50c per Lb.

SPECIAL OFFER-Our Chocolate Mtn. nodule of cutting size along with one beautiful polished half—\$2.00. Polished half alone—\$1.50

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UNUSUAL AND RARE CUT GEMS --

in Precious Topaz, Golden-Beryl, Rhodolite and Hessonite Garnets. Also rare green.

ALL KINDS OF AGATES \$1 to \$10 Dozen

Spinels of all kinds. Cabochons in Turquoise, Emeralds, Azur-Malachite, Golden-Starolites, Swiss-Lapis, etc. All kinds of Scarabs.

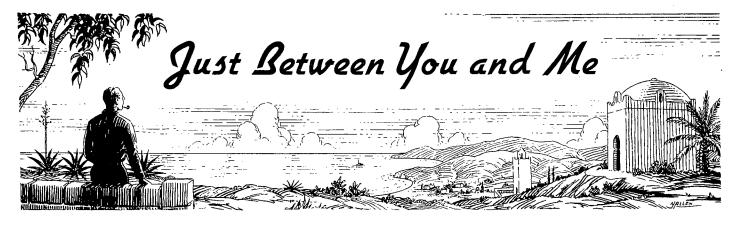
CEYLON ZIRCONS-50c per carat. STAR SAPPHIRES-\$1 per carat. COLOMBIA EMERALDS-\$10 up each.

Synthetic Stones. Rare Cameos, Necklaces, Stickpins, etc. Rough Gems for Cutting in Garnets, Tourmalines, Quartz-Topaz, Nephrite, etc.

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Church-Street Annex P. O. Box 302 NEW YORK 8, N. Y.



By RANDALL HENDERSON

ITH THE ALLIED FORCES IN AFRICA—I have just returned from the Post Exchange where I drew my weekly luxury rations—soap, candy, gum, smokes etc. We have ration cards here, but they are not as complicated as the ones issued in the States. The stock of purchaseables is much more limited here. Each week we are entitled to two packages of gum, our choice of a peanut or chocolate bar, a cake of soap, a half dozen razor blades, one handkerchief, one pair of sox, eight packages of cigarets or their equivalent in cigars or pipe tobacco, and enough dental cream, shaving soap and other essentials to carry us through to next ration day. We get all we want of all items except candy. The most popular Christmas packages that came overseas were those containing candy and cake.

Human needs really are quite simple when reduced to essentials. I have been living for 15 months with all my personal equipment, including clothes and a few books, contained in a Val-pack that weighs less than 60 pounds. Civilians, in the postwar days, also are going to have to learn the art of traveling light as airplanes become more and more the accepted mode of transportation.

* * *

At the mess hall the chattering French girls who formerly waited table have been replaced by Italians. Formerly these Italian boys were prisoners of war, but now they have much more liberty than is generally accorded a prisoner. They do not need guards. They like their job too well.

They were slow and clumsy at first, but they made up in willingness what they lacked in skill. They cannot understand English, but they both talk and understand that universal language which draws people together more than words—a ready smile. It is hard to get out of patience with a waiter who grins when he brings you tea instead of coffee. The mimeographed menus are in both English and Italian—but I suspect these boys would rather have us give the order in English. They are eager to learn our language. Judging from reports from the home front, these rough peasant lads probably are giving us better table service than most Americans at home are getting these days.

* * *

One of my Christmas packages contained Henry J. Taylor's MEN IN MOTION. He raises the question: Why should Europe complain of over-crowded population when close at hand is Africa with its enormous undeveloped resources? That question has occurred to many of us who have flown over the vast expanses of this fertile continent.

With the exception of South Africa, very little real colonization has been done on this continent. The possibilities are almost beyond imagination. But let us hope that if and when the white people of post-war Europe start a migration this way it

will not enslave the native population. For the most part, the black men in the great fertile region that extends south from the Sahara have a native endowment of intelligence that entitles them to be co-workers in any future scheme of empire, rather than underpaid laborers for a financial aristocracy.

* *

December issue of Desert just arrived, and I want to send greetings to the magazine's new war correspondent in the Pacific theater. I refer of course to Corporal Rand, the junion member of the desert tribe of Hendersons. Rand was on Desert's staff before he joined the Marines—and I hope he'll report for duty again when the shooting is over. He did not contribute much writing during his previous hitch at the Desert office. But after reading his page in the December issue, I am ready to promote him to the editorial department. I hope he will be sending more copy from the Japanese front.

In the meantime, I know that other desert folks will share my appreciation for the fine way in which Lucile and Bess and Evonne and the other members of the staff are carrying on the traditions of Desert in the home office.

* * *

René, the little French sergeant who has been working at the desk near mine for several weeks, was all smiles today. He received orders to report to an airfield to resume the instruction as an army air pilot, interrupted when he left France in a hurry following the German invasion. France is his home and he shares the impatience of all loyal Frenchmen to go back there and drive out the Boches. Somewhere on this side of the Mediterranean he and numberless other French patriots are drilling hard and burning with zeal to regain their homes and restore the prestige of France. When I ask René what will be the fate of the Collaborationists of Vichy, he shrugs his shoulders and draws his forefinger across his neck in a way that leaves no doubt as to what he would do with them if it were left to him.

* * *

During the past six months I have been drenched with more rain than I saw during the previous 30 years on the American desert. The Fates seem determined to give my desert hide a thorough soaking for a change. At three successive stations, I arrived just in time to witness the peak of the rainy season. During the late spring months I caught the downpour on the south side of the Sahara. Then I moved to the west side of the same desert at the peak of the mid-summer shower season. And finally I arrived here on the north side of the Sahara for the winter and fall rains. It looked very very dry when I flew across the Sahara, but I can testify that there is no lack of rainfall on its fringes. I hope I do not emerge from this war a web-footed desert rat.



MESQUITE ROOT GLOW MEMORIES

By T/SGT. PAUL WILHELM Somewhere in England West of the San Berdoos The desert and the sky, East of Jacinto range The wind—and coyote's cry.

Where golden eagles nest And pearl-grey Bighorns dare The violet peaks look down Through crystal evening air.

Oasis lamps unlit, A cold hearth's darkened grave, An ember 'neath the ash That we must die to save.

Now only dreams are there, Old palms, a sandy rill As purple tints change guard At evening—on Squaw Hill.

West of the San Berdoos The desert and the sky, A soldier's heart still hears The wind—and coyote's cry.

MOJAVE DESERT

By Mrs. GLADYS I. HAMILTON Mancos, Colorado

I saw a place all queer and vast, Where trees refused to die; A land all weird and grimly sad Like a huge fish bowl gone dry!

PHANTOM MUSIC

By EDNA M. LANNING
Tonopah, Nevada
There is music in the silence
Of these old and time worn hills.
You may hear the lingering echoes
In the valleys and the dells
Where once water lopped and twinkled.

In the sunlight on the plain Now stand reefs of crumbling limerock, Long exposed to wind and rain, Barren, still and lonely, In bold relief they stand, Towering, mighty mounds of wonder, Lords of all that they command.

Listen deeply as you ponder And you'll hear the silvery strains Sung to age old sand and sagebrush On these old and mighty plains.

YAQUITEPEC

(To Marshal and Tanya South and their little ones.)

By J. N. NUTTER Long Beach, California

You have returned to Yaquitepec, To the peace which you could not find Nor here, nor there, nor anywhere, For you left your hearts behind.

Nor would we see Yaquitepec In other hands than thine; To you it has been a happy home, To us, a sacred shrine.

Oh, one may find a domicile Wherever he may roam, But time and toil and trouble, too, Must go to build a home.

So built we our Yaquitepec And made it passing fair, With a bit of the sandy desert here, And a touch of the tropics there.

Every foot of its precious soil, To us, is hallowed ground; For while we tilled it lovingly We peace and contentment found.

Soon may we leave our Yaquitepec And behind us our bridges burn; For when we go, if it must be so, We shall no more return.

Still waters we perhaps may find And plant beside them a garden fair; But we shall yearn for Yaquitepec, For our hearts will lie buried there.

GHOST MOUNTAIN GHOSTS

By MAUD CARRICO RUSSELL
Twentynine Palms, California
The ghosts upon Ghost Mountain
(Their happy haunting ground)
Reioice in their ancient souls
To have the Souths around
Lighting up the breakfast fires
In early dawn's cool hours,
Gardening in favored spots,
Loving bees and flowers,
Molding carefully the clay
For pottery they fire,
Like the "Old Ones" long ago,
As tribal needs require.
The ghosts, no longer lonely,
Must joy in those labors,
And be happy gentle ghosts
With the Souths for neighbors.

Pioneers

By ANNA E. FALLS Ganado, Arizona

Long they withstood the furious sandstorms'

Their roots held fast by rocks and weathered shale,

They cringed not at the warping blast and gale That topped the tallest pines and swept the sage. But now they lie, stark, cold, their spirits fled Mere ghosts, where once the evening camp-fire glow

Lit up their verdant crown, white-tipped with

snow,
And cast long shadows cross the canyon bed.
O Pioneers! If you could sing your song
Of desert thirst, of death-stroke at your side,
Of waiting years. of hope deferred too long,
Of faith grown dim. ambition's goal denied.
Would we not thrill as at some Western tale
Of human courage on unbroken trail?

DESERT SONG

By Georgia Moore Eberling Pueblo, Colorado

So quiet is the desert and so bright, So new it looks in this clear, swimming light, It might have been fresh made for you and me— Fresh from God's hands for lovers' eyes to see.

The desert flowers are gay beneath our feet, The desert air with scent of sage is sweet, The burdens of the world seem far away, And this might be the first creation day.

This mystery of silence and of glory Is fitting frame to hold our love's sweet story. The fevered world is full of war and trouble, Man's life is brief . . . an evanescent bubble . . .

But here is peace so vast and faith so old It can not help but make young lovers bold, So let's give each to each our deathless pledge And rest a space, here on the desert's edge.

ANTHROPOLOGY

By Duward Passmore Lawndale, California

Far up in the arid wastelands Of the lonely desert country Hides a sleeping warrior's grave.

No one reckons of its presence, Knows that there the brave lies sleeping All alone in solitude.

This tomb will never share his secrets, Tell his tale of fine ambitions, Now forgotten by his clan.

Nor will I disturb his slumber With the tools of my profession. Rest in peace, forgotten man.

SOULS OF THE DESERT

By Maurice W. Buckingham North Hollywood, California

A thousand feet or more
Have trod upon the aging floor
Where ocean waters stood before,
Where billowed waves recede no more—

And I, with only two,
Whose toes were often hid from view
Beneath the tracks I never knew,

Have also left a future clue.

A thousand souls or more

Have extered through the desert's documents.

Have entered through the desert's door; Immuring deeds, forevermore, They dwell in sand, forgotten lore— And I, with only one,

Whose puny acts have just begun, May leave the soul my life has won Beneath the desert's tranquil sun.

VALERIE JEAN'S Year-Round Gift

Five Pounds of Assorted Dates, Date Candy and Date Roll. (Also Date Cake when materials are available for baking this item.)

from the Desert

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\$425

. . . and in the . . . THREE POUND SIZE

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Valerie Jean's
THERMAL, CALIFORNIA

DATES TO REMEMBER . . . VALENTINE . . . EASTER . . . MOTHER'S DAY

THE

Desent

MAGAZINE





We still think customers are mighty important

By Your Union Oil Minute Man

If you work in a service station, you know that customers come in bunches, like mallard ducks.

Gloria, my Minute Maid, was off to lunch the other day when all of a sudden in comes four cars. I work like a beaver, but by the time I get to the last car, guess who's there waiting for me?

No less than Moose Wilson. Moose is big, weighs about 250, and when he loses his temper, the windows for blocks around rattle.

I expect him to roar like a bull.



"Hello," he says in a little voice.

Surprised? You could have knocked me over with a small carburetor gasket. "Hello, Moose," I say when I can recover, "anything the matter with you?"

"Oh, no," he says sadly, "I just feel kinda whipped."

Well, sir, Moose has a sad story. People don't pay attention to him any more. His housekeeper got uppity and left, for instance, and then a new grocery clerk insulted him. And just that morning, a waitress down at the Bijou Beanery told him if he didn't like the coffee, he could make it himself.



"Now, Moose," I say, "it isn't like that around here. Treating customers like human beings is a Minute Man policy."

"That so?" He steps out of his car which rocks like a boat when he leaves it.

"Yes, sir," I say.

Then I tell him how Union Oil Company figures it: nowadays it's no trouble to sell all the gas and oil you can get. But these times aren't going to last forever. Treating customers right today—even if you can only give them a smile—is like buying a War Bond. It's going to pay dividends later on.



"By the way," I remember suddenly, "what can we do for you today?"

"Oh, that," says Moose, "I got an awful rattle some place in my engine. Nothing important, but..."

Aha, I think. I call Gloria, who



is back from lunch by this time. We look the motor over carefully and bounce up and down on the bumpers. Gloria, who is poking around up near the fan, suddenly straightens up.

"Mr. Wilson," she says, grinning from curl to curl, "I don't think this is standard equipment."

She is holding up a monkey wrench.



"What!?" bellows Moose. He is fit to be tied. "It's that #%&!!/!\$*/#\$ kid of mine. Always tinkering. I'll tan his hide! I'll...I'll...rraughh!"

He leaps for his car, slams it in gear and guns out of the station. The same old Moose.

"Gloria," I say, "how's that for sticking to our Minute Man policy about treating customers



right? We not only stop his car from rattling, but we also bring *him* back to life."

Gloria wipes some grease from her nose and grins. Mighty fine girl, Gloria.



The latchstring is always out at Union Oil Minute Man Stations. We may not be able always to provide all the gasoline you want. You may have to wait now and then for service. But you'll find that courtesy, friendliness and essential motoring services are never rationed. We're busy, yes, as busy as anyone else, but we're...

NEVER TOO BUSY TO BE HELPFUL



Close-Ups

- Since sending his editorial page which appeared in December issue, Rand Henderson, on "leave of absence" from DESERT'S staff, has gone through the battle of Tarawa. As this issue goes to press he with other members of the Marine Corps is resting on a tiny island somewhere in the Southwest Pacific.
- In the Easter number DESERT will present for the first time a feature story on the Penitente Brotherhood of New Mexico. This strange survival of the Third Order of St. Francis which first was introduced into New Mexico in 1540 at time of the Spanish Conquest has stirred the imaginations of many writers who have used it not only as the subject of historical, religious and ethnological articles and books, but as the theme of stories and novels. Susan Elva Dorr, who has been interested in Southwest culture for many years, has written a sympathetic account of the Brothers of Light part of whose rites she was permitted to witness.
- In this issue Theron Marcos Trumbo has told one of the best known of New Mexico's lost treasure legends—the 18th century story of Padre La Rue's Spirit Springs colony and their great cave of gold bullion in the Organ mountains.
- In 1940 DESERT started a long series of lost mine stories, written by John D. Mitchell. New readers have been requesting the back issues containing this series but many of them no longer are available. Now DESERT is preparing another set of lost mine stories which have so many actual clues to their locations that readers will want to start right out looking for them—if they had the gas.
- Betty Woods, after a long absence from DESERT'S pages has written the story of Agnes Meader Snider, typical New Mexico pioneer, for this issue. Betty and her husband Clee both are writers. They claim Tyrone, New Mexico, as their home but much of their time in the past has been spent wandering into little known corners of the Southwest. They recently returned from Chihuahua City where Betty did a fourpage assignment on the Chihuahua Fiests for a national pictorial magazine.

CREED OF THE DESERT

By June Le Mert Paxton Yucca Valley, California

The wind comes sweeping o'er the wasteland

With naught to break its fitful rush; Then settles down in quiet rhythm, Singing softly to the brush.



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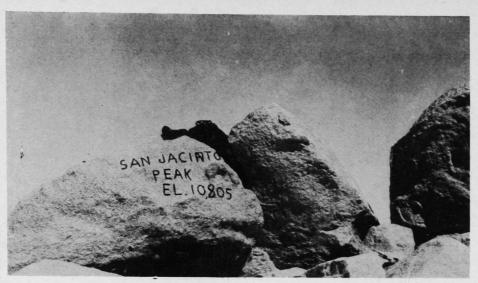
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At peak of San Jacinto mountain. Photo by Gene Hassler.

WHEN THE WIND WALKS ON THE DESERT

By MINA MORRIS SCOTT Columbus, Indiana

When the wind walks on the desert—Ah! I know its footsteps well—And it casts an eerie magic That is more than tongue can tell, When it whispers through the sagebrush, When it stirs the chaparral.

When the wind walks on the desert, Few are there to hear it pass, Where the scarlet ocotillo Thrusts aloft its fiery mass, As it touches rose and mallow, As it waves the prairie grass.

When the wind walks on the desert, In a never-ending quest, Purple lupine shows its blossoms, Squaw grass lifts its creamy crest; While the ivory spike of yucca Stands supreme above the rest.

When the wind walks on the desert, Sighing in an undertone, Wary wild things hark a moment, Coyote stands still and alone; Gopher, chipmunk, all are silent, Like the lizard by its stone.

When the wind walks on the desert— How few folk can ever know Of its sweet melodic cadence, As it whispers soft and low. Oh, that I might hear its music As I heard it long ago!

DUNES

By Sadie Mathers Miller Los Angeles, California

The winds are raging across the dunes, Higher and higher are piled the sands, As they form into palaces, turrets and towers And again recede as waves on the strands.

Beautiful, wonderful, cruel dunes That cover the bones of long lost men, Shifting and drifting in every breeze, Sweeping and creeping and rising again.

Beautiful, wonderful, lonely dunes That lie where the sun and shadows creep, Luring men blindly across the world And haunting their dreams when they fall asleep.

NIGHT DREAM

By BOYD F. KESSINGER Fort Belvoir, Virginia

Cool winds blew desert sand last night And re-formed every dune; It caught the fronds of slender palms And with the starry loom Of sky, it made them silver.

I dreamed of you last night, Cacti heard my prayer, They sent it upward to the fronds And it fell lilting on the air, Caught by the wind and stars And sent to you—to God, For answer to my prayer.

DESERT NOSTALGIA

By MARY E. PACKART Fullerton, California

I'm longing for the desert as a sailor for the sea, And as I sit here wishing, it all comes back to me:

The sunlight on the cactus and the palo verde tree,

The smell of sagebrush perfume upon the desert breeze,

The phainopeplas feasting in the mistletoe-clad trees,

And spring bloom filled with honey for the wild brown bees,

The sun and shade in patterns on the towering canyon walls

Where the sweet breeze blows and the rock wren calls,

And the sands washed clean where the cloudburst falls.

And oh, I long to tramp again the hot and rocky trails,

To stand atop a craggy hill while sunlight fails And watch the sunset drape the sky with crimson veils.

I long to rest again in the campfire's dying light, When the smell of burning greasewood is rich upon the night,

And the Easter moon is rising and the stars are low and bright.

It's there my heart is peaceful and life seems ever fair.

There is joy in very breathing of the clean and quiet air;

As long as I am living I'll be longing to be there!

The Mountain Climber

By GENE HASSLER Oakland, California

A million boulders, and ten million more! In geometrical design arrayed:
Prismatic slabs, spheroids, that once were core
Of Earth, when molten igneous matter swayed
The seas, and lavas tore the world apart!
A million boulders, cubed, or edged and shaped
To rhombohedrons, hemispheres, and cones,
To truncate pyramids, where ice had scraped
Terrific hardness, or, in splintered zones,
Where cleaved the granite from a crystal
heart—

A million boulders, and ten million more, Make up the towering mountains I explore.

A million tree-trunks, and ten million more! In shape and hardihood, a mighty throng: Some, shafts unbroken, to the sky would soar; Some gnarled, with twisted limb and branch, or prong;

Some, blasted ghosts, from lightning's fearful end!—

A million tree-trunks, cedar, oak, and pine, Strong hardwood stands, or conifers that fight, By granite boulders, DEATH at timberline! With reeling banners, but with souls alight, Their mountain birth-rights eager to defend, A million tree-trunks, and ten million more, Make up the towering mountains I explore.

BRIGHT DISTANCES

By Iris Lora Thorpe Portland, Oregon

Across these sunset wastes the mountains glow, Their granite summits broken into gold, Each ridge and slope and crudely sculptured fold Pastelled in amethyst and indigo...

Upon these transient hues my heart must feed, On barren ledges that have never known The quick green steps of grass, the lusty weed, The cool uprush of sword-fern in a blown Blue April rain...

Yet vision sharpens here Where vast bright distances allure the gaze, And dreams grow wider in the shining atmos-

phere
And the long silences of desert days;
The mountains cast strange legends on the sage,
The dusty voices of the winds relate
A thousand memories of some lost age,
And spindling cottonwoods before the gate
Stir in their meager soil and fill the sky
With silver reminiscences—that start
A sudden cry of birds, a lift of wings high
In the green forests of my heart.

CHUCKAWALLA PROSPECTOR

(On the death of Scotty Byron, December, 1943)

> By RUBY CLEMENS SHAFT Riverside, California

Sheltered within the barren walls Of the Chuckawalla range The mystery man of the desert Lived silent, alone and strange.

For fifty years or more he searched For the bright elusive gold With his pick axe and his shovel Through the heat and stinging cold.

The things he loved have claimed him now—

The mountains bare and high. He found his gold in the sunsets And dawns in the eastern sky.

He asked to lie near his mountains Where the desert willows weep And wild coyotes howl requiem For his never-ending sleep. Vernon Smith and Jim Macmillan really started out to add some more tonnage to a rock collection. But John Carricart sidetracked them when he told about Black Canyon in northern Mojave Desert. They doubted his incredible story, but curiosity made them willing to go on a wild goose chase. When they had power-dived over the desert roads and trudged up the dry wash which led to the basalt walls of Black Canyon, their amazement left them speechless. On the walls, on nearly every rock, prehistoric Indians had left a record of their life—about the only record which scientists have found. P. S.—On this trip Jim added only 30 pounds to his rock collection.

Sheep Hunting Artists Of Black Canyon Walls

By VERNON SMITH

OHN CARRICART, a little redfaced man with a big voice, trudged up the dry wash of Black canyon sweeping the rocky walls with triumphant gestures and shouting back at us, "There they are, you see! Just like I told you. All you want."

Petroglyphs and pictographs were there literally by the hundreds. Almost every rock had a symbol, a figure or an animal etched on it. In some instances, old petroglyphs were defaced by those of a later date.

"My gosh!" I gasped.

John roared with raucous laughter, "You didn't believe me, did you?"

I hadn't. My mouth hung open and I stared in utter amazement. "No," I admitted sheepishly, "I have never seen anything to equal it."

"Not many white men have ever been

here," John boasted.

On an impulse of curiosity I turned to my city - dweller companion, Jim Macmillan, to see how he was taking it.

Jim, a practical man, built solidly from the ground up, appeared about ready to break into a warwhoop. Either that, or three rousing cheers for the modest fee John had charged for guiding us to a Sand

Dune Sage's heaven.

Jim's hobby is anything left by the Indians, no matter how large, or how small. He has all the fundamental instincts of a pack rat and will pack home anything from a broken arrowhead to an abandoned hogan. His artifacts, strictly speaking, may not be orthodox in-so-far as art is concerned, but from the standpoint of sheer tonnage, his collection outweighs all others I have seen, including the museums that house them.

Some years ago, I took Jim with me on a field trip to San Miguel island from which he brought back 800 pounds net weight of pestles, mortars and bones. Now we were off on another salvage collecting expedition to a district where prehistoric tribes of Indians had hunted in the Coso mountains of California.

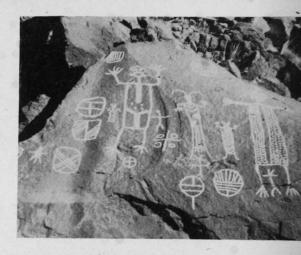
We entered the district from Darwin. At Junction ranch, where John Carricart lived, John told us the incredible story of Black canyon and agreed to act as our guide. Needless to say, we impulsively revised our original plans and set out on what appeared to be a wild goose chase—the kind that destroys your faith in human nature and leaves your car hopelessly stuck in the sand.

Leading the way in his truck, John power-dived over the old Nadeau road in what resembled a hurried evacuation, or a lightning getaway. We followed blindly his grey streak in a cloud of dust towards Cold springs for 11 miles, then south down a roadless valley of brush and joshua trees for two miles to the base of Louisiana butte. Here the valley widened and Black canyon cut a deep gaping wound in the earth.

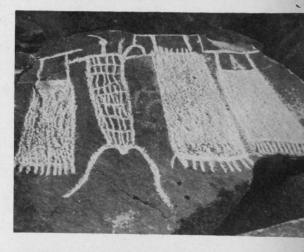
Black canyon has been ignored by the government topographic map-makers as an illegitimate child of nature, for it is a place which seems to defy all reason for its existence. As a matter of fact, I was curious to know how anyone, even an old-timer like John could have found it.

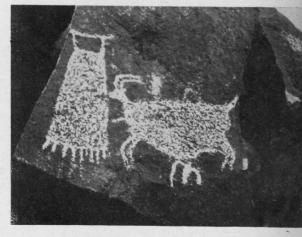
John sat on the runningboard of Jim's car, watching us make camp, and explained, "Me and my brother used to herd sheep over here."

John had a twinkle in his squinting blue eyes that suggested either amusement or just a plain sarcastic frame of mind. I never could tell which. Anyhow, his searching glances gave me an inferiority complex. Not that I was ashamed of our coffee percolator, our air-mattress sleeping bags, or our fresh vegetables—not in the











Vernon Smith, left, and Iim Macmillan. They started out to enlarge a rock collection but ended at a prehistoric art collection.

least. I take great pride in my delicious camp stews. But John annoyed me until he got back on the subject.

"We brought our sheep in, in the early spring, and stayed until the water was gone." He rolled a cigarette and reflected, "That was many years ago. One spring the snow caught us. A blizzard so bad we couldn't get out of our blankets for two days. We were camped down in the can-

yon, there, out of the wind, but we damn near froze to death. Most of our sheep did. That's how I happened to find those Indian things—pictures—what do you call 'em?"

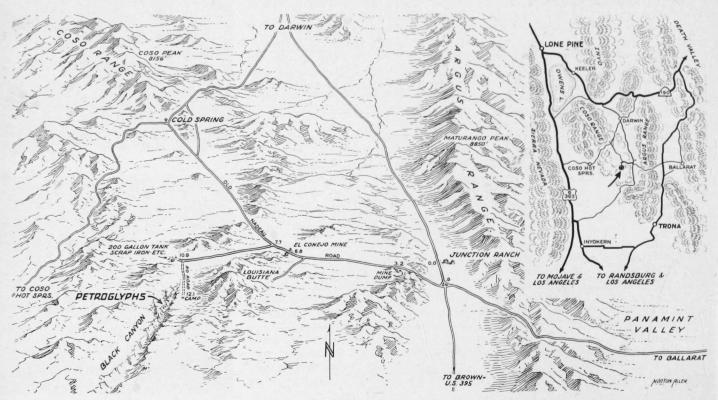
The petroglyphs told us another story. The story of a prehistoric tribe of Indians who came to the Coso mountains to hunt bighorn sheep.

Their camps were made on the rim of

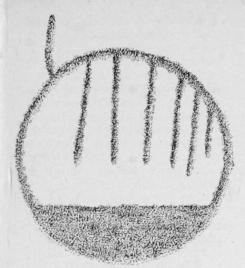
the canyon and worn trails led to the small stream below. Originally a fissure, the canyon with its basalt walls was more than 100 feet deep. The surrounding country was fairly level. Although 6000 feet above the sea, the shelf through which Black canyon cut a rugged gash extended for miles in a southerly direction, surrounded by peaks of brown granite. The soil was a deep rich loam, sprinkled with lava, abounding in wild flowers, and unusually rank vegetation for such a desert country. The district was capable of supporting great numbers of bighorn sheep, and the plateau itself was a perfect pasture for young lambs.

Many of the petroglyphs were records of the hunt. Bighorn sheep, with marks showing where the fatal blow of an arrow penetrated their bodies, predominated. Eagles, deer and antelope also were among the trophies. But most interesting of all, were the pictures of the Indians themselves. They appeared much more advanced than the coastal Indians or the neighboring Mojaves.

By the time we had finished my well balanced, tempting repast, night closed over us with the stillness of death. Not a breath of air nor the sound of a living thing broke the silence all night long. Brilliant stars hung low in the sky peering into a land where the curtain of life had fallen on a chapter of history in the dim past. I lay in my sleeping bag wondering what had happened to the sheep, the deer, and antelope and where the Indians had gone. It seemed to me their lives had been the span of but a fleeting moment, a brief record of grim survival in the endless march of time.



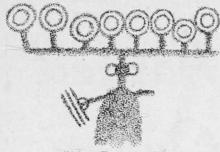
THE DESERT MAGAZINE



"MR. RAINLAKE"

The breath of dawn ushered in the next day with a gentle breeze rustling through the joshua tree above us, and while the blue haze gave way to a rising sun, the crisp air was permeated with the tempting aroma of coffee and frying bacon.

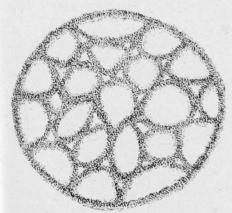
After breakfast Jim gave vent to months of pent up energy by touring the ancient campgrounds while I photographed in the canyon.



"MR. SINGER"

I began where a lateral ravine entered the main canyon, forming a wedge-like point of boulders. On it was a three-foot figure dressed in a garment extending to below the knees and surrounded by reptiles. This obviously was intended for the god of crawling creatures who protected the campers from harm.

On the floor of the canyon I found a



"MR. BEEMAN"

figure 20 inches high, apparently the likeness of a woman. The checked pattern of her garment, which came to her ankles, appeared on many other such figures. In all probability women were forbidden the use of other designs, leaving a more liberal selection to the choice of the men.

Without exception all the pictures of people were shown dressed in these long robes. Bighorn sheep must have been the main source of supply, for numbers of these garments were shown in the making. One in particular, stretched on a frame was shown with a sheep. This easily could be mistaken for a rug, woven from the wool of the animal. However, when one takes into consideration the bighorn sheep is a short, straight-haired animal, and none of the garments so depicted were shown with patterns, a more logical conclusion would be that it is a hide being tanned.

Three such hides were shown on another rock with a woman, joined one to the other by a line. The joining line almost invariably denotes possession. In this instance the woman was the proud possessor of three new spring dresses. Which, by the way, brings me to the disturbing thought that the women may have tried their hand at engraving while their braves were afield. In fact, I strongly suspect that was the case, for some of the figures were undoubtedly caricatures, a variety of good old back fence gossip with a marked tendency towards Rabelaisian humor.

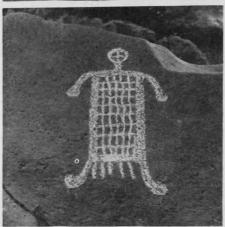
Many of the groupings were intended to tell some kind of story. One showing a bighorn sheep with a lamb, the center of a circle of dancers, told of a thanksgiving celebration that was held.

Symbols were most numerous of all. Some I had to copy in my notebook for nothing short of a helicopter could be used to photograph them. They appeared with figures, singly, and in numbers. No two were alike. One interpretation is that they represent the name of a person or his mark of identification. The design, too, probably was used on his garment, and its presence on a rock told of his visit to the locality.

It takes little stretch of the imagination to see in one circle rain falling on a lake. This man's name could have been Rain-Falling-On-A-Lake, or, Mr. Rainlake, as we would say. Another one resembling honeycomb might be Mr. Beeman's calling card. And another, Mr. Acorn. And still another, Mr. Houseman, Mr. Star, Dr. Singer, and so on. In any event, it's fun to try to figure them out, and still more fun to discover them.

The second day in camp an ominous storm gathered and we had to beat a hasty retreat to John's ranch. Jim had to come away with only one trophy, a rock with a single bighorn sheep etched on it. Jim was quite disappointed and wants to go back. The trip added only 30 pounds more to his collection.











From the expression on the owlet's fantastic face one would think he had caught the kangaroo rat himself.

EEP IN THE southeast corner of New Mexico, on the little-used desert road between Columbus and El Paso, Texas, lies a long-forgotten rancho. Its rusty windmill, creaking and groaning in the gusty restless wind, pumps nothing but air to the dry tank where thirsty cattle once came to water. Tumbleweeds, not steers, race about the ghostly corral. In a rude log shed hang an empty trunk, an ancient saddle, a single stirrup.

Slowly the desert reclaims what once was desert. Seed by seed mesquite and yucca slip under the sagging fences. Rare cloudbursts wash away old foundations. Sand erodes and drifts and covers. A bleached and lonely skeleton lies the little rancho under the heedless sky.

But although abandoned by men, the ranch's every inch is tenanted by infinite forms of desert life.

Last spring, Sis (my wife) and I decided to confine our weekend "birding" to the little rancho and its sandy environs.

Here we could find the material for a photographic cross-section of desert birdlife which would be fairly representative of the entire Southwestern area.

On a glorious afternoon early in May we began our ornithological reconnoitering. After two hours of dusty driving we had arrived in our venerable Buick to within a few yards of the ranch's corral gate when, for the third time that afternoon, we bogged down in the betraying sand. Extricating ourselves from beneath the jumble of camera equipment, food and water with which the car was loaded we began shoveling away the loose sand. Hardly had we begun the odious task when from the top of a tall yucca not 50 feet from the car flew a great, grey-brown, silent bird. Forgetting sand and shovel we rushed to investigate. Cradled in the yucca's shaggy arms was a large nest. I quickly returned to the car for a stepladder to see if the nest was occupied. It was! There in lofty solitude sat the three fierce,

When George and Sis arrived at the rancho, it appeared deserted-in fact, it looked like the perfect setting for a hauntedhouse story. Later when the silence of the night suddenly was broken with hooting, screaming, barking and whistling, further realism was added to the scene. Flashlights revealed the weird sounds to be the protests of Western Horned Owlets. Scientists call them Bubo virginianus pallescens, the sub-species name referring to the pale coloring as compared with others of the same species, such as the Arctic. Montana, Northwestern, Dusky and Pacific horned owls. The desert variety ranges from central Texas west to southeastern California, into northern Mexico. These are the only large owls with ear-tufts or "horns" - they grow to nearly two feet in length. The males (as male readers would suspect) have a shorter series of deep resonant hoots. The rhythm usually is - hoo, hoo-oo, hoo, hoo; while the females extend it-hoo, hoo-hoohoo, hoo-oo, hoo-oo.

Horned Owlets

By GEORGE McCLELLAND BRADT
Photos by the author

feathered babies of a pair of Western Horned Owls.

The moment I peered over the nest-edge they spread soft, broad, brownish wings, clenched white feet, snapped hard sharp beaks, and hissed in impotent, infantile rage. Not the slightest fear did they show. Perhaps they were counting on the parent bird, perched watchfully on the nearby windmill, to return to strike with vengeful talons the rash intruder. Perhaps they had never been taught to fear anything as singular as a soldier - ornithologist. Or what is even more likely, the three, greateyed hunters-to-be probably were so excited at the prospect of trying out their brand new talons on a real live victim (me) that they had forgotten to be afraid.

As much as I regretted it I had to disappoint the eager little creatures for I had no desire to become a proving ground for

owl talons. Still, I wanted to examine the contents of the nest, and secure a close-up of one of its occupants. It appeared I would have to pay dearly for my notes and pictures this day. I pulled on a pair of heavy gloves and "closed in." The ensuing battle was fierce but short. I managed to knock to the ground for later study three freshly-killed kangaroo rats, the hindquarters of two cottontails, innumerable jackrabbit feet, the wings of several mourning doves-and finally came away with one highly indignant baby owl. To photograph the furious nestling I handed it over to Sis. As I was wearing the only pair of gloves she had to hold the violent bundle of claws, beak and feathers barehanded. But I got the picture.

After separating wife from owl I returned it to the nest. We replaced the various rodent tidbits and started for the car. Once we looked back. High in their yucca home the three little birds were nodding sleepily, their amber eyes shut tight against the set-

ting sun.

Two weeks later we again started for the deserted rancho. We planned to spend Saturday night there in order to begin the next day's exploring early. But so many times did we get stuck in the sand that it was long after sundown before we reached the sentinel - like windmill silhouetted against the starry, purple sky. Before starting to make camp we hurried to see how the little owls were faring. But except for the weird shadows caused by our flashlights the nest was empty.

In the corral were two cottonwoods—one living, the other dead. Beneath them



In lofty solitude sat the three fierce feathered babies

we deposited our duffle and were just beginning to bemoan our ornithological luck when the soft silence of the clear cool night was broken by a startling chorus of hooting, screaming, barking and whistling. Our friends were with us after all! With our flashlights we picked out all three in the dead cottonwood just above our heads. On the topmost vanes of the windmill sat both adult owls. Two of the young birds were well out of reach of ladder and flashgun. But the third and smallest stood on a low thick branch only a few feet above the ground. It stared at us with blazing eyes, pupils contracted in the light. In its talons was the limp body of a kangaroo rat.

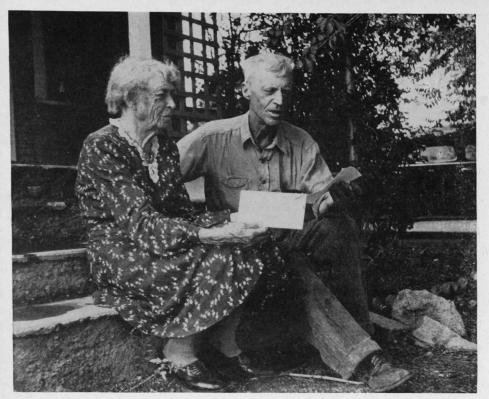
The fact that the young birds did not take wing when approached undoubtedly meant they had but recently left the nest. They probably were about six weeks old. Normally, fledgling horned owls do not leave the nest until they are five weeks old, and do not fly well until another five have passed. That they could get about well enough, however, was shown by the considerable altitude reached by the two highest owls. But although able to fly a short distance they probably were not yet hunting for themselves. For some time to come the parents would have to supply them with sufficient food to satisfy their voracious appetites. Between meals the owlets doubtless improved the starlit hours practicing the fine arts of flying and hunting.

To avoid annoying the owl family, and interrupting their nocturnal pursuits, Sis and I moved our duffle some distance off. We then returned to the owl-filled cottonwood to photograph the lucky possessor of the kangaroo rat as he examined his catch. From the expression on the owlet's fantastic face one would think he had captured the elusive rat himself. And we "shot" the earnest little fellow as if he were indeed the great hunter he someday would be.

Early next morning we awoke to find our rancho deserted by the owls. During the night they had drifted silently off into the desert distance.

Sis held the violent bundle of claws, beak and feathers barehanded while George "shot" them.





Agnes Snider and son Bert read a letter from Bert, Jr., torpedoman on a submarine in Southwest Pacific.

She Defied Victorio With an Empty Rifle

By BETTY WOODS

HE UNEASY bawl of cattle coming towards the Meader ranch house warned that something was wrong in the desert valley on this bright New Mexico morning. Spring was bursting in the willow and cottonwood buds along the Frisco river on the last day of April, 1880. Yet pretty 19-year-old Agnes Meader felt an ill-boding hanging over the cedar-dotted range country.

"Look," she pointed as the family watched the restless cattle. "Here comes a man riding lickety-larrup—it's Mr. Lambert."

"Get over to Roberts' cabin!" he yelled.
"The Apaches are coming!"

Mr. Meader whacked the team to the wagon. Agnes snatched a gun. Her mother and sister grabbed a few provisions. They all leaped into the wagon. Meader lashed the horses into a run towards the Roberts place a mile away. He kept laying on the whip, for already the

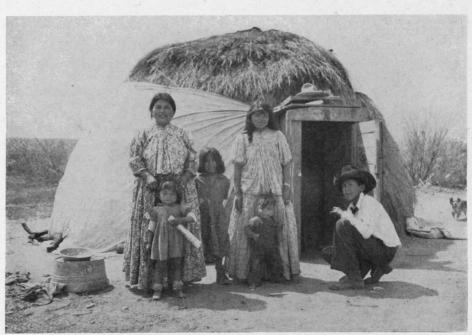
Butch Cassidy still lives! Regardless of the various ends supposed to have been met by the leader of the Wild Bunch, he still lets his friends hear from him and occasionally even visits them, declares Mother Snider, who by her testimony adds another facet to the Cassidy legend. Mother Snider is the kind of pioneer you read about in fiction. At the age of 19 she rode in a wildly careening wagon pointing an empty rifle at Victorio and his Apache raiders—and although a bullet ripped through her sunbonnet she aimed the bluffing rifle as courageously as if she were holding her fire for more deadly aim ... But when Butch Cassidy came to town for an interlude between robberies he was counted as a family friend—and she hopes he will come to see them again soon.

first of Victorio's marauders were topping the hill from Alma.

More and still more Indians raced their ponies down the slope. They brandished their rifles. Their yells carried to the walls of the nearby Mogollons. Agnes looked at her father's tense white face.

"They're cutting us off," he said. "We'll never make it!"

On the long low mesa paralleling the wagon road 200 more Indians came charging the Meader wagon. Then suddenly six white men lashed their horses from the Roberts place toward the imperiled family. They raced their horses out into the face of the Apache horde. Just six neighbors who,



Present day Apaches, first and second generation removed from Victorio.

Notice "Keep Out" sign over door of home.

like the Meaders had come into this desertbathed valley to make homes. But six gallant devils who thought nothing of their own lives when Agnes, her mother and sister might be dragged from that wagon while the father was being scalped.

This reckless half dozen threw themselves squarely in between the Meaders and the Apaches. Their rifles began picking Indians from the backs of sweating horses. This brought a thousand Apache bullets spattering haphazardly around them.

Agnes, sitting in the front seat with her father, held a heavy rifle on the attackers. But the rifle was empty! With nervous fingers the girl fumbled at the cartridge belt her father wore. The wagon bounced and swayed so wildly she couldn't load her gun. A bullet whizzed past Mr. Meader's head, cutting off a wisp of hair. A second bullet ripped through the cape of Agnes's sunbonnet. Still the girl pointed the bluffing rifle at the on-coming Apaches as though she were holding her fire for more deadly aim if they dared charge closer.

At last the wagon reached the cabin. Two other families, the Colters and the Roberts were "forted up" in the small adobe house.

"I never thought we'd make it," breathed Agnes, unbelievably.

"We wouldn't have, if it hadn't been for Wilcox, Skelt Williams and the other four," declared Mrs. Meader. "They saved our lives."

Quickly the Indians surrounded the little stronghold. Agnes and her mother then noticed the scarcity of water in the house. A few steps away from the back door ran an irrigation ditch.

"Hurry," Mrs. Meader urged Agnes and the others. "Hurry and fill every available vessel with water before the Indians turn it out of the ditch."

While the Apaches took potshots at them, the women raced from ditch to door, filling every possible container with water. Just as Agnes filled the last bucket, the water began to fall.

Then on the mesa above the cabin came Victorio himself, riding a white horse. The Apache leader's dark round face, framed by a long bob held down with a red band tied about his head, glared hatred for all white people. He raised his hand and waved a white cloth. It was not a sign of peace, but a signal to his warriors on the opposite mesa to attack. Now the siege of Roberts' cabin began in earnest.

All day blood-curdling yells and bullets beat against the thick solid walls that sheltered the three families. Wilcox, one of the heroic six, was killed. Night came



Victorio, a contemporary of Geronimo, terrorized inhabitants of New Mexico, Arizona and Chihuahua until 1880. Rose collection photo.

and with it the dread of morning. Agnes felt, and so did the others, that the first streaks of dawn would bring a new fury of attack. There was no hysteria. Just cold dread of death that daylight promised. They apportioned their ammunition to the best advantage—and waited. They waited with the determination to fight as long as one of them lived.

Taking part in these preparations, Agnes remembered that the night before at this time the family had been celebrating the successful planting of the potato patch. Not a single Indian scare had interrupted the work. Mr. Meader had called the family together and said, "Let's drink a toast to old Victorio. He didn't stop us from planting our potatoes!"

"No," Agnes thought, now, "but will we ever live to dig those potatoes?"

Agnes Meader and her family did live to harvest that potato crop. In fact, Agnes is still alive—a tall, slender woman of 80-odd adventure-packed years.

"Well," she says, in summing up the story of the siege of Roberts' cabin, "the sun came up and the only sound was the song of a cardinal. The Indians had left the country. They took their dead with them—nine in all. We went out and picked up nine pair of moccasins. It was an Apache custom to remove the moccasins of dead warriors before disposing of the bodies."

This was only one of numerous raids Victorio led against settlers. Four times within five years he had broken off reservations and renewed the Apache wars. From this day on, though, Victorio rode swiftly to his end. American troops pressed him harder and harder through the summer of 1880. Scores of his followers were slain, his son among them. With his weary, tattered raiders he escaped into Mexico. There, in September, Mexican troops attacked his band, killing Victorio with many others and scattering the rest.

For weeks "Mother Snider," as many

Leaders of Wild Bunch, some of whom spent interludes between robberies cowpunching near Alma, New Mexico. Left to right, standing—Bill Carver and Harry Logan. Seated—Harry Longabaugh, Ben Kilpatrick and George Parker, alias Jim Lowe and Butch Cassidy. Rose collection photo.





Apache raid, 1905. Photo courtesy Mrs. Snider.

of his, John Coffee, got a team and brought him to our house to be fixed up. Mother unravelled silk thread from a dress of hers,

Left—Lone survivor of buildings in Alma where some of the Wild Bunch at times hid out, leading respectable lives. Below — Susan Elizabeth Meader, Mrs. Snider's mother, from a portrait taken about the time of the

now call her, had been too busy canning to visit with me.

"I haven't retired to a rocking chair to sit wrapped in a shawl and old memories," she told me. "I've a family, and we've always bestirred ourselves."

Mrs. Snider lives in her own house next door to her son, Bert, in Silver City, New Mexico. She is still keen-eyed and steady of nerve. Not long ago a friend of the family complained to her that the sights on his rifle weren't quite accurate.

"Let me try your gun," said Mrs. Snider. She took careful aim at a sparrow on a post some 20 steps away, and squeezed the trigger. The bird dropped off the post, dead.

"Nothing the matter with those sights," she declared, handing back the rifle.

"My grandson," she smiled as she spoke of him, "is a good shot. When he was just a little button I told him he'd better learn to shoot for he came from a fighting family. Now he's fighting the Japs—torpedo man on a submarine."

There is a quality about Mrs. Snider which reminds you of the women whom sculptors so like to depict in pioneer statues. She has the gentleness and the determination and a kind of ageless strength that come from living on the desert frontier.

She likes people who possess the oldtime integrity and those who have a dash of daring in them. She says of the years when she was a young woman near the town of Alma, "In those days everyone had to be self-reliant. Take the time when a bear chewed up Sandy Joslin. A friend

Roberts cabin in which Meader family "forted up" during Victorio's terrorizing raid. From an old photo in Mrs. Snider's collection, made many years

before cabin was razed.



unravelled silk thread from a dress of hers, so John could sew up Sandy's cuts. He did a right neat job of it, too.

"Alma was young and wild, and one of the toughest towns in New Mexico. Men

Alma was young and wild, and one of the toughest towns in New Mexico. Men from the Mogollon mining camps, cowboys and a few outlaws always made the little plaza on the Frisco a place of rough and ready excitement."

Today about all that is left of Alma are humps of earth, like giant graves, which cover the foundations of houses long gone. One small false-fronted building stands under the great cottonwoods that mark the old plaza. You wonder if this adobe saloon, now empty, was owned once by "Butch" Cassidy, famous outlaw and boss of the "Wild Bunch." Butch and his gang holed up in Alma after various far-away robberies. Cassidy, like many Western desperados, was a capable all-around cowboy whenever he took a notion to punch cows anywhere from Canada to Cananea, Mexico.

Unlike most outlaws, Cassidy was not feared by the local citizenry, for Butch never was a killer. He made his hideaways more famous than any single one of his daring escapades. Two of his favorite and best known spots were "Robbers' Roost" in Utah and "The Hole-in-the-Wall," in northwest Colorado. On occasion, he'd



stay with the Meaders near Alma. But don't think that the Meaders even remotely belonged to the outlaw element. Cassidy merely was a friend who had plenty of daring and craved excitement, but the Meaders didn't try to reform him. That wasn't the way of the West.

"Now," says Mrs. Snider of Jim Lowe or Butch Cassidy as he was better known, "there is a real gentleman, if there ever was one. He was wild and reckless, sure, but aren't most young fellows. He'd never take anything from poor folks. He was a kind of Robin Hood, with friends everywhere he went. Even the sheriffs might tip him off when Pinkerton men got too active.

"He was always a devil-may-care fellow, and we all remember the 20-dollar bill incident. He had just come back from robbing a Wyoming train and was buying supplies at a store in Alma. He handed the storckeeper a 20-dollar bill. The proprietor told him the bill wasn't good since it hadn't been signed by a bank president.

"What shall I do about it?" Butch wanted to know.

"'I'd send it to the U. S. treasury to be signed,' said the storekeeper.

"'I'll just do that,' said Butch.

"Weeks passed. Then suddenly the country was alive with government and Pinkerton men. The law had traced the source of that 20-dollar bill. It had a line on Butch Cassidy and his Wild Bunch at last. But a Silver City stage driver whispered the word to Butch and he and the Wild Bunch went to the rugged mountain canyons. Detectives and officers got tired waiting for Butch to show up, so they returned east without their man."

"What became of Jim Lowe or Butch Cassidy?" I asked Mother Snider. "Different writers always give him a different ending, but you should know the real one."

"He doesn't have an ending yet," she laughed.

"You mean he's still alive?"

She nodded. "You see, down through the years we've heard from him. He still comes to see us."

Mrs. Snider chuckled at my utter surprise.

"When was he here last?"

"A year ago last Fourth of July. He came to see Silver City's rodeo. My son Bert wanted to introduce him to the rodeo crowd, but Butch said, 'No. That part of my life is all in the past. I want to forget about it.'"

The old West is not dead as long as there live women like Agnes Meader Snider and men like "Butch" Cassidy.

NEW FIVE-ACRE TRACTS REPORTED OPENED IN THE VALLECITO AREA

Opening of a 600-acre public land tract in Vallecito valley, in western Colorado desert, has been announced by Secretary of Interior Harold L. Ickes, reports the San Diego Union. Tract is opened under Izaac bill which permits leasing of five-acre tracts for home, cabin, health, convalescent, recreational sites.

Vallecito area lies in the foothills of Tierra Blanca mountains about 40 miles northwest of El Centro, California, at mouth of Canebrake canyon, about 1500 feet elevation. Water sufficient for domestic use is said to be available.

Site is on the old Butterfield stage trail and is best reached by state highway 78 (which connects Kane Springs on Highway 99 with the Pacific coast highway 101) 10 miles east of Julian, through Banner, and thence southeast through Blair valley, Box canyon and Mason valley. From junction with highway 78 the road is well improved gravel, to Vallecito stage station.

Information regarding applications for leases may be obtained from U.S. district land office in Los Angeles, or general land office, department of interior,

Washington, D. C.

Desert Philosopher . . .

SOLILOQUIES OF A PROSPECTOR

Drawing by Frank Adams

Text by Dick Adams



MARCH, 1944

Go--Where the Gold Lies Buried

By THERON MARCOS TRUMBO
Illustration by John Hansen

HE PADRE leaned closer to the lips of the dying man, so that he might hear the low-spoken words. "In the Sierra de los Organos, there is gold! I have seen it with my own eyes. It is no good for me to know of it, now. Padre . . . our people are starving . . . take them and go to the Organs. Surely they, too, will find the gold."

Gold! The padre was still young enough to feel an upward surge of desire and hope as he heard the words. The old soldier surely couldn't be wrong, for he had traveled over that whole wild northern part of New Spain. Then, too, the incredible wealth of the Aztecs was still remembered, for the year was only 1798. Padre La Rue looked out through the window to where his little flock were trying desperately to wrest a living from the drying fields of corn. Perhaps this was the answer to his prayers.

The man on the cot stirred and opened his tired eyes.

"This gold," the padre reminded him, "how can we find it? Where are these Organ mountains?"

"You must travel ten days until you come to the place where the Rio Grande cuts its way through the mountains. They call it *El Paso del Norte*. Two days' journey farther north and you will see the stone pipes of the Organ mountains . . ." Exhausted, he again wearily closed his eyes, rousing only with an effort. "At the north end there is a pass, and the Spirit Springs. Nearby you will find the *Cueva Vegas*, Cave of the Meadows, at the foot of a high cliff. The gold is there. Go, padre . . . go where the gold lies buried. You can save . . . our . . . people . . ."

With these words the old man died. The padre performed the last rites in a thoughtful mood. Go . . . where the gold lies buried . . . It seemed madness. Yet in a few months' time his people would be dying from the drought and poverty of this place. Where now were his early dreams? He remembered the day in France when he had been told that he was one of ten lucky young priests to be chosen for missionary work in the New World. He recalled the zealous thrill with which he had faced the long trip from France to this desolate little colony of hardy souls in northern Chihuahua. He had led his people wisely, becoming more than a mere

priest, more like a real father to his little family. And then the meager stream that had irrigated the fertile fields in the valley slowly dwindled, leaving the crops to dry and burn in the desert sun. Something had to be done soon.

Resolutely Padre La Rue called his people together.

"There are but two things we can do. It is impossible for us to remain here until the drought is passed. Certainly we would all die of starvation. We either can go back to Mexico and find homes among our friends . . . or we can go to the Organ mountains. Perhaps we shall find the gold of our good friend. Perhaps we shall find nothing. Which shall it be?"

There was among his people only one answer, "Gold."

It didn't take them long to prepare for the journey. Their mean little hovels held few possessions. One fine morning the caravan moved out of the village, leaving it quiet and deserted. And the *Camino Real*, that Royal Highway between Santa Fe and Mexico, was trod once more by a hopeful band toiling slowly northward.

True to the old soldier's word, after 12 arduous days they came to a broad green valley with the towering Organ mountains on its eastern horizon. Here was the abundant water of the Rio Grande, and the little Indian village of Tortugas traded them precious food for the bits of finery which were remnants of better days.

After a brief rest and a laying-in of food, they left the lush valley and continued up to the pass at the north end of the Organs. Again they were thankful to find that the old soldier's directions were accurate. There were the Spirit Springs gushing from the rocks, and there was the Cave of the Meadows. Now, where was the gold? Eagerly the men scattered into the adjoining canyons, unmindful of danger from lurking Apaches. Soon they stumbled onto chunks of milk white quartz with evident gold content. They had found the right place!

"This is to be our home," Padre La Rue told them after he had performed mass. "We must make it as safe as possible against attack from without, and strife from within. Gold is a good thing when it is used wisely. I ask you to remember our poverty, and that we are here by God's grace. To prevent trouble, I request that

all gold be brought to me. I shall buy all supplies and equipment we need from the valley settlements and from El Paso. We must keep this gold a secret. If others learn of it, many shall aspire to possess it."

Months passed . . . and years. The rich vein of ore was found far back in the canyon, where they could tunnel into it without detection from prying eyes. A high stone wall was erected about the village, and a constant guard was kept at the gate. Inside, the little houses of stone were beehives of activity and contentment. Arrastras, or ore-crushers, were built and adobe smelters arose where once the mountain goat had held dominion. Steadily the gold bullion poured into Padre La Rue's treasure - house — the old Cave of the Meadows.

But, as he had once warned his people, gold usually brought trouble . . .

The first hint of disorder was caused by Padre La Rue's own neglect of clerical duty. When he first had come to his colony in Chihuahua, he had wanted to wait until his mission was well established before he reported to the Church in Mexico City. But the drought came, and the climaxing knowledge of the gold. In the excitement of preparing for the journey, the question of his report to Mexico City was forgotten and when he did remember it, after reaching Spirit Springs, he deemed it unwise to let the Church know about their good fortune. The revelation of the gold would only bring an avalanche of greedy treasureseekers down upon their quiet village. So the matter of his report gradually was forgotten by Padre La Rue.

But it wasn't forgotten in Mexico City. The Church was intensely interested in the progress of each of the promising young priests. Reports came in regularly from nine of the priests, but from the tenth one in Chihuahua . . . only silence!

One Señor Maximo Milliano was sent north as a representative of the Church to find a solution to the puzzle. After a journey of many days he arrived at the site of the colony to find only crumbling adobe walls and sand-drifted barren fields. Señor Milliano was deeply vexed. Finding his way to a nearby Indian village, he faced the danger of bribing the natives to reveal their knowledge of the colony. He received for an answer, "They go . . ."

After reporting back to Mexico City,



Maximo Milliano, with the aid of the Church, organized an expedition to search for the whereabouts of this colony which had so strangely disappeared. After a whole year's time they stumbled by chance onto the Indian village of Tortugas. Here the Indians told Milliano of the colony in the Organs—told him of the gold that had been traded them for food. At sight of some of this very gold, Milliano's eyes widened in surprise. No wonder the Church had heard nothing from Padre La Rue!

Barred from entering the stone portals of Spirit Springs, Milliano demanded to see Padre La Rue.

A few minutes later, with sinking heart, the good padre appeared on top of the wall near the gate.

"Father La Rue, as representative of the Church, I demand that you immediately deliver possession of the mine and all gold bullion on hand to the Church, to whom it belongs."

The padre gazed steadfastly down into the greedy face below him.

"Señor, the mine does not belong to me. Consequently it cannot belong to the Church. God led a dying soldier to disclose its existence to us and God has helped us to develop it. It has been our only source of livelihood these years. Since the gold belongs to my people, I refuse to deliver over one small portion to you or to the Church. I would suggest that you return to Mexico City and forget us."

In anger, Maximo Milliano left Spirit

Springs to return again to Mexico. Padre La Rue knew that his little colony no longer would be safe here in the shadow of the Organs. Soon would come the throngs of gold seekers. He sank to his bed that night with a heavy heart.

Trouble came sooner than he had anticipated. The wild Apaches' hatred had been smouldering since the desecration of their holy springs by the white men. One dark night soon after Milliano's visit, when thunder was booming over the peaks and lightning threw weird shadows in the canyons, they swooped down upon the village, showered it with deadly arrows, tossed firebrands upon the roofs, overcame the guards and rushed into the treasure-house. Brave to the last, Padre La Rue stood guard over the mass of gold. But he was

overcome . . . and died in the room where he had guarded the gold so many years.

After the padre fell, those of the colonists still alive fled to the shelter of the canyons and the peaks. Rain poured down in mad torrents and the Indians soon fled. Half-drowned people clung stubbornly to their rocky shelters and listened with fearful hearts to the tumbling waters that were breaking and dashing down the canyons.

As morning dawned, the storm ended. Wearily, hopelessly, a little group of sodden humans collected where once had been the village of Spirit Springs. The mine was gone, covered now by tons of rock and rubble. During the storm a mighty stream had flowed through the village leaving only a few rock walls to show that man once had called it his home. Padre La Rue's cave was hidden, its entrance covered with stones that would take years to remove. Filled with despair, the pathetic refugees made their way down to the valley where they were welcomed among the Mexican people who had newly colonized the banks of the Rio Grande.

But the gold was not forgotten . . .

Each generation since has had its treasure-seekers. Today this land is no longer in Chihuahua, but lies in southern New Mexico. Like all legends there must be a grain of truth in this story of Padre La Rue, although most histories fail to mention him.

It is told that in 1907 a prospector visited the mountain home of one Teso Aguirre, a descendant of one of the original Spirit Springs colony, and was shown the old cave. But he was not shown the treasure. Again, Col. A. J. Fountain of Las Cruces, New Mexico, claimed to have found an old record in either the Mesilla Mission or the Dona Ana Mission describing the richest mine in the Spanish Americas, located near the present town of Organ, New Mexico.

At a later date, a band of Spanish refugees on their way from Mexico to Spain stopped over in El Paso. They were reported to have found a church record in Mexico City, giving the exact location of the Spirit Springs mine. But even with all of these "proofs" nothing ever was found.

Today, on the streets of Las Cruces, you can hear wild tales of men who have wandered into a strange cave to find a couch of stone carved out of the rock on which are dark stains of blood . . And always it is just around the next peak, this chimerical treasure that lures men to spend their entire lives in the rugged Organ mountains, searching and digging and prying into every cave and every crevice in the vain hope that here . . . or maybe over there . . . or somewhere . . . they will stumble onto the golden treasure of Padre La Rue!

TRUE OR FALSE

This month's quiz is a composite test of your information on desert history, geography, geology, mineralogy, wildlife, le-

gends, literature and Indian life. If you are an average interested reader of Desert Magazine, you should score more than 10, which puts you in the Desert Rat class. If you answer 15 or more correctly, you may tell your friends you're a Sand Dune Sage, for you have proved you are a careful reader of DM and good desert books, and possibly you have answered some correctly because of personal observation or experience. A score of less than 10 should make you resolve to read your Desert more carefully, discussing the various subjects with your friends or family, or making up your own quiz as each issue arrives. Answers on page 28.

- 1—Lowest elevation in United States is foot of Bright Angel Trail in the depths of Grand Canyon. True....... False.,.....
- 2—Yucca baccata is a dance. True...... False......
- 3—Crystals found in geodes usually are of quartz. True...... False.......
- 4—One of J. Frank Dobie's best known books on lost mines and treasure is "Golden Mirages." True...... False......
- 5—Franciscan Father Garces was murdered by Indians at Yuma in 1781. True....... False.......
- 6—Craft for which Hopi and Zuni Indians have gained greatest renown in common is making of katchina dolls. True...... False......
- 7—All "pure" sand is composed exclusively of finely ground quartz. True....... False.......
- 8—Hovenweep is the name of a group of Indian ruins on rim of Little Colorado river, northern Arizona. True...... False.......
- 9—The roadrunner, or chaparral cock, is a member of the Cuckoo family. True....... False.......
- 10—One can be sure a specimen is dolomite if it effervesces instantly in cold hydrochloric acid. True...... False.......
- 11—Gila Monster is a hibernating lizard. True...... False......
- 12—Lost Pegleg Smith mine generally is believed to be in the Colorado desert of Southern California. True....... False.......
- 13—Desert Lily, which usually begins blooming in February and March, is found most abundantly in desert foothill areas. True...... False.......
- 14—"Down the World's Most Dangerous River," by Clyde Eddy, is the account of a scientific expedition down Colorado river in the 1920s. True....... False.......
- 15-Largest island in Great Salt Lake is Antelope Island. True...... False......
- 16—Helium, gaseous element of argon group, occurs in natural gas in New Mexico. True...... False.......
- 17—Earliest Americans to come to the Southwest were seeking gold. True........ False.......
- 18—Geologists say the Carrizo mountains in northeastern Arizona are examples of sedimentary mountains. True....... False.......
- 19—Setting of Fierro Blanco's "Journey of the Flame" is along Camino del Diablo in Sonora, Mexico, and southern Arizona. True....... False.......
- 20—Bright red shades in such colorful Southwest areas as Grand Canyon and Bryce Canyon are due to presence of hematite. True...... False.......

For those who have adobe homes, or who are planning to build with adobe, Marshal South has some practical advice for preparing interior coatings. But the adhesive power of his mixture applies not only to its affinity for adobe walls—as Victoria discovered to her horror as she vanished into a white geyser of the gluey stuff with only a pair of diminutive heels and a shock of blond curls protruding to identify her.

Desert Refuge

By MARSHAL SOUTH

HIS IS the time of year when our Ghost Mountain climate is temperamental. One day you may shiver in a howling windstorm. And the next be shedding wraps and blankets to bask in a flood of dazzling sunshine as tingling and kindly as that of early summer. Only yesterday we were all hugging the big open fireplace, feeding mescal butts and husky chunks of juniper wood to the leaping flames. Today, in a hushed warm stillness more perfect than any day in June, the youngsters have lugged out the old cement mixing trough, launched it on the pool, and gone canoeing—using fire shovels for paddles.

But the winter storms were good to Yaquitepec this year. All the cisterns and catch pools were filled to overflowing. The rains fell and fell until we, so long in need of water, began to feel anxiety. There were ominous damp patches here and there on the inside of the walls. Big sections of exposed construction outside slumped and slid off in ruin. We began to know the fear which every primitive dweller of the desert has when rainstorms of long duration assault his adobe. Would the adobe hold? We had uneasy thoughts of finding ourselves in the plight of the mud house dwellers of Egypt who, when unprecedented Nile floods lick at their foundations, frequently find themselves groveling in a heap of gooey mud—surmounted by a collapsed roof. Adobe construction, unless plaster or cement protected, does have weak points.

But our fears were groundless. Our good stout walls, although scarred outside a little and marred in places by falls and slides, stood up nobly. And after the rain had cleared away and a few mild days had dried the earth we repaired the weak spots and took away all traces of storm from our interior finish by a good heavy coat of whitewash.

Lime whitewash is an excellent thing. Whitewash and adobe have the same affinity as bread and butter. They go together. If properly applied there is a great deal of protection for exterior walls in whitewash alone. There are various mixtures. One of the best we have run across consists of 25 pounds of hydrated lime dissolved in 10 gallons of hot water, to which is added six pounds of salt, three ounces of ground alum and about a pint of syrup-thick common boiled glue. The glue, salt, alum combination makes this whitewash stick extremely well.

If you don't have all the ingredients you can get along with just the lime and salt. In such case increase the salt amount heavily. We have found that the latter mixture makes a very durable coat, if applied thickly, about the consistency of cream.

This is a durable coat, even for other things, as Victoria discovered. She was extremely interested in our whitewashing.



Now that winter rains have filled the pool after a long spell of drought, Rider and Rudyard launch the old cement mixing trough and go canoeing, with fire shovels for oars.

Wrapped in what she calls her "bath-a-robe" she stalked about among the pails and home-made mescal brushes with a great deal of dignity and importance, tendering all sorts of advice. "You forgotted the ben-zoated-ob-soda," she said, sniffing at the little tub of mixed whitewash. Like her two brothers Victoria takes keen delight in launching shafts of sarcasm at this commercial food preservative.

"You don' incorporate benzoate of soda in whitewash," Rudyard assured her with dignity. "It's only used for pweserving mummies an' in foods for sick people."

Victoria sniffed. She drew her bath-a-robe closer about her. "Now you've forgotted another place," she said to me severely, as I teetered precariously on a chair with my brush. "Uppa there, by thee window. You are getting awfuey careless."

The outside door opened suddenly. Rider came in lugging a spiny mescal butt for the fire. "Gangway!" he cried warningly. "Look out for the spikes!"

What happened then we don't quite know. We think Victoria stepped back suddenly. At any rate one moment she was standing on the floor wrapped in her three years of importance—and her bath-a-robe. The next instant she had vanished in a white geyser from which a pair of diminutive heels and a shock of blond curls stuck upward at an acute angle. There was an ear-splitting shriek which, as I toppled from my chair and Rider dropped his spikey burden, brought Tanya rushing from the next room. "Victoria—where are you?" she gasped.

"She pwecipitated herself into the whitewash," Rudyard sputtered, groping to clear his face and body from the wave of white splashes that had struck him. "She's wasted all of it."

We fished Victoria from the tub. There wasn't any lime in her eyes and none had a chance to get into her mouth because she was yelling so lustily. But otherwise she was well-coated, and the bath-a-robe was a mess. It took a good deal of warm water and much sponging down before the open fire before she looked human again. Also it cost Rider a necklace of threaded juniper berries and Rudyard three snail shells as presents to her majesty before she would consent to stop yelling. After which she curled up contentedly in bed with her doll and went to sleep. While Tanya laundered the bath-a-robe and Rudyard and I mixed more whitewash. Yes, it has good covering qualities. And it does stick.

There are other angles to Yaquitepec rains besides repairing damages and whitewashing. No one who dwells in the desert will ever quite get over the thrill of seeing new life unfold after a steady downpour has brought moisture again to a long parched earth. No matter how accustomed we may become to seeing this

miracle year after year there is always something mysterious about it. This season, in particular, the change was startling, for the dry spell had been long and hard.

When we came back to the mountain the bunch grass all appeared dead. The mescals were shrunken. Famished rats had made cruel inroads on even the struggling chollas—in some instances stripping them almost completely of their fleshy bark. In long walks we could find nothing of those showy succulents known popularly as "hen and chickens" except seemingly blackened corpses, wedged in the crevices of the rocks. It appeared that Ghost Mountain could never "come back."

Then came the rains. A few days after the first storm had subsided we went out to some of the farther ridges to collect fuel. The change in all the country was a shock. Everywhere there was a sense of slumbering life having suddenly awakened. Under the lee of almost every big rock delicate little desert ferns had unfolded their green fronds. Mosses and lichens glinted among the stones underfoot. Thin blades of grass were thrusting through the sticks and gravel of every sheltered patch. All the cacti, especially the beavertails, looked plump and swollen and alive with new strength. And in all the rock crevices where the blackened shapes of the lamented "hen and chickens" had mouldered, tiny leaf edges groped towards the sunlight. It was a sort of mass resurrection. We came home with our load of firewood feeling strangely happy. Also we had seen a snail. Maybe it doesn't seem very important, the sighting of a snail. But on Ghost Mountain the discovery and observation of a live desert snail is an event. There must be numbers of them on the mountain, for their whitened shells are fairly plentiful and Rider has collected them for years. But no matter how you search you almost never see a living specimen. The only ones we ever have found have been discovered immediately after rains. Then at rare intervals, you will find one trailing its dainty form across the damp rocks. Delicate and striking little creatures these desert snails. Although of the same family as the common garden snail, it resembles it no more than a slender songbird resembles a fat barnyard hen. These Ghost Mountain snails are jet black with fine, racehorse lines. And their delicate shells are, in life, beautifully shaded with markings of brown. These brown markings do not last long after the creature has died. They soon fade. Almost all the empty shells that Rider and Rudyard discover are a bleached, desert white. Always it is a shock to discover a snail in the savage surroundings of the desert. Like finding a fur seal somewhere in the jungles of the equator. But then, there is the equal shock of the desert tortoise. And once we found a tiny tree toad under a rock, right on the heat seared crest of Ghost Mountain.

The Yaquitepec mail sack, when it gets in, is usually well filled, these days. And that is something to rejoice over. For if there is one thing more than any other which makes life worth while on our mountaintop it is to receive letters from good friends. They are good friends too. For they uncomplainingly stand the test of waiting scandalous periods for often the briefest of replies. Somehow they seem to know that all their letters are carefully treasured, even if sheer pressure of circumstances often force just hastily scribbled postcards in return.

Mail day is always a big day, and it is a family affair. Everyone gathers round, as for a tribal council. Rider perches himself on a chair and Victoria stands on a bench, in order to see better. Rudyard usually squats precariously on the extreme edge of the table top, his little heels partly overhanging space and his whole, intent, compactly bunched body giving the impression that each instant he is going to topple backwards to disaster. But he never does. He and Victoria appoint themselves Masters of Ceremonies. They direct the order in which the mail shall be opened. And if their rulings ever are ignored pande-

monium breaks loose, with all the shoutings and gesticulations of a regiment of excited organ grinders.

All letters are read aloud, attentively listened to and commented on. Sometimes we have to go back and re-read special paragraphs. The Board is very thorough and gets a great deal of joy and excitement out of its widely spaced mail day "meetings."

Most letters are from kindred souls-often far distantwhom we may never meet, but who also feel the restless urge towards freedom and simplicity of living which is today tugging at the hearts of so many of the human race. Once in a while we get letters of censure-frank scoldings from good folks who declare that we are very wrong to have "deserted civilization." They say that we are deliberately erecting stumbling blocks in the path of progress. And when sometimes I answer and ask innocently what "Civilization?" And what "Progress?" they become very angry and their replies sound as though, while writing them, they had been jumping up and down like our enraged pocket mice do when they are squabbling over grains of corn. Some correspondents are greatly worried about the "Futures" of our youngsters. And one expressed grave concern for their health "separated as you are from all properly prepared commercial foods," she wrote, "are you sure that they are getting enough vitamins?"

That one was a poser. It brought the Board up with a short turn. Victoria wrinkled her nose: "Wita-mines? Witerminns?" she puzzled, puffing out her plump little cheeks. "Do you qwite wealize what she means?"

"Of course!" Rudyard pounded on the table with his fist like Tarzan calling for order in a council of gorillas. "Of course! Vitamins are all the goodness which is carefully extwacted fwom food so that it can be pwoperly enwiched later on. Are you so absolutely ignorwant?" He glared at Rider who was chuckling like a cheshire cat.

So that was that! We forwarded on Rudyard's definition to our correspondent, telling her also that we did not know about the vitamins on Ghost Mountain. That there *might* be a few, lurking in the farther rock caves which we had never thoroughly explored. But we did not think the children would come to any harm from them, as they were all thoroughly aware of the necessity of giving a wide berth to all dangerous looking creatures. We have not heard from her since.

Yes, mail days on Ghost Mountain are happy days. Despite "Civilization" and "vitamins" and "Progress"—even the irate correspondent who told me that "after the war" the "new, mechanized civilization will be a thing surpassing our wildest dreams of liberty and ease"—we get along very well.

If it be our personal conviction that what "Civilization" needs is not more softness and ease but more simplicity and nearness to the earth and fundamental things, at least we are not alone.

THE CLOCK

The clock is Master. Every hour It measures for us. And its power Is boundless. All our food, our thought So dearly bargained for and bought, Is done to these tick-tocks of time, That mark our slavery and grime In this society today. And they who truly would be free Must overrule and get away From its obsessing mastery.

Tanya South

You're Sure to Meet the Blue Daleas

By MARY BEAL

N ALMOST any Southwest desert region you are likely to meet one or more of the Daleas, those ornamental shrubs, or perennial herbs, of the Pea family with characteristics typically desert. When they bloom, each bush burgeons into a mass of intense blue or purple, certain to rivet attention. They are especially alluring when companioned by Golden Cassia, a beautiful cousin. (See Desert Magazine, September, 1943, issue.) Seldom does a broad golden stream of Cassia bushes sweep down from the hills without accents of blue or purple Daleas. Although the genus is widely distributed you can't go out and find a Dalea waiting for you just anywhere, but sooner or later they'll turn up.

The name Dalea was formerly the scien-

The name Dalea was formerly the scientific label of the genus, honoring Dr. Samuel Dale, an early English physician and botanist, who wrote especially on medicinal plants. It is a suitable genus to commemorate a botanically-minded physician for its aromatic balsamy odor suggests medicinal qualities. Although science has changed the name to Parosela, Dalea is re-

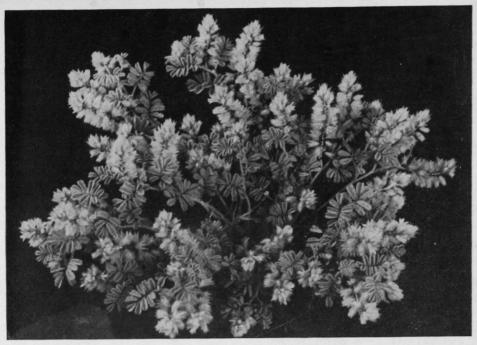
tained for common use.

The most strongly aromatic of the Daleas is not a shrub but a decumbent perennial herb commonly known as Domino Dalea, Silk Dalea, or if you like children's fancies, Persian Pussy Tails, descriptive of the fluffy flower-spikes. Unlike most of the Daleas, its flowers are pinkish or creamy. In botanical language, it is—

Parosela mollis

Its several stout basal stems divide into many leafy branches that spread out horizontally into a mat only a few inches high but much broader, from 8 inches to 2 feet across. I once found a splendid specimen 30 inches broad, but it belonged in the blue-ribbon class. The grey-green herbage is very hairy and sprinkled with dark reddish or almost black glands. The pinnate leaves have 5 to 15 wavy-margined leaflets, often edged with red or purplish, notched at apex, the glands as regularly spaced as the dots on domino pieces.

The tiny flowers, borne in a dense spike, are creamy or pinkish, the calyx so densely clothed with long pinkish hairs that its slender pointed teeth are like silky plumes, as long as the almost smothered corollas. The axis of the spike is closely crowded



Children call it Persian Pussy Tails. This pink flowered cousin of the Golden Cassia also is called Silk or Domino Dalea. Photo by the author.

with sharply-pointed, pear-shaped red glands, from claret to deep wine color, almost black. In maturity the branches tend to lift up from the ground, the flat or rounding top changing to saucer shape or like a low broad bowl.

It prefers sandy or gravelly flats and open valleys at low to moderate elevations, in the Colorado and Mojave deserts, north through the Death Valley region into Nevada. It seems to have a partiality for highways, often following along for mile after mile, thriving and prosperous-looking.

Parosela parryi

This too is a perennial herb but somewhat shrub-like, 1 to 2 feet or more high. The several to many slender purplish stems branch more or less widely, the ultimate branchlets very slender. The whole plant is hairy and dotted with glands, yellowish to very dark red. The few pinnate leaves, 1/2 to 11/4 inches long, are scattered at intervals along the stems, the 6 to 10 pairs of very small leaflets greyish and feltlike, usually notched at the tip. Rather loose flower spikes, 2 to 5 inches long, end the branchlets, the corollas oddly banded purple and white, the banner extremely short. Two rows of red glands mark each side of the smooth yellowish pods. This is only occasional in the Colorado and eastern Mojave deserts but rather common in western Arizona, from low to moderate altitudes.

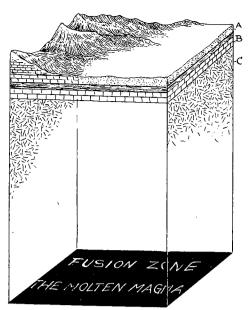
Parosela emoryi

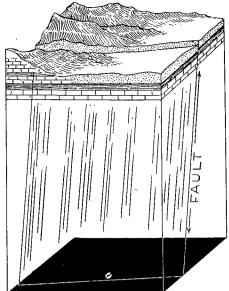
Call it Dye-weed if you prefer a simple name. This dense whitish shrub is 1 to 4 feet high, with many intricate branches, the herbage whitened by a felt-like covering dotted with red glands. The pinnate leaves, ½ to 1 inch long, have 3 to 7 obo-

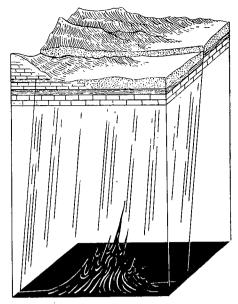
vate leaflets, the end one much the longest. The purple flowers are clustered into a dense head, the ribbed calyx hoary with white hairs, often stained rusty, and sprinkled with bright orange glands, the elongated lobes especially hairy. The red-purple or magenta corollas stand out conspicuously against the pale herbage. But beware, if you are tempted to pluck or handle the flowers. Your fingers will be stained purplish or yellowish-brown, and your clothing too, if you are not careful. The resourceful Indian steeped the flowerheads and glandular twigs in water to make a dye, particularly useful in basketmaking. It favors sandy locations and is quite common at low altitudes in the Colorado desert and Arizona, especially abundant in the Yuma area.

Parosela schottii

Mesa Dalea or Indigo Bush to many of its friends. A more slender, somewhat thorny shrub, 3 to 8 feet high, the main stems light yellowish-brown, the season's fresh stems and twigs bright yellow-green and sometimes a bit hairy, with a few dark glands or none. The simple linear leaves, ½ to over an inch long, are commonly hairless and dotted with dark-yellow glands or the new leaves finely hairy. The flaring bell - shaped calyx is strongly ribbed, shiny and speckled with greenishyellow glands. The indigo-blue flowers tip the branchlets in loose racemes 2 to 4 inches long. Conspicuous red or greenish glands dot the beaked pods. A frequent inhabitant of the Colorado desert on gravelly benches and mesas at low elevations, noticeably common about Palm Springs and southward over the border. Occasional in southwestern Arizona.







1—Site of Pisgah Crater before anything happened. A—Alluvium, B—Underlying strata, C—Bedrock, which continues to unknown depths, possibly 40-50 miles where it blends with molten magma.

2—The fault forms and makes a weak place in the crust of the earth. The lower margin of the fault makes a leadway upward for the escape of the magma. 3—Magma begins to rise along fault.

Basalt -- the Rock from Hades

This story of lava is guaranteed by Jerry Laudermilk to make Dante's description of the inferno sound pale. He calls it a yarn, because in order to picture for Desert Magazine readers the earth-shaking event which took place on the Mojave desert long long ago, he has turned back the calendar to the time before there was a Pisgah Crater, and to the time when a prehistoric band of Chemehuevi Indians fled in wordless terror from the horror of explosions and quakes which rocked the earth and rained down hot mud and ripped the cloud curtain with lightning. After reading this tale, even modern man who thinks he knows the "cause and effect" probably would not want a ringside seat at the birth of a volcano.

By JERRY LAUDERMILK Drawings by the author Map by Norton Allen

EFORE I begin to tell my story, I need a volcano and lots of white-hot rock with a couple of humans to witness the eruption—and react.

Since the only volcano with which I have a personal acquaintance is Pisgah crater over in the Mojave desert, I will rejuvenate its long-burnt-out *cinder cone* temporarily to furnish the necessary fireworks. For my reporters, I have selected a couple of Indian girls of rather high intelligence, who are capable observers. These girls are not historic characters. If any people really saw Pisgah erupt they left no traditions. However, from the evidence and from what we know about active volcanoes as they are today, there is reason to suppose that events were very much as I shall describe them for the Barstow neighborhood—not so long ago.

In the shelter of the cottonwoods that stretch along the Mojave river near Yermo, a group of Indians were getting ready to set out on a lengthy expedition. Belongings were being hidden beneath fallen logs or buried in the sand. Something important was afoot. It was late spring and the whole band soon would be off to hunt the desert tortoise, always plentiful at this time of the year. Cooked in their shells, these clumsy things were considered good eating and worth a long trip by all the members of the tribe.

I call it a tribe, although actually the desert was too poor to support anything so pretentious. It was a wandering family group of Chemehuevi Indians, including the Old Man and his two women with a scattering of off-spring—mean boys and cat-like girls with sharp, bright eyes. They were going to travel light and such garments as they wore were made from the inner bark of the cottonwood. Clothing wasn't their big problem. Their chief worry was food.

This morning the Old Man was taking his outfit across the flat east towards the Cady mountains. Along the wash near Newberry where the clumps of mesquite grow, the group divided into pairs of foragers who scattered over the desert in a generally eastward direction. The Old Man watched them disappear in the shimmer of a mirage, that is, all but two, a pair of half-grown girls called "Snake" and "Loses-things." These two were veering off to the right in defiance of the Old Man's orders.

As specimens of the human race they didn't rate high. They were undersized and skinny. Their hair, which hung in stringy locks, was tied back with a strip of yucca around their foreheads. Aside from their eyes, which were keen like the eyes of hawks, they weren't much to look at. Both wore sandals cleverly twisted from yucca fiber and each had a long stick and carrying basket to hold whatever edible trash they might be able to pick up.

Their pace was a dog-trot. They didn't talk much as they put distance between themselves and the mesquite clump. The

fact is, they were doing something persons of their ages have done since the Year One—they were running away. In this they were safe enough, the desert was full of water holes since it was a wetter time than now and there was plenty to eat in the way of chuckawallas, lizards, snakes and chipmunks. As for fire, both girls had their fire-sticks and could twirl a spark with the palm-drill when they had to. According to the demands of their surroundings they were a couple of well-adjusted savage kids who had the situation well in hand—so far.

It was about noon and while not particular about their lunch hour, they were on the point of taking a little nourishment in the form of a half-raw rattlesnake that steamed and sputtered in the hot coals of their campfire. While they waited for the snake to cook almost their entire conversation was about eating. Losesthings was talking, marveling at the fact that when cooked, rattlesnake was one of the best things people ate but live snakes were the worst things you had to deal with. If you were bitten you had horrible pains where you had been struck. You were sick inside and out and if you tried to stand you shook . . .

Loses-things had just reached the word "shook" when both girls gave a demonstration of shaking—they couldn't help it. They stood up but hardly could keep their feet. The ground heaved. Then almost as suddenly as it had begun the movement stopped. Somewhere off in the distance there was a sound like thunder. From the near slope of the wash a trickle of dirt and pebbles rattled down in a small avalanche. A light breeze shook a dead weed and from the campfire the rattlesnake burst open with a pop. The sun shone and everything looked the same as usual.

The girls had that "all gone" feeling familiar to everyone in his first earthquake. Snake felt that Loses-things was in some way responsible but they both were too scared to quarrel and both had the same idea—to get back to the tribe as soon as possible. They were too scared to eat and had had enough adventure for one time.

It hadn't seemed far when they started out. Now it was an unending distance. They panted down the canyon and into the open desert where they had an unobstructed view off to the

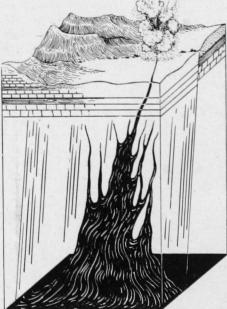


Pisgah Crater from the north. Cone is a circular pile of ash and lapilli about 160 feet high and ring-shaped like a gigantic ant heap. It is low-toned grey-brown in color.

southeast. It looked the same as always—the same blaze of sunlight, the same clumps of creosote bush, the same distant mountains. For a while they jogged along trampling on their shadows and then without preliminaries, terror took over the entire desert.

It was as if some vast bubble filled with unmitigated noise had burst directly over their heads. There was no rounded rumble to this racket. It was a jagged, splintery hullabaloo that surpassed all comparison. They were physically stunned by the compression wave in the air. For an instant this wave had been visible as a brilliant arc of reflected sunlight rushing towards







4—Tongues of molten rock begin to stope their way to surface. Magma contains water as superheated steam under great pressure. As columns rise they are preceded by crown of incandescent gas which melts everything it meets. 5—With a violent steam explosion eruption takes place. Dust and lapilli are shot upward. Fragmental material and lava soon build up cinder cone as they fall around vent.

6—After initial outburst, explosive phase rapidly subsides. It may have lasted less than a month. Lava begins to fill crater. At length pressure causes breaks through sides of cone near base, lava pours out, forming flows A and B. Lava through other canals fails to reach surface and intrudes between strata to form laccoliths at C. Volcanoes like Pisgah put on a single show, never repeating the performance.

them. The wave pulled them back and forth like a couple of tadpoles in an olla of water. Then the wave knocked them off their feet. They sat in the sand and gravel and looked east towards what seemed a roundup of all their tribal nightmares.

About three miles away the desert was going to pieces. From the flat floor of the valley there loomed a frightful thing—a vast, ghastly, solid but boiling shape like something seen in a bad dream—a cloud like a monstrous cauliflower. This seemed rooted in the ground. It was black except where its summit and the swelling billows of its mass caught the sunlight. Here it was silvery white. As they watched, it rose up and up until it touched the sky, then it spread out like a canopy, and dust and cinders began to fall.

Other explosions shook the valley. The cloud heaved with each concussion and finally the curtain of dust became so thick that the cloud itself was hidden by a screen like a wall. This was ripped at times by writhing stems of lightning that twined about like veins of glittering fire. This was electricity generated by the friction of particles of ash against one another. Muddy rain began to fall and the drenching with uncomfortably warm water brought the girls back to what little sense they had left—barely enough to run, run, run away from this focus of stark terror—the birth of Pisgah crater.

What had happened was this: A long long time before the Chemehuevi ever thought of migrating into the valley of the Mojave—possibly about the time the first brick was laid in Babylon—deep down in the earth, perhaps 40 or 50 miles below the surface, a vast crack began to form and fret its way through the rocks of the crust. This crack or *fault* extended until it finally made a weak place in the valley floor. At a depth of one mile the pressure amounts to 450 tons per square foot. It increases rapidly after this and at 40 miles becomes fantastic.

With the increase in pressure there also is an increase in temperature. Towards the bottom of the 40-50 mile zone the rocks are hot enough to boil—only they can't. The pressure is too great. These rocks which should flow like melted wax actually are extremely rigid. We know this from evidence of the setsmo-graph which shows that earth shocks travel as fast in the deep layers of the crust as they do near the surface.

Inside Pisgah Crater. Clumps of silvery white grass against background of basalt and lapilli emphasize melancholy effect of "cinders from furnaces of hades."



DEFINITION OF TECHNICAL TERMS

- BASALT—Hard, usually dark colored, fine grained rock, always product of volcanic activity. Type of solidified lava.
- CINDER CONE—Ring-shaped heap of fragmental material of all sizes built up around vent of volcano by volcanic action.
- FAULT—More or less vertical crack or joint formed by movement of earth's crust.
- LAPILLI—Italian word for "little rocks." Small pieces of solidified lava varying from size of nut to size of pea.
- LAVA—Melted rock which has been brought to earth's surface by volcanic action. Same fluid rock subsequently solidified.
- MAGMA—Rock, fluid from heat and pressure, as it occurs within the earth. Differs from lava in having both steam and gases dissolved in the hot material under pressure.
- MATRIX—Ground-mass of a rock when surrounding some particular embedded substance which may be either a mineral, a fragment of a different type of rock or a fossil.
- SEISMOGRAPH—Instrument for recording period, extent and direction of each vibration of an earthquake.
- STOPING—Action of a rising column of magma in breaking its way through surrounding solid crust. Takes name from its similarity to ceiling stoping in mining operations. Large blocks break from roof and fall back into the magma.
- STRATUM (pl. Strata) More or less continuous sheet or layer of rock of any predominant type, as sandstone, limestone, shale, etc.
- WIDMANSTATTEN FIGURES—Crystalline markings of a particular type developed on meteoric iron when this is etched with dilute nitric acid. Crystalline areas are of two types which differ in their reaction to the acid—some stand in relief, others are eaten in more deeply so that in some cases the block can be inked and an impression drawn off as from an engraved plate.

So the fault I mentioned not only cut through the valley floor at the surface but penetrated into the zone of fantasy at the bottom where we find melted rock with a reaction to stress similar to conditions in a lump of pitch. This may be plastic enough to stick to your fingers but under a quick rap with a hammer fly to pieces with the brittleness of glass. When the lower edge of the fault reached the hot zone things began to happen that wouldn't be evident at the surface for thousands of years. At some point, possibly at several points along the vertical line of the fault, melted rock, the molten magma, began to rise.

The magma is a red-hot hurlyburly of geochemical contradictions that defy all common sense. It is not only hot enough to be fluid but is rigid as steel from pressure. It also holds water and other gases actually dissolved—water mixed with molten rock. Nobody knows much if anything about the condition of the elements and compounds in the magma. Possibly molecules of the oxides of silicon, aluminum, iron, calcium, magnesium, sodium, postassium and other elements shove shoulder to shoulder with molecules of water and carbon dioxide like a jammed crowd at a ball game, but here held down by the extreme pressure. At the first opportunity the molecules will seek relief by expansion. The water escapes first as superheated steam.

At first the magma rose slowly but each mile gained meant a lessening of the fearful pressure and vaster amounts of energy made available to battle against the crust. The magma *stoped* its way upward and its advance guard was a crown of incandescent gas melting, pushing and shoving at the walls of the tunnel as it bored its way to the surface of the earth.

This fiery column cut through *stratum* after stratum as it neared the outer air and finally, on its last lap, just about the time the girls felt the earthquake, it mingled in a devil's dream with the ground water. Then with a catastrophic outrush of gas, steam, pulverized rock, lava-spray and dust, the frightful

plume of pandemonium formed in the valley.

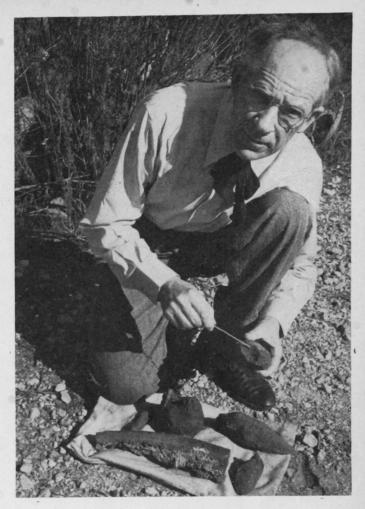
Falling *lapilli* soon built up the cinder cone. Larger gobs of lava hurled high into the air solidified before landing and formed volcanic bombs both big and little. With the final release of the pent-up gas, the explosive phase soon ended. Then the white-hot lava began to boil up in the neck of the volcano and fill the bowl of the crater. This was liquid *basalt*. By day it was black but at night it glowed a lurid and hideous red except when bursting bubbles of steam split the cooler crust and showed the yellow and orange of the lower depths.

There were no flames or fire connected with the eruption except the blue flames of a little burning sulphur and hydrogen. There were, however, vast volumes of steam being poured out which hung in a cloud over the top of the cinder cone. At night the steam was illuminated by the glow of the melted rock and Indians around Newberry looked east and thought the mountain

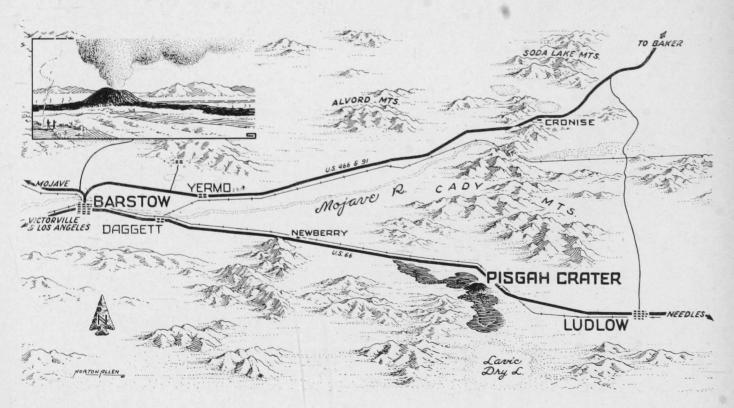
itself was on fire.

The weight of the steadily mounting column of lava finally became too great for the strength of the sides of the cinder cone. Channels opened up near the base and bled torrents of red-hot lava which slobbered and gulped as they poured out to form the flow of vesicular black basalt that surrounds Pisgah and spreads in a sheet northwest for six miles towards Highway 66.

This basalt, although one of the commonest of rocks, takes on a certain aura of terror when you realize what it actually is—raw world-material from the inside. Its composition varies within narrow limits and even the composition of basalt from the same volcano may change at times but the typical rock is always hard, dense, fine grained, dark grey or even black, stone-



Author with bombs from Pisgah Crater. Long bomb is rare type, originally about three feet long, called a ribbon bomb. It was formed by hot lava streaming through air instead of rotating as is usually the case.



like in texture but almost never glassy. Vast areas of the earth are covered with basalt and in several cases it presents a question that has not yet received a satisfactory answer.

This most astonishing problem is the fact that native iron sometimes occurs embedded as small grains or large pieces in the stony *matrix*. In Ireland, in New Hampshire, New Jersey, Spain and other places, the iron can be identified only when polished surfaces of the rock are treated with a solution of copper sulphate. This leaves a deposit of metallic copper coating the grains which are then readily seen with a lens. In Greenland, where native iron occurs in its greatest abundance, no such delicate treatment is required. At a place called Ovifak on Disco island, the explorer Nordenskiold found great blocks of native iron which had weathered like boulders from the basalt matrix. Some of these had an estimated weight of 20 tons.

Geologists are divided into two camps regarding the occurrence of this metal. Some hold that the iron resulted from reduction of beds of ore by the hot magma. But there are important objections to this assumption. The Greenland iron shows the crystalline structure called Widmanstatten figures when a polished surface is etched with dilute nitric acid. The iron also contains up to 6½ per cent of metallic nickel. Both these qualities are supposed to be earmarks of meteoric iron. Apparently this indicates one of two things. Either meteorite iron became in some unknown way embedded in the molten basalt or else these are samples of the actual nickel-iron core of the world. This is but one of the many puzzles associated with basalt. Another, and a common enigma to many persons, including some geologists, is the cause of the prismatic columns seen in some basalt flows.

The prismatic units of columnar basalt may be from an inch or less in cross section and a foot long to giants 20 feet from side to side and as much as 500 feet in length. This structure sometimes is so impressive that formations where it is exceptionally well developed are of world-wide renown. Such are the Giant's Causeway in Ireland, Fingal's Cave in Scotland and the Devil's Post-pile at the head of the San Joaquin river, California. The prisms usually have a hexagonal section, but 3, 4, 5 and even 7 and 8 sided columns occur.

Cause of this columnar jointing which would be responsible in all cases has not yet been tracked down to a single factor. Possibly there is no single solution. It is certain that shrinkage cracks whose centers of origin are controlled by points of shrinkage disposed in a regular hexagonal pattern over the surface of the rockmass, have produced the columns in some cases. Another possible determinant is the presence of convection currents rising from the hotter bottom layer to the surface of a cooling but still fluid mass of basalt. This last theory might be all right for such cases as the Giant's Causeway where the columns are arranged vertically but does not explain formations in which they are arranged horizontally as at O'Rourke's Quarry, Orange Mountain, New Jersey.

The subject of prismatic jointing is difficult when approached from any angle. But readers of Desert Magazine who want to go into the subject can find plenty of headaches in the discussion of the subject by Joseph P. Iddings in his work "Igneous Rocks," pages 320 to 327, and Robert B. Sosman surveys the whole problem in the "Journal of Geology," April and May, 1916, pages 215 to 234 under the heading "Prismatic Structure in Igneous Rocks."

All I have just said is barely a hint at the interesting features of basalt. To go into detail would require a book and since many such good books already have been written I will end my yarn by saying that Snake and Loses-things finally found their folks and their running-away days were over.

Achievement . . .

- On October 15, 1943, purchase of the electrical properties of the California Electric Power Company in Imperial Valley and the area in Coachella Valley destined to be served by the All-American Canal was completed, and Imperial Valley Irrigation District became the sole distributing agency for electrical energy in these areas.
- Thus was achieved a goal toward which the people of Imperial and Coachella Valleys have united their efforts for a quarter of a century. Full development of the power resources on the great All-American Canal now seems assured and both water and power will be put to the common usage of developing these two fertile reclaimed desert valleys.

SHARING THE BENEFITS OF WATER AND THE PROFITS OF POWER, IMPERIAL AND COACHELLA VALLEYS ARE IN TRUTH GOOD NEIGHBORS LINKED BY BONDS OF MUTUAL INTERESTS AND NECESSITIES.



LETTERS...

Deflating the Roadrunner . . .

Visalia, California

Dear Friends:

In the January issue of your excellent magazine I read the article pertaining to the roadrunner and the build-up the author gave this notorious bird.

For years I lived in the desert of Old Mexico. New Mexico, Colorado, Arizona and California, and during that time I became well acquainted with the daily habits of the roadrunner. I mined in a canyon in Arizona where the rattlesnakes were thick and never once did I see a roadrunner attack or even molest those snakes.

But here is what I have seen. I have watched a few quail drive roadrunners from their location for those vicious murderous roadrunners destroy nests of eggs as well as countless young birds of every variety. They will destroy in one season more quail than 50 rattlesnakes or that many hunters.

Whenever I read any praise of them I know the writer's association with this creature is very limited. The roadrunner is swift, quick and relentless. To me the desert is the grandest of all places to live, and why such a glorious place should be infested with such a vicious creature is a mystery. The only happiness a roadrunner could bring to the quail and myself would be to know they were all dead.

Every issue of your magazine is a greater thrill than the preceding one.

RICHARD OSMOND

Too Few Newsstand Copies . . .
Burbank, California

Dear Sirs:

I find it harder each month to find the good old D.M. at newsstands. Sometimes I make three or four trips to news dealers before I can find a copy. I haven't missed a copy for four years. Please send a year's subscription.

JOSEPH S. THOMAS

Edible Desert Plants Wanted . . .

Banning, California

Dear Sir.

I wonder if there is anyone who has seeds or cuttings of edible desert plants or plants that can be crossed with edible plants or used as stock on which to graft same? Am especially interested in *Amelanchier alnifolia* var. *covillei* of the Clark and Panamint mountains; also the various species of Physalis listed as native to the Mojave desert. Is there any variety of tepary bean more drought-resistant than the ordinary varieties?

THEODORE B. DUFUR

Dear TBD: Any replies from our readers will be forwarded to you.—L. H.

Sidewinder "Sun Test" . .

Monrovia, California

Dear Miss Harris:

In September, 1941, while working at Daggett, I captured a full-grown side-winder and tested the effect of sunshine on it by keeping it in direct sun near noon on a moderately hot day. The reptile fought viciously to reach shelter, requiring the efforts of two men to keep it out in the open. The ground was hard-packed sand, not paved.

Near the six-minute point the sidewinder began to slow down rapidly. In ten minutes it was completely helpless, limp, and appeared almost dead. I placed it in shade where it began a slow recovery. For two or three days its mid-section remained paralyzed. Thereafter it appeared normal. Two weeks later I liberated it.

This is contrary to the opinion of Mr. Edward P. Kincaid, in December issue. However, the protection afforded by depressions in the sand, and the slant of the sun's rays at 8:00 A. M., constitute a set of conditions very different from the above. So I would venture the opinion that partial shade such as a clump of grass, a bush, a rock or depression is sufficient to keep them quite happy, but that direct sunshine on a hot day is fatal within the theoretical 20-minute limit.

ROBERT P. ALLEN

Desert is "Sustaining" . .

Hollywood, California

Dear Desert Magazine:

Here is an order for five books, three of which will be my own, to bolster me in my strenuous days of newspaper reporting and my strenuous nights of serving as volunteer, 1 to 7 a.m., with Army Aircraft Warning corps. Until I can get back into the desert—I can dream, just like a lot of other folks are doing.

One book is for wonderful Artie Mason Carter, who introduced me to Desert Magazine. Another is for Gisella Loeffler, whose adorable paintings adorn the Socorro School of Mines, Bullock's Westwood, and several books.

Thanks for the "sustaining" which your magazine gives to my thoughts and spirit 12 times every year!

MARION BOWEN

For Morale of Bomber-Builders . . . Hawthorne, California

Madam:

Pease send me the back numbers I am listing. Desert Magazine is one of the greatest aids to my staying on the job building dive bombers, when I think about going rock hunting.

CALVIN P. STILWELL

Rattlesnakes, Rocks and Desert . . .

Newton, Kansas

Dear Sir:

I just received my copy of Desert, and in leafing through the pages an item from Flagstaff, Arizona, on page 2 caught my eye. It was headed "Smith Snakehunters, Inc.," and tells about hunters Henry and Robert Smith and their record of 70 snakes in five years. It mentions that the only drawback is lack of company. They'd better go to Oklahoma where they really hunt rattlesnakes with a vengeance, and bag 70 to 100 in one Round Up. That's what they call it—Rattlesnake Round Up and Barbecue.

They have this Round Up every year in March, when the snakes are just ripe for pickin'. Experienced hunters go out, and their motto is bring 'em in alive. They use a forked stick to hold their heads then take another stick with a strap-like noose at the end which is slipped over the head and pulled tight, then into a gunnysack they go.

When the hunt is over and all the hunters bring in their sacks well filled, they proceed to have the barbecue. John Krause of Okeene, Oklahoma, claims he can cook a snake steak that will just "naturally melt in yer mouth." This Rattlesnake Round Up is sponsored by the junior chamber of commerce of Okeene.

The Gyp hills near Okeene, where the hunt takes place, is just about as desert-like as many places I have seen in the West. My husband was born and reared there and he says there were always plenty of snakes. The hills are low and covered with sage, skunk bush, yucca and prickly pear cactus. The soil is red and gyppy. Just recently an interesting mineral discovery was made in that part of the country. A farmer near Homestead, Oklahoma, noticed a ledge of rock on his place which he was told was a fine grade of alabaster. Being an old rockhound myself, I wrote for a specimen and it is beautiful. I have alabaster from Colorado, South Dakota and Wyoming but this has them all beat for color. It has little red and brown veins all through the white. This man told me he had contracted to sell the entire output to a corporation in Chicago, said corporation composed of four of the largest lamp manufacturers in the Unit-

I think Western Kansas and the Oklahoma Panhandle should be included in the territory covered by your magazine. I read some time ago that some few wanted to keep the publication exclusive, just reserved for the desert. My, my—I've seen more vegetation on the deserts of California and Arizona than parts of Kansas, Oklahoma, and the Staked Plains and canyons of Texas. What you want to be stingy for?

MRS. MARIE KENNEDY

Another Fuzzy Thinker Speaks . . .

San Jose, California

Editor Desert Magazine:

I hope you will continue giving us the same sort of magazine you have for the few years I have been a subscriber. It is because of the beautiful FACTS in its pages that I intend not to let my subscription expire.

Since reading the Letters in January issue I again read Mr. Boyer's letter in the November number, and I express my astonishment and wonder how Mr. Boyer was able to come to the conclusion that "most of us enjoyed" such and such reading, "despite the few that complained." How was he able to get a poll of the ideas of so many readers?

A "fuzzy" thinker like myself of course would not be expected to figure that out. Another "fuzzy" thought comes that is too deep for me—how is it that D. M. has built up such a circulation, continuing its present policy, to suit us "fuzzy thinkers" so well? As he alludes to "the average moderately educated person" as being the kind that does not appreciate esoteric matter descriptive of the beautiful facts of life it must be that we "fuzzy thinkers" are simply folks who have not had the chance to loll around some dude ranch and absorb an education as some of the patrons of those places do.

Of course an artist, in rendering a composition from the original may hit a discordant note once in a while. That is to be expected. But I still love to hear renditions of Paderewski's compositions, for though they be poorly offered, the melody is still intact. And although I never met Mr. Paderewski I have met the desert and I appreciate the reproductions of the original in the pages of Desert Magazine.

I believe it is because the sordid facts of the desert are and always have been only a minor part of the whole that the Desert Magazine has attempted to reproduce the beautiful, the glorious and profound impressions we "fuzzy thinkers" enjoy about the desert.

I cannot resist referring to the remarks made by Helen Knupp in the January issue about the grade of poetry and what she says about how people feel and the annoyance it causes those who do feel. I wonder if she knows how those who submit poetry to the D. M. feel about such remarks? I am sure she does not!

It seems to me the editor should be complimented for publishing poetry sent in by these aspiring poets, for they are inspired with thoughts of beauty and that is more than I can say of Helen Knupp and others like her.

Unless one is a "fuzzy thinker" we cannot expect him to note the beautiful facts expressed by Marshal South and the wonderfully beautiful lines that Tanya adds to them, for such profound beauty could

never enter the brain of the "average moderately educated person." Please note the last two lines of Tanya's verse in the January issue, Mr. Boyer and Helen Knupp—"To fill their lives with Light and Love—These are worth while!" Such thoughts as that are worth many times the cost of a whole year's subscription to our magazine.

Yes, dear editor, I am one of those "fuzzy thinkers," and I pray that you continue to give us the esoteric beauty of the desert, for "These are worth while."

WM. C. CHANDLER

Likes Death Valley Stories . . .

Buttonwillow, California

Dear Sir:

Enclosed is renewal of subscription to Desert Magazine for another year. I would not want to be without this valuable magazine. Your articles and maps, especially about the Death Valley region, are of deepest interest to us.

I spent one year in Death Valley country as agent telegrapher for the historic old Tonopah & Tidewater RR at Shoshone, and visited many of the places of interest in that region. I especially appreciated the stories about Senator Charles Brown and family and about his fatherin-law Dad Fairbanks. I read in your magazine lately of the death of Dad Fairbanks, the grand old man who knew Death Valley country probably better than anyone else.

C. A. VINSON

Wants Navajo Rug Articles . . .

San Diego, California

Desert

The only fault with Desert Magazine is it doesn't come often enough. We would very much enjoy a long series of articles on Navajo rugs, their history, designs, dyes, weavers and traders . . . And could someone write an article on San Diego Rawson who has the last trading post curio store west of the Navajo country?

R. M. ZERBER

Dear RMZ—For story of San Diego Rawson, see DM, March, 1941.

DM is "Letter from Home" . . .

Los Angeles, California

Dear Editor:

A friend brought me a copy of your July issue, and I cannot tell you how thrilled I was with every page of it. I am from the desert of Nevada, and it was like a letter from home, to one who had been away a long time.

I intended to send in my subscription then but days slipped by and I did not get around to it. Enclosed you will find my check for \$2.50, and I know I am going to receive many times that amount in the pleasure it brings.

CAROLYN HUMPHREYS

How Cacti Left America . . .

Evansville, Indiana

Dear Miss Harris:

The magazine came this morning and I am more than happy to have it. I really shouldn't have Desert at all. It makes me so disagreeably homesick for the Southwest again.

I am interested in Mr. Henderson's mention of cactus in Africa. He states that he thought cactus was native only to the Americas although it is found in many

other places.

My information is the result of painstaking comprehensive study of the native flora of the Holy Land, Palestine, Syria and Mesopotamia. The huge prickly pear cactus is very widespread and thrifty throughout this region, particularly in the region called the Wilderness of Judea, which includes all the semi-arid slope from the top of the Mount of Olives down to the Jordan and the Dead Sea. This region in many ways is similar to Death Valley and Salton sea of our own Southwest.

It is the opinion of the most learned botanists of the Holy Land area that cactus was not found there until after the padres entered California and our Southwest. From the American mission gardens they sent specimens to their brothers in other monasteries. For these men were serious students of flora, especially that which might be used for food, clothing or shelter of man.

From monastery gardens atop Mt. Carmel, Mt. Sinai and perhaps others, these cacti escaped into the desert of Palestine where they at once became much at home. Their stay was not challenged, for the Arabs were not agriculturists. They, like our Southwest Mexicans and Indians, used its succulent joints as a green vegetable and its fruits in various ways. They made splendid self-supporting barriers from thick hedges of it. Camels and asses ate it with relish. It not only was accepted as a welcome addition to wild life, but was planted and carried from place to place, including Australia.

I am glad to add a hearty "amen" to all your editor has said about the efficiency with which you are carrying on in his absence. I am exiled from my beloved Laguna Beach and La Jolla for the duration, but Desert Magazine helps me keep looking forward.

JEAN LEATHERS PHILLIPS

Breath of Open Spaces . . .

Alpine, California

Dear Miss Harris:

I'm enclosing check to renew my subscription. It's a magazine that I watch for eagerly. There's a breath of the open spaces in it that relaxes one. Its "homey" touches bring the soul of the desert to me—something a too-scientific magazine of hard-boiled facts could not do.

CORA DYER

... on the Desert

ARIZONA

Southwest Has Best Teeth . . .

CASA GRANDE — Survey among thousands of army aviation cadets stationed at San Antonio, Texas, reveals Southwest men have best teeth in army. Decaying, missing and filled teeth averaged nine each (lowest for nation) among cadets from Texas and Oklahoma. Arizona, New Mexico and Montana men were next lowest with 11 each. Washington, highest, had average of 21 defectives. Reason given by Capt. Wm. W. Senn of army dental corps was fluorine in Southwestern drinking water, high mineral content of vegetables, fruit and milk.

Rodeo Set for April . .

PHOENIX — World's Championship rodeo, sponsored by junior chamber of commerce for Red Cross benefit, has been set for April 13-16, according to Andy Womack, general chairman.

Head Successor at Poston .

POSTON - Duncan Mills, formerly with resettlement administration in Albuquerque, New Mexico, has succeeded W. Wade Head as director of this Japanese war relocation project. Head, who returns to duties with Indian service, reports that since start of project in March, 1942, more than 4,000 acres of desert land have been cleared and 2,000 acres placed under cultivation. Main irrigation canal from Headgate Rock diversion dam on Colorado river has been extended 14 miles. Twenty miles of laterals, 16 miles distribution ditches and 16 miles drainage canals have been built. Of the road project, to be completed July 1, 12 miles hardsurfaced highways have been built, four miles prepared for oil mat surfacing and eight miles graded for oiling.

New Navajo Post Filled . . .

WINDOW ROCK-John M. Cooper, director Navajo livestock and ranges, has been given added responsibility of directing all matters affecting land resources and management of the 52,000 Navajo Indians in New Mexico, Arizona, Colorado and Utah. Supt. James M. Stewart of Navajo central agency said new post was part of broad program of administering Indian areas on long-range basis.

Wild Pig May be Hunted . . .

FLAGSTAFF—Season for hunting javelina, Arizona's wild pig, is February 20 to March 20. Each hunter will be allowed one adult animal which may be taken with rifle only, propelling bullets weighing 87 grains or more. Javelinas range over half the state. They are found on desert foothills, are vegetable eaters.

Retired Cudahy Manager Dies . . .

PHOENIX-John D. Fife, Arizona and Utah pioneer, died January 22 in Los Angeles, aged 81. Born in Ogden, his father's family was one of the first recruited by Brigham Young to explore Arizona territory. Their party crossed Colorado river at Lee's Ferry in 1880 and settled in Sulphur Springs valley where they fought off Chiricahua Apache raids. For many years he was western division manager for Cudahy packing company. He retired 11 years ago, spending his winters in Mesa and summers on his Utah ranch.

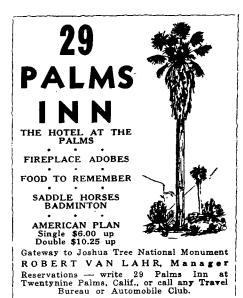
Topo Maps to be Released . . .

TUCSON — U. S. geologic survey's standard quadrangular maps of continental United States, which have been restricted from general public distribution since outbreak of war, now are being released, announces state bureau of mines at university of Arizona.

J. C. Tovrea, 70-year-old brother of late E. A. Tovrea, founder of Tovrea packing company, died January 18 at his Nogales home. He settled in Arizona 52 years ago.

Dehydration Plans Expanding . . .

SAFFORD—Expanding plans for dehydration plant here were discussed with Graham county chamber of commerce by J. M. Julian of Safford onion dehydration plant. Julian said his firm would experiment with other available vegetable crops in demand, such as parsley, asparagus, tomatoes, chiles, pimientos, sage, garlic, most of which could be grown in Gila





Plan now for postwar travel fun-**Buy War Bonds** till this war is WON!

Staying off the trains and buying War Bonds are two important ways civilians can help the war effort. Right now our trains are packed to capacity. The men in uniform and other essential war travelers have first call on all Southern Pacific facilities. So you'll be wise to postpone unnecessary train trips now and put

your money into War Bonds. After the war you'll be glad you did. War Bonds mean "cash on hand" to finance postwar vaca-

The friendly Southern Pacific

Wild Turkeys on Increase . . .

FLAGSTAFF-Arizona's wild turkeys are showing enough increase that William Brown, deputy game warden, believes before many years there will be a crop for turkey hunters to harvest. Birds had been almost exterminated when in 1931 Coconino turkey refuge was established and control exerted over such predators as coyotes, foxes, feral house cats, eagles, mountain lions and poachers.

CALIFORNIA

Veterans Taking Five Acres . . .

BARSTOW — Countless servicemen back from war fronts with shattered minds and bodies, already are taking advantage of government's offer of a five-acre tract of land in the desert. Paul Witmer, registrar U. S. district land office, Los Angeles, reports that one youth returned from Guadalcanal asked for a place "as far away from everything as I can get." Witmer located him on a tract of barren desert near Palm Springs. Land in sections near Twentynine Palms, Morongo Valley, Palm Springs, Victorville and many others now is to open to civilians as well as veterans.

Italians Escape—Almost . . .

BLYTHE—Comic opera aspects featured brief flight to freedom of six Italian prisoners of war from Blythe prison camp in January. Escaping camp in early morning, they stole car at roadside, drove towards Mexican border until it ran out of gas 120 miles away. They made zigzag course through rugged desert until they believed they had reached Mexico. Deputy Sheriff Peter Klyne of El Centro, expert desert tracker, and posse found abandoned car, tracked men and found them fast asleep in sanddunes half a mile north of border. Said men, "We're tired of the war, and tired of being prisoners." They had hoped to reach Mexico, get civilian jobs and find peace.

Golden Eagle Tamed . . .

LONE PINE—Residents watching a huge Golden Eagle on roof of a cafe here stared in disbelief when Joe Grivet paraded the bird down Main street. He had caught the eagle in a coyote trap set in Alabama hills, had nursed it back to health. He intends to free the bird, which has an eightfoot wingspread, but it has become par-

The Desert Trading Post

Classified advertising in this section costs five cents a word, \$1.00 minimum per issue— Actually about 1½ cents per thousand readers.

MISCELLANEOUS

WOULD YOU CHANGE old ways of living and working for NEW IDEAS of the Princi-ples of Nature? If so, address BASIC-RE-SEARCH LABORATORIES SYSTEM, 785 Lafayette Street, Denver 3, Colorado.

FOR SALE-12 beautiful perfect prehistoric Indian arrowheads, \$1; 10 tiny perfect translucent chalcedony bird arrowheads, \$1; 10 percent chaicedony bird arrowheads, \$1; 10 perfect arrowheads from 10 different states, \$1; perfect stone tomahawk, \$1; 4 perfect spearheads, \$1; 5 stone net sinkers, \$1; 10 perfect stemmed fish scalers, \$1; 7 stone line sinkers, \$1; 4 perfect agate bird arrows, \$1; 5 perfect flint drills, \$1; 7 perfect flint awls, \$1; 10 beautiful round head stunning arrowheads, \$1; 4 fine perfect flying hird arrowheads. \$1; 4 fine perfect flying hird arrowheads. \$1; 4 4 fine perfect flying bird arrowheads, \$1; 4 fine perfect drill-pointed arrowheads, \$1; 4 fine perfect drill-pointed arrowheads, \$1; 4 fine perfect queer shaped arrowheads, \$1; 4 rare perfect double notched above a barbed stem base arrowheads, \$1; 5 perfect double notched above a stemmed base arrowheads, \$1; 12 small perfect knife blades of flint, \$1; rare shaped ceremonial flint, \$1; 3 flint chisels, \$1; 7 quartz crystals from graves, \$1; 10 arrowheads of ten different materials including petrified wood, \$1. All of the above cluding petrified wood, \$1. All of the above 23 offers for \$20. Locations given on all. 100 good grade assorted arrowheads, \$3.00 prepaid. 100 all perfect translucent chalcedony arrowheads in pinkish, red, creamy white, etc., at \$10.00. 100 very fine mixed arrowheads all perfect showy colors and including many rare shapes and types such as drill pointed, double notched, saw edged, queer shapes, etc., location and name of types queer shapes, etc., location and name of types given, \$25.00 prepaid. List of thousands of other items free. Caddo Trading Post, Glenwood, Arkansas.

FOR SALE OR TRADE-English R. and J. Beck Microscope — two objective — in good condition, Retina 35 m/m camera Number One-Ektar 3/5, 31/4x41/4 Graphflex camera, Number One-Ektar 3/5, 31/4x41/4 Graphflex camera, Zeiss Icon Super-Ikonta "D" in perfect condition, Officers' Model 22 cal. Dr. Roy S. Horton, 1131/2 North Main St., Santa Ana,

Phonograph records bought and sold. Write particulars to Phonograph Record Research, P. O. Box 160, Wall Street Station, New York 5, N. Y.

25 Genuine Indian arrowheads, \$1.00; Tomahawk head, .50. Cat. of Indian relics, crystals and ore specimens. Geo. Holder, Glenwood, Ark.

LIVESTOCK

KARAKULS producers of Persian Lamb fur are easy to raise and adapted to the desert which is their native home. For further information write Addis Kelley, 4637 E. 52 Place, Maywood, California.

"Karakul Fur Sheep—America's Great Live-stock Opportunity—You can be a part of this fascinating business and have your Karakuls cared for in California, by experienced ranchers. Write for details, James Yoakam, National Distributor, 1128 No. Hill Ave., Pasadena, California."

REAL ESTATE

For Imperial Valley Farms -W. E. HANCOCK "The Farm Land Man" Since 1914 CALIFORNIA EL CENTRO ---

Holtville Fire Damaging . . .

HOLTVILLE-A half block of business section of this Imperial Valley town was destroyed January 24 by wind-driven blaze which caused estimated half million dollar damage. Telephone communication was cut off when Southern California telephone exchange was destroyed.

Record Crop for Coachella . . .

INDIO-Value of Coachella Valley crops for 1943 more than doubled that for 1942, totaling \$11,627,109.30 against \$5,369,920.75 previous year, which in turn had been almost double 1941 total. Main factor was largest date crop on record, with estimated value of \$4,475,928.80, plus \$346,880 for culls. Thompson grape, tomato and grapefruit crops passed million dollar mark. Sweet corn and green beans brought more than half million. Cultivated acreage decreased from 18,493 in 1942 to 15,042 acres.

Burned San Jacinto Sown . . .

PALM SPRINGS — Approximately 7000 acres of San Jacinto mountain area burned in Tahquitz fire early in the winter had been sown with mustard seed by end of January. DeWitt Nelson, supervisor San Bernardino national forest, said mustard was best plant known for quick establishment of cover crop for denuded area. In addition 8000 pine seedlings have been planted in upper reaches of burned

TRUE OR FALSE ANSWERS

Quiz on page 16

1—False. Lowest elevation is Badwater, Death Valley.

2—True. Name of yucca also is given to ceremonial dance in Navajo Mountain Chant in which a yucca apparently is made to grow from seed to mature plant in a few min-

-True.

4—False. Author is P. A. Bailey.

-True.

-True. False. Sand may be composed of any

kind of rock.
-False. Located in Utah.

-True.

-False. Reacts little or not all in the cold acid.

11-True.

12-True.

-False. A typical sand-flat and dune

species.

14—False. Primary purpose was not scientific but adventurous:

True. It is over 15 miles long.

15—True. It is over 15 miles long.
16—True. Helium bearing gas is being developed by bureau of mines on Navajo reservation near Shiprock.
17—False. First to come were "Mountain Men" who were mainly trappers. Some came as early as 1820s, long before gold discovery.
18—False. They are volcanic.
19—False. Setting is Raia California.

-False. Setting is Baja California.

Marine Station Enlarged . . .

EL CENTRO—One of five Southern California marine and naval air stations to be expanded in \$25,554,000 program, El Centro marine air station will have new construction and improvements to amount of \$4.883,000. Local project will include runways, parking space, bachelor officers' quarters, barracks and messing, hangars, storehouses, special new buildings and additions, roads, walks. Other bases included in program are marine corps air stations at El Toro, Mojave and Santa Barbara; marine air depot at Miramar; naval air station at San Diego.

Owens Project Approved . . .

BISHOP—Proposed \$16,000,000 hydro-electric project for Owens river gorge north of here was given additional support by favorable action taken in January by Los Angeles city council which approved its water and power committee report. Council thereby urged immediate drafting of plans for constructing four hydro-electric plants in the gorge and acquisition of rights of way.

Guayule Goes to Mexico . . .

THOUSAND PALMS — Thirty million guayule plants from emergency rubber project here were shipped in January for transplanting to about 50,000 acres at Durango, central Mexico. Continental Mexican rubber company was successful bidder for large nursery stock order which was packed a million plants per car in 400 lettuce crates.

NEVADA

Winnemucca's Grandson Killed . .

NIXON — Stanley Winnemucca, descendant of Pahute Indian chief who led fight against white man in battle of Pyramid Lake in 1850s, was killed in action while serving with marine corps in Southwest Pacific. The young Indian had joined marines two years ago.

Travel Over Dam Increases . . .

BOULDER CITY—Travelers crossing Boulder Dam in December, 1943, exceeded by 2635 those who crossed in December 1942. Total for last December was 8883. Total for entire Boulder dam recreational area, which includes Boulder beach, Las Vegas beach, Pierce Ferry area, Eldorado canyon, Willow beach, Temple Bar and Overton district, was 10,247.

Duffurena Ranch Sold . . .

WINNEMUCCA — Alex Dufurrena ranch near Denio, at Nevada-Oregon state line has been sold to California mining men who took possession in January. They are A. E. Hall, A. F. Giddings, L. H. Davey, Wilbur H. Haines and O. Jack Bougher. Dufurrena ranch consists of 8000 acres and extends west, south and east of Denio.

Nevada Teacher Salaries Up . . .

CARSON CITY — Average Nevada school teacher salary has advanced \$169.32 per annum in past year, according to records of state superintendent Mildred Bray. Average annual salary of grammar and high school teachers now is \$1911.94. Highest individual salary in state, \$5400, is paid to superintendent of Reno city schools. Number of teachers employed in state this year is 965 compared with 992 last year.

University President Elected . . .

RENO—John Ohleyer Moseley, dean of students at University of Tennessee, has been named president of University of Nevada effective July 1, 1944. He succeeds the late Dr. Leon W. Hartman. He studied at Austin college, Sherman, Texas; University of Oklahoma; was awarded Rhodes scholarship and the Royall Victor fellowship at Stanford university.

Opal Jack Lubbinga Dies . . .

WINNEMUCA — Death of John "Opal Jack" Lubbinga, who died in January aged 85, closed a colorful career which started in Nevada in 1898. He was stage driver between Winnemucca and Denio, he discovered one of the large opal deposits in northern Humboldt county, he played on the stage with May Robson and Clara Kimball Young. Among survivors are a niece, Mrs. Mary Granwald of Berwyn, Illinois, and a cousin, Henry Doornkett, Detroit, Michigan.

Indians Use Branding Iron . . .

CARSON CITY — Nevada Indians have accepted another device of white men—the branding iron. Traditionally a brave's standing depended on his ability to steal cattle and horses but today he is judged by his fellow tribesmen by the amount of stock bearing his legal brand. About 55 Indians on six Nevada reservations have recorded brands since 1939. They usually are not such fanciful figures as those adopted by white men.

NEW MEXICO

Men Minus Barbers . . .

MOSQUERO—Men in this cowtown are mumbling in their beards. Their only barber moved away. Another moved in but the draft board put him in the army. They imported a woman barber from Texas. Before she could finish job of removing beards state hustled her off for license examination. She didn't get the license.

Newcomb Sells Trading Post . . .

NEWCOMB—Arthur J. Newcomb, for many years a trader on Navajo reservation, sold his trading post in January to J. M. Drolet and Paul Brink. Mr. Brink, who has been at Sheep Springs trading post, will be in charge of the property.

Brownfield Heads Cattlemen . .

DEMING—A. D. Brownfield, local cattleman, was elected president American national livestock association at Denver January convention, to succeed Frank Boice of Sonoita, Arizona.

A WESTERN THRILL

"Courage," a remarkable oil painting 20x60 feet, the Covered Wagon Train crossing the desert in '68. Over a year in painting. On display (free) at Knott's Berry Place where the Boysenberry was introduced to the world and famous for fried chicken dinners with luscious Boysenberry pie.

You'll want (1) A 4-color picture of this huge painting suitable for framing. (2) A 36-page handsomely illustrated souvenir, pictures and original drawings, of Ghost Town Village and story of this roadside stand which grew to a \$600,000 annual business. (3) Two years subscription (12 numbers) to our illustrated bi-monthly magazine of the West. True tales of the days of gold, achievements of westerners today and courageous thoughts for days to come. Mention this paper and enclose one dollar for all three and get authentic western facts. Postpaid. G H O S T T O W N N E W S, BUENA PARK, CALIF.

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636 State St.

El Centro, California

Famed Lodge Burns . . .

DATIL—Navajo Lodge, celebrated in best seller "No Life For a Lady," written by Agnes Morley Cleaveland, was destroyed by fire in January. It was built in 1886 for Mrs. Cleaveland's parents, and was considered one of the finest hand-hewn log buildings in the country. It had been moved here from its original site in 1920 when it was opened as a hotel.

Press Officers Named . . .

SANTA FE—New Mexico press association at annual convention in January elected A. W. Barnes, Gallup publisher, president of the association. Frank C. Rand, Jr., Santa Fe publisher, was elected vice-president, succeeding Barnes; David Bronson, Las Cruces, and Earl Grau, Tucumcari, were re-elected treasurer and secretary. Board of directors renamed tor two-year term were Geo. S. Valliant, Albuquerque, Richard Hindley, Clovis, and Floyd B. Rigdon, Carlsbad. Dale Bullock, Santa Fe, was elected to board to succeed Rand.

New Mexican's Record Intact . .

LOVINGTON—Calf roping record established at Denver arena several years ago by John McClure still stood at close of 1944 national western stock show rodeo. Clyde Burke of Comanche, Oklahoma, dropped his calf in 16.4 seconds, as against McClure's record of 12 seconds flat, and world record of 11.2 seconds.

The Postman Didn't Ring . . .

HAYDEN—Dave Ellis lives on a star mail route 12 miles from here, but for more than a month snowdrifts prevented mail delivery. He couldn't stand it any longer. He drove 15 miles south to Rosebud, 31 miles west to Mosquero, 65 miles to Springer, 40 miles to Raton, 83 miles to Clayton, then slipped up on his own post-office—12 miles from home. Total mileage was greater than distance to Denver, but he got his mail.

Indians Seek White Medicine . . .

GALLUP—Chee Dodge, Navajo council chairman, has requested Indian service to provide a dozen hospitals similar to one at Crownpoint, to be scattered throughout Navajo reservation. President Roosevelt already has asked congress to appropriate \$73,050 for Eastern Navajo hospital at Crownpoint, \$52,590 for Northern Navajo hospital at Shiprock, \$34,065 for Charles H. Burke hospital at Fort Wingate and \$34,250 for Zuni hospital.

New Mexico bankers association will hold annual convention in Santa Fe April 28-29.

State income from rentals and royalties on gas and oil lands set all-time high in 1943, totaling \$4,581,758, more than a million dollar increase over 1942.

UTAH

Hope for Dewey Dam . . .

THOMPSONS—Development of Dewey damsite on Colorado river east of here, or at least another project on the river, is virtually a certainty within "a considerably shorter time than 25 years" according to John C. Page, consulting engineer and former bureau of reclamation commissioner. Page is compiling comprehensive report on Colorado river basin project development, with recommendations for new projects. Such a dam is needed badly, he said, to control silt deposits in Lake Mead, to provide electric power which would make industrial development of state possible.

Governor Wants Virgin Dam . . .

ST. GEORGE — Governor Herbert Maw in January said he would ask construction of a dam on the Virgin river which would irrigate 3100 acres of Arizona strip country and 11,000 acres of Utah's Dixie valley, as an emergency food project. Plans call for earth-fill dam near here.

Plan Permanent River Body . . .

SALT LAKE CITY—Representatives of seven western states affected by Colorado river, headed by Charles A. Carson of Phoenix, Arizona, declared at a meeting here in January they would endeavor to form permanent organization to conduct Colorado river affairs of New Mexico, Colorado, California, Utah, Wyoming, Arizona and Nevada.

Geologist Takes New Post . . .

BINGHAM — L. S. Breckon, mine geologist at Bingham pit of Utah Copper company for past 10 years, has been appointed field engineer for Kennecott Copper corporation, of which Utah Copper is a subsidiary. Retaining headquarters at Bingham, he will conduct exploration work and examinations of mine prospects in western states. A native of Salt Lake City and graduate of University of Utah, he went to South America in 1920 where he worked for Cerro de Pasco copper company, after which he engaged in mining activities in this country and in British Columbia.

Dehydration Fund Approved . . .

ROOSEVELT—Final approval of \$50,000 federal advance to equip potato dehydration plant here has been given by department of agriculture, according to Senator Murdock. Local farmers had contributed \$30,000 for building and for digging potato pits.

Roy A. Schonian, publisher of Uintah Basin Record, Duchesne, was elected president of Utah state press association in Salt Lake convention in January.

Sez Hard Rock Shorty

of
Death
Valley
By LON GARRISON

"Look!" pointed out Hard Rock Shorty. "Right up there near the top o' Telescope peak — you'll need these glasses to see it but there it is—see that little bald spot about as big as two acres? Looks kind o' funny there in the middle o' all that brush but the way it got there is funnier yet. It was made with skiis, an' I made it."

Hard Rock took another look at the site of his ski adventures.

"Maybe yuh read a year or two ago about a couple o' fellers who come up over Telescope peak from the other side an' skied down this way as far as they could an' then hiked on down to where they had a car waitin' for 'em. Well, that's gospel all right but what they don't tell is that it took 'em close to all day an' then all night too to get down an' their skiis are still up there someplace in a tree to scare the pants off some mirage-crazy prospector.

"Well, those guys hadn't nothin' to do with this clear spot up there—I'm just tellin' about 'em so that you'll know there's snow up there to ski on sometimes. In fact, years ago I done it myself. I had a little prospect right in the place that clearin' is now, with a cabin. In the winter time the easiest way in was for me to go up over the top an' down on this side. I'd use skiis for the slide down this way on account of it was just 'Swish!' an' I was there.

"One trip I was takin' in a bunch of steel for drills an' had along a cook stove an' some other odds an' ends an' it made a purty solid pack. I got 'er all on my back an' clumb the other side all right. Then I started down to the cabin. Well sir, that wasn't as easy as it looked! With that pack I got to goin' so fast that when I got stopped down to the cabin I smelled smoke. I looked down an' my skiis was on fire! I'd been comin' too fast an' burned up my skiis an' set the woods on fire too. Before I c'd stop it, it burned down my place an' that little spot o' timber I was just showin' you.



GEOLOGIST TELLS STORY OF EARTH'S EVOLUTION

A visitor standing on the rim of intricately sculptured Grand Canyon could well pause in awed silence and ask himself—what does it all mean? Whence came this superb masterpiece of color and contour, what forces have evolved this magnificent landscape rimmed by a farflung plateau? Questions like these have been asked and are still being asked by countless thousands of observers and enthusiasts of the out-of-doors.

N. E. A. Hinds, associate professor of geology at University of California, has answered these questions in his recent book, GEOMORPHOLOGY, THE EVOLUTION OF LANDSCAPE. It is written for beginning students and laymen interested in the nature and history of the evolution of the present landscape. The causes—the seemingly mysterious physical forces that control the changes of the earth's crust—are explained in light of the most recent facts available in this field of science.

The rockhound who is eager to know the source and scientific explanation of the materials which constitute his hobby should turn to the chapter on rocks and minerals for a clear and interesting exposition. The forces influencing the creation of rock materials, the reasons why certain types of rocks are found in particular places, and structural features, are accurately explained. Familiar examples, many of them in the Southwest, are cited and many diagrams, sketches and photographs illustrate each point.

A fascinating section of the book deals with such natural phenomena as earth-quakes and volcanoes. Extensive chapters on these two violent deformers of the earth's crust interpret their causes and effects, and again numerous pictures and sketches supplement the text and constitute an important part in understanding the material presented.

The book deals with the vital growing world about us as it is related most directly to our personal lives. In his own words Professor Hinds says, "We live on an ancient earth, but an earth vigorous and mobile . . . day after day, year after year, eon after eon, its relief is being modeled and remodeled by the ever active forces and agents at work on and below the surface. Its marvelously diverse landscapes are the product of a long and varied history. Their

evolution is a wonderfully interesting but complicated story . . . An understanding of her (Nature's) masterpieces is quite as important as an understanding of great literature, sculpture, painting, architecture, or music."

Prentice-Hall, Inc., 1943. 894 pp. \$5.00.

-ALITON MARSH

CALIFORNIA HISTORY IS REFLECTED IN CATTLE BOOK

Economic and social history of Southern California from 1829 to 1871 is presented in readable interesting style in Robert Glass Cleland's THE CATTLE ON A THOUSAND HILLS.

For his material, Dr. Cleland delved into old records, salvaging much from some 15,000 letters, documents and memoranda of Spanish land grants, accounts of Indian massacres and various petitions to congress which threw light on California's period of transition. Much of the story touches upon the life of Abel Stearns whose activities were closely associated with almost every angle of Southern California history of that era.

The hills of Dr. Cleland's book are the foothills that figured prominently in the transformation from cattle country to urban community or from Spanish to Anglo-Saxon dominance.

The student of history will find it fully documented, but it is entertaining as well as informative for those who want color and drama too.

Huntington Library, San Marino, California. 1942. 327 pp. \$3.50.

-MARIE LOMAS

BARONS AND BAD MEN IN STORY OF THE RANGE

Walter Pannell's little booklet CIVIL WAR ON THE RANGE gives a condensed version of the cattle industry in the Southwest—the first trail herds, cattle barons, cowboys and badmen. In it are the stories of almost legendary men such as Charles Goodnight, John Chisum, Billy the Kid, General Lew Wallace.

An appendix includes some interesting notes on the Big Bend country of Texas, which has been proposed as a national park. Published by Welcome News, Los Angeles. 10c.

SHORT CUT TO SPANISH IN MINIATURE BOOK

Desert folks of the Southwest always have been aware of the Spanish culture across the border. And they have been influenced, even if subconsciously, by the rich Spanish heritage on this side of the border. Now, in this new Pan-American era, knowing how to express themselves in the musical language of its people is acquiring a new importance.

A tiny booklet entitled DESERT SPAN-ISH "Pronto," recently has been written by Mario Valadez. A simple introduction to the elements of the language leads to a practical vocabulary classified according to related objects, actions, occupations, etc., followed by the commonest idiomatic expressions, brief conversations and a definition of Spanish-named American towns. 40 pp. 25c.

NAVAJO ETHNOLOGY IS SUMMARIZED BY MUSEUM

THE NAVAHO, by Frances E. Watkins, published late in 1943, is No. 16 of the Southwest Museum Leaflets. It is a 45-page summary of ethnological information on the Navajo Indians. An account of their origin, language and history is followed by a discussion of their food, homes, clothing and appearance. Their pottery making, weaving and silversmithing are described and illustrated.

Balance of the booklet is concerned with traditional social and religious life, including notes on chants and sandpaintings. Southwest Museum, Los Angeles, California. 20 photos. 30c.

Sun and Saddle Leather

By BADGER CLARK

It's been called "the best Western verse ever printed," and by popular demand the twelfth edition has just come off the press. Here are the collected poems of the Southwest's own cowboypoet—poems like "The Glory Trail" and "Ridin," that have overleaped the printed page to become part of the great body of American folk-song.

"I have seen many poems and verses come out of the wild portions of the West; but these are the best."

—W. T. HORNADAY.

Bound in imitation saddle leather, with decorative end-papers in color.

\$2.50

DESERT CRAFTS SHOP

636 State St.

El Centro, California

Mines and Mining..

Washington, D. C. . . .

Grants of small quantities of aluminum for experimentation in postwar models of civilian goods will now be made by WPB, provided the experiments "can be carried out without diverting manpower, technical skills or facilities from activities connected with the war effort." Decision is expected to stimulate research in development of lightweight automobiles, refrigerators and other durable goods. Order will not allow actual manufacture of any new consumer goods for current sale, however.

Carlsbad, New Mexico . . .

United States potash company is beginning an expansion program at its plant here to cost more than \$1,000,000, announced General Manager T. M. Cramer late in January. C. C. Moore and Co., San Francisco, original contractor for the plant, has been awarded the contract for improvements.

Salt Lake City, Utah . . .

Circulating tests on the catalytic cracker of the 100-octane gasoline plant here were started in mid-January. The "cat-cracker," one of the key units of the \$14,000,000 refinery, is the first to reach testing stage. P. J. Houston, construction superintendent for M. W. Kellogg company, said other units would be completed by early February and 100-octane fuel would be flowing latter part of February. Plant will be operated by Utah oil refining company.

Washington, D. C. . . .

Seventy small gold mines, closed by WPB ruling October, 1942, have been permitted to resume operations in past few months. This does not indicate revocation of the order, the board said, but because of improvement in general metals supply situation it can permit "more liberal" consideration of applications to reopen gold mines. Order closed mines in effort to divert miners to production of more critical materials.

Denver, Colorado . . .

Mining men at January meeting of Colorado mining association and American mining congress, western division, declared plastics would not take place of metals in the postwar world. Among even greater uses for metals would be steel-clad base metals, metal-covered plywood and similar developments now in experimental stage; resumption of production of now-scarce goods such as autos, refrigerators and all types of machines; increase in rural electrification and electrical appliances.

Los Angeles, California . .

At a press conference here in January, it is reported, Lt. Commdr. Wm. S. Knudsen of WPB stated the government did not need any more aluminum and magnesium. From other sources have come reports that supplies of zinc, mercury and tungsten from captured region of Italy is being brought to United States and that tungsten also is being brought here from China by plane and Russian ships.

Douglas, Arizona . . .

Effective January 1 employees of Phelps Dodge corporation copper mines and plants in Arizona went on 48-hour maximum work week, according to H. M. Lavender, general manager. At some of the units men had been working as many as 56 hours a week. Lavender said the move would not result in any immediate drop in copper production although there might be a drop later, but Phelps Dodge 1944 output would exceed that for 1943.

Carson City, Nevada . . .

Of five leading metals production of all but zinc decreased during 1943 according to bureau of mines figures for Nevada based on 10 months production and November and December estimates. Zinc increased from 1942 value of \$1,896,642 to \$3,043,090. Gold decreased from \$10,328,920 to \$4,830,000. Silver decreased from \$2,647,776 to \$1,105,777. Copper decreased from \$20,246,446 to \$18,083,000. Lead decreased from \$720,384 to \$708,180.

Santa Fe, New Mexico . . .

Bureau of mines report shows increased production of four leading metals in the state during 1943. Based on 10 months production and estimates for November and December, zinc increased from gross value of \$8,641,746 in 1942 to \$13,456,718. Copper production fell somewhat but value increased from \$19,384,200 to \$20,249,840. Lead rose from \$617,472 to \$812,520. Silver decreased from \$480,832 to \$335,448. Gold, with biggest drop, fell from \$418,635 in 1942 to \$199,955 in 1943.

Henderson, Nevada . . .

Contrary to newspaper reports that light metals plants in the West soon would shut down, F. O. Case, Basic Magnesium general manager, declared that "the outlook for continued production here at BMI is much brighter than it was a month ago." It was pointed out that recently new expenditures of \$217,000 h a d been approved.

Albuquerque, New Mexico . . .

Oil production increase in New Mexico in 1943 was 20 per cent over 1942, the largest of any state except Texas, according to figures of H. J. Struth in annual review in Petroleum Engineer. He gives New Mexico's output as 38¾ million barrels. Texas' increase was 23 per cent, and 15 per cent increase was listed for California, the third state in production increase. Drilling activities in the state decreased, making gain due to increased allowable production.

Yerington, Nevada . . .

Engineers report location of extensive copper deposits by International Smelting and Refining company after two years of exploration and development. Indications are that deposits in Adama-Guild-Herrin group and adjoining claims may approach magnitude of great copper deposits of Ely area. The company, an Anaconda Copper subsidiary, operates Rio Tinto copper property in Mountain City field and Copper Canyon copper-gold producers in central Nevada.

Salt Lake City, Utah . . .

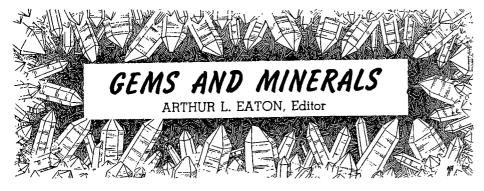
State production of gold, silver, copper, lead and zinc for 1943, \$124,348,439, was highest in Utah's history, according to bureau of mines report. Rise was due to greater production of copper and zinc and to higher prices for all five metals. Utah led the nation in gold output. Utah Copper company's record of treating almost 100,000 tons of copper-gold-molybdenum ore per day was called "phenomenal." Value of 1943 gold decreased to \$13,361,705 from 1942 total of \$13,704,040. Silver decreased to \$6,619,392 from \$7,519,680. Copper increased to \$83,993,000 from \$74,219,222. Lead increased to \$9,805,000 from \$9,638,620. Zinc increased to \$10,569,342 from \$8,470,998.

Westmorland, California . .

Pure Oil company, a Texas firm which recently leased 520 acres state-owned land bordering Salton Sea, will start drilling on section 36, two miles south of Truckhaven, on Highway 99, west of Salton Sea, it is reported, following seismograph research.

Elko, Nevada . . .

As result of official bureau of mines report that northeastern Nevada has richest known oil shale in United States, Senator Pat McCarran is endeavoring to insure location in Elko-Carlin area of one of three proposed bureau of mines laboratories to experiment with oil shale, and various means of extracting oil from shale. Colotado and Utah, which have an oil shale deposit in common, have become rivals for a second plant, while the Dakotas have put in bid for a third.



LOUIS MARLEAU, WELL KNOWN CALIFORNIA LAPIDARY, DIES

Louis Etienne Marleau, well known lapidary of Oceanside, California, passed away January 6, 1944, at his home, 201 South Tremont. He was one of the old time lapidaries, having established a business in Los Angeles about 1900. He was an expert in cutting semiprecious stones such as amethyst and tourmaline. He cut for Shady Myrick and the two were friends for many years. He operated a gem cutting and polishing shop in Oceanside during his early residence there. Marleau was a native of Valley Field, Quebec, Canada, but had been a resident of U. S. for 55 years. His many friends grieve at his passing and extend sympathy to Mrs. Marleau.

COLORADO MINERAL SOCIETY ELECTS OFFICERS FOR 1944

Mignon W. Pearl, secretary-treasurer of Colorado mineral society, Denver, reports election of the following officers: Chester R. Howard, president; Harvey C. Markham, vice-president; Fred F. Shaw, second vice-president; Mrs. Mignon W. Pearl, secretary-treasurer.

Colorado mineral society is a nonprofit educational organization to promote study of Colorado minerals and other geologic materials and to encourage mineral collecting as a hobby. Membership is open to all. A new classification of membership was voted at December meeting. For annual dues of \$1.50, husband, wife and children under 18 may belong. Individual dues are \$1.00.

Regular meetings are first Fridays, October-May in Colorado museum of natural history. Summer meetings are field trips. Everyone is welcome

The Colorado group holds an annual photographic contest. Pictures of interest to mineral collectors are judged and mineral prizes

Richard M. Pearl, former secretary of the society, was speaker at January meeting. He discussed recent developments in gemology. Pearl was the second person in U. S. to receive the title of certified gemologist from the gemological institute of America. He also is an associate of the gemological association of Great Britain.

SEARLES LAKE CLUB HOLDS FORTY-NINER BENEFIT PARTY

Searles Lake gem and mineral society, Trona, California, held the annual '49er benefit party January 22 at Trona club. Proceeds went to local and national organizations. Rockhounds far and near regretted that they could not attend the Searles Lake celebration.

The group regularly meets third Wednesdays 8 p. m. at Trona club. Public is invited. Modesto Leonardi, first president of the society, was speaker at first meeting of its fifth year, January 19. Officers for 1944 are: Phil Lonsdale, president; Caecel Whittorff, vice-president; Ann Talchick, secretary-treasurer; Harvey Eastman, George Pipkin, Ann Pipkin, Virgil Trotter, C. M. Edwards, directors.

TENTATIVE CLASSIFICATION FOR SEMIPRECIOUS STONES

Many classifications of semiprecious stones are used, but most of them are rather unscientific. The following groups, based largely on physical characteristics, are offered for consideration:

GROUP ONE: Beryl, including morganite and aquamarine, sapphire, topaz (several colors), tourmaline, kunzite, hiddenite, hyacinth and zircons, green, lavender and other gem garnets, several varieties of opal, basanite, true jade, benitoite and amethysts. Most of the stones in this group are quite hard and transparent, have good color and luster, and many are quite rare.

GROUP TWO: Rock crystal, turquoise, common and fire opal, peridot, amazonite moonstone, lazulite, amber, citrine, carnelian, sard, agate, chrysocolla, hematite, chrysoprase, epidote, andalusite, staurolite, labradorite, californite, and jasper. These stones are often more opaque, poorer color, softer, more easily found, and therefore of less value.

NEW VOLCANO ERUPTS AT FOOT OF PARICUTIN

Those interested in igneous rocks and minerals will be particularly interested to hear that a new and active volcano has sprung up at the foot of one-year-old "El Paricutín." Some months ago a second crater opened in the side of the "old" volcano 300 or 400 feet below the first crater, but this was an actual part of the first volcano itself. Also, many fumaroles arise in the lava of any eruption, formed by steam imprisoned in the surface lava already erupted. These always are temporary, sometimes lasting only a few days.

The new cone, however, is not of this type. It is quite evidently connected with the boiling magma far below the earth's surface, as its eruptions are quite violent and it has thrown out enough lava to cover almost a square mile of territory. The new 100-foot cone stands squarely at the foot of its larger neighbor.

COLORFUL MINERALS

FELDSPAR

"That's nothing but feldspar," is a common remark of those who fail to realize what a large and varied family is represented by the name. Although often misrepresented, true moonstone is a feldspar, hardness six, of the variety albite. It is colorless, but when polished properly en cabochon, shows a beautiful, blue irridescence. This variety is found at its best in Ceylon and the East Indies. A closely related gem is Canadian labradorite, a mineral which is slightly more opaque and shows bluish purple irridescence on cleavages. Other varieties known to gem cutter and mineralogist alike are: microcline and orthoclase, common feldspars, white to flesh pink in color, and amazonite or amazonstone, a bright greenish blue. Add to these the closely related minerals nephelite, grey; sodalite, deep blue; lapis lazuli, blue and white, often speckled with golden colored pyrite; and genuine leucite; and one has a colorful family. Fine, hexagonal crystals of some varieties are found from time to time.

CABOCHON HINTS . . .

Orlin J. Bell suggests that rather light pressure should be applied in cabochon cutting. Press only to the point where the wheel cuts freely and seems to like it. More pressure merely slows the speed of rotation and the cabochon will begin wearing down the wheel. Fingers, too, will be safer with less pressure.

too, will be safer with less pressure.

If stones tend to pop off the dop stick, especially when cold, add a few drops of castor oil to the mix. Use the oil sparingly as too much causes the wax to heat too easily. To correct, add dry flake shellac, or resin, opticians' pitch, or ordinary red sealing wax or canning wax.

SUCCESS OF FROZEN FOODS DEPENDS ON CRYSTAL SIZE

University of Texas reports development of the flash freeze method for fresh foods. Students of crystals will be interested to know that the whole success of the frozen foods industry depends on the size of the hexagonal ice crystals formed while the freezing is in progress. When water freezes slowly the crystals are quite long, as in brittle white ice, but when it freezes rapidly the crystals are so tiny as to be hardly visible.

Luis Bartlett, test engineer of the university's test research, states that the time of freezing has been reduced to as little as two minutes. These small crystals make it possible to keep frozen foods indefinitely, while food frozen slowly and forming long crystals spoils in a very short time.

QUIZ FOR THE ROCKHOUNDS

A rockhound found the labels on his specimens partially destroyed. Can you help him fill in the proper names? Answers on page 35

1.	- u t -	18.	t q i - e		35.	- l a n - m
2.	- h - l - e n -	19.	a - t - m y		36.	-iel
3.	pr	20.	-i-pt-se		37.	b-r-u-
4.	- g e	21.	- p		38.	d m o - d
5.	- o l o e	22.	m ch - te		39.	choc-11-
6.	s - e - t i	23.	- u - p -u -		40.	h - m a t e
7.	n -	24.	-rid-l-te		41.	b y -
8.	i i - m	25.	a		42.	-i-c-n
9.	g n - s - u -	26.	-ou-m-le		43.	p - z
10.	d -	27.	-me-al-	•	44.	l - m o t e
11.	ma-gas-	28.	p h n - t -		45.	psd-mp-
12.	-zit-	29.	- y p - u -		46.	- a l c
13.	j e -	30.	spu-ene		47.	- a l -
14.	- u m - c -	31.	- a r - e -		48.	k z - t -
15.	a - e y - t	32.	f - i		49.	p-rhy-l-t-
16.	f - s 1	33.	-1-or-t-		50.	- u -
17.	- a r - l -	34.	c-ia-t-l-te			

GEM MART

ADVERTISING RATE
5c a Word — Minimum \$1.00

- INTRODUCTORY OFFER—One dollar each lot. Five all different Fluorescent Agates—polished. Thirty rough Mexican Opals. Fifty nice pieces Turquoise. Twenty different polishing specimens. Postage ten cents. Minerals and gems on approval. DR. RALPH MUELLER, Professional Building, Kansas City, Missouri.
- AGATES, Jaspers, Opalized and Agatized woods, Thunder eggs, polka dot and other specimens. Three pound assortment \$1.50 postpaid. Glass floats, price list on request. Jay Ransom, 3852 Arboleda Ave., Pasadena 8, Calif.
- Beautiful Chryscolla Crystals. Specimens containing blue, green and white crystals. All sizes, \$1.00 and up. Also cutting material reasonable. Artcraft Stone Co., 2866 Colorado Blvd., Eagle Rock, Calif.
- JADE—Near black, cuts out almost black. This color makes fine crosses. Slice 75c. Allan Branham, Jade Hunter, Box 562, Lander, Wyoming.
- 20 mixed fossils for a dollar bill. 100 ancient Indian arrowheads \$3.00. 10 tiny bird arrowheads \$1.00. List Free. Lear Howell, Glenwood, Ark.
- \$2.50 brings you prepaid six rare and beautiful crystallized Arizona minerals. Vanadinite, Dioptase, Wulfenite, Willemite, Chrysocolla, Azurite. Specimens 1½x2 or larger. Wiener Mineral Co., Box 509, Tucson, Arizona.
- 100 Jewelry Stones removed from rings, etc., \$2.00. 12 articles of Antique Jewelry, rings, pins, etc., \$3.00. B. Lowe, Box 311, St. Louis, 1, Missouri.
- CABOCHON CUTTERS with our unnamed mixture of good cutting material sawed ready to shape cut and polish you can finish several fine stones. 25 cents for two ounces and with money back guarantee. Gaskill, 400 North Muscatel, San Gabriel, Calif.
- JADE—Another new find—rich deep green with darker green spots—slice \$1.50. Allan Branham, Jade Hunter, Box 562, Lander, Wyoming.
- A Curiosity—12 prehistoric lizard scales for \$1.00. Shaped as a diamond on playing card. Just as big. Color jet black. Jack The Rock Hound, P. O. Box 86, Carbondale, Colorado.
- JADE—Nice rich medium green, makes fine brooches, ring sets—slice \$2.00. Allan Branham, Jade Hunter, Box 562, Lander, Wyoming.
- THE ROCKHOUND COLONY GROWS—
 Fourteen lots sold to date and more coming, also six acres of back land for orchard. Send in a good name for colony and postoffice. We're going to have a colony we'll all be proud of. Ideal location—mild winters—cool summers—virgin collecting country and finest scenery. Lots cheap—\$150 for 100x300 ft. on U. S. 160. We need cutters, dealers, collectors, hobbyists, silversmiths, etc. Also plenty in other lines of business, especially a good tourist court with at least 16 cottages, because those who have bought lots will want a place to live while they build. Many more are intending to come and buy and when the tourist trade starts this will be one of the best locations in the country. All interested write to The Colorado Gem Co., Bayfield, Colo.

- INDIAN RELICS, Curios, Coins, Minerals, Books, Old Buttons, Old Glass, Old West Photos, Weapons, Catalog 5c. Lemley Antique Store, Osborne, Kansas.
- CABACHON CUTTERS—Don't miss this one. Stone Canyon Jasper—beautiful blending of reds, yellows and browns slabbed for Cabachons. 20 cents per square inch. This will please you or your money refunded. Gaskill, 400 North Muscatel, San Gabriel, Calif.
- ROCK COLLECTORS, ATTENTION! A COLORFUL COLLECTION 5 slabs Cuttables, \$1.00; Sky Blue Fluorite Xls., \$1.00; Azur-Malachite, \$1.00; Chalcanthite, \$1.00; Amethyst Phantom Xl., \$1.00; Iron Pyrite and Qtz. Xl. group, \$2.50. Realgar & Orpiment Xls. on Calcite, \$2.00; Purple Dumortierite Radiating Xls., \$1.00; White Aragonite Stalactites, \$1.00; Silky Asbestos, \$1.00; Vanadinite Xls., \$1.00. Free polished specimen. All the above postpaid \$8.00. December offer still good. The Rockologist, (Chuckawalla Slim), Paradise Trailer Court, 627 E. Garvey Blvd., Garvey, Calif.
- Worm bored Petrified Wood, \$1.00 per pound. Dinosaur Bone, 50c and \$1.00 per lb., plus postage. Bill Little Gem Cutting, Hesperus, Colorado.
- JADE—A new color—grey-green-mottled. The only piece of this variety found up to now—slice \$1.50. Allan Branham, Jade Hunter, Box 562, Lander, Wyoming.
- 50 Genuine and Synthetic slightly damaged stones assorted \$7.50. Genuine Zircons Llue or white 3 for \$3.75. Twelve genuine Cameos or Opals \$2.50. B. Lowe, Box 311, St. Louis. 1, Missouri.
- Minerals, Fossils, Gems; Stamps, Coins, Pistols, Glass, Bills, Indian Relics, Bead Work. Catalogue 5c. Vernon D. Lemley Curio Store, Las Cruces, New Mexico.
- Montana Moss Agates in the rough for gem cutting \$1.00 per lb. plus postage. ELLIOTT'S GEM SHOP. Petrified Picture Wood and Moss Agate Jewelry Hand Made in Sterling Silver Mountings Rings, Bracelets, Necklaces. Brooches, Tie Slides, etc. Mail orders filled anywhere in U.S.A. 26 Jergins Arcade, Long Beach 2, Calif.
- AGATE—We hunted Montana Agate for many years—near Fallon, Montana. We offer now Agate we have held back—not field run, but selected stock. Good color, or spots, guaranteed in every Agate at \$1.00 lb. Allan Branham, Jade Hunter, Box 562, Lander, Wyoming.
- Swisher Rocks and Minerals, also Corals, Shells. Statues, etc. We also buy mineral species and woods. Must be good. Swishers, 5254 So. Broadway, Los Angeles 37, Calif.
- Gem Jasper from Indian Ridge, Ohio. Beautiful pastel colors. Makes lovely cabochons; 2 ounces rough for only 25c, or \$1.50 per lb., postpaid. Lake Superior Agates 10c each and up. Wyoming Jade, gem quality, slabs of all kinds. Send for list. James W. Riley, RR. 2, Springfield, Ohio.
- Tourmaline matrix, in quartz crystals, \$1.00 to \$30.00, tourmaline pencils, 50c to \$5.00, Essonite garnet-green-clusters, 50c to \$3.00, unique specimens. Sagenite agate, \$1.00 to \$4.00, specimen rough nodules. Gem list 10c. Return specimens if not satisfactory. The Desert Rats Nest, 2667 E. Colorado St., East Pasadena, Calif.

AMONG THE ROCK HUNTERS

Orange Belt mineral society enjoyed a varied program January 6 at San Bernardino junior college. Mary Van Lanningham spoke on calcite and its occurrence; Mrs. D. H. Clark on uses of calcite. J. C. Filer described calcite prisms and told how they are used for polarizing light. R. H. Eells read a paper on use of copper in jewelry.

Charles O. Parker, Denver, Colorado, assayer, is giving a complete course in mineral identification at Opportunity school Monday through Thursday, 7:15 p. m. The instruction is free.

Sequoia mineral society has elected the following 1944 officers: Gates Burrell, president; Leon Dial, vice-president; Nellie Petersen, secretary-treasurer; Mabel Andersen, assistant secretary; Jesse McDonald, federal director; Pete Eitzen, Florence Chapin, Hans Andersen, Frank Dodson, board of directors.

Henry Mulryan discussed tale at January dinner meeting of Pacific mineral society, Los Angeles, held in Hershey Arms hotel, 2600 Wilshire Blvd. Mulryan is a consulting engineer formerly connected with Johns-Manville company and Gladding-McBean company.

H. W. Ender, Gunnison, Colorado, reports a promising cinnabar deposit south of Gunnison.

Mineralogical Society of Arizona, Phoenix, studied specific gravity at December 2 meeting. The next gathering, December 16, was given over to discussion of the strategic minerals. In January the society took up the study of chemical characteristics, speaker, Scott L. Norviel.

Rocky mountain federation plans that each member society prepare a collection of the outstanding minerals in its locality to be circulated in turn among the groups. Dr. Olivia McHugh, member of mineralogical society of Utah, originated the proposal.

Speaker Kintz of U. S. bureau of mines lectured on safety at January 11 meeting of Texas mineral society, Dallas. At February 8 gathering the group held a rock auction. Specimens were donated by members to augment the treasury.

Helyn C. Lehman is chairman of the Red Cross committee of Los Angeles mineralogical society. All members plan to donate to the blood bank.

Louise Eaton wishes to thank those organizations who have kindly sent her names and addresses of officers, time and place of meetings and other information about their activities.

Mineral minutes of Colorado mineral society states that gilsonite or uintaite is produced only in Utah and Colorado. It is a vein deposit derived from the alteration of petroleum; related to asphalt but harder; requires a higher temperature to fuse; is used in making paint, varnish and rubber products; in briquetting ores and coal. Original source is Uintah mountains, Utah, probably the oldest mountains in U. S.

Sixteen members of Mineralogical Society of Arizona are thumbnail and micro-mount enthusiasts.

Southwest mineralogists, Los Angeles, plan to stage their annual show Saturday and Sunday, April 1 and 2.

Southwest mineralogists of Los Angeles now meet at Harvard playground, 6120 south Denker. They have adopted the policy of having a short lecture following the business meeting a short lecture following the business meeting to replace the study class formerly held second Fridays. "Thus," writes corresponding secretary Dorothy Craig, "killing two birds with one gallon of gas." The "shortie" topics have been lead, zinc and chromium. Field trips are visits to local collections or points of interest. They have enjoyed the collections of Mr. and Mrs. L. C. Gully in Venice and of Nettie and Albert Hake. Aluminum company of America presented a colored movie January 21, called "Unfinished Rainbows."

A semi-potluck turkey dinner marked Sequoia's annual birthday celebration February 1, held in the First Baptist church, Selma. Members contributed rock specimens for door prizes and also arranged an interesting mineral display.
Oscar Venter and Al Dickey were in charge of fluorescent minerals.

January Pacific mineralogist, publication of Los Angeles mineralogical society, continues the articles on fundamentals, dealing this month with color.

Grays Harbor geology and gem society, Hoquiam, Washington, has elected the following: Willis I. Clark, president; John Friend, vice-president; H. J. Pryde, secretary-treasurer. Annual Christmas party was held at the home of Mr. and Mrs. P. W. Walker in Junction City. Rock specimens donated by members for auction netted \$26.00 for the club treasury. Forty-fine members and visitors attended.

Eldred V. Anspach, petroleum chemist, talked on minerals and their associated chemical elements at January 20 dinner meeting of Los Angeles mineralogical society held at Boos Bros. cafeteria. E. E. Peterson also talked on life and work of Louis Agassiz.

East Bay mineral society, Oakland, California, urges all in the district who are interested in rocks and gems to meet with them first and third Thursdays in the auditorium of Lincoln school, 11th and Jackson, 8 p. m. W. G. Paden spoke on California-Oregon trail at January 6 meeting. January 20, R. E. Lamberson recounted his adventures on a prospecting trip from Reno through Death Valley by team and wagon.

Answers to Rockhound Quiz on page 33

	011	page	00
1.	quartz	26.	tourmaline
2.	chalcedony	27.	emerald
3.	copper	28.	prehnite
4.	agate	29.	gypsum
5.	dolomite	30.	spodumene
6.	steatit e	31.	garnet
7.	zinc	32.	flint
8.	indium	33.	fluorite
9.	magnesium	34.	chiastolite
10.	jade	35.	platinum
11.	manganese	36.	nickel
12.	azurite	37.	barium
13.	jasper	38.	diamond
14.	pumice	39.	chrysocolla
15.	amethyst	40.	hematite
16.	fossil	41.	beryl
17.	marble	42.	zircon
18.	turquoise	43.	topaz
19.	antimony	44.	limonite
20.	dioptase	45.	pseudomorph
21.	opal .	46.	calcite
22.	malachite	47.	talc
23.	sulphur	48.	kunzite
24.	crocidolite	49.	pyrophyllite
25.	mica	50.	dud

Cogitations

Of a Rockhound By LOUISE EATON

Sumtimz it seems as tho rox is just as pritty when you don't know all about their innards as when yu do know th' proportions uv aluminum 'n oxygen, etc., that compose um! Maybe it gives yu a sort uv satisfaction to kno how geodes formed but also p'raps where ignorance is bliss, wisdom approaches folly. Howsumever, if you wants to buy juels it pays to kno yur rox.

The study uv rox leads yu into all sorts uv ologies sutch as ge—gem—'n archae. Astronomy cums in fer a share uv attention too, if field trips are possible. By mby, yu gets sos yu can read a cut in th hillside just like an open book. Yet, with all this knowledge, duz a polished thunder egg 'r a rainbow agate look any beautifuller?

know how Tantalus felt of old, When he couldn't get a drink,
Or gather the will o' the wisp of fruit
That grew at the water's brink.

For, the other day, I had to go Across the desert floor, And there in sight-but not for me-Were the field trip trails of yore.

Oh, they called and beck'd as the bus

sped on,
And my heart began to weep
For the fathomless peace of the field trip days-

Just wait 'til I get a jeep!

I. O. Lee talked about rarer minerals of the rarer metals at January 4 meeting of New Jersey mineralogical society, Plainfield, New Jersey. The regular meeting place is in Plainfield pub-

Dr. Alex Clark of Shell oil company talked on oil geology at January 14 meeting of Long Beach mineralogical society. Board meeting was held at home of J. E. Webb January 19. Lapi-dary meeting took place at Jim Bond's, 1521 Gardenia avenue, January 20.

Lelande Quick, who writes Amateur Gem Cutter in DM, was guest speaker at Rotary club of Hermosa Beach January 25, and at Lions club, Manhattan Beach January 27. He spoke on gem cutting.

Mr. and Mrs. W. Scott Lewis derive extra pleasure on their trips by combining interest in birds, animals and flowers with their primary rock hunting purpose.

ROCKHOUND'S PRAYER

By Orlando Weight Pasadena, California

The rockhounds are restless and somewhat sad While dreaming of wonderful trips they've had. Sad because old desert haunts they adore Are casualties now of this merciless war Where the jeep, the tank and bomber today Run rampant preparing our boys for the fray.

We pray to the Master, whose artistic hand Created our gems and our desert land, For the safe return from Japan or the Rhine To loved ones in homeland, your boy and mine. We also request, if and when He can, The desert's return to the desert clan.

UNUSUAL AND RARE CUT GEMS --

in Precious Topaz, Golden-Beryl, Rhodolite and Hessonite Garnets. Also rare green.

ALL KINDS OF AGATES \$1 to \$10 Dozen

Spinels of all kinds. Cabochons in Turquoise, Emeralds, Azur-Malachite, Golden-Starolites, Swiss-Lapis, etc. All kinds of Scarabs.

CEYLON ZIRCONS-50c per carat. STAR SAPPHIRES-\$1 per carat. COLOMBIA EMERALDS-\$10 up each.

Synthetic Stones. Rare Cameos, Necklaces, Stickpins, etc. Rough Gems for Cutting in Garnets, Tourmalines, Quartz-Topaz, Nephrite, etc.

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- 1. OREGON NODULES These are all nice firm nodules from the famed Priday ranch locality of central Oregon. 30c and 50c a pound.
- 2. BLACK AGATE NODULES—These are probably the most beautiful of all nodules, with the possible exception of the Plume Nodules from Oregon. They are black, shading off to grey and even white in some instances.

50c a pound.

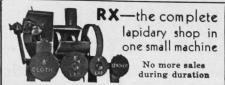
- 3. BLUE AGATE NODULES Beautiful blue centered nodules from Lead Pipe Springs. **50c a pound.**
- 4. **GEODE-NODULES** These thunder eggs are from the Chocolate Mtns. of Southern California, and while some are crystal-lined geodes, some are solid center nodules. 35c per pound.
- 5. FOR \$1.50 we will send you one each of the above listed nodules, in cutting

We will saw any nodule listed above for only 10c, or saw it and polish one-half for 50c.

Please include postage with all orders. We wish to purchase fine materials.

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AMATEUR GEM CUTTER

to have, their own gem cutting and polishing equipment. Lelande Quick, who conducts this department, is former president of the Los Angeles Lapidary society. He will be glad to answer questions in connection with your lapidary work. Queries should be addressed to Desert Magazine, El Centro, California.

By LELANDE QUICK

Covington LAPIDARY EQUIPMENT

GRIT BUY WITHOUT PRIORITY

We made a lucky buy of a ton of grit without priority and are passing our good luck on to you in this . . .

SPECIAL

10-lb. package 300 (FF) grit for use with Old Miser only and one jar Old Miser Lapping Compound, all for . .

\$3.50 F.O.B. Redlands

COVINGTON LAPIDARY ENG. CO. Redlands, California

On my recent vacation trip to the desert I found everything pre-war. The desert and the rocks are still there. The road-side dealers still hold forth and report their business good.

I also discovered what used to happen to the scrap in desert towns before the scrap drives. It was scattered over the landscape. I saw enough scrap to build a battleship-a terrible reminder of the tragedy of waste characteristic of America.

I recently experienced a thrilling evening when I met with three friends to divide a 10pound package of opals from Australia. The strings were untied and while we all looked on bug-eyed, four large boxes were filled with opals that had been weighed without too much examination. The boxes then were shuffled around by a disinterested party while our backs were turned and we all made our selection. Then the fun began and we exclaimed over our treasures for the rest of the evening.

Out of this experience I can offer the follow-

ing advice. Don't order more than \$99.00 worth When you get \$100 worth or over you have to pay a consular fee, pay a broker a stiff price to get them out of the customs, and run all manner of errands to get your package. Don't permit your package to contain any "faced" or partly processed opals, for then a 10 per cent duty is added. The opals now coming through are from the bottom of the barrel they're not as good as they were five years ago for the same money but they still are a good buy. Fair opal for amateurs, known as "practice

opal," can be bought for 50 cents an ounce, but it is wiser to buy the material priced at from \$2.00 to \$10.00 an ounce. If you are considering importing any (from dealers advertising in the mineral magazines) the best procedure is this: Order from \$50 to \$90 worth of rough opal only with half of your order for practice opal, and the other half for better grade but to include no faced or boulder opal. Order it sent by prepaid parcel post to your bank and send your order via air mail (70 cents), to save three weeks' time. The opals will arrive at the bank in about 70 days when you can examine them before paying. If they are unsatisfactory the bank will return them. If they are all right, pay the bank the amount of your order and that is all.

The best grade of opal comes as seams in half-ounce pieces of matrix. To get the most out of this the chunk should be sawed in half it it contains two seams and the pieces lapped down to the fire. Cabochons for mounting in rings should be finished flat-not loaf shaped. When flat, the fire shows at any angle. If you want to make a ring it is wise to visit a good jeweler and see his selections for ideas. Quality opals about one-half inch in their widest part bring from \$300 to \$600, including the mountings, in the better stores.

So far I have had but one dissenter to my recent stand on opal-lucite jewelry but many people have applauded the idea. One dealer said he had to carry it because for a time there was a small demand but now he's stuck with it. I still think that imprisoning an opal in a piece of lucite is worse than wearing a diamond collar button in a celluloid collar.

E. J. Mailloux reports that so far the offers to buy equipment outnumber the offers to sell by about seven to one. The exchange idea outlined in December and January issues of Desert Magazine is just getting under way as this is written. In the meantime restrictions are lessening and diamond saws and other equipment now can be bought from some dealers.

This page of Desert Magazine

is for those who have, or aspire

Ratnapura is in the news. It is the district of Ceylon richest in rubies and semi-precious stones and therefore the richest gem field in the world outside of the diamond mines. The ruler and owner of the district sent his son to the University of Southern California to study gemology. It will be news to many that U. S. C. is the only university in the world with such a course.

Ratnapura, with his pockets filled with cut ems as big as hazel nuts, went into chortles of delight as I talked to him one evening. excellence in my studies my father just cabled me permission to buy the greatest gift in the world," he said. "I bought a red Lincoln Zephyr today, all upholstered in red leather." And then he went on, "If you ever come to Colombo, Mr. Quick, don't go to the hotel. You must be my guest. My father has 12 palaces just for guests." And so I have another dream to turn to once in a while.

Word recently came from him that he was all right and that he counted his evening at the Los Angeles Lapidary Society meeting as one of the great evenings of his life. With such treasures at his finger tips he went into rhapsodies over Nipomo sagenite and orbicular

jasper.

GOLDEN MIRAGES



The thrill of man's struggle to find legendary lost gold mines of the West pulse through Philip A. Bailey's "Golden Mirages." It is a gold mine of Americana, containing the history, legends and personalities of old California and the Southwest.

> "Without question the most complete record of Pegleg Smith lore ever to be printed"-Randall Henderson.

Illustrated with many photographs, maps. Bibliography, index. 353 pp.

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DID YOU KNOW-

- · The most precious jeweled ornament in the world is not a crown or a scepter. It is the shawl of the Gaekwar of Baroda, India, composed entirely of pearls with diamond corners and a diamond center. Worth many millions of dollars, it is said to have been made for the tomb of Mohammed at Medina, Arabia.
- · Chalcedony (agates, jaspers and woods) occurs in 28 California counties. It is the most popular material with amateur lapidaries. If you send me a postal I'll tell you if it is found in your county and where.

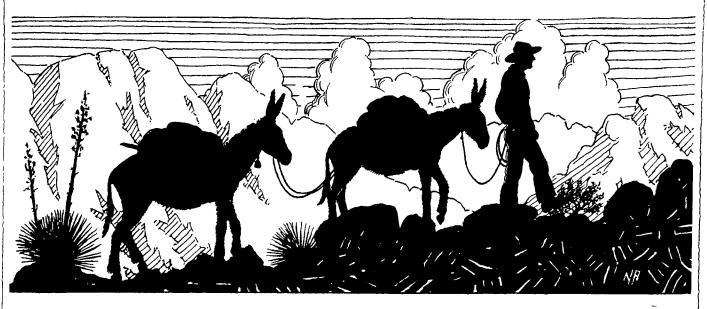
LAPIDARY HELPS AND HINTS . . .

Roland Willis advises the soldering of a copper disk over the end of an old hose nozzle. Drill a needle point hole in the center and turn on the water. The resulting fine forceful stream will clean any geode or specimen of all mud, tin oxide or anything soluble—pronto.

. .

James Underwood gives the following directions for mixing plaster of paris for mounting rocks for sawing: Allow two parts water to one part plaster. Pour plaster slowly into water and stir vigorously until it is of whipping cream consistency. Make box like containers or trough arrangements for the setting of stones, wash the rocks and grease the containers. Water used from washing containers of the previous batch will set the plaster fast. A drop of Le Page's glue will retard the "set" an hour. (Others claim it will set the plaster faster.) Plaster should be purchased from builders' supply houses for about \$1.50 for a 100-pound sack.

If you have suspected iris agate to lap, drop it on a piece of plate glass and you can then ob-serve the development of the color bands as you



FOLLOW THE DESERT TRAILS . . . IN BOOKS! . .

Here are books which will take you into the heart of the Desert Country. They will lead you back through modern exploration, into 400-year old Spanish history, into the legendary days of Indian gods and the mythical days of creation.

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167 LORENZO IN TAOS, Mabel Dodge Luhan. Of this biography of the literary genius D. H. Lawrence, Willa Cather says, "I am sure it is the best portrait there ever will be of Lawrence himself. It's amazingly spontaneous and amazingly true."
The author knew him well during the last years of his life, spent at Taos, New Mexico. Includes over 90 hitherto unpublished letters from Lawrence. Photos, 351 pp........\$2.00

New titles have been especially selected for you this month. Some are out of print editions, only a limited number being available. So send your order immediately. Ask for complete catalog of titles on the Southwest. Desert cards enclosed with gifts.

SPECIAL

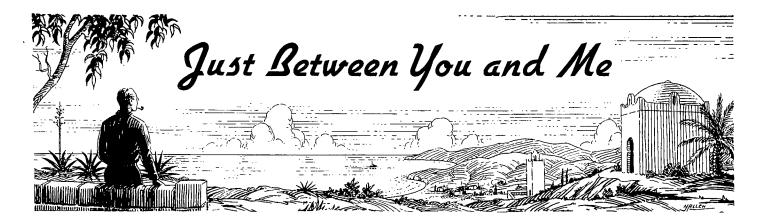
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El Centro, California

WRITE FOR A COMPLETE CATALOG OF TITLES



By RANDALL HENDERSON

ITH THE ALLIED FORCES IN AFRICA—According to news reports from the States, congress has been debating the payment of a bonus to soldiers who are mustered out at the end of the war. There appears to be some difference of opinion as to the amount of the bonus. I overheard one of the privates suggest a simple solution. "I'll be glad to settle for one of these army jeeps," he announced.

In truth, almost any of the soldiers would do that. This is one

In truth, almost any of the soldiers would do that. This is one point on which the men in the army are almost unanimous—they all want to own a jeep when the war is over. I hope the car manufacturers who are now tooled for jeep production will not be in too much of a hurry to change back to stream-lined models. I daresay they will find a ready market for great numbers of these little all-service army cars between the time the war ends and the time when mass production can be resumed on regular models. Also, it will help solve a rather critical problem of transportation during the first few months after the war ends, when hundreds of thousands of men will be returning to empty garages.

When Montgomery's British army made its final sweep across north Africa, it captured many German "jeeps," and they now are being used here by Allied soldiers. It really is an insult to the sturdy little American car to call its Hun imitation a "jeep." If the Germans had not done a better job of making weapons than they did in the making of jeeps, this war would have been over long ago. It is a poor substitute for the American car.

* * *

Occasionally, when there is a half day off, I walk down to the native quarter where the street fakirs hold forth. The Arabs do not mind being hoodwinked, as long as it is done by people who speak their own language, and the professional fakirs have more different kinds of small change rackets than a street carnival in USA.

The fellow who intrigues me most is an old man in a turban and a pair of baggy pantaloons. His line of patter has much the same inflection and rhythm as that of an old-school auctioneer in the States. He not only has a ceaseless flow of talk, but he also is an actor and a magician. I cannot understand a word he says—but his pantomime answers all my questions.

He does his act on a side street, and always has an eager crowd around. His properties consist of a miscellaneous collection of pots and cans and funnels—and a precious package of little slips of paper, each with a mysterious inscription on it.

He has discovered the secret of how to produce water in the middle of the desert. He shows just how it is done. The earthen olla in his hands is empty. He turns it upsidedown and pounds it on the bottom to prove it. Then he brings out one of those magic inscriptions and pastes it on the bottom of the pot with saliva. There are a few mysterious passes and a couple of important words like "open sesame" and behold the pot is over-

flowing with water. He pours it in the pots and cans to prove what a generous supply he has produced. No traveler need fear thirst on the long journey across the Sahara with this formula. The final act of course is to pass through the crowd exchanging those potent slips of paper for 10-franc notes.

It is a profitable racket. And the old Arab is a master salesman. Perhaps it is fortunate I cannot understand his language. I might be tempted to invest in one of those magic formulas myself. There have been a few times on the desert when I was very very thirsty.

* * *

This is being written on the first day of 1944. There is confidence here, among men of all the Allied forces, that Germany will be knocked out of the war long before the end of this year. Important new offensives—as hinted following the Roosevelt-Churchill-Stalin conference—are in the making and may have been launched before this issue of Desert Magazine is printed. We still face many long months of hard costly warfare after Germany surrenders, but we will move into the final half of our task, against the Japs, with a well-trained army and an ample supply of weapons. Having been through a baptism of fire, this no longer is an army of novices in the art of making war. There are brighter days ahead than we have known since Pearl Harbor.

Generally, I spend New Year's Eve beside an ironwood campfire somewhere out on the desert. It has become a sort of ritual. This year I had hoped to spend it on the Sahara. But pressure of work ruled out that possibility—and so I crawled into my army blankets at 10 p. m. and snored the old year out and the New Year in.

I hope that by next New Year's the army will have turned back the Southern California desert to its rightful owners—the lizards, horned toads, tortoises and desert rats—and that I will be camped out there among them, with a canopy of diamonds overhead and a coyote on a nearby butte howling at the rising moon. That is the world that Nature created—and it is good to be a part of it. Most of the troubles on this earth are manmade, and they are easily forgotten in the companionship of the things that live and grow on the desert.

Mediterranean winter weather is cold and raw. The Arabs are conditioned to it. They go around in barefeet and rags. But the British and French as well as the Americans are wearing their winter clothes—all they can put on. Buron Fitts of Los Angeles is one of my associates here, and he and I shiver around a little coal-oil stove in the liaison office where we work, and daily make a vow that when we get back to Southern California we will spend the first month out on the desert dunes soaking in the sunshine before we return to our civilian jobs.



Zuni Maid

Mary Weakkee of the Zuñi tribe beading rabbit-foot dolls. Beadwork is a craft in which the Zuñi surpass most other tribes. Their work in making these souvenirs yields them about eight cents a day. Photo by Frasher.

VALERIE JEAN'S Year-Round Gift from the Desert

Five Pounds of Assorted Dates, Date Candy and Date Roll. (Also Date Cake when materials are available for baking this item.)

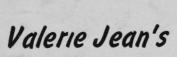
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THREE POUND SIZE

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THERMAL, CALIFORNIA

DATES TO REMEMBER . . . EASTER . . . MOTHER'S DAY . . . BIRTHDAYS

THE

MAGAZINE





OCOTILLO

By WENDELL HASTINGS El Centro, California

I grew beside a castle wall, And heard each day the clash of arms. My roots were fed with dregs of wine Where soldiers rough let goblet fall. My many thorns my only charms, My soul as black as Dead Sea brine.

One day a hand as hard as horn Plucked me from my sodden bed And wove my strands into a crown, A thing of ridicule and scorn, To thrust upon some rascal's head; My poison fangs in blood to drown.

Upon that Head they prest me down, The blood sprang out to meet my thorn And trickled down that patient face. Then I knew no thieving clown, But He to better crown was born Who wore the symbol of disgrace.

Now as I grow beside the track, And watch men struggle on and on, A crown I wear upon my head; And now, my soul, no longer black, But purified by One now gone, Worships beneath my chaplet red.

MOONSET ON THE PANAMINTS

By Marcus Z. Lytle San Diego, California

The cinders of the dying night Burn on the Panamints at dawn; A few sparks kindle in the snow, Then moonset, and the fire is gone.

Flower of a Night

By Annie Dolman Inskeep Redlands, California

Last night the cereus opened with its bud
As brilliant moonlight silvered all the strand
And saw our grief dashed on life's shore at flood
And prostrate lie on barren swirling sand.
Beloved babe, whose stay was like that bloom
Of but a night, could we have faith to feel
This radiant life will reach down through the
gloom

And to our breaking hearts some hope reveal?

At dawn we knew this brief and tragic flight Had lit a star to guide us on our way, Lest stumbling in the long and tear-stained night We should forget, while filled with dire dismay, Though all too short this dear one's earthly span,

His stay was measured by the Eternal Plan.

DESERT LURE

By E. LESTER Flagstaff, Arizona

When the war is over
I will no longer be
In distant, foreign land,
The desert's calling me!
I will seek quail's cover,
All the night I will lie
Under clear desert sky,
Dream 'neath some verde tree
Yellow blossoms adrift over me,
My pillow endless sand—
Blankets be-jeweled wait me there—
Stars—diamonds in Circe's hair!

THE CANDLES OF THE LORD

By RUBY ROLLINS Lincoln Acres, California

On far altars of the hills, Stand desert tapers tall and white, Awaiting the magic of the sun To touch them into light.

While slow seasons crept along, Earth held them close within her mold, Patiently biding the mark of time, God's planning to unfold.

To the desert's ritual,
Ushering in the spring,
The snow-white Candles of the Lord,
Transcendent beauty bring,

Lighting up the hills and valleys, With a radiance sublime, Spreading forth the Easter message— God's miracle—divine!

WEATHER REPORT

By Louise Sprenger Ames Mecca, California

There are little islands of stillness
In the Mother Desert's heart.
They stand out in the silence,
Vacuous and apart,
Tight with a bleak aloneness,
Windswept, clean and bare,
For tall sons of the Desert
One by one have gone from there.
In the dunes where they dreamed or hunted
Little echoes of laughter still ring,
But the Desert's heart is heavy—
She weeps easily this spring.

THE DESERT MAGAZINE

DESERT

Close-Ups

- Randall Henderson, Desert's Editoron-leave, at last has his wish—to be stationed in the "middle of the Sahara." Of all news from home he says best is that the rain gods are assuring our Southwest desert an abundance of wild flowers for March and April. He writes to all his desert friends, "I will miss the wildlower parade this year—and so will you, unless you happen to live in the favored area. But we can find solace in the thought that a heavy flowering season leaves the sand filled with billions of tiny seeds—and let's hope we'll both be there when the flowering season comes again—as it surely will."
- In honor of spring and especially because few of us will see the desert wild-flowers, John Blackford this month describes eight of the general types of floral landscapes found in the Southwest; Mary Beal features one of the daintiest and showiest of the desert annuals—the Gilia, and Jerry Laudermilk gives the practical uses of desert flowers and shrubs, as discovered by Indians and Spanish-Americans.
- Alfred Morang who illustrated this month's story of the Penitente Brotherhood of New Mexico, written by Susan Elva Dorr, has done illustrating for Erskine Caldwell, a book of poems by John Poda and a book of Joseph Hoffman's poems to be published this spring. He also has illustrated his own stories, has paintings and etchings in museums and many private collections.
- For those who want more information about the Penitente Brotherhood, three books are here recommended. Charles F. Lummis, first American to give a detailed account of their Easter rites and to photograph a part of them, describes the ceremonies, gives variations as they occur in different communities and recounts historical background, in his book "The Land of Poco Tiempo" published in 1893, reprinted in 1928.
- One of the best modern studies of the Penitentes is Alice Corbin Henderson's "Brothers of Light," published in 1937. Includes eyewitness account of rites, historical background, reasons for survival of the sect. Strikingly illustrated. "Santos, The Religious Folk Art of New Mexico" by Mitchell A. Wilder and Edgar Breitenbach, published in 1943, is a carefully documented survey of painting and sculpture of Spanish-American farmers of Rio Grande valley during 18th and 19th centuries, including a specific review of the art of the Penitentes.

CREED OF THE DESERT

By June Le Mert Paxton Yucca Valley, California

Why sit in gloom and glum dismay Because much rain has come this way? Wild flowers will spread a rare display To pay for every rainy day!



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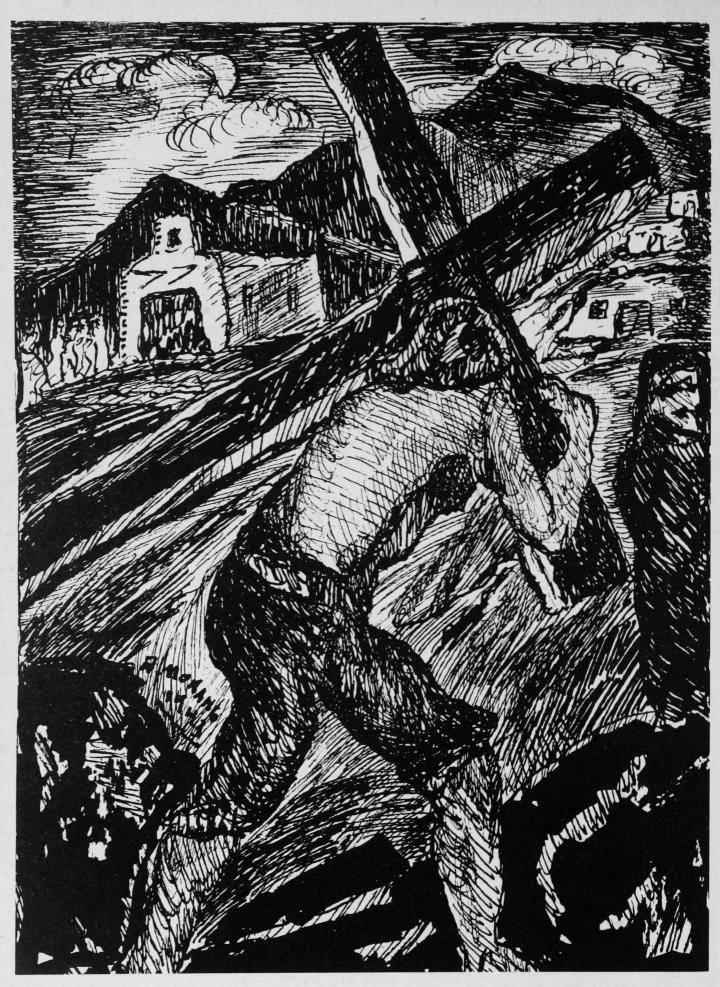
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One of the strangest of all Passion plays still may be seen in small mountain communities of New Mexico. It is a survival of the act of atonement through physical suffering, a custom which has been traced as far back as the days of the ancient Egyptians and the Spartans. It persisted through the Middle Ages of Europe and was brought to Mexico from Spain after the conquest, and finally to New Mexico in the latter 16th century. Despite Mexican expulsion of the Spanish Franciscans in 1828, the objections of Bishop Lamy and his French priests in 1850 and the present disapproval of the Catholic

Church, the Penitente Brotherhood continues its rites of self-torture. Although it is the Easter rites which have made the Penitentes conspicuous outside New Mexico, they carry on throughout the year the benevolent duties typical of many fraternal organizations. This too is a survival from early Franciscan days. After the padres were driven out, the members of the brotherhood performed not only the religious rites but also the secular acts of charity and general welfare which the Franciscans had

Pagan Laster in New Mexico

By SUSAN ELVA DORR

Photos courtesy of Taylor Museum, Colorado Springs, Colorado Drawings by Alfred Morang, Santa Fe, New Mexico

// ISTEN—I can hear them now," Mrs. Martinez said in an undertone. "Push back into the shadow so we won't be seen! The Brotherhood told me I might bring you if we would not make ourselves too prominent, and would leave our cameras at home."

As the shadows outlined us against the newly leafing trees, the thin wailing notes of the flute, or pito, came nearer. I shivered, more from the piercing sound than the cold, although it was early spring and there still were patches of snow on the

My friend, who belongs to one of the old Spanish families in New Mexico, wanted me to see the Easter ceremony of the Penitentes, a sect that still practices rites that have their source in the Middle Ages. So we had driven north from Santa Fe into the mountains to Córdova, a small village that seems like an isolated remnant from the remoteness of old Spain.

It was ten o'clock on Good Friday morning. We had left our car and now stood in the shade of the trees, waiting. Mrs. Martinez had told me that the Crucifixion would not take place until noon. So I leaned against the bare trunk of a pine and prepared to wait. I must have dropped into a doze. My mind was filled with fragments of racial memories and the pagan background that hovers behind the veneer of so-called modern life.

I had been eager to see the Hermanos de la Luz, as they call themselves—Brothers of Light—perform their ceremonies, and I was delighted when Mrs. Martinez had asked me to go. She did not belong to the Brotherhood but she was much in sympathy with them. She told me that her brother joined the Order

years ago and had been faithful to it until his death.

She jostled my arm. "Here they come," she whispered. "Look

and see all you can!"

Coming towards us down the road was an uneven line of half-naked men. They were swaying and staggering under the

"Coming towards us down the road was an uneven line of half-naked men. They were swaying and staggering under the heavy wooden crosses they bore on their naked shoulders, which were blue from the weight and the cold... The crosses made strange forms against the moon-drenched snow and the wild pito notes of the flute player were like the voices of the damned pleading for release . . . After the procession had passed I saw bright red spots left on the white snow."

heavy wooden crosses they bore on their naked shoulders, which were blue from the weight and the cold. Others closely followed, lashing themselves with whips made from braided yucca. As the lashes fell, blood ran from bare bruised flesh. These were the Penitentes or Flagellants making their Lenten-

The Rezador—leader—walked ahead reading and then chanting from the book he carried in his hands. His voice rose, clinging to mad heights of sound. With the shuffle of feet and the sickening impact of lashes on flesh came the notes of the pito piercing, shrill, like the cry of the doomed. The sound joined with the wind that rose above it, making a weird background for muttering voices and gasps of pain.

After the procession had passed I saw bright red spots left on the white snow. I began to think about this pageant that reached back along the trails of history. I had read that the pilgrimage of pain is a public atonement for sin committed throughout the year, a custom so old that its beginnings are lost in the fog of time. Snow or rain or crashing thunder does not prevent these seekers after purification from their self-imposed flagellation at

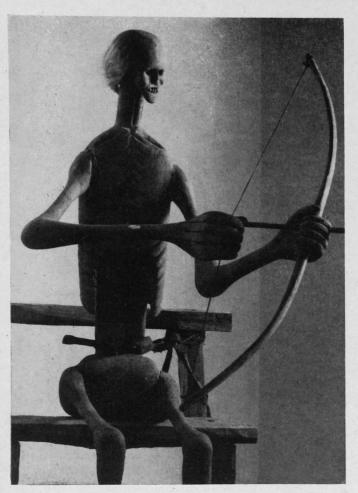
As we followed the procession we noticed that one of the men wore buckhorn, or rattlesnake cactus, bound over his back and chest, and his arms were folded tightly to press the spines deeper. The faces of many of the men were covered with a black cowl or mask. They looked like shapes painted by primitive masters, possessing the forms of men but inhabited by souls of earth-bound spirits. As the long line of flagellants passed, I saw their white faces-stern, with a far-away hypnotic look in their eves.

'Sh-h! Don't speak!" Mrs. Martinez said, as she pulled my arm. "We will keep well in the shadows of the buildings along the way. You see," she continued, "the Brotherhood are reticent. They do not like curious tourists watching them."

"Yes," I said, looking up at the ever-blue sky and thinking it was almost noon. "I realize that some of us Anglo-Americans often are crude in our remarks about an alien pageant which we fail to understand."

These Anglos you speak of," Mrs. Martinez said, "have often brought their cameras. One man was almost killed when he was caught taking pictures. He was pushed down the mountain side with a shower of stones following. The Brotherhood want to keep this ancient ceremony intact.

"There goes Gabriel's son—he is a new member. I can tell him by his bare legs and feet. I've often bound up that big toe



Close-up of the Muerte riding in the Death Cart. Height of cart with figure 51 inches, length 60 inches, width 36 inches. Photograph by Laura Gilpin.

of his when he used to stub it as a little boy. You see, he and

my son are about the same age."

The line of men now turned towards the Morada, or adobe chapel, topping a nearby hill. It looked like a camp in the woods, for there were no windows. I had been told, however, that some of the larger Moradas had one or two very small panes of glass, and I thought of the dark places where the first fol-

lowers of Christ had worshipped.

It was almost time for the Crucifixion and I could see that Mrs. Martinez was a little worried for fear I would not understand. So she told me that these people were her neighbors and friends—"And just like any other people except that they believe in the yearly penance. I knew a man," Mrs. Martinez smiled, "who had stolen a cow and her calf. He felt that his punishment should be severe, so he slashed broken glass across his stomach until the flesh was torn to ribbons but . ." and I could hardly hear her whisper, "the pain would not keep him from doing it again if he wanted to."

As I looked around I could see many wagons filled with peo-

The Death Cart is pulled in the procession by one of the Penitentes as an extreme penalty. The heavy wooden wheels do not turn. The rough path may cause the arrow to be discharged. If it strikes one of the Brothers, he is chosen to be crucified. Wooden pegs and thongs of hide are used for joining. This cart, used in the Cordova rites, is believed to have been made by the grandfather of the late José Lopez of Cordova in the middle of the 19th century. The grandson and son, both carpenters, were the noted santero makers of Cordova.

ple from over the hills who had hitched their horses like New Englanders going to a fair. They mingled with the young people in their bright colors and with those of the black-shawled generation, and all helped to lengthen the procession.

The rhythmic slap of the whip upon bare shoulders blended with the clanking of chains on the ankles of the marchers. The white cotton drawers were wet with crimson spots that grew larger as I watched, and the cross bearers—each with an initiate by his side singing responses to the chanted verses of the leader—were like ghosts materialized to enact the Passion of the Christ.

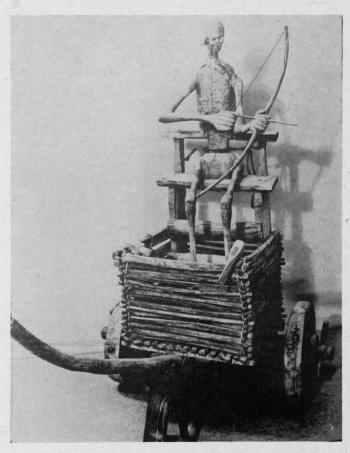
"It is just high noon," Mrs. Martinez whispered. "It is just the time when all parish churches commemorate Christ's Gethsemane and Agony on the Cross. We will stand near the door and watch."

Soon one of the *Hermanos* came from the chapel. He carried a large cross with a *Cristo* in red fastened upon it. And after that, came another cross, bearing a living figure. The face was covered by a cowl which hid the features like a shadow of doom. Three men implanted the end of the cross in the earth.

The crowd watched with bated breath. Mrs. Martinez took my arm. The minutes that we waited seemed an eternity. I counted 15 by my watch before I felt a stir from one of the leaders, who saw that the head was beginning to slump sideways. But it was full five minutes more before the figure of atonement gave up.

The crowd relaxed. The Brothers quickly lowered the cross and carried it gently into the *Morada*, there to bathe and revive the anguished Brother who had paid the penalty for his Order. Those kneeling at the foot of the cross followed with heads bent, chanting in low tones. The sound faded into an echo as the heavy door closed.

After lunch we mingled with the people and I began to understand more of their feelings concerning this Easter pageant. Mrs. Tapia, a friend of Mrs. Martinez', took us into her home. There we rested and chatted about the coming crops and water supply. We wondered if the cold spring would hurt the apple



THE DESERT MAGAZINE

and pear blossoms which are lovely in this little town, and in the valley of Chimayo, just below.

Mrs. Tapia urged us to remain for the last of the ceremony of Good Friday—the *Tiniehlas*. She explained that this was symbolic of the earthquake which rent the land after Christ's entombment—also the darkness and Purgatory, showing why prayers are said for the damned.

We went out into the moonlight to watch. Mrs. Martinez touched my sleeve. "There," she whispered, "see all those white-trousered boys with swinging lanterns? Well, they are initiates to the Order. There goes Miguel—I'd know his walk anywhere, even though he is bending over. He and my boy are always having scraps, then they end by eating cookies together."

Mrs. Martinez placed her lips close to my ear. "My Church has tried to stop these people from this pilgrimage. It has partially succeeded, but not quite, and I don't believe it ever will. Of course these hill people are all Catholics and they receive the Sacraments, but the Church doesn't approve of flagellation—it is trying to divert this great faith and religious fervor into a different channel."

A procession had formed while we were talking, and now it moved towards the hill. The great heavy crosses carried by the Brothers made strange forms against the moon-drenched snow and the wild pito notes were like the voices of the damned pleading for release. In the moonlight the blood on the backs of the men shone like dark shadows on crouching animals. At last one cross-bearer staggered, trembled, and finally fell to the earth. While he lay there others came by and lashed the prostrate figure which groaned and moaned and struggled to rise, but the blows fell with awful regularity.

As we lagged behind the procession my mind ran back over the pages of history. I remembered that the Egyptians flogged themselves before the goddess Isis, that the boys of Sparta were whipped before the altar of their gods. Saint Anthony of Padua, in 1210, founded the first fraternity of the whip for public eyes, and the custom then spread to many of the countries of Europe. I also remembered that Don Juan de Oñate, one of the early colonizers who came to New Mexico with the Franciscan friars, performed the first public penance in 1598 with his soldiers and priests.

Mortifying the flesh seems to be a basic element in the human race. It is little wonder then that the cult should survive among a people living in the isolated territory of New Mexico amid a world of eroded land that takes on the form of abandoned cities, and where the color of the landscape would satisfy the heart of the most ardent expressionist.

As we neared the *Morada* I was confronted by the *Carreta del Muerto*—the Cart of Death. In it was such a realistic figure that I shuddered, expecting the arrow to dislodge and strike me. After

The Morada is symbolic of the Penitente faith. It is primitive and close to the soil—it literally is part of the soil, being made of adobe. It often is built on a hill top. Usually there is no opening except the low door through which little light invades the gloomy interior. Prevailing mood within possesses a strange near-barbaric beauty. There are santos, a rude table, benches along the walls. There is an inner room where ritual items such as whips, chains and death cart are kept. To the Penitentes it serves as both church and lodge room.



APRIL, 1944

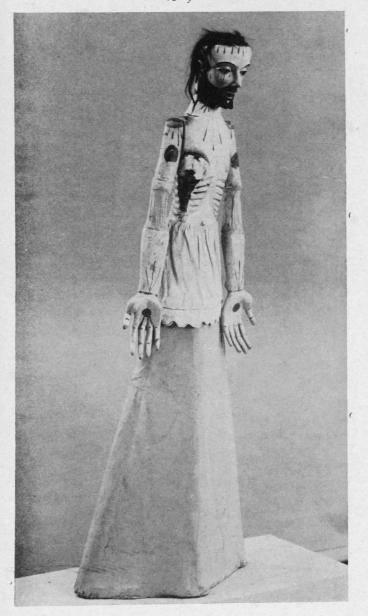
I realized that it was made of wood I examined it. Standing on heavy wheels that did not turn, it looked like an ox-cart. The figure of death, wood-carved, sat in the bulky vehicle. The eyes were wide open and staring, the face was chalk-white.

Mrs. Martinez moved closer to me. "I'll explain," she whispered. "The figure is holding a drawn bow, with an arrow fitted to the string, and when the cart is pulled over these rutty roads the arrow will be dislodged, and if it strikes a Penitente he will be crucified. You see, the one who drags the cart, performs an extreme penalty, for the coarse horse-hair rope over his shoulders and under his arm pits, cut deep gashes into his flesh. He pulls the cart by main strength, for the wheels do not move." Mrs. Martinez turned up the collar of my coat, as the night was cold, and I was shivering.

"It all flavors of the old Mystery and Morality plays," I said in a low voice. "When I was in Spain I saw paintings of the Dances of Death, and what we are seeing now might have come from some of them."

Sobs and weird singing and humming could be heard as the procession poured into the *Morada*. The hymns and the music reminded me of the Gregorian chants, with the addition of a

Figure of the Nazarene Christ, typical of those used at Cordova and Chimayo in the Easter rites. Height 45½ inches. base 17½ by 10 inches.



wild primitive strain. Someone has recorded that there are notes like the *saeta*, or arrow song of Seville, perhaps of Moorish origin, reminiscent of 13th century Spain.

Just then I was startled by eerie singing coming from a distance. I turned in that direction. The voice came from a shadowy figure on the *Calvario* crouched under the cross on the hill not far from the *Morada*.

"Sometimes individual Penitentes," whispered Mrs. Martinez, "are moved to cry aloud and alone their sins to the wind and the stars."

We moved towards the *Morada* with the crowd. Through the doorway we saw women kneeling in the little chapel, and as the Penitentes entered more women and children joined them. The long line, now hushed and sobbing, made a wild dramatic scene. Outside in the yard many knelt by the large cross that rose like a huge finger pointing towards the moonlit sky. One Brother fainted and blood oozed from his side.

I groaned. Mrs. Martinez put her arm around me. "Remember," she whispered, "they are expressing their faith—the faith of our Lord Jesus when he was Crucified. We will go into the *Morada* where you can sit down."

The only light in the chapel came from the candles on the small improvised altar, on which were grouped the Santos. I could make out the image of the Virgin and Child. Some of this ecclesiastical art had been brought from Mexico and Spain. But in later years the native craftsmen—the Santeros, or saint makers—reinvested the old ideas of the saints with their own imaginations. I had seen some of these carvings in the church at Ranchos de Taos.

I watched the glow of candlelight on the faces of some of the Brothers who had crouched on the benches and around the little altar. They were all waiting, utterly absorbed in the devotions. At the signal for silence the *Hermano Mayor* commenced the ritual. At the end of each stanza a few bars of Ave Maria or a Miserere were sung, and two leaders who sat close to the candles would pinch out the light. The gaunt faces faded in the failing light until only the bulk of the forms remained. Shapes, that to my tense imagination, became figures from some pagan rite, performed within a mystic grove, dedicated to the worship of gods far removed from Christianity.

The last candle flickered out and we were in total darkness. The *pito* screamed. The lashes fell madly. Screeches in the dark . . . chains clanking . . . the earth seemed to open as if purgatory were spewing out its tormented souls.

Never had I experienced such agony. I could not move. I was wedged in, and I felt faint. I groaned and fumbled for Mrs. Martinez' hand. She pulled me back on the bench so I could relax, and she began a prayer on her rosary. "This is the great climax," she whispered. "Our Lord passed through it all. Surely we can look upon its dramatization by these faithful ones."

This was the *Tinieblas*—The Shadow! The Earthquake! When the heavens grew dark and the land gasped from terror!

I was thankful when the door opened and the stench of blood and body odor that had filled my nostrils was replaced by the cold fresh air of the mountain.

As we drove towards Santa Fe, Mrs. Martinez told me that every community had a different ritual, in its details. Some had more singing—long narrative hymns which told the whole story of Christ's sufferings before Pilate, to His entombment, and many of the *Tinieblas* were more intense than this one had been.

As I looked out of the car window at the range of Sangre de Cristo (Blood of Christ), the moon shone over patches of snow on the mountains. I began to understand the faith of these people, and also that this pageant down through the centuries had been an escape for them. Their world was not our modern world of doubt. During Holy Week, the people of these little mountain towns had returned to the primitive world of Faith.

LETTERS ..

Desert in North Africa . .

c/o Postmaster, New York City Dear Editor:

I have just received my first copy of Desert over here in the North African-European war front. I surely was glad to get it-haven't had a chance to read it for a year and a half. But those copies are at home and I will have them all to read when I get back. I think I enjoy Desert over here even more than I did at home. Wish I could take some kodachromes over here. Good luck to Desert—and keep them

C. DELMER JEANS

Don't Ration Desert Magazine . . .

Norwalk, Ohio

Desert Magazine:

Sugar, gasoline and shoes are rationedthis I can take with a smile. But if D.M. were taken away from me, I certainly would squawk. For without sugar I can be sweetened up by reading D.M. Without gasoline, I can stay home and read my old D.M. over and over. My old shoes will do to go to church and pray that the war will end soon and the D.M. will not be taken from me.

WM. P. BLINZLEY

Poetry vs. "Poetry" . . .

Ramona, California

Dear Miss Harris:

I think Wm. C. Chandler, in the March issue, took in a lot of territory when he said that those who send in poetry are inspired by thoughts of beauty. Helen Knupp, whom he criticises, is right. Most of the so-called poetry in D.M. is abominable. Little of it has rime, rhythm or reason—it jars the ear that truly loves poetry.

Their defenders say it is all right, since the writers' intentions are good. But how would they like for me to pick up a violin and because I love music, love beauty and have a desire to play, start playing without one iota of musical knowledge or training. Do you think musicians or lovers of music would grant that my efforts were lovely merely because I felt inclined to produce

I have loved Desert Magazine from the first issue, November, 1937, and I appreciate the appeal the desert has for lovers of beauty-but why must they turn its beauty into a nightmare by foisting their "poetry" on others? Of course one does not have to read that page, but if one loves poetry as I do he persists in reading it in the hope that sometime he will be rewarded-for sometimes there is a diamond in the rocks.

CARRIE E. SACKRITER



Here is the bird who sometimes is denounced by those who have not made an unbiased investigation. He is called variously, Roadrunner, chaparral cock, ground cuckoo, paisano. Photo by George M. Bradt.

Defense of the Roadrunner .

San Diego, California

Editor, Desert Magazine:

The letter of one Richard Osmond in the March issue is an insult not only to a fine and famous bird but to all lovers of wild life and scores of capable naturalists. By what law of courtesy or fairness does one like him rate such rich and perilous publicity? The pity is that his malicious words can now be quoted for years by those who desire the crucifixion of the

Any reader of the Desert Magazine who is unacquainted with the esthetic and economic value of any distinguished western bird can consult the magnificent volumes of William Dawson, the scientific writings of Grinnell, Bryant and Storer, the popular books of Florence and Vernon Bailey, William Finley, Edmund Jaeger, the bulletins of the National Audubon society, publications of the Biological survey, the scholarly bulletins now being published by the Smithsonian institution, edited by A. C. Bent (See No. 176, 1940, roadrunner).

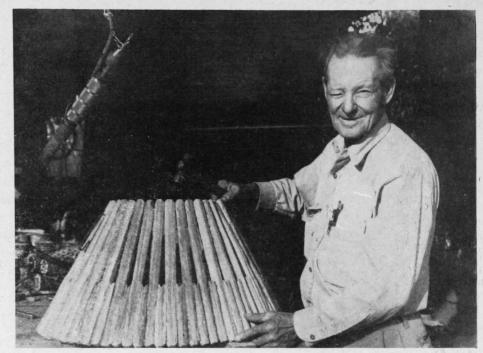
The scientific report, "Food Habits of the Roadrunner," written by H. C. Bryant while research biologist for California fish and game commission (Univ. of Calif. Pub. in Zoology, Vol. 17, No. 5, pp. 21-58, 1916), is based on an investigation made to satisfy the complaints of certain hunters (not true sportsmen who are real conversationists) that the roadrunner was a serious destroyer of baby quail. Eightyfour roadrunners from Southern California were killed in 1911-12 during every month of the year, especially during the nesting season of quail. The stomachs of these birds were analyzed by experts in the laboratories of Berkeley. Not one trace of quail was found in a single roadrunner.

Does this mean that no roadrunner ever kills a young quail? Certainly not. Once in a while an occasional roadrunner makes a lucky meal of a young mocker or linnet and, in a blue moon, of a baby quail. There is no shred of reliable evidence that roadrunners ever destroy birds' eggs. For 50 years I have been observing roadrunners in the Southwest, often following them for hours and miles and have taken enough field notes to make a book. For 33 years at my ranch near San Diego roadrunners have come through my place nearly every day of the year. I have seen them catch or carry scores of crickets, beetles, lizards, grasshoppers (these four items make up three quarters of their food), cicadas, mice, snails, young gophers, tomato "worms," small snakes (only in myths and movies do roadrunners kill snakes too big to swallow whole), and during 50 years, three birds, but never once have I seen a roadrunner attack a young quail although both birds have nested every year within a stone's throw of my house.

But why shouldn't a roadrunner kill a bird, even a sacred quail, once in a while? He was here long before the Indian, among millions of quail which hunters have slaughtered. How idiotic to call roadrunners "murderous!" Birds kill to eat, not for, "sport." Men alone murder quail, roadrunners, even their own kind. Not one roadrunner in 50 ever gets a chance to kill a baby quail. Fewer persons have seen this happen than can understand Einstein. R. O. doesn't claim to be one. I too have seen mother quail fluff out their wings at passing roadrunners but the roadrunners went about other business. Quail are just as quick and clever as read-

CARROLL DEWILTON SCOTT

After reading this story you probably will want some of R.O. Perry's cactus furniture to give an authentic desert atmosphere to your Southwest home (or the one you are going to build with those war bonds)—but don't send send him an order. He has paid in advance orders to keep him busy until 1950. You see, Mr. Perry is essentially an artist—he doesn't turn these pieces out with the price tag in mind, and any suggestion of commercializing his furniture making will call forth a flaring temperament. For with patience and skill and pride of workmanship he has raised this craft to the level of an art. But even if we can't all have some Perry-made furniture, we can "look at the pictures."



Patience and pride of workmanship have earned R. O. Perry the rank of artist in design and manufacture of saguaro furniture.

Craftsman in Cactus Wood

AKING SOMETHING out of nothing is a rather common desert trait. But to develop something as highly artistic and useful as R. O. Perry of Phoenix, Arizona, has, requires an extremely ingenious resourcefulness. He has taken the most unworkable, uninviting

By OREN ARNOLD

wood imaginable, accepted its peculiarities as a challenge, and produced from it articles of furniture which equal and excel the finest pieces made anywhere.

A floor lamp, a desk, a chair are some of the Perry-made cactus pieces seen through the window.



The wood Mr. Perry uses is the dried skeletons of the saguaro, giant cactus whose blossom is the Arizona state flower. He heads the very small list of craftsmen who ever have tried to make anything worth while of this unusual wood.

Saguaros have a peculiar anatomy. They consist, roughly, of a great bundle of vertical cylinders, their outward appearance showing as ribs. When the plant dies these sometimes split apart as they dry. Instead of using these individual ribs or poles as is sometimes done, Perry has found that he has more scope when he uses the entire trunk, with the skeleton ribs properly grown together, for the central piece of his design.

He also has learned by experience just how to cut that saguaro trunk. By digging down two to three feet into hard desert soil, he can take the exceedingly strong base roots as well as the upper structure. These two preliminary tricks give him a great advantage. But patience and pride of workmanship have earned him the rank of artist in design and manufacture. He is the Sheraton of the cactus country.

R. O. Perry does not make trivia. His interest is far removed from useless little knickknacks — picture frames, ash trays, pin cushions—pretty stuff such as you see made of cactus in the curio stores. The nearest he comes to them is in the manufacture of a specialty item created for sol-

diers—a lovely little covered wagon lamp. It is made not of saguaro but of cholla, and is a prize winner for cleverness of design. Since soldiers training in the Southwest were unable to buy his larger pieces, he created smaller items for them to send to their mothers and sweethearts as worthwhile souvenirs. He cannot begin to supply the demand for them.

The bedsteads, chests of drawers, dressers, floor lamps, tables, cabinets, davenports and chairs which he makes are in no sense freakish because they are made of saguaro wood. They are not fragile or flimsy, like the picturesque but cheap chairs you can buy from home craftsmen in Mexico. They are, says Perry himself, "strong enough to hold a bull elephant." This is achieved by clever hidden bracings of steel wire, by nails and screws and mortising and glue as with any other good furniture. But it must be remembered that saguaro ribs are about broom-handle size and

Saguaro furniture in this adobe living room reflects the strong bold beauty of the Southwest.

CACTUS HINTS FOR AMATEUR CRAFTSMEN

1—Gather only naturally dried saguaro skeletons; don't try to cut green ones and cure them. Get whole trunks in which ribs are grown together as a firm lacework, but bring also the loose poles or ribs of others, for trim. Cut dead trunks one to two feet below ground level. This sturdy root structure is valuable for lamp bases, chair legs, etc. Beware of splitting. 2-Drive out dried pulp with longhandled chisels and pestle. Scrape where needed. Do not gouge or break skeleton structure. Wash off dirt with water hose and stiff brush. Dry thoroughly in sun. -Have pencil sketch of item you want to build, with dimensions marked. Now select the piece of saguaro most likely to make a given part (base of lamp, leg of chair, drawer front, or whatever). Give it great care for strength and artistry's sake. This is your test of talent! 4—Square the bases by careful scribing and sawing. Make angle fittings in usual way. Power saws and clamps are essential to get long smooth-plane surfaces on this irregular cylindrical wood. 5—Following your sketch, cut piece by piece as needed, and fit the whole together as you would a puzzle! Some adroit interlocking can be contrived. Relatively little glue is used this wood is porous. Finishing nails are used freely, and for such items as lamp shades heavy steel wires are threaded through the many little pieces for strength. Lamp bases, table bases and tops and similar items, require 3/4-inch plywood for holding the saguaro. It is simply nailed on, sometimes screwed. Chests of drawers are made in the usual way, with saguaro veneer. Steel buffers, sandpaper, wheelsall are important. Use your ingenuity. For finishing, never, never paint saguaro. It looks terrible. Clean with a weak oxalic acid solution, but most stains are natural and permanent and are a part of the rugged beauty. No oil, no varnish, no shellac, no fancy stuff. Some good effects are obtained by applying a clear wax. Most people prefer the pure right-off-the-desert look.





Desk, chair and table handmade of saguaro wood.

shape, that the entire trunk of a cactus is a lacy and hollow cylinder of such ribs and that the wood is very porous. On the other hand, the wood also is astonishingly hard. A nail driven into it is there to stay. It does not split easily, but it is all irregular in

Thomas Sheraton, the master designer and craftsman who worked in England around 1800 and set precedents of beauty and

Twin bedsteads and stand of saguaro are strong, durable.



quality that still stand, at least had solid blocks of wood with which to work, and had a choice of woods, too. Sheraton's pieces were marked by a light elegant design, straight lines and graceful proportions, which were in harmony with English social life of his time and therefore are a commentary and record of social history.

R. O. Perry's pieces are no less graceful, no less elegant in design, but they too reflect the time and place of origin. They are the sturdy, bolder beauty of the Southwest.

By good fortune I was able to buy a floor lamp from Mr. Perry to give my wife for Christmas. I was handling the shade as if it contained eggs.

"Why, good jumping hades, Arnold, you can't break that thing!" he railed at me. "Here, rough it around!"



You can throw this floor lamp on the cement. It neither breaks nor scratches.

He took it from my hand and threw it hard on a cement floor. It merely bounced and rolled. I examined it closely — not even a scratch! I should hesitate to drop a Sheraton item, even on grass! I would not care to live in a desert home furnished with Sheraton furniture.

By now perhaps you are wishing you could have some of the Perry pieces. The illustrations here are but random samples of the designs in his catalog. I wish I could include a coupon for you to sign and mail to him. But it would do you no good. His furniture is "not on the market."

In other words, he already has a stack of orders, with money in hand, for furniture items "to keep me busy until about 1950," says he. Mr. Perry works alone, with his wife to "see after" him. He cannot hire craftsmen to do cactus work. There just aren't any craftsmen who can meet his standards. He reminds me of some old-world artist, say a Stradivarius, laboriously making masterpieces in a violin shop—unhurried, untouched by greed. He owns a rather elaborate workshop with queer tools, lathes, buffers, turners, saws and whatnot. This is in a big shed in his front yard, without walls, gates or guard. Remainder of his yard is covered with dumps of cactus wood brought in from the desert. Nobody ever molests him. Thievery of his tools and products is unknown even though he is near the heart of the largest desert city.

Once in a great while, if the mood strikes him, he cleans out his shop, shovels away the sawdust and the shavings and the dirt. Mostly he just wades through it, meditating on human nature and calmly working on a table with his hands. During the long afternoon I spent there, a cute little girl named Carolyn Phillips, aged 8, came voluntarily and swept part of his work table and the floor where he stands. Mr. Perry is 71, but between these two is an affinity, a kinship, an understanding. Mr. Perry, on the surface, is a crotchety loud-spoken, unconventional sort of "character," but underneath that crust I suspect is a very peaceful and happy man. I wanted to know more about a man who would make a living building cactus furniture by hand.

"I ran away from home in Iowa when I was 14," said he. "I wanted to go out West and become a cowboy. I did it, too, by george! Then I worked a spell in San Francisco, fought with Italian kids, went back to a ranch. Later I got into building things, and grew up to be a sort of contractor. In 1927 I got mightily interested in irregular fittings.

"I mean, I was building log houses in California—at the Shasta Springs railroad depot, in fact—and we had some fun fitting the odd shaped logs together to make them strong and pretty. It appealed to me no end. I got to fiddling with cactus then because it was irregular too. So I came to Arizona where the cactus grows. One thing led to another, and here I am."

To get his raw materials, Mr. Perry and two Mexican helpers roam the back-country desert from Prescott to Nogales, even into Sonora. Most of the wood is gathered within 100 miles of Phoenix. He has made more than 200 collecting trips. This work cannot be delegated, because untrained wood gatherers spoil the wood.

Mr. Perry is not in this work for money.



Two saguaro chairs blend with atmosphere of Southwest patio.

He lives humbly, suffers no want. But he will not compromise. If it takes three months to make a piece of furniture for which he receives \$125, then he will use the three months. He will not raise the price and he will not lower the standard. A certain retailer in Phoenix told me he went to Mr. Perry 10 years ago.

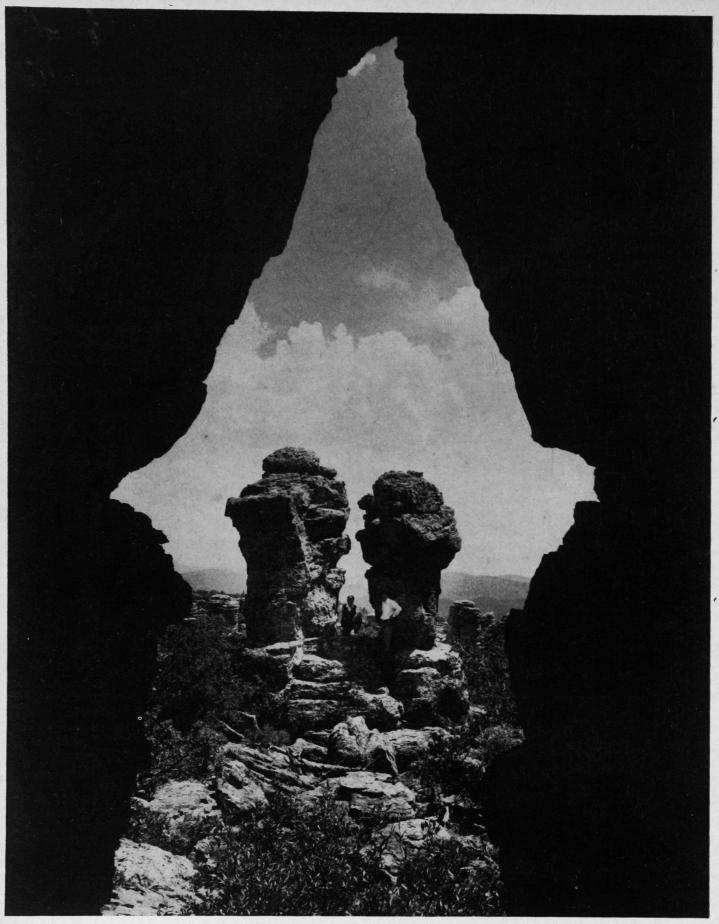
"If you'll cut down the quality, Mr. Perry," the retailer said, "by making a few short cuts which I can show you, then you can turn out this stuff three times as fast and I'll handle the sales. We'll both get rich."

Mr. Perry's answer was emphatic—and unprintable. He used a choice collection of desert phrases as pointed and barbed as cholla spines. And he emphasized them with flourishes of a large hammer. The words, and the flourishes, followed the retreating retailer out of the yard, past the

sidewalk, onto the street. The retailer hasn't been back.

At least one millionaire's penthouse in Manhattan is furnished with Perry-built cactus pieces. C. R. Smith, president of the American Airlines, has a set in his ranch-house home in the heart of Manhattan. Other wealthy folks in Chicago, Philadelphia, the Bahama Islands and around the land generally have been able to collect pieces from the front yard shop in Phoenix. The Biltmore hotel in Phoenix had quite a display at one time. I now own a lamp and a table—duly insured, with the doors of my adobe home locked at night. And I have applied to Mr. Perry to build my wife a desk for a Christmas gift.

If Mr. Perry lives long enough, and if the mood hits him, and if I can save the money, I'll get that desk some Christmas within the next decade.



Punch and Judy

By JOSEF MUENCH San Barbara, California Seen through parted curtains of stone, these incorrigibles still mouth words at each other after hundreds of thousands of years, in the geologic wonderland of Chiricahua national monument, southeastern Arizona.



Nan Songer transfers a Black Widow spider (on underside of lid) to her work table to be silked.

VEN THE SPIDERS of the desert contribute their share towards Victory. Nan Songer of Yucaipa, California, sees to that. She reels out their web, winds it on special frames, packs it in special containers, and sends it out to do its special part in war activities.

As we sat in her home one recent afternoon, I could not help wondering how this dainty, hazel-eyed woman had come to make spiders, especially Black Widow spiders, her intimate business partners. Because Mrs. Black Widow has a baneful reputation. Long-legged and glossy, she wears a scarlet hourglass on the under side of her round black body, invariably murders her small lusterless husband, and has equally gracious intentions when it comes to humans. Hence, nobody loves the Black Widow — unless, perhaps, Nan Songer does. I didn't ask her that.

"Do you take web from any kind of spider?" I asked.

'No." She smiled. It was a nice smile. "Most spiders spin brittle, cottony web. That which I take is used in the reticules of telescopic instruments and has to be elastic. So far I have found that Golden Garden, Green Lynx and Black Widow spiders produce the most satisfactory web. However, I can get good web also from the Banded Garden spider and sometimes from the large Aranea, a dark grey fellow with a three-cornered body. But for consistently good web I like best the Green Lynx and the Golden Garden. In autumn, though, these adults die, so for winter work I use adult Black Widows and the young of the other two species. I like especially the web of the young Green Lynx for splitting."

"If an outsider had walked in on the scene at that moment he would have thought Nan Songer was practicing the art of suggestion on me. She was holding up a metal frame on which she had just wound 54 turns of spider web—or so she said. I could not see anything on the frame-yet I knew the silk was there for I had been watching her 'silk' the spider on the table before us. The web's extreme fineness and elasticity make it invaluable to our government for use in instruments subjected to sudden temperature changes and telescopic instruments requiring great precision. Since the beginning of the war Mrs. Songer has been supplying this essential material to the government. She does not consider her job of boarding and silking spiders unusual, but having watched each process of the procedure, I came away with some 'believe it or not' facts.'

Spider House

By MORA M. BROWN

Splitting! I swallowed the amazement lumped in my throat.

"How," I began, thinking to sneak up cautiously on this puzzle, "did a person like you develop such . . . such insectarian habits?"

She repeated the smile. "I was a delicate child, and to keep me outdoors my parents started me collecting moths and butterflies."

At that moment I could have sworn that I heard a small chorus of crickets fairly close to my ears. But I knew, of course, that such a thing was as impossible as splitting spider web.

"Collecting moths and butterflies," Mrs. Songer went on, "started my interest in other insects. Entomology has been my hobby ever since."

"Including spiders?"

"Yes, but not especially spiders. Indirectly my crickets led me to the spiders."

I stifled another gasp. "Please," I



Black Widow being "herded" to her "stanchion" for silking.

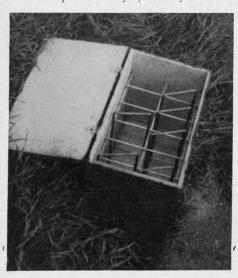
begged, "go right on talking." I believe she is used to having people gasp.

"Well, after my children no longer kept me busy (Mrs. Songer has a daughter married, and a son somewhere on a destroyer) I began to raise crickets, study their habits, and report my findings to the Smithsonian Institution."

I didn't say a word. I simply waited.

"Then, when war began, the U. S. Bureau of Standards wanted spider web in quantity. So the American Museum of Natural History, which knew of my connection with the Smithsonian Institution, wrote to me about it. I volunteered to do the work."

Wound on metal frames, 12 to a box, Mrs. Songer sends her spider web to speed the day of Victory.



"So now you board spiders and they pay you with web."

Her look was forebearing, like that of a patient mother for a backward child. I let my own gaze shift to double windows where plants filled two long shelves. No, you don't find spiders glaring at you from webs in all the corners of Mrs. Songer's house—except in summer when the Golden Garden spiders have their large webs in the windows. They live mostly in various sized glass jars set among the plants. They have private greenery to crawl on, San Bernardino peak for scenery, and little bugs to eat.

Mrs. Songer led me to the window. There I saw large families of young Green Lynx, lonely and listless male Black Widows, and the sleek black females with such ugly dispositions that they have to live alone.

"What kind of bugs do you feed them?"

"That depends on the season. In warm weather I collect plant lice from kale. I also trap gnats with sweet bait. Just now I feed them baby crickets."

So I had heard crickets! "Where are they?"

"There." She indicated what looked like a tall thin garbage can made of wire screening underneath the window. "Sometimes in a pinch," she added, "I even feed them liver. And baby Black Widows do very well on tiny feedings of ice cream."

I pinched myself, decided I was awake,

and prepared for anything.

"Did you know," she continued, "that baby Black Widows are white at first, then black and white striped? Pretty little things." "Maybe," I conceded. "But seriously, about this splitting business—that's cutting web down pretty fine, isn't it?"

"Down to five one-hundred-thousandth of an inch."

"How do you know?" I thought I had her there.

"At first," she admitted, "I had to use my own judgment, but now the government has perfected a method of measuring web by the magnified shadow it casts upon a screen. I know now that the split web of a six weeks old Green Lynx will measure five one-hundred-thousandth of an inch."

"Suppose," I ventured weakly, "somebody asked you for unusually heavy web?"

"They do, so I spin two or more webs together. I fill orders frequently for web measuring five ten-thousands of an inch. No spider spins web that coarse."

Such a mathematical excursion was too much for me. I wanted to change the subject before I was lost in the entanglements of microscopic measurements. So I begged, "Suppose we start right here and you show me how it's done."

Which is just what she did, so I can vouch that it's all true.

First she took the lid from a Black Widow's jar with the spider clinging firmly to the under side. She carried it to an elongated ironing board set against the wall of her living room. On that board I noted first a large popcorn can lying on its side and wired to serve as a reflector for the light inside; a section of yucca with a stairway on one side; other yucca sections holding steel frames; shellac; some spider jars for which there was no room in the windows; a microscope (which she did not use); a wooden gadget which I could not name; some brushes and small steel instruments.

She tapped the jar lid against the yucca

Nan Songer at her work table, with a frame on which she winds the spider web "silk."



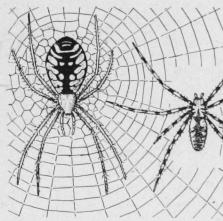
stairway until the spider dropped. Then with tweezers she chased it around the slab.

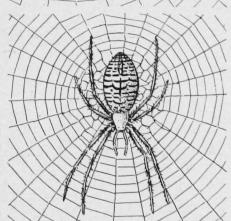
"I always try to catch them near the foot," she explained, "so they can't pull off a leg."

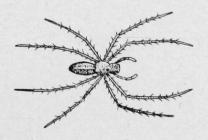
She had the spider now, and worked it towards a groove in the middle of the top step. Then into the groove went spider, pointed end out, long legs squirming over the top.

"Held there"—she placed two bits of plate glass over the long legs to keep them











Spiders don't glare at you from their webs in the corners of Mrs. Songer's home. They are kept in jars set among the plants on shelves at her double window.

quiet—"they can neither kill themselves nor harm the web."

But the spider still wriggled, so Mrs. Songer anchored it with a squared steel affair similar to a hairpin, which did not hurt the spider, but kept it fixed. It made me think of a cow in stall and stanchion waiting to be milked. And the difference was not so great, because the spider was waiting to be silked.

"The silk glands of a spider"—she dipped a brush in the shellac and smeared a little on the edge of the popcorn can from which a bright light streamed—"are clustered like a bunch of grapes inside the tip of the spider's body. They connect with the spinnerets at the tip. Inside the glands the web is liquid. It becomes web when it touches air." She took up a dissecting needle.

Poor spider, I thought, expecting to behold a major operation.

But no. She used the needle to tickle the spinnerets, and the spider gave out silk. Using the tweezers she pulled the end of the web from the spider to the smear of shellac on the can. Next she took a steel frame from a yucca slab. It was rectangular in shape, about two inches by ten. She shellacked it all around the outside edge. Then she transferred the web to one end of the frame which she turned deftly around and around.

I could see nothing on the frame, nor anything between the frame and the spider, but . . .

"It takes 54 turns to fill a frame. This one is full." She held it between me and the light, and there glistened the web as neatly spaced as if done by machinery.

"It all goes out on frames this size," she said, anticipating my question. "Two inches is long enough for all practical purposes. For shorter lengths, they cement the web into place before they remove the excess."

"How much web could you get from that spider?"

"A hundred feet at a time. Fifty feet from a young one."

1—Black Widow spider, Latrodectus mactans. Adult female is almost half inch long, twice size of her mate, shown with her. She is glossy black, with red hourglass on underside. Beware this venomous spider. 2—Golden Garden spider, Miranda aurantia. Dwarfish male, inset. Female measures inch or more in length. Black with bright yellow or orange spots. Male about one-fourth size of female, yellowish brown on upper back, broad brown band down middle of back with zigzag band of white on each side. Webs up to two feet diameter, symmetrical. 3—Banded Garden spider, Metargiope trifasciata. Closely related to Golden Garden, rarer, white or light yellow body with transverse and longitudinal lines. Adult female three-fifths to four-fifths inch long. Male one-fifth inch long, upper part and legs yellowish, abdomen white. Young female appears silvery white with black bands. 4—Green Lynx spider, Peucetia viridans. Light green with small reddish dots. Red spot in center of head, yellow dots at base of head. Body marked by yellowish oblique spots edged with brown or red. Legs greenish white, hairy, conspicuously marked with red and black. Adults three-fourths inch long.

"How long do you have to wait to take web again?"

"I could take it after four days. I'd feed the spider for two days, take it away from food two more days to insure clean web. Then it is ready for silking. However, after yielding around a thousand feet of web a spider usually dies."

"Do you like this work?"

"Yes, I find it very interesting. Besides, I'm helping with the war."

"Well, tell me, just how does the government use this web?"

"It has a hundred uses—microscopes; instruments used for taking blood count; survey, astronomical and navigation instruments; range finders; bomb sights; gun sights; in fact, any telescopic instrument requiring precision. It is especially satisfactory in instruments subjected to sudden temperature changes, because it can contract and expand without breaking. The web I split is used by a man named T. K. Lee of Birmingham, Alabama, for his famous Tackhole Dot.

"He has perfected a telescopic gunsight in which one sees, instead of crossed hairs, a small black dot which the gunner aims at the spot he wants to hit. Lee has also perfected a naval gunsight no larger than a pinhead, yet eight segments of web hold the dot in place. Another sight has seven dots. It is used in speeding planes."

The spider web business, I was learning, was infinitely bigger than I ever had imagined.

"Will you show me next, please, how you split a web?"

For answer, she drew more web from the spider and began to snag at it with the dissecting needle, much the way you would snag at a silk thread—if you had one. And finally, like a thread, it separated into strands which Mrs. Songer pulled apart without breaking. I wondered what would happen if I tried it.

"All right," I admitted, "I saw you do it. Now how do you spin the webs together?"

From the far end of the board she took the wooden gadget I had not recognized. On one side it had a small wooden wheel from which projected four little knobs. On the other side was a larger wheel with a handle.

"I get as many spiders as I need in grooves like that," she said. "I shellac as many of the little knobs as I have spiders, and fasten the ends of web to each knob. Then as I reel out the web from the spiders, I move away from them turning this larger wheel. It spins the small wheel, and thus the web is twisted into a single strand. That's all there is to it."

Even though it didn't sound simple to me I was still curious.

me, I was still curious.
"Do spiders ever get temperamental?
Do they ever hold out on you?"

"They don't hold out, but they overdo it sometimes. We have been talking about normal web, but every spider can spin several kinds of silk. So occasionally even my favorites spin brittle, cottony or sticky web. Sometimes too they release liquid from all their glands at once, and I get multiple web. I have counted as many as 32 strands. None of it is usable. But usually a spider settles down quickly to submit to silking."

"Are you kept busy filling orders?"

"It's like a store — rush and quiet periods. Sometimes I work day and night to keep up. Sometimes I have to do only the split web for the Tackhole Dot."

"Do you want people to send you spiders?"

She laughed. "See all these jars? See that cupboard in the corner? As a result of a published article I've received Black Widows until I'm swamped. I had to dump them all in that cupboard from the top, and no doubt they're having war. Besides, because they are poisonous, some postoffices won't handle them. Just now an army car from March Field picks up my spiders and brings them here."

"So you are not eager for Black Widows?"

"No—they are not hard to get, but I never have enough of Golden Garden spiders, or Green Lynx. The Golden Garden is big with bright yellow markings on black. He weaves a web two feet across. The Green Lynx is not a web spinner. He goes hunting and pounces on his prey, trailing his web behind him. He is a bright transparent green with tiny red and yellow dots and full-grown, is no midget."

All this time the Black Widow waited. It was quiet, but also angry, as its long-legged dashing around the pedestal proved when it was free. Deftly Mrs. Songer chased it with the tweezers, caught it and returned it to its jar.

"Have you ever had a spider bite you?"

"No. I never have fewer than 50 Black Widows on hand, but whether my spider is poisonous or not, I always use tweezers."

I looked at her standing there in the light's glow. Petite, attractive, calm.

"Right now, with your son somewhere Out There," I said, "I can understand what this work means to you. You are contributing something vital to him, and to all those other sons."

"Yes," she answered, "I feel that way about it." Yet, from her simplicity and her unassuming manner, it was hard to feel that here was a woman whose work is unique, a woman written about widely, one twice filmed because of the strangeness of her profession. A woman in a small home almost in the shadow of Old Grayback, quietly fulfilling one of the most important missions in America today.

Sez Hard Rock Shorty of Death

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By LON GARRISON

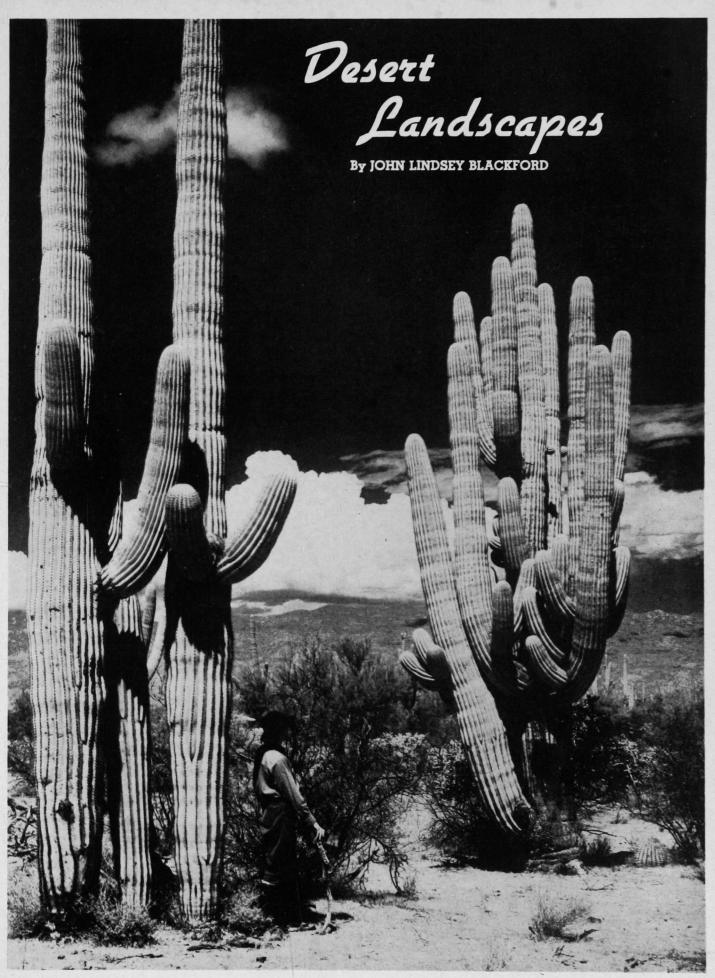
"Dogs?" asked Hard Rock Shorty.
"Sure—I like dogs. Since I moved to town an' old Ring died I don't have one anymore. 'That Ring now—there was a dog!

"Ring was a big, all-black dog with a white ring around 'is tail when he was a pup. Purty dog too, an' for years I took 'im with me ever' place I went. He wasn't no earthly use for anythin' that I ever found but he was sort of company when I was out alone an' the burros'd run off again an' I needed somebody to cuss.

"It was interestin' the way he lost that ring on his tail. One time up on Eight Ball crick when Ring was young he got to feudin' with a coyote. Ever' day Ring'd chase this coyote out of camp an' then in about ten minutes the coyote'd chase Ring right back. That went on three times a day an' Ring never caught the coyote an' never got far enough away that the coyote could catch him.

"Then one mornin' the coyote swiped Ring's pancakes—slipped in an' swallered 'em slick as you please, Ring was right after 'im an' they went Ki-yi-yi out across the desert as far as I could hear 'em. Then purty soon they circled around an' come Ki-yi-yi back on the other side o' camp. Just then I seen another coyote waitin' an' it looked like they was figgerin' to gang Ring.

"Well Ring come by camp licketyblitz, well ahead an' havin' a good time. He was headed right on past when he seen this other coyote too. Ring figgered that out as fast as I did. He slapped on his brakes an' slid in with his feet smokin' an' squealin' on the rocks like tires used to on a dry curve. He stopped just like hittin' a wall but then he begun rollin' on the ground, gaspin' an' chokin'. I run over, an' do you know, when he stopped quick like that, the ring around 'is tail'd slipped clean up over 'im an' stuck just back of 'is ears, tight around 'is neck. He was chokin' to death when I got there an' cut the ring off.'



APRIL, 1944



2—Yucca forest, typical of Desert Grassland, as seen on New Mexico plains.

Cream white blossoms on tall flower stalks.

1. Saguaro Forest— Western Succulent Desert

Dominating the Western Succulent Desert, populous stands of the giant cactus, commonly 20 to 40 feet tall, create unique saguaro forests that are foremost among the spectacular landscapes typical of southern Arizona. Strange, green-rinded palo verde trees, flame-flowered thorny-caned ocotillos, and numerous fierce

and grotesque cacti are their lesser companions, and are gathered here abundantly with them at the foot of the Santa Catalinas, northeast of Tucson, Arizona. (Photo on preceding page.)

2. Yucca Forest— Temperate Semi-Desert

Most striking phase of the Desert Grassland or Temperate Semi-Desert

3—Expanse of Jumping Cholla. They do not "jump" but spines are treacherous.

This field of cholla in central Arizona.



DESERT LANDSCAPES

Throughout the strange thrilling empire of the sun called the desert there is a notable difference from surrounding lands. This feature which sets it apart is the distinctive flora that everywhere displays a wide and fantastic divergence from the plant life of neighboring regions. The varied character of the often scanty raiment in which Nature clothes herself here in the land of limited rainfall is of never ending delight. If we observe the patterns, or floral types, that the desert wears, we appreciate more clearly the significant response plant life has made here to a unique climate. These landscape aspects are definitely classified by botanists. Yet a familiarity with the Southwest comes more quickly for most of us if descriptions are not confined to the scientific. Whatever your interest, you cannot fail to view with greater appreciation precipitous canyon or illimitable mesa, abrupt rimrock or sweeping ciénaga, if your attention is focused upon the fascinating differences in their floral adornment.

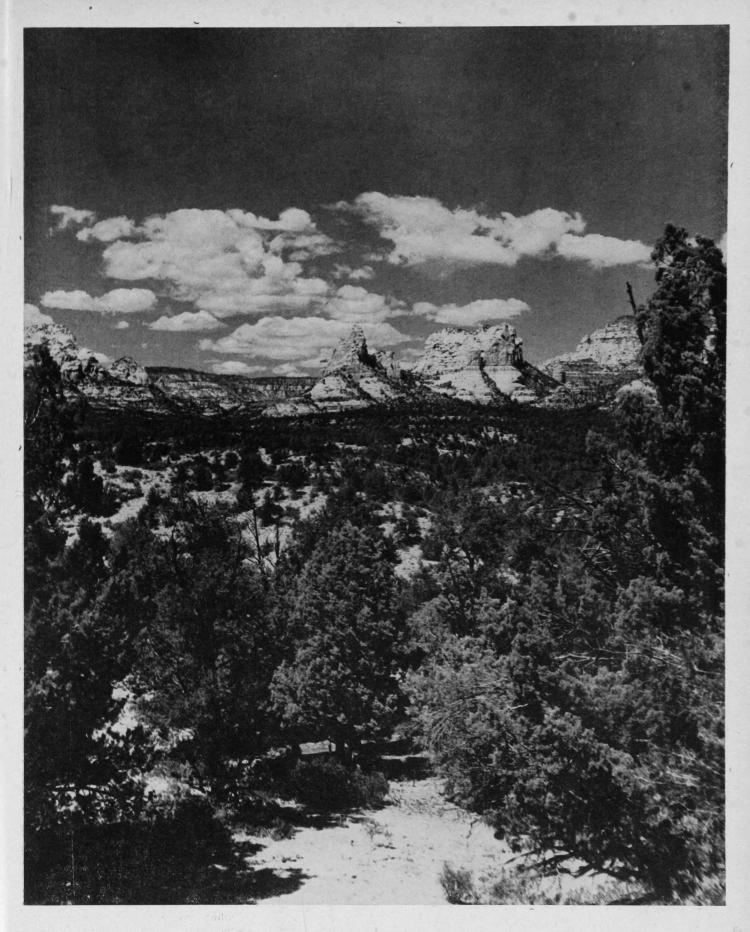
By JOHN L. BLACKFORD Photographs by the author

are those areas where the tree yuccas take command. Their shaggy trunks and bayoneted crowns are fantastic enough; but giant flower stalks, towering above, add surpassing splendor when they bloom, and grotesque seed clusters are a rare oddity while in fruit. White-necked ravens and black-and-lemon Scott orioles are partial to these bristling groves of the grass-carpeted New Mexican plains.

3. Cholla Cactus Society— Western Succulent Desert

Weirdest landscapes of the desert are those where "Jumping" cholla sets the stage. Often, as on this cholla plain west of Superior in Pinal county, Arizona, their fierce snarly locks crowd so closely as to seem an endless tangle of writhing snakes. At times their spiny, spiculed joints reach overhead to weave defiant thickets of treacherous thom. No stranger panoramas, wrought by its vegetation, are to be encountered in the blazing empire of the sun. Golden-

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4—Here juniper and piñon trees mingle towards upper altitudes in northern Arizona. Their deep green contrasts strikingly with the brick red of the distant buttes

and ranges. This type of landscape is called by some botanists a Pygmy Coniferous forest, by others, the Woodland Climax.



5—Characteristic of lower elevations of Mojave and Colorado deserts and the Sonora desert of southern Arizona and northern Mexico are the olive-green stretches of creosote.

spined Jumping cholla, Opuntia fulgida, many-colored tree cholla, and others of this well-armed genus are charter members of the Palo Verde-Bur Sage-Cactus association. Cholla does not "jump." But merely brush against the harmless appearing spines and not only will they pierce you but the loosely attached joints may break off as well.

4. Juniper-Piñon Woodland— Xerophytic Coniferous Forest

Scrambling up over flinty slopes, and swinging away across arid Upper Sonoran basins, the intriguing Pygmy, or Xerophytic coniferous forest, is so closely allied to the true desert that we cannot disassociate these dwarfish piñon pines and junipers

6—Fantastic variations of the desert "scrub" are the joshua forests, seen here in northwestern Arizona. Mojave desert's grotesque trees grow to great heights, are camera fans' inspiration.



from it. Here they range the brick-red hills and valleys below Oak Creek canyon, south of Flagstaff, Arizona. An open, rubble-strewn or grassy floor, bearing scattered succulents, cacti and yucca, that infiltrate from torrid reaches south, is characteristic of the Woodland Climax. And its Gambel's quail, collared lizards, and burro-eared jack rabbits are likewise reminiscent of the hot Lower Sonoran reaches.

Creosote Plain— Microphyll (small-leaved) Desert

Into the deepest sinks of the Mojave and Colorado deserts of California, across the glazed "pavements" of the Sonoran desert of southern Arizona and northern Mexico stretches the varnished green of the creosote bush. Often it takes along its partners, burrobush and teddy-bear cholla; often it goes it alone. Covillea grows surprisingly gay with golden bloom after intoxication by scant winter rains. In summer, should you lament the desolate appearance of this dark green sea during its drought-dormancy, consider that it has ranged far beyond the limit or aridity tolerated by most desert plants. Illustration shows it carpeting a gravelly wash near Wikieup, Arizona.

6. Joshua Forest— Temperate Semi-Desert

Relieving the monotony of the Desert Scrub or the wide Desert Grassland, fantastic forests of the Joshua tree present the most exotic scenery of the wastelands. Their spiny branches, grotesque arms and sturdy boles wrapped in rough hide-like bark, never fail to excite curiosity, even in a lone specimen. When their numbers are legion, and they march in outlandish armies over the pastelled hills, the landscape becomes other-worldly. Here their ragged ranks are arrayed east of the White hills in northwestern Arizona, near the great bend of the Colorado river.

7. Mixed Cactus Association and Desert Scrub— Western Succulent Desert

Across wide outwash plains and over rugged ridges that crowd upon the peaks of the Puerto Blancos, the Sonoran desert displays the multiplicity and wonder of its varied plant life. Here Organ pipe and Whisker cactus, Saguaro, Jumping cholla, Ocotillo and Palo verde mingle together close to the Mexican border. In spring the rocky floor is colorful with desert ephemerals. Desert bighorn, javelina or wild hog, and ante-

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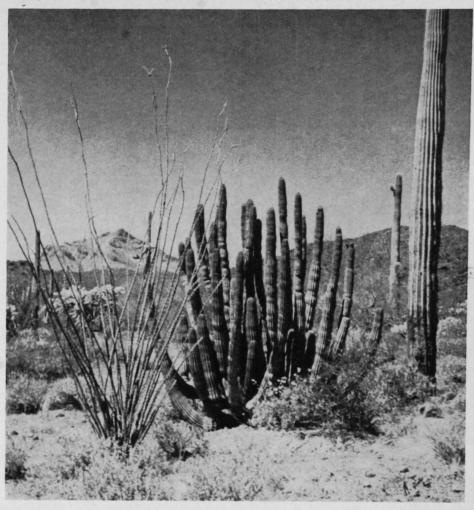
7—Organ pipe cactus associates with ocotillo (foreground), saguaro and cholla, near Mexican border.

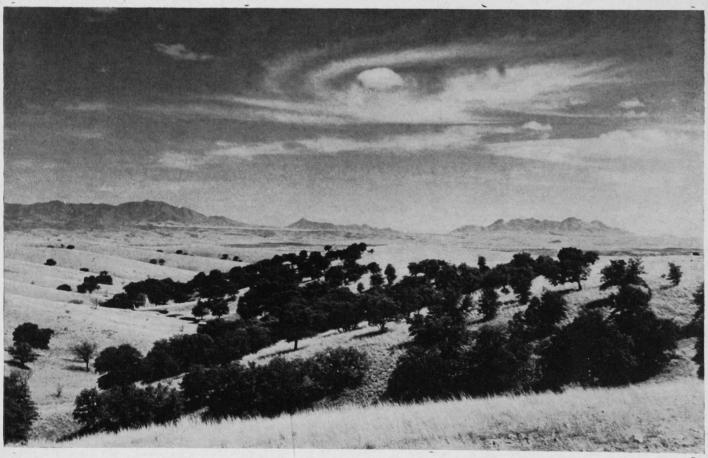
lope once were abundant dwellers amidst this weird and exotic flora.

8. Oak Woodland— Xerophytic Deciduous Forest

This encinal woodland of dwarf evergreen oaks, trooping down the southern slopes of the Empire mountains, southeast of Tucson, and making savanna-like contact with the desert plains, is typical of the live oak belt that ranges the arid foothills between desert and mountain, and marks the Upper Sonoran life zone in southern Arizona. Bridled titmice, Arizona woodpeckers, and the Mexican screech owl are characteristic bird inhabitants, while the singular alligator - barked juniper and fiveleaved Mexican nut pine are tree associates of these little broadleaf evergreens. South and east, the arid oak land merges into Desert Grassland that reaches away to the distant slopes of the Whetstones, Mustangs and Huachucas.

8—Dwarf evergreen oaks in southern Arizona are typical of Xerophytic Deciduous forest.





The Changeable Gilias

By MARY BEAL

HE GILIAS and their Phlox cousins familiar in our gardens have come back to us in a roundabout way. They first were collected by early European botanists from our Pacific states, then domesticated in English and Continental gardens. The desert claims a delightful array of other varieties which are just as well adapted to cultivation.

The genus was named for Felipe Gil, botanist and astronomer, who despite the Spanish version of his name was an Italian. The enchanting members of the genus are sparing of leaves but prodigal of their flowers. In lavish abundance they transform the dun-colored slopes of Ord mountain in central Mojave desert to a lacy glowing pink. Valley and mesa locations are more

likely to display blue or lavender varieties.

Fascinating as are the Gilias in appearance, their variability creates trouble for the botanist. Much field and laboratory work has reduced this inconstancy into a working basis for identification. Dr. Willis L. Jepson's classification is used here.

More than a dozen species are found in desert areas, most of

them annuals. Perhaps the most widespread is

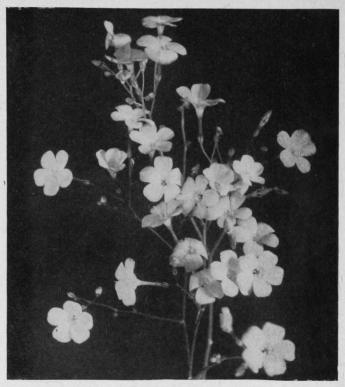
Gilia tenuiflora

Primarily a Coast range species but with several varietal forms which inhabit the desert. This is probably the most variable species. The general characteristics are-almost naked stems, 6 to 18 inches high, with ascending branches forming a loose panicle or cyme, the leaves mostly basal, sharply toothed or pinnately divided into toothed lobes, the herbage variously hairy or bald, often more or less glandular especially near the top, the flower buds furled up like fairy umbrellas, opening into funnelform corollas with 5 spreading lobes, pink, lavender or blue, usually 1/2 to 11/4 inches long, the slender tube purple and throat purple above a yellow or whitish band, or just plain yellow or white, the stamens blue or white, barely exserted or not at all, the style much longer, the calyx short, with pointed lobes.

The variety davyi is very attractive and quite frequent. It often has rather a bushy form, with several branching stems 8 to 12 or more inches high, the herbage likely to be hairless but glandular above. The strap-shaped leaves are fleshy, 1 to 3 inches long, with broad mid-strip and short toothed lobes. The fragrant showy flowers are an inch across and as long, rather closely clustered at the ends of the branches. The corollas usually are blue or purplish, rarely white, with short purple tube dilating abruptly into a very wide yellow or creamy throat which sometimes has 5 purple spots at base. The sharply-pointed calyx lobes have green or reddish mid-ribs bordered by white. Common on sandy mesas and flats in western and central Mojave desert, ranging north and east through Death Valley region, southern Nevada and Arizona. Should be in fine bloom in April.

The variety latiflora also tends to be bushy, with several to many stems from a few inches to over a foot high. The stems may be more or less glandular-hairy or hairless, branching above into a loose panicle, the flowers in open clusters or single, the leaves 1 to 2 inches long, the lobes sharply-pointed. The corollas usually are blue, purplish, or lavender, but occasionally pink, 1/2 inch or more long, the slender tube deep purple, short or long, the throat with deep purple splotches (more or less confluent) above a yellow or whitish band. It frequents sandy plains and mesas up to 6000 feet in the Colorado and Mojave deserts, Death Valley region and Owens valley. Blooms April to June, according to altitude.

The lovely variety speciosa is usually somewhat taller than the others with several ascending branches, the leaves larger and less finely cut, 1 to over 3 inches long, the lobes usually 3-toothed, the longer calyx lobes have white-bordered green or red-



Gilia tenuiflora var. speciosa, from Ord Mountain in central Mojave desert. Photo by the author.

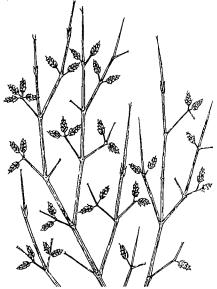
dish mid-ribs. The flowers are more closely clustered, 3/4 to 11/4 inches long and as wide, the corollas pink, lavender or blue, the throat narrow. A mountain-loving variety, blooming in April and well into May, in the central and eastern Mojave desert.

The variety sinuata sends up from-the compact basal rosette 1 to several erect low-branching stems 5 inches to a foot high (in favorable spots 2 feet), the herbage usually with loose tufts of wool and minutely glandular above or entirely so. The leaves average 1 to nearly 3 inches long, the lobes or teeth narrow and remote, the small flowers in an open cymose panicle, the corollas not more than 1/3 inch long, with quite a patriotic assortment of color possibilities, red, white or blue, variations including pink and purple. Abundant on sandy valleys, flats and slopes in northern Colorado desert, Mojave desert and mountains north, from very low to high elevations, blooming from April to July.

The variety arenaria has one stem or several ascending from the base, 1 to 5 inches high, the stems and calvx densely glandular-hairy, the leaves shallowly-toothed to pinnately toothed, 3/4 inch to 1½ inches long, mainly in a basal tuft, the flowers lavender or pink, broadly funnel-form, ½ inch or less long, on short pedicels. More of a coast species in California but very common on sandy mesas and plains up to 4000 feet in western, central and southern Arizona. Blooms from February to May.

Gilia latifolia

A sticky-hairy, ill-smelling plant, from a few inches to over a foot high, the main stem stout and rather short, with ascending branches from near the base, the whole plant glandular and almost shaggy with long soft hairs. The flowers small, less than a half inch long, but glowing like bright pink stars, usually a deep gorgeous pink, above a white tube. Calyx teeth are edged with pink and the thick leaves, ovate to orbicular, also are pinkedged, the coarse prominent teeth or lobes cuspidate, the blades varying from 1 to over 3 inches long, growing mostly on the lower half but not in a basal tuft. Habitat varies from sandy plains and canyon floors to rocky mesas, from below sea level to 4000 feet. Often locally abundant in Colorado desert, central and eastern Mojave desert, through Death Valley and adjoining areas to southwestern Utah and Arizona. Blooming season from March to May.



Mormon Tea, Ephedra nevadensis. Used as substitute for tea, considered an efficient tonic. Contains the alkaloid pseudoephedrine.



Yerba mansa, Anemopsis californica. Has popular reputation as a blood purifier and all-around remedy.

Yerba santa, Eriodictyon trichocalyx. Prompt efficient remedy for coughs. It masks bitter taste of quinine.



APRIL, 1944

It all started when Jerry Laudermilk decided to take a walk along the Hassayampa river. For there he saw an old Indian woman in blue and white bandana absorbed in digging small white-flowered plants. His curiosity was so aroused by her intent manner that he had to learn her purpose . . . And Joe Aguilar told him. Before the white-moustached old shoemaker had finished, Jerry had collected enough plants to start a drugstore. That's just what these desert plants represent to the Indians and Mexicans to whom Aunt Rosa sold them. And now that war prevents importation of many common drugs, we can expect to see more and more of these native drugs transferred from the "Indian drugstore" to the one around the

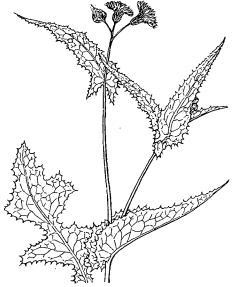
Desert is an Indian Drugstore

By JERRY LAUDERMILK Drawings by the author

EAT OR NO HEAT, I was out for for a hike, on the trail of one of those "petrified" woodpecker's nests you sometimes find in dead Saguaros. I was taking a new route out of Wickenburg, Arizona, towards the Hassayampa river and the foothills on the opposite side. It was what I called a "glorious" day but the kind that made oldtimers sit in the shade and cuss the heat.

At one of those cool damp places along the river where the water comes close to the surface and little blue butterflies congregate, a picturesque old woman who appeared to be either a dark Mexican or an Indian was digging small attractive plants with white flowers. She was so absorbed in her work that I slipped away quietly without being noticed. But I was determined as soon as I reached town to find out her purpose with the flowers.

One of the few cool spots in Wicken-



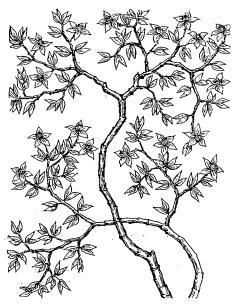
Sowthistle, Sonchus oleraceus. Infusion of leaves causes a fever to "quietly depart." Give hot water most of the credit.



San Juan tree. Nicotiana glauca. Argentine immigrant containing considerable nicotine. Used as headache remedy.

Creosote bush. Larrea mexicana. Considered good for lung trouble, except asthma. Strong doses are emetic.

Is antiseptic.



burg where I could loaf was Joe Aguilar's shoe shop. Here could be heard legends and strange tales of other and wickeder days when Wickenburg was tough. If anyone would know why an old woman dug white flowers on a hot morning it would be the white-moustached old shoemaker.

It was not only cool but also rather dark and smelly in Joe's place. The sour aroma of the tub where he soaked his leather combined with the smoke of Durham cigarettes in just the right proportions to make the place smell exactly the way it should—in Arizona. After the usual preliminaries about the weather and health, I gradually circled in on my subject. "Joe," I said, "this morning I saw an odd-looking old Indian woman digging plants down by the river—small plants about so high with white flowers and shiny green leaves. What do you suppose she wanted them for?"

Joe looked up, all interest. "Did she have a blue and white bandana round her head, folded neat?" I remembered that she had. "Well, that was my Aunt Rosa. I am a Mexican but Rosa has much Indian blood. She's old and knows much old stuff. That plant she gathered was Yerba mansa, a very good medicine plant, very strong when you dig it toward noon on a hot day."

He went on to tell me about his aunt, "a very smart woman." How she had been the local herb doctor to the Mexican population for years and knew the proper plants to use for nearly every ailment. There was some use for almost everything that grew. Many useful plants grew close by. Some were to be found nowhere except in remote canyons and there only in limited areas.

To be an herb doctor, you must know where to look for your herbs, the right season and the right time to gather. After your herbs were once gathered you were just ready to go to work. Plants had to be dried and stored in exactly the right way to keep their strength as long as possible. Some drugs like barks and roots kept well for years but others, especially dried flowers, grew weaker month by month. The packages of dried herbs people bought at the drugstore were a joke to Joe's Aunt Rosa. She "had no English" and liked to be by herself and think. It was just as well I had left her alone.

In nearly every Mexican community lives someone who is the accepted authority on plant medicine. The herb doctor usually is a woman who learned her art as a girl by practice with some old woman. They aim for results and make no effort to discover why their remedies work. The average herb doctor never has heard the words "alkaloid" or "glucoside" although many of their plants are rich in them. Nine



Little wild gourd of the desert, Cucurbita foetidissima or Mock Orange.
Makes a good soap substitute if you can stand the smell. Its species name means just what it says—the rankest of the rank.

times out of ten they have no other pharmacopoeia than the herb lore stored in a good memory. They seldom have any secret cures but may have their favorite remedies, their old stand-bys.

Joe had lived with his aunt for many years and so had come to know a great deal of desert herb lore. When he learned that I was a pharmacist myself and had an interest in drugs, his little cobbling shop became a kind of unconventional school of herb-ology. He called the desert the "Indian drugstore" and as he said, "they knew how to use it."

A few days after the event of Joe's Aunt Rosa, I hiked out to my cousin's ranch. On the way back to town I collected a couple of specimens. One of these was Creosote bush. Of course I had noticed it before, there is so much of it. It is the most abundant shrub on the Arizona desert. According to Joe, this plant, which he called Gobernadora (the governor's wife) was a remedy for tuberculosis and some other pulmonary troubles—but not for asthma. He was emphatic on this point. You made a brew of the twigs and leaves and it had to be just the right strength or instead of staying down and curing your cough it would "turn around" and act as an emetic. Gobernadora was good for you inside and out. A strong wash, black like coffee made wounds heal very quickly. The gum that accumulated on the surface of the water when a large quantity of twigs and leaves was boiled made a good waterproof cement. This was a good plant and it was lucky that it grew so profusely.

According to Joe his Aunt Rosa sold lots of Gobernadora, which seemed odd to me. It grew wild right in town, so why should a person pay for something he could gather free. His answer was that it was too much "trobble" to collect and dry your own herb when for *dos reales* (two bits) you could get enough to last you a long time and already prepared by an expert.

You must have hunted plants with strong smell," was Joe's remark when I handed him my second specimen. is Marruju, a good thing for homesick people to smell, it makes them feel all right again and they forget all about home.' This remarkable plant was good for other things than dispelling "dark humors." The crushed stems made into a strong decoction became a powerful antiseptic. This probably is true, as the plant is rich in a peculiar essential oil. A drink prepared from Marruju was supposed to produce a condition like second sight but when I wanted to try its effect on myself Joe didn't know the dose. People had died from Marruju although it didn't rate as a poisonous plant. It is an interesting fact that this plant belongs to the same family as oranges and lemons. The fruit, which is no bigger than a pea, is bright yellowishgreen and looks like a little orange.

My interest in the subject of medicinal desert plants had roused a similar concern on Joe's part. He hadn't thought much about them for several years and decided to see how much he had forgotten. We would take an afternoon off and search out some of the "good" plants in their natural surroundings.

Joe headed his two-man expedition in an approximately northeast direction. He said we would hike out only about three miles over the mesas, then circle back by way of the washes and the river. This way we would see them all since certain plants grew only in certain environments. You wouldn't, for example, expect to see dainty little Yerba mansa growing up on a mesa alongside Saguaros and Chollas.

On the low mesas and foothills along the Hassayampa there is a regular park which extends for miles and probably is one of the best displays of desert plants in Arizona. The commonest, of course, was Creosote bush-it was everywhere. Then there were the Saguaros—not medicine but food when the fruit ripened. The fantastic Jumping chollas grew so thickly in places that sometimes a wide detour was the only way to get ahead. Even this devilish cactus which carries meanness to the point of being ridiculous had its uses. According to Joe Americans sometimes made ornamental knick-knacks and walking sticks from the seasoned, openwork wood of the dead stems.

Then there were many plants of the

Ocotillo. A strong extract of the root could be used like a liniment for aches and pains or fatigue in general.

Another plant that grew abundantly in thickets when it did occur—you might hunt for weeks without seeing a specimen—was the Jojoba bean. Joe's manner when he found some old plant acquaintance of famous reputation was always a study in expansive pride, even gusto, as if he were introducing one of his family. "Now this one, my ffiend, is very, very good. She is called Jojoba (hohóva). She is not a medicine but better than chocolate or coffee and very rich." Mexicans sometimes roast the beans which ripen in winter, grind them to a fine meal and boil. This makes a good coffee substitute but has a peculiar flavor.

Another vegetable friend was also the source of a beverage as well as a potent drug. This was Canutillo or Mormon tea. The plant looks like a small shrub made of green switches. On close examination tiny leaves like scales can be seen on the new branches. The twigs and small branches dried and infused in water make a beverage which tastes much like tea. Strong infusions are said to be potent as a blood remedy. The plant contains the alkaloid pseudoephedrine, cousin to the alkaloid ephedrine, a powerful drug.

While we rambled through this natural botanical garden, Joe told me some curious things about the old-time Indian doctors. He had lived among some of the Colorado river tribes around Yuma in his younger days and had a good memory. Some of the Indian remedies were strong drugs, others "by golly, took a lot of prayers to make them take hold." It was a question with Joe whether imagination and large quantities of hot water didn't have a lot to do with it in some cases, for some of their brews were no more powerful than teas made from corn-shucks.

Most of the herbs his aunt used did their work without any help from psychology. Of course she might toss in a prayer or two if her customer was inclined that way but a good drug produced results even if you took it by accident or if someone put it in your food without your knowing it. He knew of an herb that sometimes was used in this way by "bad" people.

On our way back we found the plant growing on lower ground. It had big velvety leaves, purplish stem and a peculiar narcotic smell. The flowers were closed at this time of day but I could see that they would be large white trumpets when they opened. Here was a plant that was both good and bad. This was the magical herb Toloache (I-bow-my-head-in-reverence) used by the Indians in religious ceremonies

and for the treatment of several ills. In olden times the Indians used to make a perilous drink by pounding the whole plant and steeping the bruised stems, leaves and flowers in water. This drink gave one the power of foretelling the future. It also produced visions of the other world. But its use was exceedingly dangerous, liable to cause blindness and insanity. Aunt Rosa used only the fresh leaves which were applied as a poultice for relief of pain. It was very effective. Sometimes the dried leaves were smoked for the relief of asthma but this also was risky since the plant contains large amounts of some very powerful alkaloids including atropine and daturine. Joe wouldn't tell me about Toloache's bad uses as he said the fewer people who knew such things the better.

Then he showed me Yerba mora or death-plant. This is a species of belladonna or nightshade. His aunt powdered the dry-leaves and made them into a plaster with olive oil. This, like the old-fashioned belladonna plaster, was used for the relief of any kind of muscular ache or pain. The nextdoor neighbor of questionable To-loache and Yerba mora was benevolence in vegetable form.

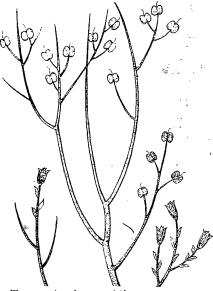
Here were some dark green, woody shrubs with shiny leaves. In fact, the upper surfaces of the leaves, their "faces" as Joe called them, looked as if they had been varnished. The backs were grey and furry. The clusters of dainty, pale lilac-colored flowers looked out of place on such coarse stems. Later, I found that this plant belonged to the same family as "baby blueeyes" and so came by its flowers honestly. Joe called it Yerba santa, or holy herb. This was the trusted panacea for tuberculosis or any kind of cough. You made a tea of the dried leaves. It couldn't hurt you and was practically certain to do you good. Oldtimers sometimes used Yerba santa as a beverage. When lemon juice is added to the clear yellow infusion it produces a remarkable result. The brew instantly becomes white and opaque as if cream had been added.

We encountered many interesting plants along the wash. One of these was a coarse weed and a natural soap substitute. "There's Cabazillo," Joe said, pointing out a plant I always had called "mock-orange." It is not confined to the desert but grows along the roads in sandy places. Nearly everyone has seen these spreading, squash-like vines with their coarse leaves and

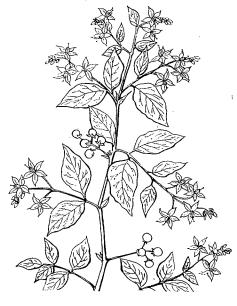
Nightshade, Solanum douglasii. In poultice form relieves neuralgic pain. Has high percentage atropine and hyoscyamine alkaloids.



Toloache, Datura metaloides. Banishes pain, produces strange visions, can be deadly narcotic.



Turpentine broom, Thamnosma montana. Used by Indians to produce visions, cure stomach ache.



stems. Sometimes the ground is covered with the yellow gourds which give it its mock-orange name, "mock" because of its extreme bitter taste and rank odor. The crushed root makes a superior soap. In some parts of the country the crushed fruit is thrown into pools to poison fish. Fish stupified by this plant are quite wholesome since the action of the poison, saponine, is only temporary.

At the outskirts of town I noticed a plant with magenta-colored blossoms growing among the rocks and boulders. It looked almost like the old-fashioned four-o-clocks of my grandmother's garden. In fact, it was a very close relative. I never supposed such a plant would have any medicinal value but learned that it had several uses. The root was said to produce visions and also had a more prosaic use as a cure for stomach ache.

Joe began to point out plants which he said "liked to live around people." Although he didn't know it, these were not natives but immigrants that had been adopted by the Indians once their good qualities had been learned. In most cases these plants have been introduced accidently or are fugitives from cultivation. One of these is San Juan tree or tree tobacco, a native of Argentina. This is a large loose-limbed shrub with shiny green leaves and yellow trumpet-shaped flowers that bloom the year around. The Mexicans say that the bruised leaves placed behind the ears and tied at the temples with a handkerchief cure a headache within a few minutes

Another of these naturalized foreigners was an interesting plant with curiously notched leaves and yellow flowers like dandelions. Joe called this plant "Yerba de leche." Its common name is Sowthistle. The dried flowers were a remedy for fever which would "quietly depart." This was the end of the herb lesson and although Joe promised to show me some of the rare plants that grew in out-of-the-way places he never got around to it and I had to be content for the time with this small sample of Indian herb-lore as handed down by the Mexican herb doctors.

Many Indian remedies have been adopted by modern pharmacy such as Cascara and Yerba santa from our own Southwest and many others including quinine from Mexico and South America. Now that the war has made it almost impossible to obtain many of the common drugs, much research is being done with plants from all parts of the country. Curious facts have been discovered. For instance, one of our common species of wormwood contains small amounts of quinine. Other herbs will no doubt yield secrets as valuable. Eventually we can expect to see other drugs transferred from the Indian drugstore to the one around the corner.

DESERT QUIZ This month's desert test is designed especially to check up on all you Sand Dune Sages—to find out not only how well you are digesting your Desert

Magazine but to learn if you are keeping up on your supplementary desert reading. Nearly all the answers have appeared in Desert Magazine at some time or other, but some must have been gleaned either from personal experience and observation or from reading good books on the Southwest. Subjects covered include history, Indian lore, scientific studies of the desert, botany, mineralogy, lost mine tales, literature of the Southwest, geology. If you score 15 or more correct, then keep your SDS rating. If you answer between 10 and 15 correctly, you can append to your letters "Desert Rat." But if you fall below 10 right answers (or lucky guesses), you'd better do some studying. Answers on page 33.

- 1—Man responsible for naming of Colorado desert is George Wharton James....... Wm. P. Blake....... Gen. Stephen Kearny....... Maj. John Wesley Powell.....
- -When a Navajo refers to a Bilakana, he is referring to—An American...... Balky horse..... Indian trader..... Pack saddle.....
- 3-Baron of the Colorados was-A fictional character...... Don Miguel de Peralta...... James Addison Reavis......Mojave Indian chief......
- Dendrochronology is of greatest importance to Astronomers...... Farmers Hydrographers Archeologists
- -Southwesterners associate Fewkes, Bandelier, Kidder, Morris and Hewett with—Exploration...... Archeology...... River development...... Boundary surveys.....
- -Mescals which Marshal South and his family on Ghost Mountain use for food and fuel are known to botanists as-Cereus giganteus...... Agave deserti...... Yucca whipplei...... Nolina parryi......
- 7—The number of varieties of quartz is about—Four...... 15...... 60.......
- 8-Lieut. Edw. F. Beale brought his camel caravan to the Southwest in-1832...... 1857...... 1888...... 1905......
- -If a friend took you to some Tinajas, you probably would-Eat them...... Drink from them...... Watch them graze...... Relax in them......
- 10-Rate of evaporation varies in local desert areas, but in general the annual evaporation in Southwest desert is—85-120 inches....... 45-75 inches....... 150-185 inches...... 20-45 inches......
- 11—First name of Pegleg Smith, for whose "lost mine" treasure hunters still search, was—Thomas...... Jedediah...... John..... Hiram.....
- -To send a letter from St. Louis to San Francisco over southern route through New Mexico, Arizona and Colorado desert in 1858, required—90 days...... 75 days...... 50 days...... 25 days......
- 13—One point possessed in common by Screwbean mesquite, Palo verde tree, Smoke tree and Ironwood is—Color of flower....... Family...... Shape of leaves...... Common medicinal property......
- 14—Carnelian is a type of—Jade...... Quartz...... Coral...... Garnet......
- 15—First sheep were brought to the Southwest about—1540...... 1598...... 1620...... 1732......
- 1.6—Typical Hopi pottery is—Black....... Apricot...... Brown...... Red and
- -"Tombstone, An Iliad of the Southwest," was written by—Wyatt Earp...... Zane Grey...... Walter Noble Burns...... Harold Bell Wright......
- 18—Butch Cassidy's real name is said to be—Bill Carver...... Harry Logan...... Jim Lowe...... George Parker......
- 19—Penitentes are—Spanish-American religious sect...... Certain officials of Catholic church in New Mexico...... Yaqui Indians who take part in an Easter ceremony...... Indian pilgrims to the salt mines......
- 20—Pisgah crater is nearest—Barstow...... Needles...... Twentynine Palms...... Ballarat.....

The South family live in a natural desert garden. And although they are satisfied with most of Nature's handiwork, they decided to do a little landscaping. Rider and Rudyard in the role of scouts searched for a couple of "artistic" yuccas to plant before their adobe home. The specimens finally located, the expedition set out to bring them back on a homemade stretcher. It was a long and arduous trip, leading them to the foot of their mountain fastness. Rudyard, who claimed credit for the discovery, puffed up with importance as he stood before his finds, persuasively asserting they could be "twansplanted to unparalleled adwantage." Tanya conceded they were "artistic" but pointed out they must be at least 250 or 300 years old. Marshal sounded the final discouraging note when he estimated their weight to be not over a ton and a half each — a mere trifle for their two-man-power stretcher to bear up Ghost Mountain trail!

Desert Refuge

By MARSHAL SOUTH

E HAD thought wistfully that spring was hiding just beyond our mountain crest. But, as Rudyard puts it pithily, "Ewidently we thought a lie." For instead of the glad-eyed Indian maiden with flowers in her hair, it was fierce old War Chief, Winter, with his glittering arrows and shaking white plumes who leaped upon us from ambush beyond the rimrocks. Savage his war whoop and savage also his hundreds upon hundreds of fierce braves who came racing at his heels upon their crowding horses of cloud. The junipers whistled and bowed to the charge. The whirring arrows of ice shivered and splintered upon our walls and low-hunched roof. Long and bitter was the attack—while we, who had dreamed of spring, crouched before the red leaping flames of our great fire-place. Yes, evidently we had "thought a lie."

But hard on the heels of the storm furies came the snow fairies. And there was reward. Our trio of youngsters love snow and they greeted the glittering world with shouts of delight. Somehow, under a blanket of snow, Ghost Mountain is breathtaking. Perhaps because of the startling contrast to its usual vivid sun-soaked coloring. In their foreign trimmings of ermine the mescals and chollas and bisnagas and ocotillos assume a fairy-like unreality, like growths in an enchanted world. In the crisp white blanket that covers rocks and gravelly earth the tiny tracks of birds and the scribbly scurrying of mice are like the footprints of elves. And over all, the sparkle of the desert sun

and the cloudless arch of a turquoise sky.

"But it goes so quickly," the children lament, as they race excitedly through the shallow drifts and pelt each other with fluffy

snowballs. "Oh look! It's melting so fast!"

Their regret is genuine. Their unclothed bodies glow with the healthy exposure to sun and crisp air. It is only when bare feet and eager fingers become too chilled for comfort that they make brief dashes back into the house to warm up. But only brief ones. Snow-time is too precious to be wasted indoors.

Besides, snow and ice mean the possibility of home-made ice cream. And that most delicious of all treats—honey poured over a bowlful of snow. Then, too, there are snow men to make. And snow to bring in in pots and melt over the fire—just to see how the Eskimos do it. Yes, snow is popular at Yaquitepec when it does come. "When I grow up," says Rudyard, carried away by temporary enthusiasm, "I am going to the North Pole to live."



Rider and Rudyard choose a site for the snow man. Yaquitepec on top of Ghost Mountain wears its winter white.

But the snow fairies have gone now and have taken their magic with them. Once more the sun-sprites and the laughing brown elves of the wasteland hold sway. Grass is greener and taller. The sun stands higher in the sky. And it is warmer. For this year at least Chief Winter has made his last big raid.

"But when summah comes how will you bake thee beans and thee bread?" inquires Victoria, pausing long enough in a rapid-fire recitation of the alphabet to ask the anxious question. "Because if we doant have great big fires we woant have such lots of hot coals to bury thee bean pot in at night. And there woant be any more baked beans." She looked doleful. Baked beans, seasoned just so, are Victoria's especial weakness.

"You don't have to have roaring fires in order to bake beans, ignorwamus," said Rudyard impatiently. "Beans can be baked in—in mul-ti-tu-din-ous ways." He drew a deep breath after the effort of the word. "They bake beans even in Boston," he

added as an afterthought.

"But somehow they don't taste as good," Tanya said. "There's

always a something about our winter-baked beans.'

And it is true. For the bean is a temperamental entity, despite its humble station. Its possibilities are too little appreciated. For, like the toothsome mescal heart, the bean requires long slow cooking. By a wood fire, of course. The quality of the heat vibrations given out by various fuels and heat-making methods are very different.

So in this matter, as in many others, a little back-tracking from modern illusions is in order. Back to the pit ovens of the savage. Or to the old-fashioned bean hole. Provide yourself with a cast-iron pot or dutch oven, with a close-fitting iron lid. And, having measured into it the desired quantity of beans—pink beans or any other variety you favor—fill it generously with water. To this add seasonings, a matter for individual prefer-

ence. For this is where the art of cookery comes in.

Chili—the inner pulp scraped from whole well-steamed Mexican red chilis, if you can get it—takes first place. Then garlic—not just a whiff, but a generous helping of chopped garlic cloves. The garlic is one of the most healthful things provided by Nature, a system purifier and a potent agent for the reliet of high blood pressure, as well as being the possessor of many other sound virtues. Then put in your tomatoes—be generous with these too. Then salt, and any other seasonings and herbs that your personal tastes and experience dictate

If you are a vegetarian you will find that you have ample scope among natural herbs and seasonings to prepare a bean pot that will be second to none. But if you are not a vegetarian you may like to add some diced bacon or some salt pork. And a goodly measure of beef fat rendered from suet will add body and flavor. And finally, when you have performed all these rites (good cooks have first to be born, then perfected by a lifetime of devotion) you hie you away to your pit oven, a homely gadgetless hole in the ground in which a good fire has been blazing for an hour or so. And there, scraping aside or lifting out, with a shovel, the glowing coals and hot ashes, you bury

your tightly covered and water-filled bean pot in the hot mass. Cover it up with coals and ashes and finally heap the earth over it. Then you go happily away and forget it for 12 or 16 hours

or so-longer if you want to. And then-

But why anticipate the gates of paradise? He who with a healthy outdoor appetite has not experienced the thrill of digging up a properly prepared bean pot and lifting its lid, he who has not sniffed its delicate odor of indescribable allure, has not really lived. Empires have fallen and thrones been overturned for much less. (Oh yes, we know that some cooks put molasses in bean pots. To desecrate real beans, especially the Mexican *frijole* bean, with molasses should be a matter for a 'dobe wall and a firing squad at sunrise.)

But it is not only perfectly cooked beans that are a product of our big winter fires. There is bread too. Not summer bread, but winter bread. For in winter Yaquitepec thrives upon a special variety of hard bread—a bread very different from the pale blown-up product, a loaf of which Mayor La Guardia once crushed together in his hands as he made the angry denunciation that the people were being fed wind. For our winter bread at Yaquitepec is made without yeast or leavening agent of any kind. It contains simply flour, salt and water. Positively nothing else. Kneaded together in a rather moist dough, the loaf filling a big cast-iron dutch oven about two-thirds full, it is set upon the hot ember-cleared floor of the fireplace at night. And around it-very close but not touching-the glowing coals and hot ashes are arranged in a high, encircling bank. For bread, we do not use the tight-fitting pot cover. Instead the loaf is covered by a loose iron plate which rests irregularly upon the rim of the pot and lets the steam from the baking mass escape. Also we provide for better circulation of heat by keeping open, doughnut style, a round hole in the center of the loaf, by means of a collapsible tin tube, fashioned from an empty tin can.

With the ring of embers arranged about our great loat, and with a few chunks of burning wood upon its flat iron lid, we go blissfully to bed. In the morning our loaf is done. Solid? Yes, it is solid. But it also is remarkably healthful and sustaining. Especially since it is made from homeground, unrobbed whole grain flour, mostly in a combination of one-third wheat and two-thirds rye. The critic who once said, scathingly, that for many years the public had developed the fashion of demanding harder and harder butter upon softer and softer bread, would

have no cause for complaint with this.

The one gap in the otherwise perfect wasteland view which unrolls from before our windows has been filled. Perhaps it wasn't really a gap except in our imaginations, but it bothered us. We felt there ought to be yuccas growing in that particular spot. And there weren't any. A long while the lack has irked us. The natural thing, of course, was to move some vuccas to the spot. But yuccas, even though they look so coy and disport themselves in the grass skirts of hula girls, are in reality very serious things, and as hefty as lead elephants. So for a good many winter-spring seasons we have dodged the issue. This year, however, we decided to do something about it.

There are plenty of yuccas on our personal Ghost Mountain domain. But we wanted particular ones to fit the particular need. So Rider and Rudyard were sent out as scouts. They were gone a long while, but finally returned to report that finding the right kind of yuccas wasn't nearly as easy as it might seem. However, they believed they had located a pair. But they were not on the summit of the mountain. They were down at the foot of it.

This was discouraging. But remembering that the mesa-top Pueblo Indians of New Mexico used to stage races up their precipitous trails, carrying sheep upon their shoulders, Tanya and I decided that we ought to be able to carry up yuccas, one at a time, on a sort of ambulance stretcher slung between us. So the following day, guided by our scouts, we went down the trail carrying a pick and shovel, some coils of rope and two long, supposedly strong, poles of "civilized" wood from which to

fashion the carrying stretcher. Finally, out on the lowland, Rider stopped and pointed:

"Those are the yuccas," he said. "Those two on the outside

edge of the bunch."

"And I found them," Rudyard hastened to add. He puffed up with importance. Then, sensing something from the expression of our faces, "Don't you think they are awfu'y decowative?"

"Well, yes," Tanya admitted. "They are that, it is true.

But . .

"An' they're young an' wigorous," Rudyard hurried on in breathless persuasiveness. "They can pwobably be twansplanted to unparalleled adwantage. And . . . Why, what are you laughing at?"

"I don't quite know," Tanya choked. "But perhaps it's because I'm afraid that these young yuccas of yours may be too young. This one here can't be more than 300 years old. And

the other not a day over 250."

"And neither of them weigh over a ton and a half-if as

much," I pointed out.

"Well, suppose," said Rider, grinning mischievously, "you try to locate some. We ran all over the map. And these were the best we could find. All the little ones are too small. You said you wanted 'artistic' yuccas."

"I know. I know," Tanya said consolingly. "We'll all look." So we all looked. Up and down and in and out. We disturbed several jackrabbits and one coyote. We found all manner of things that we weren't looking for—dim, long-abandoned mescal roasting hearths, weathered sherds of ancient pottery, swarms of bees in hollows under rocks. But no "artistic" yuccas—that is, none that we could carry. Hope went down. So also did the sun, dropping lower and lower in the desert sky.

And then, just as we were on the point of abandoning the quest, we located a couple of suitable specimens—at least they were the best we could hope to find. They were a long way from our trail. But we dug them up—an easy matter, since the earth was still loose and moist from the recent rains. With much haste we constructed a stretcher from our ropes and poles. Loading one specimen we started for home. A few steps and the poles—the only ones of their kind in all our district—broke. "And now what?" Tanya asked, surveying the wreckage.

"And now what?" Tanya asked, surveying the wreckage.
"Nuffing," said Rudyard glumly, "just nuffing! I am afwaid

we are utterly fwustwated."

"Frustrated nothing!" Rider snapped. "Let's get some mescal

poles.'

So we ranged the surroundings and brought back several of the toughest looking, long, dead flower stalks of mescals that we could find. We tied them together with fibers and re-made our carrying stretcher from them.

With Tanya and me bearing the prone yucca between us, we climbed the trail. Just as the sun was setting we planted our burden in the hole which we previously had prepared for it, and watered it generously. And next day we went down and brought up its mate and planted that too.

So now there are two yuccas growing, where no yucca grew before. At last we are satisfied. For they are, as Rudyard says, quite an "acksquisition" to the landscape.

FREEDOM

No man is free, save he is free at heart.
Free from the yoke of copying and leaning,
Free from the need to play a worldly part
Of rigorous convention, or of preening.
True freedom is a spiritual thing,
It means a self-sufficiency of soul.
And they who to some outer "form" still cling,
Are slaves to that—and are not free at all.

—TANYA SOUTH

HH AND HHELL.. on the Desert

ARIZONA

Treaty to Settle Water Disputes . . .

PHOENIX—United States and Mexico in February signed treaty for conservation, distribution and use of the waters of Rio Grande, Colorado and Tijuana rivers, which would affect most of Southwest states and provide for final settlement of long standing interstate and international water disputes. State department described step as "outstanding example of what can be attained when two countries decide to resolve their differences, however difficult, on the basis of what is to be the best advantage of all concerned." Treaty provides for administration by international boundary commission, to be known hereafter as "International boundary and water commission, United States and Mexico.'

Bigger 'n Better Dig-n-Dogie Days . . .

KINGMAN — Cowboys and bucking steers will have plenty of room next fall during Dig-n-Dogie Days. Work on new and larger field, to accommodate horseracing and rodeo events, was started in February by Mohave county livestock growers association northwest of town.

They Have a Name for Them . . .

WINDOW ROCK—It may sound funny to you, but "Naltsos indah-ne-gi" has a special meaning for the Navajo. It is the means by which they are helping their young men on the fighting fronts to return home—"an important paper that is to be bought." We call them War Bonds.

Australians See Sand Painting Art ...

FT. DEFIANCE—Corp. William Mc-Cabe, whose wife and baby son live here, is giving Australians samples of Navajo art. Lacking sand, he has been using crayons and watercolors to produce Navajo "sand paintings." He formerly studied art at Colorado college, Colorado Springs.

Chiggers' Kick is Legal . . .

GRAND CANYON—Being a legally domesticated animal a mule is entitled to at least one good kick, according to ruling of Federal Judge Leon R. Yankwich in dismissing \$7,000 suit against Fred Harvey company by Elmer H. Mateas, heard in Los Angeles. Mateas claimed he was riding down Bright Angel trail on a mule named "Chiggers" when he was thrown to ground, received spinal fracture. He claimed the guide had control of the mule, guide claimed Mateas had control, but judge said apparently the mule had control of the situation, and dismissed the case after upholding mule's legal right to one kick.

Mexican Cacti Found Infected . . .

TUCSON — A bacterial rot disease which has been attacking Arizona giant saguaro cactus now is prevalent in the Mexican stand on Rocky Point highway, seriously affecting the Organ Pipe and Senita cacti, reports Dr. J. G. Brown, University of Arizona plant pathologist.

Papagos, Bond Champions, Indignant

SELLS - Residents of Papago Indian reservation here are on a verbal warpath following claim of Palm Springs, California, to be "first in state to have reached fourth war loan quota, first in nation to double it, and only community to have trebled it." Papagos bought \$30,000 worth bonds and stamps — 600 per cent over their \$5,000 quota.

Waterlevels Given by Remote Control

PHOENIX — Electrical shortwave broadcasts now give automatic record of runoff on watershed of Salt river valley, as result of idea projected nine years ago by J. A. West, chief hydrographer of Salt river valley water users association. Three instrument companies in 1938 started to work on West's idea, this year one company submitted instrument which was tried for 60 days and found successful. Verde river transmitter station has antenna mounted on 65-foot poles; aerial on Tonto creek is swung between canyon walls 200 feet above stream. Electrical shortwave broadcasting instruments are connected with the river gauges and automatically at any given interval send signals to Phoenix, recording water stage in either stream. Formerly Phoenix was dependent on telephone calls from observers; usually when information was most needed weather conditions had cut telephone lines.

Gets Silver Fished from Pearl Harbor

PHOENIX—At ceremonies observing Arizona's 32nd birthday in February, a part of the silver service which had been given by Arizona school children to USS Arizona at its christening was presented to Governor Sidney P. Osborn. Tarnished with salt water, the service had been recovered from the bottom of Pearl Harbor.

Justice of peace, Flagstaff, performed marriage ceremony in February for Harry Blackhorse and Jane Redhouse, Navajo Indians of Kayenta.

Ignacio Bonillas, 86, Mexico's ambassador to US during first world war, died in Nogales January 31. He was Americaneducated, was owner of extensive properties on both sides Mexico-US border.

CALIFORNIA

Air Academy to be Suspended . . .

TWENTYNINE PALMS — Leading "industry" at this desert oasis, Air Academy for primary training of cadets, is scheduled to suspend operations shortly, according to report from Congressman Harry R. Shepard. Any future use of base by army is still undetermined.





Drilling Equipment Disappears . . .

BORREGO — Vandals have stolen pumps, engines and other material from a new oil drilling plant near Ocotillo in Borrego valley, according to complaint filed with San Diego county supervisors by A. C. Routhe, Los Angeles, official of Borrego Valley land company. Complaint has been referred to Sheriff Bert Strand.

Guayule Drain Stoppers Made . . .

MANZANAR—Sample drain stoppers produced entirely within this Japanese relocation center from guayule rubber produced here, were exhibited in mid-February. Guayule plants are being developed in camp experimental nursery and 10-acre farming plot, processed in two mills here under varied conditions.

29 Palms Elevation Determined . . .

TWENTYNINE PALMS—True elevation at national park service office on Twentynine Palms highway is officially determined as 2000.27 feet. This figure, inscribed on bronze-plaqued elevation bench mark placed by US geodetic surveyors, is the first official elevation set for this area. Clarence Symms was chief of the surveying party.

Backer of Prospectors Dies . . .

RANDSBURG - Dr. Rose LaMonte Burcham, first woman physician in California, backer of the discoverers of famed Yellow Aster mine here, and former practicing doctor in this area, died February 9 at age of 91 at her Alhambra home. While she was practicing medicine in San Bernardino in 1890s she grubstaked her husband C. A. Burcham, John Singleton and Fred Mooers, prospectors who discovered the Yellow Aster.

Palm Canyon Reopened . . .

PALM SPRINGS—Reopening of famed Palm canyon near here brought throng of visitors. Canyon now is open Sundays 9 a. m. to 6 p. m. Private parties who want to hike or ride in canyon on weekdays may obtain permits at office of William Veith, Palm Springs Indian agent, on Indian avenue. Strict rules are enforced to prevent fires. Positively no smoking is allowed.

Harry Bergman of Aguanga was elected president Imperial highway association, succeeding Willard H. Smith, Orange county supervisor.

work was cancelled. Materials will be furnished by bureau of reclamation. Ex-

New Bids on Coachella Canal . . .

INDIO-Low bid of \$1,660,681.90 for

constructing 21-mile link All-American

canal was submitted by J. F. Shea company, Los Angeles. The eleven bids were better than those submitted for same section (starting nine miles south of Mecca and ending near new power plant east of Indio) in October, 1941, at which time tension, it is estimated, will be capable of irrigating 11,000 acres of undeveloped land besides supplementing present cultivated areas.

Frank R. Givens, district ranger from Yosemite, is now acting custodian Joshua Tree national monument, replacing Duane Jacobs, called to the navy.

NEVADA

New Records for Boulder Dam . . .

BOULDER CITY—Boulder dam again has broken three records for power production, according to E. A. Moritz, director region three of bureau of reclamation. January production of 582,351,000 kilowatt hours exceeded by 8,144,000 previous monthly peak set in December, 1943. Record high for a single day was 21,531,-000 kilowatt hours, January 28, 1944. New peak load record of 1,049,000 kilowatts was made December 30, 1943. Present rated capacity of plant is 952,300 kilowatts.

The Desert Trading Post

Classified advertising in this section costs five cents a word, \$1.00 minimum per issue— Actually about $1\frac{1}{2}$ cents per thousand readers.

MISCELLANEOUS

Wanted to Buy—Genuine pre-historic Indian obsidian arrowheads and spears. Lynn Crandall, Box 697, Idaho Falls, Idaho.

FOR SALE-12 beautiful perfect prehistoric Indian arrowheads, \$1; 10 tiny perfect translu-cent chalcedony bird arrowheads, \$1; 10 perfect arrowheads from 10 different states, \$1; perfect stone tomahawk, \$1; 4 perfect spearheads, \$1; 5 stone net sinkers, \$1; 10 perfect stemmed fish scalers, \$1; 7 stone line sinkers, \$1; 4 perfect agate bird arrows, \$1; 5 perfect flint drills, \$1; 7 perfect flint awls, \$1; 10 beautiful round head stunning arrowheads, \$1; 4 fine perfect saw edged arrowheads, \$1; 4 fine perfect flying bird arrowheads, \$1; 4 fine perfect drill-pointed arrowheads, \$1; 4 fine perfect queer shaped arrowheads, \$1 4 rare perfect double notched above a barbed stem base arrowheads, \$1; 5 perfect double notched above a stemmed base arrowheads, \$1; 12 small perfect knife blades of flint, \$1; rare shaped ceremonial flint, \$1; 3 flint chisels, \$1; 7 quartz crystals from graves, \$1; 10 arrowheads of ten different materials including petrified wood, \$1. All of the above 23 offers for \$20. Locations given on all. 100 good grade assorted arrowheads, \$3.00 prepaid. 100 all perfect translucent chalcedony arrowheads in pinkish, red, creamy white, etc., at \$10.00. 100 very fine mixed arrowheads all perfect showy colors and including many rare shapes and types such as drill pointed, double notched, saw edged, queer shapes, etc., location and name of types given, \$25.00 prepaid. List of thousands of other items free. Caddo Trading Post, Glenwood, Arkansas.

WRITERS: Send for Free Circular D-44 with Unified Sales Plan for placing your work. Otis Adelbert Kline, Literary Agent, Established 1923, 507 Fifth Ave., New York 17.

MUSEUM SUPPLIES WANTED: Anything suitable for museums. Rocks, Minerals, Fossils, Guns, Horns, Beadwork, Meteors. Catalogue 25c. Museum Supplies, 6601 Oshkosh, Chicago 31, Ill.

DO YOU PRIZE PERSONAL OPINIONS more than NATURE'S SUCCESS? Would you conform to Nature's IDEAS if you knew them? ADDRESS — BASIC RESEARCH LABORATORIES SYSTEM, 785 Lafayette Street, Denver 3, Colorado:

LIVESTOCK

KARAKULS producers of Persian Lamb fur are easy to raise and adapted to the desert which is their native home. For further information write Addis Kelley, 4637 E. 52 Place, Maywood, California.

"Karakul Fur Sheep—America's Great Live-stock Opportunity—You can be a part of this fascinating business and have your Karakuls cared for in California, by experienced ranchers. Write for details, James Yoakam, National Distributor, 1128 No. Hill Ave., Pasadena, California."

REAL ESTATE

For Imperial Valley Farms -W. E. HANCOCK "The Farm Land Man" Since 1914 - California EL CENTRO -----

Basin States to Meet in July . . .

RENO—Representatives of seven Colorado river basin states will meet here July 20 to consider further developments on the river, following action at closing session of Salt Lake City meeting. Congressional appropriation of \$675,000 from Boulder dam power fund was requested for continued investigation of reclamation developments in the area.

University Branch Petitioned . . .

BOULDER CITY—First steps for establishment of a branch of state university have been taken here by American Association of University Women who have petitioned state board of regents to take proposal under advisement. Petition called for acquiring buildings and facilities of army post now known as Camp Williston upon relinquishment of this camp.

Wants to Kill Wild Burros . . .

LAS VEGAS-Application for permit to kill "wild unclaimed burros consuming forage on federal range" in Gold Butte area has been made by D. D. Marron to Clark county board of commissioners. Marron who has grazing permit reports burros are excessive and detrimental to stock watering facilities as well as to forage.

Good News for Fishermen . . .

CARSON CITY - Nevada fish and game commission has revealed plans to plant 500,000 more trout in state streams than were planted in 1943. Mrs. Esther Herman, secretary of the commission, has received orders already for 2,800,000 trout of three species.

NEW MEXICO

Want Indian Citizenship Proof . . .

ALBUQUERQUE - Police blushed when they learned they were holding an Isleta Pueblo Indian woman for investigation as an "alien." Official report stated, "In questioning her it was learned she had no citizenship papers."

Spanish Professor to Aid Disney . . .

LAS VEGAS-Dr. Antonio Rebolledo, Spanish department head at New Mexico Highlands university, has accepted invitation to serve as special consultant to Walt Disney in production of educational films for Latin America. Films are sponsored by office of co-ordinator of Inter-American affairs, Washington, D. C., to aid in teaching of literacy in Latin America. Special attention will be given Spanish-American phonetics.

ANSWERS TO QUIZ

Questions on page 28

- 1-Prof. Wm. P. Blake, geologist of Parke surveying party authorized by congress in 1853 to explore rail route from Mississippi river to Pacific ocean.
- 2—An American. The Navajo rendering of the Mexican version.
- -James Addison Reavis who by fantastic hoax ruled great Peralta land grant covering much of Arizona.
- -Archeologists. Refers to chronology built up as result of tree ring studies used especially to determine dates of Indian ruins in Southwest.
- -These men are outstanding archeologists of the Southwest.
- -Agave deserti.
- -Varieties and subvarieties number more than 200.
- Summer of 1857.
- 9-You'd probably be thirsty so you would drink from these natural rock basins often filled with coarse gravel and sand.
- -Most generally between 85 and 120 inches annually.
- -Thomas L. Smith was known as "Pegleg."
 -Twenty-five days, schedule established by Butterfield Overland mail that year.
- 13—All belong to the pea family.14—Clear reddish translucent form of quartz.
- -Introduced about 1540 by Coronado and the Conquistadores.
- -Apricot.
- –Walter Noble Burns.
- –George Parker.
- 19-Spanish-American religious sect.
- 20-Barstow.

Navajo Rejects to be Schooled . . .

FORT WINGATE—A special course has been started at the vocational school here for Navajo Indians who either have been rejected for induction or discharged because of educational deficiencies. Navajo tribal council last July had asked that the army either educate the Navajo when inducted or put them under Navajo-speaking officers.

Move to Give Indians Full Rights . . .

GALLUP-House Indian affairs committee in February was considering steps for making the Indian a full-fledged citizen. Chairman O'Connor (D., Mont.) said objectives should be a formula for disposing of claims against the government, elimination of duplication between Indian bureau and other government agencies, and evolution of means for freeing Indian from guardianship.

Camilo Has Lost His Sheep . .

LAS CRUCES—Camilo Jaramillo has lost his sheep. Not only did he lose 250 sheep but his sheepherder partner as well. He told Sheriff Santos Ramirez the flock was brought from San Antonio to graze along the edge of the Rio Grande valley near here. He went to town for medicine and now cannot find the sheep or his partner. He said, "Too many roads down here."

Paul A. W. Walter, Santa Fe banker, has been re-elected president Historical Society of New Mexico, office he has held since 1926.

New Mexico Wool growers at 41st annual convention re-elected Floyd W. Lee of San Mateo to presidency for 15th time and voted to meet again in Albuquerque in 1945.

UTAH

Soldiers See Snow, Not Sand . . .

CAMP KEARNS—Soldiers here, peering out from their barracks through icicles at the snow-blanketed country, are be-wildered. "It says here" they are stationed in a desert area because average annual temperature is 75 degrees and humidity is low. But that's little consolation to the camp hospital patients gazing at frost-coated windows and watching engineers install air conditioning systems, which are to be ready April 1.

Utah Background for Films . . .

SALT LAKE CITY—At least six major Hollywood studios have scheduled 14 films to be made in Utah in 1944, according to Utah publicity head, Frank E. O'Brien. Each picture will average \$1,000,000, 12 will be filmed in technicolor. Following success of "My Friend Flicka," filmed in Utah in 1942, its sequel, "Son of Flicka," is one of the first to be made here this year.

Postwar Plans for Tourists . .

SALT LAKE CITY—Rocky Mountain hotel association directors, meeting here in February, named among postwar plans the construction of new airport buildings and other structures to dramatize western ideas and utilize western materials to create greater tourist interest. "Most easterners," said President Lester W. Carter, Billings, Montana, "look upon the west as a summer playground. We must help them now to understand that our states have real attractions the year around. Our winter sports areas and big game hunting are hard to beat, just to mention a few attractions." Annual convention was set for late September in Estes Park, Colorado.

Sevier Fishing Postponed . . .

DELTA—Fishing along Sevier river and its tributaries from U. B. dam to Sevier lake sinks is prohibited until June 1, by order of state fish and game commission. Action was taken to protect new plantings of fish to be placed in river this spring. Catfish and German brown trout head list of proposed plantings. This order will postpone regular bass season opening from May 15 to June 1.

Penicillin for Livestock . . .

SALT LAKE CITY—Lieut. Col. F. E. Queen, Bushnell hospital, Brigham City, told Intermountain Livestock sanitary association at recent meet that the drug penicillin "has become so effective in a great number of types of human diseases, there is no reason why penicillin can't be used for animal diseases." He mentioned particularly streptococcus and staphyloccus infection and gas gangrene organisms, which are common among both humans and animals. At the meeting, Dr. F. H. Melvin, US bureau of animal industry, Salt Lake City, was elected president.

A WESTERN THRILL

"Courage," a remarkable oil painting 20x60 feet, the Covered Wagon Train crossing the desert in '68. Over a year in painting. On display (free) at Knott's Berry Place where the Boysenberry was introduced to the world and famous for fried chicken dinners with luscious Boysenberry pie.

You'll want (1) A 4-color picture of this huge painting suitable for framing. (2) A 36-page handsomely illustrated souvenir, pictures and original drawings, of Ghost Town Village and story of this roadside stand which grew to a \$600,000 annual business. (3) Two years subscription (12 numbers) to our illustrated bi-monthly magazine of the West. True tales of the days of gold, achievements of westerners today and courageous thoughts for days to come. Mention this paper and enclose one dollar for all three and get authentic western facts. Postpaid. GHOSTTOWNNEWS, BUENA PARK, CALIF.

Mines and Mining..

Henderson, Nevada . . .

One hundred million pounds of magnesium, enough for 50 million incendiary fires in Berlin or Tokyo, had been produced at Basic magnesium plant here by February 10 it is reported. This amount is said to be more magnesium than total output of US for 27 years preceding March 1, 1942, and more magnesium than world production total for 1940.

San Francisco, California . . .

War production board, according to Associated Press release, urges mineral men in California, Idaho, Nevada and Arizona to be on lookout for major deposits of high quality mica needed especially for radio and electronic equipment. Record price of \$5 a pound plus \$1 bonus is being offered for the material, the report said.

Salt Lake City, Utah . .

John M. Boutwell, Salt Lake consulting geologist, was installed as president Society of Economic Geologists in New York City February 23. At the meeting, Walter C. Mendenhall, director US geological survey, was awarded the RAF Penrose Jr. medal for meritorious research service.

Trona, California . . .

All-time high combined daily production of 1261 tons of potash salts, borax, soda ash, sodium sulphate bromine and lithium was made by American potash and chemical corporation during January. Scheduled for completion March 15 was \$125,000 addition to war-vital lithium concentrate plant, according to W. H. Allen, chief engineer. Also underway is construction of \$100,000 addition to technical boric acid plant.

Indio, California . . .

It was reported in February by Indio News that Iron Chief mine, northwest of Desert Center, had become the property of Henry J. Kaiser interests to supply ore for Kaiser steel plant at Fontana. Surveys of the "million-dollar property" which is said to include nearly 3000 acres, were completed last year by Southern Pacific. Development at that time was planned by Harlan H. Bradt of Pasadena, then owner of the property, but transportation problems were thought to be insurmountable.

Reno, Nevada . . .

Since Pearl Harbor 3644 prospectors have taken advantage of free assay service offered at University of Nevada's analytical mining laboratory in any 30-day period. Of the 8500 samples tested, 80 per cent of which were strategic metal ores, about 35 per cent had possible value and 16 per cent were "very good grade material." Most common were tungsten, mercury, manganese, copper, lead, zinc, antimony, fluorine, vanadium, iron and magnesium.

Los Angeles, California . . .

Howard Kegley, mining editor Los Angeles Times, has been elected to sixth term as president Mining Association of the Southwest. Other officers include H. W. Howe, vice-president; John Herman, second vice-president; B. M. Snyder, third vice-president, and Victor Hayek, secretary-treasurer.

Coaldale, Nevada . .

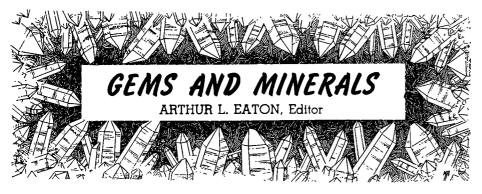
Further exploration of bituminous coal beds on Darms property near here is continuing by US bureau of mines, it is reportedly indicated by Glenn L. Allen, Nevada district engineer for the bureau. Nevada coal project has been under investigation for a number of months by engineers of mines bureau and US geological survey. Drilling will be done by R. S. McClintock, Spokane, Washington.

Achievement . . .

- On October 15, 1943, purchase of the electrical properties of the California Electric Power Company in Imperial Valley and the area in Coachella Valley destined to be served by the All-American Canal was completed, and Imperial Valley Irrigation District became the sole distributing agency for electrical energy in these areas.
- Thus was achieved a goal toward which the people of Imperial and Coachella Valleys have united their efforts for a quarter of a century. Full development of the power resources on the great All-American Canal now seems assured and both water and power will be put to the common usage of developing these two fertile reclaimed desert valleys.

SHARING THE BENEFITS OF WATER AND THE PROFITS OF POWER, IMPERIAL AND COACHELLA VALLEYS ARE IN TRUTH GOOD NEIGHBORS LINKED BY BONDS OF MUTUAL INTERESTS AND NECESSITIES.





SOUTHWEST MINERAL SHOW WILL FEATURE COPPER

Seventh annual mineral and lapidary show will be staged by Southwest Mineralogists April 1 and 2, at Harvard Playground, 6120 South Denker avenue, Los Angeles. Hours on Saturday will be 1 p. m. to 10 p. m.; on Sunday from 1 p. m. to 8 p. m. Copper will be the featured mineral.

UTAH MINERAL GROUP OUTLINES YEAR'S WORK

Mineralogical Society of Utah elected the following 1944 officers: Dr. Junius Hayes, president; Marie Crane, first vice-president; W. T. Rodgers, second vice-president; Forace Green, secretary; Lillian Lockerbie, treasurer; S. P. Roach, historian.

Tentative program includes publication of four bulletins, a March birthday party and a fall party, an overnight field trip to a nearby point of interest in the summer, and the starting of a society library.

CODE FOR ROCKHOUNDS AT MINERAL DISPLAYS

Long Beach mineral news suggests the following rules of etiquette concerning displayed material:

- 1. Never pick up a piece of material unless it is handed to you by the owner.
- 2. Always handle carefully, as many specimens are valuable and cannot be replaced.
- 3. If you cannot see the specimen well, ask the owner to show it to you.

EAST AND WEST PECTOLITE SPECIMENS CONTRASTED

Specimens of pectolite from eastern sources, especially from New Jersey and other Atlantic coast localities, are quite different from those of the Pacific coast. Some from Patterson, New Jersey, show pectolite fans well developed and quite perfect needle crystals as white as snow. These crystals are loosely cemented together by nature, come apart easily, and are a real hazard to the fingers, as they penetrate the skin and annoy like cactus spines.

Pieces of pectolite taken from a large deposit near Jacumba, California, have well-developed, snow white fans and crystals, but are hard and compact, and the crystals can be separated from the mass only with difficulty. One of these specimens shows clearly six or seven inches in length instead of the usual one inch. A few specimens found in Imperial county, California, are still a third type. Their color is creamy yellow, the crystals are very coarse, and so compactly fastened together that many pieces have been cut and polished into fine cabochons as a substitute for jade. One ingenious cutter has dubbed it "chicken bone jade." Another western variety, the most compact of all, was taken from the valley of the Willamette river, in central Oregon. This type often has been found as small pieces in the river bed, each piece a complete fan, the crystals closely cemented together.

NEW MEMBERS WELCOMED BY ARIZONA MINERAL CLUB

Mineralogical Society of Arizona continues to add new members to its roster. Most recent additions are R. E. Walklin, Mrs. Colleen Bale, W. E. Brooks; Carl A. Walters, Wickenburg; Earl F. Ray, Glendale; Floyd R. Getsinger, Wm. Clay Parker and Harry Rehder of Phoenix; R. W. Thompson, Payson, and C. H. Robinson Sr. president Mineralogical Society of District of Columbia, Washington, D. C.

New junior members are: Rex Lattimore, Thomas Gwinn, Gordon Waterworth, John H. Hanny, all of Phoenix, and Jackie Walters, Wickenburg.

PICTORIAL STORY OF QUARTZ FEATURES ARIZONA EXHIBIT

Mineralogical Society of Arizona continued study of chemical characteristics at February meetings, speaker, Scott L. Norviel. Seven new members have joined since January 1, bringing the total to 139.

The society's aluminum exhibit in the chamber of commerce window has been replaced by a pictorial story of the processing of pizo-electric quartz for use in radio broadcasting. Halftone illustrations, provided by August E. Miller of the Miller Laboratories, North Bergen. N. J., depict the major steps. Beginning with the first examination of mixed mine product for the detection of flaws and inclusions, the second step, by special equipment determines the crystallographic and optical properties. This is followed by slicing, grinding and polishing. The finished product is a thin wafer about the size of a postage stamp, of variable thickness depending on its particular use, measured in units of 1/25,000ths of an inch.

Quartz crystals of various sizes, including two excellent phantoms form the center of the exhibit. These are supplemented by semi-precious varieties of quartz cut cabochon and faceted and include a crystal bead necklace. Semi-precious varieties also are shown in the rough.

INTELLIGENT PROSPECTING REQUIRES FIELD TESTS

Prospectors would save themselves many difficulties and disappointments if they would equip themselves with a more exact knowledge, not merely of the two or three ores for which they usually search, but also of the many valuable ores and minerals which sometimes come to light.

One prospector came rushing in with samples of his latest discovery, greenish yellow "carnotite," a large vein of it. Simple tests soon punctured his balloon and spoiled his joy. His discovery was poor grade sulphur, which burned easily, and sent off strong sulphur fumes which settled the argument at once. This simple test could be performed anywhere over a common campfire. Every prospector should be able to perform as many simple field tests as possible.

COLORFUL MINERALS

GARNETS

Among the most colorful and interesting of all minerals is the garnet, or rather the great family of garnets. If one should ask the casual amateur to describe a garnet, he would describe a lustrous dark red stone. This best known garnet is the pyrope, deep red to black in color, a stone which still is sold by unscrupulous dealers as "cape ruby," "Arizona ruby," or "ruby garnet." Cut en cabochon, this stone was once sold as "carbuncle." The discovery of countless numbers of pyropes in Arizona and other states has robbed pyrope of most of its value but not of its interest.

But the dark red stone is not the only interesting garnet. Beautiful and valuable is the demantoid or green gem garnet. Rich emerald green in color, when cut facet and well polished, it rivals the finest emeralds in color, luster and beauty.

Essonite, hessonite, or cinnamon stone facet cuts into a fine cinnamon yellow to brown stone. Grossularite may be pale green, yellow, pale pink, orange or brown. Wilnite garnets vary from greenish yellow to greenish white. Topazolite is the color of fine topaz. Citrine, a variety of essonite, is lemon yellow. Almandine ranges through cherry red, blood red, violet and claret colors. Lime aluminum garnets are white, pale green, amber, honey, wine, yellow. brown and rose pink. There is wide variation in the names of the different varieties of garnets, but there is even greater variation in colors and types and crystal forms.

For Collectors -

This month we are featuring some fine selections for collectors, some material which you should all be interested in.

1—COURTLAND CALCITE — This material is from Cortland, Arizona, and consists of nicely formed reddish calcite crystals, most with phantoms, making a nice contrast with dark matrix. One of these colorful specimens should be in every collection—75c, \$1.00, \$3.00, \$5.00. We also have some beautiful museum specimens of this material. Write for prices and description.

2—PYROPHYLLITE—We have just received a nice shipment of fine Pyrophyllite groups, ranging in color from light green to purple, yellow, and grey. This is some of the nicest Pyrophyllite ever to come from the deposits at Indian Gulch, in Mariposa county, California. They are priced at—

2-inch—50c to 75c; 2x3—\$1.00 to \$2.00; 3x4—\$2.50 to \$3.50

These prices do not include postage.

We Buy Minerals of All Kinds

The West Coast Mineral Co.

Send for our Free Price List

BOX 331 LA HABRA, CALIF.

Near Taxco, Mexico, "the city which became a national park," there is a deep pit, which natives claim to be from a mile deep to bottom-less. This pit has been the scene of countless murders, illegal executions, and crimes of all sorts. Mexican government scientists recently established the fact that the pit was little more than 500 feet deep, and ended its history of crime with dynamite.

Due to restrictions of the office of war information, figures on the 1942 production of mercury in California are just released. The total output of 18 counties was 30,087 flasks (76 pounds each) valued at \$5,553,357. This is the largest annual value of quicksilver in the past 92 years in which records have been kept and the largest amount since 1896. California produces 59 per cent of the national yield.

GEM MART

ADVERTISING RATE 5c a Word — Minimum \$1.00

- INTRODUCTORY OFFER—One dollar each lot. Five all different Fluorescent Agates—polished. Thirty rough Mexican Opals. Fifty nice pieces Turquoise. Twenty different polishing specimens. Postage ten cents. Minerals and gems on approval. DR. RALPH MUELLER, Professional Building, Kansas City, Missouri.
- AGATES, Jaspers, Opalized and Agatized woods, Thunder eggs, polka dot and other specimens. Three pound assortment \$1.50 postpaid. Glass floats, price list on request. Jay Ransom, 3852 Arboleda Ave., Pasadena 8, Calif.
- 20 mixed fossils for a dollar bill. 100 ancient Indian arrowheads \$3.00. 10 tiny bird arrowheads \$1.00. List Free. Lear Howell, Glenwood, Ark.
- \$2.50 brings you prepaid six rare and beautiful crystallized Arizona minerals. Vanadinite, Dioptase, Wulfenite, Willemite, Chrysocolla, Azurite. Specimens 1½x2 or larger. Wiener Mineral Co., Box 509, Tucson, Arizona.
- 100 Jewelry Stones removed from rings, etc., \$2.00. 12 articles of Antique Jewelry, rings, pins, etc., \$3.00. B. Lowe, Box 311, St. Louis, 1, Missouri.
- Water Clear Quartz Crystals of the finest quality, single points from 5c to \$2.50 each. Clusters or groups from 25c to \$25.00 each. Beautiful Cabinet specimens at \$5.00, \$7.50 and \$10.00 each. Wholesale and retail. Satisfaction or money back guarantee. Delivery charges extra. Jim Davis, 303 Ward, Hot Springs, Arkansas.
- Choice Palm Root—Full of eyes showing root and trunk structure. Very colorful. Sliced for Cabochons. 25 cents per square inch. Satisfaction guaranteed. GASKILL, 400 North Muscatel, San Gabriel, Calif.
- Beautiful agate, flower jaspagate, picture jasper and dinosaur bone. Assorted lots of cutting material, gem quality, ten pound package \$10.00. Four pound package \$5.00. Send postage. Mrs. Richard Fischer, Box 555, Grand Junction, Colo.
- THE ROCKHOUND COLONY GROWS—Fourteen lots sold to date and more coming, also six acres of back land for orchard. Send in a good name for colony and postoffice. We're going to have a colony we'll all be proud of. Ideal location—mild winters—cool summers—virgin collecting country and finest scenery. Lots cheap—\$150 for 100x300 ft. on U. S. 160. We need cutters, dealers, collectors, hobbyists, silversmiths, etc. Also plenty in other lines of business, especially a good tourist court with at least 16 cottages, because those who have bought lots will want a place to live while they build. Many more are intending to come and buy and when the tourist trade starts this will be one of the best locations in the country. All interested write to The Colorado Gem Co., Bayfield, Colo.

- INDIAN RELICS, Curios, Coins, Minerals, Books. Old Buttons, Old Glass, Old West Photos, Weapons, Catalog 5c. Lemley Antique Store, Osborne, Kansas.
- ROCK COLLECTORS, ATTENTION! A COLORFUL COLLECTION 5 slabs Cuttables, \$1.00; Sky Blue Fluorite Xls., \$1.00; Azur-Malachite, \$1.00; Chalcanthite, \$1.00; Amethyst Phantom Xl., \$1.00; Iron Pyrite and Qtz. Xl. group, \$2.50. Realgar & Orpiment Xls. on Calcite, \$2.00; Purple Dumortierite Radiating Xls., \$1.00; White Aragonite Stalactites, \$1.00; Silky Asbestos, \$1.00; Vanadinite Xls., \$1.00. Free polished specimen. All the above postpaid \$8 00. December offer still good. The Rockologist. (Chuckawalla Slim), Paradise Trailer Court, 627 E. Garvey Blvd., Garvey, Calif.
- Worm bored Petrified Wood, \$1.00 per pound. Dinosaur Bone, 50c and \$1.00 per lb., plus postage. Bill Little Gem Cutting, Hesperus, Colorado.
- 1 x 1 specimens, silver, lead, copper, zinc. All different. 10 specimens for \$3.00. Jack the Rockhound, P. O. Box 86, Carbondale, Colo.
- 50 Genuine and Synthetic slightly damaged stones assorted \$7.50. Genuine Zircons Llue or white 3 for \$3.75. Twelve genuine Cameos or Opals \$2.50. B. Lowe, Box 311, St. Louis, 1, Missouri.
- Minerals, Fossils, Gems, Stamps, Coins, Pistols, Glass, Bills, Indian Relics, Bead Work. Catalogue 5c. Vernon D. Lemley Curio Store, Las Cruces, New Mexico.
- Montana Moss Agates in the rough for gem cutting \$1.00 per lb. plus postage. ELLIOTT'S GEM SHOP. Petrified Picture Wood and Moss Agate Jewelry Hand Made in Sterling Silver Mountings Rings, Bracelets, Necklaces, Brooches, Tie Slides, etc. Mail orders filled anywhere in U.S.A. 26 Jergins Arcade, Long Beach 2, Calif.
- Agate Jewelry and Oregon Agates: One dollar with ten cents for postage brings you four sawed moss agate slabs in excess of ½ inch by 3¼ inch for making cabochons or ring sets. These are quality. E. Lee Sigfrit, 211 Congress, Bend, Oregon.
- Swisher Rocks and Minerals, also Corals, Shells, Statues, etc. We also buy mineral species and woods. Must be good. Swishers, 5254 So. Broadway, Los Angeles 37, Calif.
- Gem Jasper from Indian Ridge, Ohio. Beautiful pastel colors. Makes lovely cabochons; 2 ounces rough for only 25c, or \$1.50 per lb., postpaid. Lake Superior Agates 10c each and up. Wyoming Jade, gem quality, slabs of all kinds. Send for list. James W. Riley, RR. 2, Springfield, Ohio.
- Tourmaline matrix, in quartz crystals, \$1.00 to \$30.00, tourmaline pencils, 50c to \$5.00, Essonite garnet-green-clusters, 50c to \$3.00, unique specimens. Sagenite agate, \$1.00 to \$4.00, specimen rough nodules. Gem list 10c. Return specimens if not satisfactory. The Desert Rats Nest, 2667 E. Colorado St., East Pasadena, Calif.

AMONG THE

ROCK HUNTERS

Mr. and Mrs. Ray Carce, president and secretary-treasurer of Mojave mineral society, are owners of a scheelite mine. The group recently enjoyed a field trip to the mine.

Clarence Cullimore, Bakersfield architect, discussed modern adobe construction for Kern county mineral society. He described the proper material and its preparation for use in building homes that will stand up in California climate.

Popular Hobbies, Box 710, Los Angeles 53. offers half price rates to send copies of the weekly paper to USO reading room, military hospital or army camp library.

Imperial Valley gem and mineral society received a box of good quality trade specimens from Queen's society, Jamaica, New York.

Many persons not otherwise interested in minerals would do well to learn something of the minerals found in their own neighborhood. If only to protect themselves from ridicule. A lady, name unknown, was looking at a group of crystals in a showcase. "What's that long square crystal?" she asked. When informed that it was kernite, chief source of borax, and that it had been one of the main sources of wealth of Kern county, California, since 1926, she exclaimed. "I don't believe it! I've lived in Kern county for a good many years and I never heard of it!"

Rocky mountain federation of mineral societies declines to be bombed out of existence by war conditions. There are now six active and cooperative units, with a prospect of four new members.

Grace and Frank Morse, Bayfield, Colorado. report that their rockhound colony is growing satisfactorily and that collectors all over the country seem to be adding to their specimens by trade and purchase in lieu of field trips.

February Rockhound record, publication of Mineralogical Society of Arizona, discusses beryllium, stating that its most outstanding characteristic is its lightness—specific gravity 1.84. Next in importance are the properties imparted to copper when alloyed with less than 3 per cent beryllium. Copper so treated has a tensile strength of 70,000 pounds per square inch in the annealed or soft state. When cold rolled and heat treated it increases to 190,000 pounds. Copper-beryllium alloy can be flexed 15 billion times, the best phosphor bronze only 400,000.

The Rockpile, monthly leaflet of East Bay mineral society, has a department compiled by L. S. Chapman called What is your mineralogical IQ? Three questions are propounded each month and the previous months' answered.

New Jersey mineralogical society held a special combined meeting with Plainfield engineers club February 1. L. Wiegel of RCA laboratories, Princeton, New Jersey, spoke on properties and uses of synthetic luminescent minerals.

Walter W. Bradley, California state mineralogist, announces that bulletin 123 dealing with American mining law now is available for \$5.00 per copy (13c tax in California) at the Ferry building, San Francisco 11, at State building, Los Angeles 12, and State office building No. 1, Sacramento 14. The bulletin, written by A. H. Ricketts, has been revised and a much detailed cross-referenced index prepared.

The festive and lucrative annual '49er party netted Searles Lake gem and mineral society \$940 which was turned over to the Trona committee for Victory to be divided among service and charity organizations. Each of the five Scout troops of Trona received \$50.00.

Fifth in a series of mineral maps of California dealing with manganese is now available for 60c at state division of mines, Ferry building, San Francisco 11, California. The other four maps are (1) quicksilver, (2) oil and gas (3) chromite, (4) tungsten.

Jesse Hardman displayed east coast minerals for Long Beach mineralogical society at the January session. Members enjoyed seeing rocks from east of the Rockies.

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Wayne Durston talked on days in Bumpas Hell at February 11 meeting of Long Beach mineralogical society. Mr. Durston is a former naturalist ranger of Lassen national park and knows many facts about present day volcanic activity. Members displayed their favorite specimens of rough and polished petrified wood.

Henri Withington, recently returned from a two months' sojourn in Mexico, spoke on the Paricutín volcano at February 16 meeting of Searles Lake gem and mineral society.

Dr. George D. Louderback lectured on the geological history of San Francisco bay at February 3rd meeting of East Bay mineral society. Dr. Louderback has made a study of the bay region since 1913. R. O. Diedrick talked on minerals of California, Febuary 17. He presented a comprehensive list and display of new minerals found in California and information on what minerals can be found in the East Bay region.

Friends of Mrs. Mary J. Curry, member of Modesto mineral club, will be saddened to learn of her death January 21, 1944. Sympathy is extended to her husband, T. K. Curry of Modesto, and to her son, Pvt. Charles R. Curry, Camp Polk. La.

John Fox sr. lectures on geology at Trona unified school every second Tuesday.

Searles Lake field trip committee members appointed for the year are Harvey Eastman, William Hunter, Ralph Merrill, John Pillott and Ceacel Wittorff. First trip planned is to onyx and gem deposits in Shepard canyon in north Argus range.

W. Scott Lewis, 2500 N. Beachwood drive, Hollywood 28, California, reports that he has obtained a limited supply of witherite (barium carbonate) from El Portal near Yosemite. Witherite is used in making plate glass and optical glass, as an enamel for iron and steel and as a pigment in the manufacture of barium salts.

Orange Belt mineralogical society met for a covered dish dinner February 3 at the home of Mr. and Mrs. I. V. Graham in San Bernardino. Program subject was precious metals. J. C. Filer talked on silver, R. H. Eells, president of the group, read a bulletin on platinum and Verne L. McMinn spoke on legendary lost gold mines.

Kenneth B. Garner, secretary of California federation of mineralogical societies attended February meeting of Orange Belt mineralogical society. He gave a brief talk on his experiences in the service and his visits to Michigap mineralogical society.

Roy Wagner gave specimens for a grab bag to increase Long Beach society's finances. Ralph Houck donated mineral hammers to be sold. Milo Potter constructed an oxcart to be loaded with donated specimens and raffled.

Los Angeles mineralogical society invited Long Beach group to attend their meetings third Thursdays at Boos Brothers cafeteria, 530 So. Hill, 6:30 p. m.

James H. Hance spoke on the effect of cold weather on mineralogy and geology of interior Alaska at February 1st meeting of Mineralogical Society of Utah. Mr. Hance is former dean of the school of mines, University of Alaska, Fairbanks.

At regular meeting of Grand Junction mineralogical society February 7, R. M. Porter showed colored slides of scenic spots and mineral locations on western slope of Colorado Rockies and interior views of natural history museum of Denver. Dr. R. P. Fischer of U. S. geological survey talked on uranium and vanadium mining at February 21 meeting.

Alexei P. Maradudin, member of American metals society, talked on metals in the petroleum industry at February 17 meeting of Los Angeles mineralogical society.

Pacific mineralogist for January discusses luster, defined as the appearance of the surface of a mineral in reflected light.

Officers of Pacific Mineral society, Los Angeles, for 1944 are: William C. Oke, president; C. C. Brunk, first vice-president; M. C. Nichols, second vice-president; Ruth Nichols, secretary-treasurer; Harold E. Eales, field trip chairman; R. H. Milligan and R. J. H. Mitwer, board of directors.

Mineral Science club of Little Rock, Arkansas, was formed January 25. Lewis B. Pringle is president of the new organization.

THE ROCK HOUND TAKES A WAR JOB

By Chas. G. Schweitzer Los Angeles, California

My canteen is empty and covered with dust, My sturdy rock hammer shows traces of rust; With cobwebs, my knapsack hangs limp on the wall.

My battered old flivver awaits a vain call. I've taken a job to help with the war. The desert will see me on week ends no more. There's a job to be done. And the sooner's its done. The sooner I go to the desert.

I now use a hammer that goes rat-a-tat,
Instead of sombrero, I wear a tin hat;
I feel just as tired when day's work is done
As when I dug nodules all day in the sun.
But at night I can dream of the desert so free,
Of the nights where the millions of stars
beckon me.

I hear the bright crackle of brush on the fire, And swish of the wind like the notes of a lyre. But what is that odor that breaks thru my

dreams?
Aroma of coffee and bacon it seems.
And then a sweet voice calling, "Time to get up.
There's eggs on the platter and coffee in cup."
So thus there begins another work day,
For now it's all work and no time to play.
'Cause the job must be done,
And the sooner it's done,
The sooner I go to the desert.

Cogitations

Of a Rockhound

By LOUISE EATON

Sum rockhouns is jus nacherlly luckey n' it's not to be wundered at that they gets envied. Th' fortunate wunz now is those that has bizness that takes um to th' desert r'mountains where therz Rox. Bee men fer instans has to travel in the desert to tend their colonies. If yu number sutch amongst your frends maybe sum week end yu can help um rob beez-n insidentally look f'r speciments.

There will be more butiful desert flourz this season than f'r many springs past, but they'll just hafto waste their fragrants on th desert air till gas 'n tires becum plentifuller.

Is there any place besidz th desert where yu can have a rainbow without havin rain? That has happened here several timz recently. Uv course sum place musta had moisture, but at least three sunshiny days have been climaxed by rainbow iridescence on cloud banks in eastern skies.

OPAL SHOWS GRADUAL CHANGE OF COLOR

Persons who are superstitious about opals would seem to find some foundation for their fears in one stone which has been in the possession of the writer for 20 or more years. This stone, when found originally and polished, was a perfectly colorless, water-clear hyalite opal with a small amount of matrix, of the type common in Queretaro, Mexico.

As the years have passed, this stone, which weighs about 30 carats, slowly changed color, first to milky white, then to pale orange, and now is beginning to show faint but rather beautiful play of color. Instead of superstition, these stones should arouse deep scientific interest.

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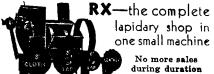
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AMATEUR GEM CUTTER

is for those who have, or aspire to have, their own gem cutting

This page of Desert Magazine

and polishing equipment. Lelande Quick, who conducts this department, is former president of the Los Angeles Lapidary society. He will be glad to answer questions in connection with your lapidary work. Queries should be addressed to Desert Magazine, El Centro, California.

By LELANDE QUICK

The mail brings me many interesting and encouraging letters and some times a legitimate "beef," which is as it should be, but not for a long time have I received such an interesting and encouraging letter as came recently from Mrs. Bacheller of Willcox, Arizona. All her life she has been collecting rocks and her boy, now in the navy, has collected too. Now she wants to cut and polish but she has no elecrticity. She says, "I have a gasoline motor on my washing machine and there's always plenty of wind."
Mr. Bacheller is a mechanic and could work out something for her if some reader could furnish an idea. I suggested getting an old-time sewing machine and beginning from there, using foot power like the Chinese who produce the most intricate lapidary items in the world without electricity.

Surely this problem will stimulate the thinking and ingenuity of some readers and someone will solve it. Somewhere there must be shops with no electric motors. If ideas are offered me I will include them in future columns and perhaps this will open up a new world to many who must be situated like Mrs. Bacheller.

She comes from New Jersey and being from there myself I was greatly interested in her toles of finding "diamonds" on the beach at Cape May. She says they are pink and are sold as jewelry at Cape May but I never heard of them and I have never seen one in a collection. In fact I have never heard of any gem material being found on Atlantic beaches with the exception of Florida coral and I would like to hear of any eastern beach materials.

W. Ford Lehman of San Diego asks if stannic oxide (reagent quality) is all right for gem polishing. It costs about half as much as the chemically pure (CP) grade when you can get it and it is just as efficient for gem polishing purposes. All tin oxide is increasingly difficult to get and many substitutes have been tried as polishing agents but I have yet to hear of one that's "just as good." Has any reader found anything? Lehman also asks if aluminum laps are any good. I doubt it, but has anyone had experience with such a lap?

Another letter, from Fred Salfisberg of Cheyenne, Wyoming, asks if there is a mask available for the prevention of silicosis. I have never seen any offered for sale and while I have talked with friends who were aware of contracting that disease through gem grinding, and intended to do something about it, they have not done so because no masks seemed to be available. Certainly anyone with a predisposition to lung disease or with a history of it in the family should be cautious about inhaling dust from gem grinding. Will some physician reader offer something about the danger of silicosis and some dealer advice about the masks?

There are several questions I would like answered by readers in the foregoing para-That is the purpose of this column to unselfishly exchange information of help to all gem cutters. Will you generously answer my call of "help!"

Commercial gem materials still are being produced in the United States. One Nevada mine yielded 13,000 pounds of turquoise in 1942 valued at \$32,000—but try to buy any at \$2.50 a pound or even at double that figure! In fact, try to buy ANY. \$47,000 worth of sapphires

were mined in Montana. However, the mining of gem materials in these times, particularly for jewelry purposes, has declined almost to the vanishing point.

Things seem to be easing on the supply front. Diamond saw blades are easily procurable and saws are beginning to appear again. Carborundum wheels in lapidary grades are available and it appears that all supplies with the exception of tin oxide may be had by spring. If you have postponed building a shop or enlarging one because of the supply shortage you can get busy again and query your favorite dealer as to your needs.

And speaking of the dealer, has the thought occurred to you that they have all survived? Last month's issue of "Rocks and Minerals" carried more dealer advertising than any issue before the war. Despite lack of new materials and lapidary machinery, requirements of the armed services for the personnel of dealer firms, etc., they all have managed to weather through so far. The amateur lapidary needs the dealer always. He should be supported now.

LAPIDARY HELPS AND HINTS . . .

Very favorable results are being reported on the use of Aerosol O.T. for use in diamond saws instead of the kerosene-lubricating oil solutions generally used. This was first outlined by J. G. Ennes in January, 1944, "Mineralogist." Buy Aerosol from laboratory supply houses or pay more at photographic supply stores. An ounce will last a long time, will make 56 gallons of solution. For stock solution mix 1 ounce Aerosol O.T. with 8½ ounces of cold water and 1/2 ounce of wood alcohol. It dissolves slowly. For general use add 20 drops of stock solution to each quart of water. There will be no rust and you will eliminate the mess of using oil. But remember, water evaporates, so replenish the saw frequently. And remember again, if you continue to use oil, cut it 50 per cent with kerosene to avoid very oily specimens.

To tell natural glass (obsidian) from artificial glass, test with a blow torch.

Manufactured glass will shatter and flow the instant it gets red. Obsidian will not shatter and has a delayed flow.

Obsidian nearly always contains bubbles, oblong in shape because of flow. Glass seldom contains bubbles, and when they do they are

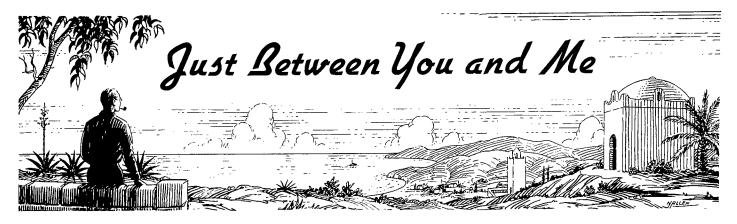
Obsidian often contains flow lines, glass seldom does as that would make it poor grade.

Obsidian has no odor when polishing dry, glass usually smells because of chemical con-

Obsidian always is glass but glass is not obsi-

DID YOU KNOW . . .

- For a long time jet was believed to be black amber. It is a hard form of coal originally mined near the Gages river in Lycia. Frag-ments were called "gagets" which was shortened to iet.
- The largest piece of amber on record weighed 18 pounds.
- · No two pieces of amber are ever alike.



By RANDALL HENDERSON

ITH THE ALLIED FORCES IN NORTH AFRICA—In the army, one is never quite sure what tomorrow will bring. But if plans go according to schedule, before this issue of Desert Magazine goes to press I will be on duty at a little Air Corps station out in the middle of the Sahara. Which means that I am one of those lucky soldiers who finally got the assignment he wanted more than all others.

It worked out this way: In September, 1942, when I learned that as a reserve officer I was to be called back to active duty, I put in a request for desert service in Africa. However, it takes time for action in such matters and my first assignment was to Hobbs Field, New Mexico, for work in air operations. When I arrived at Hobbs, the camp newspaper was floundering, and they named me Public Relations officer with the re-organization of the Hobbs Bomb-Blast as my first duty.

Six weeks later I was ordered to Washington to be briefed for overseas duty. Again I asked for a desert assignment, and was sent to Africa so the way would be open for the granting of this request. However, when I reached headquarters in central Africa, they were in need of a Special Services officer to handle problems of morale. And that became my assignment.

Six months later the opportunity came for a transfer, and since it was a move in the direction of the desert, I was glad to accept it. But all I got to see of the Sahara was from 9,000 feet as we flew over it, with one 30-minute stop along the way. My new assignment turned out to be in the liaison office of a head-quarters on the shore of the Mediterranean, in one of Africa's largest cities. And that is where I have been the past six months.

These assignments all have been interesting, and I would not have changed them if I could, but will confess there was an extra feeling of elation yesterday when the teletype brought orders for me to report to a detachment camped near a little oasis in the heart of the vast expanse of sand and sun and solitude that covers most of north Africa. It is a refueling station on one of the main transport routes for planes that have crossed the south Atlantic and are headed for the front.

And so, if all goes well, the next copy for Desert will be written on the Sahara, by a California desert rat who after 17 months in the army has received just the assignment he wanted. From the standpoint of the Desert Magazine family, I am not sure that my copy will be any more readable—but I assure you it will be much easier to write in that atmosphere. I have lived on the desert too many years to feel at ease in the city.

A letter just arrived from Rand who is on the other side of the world with the marines. Shortly after his December contribution was sent to Desert Magazine, his outfit embarked for Tarawa where he was in one of the toughest battles of the war. He writes: "Physically I am whole and healthy, but my philosophy is rather shattered. I can't put it together again, but I am at work building up a newer and more rugged one."

No one but a parent, with a son overseas, will know how grate-

ful I was for that letter. I am not worrying about the philosophy. One day this war will be over, and if he and I are privileged to sit by a campfire again in some remote arroyo or canyon, as we have done many evenings in the past, that problem will solve itself. One of the tragedies of war is the devastating effect on man's sense of values. The Great Spirit of the desert has a tonic for that kind of affliction.

When the war is over and we all return to our peacetime jobs, Reg Manning of Phoenix and Hal Empie of Duncan are going to have to move over and make room for another famous Arizona cartoonist.

Among the home-coming soldiers will be Sergeant Bill Mauldin—and if you ask any American who reads the North African edition of Stars and Stripes, he will tell you that next to Ernie Pyle's Roving Reporter column, Mauldin's cartoons of life on the front are the most popular feature in the American soldiers' daily newspaper.

Sgt. Bill is a true son of the desert Southwest. He was born in Mountain Park, New Mexico, was graduated from Phoenix high school, and his wife and baby son are living there now. Mauldin spends part of his time in the foxholes at the front, and his cartoons carry the same grim reality that Ernie Pyle puts into words. His leading character is dirty and unshaven and in deadly earnest. He looks, as Pyle expresses it, "exactly like a doughfoot who has been in the lines for two months. And that isn't very pretty."

Like all other men in the service, Mauldin wants to get this war job finished and go home. And if he has his way, his home always will be in the Southwest.

Books are not plentiful over here, but one of my friends recently loaned me a copy of *They Also Ran*, Irving Stone's story of the 19 men in history who were defeated for the presidency. Discussing the abilities of President Grant and President Harding, whom the author considers two of the most reactionary and incompetent executives ever to be elected to the high office, he points out that both of them were elected "in the lethargy following major wars."

Stone then poses the question: "Will this same lethargy fol low World War II?"

Many of the men in the service are asking the same question. The reports that come to us regarding domestic affairs in USA are not reassuring. The long controversy in congress over the question of votes for the soldiers has been disgusting. The Democratic party appears to be hopelessly divided, the Republicans more interested in success at the polls than in constructive plans for the post-war period. From this distance it is not a bright prospect. Fortunately, the men in uniform overseas are more interested just now in winning the war than in politics at home.

VALERIE JEAN'S Year-Round Gift from the Desert

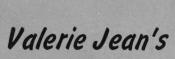
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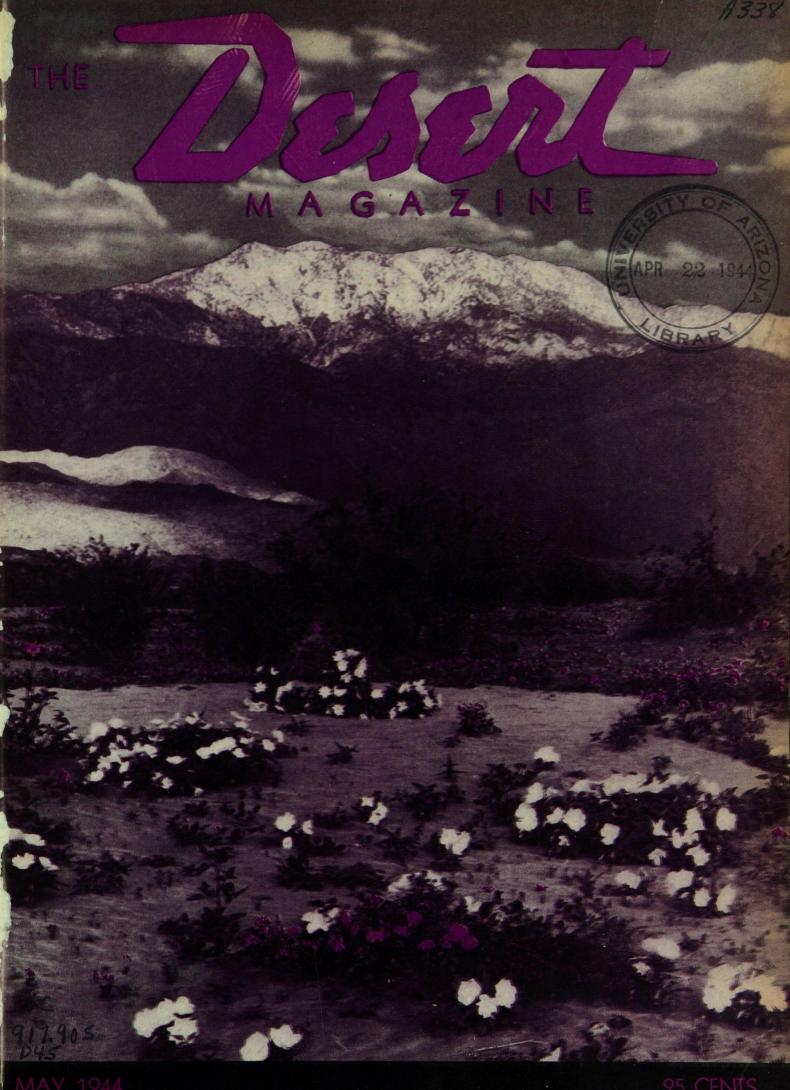
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DATES TO REMEMBER . . . EASTER . . . MOTHER'S DAY . . . BIRTHDAYS





Gloria, my assistant, and a prettier Minute Maid you never saw, is helping me lube a car when in walks young Mike Collins, all decked out in his Marine uniform and the saddest face you ever saw.

"Well," I say cheerfully, "how goes the old furlough?"

"Oh, I dunno," says Mike, "things are sort of different around here. The old town



isn't the same. Folks aren't pleasant even if you buy cigarettes from them."

"Take it easy," I soothe him, "we still run the same friendly Minute Man Station on this corner, don't we?"

"Well, I dunno," he mumbles, looking at Gloria, who looks pretty, even working on a car.



"Oh," I laugh, "we do have some new help. But you still get good treatment here."

"That's just you," says Mike.

"No, indeed," I reply, "it's a Minute Man policy. We still figure that customers are as important now as they were before the war."



I move over to help Gloria pull a front wheel bearing. "Right here," I continue, "is a good example."

'Who's that?" asks Mike.

"Not who," I correct him, "it—this wheel bearing here."

I hold the bearing up. "You see, Mike," Ĭ tell him, "every month we figure some special way to help folks with their cars. This month it's cleaning and repacking front wheel bearings."

I hand the bearing to Gloria, who walks off toward the bearing cleaner.

"Mighty interesting," admits Mike, watching Gloria.



"Yes," I agree, inspecting the wheel, "all winter long, people drive their cars through rain and stuff. It isn't long before this dirt begins to collect in the bearings and before you know it-bango-you got to buy a new set of bearings.

"So now that the winter

rains are all over," I continue, "we figure we're doing a real public service by warning folks..."



It seems mighty quiet all of a sudden. I look around. Well, sir, believe it or not, but Mike has slipped away and is over talking to Gloria. Imagine!

Well, I feel pretty silly for a moment. Then I notice how the trees on Elm Street are up full and green and there's a warm breeze.

Even a Minute Man can tell when May is here.

You'll find that courtesy, friendliness and essential motoring services are not rationed at Union Oil Minute Man Stations. We're busy, yes, busy as anyone else, but we're . . .

> Never too busy to be helpful



Close-Ups

- Rock Hunter Norman Clay, who tells about his fellow collectors this month, is a clerk in the army, stationed at Camp Callan. He always has wanted to be an author. He started that career by majoring in English at University of Nevada and is continuing by taking a correspondence course in special article writing. He describes his home town, where he was born January 18, 1909, as "that glamorous, much maligned city of Reno."
- Will Minor, who tells in this issue about his discovery of the fantastic little canyon he calls Goblin Gulch, says herding sheep is one of the few ways he can make a living which enables him to prowl around mountains and desert studying and collecting butterflies, minerals, fossils and Indian arrowheads. Photography, especially color photography, is both hobby and part-time business. He says, "I have worn cameras for so many years that I do not feel fully dressed without one on." As a spare-time occupation he has written nature and outdoor articles at intervals since 1920. Except for a year in the army, Will has been herding sheep on the Beard ranches for the past eight years.
- This month's cover photo, showing Mount San Jacinto, was taken at long range from Cathedral City, seven miles from Palm Springs, clustered at the foot of the 10,805-foot peak. In pre-ration days this view of the snow-capped mountain and the flowers below were a challenge to the motorist to speed out along the highway, armed with his camera and color film. Now that he is confined to round-the-block travel, turning back to this page in the flower album will bring with it not only a feeling of nostalgia but a deeper sense of appreciation for the beauty of desert blossoms. White evening primroses, bright sand verbenas, a few wild forget-me-nots and incense bushes grow in the foreground.
- It's California month for the poets this time—perhaps because so many are familiar with the beautiful Whipple Yucca, shown on the poetry page, which is blooming in California's chapparal and desert. Poets also have "taken over" letters section. But as spring passes perhaps the feuding will quiet down, allow nontimesters to express their opinions and share desert experiences and information with other members of the Desert fraternity.

CREED OF THE DESERT

By June Le Mert Paxton Yucca Valley, California

Into the heart of the vastness, In the midst of the sand and the glare, There's an indefinable Presence Watching over the wanderer there.



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Address correspondence to Desert Magazine, 636 State St., El Centro, California.

Trailing the Ghosts and Gnomes of Goblin Gulch

When Will Minor started to hunt for a small band of strayed Angora goats he little dreamed he soon would have cause to forget them. As he entered a tiny canyon he suddenly came face to face with the weirdest collection of natural forms he ever had seen. The soft white sandstone of the canyon walls was covered with faces and figures—some animal, some human, some resembling modernistic sculpture and others like nightmarish creatures which only a writer of horror fiction could conceive. Will takes Desert Magazine readers into this strange little canyon which he has named Goblin Gulch. And anyone would need a guide, too, for it is located in an isolated section of mountainous west central Colorado near the Utah state line, far from roads or even horse trails.

By WILL C. MINOR Photographs by the author

F YOU had come face to face with that forbidding, almost human stone face there in the shadows at the bottom of the narrow little canyon—you wouldn't have believed it, either.

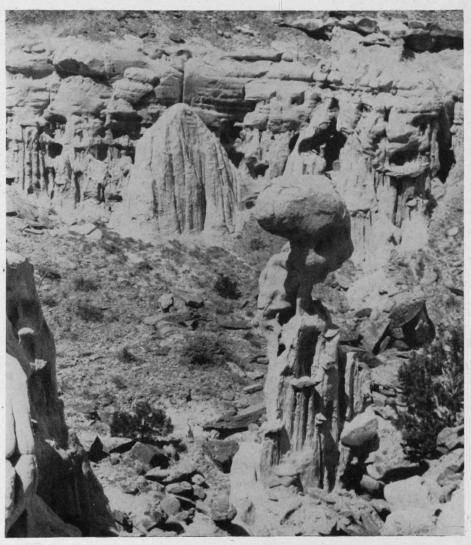
Since photographing natural stone faces has been a favorite hobby of mine for several years, I am always looking for them and usually am not surprised to find a new one. But suddenly to be confronted by a whole collection of stone faces huddled together in a little gulch no longer than a single block of a city street is a rare find.

I was working in the canyon country south of the Colorado river in the western end of Mesa county, Colorado, just a few miles from the Colorado-Utah state line. I was hunting for a small band of Angora goats that had strayed from the herd. I had found their tracks and was following them up the bottom of a narrow little gulch when on rounding a sharp bend in the gulch I suddenly came face to face with one of the most realistic stone faces that I ever had seen.

Most stone faces are weathered from cliffs and canyon walls and are really a part of the wall, but this one, which I named Professor Bonehead, stood alone on a little pedestal some 20 feet high in the center of the gulch completely apart from the surrounding cliffs. He stood staring straight at me with a forbidding frown on his stony face as if silently inquiring why I had disturbed his age-long privacy.

After a startled moment or so I reached for my camera, which I wore on my belt Western gunman style, and shot the professor where he stood. He refused to look pleasant for his portrait, however. A thorough examination of the gulch (the stray goats could wait) proved that the professor was not alone in his hidden retreat. Indeed, he had a whole assembly of stone ghosts and goblins. The walls of the gulch on either side literally were covered with faces and figures—some animal, some human, some bearing a striking resemblance to the work of modernistic sculptors and others looking like nothing on earth unless it be some of the nightmarish creatures conceived in the mind of a writer of horror fiction. So weird and unreal was the little canyon that the name Goblin gulch almost instantly came to mind.

Were such a place as Goblin gulch located near some large city it doubtless



General view of a portion of Goblin Gulch, looking west from the east rim. would be known far and wide and attract visitors from long distances. But here in a little known, unimportant canyon in the vast western mountain desert region it remains almost unknown, even to people living but a few miles away. It is only about ten miles from Goblin gulch to Fruita, Colorado, and some 25 miles to Grand Junction, but few of the people who live there even have heard of the place, and still fewer have seen it. There are no roads in this part of the country, not even any horse trails. Just real estate, lots of real estate—most of it standing on end. A few cowpunchers, sheep herders and coyote trappers whose work takes them into the locality are about the only ones who know it well. John Beard's Devil's Canyon ranch about six miles away is as close as a car can be driven. That leaves a round trip hike of some 12 rough and rugged miles. That is too much for the average tourist, even if he could find the way.

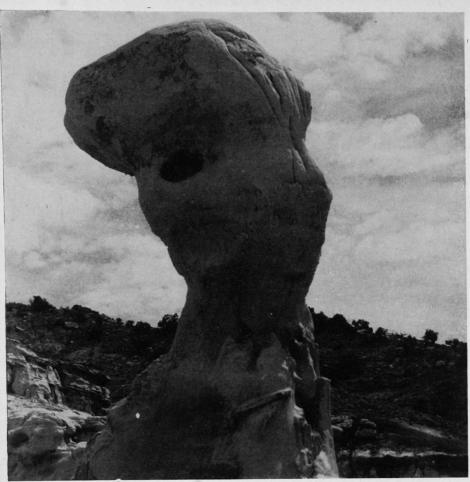


Hunchback of Goblin Gulch. Freshly fallen snow coating the strange shapes adds to the weirdness of the scene.

Soon after discovering Goblin gulch I wanted to take my brother to see the rock formations. We started from Fruita and hiked south in order to cross the Colorado river over the Fruita bridge. Then we proceeded west along the river to the mouth of Pollock canyon, up through the canyon, out over Ute bench to the west end of Black ridge then across country north and east from there. That was a hike of around 15 miles to start the day with and we still had not reached Goblin gulch.

Shortly after noon we reached the canyon. Everything was just as I had remembered it. The narrow, shallow little gulch winding down from Black ridge, the scraggy twisted piñons and Utah junipers, the colorful shales along the bottom and sides, the bare red clay hill to the left and, yes, the low grey-white sandstone cliffs

Two of the most remarkable of the fantastic stone faces.



Professor Bonehead refused to look pleasant for his portrait.

which for a short distance form the sides of the gulch.

"This is it," I remarked. "The faces are in that white sandstone, and Professor Bonehead himself is just around that next bend."

With cameras at the ready and expectations high we advanced around the bend all set to photograph the professor and his ghostly associates. Then I stopped in surprise. The spot where the professor should be standing was empty! In bewilderment I glanced about at the walls. They looked just as I recalled them—except that they were perfectly blank. Not a single face could we find.

"This beats me," I said, "I could have sworn that this was the place. Maybe we should go farther up or down the gulch."

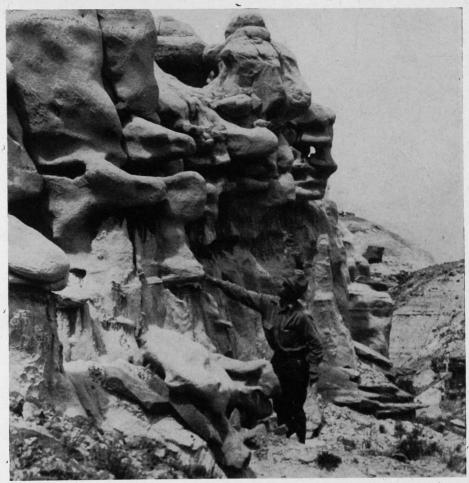
So we hiked a mile or so up to the head of the gulch at the foot of Black ridge and then back down to where it dropped off into the breaks at the head of West Pollock canyon. We saw much of interest

Gnomes' noses and Wall of Gargoyles in Goblin Gulch.

along the way, but stone faces were conspicuous only by their absence.

The time was early May. The spring rains had been unusually generous and as a result many of the hills, gullies and canyons, dry and bare most of the summer, were aflame with wild flowers. This canyon region, ranging in elevation from 4000 to 7000 feet, is a sort of botanical borderland where flowers of plain and desert meet and mingle with other species from the high Rockies. Scarlet paintbrush and scarlet gilia competed for space with bluebonnets and mountain bluebells. Both yellow and white evening primroses bloomed in small open spots. In little sagebrush parks every foot of space between the sage was carpeted with a pink and lavender blanket of fairy mist. Great patches of purple lupine covered some of the open slopes so thickly that it was impossible to walk through it without crushing some of it underfoot.

Four kinds of cactus were in bloom and here and there a clump of yucca was in full flower. The flower stalk of some of these was fully four feet high and loaded with large, waxy, cream colored blossoms. In the shadow of a ledge a lone service berry bush stood covered with its miniature white flowers. In addition to these we counted more than a dozen species of tiny flowers in white, yellow, pink and pur-



ple—varieties that neither of us was botanist enough to identify.

Spring butterflies were holding high carnival among the flowers. Most plentiful of them was the pretty little white, black and green mossy wing that science has saddled with the jaw breaking name of *Enchloe ausonides coloradensis*. There also were numerous other little butterflies with big names. Among them we counted three species of the whites, two orange-tips and two forms of the checker-spots. A little brown and green thelca flitted busily about the junipers. Gorgeous mourning cloaks dashed about, while overhead several lordly yellow and black papilios floated lazily up and down the gulch.

Hummingbirds dashed noisily about. Occasionally a green-coated one would zip past our ears as if he suddenly had remembered that he had important, immediate business elsewhere. A pair of huge black ravens flapped past, pausing long enough to utter a few pessimistic croaks as they spied us plodding along the bottom of the gulch.

At one place we came upon what appeared to be a convention of all the piñon jays in Mesa county. There were hundreds of them gathered together in a little clump of piñons and junipers, all talking away as busily as candidates at a political rally and all shouting for dry crackers at the top of their voices. At least, that is what it sounded like they were saying, though occasionally one would elaborate his demands to dry, dry, dry cracker crumbs!

The jays were perched so thickly on one piñon that at a little distance the tree looked as if it were covered with some sort of odd blue fruit. I wanted a picture of this

blue clad piñon, but while still some distance away the wary jays sighted us and ceased their chattering. Then with a roar of wings the entire flock took to the air. For a few seconds the air was filled with bright blue wings beating against a still more brilliant blue sky.

A tiny spring trickled out from a crack in the sandstone at the base of a cliff. The water, crystal clear and invitingly cool in the shadow of the rocks, looked tempting. The day was warm and we were thirsty but there were telltale white stains on the rock along the edge of the water.

"I am going to sample it even if it does have alkali in it," Clyde said.

"Better go easy," I advised. "Some of the water in this man's land is strong enough to run up hill."

He bent over a tiny pool, sipped a mouthful of the water and slowly swallowed part of it. One swallow was enough. With a pained expression on his face he spat out the remainder of the mouthful.

"Alka Seltzer!" he gasped.

That described it very well and if you ever have tasted the much advertised remedy of that name you readily will understand why we did not drink our fill from that spring.

Scattered along much of the length of the gulch were fragments of petrified dinosaur bone. The pieces ranged in size from tiny fragments up to specimens weighing several pounds. The largest piece we found would weigh around 30 pounds and consisted of an attractive bluegrey agate. As far as I know it still is there, for we did not feel like packing it out on our backs, much as we would have liked to add it to our collection.

On a ridge between two small gulches we found a spot where Indians had made arrowheads. These old Indian workshops, or chipping grounds, are fairly common throughout all this region. But quantities of flakes and a few broken points are about all one finds at these places. Seldom indeed can you find a specimen worth keeping. However, we were unusually fortunate in finding two perfect arrowheads, one of them a beautiful little point of orange-red carnelian, doubtless from the Cisco agate beds some 40 miles farther west. The other, and larger, point was of glossy chocolate jasper, a gem stone native to this locality but far from plentiful.

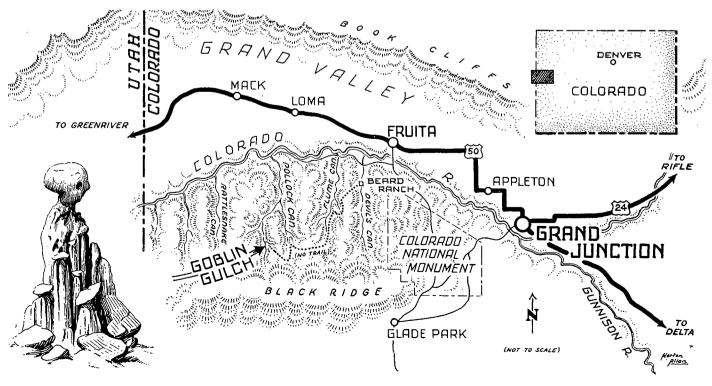
By this time the fiery sun was doing a balancing act on the tip of one of the lilac colored mountains on the western skyline and we reluctantly decided to abandon our search for stone faces.

"I always knew," my brother remarked, "that ghosts and goblins were supposed to be able to appear and disappear at will. But I didn't know they could do it if they were made of stone. Are you sure that you didn't drink something stronger than alkali water the day you thought you saw those faces?" he demanded, eyeing me suspiciously.

"If I did," I answered, "my camera had some of the same. And it is a sober, hard working instrument not given to exaggeration and seeing things that ain't. But if I didn't have those pictures I would begin to doubt the whole thing, myself."

Wearily we climbed out of the gulch and headed across country in the general direction of home.

As we climbed down into another of the numerous little gulches that criss-cross this



region in all directions two big mule deer does, one of them with a long-legged spotted fawn in tow, bounced gracefully across a little open flat ahead of us. The sun had now set but it still was light enough for us to discover a nice deposit of good quality crystallized aragonite on the exact spot where we had seen the deer. Many of the pieces were an ideal size for collecting, three to four inches long and an inch or so in diameter. Some of the best specimens looked like someone had taken a handful of coarse wooden toothpicks and crushed them so tightly together that they had become one compact mass. We loaded our pockets with a few select specimens. But

thoughts of the long hike that remained ahead of us discouraged any inclinations that we might have had to take more specimens than we needed.

Less than a quarter of a mile from where we found the aragonite we crossed another ridge and stopped for a few moments not entirely certain that we hadn't been walking in circles. For there ahead of us lay a gulch that certainly looked like the one we had left a short while before. The same patches of piñons and junipers, the red clay hill to the left, and there was the short stretch of white sandstone cliffs along the sides of the gulch. And — yes, you are right—there were the faces in the sand-

time. The only trouble was that I hadn't known there were two almost identical stone just where they had been all the little canyons in the vicinity and we had spent most of our time searching the wrong twin.

The light now was growing too dim to be of much use for photographic purposes. But I located one viewpoint where, by lying on my back, I could get one of the stone faces to stand out above the skyline and shot it outlined against the light of the still bright evening sky.

"Gosh, what a place to stage a spooky Halloween party!" Clyde said. "Now that we have the pesky place located we can come back sometime and explore it thoroughly by daylight. But just in case you have forgotten," he reminded me, "we still are ten little miles from home. And," he added as if in afterthought, "they are uncivilized miles too—all ups and downs and rocky, to boot."

As we started to plod our way over those "uncivilized" miles in the fast falling darkness a coyote wailed his twilight song from the rim of Goblin gulch. Fitting music indeed for such a scene.

The low walls of Goblin gulch, from which the faces and figures are eroded, are an exceptionally soft coarse-grained white sandstone which weathers rapidly. Even a single year's time makes a noticeable difference in some of the faces. Last winter Professor Bonehead lost his head. Literally. His huge massive head, weighing perhaps a thousand pounds, was balanced on a thin, scrawny neck. The winter wind and frost at last proved too much for his fragile neck. It crumbled away and down tumbled the professor, to lie in a shattered heap at the bottom of the gulch.

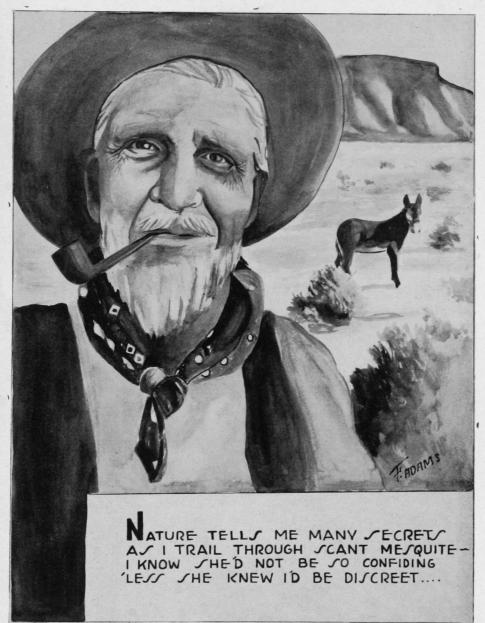
Other fine faces remain but most of them are carved from the walls and not standing alone as did the professor. But Mother Nature, never satisfied with her handiwork, keeps her four busiest helpers—sun, rain, frost and wind—on the job remodeling the stone figures. Already the pedestal on which the professor stood is beginning to take new shape. A long, thin, sharp-pointed nose is upthrust and the suggestion of an eye is visible. Perhaps in a comparatively few years there will be another remarkable stone face to take the professor's place.

From a geological standpoint this soft white sandstone seems to have no business being where it is. It is completely surrounded by the colorful clays and shales of the Morrison formation — the Jurassic age dinosaur beds. In several of the dozens of small gulches that run down from Black ridge to the Colorado river this same odd white sandstone is exposed, but in no other place is it eroded into the fantastic faces and forms of Goblin gulch.

Desert Philosopher . . .

SOLILOQUIES OF A PROSPECTOR
Drawing by Frank Adams

• Text by Dick Adams



You might say Thunder and Lightning are responsible for itthat is, the curiosity of travelers in the Mojave desert when they come upon the stilt-like ruins of a road bed east of Trona where an "elevated" has no right to be. But when Thunder and Lightning, Prospector Joe's two burros, discovered the healing qualities of the white dust near their campsite they inadvertently started the Epsom salts mining industry over beyond Wingate pass, with the consequent building of the elevated mono rail which served to haul the salts out of the desert mountains. Now only the skeleton of the road bed remains, to evoke questions from those who pass along that way. A number of these travelers came to Desert Magazine with their questions and Cora Keagle has dug into old files and journals to give them the answers.

Tale of the Mono Rail

By CORA L. KEAGLE

HE hot September sun hung low over the jagged peaks and canyons of the Slate range to the west. It cast a coppery pink glow over the dusty desert spaces of Panamint valley. Joe Ward, prospector, poet and singer of desert songs, was migrating from the north to spend the winter in Death Valley. The sparrows might wait for the frost to yellow the leaves before starting south but Thunder and Lightning, Joe's two frisky young burros, had no wings and Joe had to allow for their step-by-step progress. The lure of the desert and the search for its precious minerals led him over the vast spaces of California, Nevada and Arizona but the Mojave desert claimed most of his time.

His desert songs and salty rimes were favorite quotations among fellow prospectors and miners. He left bits of poetry or caustic comment along the trail for over 50 years. His letters were addressed in rimes that were sometimes embarrassing to



Like a great thousand legged worm the mono rail road crawls up through Layton canyon. View of construction work taken by unknown photographer. Photo loaned by V. V. LeRoy.

rimes as:

"Move on, my friend, This claim is mine, I drove this stake In 1909.

His filing notices in the recorder's office at San Bernardino bear these comments and many more:

'Witness: God or nobody, unless the other fellow was there in the volcano.

"Witness: Two fools and another one, myself, a crook. Also Jan Smuts of Joburg and other nutts and a few sick Conimunists, also from Joburg, S. A.

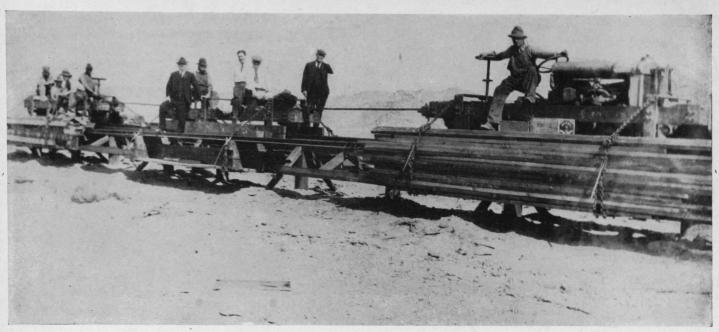
"Witness: None. It was too cold for them to be out. Coldest day I ever saw and wind enough to run all the real estate mills in Los Angeles."

Another of his filing notices described

the recipient. His claim stakes bore such the locator as: "Joseph Ward, Explorer. Partner to Columbus."

> As the trio plodded on and approached Wingate pass, Thunder and Lightning pricked up their dusty ears. They evidently remembered a favorite camping place near a little spring. They had been without water all day and it still was hot on the Mojave desert in September. Just over the pass Joe led the way south to the old campsite. The spring was a mere ooze at this season but Joe, experienced in camp lore, used a rusty tin can for a shovel and soon had a little reservoir into which the water trickled. The burros drank thirstily. Joe pulled the pack saddles off their backs and left them to their own devices while he gathered greasewood for his campfire and put the coffee on to boil.

As soon as the packs were off, Thunder



Cars and locomotive operating on the mono rail carrying timber for the extension of the elevated road bed. Thos. H. Wright, founder and president of American Magnesium company, is fifth from left, in black suit.

and Lightning ambled over to a whitish deposit on the hill slope and rolled in the chalky dust to soothe their sweaty backs. After rolling, grunting and kicking to their hearts' content they strugggled to their feet and wandered back to the campfire, looking in the twilight like two burro ghosts. They were white all over except where their dark eyes peered out from under fluffy white pompadours.

Joe remembered that on previous treks the burros had gone to the same spot to roll, so with a prospector's curiosity he walked over and took a sample of the white dust which he sent to an assayer in Los Angeles. It proved to be magnesium sulphate or, in plain words, Epsom salts. The burros hadn't heard of the healing properties of the spas at Epsom, England, but they knew the white dust healed—and

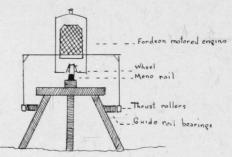


Diagram of Mono Rail and Engine

Remains of mono rail road bed east of Searles lake, showing type of earth surface over which it was constructed.



cooled their sore backs. Joe told other prospectors that the white patch was nothing but plain Epsom salts, then with his burros passed on down the steep eastern slope of the pass.

Years passed by. Other prospectors visited the "Epsom-salts mine" but nothing was done with it. There were no roads and no means of transportation. A United States government document, "Water Supply Paper No. 578," written on the Mojave desert region, contains this statement about Wingate pass: "When the writer was in the valley (Wingate Valley) October, 1917, and January, 1918, it was uninhabited except for a temporary camp of miners exploring deposits of Epsom salts on the south side."

Thomas H. Wright, a Los Angeles florist whose hobby was prospecting during his vacations, was exploring near Wingate pass, so the story goes, when he ran out of water for his mule. He turned the mule loose to find water and followed him to Hidden springs, southeast of the pass. On the return trip with the mule he noticed this white deposit and turned off the trail to take samples. When he had them assayed upon his return to Los An-

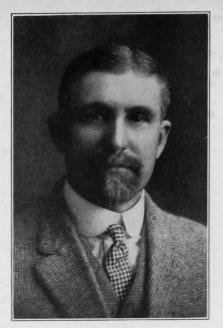
geles, they proved to be magnesium sulphate. He filed a claim on the deposit.

Wright took some business associates into his confidence. There were more trips to the desert. If the transportation problem could be managed it looked as if this great deposit could be manufactured profitably into bath salts. Conferences were held and plans laid. They formed the American Magnesium company. It included engineers, chemists, mineralogists, bankers and lawyers. Wright, the promoter, was chosen president. R. V. Leeson was a consulting engineer with A. Avakian as chemical engineer. Capt. Hollenbeck was given the construction contract. L. Des Granges was a construction engineer on the job.

Stock was sold and plans made for the development of the property. Some mode of transportation was the first necessity. A railroad would have to be built from the Trona railroad out through Layton canyon in the Slate range, east across Wingate valley, through Wingate pass in the Panamint mountains to the deposit south of the pass, a total distance of 29 miles.

After many meetings and discussions with their engineers, the corporation decided, because of the steep grades encountered in the Slate range, to experiment with a mono rail type of railroad. The president and some of the directors were much interested in the mono rail experiment. They visualized it as a means of interurban transportation around Los Angeles and as applicable to difficult hauling jobs.

Wright applied for a patent on the mono rail equipment which he and the engineer, R. V. Leeson, had designed. A



patent was issued June 23, 1923. The corporation decided to ask the American Trona corporation to build a spur from its railroad across the difficult Searles lake bed to connect with the mono rail on its eastern shore. The American Trona corporation, after consulting with their maintenance engineer, M. C. Cockshott, agreed to build a spur from Magnesium east across the lake bed.

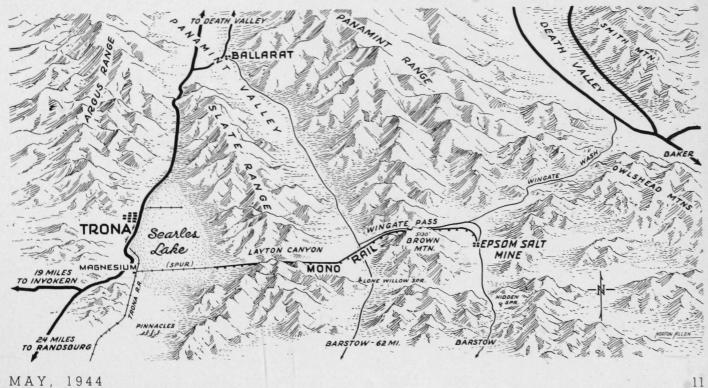
Construction must have begun as soon as the patent was issued, for Engineering News, September 27, 1923, has this item:

"A magnesium sulphate deposit, owned by the American Magnesium Company and located near the Death Valley Desert in southern California, is to be tapped by a mono rail railroad twenty-eight miles

V. V. LeRoy, secretary of American Magnesium company since 1931.



Piles of rock, about five miles west of westerly approach to Wingate pass, are remains of service station on old stage road that ran between Panamint City and San Bernardino in latter part of last century. At left is Dix Van Dyke of Daggett. Stooping, right, is Henry Britt of Daggett. Standing figure is Mrs. Caryl Krouser of Barstow. Photo taken in 1943 when the party visited remains of old mono rail.



long, extending over the Slate Range to the Panamint Range. Of this line about sixteen miles has been completed and is carrying construction trains which are delivering materials for continuing the road.

"Although detailed costs are not available, the type of construction selected, which was chosen because of the fact that it would require very little grading and would permit of sharp curves, is estimated to cost about \$7,000 per mile in rough, mountainous country and about \$5,000 in the desert with no rock work or sharp curves involved.

"The construction consists of standard 6" x 8" ties, 8 ft. long, placed on 8 ft. centers and braced on either side. The plumb posts carry a 6" x 8" stringer, which in turn supports the single 50 lb. steel rail. There are also two side rails of timber, carried by the braces, which act as guide rails, their vertical faces making contact with rollers on either side.

"The engine and cars are designed like pack saddles and are suspended on two wheels from the single rail, motorcycle fashion. Equilibrium is maintained by the rollers on either side which contact with the timber guide rails."

The first propelling power which was used during part of the construction period,



was a battery driven motor. This failed to deliver enough power and was replaced by a Fordson motored locomotive built on the same general plan. At first the power was transmitted by rigid rods but these were twisted on the sharp curves and were soon replaced by chain drives on both front and rear wheels. This Fordson engine was used during the latter part of the construction and for some time afterward but many locomotive difficulties were encountered.

The braking system was another headache on the steep grades. An engineer in a recent letter about the mono rail says, "I had one ride on the mono rail as far as Wingate pass and was rather relieved to get back with a safe skin, keeping a watchful eye on the braking arrangements all the time."

As the elevated road bed crept out across the desert from the east side of Searles lake bed, timbers cut to the proper lengths to conform to the contour of the land were carried on the cars and lashed to the side of the engine. There were 10 per cent grades and 40 per cent curves so only five tons of timber could be carried at a time. A cottage for the superintendent and a laboratory were built at the mine site and the corporation began operations.

In the spring of 1924 Joe Ward, followed by Thunder and Lightning, now sedate old burros. climbed the western slope of Death Valley. The old prospector had wandered over Arizona and Nevada then spent the winter in the valley. As he looked back on the valley it never had seemed more beautiful, with desert sunflowers carpeting great patches and the sand reflecting the blue of the sky. But there was a threat of summer heat in the air and it was time to migrate north.

As they followed the trail around the brow of the hill Joe paused in amazement. It was his first glimpse of the mono rail writhing through the pass like a monster thousand-legged worm. At the old campsite were buildings and a bustle of activity. Around the campfire that night Joe told how Thunder and Lightning first discovered the Epsom salts.

Early the next morning when Joe had ioaded the hurros and started on his way, one of the workers picked up an old envelope on the trail addressed:

"This letter goes to Harvey West, A miner with gravy on his vest, He's living now, to escape the law, At Little Rock, in Arkansaw."

The American Magnesium company had hoped to haul long strings of cars in order to work a refinery at full capacity. But the motors developed only enough power to pull three loaded cars. This difficulty led to a contract with A. W. Harrison, of Los Angeles, an automotive engineer, who planned a gas-electric train, consisting of an engine and a generator to

supply driving power for both the engine and the cars.

By the time the gas-electric train, a heavy affair, was completed the desert heat had splintered the timbers and loosened the bolts of the elevated road bed. The wheels on the wooden guide rails had worn them to shreds. The structure would not carry the weight of the newly-assembled train. And the old locomotive would not furnish enough power to haul paying loads.

Down at the Wilmington plant they found that the deposit was nearly 50 per cent sand, debris and other salts, not then desired. As the product was refined and made into bath salts the debris piled up around the plant. The city authorities stepped in and objected to the accumulation of waste inside the city limits.

There were legal troubles as well. The mineral claims in the Panamints had been extended to cover 1440 acres. These claims were a source of disputes, suits and counter suits. Slick promoters had obtained control of much of the stock. Although more than a million dollars had been invested, it became evident that the mine could not be operated at a profit. The promoters and directors who had heavily invested themselves, made every effort to salvage something for the stockholders. But there were too many factors against them. Operations were suspended early in 1928. The property was offered for bids April 28, 1928. There were no buyers. Mr. Wright turned his interests over to the company.

The mono rail line was abandoned and the timbers began to feed the campfires of prospectors. Junk men carried off the steel rails and part of the stretch through Layton canyon was carried away by a cloud-burst. The buildings at the mine became headquarters for the hunters of wild burtos who shot the burros, dried the carcasses and shipped them to fox farms all over the country. These burros were the descendants of animals turned loose when prospectors adopted automobiles as a quicker means of transportation.

A few of the directors have kept the taxes paid in the hope that the government might become interested in the magnesium sulphate and in some deposits of aluminum sulphate from which alum is made. V. V. LeRoy, of Los Angeles, who has been secretary since 1931 says the San Bernardino county records show that the taxes have been reduced from \$3000 annually to \$28 for the past few years.

In Layton canyon some of the upright timbers, which once supported the mono rail, still are standing. Bolts and nuts scattered along the route are gathered as souvenirs by trophy hunters. The roads have become almost impassable. If Joe Ward and Thunder and Lightning could come back to their old campsite now they could camp for weeks without being disturbed.

Despite all the distractions which come with the spring season, the South family have taken time out to do some basket making. This month, Marshal tells how they use desert tules in making the coiled-and-sewn bottle-necked baskets. Although he advocates desert fibers as the ideal material for these baskets, raffia is both satisfactory and pleasantly primitive in appearance.

Desert Refuge

By MARSHAL SOUTH

HE flower legions of Ghost Mountain stand firm against the sullen gods of storm. And the smiling-faced little warriors of the new order, who brandish no lances and launch no arrows, are winning out in every direction. Some have been laid low in the last vengeful charges of a reluctantly retreating winter. But for every one that has fallen, with bruised and trampled petals, ten thousand others have leaped up to take their places in the ranks. Down the washes and up the footslopes, along the ridges and across the shoulders of the hills march the glowing blossoms of triumph.

White and yellow and scarlet and blue; close-packed, confident, irresistible—once again the annual battle between death and bitterness and life and beauty has been fought out on Ghost Mountain. And once again—as it always will be—new life leaps up triumphant. Desert spring—spring anywhere—always is something to deeply stir the heart. Why then is it that man glooms himself with doubt? And persists in grubbing for his assurance of immortality only in musty books? It is written everywhere. Across the earth and across the stars.

Victoria has her new shoes. Thick, felted soles of cloth, after the Chinese pattern. A gay bit of heavy woven stuff, in designs of red, yellow and blue, for the uppers. There were no shoe stamps expended in supplying Victoria's shoes. I doubt that a whole bushel basketful of stamps would procure a pair like them. They would undoubtedly, though, produce severe lectures from that class of shoe "experts" who assure us that if the human foot is not confined suitably and "supported" it will spread and the arches will break down.

But Ghost Mountain fortunately is far from the haunts of "experts." And Victoria, as she parades up and down admiring her new footgear, knows nothing of their balderdash. Like the other dwellers at Yaquitepec—where even sandals are worn only occasionally, and life is lived almost entirely barefooted—she has high arches that are tough as steel springs. "See my new shoes," she keeps saying. "Doant you think they are very pretty?"

"You are getting werry wain," Rudyard sniffed reprovingly. "I am weally sorry that Daddy fabwicated them for you. Your chawacter is in danger of getting stucked-up by affluence. Those moccasins are only for going to town in, wemember."

"They're not mock-a-wins!" Victoria shrilled indignantly. "They're sooes!" She appealed to Rider.

"They're moccasins," Rider asserted with finality. "And what's wrong with moccasins? You're trying to give yourself airs. You're a little aristocrat."

Victoria burst into tears and fled into the house.

"Rider called me a little whiskit-krat!" she sobbed. "I'm



Shoemaking at Yaquitepec is a family affair. Here Tanya puts finishing touches on a pair of high, beaded moccasins for Rudyard.

not a whiskit-krat! I'm not. I'm not!" She flung herself into Tanya's arms, weeping wildly.

But later, the storm subsided, she sat in her chair munching a rye-flour tortilla thickly spread with desert honey. She put her head on one side and wiggled her toes. "Anyway I like my new mocca-sooes," she said, giggling as she regarded her gay little feet. "Doant you think I look awf'y pretty in them?"

Spring days are happy days on Ghost Mountain. Storms still charge against us at intervals. But notwithstanding these periodic set-backs, each day seems brighter than the one before it. Soft footed and singing to itself the warm desert wind wanders up the sunny washes and through the swaying junipers. The tiny yellow and white daisies nod to each other as they carpet the gravelly earth between the clumps of budding mescals. The scarlet banners of the low growing mimulus wave welcome to the droning bees.

"The snakes are out, children," warns Tanya. "You must be on the watch." It is a warning often repeated. For when one lives bare-bodied and barefooted in the midst of a wilderness, sharp eyes and caution are a necessity, especially in spring and summer. Rattlesnakes are as a rule peaceable. But they are temperamental. Vigilance and sharp eyes always should be in the make-up of hikers in snake territory. In this connection the civilized boot and shoe have their definite drawbacks as well as virtues. For while high boots or stout puttees afford protection against a striking snake, on the other hand they encourage a heedless, blundering progress. The eyes of the hiker are relieved of the necessity of constantly watching where his foot will be set down. And, as Nature always discards that which is not used, the attention of eye and mind thus dispensed with is lost. And the keenness of the senses is thereby dulled. The eyes and the attention of the Indian had, of necessity, to be everywhere at once. That is why oldtime Indians were masters of the wilderness, attuned to many of its mysteries. The eyes and thoughts of civilized man are too often anywhere but on the thing that he is doing.

We are good to our Ghost Mountain rattlesnakes—as far as lies within our power. We dislike to kill them; we feel that we have no right to. The earth is a realm of tooth and claw, of life preying upon life. But that does not alter the truth that only through mercy can man hope to climb. And it is also true that the wild creatures speedily recognize you as a friend or killer. They know too if you are an eater of meat. The old stories of Saint Francis of Assisi and the beautiful tales that Rudyard Kipling wove concerning the bonds between man and his furred and feathered relatives, are not myths.

And so, unless they are quartered close to the house (a rattle-snake does not range far from his home spot) we leave our rattlers strictly alone. We have come upon them dozing contentedly in the shadows of boulders or in the cool of mountain caves. And we have looked at them and they have looked at us. And we have parted in peace. There is something starkly grim about rattlesnakes. You cannot meet them and look into their eyes in a spirit of frivolity. They know their power. They know also how to mind their own business. A commendable virtue.

Our Ghost Mountain rattlesnakes give no warning rattles. Nor do they, until molested, show fight. They just lie quietly, as though expecting to be let alone. It is only when they are convinced that harm is coming to them that they whirr their danger signal and go into fighting pose. This isn't very helpful, of course, if they are blundered into. For a rattler can strike just as surely from an uncoiled pose as from a coiled one. But it indicates that they have been disturbed very little.

We have encountered rattlesnakes in other sections—sections more accessible and man-haunted than this—and almost without exception they showed fight on sight. Which would seem to demonstrate that a snake can lose confidence in the human race. This is true not only of the snakes. The actions of all persecuted animal life testify to the same fact. Hates and fears are born a long way back—far longer than the mere span of one lifetime. That is why past wrongs, either against animals or fellow humans, cannot be atoned for all at once.

The best known remedy for rattlesnake bite? Cut and suck! Enlarge each fang puncture with a small, fairly deep cut from a very sharp knife. Cut lengthwise of the limb so as not to run the risk of severing important tendons. Keep up the sucking process, with as few rests as possible, for several hours. Even the venom of the tropical Bushmaster is said to be conquerable by this procedure. Learn the proper course to take in case of snakebite first. Don't wait until after being struck.

Due to winter fuel gathering and the demands of several new projects which absorbed almost every instant of available time, there hasn't been leisure for much recreational handiwork at Yaquitepec of late. However, we recently finished a bottle-necked grass basket, made by the system of coiling and sewing that is so useful for many materials, including pine needles. There is a fascination about basket making. Once you have started one you can't leave it alone. You can make a basket out of almost anything. Grass, willow splints, corn husks, mesquite twigs, yucca leaves—the materials are legion. Perhaps the greatest charm of the work is that each different material has a temperament all its own, which requires the application of different kinks and methods that are discoverable only by patience and experiment.

You can, for instance, make beautiful baskets out of the green, round-stemmed swamp reeds, often called tules, which are so

abundant around desert soakages. They are satiny and pliant when growing, yet if you weave the basket from the tractable, easily coiled green reeds, you will find next day that the work which looked so handsome when you sewed the coils firmly into place, has shrunk amazingly. All your stitches are loose, and the whole affair is an impossible, wabbly wreck. And if you try drying it first, it will break in your hands like so many sticks of thin brittle glass.

Most basket materials have to be soaked in water. But there is a trick by which you can work the tules without wetting. And the scheme is to roll up carefully the freshly gathered reeds into neat symmetrical coils, of varying diameters that will approximate the dimensions of the different stages of your planned basket. Hang the coils away. And in a few days, when they are thoroughly dry, take them down and begin work on your basket, selecting a sufficient number of strands, to form the thickness of your basket coil, from the bundle that has the most nearly corresponding curvature. You will find that, dried in the coiled form, they will accommodate themselves to quite a range of size changes before snapping. And you can cinch the coils together, as you sew round and round and build up your basket, with a stitch of good tight tension which you can feel assured will not loosen. A desert fiber is the ideal material with which to sew a desert basket. But raffia, sold so much for basket making, will do equally well. And raffia does have a satisfactory primitive look.

Hummingbirds whirring like living jewels about the tall, gently swaying dry yellow stalks of last year's mescals. The warm wind freshening a little as it draws steadily up from the distance of haze-veiled mountains. And faintly upon the breath of it, as I sit here among the rocks and junipers finishing this, there comes the voice of Rudyard, proclaiming after the manner of the prophets of old: "Flee from the cities! Live in the desert! Eat nothing civilized! Eat juniper berries and other wild stuff! Flee from the cities!"

Stirred by this startling piece of oratory I climb upon a rock and stare. Away back, by the house, I can just see him. He stands upon a boulder, his red and blue seldom-used mantle draped across his shoulders, his right arm upraised in an attitude suggestive of Elijah denouncing some sinful king.

"Flee from the cities!" he declaims, shaking his fist dramatically. And, faintly, blended with his exhortation, comes the breathless shouting of Victoria, his constant understudy and fervid convert:

"Fee fwom thee cities! Live in thee desert! Eat juntiper bewwies an' ovver wild tuff! Fee from . . ."

Wind sings through the junipers and blots the shouting of the "prophets." And I come back to my seat chuckling. Fiercely fervent little sons and daughters of the desert are these hardy little sun-sprites of Yaquitepec. And perhaps there is wisdom in their childish oratory.

JOY OF LIVING

Rise then, and strive, with spoken word, Or hammer, axe or pen.
Thus only can you serve the Lord, And help your fellowmen.
You who are able, all, away!
Your special labor needs pursuing, And of life's great abundance take—
The joy of living is in DOING.

—Tanya South

George and "Sis" Bradt didn't believe those grisly stories about the desert shrike. He was but a small songster in gay feather suit of black, grey and white. As they watched him perched inoffensively on the fopmost branch of the thornbush thicket, he appeared the opposite of a murderer who impaled his victims on thoms and spikes. But after observation and examination of other characteristics, they learned how and why the shrike is the desert's "butcher."

Desert Butcher

By GEORGE McCLELLAN BRADT
Photos by the author

SONGBIRD a butcher? Impossible! A hawk or an owl, perhaps. But never a nine-inch songbird." This was my mental reaction to the fantastic tales I heard about the White-rumped shrike, the desert's notorious Butcher-bird.

But the stories were true. The shrike, even though related to the gentle song-birds, is a butcher. A butcher in whose presence birds and mice and insects see not a striking black and white songbird, but the specter of Sudden Death.

Our own introduction to the curious ways of the paradoxical shrike took the form of a grisly surprise. While investigating a dense thornbush thicket, Sis and I discovered a small lizard neatly impaled upon a sharp mesquite thorn. The creature had met its gruesome end in a manner as mysterious as the desert itself. Here was as baffling a case of murder as any reader of detective stories could wish.

We combed the area for clues which might give us a hint as to the identity of the murderer or the nature of the motive which prompted the deed. But not a clue did we uncover. We did find, however, that the killer had not been content with a single murder. Here and there throughout the thicket were other cadavers. All had been killed in the same manner. Each adorned a single thorn. The dozen or so victims included beetles, crickets, caterpillars, grasshoppers, small lizards, a dragonfly and part of a large moth.



Over his eyes he wears a bandit's mask. His beak is the murder weapon—capable of seizing, piercing and tearing the toughest flesh, feathers or skin.

At this point I suddenly remembered the tall tales I had heard about the desert's famed "Singing Butcher." The murderer was, of course, none other than Lanius ludovicianus excubitorides, the Whiterumped shrike!

Now that the name of the killer was known we had only to discover his whereabouts to complete the "case." We left the tangle of mesquite trees to sit in the thin shade of a nearby yucca.

Hardly had we removed the last sandburr when we noticed a small bird perched on the topmost branch of the thornbush thicket. It must have flown there while we were walking away. For a few moments we did not comprehend the significance of its sudden appearance. Then we realized that the innocent-looking little bird was a shrike—the murderer revisiting the scene of the crime!

Through our glasses we stared in amazement at the fascinating creature.

What a fine looking fellow he was, his gory nature notwithstanding. He did look the part of an innocuous songbird in his gay black, grey and white feather suit. But over his eyes he seemed to be wearing what looked like a bandit's mask.

What really gave him away, though, was his beak. What a beak! Here was the murder weapon. Once seen it was easy to understand how such a small bird could capture mice, lizards, insects and birds and impale them upon thorns and fence wire barbs. In proportion and design it was the ideal butcher's tool. Strong, hard, armed with a razor-like "tooth" or notch, it could seize, pierce and tear with ease the toughest flesh, feathers or skin.

In the midst of this long-range appraisal of the shrike's singular physiognomy, the diminutive murderer suddenly flew from his thorny perch to disappear among the shaggy yuccas.

We learned later that there was more to

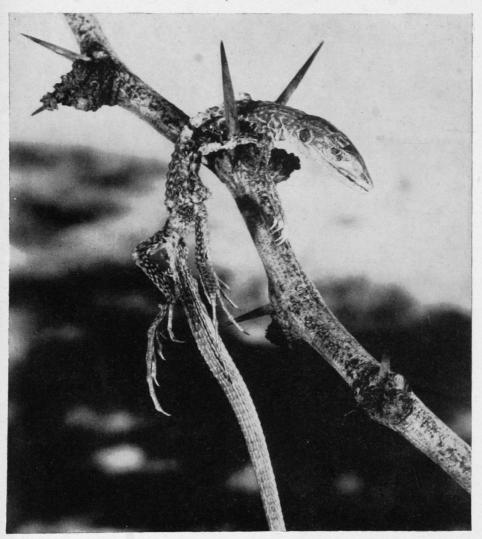
the case than we had imagined. The few facts we had learned from our own observations did not tell the whole story. In a rather technical description of shrikes in general we read that while all possess long, strong, hawk-like beaks, all possess the ordinary songbird type of feet. Feet which are extremely weak, good only for perching, and quite useless for holding fast to the feeblest quarry. This was a fact we had failed to note in the field, but one which our long and intimate acquaintance with birds of prey enabled us to appreciate fully.

The true raptors (hawks, owls, eagles) use their phenomenally strong feet to hold their prey while tearing it to pieces with sharp beaks. Were it not for these powerful extremities they would starve, their ferocity, daring, rapid flight and great strength notwithstanding. The useful, homely vultures are birds of prey, but because of their ineffectual feet are forced to feed on carrion. But how, we asked ourselves, have the shrikes, who certainly are not carrion-eaters, solved this serious food problem?

The key to the mystery lies in the word "thorn." In lieu of strong feet and talons the shrike uses thorns and fence wire barbs to secure its victims while tearing them apart with its beak. But despite his violent methods he does a surprising amount of good. Upon iniurious small rodents and insects he wages incessant war. If once in a while a songbird does slip into the shrike's menu one should not be too censorious. Perhaps the shrike does not realize that man, sentimentalist when it comes to animals, butcher where his brothers are concerned, has decreed that such and such a creature is harmful, another beneficialto man!

By the time we had reached this point in our study of the ways of the shrike both Sis and I were beginning to feel pretty guilty about having judged the little fellow so harshly. As sentimental as the next person about all desert creatures we even came to pity this unhappy hunter who might longed to have been a dashing hawk or mighty eagle, but whose lofty aspirations were doomed because of, figuratively speaking, "flat feet."

George and Sis discovered a small lizard impaled upon a sharp mesquite thorn the victim of the Butcher bird.



Although we had amassed quite a store of information about the shrike a number of questions remained unanswered. It was to seek the answers to them that we returned to the shrike's private morgue to await, behind a rude blind of army cots and olive-drab blankets, the coming of the killer.

A distant flash of black and white among the grey-green yuccas told us that we had not long to wait. Soon we saw the striking little bird flying straight towards us. On short rapid wings he skimmed the dry desert grasses to within a few feet of the thicket. Then in a sudden graceful arc he shot to the top of a mesquite tree. After looking about in all directions to satisfy himself that no danger lurked in the form of a dreaded hawk the bird immediately proceeded to answer our remaining questions. The first thing he did was to vindicate the apparently misguided ornithologists by breaking forth into song! Even though his lay was little more than an astonishing medley of harsh rasping cries, cat-like mewings, shrill chirpings, and taunting raucous calls, it did testify to his possession of vocal chords. And while his efforts hardly could have been called a melodious song, he did sing.

Finishing his slightly self-conscious solo the bird soon answered another of our questions. From the top of his thorny perch he caught sight of a grasshopper in the sand below him. Without the slightest warning he dived at the hopper, seized it with his beak and carried it back to his perch. Thinking that we were about to witness an exhibition of the shrike's impaling technique we were disappointed to see him in one gulp swallow his prey whole. But as this seemed insufficient to satisfy his appetite he scanned the desert floor for more food. Soon his keen eyes caught sight of a slight movement on the yellow sands and once again he disappeared from the tree to return immediately with another hopper, considerably larger than the first, in his cyrano-like beak.

This time he was unable to swallow his victim whole. For a few struggling moments he held it in one foot and tried to eat it as a child would an ice cream cone. But every time he took a bite his strong beak would pull the insect out of his grasp. Finally he seemed to become disgusted with this lack of progress and violently thrust the hopper onto a long sharp thorn. It was then an easy matter to tear it to pieces.

This last performance left but one question unanswered: Why were so many victims left to dry up uneaten on the pointed thorns? Were they caches against a rainy day, or manifestations of cruelty? The shrike could not answer these. As a matter of fact they never have been answered satisfactorily.

Desert's Scarlet Buglers

By MARY BEAL

IKE the flourish of trumpets in a spirited parade, the Scarlet Buglers blazon forth their fiery tones. They'd furnish ideal trumpets for a fairy band with their bright scarlet flashing from long wands growing in several-stemmed leafy clumps. They are members of a large group of showy perennials belonging to the handsome Figwort family. Their generic name Pentstemon is from the Greek words meaning "five stamens." The fifth stamen is an easy mark of identification, as the rest of the family have no more than 4 stamens. This extra one is imperfect, having no anther, the top part usually thickened and frequently bearded with yellow hairs, which gives rise to the common name Beardtongue. Another common name is Hummingbird's Dinner Horn.

Many of the species have been domesticated and hybridized for garden ornamentals. Nearly all garden lovers have a Pentstemon or two among their favorites. A large percentage of the Pentstemons are Westerners and those of the desert are among the most attractive. There are far too many to mention in one session so we'll feature the Scarlet Bugler type this month. Their favored habitat is montane, from foothill to higher altitudes, their brilliant color setting off gravelly slopes and canyon floors and gleaming from coves among boulders.

The most widespread of the desert species and second to none in flaming splendor is

Pentstemon eatonii

Named for Professor Eaton, a Yale University botanist, it is called by some, Eaton Firecracker. Its rather coarse purplish stems lift their panicles 1½ to over 3 feet high. The smooth deep-green leaves are ovate to linear-lanceolate, mostly disposed along the stems, all but the basal sessile or clasping, 1½ to 4 inches or more long, the upper ones the narrower, the larger lower ones petioled. Terminating the upright stems, the narrow panicle measures 6 to 12 inches, or even much longer as it ages. The tubular-funnelform corollas are bright scarlet, slightly two-lipped, an inch or so long, the ovate, pointed calyx lobes white-margined, the sterile filament apexed by a tuft of bristly hairs.

A common species, blooming in May and June over most of its range, but at the lower altitudes may show its gay color as early as March. It grows on gravelly and rocky mountain slopes, mesas and canyons in northern and central Arizona, southern Nevada and Utah, ranges of the eastern Mojave and northern Colorado deserts, especially abundant in southern Utah and equally at home in the Grand Canyon. Its altitude ranges from 2000 to 7000 feet.

Pentstemon centranthifolius

Similar to the Eaton Firecracker, with 1 to several slender leafy stems 1 to 3 feet high, the herbage hairless and frosted with a bloom. The thick leaves are bluish-green, ¾ to 2 inches long, sessile or clasping, mostly on the stems. The narrow panicles are composed of tubular flowers, the scarlet corollas an inch long, hardly two-lipped, the calyx lobes round-ovate and often red-tinged, the edges translucent. The sterile filament is hairless. Rather common on gravelly and sandy hills and slopes, canyon beds and cliffs along the western borders of the Colorado and Mojave deserts from 600 to about 6000 feet. Less frequent in other parts of the Mojave desert. Its counterpart in Arizona is listed as *Pentstemon subulatus*, the distinguishing difference being more slender stems, usually less than 2 feet high, narrower leaves, and a very slender corolla tube



This Eaton Pentstemon was growing in boulder strewn Gilroy canyon in the Providence mountains, eastern Mojave desert. Photo by the author.

tipped by a very narrow limb. It frequents stony hillsides, mesas and canyons of central Arizona at moderately high elevations blooming from March to May. Also reported from the eastern Mojave desert.

Pentstemon clevelandii

A woody-based plant with several erect slender stems 1 to 21/2 feet high, the herbage hairless, the leaves fleshy or leathery, ovate to oblong, 1 to 21/2 inches long, often slightly toothed, the lower ones petioled, the upper sessile or with bases united. The narrow panicle is rather densely flowered with tubular-funnelform blossoms, the purplish-red corollas less than an inch long, the narrow throat somewhat distended on the lower side, the squarish lobes of the limb spreading or reflexed, the dilated apex of the sterile filament moderately hairy or very slightly so. Found along the western borders of the Colorado desert from Santa Rosa mountains to Lower California, in canyons and on slopes from 1000 to 4500 feet, blooming in April and May. In the variety connatus the herbage is whitened with a bloom and the bases of the upper leaves always are grown together, the stem piercing the united leaves. The sterile filament is heavily bearded. This flourishes in canyons on the west side of the Colorado desert from Palm Springs south to Lower California.

Pentstemon parryi

Entrancingly beautiful is this Arizona Pentstemon. Its resplendent color and grace have a magnetic charm, particularly notable in the Grand Canyon area. Under favorable conditions the plants attain a delightful luxuriance, each with many erect, purplish, generously-flowered stems, sometimes 4 feet tall, which is a foot or two above the average. The flowers are bright-

cardinal or purplish-red, the tubular-funnelform corolla less than an inch long but amplified by a broad limb with 5 rounded, widely-flaring lobes, giving a shapely delicacy to each lovely blossom. The herbage is hairless and veiled with a bloom, the narrow light-green leaves lanceolate. Scattered here and there about mountain slopes and canyons (1500 to 5000 feet elevation) they rivet attention and enliven the spring landscape from the Grand Canyon south beyond the Mexican border.

Pentstemon utahensis

Also listed as *Pentstemon glaber* var. *utahensis*. Sometimes called Utah Firecracker. The herbage and calyxes are frosted as with a fine white powder. The leaves are chiefly basal, oblanceolate, and taper into a long petioled base, except for the few sessile ones on the stem. From the small basal tuft rise several stems 8 to 12 inches or more. The rich carmine corolla is glandular inside and out, the tubular throat tipped by a spreading limb obscurely two-lipped. Rather common on mesas and canyons (4000 to 6500 feet) in southern Utah, northern Arizona, southern Nevada, and the eastern Mojave desert, blooming from March to May.

Pentstemon barbatus

This fascinating species and its subspecies torreyi differ mainly as to hairs—or no hairs—on stems and leaves. The general characteristics are pale-green stems 2 feet or more tall; narrow bluish-green leaves with wavy margins; vivid-scarlet tubular-funnelform corollas an inch and a quarter long, strongly two-lipped, the upper lip projecting, the lower one deeply-lobed and reflexed, also bearded in the species but not in torreyi; the stamens conspicuously long. A common montane species (4000 to 10,000 feet) from Utah south through Arizona well down into Mexico, arrestingly gorgeous along the Grand Canyon rim in summer, blooming from June to September.



TRUE OR FALSE . . .

Rock collectors and botanists, geology and history students, those interested in prospecting or in Indian lore, or just plain tourists, will be able to answer questions in this month's quiz. And maybe they will find the answer to some of their own questions. Answers on page 35.

- 1-Lowest elevation in United States is foot of Bright Angel trail in depths of Grand Canyon. True....... False.......
- 2-People who have studied Gila Monsters never have found two alike in color pattern, True...... False......
- 3–Diamond, hardest precious gem, is the only one not to show hardness variation. True...... False......
- 4-Height of Pueblo Indian civilization coincided with time Coronado entered Southwest. Thereafter it quickly waned. True....... False.......
- 5-Boulder Dam is located in Boulder Canyon, True....... False......
- 6-Average burro will carry 150 pounds and cover 15 miles a day regularly. True...... False......
- 7-Shells found in sands of Colorado desert of southeast California indicate this area once was covered by sea water. True...... False.......
- 8-El Paso, Texas, is east of Albuquerque, New Mexico. True...... False.......
- 9-Butterfield Overland Mail route, established from St. Louis to San Francisco, 1858, crossed Colorado river at Yuma, Arizona. True....... False.......
- 10-Desert Lily has pure white blossom. True....... False......
- 11-Typical Tesuque Indian pottery is a soft brown painted in blue, deep orange and red. True...... False......
- 12-"Mexican Jade" is a soft variety of jade found in Mexico. True...... False......
- 13-Desert turpentine broom, *Thamnosma montana*, is a distant relative of commercial turpentine source. True...... False.......
- 14—Sunset Crater, northern Arizona, is result of an eruption which took place about 885 A. D. True.......
 False......
- 15—The term "ore" is applied to any rock that contains enough mineral to be mined profitably. True.......
- 16—Desert Horned owl usually lives in abandoned buildings. True...... False......
- 17-Present Salton Sea, Colorado desert, is less than 40 years old. True....... False.......
- 18-Collared lizard's diet is confined to insects. True.......

 False......
- 19-Quartz always occurs in crystalline form. True....... False......
- 20-Coronado was first Spanish explorer to see Grand Canyon. True...... False......

SPANISH BAYONET

By CLYDE PARKER San Diego, California

Slender guardian Of the height With sharp daggers All bedight Spurred and booted For the fight.

Up the hillside From the glade With your sheltered Hafts to aid March long shafts of Living jade.

And dying humbles Not your pride Sere, but upright Still you stride Breasting even Time's deep tide.

. . . YUCCA TREE

By HALLEE CUSHMAN HENDERSON Riverside, California

Only the bloom of the yucca tree, Eerily white, And moonlight etching its petals, Like candlelight.

A breeze that plays in the yucca, A spirit-like coquette, And the phantom moonlight dancing In shadowy silhouette.

Secrets deep in the blossoms Of the yucca's petaled shell, And the desert holds the magic, To swing the hidden bell.

SANCTUM

By JOSEPHINE GAMBLE Chatsworth, California

On the Altar of the Desert Girt with Yucca's fragile sword, White and tall, in gleaming beauty Stand the Candles of the Lord.

Here is Nature's Sanctuary, Arch and Transept, Font and Nave. Here all Life joins the Trisagion, Saint and sinner, Prince and slave.

Here beneath the Dome of Heaven Who seeks humbly, finds rebirth In the Temple of the Desert, In the healing touch of Earth.

When the Drums of War are silenced Let me sheathe a Freeman's sword Where the Virgin Flame of Summer Lights the Candles of the Lord.

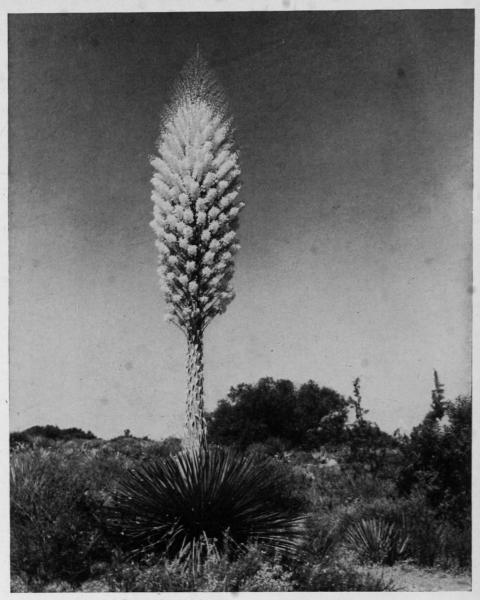
THE GREEKS HAD A WORD FOR IT

By MURRAY SKINNER Los Angeles, California

Upon the white-hot desert wastes the gods In pity for the miles of barren sands, Scattered rare beauty with relenting hands, And drew in magic from the stubborn clods A fair white lily on its pale-blue stem To lift its clustered heads to greet the sun After the season of the rains has run Its course . . . and beauty touches glory's hem.

Hesperocallis—beautiful habitant— Gracing the wastelands of the golden West, Your fragrance, spilling from their burnished bowl,

Is wafted, wavering, pulsing, hesitant, As if your haunting perfume thus expressed The essence of the desert's secret soul.



The Lord's Candle, Yucca photo by Roy Miller.

Tower of Bells

By MARGARET S. HOSMER Los Angeles, California

This tower of soundless silver bells Slighter than the slight sea shells In a white land of moonlight dwells.

Pagodas carved in ivory Ingeniously and hollowly Are not as fair as this pale tree.

While moonlight magic lights the land, Mysteriously these white trees stand Like candles in the desert sand.

The slender yucca with its white And songless flower-bells full of light Is queen of all the trees tonight.

CANDLES OF THE LORD By OPAL H. CORBETT Lemoore, California Velas de Dios, the Spanish call The yucca blossoms tall. It seems to me 'tis holy ground Where plain and hill are covered 'round Each year until eternity With a million candles lighted there On sandy wastes and hillsides bare In honor of the Trinity.

DESERT STAR GARDEN

By Lauraine Cornelia Hubber Los Angeles, California

I look up at the desert sky And see my mother standing by Her garden gate.

It seems that ev'ry shining star Is just a lovely desert flow'r For me to see.

She loved the flowers here below And some have gone up there to grow For her again.

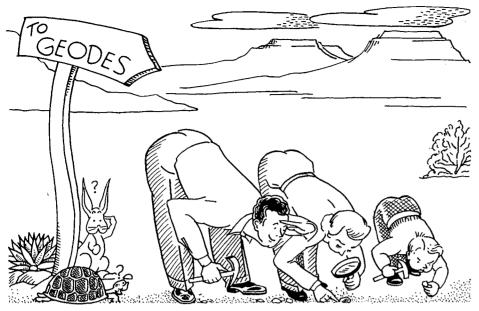
Please, God, keep stars forever bright, That I may stand and see, at night, Her garden fair.

DESERT PERFUME

By INA SAMPLE Pasadena, California

She walked into the perfume shop and said "I wish that you would make me up a scent— A scent—how shall I say—No, no, not now. I love red clover, swooning hyacinth, And the rich attar of the rose, but now-This time, I want the sagebrush after rain-Or pungent, aromatic, dusty sage-

So, when I'd dream, the scent, in many ways, Will conjure up gay and brief Nevada Days!"



"If you are touring the West after the war and see a man and a woman and a little boy walking around the desert with their noses to the ground don't be alarmed. It probably will be Jean and Tommy and I busy at our favorite hobby."

The Rock Hunter Is a Queer Character

By NORMAN WILLIAM CLAY Drawings by Bee Nicoll

BLACK fire opal weighing 17 troy ounces and valued at a quarter of a million dollars was found in the Virgin valley in the state of Nevada." When I read this item in the local newspaper years ago, I mentally exclaimed "Oh" and filed it in my sub-conscious mind. I knew people collected gem stones as a commercial proposition, but I never dreamed that many people all over the western states were collecting and cutting gem stones as a hobby.

I first came into contact with the riders of this hobby horse on the desert around Las Vegas, Nevada. A huge magnesium plant was being erected to help our war effort. Thousands of people were pouring

into the community. The inveterate hobbyists had to have something to do and they found a new pursuit ready-made for them.

The rock hunter is a queer character as he walks along the desert anxiously scrutinizing every inch of ground. Suddenly he will pounce. Down on his knees he will go, and with a short-handled miner's pick he will start to dig. Up the steepest side of a mountain he will climb and hang on with a fingernail, while he picks at the hard rock with his free hand.

The first time I saw a rock hunter at work, my curiosity got the better of me and I sauntered over to question him. My curiosity filled our living room with rocks. He explained that he was searching for

Here you have a complete exposition of the rock hunter—his habitat, his characteristic locomotion, his unique psychology, his speech, general appearance and behavior. When you again have gas and are traveling along a desert road—any desert road you may spot one from a distance. He will be walking either slightly or acutely stooped over with eyes on the ground. Suddenly he will make a swooping or pouncing motion, his hand darting to the ground, then straighten up with a rock clutched in his hand. Perhaps it will be thrown to the ground. If so, nothing will happen. If, however, it should be pocketed or placed in a sack slung over his shoulder, other humans suddenly will appear and converge on him. He will be swallowed up in the ensuing frenzy of digging. Soon each will hold up a specimen. To reassure themselves, they will lick it with their tongues or spit on it and rub the surface with their fingers—and look for the result with a worried expression or with a benign smile . . . These are some of the more obvious traits of the rock hunter. To gain a sympathetic understanding of this First Tribe of the Desert, let α man who became a hopeless convert to this fraternity tell you about the inmost workings of their minds.

gem stones and was not hesitant in displaying specimens. He won a convert without any effort. My wife and I joined the newly-organized Southern Nevada Mineralogical society and became rabid collectors

For our first trip we all met at the junction of Highway 91 and 95. An assorted crew of amateur gem collectors were assembled. There were men dressed in approved Western attire, fancy wool frontier pants, cowboy boots, beautifully embroidered soft shirts and five gallon hats. Others were dressed in jeans or any old clothes they possessed. The women were dressed either in the conventional play clothes,



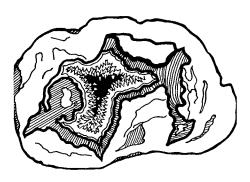
jeans, shorts, slacks, dresses or in Western attire featuring frontier pants or split skirts and the full complement of accessories. Some carried sacks slung over their shoulders and some of the women carried those huge purses that women adore. There were young men and old men, young women and old women, and there were children. Our five-year-old son Tommy was not with us on this first trip but was to accompany us on all succeeding trips and himself become an enthusiast.

Diminutive, flaming-haired Hazel "Mickey" Maguire was bustling around herding people into cars. Success finally crowned her efforts and we proceeded to the gypsum caves northeast of the airport at Las Vegas.

Upon reaching our destination the surrounding desert came alive. People spewed from cars and started in every direction. They all walked slightly stooped over with eyes on the ground. Suddenly one would bend over, his hand would dart to the ground and he would straighten up with a rock in his hand. If he then threw it to the ground nothing would happen. But if he pocketed his find everyone who had seen him would converge on him and swallow him up. Picks would flash in the sun and soon everyone would have a specimen. Dainty appearing girls would hold their specimen to the rays of the sun and either lick it with their tongues or spit on it and rub the surface with their finger. We learned that this moisture brought out the grain and color of the rock and gave it a near semblance to the appearance it would take on when cut and polished. Jean, whose aversion to dirt amounted to an obsession, soon was licking stones like a professional.

This day we scoured the earth up the mountain to the entrance of the gypsum caves. From the entrance the cave went down into the earth at a steep pitch and suddenly widened into a huge vaulted chamber that appeared to have been plastered with sheets of sugar candy, or laminated ice. This material is very tough but some of the experienced members had brought saws and we soon all had specimens of this mineral.

After a picnic lunch we spent the rest of the day scouring the dry washes that abound in the desert. Soon my pockets were bulging with likely specimens and



"When cut open they resemble the candy Easter eggs that have windows in each end and wondrous shapes around the inner walls."

Jean had taken off her sweater and tied up the neck and looped the sleeves around my neck to make a sack which we filled before the day was ended. We found fossil shells and fossil fish, which are not true specimens for the Purists who collect nothing but semi-precious gem stones, but soul-satisfying to collectors such as we. We found chalcedony which looks like boiled sugar that has been dropped into water and is either white or delicately tinted in lavenders and pinks. We found grassgreen chert which resembles deep jade. We came home loaded with rocks which we promptly dumped on the livingroom floor and scanned under the light from our bridge lamps. This rock was the nucleus of a collection that was to travel hundreds of miles with us and to take up ever increasing space in our home. We were stricken with the fever and were now full fledged rock hunters.

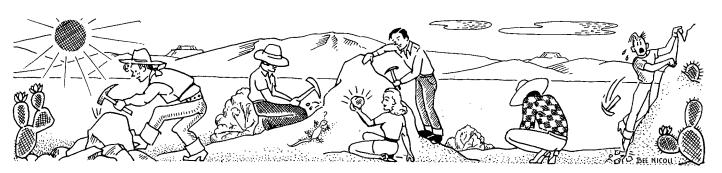
Eager to share our new found knowledge we went across the street and invited our friends the Baehrs over. Harry Baehr, a bearded giant six feet tall and weighing 210 pounds, and his wife Barbara, six feet tall and weighing 120 pounds, were properly impressed. Both were natural collectors anyway, having in two months in Vegas collected a collie with the impressive name of Michael du Shawbree III, a bob-tail kitten named Frisky, Perky the Persian cat and a land turtle who wouldn't answer to the name of Terry Pin. Harry and Barb succumbed to the spell of the hobby immediately and the four of us soon were laying plans for a trip the following Sunday.

We left Vegas early in the morning in Harry's 1932 Ford sedan, Harry and Barb in front and Jean and I in back. We explored the area around Goodsprings until exhausted, returning late Sunday evening, all four of us in the front seat and the back of the car bulging with specimens. Specimens of lead, zinc, copper and fossil shells we acquired on this trip still occupy space in our bookshelves—bookshelves that long since have been stripped of books and loaded with our treasured rocks.

As our knowledge grew we were amazed to find that people all over the West engaged in this pursuit. We soon became acquainted with many of them. We turned to maps printed to guide the avid rock hunter. One such map drew Jean and me over 200 miles, in the days of vanishing tires, in search of the amethyst crystals near Rhyolite, Nevada.

Since our original plunge into the mysteries of rock hunting we have covered much of Nevada and a great deal of the sister states of Utah, Arizona and California. Our collection has grown and our interests have wider horizons. We have found garnets in Wadsworth, Nevada, and have bought garnets from Alaska and they both share space in our bookcase. We have found opals in the Virgin valley of Nevada that shine and gleam in their many colored irridescence. The news item read many years ago was responsible for this trip. Besides some lovely opal specimens, we found opalized petrified wood that defies description.

We have dug tourmaline in San Diego county, California, and the beautiful deep blue chrysocolla from Beatty, Nevada. We have specimens of moss agate that polish beautifully. From Mason, Nevada, we have collected some perfect specimens of petrified wood. From Arizona we brought back lovely specimens of quartz crystals. Silver specimens from Virginia City and wire gold from Grass Valley add interest to our collection. A treasured piece of Bullfrog ore from Rhyolite, Nevada, is one of our proudest possessions. This lovely stone was so beautiful when polished that it was seldom mined for the high grade gold it contained but was sent to Tiffany's, New York, to be cut and polished for gem stones. And along with the semiprecious stones and the high grade ore



samples we have hundreds of stones that are unusual in shape or just pretty.

The desert geode is a constant source of wonder to the rock hunter. It usually is egg-shaped or round and will be passed up by the novice rock hunter. But the "aged in the rock" species of rock hunter will detect many of them. When cut open they resemble the candy Easter eggs that have windows in each end and wondrous shapes around the inner walls. The geode may be hollow inside with all of the surface of the inner walls covered with crystals or may have a solid crystalline geometric shape that appears when the nodule is halved.

For months Jean and I had searched in vain for a geode specimen. One week-end we went on a combination rock hunting and fishing trip with Mac and Min Mc-Henry and their two children and our son Tommy. On the return trip Mac spied desert foliage that would form a good background for a snap shot. Mac stepped out of the car and picked up a perfect specimen of a geode. Like bloodhounds with a warm scent we covered the area. Fortune smiled on us and Jean and I both found a geode. Eventually we remembered the picture we had stopped to take.

The war has interrupted an interesting hobby but I managed to get in a spell of rock hunting while going through desert maneuvers as part of my basic training in

MILLIONS BUYING BONDS FOR POSTWAR TRAVEL TO DESERT

More than 24,000,000 Americans right now are actively planning their postwar trips, according to results of nationwide survey just completed by All-Year Club of California. Don Thomas, managing director of the club, said of this number, 15,600,000 are buying bonds or adding to their savings accounts for their trips. Twenty-six million more, he said, had not yet decided about a trip.

The desert will receive increasing attention from tourist organizations, transportation companies and hotel and resort men, as well as from the public at large. One of the most interesting postwar possibilities considered now by California agencies is development of the desert-to-snow tramway project at Palm Springs, from the resort to San Jacinto's peak.

Restoration of California's travel industry, Thomas said, will create some two million added customers a year for Southern California's postwar projects, who on returning home will introduce the products into their communities, thereby increasing the market nationally. Coachella Valley's date industry was cited as one of the industries which will be among those benefited.

the army. My wife still spends many of her Sundays roaming the hills around Carson City in search of new specimens. We already have laid our plans for after-thewar. We are going to get a station wagon and take to the desert and mountains every chance we get. We are going into Mexico and scour its surface. If we hear of a new place where we can find gem stones, we will be there too.

Our purpose isn't exactly the same as

the oldtime prospectors who discovered the Comstock, Goldfield, Tonopah and Rhyolite, but we would have had much in common. The present day rock hunter is just a prospector in a zoot suit. If you are touring the West after the war and see a man and a woman and a little boy walking around the desert with their noses to the ground don't be alarmed. It probably will be Jean and Tommy and I busy at our favorite hobby.

Achievement .

- On October 15, 1943, purchase of the electrical properties of the California Electric Power Company in Imperial Valley and the area in Coachella Valley destined to be served by the All-American Canal was completed, and Imperial Valley Irrigation District became the sole distributing agency for electrical energy in these areas.
- Thus was achieved a goal toward which the people of Imperial and Coachella Valleys have united their efforts for a quarter of a century. Full development of the power resources on the great All-American Canal now seems assured and both water and power will be put to the common usage of developing these two fertile reclaimed desert valleys.

SHARING THE BENEFITS OF WATER AND THE PROFITS OF POWER, IMPERIAL AND COACHELLA VALLEYS ARE IN TRUTH GOOD NEIGHBORS LINKED BY BONDS OF MUTUAL INTERESTS AND NECESSITIES.





William D. Rishel, who has been honored for his lifelong work of pioneering good roads for Utah. Bill Shipler photo.

Trailblazer of the Great Salt Desert

EARS have mellowed Big Bill Rishel, but time was when he considered himself the toughest hunk of bone and muscle west of the Mississippi river. A man had to be tough to become champion cross-country bicycle rider of Cheyenne, Wyoming, back in the 1880's, when in order to qualify he must ride 100 miles in one day over roads which were only a pair of ruts in the sagebrush. That toughness saved his life a few years later when he found himself on a bicycle in the middle of the Great Salt desert.

It all started as a publicity stunt. Between the end of the horse-and-buggy days and advent of the automobile, bicycle clubs were organized all over the country. One of the first in the west was the Cheyenne Bicycle club, started in 1882, of which William D. Rishel became president.

When a relay race was run between Washington, D. C., and Denver in 1894 Big Bill was given charge of the section between Cheyenne and Julesburg. The purpose of this was to demonstrate the feasibility of using bicyclists as dispatch riders in the army.

The success of this experiment induced William Randolph Hearst, owner of the San Francisco Examiner and New York Journal, to promote a transcontinental bicycle relay race between San Francisco and New York, in cooperation with Stearns & Co., manufacturers of the "Yellow Fellow" bicycle, and General Nelson A. Miles, commander of the U. S. Army.

The idea looked good on paper, but a serious difficulty soon was encountered. After construction of the railroad in 1869, pioneer trails had been abandoned and

Young Bill Rishel and his companion got on their bicycles and started out across the salt desert south of Great Salt Lake. Oldtimers warned them against it but Bill determined to attempt a cutoff in one lap of the transcontinental bicycle relay race. Sixty miles of level salt lake bottom stretched before them. It was smoother than pavement. They spun along for hours with little effort. But the distant Lakeside mountains seemed to retreat as they advanced. They became "lost" in a great mirage. Suddenly the deceptive salt crust broke and they struck the gummiest, stickiest mud they ever had seen. They carried their bikes and waded through the slimy stuff. Then they came to loose sand. Again they had to carry the bikes. The sun was burning. Their canteens were empty. Somewhere in the elusive range ahead was a little spring - but their progress toward it was like plodding along on a treadmill . . . That was Big Bill's first serious encounter with the desert. Since that summer day in 1896 ribbons of paved roads smooth the way for transcontinental motor travel over once treacherous sand and marsh. And always, Big Bill has been foremost among trail breakers for those scenic roads—to the Grand Canyon, to the wonders of Utah's natural showplaces.

By CHARLES KELLY

there no longer was a transcontinental wagon road. Even its former location had been forgotten. Before the run could start a route had to be laid out. The man chosen for that job was Big Bill Rishel, who pioneered a bicycle trail from Kearney, Nebraska, to Truckee, California—a route which later became the first transcontinental automobile highway.

With a blare of brass bands the first rider left San Francisco on a summer day in 1896. In due time relay riders reached Truckee, California, where Rishel was on hand to start them across the deserts of Nevada. Since there were no roads Bill routed his riders along the railroad right-of-way, where they either rode the shoulders of the grade or bumped over the ties, while Rishel rode up and down the line on trains preparing relays and checking his riders. Sometimes they got into difficulties and Bill had to take over. On one such occasion, trying to make up lost time, he was riding at night when he ran into a trestle and wrecked his bicycle. He had to carry it on his back to the next station.



Bill Rishel, Wallace Bransford and Doc Inglesby pioneering a road to north rim of Grand Canyon, about 1906. Photo from Bransford collection.

After many difficulties the riders finally reached the little station of Terrace, Utah, on the western edge of the Great Salt desert. Here the railroad made a big detour around the desert and north of Great Salt lake. A direct and much shorter route would have been straight across the desert and south of the lake to Salt Lake City. Bill hadn't laid it out that way, but the race was already far behind schedule. Standing there on the "shore" of the salt desert he wondered if it would be possible to ride

across it on a bicycle and thus save many miles and precious hours of time. It stretched away to the east almost as far as his eye could see—60 miles of level, smooth, salt encrusted old lake bottom. He made a trial spin on its hard surface. It was smoother than pavement. He was thrilled by its possibilities and the relief from bumping over railroad ties.

Hunting up an old-timer at Terrace he asked about the desert. Was it smooth like that all the way across? Was there any

water out there? What would happen if he broke down? The old-timer told him there were 60 miles of level desert and 40 miles of rolling country covered with shad-scale between Terrace and Grantsville, nearest town. In that 100 miles there was one small spring in a rocky ridge, if he was lucky enough to find it. It would be suicide to attempt such a crossing on bicycles.

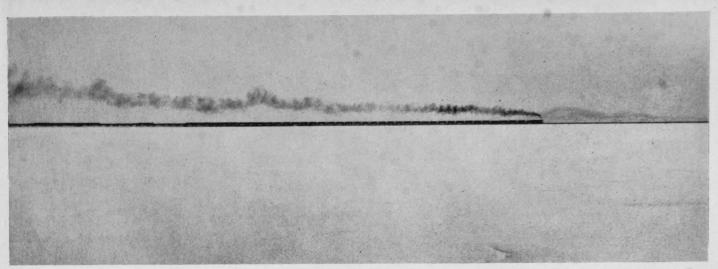
Bill shaded his eyes against the white glare and looked off toward the Lakeside mountains, barely visible on the horizon. Those miles of smooth going were too great a temptation. He decided to take a chance. Unwilling to ask another to take such a risk he grabbed a bicycle and prepared to ride it himself. At the last minute C. A. Emise, one of the relay riders, volunteered to accompany him. Their equipment consisted of two canteens of water and two sandwiches each.

During daylight hours the desert was hot, so they rested until 2 a. m., before starting. A bright moon illuminated the desert's white surface and its hard crust of salt made the going easy. They spun along for hours with little effort. But the distant mountains seemed to retreat as they advanced.

At daylight the two men still were going strong. Stopping to eat a sandwich they emptied one of the canteens. When the sun rose they found themselves entirely surrounded by a mirage, which gave them the feeling of being on a small island in the middle of the ocean. Then, as they were spinning along, Bill suddenly took a nose dive. His bicycle had struck a patch of soft mud and stopped dead. Mud on a desert? It seemed impossible. But there

Through miles of sand dunes like these, on the eastern edge of Great Salt Desert, Bill Rishel had to carry his bicycle.





Western Pacific train crossing the Great Salt Desert. The railroad was built ten years after Rishel made his famous bicycle ride.

it was—the gummiest, stickiest stuff he ever had seen.

Picking himself up he cleaned the mud out of his wheels, put the machine on his back and waded through the slimy stuff. In about a mile the ground became firmer and they mounted again. Before long they ran onto loose sand where they again had to carry their bikes. Blistered by the sun and sweating from every pore, they soon emptied their canteens. As they pushed on they found a continual succession of soft mud and sand, with only here and there a stretch firm enough to ride. The going was much worse than bumping over ties—but it was too late to turn back.

Bill began to think about that little spring. The more he thought about it the thirstier he grew. Emise was showing the strain and sometimes Bill carried both bicycles. They plugged along hour after hour, on what seemed an endless treadmill

taking them nowhere.

After covering about 50 miles they ran into a series of sand dunes which made the going still slower. But now the mountains appeared much closer. Somewhere in those rocky ridges was the little spring they had been told to watch for. But with no distinguishing landmarks to guide them it was like hunting a needle in a haystack. Mile after mile they plodded along, stopping every few minutes to rest, their mouths too dry and breath too short for conversation. At last, crossing a low pass between two hills they found themselves on the east side of the Lakeside mountains. Bill began to search those black ridges for some spot of green that would indicate water, but they were completely barren.

Then, looking down, he noticed a tiny trail made by some small animal. Hoping it might lead to water he followed it. After about a mile he came to a ledge running along the ridge. At its base was a little moisture. Farther along, in a small cavity he found a tiny drip. This was Cook's spring!

Setting a canteen under the drip the two

men waited. It was half an hour before they collected a cupful, and four hours before they satisfied their thirst sufficiently to eat their remaining sandwiches and go on. They still had 40 miles to go, through shad-scale and greasewood and salt-water swamps near the shore of Great Salt lake. At 12 o'clock that night they staggered into Grantsville, after 22 hours of the toughest going Big Bill ever had encount-

Bill Rishel when president of Cheyenne Bicycle club, shortly before his pioneering ride across Great Salt Lake Desert in 1896. Photo from Harry Shipler collection.



ered. The message they carried to General Miles went through. Great Salt desert had been crossed for the first time by bicycle!

After completing this assignment, Bill Rishel became a leader among bicycling enthusiasts in Salt Lake City, promoting cross-country runs and endurance races in the old Salt Palace. When automobiles came to Utah he was the first to adopt this new mode of transportation and because of his past experience soon became the leading authority on roads. With Wallace Bransford and a few other enthusiasts he broke the first automobile trail to Grand Canyon from Salt Lake City and pioneered roads to all of Utah's scenic attractions, organizing Utah's first automobile club, which he still operates.

As automobiles became more popular a campaign was started for a transcontinental automobile highway, the most difficult section of which lay in Utah, where the long detour north of Great Salt lake, traveled by covered wagons, automatically would eliminate Salt Lake City. Remembering his cutoff across the desert on a bicycle in 1896, Rishel and Bransford broke a road through the sagebrush west of Grantsville to examine the possibilities of that route for automobiles. Reaching the edge of the salt flats they looked westward toward Pilot Peak in Nevada, only to discover that nearly the whole desert was covered with a sheet of water. Evidently no road could be made there, so they turned around and went home. That was in 1907.

A year earlier the Western Pacific had built a railroad across the salt desert a little south of Rishel's bicycle route. When a conductor on that new line told Bill there was no water on the desert, he went back to have another look. The "water" proved to be only a magnificent mirage. The road could be built after all!

So Bill went to work promoting that salt desert route, which to him seemed entirely logical. But other men had other ideas and he soon had a fight on his hands. That fight was the biggest thing in Bill Rishel's life. Twenty years later Governor Dern cut the tape which opened the Lincoln Highway, now U. S. 40, across the desert to Wendover, Utah, just where Bill had planned it. Today, with a bomber training field at Wendover, that road carries an enormous traffic load, offering the short cut through Utah first visioned by Lansford W. Hastings when he guided emigrants across the "Hastings Cutoff" in 1846.

In 1940 the business men of Salt Lake City gave William D. Rishel a beautiful silver plaque in commemoration of his lifelong work in pioneering good roads in Utah. But his greatest achievement, he thinks, was riding a bicycle across the Great Salt desert. If you don't think so, try it some time!

BOOKS OF THE DESERT . . .

On the Desert Bookshelf this month are some newly added titles for your Southwest library. A distinguished addition is The Delight Makers, one of the most fascinating prehistorical romances ever written. You will find also a list of entertaining, authentic guides to the desert, and you will meet some of the oldtimers who were first to explore many of the remote mountains and canyons of the Southwest. And then, just in case you can take a short trip this spring, there are a few books which will help you identify wild flowers and birds of the desert. A few of these books are rare and out of print, so order now those you want as permanent additions to your library. For other Southwest books available write for free catalog.



DELIGHT MAKERS, Bandelier. Recreates life of prehistoric Indians of Frijoles canyon near Santa Fe, part of Bandelier national monument. Unusual, fascinating novel based on scientific discoveries and dim legends of their modern descendants. Photos by Chas. F. Lummis. 490 pp.....\$3.00 WEST IS STILL WILD, Harry Carr. Indian Country, Enchanted Mesa, Carlsbad Caverns, Santa Fe and Taos, Boulder Dam and Death Valley. 257 pp....\$2.50 DESERT COUNTRY, Edwin Corle. Indians, ghost towns, legends, oases, history, from Mexico to Nevada, from Death Valley to Grand Canyon. 357 pp.....\$3.00 MORMON COUNTRY, Wallace Stegner. Saga of the Mormons in Utah, southern Idaho, southwest Wyoming, Arizona, Nevada, Colorado, New Mexico. 362 pp., in-PINON COUNTRY, Haniel Long. Picturesque land of the Navajo, Pueblos, Coronado, Billy the Kid, Carlsbad Caverns. 327 pp.\$3.00 RENO, Max Miller. Human side of "Biggest Little City in the World" and its desert setting, written in inimitable style. 267 pp. Sale price\$2.50 DEZBA, Woman of the Desert, Reichard. Revealing and understanding story of a Navajo family. 56 full page photos, colored endmaps. Sale price\$2.50 HAWK OVER WHIRLPOOL, Underhill. Poetic, moving story of southern Arizona Indian boy adjusting himself to white civilization. 255 pp.\$2.50

OLD BILL WILLIAMS, Favour. Tempestuous life of one of the greatest Mountain Men, who became more Indian than white. Map, photos, index. 229 pp.....\$3.00 JEDEDIAH SMITH, Sullivan. Greatest trail breaker of his period, epic mapping and exploring of Far West. Notes, index. Sale price DESERT WILD FLOWERS, Jaeger. Complete flower guide to Mojave and Colorado deserts. Many line drawings and photos. 322 pp.\$3.50 CACTI OF ARIZONA, Benson. Accurate, easy guide for layman and botanist. Color plates, line drawings, distributional maps, photos, paper\$1.00 BIRDS of the ARIZONA DESERT, Smith. Common birds identified by well known lecturer, writer on desert wildlife. Drawings, sketches, paper\$1.00 SOME DESERT WATERING PLACES, Mendenhall. Waterholes of Colorado and Mojave deserts, Death Valley, southwest Nevada. Description, resources, climate. Watersupply Ppr. No. 224, U. S. Geological Survey, 1909. Photos, topo. map......\$1.00 FINDING the WORTH WHILE in the SOUTHWEST, Saunders. Wonders of Southwest, New Mexico to Southern California. Photos, folding map, 231 pp.....\$1.75 PILGRIMS of the SANTA FE, Laut. Southwest's most famous trail - drama, tragedy, heroism, adventure, from Spanish conquerors to Gold Rush. Maps, photos, pp. \$1.25

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DESERT CRAFTS SHOP

636 STATE STREET

EL CENTRO, CALIFORNIA

LETTERS ...

Jeep Campaign Is On . . .

Norman, Oklahoma

Desert Magazine:

In the March issue Mr. Henderson wrote about the army jeep and of servicemen wanting one after the war. Recently the head of an automobile company made the statement that the jeep was too powerful for civilian use, that the government should turn the jeeps back to them to service and condition for civilian use. I believe he spoke of taking out the forward drive.

Now, I want a jeep for the desert after the war, and it will take the four wheel drive to do its best in the desert. If I can drive one now while in the service I surely can drive one after I get out. Besides, I can service my own. I do not care to pay them \$700 for a reconditioned one when they cost the government \$875 new.

So what do you say, Desert Magazine starts a campaign for "Sale of jeeps to exservice men after the war and leave them

LOUIS T. WHITESIDE

Greetings from Brazil . .

Manaos, Brasil

Sir:

I enjoy Desert a great deal. I think you are to be congratulated on the type of magazine you are publishing and I know you have my appreciation for bringing to me each month pictures and articles on the Southwest that I love and miss.

FORREST N. DAGGETT, American Vice Consul

Marine "Cat-eye King" . . .

Camp Lejeune, New River, N. C. Dear Mr. Henderson:

I feel I have just struck paydirt. Why does not someone tell me these things? I am, of course, referring to your magazine. It is so nearly what I like in a magazine that I am much surprised I have not heard of it before. But I have just returned from 18 months with the Marines on Midway—one somehow gets out of touch with things in a place like that.

My hobby is mineralogy so I was quite disappointed in Midway. However, I used to go cat-eye diving out along the reef—so much that I came to be known as the "Cat-eye King." I polished and sold all my best cat-eyes while out there, for I had not expected to be relieved so quickly and thought I would have plenty of time to find some good ones for myself. Good cat-eyes with blue, black or green centers can be made into as beautiful rings, bracelets, pins and necklaces as ever you have seen.

H. O. COLLIER III

Clue to Lost Adams Diggins . . .

Rowood, Arizona

Dear Desert:

About 1925 I had a store in Rowood where the highway crew came for provisions. One day one of the crew named Johnston came in and said that the son of the foreman had picked up a man named Adams who was suffering for want of water. Adams had a handkerchief in which he had wrapped about two pounds of gold nuggets which he said he had found northwest of three peaks two or three miles from there. The peaks he mentioned are known by the Indians as Tan Babia, or High Well.

When Adams had recovered from his thirst he appeared at his benefactor's house and offered to take him where he had found the gold, but his offer was not accepted. Later on I saw the foreman's son and had the same story direct from him. He said Adams had returned twice but he still refused to go because he had a good job and he didn't know anything about gold. I asked him if he didn't realize that the man was offering to give him more gold than he could earn in 20 years of hard labor.

In 1883 I was living in old Gila Bend, when an Indian brought in several very rich pieces of gold specimens, which he said he had found in this same area. Father and myself went out to look for it but failed to locate it from the description the Indian had given us. I tried again in 1927 to find this Adams prospect and did find some very large pieces of placer gold about four miles north of where Adams said his gold came from. Adams claimed he found a white quartz ledge that crossed a small wash and that the gold was all along the wash bed and in the ledge.

Adams claimed to have lost his burros. A Mr. Bender who has a cattle ranch nearby told me that he did see the burros and also the men but did not know about the gold. He said it must be north or west of the spring. While I did not see the gold that Adams found I am quite sure he did have the mine and I believe that some of the men who picked Adams up are still alive and can verify this statement.

THOMAS CHILDS

More Sand for Sahara? . . .

Huntington Beach, California

Please send another copy of January, 1944, which I want to send to Africa because of the article on SAND by Jerry Laudermilk. Best thing on sand I've run

EVERITT WIERMAN

Library of the American Desert . . .

Carrizo Springs, Texas

Dear Desert:

One day in November, 1937, I came into Tucson after one of my many prospecting trips in the desert and chanced to see the first number of our magazine on a newsstand. I still had a quarter in my pocket so made the purchase. I have never missed a number since and have all the copies filed away. They make a good library on the Great American Desert. And they have plenty of FACTS.

When I want more facts I use an encyclopedia or some textbook or better still go into the desert and dig them out. The idea I want to put over is that to one who has read Desert from the time it started, it's excellent just as is. I don't want to see it changed. Not even the poets' page. Occasionally I find a poem which I like. Makes it worth looking for. There is only one Desert Magazine. Let's keep it as it is

GEO. W. BAYLOR

Utah Clay Beds . . .

Provo, Utah

Gentlemen:

I would like to meet or hear from anyone interested in clays. I know where some fine clay beds are that should be of value. EDWARD W. BENTLEY

Dear EWB—Anyone interested will be referred to you.—LH.

Poems Always Have "Reason" . . .

Pueblo, Colorado

Dear Editor:

I rarely feel moved to answer "Dear Editor" letters but Carrie E. Sackriter in April issue is so obviously wrong that I do want to have my say.

I have studied poetry technique for several years, have taught classes in it and have sold my poems to many publications, have been in all-poetry journals too numerous to mention as well as some of the good anthologies, and I FEEL IT IS AN HONOR TO BE PUBLISHED ON THE POETRY PAGE OF DESERT.

I have gone over your page carefully and while it is true that now and then there is a poem that lacks perfect rime, rhythm and technique, all I have seen have "reason." Such authorities as Clement Wood agree that one may violate meter in a measure to take a poem out of the jingle class.

Most newspaper verse would come under this writer's complaint but Desert verse does not. I rather doubt her statement that she "loves poetry." If she does she must see much beauty in many of the poems on that page. I have known many cases in which encouragement from such a journal as Desert has given a young talented poet the lift that encouraged him to really study to improve and perfect his work.

G. M. EBERLING

Notice to Fossils—Dead or Alive . . .

Philadelphia, Pennsylvania

Dear Editor:

You know, a cactophile is one who has been stricken with cactus fever and is incurable. A rockhound is one bitten by the rock mania and just as incurable. And a desert rat—yes, one smitten by the desert and utterly hopeless. I happen to manifest all three symptoms and am hereby applying for the best known antidote.

Enclosed is check for two year renewal and some books to ease the pain of absence until I can get out there again. Although only an arm-chair desert rat, due to war restrictions, I take many a trip through the desert through Desert.

Don't let any old fossils (dead or alive) influence you to change your editorial policies. My feeling is that you are right. Mr. Henderson gives one the feeling that there is something substantial in his philosophy of life.

A. MALCOM MARTIN

May Reach Heights? . . .

Hemet, California

Dear Desert Magazine:

Looks like it's time to add my two-bits worth. I feel about this poetry business as Wm. C. Chandler, in the March issue, does. We can't all be talented or educated, but given a chance, who knows what heights we might reach?

I am a rockhound and an amateur poet. I have written several items, some of which I have been tempted to submit to Desert, but because of letters like the one written by Carrie E. Sackriter in the April issue I have been afraid to try my hand. (I spent eight months in the Superstition mountain and will be glad to answer any questions about that part of the country.)

HAZEL S. DAVIS

Strange Swarm of Versifiers . . .

Willits, California

Dear Madam:

W. C. Chandler in the March issue classifies himself among the fuzzy-minded. I admire that and agree with him, but his plea that he belongs among the majority of your readers I reject. I have not met many Desert readers, but all I have met, without exception, have been able to tell the difference between poetry and mere versifying. This is only to be expected from all desert lovers literate enough to want the vicarious enjoyment of their vices when unable to indulge themselves in actuality.

Not the least of the minor home-front purgatories these days is provided by a strange swarm of amateur versifiers. They take the most ordinary banalisms, arrange them in disorderly meter and haphazard rime on fancy paper and then crowd them into someone's busy hands to be commented upon.

CHARLES H. WALKER

For Sake of the Desert . . .

Sunland, California

Dear Miss Harris:

I'll bet it was on second thought that you published Carrie E. Sackriter's critical letter about the poems, in the April issue, hoping some real desert rat might take up the cause in behalf of those who send

First place, nothing is so distasteful as unjust and unconstructive criticism. I am one who has lived in the desert. I know John Carricart referred to in "Sheep Hunting Artists" in the March issue, and many other old timers. I have seen the sunsets, the thunder storms, the flowers, and felt the heat. One of my old friends, Tom Williams, now passed away, used to write just such poems. He, like many others, was prompted by a real love of the desert. Their sole wish is to express their feeling and pass on their pleasures to others. They make no literary claims and do not profess to be poets.

Nature's beauties are not made by human hands, and at best ours is but a feeble imitation. The difference between a good poem and a poor poem is only a matter of degree. This is true of pictures, too. I would suggest to Carrie E. Sackriter that thousands of public libraries are full of poems written for the sake of poetry alone.

LLOYD B. KING JR.

Generosity to Poets . . .

Tulsa, Oklahoma

Desert Magazine:

Carrie E. Sackriter's criticism of poetry in DM is entirely uncalled for. While some of it may not rank with a poet laureate's, I appreciate DM's generosity in allowing space as an outlet of expression for those who have been influenced and inspired by the desert. I find in some of the poems not only "diamonds in the rough" but polished gems. And those who describe places with which we are familiar make them all the more appreciated.

I am a desert and mountain enthusiast and when this global scrap is over, am going back to the Southwest-the peacefulness and solitude of its wide-open

AL LLOYD

Are "Kickers" Producers? . . .

Sioux Falls, South Dakota

Dear Editor:

Don't let any of those guys kid you about Desert. It is all we expect and all we want. Keep on as you have been going. Some of these "Kickers" belong to a class of people never satisfied and a class that never produced anything. Why don't they start something and make a success of it? It is mighty easy to kick but not so easy to produce.

DR. J. H. BECHTOLD

Diamonds—Rough and Polished . . .

Naco, Arizona

Dear Lucile Harris:

Regarding the lady, in the April issue, who does not like the poetry published in Desert. People who write poetry are usually inspired by beauty. I have enjoyed many good verses in Desert. I have studied with a fine teacher and I have written poems but I see good in the ones you print. The verses may not all have the "feet and rime" as I was taught, but they express thoughts very well.

A diamond in the rocks, when removed, cut and polished, becomes a lovely jewel. A poem, when brought to light and given a chance, may become a polished gem.

. . .

HORTENSE MONLUX McLEAN

Give Us Laudermilk . . .

Whittier, California

Gentlemen:

You are doing a good job of keeping us desert lovers from becoming too homesick for the sand and rocks and flowers. Give us plenty of Prof. Laudermilk and flora and fauna articles. Also, Here and There on the Desert is a fine feature.

H. M. FLETCHER

Defenders of the Cover . . .

Santa Cruz, California

Dear Miss Harris:

You can't please everyone. In answer to Mrs. McFarland's letter in January issue, I think the December cover was beautiful, ruins and all. For my taste keep the magazine as you have in the past. Covers, articles and simple, from-the-heart poetry. Tanya South writes deeply.

Sand will be a new adventure to us after Laudermilk's article and photographs in the January number.

MRS. K. W. MACDONALD

Oakland, California

Desert Magazine:

Just a line in defense of December cover. I think it is beautiful and most fitting to the magazine. And as a Christmas cover it is truly an inspiration.

MRS. LORENZA ELWOOD

Milwaukee, Wisconsin

Dear Editor:

I have just finished reading the February issue and cannot refrain from adding my praise for the magazine. I add my agreement to Cecile J. Ransome in regard to the December cover. I too felt inspired by the beauty of it because it reminded me of the "unconquered spirit." Hope we have other such unusual types.

I am deeply interested in geology, rocks and minerals, and wish we had more reason in Milwaukee for field trips but this territory yields mostly fossils. Wisconsin Geological society has interesting meetings nevertheless.

LIBBIE BERAN

HERE AND THERE...on the Desert

ARIZONA

Hualpai Hermit Dies . . .

KINGMAN — William Watson, 80-year-old hermit, was buried near his lonely Hualpai mountain cabin in early spring after a cattleman looking for strays discovered his body on floor of his kitchen. For more than 30 years he had led solitary life, living on wild berries and roots, occasionally killing wild game. No food was in cabin and death was due to starvation. His early life remained a mystery, but in cabin was discovered set of Harvard Classics. He had marked verses in well-thumbed testament to be read at his funeral.

Former Governor Dies . . .

PHOENIX—Thomas Edward Campbell, first native Arizonan to become governor of the state, died March 1 following cerebral hemorrhage. He was born in Prescott, January 18, 1878, was first graduate of Prescott high school. He had been postmaster, mining engineer, member of territorial and state legislatures and tax commissioner before being elected governor, 1918. He had held many important national and international posts.

Navajo Wear New Jewelry . . .

WINDOW ROCK—Along with their traditional turquoise and silver jewelry, Navajo Indians here are proudly wearing war medals awarded Navajo heroes on battlefronts of the world and sent home to their folks on the reservation. Mrs. Henry Tallman, whose brother was killed in action and was awarded the Purple Heart posthumously, wears the medal with her ropes of turquoise. Among other medals seen are many Thunderbird insignia of "Fighting 45th" infantry of American Indians now in Italy.

Pow Wow Plans Considered . . .

FLAGSTAFF — Tentative plans have been made for All-Indian Pow Wow here in July. Pow Wow committee, Judge H. K. Mangum, president, is considering as tentative dates July 1 and 2, July 3 and 4 or July 2 and 4. Definite decision depends on availability of livestock and attitude of business men towards holding celebration this year.

Dons Hold Fiesta . .

PHOENIX—In place of the cancelled annual trek to Superstition Mountain, the Dons, with their Donnas, in colorful Western costumes, entertained a thousand guests March 26 at Pueblo Grande with a fiesta program, including Indian and Spanish lore and nature study.

Rain Sing Wets Marines . . .

HOTEVILLA — There's a time and place for everything, the assault Marines who fought in Marshall Islands will tell you. It was bright and warm and sunny as they stretched out on decks of a transport after an engagement. They relaxed in the sun, tried to forget cold rain drenched nights in foxholes. Pfc. Eugene Sekaquaptewa, whose home is near here, wanted to entertain them. He began to chant traditional rain song. The Marines listened, were lulled by soothing chant. Fifteen minutes went by, sky blackened, rain fell. Amazed, apologetic Pfc. said, "Honest, fellows—I didn't try to make it rain."

Arizona May Grow Own Corks . . .

PHOENIX—Local nursery is doing its part to "make America independent of other parts of the world for its supplies of cork." End of March, they were offering without cost 3000 cork oak seedling trees for transplanting, to residents of Salt river valley where it is believed such trees can be grown successfully. Seedling trees were propagated at Boyce Thompson arboretum near Superior, as project of Crown cork and seal company. Charles E. McManus, head of company, has spent several years studying possibility, has brought Melchior Marsa, head of Seville, Spain, cork-producing firm, here on advisory trip.

Navajo Seeks Cooperation . . .

FORT DEFIANCE — Reversing his stand on government's stock reducing program, Henry Chee Dodge, Navajo tribal council chairman, urged sheep growers to comply with the program. Speaking in the crowded court room where three Navajo charged with grazing more sheep than range permits allow drew suspended sentences, he said, "We are asking the government to help us with plans for betterment of the whole tribe and we should get this stock reduction program out of the way so we can go ahead with these plans."

Benjamin Franklin Harrison, prospector and miner in Yuma and Ogilby areas for past 20 years, died March 16 in Yuma.

Lon Jordan, 50, Maricopa county sheriff, died February 28. He was succeeded by his wife.

Harvey L. Mott, news editor Arizona Republic, was elected March 5 to presidency Arizona press club, succeeding Don Phillips, University of Arizona press bureau.

CALIFORNIA

Emergency Line for Palo Verde . . .

BLYTHE — Palo Verde valley, after long effort on part of irrigation district and California electric power company, at last has been assured of transmission connection with district's 675 horsepower diesel power plant near Intake, for emergency power when current is off from Imperial valley line during storms or other disturbances. Arthur Mullin, superintendent power company's Blythe substation, was notified in March that materials for 12-mile line have been released by war production board and power company would start immediate construction to be completed by April 10.

Alien Land Suits to Start . .

EL CENTRO—Approximately 18,000 acres of Imperial county land valued at \$2,700,000 will be involved in 144 civil suits against aliens holding land by having themselves appointed legal guardians of their minor children. District Attorney Charles G. Halliday is preparing data for suits requested by Attorney General Robert Kenny of all California counties. This county is said to have largest acreage under guardianship, except San Joaquin. Frequently Americans had complained that alien Japanese lived on and operated farms which were supposed to belong to their American-born minor children.

IID Power Hook-up Complete . . .

PARKER DAM—In peacetime February 28 would have been the occasion of an elaborate celebration by people served by Imperial irrigation district. On that date, at drop 4 hydro-plant on All-American canal, electrical energy generated here was synchronized with the district system, which included tie-in between Parker Dam - Imperial irrigation district power and major part of the former California electric power company system which district purchased October 15, 1943.



Date Committee Appointed . .

INDIO—At a mass meeting of 80 Coachella Valley date growers March 12, position of their industry in national wartime picture was outlined by Eugene C. Jarvis, secretary-manager of United date growers association. Through efforts of their Washington representative, J. Wallace Stevenson, they have been able to avert restriction of price ceiling, point rationing. To relieve board of directors of responsibility of preparing the necessary briefs, cost analysis and other data to support Mr. Stevenson's work, following committee members were chosen to act for the industry in government control matters: Kenneth Peck, Frank Schubert, Lee J. Anderson, Coachella; Perry W. Van Der Meid, William W. Cook, H. L. Cavanaugh, W. G. Jenkins, Dr. Hunter, Indio; Mrs. Sylvia Harris, El Centro; Col. Dale Bumstead, Phoenix, Arizona.

Alvah D. Hicks, pioneer Palm Springs developer, owner Palm Springs builders supply and Palm Springs water company, died in March.

Snow Caps Chocolates . . .

NILAND—Residents here awoke one fine mid-March morning to find Chocolate mountains beautifully snow-capped. It had been many years since snow had been seen on the Chocolates. Temperatures were reported not to have endangered uncovered vegetables growing here.

Along Strawberry creek near Idyllwild 4200 rainbow trout have been planted. Fishing season opens May 1.

San Gorgonio Inn, Banning, has been sold to Mr. and Mrs. R. T. Barton of Los Angeles.

NEVADA

Indian Agent Goes to Alaska . . .

STEWART—Don C. Foster, superintendent Carson Indian agency, which covers all of Nevada except two counties and includes three California counties, has been appointed general superintendent of Alaskan Indian service. Foster's new headquarters will be in Juneau. His successor is Ralph Gelvin of Arizona.

The Desert Trading Post

Classified advertising in this section costs five cents a word, \$1.00 minimum per issue— Actually about 1½ cents per thousand readers.

MISCELLANEOUS

Wanted to Buy—Genuine pre-historic Indian obsidian arrowheads and spears. Lynn Crandall, Box 697, Idaho Falls, Idaho.

MUSEUM SUPPLIES WANTED: Anything suitable for museums. Rocks, Minerals, Fossils, Guns, Horns, Beadwork, Meteors. Catalogue 25c. Museum Supplies, 6601 Oshkosh, Chicago 31, Ill.

WRITERS: Broaden your market horizons. Send for Free Circular D-54, describing Unified Sales Plan for international placement of your work. Otis Adelbert Kline, Literary Agent, Established 1923, 507 Fifth Avenue, New York 17.

FOR SALE—10 beautiful prehistoric Indian arrowheads, \$1; 10 tiny perfect bird arrowheads, \$1; 10 perfect arrowheads from 10 different states, \$1; 2 perfect stone tomahawks, \$1; 4 spearheads, \$1; 5 stone net sinkers, \$1; 10 perfect fish scalers, \$1; 2 hoes, \$1; 4 perfect agate bird arrows, \$1; 5 perfect flint drills, \$1; 7 perfect flint awls, \$1; 10 beautiful round head stunning arrowheads, \$1; 4 fine perfect flying bird arrowheads, \$1; 4 fine perfect drill-pointed arrowheads, \$1; 4 fine perfect duell-pointed arrowheads, \$1; 4 fine perfect double notched above a barbed base arrowheads, \$1; 5 perfect double notched above a stemmed base arrowheads, \$1; 12 small perfect knife blades of flint, \$1; rare shaped ceremonial flint, \$1; flint chisels, \$1; 7 crystals from graves, \$1; 10 arrowheads of 10 different materials including petrified wood, \$1. All of the above 23 offers for \$20. Locations given. 100 arrowheads all perfect showy colors and including many rare shapes such as drill pointed, double notched, saw edged, queer shapes, etc., location and name given, \$25.00. List Free. Lears, Glenwood, Ark.

THE ROCKHOUND COLONY GROWS—Eighteen to date. We'll have a name by next issue. So many have written they are coming in April to buy that I expect we'll soon be sold out. If you belong to the rockhound fraternity and are looking for a fine location and a nice place to live, write for particulars. We want only the best people and want you to be satisfied or we don't want you. We want a colony that will be TOPS in every way. Come and look things over. The Colorado Gem Co., Bayfield, Colo.

The BASIC FACTS of your unknown self. Do you know their beneficial nature and where to find them? Address: BASIC-RESEARCH LABORATORIES SYSTEM, 785 Lafayette Street, Denver 3, Colorado.

25 Genuine Indian arrowheads, \$1.00; Tomahawk head 50c. Cat. of Indian relics, crystals and ore specimens. Geo. Holder, Glenwood, Ark.

LIVESTOCK

KARAKULS producers of Persian Lamb fur are easy to raise and adapted to the desert which is their native home. For further information write Addis Kelley, 4637 E. 52 Place, Maywood, California.

"Karakul Fur Sheep — America's Great Livestock Opportunity—You can be a part of this fascinating business and have your Karakuls cared for by experienced rancher. Write for details, James Yoakam, National Distributor, 1128 No. Hill Ave., Pasadena, California."

REAL ESTATE

For Imperial Valley Farms—
W. E. HANCOCK
"The Farm Land Man"
Since 1914

El Centro — — — California

Scrugham to Push Davis Dam .

LAS VEGAS-Senator Scrugham, following refusal of war production board to resume construction of Davis or Bullshead dam on Colorado river, has brought the matter to department of state. He had informed WPB that "In the pending treaty with Mexico involving the Colorado river, the consent and approval of the senators from Nevada is specifically based upon the resumption and completion of the work on the Davis dam, and there is approximately \$8,000,000 which has been appropriated for this purpose." He stated further, "It is my belief that the construction of the Davis dam within the near future is most necessary for the production of additional electric power for the rapidly expanding industrial life of the Nevada-Arizona-California area and that the building of this project will not hamper or hinder the successful prosecution of the war."

More Dam Power Recommended . . .

CARSON CITY—Installation of additional electric transformer capacity for Nevada at Boulder dam was recommended March 22 to Nevada Colorado river commission by E. W. Rockwell, Los Angeles consulting engineer. One installation considered would cost about \$600,000, with transformers placed at power house below the dam. Another method would require installation at BMI plant, costing \$250,000. Objection to latter is the inter-connection of circuits.

Huge Postwar Project Outlined . . .

RENO—Proposed postwar flood control-irrigation-power development plan would cost about \$17,000,000, would reduce Lake Tahoe's upper water level 1.1 feet, would construct dams and reservoirs on Truckee, Carson and Walker rivers. Nevada would receive about 65 per cent benefits, California, 35 per cent. Governors of two states, with committees, are considering detailed reports of engineers.

Nevada Wool Clip Down . . .

CARSON CITY—Despite higher wool price of 1943, Nevada sheep men received \$107,000 less for wool clip than in 1942. Total 1943 value was \$2,035,000. Reasons for loss were lighter average weight of fleece, 20,000 less sheep clipped, advancing cost of feed, larger number being sent to California for wintering.

NEW MEXICO

New Mexico State Fair . . .

ALBUQUERQUE—New Mexico state fair, September 24 through October 1, is expected by Leon H. Harms, secretary, to attract the "largest crowd in fair history" drawn largely from within the state. Attractions planned include a rodeo, palomino and quarter horse shows, livestock displays, fireworks, horse racing.

Indian Status to be Studied . . .

SANTA FE-House of representatives voted in March to direct its Indian affairs committee to investigate status of American Indians, to make recommendations to better their economic welfare and decrease costs of operating Indian bureau. Chairman Sabath (D., Ill.) of rules committee said it was believed \$10-\$15,000,000 annually could be cut from bureau expenses of the approximately \$32,000,000 appropriations. Rep. Mundt (R., S.D.), author of the resolution, denied he had introduced it because a senate committee last June made a report which included recommendation for immediate abolition of Indian bureau. He said he believed, however, the bureau eventually should be eliminated "over a period of many years." There are about 360,000 Indians in this country and 40,000 in Alaska.

Southwest Too Big for Nazis . . .

CLOVIS—Two nazi war prisoners who escaped from Eighth service command camp in Texas discovered the Southwest to be much bigger than their geopolitik courses had informed them. They had wandered for three days after leaving their enclosure and were amazed to find they were still inside the military reservation. Another, three days on train bound for prison c amp, remarked confidently, "We're in Mexico now. I know no country in the world is this big." (Eighth service command embraces 154,000 acres in Texas, Oklahoma, Arkansas, New Mexico and Louisiana.)

Mrs. Kenneth M. Chapman, wife of former director of Laboratory of Anthropology, Santa Fe, died March 14 in Colorado Springs.

New Mexico American Legion has set June 23-24 as dates for annual convention in Albuquerque.

UTAH

Urges Postwar Travel Plans . . .

SALT LAKE CITY-Utah organizations were urged by Dr. Howard R. Driggs, president American Pioneer Trails association, to proceed at once with plans to mark notable trails and historical points and to prepare accommodations for hundreds of thousands of visitors who will come west after the war. Dr. Driggs, professor emeritus of English education at New York university and native Utahn, declared, "The program not only will increase postwar travel, expected to be tremendous, but by reviving stories of the pioneers and interesting children in the freedom-loving traditions of their fathers the program will build morale and thus help prosecute the war."

Supply Depot to be Expanded . . .

CLEARFIELD—Storage and shipping facilities of naval supply depot here, already largest of its type in country, will be expanded by \$3,600,000 appropriation. Earlier this year the depot received allotment of \$995,000 for additions and improvements which already are under way. Among plans for another building program are cafeteria and dispensary additions, new firehouse, recreational facilities, new barracks for WAVES. Several hundred more WAVES are expected at the depot soon.

Salt Lake Artist Dies . . .

SALT LAKE CITY—Norman Jacobsen, 59, member of Associated Artists of Utah and Salt Lake Art Barn, died here March 10 of pneumonia. He had illustrated many books, some of which he wrote. For 17 years he had traveled around the world, conducting exhibitions in most capital cities. He had lived here three years.

Utah state junior livestock show is scheduled for May 4, 5 and 6 in Spanish Fork.

Utah pharmaceutical association will hold 52nd annual convention at Hotel Ben Lomond, Ogden, June 5 and 6.

Ogden Pioneer Days is scheduled for July 21-24 inclusive.

Utah state dental society will dedicate annual convention in Salt Lake City, June 7, 8 and 9 to 100th anniversary of nitrous oxide gas as an anesthetic.

Robbers' Roost Round-Up will be held in Price, June 28, 29 and 30.

Salt Lake county fair will be held August 23-26 at Murray county fairgrounds.

Ogden livestock show will be held November 4-8 inclusive.

A WESTERN THRILL

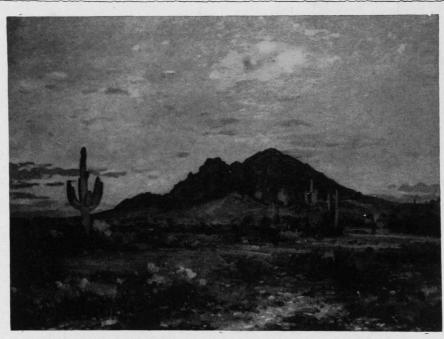
"Courage," a remarkable oil painting 20x60 feet, the Covered Wagon Train crossing the desert in '68. Over a year in painting. On display (free) at Knott's Berry Place where the Boysenberry was introduced to the world and famous for fried chicken dinners with luscious Boysenberry pie.

You'll want (1) A 4-color picture of this huge painting suitable for framing. (2) A 36-page handsomely illustrated souvenir, pictures and original drawings, of Ghost Town Village and story of this roadside stand which grew to a \$600,000 annual business. (3) Two years' subscription (12 numbers) to our illustrated bi-monthly magazine of the West. True tales of the days of gold, achievements of westerners today and courageous thoughts for days to come. Mention this paper and enclose one dollar for all three and get authentic western facts. Postpaid.

and get authentic western facts. Postpaid.

GHOST TOWN NEWS,

BUENA PARK, CALIF.



"SUNLIGHT ON THE MOUNTAIN"

Desert artist Lon Megargee's color lithograph of Camelback Mountain in natural red-gold and smoky azure of Arizona. Each 16x12 print signed by the artist and printed on white mat suitable for framing. A colorful bit of the Southwest for your living room, a beautiful gift for your desert-minded friends. \$3.00 postpaid.

California buyers add 21/2% tax.

Send orders to . . . DESERT CRAFTS SHOP, El Centro, California

Mines and Mining..

Washington, D. C. . . .

To stimulate further mica production, Colonial mica corporation, agency of Metals reserve company, until June 30, 1944, will pay a bonus of \$1 a pound, making total current price \$6 a pound, to producers meeting certain specifications. Colonial also will meet the guaranteed price of \$5 a pound until December 31, 1944, to those meeting requirements. Value of Colonial purchases of domestic sheet and punch mica in 1943 was approximately \$3,200,000, compared with about \$750,000 for 1942.

Pasadena, California . .

Special war training course in mining geology given tuition-free by California institute of technology started April 11, meeting two evenings weekly for ten weeks on institute campus here. Course includes methods of surface and underground mapping, interpretation of mine maps, important rocks and minerals, types of ore deposits, sampling and ore evaluation. Applications should be made to War training office, California institute of technology, Pasadena 4, California.

Goldfield, Nevada . .

Postwar prospecting by airplane was seen as a logical development by Hans Lundberg of Toronto, one of world's foremost pioneers of geophysical, magnetic and electrical prospecting methods at March meeting in New York of American institute of mining and metallurgical engineers. He said airplane prospecting is expected to substitute for foot travel and what prospectors call the running of lines. No details about flying prospecting instruments could be made public because of military possibilities. Lundberg urged that mining schools and universities prepare for postwar training in practical prospecting.

Santa Fe, New Mexico . .

Just when Francis C. Wilson, attorneyturned-oil man, was preparing to abandon an oil well, fearing sulphur water was about to be reached, oil was struck and well turned out to be a good one. It is located in West Eunice field, Lea county.

San Francisco, California . .

California Journal of Mines and Geology, published by state division of mines, Ferry building, April, 1944, features geology of San Benito quadrangle. Location and geographic features, geomorphology, stratigraphy, structure and structural history, paleogeography, mineral resources are main features considered. A geologic map to accompany the study will be ready for purchasers before summer of 1944.

New York City . .

McHenry Mosier of U. S. bureau of mines told joint meeting of Society of Economic geologists and American Institute of Mining and Metallurgical engineers that mercury has been taken from list of critical minerals. This has been brought about by government loans, aid from bureau of mines, and high prices. Present annual production of more than 50,000 flasks may have to be curtailed through strict government controls, as present stocks seem to be quite sufficient, he said.

Darwin, California . . .

Geology of tungsten deposits of Darwin Hills, Inyo county, California, is subject of recent article by L. Kenneth Wilson, geologist for E. L. Cord mining interests. High grade scheelite ore was first discovered in Darwin area in 1940 by Curley Fletcher, president and general manager of Darwin consolidated tungsten, was followed by acquisition of 23 mining claims in the area by Cord interests 1941. Wilson's detailed report on geology and mineralogy of the deposits is available from author at 640 Muir avenue, Lone Pine, California.

Denver, Colorado . . .

Coal producers of Colorado, New Mexico, Utah and Wyoming will discuss problems of their industry and relation to war activity at Rocky Mountain coal mining institute to be held here June 8, 9 and 10. Gomer Reese of Oak Creek is president. Utah officials are Claude P. Heiner, vice-president; Paul L. Shields and Wilford Ruff, executive board members for Utah.

Bishop, California . .

Total of 249,523 tons of borate material, valued at \$4,953,174, was produced in California in 1943, bulk from two properties in Inyo county and two in northern San Bernardino county. Material included sodium borates from Kern county, crystallized borax prepared by evaporation of brines at Searles Lake in San Bernardino county and Owens Lake in Inyo county, and a small amount of colemanite from Death Valley. Production for 1942 was 203,716 tons.

Reno, Nevada . . .

Robert S. Moehlman, in charge of Anaconda Copper mining company's Nevada geological exploration, has been chosen chairman of Nevada section, American institute of mining and metallurgical engineers for the ensuing year. Paul Gemmill of Pioche, engineer and geologist for Prince consolidated mining company, is the new vice-chairman.

Salt Lake City, Utah . . .

Discovery of long suspected but hitherto unproved coal area in northeastern Sanpete county has been made by U. S. geological survey and bureau of mines. Report of geological survey's senior hydraulic engineer, Ralf Rumel Woolley, discloses the field (referred to as Mt. Pleasant coal area) to vary from high to secondary quality and to be located on west front of Wasatch plateau, 800 to 2000 feet below the surface. The thicker beds in the lower levels are in the Blackhawk formation of upper Cretaceous age.

Washington, D. C. . .

Over vigorous protests of mining industry, war production board announced that April 30, 1944, would mark end of premium price payments to domestic tungsten producers due to fact that stocks are in excess of a year's estimated needs. The board said similar action would be taken on foreign tungsten purchases. Eligible producers, after April 30, will be paid regular market price of \$24 per unit (20 pounds to short ton) of tungsten content of their ore, in contrast to the premium price of \$30 per unit.

Tucson, Arizonα . . .

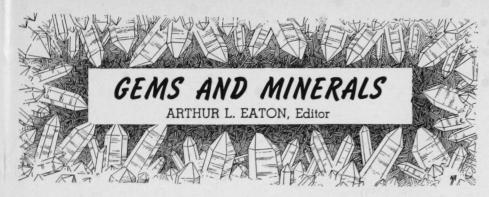
Thomas O. McGrath, 61, Arizona mining expert and manager of Control mines, died March 29. He had been associated with Arizona mining activities since 1906. He was past president Bisbee chamber of commerce.

Santa Fe, New Mexico . . .

In announcing summer projects for newly reorganized state bureau of mines and mineral resources, State Geologist John Kelly, bureau director, stated, "We feel that New Mexico's greatest development in the postwar era probably will be in the field of minerals—including metallic and non-metallic mining and oil and gas." Among the projects are the printing of "Manganiferous Deposits Near Silver City," a bulletin by Lawson Entwistle; revision of bulletin "Fluorspar in New Mexico;" study of oil and gas possibilities of Chupadero Mesa east of Socorro; county-by-county economic survey.

Salt Lake City, Utah . . .

Mrs. Alice L. Gilson, 96, widow of S. H. Gilson, discoverer of mineral gilsonite, died here January 29. At age of six she crossed the plains from Missouri. She married Samuel Henry Gilson in 1865 in Nevada where they lived until 1870, when they came to Salt Lake City. A pioneer in aviation, Mr. Gilson is said to have constructed airplane models which drew attention of Curtis and Wright brothers. He discovered the mineral, named in his honor, which is used as base for paints and varnishes. He died in 1913.



DISTINGUISHED AUTHORITY ON MINERALOGY DIES

George Letchworth English, author of Getting Acquainted with Minerals, died January 2, 1944, at his winter home, Winter Park, Florida. He also wrote Descriptive List of the New Minerals and shortly before his passing had com-pleted a volume titled In the Field for Minerals which soon will be available.

NININGER DISCOVERS STONY METEORITE IN KANSAS

Interest in meteorites has been heightened recently by the find reported by H. H. Nininger of the American meteorite laboratory, Denver, Colorado. As the representative of an oil company, Nininger was traveling through Cowley county, Kansas, where he found a two pound stony meteorite almost in the dooryard of a farm house. Nininger reports that he had stopped to pump a drink from the farm well, when he noticed the large, rusty looking specimen among the bushes at a short distance. This in itself was a rare find, as such good luck seldom falls to the student of meteorites, but it was especially rare, as this is the first meteorite found within from 50 to 100 miles of the spot.

FORMERLY "WORTHLESS" OVERBURDEN RECOVERED

C. V. Firth, metallurgist at University of Minnesota, reports that research metallurgists have found a method of converting billions of tons of now worthless "lower slaty" over burden rock on the Mesabi range to pure iron

. . .

The "lower slaty" rock is ground into a black mud, treated with acid and oxidized. Pellets of pure iron are produced. These pellets are ground into powder which can be pressed into molds and baked at 2000 degrees fahrenheit. Cost per pound is about five cents. Gears, bearings, brake drums, etc., are cast. Casting process produces a metal product accurate to one thousandth of an inch, with a strength between that of cast iron and steel.

NEW PROCESS DEVELOPED TO RECOVER ALUMINUM

It long has been known that most clays contain a very high percentage, sometimes as much as 50 per cent, of aluminum. Several processes are known for removal of the aluminum from clay, as cheaply as from bauxite, but technical difficulties have made them impractical. Among these difficulties are the essential presence in one place of large quantities of the clay itself, limestone, and the fuel needed for the removal of the metal. It is necessary to use two tons of limestone to each ton of ore. But, even with these difficulties, a South Carolina company already has successfully carried out the process in a pilot plant and now is constructing buildings on a commercial basis.

GRAND JUNCTION CLUB PLANS YEARLY PROGRAM

Mrs. Richard H. A. Fischer, secretary Grand Junction, Colorado, mineralogical society, submits the following interesting program planned for 1944:

Feb. 7-Colored pictures of settings in Colorado museum of natural history and scenic spots in western Colorado-Robert M. Porter, naturalist and photographer.

Feb. 21-Development of oil shale and history of the discovery of the western Colorado deposit-Frank Merriell, C. E., Colorado river authority.

March 6-The Morrison formation and what to expect to find in various locations-W. L. Stokes, Ph.D., Princeton.

March 20-Early Paleozoic sediments of the Rocky mountain region-D. Duncan, M. A., University of Montana and Princeton.

April 3—An outline of western Colorado geology—Richard P. Fischer, Ph.D., Princeton.
April 17—An illustrated lecture on "My ears spent in mining gold in Arabia"-Theo.

Barrett, E. M., University of Minnesota. May 1—Cut gem and mineral exhibit by

May 15—Cut gem and mineral exhibit by members of the society.

May 15—Photographic slide lecture on Philippine mines and the U. S. Army coal mines—C. R. Reinhold, E. M., University of Minnesota and former superintendent of U. S. Army coal mines.

Members of the Rocky mountain federation traveling through Grand Junction, Colorado, are invited to attend these outstanding lectures. .

.

It once was believed that bloodstone had the power to cause tempests and lightning, to guard the wearer's health, bring him respect of others and guard him from deception. The gem was supposed to check hemorrhage and frequently was cut heart shape for this purpose.

COLORFUL MINERALS

WULFENITE

Wulfenite, molybdate of lead, is very colorful, ranging from yellow and orange to aurora red and even scarlet, or grey. It sometimes forms large groups and clusters of thin tetragonal crystals in one of these colors, or even showing more than one. Other specimens show flat tabular crystals with finely beveled edges scattered over the surface of the ore. The crystal groups are very heavy as they have a specific gravity of almost seven. Beautiful specimens can be obtained from the desert regions of New Mexico, Arizona, or Old Mexico.

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CEYLON ZIRCONS-50c per carat. STAR SAPPHIRES-\$1 per carat. COLOMBIA EMERALDS-\$10 up each.

Synthetic Stones. Rare Cameos, Necklaces, Stickpins, etc. Rough Gems for Cutting in Garnets, Tourmalines, Quartz-Topaz, Nephrite, etc.

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Western portion of Imperial county, California, produces numerous small crystals of common feldspar. Many of these crystals are less than one inch in length. They occur in narrow ledges of feldspar between much larger deposits of rapidly decomposing granite. The granite, as it breaks down, allows the feldspar to escape into the sand below, where it is rapidly scattered far and wide. Color varies through white or grey to flesh pink.

In Sierra Leone, a British territory in northwest Africa, a gem quality diamond weighing 530.5 carats in the rough recently was picked up. This is far the largest gem diamond ever found in this British colony. Largest previously reported was less than 200 carats.

California journal of mines and geology reports a new rock found in the San Gabriel mountains called mylonite.

GEM MART

ADVERTISING RATE 5c a Word — Minimum \$1.00

- INTRODUCTORY OFFER—One dollar each lot. Five all different Fluorescent Agates—polished. Thirty rough Mexican Opals. Fifty nice pieces Turquoise. Twenty different polishing specimens. Postage ten cents. Minerals and gems on approval. DR. RALPH MUELLER, Professional Building, Kansas City, Missouri.
- AGATES, Jaspers, Opalized and Agatized woods, Thunder eggs, polka dot and other specimens. Three pound assortment \$1.50 postpaid. Glass floats, price list on request. Jay Ransom, 3852 Arboleda Ave., Pasadena 8, Calif
- \$2.50 brings you prepaid six rare and beautiful crystallized Arizona minerals. Vanadinite, Dioptase, Wulfenite, Willemite, Chrysocolla, Azurite. Specimens 1½x2 or larger. Wiener Mineral Co., Box 509, Tucson, Arizona.
- 100 Jewelry Stones removed from rings, etc., \$2.00. 12 articles of Antique Jewelry, rings, pins, etc., \$3.00. B. Lowe, Box 311, St. Louis 1, Missouri.
- Choice Palm Root—Full of eyes showing root and trunk structure. Very colorful. Sliced for Cabochons. 25 cents per square inch. Satisfaction guaranteed. GASKILL, 400 North Muscatel, San Gabriel, Calif.
- Beautiful agate, flower jaspagate, picture jasper and dinosaur bone. Assorted lots of cutting material, gem quality, ten pound package \$10.00. Four pound package \$5.00. Send postage. Mrs. Richard Fischer, Box 555, Grand Junction, Colo.
- Swisher's rocks, minerals and petrified woods. Island corals, shells, shell costume jewelry, fine copper minerals from Bisbee, Arizona. Fine quartz crystals from Arkansas. Also fine line of Art Figurines. Swisher's, 5234 So. Broadway, Los Angeles 37, California.
- 12 pre-historic Lizard scales. 4 Colorado mineral specimens 1 x 1½, all for \$3.00. Ad in April issue is still good. Jack The Rockhound. P. O. Box 86, Carbondale, Colo.
- Minerals, Fossils, Gems, Stamps, Coins, Pistols, Glass, Bills, Indian Relics, Bead Work. Catalogue 5c. Cowboy Lemley Curio Store, Las Cruces, New Mexico.
- Serpentine core drillings ½ in. diameter to 12 in. in length. Nice for cabinet. 15c inch. Postage please. C. Earl Napier for Rock. Yosemite Highway above Knights Ferry, Calif.
- COPPER WATER REPLACEMENT SOUVENIRS (limited supply) from California's Copper City. Solid copper nails (once common iron nails) which have "turned to copper" through the action of copper water from the mines. One 4½-inch specimen, 50c, or a pair attractively assembled, \$1.00. Postage prepaid for cash, or sent C.O.D. plus postage. Edwin N. Dawson, Box 83, Copperopolis, Calif.
- Six Beautiful Quartz Mineral Specimens, \$1.00 postpaid. Selman Stone, Pine Valley, Calif.

- INDIAN RELICS, Curios, Coins, Minerals, Books, Old Buttons, Old Glass, Old West Photos, Weapons, Catalog 5c. Lemley Antique Store, Osborne, Kansas.
- ROCK COLLECTORS, ATTENTION! Notice address change. 2 only—Choice iron pyrite XL groups 9x7x3-inch and 7x5x3½-inch each at \$25.00. 1 only—Choice limonite after pyrite XI. group, 7x5x3½-inch, at \$25.00. 1 fine benitoite, neptunite, natrolite, spec. 2½x1½-inch over 26 XLS at \$25.00. 1 museum spec. 12x11x2½-inch over 60 XLS, \$100.00. I large sky blue fluorite and barite XL, group 11x6x5-inch \$35.00. Other groups from \$2.50 up. Groups of amethyst phantoms in qtz. XLS \$2.50 to \$7.50. 1 museum group 15x9x5-inch over 100 points and lots of pyrite XLS, \$100.00. Past offers all good. No catalogs. The Rockologist (Chuckawalla Slim), Garvey Trailer Park, 941 E. Garvey Blvd., Garvey 32P, Calif.
- Worm bored Petrified Wood, \$1.00 per pound. Dinosaur Bone, 50c and \$1.00 per lb., plus postage. Bill Little Gem Cutting, Hesperus, Colorado.
- 20 mixed fossils \$1.00. 100 ancient Indian arrowheads \$3.00. 10 tiny bird arrowheads \$1.00. List. Lear Howell, Glenwood, Ark.
- Agate Jewelry and Oregon Agates: One dollar with ten cents for postage brings you four sawed moss agate slabs in excess of ½ inch by ¾ inch for making cabochons or ring sets. These are quality. E. Lee Sigfrit, 211 Congress, Bend, Oregon.
- Water clear Quartz Crystals of the finest quality obtainable, single points from 10c to \$2.50 each. Clusters or groups from 35c to \$25.00 and up. Beautiful Cabinet Specimens at \$5.00, \$7.50, \$10.00 and \$15.00 each. Wavelite 50c lb. Egg size specimen of strong magnetic ore 25c. Wholesale and retail. Satisfaction or money back guarantee. J. L. Davis, 303 Ward Ave., Hot Springs, Arkansas.
- Montana Moss Agates in the rough for gem cutting, \$1.00 per lb. plus postage. Elliott's Gem Shop, 26 Jergins Arcade, Long Beach 2, Calif.
- 50 assorted ring stones, including genuine and synthetic, \$7.50. Genuine Zircons, blue or white, 3 for \$3.75. Twelve genuine Cameos or Opals, \$2.50. B. Lowe, Box 311, St. Louis 7, Mo.
- Tourmaline matrix, in quartz crystals, \$1.00 to \$30.00, tourmaline pencils, 50c to \$5.00, Essonite garnet-green-clusters, 50c to \$3.00, unique specimens. Sagenite agate, \$1.00 to \$4.00, specimen rough nodules. Gem list 10c. Return specimens if not satisfactory. The Desert Rats Nest, 2667 E. Colorado St., East Pasadena, Calif.
- Gem Jasper from Indian Ridge, Ohio. Beautiful pastel colors. Makes lovely cabochons; 2 ounces rough for only 25c, or \$1.50 per lb., postpaid. Lake Superior Agates 10c each and up. Wyoming Jade, gem quality, slabs of all kinds. Send for list. James W. Riley, RR. 2, Springfield, Ohio.

AMONG THE ROCK HUNTERS

East Bay mineral society, Oakland, enjoyed a sound film on alloy steels at first March meeting. Members displayed their specimens relating to the subject. At March meeting, R. Whalley illustrated with kodachrome slides his talk on a pack trip through the high Sierras.

The Rockpile, bulletin of East Bay mineral society, lists names and addresses of dealers and others who sell minerals but do not advertise.

Leland S. Chapman says that the fact that malachite will stain rock 250,000 times itself has cost investors and prospectors millions of dollars.

Dr. A. Goetz of Cal Tech talked on the growth of a crystal at March dinner meeting of Los Angeles mineralogical society. Mont A. Forbes also spoke briefly on the life and work of Professor Joseph Le Conte.

Los Angeles mineralogical society has been busy recently in making constitutional amendments and changes.

- Capt. J. D. Hubbard, E. M., states that despite popular misconception that California has no coal, every form of coal except anthracite is found in California. California Indians used coal deposits for ages and are still using them. Miles and miles of coal deposits are located in northern California coast counties.
- J. T. Clementsen, Garden Valley, El Dorado county, California, reports a good deposit of asbestos.

Lapidary branch of Long Beach mineralogical society has a new mud saw which was initiated at the March meeting held in Bill Carlson's shop, 562 Darnell street, Bellflower.

Dr. James H. Hance, former dean of school of mines, University of Alaska, Fairbanks, spoke on cold weather effect on mineralogy and geology of Alaska. This lecture completed his talk begun at February meeting. He also discussed origin of gold in placers. Members displayed Alaskan minerals, rocks and souvenirs. The group held their annual spring party March 25.

Elmer Eldridge was in charge of the program at March meeting of Sequoia mineral society.

Pvt. Dora Andersen of the WACs, home on furlough, attended the annual Sequoia banquet.

Imperial Valley gem and mineral society had the best attended meeting of the season March 4 at the Chesnut home in El Centro, Mary Jane Neal and Eva Wilson, hostesses. Members displayed their pet specimens, making an exhibit so interesting that it was held open all day Sunday for the benefit of the public.

Long Beach mineralogical society names each meeting for a mineral. February was petrified wood; March, copper minerals and geodes. A specimen display of the mineral under discussion is held by members. Charles E. Rogers of Standard oil company showed the motion picture Land of Liberty at March meeting of the society.

E. W. Steele of American smelting and refining company, talked about the unexplored interior of Brazil at March meeting of New Jersey mineralogical society, Plainfield, N. J.

Orange Belt mineralogical society discussed gems at March open forum held in San Bernardino junior college. Jay Wilson spoke on diamonds, Ada Ranney on zircons and Virginia Ashby on tourmaline and other gems of Pala, San Diego county. Twenty-one members and two visitors were present.

Mrs. Frances Pittman, publicity chairman of San Fernando valley mineral society, reports election of the following officers: Cash Ferguson, president; Don Graham, vice-president; Verna Mann, secretary; Charles Clark, treas-urer. Secretary's address is 14508 Delano St., Van Nuys, Calif. Members Willard Perkin and George Parker talked on crystal origin and electronic theory respectively at March 9 meeting. Perkin has a collection of crystals from all over the world.

Wm. T. Reburn, research and development department of American potash and chemical corporation, talked on organic minerals at March 15 meeting of Searles Lake gem and mineral society. Harvey Eastman showed colored movies of the Trona area. The group field-tripped March 19 to the eastern slope of the Argus range, just north of the Slate range crossing.

Helen Griffing, secretary Western Nevada rock and mineral club, reports that the group has suspended active operations for the duration. Miss Griffing has opened a shop featuring western curios, rocks and minerals at 33 W. First St., Reno, Nevada.

Kathleen Owen, president, was hostess at March meeting of Golden Empire mineral society, Chico, California. Officers of the group Kathleen Owen, president; Julia Schaffer, vice-president; Genevieve Jezler, secretary-treas-urer; Mary E. Meakins, librarian; Roy Pearson, Leta Little, Russell Beale, directors. .

Harry Lee Martin talked on zinc mining at March meeting of Pacific mineral society. Martin is chairman of zinc committee of the mining association of the southwest and president of Argentina consolidated mining company with mine and mill at Goodsprings, Nevada. Members of the society made a field trip to Goodsprings a couple of years ago.

Seattle Gem Collectors' club at March meeting elected following officers: Lloyd L. Roberson, president; Walter L. Larson, vice-president; Mrs. Ralph U. Gustafson, secretary; Jack Dennis, treasurer. Mrs. Arthur Foss spoke on Copper Ores and exhibited fine specimens of the various forms which she collected on her recent Arizona trip.

M. E. Peterson, teacher of mineralogy at Canoga Park, was guest speaker at April meeting of San Fernando Valley mineral society. He talked on how to find minerals in the field, giving suggestions on identification and field tests for beginners.

War production board has just released figures which show a 75 per cent increase in the aluminum production of the United States for 1943. The amount of aluminum produced in the country during the 12 months reached a total of almost two billion pounds. The surplus may cause the temporary closing of some aluminum plants.

W. Scott Lewis says that in order to keep bornite and pyrite specimens bright one should make a solution of two ounces oxalic acid to a quart of hot water. Soak specimens over night, wash to remove acid and when dry brush them briskly with a stiff brush. (N.B.—Don't pour oxalic acid into sink or similar material. It destroys the finish.)

Cogitations

Of a Rockhound By LOUISE EATON

- · Th furst thing unrockhouns says, nine timz outta ten, when they sees sumwuns rox is "Eny gold in um?" But gold is about the last thing rockhouns looks for 'r thinks uv. If a rockhoun should ever discover a gold vein 'r find sum nuggets he'd be about the most surprized hombre in the U.S.A. Probably wouldn't even scrutinize it careful cuz it didn't look like good polishin' material.
- Desert flourz 'n desert people is a lot alike in sum ways. They neither uv um transplants very well 'n aren't happy in a nother habitat. Both is tuf, tho. Ethereal as they seems, desert lilies, flox, verbeanas, etc., out lasts any carefully cultivated blossum when picked and put in water. Likewise, desert folkes stands

a lot uv punishment, but with a little a lot uv punishment, but with a little care 'n not too many hard nox they also lasts a long time. Folkes and flourz is alike in wun more way: they strikes back quick if yu tromple on um. Ev'ry plant has thorns—and peepul has thorny tempers—they fights furst 'n talks afterwards.

TRUE OR FALSE ANSWERS

Quiz on page 18

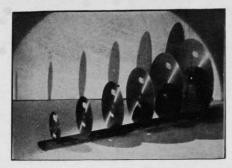
- 1—False. Lowest U. S. elevation at Bad Water, Death Valley.
- 3-False. Varies according to color and continents where found.
- 4-False. Greatest Pueblo evacuation occurred about 1299. Spaniards came about 1540.
- 5-False. Boulder Dam is in Black canyon.
- 6—True.
- 7—False. According to Jaeger, with one or two exceptions 'not fully understood" all shells are of mollusks which lived in fresh water lakes formed by incursions of Colorado river.
- 8-False. El Paso is south of Albuquerque, on lower Rio Grande river.
- 10-False. Desert Lily is white with bluish-green band down middle of back of each petal.
- -True.
- 12—False. It is calcite colored green, with hardness of 3 instead of jade
- hardness of 7. 13—False. Source of commercial turpentine is species of pine.

 14—True. 15—True.

 16—False. They live in trees or tree-like
- plants such as yuccas.

 -True. Present sea is due to inflow
- of Colorado river, 1905.
- -False. Diet includes swifts, horned lizards, young snakes, grasshoppers,
- crickets, various worms.
 -False. Noncrystalline forms include
- flint, chert, jasper. 20—False. Alarcon was first Spaniard to see Grand Canyon.

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14-inch	\$11.00	

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By LELANDE QUICK



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TELEPHONE TUcker 6801

428 Metropolitan Bldg. LOS ANGELES, CALIF. Shortly after I had written last month's copy on the danger to amateur gem cutters of contracting silicosis I received a letter from Charles Simpson of Quincy, Washington, who said, "Good men have died from silicosis caused by breathing silica dust from sanders. I don't think enough good people realize the danger and I think a warning should be published." My warning was then at press and it's too early for advice from my recent query but I expect some and I will publish it when received.

In the meantime the thought occurs to me that if the masks worn by doctors and nurses in the operating room are enough protection for asepsis surely they should be adequate for safety measures by gem cutters. They may be purchased from local hospital supply firms. In fact, I think a handkerchief over the mouth would be a great protective measure. Once I saw the dust-ladened lungs removed at autopsy from a coal miner and I have sympathized with their labor demands ever since. It would shock most of us to see what could happen physically to a person careless about inhaling too much dust from sanders. To repeat, anyone with a predisposition to lung disease or with a history of it in the family, should be cautious.

Simpson says he has 200 years of cutting ahead of him and he'd rather leave a few unfinished slabs than die a few years too soon. Now 75, he retired last July from his job as custodian of the Ginkgo state park near Vantage, Washington (see Graveyard of an Ancient Forest" in August, 1940, Desert Magazine) and he has a hobby house named after his famous twin squirrels cut from a petrified log and illustrated as noted. Petrified wood enthusiasts would do well to write Charlie, who has one of the greatest piles of all varieties of silicified wood in existence although he doesn't say it's for sale.

In March, 1943, Desert Magazine, I told how L. E. Perry had adapted his gem cutting prowess to the war effort by becoming a grinder of lenses and prisms, after an earlier suggestion of mine in September, 1942. The result of this item was that several people wrote to him, or were referred by me to him, who came to California from all over the country and got grinding jobs. Perry became an expert and originated a safety idea that saved the government many thousands of dollars for which he received a bonus. A recent letter from him states that "the people who secured the work and the government owe a debt of gratitude to your good article in Desert Magazine for you have helped thereby in the war effort." Thank you, friend Perry. I have an idea that no hobby has been adapted as readily to the war program as has gem grinding. The lack of precision grinders was one of the severest bottlenecks in our early organization, a bottleneck that was broken only because of the amateur gem cutters who solved the problem.

W. T. Baxter is author of "Jewelry, Gem Cutting and Metalcraft," one of the best books on the subject and one that I always recommend to beginners and old hands alike. It is therefore with pardonable pride that I quote from a recent letter received from him: "Once again I write you and say congratulations upon your page in Desert Magazine. No fooling, I really look forward to it each month. It is through such work as yours that more and more people are becom-

ing interested in gem cutting and also those who know something find additional informative material. I think you are doing a wonderful piece of work."

This page of Desert Magazine

is for those who have, or aspire

of work."

There is nothing I want to do more than unselfishly help to revive the lost lapidary art, and to have an authority like Baxter tell me I am succeeding is a cause for a great lift of spirit. This stint has taught me as much about human nature as it has about gem cutting. But I love it all, Mr. Baxter, and I hope I keep at it for a long long time. Thank you so much for your generous encouragement.

On May 20 and 21 there will be dedicated at Makoti, N. D., an international hearth composed of stones from every state and province in the United States and Canada and from countries all over the world. If you have a fine polished specimen that you wish dedicated to some service man dear to you, send it to Rev. O. E. Dolven, chairman, at Makoti, N. D. I think it would be a deathless remembrance and a mag-nificent gesture for all mineralogical societies having members in the service to have their names permanently recorded by a donated rock properly inscribed to the memory of those who serve. This shrine will be cared for by countless generations as it is being included in a building of Hope Lutheran church at Makoti. If you are interested, write Rev. Dolven at once regarding the Makoti Soldiers' International Hearth.

In speaking of opals in lucite recently the impression seems to have been created with a few folks that I was opposed to the use of plastics for anything, which certainly was not the case. Plastic is a remarkable medium for the preservation of many things. Nature started it all by imbedding insects in amber, always an interesting phenomenon, and recently I have seen many novel uses of plastics—a preserved pet parrot, rocky mountain fever ticks, strawberries and Virgin valley opals in paper weights. I am even toying with the idea of having a fountain pen stand made for myself with inclusions of some opal chips that I cannot otherwise utilize. There are good and bad methods of making plastic articles. Many are merely two or more pieces pressed together and they come apart. As in all other things you get what you pay for.

LAPIDARY HELPS AND HINTS . . .

The problem of supplying water to gem grinding wheels is very real to some. There is no need for an elaborate plumbing job.

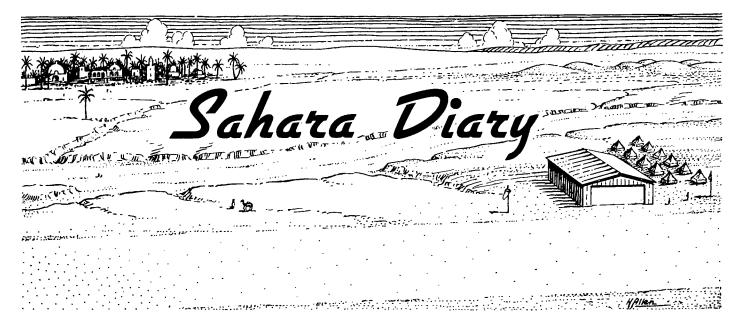
Get a five gallon spring water bottle or other container and put it on a platform over the grinding head. The bottle can be filled from a hose, a can filled from a bucket.

Go to the surgical nurse of your local hospital and ask for some discarded intravenous tubing. Siphon the water from your container through the tubing, controlling it with a spring-type clothes pin or an adjustable clamp which you can also salvage at the hospital.

Drill a hole in the top of your splash pan and insert the tubing or else attach to a soldered nipple directly over the grinder.

If you have two grinders get three pieces of tubing and a glass connector in the shape of a Y. With this arrangement you can run the water to either wheel by shutting it off on one side of the inverted Y.

This arrangement is so easy it's simple. I use it myself.



By RANDALL HENDERSON

ITH THE ALLIED FORCES IN AFRICA—"You will proceed by military aircraft" my orders read—and the destination given was a remote outpost in the heart of the Sahara desert. I had asked for a desert assignment, and this was it.

The station to which I was going is one of several flying fields maintained by the Allied Air Forces to refuel and service the planes which cross the South Atlantic and then head north or east across the great arid region of North Africa toward one of the theaters of war.

I had been over the Sahara as a passenger several months previously, but one cannot become acquainted with the desert by flying over it, any more than by speeding along its surface on a paved highway. I wanted to live among its rocks and dunes and eat from its date palms and have dark-skinned Arabs for neighbors for awhile. And perhaps there would be an occasional opportunity to go out along the camel trails in a jeep and explore the mesas and canyons.

But most important, I was to take command of a little detachment of American soldiers whose duty it is to keep 'em flying in a region where a forced landing often ends in tragedy. In the years immediately following the first world war I covered much of the American desert as a barnstorming pilot. I carried passengers at Palm Springs, Yuma, Blythe, Phoenix, Wickenburg and Las Vegas in the days when there were no established landing fields. Perhaps out of that experience I might contribute a bit of judgment to my Sahara assignment. Planes have changed much since those barnstorming days—but the desert has not.

Anyway, the desert is in my blood, and only a seasoned desert rat will know how eager I was to reach my new station.

We took off from a Mediterranean seaport—a field where combat and transport planes are buzzing in and out all hours of the day and night. Our route to the south was through a pass in a North African range of mountains. Snow-covered pinnacles towered on both sides of us, and once we were so close I could see the ripples on the drifts.

There we were over foothills, grey eroded humps and gullies—highlights and shadows. It was the type of terrain we would call "the badlands" in my part of the world. Gradually the hills flattened out and the color changed—and we were over the Sahara

For hours we cruised above bare yellow sand, broken only by an occasional exposure of rock or a shallow arroyo marked by a scraggly growth of shrubs. From the altitude at which we were flying there was no sign of human habitation. And yet I knew from my history and story books that the caravans of the desert tribesmen have been crossing this treeless plain for thousands of years.

The army's transport planes are built for service, not for sight-seeing. Two types of craft are in general use for carrying troops—the plush seat jobs and the bucket seats. Generally the plush chairs are reserved for high rank and special missions. We were in bucket seats, a row on each side of the cabin with the passengers facing each other as in an old-fashioned street car The seats are of aluminum and shaped like a tin wash basin—and about as comfortable. But they are efficient.

The small porthole-like windows behind every other seat are below shoulder level and it takes a lot of twisting and squirming to see the terrain below—and not much of it at that. But this was desert, my kind of country and I wanted to see as much of it as possible. I turned and wiggled so much I had a sore neck, and the other passengers no doubt thought I was being sent home for some kind of war jitters.

It was late in the afternoon when the bucket seats began to soften. I know of no better way to describe the manner in which one senses the beginning of that long easy glide of the transport plane toward its landing field. Combat planes lose altitude abruptly. They go down like an elevator. You feel it in the pit of your stomach as if the elevator cable had broken at the 23rd floor, or higher. But when a transport plane goes into its normal landing glide the feeling isn't in your stomach—it is in the seat of your pants.

I caught a glimpse of the oasis as we circled the field—a town of mud buildings fringed with palm trees, along the banks of a wide sandy arroyo. Many of the buildings had domed roofs, and a few of these were glistening white. The only color on the landscape was the green fronds of the palms that extended for miles along the dry yellow water course. In a different setting, and without the white domes, it might have been a 'dobe village in New Mexico.

There was no surfaced runway here. We landed on the floor of the desert, a hard gravelly desert almost as serviceable as

The mechanics went to work on the plane as I lighted. A warm breeze was blowing. The sun was dropping into a golden

haze that hung over the low rolling hills to the west. I saw a fragment of quartz crystal in the gravel at my feet. I took off my necktie and the heavy woolen blouse that had served to protect me from the damp chill air of the Mediterranean. We climbed in a jeep and took off toward the barracks, along a rocky winding trail between thorn-covered shrubs—a trail that would be home to me anywhere in the world. That night the native house boys took my cot out under a pattern of stars that differed little from the canopy of many a night on the Southern California desert. This was the most familiar setting I have known since I said goodbye to the folks in the Desert Magazine office in October, 1942.

* * *

I am writing this after three weeks at my Sahara oasis. How quickly and how pleasantly these days have passed despite the pressing details of a new assignment. In a small way we perform all the functions of a full strength air base. There are problems of messing and billeting, of field maintenance, aircraft engineering, medical service, weather observation, radio communications, sanitation, recreation—we are a small American community transplanted to the heart of the Sahara.

The Sahara landscape here is as drab and lifeless as California's Death Valley, and yet Death Valley has so much fascination for visitors that Uncle Sam has made it a national monument and it is a mecca for hundreds of thousands of motorists annually. And I am sure that if this bit of desert with its green oasis and its turbaned tribesmen could by some strange magic be transplanted to western United States it would be no less popular as a tourist attraction than is the Valley of Death.

* * *

Last Sunday five of us took advantage of an intermission in the plane schedules to climb the highest peak on the local horizon—an altitude of perhaps 2300 feet. We drove the jeep cross country to within a mile and a half of the foot of the range where a barrier of rocks made it necessary for us to resort to our own power. Our route followed a rocky canyon that led toward the summit. We passed near two black tents of a Bedouin family camped on the mountainside far from any other habitation.

It was a steep climb—with vertical parapets separated by talus slopes where the rock gave way under our feet in miniature avalanches. Eventually we ate our lunch in the shade of a huge natural toadstool of rock that marked the summit. A tiny lizard took its station on a boulder near our feet and spent much of the noon hour inspecting the strange invaders with the white skins.

The trunks and fronds of numberless date palms stood out in dark contrast against the ribbon of yellow sand that extended across the desert valley far below us, and faded out on the distant horizon. Except for the presence of the palms, I have seen the same picture many times from the summit of desert peaks in Arizona and California. A well-defined trail climbed over the ridge not far from our lookout point. Later when we worked our way down over the boulders to the trail we discovered it was a caravan highway, a route that no doubt has been used by many generations of camels and their Arab drivers.

Caravans of camels and donkeys pass near the flying field every day. I have had to revise some of the camel lore I got from the story books. For instance, one of the historians told us that the reason the American experiment in camel transportation in the years immediately before the civil war failed was because the animal's feet could not stand the wear of the rocks on the Southwestern desert trails. But I know of no route across Arizona and New Mexico where the rocks are harder and sharper and more numerous than they are in this part of the Sahara. These camels can climb like mules. One section of the trail zig-zagged up the side of an almost vertical cliff with hairpin turns and a grade that would be steep going for a burro.

There were some cheese sandwiches left from our lunch, and I packed them down the mountain as a peace offering to the Bedouins. As we approached the black tents a woman and three naked children scampered off across the rocks like rabbits. They

climbed far up the mountainside before they stopped. We sat down on the rocks as if we owned the camp, and eventually they decided ours was a peaceful mission, and returned. They would advance a few paces and then stop and look us over. Finally they came close enough to recognize the food we waved at them—and that put everything on a friendly basis. Their fright, their hunger and the utter poverty of their camp recalled to my mind the desert Indians encountered by the Anza expedition in the Borrego area of Southern California, described so vividly by Father Font in his diary.

I am told that one finds these remote Arab camps among the rocks and dunes in many parts of the Sahara. How they live is a mystery not yet explained to me. The desert Indians in southwestern United States had yucca, agave and mesquite beans and countless other shrubs with edible seeds or bulbs or fruit. But there is no comparable plant life in this area. In fact, outside the oasis there is no vegetation worthy of the name. At the mess hall we use wood for fuel to heat the water boilers where our mess kits are cleaned. The Arabs have literally combed the country for miles around here gathering sticks and woody shrubs to sell to us. A woodcutter often spends a whole day going six or eight miles to get as much wood as he can carry on his head. Even at the low wages here it makes rather expensive fuel—but not as costly as the gas and oil brought in for airplane motors and the diesel generators for our communications plant. It costs Uncle Sam \$6.00 a gallon to fill a wing tank here.

Along the camel trail I saw one small outcrop of onyx—the striped type of crystalline limestone which John Hilton described in Desert Magazine, November, 1940, as "petrified bacon." Most of the rock in this region is limestone and slate, but along the canyon floor were great boulders of granite and an occasional "sponge" of travertine washed down from somewhere in the range beyond. This area is highly fossilized, but I will tell more about the fossils at a future time when I know more about them. I have sent Jerry Laudermilk a box of them, and I have no doubt that after a few sessions in his laboratory he not only will trace their family tree back a million years or more, but may disclose some of the dark secrets regarding their habits and eccentricities—and perhaps even a scandal or two.

* * *

March temperatures in this part of the Sahara are higher than in the California desert. The thermometer often reaches 95 degrees at midday, but the nights are cool enough for a couple of blankets. Cotton uniforms and sun helmets are worn throughout the year. Sandstorms? Yes, there are many of them—but they do not cause as much annoyance to Arab women as they do to desert wives where I came from. Housekeeping is a simple problem in a tent with a dirt floor, or even in a mud building, with no furniture or chinaware to keep clean.

But sandstorms do create a problem for airplanes coming this way. When the wind is blowing 40 miles an hour and the visibility is near zero we have to be very much on the alert in the operations office. Sometimes there are difficult decisions to make. But good weather reporting and well organized communications have greatly reduced the casualties which occurred in the early days of the war when these desert routes were being pioneered.

According to the standards of the desert at home, I am still very much of a tenderfoot in this Sahara outpost. But I have some advantage over most of the other men here. I learned long ago the art of shaving with cold water in a sandstorm, and to shake the rocks and bugs out of my shoes every morning, and the best way to drive a corduroy road, and not to try to go swimming in the silvery lake that appears out at the end of the runway every afternoon. The Sahara is teaching me some new lessons in desertcraft, and with the help of a rather temperamental old typewriter, I'll be passing them along to the members of the desert clan at home.



ESCALANTE'S JOURNAL IS GIVEN NEW TRANSLATION

A new translation of Father Escalante's Journal, with hitherto unpublished material, is the most recent contribution to Southwest literature by Utah state historical society, whose president Herbert S. Auerbach made the translation. The work, in form of Volume 11 of Utah Historical Quarterly, was edited by J. Cecil Alter.

A comprehensive introduction traces the origins of the Spanish in the New World, their first settlements and missions, the first trappers and traders, until the time, more than 200 years later, when Escalante set out with a ten-man expedition in an attempt to open a freight and mail route from Santa Fe, New Mexico, to Monterey, where California's second mission had been founded in 1770.

Although the expedition failed in its purpose, the five-month journey proved to be one of the most important explorations ever made into Colorado, Utah and Arizona. It was the first to stimulate interest in that area and it helped the Spaniards strengthen their claims to it. Escalante was the first white man to see buffaloes near the Green river, Utah; the first to view many of the scenic wonders of the territory and to visit the Indian tribes of the interior. He was the first white to cross the Colorado river, at a point near the Utah-Arizona state line now known as the "Crossing of the Fathers."

The value of Auerbach's translation is its fidelity to the original color and atmosphere. The first and only other known complete translation was that of W. R. Harris, published in 1909 by Intermountain Catholic Press of Salt Lake City. While it has the advantages of a free translation, the Auerbach version being more literal relates the journal more closely with Escalante's own day, thereby revealing more of the journalist and the spirit of his time.

There actually are five manuscript copies of Escalante's Journal. Besides that in the Newberry Library, Chicago, from which Auerbach's translation was made, there are copies at Seville, Spain, in Paris, Mexico City and in the New York public library. Which, if any of them, is the original, is not known.

There are 28 photographs and reproductions of old maps and Escalante letters. Appen., biblio., index. 142 pages. Paper bound, \$2.00, cloth \$3.00.

DANA'S CLASSIC TEXTBOOK FOR ADVANCED STUDENTS

One of the most remarkable scientific books ever written is James D. Dana's SYSTEM OF MINERALOGY. This book was published before Dana reached his 25th birthday in 1837. It later was revised by his son Edward S. Dana and Wm. E. Ford of Yale. The book has stood unquestioned for more than a century as the standard for all mineralogists. Its 1500 pages are very complete and accurate, but far too difficult for the amateur.

Edward S. Dana, a half century later, brought out the famous TEXTBOOK OF MINERALOGY, which is an abbreviation of the larger System. It was brought up to date recently by Dana and Ford. It contains for most persons the final answer to all mineralogical questions. It is very fine for advanced students and professionals.

John Wiley and Sons, New York. 851 pages. \$5.50.

—Arthur L. Eaton

ARMY POST IS SETTING FOR MEN IN CONFLICT

Although its Southwest army post setting would indicate a typical western, ONLY THE VALIANT, by Charles Marquis Warren, is a novel of character. It is the story of Captain Lance who had repressed his impulses to such a degree that he was afflicted with a sense of duty and honor as some are afflicted with disease.

The plot develops during a dangerous delaying action against the Apaches, for which Lance has chosen the ten men of the post who have the greatest hate and contempt for him. Hardly a one would not kill him, given the opportunity — and Lance chose them with that knowledge. "Ten dog soldiers, and the damnedest ten a man could unite even in his wildest nightmare. He laughed wryly and silently, directing his mirth at the idea of these ten cavalrymen forgetting their personal hatreds to fight a common foe."

Character portrayal of the men and women of the post, their inner conflicts, their development, is excellent. If it were not for the interest in the characters, however, unfolding of the story would seem slow. Life at the army post is vividly portrayed. But the desert setting during the conflict with Tucsos is sketchy.

Macmillan Company, New York, 1943. 327 pages. \$2.50.

OLD MEXICO IS SETTING FOR CONFLICT OF CIVILIZATIONS

If Hilary's boss hadn't sent her to Baja California to check on the "intangibles," the affair of the glorified casino might have turned into a successful business venture—as successful as the San Francisco advertising agency's enterprises usually were under the capable direction of Hilary Marshall and Calvin Hendricks. But Hilary needed a rest and Hendricks knew he could trust her to make an intelligent report on all the angles involved in opening the Playa in La Floreada, a remote village down the peninsula.

At the invitation of Consuelo Santayana, Hilary is the guest of her brother Armando, a Mexican rancher who is determined to save his community from the corruption of a typical border town. As Hilary becomes a part of the ranch and village life Armando's attitude gradually influences her own. It crystallizes when her former attitude is upheld by her boss who has come down to investigate basis of her evasive reports on the project. He never had let opposition deter him, and the idea of three or four people in the village having the power to stop him was preposterous. "There are always some reactionaries. But this place is so unique—a few difficulties, surely, could be overcome in time . . . It would be the making of the place." Hilary failed in her attempt to make him see that despite great physical poverty, economic security was secondary in their lives-it could never assume the motivating force in their lives which religion held.

What she failed to convey by words, nature demonstrated dramatically to each of the ranch guests—the helplessness of the City Man out of his environment, the loss of his perspective, his lack of understanding of a way of life other than his own.

In the end, those who were irrevocably City People, returned to the city; one who had gained a perspective returned to his painting in the city which before had defeated him; Armando's sister still was torn between two worlds; Hilary stayed, to help Armando work out the destiny of La Floreada, to preserve the best of their own civilization and to help develop a mutual respect between the two without conflict.

Zoe Lund Schiller has produced a lively readable story in MEXICAN TIME. Some of her characters are very human and understandable; others seem drawn merely to serve her purpose in developing her theme of the conflict of two civilizations. In her larger attempt, she has been fairly adept but not conclusive. Errors, as well as awkwardness, in use of Spanish, are at times irritating enough to defeat her attempt at "authentic atmosphere."

Macmillan Company, New York, 1943. \$2.50.

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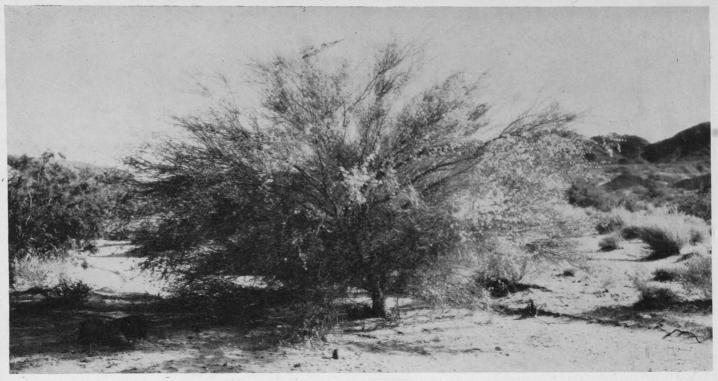
Valerie Jean's

--- DATES TO REMEMBER . . . MOTHER'S DAY . . . BIRTHDAYS ---

THE MAGAZINE

JUNE, 1944





Golden-flowered Palo Verde tree in bloom. Photo by Leo Hetzel.

EL SAGUARO

By Cora L. KEAGLE Pixley, California

Candelabra of the Giants, When Gargantuan feasts are spread On the desert, in the moonlight, Boulders white for loaves of bread,

June days bring another feasting When Saguaro's fruit is red; To Papago Indian tribesmen, It is wine and fruit and bread.

DESERT BUTTERFLIES

By Joanne de Longchamps Reno, Nevada

Across these grey forbidding sands
Roots twist like gnarled and aged hands.
Rock-pitted, still, the desert lies
Below unruly cloud-swept skies.
How strange to see them in this place,
In colorless and rockbound space,
Where no bird sings and no wing flies,
These hosts of golden butterflies!
What brought them here, what mocking mirth
Has scattered now across this earth
Such fragile things, so soon to die
Beneath an unrelenting sky?

JOSHUA TREE

By Monte Humphreys San Diego, California

Ghost-white glow of an argent moon Paints frosty light on dervish arms, Unlike, at night, your self at noon, A desert lord of nocturne charms.

Form grotesque of sun's domain, Of twisted, gnarled and knotted shape, Are you wracked and warped with pain, Or soul serene of wasteland scape?

Are you true self—or soul contrite
Of reckless farer by the way,
Who rashly dared the desert's might,
And perished in the blazing day?

Palo Verde Dreams

By GRACE CULBERTSON San Diego, California

Upon my wall a palo verde tree
Breaks into bloom as if before my eyes.
It brings back other sunlit springs to me
As clear and wide a cloudless desert lies.
Within these bands of gold great vistas gleam
And far horizons fade beyond framed bounds.
Upon white desert sands I'm wrapped in dream
And in white silences drown raucous sounds.
"A happy sort of picture," someone said,
"The essence of all springs is captured here."
And when the day dawns dull and grey and dead
Glad promises of bud and leaf appear.
A palo verde tree in yellow bloom—
The desert smiling in my city room.

A DESERT RATTLESNAKE

By J. C. Davis San Bernardino, California

Leaving his winter lair, Out from that secret place, Into the daylight glare Gliding with languid grace; Sinuously and slow, As after sudden rain Small rivulets groping go Athwart a thirsty plain. In diamond tracery bold, His musky, dusky skin Broidered in beads of gold, Fairer than tempting sin! Lidless his basilisk eyes; His head a poisoned dart; Poised like a wind-blown flower Above - alert - apart! His tongue a lambent flame That, flickering ceaselessly Bids all, "Beware, I come! I pass! Make way for me!" Tense curves of virile strength Relaxed; his vantage won; Straight all his beauteous length Lies in the hot white sun.

SONNET

By JAMES B. DUMMER Los Angeles, California

If I must live alone, O let me dwell

Not in the narrow canyons of a town,

Not where a mass of jumbled buildings frown
On endless streets forever parallel,

But in some place where desert hillocks swell
Above the vales o'er-spread with yuccas
bright,

Where skies are never dulled by smoke at night

And wary horned toad basks in sandy dell.

There 'neath the silver lamps that burn on high

I'll feel your friendship firm and deep repose,
And muse on tranquil days now long gone by
If I must live alone as you dispose,
For we must dwell apart and calmly try
To banish thought that once our paths were
close.

DESERT MAGIC

By MABEL E. LOWER Los Angeles, California

Have you felt the desert's magic— Breathless silence 'neath the moon? Seen the silvery shadows blending— Sage and sand and drifting dune?

Have you wandered through this dreamland, Arms and hearts alike entwined—
Down the starlit desert pathways;
Night's soft purple curtain folding
Care away, and gently holding
Just two souls in sweet enchantment,
Leaving all the world behind.

If you've known this Heaven-on-Earth land, Dreamed the desert night away, Heart to heart in sweet contentment, As moon's waning brought the day.

Then you've walked in God's own garden, Few there are who hold the key— While the world roars by the gateway— Knowing not this ecstacy.

THE DESERT MAGAZINE

Close-Ups

- The letter by John Hilton appearing in this issue was intended for Desert's editor, Captain Randall Henderson, commanding officer at an ATC oasis station in the Sahara desert of North Africa. Since it answers some of the questions of desert lovers about war's influence on their favorite haunts in the Colorado and Mojave deserts of California, we thought they wouldn't mind sharing the letter with Desert's readers. It also will explain to those many gem collectors why John has not been logging more field trips for them.
- This issue carries the second editorial page written by Corporal Rand Henderson during the year he has served with the Marine Corps in the Pacific and Southwest Pacific theaters. Now that life is peaceful compared with the Tarawa period, some of his spare time is being devoted to writing. Until he can come home to Desert, to write some of those desert travelogs he is thinking about, we hope he will increase his contributions as a "foreign correspondent."
- This summer Desert will have a pictorial feature in which the "characters" are absent only their tracks will be visible. But those tracks have revealed the life drama of their owners to the camera of Lt. Richard L. Cassell, D.C., who photographed them in Imperial Valley. Lt. Cassell, who has been with Army Air Force Flexible Gunnery school at Las Vegas, Nevada, since spring, has been using the 16mm motion picture camera six years in filming birds and insects. His "Warriors of Another World" won Lloyd Bacon Trophy in 1942 national contest conducted by Home Movies magazine. In 1943 it was judged one of Ten Best non-theatrical motion pictures in annual national contest conducted by Movie Makers magazine. His motion picture "Humming Bird" has been accepted by Coordinator of Inter-American Affairs and is being translated into foreign languages for distribution in Latin America. His articles and photographs have appeared in Home Movies magazine, U. S. Camera, Nature magazine, Natural History magazine.
- Novel subject for Desert readers will be Oren Arnold's description of the Western style square dance which is being revived in Arizona. The patterns of such dances as the Arizona Star, the Wagon Wheel, the Baby's Cradle, are intricate but never would be confused with those of the conga, the samba or the helicopter hop.

CREED OF THE DESERT

By JUNE LE MERT PAXTON Yucca Valley, California

You call me queer, and weird at night; My swords you often rue; Yet in my arms I take delight To hold white blooms for you.



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Fossil mountain near Jack Watson's cabin in north end of Wah Wah valley contains finest Ordovician fossils in Utah. Frank Beckwith photo.

Finding a whole mountain of fossils is just about enough to make rockhunters like Charles Kelly and Frank Beckwith "go crazy." They had heard that somewhere beyond the Confusion range in central western Utah there were some rare fossils. But when they drove into the isolated area, pushing and shoveling along the desert roads, they did not expect to be the discoverers of the richest deposit of its kind in the state of Utah. They not only found an abundance of fossils but when they went to Jack Watson's little cabin to spend the night he showed them what he called "live trilobites," nearest modern relative of that ancient form of life.

Fossil Treasures of Wah Wah

By CHARLES KELLY Map by Norton Allen

OR forty miles we jolted over a rough desert road, leaving a long white plume of alkali dust. Then we ground in low gear to the summit of Marjum pass in the House range, with Notch peak looming above. While the engine cooled we looked back toward Delta, Utah, our starting point, a mere speck on the Sevier desert. Westward, toward the Nevada line stood a haphazard scattering of low mountains appropriately called the Confusion range. Somewhere in that geologic puzzle were said to be rare fossils. Frank Beckwith and I were determined to find them. Frank had been over the road once before, but the country was new to me.

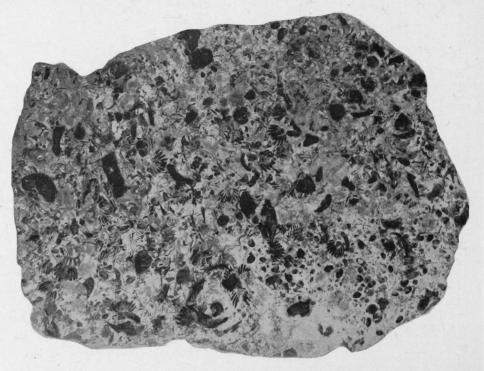
At the western foot of the pass we turned south on a dim trail crosscut by deep channels eroded in the soft clay. After many miles of rough going we finally reached a bit of good road—the hard smooth bottom of a dry lake. Farther along were two more playas which afforded pleasant relief from the constant jolting. At last we reached an opening in the southern tip of the Confusion mountains, turned west and entered the extreme northern end of Wah Wah valley. Across the valley

This beautiful slab, now in Smithsonian institution, shows many forms of Ordovician fossils—Pliomera and Bathyuriscus trilobites, Bryozoa, Pelecypods, Brachiopods, Fucoids and Graptolites. stood a high ridge known as Fossil mountain, our immediate objective.

It took a lot of pushing and shoveling to negotiate the intervening sand, but we finally drove our car to the base of the ridge. Without stopping to eat lunch we each grabbed a gunny sack and some old newspapers in which to wrap specimens and started up the slope. Almost immediately we began to find fragments of fos-

sils washed down from above, and when we reached the fossil bearing strata Frank nearly went crazy. It proved to be the richest deposit of its kind in the state of Utah, and one so isolated it previously had been overlooked.

We already had collected many beautiful specimens of trilobites from the lower, middle and upper Cambrian formations of the House range. But Fossil mountain





Jack Watson surveys Blind valley which has been his desert empire since he was a young man. There is but one narrow entrance to the valley, an ideal winter grazing range.

proved to be of the Ordovician or Lower Silurian period which followed the Cambrian and contained a much greater variety of ancient sea life. Most prominent were the cephalopods, a tube-like shell from the size of a pencil up to three or four feet long. Many were eroded free of enclosing rock and we soon had a pile of several hundred pounds. The chambered nautilus is a modern relative of the cephalopod, but its Ordovician ancestor was straight, and propelled itself by ejecting a jet of water from its siphuncle. In several specimens this inner chamber was beautifully crystallized.

Farther up the ridge we began to find fragments of trilobites. These were mostly pliomera. They seemed to have buried their heads in the mud, leaving their rears exposed, and these when weathered out had a spider-like appearance. In all our searching we found but two heads, both separated from the rest of the body. In the same rock were beautifully fluted plectorthis shells; pelecypod shells the size and shape of a navy bean; ostracods, looking like tiny oysters; several varieties of bryozoa, fucoids and colonies of graptolites. We also found one large bathyuriscus trilobite. These were all beautifully sculptured on the rocks by wind and rain, making very attractive specimens.

Then, on a little bench, I found a round

Above right - Sections of large Cephalopod shells. Core in piece at right was originally the hollow siphuncle by which it propelled itself. Lower—Gastropods with cross sections of Cephalopods (large circles). Beckwith photos.

flat fossil, about two inches in diameter, that looked like a petrified sunflower. "What's this?" I asked Frank.

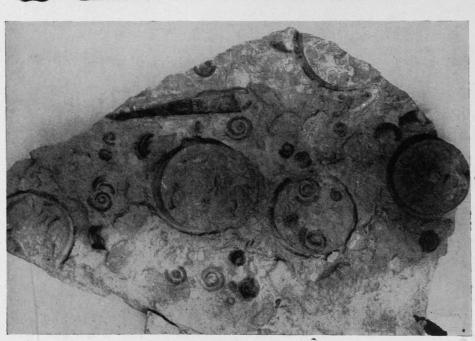
"Holy jumping cats!" he shouted. "That's a receptaculite, sometimes called sunflower coral. It's really a type of

sponge, and rare as hen's teeth. I never heard of one being found anywhere in Utah. Where did you pick it up?"

I showed him and we both started

searching. He picked up another close by. Then we both began to find more, nearly







The little cabin in Wah Wah valley where Jack lived alone for more than 30 years.

always in pairs. Within an hour I had 10, and Frank had 22. When we had exhausted that spot we climbed up and down the hill for another hour, but found no more. They seemed to have lived in a colony on that one little bench. I believe we collected them all.

"Jack Watson appeared to have been dried up by years of desert heat."



By late afternoon we each had several large piles of specimens scattered along the base of the ridge for a mile or more. It was evident we could not take them all, so we began sorting out the best, wrapping them carefully and carrying them in gunny sacks. When I reached the car after my third trip Frank was coming in with a heavy load. Dropping his sack on the ground he pulled out a thin slab of rock about 10 inches square, which he had carefully wrapped in his shirt for protection.

Here's the prize of my whole collection!" he said proudly. "Did you ever see anything as beautiful as that?"

It was indeed an extraordinary specimen. The face of the slab was crowded with hundreds of fossils, including six different varieties, all standing in relief on the rock. When we wasted some of our precious water to wash it, each fossil shone like a jewel.

"I'm going to send that to the Smithsonian institution," he said. "I don't think they have any specimens from this locality." And that's where it went eventually, together with some of the rare receptaculite. Later, Dr. Charles E. Resser, of the Smithsonian, came out to visit Fossil mountain and pronounced it one of the finest Ordovician deposits he had seen.

'Where will we camp tonight?" I asked Frank as the sun dipped below Fossil mountain.

"Across the valley at Jack's place," he said.

'Jack's place?" I questioned. "Is there

actually someone living in this desert?"
"Sure," he replied. "His shack is over there against the cliff." I looked but could see nothing but rocks. There wasn't a spring or creek within 40 miles, and I thought Frank was joking.

It took us an hour to plow through the sand. Then, turning a rocky point along the cliff on the east side of the valley I saw, in the gathering twilight, a small cabin and stock corral. There were no shade trees, no grass and no garden, but a tin trough indicated the presence of water nearby. Apparently it was not plentiful. A sign nailed

to the corner of the cabin read: "Water 10c Gal.'

Hearing our car a man came out to greet us. Frank introduced him as Jack Watson, owner of the "ranch." He was a tiny man weighing 97 pounds. He was about 70 years old and appeared to have been dried up by years of desert heat. He was glad to have company and insisted on cooking supper for us. That night I learned something of his strange story.

While still a young man Jack had explored that section of desert when hunting stray cattle. Camping at a small spring he found the cattle in a hidden valley entirely surrounded by mountains, with one narrow entrance. Blind valley, as he named the place, contained some good desert vegetation and seemed to be an ideal winter grazing ground. He decided to quit his job and start his own ranch there. By locating on that spring he could control the range for 40 miles in any direction.

During the next winter he hauled lumber and built his cabin. Then he drove in a few head of cattle and brought out his wife. His stock did well on the virgin desert range. When the next winter came he drove his herd into Blind valley, put up a couple of poles and forgot about them until spring.

For the first few years everything went

Near Jack's cabin are the potholes in which he caught his meager water supply.



along fine. His herd increased and he was well pleased with his isolated location. Then came an unusually dry summer and his spring almost dried up. He began digging, hoping to increase the flow. He dug untiringly for days, but all he had was a series of potholes in the rock. Filled with gravel they had acted as a reservoir for rainwater. He had no spring!

A timely rain filled his potholes soon afterward. He was safe for that year. But to assure a larger supply he built a number of small dams. Even so, his situation was precarious, because his potholes sometimes would almost dry up between rains and the nearest living water was 40 miles away.

After a few years Jack's wife died. When we met him he had been living alone for 30 years. His cabin walls were hung with calendars for each one of those years, and although nothing ever seemed to happen, he faithfully kept a diary. His pets were a 12-year-old "colt," a 40-year-old mule, and a rattlesnake under the kitchen floor.

"What are you fellows looking for, anyway?" Jack asked us next morning after breakfast.

"Trilobites," Frank said. "We found some nice ones yesterday on the ridge across the valley."

"Cripes!" said Jack. "You don't need to go that far. I can get you a bushel of 'em right here. Live ones. My potholes are full of 'em."

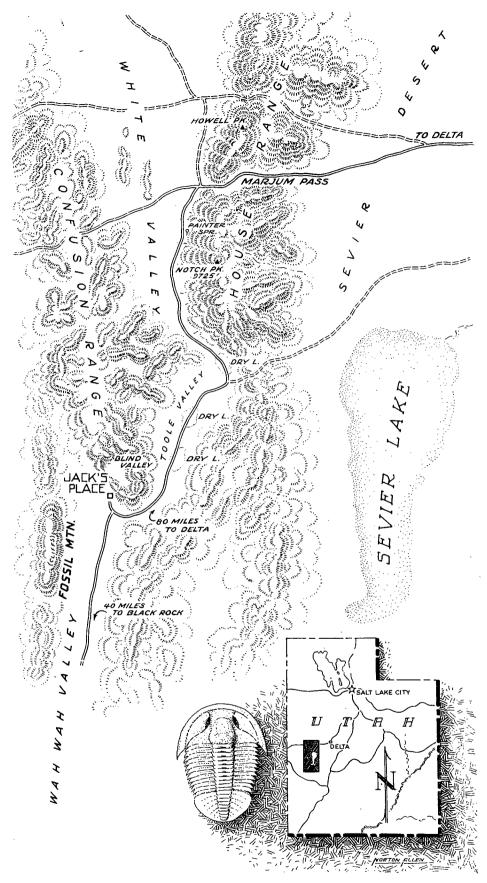
"Live trilobites?" I asked incredulously, wondering if the old man had lived alone so long he was a little crazy.

"Sure," he replied confidently. "Come on, I'll show you."

He led us to one of his deep potholes, dipped up a can of water and handed it to me. It was jumping with some kind of animal life. I poured some of it into my palm, and with it a real, live trilobite about as big as the end of my thumb. Nowadays scientists call them Apis glacialis. but they are the nearest modern relative of the ancient trilobite, one of the earliest forms of life. In late summer Jack's tanks are alive with them. When the water dries up they lay eggs in the mud, which hatch when the next rain falls. It was an odd coincidence to find the fossil and the live organism, separated by millions of years, in the same spot — the only place in Utah where either of us ever found "live trilo-' How they can survive in such a bites.' desert is a mystery.

Jack then took us to Blind valley, his little desert empire. As he enthusiastically pointed out its advantages for winter grazing, it was easy to understand why he had been held to that lonely spot for so many years. By controlling that hidden valley he was king of the desert for 40 miles or more in any direction.

In a shed back of his cabin Jack kept a



small truck with plenty of spare parts. He went to Black Rock, 40 miles south, two or three times a year for supplies. He kept the truck in good repair, since it was his insurance against dying of thirst in case his

water ran out. That possibility always hung over his head. He often had run short, but his holes had never been entirely dry.

After returning home from that trip I

used to think of old Jack Watson every time I turned on a water tap. I imagined finding him dead in his cabin, mummified by desert winds. He managed to survive that dry summer, and the next, which was even worse. But the third summer was a scorcher. Even city water was rationed, and I knew old Jack would be in trouble. Later, from Frank Beckwith, I learned what happened.

Jack waited until his last drop of water was gone, hoping for rain. When it didn't come he reluctantly decided to leave. But when he tried to crank the truck, it wouldn't start. He worked on it frantically until he was nearly exhausted-still it wouldn't go. There was nothing to do but try to walk out. He previously had placed milk cans full of water at intervals along the road, for just such an emergency, and was sure he could make it on foot. When he reached the first can, however, he was bitterly disappointed to find it emptyrobbed by some sheepherder. He hurried on to the next, but it also was empty. Resting until nightfall, he continued walking, hoping to find water in some of his cans. But every one had been emptied. He didn't remember much of the last 20 miles, but stayed on his feet, stumbling into Black Rock the next afternoon, nearly dead from thirst. His mule came in next day, and the "colt" two or three days later.

When rain fell again in the fall, Jack went back to gather up the survivors of his herd. I didn't hear from him for a long time. Then he was brought to Salt Lake City to have his right arm amputated after a serious accident. He had ridden 285 miles without a dressing or a sedative. He was in the hospital a long time, but when he got out he headed straight back for Blind valley.

About a year later I met Jack in Delta. "Have you quit the ranch?" I asked.

"Yes," he said sadly, "I finally had to leave. I could have made it all right, except for just one thing. I couldn't chop wood with one hand."

"There's one question I'd like to ask you, Jack," I said. "It's been puzzling me a long time. When your waterholes went dry that time, why didn't you ride your horse or the old mule instead of walking those 40 miles?'

"Hell!" he said, looking foolish, "I never thought of it."

No one but Jack would want to live at Blind valley, so his shack has been empty for several years. Possibly his potholes have been filled up by cloudbursts. If any of you fossil hunters decide to visit Fossil mountain, take plenty of water. There isn't a spring within 40 miles.

DESERT QUIZ To make the Sand Dune Sages continue to earn their high rating, this month's quiz has some questions to match their superior wits. Answers to several of

them will be found in very recent issues of Desert Magazine, so Desert Rats and those yet uninitiated into the Desert Fraternity, as well as the Sages, should make a good score if they are observant readers. Subjects include Indian lore, archeology, history, geography, mineralogy, desert lore, botany, Southwest literature, men who have played important roles in history and development of Southwest. Answers on page 34.

- 1-Rainmakers refers to-Pueblo Indians...... Craftsman who makes katchina dolls....... White men who brought irrigation to the desert...... Banks of
- -Most of the state of Nevada once was covered by-Lake Bonneville...... Great Salt Lake...... Lake Lahontan...... A great forest......
- 3—Brothers of Light refers to—Jesuit priests who established early missions in Southwest...... A clan of the Hopi Indians...... Teachers in first Indian schools Secret Spanish-American religious order......
- 4—Japanese relocation camp at Poston, Arizona, was named after Charles D. Poston, who was a—Frontiersman...... Army officer...... Politician...... Sociologist interested in minority races......
- 5—The banded "Mirage Stone" used by Navajo in ceremonials and by Zuñi to make fetishes is made from—Feldspar...... Aragonite...... Obsidian......
- 6-If you were lost in the desert, without water, you would most likely find it by-Watching direction the birds were flying...... Looking for a trail made by animals...... Hunting for cactus...... Digging in sand dunes.......
- 7—Elevation of Twentynine Palms, California, is about 2000 feet....... 175 feet...... 4000 feet..... sealevel......
- -Father Eusebio Kino, who was an important founder of Southwest missions, was of the—Franciscan Order...... Jesuit Order...... Dominican Order.......
- Cactus most successfully used in making furniture is—Cholla...... Bisnaga...... Saguaro'...... Night-blooming Cereus......
- -Because of strict taboo, Navajo never kill—Deer...... Peccary...... Eagles..... Bear.....
- 11—Shell ornaments commonly found in ancient village sites in southern Arizona had their origin in—Gulf of Mexico...... Pacific Coast...... Gulf of California..... Salton Sea.....
- Southwest desert area was called "Mystic Mid-region" by-John C. Van Dyke...... Harry Carr...... Arthur J. Burdick...... Wm. T. Hornaday.......
- -Mineral brought through Wingate Pass, in Mojave desert, over mono rail in 1920s was-Gold...... Epsom Salts...... Tungsten..... Silver......
- 14-Rainy season in Navajo country of northern Arizona and New Mexico is in-Winter..... Spring...... Summer...... Throughout year......
- 15—Corn was introduced into Southwest—From supply brought by the Pilgrims...... By Cortez who brought it to Mexico from Spain...... Was native to New World...... By Hopi whose legends say it was brought from underworld.....
- 16—If you were in a war plant and needed spiderweb silk with a diameter of five ten-thousands of an inch, you would—Select a single strand from the Green Lynx spider...... Split a strand from the Black Widow spider...... Weave several strands together...... Divide four ways a strand from the Golden Garden spider....
- 17-Most conspicuous plant in the Southwest areas which botanists call Temperate Semi-desert, or Desert Grassland, is-Piñon pine...... Yucca...... Organ Pipe cactus...... Ocotillo......
- 18-Highway which crosses Great Salt Desert, west of Salt Lake City, Utah, is-40...... 6...... 91...... 30.......
- 19—One of these Indian Pueblos is not located in Rio Grande valley of New Mexico—Laguna...... Isleta...... Santo Domingo...... Cochiti...... Tesuque.......
- -Mount Lemmon, in Arizona, is the highest peak in-Superstition mountains...... Pinal range....... Santa Catalina mountains....... San Francisco mountains.

Parade of the Pentstemons

By MARY BEAL

ONTINUING the Pentstemon quest, we select a few without the fiery brilliance of the Scarlet Buglers described in the May issue of Desert Magazine. One of the loveliest, Palmer's Pentstemon, is rather widespread at moderate to high altitudes, its graceful wands of delicately colored bloom lighting up slopes, washes and canyons, and exhaling a delightful fragrance. Etched in my memory is the vision of a magnificent clump over 5 feet tall, supremely beautiful in the late afternoon light. It appeared like magic at a bend of the road skirting the Providence mountains in eastern Mojave desert. It was standing at the edge of a shallow rainwash, its dozens of flower-strung stems gently swaying in the breeze.

Pentstemon palmeri

Several to many slender erect stems 1½ to over 5 feet tall, from a woody base, more leafy below, the herbage hairless and lightly covered with a bloom, the narrow sessile leaves mostly lanceolate with shallow sharp teeth. The inch-long (or more) corolla is pale pink (or deeper) or orchid pink, with crimson lines in the throat extending well down the 3-lobed lower lip, the short tube abruptly dilated into the wide-open throat, showing the hairy palate and densely hairy tip of the sterile filament. Frequent from 3500 to 6500 feet in Mojave desert, Arizona, southern Nevada and Utah.

Pentstemon spectabilis

This showy species has ventured into the

desert from bordering ranges on the west, making itself at home on dry hills and in rocky canyons. Its stately clusters of stems, 2 or 3 feet tall, are generously bedecked with flowers of an entrancing gamut of color tones, the corollas over an inch long, bright blue or purplish blue, lighter at base, the abruptly dilated, bell shaped throat lilac or red-purple. A panicle often has 50 or more blossoms. The pale-green leaves are sharply toothed, the sterile stamen beardless. Look for it in April and May along the western edge of Colorado desert and in the western and southern borders of Mojave desert.

Pentstemon albomarginatus

A smaller species, growing in low clumps 6 to 10 inches high with several leafy stems from the long fleshy root, the herbage pale grey-green with a sheen. Leaves and sepals white-margined, flowers whorled in a spike-like leafy panicle, the corolla light to deep rose pink, throat paler with bright reddish lines and dense yellow beard. Found infrequently at moderate altitudes in April and May in sandy areas of western Arizona, southern Nevada and eastern Mojave desert.

Pentstemon antirrhinoides

An intricately-branched leafy shrub 2 to 7 feet high, with many small glossy richgreen leaves on pale woody branches. The very broad, gaping corolla is sulphur-yellow, washed with terra cotta or russet outside, the sterile filament densely bearded. Rather common up to 5000 feet in rocky canyons and mesas of southern and western



Blue Beard-tongue (Pentstemon spectabilis). Photographed by the author in southwestern Mojave desert, California.

Arizona, southern and eastern Mojave desert and along the western edge of Colorado desert from April to June.

Pentstemon pseudospectabilis

A beautiful plant with several erect stems up to 4 feet tall, the oblong-ovate leaves sharply serrate, the corolla about an inch long, gradually inflated to the spreading lips, bright pink to rose-purple. Common in sandy washes and open ground up to 6500 feet in mountains of eastern Colorado desert, Arizona and southwestern New Mexico, blooming in spring and summer, according to altitude.

Left to right—Scented Pentstemon (P. palmeri), a favorite of honey bees in eastern Mojave desert. Bushy Beard-tongue (P. antirrhinoides), specimen from Providence mountains of eastern Mojave desert. White-margined Pentstemon (P. albomarginatus), usually growing in drifting sand. Photographed specimen from a colony found by the author near black lava bed surrounding Pisgah Crater.









Left to right. 1—The prospector, daring desert heat and endless miles of hills and sand, deserves credit for locating the great deposits of magnesite from which magnesium is made. Photo by Truman D. Vencill. 2—Magnesite blasted out with dynamite is scooped up with big shovels, dumped into specially designed trucks which carry 20 tons of ore each, in steady stream to Gabbs plant, from where magnesium oxide and other concentrates are hauled to plant at Las Vegas, 334 miles away. 3—Ore is pulverized in a battery of ball mills (center), then moves to classifiers (foreground). Finer material flows out and is carried to the next operation.

Miracle Metal From Nevada Hills

By LELANDE QUICK

Photos courtesy Basic Magnesium, Incorporated

HE romantic thing to me is that the plant stands squarely astride the old Spanish trail so that I like to refer to it as the Path of Progress." Guernsey Frazer, administrative assistant to the general manager of Basic Magnesium was talking to me as we looked over the enormous plant at Henderson, Nevada.

"That idea pops into my mind oftener than do the facts that confront us daily, such as how we built this third largest city in Nevada in 11 months to house the 5500 permanent workers we now have at BMI—a town complete with hospital, schools, churches, markets and a general shopping center. Construction of the plant itself over a period of only 18 months was the largest construction job ever accomplished in four directions—in refractory brick work, sheet metal, electrical and plumbing installations. It was built by McNeil construction company of Los Angeles between November 15, 1941, and July 31, 1943."

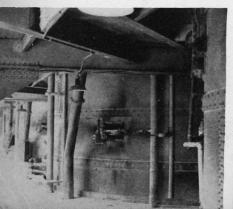
I had spent the whole day with Bill Burke, Frazer's able assistant. I wasn't too tired, for the buildings were so large we had driven right through most of them in our car. Silver-like magnesium has been aptly called the miracle metal. Its use is comparatively new because it used to cost \$5.00 a pound to produce it but now it can be turned out for about 20 cents. Magnesium is about two-thirds the weight of aluminum but it has the tensile strength of hot rolled or mild steel. Its potentialities for postwar use are unlimited for making the standard things lighter-washing machines that will weigh less than present vacuum cleaners, bath tubs that one man can easily carry. And because it is cheaper to produce, the cost of items made from it will be reduced in two directions for it is an axiom in the metal industry that "if you save a pound you save a dollar.'

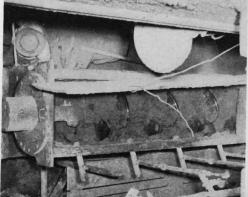
BMI, as they always refer to Basic Magnesium, Inc., is the largest magnesium plant in the world, using more Boulder

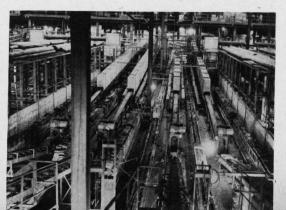
Dam power daily than the city of Los Angeles. It cost more than \$140,000,000. and beside it other war plants authorized by Defense Plant corporation were really minute. The electrical installation alone cost \$40,000,000. Of this amount \$23,-000,000 went into solid silver bus bars. All of this silver had been mined in Nevada and stored in eastern vaults at West Point, New York, but because of the acute shortage of needed copper, usually used for bus bars, the silver was processed into equipment in the east and came home again to Nevada as a substitute for the copper bars in six of the ten electrolysis units now operating at the plant.

Aside from the cold and unromantic statistics of the accomplishment the real romance was in the successful fight of more than 13,000 construction workers (Boulder Dam had but 5250 at the peak) to accomplish their purpose in the face of natural difficulties and lack of living quarters. With the combination of natural

Left to right. 4—In battery of roasters magnesium oxide is calcined. Partially moist magnesium oxide, introduced at top of these seven-story units, is subjected to intense heat generated by oil burners. Last process at Gabbs mill. 5—One of a battery of wet mixers in which coal, peat moss, magnesium oxide, magnesium chloride are mixed. From mixture cakes of magnesium are extruded, cut into slabs by piano wire. 6—Here cakes of raw materials pass through long tunnel kilns, thoroughly dried. Process consumes some of the coal and peat moss, leaving cakes porous.













Left to right. 7—Cakes of raw materials after being conveyed from oven kilns. From here they are conveyed to crushers which break them into small pellets, which go to chlorinators where magnesium oxide is transformed into magnesium chloride. 8—From chlorinators molten magnesium chloride is carried in electrical jeeps and poured into cells. In cells are other chlorides. Direct current of high amperage, low voltage, passes through. Electro-chemical action causes metallic magnesium to rise to surface, while chlorine passes out to be re-used in process. 9—From electrolytic cells metallic magnesium is skimmed from top and poured into pots. Worker at left is ready to sprinkle flux in pot in case molten magnesium catches fire. There are 880 of these cells at Basic plant, in operation 24 hours a day, 7 days a week.

and man-made hazards a world safety record was established despite 75,000 recorded accidents which resulted in but ten deaths. That many fatalities reasonably could occur in any community of 10,000 persons following normal pursuits in an 18-month period. Never had there been a more concentrated effort to whip the immutable forces of the desert to make it serve man.

They tell you at BMI that while the magnesite ore exists all around them they get it from deposits nearby that had been worked earlier. "Nearby" is the Gabbs valley, 334 miles northeast of the plant. The Pacific ocean is the same distance from BMI! But distance is not the tangible thing in the desert that it is in cities. A few hundred miles of desert is not awesome to a man working in a plant so large that one section of it has more than 50 buildings in a row. Gabbs valley contains mountains of magnesite ore which is crushed and processed into magnesium oxides and other concentrates at the mine and then hauled in huge trailer trucks south to the plant at BMI which is 15 miles east of Las Vegas.

There are other magnesium plants in the country but they recover the magnesium from sea water. Only BMI uses the electrolysis process, through a strange combination of circumstances. Germany first developed the process and then she helped England build a plant at a time when her purpose was to keep England stronger than the France she feared and believed strong. Later England needed our magnesium and through lendlease arranged to pass along the secret to us in exchange for the incendiary bomb material. The magnesite of Gabbs valley in the desert drops on the cities of Europe almost nightly to destroy the factories producing materials for the enemy.

Frazer continued his conversation as we sat in his office at the end of the day. "I always have been a close student of Nevada history and as near as I have been able to learn, Father Silvestre Velez de Escalante was the first white man to go through here. He made the trail through these *vegas* or meadows in the summer of 1776, the trail that later was used by Jed Smith, Jefferson Hunt and the first occupant Bringhurst, sent down here by Brigham Young in 1855.

"The founding fathers in Philadelphia, ringing their liberty bell at almost the same hour, did not dream of this vast land being

explored by Escalante, a land whose magnesium would one day help save the liberties they were founding. Ever since then we've celebrated the 4th of July and the fireworks have been steadily improved in magnificence due to magnesium. But now, with cheap production of this flare material, a community need only spend a hundred dollars for an evening of fireworks where it used to spend a thousand."

"Just why did you build at this spot?" I wanted to know.

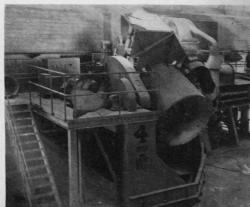
"We had to use Boulder Dam power and Lake Mead water—lots of it, and it was better to bring the ore to the power and water than vice versa. We had many unique problems to solve here, but the strangest of all was that mortar set too fast on the bricks for the furnaces, or refractories as we call them. In these desert temperatures the mortar became as hard as a bride's first cake in less time than it takes to say BMI. We solved that problem by mixing mortar in ice cream freezers."

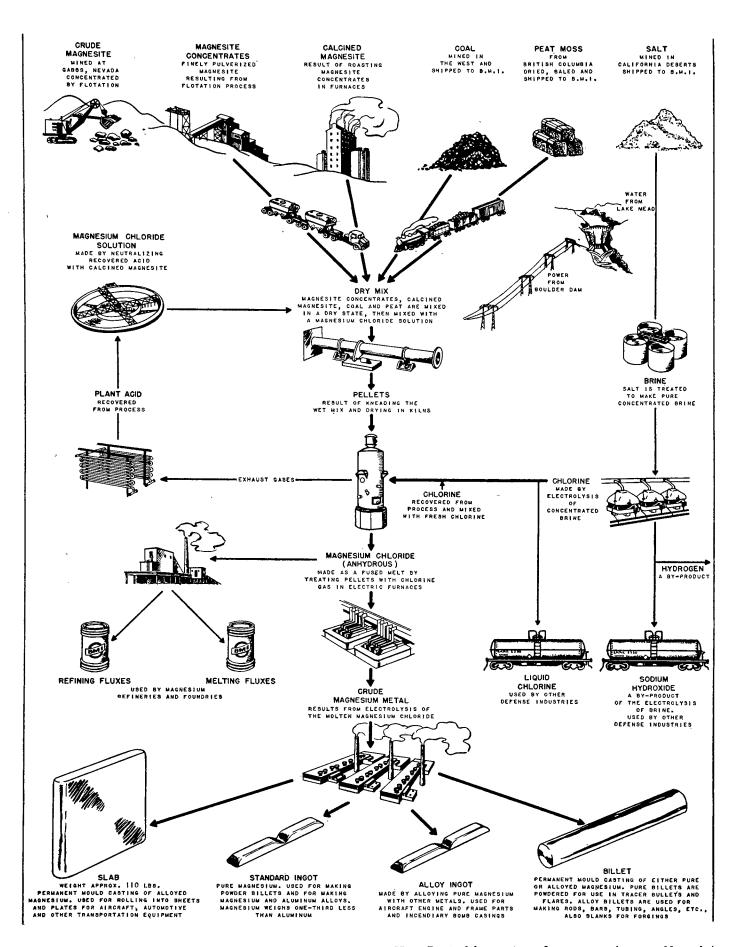
"Yes, I read about that," I said. "I saw the special ice plant you built for the purpose. Bill Burke was telling me how the mortar hardened like glass so that it was air tight, acid tight, current tight, gas

Left to right. 10—After molten white metal is ladled from cells into pots, it is poured into containers as shown here. 11—Magnesium "cheeses" go into crucibles at BMI refineries, where other alloying metals are introduced. Various alloys are made—for incendiary bombs, sheet magnesium, airplane parts, tracer bullets, flares. 12—Crucibles of still-hot magnesium alloy go into ingot pouring machine which is kept hot by gas flames, tips automatically, keeping outpoured magnesium alloy flowing steadily into moving molds. Ingot molds move down line to right, cooling as they go. At end, they drop into bins—a finished product.









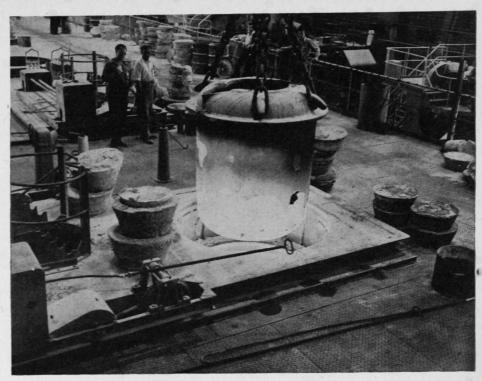
Nevada's Light Metal Industry

How Basic Magnesium, Incorporated, turns Nevada's raw materials into strategic magnesium products which are used around the world in the Allied cause.

tight and corrosion resistant—and that's tighter than a funeral drum, I guess."

And then Frazer asked me, after I had peered into every tunnel, furnace and laboratory for eight hours, if I knew what was going on at BMI. "No," I said, "what do you make?" After the loudest guffaw ever heard in southern Nevada the genial Frazer said, "Tell him again, Bill. He's seen so much today we've got him dizzy."

"Well, I helped string up the first power line here," Bill Burke replied, "but I vaguely understand it all myself. After we get the materials in from Gabbs, the magnesite concentrates, calcined magnesia, coal and peat are mixed in a dry state and then mixed in a solution of magnesium chloride. After kneading the wet mix and drying in kilns the material is made into pellets. Then anhydrous magnesium chloride is made as a fused melt by treating the pellets with chlorine gas in electric furnaces. Crude magnesium metal results from electrolysis of the molten magnesium chloride. From this we get slabs for rolling into sheets and plates for aircraft, automotive and other transportation equipment. Then we get a standard ingot for making powder billets and magnesium and aluminum alloys. The billets are powdered for use in tracer bullets and flares. We also make alloy ingots for aircraft engine and frame parts and for incendiary bomb casings. It's a big step from the first magnesium used in the flash when



Crucible, loaded with two tons of white hot magnesium alloy, has been lifted from gas furnace by overhead conveyor in one of the three BMI refinery units. It is being lowered to cooler before being sent to ingot-pouring machine (See No. 12).

grandma had her tintype taken—but it's not so complicated, is it?"

"Simpler than the solar system," I replied.

"We get a lot of things besides magnesium, too," continued Bill. "See those big tank cars? They're super-thermos bottles. We load them with liquid chlorine and they are lined so that the contents never vary more than ten degrees while in transit regardless of the outside temperature. That goes back to Pittsburgh to make glass. Then we get sodium hydroxide as another by-product of the electrolysis of the brine. This is used by many other defense industries. We use mountains of salt from the deserts roundabout to make the brine and we couldn't get far with our ore if we didn't have all this water, salt and electricity we get near the plant."

Then I asked Frazer what postwar would mean to BMI. "It will mean many things," he said, "but this is no 'war baby.' Magnesium will be in terrific demand for postwar recovery and industries."

Even so, the possibility of a shutdown is a real nightmare to every BMI employee. But the Anaconda Copper company, greatest name in metals, operates BMI and they have an easily understood urge to do to aluminum what aluminum did to copper. Whatever happens two things are practically assured—the metal business will be revolutionized and the desert will be industrialized. They brought the cotton mills to the cotton fields and the romance of the deep South faded. Now they bring the furnaces and foundries to the ore deposits of the deserts, but we hope that at least the peace of the desert will not be too disturbed.

In shipping department, finished ingots are strapped with steel and packed into cardboard cartons for shipping.





AUTHENTIC BONANZA HISTORY PUBLISHED BY MINES BUREAU

THE HISTORY OF THE COM-STOCK LODE, by Grant H. Smith, is a comprehensive mining history of the Lode from 1850 to 1920. For the experts or specialists it contains a progressive record of the development work carried out, the failures encountered, the bonanzas discovered, and the production reports of the mines. But for the layman the work is as absorbing reading as fiction.

The rise and fall of fortunes in the roaring days when the Lode was most active, and the personal lives of the men who developed it color each page of this chronicle. Historically exact and authentic in every detail, it is fascinating reading because it tells the story of one of the most romantic and brilliant periods in American history.

Publication of Nevada State Bureau of Mines, 1943. 290 pp. Appendix, production records, illustrations. Spec. ed. for Nev. residents, 75c. Library edition, \$2.00.

—A. M.

SPANISH LANGUAGE GUIDES FOR THE ARMY AIR FORCE

CONVERSATIONAL SPANISH, by Solomon Lipp and Henry V. Besso, was especially written for the army air forces of the United States, but can be just as useful to the civilian. Special words, useful to the flyer only, are common throughout the book, but these can be omitted by civilians, or others substituted from the vocabulary with good results. The thousands of other idioms, words and expressions easily can be used by anyone. The simple construction and direct method make the book one of the best for an earnest beginner. Clothbound, \$1.25; paper, 75c. 6x9 inches, 168 pages.

CONVERSACION, by H. V. Besso and S. Lipp, is a more advanced book, to follow the completion of Conversational Spanish, especially for use of both army and navy. The story and cartoons are amusing and interesting enough to lead the advanced student from lesson to lesson. The book also contains much valuable information on Spanish America, vocabularies, grammar review and all necessary material for a real student. Cloth \$1.50, paper \$1.00. 6x9 inches, 294 pages. Both titles published in 1943 by Hastings House, New York.

--Arthur L. Eaton

STUDY DISCLOSES NEW PUEBLO INDIAN CRAFT

PUEBLO INDIAN EMBROIDERY, title of volume four of Memoirs of the Laboratory of Anthropology, Santa Fe, New Mexico, will come as a surprise to most readers. Although it is well known that weaving of textiles is one of the crafts of the Hopis of northern Arizona and other Pueblo tribes of New Mexico, examples of these textiles embellished with embroidery are rare. During his intensive search for material on this subject, the author, H. P. Mera, found less than 100 examples dating prior to 1880.

This craft is believed by some to be of prehistoric origin, by others a result entirely of European influence. Mera gives evidence supporting both theories, but concludes that present knowledge cannot prove either theory, although he would tentatively accept an aboriginal origin in the Southwest, at least as early as the twelfth century.

Most of the 73 pages of the monograph are devoted to a study of the embroidery style and technique on both cotton and wool fabrics. Twenty-six page plates, three in full color, show both embroidered garments and remnants which have been found in ancient. Indian dwellings, and many detailed studies of specific designs

Altogether, this is an unusual and interesting study, despite scarcity of material. Since it is doubtful much additional material will be uncovered, this presentation of the subject in monograph form at least calls attention to another American craft which can take its place beside those of pottery making, weaving and silver work

WHEN LAW WAS MADE BY MEN QUICK ON THE DRAW

When Frank Goodnight rode into Sherman City on an errand of personal revenge he discovered nearly everyone in the cattle community belonged to one of two rival law-dispensing factions from which he could not remain free. As one oldtimer put it, "I guess I'm the only one in town that ain't lined up." Personal motives are interwoven with those of the rival desert and hill cattlemen to make Ernest Haycox' THE WILD BUNCH a tense emotional story of conflict in the Old West. Published by Little, Brown, Boston, 1943. \$2.00.

BOOK'S THEME IS INFLUENCE OF INDIANS ON WHITE BOY

Charles B. Nichols, author of latest book-of-the-month, CRAZY WEATHER, writes of a subject he knows well when he describes the life of a young white boy who is brought up with and influenced by contact with southwestern Indian tribes. Mr. Nichols himself was raised on 11 different Indian reservations where his father was a special agent for the U. S. department of interior. The author has used his special, intimate knowledge of Indian life, character and customs in writing one of the most interesting and original stories that has been produced in some time.

South Boy, young son of a white cattleman, spent a lonely childhood in the partially uncivilized and wholly forsaken regions along the Colorado river. Most of his time was spent among his Mojave friends who accepted him as an equal and initiated him into their tribal lore and superstitions. His education, consequently, was a peculiar mixture of redmen's doctrines and what his dainty mother referred to as Cultural Advancement and Christian Instruction against Rough and Heathen Worlds!

The plot of CRAZY WEATHER concerns itself with the development of South Boy's character and attitude—the resolving of his mind from confused loyalties to courageous, purposeful decisions. He runs away from home to join a Mojave war party heading south to fight the Piutes in the blazing heat of summer. Through these brief, strange events South Boy emerges a man.

Refreshing elements in the book are its complete lack of any "love interests," its frank simplicity and its very natural and responsive dialogue. Macmillan Co., 1944. \$2.00. —Aliton Marsh

THE FANTASTIC CLAN



As enjoyable as a good travelog.
Tells you how to "call by name" the odd members of the spiny clan of the desert.

THE FANTASTIC CLAN by Thornber and Bonker, describes with charm and accuracy the strange and marvelous growth on the desert. An informal introduction to the common species in their native habitat, including notes on discovery, naming, uses and directions for growing. Many excellent drawings, paintings and photographs, some in full color. Endmaps, glossary, pronouncing vocabulary, index.

\$3.50

DESERT CRAFTS SHOP 636 State St. El Centro, California

"The desert is still waiting for you . . . "

(AN OPEN LETTER FROM JOHN HILTON TO RANDALL HENDERSON)

Thermal, California

Dear Randall:

It seems a long time to us since you left the American desert for the African but I imagine it seems even a longer time to you. The last I heard from you, aside from your editorials, was at Christmas time. The other day I got to thinking of what you must be wondering about the desert and the changes on it. So I decided to sit down and write a sort of general report on the part of the country that you and I have traveled together.

You probably remember that when General Patton and his desert troops were coming into this area, I spent a great deal of time with the army as an unofficial guide to more or less orient them. I went on some mighty wild and interesting rides during that time in everything from a peep to a tank. I helped locate roads, maneuver areas, ranges and targets, gave talks to groups of officers with slides from my collection and in any way I could, helped

them to become acquainted with desert ways. It was hard work at times but a lot of fun. I met a great many fine men, from generals to buck privates, and I wouldn't have missed it for anything on earth.

Then the calcite deal opened up. Suddenly we found that there was a crying need for this material and we had one of the three potential producing properties. I dropped everything to mine calcite—even to writing for the DM. We tried keeping the shop open for awhile but soon Eunice was too busy with company business to do it justice so we closed up for what we thought would be the duration.

Capital had entered into the picture by then and with more good intentions than sound business judgment I turned the property over to others and worked for a salary. One day I took one of those crazy falls, that a fellow can, when my feet slipped out from under me on loose rock. The next morning I could hardly walk and my shoulder and neck were one solid pain.

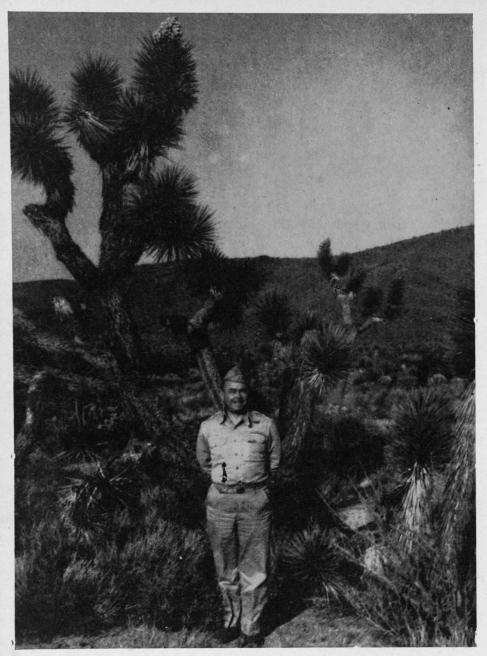
Several different doctors tried to help but the darned thing didn't get any better. Then finally they decided that I had injured the main nerve in my left arm and shoulder. I worked for several months with an arm in a sling and was never without considerable pain until just recently. At one period I lost the use of the hand for as long as a day at a time.

We got the calcite out, however. That was the important thing. We mined crystals that would have been prizes in any museum in the world but this is war and they all went into making the still secret instrument that has saved so many lives and so much equipment.

Then one day we failed to bring any crystal off the hill. The day stretched into a week and we kept thinking that one of the crews would strike a good pocket but they just didn't. Production was pretty slim for some time and the summer heat weakened the morale of the men, including the various "experts" they sent out to study

"Snow incrusted the north side of every rock, palm tree, cactus and even the bright colored wildflowers."





"Colonel C. T. Senay, commanding officer of Camp Young, has learned to love the desert and hopes to come back when the shooting is over."

the problem at a low ebb. At about this time a possible synthetic substitute loomed on the horizon and another mine struck a rich pocket. The camp was abandoned, machinery sold and I was out a mine and a job. And with an arm I couldn't use very well.

We finally got readjusted. I sold a couple of paintings and opened the shop again. My arm seems wholly to have recovered and now we are doing pretty well, thanks to a good DM friend, Mr. J. L. Kraft, who found a wonderful stock of old jewelry that had been in storage since the days of tintypes. These brooches and pins look wonderful set with desert stones, and sell like everything. We've been doing little but cut and polish and wholesale these

pieces of jewelry to get on our feet again and when I say we, I mean the whole family. Eunice and Philip (who is 15 and over six feet tall) both have learned to polish and Katherine (she's five now) gives "expert advice" from the side lines.

I have started again helping the army a little, only this time it is in moving out instead of into the desert. The officers in command at present are conscientious in their desire to see that the desert is left as near the way they found it as possible. I have been going along on inspection trips over the area with Colonel Senay and several members of his staff.

These trips have taken me back into many of the favorite haunts that you and I have enjoyed together. For instance, the other day we were in the upper end of Lost Palms canyon in the Eagle mountains. There had been a freak snow storm in the hills the night before and the canyon was a beautiful sight. Snow incrusted the north side of every rock, palm tree, cactus and even the bright colored wildflowers. I shot a whole roll of Kodachrome. The wash has been heavily traveled and the foot trail to the palms well worn. There must have been as many men in this one remote spot in the past two years as there have since the dawn of creation. Yet I can truthfully say that the canyon is as lovely and unspoiled as ever. Not a palm has been mutilated, not a tin can or bit of rubbish was to be

For every careless hand that would leave such things there are crews everywhere now burning and burying and cleaning. I know that you won't be disappointed in Lost Palms canyon on your return.

On the way down, the snow had melted and I could see the green tips of new orchid shoots coming through the reeds by the tiny creek bed. I called the colonel's attention to them, saying this was the only place on the desert where I ever had found this little wild orchid. He found it hard to believe that they really were orchids until I discovered some of last year's flower stems with the pods still intact. Colonel Senay has served in Panama and other jungle countries and is an observant man. He had to admit they were orchids. The driver, a boy from the Middle West, went home muttering about a country where orchids and palm trees were covered with snow.

One other day we crossed the Little Chuckawalla mountains on one side of the wide graded roads the army has built right across this range of hills—from highway 60-70 to the Niland road. We stopped to eat lunch (after a good bit of maneuvering on my part) near one of my old geode fields. Heavy rains and a complete lack of rockhounds have combined to make picking mighty good. We all gathered rocks for awhile and now I am afraid the whole staff is turning rock conscious. Especially after they saw some of the green moss agate polished. When the war is over there will be literally dozens of swell gem fields to map for the DM with passable roads to within easy walking distance.

One other day in the Chuckawallas the colonel called from over the hill and we all converged to see what was wrong. There was a shaft someone had sunk on a small manganese vein and at the bottom was a desert tortoise, the first of the season we had seen. He had fallen in unhurt but was unable to get out of the vertical pit. He would have starved down there walking helplessly round and round the bottom so I climbed down and got him out. We soon found another and the discussion

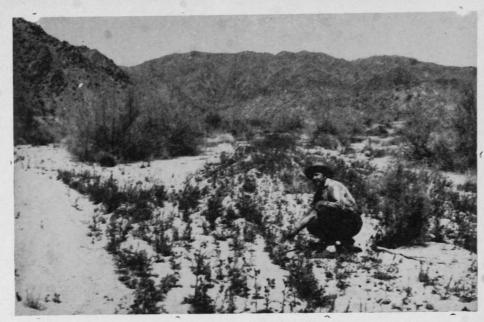
turned to tortoises. The colonel and three of his officers who were along at the time were interested. They hadn't heard of the law protecting them but thought it was a mighty good idea. I am sure it will please you and Steve Ragsdale, not to mention thousands of other desert folk, to know that the word is being quietly passed around among the men in the hills that there is a law against harming desert tortoises and besides, "the C.O. likes 'em and says they're to be let alone."

Salt Creek wash, between the Orocopia and Chocolate mountains, looks just like it always did except that the gravel is strewn with shell cases from aerial machine guns. The bloodstone deposit I wrote about in the March, 1938, DM, looked no different than it did when I saw it a few weeks before Pearl Harbor. A few soldiers who read back copies of Desert magazine have collected samples. But one good thing about G.I. collectors, they can't carry much with them and are happy with a piece or two of each kind. I only hope that the rush of civilian collectors into these areas after the war are equally considerate of one another and the country.

Tabaseca Tanks in the north end of the Chuckawallas is as lonely a spot today as the time Zane Grey camped there while writing "The Wanderer of the Wasteland." There are tank and half-track trails around the base of the flats and jeep tracks in every wash, but the quail still call in the canyon and the roadrunners go on collecting lizards as if a mock war never had been fought in their back yard. There is a good gem field in this area which I will map as soon as gasoline is unrationed.

Last week we took two peeps into the Turtle mountains and checked that area. We turned off about where I marked the rose quartz and chalcedony along the road from Desert Center to Parker in the February, 1941, DM. But instead of stopping near the highway as the map showed, we followed military trails right into the heart of the Turtles to see if the area had been properly evacuated. We stopped in my old gem field long enough to see that there was still plenty of good rose quartz pebbles and chalcedony to be had but we found armor-piercing machine gun slugs from aerial gunnery scattered about with the gems. We went right into the middle of the Turtles one way and came out another over a terrain that three years ago would have seemed impossible for wheeled vehicles. It took a good deal of hanging on and many times we were in low gear with four-wheel drive.

We made three discoveries there. The area had been pretty well covered by military equipment during desert maneuvers but camps had been carefully cleaned up.



"Wildflowers always are the thickest and brightest where the desert crust has been broken, and these tracks left by a caravan of military trucks stood out as if they had been painted by a giant brush across the sand."

We found a wonderful field of chalcedony and carnelian on the slope of a huge butte, and hidden up an easily missed side canyon we found a "California" giant cactus over 30 feet tall. This huge monarch stood all alone, the only saguaro for many miles.

It is no longer a military secret that desert training is coming to an end. Area after area is being evacuated and where once thousands of lively soldiers camped, the coyote and desert fox roam untroubled and great desert tortoises are emerging from their holes to find that winter and

mock warfare have passed harmlessly overhead.

There naturally has been a certain amount of damage to both plant and animal wild life, but everything within reason is being done to leave the desert as the army found it. Drivers at first thought it was fun to run half tracks over ocotillos and small trees but soon they found that almost everything on the desert bites back and it is better to go around. Some areas are literally plowed by tanks but for every plant that was destroyed a hundred are

"Major Cowden is a fine campfire cook, who 'sets the table' on the hood of a peep. He's one of the officers who has really learned to like the desert and hopes to come back to it."



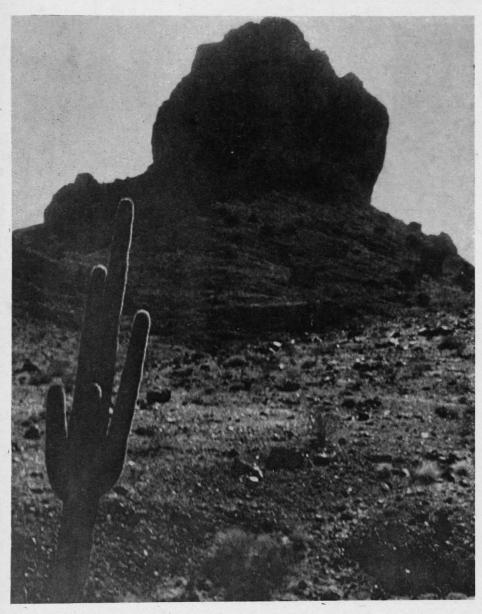


"The army peep is a rockhound's dream. Here one breaks a new trail in the Chuckawallas."

springing up since this winter's heavy rains.

If you will remember, the wild flowers always are the thickest and brightest where

the desert crust has been broken. The graded sides of a road are invariably two bright strips of taller and larger flowers across the desert in the spring, for the



breaking of the crust has planted the seed better and allowed more rain to get deep into the sand. The same thing has happened where desert maneuvers have taken place—only on a grander scale. The annuals are not the only ones to get a new impetus. Young smoke trees, ironwoods, ocotillos and even barrel cactus are springing up all over such areas. Last week I took a photo which illustrates my point perfectly. A wash was sprinkled with about an average crop of desert flowers except the path that had been made by a caravan of military trucks. These tracks stood out as if they had been painted by a giant brush across the sand.

I am writing you this because there are a good many "sob sisters" of both sexes making quite a thing of how the army is "wrecking our dear desert." These folks, for the most part, don't know the desert very well or they would not be so concerned. You and I know that the desert is tough and adaptable. That it has been "torn up" by other hoards at different times and that today a few peaceful old ghost towns are the only evidence of all this activity. The desert is mighty hard to spoil. It's too darned big and resilient. It is going to take more than a war to destroy

its peace and beauty.

There are thousands of officers and men who trained here who have learned to like it and have a great respect for this land that others think is such an awful place. The average of those who like the country and intend some day to come back and show it to their folks is about the same as always, but the volume has been great. Hundreds of thousands of men from all walks of life and every part of our land have gone through training courses in our desert. Out of them will come thousands of boosters and others who will come to live and build up our young communities.

I'm going out to hunt calcite next month if my ration board approves. I have several good leads and a lot of experience from the last mine. It still is one of the top strategic minerals. I hope also to have time to get out a few articles for the DM.

Yes, Randall, the desert you love is still waiting for you. It hasn't changed a great deal and probably never shall, and the folks out here can hardly wait till you get back to enjoy it with us.

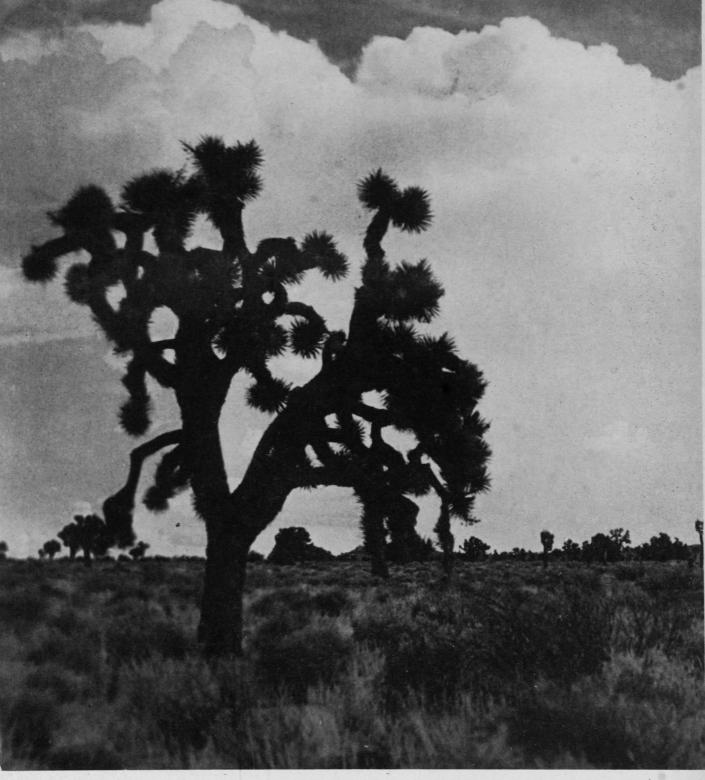
As Ever, Your Friend, JOHN

P.S.—I'm enclosing some of the pictures we took on these recent trips.

"In the heart of the Turtle mountains we found a saguaro cactus over 30 feet tall, despite the fact it is supposed to be confined to the Arizona side of the Colorado river. This country looks like a combination of Monument Valley, Utah, and the cactus country of southern Arizona."

Mojave's Giant Lily

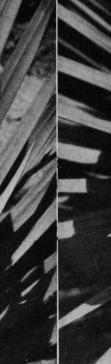
By CATHERINE and DICK FREEMAN













PICTORIAL RECORD OF JOSHUA TREE BLOSSOM

Photos and text by Catherine and Dick Freeman

Title photograph by F. V. Sampson

Fossil remains discovered outside the Joshua tree's present limits in California, Nevada, Utah and Arizona, indicate that in earlier, more humid ages it had a much wider distribution. Catherine and Dick Freeman, in photographing this series covering early bud stage, full flower, developing and maturing of fruit, to final skeletal period, chose as their subject the Yucca brevifolia, or short-leaved species. Close-ups of the flowers were taken 20 miles west of Lancaster, California. Besides the yucca moth which effects its fertili-

zation, the Joshua is host to the night lizard, Xantusia vigilis, which lives under the porous bark, subsisting upon termites, ants and insect larvae. Other animal life in the little community, according to Edmund Jaeger, includes at least 25 species of birds. Commonest inhabitants are red-shafted flicker, cactus woodpecker, ash-throated flycatcher, Baird wren, plain titmouse, western bluebird, Pasadena screech owl and Scott oriole. Pack rats sometimes build their large nests of coarse twigs at the base of Joshuas.

Above, left to right. 1—In the earliest stage the Joshua bud resembles a large artichoke. The fleshy bracts, or modified leaves partially enclosing the flowers, are tinged with a soft rose coloring on the outside, while underneath they are tinted with a pale lemon yellow. Their texture is like soft chamois or suede. 2—As the buds develop and swell the bracts are pressed backward. At this period of growth the bracts reach their greatest beauty. Deep ashes-of-roses tinges the outer wall, which cups within the waxen creamy bundles of marvelously interlocked flowers. 3—The great "artichoke" is bursting with the crowding lilies within. Looking at it from the tip, the robust blossoms appear to be pressing forth vigorously against their soft protecting walls.

Below, left to right. 4—At last the bracts straighten out horizontally into an attractive star design, while the partially opened lilies continue to clamber for a place in the sun. 5—Compressed into a dense ovoid mass the maturing flowers never find room to become full-blown, as do most other yuccas. The thick waxen petals are brittle and will break off if forced to open more fully. A heavy fragrance fills the air near the blossoms and attracts within the little pronuba moth which effects fertilization by depositing her eggs in the developing capsules. 6—Under each bract a pedicel, or flower stem, develops on which may be from one to nine flowers. From the center of each blossom the long pistil extends beyond the petals, disclosing the opening at the top through which the pollen is forced by the pronuba moth.







6



Above. 7—Heavy clusters of densely crowded flowers are 12 to 18 inches long. As most of them bloom at about the same time, the flowering season is one of luxuriant display. When in full bloom the once lovely bracts shrivel up under the blossoms, become dark and brittle. The coloring at this period is greenish-white or cream, the weight several pounds.

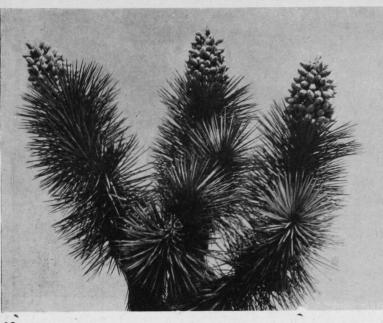
Below. 8—The capsules, or fruits, begin to develop near the base of the flower while the upper end still is in full bloom. They

often reach considerable size before the flowers are entirely gone. The persistent perianth, or petals, hang loosely about the enlarging fruits, giving a ragged appearance. Often these do not completely disappear until the ripe capsule itself falls off. 9—Almost mature capsule shows the persistent stamens and petals during development of the seeds within it. Dark spots probably are evidence of parasitic larvae which injure plant tissues just beneath surface. Fungus growth too may make such spots.





22





10

Above. 10—Sometimes the crop is so large the fruits crowd one another as closely as the blossoms before them. Since Joshuas live in the higher desert elevations which are subject to strong winds, each little stem, or pedicel, must be tough and strong to hold fruits until complete maturity. 11—When capsules have reached full maturity they break off readily, roll over desert like "tumble fruits." Fragile outer covering soon breaks

under strain of this rough treatment, seeds escaping to lodge in many scattered spots. Old flower stalk, however, may remain on tree for several years, a skeletal reminder of former loveliness.

tree for several years, a skeletal reminder of former loveliness. Below. 12—High in the arid mesa lands of the Mojave desert such forests as this, in the Lancaster area, may extend for miles, varying from open to very dense stands. In all seasons Mojave's giant lily is an unusual feature of the landscape.



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11

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Prehistoric Giant Sloth Cave on Lake Mead, Nevada
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Onyx in Orocopia Mountains, Colorado Desert, Califi.*
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Reg Manning, Famed Desert Cartoonist of Phoenix, Ariz.
Travelog to 49 Palms, Mojave Desert, California*
Explanation of "Desert Varnish," or "Sunburned" rocks*
Characteristics of Genuine Navajo Indian Jewelry
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The Rare Red Ant Chant, Navajo Healing Ceremonial Explaining the Danger of the Gila Monster's Poison Desert Color—Its Source, Effect on Sky, Clouds, etc. Life and Land of Papago Indians, Southern Arizona Kangaroo Rat, and other desert rodents
Discovery of Indian Petroglyphs in Northeast Utah* How to Understand Cause of Desert Mirages
Explanation of Lightning Spalled, or Split, Rocks
Personality Story of Lon Megargee, Desert Artist History of Lee's Ferry on Colorado River, Arizona*
Legends and Modern Life of Laguna Indians, New Mex.*
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Navajo Creation Myth, Murals by a Navajo Artist
Two White Women Spend Christmas in Acoma, Sky City Building and Furnishing an Adobe Home, Phoenix, Ariz. What Happened in Past Geologic Ages to Petrify Wood*
What Sand is—How it was Made, its Forms, Composition Story of Black Horse, Navajo Indian of Rock Rocks, Ariz.*
Indians Ruins—Wukoki, Betatakin, Keetseel, etc.
Ross Santee, Artist Interpreter of Life in Southwest Inc. Jul., Sept., Oct., Nov., Dec., 43, Jan., 44.

"Brown and golden and rich! Something like a roasted yam, yet holding also an indescribable tang of pineapple and of mango." That is the way Marshal South describes roasted mescal, the most prized delicacy at Yaquitepec. This month he tells how the mescal hearts are gathered and roasted—and eaten. The South family practices the rite of mescal roasting in much the same manner as the Indians who once lived on Ghost mountain and left their ancient fire pits behind.

Desert Refuge

By MARSHAL SOUTH

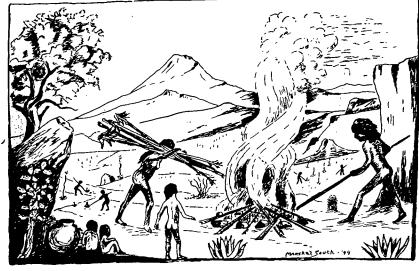
HROUGH the east window the ragged mass of an unfinished wall bulks like ebony against the pale dawn light. Except for the vibrant blundering notes of the big carpenter bees about the eaves troughs, Ghost Mountain is wrapped in a cloak of silence as absolute as though it was the first morning of the world.

Soon the sun will be up. Already the jagged rocks along the eastern ridge, where the mountain crest plunges into the shadowy lowlands, are beginning to glow pink. Lone, dead mescal poles are gaunt against the sky. Between the bulk of giant boulders the silhouettes of gnarled junipers are an edging of black lace. Rider is already awake, lying quiet and thoughtful in his covers, awaiting the arrival of the goldfish.

Every morning, just as the sun looms above the horizon, the goldfish make their magical appearance, swimming gracefully down the length of an old smoke-tinted ceiling beam. First, along the dark length of the stretching timber that is their promenade, appear the shimmering waves of a pale golden sea. Then, suddenly, in the midst of it, there are the goldfish. A long line of them. Flashing, ruddy-gold fellows of assorted sizes, all headed south. Their appearance, and the ceremony of counting them, marks the official beginning of a Yaquitepec day. Rudyard and Victoria always wake up to take part in this tally of the magic fish, and always are baffled. Because, no matter how many times they count them, they never can arrive at the same number twice. "Twenty-two," says Rudyard. "No, seventeen," declares Victoria. And they are both wrong-or maybe both right. For when Rider, the countmaster, makes the check, there are but eighteen. And as he goes over his count to verify it, there perhaps will be fifteen. Or nineteen. Magic is in the goldfish, that changes their number, from second to second, with the rapid lift of the sun. Sometimes we think that those people whose houses are so well constructed that there are no spaces beneath the corrugations of roofing iron through which the sun can paint glowing goldfish upon beams are missing a lot of fun.

Mescal roasting was hurried this year. We really ought to have done more of it, for the children love the brown, delicious, natural sweet. But there have been so many other tasks, and days have been so crowded, that we found it hard to use the necessary time.

Those days that we did manage to spare were picnics indeed. For we drift now through that enchanted period of spring when the rock crest of Ghost Mountain is vibrant with the crystal notes of orioles and canyon wrens, and all the white, gravelly stretches are gay with a carpet of desert flowers. To set forth in the early dawn, armed with shovels and digging bars, and bearing food for a day's outing, is sheer delight. There is a tang to the air, and a wide sense of freedom that belongs not to this age, but to another, when man was not so enmeshed in miseries of his own devising. Bare feet fall softly upon whispering gravel. From the junipers, as one brushes past their dark green branches, exhales an aromatic fragrance. In the stillness we imagine we



Old-time mescal roast. Ink drawing by Marshal South.

see, just ahead, the shadowy shapes of those simple hearted children of the desert whose dusky feet traced out these ancient trails between mescal hearth and mescal hearth in the long vanished years.

Mescal roasting is a family affair. Tanya and I find and bring in the sprouting plants that are ready for the baking. Rider helps dig the pit and fetches stones to line it. Rudyard and Victoria trot hither and thither, lugging in fuel. They cease their labors occasionally to hunt for snail shells or to admire the tiny thickets of desert ferns that grow in cool sheltered niches at the base of giant boulders.

It must have been like this in the old days, which only the silent rocks and ancient junipers remember. Then, as now, the orioles flung their liquid notes along the slopes. The blossoms of the desert pea bush crowded the space between the boulders with gay bouquets of dazzling yellow. The bodies of those who moved to and fro at their tasks were innocent of clothes. The old days and the simple dwellers of the desert are gone. "They killed them all off," an old Mexican woman once said to us sorrowfully. "They killed off all those poor people. But, gracias a Dios, maybe the padres at least saved their souls."

Mescal roasting is strenuous work. There is the pit to be dug. And afterwards it has to be roughly lined with stones. On these old hearths, where the earth is permanently black from the scorch of unnumbered ancient fires, the digging usually is not so hard as it would be in fresh ground. Also there are plenty of fire blackened stones that have been used and re-used numberless times in the past. This lessens the labor somewhat. But still the work requires considerable effort.

The dimensions of the pit can be governed by ambition—and the size of the proposed baking. About three feet across and from 18 inches to two feet deep in the center, when stone lined, is the average size of the pits we make. The stone lining is hasty and crude—just sizeable rocks laid together in a pavement over the bottom and up the sloping sides to the rim.

Digging in these old hearths always gives us a vivid sense of their antiquity. The blackened earth extends downward to great depths. Their age must be measured by many centuries.

About the hardest part of the proceedings is gathering the mescal hearts. The sprouting plants first must be found—and suitable ones always are widely scattered. You have to catch them in just the right stage. If the flower shoot is not high enough you lose a great deal in content. If it is too high the succulent juice pulp has begun to transfer itself to the upbuilding of the stalk. The ideal stage is when the sprout is up about 15 to 18 inches. At this period maximum plumpness—as far as roasting purposes are concerned—has been attained by the hearts.

Your plant located, the next task is to remove the central heart so that it can be roasted. This means taking practically the whole plant, with the exception of the extreme woody root, and divesting it of leaves. The old timers did this by means of chisel-pointed hardwood digging sticks. With these they

wrenched out the swelled heart and its attached sprout and pried off the surrounding dagger-pointed leaves. We still use the wooden sticks on occasion. But we have found that a light iron digging bar, although it is heavier, is more effective. It is sometimes quite a struggle to get off all of the stubborn leaves. When this is accomplished, you have a whitish-green club, something like a grotesque animal foot. This is the heart, the forerunner of your subsequent delicacy.

When a sufficient number of hearts have been collected, we lop off the extreme, spine-armed tip of the sprout and arrange them, thick end inwards, around the circumference of the roasting pit upon a low coping of good sized stones, built around the rim for that purpose. Then you proceed to pile the fuel in a great heap all around, covering coping stones and hearts alike. For this purpose any handy dry fuel will do. Usually we use the old dead butts and stalks of mescals themselves, intermixed with occasional dead branches of juniper, if there are any around. Apparently, from the comparative rarity of charcoal in the old fire hearths, this was the course followed by the ancients. Dead mescal butts provide intense heat, but leave almost no charcoal as compared with wood.

When the fire is lighted it must be kept well fed and blazing hotly for from a half to three quarters of an hour. Mescal hearts are stubborn things and can stand lots of heat. The blaze blackens them and makes hot the rim of rocks upon which they lie, heating also the lining of stones in the pit. Coals and blazing fragments fall into the pit and add to its temperature. It is a hot job and long mescal poles come in handy for stirring and ar-

ranging the blazing fuel.

At the end of half an hour or so the fire is allowed to die down. When it has dwindled to a mass of glowing embers; through which scorched mescal hearts and blackened rim rocks smoke hotly, you go around the edge of the pit, with a pole or a long handled shovel, and tumble scorched hearts, hot stones and embers all together into the pit. Then the rest of the hot ashes are piled in a mound above them. And over all a thick, heaped covering of earth. Then you go on to the same round of proceedings at the next roasting pit. Or you go home. The job is done.

And you leave your mescals cooking in their primitive oven for two days. At the end of the second day you go back and open up the pits. Things will have cooled down by then so they easily can be handled. The hearts that you take out won't look very inviting. They will be charred and earth plastered, and the shoots will be limp, brown sticky things. But don't throw them away. Carry them home tenderly and with reverence. For beneath the scorched, charred envelope lies something more delicious than many a famed delicacy of civilization.

Take a knife or a hatchet and carefully trim off the outer crusting, and the prize lies before you. Brown and golden and rich! Something like a roasted yam, yet holding also an indescribable tang of pineapple and of mango. Roast mescal! In all the desert there is nothing quite like it. And it must be tasted to be appreciated. It will keep, too, if you slice it and dry it for future use. But we at Yaquitepec seldom get this far. Our enthusiastic youngsters believe in living in the present, and the golden brown stuff doesn't keep very well with us. It tastes too good.

Our desert tortoises are awake again. All through the cold months they slumbered, hidden away in dark corners behind trunks and boxes in the house. Well sheltered in their hide-outs they were oblivious of the icy blasts that roared above Ghost Mountain. That is, two of them passed the winter in this orthodox fashion. The third—General Machado, our latest acquisition and by far the biggest of the three—scorned the protective folds of the covering which we had laid over him. He vanished at the beginning of winter, and we could not find him.

Then one day, Rider, poking about in the dark hinterland of the storeroom with a flashlight, came hurrying out with the sorrowful news that General Machado was dead. "Frozen, poor thing," Rider said dolefully, shivering at the icy wind howling about the house. "Come, see for yourselves."

So we went and saw for ourselves. There, six inches from the floor, in a dark corner, wedged between the wall and the leg of an old cupboard, was General Machado, stiff and stark. Cold and rigid, his legs dangling out of his shell, and already mouldy looking, he hung there like a dead stiff coyote across the top of a barb wire fence.

We could not reach him without moving a quantity of piled boxes and stored stuff. His appearance, in the wan beam of the flashlight, told us that we couldn't do any good if we did reach him. It was too cold to undertake the job, anyway. And besides we hadn't much heart for it. Somehow the sight of our poor pet hanging there lifeless, as upon a gibbet, cast a gloom over us. Several times during the winter when we really ought to have moved stuff in that corner to get at things we wanted, we invented excuses.

With the coming of spring, the other two awoke. They came down the aisle between the trunks and stores looking for green grass. "We ought to get that other dead tortoise out of the corner," Tanya said reluctantly. "The weather is warming. It's not healthy."

No one wanted the job. But it had to be done. So Rider brought the long iron fire rod with the hook at the end of it and Rudyard fetched the flashlight. "See if you can hook him out," I said glumly, trying to decide whether we would bury him or keep his shell as a memento. "Be careful though. He's probably pretty smelly."

The youngsters grubbed in the corner, on hands and knees. There came a sudden exclamation. "He's not here!" Rider's

voice was startled.

Flashlight in hand Rudyard backed out from under a table. His eyes were wide. "Someone has spiwited him away!" he said hoarsely.

"Oaha!" Victoria cried breathlessly. "I know! The angels! They came and tooked him!" She bolted to Tanya to impart

this amazing news.

But it wasn't the angels. For that afternoon, after we had hunted unsuccessfully for General Machado's body, we met him coming down the aisle, calm and distinguished looking. He had an air about him. An air of authority, such as any really worth while general ought to have. "Out of my way," he seemed to say haughtily. "Can't you see I am in a hurry. I have to rejoin my command."

So we restored him to his command. And they welcomed him with sour looks. For they do not like General Machado. Nor do we, now. Well, not much. For we feel, somehow, that he

has been guilty of dying under false pretenses.

Quail calling from the ridges. "Chouk!" And again: "Chouk!" The bustling flutter of the purple finches who are putting the finishing touches to their nest in the tiny house atop the high pole at the center of the ramada. The sun has dipped far to the west now, and the shadow of the house roof reaches out to the chunky little squaw-tea bush that stands in the center of the white gravel court. Along the rocks of the terrace nod the blue-flecked chia sage blooms, and the desert four-o'clocks are just opening their white flowers. On the slope, beyond the little flat through which the foot trail winds, a clump of desert paintbrush flames a splash of scarlet.

ATTRACTION

Then worship not the good men do, But do it, you, as well.
All hearts who wisely live and true, To Light and Truth impel.
Whate'er you are you but attract Exactly as you earn
And they who only good enact, To them will good return.

—TANYA SOUTH

LETTERS...

Rock Collector in New Guinea . . .

New Guinea Area

Dear Editor:

Yesterday I received the first copy of my gift subscription. To say I was thrilled would be putting it mildly. I have read Desert before, and being a rockhound and collector of Indian artifacts I naturally find it a source of entertainment and information. My rock collecting has been done mostly in California, Nevada, Arizona and New Mexico. After the war I plan to spend many happy hours again in the desert and mountain country of Arizona and New Mexico.

I am enclosing a description of the geographical and botanical aspects of New Guinea. There are beautiful rock and shell specimens here. One section is famous for gold mining. Many soldiers stationed there have melted and hammered out gold rings from the beautiful native gold.

Agate, chalcedony, onyx, copper, jasper and coral are found here. We find cat eyes that the boys make into ring and necklace sets. I spend all my spare time looking for rocks and shells. The rock specimens all are found along the beaches and washes. This is also butterfly collectors' paradise.

At home I was president of the Santa Maria rocks and minerals club. We aim to have a bigger and better club after the war. If any of your readers care to write me I might possibly sometime be able to send them a rock, shell or coral specimen.

I might add that soldiers over here are not heartened by the constant bickering in and out of congress over labor, business, soldier vote, soldier bonus, win-the-peace, 1944 presidential election, second front and countless other petty aches. What we want is peace and unity of purpose at home now. We want to feel that we have a solid united home front, not a disintegrating one.

Thanks again for an interesting and colorful magazine. Reading it has done much to keep my morale and that of my friends high.

CPL. JOHN A. WELDON

Escape to the Desert . . .

Salt Lake City, Utah

Dear Sirs:

Thank you for publishing such a delightful magazine. Because we travel all of the time we are unable to subscribe, but have to take a chance finding it wherever we are. Once we were desert rats, but now our travels take us to damp and rainy climates most of the time. But once a month we are able to escape back to the desert in the pages of your magazine.

MRS. J. C. ALEXANDER, JR.

Desert Goes to a Sailor . . .

FPO San Francisco

Dear Miss Harris:

Your excellent Desert magazine I devour most eagerly as soon as it is received aboard. It transports me to our enchanted desert—at the moment to Borrego where once again I'm tramping among the badlands

Although I've sailed the sea for a long time yet I love the desert. It is and always will be my heart's wonderful happy home. This confession is made, I'm sure, to kindred spirits—those associated with DM couldn't be otherwise. So you see I only wanted to warm my chilled inner self with the smiling rays of desert sunshine which you all so abundantly enjoy and I so ardently crave.

Now that I've opened the window and again glimpsed my world of happiness, I must close it quickly, for here too is need for my thoughts and efforts—so that one day familiar trails may again be trod without ever the need to look back with uncertainty.

PETER PAUL MARTINEK

Birds and Spiders Improve DM . . . Boulder City, Nevada

Dear Sirs:

I want to congratulate you on the last few copies of Desert. The articles on flowers, spiders, birds, etc., were very interesting and a very great improvement over last year's issues. It has helped me to learn more about life on the desert.

MRS. VEVA BERRY

Claim Black Widow a Fake . . .

Silver City, New Mexico

Dear Sirs:

Having read "Spider House" by Mora M. Brown in the April issue, I was considerably confused when I opened my April copy of Natural History and read an article, "The Modern Nature-Faker" by Wm. H. Carr, associate curator of Museum of Natural History.

The article is headed by the statement. "Before some trust is lost in the printed word, it is time to point out that a great many tall tales and misleading statements are being published as fact." Among the popular fallacies current today seems to be the one about the use of Black Widow spider silk in bomb sights and other military sighting instruments. It says that Dr. Willis J. Gertsch, associate curator of insects and spiders of American Museum of Natural History, upon becoming suspicious of statements in the press, made inquiries among optical manufacturers. He "was told that spider silk is too fragile for these purposes and that the thread could

not be adapted to the varied and complex needs of such instruments." He learned that etched glass is used in optical fire control instruments, that platinum wire is considered superior to spider silk, and that the silk of other spiders is used more often than Black Widow spider silk in other types of optical instruments.

I do not mean to say that your article is entirely incorrect. But it is definitely misleading; and of course the writer dwells upon the sensational Black Widow to the

exclusion of the above facts.

WINIFRED NOBLE

Dear WN: Having no desire to publish any material because of its sensational value, Desert upon reading the Natural History article you refer to, rechecked with Mrs. Mora Brown, author of "Spider House," with Mrs. Nan Songer, who furnishes the web for precision instruments, and T. K. Lee, who developed the Tackhole Dot and who uses much of the web extracted by Mrs. Songer. Their statements follow.—LH.

Riverside, California

Dear Miss Harris:

Despite the high authority quoted in Miss Noble's letter, I cannot see wherein my article "Spider House" is either incorrect or misleading.

In the fourth paragraph of this article I quoted Mrs. Songer: "... for consistently good web I like best the Green Lynx and Golden Garden. In autumn, though, these adults die, so for winter work I use adult Black Widows and the young of the other two species."

I visited Mrs. Songer in early spring. Consequently the only adult spider available was the Black Widow; hence, necessarily a Black Widow was used for demonstrative.

stration.

Please understand I do not question the sincerity of Wm. H. Carr, Dr. Willis J. Gertsch or Miss Noble. I am 100 per cent against faked reporting, too, but I believe investigation will show that they did not look deeply enough into the subject.

MORA M. BROWN

Yucaipa, California

Dear Miss Harris:

I wish to state that Mrs. Brown's article "Spider House" which appeared in your April issue is perfectly true and accurate in every detail. Since I was the first person in this country to use the Black Widow and gave the first article to Nation's Business magazine in 1941, and since a number of leading magazines, such as Coronet, Nature and several others as well as Desert, recently have printed similar articles, all mentioning the use of the Black Widow silk in wartime precision instruments, it might seem that the article in Natural History by Wm. H. Carr could be taken as a challenge to these articles. Since each arti-

cle was sent to me and received my personal O.K., I should like to answer the accusations made by Mr. Carr.

I have been supplying silk for various aeronautical military sighting devices as well as telescopic gun-sights to contractors for U. S. bureau of aeronautics, supply divisions of the war department, navy department, as well as individual optical concerns for some time. And in the winter time much of this silk IS that of the Black Widow. According to information I have there also are certain army laboratories which supply their own silk for instruments which use only the Black Widow.

I see nothing sensational about using the Black Widow spider. I simply started using them during the winter months as the only large spider with a sufficiently strong silk that was available here at that time. They are very well-behaved during extraction of web.

However, by next winter I do not expect to use them, as an explorer, Chas. A. King, made a trip into interior Mexico to bring out for me 150 large tropical spiders, and the Mexican laboratory of the U. S. department of agriculture sent 100 more of the same species. The silk from these spiders has been declared superior in several ways.

There does seem to be a general misconception of this work, though I personally have seen no "tall tales" printed which might account for it. I have received letters

from hundreds of people from all parts of the country who wish to take up the work. The general impression seems to be that extraction of spider silk is a large production industry. I would be glad to have this impression branded as a big mistake. As Mr. Carr points out, there are many other types of cross-hairs used where size will permit. The etched line is used on all sights that must withstand heavy concussion. The steel, or platinum wire is used in a large percentage. If the inquiries had been more careful, it would have been learned, however, that the engraved line, even the finest line that can be etched with diamond, is much too heavy for certain telescopic reticules. Also that the steel or platinum wire is several times WEAKER in certain respects than the spider's silk with its higher degree of elasticity, and will not withstand the contraction of freezing temperatures of the stratosphere.

I have been called many things, from "Spider Woman" to "Black Widow Lady"—and I haven't minded at all. But I certainly would resent being classed as a "Nature-Faker."

NAN SONGER

Birmingham, Alabama

Dear Editor:

It is true that to date manufacturers of telescope sights use steel or tungsten wire in their instruments, being rather coarse and not as well suited to really fine sighting as when the spider silk with the Tackhole Dot at center is used. Much research has been necessary to perfect the methods of installation of spider silk in telescope sights and the writer has spent half a lifetime doing just that. It has been perfected and the methods of application, in some respects at least, are secret and the materials used in the application are of my own formula.

Suffice it to say that in the last five years I have installed reticules of spider silk, mostly of the Black Widow variety (as furnished by Mrs. Nan Songer) in many thousands of telescope sights, which are now in use in large numbers in Alaska and Canada (where temperature changes are extreme) and all over the United States and many of them have been taken into the Pacific area by various members of the armed forces. Major Rex Applegate, chief of combat section, Camp Ritchie, Md., uses scopes in instruction there for snipers.

Hunters by thousands use them on such big rifles as 505 Gibbs, 375, 333, 300 H&H, etc., and it is rare indeed that we ever hear of one breaking from the shock of recoil. They stand the shock better than steel wires. The reason manufacturers do not use it, so far, is because of the difficulty in applying it as a manufacturing proposition and lack of skilled technicians.

T. K. LEE

Keeping Essential Crops Growing . . .

IS THE PATRIOTIC MOTTO OF IMPERIAL IRRIGATION DISTRICT, WHICH IS THE SOLE AGENCY SUPPLYING WATER AND POWER TO FARMS AND CITIES OF FERTILE IMPERIAL VALLEY, CALIFORNIA.

On March 15, 1944, there were 4,536 of these farms, of which 2,388 or 52 per cent were owner-operated, and 2,148, or 48 per cent, were farmed by tenants. Average area of each farm was 100.4

In 1943 agricultural products produced in Imperial Valley had a valuation total of \$58,544,562.

This stupendous achievement represented Imperial Valley's contribution to the Nation's "Food for Victory" campaign—that the United States and her Allies might also have superiority in food, as well as in ammunition, guns, tanks, planes and other necessary military equipment.

Imperial Irrigation District is continuing its vital program of holding the line on the home front by maintaining 3000 miles of canals and drains—and 27,000 canal structures—despite serious handicaps in shortages of labor and essential materials, because it is vitally necessary to insure delivery of water to Imperial Valley's fertile acres that are producing food for victory.



HERE MI THERE...on the Desert

ARIZONA

Mexico Water Treaty Shelved . . .

PHOENIX—Senate foreign relations committee in April postponed action on treaty between United States and Mexico, distributing waters of Colorado and Rio Grande rivers, until after fall election, unless state department should demand earlier action. Main objection to provisions of the treaty to date have come from California senators Downey and Johnson, with some opposition from Arizona. Colorado Basin senators up for reelection are Thomas, Utah; Downey, California; Hayden, Arizona; Milliken, Colorado, and McCarran, Nevada.

Wants Franchise for Indians . . .

GANADO-Federal wardship for Indians and discriminations against them should be removed "at the earliest possible time," declared Dr. C. G. Salsbury, for 17 years superintendent Sage memorial hospital and Ganado mission. He scored the continued "condescending paternalistic in-terference" of the government with every detail of Indian life, the 389 treaties still in effect some of which are "absolutely ridiculous" which are basis for preserving wardship, implying incompetence. He stated our dealings with the Indians "run the whole gamut from pillage and destruction to sentimental coddling—from starvation to feeding on the fat of the land, from the best we have to offer in education to insisting that he revive and preserve his ancient tribal beliefs." "Sentimentalists want him kept in paint and feathers, medical scientists want him to have modern care, some of the long-haired writers and bureaucrats want him to have a smattering of medical science and the medicine man's chant along with it. Some want him to raise all the sheep he can-others want to cut him to nothing and live on the government. I believe every Indian should be granted the franchise and released from wardship unless he is proved incompetent, and certainly no Indian with less than half blood should be considered an Indian."

Gold Hunters Lost, Found . . .

PHOENIX—Anton E. Hohre, 59, and his 72-year-old unidentified companion, who became lost in Four Peaks area, were found several days later by deputy sheriffs, little worse for the experience. A plane from Falcon Field located the men and dropped smoke bombs with which the aviators signaled their position to the search party. The couple were equipped with a "gold finding machine" with which they were attempting to locate various minerals.

Paradise Ranch Land Sold . . .

PHOENIX—M. B. Cheney, prominent Cleveland manufacturer, has sold about 1000 acres of his widely-known Tumbling 77 ranch in Paradise valley. Mr. and Mrs. Fowler McCormick, Chicago, purchased one tract of 450 acres which includes a beautiful modern residence, guest house, farm house, manager's residence and stables. The other parcel of 480 acres was sold to Daniel C. Gainey, Owatonna, Minn. Cheney still owns 1000 acres in the valley, which he plans to develop.

John G. Verkamp, 67, widely known Indian trader, lumberman and stockman, died April 4 at his Grand Canyon home. He had lived at Flagstaff and Grand Canyon, where he established a curio store in 1906, for 50 years.

Dr. Charles P. Austin, Morenci, was elected 1945 president Arizona medical association April 20 at meeting in Westward Ho hotel, Phoenix.

CALIFORNIA

River Encroaches on Town . . .

NEEDLES — Slowly rising Colorado river waters, fed by backwater from Parker dam, may force this town of 4000 population to move to higher elevation. In April river was four feet higher than town, which is partly protected by river dikes. Flood experts estimate that entire area will be flooded in another three or four years.

No Coolers for Hot Workers? . . .

HOLTVILLE - Dwellers in Imperial Valley are getting hot, and agriculturists are getting even hotter as they face summer with no assurance evaporative coolers will be available. Local chamber of commerce, appealing to Senator Sheridan Downey, Governor Earl Warren and WPB, following army's withdrawal of its approval of cooler manufacture, stated, "Agricultural workers as well as other individuals here, have no prospects of getting any type of coolers or fans for their homes with coming of summer heat. This situation is vitally important to the war effort as without cooling these individuals will move to cooler regions for the summer months."

Gordon Feekings has been elected Palm Springs chamber of commerce president.



Don't try the train during '44 – Unless the Axis is no more!

Until the war ends our best advice to civilians is this: Don't think of making a train trip unless you absolutely must! We cannot carry all civilians who want to travel because we're doing our war job. All Southern Pacific trains are filled to capacity, and most trains are sold out a long time ahead. If you can't buy the train ticket you want right now—why not put the train fare into WAR BONDS?

S • **P** The friendly Southern Pacific

River Board Members Appointed . . .

COACHELLA - Six California members of Colorado river board were appointed for indefinite terms by Governor Earl Warren April 26. Members are E. F. Scattergood, Los Angeles, general manager Los Angeles department water and power; Dr. Harry W. Forbes, Coachella, member Coachella valley county water district board; Fred W. Simpson, San Diego, president San Diego highway development association; Evan T. Hewes, El Centro, president Imperial irrigation district; W. P. Whitsett, Los Angeles, director Metropolitan water district of Southern California, and Fred J. Toole, Blythe, trustee Palo Verde irrigation district.

Want Mineral Rights Reserved . . .

WESTMORLAND — Spruce - Westmorland farm center has requested directors of Imperial Irrigation district to reserve all mineral rights on land sold hereafter or contracted for sale by the district so that value resulting from discovery of oil in Imperial Valley may be used to reduce district's bonded debt.

Dry Ice Plant Expanding . . .

NILAND — Increased navy demands are responsible for expansion plans for National dry ice corporation, which is a 95 per cent war-producer. Since January three new carbon dioxide wells have been drilled, fourth is underway. Expansion will give plant 40-ton daily capacity. L. B. Fade, superintendent, says all navy bombers and ships are serviced by dry ice products.

Chandler Mexico Interests Sold . . .

CALEXICO — Harry Chandler, Los Angeles newspaper publisher, and his associates reportedly have sold all their holdings in Mexicali valley, south of here, some of which they have held since 1899. Mexican interests are said to have purchased the property, which included banks in Mexicali, Tijuana and Ensenada, Colorado River Land company holdings, and 500,-000 acres of land.

Eugene E. Therieau, former city councilman, was elected Palm Springs mayor April 18.

NEVADA

Nevada Fishing Seasons . . .

HAWTHORNE—Fishing seasons have been announced by the following counties: Nye, May 1-September 30; Churchill, May 1-October 1, no closed season on catfish; Esmeralda, May 3-October 1; Lyon, April 15-October 1. Fishermen should consult county clerks or wardens for specific regulations.

"Bing" Buys Nevada Ranch . . .
ELKO—Harry L. (Bing) Crosby has purchased a 10,000-acre stock ranch near Tuscarora, 50 miles north of here, and will run 2100 head of cattle. Announcement was made in April by Crosby's Nevada manager, Howard Eacret, who will manage the ranch. Property involved an exchange of the 3600-acre Jube Wright ranch along the Humboldt river which Crosby had operated several years.

Believe Sheep Poisoned . . .

GOLCONDA -- Loss of more than 3400 sheep on range in vicinity of Getchell mine near here was attributed to poisoning by E. A. Clawson, receiver for Pacific States saving and loan company, owners. Clawson said most of the sheep were found dead day after flock was moved to area, and that all burros used by herders also died of poisoning. Majority of the sheep, it was estimated, were worth \$15 per head. Investigation was started.

New Naval Air Project . . .

FALLON-Navy announced April 19 that a \$1,627,800 project has been approved for naval auxiliary air station here, to operate under cognizance of naval air station at Alameda, California.

Aviators Take Census . .

WINNEMUCCA — Aerial survey in Humboldt and Pershing counties for antelope and deer census revealed that "horses were very prominent on the range." Count showed 1384 horses, 215 deer, 675 antelope, 660 bucks, 89 Canadian honkers, 10 coyotes, three burros, one mule.

A. J. Shaver of Winnemucca was appointed engineer of Colorado river commission with headquarters in Las Vegas by Gov. E. P. Carville in April.

Appropriation of \$450,000 for additional construction at Battle Mountain airport was made in April, according to Senator P. A. McCarran.

NEW MEXICO

Pueblo Agent Resigns . .

ALBUQUERQUE — Dr. Sophie D. Aberle, superintendent United Pueblo agency of New Mexico since 1935, has resigned the position to continue medical research on malaria in Washington, D. C. Dr. Virgil K. Whittier is acting superintendent.

The Desert Trading Post

Classified advertising in this section costs five cents a word, \$1.00 minimum per issue—Actually about $1\frac{1}{2}$ cents per thousand readers.

MISCELLANEOUS

THE ROCKHOUND COLONY GROWS— Eighteen to date. We'll have a name by next issue. So many have written they are coming in April to buy that I expect we'll soon be sold out. If you belong to the rockhound fraternity and are looking for a fine location and a nice place to live, write for particulars. We want only the best people and want you to be satisfied or we don't want you. We want a colony that will be TOPS in every way. Come and look things over. The Colorado Gem Co. Bayfield, Colo.

MANUSCRIPTS MARKETED: Books, stories. plays, photoplays, articles. Circular D-64 Plays, photoplays, articles. Circular D-64 Free. OTIS ADELBERT KLINE, Literary Agent, Established 1923, 507 Fifth Avenue. New York 17, New York.

FOR SALE-Indian relics, 23 assortments from which to choose, \$1.00 per assortment or \$20 for all 23. All perfect specimens. Choose from these: 10 beautiful prehistoric Indian arrowheads; 10 tiny bird arrowheads; 10 arrowheads from 10 different states; 2 stone tomated from 10 different states; 2 stone states from 10 different states; 2 stone states from 10 different states from 1 hawks; 4 spearheads; 5 stone net sinkers; 10 fish scalers; 2 hoes; 4 agate bird arrows; 5 flint drills; 7 flint awls; 10 beautiful round head stunning arrowheads; 4 fine sawedged arrowheads; 4 fine flying bird arrowheads; 4 fine drill pointed arrowheads; 4 fine queer shaped arrowheads; 4 rare double notched above a barbed base arrowheads; 5 double notched above a stemmed base arrowheads: 12 small knife blades of flint; 1 rare shaped ceremonial flint; 3 flint chisels; 7 crystals from graves; 10 arrowheads of 10 different materials including petrified wood. Locations given. 100 arrowheads \$3.00. 100 very fine mixed arrowheads all perfect showy colors including many rare shapes such as drill pointed, double notched, saw edged, queer shapes. etc., location and name given, \$25.00. List free. Lears, Glenwood, Ark.

MUSEUM SUPPLIES WANTED: Anything suitable for museums. Rocks, Minerals, Fossils, Guns, Horns, Beadwork, Meteors. Catalogue 25c. Museum Supplies, 6601 Oshkosh, Chicago 31, Ill.

Wanted—Coleman No. 500 single burner camp stove or will trade Turner two-burner pressure stove in good condition. Dan H. Dunham, 3014 So. 34th St., Omaha 5, Neb.

The BASIC FACTS of your unknown self. Do you know their beneficial nature and where to find them? Address: BASIC-RESEARCH LABORATORIES SYSTEM, 785 Lafayette Street, Denver 3, Colorado.

25 Genuine Indian arrowheads, \$1.00; Tomahawk head 50c. Cat. of Indian relics, crystals and ore specimens. Geo. Holder, Glenwood, Ark.

LIVESTOCK

KARAKULS producers of Persian Lamb fur are easy to raise and adapted to the desert which is their native home. For further information write Addis Kelley, 4637 E. 52 Place, Maywood, California.

"Karakul Fur Sheep — America's Great Live-stock Opportunity—You can be a part of this fascinating business and have your Karakuls cared for by experienced rancher. Write for details, James Yoakam, National Distributor, 1128 No. Hill Ave., Pasadena, California."

REAL ESTATE

For Imperial Valley Farms-W. E. HANCOCK "The Farm Land Man" Since 1914 El Centro — — — California

Boys Camp at Mesa Verde . . .

GALLUP — Plans for explorers' camp for boys 12 to 16 years of age at Mesa Verde national park, Colorado, have been announced by Ansel F. Hall, hotel concessionaire at Mesa Verde. Camp will operate from June 19 to September 9 with two sixweeks periods. Arrangements are being made to meet the boys here and escort them to Mesa Verde for a summer of pioneering and adventure in Navajo country, Mesa Verde and La Plata mountains.

Roman Hubbell Son Killed . . .

GALLUP—Capt. Roman Hubbell, Jr., 30, eldest son of Roman Hubbell, was killed in action in capture of Manos island of the Admiralty group in South Pacific March 24. Although his parents live at Winslow, Arizona, where his father is an Indian trader and Indian tour operator, Capt. Hubbell was reared in Gallup and graduated from Gallup high school in 1933.

New Mexico Trade High . . .

SANTA FE—New Mexico led far western states in trade with a 15 per cent gain in February over same period in 1942. State was second to Florida, which had 25 per cent gain. Arizona ranked 21st, Nevada 25th, Utah 32nd. Survey was based on reports from nearly 19,000 stores.

UTAH

Days of '47 Scheduled . . .

SALT LAKE CITY — Expansion of Days of '47, Inc., to include groups which formerly sponsored Pioneer Days celebration has been announced by Thomas B. Child, president Days of '47. Invitations to participate with Sons and Daughters of Utah Pioneers July 18-24 have been extended to chamber of commerce, junior chamber of commerce and other groups. Committee members have been appointed to prepare for the July event.

Coyote Evades Bloodhounds . . .

OGDEN—It took weeks of effort, 20 hunters and a pack of bloodhounds to destroy one coyote, accused of sheep killing, which mysteriously had made his way to Fremont island in Great Salt lake. Finally a hunter's bullet drove the coyote into the salty lake, a motorboat crew overtook him, dragged him aboard and killed him.

Utah's First Plastic Firm . . .

SALT LAKE CITY—Utah Plastic company was undergoing final test before launching into production on its first war order in April. Threaded electric fixture taps are the first articles to be produced and are believed to be first plastic product made in Utah.

Utah state fair will be held September 3-9, at Salt Lake City fairgrounds, Sheldon R. Brewster, secretary-manager.

Utah American Legion convention will be held in Richfield, August 18-19.

Robber's Roost Roundup is scheduled for July 28-30 at Price.

A WESTERN THRILL

"Courage," a remarkable oil painting 20x60 feet, the Covered Wagon Train crossing the desert in '68. Over a year in painting. On display (free) at Knott's Berry Place where the Boysenberry was introduced to the world and famous for fried chicken dinners with luscious Boysenberry pie.

You'll want (1) A 4-color picture of this huge painting suitable for framing. (2) A 36-page handsomely illustrated souvenir, pictures and original drawings, of Ghost Town Village and story of this roadside stand which grew to a \$600,000 annual business. (3) One years' subscription (6 numbers) to our illustrated bi-monthly magazine of the West. True tales of the days of gold, achievements of westerners today and courageous thoughts for days to come. Mention this paper and enclose one dollar for all three and get authentic western facts. Postpaid.

and get authentic western facts. Postpaid.
GHOST TOWN NEWS,
BUENA PARK, CALIF.

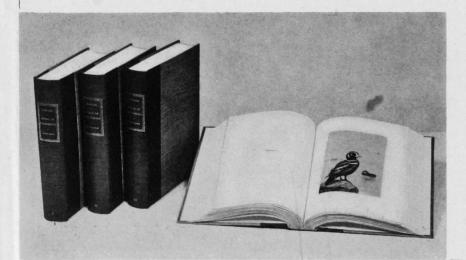
No Desert Library is complete without this magnificent set of books-the most authoritative work on desert birds

THE BIRDS OF CALIFORNIA

By W. LEON DAWSON

A complete scientific and popular account of the 580 different species of birds found in the State of California. 2121 pages. Over 1400 illustrations including 110 full-page color plates of magnificent quality, by Major Allan Brooks. Printed on fine coated paper, each volume, size $12\frac{3}{4}$ x $10\frac{1}{2}$ x $2\frac{1}{4}$, is bound in two shades of top-grade library buckram, stamped in genuine gold. Completely indexed. Individually cased.

Color plates include such desert birds as: Scott's, Hooded and Bullock's orioles, Cooper's and Western Tanagers, Green-tailed and Desert Towhees, Cactus and Gila woodpeckers, Valley and Desert quail, Roadrunner, White-tailed kite, Band-tailed pigeon, Verdin, Phainopepla, Lazuli Bunting, Arizona grosbeak, and 92 others.



Originally priced at \$200 a set, a few remaining sets of the de-luxe edition, already a collector's item, are offered at \$60.00 postpaid to any part of the U.S.A. Satisfaction guaranteed. To order, fill in coupon below.

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Plea	se	sei	nd	me	sets	of	Dawson's
The	Bi	rds	of	California.	Che	eck	enclosed.

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STREET

CITY_

STATE_

Mines and Mining..

Washington, D. C. . . .

Immediate diversion of helium to private and commercial users, according to U. S. bureau of mines, has been made possible by bureau's spectacular wartime expansion ahead of schedule, which has left large reserves for government use, and by present extraction of helium which otherwise would be wasted from natural gas and subsequent piping to wartime industrial plants. Due to new developments helium will play important peacetime role in treatment of asthma, tuberculosis and other respiratory diseases, in eliminating or reducing caisson diseases, in operating room as part of noninflammable anaesthetics, and in welding magnesium metal. Other new uses include cooling of electric motors, in explosion-proof motors, low temperature heat treatment, preservation of foods, as tracing gas to determine underground migrations of hydrocarbon gases. Production costs are now about one cent per cubic foot. Production figures are secret but bureau says present output is 25 times prewar total, due greatly to helium coming from new Navajo plant in New Mexico.



Las Vegas, Nevada . . .

Hitherto censored statistics on 1942 production of magnesium metal, just released by U. S. bureau of mines, reveal 200 per cent greater production than in 1941. Of total 1942 production of 97,925,684 pounds, actual primary and secondary consumption that year was 84,525,700 pounds. Principal producers, location and source are: Dow chemical company, Midland, Mich., brine; Dow chemical, Freeport, Texas, sea water; Dow chemical, Valasco, Texas, sea water; Permanente magnesium corporation, Permanente, Calif., magnesite; Permanente, Manteca, Calif., magnesite; Diamond magnesium company, Painesville, Ohio, magnesite; International mineral and chemical company, Austin, Texas, chloride; Mathieson chemical company, Lake Charles, La., chloride; Basic magnesium, Las Vegas, Nev., magnesite; Ford motor company, Dearborn, Mich., dolomite; Magnesium reduction company, Luckey, Ohio, dolomite; New England lime, Canaan, Conn., dolomite.

San Francisco, California . . .

State division of mines press bulletin just released gives 1943 production figures for carbon dioxide, iron and quicksilver. Two wells, one near Niland, Imperial county, and one near Hopland, Mendocino county, produced 227,424 m. cu. ft. carbon dioxide gas which was compressed to make 14,037 net tons dry ice valued at \$248,126, a gain over 1942 of 2116 tons. Iron ore shipments totaled 907,458 tons valued at \$2,341,827 f.o.b. mine, which came from four properties in San Bernardino county and one each in Santa Cruz and Shasta counties. This total is more than all iron ore mined in state since 1881 to date. Ore mined was hematite from San Bernardino county which went to new steel mill at Fontana, magnetite from Shasta and magnetite sands from Santa Cruz county. State quicksilver total was 33,948 flasks valued at \$6,177,159 f.o.b. mine. coming from 86 mines in 17 counties. 1942 production was 30,087 flasks.

Santa Fe, New Mexico . . .

John M. Kelly, director state bureau of mines, and Charles Johnson of Silver City, U.S. bureau of mines, announce they will ask government for \$100,000 for 1945 program to investigate iron ore deposits near Silver City and in southern New Mexico; four fluorspar deposits, one near Grants, two near Deming and one near Silver City, and one coking coal deposit near Carthage. Current year's allocation of \$30,000 is being used to study deposits of fluorspar, used as a flux.

Milford, Utah . . .

Completion in April of Tintic Standard mining company's fluorspar mill at Cougar mine 65 miles southwest of here marks first step in establishing Utah as major producer of metallurgical and chemical grades of fluorite. When exploration gave assurance of at least 80,000 tons of ore averaging 40 per cent calcium fluorite, company exercised its option and contracted with Metals reserve company to deliver concentrate over period of January 1, 1944, to March 31, 1946. Concentrate will be trucked to Lund for shipment. Later addition of equipment to produce the higher grade chemical fluorite is planned.

Banning, California . . .

Frank Backman, former Banning resident and engineer on Colorado river aqueduct, has been appointed manager of Henry Kaiser steel mill at Fontana, according to Banning Record.

El Centro, California . . .

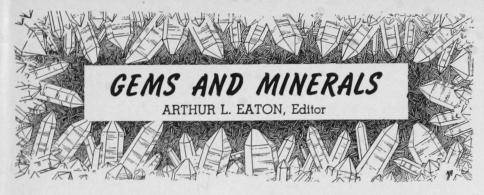
Belief that oil may underly rich farm land in central and southern Imperial county is held by oil companies which have leased more than 8000 acres preparatory to test drilling. Amerada oil company, with leases in Heber district, is reported to have spent about \$200,000 on preliminary surveys. Texas company also is interested in oil possibilities. Neither company is bound by leases to spend more than a year's rental if tests prove unsuccessful. Independent Exploration company, of Houston, Texas, is another oil company interested in this county. They have established offices in Brawley.

Trona, California . . .

Boric acid produced here is used in borosilicate or fiber glass, for important wartime roles. Tensile strength exceeding 250,000 pounds per square inch makes glass fibers ideal as reinforcement for plastics. They will melt but will not burn. They will not stretch, swell or shrink, are unaffected by most chemicals. In various forms, they are used to weave fabrics which withstand heat, damp and decay; to make blankets and boards for heat and sound insulation, retainer mats which increase life of storage batteries.

Twentynine Palms, California . . .

To meet increased war demands Desert Chemical company, at east end of Dale Dry lake about 20 miles east of here, is installing complete new spraying system for salt cake production, and new salt vats to bring total area covered by vats to 200 acres are under construction. Although tonnage of salt and salt cake cannot be revealed it is stated production in past three years has increased 1500 per cent. The salt is in demand by magnesium and synthetic rubber industries. Salt cake is used primarily in pulp paper and glass industries.



OVER ONE THOUSAND ATTEND SOUTHWEST MINERAL EXHIBIT

Over 1000 persons attended the seventh annual gem and mineral exhibit of Southwest Mineralogists at Harvard playground April 1 and 2. Copper minerals were featured. Awards were made as follows:

Minerals, judged by variety, quality and rarity—Harold Eales, 1st; Florence Hake, 2nd; Ethel Prosser, 3rd.

Crystals, judged by variety, quality and rarity—Ruth and Franck Stillwell, 1st; Harold

Eales, 2nd; Ellsworth Beach, 3rd.

Polished Flats and Nodules, judged by quality of workmanship, variety of specimens, and outstanding material—Harold Lippitt, 1st; Albert

Hake, 2nd; Ethel Prosser, 3rd.

Cabochons, judged by quality of workmanship, variety of specimens and outstanding material—Dr. H. E. McKibben, 1st; Bud Prosser, 2nd; Albert Hake, 3rd.

Arteraft (including polished material for personal adornment, articles of utility and pure art), judged by quality of workmanship, effort and originality—A. C. Barnes, 1st; Jeane and Harold Lippitt, 2nd; Bud Prosser, 3rd. Judges were Thomas Daniel, Gordon Funk, Glenn Harmas and Richard R. F. Lehman.

STAR QUARTZ FOUND IN CALIFORNIA LOCALITIES

Asteriated or Star quartz, of several distinct types, has been reported recently from many locations in the Southwest. As the star is distinctly connected with crystal structure, it always shows the six points of the hexagonal sys-tem. Carson City, Nevada, provides bright pink rose quartz with fine stars. Some of this type has altered in color from rose to lavender.

Jacumba, California, has produced a whitish to blue grey vein quartz, seldom larger than two inches, with a distinct star only when properly cut in cabochon. Star rose quartz has also been found in Black canyon, near Mesa Grande, California, and near Campo. Quartz from both of these latter locations has a tendency to fade completely when exposed to the direct sunlight.

MEXICO'S NEW VOLCANO SIMILAR TO VESUVIUS

April eruption of Mt. Vesuvius in Italy serves to call attention to the similarities between it and El Paricutín in Mexico. Both are small volcanoes, as Vesuvius is only 4267 feet above sealevel, and neither approaches the giant bulk of 14,000-foot Mauna Loa nor 10,000-foot Mt. Etna. But there their mediocrity ends. Many of the larger volcanoes are the "quiet" type. Records show that many of these erupt without earthquake or explosion. But both Vesuvius and El Paricutín are of the "explosive" type. El Paricutín was born one year ago with an earthquake and explosion and has been in violent action ever since. Vesuvius becomes so violent at times that it has been used as a classic example of explosive volcanoes. Its present eruption, although violent, is not a big one from the geological point of view.

OLD BALDY IS NAME OF **NEW LAPIDARY SOCIETY**

John J. Brice, Pomona, California, reports organization in 1943 of Old Baldy lapidary so-ciety, inc. Purpose of the society is promotion of good fellowship among amateur gem cutters of the locality; improvement of members in art of cutting and polishing various rocks and gem materials; cooperation in solving members' problems of cutting and polishing; collection of materials for cutting and polishing; and providing opportunity for purchase, exchange and exhibition of specimens and materials.

Officers are Wm. Dyer, 220 E. Alosta, Glendora, president, and Elmer Teague, San Dimas, secretary-treasurer. Meetings are third Mondays at members' homes. Membership is limited and only those who cut and polish may join. Members live in Glendora, Covina, San Dimas, Clare-

mont, Pomona and Ontario.

Jerry Laudermilk spoke on flints of Brandon, England, at March meeting held at home of Mr. and Mrs. Ellis Johnson, 3425 Padua Av., Claremont. Laudermilk displayed ancient tools used in the flint mines of Brandon and also some flint arrowheads of his own making.

INYO COUNTY PRODUCES BULK OF STEATITE TALC

Otis Booth of Sierra talc company states that 95 per cent of high quality steatite talc used in all types of American war production comes from Inyo county. Some comes from Montana.

Talc is used in making paint for ships as it gives paint a low reflective quality—especially valuable in camouflage.

Booth says that versatility of talc's uses is becoming greater with war experimentation. Fired talc has been found to have a harder durability state than steel allows. Nozzles of sand blasters and other equipment now are being made of fired talc.

Mojave Desert Gem and Mineral Shop . . .

On Highway 91, 11 Mi. East of Barstow One Mile West of Yermo, Calif. E. W. SHAW, P. O. Box 363, Yermo, Calif.

TURQUOISE . . .

Nugget-Flat-Bead-Slab-Cabochon

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Pacific Electric Bldg.

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COLLECTORS' ITEMS

In my excavations in prehistoric mounds, at Wickliffe, Kentucky, and other DIGS, I have accumulated thousands of duplicates which I have decided to dispose of to other collectors at very reasonable prices. Since this is not a business with me, I cannot bother with anything less than a \$5.00 order. Remit with order, and if goods are not satisfactory, money will be refunded.

The following are a few of my collectors' items. Some are definitely unique and all are guaranteed genuine:

Beautiful Kentucky Crinoid Buds— 15c to 25c

Kentucky Crinoid Joints and Stems-15c to 25c

....50c to \$1.00 each Large Buds Quality and Size Determine Price

Prehistoric Flint Arrowheads....10c to 25c Prehistoric Spear Points........75c to \$2.00

Prehistoric Stone or Flint Celts-\$1.00 to \$2.00

Prehistoric Mound Beads, 2-ft. String, \$2.50

Prehistoric Mound Pottery.....\$4.00 to \$10

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HERE ARE THE GIFTS YOU'VE BEEN LOOKING FOR!

Rings, \$4.00 and Up Necklaces, \$5.00 and Up Brooches, \$5.00 and Up Bracelet and Ring Sets, \$15 and Up

Plus 20% Excise Tax and 21/2% Sales Tax

Petrified Picture Wood and Moss Agate — Jewelry Hand Made in Sterling Silver Mountings

RINGS — BRACELETS — NECKLACES BROOCHES — TIE SLIDES, ETC.

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ELLIOTT'S GEM SHOP

26 Jergins Arcade Village

Long Beach 2, Calif.

Entrance Subway at Ocean and Pine Open 10 A.M. to 10 P.M. Daily

AMONG THE

ROCK HUNTERS

Chester Howard spoke on meteorites at April 11 meeting of Texas mineral society, Dallas. L. D. Van Cleave sent a box of tri-state minerals to the club as a grab bag. Chemistry of Rocks was subject of Dr. L. A. Nelson's talk for May 9 meeting. Annual election of officers is scheduled for June meeting. All Texas collectors are invited to attend meetings, according to Mrs. A. L. Jarvis, secretary.

Leland S. Chapman's "What Is Your Mineralogical I Q" in East Bay's Rockpile leaflet propounds many difficult questions—difficult unless you have a thorough knowledge of minerals and mining.

W. Scott Lewis has mounted extremely thin sheets of a Canadian phlogopite mica between glass plates. When held close to the eye toward a bright light asterism appears. This star effect is due to microscopic crystals of tourmaline or rutile in the mica.

Rocky mountain federation is preparing a circulating collection. The Arizona unit is being arranged by H. S. Keithley, Mrs. J. E. Speck and P. J. Hickey. Every member is asked to help.

Mrs. Zella McCullough, secretary, reports from Modesto that Mother Lode mineral society is up and coming under new president, A. J. McMeekin. Well attended meetings are varied, interesting and instructive. A representative of the magnesium company of Manteca was guest speaker at April 28 meeting. He illustrated his talk with a colored motion picture.

Dr. A. Goetz of Cal Tech lectured about atoms and electrons at March meeting of Los Angeles mineralogical society. Mont Forbes preceded Dr. Goetz with a brief outline of the life of Joseph Le Conte who spent 32 years in geological work for UC.

Dr. Bronson F. Stringham, assistant professor of geology at university of Utah, addressed April gathering of mineralogical society of Utah on geological problems of Utah.

C. L. McCullough, past president of Mother Lode mineral society, Modesto, has been transferred from San Diego to Maryland.

B. L. Jones has moved from San Dimas to Gerber, California. Jones specializes in Yermo palm but also has a large collection of other petrified woods and agates.

Lelande Quick, DM's Amateur Gem Cutter editor, addressed the Metropolitan Club of Los Angeles, April 5, on subject of "The Fascinating Avocation.

President and Mrs. Standridge were April program chairmen for Southwest Mineralogists. On the 7th, President Standridge gave a talk on diamonds. Dr. Doe lectured on mineral identification at April 21 meeting. Field trip for the month was to the Standridge home.

Membership of Mineralogical Society of Arizona, Phoenix, has reached 150.

Gallium, according to W. Scott Lewis, may become useful in the future if it ever is found in sufficient quantity. Present chief use is in making medium high temperature thermometers. It is a white metal which melts at 86° Specific gravity 5.95. Water has no effect on it and it oxidizes very slowly in air; can be dissolved in ammonia or potassium hydroxide; only common acid acting on it is hydrochloric. There is no generally recognized ore of gallium

Walter Rosenfeld of Bell high school spoke on ceramics and pottery at April meeting of Long Beach mineralogical society. Lead and zing minerals were featured. The gem cutters dis-played their chalcedony. April lapidary meet-ing was held at the Gordon home.

Francis J. Sperisen gave cutting and polishing hints for East Bay mineral society at April 6 meeting. He also discussed outstanding books on minerals. Lewis J. Renton showed kodachrome slides of minerals at April 20 meeting. This collection was shown at the New York world fair.

GEM MART

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- INTRODUCTORY OFFER-One dollar each lot. Five all different Fluorescent Agates— polished. Thirty rough Mexican Opals. Fifty nice pieces Turquoise. Twenty different polishing specimens. Postage ten cents. Min-erals and gems on approval. DR. RALPH MUELLER, Professional Building, Kansas City, Missouri.
- AGATES, Jaspers, Opalized and Agatized woods, Thunder eggs, polka dot and other specimens. Three pound assortment \$1.50 postpaid. Glass floats, price list on request. Jay Ransom, 3852 Arboleda Ave., Pasadena 8,
- \$2.50 brings you prepaid six rare and beautiful crystallized Arizona minerals. Vanadinite, Dioptase, Wulfenite, Willemite, Chrysocolla, Azurite. Specimens 1½x2 or larger. Wiener Mineral Co., Box 509, Tucson, Ari-
- 100 Jewelry Stones removed from rings, etc., \$2.00. 12 articles of Antique Jewelry, rings, pins, etc., \$3.00. B. Lowe, Box 311, St. Louis 1. Missouri.
- Choice Palm Root-Full of eyes showing root and trunk structure. Very colorful. Sliced for Cabochons. 25 cents per square inch. Satisfaction guaranteed. GASKILL, 400 North Muscatel, San Gabriel, Calif.
- Swisher's rocks, minerals and petrified woods. Island corals, shells, shell costume jewelry, fine copper minerals from Bisbee, Arizona. Fine quartz crystals from Arkansas. Also fine line of Art Figurines. Swisher's, 5234 So. Broadway, Los Angeles 37, California.
- 6 prehistoric lizard scales and two beautiful Colorado minerals 3 x 3, \$3.00. One fluorescent mineral 3 x 3, \$3.00. Fluoresces a velvet red spotted with other colors. Cobalt in nickel. Jack the Rockhound. P. O. Box 86, Carbondale, Colo.
- Serpentine core drillings 1 to 2 in. diameter to 12 in. in length. Nice for cabinet. 15c inch. Postage please. C. Earl Napier for Rock. Yosemite Highway above Knights Ferry, Calif.

- INDIAN RELICS, Curios, Coins, Minerals, Books, Old Buttons, Old Glass, Old West Photos, Weapons, Catalog 5c. Lemley Antique Store, Osborne, Kansas.
- ROCK COLLECTORS, ATTENTION! Notice address change. 2 only—Choice iron pyrite XL groups 9x7x3-inch and 7x5x3½-inch each at \$25.00. 1 only—Choice limonite after pyrite XI. group, 7x5x3½-inch, at \$25.00. 1 fine benitoite, neptunite, natrolite, spec. 2½x1½-inch over 26 XLS at \$25.00. 1 museum spec. 12x11x2½-inch over 60 XLS, \$100.00. I large sky blue fluorite and barite XL, group 11x6x5-inch \$35.00. Other groups from \$2.50 up. Groups of amethyst phantoms in qtz. XLS \$2.50 to \$7.50. 1 museum group 15x9x5-inch over 100 points and lots of pyrite XLS, \$100.00. Past offers all good. No catalogs. The Rockologist (Chuckawalla Slim), Garvey Trailer Park, 941 E. Garvey Blvd., Garvey 32P, Calif.
- Montana Moss Agates in the rough for gem cut-ting, \$1.00 per lb. plus postage. Elliott's Gem Shop, 26 Jergins Arcade, Long Beach 2, Calif.
- 50 assorted ring stones, including genuine and synthetic, \$7.50. Genuine Zircons, blue or white, 3 for \$3.75. Twelve genuine Cameos or Opals, \$2.50. B. Lowe, Box 311, St. Louis
- Tourmaline matrix, in quartz crystals, \$1.00 to \$30.00, tourmaline pencils, 50c to \$5.00. Essonite garnet-green-clusters, 50c to \$3.00. unique specimens. Sagenite agate, \$1.00 to \$4.00, specimen rough nodules. Gem list 10c. Return specimens if not satisfactory. The Desert Rats Nest, 2667 E. Colorado St., East Pasadena, Calif.
- Gem Jasper from Indian Ridge, Ohio. Beautiful pastel colors. Makes lovely cabochons; 2 ounces rough for only 25c, or \$1.50 per lb. postpaid. Lake Superior Agates 10c each and up. Wyoming Jade, gem quality, slabs of all kinds. Send for list. James W. Riley, RR. 2, Springfield, Ohio.
- Minerals, Fossils, Gems, Stamps, Coihs, Pistols, Glass, Bills, Indian Relics, Bead Work. Catalogue 5c. Cowboy Lemley Curio Store, Las Cruces, New Mexico.

DESERT QUIZ ANSWERS

Questions on page 8

- Pueblo Indians, who supplicate gods for rain by prayer-dance ceremonies, are sometimes called Rainmakers.
- -Prehistoric Lake Lahontan, filled by water from snow and glaciers of Sierra Nevada, once covered most of present state of Nevada.
- -Brothers of Light, or Penitentes, are members of secret New Mexico religious order.
- -Poston was a politician, Arizona territorial delegate, Indian agent and Register of U. S. land office.
- -Indians use Aragonite, from Butterfly mountain near Suanee, New Mexico, for their "Mirage Stone."
- -Look for animal tracks, especially if numerous enough to make trail which nearly always leads to source of water.
- -By recent official survey, Twentynine Palms elevation is 2000.27 feet.
- 8-Father Kino was a Jesuit.
- 9-Saguaro. 10-Bear.
- -Gulf of California. Very little came from Pacific.
- -Burdick, in his book of that title. 13—Epsom salts. 14—Midsummer.
- 15—Pastive.
 15—Native.
 16—Weave several together, for no spider spins web so coarse.
 17—Yucca. 18—Highway 40.
- 19-Laguna.
- -Santa Catalina Mts., elevation 9150 20feet.

Kenneth C. Peer, chief chemist, and Donald E. Thorpe, associate chemist of the Ragooland-Broy laboratories of San Francisco, state that the most accurate and reliable means of identifying heryllium glucinum (from Greek word meaning sweet) is through application of quantitative spectrographic methods. There are about 20 beryllium-containing minerals so far listed, but only a few of these are of proven commercial value.

Scott Norviel continued his lectures on determinative mineralogy, chemical characteristics, at April meeting of Mineralogical Society of Arizona. May 8 meeting was in charge of the juniors.

"Three swaps," says Dick Lehman, "are as good as a field trip."

Mineral of the month for Los Angeles mincralogical society was copper. Motion pictures (courtesy U.S. bureau of mines) of mining and smelting of copper were shown at April dinner meeting. Members displayed beautiful and rare copper specimens, and traded extra material. Chuck Jordan had Bisbee copper specimens for

San Diego mineralogical society held a gem exhibit April 16 at YMCA. Emphasis was placed on stones from San Diego county, but 47 states were represented. C. A. Scott, member, demonstrated cutting and polishing technique. San Diego county is especially rich in such gems as tourmaline, kunzite, beryl, topaz, garnet and smoky quartz. Some strategic minerals also are found in the county—among them quartz, Iceland spar and mica. A fluorescent display was an interesting feature of the exhibit; also a display of wartime strategic minerals.

Earl B. Noble spoke on "A geologist looks for oil" at April dinner meeting of Pacific mineral society. Noble is chief geologist for Union oil company of California and familiar with all phases of oil exploration. His talk was illustrated by lantern slides.

Mrs. Ralph Houck was lucky winner of the cartload of specimens prepared by Long Beach mineralogical society. Milo Potter constructed the cart and members donated specimens to fill it.

Attendance has been increasing in the Dinuba lapidary class which meets Tuesdays 7:30-9:30 at the high school. Dr. Weddle of Miramonte was a February visitor.

Mineralogical society of Utah staged a '49er party March 25. Besides the usual frontier entertainments, an exhibit and sale of specimens was held for rockhounds.

March bulletin of Sequoia mineral society lists 90 paid memberships.

Arizona Rockhound record states that so far as is known, only one Arizona mineral, lepidolite, contains rubidium. Rubidium is a soft, silvery white, wax-like metal which melts at 38½ degrees. It rapidly oxidizes in air and will decompose water with ignition and liberation of hydrogen. In radio it is used in the manufacture of vacuum tubes. A pellet of rubidium ignited in a tube produces an almost perfect vacuum. A large part of the rubidium of commerce comes from the carnallite deposits of Solikamsk in the Soviet Union. Name rubidium comes from color of spectrum-red.

John G. Talbott, assistant superintendent General Fiber Products company, Los Angeles, is in charge of the plant at Kingman, Arizona. He is interested in cutting agates and petrified woods.

Cogitations .

Oi a Rockhound

By LOUISE EATON

When yu sees a rockhoun's ad sumwhere yu don't expect, it's kinda like bein in a strange place 'n meetin' sumwun from your own home town. Yu feels as if you'd met your clostest friend, even tho yu didn't know each other mutch uv eny when you both was at home. That's just the heart warmin' feelin' yu gets when yu meets a rockhoun advertisement in a unrockhoun magazine.

Whot is wun man's meat, says sumwun, is a 'nother man's poizun. That sort uv applies to rockhouns 'n what they collects, too. Wun fella can see only sagenite 'n th next wants just opals 'n sumwin elst has a yen f'r palm. This makes tradin a bit disatisfactory, becuz folks is slightly disappointed if they don't receive their own special brand uv speciments. However, rox sent in trade is most generally better lookin inside than they appears on the surface at first glance. Furthermore, rockhuns is good sports 'n never crabbs mutch.

HUGE SALT DEPOSIT LIES DEEP IN WEST VIRGINIA

It has been reported from the state of West Virginia that one of the largest beds of pure salt anywhere in the world has been discovered in the northern part of that state. It is estimated to be about 98 per cent pure salt and to lie nearly one and one-half miles below the ground surface. The bed is thought to contain from seven to ten trillion cubic feet of salt. The method of mining will have to be similar to that used to recover sulphur in eastern Texas and Louisiana. Hot steam is pumped down to the salt deposit, and the hot saturated salt solution shortly afterwards is pumped back to the surface, where it is evaporated to recover the salt crystals.

Peter W. Burk, secretary pro tem of Orange Belt mineralogical society, reports that the group studied strategic minerals at April meeting held in San Bernardino junior college. Mrs. Howard Fletcher spoke on tin and its occurrences; Ross Nussman on lead and zinc; R. H. Eells on non metallic mica. Kenneth Garner told of the importance of these minerals in war production.

A strange sand concretion found recently near Coyote Wells, Imperial county, California, is shaped like a covered dish, flattened on the bottom, and about 8 inches through in any direction, deeply corrugated on the top. When the top or lid was first removed, it was found that the large smooth pebble around which the concretion had formed had completely disappeared, leaving a large cavity. In this cavity were 15 or 20 small iceland spar crystals of varying sizes, most of them quite transparent or translucent.

Among recent finds of Indian relics in Imperial county, California, are: One eight-inch ceremonial spear head, perfect, near Palo Verde; seven large arrow points, one especially fine, near Sidewinder; one arrowhead, crude; one piece of pottery very small but perfect; one oak cooking paddle; one common opal ornament; one jasper ornament, all northwest of Coyote Wells

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All kinds of Scarabs.

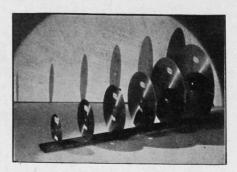
CEYLON ZIRCONS—50c per carat.
STAR SAPPHIRES—\$1 per carat.
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to have, their own gem cutting and polishing equipment. Lelande Quick, who conducts this department, is former president of Los Angeles Lapidary society. He will be glad to answer questions in connection with your lapidary work. Queries should be addressed to Desert Magazine, El Centro, Calif.

By LELANDE QUICK

When I mentioned the danger of gem cutters contracting silicosis in April Desert Magazine, and requested information regarding methods of prevention, I had in mind that there probably was some simple arrangement available somewhere that could be stocked by gem dealers. Many helpful letters have come to me suggesting all manner of respirators, from those used in mines and quarries to those used by spray painters. These are available at mining supply or paint stores and the names of a few of them are: Dupor's No. 24 (\$2.75), Willson, Pulmosan, and McDonald's "Dustfoe" respirators. There are many others but if you rush out to buy one don't buy just a respirator. Some are approved by the National Safety council and the U. S. bureau of mines for Type A dust, gas, fumes, smoke, sprays, etc. In purchasing a respirator you should be sure that it is approved by authorities for silica dust to avoid wasting your money and misplacing your confidence.

All respirators make you look like a man from Mars and I have no doubt they are all bothersome and uncomfortable. To adjust one each time you go to the sanders means another operation and it seems to me, as I have said before, that a hospital mask or just a handkerchief would be adequate protection for a man who uses a sander an hour or so during a week. At least the convenience of the mask will encourage one to wear it which is certainly more protection than an involved respirator that would hang on a peg most of the time. Enterprising dealers should investigate the situation, stock a good respirator or mask and then let the gem cutting fraternity know about it. Captain John J. Spencer of Seattle says the mask is effective and comfortable

Dr. Nakadate of Poston, Arizona, sends me generous information on the "stone cutter's disease" or silicosis. He also suggests the wet gauze mask (soaked in cold cream) as the simplest, and possibly the most effective, prophylaxis and he also reminds me of the real possibility of inhaling metallic substances which could give systemic poisoning. For instance one could encounter trouble after a few hours of grinding malachite and inhaling the copper.

Once the disease is contracted there is no cure, although the doctor advises some success has been achieved in treatment by insufflation of aluminum powder. David Allard of Redondo Beach, California, quotes from a Collier's magazine article advising that a small amount of aluminum powder blown into the air and breathed by the gem cutter will combine with the silica to form a harmless substance, but I be-lieve this idea is impractical except in industry where it is supervised by safety engineers. We thank our readers for their many helpful suggestions and interest and "a word to the wise is sufficient."

Elphage J. Mailloux finally has accumulated a sizable list of available lapidary items for sale (See January and February, 1944, Desert Magazine). If you will drop him a postal he will tell you where you can purchase a complete outfit with five motors, other outfits, saws, grinding heads, grits, new and used saw blades, pans, alcohol lamps and many other items. These items are for sale by people abandoning the hobby or unselfishly selling surplus materials and equipment. Most of the correspondence received was from people who wanted to buy rather than sell. Most of the would-be purchasers

wanted complete outfits indicating they had nothing at all and were just beginners.

This page of Desert Magazine is for those who have, or aspire

There is evidence on every hand that great numbers of people are becoming interested in gem grinding and people are learning that they do not have to have a profound knowledge of mineralogy and geology to make a successful attempt at gem cutting.

In recent months I have been enjoying the experience of lecturing and exhibiting my gems before many organizations, such as Kiwanis, Lions, Rotary and other clubs. The genuine in-terest in gem cutting has amazed and gratified me. So much enthusiasm has been generated in some quarters that a group in Glendale and an-other in Westwood, California, have petitioned my aid in organizing lapidary societies in those communities and I am inclined to do so. These are all folks who do not know jade from soapstone and who never saw a diamond saw in their lives. I believe that by fall the equipment situation will be eased to such an extent that every-thing will be available except motors.

In the meantime I wish that everyone in the Burbank-Glendale area and in the Westwood-Beverly Hills area who is interested in taking up gem cutting would send me a postal in care of Desert Magazine and I will notify each one when organization meetings will be held in August. Obviously I need some experienced lapidaries too but please understand that this venture is not intended to draw members from existing established societies and it is not an attempt to organize new mineralogical clubs of which there are ample. If some experienced folks are willing to help the neophytes I hope they will do so but retain their membership in societies to which they belong at present. As a rule the man who belongs to several societies is a good member of none and almost never is an active member in all.

The Los Angeles Lapidary society long ago reached a closed membership of experienced amateurs. There is nowhere for the novice to go to learn, and the only answer is new societies, preferably community affairs, that are organized by and taught by the old timers who learned it all the hard way. I have no wish to be personally active in any new organizations; my life is too full as it is. But I am anxious to help new groups start off in the right direction and I anticipate many postals and offers of help from the experienced.

LAPIDARY HELPS AND HINTS . . .

Contributed by Harold Odle, owner of the Flathead Museum, Rollins, Montana.

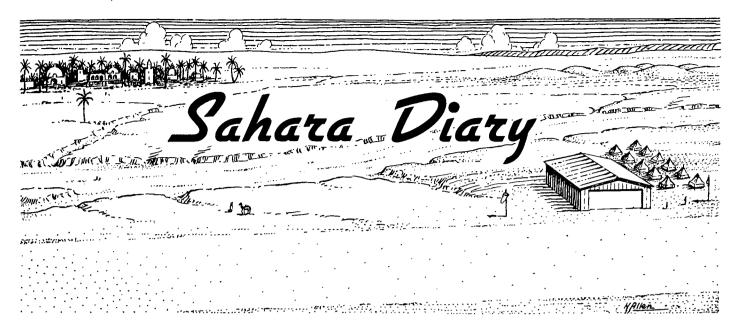
For the man with no tin oxide, rouge will cut anything up to and including the garnet.

Tripolite is not tripoli at all. It is diatomite with little polishing value.

Real German tripoli is part moissanite, a mineral silicon carbide, and it will polish anything but a diamond.

Any common red clay carries enough alumina to polish slowly.

Nearly all communities have road cuts where the sub-soil is exposed and rotten stone can be secured between the hardpan and the top soil. It is an excellent polishing agent.



By RANDALL HENDERSON

ITH THE ALLIED FORCES IN AFRICA—In the peaceful atmosphere of this little Sahara oasis where I have been stationed the past six weeks, it is hard to realize that in other parts of the world men are fighting a grim war for survival.

Planes stop here every day. Men in uniform climb out of them and stand by while the mechanics refill the fuel tanks and check various gadgets and controls—and then motors roar and the huge craft glide off the runway and disappear in the haze of the distant horizon. They belong to a world that seems as remote as the planet Mars.

In this primitive community it does not appear difficult for men to dwell together in peace. French, Senegalese, Arabs and Americans—we all are neighbors. We greet each other with a friendly salute—sometimes a French salute and sometimes American, but it makes no difference. We draw our water from the same wells. We have no common language except that universal symbol of goodwill—a smile. It is good to live among people who can laugh—and do. I do not mean the artificial laughter of a drinking party or the polite grimace of courtesy. I mean the smile that springs spontaneously from humans with goodwill in their hearts.

For more than a year I have been living close to the primitive tribesmen of Africa—dark-skinned, unschooled, uncivilized according to our standards. Both in the jungle and on the desert I have found them responsive to friendliness. And I have asked myself these questions: Why have we allowed the grim business of getting ahead in the world to crowd out so much of the warmth in our natures? Why does wealth and power make men haughty and cynical? Are we not paying too high a price for the gadgets and comforts of our civilization when these things are acquired at the expense of good wholesome neighborliness?

I do not know the answers, but I suspect that if we could trace the causes of this world-wide war down to bedrock fundamentals, we would find that it is because we have drifted too far away from the virtues which come from close association with the good earth. One of those virtues is the honest smile that comes from a man with neither greed for personal power nor the vanity that so often comes with the possession of excessive wealth.

Anyway, do not look down on these African savages because their skins are black and they can neither read nor write. I have found them good neighbors. Twice a week the transport planes bring us fresh meat from a major base several hundred miles away. One evening when our meat ration was steaks we went out among the sand dunes and broiled them over an open fire. It is an old desert custom where I live at home. Since most of the men in the outfit come from homes east of the Mississippi, this was their first taste of desert barbecued steaks. The verdict was "good chop." By the time we got around to "thirds" the fresh meat was exhausted and we were finishing with canned vienna sausages. There were still a few of these left on our improvised grill when the dinner was over and we invited the Arab mess boys to help themselves. They would have none of them. The prophet Mohammed put a taboo on pig meat.

One afternoon this week I had to go out and shoo some camels off the runway. One of them was very persistent, and three times during the afternoon I had to go out in my jeep and throw rocks at him.

Caravans come in every day, unload their packs, and then head off again toward the horizon. They spend as little time as possible in the oasis for their food is the grass and shrubs that grow out on the desert and they get nothing to eat while they are in the village. However, there are always a few of them in the oasis overnight, and near sunrise they awaken the community with their noise. My vocabulary doesn't seem to have a word that describes the vocal notes of a camel—but it is somewhere between the bawl of a cow and the roar of a lion. One overnight visitor recently asked me if the noise that awakened him was made by lions. I assured him it was camels. He agreed with me that only a very tired old lion would roar in such dismal tones.

Last month I took issue with the historian who attributed the failure of the American experiment in camel transportation in the days before the civil war, to the fact that the camel's feet would not stand the rocky trails on the desert of the Southwest. I stated that the camels here travel over the rocks without injury to their feet. And that is true. But an officer in the French Camel corps told me there is another breed of camels in the desert region to the east of here, which can be used only on sandy trails. Its feet are too tender for the rocks. My apologies to the historian, whoever he was.

Recently some members of the Camel corps spent a day here

JUNE, 1944

on maneuvers. Without doubt they are the most colorful soldiers in the world. Some of the platoons wore flowing garments of red and white and others wore white and blue. Hollywood never has turned out a prettier job of costuming than was done by the Frenchman who designed these uniforms.

The camels with their dark-skinned riders and French officers came in silently one morning—and then disappeared as mysteriously as they had come. A French officer pointed out one beast that had not taken a drink since November-and this was in March. They do not like cold water, and drink little during the winter. A drink a week serves them in summer.

The cinema is our evening diversion at this isolated oasis on the Sahara. Our theater consists of a small screen nailed on the side of the adobe mess hall, and a portable projector. The men bring their blankets and pillows and spread out on the sand to watch the pictures. The mess hall yard is surrounded by a low mud wall, and back of this wall the Bedouins and Senegalese from the oasis gather to watch the movies. Our turbaned guests cannot understand the words that come from the speaker—but they follow the story amazingly well. We know from their reactions as the plot unfolds. Pictures of grain fields and forests and running water stir them more than machinery and sophisticated settings.

The opportunity we have given these people to see our picture programs has created goodwill in an unexpected direction. Most primitive people are reluctant to be photographed by white visitors. In this settlement the natives are eager to have their pictures taken. "Cinema" is a password that opens the

door to the camera hound.

In this community where four languages are spoken, there are a few English words that have universal exchange value. "Finish" or "finee" covers a wide range of meaning—it is all gone, it is broken, I have none, it is time to quit work, I am out of money, and a flock of other negatives. "Very good" and "no good" are understood by everyone. And of course all the youngsters can say chewing gum. They are inveterate beggars.

After all, the most interesting phase of any land is the people who dwell there. My acquaintance with the native population of this oasis began with the houseboys on duty in the barracksand Jello. In the bachelor officers' quarters we have Ahmed and Taleb—two bright youngsters who make the beds, shine shoes, do the laundry and run errands. They have reduced the efforts of housekeeping to its lowest minimum. Some men are more critical than others about such things as well swept floors and properly made beds, and these likeable scoundrels know the minimum demands of each of their masters, and they do just that and no more. Taleb has acquired the art of making up a cot that will pass a perfect army inspection on the surface—with the bedding beneath in complete confusion.

The most faithful servant we have is Jello, the burly black soldier assigned by the local French commandante to guard our barracks. He is on duty 24 hours a day with instructions to keep all other natives outside the adobe wall which surrounds our mud house. He is quite meek and obliging toward us. But let an Arab peddler set foot inside the gate, and he bristles into a domineering policeman who will tolerate no back talk. I don't know where he got his name, for he understands not a word of English, but I suspect it was given to him by the American soldier who first saw him wearing the red fez that is part of his uniform. He keeps it on day and night. Also, he is quite proud of his name, and all my efforts to find out what he was called before he became Jello have failed. He loves to have his picture taken, and when I start out with my camera he tags along-and grins with pleasure when I invite him to pose in the photograph.

Ahmed, Taleb and Jello! You will hear more about these dark-skinned members of our military family here. They play a lively part in the daily drama of life in this Sahara oasis.

Most of the plants which grow on this desert are complete strangers. But I have met a few old friends—and enemies. The first shrub I recognized when I jeeped across the desert the day I arrived here quite obviously was a first cousin to the milkweed. As a youngster I spent too many days hoeing these pesky weeds out of the cornfield ever to have a kindly feeling toward them. But away off in this remote corner of the world it gives one a sort of warm feeling to meet even an old enemy. The Sahara species is a big hardy shrub that appears in the most unexpected places.

I miss the greasewood and burroweed here. There is nothing that takes their place. Much of this area is as barren as the floor of Death Valley. So far, I have found but four plants in blossom. One resembles locoweed, but has a yellow flower. Another is a species of Palo Verde. I believe I have seen the same tree in the patio of the Harlow Jones home at Twentynine Palms. The third is a thorny perennial with a dainty little ball of yellow fluff growing beside each thorn. Out among the dunes grows a bushy little plant with leaves like the sweet-potato and a blossom like morning glory. Then there is a desert gourd much like those I have seen along the Colorado riverthe wild gourd that the coyotes like so well. And a grass that

resembles galleta. The camels feed on this grass.

Most important of all of course is the native date palm. There are many hundreds of them growing along a wide sandy wadi at this oasis. An Arab counts his wealth in camels, goats and palm trees. Most of the trees, I am told, are owned by families. But concentration of wealth is a problem here the same as in USA. A few rich Arabs—the "sixty families" of the Sahara—have acquired large numbers of the trees which are "sold" to the poorer Arabs during the harvest season. Along in June when the fruit begins to set, the nomad tribesmen flock in here from all corners of the compass and "buy" as many trees as they can afford—at from 200 to 300 francs a tree. That is \$4.00 to \$6.00. They camp under the tree until the fruit is harvested, and then the palm reverts back to its original owner.

The palms here are not as graceful as those in the Coachella valley in California. These have short stubby fronds which grow in a top-knot at the end of a long scraggly trunk. But they have furnished an abundance of sweet nourishing food for these

desert tribesmen for countless generations.

A palm must have its roots in moist sand. Beneath this oasis is a great underground reservoir that extends for miles along the wadi. There are hundreds of wells, with water at a depth of from 12 to 20 feet. The water is hard. It takes lots of soap for the laundry and toilet. But it is sweet—and despite the strong flavor of the chlorine with which all our drinking water is treated, it serves very well. There is enough not only for the domestic needs of the oasis, but there are scores of tiny gardens, all irrigated with water drawn by hand with goatskin buckets.

If my tour of duty here continues through the harvest, I am going to buy a palm tree. Taleb has promised to pick the fruit

for me.

Out on the ramp in front of my office a motley crew of Arabs and Senegalese is digging rocks and filling the holes. When I glanced through the door this morning, one of them appeared to be loafing on the job. He was squatting on the ground, apart from the others. I watched him a few moments. He wasn't loafing. He was saying his prayers to Allah. When he had bowed his forehead to the earth the proper number of times he gathered his pick and resumed his work. Allah surely has not showered these people with many material blessings. But they have faith nevertheless. And that is something—a very important something.

Midday temperatures reached 98 degrees today. But that is not uncomfortable in this dry atmosphere with a breeze blowing. Warmer days are ahead—but the Arabs and I will not mind. We are conditioned to high temperatures.



By RAND HENDERSON

LECTRICITY has come to Camp Tarawa! The offices and headquarters buildings have been wired for some time, but last week light was brought to the tents which serve as living quarters for the men. It was quite an occasion, and has brought marked changes in our living habits.

Candles have been scarce, and the kerosene lamps which some of us found in a nearby town were inefficient. As a result, light has been community property. Several of us from different tents would pool our candles and lamps in one tent, and that would serve as the recreation hall for the night. It was always congenial and lively, but for those who wanted to read or write concentration became a supreme achievement.

Now every tent has its light, and those who enjoy privacy occasionally can find it.

It has been an interesting experience watching this camp grow. When we arrived here from the Gilberts, after many weeks aboard ship, only a few tents dotted the site. First event of significance was the piping in of water. The days were past when we had to wash clothes by tying them to a line and heaving them over the stern of the ship to drag for a couple of hours.

Then the post exchange was built. I felt like a small boy in his first toy shop when I walked into the PX, picked some American change out of an assortment of Jap yen notes and shillings and pence from my pockets, and proceeded to stock up on soap, tooth paste, candy, writing paper and other items which had run short.

Biggest event of all was the day mail call resounded through camp. Bags of letters, packages and papers poured in on trucks for several days. Letters ranged from three months to just a few days old, but we arranged each bunch in chronological order, and read and enjoyed each as if it just had been written. Some were newest photographs of wives, sweethearts and children, to be passed around and admired by our buddies.

For all, there was inspiration in that mail, bringing with it a reassurance that the campaign past had been worth while.

Life now is enjoyable, even relatively luxurious. We are appreciating the comforts around us even more than we did when we were temporarily separated from them by the campaign. We're learning to enjoy what we have. It's a valuable lesson, a bit of wisdom that will give us happiness when we return to our various civilian pursuits. We are building many such attitudes in our overseas adventure. We are learning to feel the respect and longing for the United States which peoples of other countries share. We are obtaining a clear perspective of the strengths and weaknesses of our homeland.

The majority of us are just beginning to fit these fragments of knowledge and understanding into a philosophy which will carry us through life. I have an idea that it will be a good philosophy, and strong.

During the past several weeks I have been interspersing my regular duties with instruction in radio classes. It is surprising and gratifying to see how quickly men learn out here. Many educators are amazed by the speed with which service schools in the States turn out trained men, but here we have cut in half the time required by those schools in the States.

The reason for this stepped-up learning ability of men overseas I do not know. Perhaps it's because in combat they've seen the great necessity for knowing a job well and for doing it well. Whatever the reasons, the conclusion is the same. The time expended in formal education, particularly in the higher branches of learning, can be reduced 50 to 75 per cent by employing the techniques of service teaching, and by simulating in so far as it is possible the conditions of service schooling. Men who have known the speed and efficiency of these schools will not passively pursue the leisurely course of present day education when they return to schools and colleges!

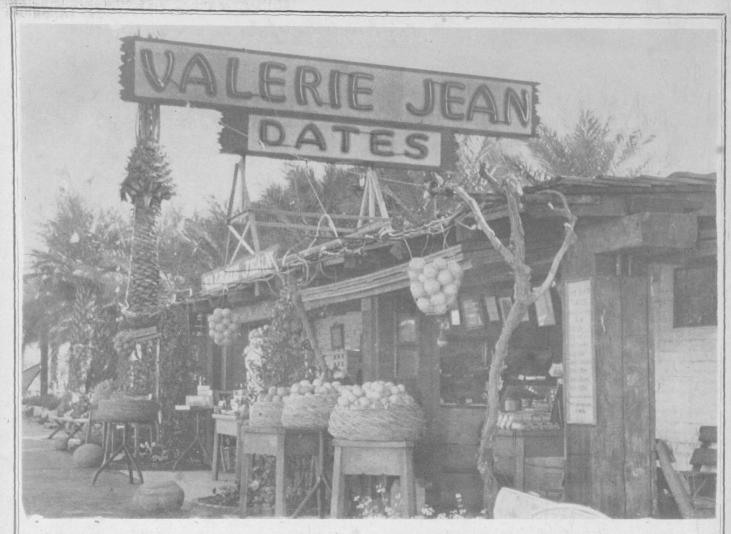
The most over rated angle of this war, from the standpoint of the men who are fighting it, is the Pin-Up picture. I refer to those glamour shots of actresses, models, etc., which by virtue of being printed as near to life size as the particular publication will allow, have been dubbed "pin-up pictures." Presumably, men in uniform throughout the world are to tear them out and pin them over their bunks as soon as they arrive, there to remain the center of attraction until the "powers-that-be" decide another young lady is due to provide inspiration for the war effort.

Now, I have no personal bones to pick with the publicity agents and others who instigate the Pin-Ups. If they feel that they are maintaining international morale, more power to them. But I'd hate to think that the ones I love and respect have the idea that Pin-Ups are the motivation behind my fighting.

Truth is that in 15 tents I just walked into, I counted 38 pictures—three were Pin-Ups, the rest were photographs of wives, sweethearts, parents, children. Those figures speak for themselves.

So far I haven't seen anything printed about one very domestic function of that Yankee institution, the jeep. When we are living on rations, and a jeep is handy, we cache some cans of the "C" unit around the engine, put a canteen cup of water on the engine block, and within 30 minutes we have a hot meal of stew or hash and coffee.

Whenever I go out in one of these jeeps equipped with radio transmitter and receiver, I wonder about the possibilities of radio travelogs from the desert. A word picture of the scenery while jolting up a remote palm canyon, a conversation with the grizzled old prospector panning for gold beside a stream, an actual record of a typical evening around an ironwood campfire—well, who knows? It's an exciting, strange new world before us. Anything is conceivable!



VALERIE JEAN'S DESERT CANDY

Here is the candy that grows on date palm trees in the Coachella Valley of California. Many varieties of the delicious confection are arranged in special packs for your choice. It will be a treat to your friends and your

men in service to receive an attractive box of sweet energy-rich fruit of the palm tree direct from a desert date garden. Gift cards will be enclosed when requested. Please write plainly. Prices prepaid in USA.

Year - Round Gift

One pound pack of-

Assorted Dates Date Candy Date Roll, and Date Cake

DELIVERED

\$1.25

also the

SAME ASSORTMENT

3-POUND SIZE \$3.00 5-POUND SIZE \$4.25

Perhaps you are one of the many who want to send a Father's Day Greeting from this Desert Oasis. Time is short.

A SPECIAL

Sugar rationing limits the amount of our famous Valerie Jean Date Cake baked and so we can supply a limited amount of the choice, firm and chewie Deglet Noors — the only kind we use in baking. Not recommended for those who want

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3-lbs. Stuffed Dates dates and fresh walnuts used)

No. A2 3-lbs. Date Cake—(dates, wal-nuts, eggs, flour, sugar and pure vanilla-a Gourmet's delight) \$3.75

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VALERIE JEAN'S

R. C. NICOLL, Owner THERMAL, CALIFORNIA

MAGAZINE THE

JULY, 1944

25 CENTS

A 338

I meet the Eager Beavers

... by your Union Oil Minute Man

Gloria, our beautiful Minute Maid, and I had just opened the station last Saturday when bedlam, itself, drives right into the station!

It's the Eager Beaver Patrol, Troop No. 17, Boy Scouts of America, and their pals, jammed in CalWithertree's truck. Cal's their Scoutmaster, and he's taking them out to collect waste paper.

Before Gloria or I can say Be Prepared, the station's swarming with assorted Scouts. While Gloria asks Cal about gas, I start to check the oil, but a Scout beats me to it. He gives me a smart salute and exclaims: "A Scout is courteous."

"Now wait a minute," I tell him. "The Union Oil Minute Men are also—"

At this point another Scout comes scooting around the truck dragging the water hose. I make a pass at it, but hesays: "A Scout is friendly."

"But dag-nab it, bud, so are the Union Oil—" I start to shout, but I'm interrupted by two more Eager Beavers with the air hose. "Hey, now," I yell, "this self-service might be fine at some places, but we Union Oil Minute Men believe our customers are still the most important people who come into our stations, and we try to be—"

"Helpful!" exclaim the two Scouts—"Boy Scouts are helpful—pardon us, please."

The whole thing is getting serious. Then I get a wonderful idea. I sneak around the pumps to get the windshield cleaner. But by the time I get it the Scouts have already got another bottle, have cleaned all the glass, and are all tucked back in again; and Cal Withertree and the truck and the assorted Scouts go roaring out of the station, leaving me standing by the pump with the bottle in my hand.

I see Gloria watching me.
"Now you listen to me,
Gloria," I say. "Remember

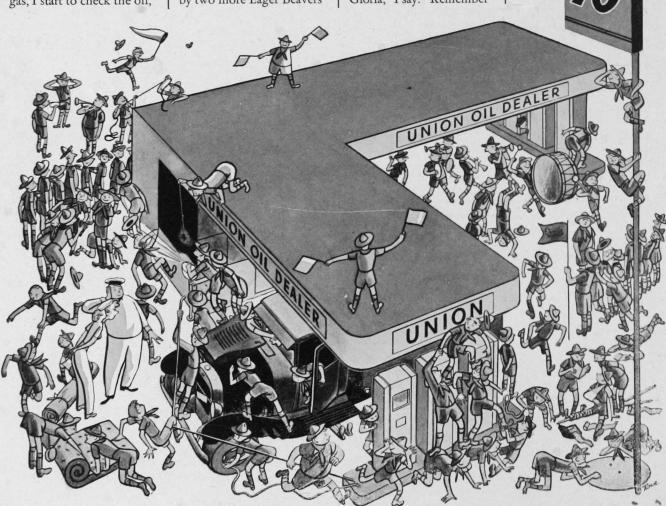
this-Union Oil Minute Men are-"

Gloria grins, and says:
"Trustworthy, loyal, helpful, friendly, courteous, kind, obedient, cheerful, thrifty, brave, clean and reverent!"
Then she salutes and marches into the station... from which I hear giggles!

Say, doesn't *anyone* want a good deed done?

The latchstring is always out at Union Oil Minute Man Stations. Courtesy, friendliness and essential motoring services are never rationed. We're busy as anyone else, but we're...

Never too busy to be helpful!



DESERT Close-Ups

- · New contributor this month is Dr. Philip A. Munz, distinguished professor of botany, Pomona College, Claremont, who collaborated with Jerry Laudermilk on the story of plant adaptation. His book on Southern California botany proves his interest in flora of this desert and semi-desert region. But his special interest lies in his research throughout the western hemisphere on the Oenothera, genus of the evening primrose.
- · Mabel Wilton, whose first contribution to Desert Magazine appears in this issue, started life in Michigan, has written articles, short stories and poems for religious, nonsectarian and juvenile publications under several pen names. She has appeared as speaker on numerous radio programs, she wrote skits and poems for Fanchon Marco's drama class for a year, some of which are now published in book form, dedicated to her adopted daughter Patricia Ann, now in air corps, medical division, of the WAC.
- · When entering Death Valley from the old Nevada mining towns of Beatty and Rhyolite, one usually enters through Daylight pass in Boundary canyon. Those who seek the remotest bypaths might turn off this road before reaching the Pass, following the trail through Leadfield and continuing through Titus canyon. It is the high walls that narrow this canyon down to the point called Titus Portal which are photographed by Josef Muench for this month's cover. The rocky road here shows only a faint track as evidence that automobiles dare adventure into such a forbidding place.
- · Next feature for those interested in mineralogy is a mystery story, such as only a scientist like Jerry Laudermilk could tell. It's a story of ancient Indian beads of a mysterious red stone which shows all the warm tones of color from pink to dark red and which sometimes glows with a deep velvety shade like the color of hematite. It took a spectrographic analysis in a college lab to solve the mystery of this red stone's origin. Those who have been skipping words like "spectroscopy" in magazine and newspaper articles, are going to become familiar with its importance and the ways in which scientists use it to answer their questions.

CREED OF THE DESERT

By June Le Mert Paxton Yucca Valley, California

There are tiny foot-prints on sandy roads Where quail crossed here and there; The designs they leave remind one Of quilts at a county fair.



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Wilson Howell is a man with a dream. A dream which he has been laboring for 17 years to bring to fulfillment. In a wilderness empire above a vast desert land he is building roads and trails and check dams. As he makes plans for rustic cabins and ramadas and outdoor barbecues, he bears in mind the wild rustic beauty of the natural setting. For it is such an environment that is needed by artists, writers, scholars and scientists and those others who are overworked and strained to the breaking point. It is for these that Wilson Howell is creating what he calls his little paradise. He wants to provide for them delightful hideaways at the end of dim aromatic trails and such sports as tennis, swimming, horseback riding, hiking. This is the story of how one man is building a dream—for others.

Paradise -- Above the Palms

By MABEL WILTON

HE interior of the little thatched roof curio store at Ribbonwood, on Pines-to-Palms highway, was cool and inviting when we stepped inside. The earth floor felt restful to our tired feet.

No one was in the store and there was no answer to our repeated calls, so we made ourselves at home, poking about about among the articles on display, examining the rings made from ribbonwood, the pine cone lapel pins.

Finally we became uneasy, and curious too, about the continued absence of the owner, and were wondering what to do about it when Patricia Ann, my daughter, discovered a note penciled on an empty paper sack under a chunk of rock on the counter. The note said, 'I am working on the road over toward the rim of Palm canyon. If you want me for anything just strike the Indian gong hanging outside the door and I will come up to the store.—Wilson Howell.'

Since it was Patricia Ann who had discovered the note, she felt she should be the one privileged to strike the gong. She struck it with such a blow it sent echo after echo vibrating, with seemingly electrical force from one mountain peak to another through the quiet summer air.

"Bravo!" I remarked with a chuckle, "that surely ought to awaken the dead, let alone bring the hermit from his lair. Say, that's a pretty slick idea, that Indian gong," I went on, "it surely leaves the hermit a lot of leisure—Oh! Oh!—that must be Mr. Wilson Howell coming now." I had spied the tall slender figure of a man in faded blue denim trousers and battered old felt hat just rounding the curve in the road that leads off in the direction of Palm canyon.

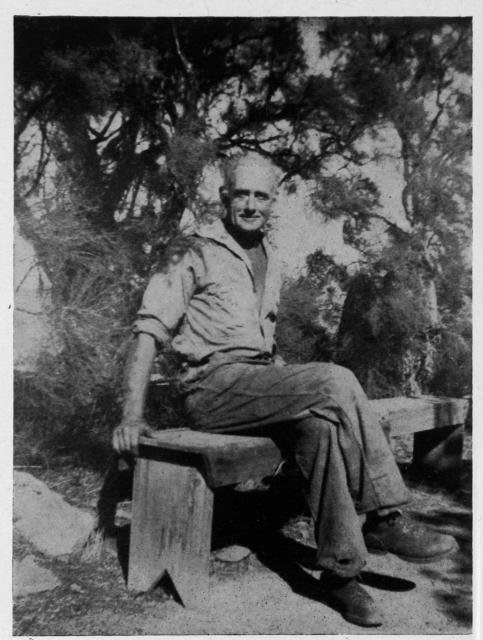
"Yoo, hoo!" we called to him, through cupped hands, and he "Yoo hooed" back to us in the same fashion. As he approached we could see that his face was tanned to the color of brown parchment from the desert winds and sun. His faded blue eyes

held a quizzical look, and they seemed to take us all in at a glance.

"Are you the owner of this place?" we asked, and when he assured us he was, we added, "But, aren't you afraid to go away

off into the hills and leave the store wide open to the public like this? Aren't you afraid someone will carry off everything in the place?"

"No, no indeed," he said, his blue eyes



Wilson Howell under a Ribbonwood, the shrub for which his "paradise" was named.



Along Pines-to-Palms highway which now curves down to the desert past Ribbonwood. Frashers photo.

smiling at us from beneath the brim of the drooping old felt hat. "I just naturally trust folks and I guess they just trust me, too. I never have had anything stolen yet, and I never yet have been cheated out of any money." He chuckled to himself as though he just that minute had thought of something amusing. Seeing our questioning eyes, he explained, "Once I found a note on the counter in the store, saying that the customer had taken an article and had hidden the money somewhere in the store, but of course he didn't say exactly where he had hidden it. Well, it took me exactly three days to find that three dollars and 25 cents. No," he added thoughtfully, "nothing is ever locked here at Ribbonwood.

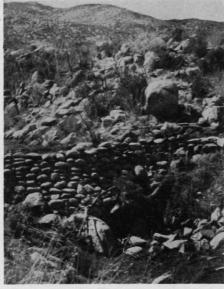
"How do you happen to be living up here all alone?" I asked.

"Well, you see, it's like this. I have a wonderful idea for a project, and I have been trying to get someone interested enough in it to help me carry it through. I can't make much headway alone. It's a big undertaking, and it means a lot of hard work with a lot of capital involved."

"Project!" I exclaimed. "What project do you mean? Let's hear about it."

That seemed to please him. I could see it was a subject very close to his heart.

"I am trying to make this place into a sort of community rest center, or in other words a rest resort for people in ill health. I want to make it into a place that is entirely different from the general run of health resorts. A quiet, peaceful place with all the comforts of home, yet retaining as much of the natural scenery and atmosphere as possible. Something entirely rustic from beginning to end where sick people can come for the rest and relaxation they so badly need. I would prefer to make it into a place where artists, writers, scholars and scientists, who are badly in need of just such an environment, can come and forget their work for a brief



One of the many check dams Wilson Howell has built.

spell, yet at the same time they can be surrounded by a beautiful natural setting. "Instead of just the two cabins I have here now, I have visions of a group of log cabins up here on the top of this mountain, with lots of roads and trails leading to the most scenic spots. There could be a tennis court and a swimming pool, horseback riding, hiking and all kinds of sports. There are all sorts of hideaway places here among these rocks and it's an ideal place to come to get away from the hubub of city life." As he spoke his face was alight with many dreams.

"Do you know what I was doing up there on the rim of Palm canyon?" he asked abruptly.

"No," I answered, "I wouldn't know, but please go ahead and tell me all about it"

"I was working on a road I am breaking through to the very rim of Palm canyon. Some day I hope to have a good road where cars can drive clear down to the canyon, and then I hope to establish a series of lakes there."

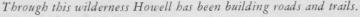
"But, isn't that a tremendous undertaking for one man alone?" I asked doubtfully.

"Well, yes, I suppose it is," he answered. "That's just why I need help. But, that isn't my only problem. I have a lot of trouble up here fighting vandalism and cattle grazing. The ranchers around here will let their cattle run loose, and then there always are some people who will be destructive."

He seemed lost in thought for a few minutes, then resumed his account.

"I have made a critical study of this country up here and from the standpoint of recreation and living conditions, I find it to be the most wonderful and exhilarating spot in the whole Southwest. This place could be made into a regular paradise—yes, it's a regular paradise in the making," he added as his eyes turned almost reverently toward the west and the mountain peaks where the sun was setting in a peacock fan of multi-colored clouds.

I broke in on his meditations to ask,





"How long have you been living up here alone?"

"W—ell, let me see now," he pondered, "I guess it's all of 16 or 17 years ago that I first cut a trail through the brush up here to this place." He leaned over to replace a stone I carelessly had overturned with my foot. Just then something crawled out from underneath another stone close by. It looked like a small snake, and I eyed it a bit skeptically as it crawled toward me. Seeing the expression on my face, Mr. Howell reassured, "No need to be frightened of that. It is only a legless lizard. Poor things, they are almost blind and have to practically feel their way about." Bending down, he picked it up and placed it on a rock in the sun.

Sitting on a couple of rocks outside the quaint little curio store in the warm sunlight, I pieced together the story of Wilson Howell and the dream that is his project.

Born in 1888 in New Jersey, of an old pioneer family he had ventured westward in 1919 to settle on a ranch near the small desert town of Indio, California. His fondness for the desert had increased each year, but he found that the extreme heat of the desert and the long hours necessary for desert ranching were taking a heavy toll of his health. Reluctant to go far from his beloved desert, yet realizing that he must make a change, he began to look for some place near the desert but high and cool enough to have the desired effect upon his fast failing health.

Taking what few provisions were necessary he made his way toward the hills. He followed a trail leading up into the Santa Rosa mountains. When night came he found himself standing upon a rocky cliff

overlooking a vast desert area, as well as a magnificently beautiful canyon of palms. To him it seemed the ideal spot because of its semi-desert character combined with the high altitude.

Living alone for a few years up in that scenic area only served to convince Wilson Howell that this should become his permanent home. And since it had restored his health he recognized its possibilities as a community rest center for others who needed the same climatic change and environment.

With this idea formed, but lacking the finance with which to buy the 2000 acres or more, he tried to arouse the interest of his neighbors and friends. His idea was to form a cooperative group who would purchase the property, administer it according to the Golden Rule, with one for all and all for one. It would involve the purchase of Santa Rosa mountain land to the south, with 7500 feet of virgin timber at the top, bordered by Palm canyon and the foothills of San Jacinto.

Failing in this cooperative purchase plan, he negotiated a loan and bought the property himself. He found that at times merely keeping up the taxes on the land was more than he had bargained for, and several times he nearly lost it.

However, merely purchasing this property was not enough. A road must be made to his door so people could come, and there was no road except a trail which ended at Keen Camp, 12 or 15 miles away.

Howell finally interested J. Winn Wilson, late editor of the Indio Date Palm. In 1927, with the help of Wilson and other influential people, plans for a roadway were made and carried through. The road started at Idyllwild Junction and pass-

ed directly through Howell's property, to connect with the Indio-Palm Springs road at the opposite far end of the mountains. Today this road is known to thousands of motorists as the scenic Pines-to-Palms highway.

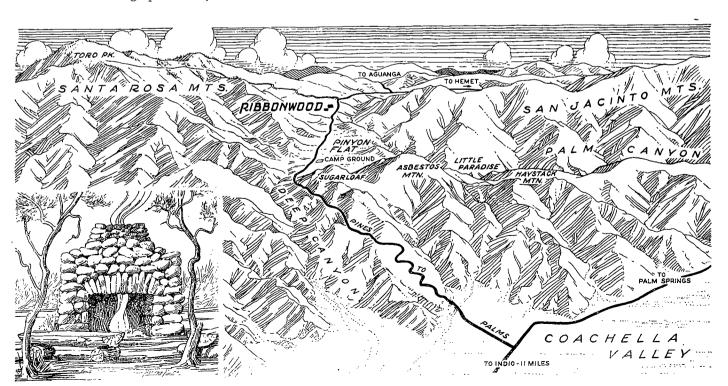
Despite the handicap of ill health, Howell set to work to build a store. He erected a rustic lean-to with log beamed ceilings, a thatched roof and an earthen floor. The fireplace he built of stones gathered from the hillsides. The counter and tables he made of logs nailed together.

Not content with this, he proceeded to build another huge outdoor fireplace with a ramada to shade the tables and benches. This he intended to be used as a community gathering place for parties and barbecues.

His progress was slow and at times discouraging for, lacking the funds to purchase materials such as nails and cement, in any large amount he had to buy one item at a time. He would buy one sack of cement or one sack of nails and when that was used up he would wait patiently until he had saved up enough money for more and then would continue the work.

When he considered a name for his little rustic paradise, he thought there could be nothing more suitable than Ribbonwood, because that shaggy red-barked relative of the chamiso was the most abundant of the native growth surrounding his place. A friend suggested Ribbonwood Land, but the simple name of Ribbonwood appealed more strongly to him and as such it now is marked on road maps.

Encouraged by the advent of the highway, Wilson Howell started to beautify his surroundings. He broke roads and trails here and there to every interesting





Ribbonwood picnic grounds, shop in left foreground, cabins in back among the ribbonwoods. Frashers photo.

and advantageous scenic point on his property, always keeping in mind the natural rustic beauty of the place, leaving enough of the wild growth to retain the true setting of nature.

Breaking these trails and roadways required lifting huge boulders and chopping down a great deal of heavy underbrush, with plenty of filling in and leveling. It was an ambitious task even for a man in perfect health. But the vision of a dream to be fulfilled led him on. Up to date he has built at least 10 miles of roadway and trails through the property. At intervals there are spots cleared for picnic grounds.

Besides building roadways and trails, Howell has built about 300 fairly large check dams, and 100 small ones to stem the tide of water that comes with winter rains and light snowfall. He plans to pipe water from various springs on the property to different areas, especially to one flat piece of ground he calls his "little farm," where he can raise his own garden stuff.

Back of the curio store are two log cabins which sleep four each, and Mr. Howell's rustic tepee-shaped home. The cabins are well furnished and quite compact, with kitchenette and dinette combined. There are a bedroom and a lavatory with shower, while in the front there is a cozy living room with a natural stone fireplace. The cabins are rustic throughout with beamed ceilings and cowhide rugs on the floors or nailed to the walls. We liked the little cabins and the owner's company so much that we rented one of the cabins from him and stayed several days.

One morning as Mr. Howell and I sat in the sun outside the little store, I noticed several metates ornamenting the grounds outside. Inclining my head toward them I asked, "Where did you find those?"

He eyed me thoughtfully for a second and then said, "Years ago, in fact so many years ago that the Indians living around here now can't remember, there used to be

an Indian camp up here. I found those metates on the spot where they had camped. There are a lot more at the camp site, but it is pretty well hidden. You couldn't find it unless I told you exactly where it is. I have never told anyone about it because I am afraid people would come and carry them all away. Maybe some day when I get this place all fixed up the way I want



Log cabin is rustic, with beamed ceilings and cowhide rugs, but comfortable and convenient. Frashers photo.

it, I will bring a few more of them down here for ornamental purposes."

When I didn't speak he hesitated a moment, then went on. "There is a stream running back of the store, you know, and most people would think the Indians

would camp right along the stream, but they never did. Indians never camped too near the water, because it made it easier for them to catch the wild animals when they came to drink. Rather a clever way of bagging the unsuspecting game to provide fresh meat for their meals."

Impatiently I brushed a stray fly off the end of my nose, while Mr. Howell removed his shabby old felt hat and whacked it against his knee a couple of times, possibly to straighten out a few kinks, or change the droop to a new angle. Then squinting his eyes up at the sky he remarked, "Well, it looks like it might be pretty warm later on this afternoon. If you and the youngsters want to go horseback riding you can hire some horses from the Indians about two and a half miles up the road."

It might, or it might not have been a subtle hint to get rid of me, and to stop my infernal questions. I wouldn't know, but I do know I found Wilson Howell a veritable encyclopedia. His conversation touches on almost every subject under the sun, for he reads and studies all the current issues of the best magazines. He also reads spiritual and religious works and has read the Bible through four or five times. Consequently he has a great, overpowering love for all wild animals and flowers and deeply resents their destruction.

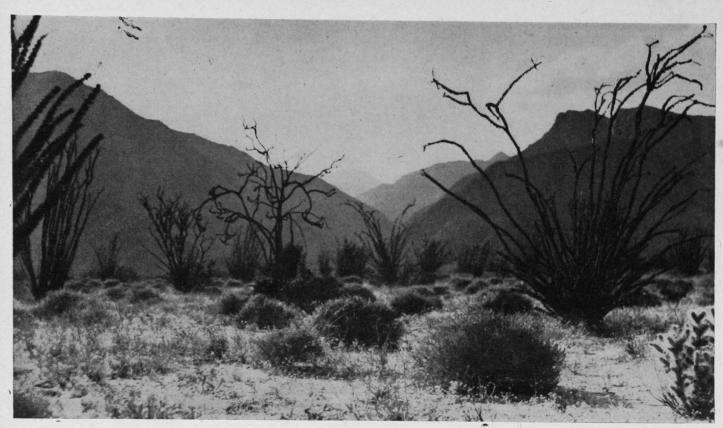
Signs directing the way along the various paths bear instructions such as these—"ENJOY BUT DO NOT DESTROY," "DON'T PICK WILD FLOWERS—THEY ENJOY LIVING THE SAME AS YOU DO," "LET OTHERS HAVE A CHANCE TO ENJOY WHAT YOU MIGHT DESTROY." These signs always are in plain view of the public and if you should pick so much as the tiniest sprig of wild flower, or move a rock or stone, I can assure you Wilson Howell's sun-faded, kindly eyes can very quickly turn to a cold steel blue.

Howell is familiar with every rock and flower on his land, and he touches them as reverently as a mother might fondle her beloved child. Living alone high up in the Santa Rosa mountains has given him an intimate love and knowledge of nature.

Wilson Howell's dream of creating a perfect paradise for those who appreciate nature's gift to mankind is far from being realized, but he feels that some day with hard work and the courage to back up his dreams it eventually will come true.

The night before we left for home we sat late before the open fire in the big out-door fireplace watching the red glow of the coals and talking in subdued voices of many things. And it was with the deepest reluctance that we departed the following morning.

I don't know how the rest of our party were impressed, but I felt that I had touched something rare and beautiful, and very very close to the Infinite.



These desert plants—ocotillos, incense bush, cholla cactus and various annuals—are adapted to overcome obstacles of heat, drought and foraging animals. G. E. Barrett photo.

To Save Their Lives -- They're Tough

If you miss your footing and come to a one point landing on a bed of prickly pear cactus, don't blame Mother Nature for your injured feelings. In her code anything goes that aids survival of the species. And this baffling, stinging, burning entanglement of spines and glochids is just one of her more obvious defense weapons. Sometimes she resorts to what Jerry Laudermilk and Philip Munz call "underhanded tricks" and "weapons of stealth." These two scientists tell Desert readers in plain language how desert plants can persist in an environment hostile to life—but an environment in which the survivors are tough and conditioned.

By JERRY LAUDERMILK and PHILIP MUNZ
Drawings from original specimens by Jerry Laudermilk

HE June day was hot and dry. Our canteens were running low and we were thirsty. The water situation was becoming something to think about. All around us the desert plants had to contend with the same problem but seemed to have the situation well in hand. There had been no rain for months—and still they flourished. Some even were brave enough to blossom. Smoke trees were masses of blue flowers and despite the heat they had a cool and springlike look. Not only the smoke trees but the wild gourds blossomed and many smaller and less dramatic plants held their own against the drought. How were they able to live, let alone blossom, after months of high temperature, dry air and dry soil? The answer is that these silent desert dwellers have adjusted themselves to their surroundings.

Adaptation to environment involves countless and wonderful tricks to overcome adverse conditions. Laymen sometimes tap their heads and look knowingly at one another when a botanist talks about plants and the subtle sort of sense they show in protecting themselves from their enemies—both the hostile natural surroundings and the hungry animals. There are many

points about the adaptations of plants that grow in unfriendly situations that will supply headaches for generations of botanists yet unborn. However, some surprising and interesting facts about the structure and behavior of such plants are well understood.

Many plants have chosen a tough life. Mesquite, desert willow and several others have staked out their claims along washes where there is a reasonably ample supply of underground water. Their roots sometimes reach down as far as 50 feet. In fact, water close to the surface is indicated where these plants are found. Another group including iron wood and palo verde also grows along washes but depends on flood water instead of trusting to long root systems. In this way they wait, and when the water does come they take advantage of the intermittent supply.

Many other plants, including the big cactus family, solved the water problem by attacking it from a different angle. These plants have shallow and widespread roots near the surface where they can take advantage of the thin layer of moist top soil when rain does come. Many of these plants grow on dry uplands of the desert where rains are rare, short and violent. The top soil

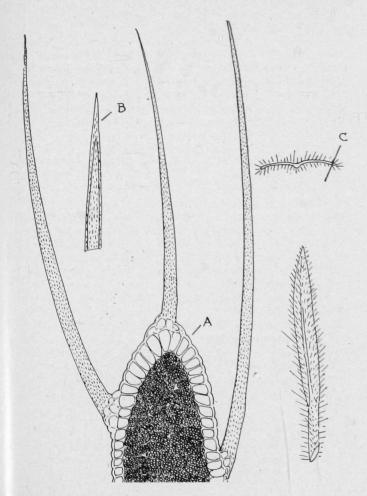
is soon soaked and the roots work furiously laying away a water reserve stored up in the cells of the plant itself against the hard times sure to come later in the season.

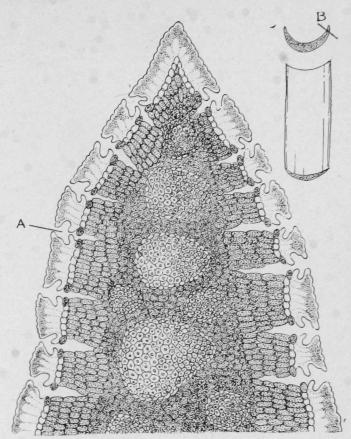
Although desert plants always are on the lookout for water, permanent pools sometimes are found in unexpected places. Such water is likely to be highly mineralized. There will be but sparse vegetation around their margins but some plants can utilize such water. Cat-tails often grow in water salt enough to taste. They grow profusely along the canal beside the road near Newberry, California, on Highway 66. A few other plants utilize such water because their cell sap is adjusted to function with water containing a high concentration of mineral salt. But for most desert plants the problem does not seem to be utilization of water but how to surmount a lack of water.

Annual plants solve the problem by being drought escaping. These take it easy and wait until the rains come. Then they pop up and have a gay time while the soil still has some moisture. They flower, ripen their seeds and die—all in a few weeks. The seeds lie dormant until the next rainy season and then go through the same short life span. Although this system may seem a little frivolous to the cacti which grow close by, the system works. Some of the lily family use a different approach.

These plants, the desert lily, mariposa lily, wild onion and others have underground bulbs or rhizomes. These bulbs and rhizomes are terrifically alive, little bombs of energy, ready to explode when favorable times come. They do not apparently struggle against the drought. They simply die back to the ground and the bulb carries on—waiting. This waiting game also is carried out in another manner.

Some plants "play dead" during the drought. Perhaps you have noticed when you were about to start your campfire, that certain bushes that looked like firewood refused to burn—they were green inside. These plants are drought enduring. They simply shut up shop temporarily when business is quiet and also





Joshua tree leaf has deep stomata in urn-shaped pits. Tiny two-way valves to cut down evaporation are shown at A.

B shows edge of leaf from which section was cut.

Greatly magnified.

wait, but do it with their branches—the entire plant waits. Creosote bush and burroweed brave it out along these lines.

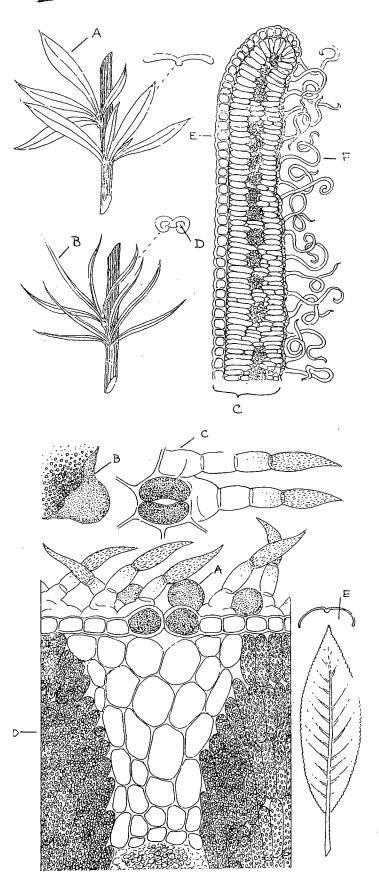
Other plants are "water bankers" with the foresight to accumulate a surplus of water to tide them over the dry season. They include the cacti, agaves and the succulents. They have fleshy stems, fleshy leaves or fleshy roots like the wild gourd. They gorge their cells with water and can draw on this supply when the need comes. These plants are drought resisting. Obviously, desert plants are concerned with preservation of what water they can store up or do without. Vegetable tissue dries out rapidly under unfavorable conditions and these are many.

One of the quickest ways for a plant to lose water is through large leaf surfaces. Plants breathe and lose water during respiration—but this point comes up later on. So, nearly all desert plants have small and often thickened leaves. Some have gone so far as to discard leaves altogether and have turned over to the stem the work of food manufacture which is the function of the green leaf whose cells are tiny laboratories where one of the most important of life processes takes place — changing carbon dioxide and water into sugar and starch. Here we are brought face to face with a tremendous mystery which has to do with the sun and the amazing correspondences that exist between the biggest thing in the solar system and humble little patches of green pigment in the cells of plants.

These cells have to be protected against water loss and so the surfaces of all plants are covered by a transparent but waterproof skin. This covering or cuticle is secreted by the epidermal cells.

Section through edge of fiddle-neck leaf shows, at A, long simple hairs which discourage a foraging animal. While glochids of a cactus hurt, these simply nag. More highly magnified hair tip is at B. Section through leaf is at C.

Wild buckwheat shows a different adaptation strategy. At A, leaves are in wet weather stage; at B, the dry. C shows highly magnified section through leaf at D, disclosing cuticle thick on outside at E but thin and protected with hairs at F, underneath. As leaf wilts it curls under on thin side as at B.



All plants, whether they live in the desert or not, must have this protection. A good example of the value of this protection can be seen by peeling an apple. Within just a few hours the water which otherwise would have been stored up for months is lost. Some of the best examples of a thickened epidermis are furnished by plants which really are blessed by having "thick skins"—a godsend to anything, plant or animal. Desert tea, agave and all the yuccas have especially thick cuticles. In some plants like scrub oak the leaves may be so heavily coated that they break when folded. When plants wrap themselves in this waxy protective coating the cells must maintain a connection with the outer air with which they exchange carbon dioxide and oxygen.

On sunny days carbon dioxide and water are combined in the green cells to form sugar and other food material and to release oxygen. At other times, glucose and oxygen are combined to liberate energy and produce carbon dioxide and water. In fact, the plant actually burns up its food reserve in practically the same way that an animal does. So to be able to give off these gases the cuticle is perforated by tiny breathing pores called stomata, a Greek word meaning "mouth." The stomata actually are slits between bean-shaped, specially formed guard cells. When there is abundant water during the daytime, the guard cells are distended and pull apart. In fact, this is the way the plant opens its myriad mouths. When plants wilt from lack of water, the guard cells draw together and close the stomata. When the stomata are open and can function, they lose water vapor from the wet interior of the plant. But desert plants have developed a great many methods to guard their stomata and prevent evaporation.

Often they have remarkable structures such as urn-shaped pits with the stomata buried deep in the bottom of the pit. Sometimes the pit is constructed so that its neck will be almost as narrow as the stomata itself and water vapor must escape through two openings with a dead air space between. These marvelous, microscopic, two-way valves are highly efficient in cutting down evaporation and are especially well developed in the leaves of

the Joshua tree and century plant, or agave.

If the stomata are protected by a thick, felt-like layer of hairs the plant obtains the same effect. These hairs are of many and sometimes fantastic shapes. In the case of some plants like burroweed, woolly marigold and some milkweeds, the hairs branch to form a woolly mat. In other cases like the buffalo berry, parts of the hair radiate from a center like the spokes of a wheel making a flat sheet of umbrella-like scales. The salt bushes have developed an especially fancy type of hair. These are tiny balloons filled with gas which eventually open and show a shiny surface. When the hairs or scales are white the leaf looks silvery, like that of the desert holly. This reflects much light and heat, which still further protects the cells from the intense desert sunlight which is itself very injurious to protoplasm, the living part of the cell. Some plants like creosote bush and yerba santa accomplish this light reflection by use of shiny, highly varnished leaves. In these cases wax or shellac-like materials are secreted by the epidermal cells. Other plants have solved their water problem by what would seem to be a rather extravagant method.

Many trees and shrubs lose their leaves entirely during the dry season. Palo verde, smoke tree, turpentine broom and ocotillo, leaf out after the rains, but as the soil dries they shed their leaves, thereby saving what little moisture they have. A thin layer of cork forms over the scars left by the fallen leaves. This further protects the plant against evaporation.

Innumerable schemes are employed by the leaves of plants when they have to tackle difficult situations, and students of

Specialty of white sage is its oil glands. At A is specialized cell full of oil, close-up at B. At C are two hairs and a bean-shaped stoma. General leaf structure at D is vertical section through leaf at E, along line shown.

plant-lore have many entertaining tales to tell about the ingenuity of foliage and the sort of quiet wisdom plants show during times of drought and during the rainy season when the foliage adapts itself to accord with moisture or the lack of it.

Some perennial grasses have their stomata all on one surface and during dry weather the leaf blade may fold under from the edges or even fold lengthwise so that the pores all will be on the inside. Such leaves are ridged and furrowed longitudinally and so easily can curl under as the outer cells wilt. The leaves of wild buckwheat of both the desert and the coastal valley curl under from both sides and less leaf surface is exposed during hot weather. They may remain in this position for months. Perhaps the outstanding example of curling to avoid drought is the resurrection plant which grows in the deserts from western Texas to Sonora, Mexico. This plant rolls up its branches into a tight, dead looking ball during the dry season but after the first rain it flattens out again into a bright green plant. The resurrection plant often is for sale as a curiosity.

Some of the pea family are so constructed that when the leaflets wilt they fall one against another like overlapping shingles on a roof to protect each other from the heat. It is a beautifully simple and logical thing to do. In some cases chemistry also helps the plants to overcome the water supply problem.

The cacti, pickle bush, alkali weed and certain other fleshy plants are so adjusted that during the dry season chemical changes take place in the cell sap which enable them to retain the water they have. Some of the complex carbohydrates in the cells are changed into simpler ones which form a sort of gluelike substance that is able to absorb and hold water. It is a rather astonishing fact that when botanists attempt to mount specimens of these plants, unless the cells are killed by immersion in boiling water, the specimen is likely to surprise the collector by having come to life and put out vigorous young sprouts. This remarkable quality of the juice in case of the cacti can be shown very simply. If a prickly pear stem (one of the pads, incorrectly called "leaves") is peeled and its protecting cuticle entirely removed, it glazes over by a hardening of the surface and will remain moist and alive inside for many months.

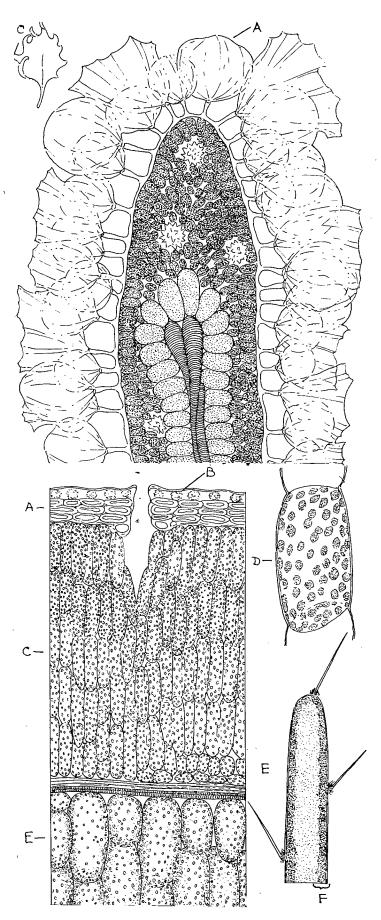
Another adaptation of this fleshy habit which enables a plant to absorb and store water, is a bellows-like action shown to perfection by the barrel cactus and the saguaro. In these plants, the woody, mechanical tissue is in the center of the stem, surrounded by a region of thin-walled cells. Just under the epidermis is a heavy band of thick-walled tissue that is very strong and elastic. When the stem is gorged with water, the outer ribs move apart and as this supply decreases they draw together like the pleats in an accordion. This action would not be possible if the woody tissue grew near the outside of the stem instead of in the center.

This property of water storage is sometimes fortunate for so-journers in the desert—that is, humans who may need a drink and need it badly. The juice of the saguaro is not good water since it contains too much mineral salt. But the barrel cactus is a reliable source of water for the thirsty individual who knows how to attack the problem. To guard against exactly this state of affairs, this cactus is armed with a formidable array of spines and fishhooks. One way, probably the best, is to cut out the top and churn up the pulp with a stick. Within a few minutes, water will collect in the hollow. It may taste something like a

Prickly pear cactus is a "water banker." Section of a pad shows water storage and epidermis. At A is tough, parchment-like cuticle reinforced with crystals of calcium oxalate, at B. C shows green cells full of chloroplasts (tiny living things worked by sun power to make sugar and starch and other food from carbon dioxide and water). D shows cell full of chloroplasts more highly enlarged. Layers E show cells gorged with water and containing a few chloroplasts.

Greatly magnified section taken at F.

Desert holly's balloon-like hairs, at A, burst to give plant its silvery look, reflect heat of sun. Section is through the leaf at C.



raw potato but is good water. Tenderfeet have died in the shade of these natural water tanks.

Although the juice of the barrel cactus and saguaro are watery, most cacti have glue-like sap. There is a surprising variation in the sap of desert plants. This variation is a fact that applies to all plants, but is more evident in the plants of the desert. The reason is simple. Syrup dries more slowly than water, so in the case of cacti and related plants, the thicker and more concentrated the juice, the more slowly they give up their water. Besides these direct adaptations to resist drought, desert plants have a number of roundabout ways of surviving.

Some of the adaptations help slow-growing plants to defend themselves from foraging animals that find little enough to eat in any case and are ready to try anything that isn't downright poisonous or doesn't taste too bad. Many plants of dry regions have characteristic strong odors and tastes—some rather pleasing and others very disagreeable. Most of these odors and tastes come from essential oils in the plants. Although many of our best flavorings and seasonings come from these essential oils, when they are concentrated in the plant they are far from pleasant.

These attributes which animals shun actually give desert plants much of their personality and charm. Some of the most aromatic and flavorsome are turpentine broom, creosote bush, the sages and many others of the mint family. Creosote bush has many virtues aside from its beauty which are not generally known. One of these is the fact that prospectors who run short of tobacco can stop their longing for a smoke by chewing the twigs which have an "ash tray" flavor quite satisfactory to an old smoker. Like a great many other plants of the desert, creosote bush has potent medicinal qualities which were well known to the Indians, especially the Coahuillas who knew their desert pharmacopeia to perfection. The essential oils are secreted by certain specialized cells which are conspicuous in the indigo bush and the turpentine broom. This latter plant is a close relative of the oranges and lemons. Aromatic oils in plants may be formed as waste products in the cells but are a highly effective source of protection. They also probably help in cutting down evaporation.

Another liquid defense is latex or rubber milk, the white or yellowish, sticky juice which bleeds from the cut stems of such plants as rabbit bush, milkweed, desert dandelion and several others. The Coahuillas made a typically American use of this latex chewing gum. They used to collect the juice from a certain species of milkweed, let it evaporate to thicken and then used the product in the regular way. This gum at first has an extremely bitter flavor but this soon disappears and the "chew" that remains apparently could last forever—and why not, since it is practically pure rubber?

This latex, which is of special interest in these days of rubber shortage, is an emulsion of proteins, sugars, gums, alkaloids and other substances distasteful to animals. Latex also works mechanically as an automatic sealing material for any breaks in the cuticle of the plants. In the case of some euphorbias the latex is very poisonous and in the South African desert, the Bushmen used the milk of certain species as an arrow point. Several of these desert shrubs are a possible source for commercial rubber. Guayule is now being grown for that purpose.

To protect themselves from their enemies, plants have still other devices such as spines and spine-like hairs—the horrible, hair-like, microscopic glochids of the cacti. They linger in the skin like visiting relations. These spines are of many types. Some are simple outgrowths of the epidermis and vary from sharp hairs like those of the fiddle-neck to tough, more permanent growths like cactus thorns of all sizes. Sometimes spines are modified branches from which the leaves have fallen as in the case of the smoke tree and buckthorn. They also may remain as the midrib of the leaf. This is a peculiar trait of the ocotillo.

Spines of the larger types generally are smooth. Others like the microscopic plant-hairs are frequently barbed or provided with hooks down the sides like those of the sandpaper bush and evening star. Some plants which are harmless when growing in damp places become ferocious when they come into conflict with the desert. In fact, a certain species of fuchsia from the Chilean desert has extemporized very effective thorns by hardening part of the leaf.

The forbidding look of these spiny plants should be a warning in itself. The rather gentlemanly Opuntia parryi, close relative of the beautiful but terrible "jumping cholla" admonishes you 10 times with its longer thorns before it finally gives up and lets you "burn" your fingers on the devilish little glochids at the base of the cluster of long spines. Despite this armament of spines and glochids, animals desperate from hunger sometimes will eat the cactus anyway. The little antelope chipmunk and other rodents start at the base of the stem, carefully avoiding the spines, and eat the pulp by working upward. Old, tough range cattle frequently eat the deerhorn cactus—thorns, glochids and all. This is probably the last word in food "roughage." But nothing under heaven could eat the jumping cholla, a regular plant demon, entirely covered with stiff spines.

Plants of the desert have to be hard in order to survive. They have many tricks, sometimes underhand tricks which they always are ready to use against an enemy. In the majority of cases these means of defense are weapons of stealth, a type that seems to be a favorite with all living things. But in the code of Mother Nature—anything goes that may preserve the species.

DESERT CREOSOTE HAS 23-LETTER WORD MEANING "CRISP," "CRUNCHY"

Scientists who have been studying problems of food preservation believe an important contribution can be made by one of the Southwest desert's most common shrubs—the creosote. Those who call the resinous heavy-scented shrub or small tree just plain "greasewood" would never suspect that scientists have found it contains such an imposing substance as nordihydroguairetic acid. This acid, "Ndga" for short, is a powerful antioxidant capable of increasing the stability of oils thereby preventing rancidity.

Foods such as cookies, crackers, potato chips and confections which have been prepared in oils stabilized with this acid will remain fresh and crunchy. Results of experiments with it were told at recent meeting of American Oil Chemists society. H. C. Black of Chicago, Swift and Company chemist, said his company had used a similar antioxidant, gum guaiac, obtained from a West Indian tree. "We have been using gum guaiac for stabilizing shortenings and oils for several years," Black reported. "It takes shortening out of the ice box and puts it on the shelf without fear of early spoilage."

Main credit for advancement in study of antioxidants was given to necessity of economical storing of foods over long periods for armed forces. Its postwar value, in aiding to feed the world, was seen to be of even greater benefit.

First application for harvesting greasewood in New Mexico federal grazing area was made by L. A. Sullivan of Hatch for W. J. Strange Co., of Chicago, who requested an increase to one ton per day. Sullivan already had furnished eight tons of creosote "strippings." In harvesting, only the leaves and small branches are needed to obtain Ndga.

Creosote is common throughout the Lower Sonoran life zone of the Southwest in California, Arizona, Nevada and New Mexico. This is the typical low humidity, low rainfall, high summer temperature area in which plants have developed greatest adaptive characteristics to withstand such climatic features. It is estimated that in New Mexico alone there are 10,000,000 acres of the shrub which will keep the world's cookies crunchy.



Near the base of the 200-foot cliff of El Morro mesa are carved the signatures and messages and declarations of more than three centuries of Southwest "invaders." Even before the first Spanish name, there were marks and scrawls of the native Indians on the sandstone rock that was to become a diary of the Southwest. Frashers photo.

Sword Points and Dreams in Stone

It might have been the drowsy sound of summer insects that lulled them to dreaminess—but they are sure they heard sounds strange to the ears of moderns—a rhythmic jangle of metal, then an increasing volume like the sound of many voices. As Joyce and Josef Muench rested at the foot of the great mesa of El Morro the pageant of Southwest history passed before them—the scarlet and gold magnificence of Spain's conquistadores fired by dreams of treasure, the slow trudge of the brown robed bearers of the Faith, the later crisp sound of marching feet of Americans ending the Spanish era, the long creaking roll of pioneer wagons — all these came on like waves that broke upon the rock where each caravan left the story of its hopes and triumphs and failures.

By JOYCE ROCKWOOD MUENCH

ESERT heat lay like a heavy cloak pressed down upon the earth. It was July and we were on our way to visit El Morro, the Inscription Rock where New Mexico's historic "autographs" have aged in all kinds of weather for more than three centuries. Our car labored over the dusty 65 miles southeast from Gallup to the great plateau whose extreme rim is covered with extinct volcanoes, into the valley where once there ran an ancient road from

Zuñi to the Rio Grande. Among its great many colored sandstone mesas stands the greatest of them, El Morro.

Weathered by the ages it loomed like a great headland or bluff, giving an effect of bastions and turrets of a Spanish castle. Approaching as we did, the insurmountable peak of a mighty wedge rears over 200 feet high and the wings sweep back for thousands of feet. Once behind its battlements the wedge shape is seen to be open,

with shrubs and trees, a small undulating valley lying within its protecting arms. At the apex is a natural basin, reinforced recently, which catches the rain water and saves it for the thirsty traveler on this fabulous old roadway.

My husband and I climbed wearily out of the car and spread a blanket upon the ground. Stretched out upon it we looked up at the 200 feet of cliff that soared above us. The ruins of a prehistoric village set

on each of the wings like a crown can be reached by an ancient trail of foot holes, a few hundred yards south of the tower. They were built—the villages and the trail—by the people of Pueblo IV, the culture which followed the great Classical period which ended about 1300. Some of the crude petroglyphs found on the rock may have been made by them, thus making El Morro's record cover more than 500 years.

The noise of summer insects floated over us, enveloping and lulling us to a forget-fulness of heat and discomfort. I was in a mood to believe that El Morro itself might be ready to speak. There came an undertone to the drone of the bees and the flies that soon took command and drowned out those busy voices. I tried to place its component parts. There was a jingle to it, the sound of metal on metal and a rhythm too that was overlaid by something which eluded me. Before long the volume had so increased that the elusive sound became recognizable as voices—many voices.

"A large party of horsemen is coming this way," I said to my husband as we puzzled over the different sounds and waited to see what manner of a cavalcade this might be. Why so much metal in with the march of men's feet and the drum of horses' hooves? Around the corner they

came at last, swinging along, and as the procession swept up to where we were, near the edge of the pool, we gasped in astonishment.

A lean native, surely an Indian, led the way. His simple clothes appeared to be of hand woven cotton. Behind him came first a magnificent figure on horseback. The animal was almost covered with a finely chased equipage and the rider held the gold and scarlet flag of old Spain resting in his stirrup. He was dressed in red velvet and a handsome plume bobbed in his hat. I turned my eyes from him to see the others who began to file into view. Some of them wore jackets of fine flexible mail. They all had swords that clattered with every movement. When the first man reached the edge of the inviting pool, he swung off his mount and a soldier materialized from the crowd to hold it. For the next few minutes there was bedlam.

Wave after wave of men and horses reached our resting spot and the air was tumultuous with Spanish voices, the whinnying of horses and all the noises that a crowd of men and animals can spread upon the air of a summer day.

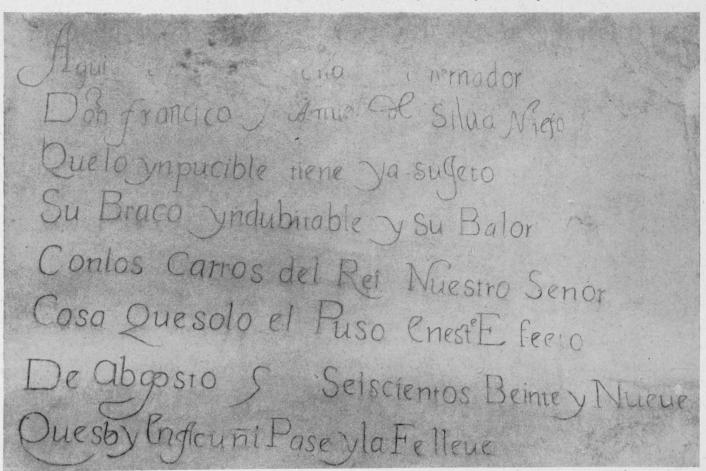
(I had no time to wonder at the moment why we were not seen or how this strange procession could be here before our eyes. Something had happened to time and it skimmed by in a most capricious manner.)

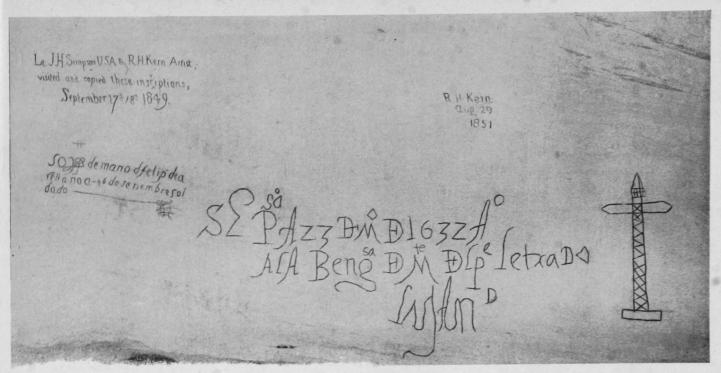
When a few horses had had water they made room for others and it soon became apparent that this was to be the campsite for the night. While fires were being lighted, horses bedded down at a little distance, and our Spanish soldiers chatted among themselves with much gusto and good humor, although they were very tired. A jaunty young man detached himself from a group and taking out a short poinard walked over to the wall of El Morro. He started to prick out letters with the sharp point. Some other men walked over to watch him and one read in a pompous voice:

"Pasó por aquí el adelantado don Jua de Oñate al descubrimiento de la mar del sur a 16 de Abril ao 1605." (Passed by here the provincial chief don Juan de Oñate from the discovery of the Sea of the South on the 16th of April year 1605.)

The man in scarlet then was politely invited to inspect the work. His approval was immediate and he stood looking at the delicate Spanish letters for so long that I wondered if he could be glimpsing the some 150 inscriptions that were to follow this, the first, cutting into the rock the record of Spanish exploration in a new world. Then this must be Oñate, the dis-

Translations of the 17th century Spanish inscriptions sometimes vary. In any version, the poetry of such an entry as this one of Governor Nieto's in 1629 loses much of its musical rhythm. Joseph Muench photo.





Here is a threat of vengeance for the death of Father Letrado, signed "Lujan" on March 23, 1632. Near it are the signatures of young Lt. James Henry Simpson and R. H. Kern, the artist who illustrated the reports Simpson wrote on his military reconnaisance from Santa Fe to the Navajo country, which took him past El Morro in 1849. To the left of the Lujan inscription, surrounded by the imposing names of history, is the simple entry, "I am from the hand of Felipe de Arellano 16th of September—soldier." Muench photo.

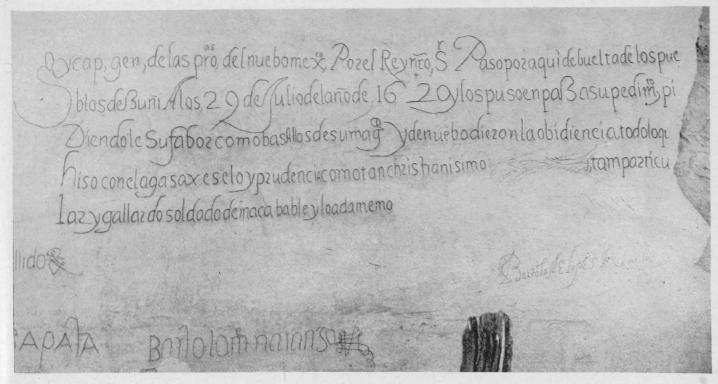
coverer of New Mexico, who had founded San Gabriel de los Españoles in 1598—second oldest town in this country and who was now on his way back from a trip to the Gulf of California! The first governor of New Mexico turned away from the inscription with a sigh, and without

warning the whole procession faded. But still we were not alone.

Other soldiers, adventurers and priests were to be seen milling about the pool. I saw many writing upon the wall. I have forgotten most of them but there was that one signed "Eulate" that says:

"I am the captain-general of the provinces of the New Mexico for the King our Lord. Passed by here on return from the pueblos of Zuñi on the 29th of July of the year 1620 and he put them in peace at their petition asking him his favor as vassals of his majesty and anew they gave

This extended announcement of July 29, 1620, tells of the captain-general's establishment of peace in the Zuñi towns and the Indians' "petition asking him his favor as vassals of his majesty and anew they gave the obedience . . ." Muench photo.



the obedience all of which he did with clemency and zeal and prudence as (a)' most christianlike (obliteration) most extraordinary and gallant soldier of unending and praised memory (obliteration).

I heard men talking of strife, of bloodshed and of the rebellious native Indians. There was rage over their own failure to find gold and precious stones. They still talked of the Seven Cities of Cibola where they had been promised streets paved with gold and of more wealth than any man could use. Spain was far away and many of them longed for home and their own land.

Soon another larger group of men trudged wearily up to the rock. They sang as they came along the dusty road as though to encourage themselves and even their horses, for only about half of them were mounted. Their leader was a gracious man and he talked hopefully of peace. It was he who wrote with his own hand:

"Here passed the governor

Don Francisco Manuel de Silva Nieto Whose indubitable arm and whose

Have now overcome the impossible With the wagons of the King our Lord (a) thing that he alone put into effect on August 9 (one thousand) six hundred twenty nine

That one may to Zuñi pass and the faith carry."

He looked at it carefully and then read it aloud to his men, this record which was to be almost all that is now known of him. Then he and his men were gone, to be followed by a handful of riders who stopped only long enough to water their horses and to eat a little food themselves and to write hurriedly on the rock:

They passed on the 23rd of March of the year 1632 to the avenging of the death of Father Letrado." It is signed by

Francisco de la Mora Ceballos was then governor of New Mexico and he had sent this expedition of which Lujan was a soldier, "to avenge" the death of the missionary, killed by the Zuñis that year.

I recall one swaggering leader who called out for any man who could write, since he himself could not. A slender youth of hardly more than 18 stepped forward with dagger in hand. He carefully made the words in the rock as they were dictated to him.

"In the year of 1716 on the 26th of August passed by here Don Feliz Martinez, Governor and Captain-General of this Kingdom, to the reduction and conquest of Moqui; and in his company the Reverend Father Fray Antonio Camargo, Custodian and Judge-Ecclesiastic."

When the captain-general had finished reading it aloud he turned to the motley crew that loitered near. He gave them a kind of pep talk. It was evident that they needed something of the sort. There was dissatisfaction and even fear upon some of the faces. A scouting party was sent out and came back within a few hours with two Indian prisoners. These they carried off with them in a hurried retreat when a party of Indians threatened an attack. This was the Martinez who was to be recalled in disgrace from his governorship and is remembered as one of New Mexico's worst leaders.

Still others wrote their names upon the rock, many whose humble position never put them into any other record. There was the soldier who wrote:

'I am from the hand of Felipe de Arellano, on the 16th of September, soldier." He is believed to have been one of the Spanish garrison of three men left at Zuñi and killed there by the Indians in

More companies of soldiers and small bands of raiders continued to come like waves that broke upon the rock and then receded to be followed by another wave. Once in a while a pioneer and his family broke the chain of the Spanish influx, and gradually fewer and fewer soldiers and priests came by. Then upon the summer air came the crisp sound of marching feet and a company of soldiers, this time of the new United States. They made camp, refreshed themselves and left their mark upon the rock.

It was in 1849 that Lt. J. H. Simpson and R. H. Kern, artist, came to the rock

and first copied the inscriptions.

The Spanish "invasion" was over and more than 150 inscriptions could be seen around the base of El Morro in that language. But the rock still looked the same. The same warm air in summer beat upon it, and the same errant breeze lifted momentarily the blanket of heat.

And then we found ourselves still lying on a blanket in the shadow of El Morro on a hot day in July, after our dream of over three centuries.

In 1906 presidential proclamation made a national monument of El Morro in Valencia county, New Mexico. Now when the traveler leaves U. S. highway 66 at Gallup he goes on state highway 32 through Ramah to this spot where a substantial custodian's house has been tucked in the woods out of sight of the rock. Copies of ancient ladders help the visitor scale the walls to the ruins.

The Spaniards no longer take the road that leads to Zuñi and (as they had hoped) to the Seven Cities of Cibola. But one need only to close his eyes for the procession to start moving down the valley. The echoes of stirring days have beat against the rock and need only the eye that wants to see and the ear attuned to them to recount that old story again. The priceless inscriptions upon the rock will be preserved for all men to see. And New Mexico holds as one of her richest treasures this page of autographs in stone.

Sez Hard Rock Shorty of Death Valley . . .

By LON GARRISON

"Jack rabbits," vowed Hard Rock Shorty, "generally are good for stew if you catch 'em young enough an' are like to starved to death yourself. Aside from that I dunno any way they do more'n a poor job o' decoratin' the landscape. There's exceptions o' course—like John the pet jack rabbit I had up in the Panamints

Hard Rock filled his pipe with his personal mixture of fumigating powder and settled back in his chair on

the Inferno store porch.

"John really had some wolf in 'im, I guess. I got 'im when he was jus' a little feller an' by keepin' 'im around camp an' feedin' im my beans an' sourdough hotcakes he growed 'til he was most as big as a coyote. He learned to gnaw ham bones an' then it wasn't long 'til he started huntin' meat for himself-in fact he went on a meat diet 'o mice, squirrels an' rabbits. Even saw 'im eyin' my leg once or twice but he never got nerve enough.

'The coyotes'd give 'im fits ugh. They'd chase 'im but though. couldn't catch 'im an' then he'd chase them for a while. He could catch 'em too but he hadn't teeth enough to kill 'em an' aside from a couple he managed to trip an' kick to death, coyotes was quite a problem to 'im. He'd set by the tent when coyotes run by an' cry like a baby, wantin' to catch 'em an' couldn't.

He was purty good at diggin' up rabbits though, an' one day after he'd been diggin' rabbits out I noticed that his front feet was in bad shape—the rocks'd wore his claws out an' his feet were jus' like a couple o' tooth aches. I cut up a couple o' old iron spoons I had an' strapped 'em on back of his front feet so he could dig with 'em but they didn't interfere with his runnin'. John tried a couple o' runs with the spoons on an' they worked real good. He come back to camp an' thumped out a 'Thanks Shorty' message an' jus' then a coyote walk-

ed by.
"John galloped out to this coyote an' if I hadn't saw it I wouldn't believe it, but he beat that coyote to death with them iron spoons!

Andy was just a white-footed desert mouse—a little brown-grey elf with bright black eyes and large sensitive ears. But he was more than a mouse to the South family. He had been accepted as a member of their Yaquitepec household. Now Andy is dead. No more will he perch on Marshal's toes. Or nibble juniper berries and pinon nuts by the fireplace. Or come at midnight to watch Tanya write poetry by lamplight. For Andy died in battle under mysterious circumstances. Marshal writes the final tribute to their favorite of Ghost Mountain's "little people."

Desert Refuge

By MARSHAL SOUTH

NDY, for so long the friendly little sprite of Yaquitepec, has passed on. Andy was a white-footed desert mouse of more than ordinary intelligence—which is saying a good deal, for the white-footed mice are an intelligent and lovable tribe. But Andy was exceptional, even among his own people.

His beginnings are shrouded in mystery—even his name. For we yet don't quite know how we came to call him Andy. He must have been with us for some time before we noticed him, for the twilight shadows of Yaquitepec are full of soft-moving little people, and one mouse looks very much like another. By the time we had begun to recognize Andy as an individual he long since had adopted us as his friends.

To trust the human race usually is a fatal error for the creatures of the wild. But Andy seemed to have decided that the roof beams of Yaquitepec covered the Lodge of Brotherhood. So he boldly put behind him all the teachings of his forefathers and took us whole-heartedly into his life.

He made himself a member of the household. Someone to be looked for and to be sharply missed on those rare occasions when he failed to appear. With the first twilight shadows, and often long before the lamps were lighted, he would be with us. Coming from we knew not where and scurrying back and forth between the legs of the table and chairs, like a busy little browngrey elf, in his search for crumbs. We learned in the course of time that Andy was set apart from other mice by a distinguishing brand—a tiny nick on one of his soft gnome-like ears. An ancient battle record, probably. It was Andy's brand.

Not that we needed the identifying mark. For we soon came to know Andy through his special mannerisms. He had a confident gait and poise. While his tribe-folks slipped softly by along wall ledges or peered at us with bright beady eyes from the corners of shelves or cupboards, Andy would come boldly down, running nimbly across the perpendicular faces of adobe walls and slipping confidently about between our bare feet, as he hunted for dropped bits of bread or fragments of piñon nuts. Sometimes he ran over our feet. And on occasion would use them as lookout stations upon which to perch while he scanned the surrounding terrain. On such occasions we would say, "Andy, please! This is my foot—not a watch-post!" And we would jiggle our toes a little, and he would hop down. But not in fear. He had made friends with the "gods" and he knew that they would do him no harm. He knew, too, that manna frequently came down from 'heaven' in the shape of various special tid-bits—even whole piñons. These he would accept with perfect politeness, taking each one delicately from between the



Andy, of the bright eyes and trustful heart.

offering fingers and squatting dark-eyed and trustful upon his haunches while he nibbled the morsel to the last fragment.

Nor was his range confined to the floor. He explored the whole house, hunting into every odd corner in his search for edible items of interest. We never knew him, however, to be guilty of doing any damage. His was a simple little soul and he asked nothing save the crumbs and left-overs. One of his favorite ranges was upon the big flat top of the fireplace. There, among the jumbled collection of "treasures" that Rider, Rudyard and Victoria collect, he often would discover chia seeds, grains of Indian corn, sweet juniper berries or fragments of old tortillas. Whenever he made such a find he would carry his prize triumphantly to a favorite spot at the extreme northwest corner of the fireplace top. There he would squat down gravely and, holding the morsel daintily in his forepaws, would proceed to enjoy his meal.

Andy did not live under our roof. He had a little personal wickiup outside somewhere among the rocks and mescals and cactus, to which he departed when he grew tired of adventuring. He had his own particular pop-hole near the summit of one of our unfinished walls, which he used for his goings and comings. But some nights he stayed in the house a long while.

Often Tanya, whose habit it is to get up at midnight and write poetry in the silence while all the rest of the household is wrapped in slumber, had him for attentive companion. Out of the shadows he would come, climbing nimbly up a table leg and appearing above the far edge of the long table top. Here he would pause a moment, as though to give polite notice of his presence. Then he would come pattering down the length of the table and would choose a vantage point, usually upon a book, where he could be within a foot of Tanya's moving pencil. There, in the lamp glow he would squat, silent and attentive, his large delicate ears and sensitive nose twitching with intense interest, as his bright eyes followed the movements of her hand at its writing. Sometimes Tanya would speak to him softly and his nose and ears would move as though in answer. But he sat on unafraid; undisturbed even by the movements and rustle of the paper when she turned pages. After a long while he would get down from his perch and silently go away. Perhaps he too was a poet. Who shall say? The great pianist Paderewsky had a similiar experience with a tiny spider which came regularly to listen to his playing.

Now Andy of the bright eyes and trustful heart is dead. No more will he perch upon our toes. Or nibble juniper berries

upon the corner of the fireplace. Or come in the silence to worship the mystery of the moving pencil in the lamplight.

Andy died in battle. Never will we know the whole story of Andy's ending, any more than we will know the details of his beginning. All we know is that, going out one morning, we found in the bottom of a dry shallow water cistern, upon which we were making repairs, five white-footed mice. Three of them were huddled, heads together, in a little grey ball in one corner. Two others lay out in the center of the cistern floor, mangled and dead. And one of the dead mice was Andy.

The sides of the cistern were smooth plastered, and once in it the five had been unable to escape. But how did all of them manage to tumble in together? And just what sort of a bitter struggle had been waged there in the night darkness? The battle had been savage, as the blood, spattered plentifully all over the plastered floor, bore witness, and as the chewed feet and tails of the dead combatants attested. The three trembling and fearnumbed survivors gave us no clue. One of them was badly wounded. And when we had lifted them gently out of their prison and turned them loose beneath the shelter of a spreading juniper they vanished into the cover of the rocks and grass, carrying their secret with them.

Every once in a while, one or other of our correspondents, mistaking the reasons which inspire our love of the desert and our revolt against Civilization, see fit to chide us, more or less good naturedly. Alluding to our ideas of clothing and of food and to our disdain of many of the gadgets of progress they accuse us of "aping the Indians." To which we often reply that the charge is no insult. That on the contrary if some members of our population would "Indian the ape" much good would accrue.

Not all of our well-wishers quite understand the barb in this retort. Those who do, however, and whose "come-back" letters recall that heroine of Kipling's who "spread her anger hot as fire through six thin foreign sheets, and more" are very definite.

We grow a little annoyed sometimes at the aspersions often cast upon the original inhabitants of this great land which our nation has appropriated for its own. Although the Indian was no paragon of all the virtues, as some would have us believe, neither was he the inferior and ignorant savage, as too many regard him.

The American Indian is a human being fashioned of the same clay as we all are. He is our blood-brother, as are all other members of the human race, irrespective of creed, nationality or color. And just as no one man can gather all the treasures of the earth into his own satchel, so is it impossible for any one nation or race to be the possessor of every good quality and virtue. The wise man seeks for pearls of beauty and understanding in every quarter. And having found such treasures is rejoiced, counting it of no moment whether they came from the mussels of a river or from the oysters of a tropic sea. In many ways the philosophy of the Indian and his simple natural way of life were much superior to those stilted fetishes before which our vaunted civilization bows. It is all a matter of balance and choice and of common sense. I have no sympathy with "mass" thought. Brains were given the individual to think with. In this regard the actions of many people reflect the lament expressed in Kipling's ballad, "The worst we took with sweat and toil. The best we left behind."

The Indian, particularly the desert Indian, was the embodiment of nature's freedom. In these days of permits and forms and of cluttering of every action of speech and motion by a multiplicity of civilization-engendered rules, the Indian stands out as a bright light in the darkness. We like to remember sometimes the tang of the winds that come down over the red cliffs of the Navajo reservation. A spurious tang. For there is

in the very nature of a "reservation" little of freedom. Still there is something free in the breath of that vast silent land and the feel that comes to one from contact with its dark-skinned resolute people. There is a sense of fundamental things, of beginnings. In silence and great spaces was liberty born. Always has the flame of it burned brightest in the hearts of silent peoples, tending their flocks beneath the desert stars.

Summer, the magic weaver, favors now the bright trails of Ghost Mountain and its surrounding desert. Already, among the junipers and the tall blossoming stalks of the mescals, she has set up her loom. The warp is stretched. Brightly dyed skeins of color lie ready to her hand, and already she has begun the weaving of that magic blanket which each year gathers into one perfect whole all the freedom and fascination of the wilderness.

Watch now, as the design grows under the nimble brown fingers. Mystery and Symbology, Sunlight and Shadow. Foreground and dim purple distance. Hope and Fear. All of man's longings and frailties, his hazy future and his mysterious past.

See! Here is a friendly thread of brown, an inquisitive racer snake, gliding like a painted shadow between the dry stems of the dead buckwheat bushes. And over here is sharp contrast, a splash of brilliant scarlet woven from the flame tips of the ocotillos and the ruby berries of the wolf bushes. Look, too, at this broad band of yellow, more dazzling than all the useless gold of all the world. It is fashioned from the honey-laden blooms of league upon league of tall, gently swaying mescals. The shimmer that dances about it is wrought of the jeweled wings of myriad honey-bribed bees.

Over here, again, is an odd patch—a queer design of a drowsy little horned toad asleep on the top of a rounded grinding stone, a stone which perhaps has not been disturbed since it last was touched by the hands of an Indian woman half a thousand years ago. And see this other pattern—this triangle of indigo shadow! This is Silence—the silence of a deep canyon whose secrets of the past no man ever shall unlock. And what is this—these zigzag threads that pass beside it? Ah, that is a forgotten trail, the trail into the purple distance down which perhaps the Indian woman went, from her last task of grinding, and her four brown desert children with her, and the stalwart desert brave who was her mate—down, down and on into the dim distance.

And what is this shimmering design where the threads cross and mingle so bewilderingly? That? Why, that is Mystery, the mystery of the desert. For, do you not see, the pattern is not finished. Nor will it ever be finished. For here the roads end—and begin. Here Progress halts and its tinsel trappings crumble. For here dwell the old gods of the desert who keep the portal, and scatter the dust over the tracks of the passers—and over their bones. The Spaniard lies here—under the dust. And here lie also those who went before the Spaniard. And those who went before those, also. The sands shift and shimmer. The mirages swim. The fingers of Summer, the weaver, fly faster and faster, blending the threads, wearing the pattern of the blanket. But that bit—the pattern of Mystery—never shall be finished. Mystery belongs to the gods of the desert—and to Eternity.

DAWN

Dawn lights the heavens with her flame And lights the mind with new resolve. No longer do we see the same As in the night. The shades dissolve. So with our lives—our faith and truth In ever dawning wider scope Enlight our ignorance and youth With wisdom and with greater hope.

—Tanya South

Abandoned Homestead

By KATHARINE BUOY KEENEY Portland, Oregon

The empty house stands silent and alone. Tall rye grass bends above rough weathered stone

Now fallen in a heap—a lonely cairn, The out-door cellar sage has overgrown.

A picket fence surrounds this wilderness Of desert growth dully gray and flowerless. A snake warns with its rattle to beware, Destroying silence where its whirrs transgress.

Abandoned, yet the empty rooms betray An unseen presence living there today Ghosts of young pioneers whose children now Review the years they spent in youthful play . . .

They touch the walls with questing fingertips
Where faded paper hangs in tattered strips;
They try the pump from which no water
flows, Remembering the taste on thirsty lips.

Then sense the spectral shapes that drifting stray And mingle with the shadows dim and gray That little boy and girl with Mom and Dad, Whose presence haunts this house of yesterday.

MESA MOON

By Laura Lourene LeGear Long Island, New York

The low-bent moon is a yellow rose, A sunburst on the stem of night, Crying its color against the soul Like amber butterflies in flight.

Metallic moon like a molten flower, Shedding thin sunlight on the sea, These blown-gold petals slow the pulse, A yellow wind has hallowed me.

A SONG TO A HORNED TOAD

By M. W. BUCKINGHAM North Hollywood, California

Oh! Come, my little friends, I'm not the one whom you should dread;

I'll not begin to harm a single thorn upon your head.

You scamper off real quickly then you play like you are dead;

The desert is your mansion and its sand-box is your bed.

You borrowed from the kings so you could have a fan-like crown,

small, fantastic, stately fan with webs removed between.

Two pits of onyx jewels are encased where men would frown;

And since you have no merry voice, your life is quite serene.

Sometimes, you droop your jaw and I can see a

crimson gleam;
Then, when I turn you over, I can see a patch of snow

With polka dots of grey revealed in blots of lemon cream;

But how you keep it tidy is a thing I'll never know.

A gown of splendid thorns adorns the skin upon

your back, A prickly coat of armor that would put the knights to shame.

Those odd designs in fancy trails impressed my mental track

To eulogize in parody the fame that you can



A prospector's home in Ballarat, ghost town of Panamint Valley, California. Photo by Robert I. Schulz, Los Angeles.

RETURN TO THE DESERT

By JEAN HOGAN DUDLEY Palomar Mountain, California Sick of the city's clamor, Of wearisome words and faces. I will go down again To the lonely desert places.

There's beauty in desert scenes-The lovely curve of a dune, The silhouette of a palm Against a rising moon.

There I would find once more Silence as deep as dreams, Stars hung so close to the earth A hand could touch them it seems.

Ragged stretches of rock Where flowering cactus grows, And yucca, serene and white, (Our Lord's Candle) grows.

In the stillness, night and day Would pass with their changing hues, Leaving a hoard of peace-Wealth I never could lose.

And like the prophets of old Who the wilderness had trod, There I could blend my soul With the infinite spirit of God.

. . . THE ENCHANTED LAND

By I. M. SCHANNEP Salem, Oregon

Where is that enchanted land Of which we speak In bated breath, by wave of hand? Is it the land or the life we seek?

Where is the land of soul's content, Though hardships march on every hand, And none have cause for just lament? Where is the enchanted land?

The mountain meadows have their urge, And desert plains allure; The seashore bears its human surge, The valley's crops are sure.

Enchantment is for every land Where human souls abide And dwell in peace 'til God's command And neighbors not deride.

CACTI

By WALDO O'NEAL Clovis, New Mexico

A ghost of the silent desert With arms up-lifted in prayer; A proud and stately warrior With an armor of spears, beware! A lone surviving soldier, All the somber desert mocks; A fountain in a furnace, Is the desert's paradox.

WITH PROPER AWE

By MURRAY SKINNER Los Angeles, California

Oppressive silence of the desert land Compels conceited man to give it heed, Standing on lava rock and sliding sand
Man's ego is deflated with sharp speed.

Majestic areas of burning blue Confuse the vision and conceal the goal, And straining eyes grow blurred with sweeping view

Until self-pride is sponged from out the soul.

Two-legged mite, set to a sluggard pace, Wound up and running like some youngling's tov.

Man shrinks before such condescending space From manhood to the stature of a boy.

DEATH VALLEY

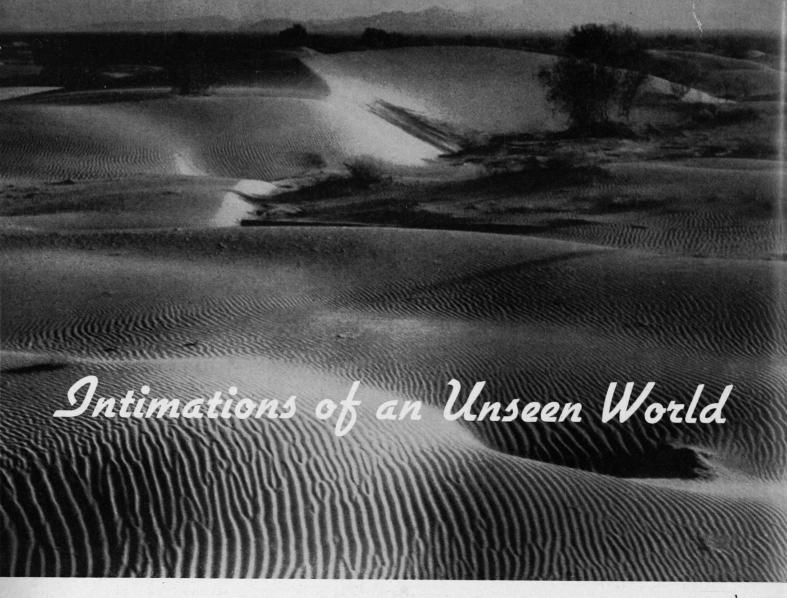
By IRENE BRUCE Reno, Nevada

The wind wants no flowers growing Where he and the wind go blowing Over stern sands.

No dew dares to enter the ground Where day without any sound Stretches hot hands.

The sun's acres must be kept clean Where he stares with his sterile mien Down at the lands.

No trespassing allowed, not a cloud! Only ghosts of men are allowed, No building stands. Winter once wandered the region, But sun took over his legion, Stealing his brands. Now all of the seasons are bare, And only wind has a share; Death, his demands.



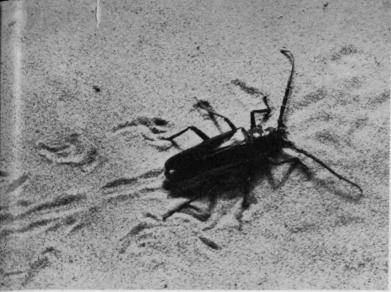
TEXT and PHOTOGRAPHS by RICHARD L. CASSELL

Much has been written of the desert's sculptured promontories, its paradox lakes, its grotesque flora, its picturesque peoples. But those who would seek the intimate must depart from the grandiose and fantastic. They will behold a world of delicate charm and poignant violence. A world of tiny creatures—myriads of them—which rarely are seen. Only intimations of that unseen world are visible, patterned precisely and unerringly in the sand.

In wonder they will gaze at the winding trails of minute prints and lace-like scrolls of countless insects, large and very small. Intermingled with them are footprints of the higher animals—the predators and those preyed upon, the pursuer and the pursued, the strong and the weak—at play and in death. Before these stippled tracings in the sandswept wastelands, we have entered the desert world of the intimate and the humble.









Now our eyes will become accustomed to seeing the beauty and drama which is evident in the records incised in every sand dune, such as that on the Yuma road 30 miles east of Calexico, California (photo 1).

That which has the greatest appeal to my fancy is the delicate tread of insect life. The artistic patterns and scrolls of micro-prints festoon the sand beneath small creosote or greasewood shrubs in a sandy area between the L. S. Watts ranch east of Calexico and the All-American canal (photos 2 and 3).

Sometime in midsummer, after dark, retrace your footsteps of a morning hike. The hot and barren sand

which was devoid of a vestige of life under the sun has become a fairy playground with the end of day. It is during the night shift that the California prionus (4) asserts himself. He bumps his noisy way in the upper reaches of creosote and mesquite. Eventually he crashes to the ground and we can observe how it is that he simulates the track of a small lizard. It is his "undercarriage" that drags the sand as he paddles along to a buzzing fresh take-off into the wind.

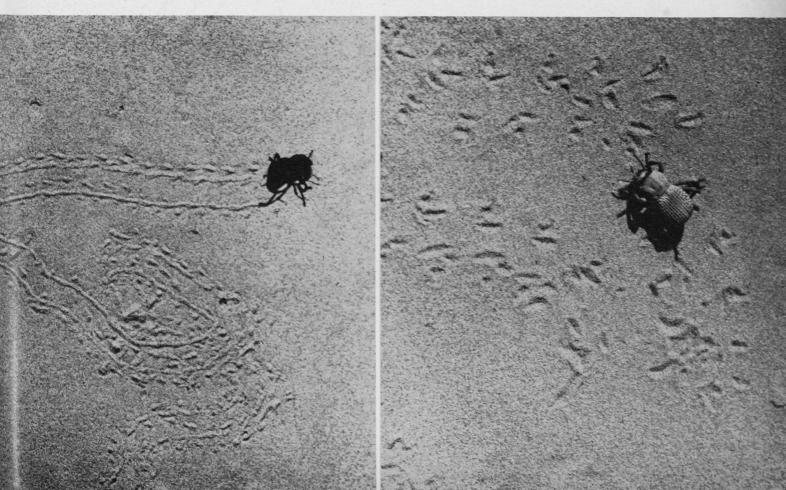
Nearby, the ciliated sand beetle (5) scuttles among "boulders" of sand granules. His stippled wanderings are among the tiniest and achieve the most delicate filigree. In his scurry-

ings he encounters myriads of flightless ground beetles (6 and 7) trundling about feeding upon small inorganic matter and organisms of a microscopic nature.

Snake tracks especially stir the imagination. Does this one (8) imply prologue or epilogue, tragedy or comedy? Is it coming or going, at home or abroad? It could be that of a rattler although it is quite narrow. More probably it was made by a Pacific gopher snake, which is common in Imperial Valley.

Gopher snakes are lured by the succulence of tender young rodents. Notice the many small tracks about the entrance—and add two and two.











10



Evidently the snake entered the hole, dined on chipmunk and remained in a contented stupor while digesting his loot. Why did I say "entered?" Because a snake track so narrow could not have been made by a snake with

a full tummy.

Mother Nature protects many of her "little fellows" with the art of camouflage. The desert chipmunk (10) is typical of those who must run away for life. Such a tender morsel soon would be among the vanishing if it were not for his sun-bleached, washed-out, protective coloration. Try to imagine his vividly striped, red-head-

11





ly he is quite a delicate gremlin except for his head, which is the only part that ever shows above the sand during his entire larval existence. Rest of his body always is underground, even when "walking" which is backwards (9)! Place the antlion on top of the sand and he immediately crash-dives.

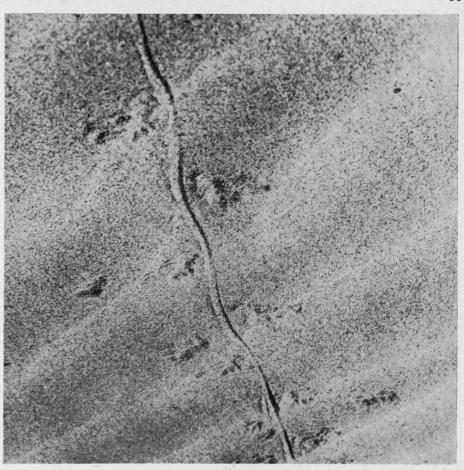
Like the orb spiders, the ant-lion also builds a trap in which to capture prey, but in the form of a funnelshaped excavation about an inch across and an inch in depth in sand or loose earth at the apex of which he waits without a move, sometimes for days at a time with only his huge wide spread jaws visible. The sand trap is made by the larva traveling backwards in ever decreasing spirals flipping out earth with its head.

Let a sow-bug, ant or any other creeping or crawling creature small enough slide into the trap—and clash go the great jaws! If the prey is too large and breaks away and attempts to crawl up the sides of the crater, the powerful head commences to flick dirt upon the victim, causing it to tumble to the center where again the jaws come into play. When the prey at last is subdued, it is sucked dry of body fluids, then flipped with great violence from the pit. The carcass some-

ed counterpart of the mountains transplanted to the arid sand-grey tones of the Colorado desert, and you will agree that neither sunstroke nor old age would be his fate as a Swainson's hawk careened among the mesquite and creosote! Proof of his many enemies may be seen in the footprints about his doorstep. The desert fox, coyote, badger and other predators, besides the birds of prey, always are unwelcome guests of the desert chipmunk.

Special mention is deserved by one desert insect whose species has been known for more than 200 years without having acquired a name in its adult stage. The only name today that serves as identification is the adult ant-lion. He is a long bodied. long winged insect resembling the damselfly, variegated grey in color. His disposition is amiable enough. He apparently does nothing worse than beat his head against electric light bulbs at night.

But this is the Jekyll and Hyde of the insect kingdom both physically and 'spiritually." For in its immature stage (11) it perhaps is the most ferocious larva in the world. Physical-



times lands a foot or more from the place of execution.

This may go on for several months, depending upon the abundance of food. The ant-lion then submerges, spins a sand studded cocoon that resembles a granular grey pill and remains for the next several weeks while the strange metamorphosis takes place. How a grey-winged insect about two and a half inches long can come from a chubby little larva one-sixth that size is indeed a magician's trick. He seems literally to unravel when the time comes for the "blessed event."

Perhaps the eeriest spectacle of this miniature world is the "flight" of the vinegaroon. He is a wingless creature but unbelievably agile. He appears to be a dancing, swirling tuft of brownish vegetation fluff being blown about by the wind until he comes to a sudden halt—and you look closely! What you see is one of the ugliest of Nature's creatures. And while you look you probably will see and hear four powerful grinding jaws as he cracks and devours very small hard shelled beetles. His disposition is as nasty as his appearance. Now and then two will meet and a momentary battle ensue (12).

The vinegaroon is known by many names—solpugid, sun spider, wind



16



scorpion, kill deer, flanga, hunting spider, and to the Mexicans as gluvia and genisaro. Ugly as he is, his bite is entirely mechanical and harmless.

Then inevitably there always will be seen the tracks of the rabbit, both jack and cottontail, large and very small. These are characterized by a triad pattern. Whether he is sitting down, walking (13) or running, a kind of three-cornered pattern results. Here his tracks cross those of a centipede.

Proceeding farther along, we come to a combination foot and tail print (14). There are two desert animals which could make a track like that—the prionus beetle (see 4) and the lizard. It must have been the latter, for the trail of the prionus measures about one inch across while this track is a good three inches.

There are several lizards in this particular locale east of Calexico—the chuckawalla, leopard lizard, crested lizard, desert whiptail, gridiron-tailed lizard and the ocellated sand lizard—and all of them to my knowledge raise their tails high in the air when in a hurry. This fellow evidently was taking it easy with a stomach full of insects, and going no place in par-

JULY, 1944

ticular. Thus we deduce that here a lazy lizard dragged his tail.

Innumerable insects and spiders, snakes and lizards people the nocturnal unseen world of the desert. But the first sign of dawn gives intimations only of a fast moving episode. It is then the roadrunner or paisano (15) will run along the trails looking for breakfast lizards. He quickly places a bush between himself and you, and probably all you will see from then on are the footprints of his measured stride (16).

You will not confuse the paisano's tracks with those of the Gambel quail (17). His usually are found where there is plenty of cover to hide his shyness. They are small short steps, with heel-and-toe pattern.

Here in a cool dark corner beneath a dead mesquite the strippled sand marks the lair of a mouse (18).

If you are keen eyed and lucky you may see a lone coyote or possibly a



number of little desert foxes still out of chipmunks before the heat of day of their holes prowling about in quest makes them retire.



THE DESERT MAGAZINE

LETTERS.



DM Thank-you Note . .

New York City

Dear Friends:

When Mr. and Mrs. Ira C. Hamilton received notice of our Desert gift subscription to them these drawings arrived without other comment. First view shows Desert turning up unexpectedly in the Hamilton's mail. I just love the last picture—Mrs. H. hugging the radiator, Desert in her hand, while a lovely vision blots out the New York City view of apartment building across the street.

Desert is more precious than ever here, where in a sense the city comes more nearly within the popular conception of the "forbidding, repellent desert." Only complaint I have is, there isn't enough of DM! I always want more.

ERNEST H. LYONS, JR.

"First Fan Letter" . . .

Los Angeles, Calitornia

Gentlemen:

In my forty-some years this will be the first fan letter I have ever written.

I subscribe to many magazines, including several mineral magazines. I consider Desert Magazine one of the very finest and I am grateful for the growing excellent mineral sections. I enjoy your fine articles on events and localities and hope that someday it will grow to take in the mountains as well as desert.

I enjoy, too, Mr. Henderson's remarks from abroad and wish for him and the many others we are missing an early return, and for your magazine continued success.

W. HARVEY NEIL



DM Will Be a Legacy . . .

Manhattan Beach, California

Dear Desert Magazine:

Received my May issue today and as usual it is beautiful. The cover is gorgeous. You have the finest publication anywhere. I am a great lover of the desert and am very proud of my complete file. It is a joy to myself and friends, and I hope to pass it on to my descendants.

C. B. LEFFLER

Cactus Whitewash . . .

Jacumba, California

Dear Desert:

We especially enjoy your bird features. Richard Osmond in March issue is very much mistaken about our "limited association" "with roadrunners. We have seen many many of them and like them. Each creature has its own method of gaining a living though it may not coincide with ours. When we lived on our ranch west of Brawley, Mr. Stanley was walking along a lane between big eucalyptus trees when a roadrunner came to him, ran back, then came close again, repeating the performance. He followed, and found a big gopher snake up in a tree in the bird's nest with the mother roadrunner in its coils—she was dead but still warm.

I read Marshal South's article on white-wash. Here is a formula by Chas. S. Knowlton of Fullerton, California, in the Pacific Rural Press: Gather fresh cut prickly pear cactus leaves, put in wooden barrel and mash with shovel or other implement, cover with water, and stir occasionally. Next day, after lime has been slaked, thin it with cactus water. There are many cases in which this whitewash has been good 100 years later. Cactus water also is used in the mud for making and laying adobe bricks.

MRS. FRANK STANLEY

No More "Football Playing" . . .

Trona, California

Dear Editor:

I am tired of imitating a football player, trying to get a copy of Desert each month, so I'm doing the smart thing I should have done long ago, to-wit—sending in my subscription. Now I can tuck my copy of Desert under my arm as it arrives each month and go down the street with a self-satisfied smirk on my face.

What's Desert got that no other magazine has? I don't know, but it's something that makes people hoard the darn thing as if it were gold. I have always prided myself on being a more or less generous person, but this magazine of yours is doing something to me. I find myself actually hiding my copies. Only a select few ever get to see them.

I'm a newcomer to the Mojave—I'm still deathly afraid of rattlers and all the "bugs." But I'm already getting the "desert squint" because I like the glaring sunshine. I'm even becoming a rockhound. I came originally from the shade-lined towns of the southeast but I'd die if I had to live in them again.

I know the desert is cruel and hard but I prefer a shack on the Mojave to more comfortable quarters in the East. I know it can give health and many other things to those who are willing to search.

NYLA SCOTT DE MARCUS

Oldtimer Discovers DM . .

San Jacinto, California

Gentlemen:

Please enter me as a subscriber. I happened to pick up a copy of your magazine in the library and the first article I saw was of W. A. Chalfant, for whom I worked 14 years. Was with him when he published his books, "The Story of Inyo," "Death Valley: The Facts," and "Outposts of Civilization." Next I saw a picture of Chris Wicht, the first man with whom I put in a shift in the mines. Chris used to kid me about my tenderfoot days. I entered the mines wearing a derby hat, a heavy sweater and other heavy clothing. At the first level I straightened up and my hat was crownless. At the second level I shed my sweater, and at the bottom I was down to skin.

Next article I saw was about Ballarat, where I was a postoffice clerk in 1904. Left that to take a jerk line team to haul freight to the Keane Wonder mine across Death Valley from the nearest railroad at Johannesburg. Then went to work building a road into South Park to haul in a stamp mill and supplies. The remnants of old wagons which the article mentioned no doubt were from the very wagons we abandoned there, for to my knowledge there was no other wagon into South Park.

I was very familiar with Bill Heider, Fred Gray, Scotty, Slim, Shorty Harris, Thurman and many other old timers. Clifford Burton of the Tropico mining and milling company at Rosamond, and I discovered the Ballarat Wonder, near Ballarat, and sold to "January Jones" in May, 1906. I'm just mentioning these few experiences to show you why Desert Magazine is so interesting to me.

M. M. SANFORD

Who Knows Child of the Earth? .

Tulsa, Oklahoma

Dear Editor:

Perhaps some reader can supply authentic information about a small denizen of the deserts and mesas of the Southwest, which the Mexicans call Niño de la Tierra, or Child of the Earth. During four years of roaming around New Mexico and Arizona I was never fortunate enough to see one. But I have talked with several who claim to have seen it. They describe it as a doll-like animal, about three or four inches in length, walking on all fours, with head and face like that of an infant. They claim it will not attack you unless molested and that its bite is more deadly than a rattlesnake's.

I'd surely appreciate any information on this little animal, with accurate description, drawings or photos.

ALBERT LLOYD

Gem State Promises Postwar Show .

Nampa, Idaho

Dear Desert Magazine:

Idaho and eastern Oregon rockhounds just now are too busy helping to win the war to do much rock hunting and cutting and polishing, but with the help of your fine magazine and a few meetings to gloat over with our fellow "hounds" we are going to be ready to carry on with the old enthusiasm in the postwar period.

We think we have some of the best rock hunting ground that lies outdoors, and if you are like the Gentleman from Missouri, plan to attend the Northwest Federation rock show in Boise, Idaho, just as soon as we finish a certain "polishing off" job across the big ponds.

We want to commend the editor, or editoress, on the global scope of the articles during the past year. Not many magazines that size can boast a "war correspondent" in Africa and the South Pacific, such as we have in the Hendersons, nor the variety of material offered from month to month.

RICHARD E. HANSON

TRUE OR FALSE . . .

If you cannot answer half of these within a few minutes, just review the past few issues of Desert Magazine. In that way you will discover how observing a Desert Rat should be while reading his Desert Magazine. The other answers will have been discovered by the Sand Dune Sages either by experience or in reading of earlier issues of DM or in supplementary reading of good desert books on history, mineralogy or nature lore. Answers on page 34.

- 1-Rock collectors know that all crystals belong to one of six classes, or systems. True...... False.......
- 2—Butcher birds impale their prey on thorns and barbed wire fences because their feet are too weak to hold it, as do hawks and owls, while tearing it apart.

 True....... False........
- 3-First ferry across Colorado river near present site of Yuma, Arizona, was operated by Louis J. F. Jaeger. True....... False........
- 4-Apache and Yavapai Indians never intermarried. True....... False.......
- 5-Silicosis may be contracted by a gem cutter breathing silica dust from sanders. True....... False........
- 6-Parrot feathers have been found in prehistoric cliff dwellings but the bird is extinct in Arizona today. True....... False........

- 10-As result of army units stationed in the desert until recently, many new gem and scenic areas will be opened to postwar travelers. True....... False........
- 11-Joshua trees were not known on the desert in prehistoric times. True....... False........
- 12-If you were in a Sahara desert oasis in July and wanted some dates to send back home, you probably would "buy" a tree. True....... False........
- 13-The tepary is a small mammal. True...... False......
- 14-The name Arizona is derived from Papago Indian word Arizonak, young or small spring. True......... False.......
- 15-Authorities agree that the roadrunner is more destructive than beneficial. True...... False.......
- 16-Fluorite is the only mineral which fluoresces.

 True...... False.......
- 17—"Forgotten Frontiers" by Dr. A. B. Thomas deals with the military campaigns of Juan Bautista de Anza.

 True......... False..........
- 18-Only manuscript copy of Father Silvestre Velez de Escalante's Journal, in which he described much of the Southwest for the first time, is in the Newberry Library, Chicago. True........ False........
- 19-Live specimens of ancient Trilobites may be found near fossil fields in Utah today. True...... False.......
- 20—Quartz looks white because the light rays striking it are reflected and not absorbed. True...... False......

HHE AND HEHE ... on the Desert

ARIZONA

British Diplomacy, Western Style . . .

PRESCOTT — When Lord Halifax, British ambassador to United States, arrived at this "cowboy capital of the world" on his recent Southwest tour he was wearing a 10-gallon hat. Cowboy headgear had replaced fashionable Homburg when he called on state and city officials in Phoenix. He left here for a picnic on rim of Grand

Penicillin for Plant Cancer . . .

TUCSON—Success in use of penicillin in killing of parasite of plant cancer has been announced by Dr. J. G. Brown, plant pathologist at University of Arizona. Penicillin injected by hypodermic needle into affected plants will have its greatest value in nurseries where early discoveries of infection can be more easily made and treated. It is especially effective in cancer or crown gall of such fruit trees as the peach, grape and raspberry vines, tomato and potato plants, sugar beets.

Barrel Cactus Saves Flier . .

YUMA—After four days and nights of wandering in desert east of here, Lt. Edward W. Zaleski, El Centro marine air base, was rescued after efforts of searchers on foot, in jeeps with two-way radio connections with planes flying overhead. While on cross-country flight his plane caught fire, he baled out. Planes accompanying him dropped note to spread his parachute as marker and stay with it. He walked towards his fallen burning plane to save fire for night signals, but lost his way back to parachute. In his wanderings, search party discovered he had climbed peak to get bearings, had scratched his initials in huge letters which were seen by planes, left note he was headed west but tracks showed he went south. They found on third day that after experimenting with various cacti, he had broken small barrel cactus with stones for its juicy pulp which he drank and used to bathe his feet. At other places he had dug out sand to cool his feet below the burning surface. Once digging for water, searchers estimated he had thrown out hundreds of pounds of sand. Finally a plane spotted him waving a cardboard target used by desert troops. His tongue was swollen, he had lost much weight but he could talk coherently. It was estimated he had walked about 145 miles in the four days.

George Dunn, 82, who saw Geronimo and his braves surrender to General Miles, died April 20 in Bisbee.

Motorists Cited in Delinquencies . .

PHOENIX - Careless motorists who leave keys in the ignition switch here may be charged with a misdemeanor, with maximum penalty of six months in jail and \$300 fine, according to Police Chief James Duane and Superior Judge Harold R. Scoville. Decision was first step in juvenile delinquency prevention project. The two men agreed that well-intentioned but careless motorists were indirectly responsible for many youths stealing cars for "joyriding." Fourteen boys cited during first three months of year took only cars with keys.

More Breakfast Juice on Trees . . .

PHOENIX-At the end of May 1,300,-000 boxes of desert grapefruit remained to be harvested. About 1,063,000 boxes of this number were in the Salt River valley, 100,000 in Imperial Valley and 137,000 in Coachella Valley.

Prominent Pioneer Dies . . .

PRESCOTT-A. A. (Tony) Johns, 79, pioneer civic, political and business leader died here May 24. He had been president state senate and speaker of state legislature, president Arizona wool growers, chairman Arizona highway commission, member board of regents University of Arizona. He came to Arizona 62 years ago. His wife, Cora E. Weaver, who died several years ago, was Prescott's "first white child."

Champion pine log—five feet three inches at base and tapering only 10 inches—was brought from Sunset Crater country to Saginaw and Manistee lumber company mill in Flagstaff. According to tree rings it was 291 years old, had reached growth usually attained by tree 500 years

CALIFORNIA

Death Takes Mark Rose . . .

HOLTVILLE—Death came May 17 to Mark Rose, one of Imperial Valley's most colorful political leaders. A veteran of struggles for valley's progress since 1901, when he first filed on land here, dug ditches and canals on it, he is called the "father" of All-American canal and Boulder dam. Rose Levee and Rositas Dam were named after him. He helped organize Laguna Water company, he proposed All-American canal as means of developing Eastside Mesa, he was for many years an important figure in Imperial irrigation district. Local committee headed by K. K. Sharp is planning memorial statue of Rose to be placed in city park.

"Barbara Worth" Creator Dies . . .

EL CENTRO—Harold Bell Wright, whose historical romance "Winning of Barbara Worth" has become a trademark of Imperial Valley, died of bronchial pneumonia May 24 at Scripps Memorial hospital, La Jolla, aged 72. For 20 years his books, such as "That Printer of Udell's," "Calling of Dan Matthews," "Eyes of the World," "God and the Groceryman," "Shepherd of the Hills," eight of which have become motion pictures, "kept the critics writhing and the masses happy." At his ranch home east of here he wrote three of his most popular novels. He later built an Indian style home near Tucson, Arizona, but inquisitive visitors caused him to retire to a ranch in San Diego's backcountry near Escondido, where he lived the last seven years. His final book, "The Man Who Went Away," was published last October.

They'll Drink Salton Sea Water . . .

INDIO-Experiments with water purification method now being used in New Guinea for troops were started at Date Palm beach in May to purify water of Salton Sea for drinking purposes. Cleaver-Brooks company of Milwaukee is conducting experiments. They expect their invention to make not only salt water but stagnant and sewage water drinkable.

Panamint Prospector Dead . . .

PANAMINT CITY—Carl Mengel, beloved one-legged prospector of the Panamint mountains, died April 28 in San Bernardino, where he was born in 1868. He had prospected in Mother Lode country, at Goldfield, Tonopah and Randsburg. He was a friend of Hungry Bill, famous Panamint Indian. He organized Butte Valley mining company which produced lead and gold until 1940. Many rockhounds had enjoyed hospitality at his Butte Valley rock cabin.

A WESTERN THRILL

"Courage," a remarkable oil painting 20x60 feet, the Covered Wagon Train crossing the desert in '68. Over a year in painting. On display (free) at Knott's Berry Place where the Boysenberry was introduced to the world and famous for fried chicken dinners with luscious Boysenberry pie.

You'll want (1) A 4-color picture of this rou if want (1) A 4-color picture of this huge painting suitable for framing. (2) A 36-page handsomely illustrated souvenir, pictures and original drawings, of Ghost Town Village and story of this roadside stand which grew to a \$600,000 annual business. (3) One years' subscription (6 numbers) to our illustrated bi-monthly magazine of the West. True tales of the days of gold, achievements of westerness today and course achievements of westerners today and courageous thoughts for days to come. Mention this paper and enclose one dollar for all three and get authentic western facts. Postpaid.
GHOST TOWN NEWS,
BUENA PARK, CALIF.

New Road for Mojave Miners . . .

TWENTYNINE PALMS — For construction of 29-mile federal access road from Amboy to Dale Lake, east of here, some \$13,000 has been allocated by public roads administration. Project will benefit Desert chemical company and other mining operators. Road will afford this town direct route to U.S. 66.

Visions for Borrego . . .

BORREGO—After inspection tour of this 20,000-acre desert area, supervisors of San Diego county, where much of this land lies, were enthusiastic over future agricultural and resort prospects of Borrego Valley. They believe there is good potential water supply which could be pumped for irrigation. Said Supervisor Walter Bellon, "Borrego desert is an early crop region which produces the finest dates in the world. It is the only place in the world where there is no root rot. Its grapes and tomatoes are unsurpassed." Deputy County Agricultural Commissioner Silas Osborn said they found three or four live streams they had never seen before, emptying into Coyote creek. They "discovered" many canyons unknown except to cattlemen and prospectors, saw numerous groups of native palms which signified water.

Desert Pilot Killed in Action . . .

PALM SPRINGS—Lt. Owen Coffman, son of Earl Coffman and grandson of Mrs. Nellie Coffman, founder of Desert Inn, was killed in action over Europe April 21. He was born in Palm Springs in 1920, attended local schools, was Stanford university graduate. He had received his commission at Yuma, Arizona, army air base, was flying fortress pilot. American Legion has named local post in his honor.

Some to be Cool—Others Hot . . .

EL CENTRO—Special modified war production board order makes desert coolers available to agricultural and war workers. Applicants must order coolers on triplicate WPB form No. 1319. Approved applications will be filled as long as available coolers last

NEVADA

Forest Fires Decreased . . .

CARSON CITY—Nevada forest and range fire losses were cut nearly 500,000 acres last year by prevention work, according to Forest Supervisor Fred H. Kennedy. Large numbers of volunteer workers assisting state and federal agencies were given credit for decrease.

The Desert Trading Post

Classified advertising in this section costs five cents a word, \$1.00 minimum per issue— Actually about 1½ cents per thousand readers.

MISCELLANEOUS

For \$5.00 a complete lapidary equipment, including mud saw, diamond saw, lap, grinding, sanding and polishing wheels, some supplies, 1000 to 2000 lbs. California cutting rocks. E. E. Robb, 1251 East 74th St., Los Angeles 1, Calif.

Large stock of petrified palm. Twenty tons of rock specimens. Navajo rugs, reservation hand hammered silver and baskets from many tribes. Many other handmade artifacts. Daniels Indian Trading Post, 401 West Foothill Blvd., Fontana, Calif.

FOR SALE-Indian relics, 23 assortments from which to choose, \$1.00 per assortment or \$20 for all 23. All perfect specimens. Choose from these: 10 beautiful prehistoric Indian arrowheads; 10 tiny bird arrowheads; 10 arrowheads from 10 different states; 2 stone tomahawks; 4 spearheads; 5 stone net sinkers; 10 fish scalers; 2 hoes; 4 agate bird arrows; 5 flint drills; 7 flint awls; 10 beautiful round head stunning arrowheads; 4 fine sawedged arrowheads; 4 fine flying bird arrowheads; 4 fine drill pointed arrowheads; 4 fine queer shaped arrowheads; 4 rare double notched above a barbed base arrowheads; 5 double notched above a stemmed base arrowheads; 12 small knife blades of flint; 1 rare shaped ceremonial flint; 3 flint chisels; 7 crystals from graves; 10 arrowheads of 10 different materials including petrified wood. Locations given. 100 arrowheads \$3.00. 100 very fine mixed arrowheads all perfect showy colors including many rare shapes such as drill pointed, double notched, saw edged, queer shapes, etc., location and name given, \$25.00. List free. Lears, Glenwood, Ark. NATURE, the vital Science, is the only living way out of confusion and chaos. Address—BASIC-RESEARCH LABORATORIES SYSTEM, 785 Lafayette Street, Denver 3, Colo.

LIVESTOCK

KARAKULS producers of Persian Lamb fur are easy to raise and adapted to the desert which is their native home. For further information write Addis Kelley, 4637 E. 52 Place, Maywood, California.

"Karakul Fur Sheep — America's Great Livestock Opportunity—You can be a part of this fascinating business and have your Karakuls cared for by experienced rancher. Write for details, James Yoakam, National Distributor, 1128 No. Hill Ave., Pasadena, California."

REAL ESTATE

House and 40 acres improved farmland on paved road in Arizona, between Yuma and San Luis, Mexico. In cantaloupes this season, \$8,000. Address: Owner, 1708 California St., Berkeley 3, Calif.

FOR SALE—Comfortably furnished mountain cabin in south central Nevada on good county road, kitchen-dining-living room, bedroom, two screened porches, spring house, fine water, two-car shelter, 7200-ft. elevation, dry climate, restful, privacy, scenic. Address J. E. Dix, 1214 Spruce St., South Pasadena, Calif.

For Imperial Valley Farms-

W. E. HANCOCK
"The Farm Land Man"
Since 1914

EL CENTRO — — — CALIFORNIA

Family Marooned on Desert Island . .

LAS VEGAS—Marooned for two days on storm-swept Black island in the middle of Lake Mead, Mr. and Mrs. Earl Evans and two tiny children returned safely after searchers in army planes and park service boats failed to find them. Starting out from Vegas Wash in 16-foot outboard motor-boat for a day's fishing, they were caught by storm, took refuge on island, where they had to spend two nights and next day with but a single blanket, two cushions and a life preserver for warmth. After rations of one fig bar each, they spent chilly cramped night. Storm still raging next morning, they gathered some of the sparse vegetation to build a small fire. They had caught five bass but had no cooking utensils. Evans pried lid off his metal tackle box, burned off paint and used it to fry fish for his hungry family. They heard searching boats and saw the planes but were unable to attract their attention. They could not find enough wood to build a signal fire. At 5 a. m. the third day they were able to navigate lake waters. Evans is cashier for Basic Magnesium, Inc.

Nevada Beavers Disappearing . . .

CARSON CITY—Disease and poachers have reduced the beaver population on Colorado river below Boulder dam 75 per cent since 1942, according to Mrs. Esther Herman, secretary fish and game commission. The disease, which is taking heavy toll of the younger beaver, is of an undetermined nature. Poachers, who thus far have escaped detection, are warned that illegal trapping is both a state and federal offense. Purchase of such pelts also is state and federal offense. Pelts are worth \$28 to \$36 each.

NEW MEXICO

Did He-Or Didn't He? . .

SAN JUAN PUEBLO—Cpl. Antonio D. Maestas, serving with army in Italy, reported with bad cold to doctor. German shell burst in nearby building, knocking down both corporal and examining doctor. Getting to his feet, patient found cold had vanished. "Guess the concussion killed the germs. I feel fine now." Then he remembered he had had a thermometer in his mouth—they couldn't find it anywhere. He doesn't think he actually . . . well, er . . . no, he's sure he didn't—but every time he gets a twinge in his innards he wonders . . .

Lincoln County Museum Plans . . .

ALAMOGORDO—Mementoes of Lincoln county cattle war and Billy the Kid, its most noted participant, will be preserved in restoration of old Blazer mill at Mescalero, scene of one of the feud's first battles. Mill will be converted into a historic museum as joint undertaking of Alamogordo chamber of commerce, Southwestern association of chambers of commerce, New Mexico museum and Indian Service.

John Evans New Pueblo Chief . . .

ALBUQUERQUE — John Evans has been appointed by Secretary of Interior Ickes as superintendent United Pueblos agency to succeed Dr. Sophie Aberle, recently resigned. Evans, son of author Mabel Dodge Luhan of Taos, formerly was Indian arts and crafts dealer in Santa Fe, onetime investment banker. He entered government service in 1942 as assistant project director of Colorado River war relocation center at Poston, Arizona, and lately served as acting chief of Alaska branch division of territories and island possessions. He was European correspondent for Newsweek magazine in 1941, is author of two novels, "Andrew's Harvest" and "Shadows Flying."

Desert Methods to Help China . . .

ALBUQUERQUE — Scientific studies of farming and ranching practices made in Southwest by department of agriculture will aid in planning recovery of China's drouth areas, according to Dr. Lien-Chieh Li, soils scientist with Chinese national geological survey, who has been inspecting experimental areas in Southwest. Both irrigated farms and dry-farming areas received special attention.

Census Taker Has Troubles . . .

ALBUQUERQUE—Indian service officials estimate New Mexico's Indian population is just about 50 per cent accurate in reporting births and deaths among their tribes. Investigation shows that of 1431 births last year, just 722 were registered. One pressing need for registration is in establishing proofs of dependency in servicemen's benefit allotment claims. One inducement to remedy situation is offer of attractive "diplomas" to registering mothers.

TEXAS

Miners to be Invited . . .

EL PASO—Plans are progressing for International mining day to be held here early next fall. A directory of mining men of New Mexico, Arizona, Colorado, Texas and Mexico is being compiled. Mining men of Southwest will be invited to study pending mining legislation.

Who's Who in Sunshine? . . .

EL PASO-Published statement that Arizona and New Mexico hold top honors in amount of sunshine was disputed by Chris P. Fox, manager local chamber of commerce. He asserts Texas area around El Paso has more sunshine than New Mexico and his organization "is preparing a booklet to say so." Statement in question was made in article by Cleve Hallenbeck, former Roswell meteorologist, in May issue of New Mexico magazine. It stated that New Mexico ranks first in winter sunshine and Arizona first in summer sunshine. Fox objected that the article considered the entire state of Texas, including the cloudy and foggy coastal zone.

UTAH

Look at Him on Nickel . . .

SALT LAKE CITY—Although buffalo in state-owned herd on Antelope island in Great Salt Lake are making a comeback, Utahns still will have to look at them on nickels only. Too much carelessness has been shown by visitors to the island, causing death to young animals in some cases. Buffalo first were identified on the island in 1845 by Osborne Russell, trapper, when "herds passed from mainland to island without swimming." Four hundred head grazed on the island's 175 acres, accompanied by the tiny antelope until the latter disappeared about 1870. The buffalo came close to extinction, but with the recent increase and the greater protection now given them, will probably more than hold their own.

Weatherman Gets Light Beam . . .

SALT LAKE CITY—This is one of the 26 cities in which U. S. weather bureau is installing electronic ceilometers, which will outmode measure of weather ceilings by balloons. Ceilometer sends out a modulated beam of light which diffuses at base of cloud; a scanning device then measures the distance of the cloud from earth by computing of angles.

Utah Color via Hollywood . . .

KANAB—Coral-pink sand dunes near here will be setting for Universal's technicolor picture "Queen of the Nile" starring Maria Montez and Jon Hall. Rebuilt set of "Buffalo Bill" in this area will be used for "Sioux City." Universal is scheduled to film the technicolor picture "Can't Help Singing" near here in August, starring Deanna Durbin and Gene Kelly. Locations east of Cedar City will be used for RKO-Radio's "Tall in the Saddle," starring John Wayne. Alta will be setting for Selznick International's "House of Dr. Edwards" starring Joseph Cotten and either Joan Fontaine or Ingrid Bergman.

Government Land Purchases . . .

SALT LAKE CITY—Since 1940 the government has paid \$2,046,000 for about 64,105 acres through local U. S. district court. This does not include original sites of major military installations such as Wendover, Kearns and Hill Field, which were paid for directly out of Washington, D. C. Largest acreage handled was 16,497 acres in Millard county for Japanese war relocation center at Topaz.

DESERT SUBSCRIBERS

We wish we could mail all your monthly copies of Desert Magazine in individual envelopes or wrappers. Due to paper shortage this is impossible. Special care is taken that your copies leave our office in good condition, properly addressed, in the hope that they will reach you in the same condition. As soon as more paper is available they again will be mailed in individual wrappers.

Final plans are being made for heroic Utah monument, "This Is The Place," commemorating discovery, exploration, settlement of intermountain West. Sculptor is Mahonri M. Young, Utah-born sculptor, grandson of Brigham Young.

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Complete Your DESERT Files . .



 We have bought enough back issues that we again can supply our new readers with a few complete volumes, with the exception of November, 1937. Most of these are used copies but are complete.

LIMITED OFFER ONLY Prices Subject to Change Without Notice

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Vols. 1-6	6 (Except Nov. '37)	\$32.00

If you need back issues to complete your files, write for a list of single copies now available.

And we're still paying \$3.00 for the November, 1937, issue . . .



636 State St.

El Centro, California

Mines and Mining..

Washington, D. C. . . .

House mines and mining committee has just established four standing subcommittees to consider specialized phases of the mining field. Coal committee members-Representative Randolph (D. W. Va.), chairman; Kelley (D. Penn.), Murdock (D. Ariz.), Bishop (R. Ill.), Landis (R. Ind.). Nonferrous minerals and metals— Representative Murdock, chairman; Engle (D. Calif.), White (D. Ida.), Rockwell (R. Colo.), Ellsworth (R. Ore.). Precious minerals and metals—Representative Engle, chairman; Murdock, White, Rockwell and Ellsworth. Phosphate, potash and nonmetallics — Representative Peterson (D. Fla.), chairman; White, Fernandez (D. N. M.), Bradley (R. Mich.), Brehm (R. Ohio).

Geneva, Utah . . .

Over 600 women are being trained at Geneva Steel company here to replace men, from office jobs to operation of cranes and conveyors. It takes approximately 4500 workers to operate the Geneva plant at full production. At present operation is proceeding with less than half that number.

Bishop, California . .

Red Cross here is seeking whereabouts of Ole Anderson, formerly with Vanadium corporation mine. He had sent a worried message to his nephew in Norway on October 9, 1942. A reply has just been received here for him through International Red Cross, Geneva, Switzerland, from Nels Visdahl, Vaage, Gudbrandsdalen province, Norway. Anyone knowing Anderson's present address should communicate with Mrs. Mary Holman, director Red Cross home service department, Bishop.

San Francisco, California . . .

State mining board, recently appointed by Governor Earl Warren, is composed of Philip R. Bradley, Jr., Pacific mining company, Jamestown; F. C. Van Deinse, San Francisco, president Gold Producers of California and general manager Yuba Consolidated gold fields; William C. Browning, Los Angeles, manager Golden Queen mining company, Mojave; William Wallace Mein, Jr., San Francisco, Calaveras cement company, San Andreas; and George W. Hallock, Grass Valley, president California hydraulic mining association.

Los Angeles, California . . .

To aid prospectors and miners to find a market for their minerals and to aid development of natural resources, mining committee of Los Angeles chamber of commerce has just published "Industrial Minerals—Non-Metallics." It is a 42-page companion book to previously published "War Minerals-Metals." From Alunite to Zircon, data includes physical and chemical properties, sources of domestic and foreign production, consumption and utilization, marketing, prices, present producers, possible buyers. There is a list of names and addresses of industrial mineral milling plants and chemical manufacturers in the Los Angeles area.

San Diego, California . .

To investigate and publicize newly discovered mineral deposits in San Diego county, county bureau of mines has requested supervisorial appropriation of \$3990 for fiscal year 1944-45.

San Francisco, California . .

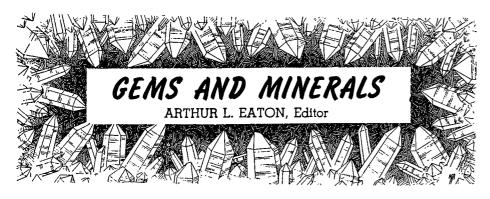
A new edition of "American Mining Law" has been published recently by California Division of Mines, Ferry Building, as Bulletin No. 123. This is a revision of No. 98 which appeared in 1931, prepared by the late A. H. Ricketts. It is an accurate treatise on laws and court decisions relating to mines in United States.

EIGHT YEARS OF ELECTRICAL PROGRESS

- Eight years ago, on May 18, 1936, the first consumer owners were connected to Imperial Irrigation District power lines. The record of growth and expansion achieved since that date stands as an inspiring tribute to the determination and wisdom of our people to develop fully a great natural resource.
- The original small diesel generating plant with which the district launched its power program, was doubled—then trebled in size—two huge hydro plants built and placed in operation—the extensive electrical properties of the California-Electrical Power Company in the Imperial and Coachella Valleys purchased and added to the District's system—and other advancements and improvements recorded.
- The "Little Acorn," constituting a distributing system serving only a small portion of the City of Brawley, has grown to the "Mighty Oak" whose branches of transmission lines now spread over two of the most fertile agricultural valleys in the world, bringing the blessings of electricity not only to all cities and towns in the areas served but to thousands of rural homes previously denied the conveniences of electricity. Starting with a handful of customers, the District's power business has grown until now it will gross approximately two million dollars in 1944 a record that is truly phenomenal.

NO PAUSE IN WAR EFFORT—The District is contributing its quota to the war effort too—by keeping the wheels of agriculture and power turning—doing its part in the Nation's general program aimed at the inevitable overthrow of Germany and Japan, and the restoration of our American way of life.





ROCKY MOUNTAIN FEDERATION MEMBERS, REVISED, FOR 1944

Canon City Geological Club, F. C. Kessler, Secy., 1020 Macon Av., Canon City, Colo.

Colorado Springs Mineralogical Society, Helen S. Caldwell, Secy., Lenox House, Colorado Springs, Colo.

Colorado Mineral Society, Mignon S. Pearl, Secy., 818 South University, Denver, Colo.

Grand Junction Mineralogical Society, Mrs. Richard Fischer, Secy., Box 555, Grand Junction, Colo.

Kansas Mineral Society, H. K. Ward, Minneapolis, Kansas.

Lander Geological Society, L. V. Abbott, Pres., Box 66, Lander, Wyoming.

Mineralogical Society of Arizona, Dr. George G. McKhann, Secy., 909 East Willetta, Phoenix, Arizona.

Mineralogical Society of Utah, Forace Green, 161 East 2180 South Street, Salt Lake City 5, Utah.

Nebraska Mineral and Gem Club, Mrs. Ralph DaMetz, 401 West 24th Street, Kearney, Nebraska.

New Mexico Mineral Society, Fred Miles, Pres., 813 West Fourth, Roswell, New Mexico. Oklahoma Society of Earth Sciences, W. P. Bailey, 22 S. W. Jefferson, Mangum, Okla. Reno Rock and Mineral Study Club, Mrs. R. L. Thompson, Secy., Route 2, Box 230 Reno, Nevada.

Riverton Geological Society, John R. Pitts, Secy., Riverton, Wyoming.

SANTA MONICA CLUB BEGINS NEW YEAR

Santa Monica gemological society held its first meeting of the fifth year May 4 at Santa Monica junior college. Officers installed were: Vern Cadieux, president; H. O. Little, vice-president; George Hartman, second vice-president; dent; Dorris Baur, recording secretary; Mrs. Elsie Jacobs, corresponding secretary; Errol Mc-Rill, treasurer.

Prof. Osterholt concluded his series of talks on the quartz family minerals, which was illustrated by specimens brought by members. Also exhibited was a piece of "ray rock" or triboluminescent silica. Past-president Harry Stein exhibited the new spalerite from Mexico which is triboluminescent, fluorescent and phosphores-

WHAT IS BLACK OPAL?

Many dealers list as "black opal" any of the darker shades of green, blue, blackish, grey, or other dark colors. Usually coming from Australia, any of the darker shades fall under this classification. However, the Virgin river valley in Nevada has furnished much truly black opal-opal as black as the blackest jet or obsidian. This Nevada black opal sometimes is only of an intense black color, without fire. At other times it is a deep black color and in the sunshine shows deep red, blue or green fire.

UTAH CLUB PUBLISHES FIFTH ANNUAL BULLETIN

Volume five, number one, of the news bulletin of the Mineralogical Society of Utah is now at hand. On the cover is a photo of a new habit of calcite, negative rhombohedrons attached to negative scalenohedrons. The excellent article within, by Arthur L. Crawford, explains that this "find" is entirely new and unique.

Besides the almost one dozen excellent articles on history, etc., one on the variscites and phos-

phates of Utah is outstanding.

Officers of the society for the present year are: Junius J. Hayes, president, 1148 East First South, Salt Lake City; Marie P. Crane, first vicepresident; W. T. Rogers, second vice-president; Forace Green, secretary, 161 East 2180 South, Salt Lake City: Lillian M. Lockerbie, treasurer; Sears P. Roach, historian.

BELIEVE IT OR NOT RIPLEY IS WRONG

Chula Vista, California

Dear Miss Harris:

Enclosed is recent Ripley's Believe It Or Not item stating that "Fairy Stones are found only in Patrick county, Virginia." Since Desert Magazine has published two articles which would seem to refute this statement I thought the clipping might interest you.

SARA DOWNS

Holtville, California

Dear Lucile:

In reference to the "Believe It or Not" statement that perfect "fairy crosses," or staurolite crosses, are found only in Patrick county, Virginia. When anyone makes such a statement about almost any gem or mineral, he is sticking out his neck in a real big way. Such statements always are based on unfounded local belief.

Staurolite is an iron-aluminum-silica compound with water, none of these elements being at all rare. Mrs. White Mountain Smith, a na-tive of Virginia, Desert Magazine, May, 1940, states that the crosses found in New Mexico and elsewhere are exactly like those of her native Virginia. She quotes Dr. Charles N. Gould, renowned geologist of Santa Fe, New Mexico: "These pebbles with crosses . . . are plentiful in Piedmont region east of the Alleghany mountains, and extend from Maine to Georgia. They are also found in the Black canyon of the Gunnison, the Royal Gorge, near Pike's peak, and here in the Sangre de Cristo mountains.

Frank Beckwith, Desert Magazine, June, 1940, states that he found some in ancient rhyolite near Topaz mountain. Utah, southwest of Delta.

Lying here on the desk in front of me, as I write this, are several dozen perfect Roman, St. George, Maltese crosses, and single crystals of staurolite from seven or eight different states, some of them still imbedded in their native rock. 'Believe It or Not' seems to have slipped badly

ARTHUR L. EATON

Unique Nevada Specimens

From the highly mineralized State of Nevada come many fine specimens. We are offering several this month that you will not want to pass up.

1. Sulphur and Cinnabar — These specimens have the unusual combination of yellow sulphur and red cinnabar. They are from a new fine—from 1 x 1 to 6 x 8, and priced from 25c to \$5.00. A nice specimen with plenty of red will be sent to you for \$2.50.

2. Cinnabar-Nice red specimens of rich mercury ore. One of these should be in every collection.

1 x 1 to 3 x3-25c to \$2.00

3. Molybdenite in Quartz—Nice brilliant silver colored molybdenite in snowwhite quartz. These specimens would attract attention anywhere.

l x l to 6 x 8—25c to \$5.00

Cutting Material from Nevada Petrified wood from Slate Ridge, Nevada. This is beautiful vari-colored wood that will cut fine slabs of cabachons—

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COLLECTORS' ITEMS

In my excavations in prehistoric mounds, at Wickliffe, Kentucky, and other DIGS, I have accumulated thousands of duplicates which I have decided to dispose of to other collectors at very reasonable prices. Since this is not a business with me, I cannot bother with anything less than a \$5.00 order. Remit with order, and if goods are not satisfactory, money will be refunded.

The following are a few of my collectors' items. Some are definitely unique and all are guaranteed genuine:

Beautiful Kentucky Crinoid Buds-15c to 25c

Kentucky Crinoid Joints and Stems-15c to 25c

.....50c to \$1.00 each Large Buds Quality and Size Determine Price

Prehistoric Flint Arrowheads....10c to 25c Prehistoric Spear Points.......75c to \$2.00

Prehistoric Stone or Flint Celts-\$1.00 to \$2.00

Prehistoric Mound Beads. 2-ft. String, \$2.50

Prehistoric Mound Pottery.....\$4.00 to \$10

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AMONG THE

ROCK HUNTERS

Gem_collectors club, Seattle, was host to Tacoma, Bremerton and Everett rock clubs at an unusually interesting meeting May 16. Dr. Fuller of Seattle art museum gave an illustrated leature on Oriental jade from the standpoint of the lapidary. There were exhibits of excellent polished stones and cabochons. More than 90 persons attended.

Wendell H. Paulson showed kodachromes to illustrate his talk on snapshots at the Four Corners at the May 2 meeting of Mineralogical Society of Utah. The junior group enjoyed a field trip May 7 to City Creek canyon.

Los Angeles mineralogical society took a "field trip de luxe" to Arizona at Boos Brothers dinner meeting May 18, as guests of U. S. bureau of mines, whose sound film "Arizona—Its Mineral Resources and Scenic Wonders" was shown. Their mineral of the month, with displays, was copper.

Officers elected by Southwest Mineralogists, Los Angeles, for June, 1944, to June, 1945, are: Sam Boase, president; George Schwarz, vice-president; Jeane Lippitt, corresponding secretary; Alwilda Dartt, recording secretary; Florence Vercellone, treasurer.

Dr. E. C. H. Lammers, of Standard oil company, talked on geology of the Rocky mountains at May meeting of Long Beach mineralogical society. Iron minerals were displayed and the lapidarists exhibited their cut and polished

Orlin J. Bell states that a heavy percentage of lubricating oil used in the diamond saw may be reclaimed by placing the sludge in a bucket and allowing it to stand. Clear refined oil will rise to the top and the mud will settle. This process may continue for weeks.

Sequoia group has approved the board's recommendation to present a suitable gift to each nonmember speaker in appreciation of his services to the club.

A night class in mineralogy began April 24 at Fresno tech. It meets Monday and Wednesday, 7 p. m.; subject, getting acquainted with California minerals.

GEM MART

ADVERTISING RATE 5c a Word - Minimum \$1.00

- Pink Muscovite on Albite Quartz—Something new for the cabinet. Specimens, 75c to \$4.50. Jay G. Ransom, 3852 Arboleda St., Pasadena 8, Calif.
- Rare Specimens, Blue Celestite Crystals, 1 to 10 lbs. Cabinet specimens, \$2.00 per lb., de-livered. Hans Anderson, St. George, Utah.
- Rock Collectors, Attention! Summer Special-\$1.00 brings you 11 specimens and a polished cabochon! \$5.00 a genuine stone cameo. The Rockologist (Chuckawalla Slim), Garvey Trailer Park, 941 E. Garvey Blvd., Garvey 32P, Calif.
- 3 beautiful Colorado minerals, 6 prehistoric lizard scales, \$5.00, white spar, crystallized zinc and one beautiful agate specimen for cutting, size 3 x 3 to 4 x 4. Jack the Rockhound, P. O. Box 86, Carbondale, Colorado.
- Idaho-Oregon Arrowheads-Obsidian and black lava, 50c each; agate, jasper, etc., in 4 grades, 50c, 75c, \$1.00, \$1.50. Lynn Crandall, Box 697, Idaho Falls, Idaho.
- WANTED—To buy, sell and exchange specimens outstandingly rare and beautiful. Sam Parker, 2160 East Van Buren, Phoenix, Ariz.
- Agate Jewelry and Oregon Agates: One dollar with ten cents for postage brings you four sawed moss agate slabs in excess of ½ inch by 3/4 inch for making cabochons or ring sets. These are quality. E. Lee Sigfrit, 211 Congress, Bend, Oregon.
- Sample of the new California Jade, a true NEPHRITE that is hard, translucent and will take a polish. We cannot guarantee an un-fractured gem. We will include a piece of Onyx of Cameo grade equivalent to India's finest Carnelian striped. Both for \$5.00. Kenneth J. Hines, San Benito, Calif.
- Beautiful agate, flower jaspagate, picture jasper and dinosaur bone. Assorted lots of cutting material, gem quality, ten pound package \$10.00. Four pound package \$5.00. Send postage. Mrs. Richard Fischer, Box 555, Grand Junction, Colorado.
- QUARTZ CRYSTALS of the finest water clear quality to be had, single points from 10c to \$10.00 each. Groups or clusters from 50c to \$25.00 each and up. No mineral cabinet is complete without a beautiful cabinet specimen of the fine quality I have. Outstanding groups at \$5.00, \$7.50, \$10,00 and up. Finest quality Wavelite 50c per lb. Delivery charges extra. Satisfaction or your money back promptly. Liberal discounts to Dealers. J. L. Davis, 303 Ward Ave., Hot Springs, Ark.

- Minerals, Fossils, Gems, Stamps, Coins, Pistols, Glass, Bills, Indian Relics, Bead Work. Catalogue 5c. Cowboy Lemley Curio Store, Las Cruces, New Mexico.
- NDIAN RELICS, Curios, Coins, Minerals, Books, Old Buttons, Old Glass, Old West Photos, Weapons, Catalog 5c. Lemley Antique Store, Osborne, Kansas.
- INTRODUCTORY OFFER-One dollar each lot. Five all different Fluorescent Agates— polished. Thirty rough Mexican Opals. Fifty nice pieces Turquoise. Twenty different polishing specimens. Postage ten cents. Min-erals and gems on approval. DR. RALPH MUELLER, Professional Building, Kansas City, Missouri.
- Montana Moss Agates in the rough for gem cut-ting, \$1.00 per lb. plus postage. Elliott's Gem Shop, 26 Jergins Arcade, Long Beach 2, Calif.
- 50 assorted ring stones, including genuine and synthetic, \$7.50. Genuine Zircons, blue or white, 3 for \$3.75. Twelve genuine Cameos or Opals, \$2.50. B. Lowe, Box 311, St. Louis
- Tourmaline matrix, in quartz crystals, \$1.00 to \$30.00, tourmaline pencils, 50c to \$5.00, Essonite garnet-green-clusters, 50c to \$3.00, unique specimens. Sagenite agate, \$1.00 to \$4.00, specimen rough nodules. Gem list 10c. Return specimens if not satisfactory. The Desert Rats Nest, 2667 E. Colorado St., East Pasadena, Calif.
- \$2.50 brings you prepaid six rare and beautiful Crystallized Arizona minerals. Vanadinite, Dioptase, Wulfenite, Willemite, Chrysocolla, Azurite. Specimens 1½x2 or larger. Wiener Mineral Co., Box 509, Tucson, Ari-
- 100 Jewelry Stones removed from rings, etc., \$2.00. 12 articles of Antique Jewelry, rings, pins, etc., \$3.00. B. Lowe, Box 311, St. Louis 1, Missouri.
- Choice Palm Root-Full of eyes showing root and trunk structure. Very colorful. Sliced for Cabochons. 25 cents per square inch. Satisfaction guaranteed. GASKILL, 400 North Muscatel, San Gabriel, Calif.
- Swisher's rocks, minerals and petrified woods. Island corals, shells, shell costume jewelry, fine copper minerals from Bisbee, Arizona. Fine quartz crystals from Arkansas. Also fine line of Art Figurines. Swisher's, 5234 So. Broadway, Los Angeles 37, California.

TRUE OR FALSE ANSWERS

Quiz on page 28

1-True. The systems are-isometric, tetragonal, hexagonal, orthorhomic, monoclinic, triclinic.

True.

-False. First ferry was operated by Yuma Indians in 1849 who employed two Americans to handle it.

-False. One of the important Apache bands was the Yavapai-Apache.

True. Especially by one with predisposition to lung disease or history of it in the family. It is thought a simple mask is ample protection.

False. Small parrots have been reported seen in Chiricahua moun-

tains, southeast Arizona.

- True. Pentstemon is from Greek words meaning five stamens. Fifth stamen, the easy mark of identification, is imperfect, having no anther, top part usually thickened, frequently bearded.
- -False. Magnesium is about two-thirds weight of aluminum but has tensile strength of hot rolled or mild steel.
- -True. Winning of Barbara Worth."
- 10—True. Due to many new and improved desert roads built by army. Also due to heavy rains and absence of rockhounds.
- -False. Fossil remains reveal prehistoric existence of Joshua trees, even beyond present day limits.
- -True. Most of the Sahara oasis date palms are owned by a few families who "sell" a tree to poorer families during the harvest season for \$4.00 to \$6.00.
- 13—False. Small desert bean (from Papago, *pawi*) which Indians grew in southern Arizona and as far west as Colorado river.
- -True. Generally agreed name is from a spring immediately south of the border, near either Banera or the Arizona ranch some 20 miles southwest of Nogales, Sonora, Mexico.
- 15-False. Stomach analyses prove roadrunners much more beneficial than harmful.
- -False. It is known in numerous minerals but first was observed in fluorite and was accordingly named from this mineral.
- -True. 18-False. There are at least five manuscript copies. One each in Chicago, Seville, Paris, Mexico City, New York.
- -False. Trilobites are extinct and found in fossil form only. What some call "live trilobites" are Apus -False. or "fairy shrimps."

20-True.

Escondido Desert club discovered there are plenty of interesting places so close to home that even in wartime they can enjoy field trips. Twenty-one members spent Sunday, May 21, at Aliso canyon. They didn't return loaded with gem specimens but they had found many varieties of wild flowers, enough rattlesnakes to add thrills, an iron-doored old mine in which a rare type of bat lived. And they "felt guilty" that the boys overseas couldn't enjoy the wading and the coffee made over a sweet smoke fire.

Annual auction was scheduled by Los Angeles mineralogical society for its June meeting.

Searles Lake gem and mineral society continue restoration work on Indian Joe's, about seven miles out of Trona.

The two final talks in the series on geology by John W. Fox, Sr., were scheduled for May 16 and 31 at Trona unified school. Subjects were history, geologic and otherwise, of the Ophir mine in the Slate range, and general geology of Searles Lake region.

Andrew Thickstun gave an interesting address at April meeting of Sequoia mineral society on his conception of the place the mineralogist has in the world today. He donated a specimen for the club's display case. At the May meeting Dr. W. V. Evans of Reedley junior college gave a short informative talk on Mt. Lassen, using colored slides.

Skilled human blowers produce better blown fused quartz for chemical, medical and industrial apparatus than machine blowers.

Sequoia mineral society emphasized tiger eye in the May meeting display.

At April 6th meeting of Mineralogical Society of Arizona, Mr. Norviel gave the concluding demonstration in his series of talks on determinative mineralogy. These demonstrations have been very helpful to members in giving a clear insight into the "why" of methods used to find out which elements may be present in an unknown mineral. The greater part of the display consisted of selected specimens of copper minerals from the collection of the late George W. Mintz. The entire collection has been given to the society by his daughter, Mrs. Georgia Arthur of Phoenix. Many of the specimens are museum size, chosen with discretion and taste.

Searles Lake members are still able to enjoy field trips. 58 went on their annual Death Valley trip, visiting Stovepipe wells, Furnace creek, Bottle house, etc. May field trip took the group to Red Rock cañon for geodes and jasper. They went via Inyokern and returned through Randsburg.

The final formal 1944 meeting of Sequoia mineral society was held June 3 in Fresno. Dr. Calvin McKim was guest speaker. Members displayed a marvelous variety of petrified woods both rough and polished. Informal gatherings in various communities will continue through the summer months. The monthly meetings have averaged over 50 in attendance out of a membership of 106.

H. C. Tillman owns a beautiful collection of transparencies, including woods, agates, etc. He displayed some of them for Kern county mineral society.

Kern county society limits participation in voting and displaying to paid-up members.

Salvaged cartridge cases are to be used in making pennies. The metal is contaminated by lead and antimony from firing and is not suitable for re-use in ammunitions.

Cogitations .

Of a Rockhound

By LOUISE EATON

Wun drawback to seein' a gem show'r even to jus' lookin' at rox at sumboddy's house is that there's always too mutch to comprehend all at wunce. When yu wantta discuss the display afterwards yu'n th' uther fella cant remember the same speciments, xcept perhaps th' most outstandin' wuns. Unless yu takes note on everything yu're shure to miss something. Th' whole gem show, afterwards, seems sortta like a dream uv brilliant beauty that yu cant recall quite dis-

Good authority states that field trippin in many desert districts will be easier when the duration is dun than it wuz before th' war. Soljers has constructed roads here 'n there in places whitch usta be practically inaccessable. F'r instance, there's a good surfaced road in wun place where rockhouns'll be able to get to a field of palm, bamboo 'n jasper that very few folkses has ever before been able to get intu.

R. H. Milligan is librarian of Pacific mineral society. Books are in his office, room 810. Transamerica building. Los Angeles. They may be secured by calling there during office hours or by phoning to have them taken to a regular meeting for distribution.

Jack Tebo entertained East Bay mineral society May 4 with stories about obtaining minerals from Lost Bird's Nest mine, Eldorado county. R. E. Lamberson discussed one great gold strike after another at May 18 meeting, showing that the important strikes all over the world during the 19th century were linked together in a definite way.

Summer outing and field trip for members of Mineralogical Society of Utah has been set for July 1-5 at CCC barracks in Alta.

Clarence Woods, consulting mining engineer, spoke on geology and minerals of Bolivia and Peru at June 9 dinner meeting of Pacific mineral society. Los Angeles. Mr. Woods operated siver and tin mines in Bolivia from 1923 to 1929. Later in Peru he operated a gold mine which has produced \$15,000 000 during 50 years, \$3,000,000 since he has been operating it. The crews operating two of his gold mines in that area currently work 8-hour shifts in the mines and another harvesting raw materials for making quinine, under direction of his son.

Culiacan, Sinaloa, Mexico, reports that a large meteor recently blazed across the sky and fell with enough force to cause a series of explosions that shook the city like earthquakes. The meteor was so large that for several seconds it illuminated skies like daylight.

Capt. Hawkins substituted for Francis J. Sperisen at April 6 meeting of East Bay mineral society. Sperisen was delayed by car trouble en route to the meeting. Capt. Hawkins talked on precious stones.

Essential industries in 1943 used more than 71 million ounces of silver. Jewelry, arts and other uses, accounted for almost 50 million ounces more. The total reached almost 120 million ounces. Not all of this came from the government supply, as the mines of Mexico, Nevada, etc., furnished a very notable amount.

BEGINNER'S BEST BOOK

"Getting Acquainted with Minerals." by George L. English, is easily one of the outstanding mineralogy books of this period. Instead of writing a complete book for experts and advanced scientists, English has produced one for the beginner. He has dispensed with the difficult chemical basis of Dana, and grouped the minerals, instead, by their commonest element, such as copper, iron, aluminum, etc. Any beginner can get a good knowledge of elementary mineralogy from this book. 324 pages, 258 illustrations. Price \$2.50.

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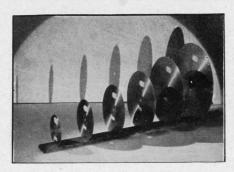
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AMATEUR GEM CUTTER

This page of Desert Magazine is for those who have, or aspire to have, their own gem cutting this department is former presi-

and polishing equipment. Lelande Quick, who conducts this department, is former president of Los Angeles Lapidary society. He will be glad to answer questions in connection with your lapidary work. Queries should be addressed to Desert Magazine, El Centro, Calif.

By LELANDE QUICK

This is being written in Texas where I am stopping for several weeks on a coast to coast business trip that will take me back to Virginia. While traveling is no picnic in these times it is not without its compensations at this time of the year for the scenes of the desert wildflowers from the train window and the new flora in Texas are beautiful to behold. And of course I'm having feverish dreams of the ten thousand spots I saw from the window where I imagined there was agate in the desert float or almost any kind of gem material.

When you're in California it is almost impossible to get into any group of people and mention gems that someone doesn't ask if you know So-and-so who cuts rocks, but here there doesn't seem to be anyone who ever heard of the word lapidary but I know they're around. These Texas people are all they are reported to bethe friendliest folk to be found anywhere. I've learned to distinguish the native from the outlander. As soon as he begins to leave the el out of the word help and talks about the difficulty in getting he'p I know I'm talking to a real Texan.

In April Desert magazine I asked for help for Mrs. Bacheller of Willcox, Arizona, who has no electricity for a shop. There are many people with American ingenuity to prove that Necessity was Edison's grandmother for they have utilized many things to make grinding wheels go where they had no electricity. For instance there is Leo Ferris of San Miguel, California, who has a lease on the famous jasper location at Stone canyon and who sells some of the finest jasper in existence. Ferris says he wouldn't discard his engine for a motor even if he had electricity. He has a 2 h.p. engine that runs 8 hours on 3 gallons of stove oil at a cost of 21 cents. The engine drives a line shaft that turns over 400 r.p.m. and by shift belts he runs his lap wheel at 580 r.p.m., his buffs and sanders at 360 r.p.m., and his grinders at 3600 r.p.m. He uses a flat belt drive and his lap is 5/8-inch by 24-inches and weighs 85 pounds. Ferris uses a 1/4-inch rope to throw the load.

Then A. Pelletier who runs the Indian trading post at Meteor Crater Observatory at Winslow, Arizona, advises that he uses a gasoline engine from a washing machine to run a generator that supplies him with enough electricity to operate a ½ h.p. motor. He also believes in my idea of utilizing an old sewing machine with treadle power.

Harold Odle, proprietor of the Flathead Museum at Rollins, Montana, who contributed our Lapidary Helps and Hints items last month, says old auto starters and generators can be rewired to rig motors up to ½ h. p. with use of wind. With these ideas I am sure that Mr. Bacheller, who is a good mechanic, can rig up some arrangement for Mrs. Bacheller and tell us about it later on.

Mrs. Bacheller sent me some of the Cape May (N. J.) "diamonds" discussed in April Desert magazine. They are quartz pebbles that become pink when heat treated. I don't think they are confined to the beach at Cape May, however, as I am sure I gathered such pebbles on the beaches at Asbury Park and Atlantic City as a boy. Miss Culin of Pasadena very generously sent me three faceted Cape May diamonds that are more than 70 years old so the "rock hound" is not a product of this century.

Much correspondence has come lately to me about polishing agents and I find that amateur lapidaries are experimenting with a number of things because of the shortage of tin oxide. If I can believe the trend tin oxide as a polishing agent will go out with the axis. However, I am inclined to the belief that the enthusiasm for new agents will pass after more extensive experimentation and when the tin oxide is available again. New things will find their proper niche but after all tin oxide is excellent for almost any material and it has been most satisfactory through the years producing so many prize winning exhibits that I don't think it will pass in the night.

There is a lot of talk about aluminum oxide replacing tin, but Wm. T. Baxter uses it in his Washington classes and reports that it takes three times as long to get a good polish as it does with tin oxide. Several persons have tried the German tripoli (not tripolite, which is reported to be only diatomaceous earth) and have high praise for it but it seems that the answer to the lapidaries' dream is to be found in a new optical polishing material called cerium oxide which sells for three dollars a pound. Herbert Monlux and James Arnold of Los Angeles both report such wonderful results that they never intend to use anything else. I saw some of Monlux' work, before I left California, which was done with the cerium and I have never seen a better polish. Arnold writes me, "I had tried to get scratches out of obsidian with tin oxide, using aluminum oxide for the finish, but the finest of them defied my effort. When I tried the cerium the scratches were not there after the first swipe across the disc. The results were positively amazing. Speed and saving of time are worth money even if it is only a hobby because it seems like a waste of power, if nothing else, if you spend five minutes on an operation that can be done in a second or two. Small amounts may be had without priority." I hesitate to suggest anything that I have not tried myself .but I did not have the opportunity of trying this material before I left home and I did not want to delay getting this information to my readers. If you try it, will you advise me of the results?

I think that the ideal polishing agent is one that combines a saving of time with an ability to wipe out small scratches. To many amateur lapidaries it is a surprise when they find out that the polishing process really is another grinding process. They look upon the tin oxide stage as a purely polishing procedure and not as a final grinding procedure. I have never taken a piece of opal or obsidian to the final buffs without some fine scratches being visible with a glass and too often they do not disappear with the final polishing. They probably would with continued work. Any substance that will work with certainty and be a great time saver too will be a boon to the amateur lapidary. Perhaps this will be the thing that lapidaries inherit from the war—cerium oxide.

DID YOU KNOW . . .

- Black jade is really chloromelanite, a combination of silica, alumina and soda while nephrite is silica and magnesia, and jadeite is silica and alumina. They are all classed as jade.
- Jade exists in every color, the color being determined by the amount of iron present.



By RANDALL HENDERSON

ITH THE ALLIED FORCES IN AFRICA—A month has passed since my last diary notes were submitted to the censor and then forwarded to the home office of Desert Magazine. The days are warmer now, generally above 100 degrees at midday. But it is the dry heat of a desert that has only three inches of rainfall annually. There is no malaria here. We have discarded the mosquito boots and headnets that were issued to us before we came overseas. We work in shorts and sun helmets and sleep out under the stars. Two non-coms from the medical department are stationed here—but there seldom is an entry in the sick book. From the standpoint of health, few soldiers serving anywhere are as fortunate as we are.

Sometimes we are rather puzzled about the home front—7000 miles away, more or less. From this distant perspective we get two widely divergent views. One of them comes from the newspapers and magazines which occasionally reach our remote outpost. The story they tell us is not reassuring. We get the impression there is confusion in Congress, factional bitterness in both political parties, and much dissatisfaction with many things. The headlines too often reveal people at their worst—their pettiness, their arrogance, their intolerance—and of course all these add up to the one word ignorance. We discount some of the mud-slinging because this is election year, and it is a good old American custom to turn the candidates loose and let them howl to their heart's content. But we wonder if they do not lose sight of the issue which is of paramount importance just now—the winning of the war.

Fortunately, we do not have to depend entirely on the printed dispatches for our knowledge of affairs at home. We have another source of information—the pilots and planes which drop down out of the sky every day for fuel and servicing. Generally they have just arrived from one of the home fields overseas. They bring us tangible evidence of a home front that is producing super-airplanes in enormous numbers and skilled and courageous American boys to fly them.

I never cease to marvel at the miracle of these planes—the imagination of the men who dreamed them, the genius of the brains that engineered them, and the workmanship and skill of the great army of men and women who made and assembled the countless fittings and instruments and gadgets that are combined in each compact unit. I've prowled around inside of nearly all the big bombers—Marauders, Fortresses, Liberators and many others. I ride in them frequently on the test hops. My pride in America reaches a new high every time I go into one of these craft. And of the young men who fly them, if you want to know

designers and builders of these planes by 100.

There cannot be anything basically wrong with a nation

what I think of them, just multiply what I have said about the

which has created machines of such power and precision, and produced men with skill and courage and eagerness to fly them—for the cause of human liberty.

To those who read and believe everything in the headlines, it may appear sometimes that the leadership at home is hopelessly muddled. But it isn't as bad as that. Regardless of what petty-minded men may be saying about each other, the fact remains that America is producing what it takes to win this war—and I am sure this fact will be emphasized by events on the battlefront between now and the time these words appear in print.

It is true, we will have some major problems to solve in our own domestic bailiwick after the war has been won. There are problems of racial tolerance, of distribution of wealth, and of education, which demand radical changes in the traditional American way of thinking. But if we will devote to those problems just half the cooperation and energy that produced the men and machines which come down the runway of my desert service station every day, we will solve those problems just as surely as we are finding a way to beat Hitler and Hirohito.

Most of the natives here wear giddy-giddys. I've never seen that word in print so I am not sure of the spelling, but that is the way the Arabs pronounce it. A giddy-giddy is a leather amulet on the end of a cord, worn like a necklace, or around the arm or leg. I have seen Senegalese men and women loaded with a dozen or more of them. They are good-luck charms. The most popular one protects the wearer against physical injury.

Taleb, one of our houseboys, assured us they are "veree good." To prove his point, he told the experience of one of the French Senegalese soldiers stationed at the French fort here. This soldier had bought a charm from one of the traveling magicians who work all the larger north African towns and settlements. This magician demonstrated the potency of his giddy-giddy by putting one around his neck and then having his stooge stab him with a dagger. The blade never made a scratch.

him with a dagger. The blade never made a scratch.

So the soldier bought one. That was good magic for a black man going to war. It worked out all right until the French army doctor lined the company up for periodic inocculations. When he came to the soldier with the giddy-giddy, the needle broke. The next one broke. After three attempts to puncture the black man's skin, they had to arrange for a temporary sale of the giddy-giddy to a third party so the Senegalese could get his inocculation. Taleb believed this story. "Giddy-giddy veree good."

We are having trouble getting Taleb and Ahmed, the native houseboys, to do their work. They are always courteous and apologetic—but the floors went unswept and the laundry was overdue and the tin washpans never were cleaned. When we scolded Taleb he became very indignant—not toward us but

toward Ahmed. Ahmed had failed in his duty. And when we pounced on Ahmed he very sorrowfully informed us should have done that. Taleb gone away, no do work.'

It was the old army game of passing the buck. Of course it is a very proper game when confined to the army. But when the

army becomes the victim, that is something else.

The billeting officer solved the problem. He called the boys together one day and announced that for one month Taleb would be head house boy. "Him boss. Ahmed do what Taleb say." Next month Ahmed is to be head boy and Taleb will be his helper. The wages were adjusted accordingly. It will all add up to the same in the end, as far as pay is concerned, but we are now getting better housekeeping in our four-room mud house.

It is big clumsy Jello, the Senegalese soldier who does guard duty at our quarters, who always comes out second best in the native intrigues of our household. Jello has a heart as big as all outdoors—but he doesn't think as fast as Taleb and Ahmed.

Consequently, he does all the heavy work.

Jello is a rabid movie fan. His guard duties prevent him from attending the cinema except when one of the officers stays in quarters for the evening. Then Jello comes in with a smart salute and asks, "You go cinema?" And when he is told, "No, I stay home. You go," he grins and bounces out of the room as happy as a youngster who has just received permission to go to the Saturday afternoon matinee.

Nearly every day I would stroll out among the palms in the oasis to see if the new fruit crop had set on the trees. And now it is here. Day before yesterday I saw the first of the new fruit stems, high up among the stubby fronds—the fruit is as big as peas. The Arabs tell me the dates will be ripe in July. Then the nomads will flock in here from all this desert region and camp under the trees until the fruit is gone.

Most of the date palms in this part of the Sahara are wild uncultivated natives of the Sahara. They are not pampered and coddled like the date palms in California's Coachella valley. Here no one ever takes the trouble to remove the offshootsand as for hand-pollinating them, I doubt if the Arabs ever heard of such a thing. Apparently there are but two periods in the cycle of a palm when the Bedouins pay any attention to the tree. One is the fruiting season each year, and the other is when the tree dies. Then the trunk becomes valuable for wood. It is the only timber available here for building purposes. It is used for roof trusses and ramadas.

I am told that few commercial dates are shipped out of this region. There are too many hungry Arabs around at harvest time. Recently, at a dinner served by a French officer here, dates were brought on as the last course. They were served from a goatskin bag, the bag in which they were packed during last year's harvest. The host simply untied the leather thong around the neck of the goatskin, and we reached in with our forks and gouged out a hunk of the compact cake inside. The natives who stuffed them into this bag were a little careless—they had gotten some sand into the cake. I am sure that Russell Nicoll at Valerie Jean's would be quite horrified at such packaging methods.

Native arts and crafts are not as far advanced here as among the desert Indians in the United States. I have found very little in the way of art that is worthy of the name—and yet I have a feeling that these Sahara tribesmen have latent abilities which would quickly develop if materials were more accessible and there was a bit of guidance and encouragement.

Nearly every evening well-dressed native craftsmen come to our quarters offering crude but ingeniously designed articles of leather, brass, copper and silver. They make leather bags and pipe cases, jewel boxes, miniature scimitars to be used for paper knives, padlocks and other small items. Some of the craftsmen do slipshod work, others show considerable skill.

In a large adobe building in the oasis a score of Arab women are at work constantly on the weaving of blankets and rugs. The equipment and methods are much the same as one sees on the Navajo reservation in Arizona and New Mexico. However, instead of dyed wools, these women work almost entirely with camel's hair in natural color. White goat's hair sometimes is used for the designs. However, these women do not go in for the intricate and colorful patterns one sees in Navajo rugs. The French government through its locale residente sponsors the weaving industry and controls and markets the output.

When I first visited the dark crowded mud building in which the local weavers were working I came away with a feeling that something was wrong with this picture. Then it came to me that my interest in Navajo rugs is partly due to the colorful setting in which I so often have seen them made—the picture you have seen in Desert Magazine many times, of a Navajo woman in bright-hued costume, her neck and arms and ears adorned with silver and turquoise, working in the shade of a juniper tree.

while her sheep browse on the sidehill nearby.

These Arab women are turning out a very serviceable product, but the adobe building and the setting in which they work is without glamour. It looks too much like an eastside sweatshop. But this isn't a tourist town. I am sure that if it were, the French resident soon would see the value of setting up his weavers on a sand dune in the shade of a palm tree. And perhaps adding a bit

of color to the flowing black tunics they wear.

The blankets and rugs in most cases are in solid color—the natural tan of camel's hair. However, occasionally a small white pattern is worked into the corners or the center of the rug. The residente told me there is a great scarcity of camel's hair this year, due to a long drought in this region which has cut down the feed supply and forced large numbers of camel owners to take their animals farther south. There is a ready market for all the weaving that can be turned out, partly due to the American soldiers' demand for souvenirs to send home.

Life is never dull at this desert outpost. Two big bombing planes on their way to the front dropped down out of the sky this week for a wash job. That is not as ridiculous as it may sound. Grease and dust on the airfoils retard the speed, and on long hops that may have a critical bearing on the fuel supply.

This happens nearly every day: The incoming transport plane rolls to a stop on the parking ramp. The mechanics open the door—and out pours a stream of passengers. They have been riding the bucket seats for hours and want to walk around a bit while the craft is being serviced.

A blast of our 100-degree desert air greets them. They look around the drab treeless horizon. They can see the shimmering mirage down at the end of the runway and the dust devils dancing on the bajada far over on the other side of the valley. And then they start wise-cracking about "what a helluva place to be

fighting a war."

I do not argue with them. If I told them I had asked for such an assignment as this they would be sure I was some kind of a crackpot. They have not yet learned that the grim aspect of the desert merely is a mask. And that for those who have the interest and the will to look behind and beyond the mask there is a world of infinite charm and inspiration.

But one cannot get such ideas over to a stranger in a 30minute conversation so I just let it go at that. I often think of the story about the woman who traveled across the American desert in midsummer. She was hot and ill-tempered and wanted everyone to know that she thought the desert was next door to hell. "This is an awful country," she exclaimed. "I don't know how anybody could see anything good in such a place.

A quiet-spoken stranger across the aisle who had gotten on the bus at one of the desert stops turned to her with a look of

pity and asked, "Lady, don't you wish you could?"

After all, as thoughtful men and women all down through the ages have been discovering, "what one sees in the physical world around him is very often a reflection of what is in his own soul.'



A CREAT ARCHEOLOGIST WRITES HIS CAMPFIRE REMINISCENCES

In a small volume, CAMPFIRE AND TRAIL, Edgar L. Hewett, lecturer, museum builder, teacher, archeologist, has compiled notes of "a thousand and one campfires" ranging from the mesas of New Mexico to the deserts of Arabia and the Sahara and the heights of the Andes. Intimate thoughts and reflections culled from his 40 years of teaching and exploration, which he calls his post-graduate work, are set down in great variety, informality and the charm of colloquial expression.

In it he pays tribute not only to those whose formal education has led them into his field but to those countless others whose school has been only the palm and pine, the seven seas, the silent desert spaces.

A world-wide scope of subject, a timelessness of thought when he contemplates past civilizations, are contrasted with such bits of personal philosophy as, "To want what one needs, and have the ability to get it, as needed, would be a priceless lesson to this avaricious world where to want a million times more than one needs and spend a lifetime gambling and worrying to get it, is all too common."

The pungency of pine forests and desert sage, the spirit of vanished ages, romance and whimsical humor intermingle in such chapters as Through the Silent Land, Camping with the Cave Man, Windswept Troy, Andean Highways, Galilee, Where Tyre Was, On the Great Caravan Trail: Sahara, By the Waters of Babylon, Conquest of Cheops, Palm and Pine, Making Archaeologists, My Last Campfire.

His reverent approach to his life work he expresses when recalling his emotions as he entered the abandoned canyons of the Pajaritans: "It took quite a while to make up my mind to disturb the soil that I felt was sacred; longer still to spoil the scene with scientific papers. Who can describe silence and space and time, and a world of only immemorial spirits? . . . Two score years I have been camping in the serenity of these noble walls, with the calm, silent men who here move among their ever-living ancients . . . And I shall come again, many many times, to walk with them in these quiet places and share the solitude and the stars."

Here is a book to read repeatedly, dipping into it at any point—for inspiration,

a wider understanding, a glimpse of a boundless perspective.

Published 1943 by University of New Mexico Press, Albuquerque. 165 pages, 12 plates. \$2.00.

MUSEUM PUBLISHES NOTES ON CALIFORNIA TRIBES

An interesting study of Southern California Indians is contained in Southwest Museum Leaflet No. 10 (2nd edition), written by Edwin F. Walker. It is a general, rather sketchy survey, for as the author states, "Today more than half of the original California groups have not a single living representative. For this reason and also because few records were made of the Indians while they were living, it is necessary to go back to the dead past and depend upon archeology for much of the picture of their daily life."

Their homes, clothing, food, occupations and ceremonies are described in the 16-page leaflet. 20c.

NEW MEXICAN SOLDIER REMEMBERS HOMETOWN

Young John Fellows was buying his ticket, bound for the army, leaving his home town in New Mexico's Sangre de Cristo mountains. Curtis Martin's HILLS OF HOME tells about the people he remembered as he was leaving.

As the characters and sketches of their life history pass in review through one young American's memory the poignant appeal of the story grows, for it takes on a universal character through its relation with countless other boys who have left their homes in the same manner.

Ernesto Bartilino, the stone mason, with the strong cigar and the glass of wine at his elbow as he talked on the porch summer nights; Richard Maxwell, once-famous archeologist whose life had slipped into futility; Philip Carson, the Englishman who burned the new house he had built for the financée who discarded him; Alfred Garcia, morbid son of a Mexican-Indian ancestry—these were some of the people of John's town.

The author was somewhere in the Pacific, serving in the navy, when this, his first book was published.

Houghton Mifflin Co., Boston, 1943. 186 pages. Illus. \$2.00.

BEAN HARVEST AND KID HARVEST TAKE LEARNIN'

Tod McClung's ambition was to grow beans on his New Mexico homestead and add to his six-forty so it would support his family in good years and bad. To suggest that his children go to school was an affront—couldn't Tod teach them young-uns all they needed to know? "We're like mules that bust clods and sweat and know we ain't good for nothin' but just that," he told the teacher. "We're hard and tough and down in the dirt where we belong . . . Don't try to lift us out of the soil, for it's our meat and livin'."

His wife Faybelle agreed, with "What is good enough for us is—" But the teacher came back, "And that exactly is the thing that is holding you people down in the dirt." The McClungs could not see that by the time their youngest son was grown, farming would be too complicated to continue in the simple pioneer ways. Already their neighbors, who did not scorn the new school, had reaped fat crops the first season Tod's "luck" failed.

Maybe Mary the teacher couldn't tell him about farming, but she could tell him undeniable facts about his children. "But you've failed in your kid harvest, Tod McClung. Failures that will drain on the field crop money you've turned into the bank. The six youngsters you have seeded and reaped have all turned out failures but two; and if you don't come out of the rut these two, your only salvation, will go to ruin with the rest."

There's Piddle, Tod's rounder of a father-in-law; the righteous hypocritical Marvin and Virgie Smeet, full-blooded Baptists who made a great show of reading the Bible-when someone was looking; the Widow Burge and her son Craze Rufe who told fantastic tales of buying railroads and banks at 30 cents a piece; Preacher Ike Flowers, who didn't like to farm so "reckoned he could be a service to the community by preaching to the people and passing around his hat for pay." Fact that regular Baptist ministers considered him too ignorant and "not fit to preach God's word" was in a way an advantage to Preacher Flowers—this way he was "on his own hook with nobody to boss him around but the Lord.'

These are some of the McClung's neighbors, prototypes of whom John L. Sinclair, author of IN TIME OF HARVEST, has known in the many years he has ridden the range, visiting nesters' shacks and sharing an extra potato and a spare mess of beans. About these people he has written a novel as earthy as THE GRAPES OF WRATH. But a novel smaller in scope, out of the epic class and drawn with less tragic hopeless lines.

Published by Macmillan company, New York, 1943. 226 pages. \$2.50.



THE

Desent

MAGAZINE



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Desert Tobacco Grows On Trees and Bushes

By MARY BEAL

RUST an Indian to discover the useful qualities of the plants within his reach and to adapt them to his needs. It was the American native who originated the custom of smoking tobacco. Tribes of the Southwest, as well as other American tribes, smoked the dried leaves of the available wild tobacco species, known botanically as Nicotiana, a genus of the Nightshade or Potato family, which includes the various species grown commercially. The aboriginal use of tobacco was chiefly in sacrificial rites to propitiate the Great Spirit. Present-day Indians of the older generations who cling to ancestral traditions still have a reverent regard for these plants and use them in their religious ceremonies. Various tribes are reported to have chewed as well as smoked the wild tobaccos and some still do so.

The dried leaves were pulverized in special small mortars and when used for chewing, water was added, or a bit of fat or pinenuts to give a pleasing flavor. No doubt they had tastes in flavoring just as do gum-chewers nowadays. Because the wild tobaccos are very strong, most users preferred to add other ingredients, thus producing a mild mixture, for both smoking and chewing. It is definitely known that several tribes had cultivated patches of certain species. Undoubtedly the most widespread of the desert species is

Nicotiana trigonophylla

Commonly called Desert Tobacco. Sticky and malodorous "in the green," but in the dried state quite desirable to native smokers. It sends up one to several erect leafy stems from a perennial root-crown, a foot or two high, each with several slender branches from the leaf axils. The herbage is bright green and glandular-hairy, the sessile leaves oblong to ovate with eared bases, the margins entire but apt to be undulate, 2 to 5 inches long, decreasing in size upward along the stem.

The loosely clustered racemes are nearly naked, the creamy or greenish-white flowers about an inch long, the corolla with a slender tube and constricted throat below a spreading limb a half inch or less wide, reflexed slightly as it ages. The flowers are open only during the daytime and may be found blooming at almost any time of the year, most certainly in April and May. Very common on canyon walls and rocky mesas and along sandy washes, adapting itself to low and moderately high elevations in all the California desert areas, through Arizona and New Mexico to western Texas and down into Mexico.

Nicotiana attenuata

Dubbed "Coyote Tobacco" by early prospectors, a name commonly in use at present. An annual species with the usual ill-smelling herbage, somewhat hairy and slightly glandular, the stems simple or branching, a foot or two high, in favorable situations sometimes twice that height, rising erectly from a flat, basal rosette of oval, petioled leaves, 2 to 6 inches long, the stem leaves narrower and decreasing in size upward. The many white or greenish flowers, from 1 to 1½ inches long with slender tube, and limb a half inch wide or less, open in the evening and close with the sunrise. Found blooming from May to November. Quite common over most of Arizona from moderate to high elevations, extending north to Utah, east to Texas, through much of California, favoring dry stream beds, washes and sandy flats.

Nicotiana bigelovii somewhat resembles N. attenuata but has a very limited desert distribution—the western Mojave desert. You'll recognize it by its larger more showy flowers, the shallowly-lobed corolla limb an inch or two broad and the tube sometimes nearly 2 inches long.



Tree tobacco is a conspicuous evergreen. Beal photo.

Nicotiana clevelandii

Another night-blooming annual, a foot or two high, with sticky-hairy herbage, the leaves ovate to lanceolate, 1½ to 5 inches long, the basal ones petioled, the upper nearly sessile. The whitish corolla is noticeably shorter than those of the preceding species, its tube ½ to ¾-inch long with a limb less than ½-inch broad, shallowly lobed and folding up when the sun shines. The white of the corolla is often suffused with violet and the linear calyx lobes are markedly unequal, the longer ones sometimes twice as long as the tube. It is found rather frequently along dry stream beds and sandy washes from low to moderately high altitudes in western Arizona and the Colorado desert, extending over the border into Lower California.

Nicotiana glauca

San Juan Tree, or Mexican Tobacco, or Tree Tobacco, deviates from the usual run of tobacco species. It is a conspicuous evergreen, loosely-branching shrub, 6 to 15 feet tall, becoming a small tree at times up to 20 feet. It seems to be as much at home on the desert as near the coast. Its slender graceful branches are generously supplied with handsome blue-green foliage, both leaves and stems quite hairless and noticeably veiled with a "bloom," and without the disagreeable odor of the foregoing species. It originated in Argentina and came to us by way of Mexico during the Mission period, brought along to make a new environment more home-like, having quite a vogue in early California gardens.

The ovate leaves are thick and smooth, 2 to 8 inches long on rather long petioles. The flowers grow in panicles terminating the branchlets, often drooping. The slender tubular corolla, 1½ to nearly 2 inches long, is yellow, and constricted at the throat just below the very narrow, slightly-flaring limb. The smooth ovate capsule is filled with many tiny brown rough seeds,

so small they are like dust.

Having escaped from cultivation it has run wild and spread over much of California's and southern Arizona's warm dry areas and on eastward to Texas.

Close-Ups

- · William Caruthers, who writes another Death Valley story for this issue, never has been satisfied to do one thing at a time. When he came to California from his native Tennessee in 1905, he worked on L. A. Examiner and started a much quoted pocket magazine, The Bystander, which became nucleus of The Classic Press, specializing in publishing house organs, booklets. At same time he edited The Rounder, first important L. A. theatrical magazine. This branched into writing of speeches for mayors on eastern seaboard, prosecutors in middle west, political arguments on both sides; booklets boosting subdivisions in St. Louis, fertilizers in Pittsburgh, baking powder and cereals. He then started fiction and fact writing for leading papers, magazines. After he discovered the desert about 1926 he no longer stayed home more hours than necessary to attend to business. His desert is "a stretch of land and sky where the nearest pavement is 100 miles away.
- Not content with telling Desert readers, in this issue, what Southwest land forms looked like when the earth was young, Jerry Laudermilk will tell them next what the weather would have been like if they had lived a couple of hundred million years ago. He calls it "fossil weather," for in a variety of fossil forms scientists have found the clues to the kind of weather the desert had before it was a desert
- We've had to write many letters explaining to anxious readers John Hilton's absence from Desert's pages. His field report on the wartime state of California deserts, in June issue, was the first in many months. Now he has another, soon to be published, about George and Kenneth Holmes and their mining in the Castle Dome mountains of western Arizona. This is a picture of wartime mining which John feels is vital for the public to see. Besides being an informative article on lead mining, it is a warmly human story, from the fabulous "Holmes luck" to the Queen of Castle Dome.
- Richard Van Valkenburgh's next contribution to Desert is the story of the Navajo Squaw Dance, illustrated with drawing by Navajo artist Charles Keetsi Shirley and a map by Norton Allen. Although widely known by name, the Squaw Dance actually is little known by the public. Desert readers will be taken to one of these dances in a remote Arizona village and will learn from the tribesmen themselves its legendary origin and significance.

CREED OF THE DESERT

By June LeMert Paxton Yucca Valley, California

I may lack things that man has made, To coax the traveler here; But I have courage, peace and health, The hopeless one to cheer.



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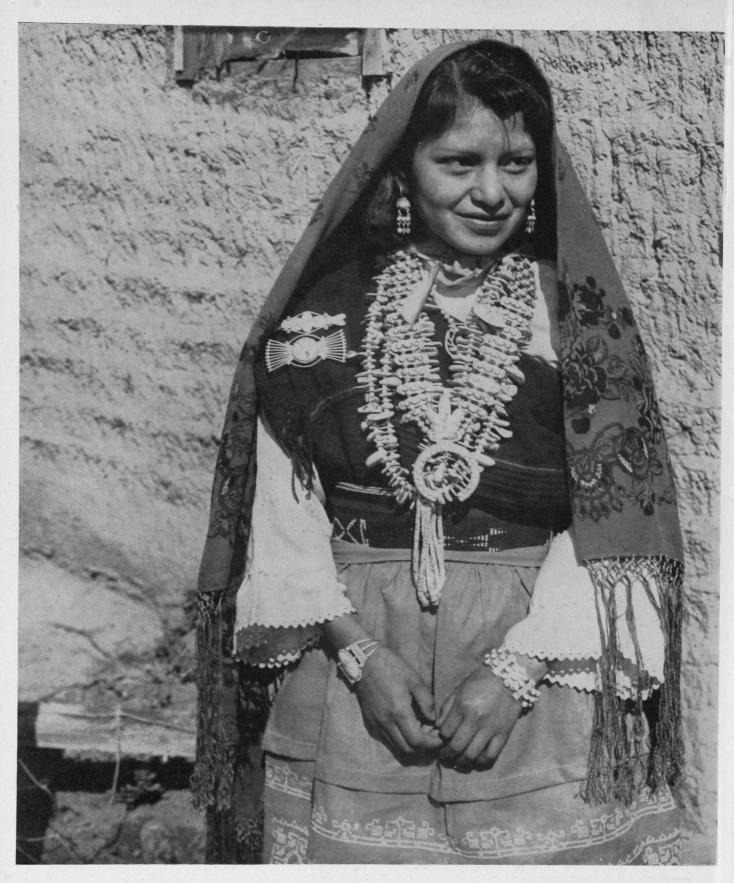
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Precious Beads of the Zuni

Photograph by Frashers Pomona, California Today Zuñi Indians of New Mexico make their beads of shell and turquoise. They drill and polish the delicate olivellas from the Pacific Coast. The turquoise, from their own mines, they merely pierce for the string, leaving the cool blue stone in its natural form. But some of them still have bits of the precious antique beads of black, white and red. Often these are found only in the pendant loops of little beads in the ears of Zuñi maids.

This is a story about red beads—warm . . . glowing . . . velvety. The story could have been written about the ancient cliff dwellings in Zuñi land where they were found. Or it could have been written about the Indians who treasured them as heirlooms and used them in religious rites. Or again, it could have been an elaboration of the belief that the red beads were traded in prehistoric times by Indians who quarried the stone in Minnesota. But the real story of their origin, as discovered by Dave Howell of Claremont Colleges, is more fascinating than any of these. It is another of Jerry Laudermilk's "detective" stories, which leads Desert Magazine readers into an amazing field of science and takes them to the bottom of Grand Canyon to earth strata which have remained undisturbed since the beginning of the world.

Stone from Time's Beginning

By JERRY LAUDERMILK

EADS of stone—black, white and red. These are the precious beads of the Zuñi. In olden times the ancients shaped the black ones from pieces of cannel coal or jet, the white from gypsum or calcite. The black and white stones are not rare in the Zuñi country of northwestern New Mexico, but it is only through art and craftsmanship that these common stones become beautiful gems. The red stone, however, has the added charm of mystery. The Zuñi call this red stone d' hoko and say that it comes from the far south.

The beads of stone the Zuñi make no longer. Today they drill and polish the small thin beads of white olive-shell called ko' hakwa from the coast of California and bits of turquoise, thli' akwa, from the mines of their own land. The latter they simply pierce for the string and leave the cool blue stone in its rough and natural form as if the presence of the neatly drilled hole in this hard stone transformed it from an unshaped natural object into a work of art. These beads of shell and turquoise are valued as beautiful ornaments, but of all their beads those of antique stone are prized the most.

The ancient beads are found only in the cliff dwellings, the mesa houses, camp sites and burial places of the Old People. Once found they become treasured things to be handed down as heirlooms or used in the colorful rites of their religion, or as stakes, to be lost or won at games of chance. The objects of red stone, once the dust and grime of centuries has been removed, show all the warm tones of color from pink to dark red. They sometimes glow with a deep and velvety shade like the color of hematite—a warm dusky red that has appealed to something dark and vital in human nature since men first began to notice beautiful things.

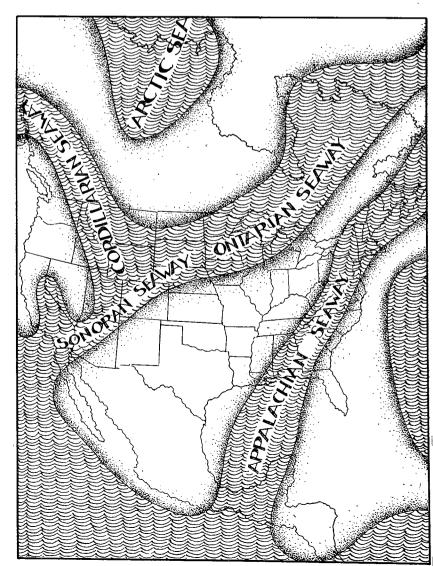
Like most of the ornamental stones which the Indians worked, this red stone is softer than flint but dense enough to take and hold its polish for a long time. It is a durable stone and responds in a friendly way to human companionship. It resembles and has all the outward qualities of another red stone, pipestone or catlinite, perhaps the most revered substance known to the Indians of the plains. This was the only proper material for the great calumet, the pipe-of-peace; about its source there is no mystery. Pipestone has been quarried in the region of southwestern Minnesota from times so remote that the facts of history have become lost in the poetry of legend. But it must have been many centuries ago since the red stone of Minnesota became scattered far and wide among the ancient people of North America.

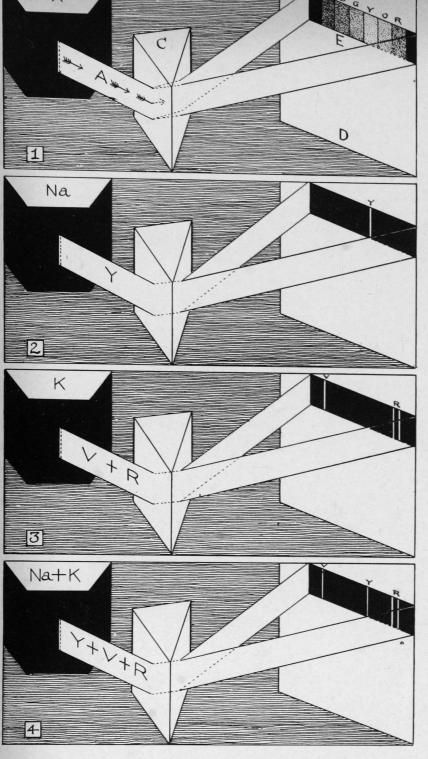
United States and Canada in Pre-Cambrian time, about 400 million years ago. It was in the shallow Sonoran-Ontaric seaway that the red clay-like sediments washed down from the barren shores of the ancient land masses to form the raw material for the antique red beads of prehistoric Indians. Map redrawn by Laudermilk from C. Schuchert.

Ages ago, before the white man came, there was much trade between the tribes. Abalone and dentalium shell from the Pacific coast and obsidian from the Sierra Nevadas and the Rockies eventually reached the country of the mound-builders in the Mississippi valley, and artifacts hammered from Wisconsin native copper have been recovered from the cliff houses of the West

Although these ancient Americans had only the dog for a pack animal and the trail was beset with constant danger, long trading journeys were not unusual. Objects made of catlinite have been found in Indian graves in New York and even at a village site in Georgia 1200 miles away.

So it was natural that archeologists, working with the information they had, should suppose that the red stone artifacts found among the Indians of the Southwest and recovered from





2-When instead of white light there is a trace of the element sodium (chemical symbol Na) in light source the light becomes yellow, Y. When this beam passes through the prism the spectrum shows only a narrow yellow line in the band. This corresponds to the same color of yellow in the continuous spectrum. Balance of band remains dark because in this case the light is monochromatic, containing no other wave length (color) than the yellow. 3-Light from a source containing traces of potassium (symbol K) is passed through prism and shown to be made up of two sets of wave lengths, one in the violet and two in the red. Rest of band remains dark because there are no other colors in this spectrum. 4—Light from a source containing both sodium and potassium Na and K will show both sets of lines, the yellow of sodium and violet and red of potassium. Mixture actually is analyzed by the prism. Same principle holds true for nearly all other elements.

How the spectroscope works: 1—Beam of white light A which is a mixture of all wave lengths (colors) from source X is projected through glass prism C onto a screen D. Prism sorts beam into ribbon of component colors E. Colors fall into definite order from violet at one end to red at the other. This is the continuous spectrum of white light.

the prehistoric ruins all should have come from the northern or Minnesota locality originally, either by direct trade or by passage from tribe to tribe until they finally reached the West.

This was the way things stood until about four years ago when Dave Howell of Claremont Colleges in California decided that it was about time for somebody to do a bit of geo-detecting on the subject of the red stone from the West. He used one of the most efficient means at an investigator's disposal — spectrographic analysis.

It is a curious fact and one that has been known for a long time, that nearly all the elements can be detected in extremely small amounts by examining the spectrum of the light produced from the incandescent gas when the element is heated to an excessively high temperature. The principles involved are broadly about like this:

If sunlight, the light from an electric arc or any other white light is passed first through a narrow, vertical slit in some opaque shield, then through a glass prism and finally upon a white surface in a dark room the light will be spread out into a ribbon of rainbow colors from red at one end to violet at the other. This results from the fact that the white light, which actually is a mixture of all the colors or wave lengths, has been split up or sorted out in its component parts; this is the continuous spectrum of white light.

Now, if a particle of one of the elements is heated hot enough to be transformed into an incandescent gas and shine by its own light, then the prism tells a different story. Only a few light waves of certain wave lengths or colors will be emitted and these will appear as colored lines in an otherwise dark or nearly dark spectrum. For instance, if instead of sunlight we use a colorless flame like that of burning alcohol practically no light will be thrown on the screen or white surface. But if, now, some compound of the element sodium, such as ordinary table salt, is sprinkled in the flame, this becomes intensely yellow and the ribbon of light that you would expect to be seen on the white screen will not be there—it still will be dark except for one section. In the otherwise dark ribbon a narrow band of yellow (actually two bands but so close together they look like one) will show in the same position it occupies in the spectrum of white light. This is the typical sodium line (or lines) and indicates the presence of this element whenever it appears. The test is so sensitive that one three-millionth of a milligram can be

Suppose we vary the experiment by using a compound of the other common alkali, potassium. This time, if we look close, we see two lines in the extreme red end of the dark spectrum and one line in the violet. This potassium reaction is not so delicate as the one for sodium but it is delicate enough to detect one one-thousandth of a milligram. If we mix both the sodium salt and the potassium salt then both sets of lines will appear. So it goes for practically all the elements: iron, silicon, aluminum, calcium, magnesium, barium, boron, etc. All have characteristic signatures in the form of their line spectra, which are detected by using a delicate piece of optical apparatus called a spectroscope or spectrograph.

In precise spectrographic work the spectrum generally is photographed and the plate examined at leisure since the camera can reveal lines, especially those in the ultra-violet and infra-red which the eye cannot detect. So if a sample of material of unknown composition is examined spectrographically a complete analysis can be made and the chemical composition of the substance determined. This method requires a far tinier sample

Calumets and pipes of red pipestone or catlinite from northern, or Minnesota locality. 1—Small pipe, deep red stone, metal inlay on bowl. 2—Large calumet (peacepipe), mottled red pipestone. 3—Deep cherry red calumet. 4—Pipe in process of manufacture. Holes for bowl and stem have been drilled. Outside is still to be shaped. 5—Section showing proportionate sizes of openings for stem and bowl. Calumet, 2, was smoked at conclusion of treaty between Sioux under Chief Spotted-tail and the whites at Fort Laramie, Wyoming, sometime between 1870 and 1878. Figures from specimens in Claremont Colleges Museum.

than would be needed in ordinary chemical tests. By carefully controlling the time of exposure, amount of sample used and several other details, an experienced spectroscopist can estimate rather closely from the intensity of the lines whether any particular element is present in large, medium, small, very small amounts or traces. In many cases the sample to be analyzed need not be larger than a dot made by a lead pencil. In fact, sometimes the amount of material that it takes to make up a pencil dot is just a nice amount to work with.

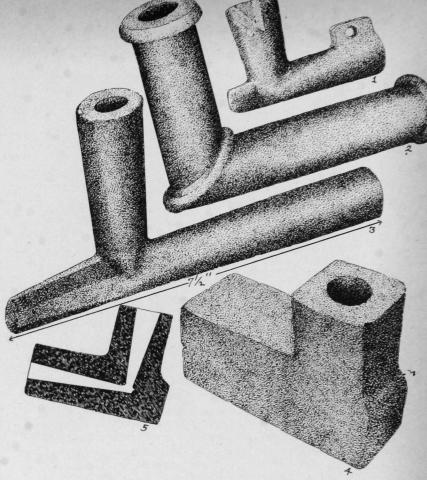
Since such small amounts of sample are required an analysis can be made of part of some valuable object by using a tiny scraping too small ever to be missed. In this way one can have an article of jewelry "finger-printed" spectrographically from only so much sample as would be removed by scratching a corner of a jewel on the tip of a carbon rod. The plate then can be filed away for reference and if at a later date the stone should be stolen and cut up into smaller pieces, a spectrographic examination of a suspected stone may tell conclusively whether or not it is part of the original.

So Dave Howell had a very delicate means of detection at hand when he began work on the red stone artifacts in the museums throughout the country. Since he was not only a spectroscopist but also interested in archeology and the subject of jewels and gems in general, he knew exactly what the problems of his campaign would be before he began.

Some of the objects first examined were bowls of calumets, tubular pipes, necklaces, pendants and other objects known to be made of northern catlinite or pipestone from Minnesota, South Dakota and Wisconsin. The spectrographic plates of each specimen were carefully filed away for comparison with another set of spectrograms of red stone artifacts from the Southwest. These were such things as beads, rings, pendants, polished stone cylinders, tubular pipes, nose-plugs (ornaments to be worn in the septum of the nose), earrings, etc.

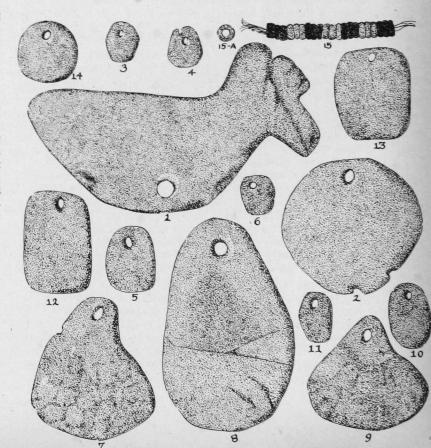
Results of the comparisons show that while the general chemical composition of both sets of artifacts was the same, that is, they consisted mainly of silica, aluminum and iron with smaller amounts of calcium, magnesium, sodium and potassium and still smaller amounts of rarer elements, there was a great difference in one respect—the presence or absence of the alkalies, sodium and potassium. In the northern samples potassium was abundant and sodium extremely rare or absent altogether; in the western samples the opposite was true. This alkali ratio and the amounts of certain other elements such as copper, silver, calcium, stron-

Prehistoric red stone pendants from southwestern United States. Scale may be determined from No. 14 which is almost exactly half an inch in diameter, others in proportion. Figures are redrawn and adapted from Reports of the Bureau of American Ethnology and Annual Reports of the Smithsonian Institution. Numbers 1 and 2 from southwestern Colorado, B.A.E. Bulletin 96, 1930, pl. 53. Numbers 3 to 11 from Arizona, B.A.E. Bulletin 100, 1931, pl. 41. Numbers 12, 13, 14 from Arizona, Ann. Rep't. Smith. 1901, pl. 96. Beads from B.A.E. Bulletin 126, 1940, pl 50.



tium and barium served to distinguish between the two main types of artifacts but a third set of western artifacts, while definitely of the southern or western type, failed to fall into either category. I'll have more to say about this group later.

Dave's next step was to determine the source of the raw material of each type of red stone. For the northern samples this was easy. Fresh samples of rock taken from the Minnesota and Dakota quarries showed them to have the same composition as the northern artifacts. The location of the source of the southern material required much searching to find. Finally, the outcrop which had the same composition as the western artifacts was



GLOSSARY

INFRA-RED—Light waves of a wave length too long to be perceived by the human eye, coming before the red of the spectrum.

PRE-CAMBRIAN TIME—A division of geologic history just before the Cambrian. Also called the Proterozoic era. Age of greatest iron ore making and early forms of life. It includes about 25 per cent of all geologic time.

RADIOLARIA—A type of microscopic one-celled animal of the lowest order. They generally have a skeleton or shell of silica.

SPECTROGRAPH—A scientific instrument for making precise measurements of the positions of lines in the spectra of the elements and compounds. Generally a camera is attached for photographing lines in the ultra-violet. Its general structure is on the principle shown in the diagram on page 6. Frequently there is a finely ruled mirror called a diffraction grating used in place of the prism.

SPECTRUM—The image formed when a beam of light or radiant energy is subjected to dispersion so that its rays are arranged in a series in the order of their wave lengths. Thus by causing white light to pass through a prism a spectrum is obtained in which the colors form a series, from red through orange, yellow, green and blue to violet.

ULTRA-VIOLET—Light of a wave length too short to be perceived by the human eye, lying beyond the violet of the visible spectrum. It is thought that certain snails and a few other low organisms may be able to perceive certain wave lengths in the ultra-violet.

located near Del Rio, Arizona, a station on the Phoenix branch of the Santa Fe about 29 miles north of Prescott. It was largely a matter of sheer good luck that Dave found this outcrop. This came about through the accidental meeting with a cowboy who knew of the whereabouts of a deposit of the type of rock Dave described.

The Del Rio source apparently had been worked by the prehistoric inhabitants of that part of Yavapai county. About a thousand yards from the outcrop Dave found the ruins of a large stone dwelling of the mesa or detached type. Much red rock had been carried from the outcrop to the house evidently for the purpose of working it up in more convenient surroundings.

The artifacts of the non-conforming type indicate another interesting feature of this case. Obviously, since they were not of the northern type but were of the southern type in their general composition although differing in important details, a third, and at present undiscovered source of the red stone was available to the prehistoric ornament makers. Perhaps this is one of the rumored but uninvestigated deposits of the Mormon Lake region, and it is said that in the very bottom of Grand Canyon at one place at least, the red stone occurs in place in the old strata where it has remained undisturbed since the beginning of the world.

The geologic history of this red stone, red pipestone or as Dave proposes to distinguish the southern stone, red shale, is so strange as to be fantastic. It is one of the oldest rocks on earth. Most of the extremely ancient sediments have been subject to every possible sort of change nature has at its disposal—heat, pressure, solution and chemical action all contribute to the obliteration of the original material as it was laid down. With the red stone this has not been so. It has quietly grown old without

undue excitement, aging in place. Apparently what took place was this:

During the Pre-Cambrian time, about 400,000,000 years ago at least, the face of the earth was altogether different from the one we see on the maps. It was a strange world everywhere but it is enough to fix our attention on the North American continent alone. From the southwest a long strip of sea, in places more than 500 miles wide, extended from the locality of Southern California northeasterly clear across the continent to as far as Labrador.

This was the so-called Ontaric sea. It was shallow and so far as geologists know today the only forms of life in those waters were sponges, tiny little organisms called radiolaria and vast masses of an algal vegetation that grew abundantly in coral-like reefs. The sullen waters of this early sea washed the shores of continents that were barren of life, vast wastes of granite, coarse sand and dreary deserts of disintegrated rock. There was no soil on any of this land because as yet there were no plants to break up the rocks through the chemistry of their roots. All was a rough, unfinished solitude tense with the promise of uncreated things to come, a strange but meaningful desolation like a surrealist's dream.

The only changes in this landscape were those brought about through the forces of mechanical destruction and inorganic chemical change in a land which probably reeked with mineral salts and perhaps sulphuric acid from the oxidation of pyrite in the young crushed rock. The climate appears to have been for the most part, mild. But during some part of the Pre-Cambrian the glaciers covered the land in places and then retreated again to their fortresses about the polar caps to rest and advance again from time to time after thousands of years in an obscure rhythm they have held ever since.

For ages these granite wastes remained the same, showing only such changes as would be made by torrents of rushing water and the avalanche. Then down under the earth, raw, terrible forces began to move. Enormous fissures opened and hot lava poured out over thousands of square miles of ground in glowing sheets. The earth's surface began slowly to bend and fold in places and mountain ranges were upheaved where level plains had existed before.

Age followed on the heels of age like vast grey phantoms hurrying forward through the mist of time. The mountains grew cold and towered with snow clad tops. Then they began to crumble before the relentless assaults of the weather until they were worn down again to the primal granite of their very roots to make a plain once more. And again from their wreckage new ranges were formed and these too were worn away.

The chemical and mechanical breaking up of the feldspars of the original granites of these new lands released part of the quartz to be spread out over the ground and carried into the seas as sand. Part of the silica in the feldspars dissolved in the water and went to enrich the water of the oceans and be utilized by the sponges for their skeletons of flint. But the most important feature in connection with this story of the red rock of the ancients is that most of the aluminum in the feldspars remained, but changed now to aluminum silicate, a soft and waxy clay containing much iron, perhaps a red clay of fine texture. This clay too was transported to the shallow seas and slowly deposited in thick beds. Sand, which became sealed together grain to grain by dissolved silica formed dense, overlying strata of hard rock, the Sioux quartzite of the north and the Mazatzal quartzite of Arizona. These lids of solid rock locked away the clay beds for countless ages while they lay undisturbed. Slow and relatively mild chemical changes took place in the clay to transform it into a totally new type of rock—the pipestone and red shale of today.

So this ancient red stone, which had its beginning before the appearance of any life on land, lay waiting between the quartzite strata until man finally appeared on the scene to dig it out of the ground and fashion it into beautiful things, the calumet and the precious beads of the Zuñi.



"Waltz that girl behind you" is just one quick maneuver likely to be called in any of several square dances. It also is the name applied to a specific square, in which it is a dominant call. Here Lloyd Shaw's group go through its steps in Central City, Colorado.

Swing yore partner round 'n round

It was up in the Arizona range country, under the Tonto Rim, that Oren Arnold learned about square dancing. It was a wedding party that Uncle Dan took him to—men wore cowboy clothes; ladies were lovely in floor-length dresses of the 1880s. Peculiar Haines, past 75, called out the rhythmic commands that kept the dancers moving to "form that Arizona Star again." Now Oren has become a confirmed square-dancer. Whether the fiddle brings "sets on the floor" at a remote ranch house or in the elite Westward Ho of Phoenix, he says a square dance is one place where you cannot take your income tax worries, your business or family affairs. It's graceful and rhythmic, it's wholesome and joyous—and it's easy to learn. Oren gives you Lesson Number One.

By OREN ARNOLD

ERALDIC sounds of good-times-a-brewin' were drifting down the canyon to us even before we parked the car, and Uncle Dan O'Hara, my host for the evening, turned to me and said, "They've already started; that there's the Arizona Star." We puffed up the hill and pushed right on into the big ranch living-room, knowing we'd be welcome.

A rock fireplace big enough to stand in was at one end of the room, and its blaze made dancing shadows everywhere. Indian blankets hung on the walls beside an austere picture of grandma in a golden frame. A rifle rested in deer antlers, and doors had been burned with real branding irons. The guests already arrived before us were a colorful part of the picture. Cowboy clothes was the general costume of the men, but every lady was lovely in floorlength dress from the style of 1885. Nobody was self-conscious; sheer beaming happiness shone from all.

A four-piece band, cowboy species, was

singing a heavily rhythmic "Oomtiddy boom and a oomtiddy boom" while four gay couples did intricate maneuvers in the center of the room and 25 or 30 more looked happily on. Everybody was smiling. For this was an old-time square dance, being enjoyed by the sophisticates of 1944. One of those dancing couples was born in 1871 but the honoree this evening was a little cowgirl aged 17. We were all gathered to celebrate her wedding night, and when Uncle Dan dragged me wearily away

"Grand right and left" and "grand right eight" are two calls for the same maneuver. It is a weaving in and out, men going one direction, women the other, hand to hand alternately right and left. When the man meets his partner he gives her a swing and promenades home.

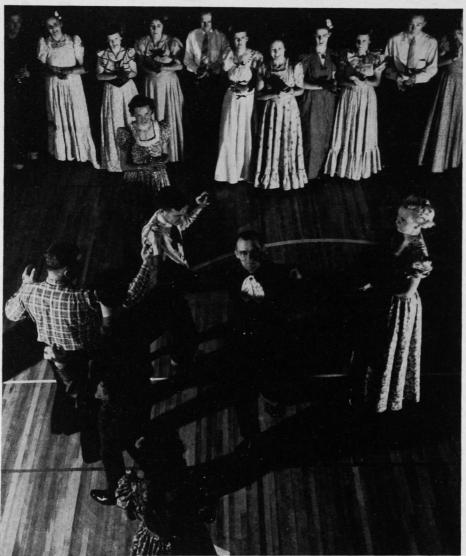
at four o'clock next morning the celebration was still going on.

Square dancing — specifically, the squares and rounds, the pattern dances of the pioneer days—not only have been preserved in the cowboy country but are enjoying a grand revival, one that already has spread to other parts of the nation.

This is far more significant than one might think. It means that a depth of goodness has been maintained through all our years of political adolescence. It means that the social level of rural people is exceptionally high, is one of this nation's most important assets along with her scenic marvels and her opportunities for industrial and commercial growth. But to un-



Docey Doe club dancing the Arizona Star.



derstand that you must understand square dancing.

It is not to be confused with the conga, the samba, the helicopter hop, or any of the other new dance steps that momentarily catch the city kids' fancy. Square dancing is superbly graceful and wholesome in every way, with not even a remote hint of vulgarity. It is the dancing held proper enough for your grandmother and mine. The actual patterns are comparable to some of the intricate things we see chorus girls do on stages or in floor shows—indeed many of their best modern numbers are lifted bodily from the square dance routines.

Uncle Dan O'Hara pointed out some of these details that night in the ranch livingroom, in the heart of the cattle range under the Tonto Rim.

"Any person, sound of body, can do that Arizona Star," said he. "Now you just take and listen to what that caller is a sayin'."

I took and listened. The caller was named Peculiar Haines—and was called Peck. He was older than Uncle Dan, which means he was past 75, and he looked for all the world like a ranch edition of Santa Claus. Through his whiskers, in perfect tone and rhythm with the music, he was chanting:

"Ladies to the center and back to the bar, Gents go in and form that Star, With a right hand up and howdy-ye-do And a left hand back and a how-are-you.

"Now meet yore honey and pass her by And take that next gal on the sly. The gents swing out, the gals swing in And form that Arizona Star ag'in! "Oh-h-h-h oomtiddy boom and a oomtiddy

And a git back folks and a give 'em room! Now everybody break and swing, And promenade around the ring — ee-YAH-hah!"

Everything he said was a command instantly obeyed in unison by the set of four couples before us. And there was much more of it, enough to seem highly confusing and complex to the person who has not danced that way. Actually, it is easy to learn and exhilarating to perform.

That evening we had six sets present and we danced a repertoire which included the Arizona Star, the Portland Fancy, the Varsouvienne, the Wagon Wheel, the Dive for the Oyster, the Schottische, the Lady Round Two, the Heel and Toe Polka, the Baby's Cradle and the Minuet. Most of them were done in sets of four couples, but some like the Varsouvienne and Schot-

"Form a bridge and all pass under," a call in the Virginia Reel being danced here by Docey Doe club of Phoenix.



Leader Charlie Mundy plays the double reed harmonica. String bass player is his son Frank "Buddy" Mundy. Guitar and banjo player is Bob Hampton. Marion Mortensen plays the piano and her husband Martin beats out the rhythm on a wash tub drum.





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tische were done as separate couples, each on its own. Those not dancing invariably helped out with the rhythmic handclapping and occasional song-an audience participation which you can enjoy even though you be in a wheel chair.

Every western and every southern state today has several active social groups who specialize in these old-time dances, and even that R.F.D. town on the Hudson, New York, has more than 40 organizations devoted to them. Their beauty appeals to all ages and types. In America, they are adaptations of old European folk dances. They reached a peak of popularity here soon after the Civil War, especially down south, and as southerners moved westward they carried the good times with them, so that the singing fiddle and the call "Sets on the floor!" have come on down to this decade.

The new popularity started just before Pearl Harbor, is steadily growing. Soldiers in Arizona, New Mexico and west Texas recently voted square dancing as their most preferred recreation—which was a little hard on the jitterbug girls who hadn't learned it. Peculiar Haines taught the art to more than 3000 men in uniform last year.

Most active soldier teacher today is Charlie Mundy, a printer at Phoenix, Arizona, who square-danced as a kid and went back to it when he had a boy of his own. Jovial Charlie's voice is like that of a Hereford bull, and to back up his calling he found three cowboys and one cowgirl who could play old-time music. Their hobby is playing for men in uniform. He has reintroduced such fine old favorites as Money Musk, Turkey in the Straw, Oh Susannah, Red Wing, Merry Widow Waltz, and others right on down to Mairzy Doats. It's not the actual title, but the style of playing, that types the music for a square dance.

Now, it would be selfish to show you square dancing then leave you out in the cold. Obviously you can't all ride up the mountain trails to be one of Peck Haines' pupils nor go to the canteens where Charlie Mundy plays. No matter. Push back the chairs, folks, and roll up that big rug. We can get things going right here in your own home!

Imagine a space 12 feet across. Place one couple on each side of that square, lady on the gent's right, all facing in. Now let's practice that Arizona Star, first with a 'walk through' only. Listen carefully to the calls:

"Ladies to the center and back to the

That's easy. Ladies simply two-step to the center, bow quickly, and back-step to position.

"Gents go in and form that star, with a right hand up . . .

Easy again. Gents two-step to the cen-

ter, clasp right hands palm to palm at head height, then continue two-stepping in a circle using the crossed hands as the pivot

"And a left hand back . . . "

Gents turn right around and re-form the same "star" figure by clasping left hands. Keep two-stepping in a circle, but now going the other direction, of course.

"Meet yore honey and pass her by."

Just ignore your partner; two-step right on by her as she waits.

"And take that next gal on the sly."

Do exactly that, gents. Crook your right elbow, so she can hang on to it and start dancing in the circle with you. Now all four couples are circling, two-step, with the men's left hands clasped by couples and crossed.

"Gents swing out and gals swing in."

Men swing to the outside of the circles. girls swing in and clasp right hands, crossed, as the men had done. Direction of motion is reversed again now, but you have "formed that Arizona Star again."

"Everybody break and swing and promenade around the ring," is simply a hip swing with the girl at the man's right side, then both hands held as the couples march in a circle to original positions, where they stop and bow. Now each gent has a new partner. The whole maneuver is repeated until he gets his original "honey" again.

That's one basic dance. Preceding it will be preliminary motions—"allemande left and a grand right eight," "docey doe," 'all jump up and never come down, swing yore partner round and round," and many variations which you easily can learn and which warm you up to the main dance. Most callers will add a kind of postlude or finale to each dance, too, for further pleasure.

Look around you-somewhere in your community there's a square dance tonight! Churches, lodges, schools, clubs, are always sponsoring them. But if necessary, just gather a few congenial friends, buy a few phonograph records (special square dance records are available), get one of the 50-odd books and pamphlets on square dancing from some library, and teach yourselves at home. You can have a swell evening just learning!

One midnight recently my "honey" and I were leaving a square dance at Hotel Westward Ho in Arizona when Roy Wayland, perhaps the richest man in that state. bade us goodnight and said, "You know something? This is the finest, most wholesome recreation in the world. You simply cannot carry your income tax problems, your business or family affairs, or any other sort of worries with you when you square dance. All you can do is forget troubles and be gay."



Part of the Bagdad Copper corporation camp, looking west from top of headframe. Clint and Helen Anderson live in one of the three houses to the left. Warehouse, center foreground. Assay office, extreme right foreground. Hospital and nurses' residence across the wash.

Life in a desert mining camp would bring out a rebellious streak in many women—but not Helen Anderson. Her home is 30 miles from the postoffice; it faces a hillside scarred by cave-ins from old copper workings; summer electric storms have hazardous results at the mine where her husband sometimes puts in a 50hour shift; trucks and the planes overhead add their roars to the raucous sounds from the mine and mill; when she looks out her window her "view" is of ore being brought up the shaft and dumped... Yet she finds inspiration here. For past that same window a cardinal flashes crimson; in the folded hills about her is a rainbow of wild flowers and a "rock garden" of blue and green and mottled ore so vast the most rabid collector couldn't carry it away. And she knows these man-made intrusions will never change the desert sky nor dull the red-tipped crags.

Miner's Wife in the Copper Hills

By HELEN ASHLEY ANDERSON Photographs by Clinton Anderson

HIS is copper country. The quiet of the Arizona desert is broken. There is industry in the hills where the giant saguaro stands king among the cactus.

Noises from copper mine and mill echo back from the hills to the camp where we live. Cars and trucks and the occasional roar of a big bomber shatter the silence as I go about my daily tasks. At first these sounds which did not belong to the desert grated on my nerves. Now I have grown used to them, and the copper stained hills about us are an inspiration to the collecting instinct of a rockhound.

Our camp is midway between Prescott and Parker Dam in Yavapai county—a long way from anywhere. Phoenix is 100 miles away, Prescott 75, and we drive 30 miles to the postoffice at Hillside when we have the gas. But mail and supplies are trucked in daily, so we manage quite well.

Our house is located on the south side of the hills that form a queer-shaped bowl. We look up instead of down, and the steep sides of the hill across from us are scarred by the dumps from the old shaft and the cracks in the earth where the mountain is caving in above former workings.

During the early days it was seldom we got a full night's sleep. My husband Clinton was awakened not once but sometimes two or three times a night to rush to the mill or mine of the Bagdad Copper corporation. Once he put in a 50-hour stretch, coming home only long enough to eat.

Sometimes it rained. During February the roads were so slick it was difficult for the truckers to get in and out. Sometimes it snowed—which surprised me almost as much as it must have startled the lizards of this arid land. But the moisture made the hills look cleaner, and I am sure all growing things were grateful for the life-giving water granted them.

Occasionally last summer we had bad electric storms, such as the one that came suddenly out of a hot spell in July.

We had just finished dinner when the storm gathered. Before long it was dark and lightning streaked the air, followed by loud claps of thunder. The lights went off, blue flame licked the transformers and the most unearthly noise penetrated the din. Not bothering with his coat, Clinton grabbed his hat and lit out for the compressor room. In the ensuing moments the high tension line was hit and the power went off. The throbbing of the mill died and the pipe lines started to clog.

After some time the lights came on. Still no sign of Clinton, but when things finally calmed down he came home to dry clothes and a cup of hot tea with the report that one-half of the compressor was completely ruined.

These were some of the new and sometimes terrifying experiences to which I had to accustom myself.

The mine is a vertical shaft 500 feet deep, and the ore is hauled in trains pulled by battery locomotives to the pocket at the bottom of the shaft where it is loaded on skips.

This skip is a two-compartment combination cage and skip. The lower deck is used for transporting men and materials to "Dutch" Van Brunton loading concentrates for the first lap of the journey to the smelter.

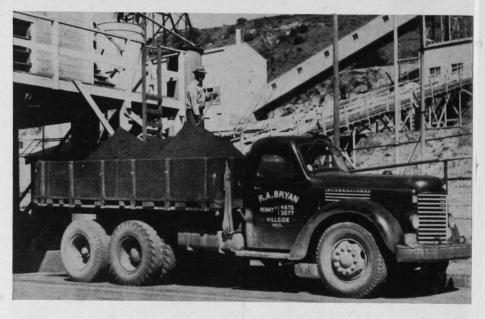
and from the surface. The upper part is made like a huge bucket which is hinged on its frame so that it dumps automatically. This bucket brings the ore up the shaft through the 125-foot steel headframe (the highest headframe in Arizona) and dumps it into the bin. I can see these skips dumping from my kitchen window.

The bright stained rock cropping up all over the hills is not the kind that Uncle Sam wants. He is interested in this ore that comes up on the skips.

The skips are brought up by an electric hoist that is busy night and day tripping its burden into a great steel tank poised above the jaws of the crusher that breaks it into pieces, spews it out onto conveyor belts and thence to another crusher where it is ground still finer before being sent to the ball mills.

These ball mills are enormous revolving cylinders loaded with steel balls. The ore is fed into these ball mills where water is added to control the density and fineness of the grind. The pulp then is classified, ready for the flotation machines.

The flotation machines are marvels of science. Man's progress in the metallurgical field would have been considerably



hampered without them. They are the very heart of the mill where the finished product, a copper concentrate, is skimmed off in the form of bubbly froth.

To obtain this froth, reagents of oils and chemicals are added to the pulp, and in these flotation machines are fast-spinning agitators, or impellers that thoroughly mix and agitate this pulp until each minute particle of copper is coated with the oily reagent and floated to the top of the machines to be skimmed off as concentrates.

The waste, or tailings as we call them, not being acted upon by the reagents, sink to the bottom and pass on through the machines into thickener tanks where nearly half of the water used in the mill is reclaimed and used again. When the tailings leave the mill they consist of about one-quarter ground rock and three-quarters water. After the "thickening" process, the tailings are the consistency of thin mud.

Fresh water is pumped seven miles through a ten-inch pipe line from a small creek down the canyon. A man and his wife tend the pumps at Burro creek. He has one shift, she the other.

After the tailings are thickened they run through a pipe line five miles down this canyon and are stored behind dams so that the water below will not become polluted.

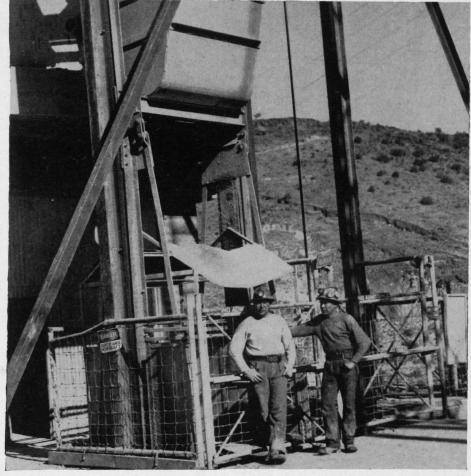
The mill has a capacity of 2500 tons daily so it produces a lot of tailings.

Occasionally the ball mills spew out little copper nuggets that would delight the eye of a rockhound. Unfortunately for him though, they have to stay there as they are a part of the product of the mill, being used in ammunition, the building of planes, ships and tanks, as well as the hundreds of civilian uses such as those in the electrical industry.

Great chunks of chrysocolla and slabs of green and mottled ore lie in wanton waste all over the hills. At least, it seems waste

At first I could hardly bear this seeming waste but now have become immune to a "rock garden" so vast that it could not possibly be moved by the most enthusiastic

to people interested in rocks. It is too low grade to mill and therefore useless as a product. The public is not encouraged to collect Manuel Parra and Rumaldo Danials ready to go down the mine. Skip in background.





Helen examines a copper stained specimen.

here, and unless one had a special permit from the owners, it would not be advisable. However, there are miles of open ground where these copper outcroppings may be seen, and anyone desiring to prospect on this open ground could do so.

So far as field trips are concerned, my collecting is limited. It takes all the gas we can save for an occasional trip to town, so I bide my time, content with other occupations. But I have collected a few mineral specimens in the vicinity, such as chrysocolla, azurite and chalcopyrite. Also some lead and iron. One specimen is especially attractive. It is not large, only about five inches square, but it is of a very blue chrysocolla mottled with red jasper with the lower left corner of black mica.

In the area, but several miles from here there is some virgin ground where moss agate can be found. There is no road to the place, but some day we plan to make the trip by the old and proved method of walking. We expect a most interesting trip, the one big drawback being rattlesnakes. However, a rockhound cannot be intimidated even by snakes when he is on the trail of moss agate.

Partly compensating for lack of rock hunting expeditions is the abundance of plant life here in the folded hills.

Giant saguaro, prickly pear, palo verde, juniper, scrub oak, mesquite, catclaw, creosote, ocotillo and many others march down the vistas side by side in a lavish display of color. The hues of the flowers are so many and varied that a listing would run into a long catalog. Foremost of my favorites is the beautiful ocotillo, with its long green stems tipped with crimson plumes.

The flower on the cholla blanca around here is the palest green, contrasting with the bright pink of beaver tail cactus. One never ending wonder is to see so small a plant as the century, or mescal flaunting a great stalk topped with heavy blossoms while the giant saguaro, many times its size, wears a modest wreath of small white wax-like flowers.

The palo verde and mesquite deck themselves in gay yellow trim while the ironwood is veiled in lavender lace, and the purple lupine threads its graceful way across the hills to mingle with neighboring plants. Some of them are tall and garish and rank smelling. Some of them tiny and fragile and daintily perfumed.

Cottonwood and sycamore grow along

the creek beds, and vines with little red bell-like flowers climb into their branches.

Of all the flowers one stands foremost in beauty. It is the golden or orange brown-throated mariposa lily that blooms along with the California poppy and the white and yellow daisies that are so abundant during the months of April and May.

As I write the sun climbs high in the heavens and the earth reflects back the heat from its dry breast. It can be very hot, although the nights usually are cool and refreshing before the dawn of a new day.

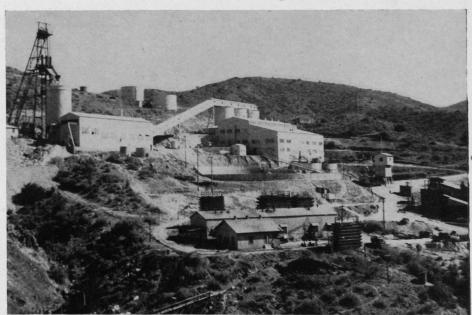
The mill is rolling along. Its roar shatters the stillness of the desert air and makes us aware of man-made things. But it cannot change the sky, nor dull one red-tipped crag, for centuries of setting suns have painted them, and the night erased their colors a trillion, trillion times.

The desert seems made for quiet things, and at evening I like to remember that the old haunts of silent meditation await us as we look forward to the promise of a tomorrow when the breeze again will blow across the sands of solitude and content rule a peaceful earth once more.

In the meantime there is the hustle and bustle of an ever changing camp. I can hear the skip at the top of the headframe. The bucket is dumping. The ore rolls down the chute into the tank, the dust fans out, settles, and the skip slides back down the shaft.

A cardinal is a flash of crimson past my window, and the drone of a plane riding high blends with the familiar noises so that I am reminded that all these things, both big and small, are a heritage of the present day, and therefore an integral part of this land we love.

General view of the copper plant, looking east from an old mine dump. Left to right—Headframe, tank, crusher building, conveyor and mill. Water tanks on hill above mill and concrete settling tank below.



THE DESERT

By James B. Dummer San Diego, California

My task is in the city,
In the crowded mart and street,
Midst the roar of clashing traffic
Midst the rush of strident feet.

My heart is in the desert,
Where a yellow hunter's moon
Casts its mellow radiance
O'er shifting grey sand dune.

I long for endless mystic trail, And a campfire's ruddy light, 'Neath stars so close above me, In a breathless, silent night.

I dream of rosy, tinted clouds, Above the desert's rim, And the hush of sudden daybreak O'er a landscape vast and dim

I think of rare oases,
Where bright blue lupins glow,
Of tufted palms beside a spring
Where verdant grasses grow.

And I'd like to leave the city

Leave the crowded mart and street,

Leave the roar of clashing traffic,

And the rush of strident feet.

ALONE

By E. A. BRUBACHER Balboa Beach, California

I wait and watch by the desert For someone who comes no more. I wait and watch by the desert On the desert's sandy shore.

I hear the song of the night bird On the little cactus tree. I hear the call of the yellow coyote, Things that are alive and free.

But I'm a captive bound with chains In the desert vast and old, Bathed in all its jeweled splendor Its silver and amber and gold.

I wait in the jeweled desert For someone who comes no more. I wait and watch on the desert On the desert's sandy shore.

TO THE EAST WIND

By Theodore B. Dufur Banning, California

O Wind of the East, when I hear your song Roaring and bellowing all night long; When I see your violent, madcap flight Tearing the star-decked, velver night, With whistle and whoop and shivering creak As with clutching fingers the roof you seek, From your fevered breath my nostrils learn The scent of the desert, dry and stern.

Destruction lies in your wake, I fear, As you shake my house in your mad career. Methinks each brightly twinkling star You'd brush from the midnight sky afar; Or the jolly moon's round, dimpled face From the vaulted heavens you'd quickly chase, Where he calmly hangs above the hill And smiles as you wreak your savage will.

O Wind of the barren, desert land, Sweep onward down the path of sand! Sweep onward in your howling might Till the wheeling gulls you put to flight And over the waves in foaming wrath You drive the vessels from their path. Though you shatter the earth from Pole to Pole, Sweep on, East Wind, till you reach your goal!

Desert Dreams

By URSEL PETERS Los Angeles, California

Give me a tent and sleeping bag And a glimmering fire close by, Give me a desert dawn again, And the stars in the desert sky!

Give me the sun-baked rocks again, And the spring in the barren sand, Give me the shifting dunes again, And the trackless, lonely land.

Give me the bacon crisp from the pan And a sizzling coffee pot; And a sweet long drink from the cool canteen

When the sun is blistering hot!

Give me a heart that is free again To follow the lure of Lent; Give me the wind of the desert again, And a comrade to share my tent!

MOON OVER GRAND CANYON

By ROY A. KEECH Santa Fe, New Mexico

A topaz Lavalier hangs from the throat Of my dark lady, Night, As she looks into A Byzantine Mosaic.

DESERT MOON

By THEODORE B. DURFUR Banning, California

Thou desert moon
Beyond the barren rampart of the east,
New risen—
Behold, a grim and eerie solitude
Of naked stone,
Atremble with the cry of coyote band,
Shrilling, reechoing, rebounding
In wild reverberation to the sky.
Through desert bush,
Agleam in thy chill ray,
I hear the wail of desert wind
And, wondering, muse.

O silver orb of mystery,
Why shed thy frozen light
On erring world?
Alone,
A thing of human frailty,
I have no vista but the purple hills,
Awful, upflung to meet the jewelled vault,
Heap upon heap, in dread sublimity.
Yet in the rock-bound wilderness my soul
Has found content.
Immensity reigns here beneath the moon—
Immensity and peace, beneath the moon.

THIS MESA

By George Scott Gleason Flagstaff, Arizona

Strange this mesa that I rove Has neither tree nor wooded grove. No tree, no tree, lifting high, Pencilled dark against the sky.

Naught but this, the low mesquite, Scrub and mesquite beneath my feet. League upon league, naught but these, Wide, oh wide—the great swell of seas.

Softly, softly, as I pass, Its turquoise blue, I glean, amass. Its clouds, bits of its bright sky, These I take with me as I ply.

Strange this mesa holds for me Beauty others cannot see.

OUR TARAWA DEAD

By Dora Sessions Lee Prescott, Arizona

When the desert blooms
They'll be coming back
To the land they love to roam;
From their graves 'neath the palms
They will rise and tack
Their sail for their desert home.

DESERT LEGEND

By RUTH REYNOLDS Tucson, Arizona

Time dropped a page of diary here And covered it with sand, Where the sea had left a footprint Then yielded to the land.

Mortised in the brittle earth Are fragments of lost art— The culture of an ancient race Asleep in the desert's heart.

The ages, creeping slowly past, Have showered varied gifts Over the land, and from the sky Sunshine or starshine drifts.

And ever the desert weaves her spell, And her balms are myriad, save She has no greenery to spread Over an old, old grave.

So, faithfully above the dead, When plaintive slow winds sing, She lights the ocotillo (God's candles) every spring.

GOLD IN THEM HILLS

By LEE A. WATKINS Encinitas, California

"Thar's gold in them thar hills," An old man said to me; So I took my burro and my pack And I started out to see.

I crossed the desert's burning sand, And climbed the mountains rough; I dug holes and broke big rock, But I couldn't find the stuff.

At last a mountain stream I found, Its bed was shining sand, And e'er I slept that night A tiny pouch I'd panned.

"Thar's gold in them thar hills," I dreamed it o'er that night, And waked to find the shining gold, And I knew that he was right.

DESERT WINDS

By MARIE MACMILLAN
Hollywood, California
The soft winds blow from the desert lands
And bring me rare perfumes
They gathered from the desert plants,
The thorny cactus blooms.

•

They whisper of a starlit sky
Above an open trail;
Of nature's tiny creeping things;
The lonely coyote's wail;

The beauty of the yucca plant;
The weird old Joshua tree,
That thrills me with the mystery of
Its great antiquity.

Some day I'll go, when the soft winds blow Across the desert floor, Their secrets I'll know, when with them I go The cosmos to explore.

THE DESERT MAGAZINE

Rider has discovered a new world. His passport to this strange land of hitherto unknown wonders was salvaged from material considered useless by its former owner. But to Rider breath taking beauties are revealed by the low-power lens found in an old camera view-finder. Tiny flowers and herbs, microscopic animal life—a new layer of existence just beyond the range of the unaided eye—have come magically within his vision.

Desert Refuge

By MARSHAL SOUTH

T ONCE had been a prosperous village. But it was abandoned now. Under the desert sun it lay bleak and melancholy. Around the edges of the hard trampled area that once had been vibrant with the goings and comings of busy life there still were strewn evidences of industry. Great piles of earth and rocks, excavated from underground kivas and dumped by the excavators; huge deposits of household waste and village trash that had been likewise carried to the edge of the settlement and there thrown in ridges. The old dim trails that led out into the desert land to the north and to the west still were visible. But nothing moved upon them. Only the lonely wind stirred the bunch grass and sang a low dirge of silence—and of death.

Suddenly we saw the shrunken, motionless bodies huddled upon the earth. And in the same instant we glimpsed the monster. An ugly, uncouth thing, bulking gigantic as he bent horribly over the twisted corpse of his latest victim, he stood over by one of the village refuse heaps. At sight of him we

stopped dead in our tracks.

Perhaps one would think it absurd to be affected by the sight of an assassin bug or to be disturbed by his brutal slaughter of the last survivors of a once teeming colony of harvester ants. Especially when all over the earth men are slaughtering and maining their fellow men by every brutal method devised by science.

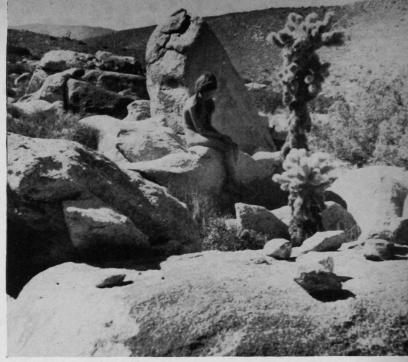
Yet death is death. And be it of solar system, world, man, ant or microbe, it is an event of solemnity to the victim. So the sight of that rapacious, blood-sucking brute and the twisted shapes of his ant victims, as we saw them that desert afternoon, affected us strangely. It was as though we, as gods, looked down upon a devastated city of humanity. Somehow there was a feeling of horror about it, recalling some of those odd tales that the Navajo tell—of how the cliff dwellers originally chose their precipitous dwelling sites so that they might be safe from the monsters that roved the earth in the misty dawn of time.

We stooped closer to investigate. We had known that colony of harvester ants in its prime, and had seen it many times when the tiny trails that led to it were thick with hurrying inhabitants, bearing home their burdens of herbs and seeds. We had watched the builders staggering out of the big tunnel entrance carrying rock grains which, relatively speaking, we ourselves could not have stirred. We had watched the busy workers come from the underground threshing floors with their loads of husks and waste to dump upon the trash piles.

Now all was silent. Nothing but a few dead bodies—and a hideous, long-beaked creature sucking the blood from a still

limp body. The tribe was extinct.

This was our first experience with assassin bugs in connection with ants. The desert ant, especially the large black one, is a fighter not to be despised. Speaking from painful experience we would prefer to be stung by an ordinary scorpion or a bee than to be bitten by one of these ant warriors. Yet here was



Bigelow chollas growing on an ancient camp site on Ghost Mountain. Seated figure is Rider.

evidence that they were prey to something stronger and much

more gruesomely savage.

How long that particular bug had haunted the village we had no means of knowing. It did not seem—and still does not seem—possible that he could have been responsible for the destruction of the colony. For while there were a lot of huddled sun dried little corpses strewn around, which obviously were those of his victims, still there were not nearly enough to represent the ants which had occupied the place. Perhaps some other destruction had fallen upon the town. Or perhaps, after the slaughterer had taken up his abode in the vicinity, the colony had abandoned the place. At any rate the monster had had an orgy of gruesome killing, liquidating the last survivors and

stragglers.

He was an ugly fellow—if judged by the horror that his nature inspired. Otherwise I suppose he was handsome enough in his markings of red and brown. For, in actuality, there is nothing created by the Great Spirit which we-who judge only by our own prejudices—have a right to call ugly. He was full of courage and intelligence, too. For when Rider picked a dry stalk of bunch grass and pried him away from the body of his last victim, he went grudgingly, backing off and facing this thing which he could not fight, with every show of rage. He refused to be routed, always backing away, or walking sideways, with a truculent gait that had in it nothing of cowardice. We hated him because of his brutal slaughtering and blood sucking of industrious little beings that have much in their activities that is akin to our own scurryings. But we conceded the monster his right to live and to fulfill that place in the scheme of things which the infinite wisdom of the Great Spirit has appointed. For, in the balance of this imperfect physical existence, the destroyer is as important as the upbuilder-a fact which many people fail to realize. We went away finally and left the monster still haunting the village ruins.

Ants always repay study. Perhaps, if you reason deeply enough, the lesson to be learned from them is a broader and more ominous one than the glorifying of industry. But aside from this, their actions provide plenty of food for thought. My friend A. R. Wellington, who used to live at Ocotillo, and who is deeply interested in nature, believes that the central nest sends out impulses like radio waves, for the guidance of the roving individuals who are afield. Whether this is so or not could not be definitely asserted without considerable investigation.

From my own observation, I am convinced that something of the kind is true. The way in which ants locate food, in seemingly inaccessible and unlikely places, is puzzling. And watching colonies which were closing up their citadels at evening time or against inclement weather, I have observed "signal" ants mount to high points close to the main entrance and, facing this way and that, apparently send out "calls"—the effect of which was to make the last stragglers, far down the trails, redouble their speed towards home in a surprising manner. The Ant People move and exist in a separate world and undoubtedly are largely unaware of our existence.

Rider, who always is investigating, has discovered a new world—one containing more thrills than that found by Columbus. With a small lens, which he salvaged from an old camera view-finder, thrown out as useless, he has begun to explore the mysteries of those regions which lie just beyond the range of the unaided eye. He is fascinated by the results even from his low-power magnifier. Tiny flowers and herbs, that one ordinarily would pass without noticing, reveal unexpected beauties that are breath taking. A wealth of tiny life exists in the desert. And it is for the most part unknown. Many worlds has the Great Spirit set, one within the other and each complete within itself. Yet men close their eyes to all save the affairs of greed and hate.

Crack! Crack! . . . Crunch. Nibble. Nibble. A mouse? Oh no! Just Victoria at her favorite occupation of eating piñon nuts. Always, it seems, Victoria is nibbling piñon nuts. She is more industrious than a squirrel or a packrat. In the early morning, after she wakes, you hear her little fingers scuffling through the bowl of nuts, hunting for the largest ones. In the hot afternoons, when the yellow mustard flowers along the outside wall are drowsy in the sun and all the far desert lowlands shimmer in the dancing mirage, you hear her tiny white teeth crunching down happily upon her favorite delicacy. In the evening, when the lamp is lit and the mice steal out of the shadows and the night wind skirls above the lone roof of Yaquitepec, she still is nibbling. "You should weally exercise some disquession," Rudyard admonishes her often. "If you don't you are going to upset your eqwilibrium an' be twansformed into a twee squirrel."

But Victoria just giggles. And goes on nibbling nuts.

Nor is she alone in her liking for the toothsome little brown morsels—though she easily heads the list as a star consumer. All the Yaquitepecos have a weakness for piñons. After an evening session the table, with its litter of empty shells, looks as though a troop of chipmunks had banqueted there.

The ideal way to crack piñons is with your teeth—at which Victoria is expert. But each one of us has developed, in addition, a side method which is called into play for variation. Tanya uses an old pair of pliers that harks back to the days of the model T Ford. Rider cracks his adroitly by the aid of an ancient cannon ball (a feat no one else can duplicate). Rudyard is fond of a particular bit of wind-rounded stone that came from the vicinity of the Salton Sea. As for myself I have found nothing, for speed and efficiency, which will compare with a long-bladed, ancient knife—used back down and hammer wise.

The piñon nut is not as popular as its virtues give it a right to be. Many people find its small size makes it too tedious to be bothered with. Yet it probably is the most healthful of all our nuts. A natural product, a true food of the wilderness, its goodness has not been "legislated" out of it by cultivation and 'selection" over a long period of time. My first acquaintance with the piñon nut dates from a day in Mexico, when to the great scandal of aristocratic friends, I took a long railroad journey, third class, among the lovable Mexican Indians, who in those days patronized third class travel exclusively. My seatfellow, Don José, a kindly leather-faced old son of the desert, had a great red bandanna, knotted cornerwise, full of the little brown nuts, to which he promptly introduced me. And for many a league, while babies squalled and fighting cocks gawked and stalked among the seats and the panting little locomotive hauled us south through the dust of Sonora, we munched piñon

nuts and exchanged friendship and homely bits of desert philosophy.

Which brings us to the name, Yaquitepec. Many friends have asked its derivation. And how to pronounce it.

It is a word compounded from two others. Yaqui—the name of that tribe of fiercely freedom-loving Indians who live in Sonora, and Tepec, the Aztec word meaning hill. As, for example, Chapultepec—grasshopper hill. Thus Yaquitepec means simply Yaqui hill, or hill of the Yaqui. And it is pronounced YAKeete-PECK. Not Ya-KEE-tepeck, as so many mistakenly suppose. Ghost Mountain is quite a considerable jumble of rocks, in its own right, and Yaquitepec is the name we have chosen to designate our house and its immediate surroundings. As for Ghost Mountain itself, the name is self explanatory. This is an ancient bit of the desert. And an ancient mountain whose weathered boulders are steeped in the sense of half forgotten things.

The new cistern isn't finished yet, and the outside catch-pool long has been dry. Cement work does not readily proceed without water with which to mix the materials. And we dare not use any of the precious store in the drinking tanks—which already are going down at an alarming rate. So we wait for some summer thundershower to give us surplus water. Years ago, before Boulder Dam was finished, we could count on one or two—sometimes three—good rainstorms in the summer. But now that the blue surface of Lake Mead has upset the desert moisture balance and the thunderstorm cycles have altered accordingly we never are sure that we will get anything. But we shall continue to hope that the Thunder Birds will flap at least one good shower our way before the summer passes.

And now I have come back, after carrying the mescal beetle outside. I barely had struck the period in the paragraph above when loud shouts from Rudyard and Victoria proclaimed that another long-time resident of our mescal beams had forsaken the old home and decided to go forth into the world. So I had to go and rescue it from the confining bounds of the house and set it free in the outer air. Gay and handsome fellows, these mescal beetles. Members of the numerous Long-horn family, they look very smart in their dull red wing cases and long slender feelers. All winter, in the grub state, they have been boring and nibbling channels through the lengths of the mescal poles which we have stored, to season, across our ceiling beams. Fat and industrious though they are at this stage, they are very helpless, and several times during the winter we had the job of assisting back into their tunnels, individuals who had tumbled out and landed upon the floor.

And now that these helpless grubs have gone through a death change and have risen as winged beings, they come forth as into a new heaven. An inch and a half long, some of them, with feelers often a full half inch or more longer than their bodies, they cannot understand why screens and walls prevent their reaching the wide world. And they fuss and buzz about until turned loose in outer space. The Indians knew this class of beetles too. In the grub stage, carefully fried in grease, they make excellent eating. Carl Lumholtz, that prince of desert explorers, having enthusiastically gotten away with two heaped platefuls served him by his Indian hosts, declared (before he knew what they were) that they were delicious, tasting something like roasted peanuts.

FREEDOM

Oh to be free! To labor as I feel
The will to labor only for my weal,
Not driven by the clock, howe'er I may
Dispense my future, cautious of the Way.
To feel the wind upon me, and the sun,
Or lie at ease upon the grass, as one
Luscious with endless hours on hours untold—
Ah, that is worth so much, much more than gold.

—Tanya South



Accumulations of salt about the pilings of the railroad bridge across Great Salt Lake. Crystallization takes place only in late summer or early fall, when the salty water of the lake has reached a saturate solution due to excessive evaporation. Later in the season these crystals dissolve and the deposit changes chemically to a chalky white substance which crumbles easily.

When Frank Call, who is surrounded by a sea of salt every day, lugged home a back-load of salt he was afraid his family would think him "plumb goofy." But they didn't—for this was no ordinary salt such as they saw each day and such as they often scooped up to put in the ice cream freezer. This salt Frank had found about the pilings of the railroad bridge which crosses Great Salt Lake in Utah. He had descended a ladder below the bridge, then suddenly found himself in a fairy-like crystal grotto where every piling and stringer was covered sometimes to a depth of more than a foot with the most beautiful formation of halite crystals he ever had seen. Right then a hobby was born. Many collectors in America, including Franklin D. Roosevelt, now have specimens which Frank has col-

He Found Beauty in Salt

By BERTHA GREELEY BROWN

VER since Frank Call had sent us halite crystals for our mineral collection my husband and I had planned to visit him at his Lakeside, Utah, home. But he warned us not to attempt to reach the place by car, and added, "Foolhardy persons have lost their lives trying it. The only road in here is a trail over the desert and the winds keep this obliterated most of the time. Come by train from Ogden, over the railroad bridge 'cut off'."

At snail's pace the train rumbled over soggy, salty, old lake bottom, then over miles of rock-fill, 12 miles of bridge proper and again six miles of rock roadbed. The only break in the monotony of mud, fill and water was Promontory point, a bold palisade of cyclopean boulders reaching far out into Great Salt lake from the north.

At Lakeside, the train stopped just long enough for us to lurch out onto an embankment of jagged quarry rock, paralleled on both sides by beds of sand. Before we were balanced on our feet the train plunged its snaky length into a shimmering sea of heat waves breaking on the opalescent rim of a limitless wasteland. This barren area, reaching from Salt Lake southwestward to the Nevada line, is the Great Salt Lake desert, a catch basin for few rains and few rivers, a vast inland system of drainage where the only means of moisture escape is by evaporation. The dry basin is connected with the present Great Salt lake by a wedge-shaped estuary ending in a narrow passage at Lakeside.

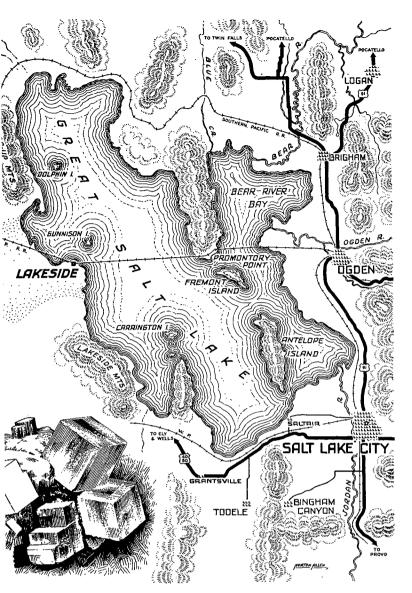
Only break in the monotonous train trip from Ogden to Frank Call's home near Lakeside was Promontory Point, a bold headland of tumbled boulders reaching far out into Great Salt Lake from the north. Photo courtesy Ogden chamber of commerce.

The flatness of this steppe is relieved by steep, isolated, north and south ranges of monoclinal structure, constantly disintegrating and depositing detritus over low levels.

The mile walk along the track to our destination was flanked by a dozen railroad company houses, clinging to the terrain more by tenacity than by foundation. No one was at the Call home. We were not surprised for Mr. Call had written, "The door will be unlocked. Go right in and wait until I come."

Ten years ago the waters of Great Salt lake lapped at Lakeside's back door. Since then the lake has receded more than a mile, leaving long, slender, briny fingers still clutching at the





old shore line. Crowding the front door of the Call home was a diminutive garden kept alive by water carried many a mile in tank cars. I watched globular grains of sand eddy about vegetables while zinnias stood in a border and flaunted bold color to the whip of a stiff wind.

We heard the purr of a car as it slid smoothly in from the west over railroad tracks, then a quick step on the path. Ito, an amusing canine blend, whined joyously. The door opened and there stood Frank Call.

"Came by train?" he asked as he held my hand in hearty grasp.
"Well, we're here. Isn't that the answer?"

"I was worried, afraid you might try the road." He sank into a chair tired from heavy work and heat of the day but he continued to speak with energy, vilifying the desert, like a parent

quick with a slap, followed by a caress.

"This land is utterly merciless. Hot winds, salt laden, lash and bite at one's flesh until it is raw, a Frankenstein monster destroying the pulse of life that beats in bird and beast and man." His manner was grim for past tragedies were crowding his thought. Then roundish desert-stung features softened. This and his short stature gave him a boyish look as he added, "But it is redeemed by its eternal changes. Lo, and it is mellow, peaceful, friendly—even more than this—the air is incense, the silence music, and distant haze a lure. It bewitches until one renders it his heart. Its moods are a challenge. I tell you I love it. And all my feeling for the desert is shared by Mrs. Call and the children.'

Our correspondence had begun when we received halite (sodium chloride, salt) crystals for which we sent him polished semi-precious stones. Frank Call did not single us out for special favor for soon we learned he was sending halite to museums, offices, schools and to mineral hobbyists everywhere. A beautiful group of crystals went to Columbia university and another to Franklin D. Roosevelt. Carefully tucked in a pigeon-hole of Call's desk was a letter of thanks from the president.

"I'm glad," he said, "when I get minerals in return but I never dicker for them. I do like to feel the halite is appreciated." This man, not moving from his isolated environment, has reached out a hand of friendship to the world and it has responded

by knocking at his door.

"These," said Mr. Call, speaking of the specimens in cabinet and desk, "are about all—oh yes, and the stove—that I keep here when I am batching. Mrs. Call and the children live in Ogden during the school year. This rock hobby is being practically forced on me and when the pile verged to out-of-bounds my oldest boy, Wendell, helped me work out a card index with data of specimens, localities and donors.'

While we looked at the collection Mr. Call told us about his

halite collecting.

"I have been stationed on this west side of Salt lake many years and have traveled back and forth over these flats hundreds of times but until three years ago I saw no particular beauty in salt. Of course it is mighty necessary, in small amounts, and kinda handy too for the children to go out and scoop up to use

in freezing ice cream.

"One afternoon my work took me on an inspection tour to the west end of the railroad bridge and I let myself down under the bridge on a ladder to survey the condition of the pilings and stringers. I got clear to the bottom of the ladder before I realized I was in a veritable crystal palace, fairy work. Every piling and stringer was covered to the depth of inches—yes, in some places over a foot, with the most beautiful halite formation I have ever seen—and I have seen a-plenty. I have lived in the salt area enough years to kick tons of it around under my feet but this was just different—so much so, I found myself exclaiming over the glassy, symmetrical beauty before me.

"I began to pry chunks of these crystals loose, using a bar with one hand and holding tight to the heavy halite with the other, working laboriously and carefully for fear the pieces might slip from my grasp into 40 feet of water. When I got all I could lift to my back I started for home, thinking all the time the family would believe me plumb goofy when they saw me lugging home—salt. But they didn't. They exclaimed over it the same as I had. That experience stabilized a viewpoint I had entertained for a long time—it is never foolish to gather about us

the things we feel are beautiful.

Then my boys helped me on my collecting trips. To get to the halite from Lakeside means a walk on the rock fill. This alone is a man's work, 12 miles—six to the bridge and six back—and this over rocks that literally tear the shoes off one's feet. Passing trains are enough to scare the life out of one and really dangerous, for the margin of safety between the swift moving wall of cars and deep water is small. Among other experiences, we often got a briny bath to boot. The wind will come up in a jiffy and whip the lake to a froth with waves running high enough to engulf us.

"By the time I had collected a nice pile of crystals I wanted to share them. My first opportunity came when I heard from you folks saying you had seen a piece of halite I sent to the museum in Temple Square, Salt Lake City. This shipment to you was the real beginning of giving away crystals."

Water in the Great Salt lake averages 17 per cent salt, three and one-half times as salty as the ocean. On the Great Salt Lake flats is a saline deposit from one to 20 feet in depth, a salt field 65 miles long and from one to 20 miles in width. The whole area was called, by early scientists, Lake Bonneville, of which Great Salt lake is a shrunken remnant.

Frank Call explained that crystallization on the bridge pilings and stringers takes place in late summer and early fall when the waters of the lake reach a saturate solution. Later in the season these crystals dissolve and the deposit changes chemically to a chalky white substance, crumbling easily.

Halite crystallizes in the isometric system, usually in cubes but frequently in a curious hopper-shape in which each face is hollowed out. The crystals formed above the water line have these concave faces—like cubistic intaglios. Those formed below have small cubes superimposed upon the surfaces of the larger ones.

It was getting late but conversation continued, touching upon those things men live by—work, love, faith. Frank Call talked of his ancestors, intrepid pioneers of Utah. All they suffered, all they taught and all they were is his inspiration, his legacy and his endeavor. A low resolute note in his voice left no doubt that he held in veneration, their works, their wisdom and their faith.

"All my life I have been in this state with the exception of 10 years spent in Mexico. When I selected my missionary field I decided on border towns, preaching to the Spanish speaking people in their own tongue. Now my church work takes me to Ogden where I preach, in sign language, in a Mormon church dedicated to the deaf and dumb."

As Frank Call told of these duties he unconsciously demonstrated. Hands that know hard work took on expression

Frank Call holds two large clusters of halite crystals, each crystal beautiful, symmetrical, shining.





Frank Call said if the lake would "do her part" he would do his in getting pictures of the halite crystals. But the bridge now is under guard, and at the time this photo was taken the salt still was thin. Frank is prying off a cluster of crystals. Notice the small crack at the point of his bar. Next step is to kneel down and hold the heavy cluster with one hand while prying with the other. Often fingers and hands are severely cut while doing this. Corners of the crystals are as sharp as glass. And if he lets the halite slip—it goes down 40 feet.

and grace, their movements putting into words reverent thoughts and deep-rooted convictions.

Morning broke with disappointment. Plans for a hike to where halite was forming had to be scuttled. We have been seaside dwellers too long to adjust ourselves immediately to an elevation of over 4000 feet. My ears were ringing and my heart was pounding like a trip-hammer—no walking for me that day.

Frank Call told us that during his limited prospecting nearby he had found interesting minerals, usual to old sea-arms. Thus a substitute trip was in the offing.

"Come on, Frank," E. K. called as he started for the door. With pick, shovel and rock-sacks the two began their quest leaving me to nurse self pity.

The men walked to the back of the Call yard, stepped down into the old dry lakebed and went about a mile eastward until they were opposite the railway depot. Here selenite crystals appeared plentifully on the crusty salt surface. Digging down a bit they found crystals larger than the surface material, some

measuring over three inches in length. It is reasonable to believe the vast, ancient seabed of western Utah would yield abundant return of this gypsum mineral to the methodical prospector. However, it is not a trip that can be made hastily or without certain inconveniences and even danger.

Two interesting minerals were found that day a mile west of the Call home. At the base of a low, barren, warty hill is located a stone quarry from which stone is taken for lake fills. It was here, in and about the quarry, that E. K. and Frank Call

found cone coral and travertine.

The cone coral is, as the name implies, cone shaped, about three inches by an inch and a half in size, takes a good polish and has an interesting pattern of coral structure. The travertine is deep cream in color streaked with rusty red and resembles the so-called Death Valley onyx. This travertine is non-crystalline calcite. If one is careful to gather non-porous material he will have rock not only beautiful, but suitable to work into ash trays, book-ends and paperweights for it takes a good polish and can be shaped easily.

One evening as E.K. and I were testing minerals with our argon lamp I inadvertently slipped the Lakeside minerals under

the light.

"Whew, what beauties!" E.K. ejaculated as he turned each piece over and over while all faces glowed back with ethereal colors. The selenite, ordinarily cloudy white, fluoresced a lovely nile green; brownish cone coral turned to soft lavender, purple and deep blue while the travertine proved to be the prize of the lot. One piece, showing distinct water formation with blunted stalactiform surface, fluoresced in three colors. The base was a deep cream, the stem of each pigmy stalactite was pea green while the very tip burst forth in flower-like cerise—a mineral bouquet.

"Any time you folks are inclined to do archeological prospecting I can take you to Indian caves not far from here," Frank Call informed us. Our interest received a setback the moment it was quickened.

"I doubt we could make the trip today," he continued. "These recent rains have made all low places precarious. One never knows at what point land ends and water begins. It takes courage to wade out there. The crust of salty muck at first holds the weight, then without warning, it breaks through and scratches the ankles and legs, sucking at the feet with every step."

We lightly said, "Well, next time, then—" But we could not know how long an interlude would elapse. Now we are doing those things that are our momentous duties, and Frank Call in his silent salty desert continues his wartime railroad duties, while four of his sons serve their country and another son and daughter are ready to enter the services.

FLIERS RESCUED FROM GRAND CANYON . . .

"All I want is a nice big chocolate ice cream soda; those Krations were pretty light until the fifth day when an army plane dropped bacon and eggs and 10 pounds of beefsteak," declared sunburned Flight Officer Maurice J. Cruickshank, Lawrence, Mass., as rescuers brought him and two other army fliers from depths of Grand Canyon, where they had been marooned 10 days. He and his companions 2nd Lieut. Charles Goldbloom, Pittsburgh, Penn., and Cpl. Roy W. Embanks, Kalispell, Mont., had made emergency parachute landing at 2 a. m., June 21, on rocky ledge 4500 feet below rim of mile-deep Grand Canyon when they had been ordered to bale out at 12,000 feet after four-motored bomber conked out 28,000 feet above canyon. Rescue parties, by boat with breech buoy gun, mule-back, search lights and flares, and planes from Kingman army air field had sought the men, one of whom they feared lost in wild waters of Colorado river. Experienced mountain climbers of park service finally reached them. It had taken three days for the men to get together. Goldbloom and Embanks had found Cruickshank lying disabled with sprained ankle, the only casualty.

DESERT QUIZ . . .

If you read your Desert Magazine from "cover to cover" as many of our friends declare they do, you'll be able to answer at least ten of these puzzlers within a few minutes. If you are a diligent reader, you will surpass the Desert Rats and take up your position as a Sand Dune Sage. Answers on page 34.

—Modern Papago Indian basketry is made from— Willow...... Sumac...... Yucca..... Saguaro ribs......

2—When a motorist drives through Titus Portal he enters— Death Valley....... Valley of Fire....... Salt River valley....... Hidden Valley.......

3—The Morada, found in New Mexico, is a—Public market place...... A combination church and lodge...... A religious folk play given at Christmas...... A small type of Catholic church.......

4—Xerophytic is a term often used to describe desert plants. It means— Spiny or thorny.......
Very scarce...... Adapted to dry climate......

Useful as food......

5—Pyrope is a kind of— Garnet...... Ruby....... Copper...... Agate.......

6—Geronimo, the Apache chieftain, was born in New Mexico...... Arizona...... Old Mexico..... Utah.....

7—When archeologists speak of a Mano, they mean a— Charmstone...... Hammer-like weapon...... Flaked implement...... Muller......

8—Oldest dated inscription found on El Morro rock in New Mexico is by— Felipe de Arellano.......
Lujan...... Juan de Oñate...... Fr. Eulate......

10—Prehistoric people of southern Arizona are known scientifically as— Kinsani...... Diné.......

Hohokam...... Anasazih.......

11—Length of Grand Canyon is about— 50 miles.......

13—Town of Prescott, Arizona, was named for—
Its founder..... Author of "Conquest of Mexico".....
First territorial governor...... Its first mayor......

14—Miss Mary Wheelwright is best known in New Mexico as— Founder of Museum of Navajo Ceremonial Art....... Artist....... Director of guest ranch....... Fiction writer.......

15—Amateur gem cutters will find a good substitute for hard-to-get tin oxide in— Cerium oxide.......

Hydrogen oxide....... Cuprite...... Diamond dust......

16—Geologists call a surface exposure of an orebody—
Outcrop....... Lode........ Overburden....... Vein........

17—Edgar L. Hewett is best known as— Museum founder...... Author...... Lecturer..... Archeologist...... 18—Recently appointed superintendent of United

18—Recently appointed superintendent of United Pueblos agency, which supervises Pueblo Indian tribes, is— John Collier...... Dr. Sophie Aberle...... John Evans...... Dr. Virgil K. Whittier......

19—Oldest beads of prehistoric Southwest Indians yet found were made of—Shell....... Red shale.......

Turquoise..... Obsidian.....

20—Author of "New Trails in Mexico," an account of exploration in southwest Arizona and northwest Sonora, Mexico, is— John C. Van Dyke....... R. L. Duffus...... Carl Lumholtz..... Charles F. Lummis.....

The Man Who Heard Music In The Desert Darkness

There are altogether—maybe—thirty or forty people in Shoshone. Not much of a place to rate a dot on a road map—and it wouldn't, except that in the desolate stretches of desert land between Death Valley and Nevada there aren't many people at all. So if you came through Shoshone some sunbright morning you'd have a right to be startled; the music you'd hear would sound like opera. And that's exactly what it would be—a concert of opera music from phonograph records. The story back of this morning concert is one of the most dramatic and human ever lived in the desert.

By WILLIAM CARUTHERS

ACK KENNY, waiting to be assigned a cabin, sat on the bench alongside the store in the little Death Valley settlement. He knew nothing about the desert. He'd heard the air was good for asthma and of course, about that elusive something called the peace of the desert. He had no asthma, but if ever a human needed peace of mind and soul, it was Jack Kenny.

A few prospectors also were on the bench. Unshaven men with overalls and shirts open at the throat. Jack was clad in a smartly tailored suit, modish soft hat and was more accustomed to the deep, easy chairs of swanky hotels than a much-whittled plank.

Desert men who spend their lives in the hush of the wide outdoors are a silent sort and aloof. They string out on the bench and gaze into space. One or two grunted a greeting to Jack and resumed their dreamy silence. Jack too was silent, staring as his cane made aimless markings in the yellow dust. He had come to Shoshone to take a one-in-a-million chance, but he wasn't sure he could stand the appalling desolation.

He could hear customers in the store making purchases: "Charlie, I want some powder. Slab of bacon. Roll of Copenhagen snuff. Reckon I can get home with fresh meat? It's 80 miles . . ." And so on for half an hour. And Jack learned that in the lean, hungry wasteland about the Big Sink at the bottom of America, the store isn't just around the block. Now and then came a tall tale and there was laughter—and Jack Kenny needed laughter. Alone at last, he recalled the grim business that had brought him here.

It began in Salt Lake City three years before, as he was walking from the Utah Hotel. A few paces ahead was an open, yawning hole. Beyond was his destination—the offices of the Shell Oil company.

Jack held an important position with

Jack Kenny no longer sits on The Bench staring into space, making aimless markings with his cane in the yellow dust. Shell, obtained after an impressive record with National Cash Register, Firestone and Goodyear. It was even a glamorous job. It meant luxurious travel. Planes at his disposal. He could keep that job as long as he could keep a secret known only to Jack Kenny. If revealed it would mean loss of the job and a future black as the gaping hole ahead.

Jack carried a cane. "A present from my wife," he'd explained when they kidded him at his office. But now approaching the man-trap, he admitted to himself that he could not much longer conceal the fact that he was blind. With the cane and sheer nerve he had done that incredible thing. Seven years of it in a world being slowly blacked out.

Suddenly Jack's feet stepped upon empty air and he dropped 14 feet to the basement floor. Pedestrians cried out in horror. A policeman ran up excited, but luckily the fall was cushioned by sacked waste paper and after an embarrassing moment assuring the cop that he wasn't drunk, Jack made it back to the hotel and wired his wife to catch the first plane to Salt Lake. "I reckon it's 30 for me," he told her.

It was. The game of blind-man's-bluff was over for Jack Kenny.

Returning to his west coast headquarters, Jack decided to reveal his seven years' deception. Fearful of rebuke, he chose his closest friend to hear the dreaded confession. "Bob," he blurted, "I've bluffed as far as I can. My eyes are gone . . . "

There was no answer. Jack could hear his friend pacing the floor and waited, tense, steeling himself. Bob, he thought, was trying to make it easy. Finally Jack cried: "Come on, Bob. Don't pull your punches . . . "

Then he felt an arm about his shoulder: "Why, you old four-flusher—" Bob laughed. "I've known for a year you were blind as a bat..."

That in brief, is the story of Jack Kenny up to 1940.

During the next three years his savings were spent in hospitals both in America and Europe. For ten months he was on his back, his head in a vise. Then came the fateful words, "No hope." In his desperation Jack asked, "What would you do . . . in my place?"

The specialist pondered a moment, then replied gravely, "I would go to the desert, hoping for a miracle. Every day for a few moments, I would stare right into the sun. There may be something in the rays of a bright desert sun that has eluded science. It's worth a trial."



With strips of wood, seen on rail left from saw, Jack is completing walls of miniature model of home he plans to build this summer. Material to be used—railroad ties, that will not warp in desert heat.

And here he was. Broke. Blind. Ahead, the stark problem of bread and meat.

A major task was to learn his way from cabin to store without scratching his face on the overhanging mesquite. Once he got lost and for three hours wandered about the numerous gulches that split the nearby hills. "At such a time, you know what it is to be blind. In your agony you hunger for just one split second of light—even the fraction it takes for the click of a camera . . ."

There are only 30 or 40 people in Shoshone. The coming of a car from the Outside starts a ripple of thrills, and a good dog fight is discussed for days. Soon Jack found himself also interested in dog fights and approaching cars. He noticed there was a good deal of laughter about and people's tempers were even and not crotchety. But still he was uncertain about staying and was mulling it over one day when he picked up a stranger's voice: "I'm in trouble down the road. Suppose I could find anybody around here to help me out?"

"You're dam' right," barked a fellow at Jack's side. "Anybody around here'll help a fellow out . . ."

The answer clicked with Jack. He turned the tailored suit over to the moths, donned overalls. In a little while he was telling most of the yarns and instead of stringing out on the bench, the old prospectors were sliding down close to Jack.

Before a month elapsed a faint glimmer of light began to filter through his eyes. He phoned Mrs. Kenny, who is 90 pounds of amazing courage. Overjoyed she said: "The desert has given you more than the best doctors in America and Europe. You stick it out. I'll carry on."

Jack had learned the way to the swimming pool and on one day of murderous heat as he was floating on his back, he heard birds singing in the mesquite. "What kind of birds are those?" he asked an old timer.

"We call 'em wild canaries. Here all summer . . . "

Suddenly Jack seemed to have an answer to the problem of a living. He would raise canaries. "If the Lord lets his wild birds live around here," he told himself, "tame ones should do as well . . ."

Now, in Death Valley country only the strong survive and a blind man has two strikes against him when he starts. Jack confided his plan to an old timer, who thought it over and announced solemnly: "Can't be done, Jack. Why, I've seen ducks flying over this valley ketch fire and drop out of the sky. Roasted brown and ready to eat. 'Sa fact . . ."

Jack gulped but he wasn't discouraged. He corresponded with breeders, investigated markets. "We can use 3000 birds a year," a dealer in Los Angeles assured him.

Raising canaries involves infinite details of housing, mating and raising the young. Since he would breed only from pedigreed stock, there would be innumerable records. The banding of the young to indicate sex and ancestry is a job for good vision. The friend who read to him the various books on housing and care shook her head. "I just don't see how you can . . . "

The staggering problem only challenged his courage.

Along the abandoned Tonopah and Tidewater railroad were miles of ties. Senator Charles Brown, the big-hearted caliph of Death Valley country, had some of these hauled in and Jack tackled the job. At first he struck his fingers more often than the nails and his sawing was uncertain. But he devised an ingenious dinkus that enabled him to saw straight.

The house built, Jack got some orange crates and made cages with tiny doors and hinges; removable partitions; intricate fittings for food, water, nests, swings and perches. He painted the house and the colorful trim without a misplaced brush mark.

Standing before a hundred highly bred canaries caged along bright shelves, Jack

Jack turned his tailored suit over to the moths, donned overalls and soon was telling most of the yarns to the prospectors.

can name each and tell you its markings. If one bursts into song he will identify the singer. "That's Whitey Bill . . . " or "That's Buckaroo . . ." The birds are named for friends he has made in and around Shoshone.

For an hour every day the birds listen to a phonographic concert of opera. "To teach them true notes," Jack explains. At the first sound of the record a hush comes upon the aviary and then scores of throats pour out a silver melody.

These birds are aristocrats—all of them. Pedigreed, registered. All are Rollers of Metz or Glucke strain. Each represents the ultimate in selective breeding.

An offer of a hundred dollars for Senator didn't interest Jack because he is reasonably sure of getting many times that for the offspring. But there are plenty not so keenly coveted by breeders available to the public. These highly bred youngsters with



ancestry registered for six generations are are not for those who rush into a pet shop priced from \$25 upward. Of course they and say, "Gimme a bird—quick." They

Jack's canaries all are aristocratic Rollers of Metz or Glucke strain. The ancestry of each bird is registered for six generations.

They learn true notes from the operatic phonograph records played in their aviary for an hour every day.



are for the discriminating lover of birds, and with infinite pains Jack sees that they get the best.

"How does he do it?" you ask in amazement.

"Guts," they answer.

A tourist under the spell of Jack's contagious good humor remarked, "I'll bet he gets a lot of sympathy . . . "

"Sympathy hell—" snapped a hard-bitten native. "You don't sympathize with Jack Kenny. If you hang around here long enough you'll envy him . . ."

In the desert you become a part of the community and help—or you don't. If you don't—well, the desert is no place for you. From the desert Jack was getting peace, friendship and the promise of seeing again around the long dark corner. He chided himself that he'd found no way to serve. The chance came unexpectedly.

Among the recreational phases of Shoshone is the Snake House—a ramshackle building set apart for men who come out of lonely hills and crave relaxation. They were having a little poker one day while Jack was sitting on the bench wondering what a blind man could do to help put over Shoshone's lagging War Bond drive. He'd been a flier in World War I and his two youngsters are now in this one, while Mrs. Kenny is an essential worker. As he wor-

ried, he heard the grunt of a pig, rustling mesquite beans nearby. Beside Jack sat Whitey Bill, an old timer. "Whitey," said Jack, "you're lean and quick. Can you catch that pig?"

Whitey caught it, tethered its feet. Jack took the pig in his arms, caned his way into the Snake House. "Listen fellows," he began. "This ruckus overseas is costing a helluva lot of dough. Here's a perfectly good shoat. How much folding money will you bid?"

Out of that little shack came \$1800 in cash and pledges. The purchaser gave the pig back to Jack.

"Thanks," Jack said. "If someone will drive me down to Tecopa, I'll sell him again."

There was a chorus of offers and a stampede for the door, to follow Jack to Tecopa. There he found another Snake Room and the pig put the quota over.

Naturally the news of the pig stunt spread throughout Death Valley and when the next drive came, Jack was asked to take charge. "To get the money, I've got to get the crowd," he decided, and going to Camp Irwin, he told his story to the Commanding Officer. "Could you put on a show for us? It's just a little place . . . "

The officer caught Jack's enthusiasm.

"I'll give you the best show Death Valley ever saw. A 45-piece band. A searchlight display visible for 60 miles. An anti-aircraft exhibition to top anything California ever saw. I'll give you vaudeville and climax it with six boxing matches , . ."

From hills, canyons, dugouts and dry washes, came nearly 400 people. Miners. Truck drivers. Muckers. Jack worked until the last car pulled out. The score hadn't been tabulated when he went to bed and next morning he rose early, found Charlie on the bench. "Charlie," he asked anxiously, "how'd we do?"

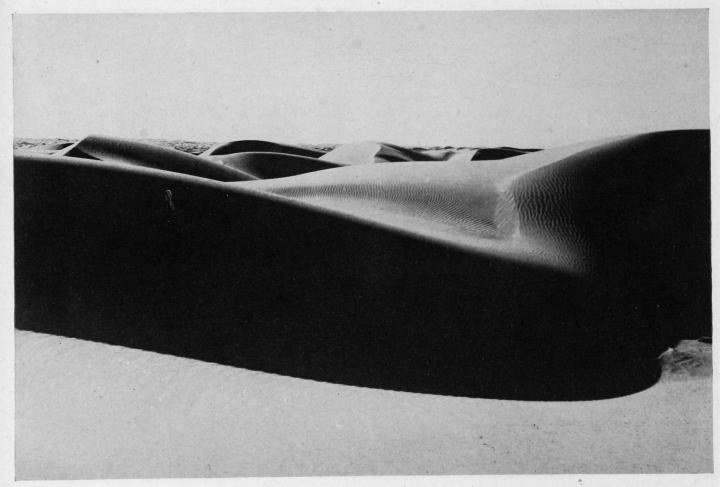
"A flock of pickpockets couldn't do better," Charlie chuckled.

Actually the amount subscribed was more than double the quota and established a per capita subscription for this remote area that is a record for the United States.

Jack settled comfortably on the bench, just as he had done that first day, but on his face now was the glow of peace and contentment.

The old timer who'd told him about the roast ducks that fell out of the sky sat down beside him. "Jack," he said, "you've been around here quite a spell now. How do you like it?"

"Brother," Jack smiled, "that's an easy one. Right out of the heart I can say, 'Thank you, Death Valley.'"



LETTERS ...

Cities Essential to Desert .

Los Angeles, California

Gentlemen:

I enjoy Desert Magazine from cover to cover and am proud and pleased when guests in my home remark about it. But there seems at times to be an "I-am-better and wiser-than-you-are-because-I-live-onthe-desert" spirit manifested. This is most open and objectionable in Marshal South's articles. Those of us who live in cities because they contain the only markets for our skills resent this. The fact that we are exiled from the desert is not helped by such an attitude. What would Mr. South and his growing family do when the time came to buy flour and bacon and paper and films and pay the doctor's bills, if it were not for the city folk who earn the money to buy the magazine which prints his ar-

So, please may we have a little less of his chest-thumping, and plainer, more technical data on the mechanics of a mescal roast, adobe brick making, and other ways of sustaining life on the desert? And isn't a desert a desert simply because it is not capable of supporting large populations?

It is my humble opinion that the cities are complementary to rural areas and deserts; that neither population could live as well if it were not for the other. So how about us both abandoning this chip-on-the-shoulder attitude for one of friendly understanding and cooperation?

MRS. JOHN C. BAUR, JR.

For Jeeps Unadulterated . . .

Los Angeles, California

Dear Desert:

I want to back up Louis T. Whiteside in his "Jeep" letter in May issue. A jeep without the front wheel drive just isn't a jeep. One might as well get a Model A pickup and let it go at that. The four wheel drive is what gives it the traction for rough going. If we can get them, let's have our jeeps rugged and unadulterated!

LEIGHTON E. WHITSETT

They Want John Hilton . . .

Wilmar, California

My Dear Sirs:

Desert is tops. Keep it running along present lines and one of these days you will find it the greatest magazine in the world for those who enjoy something different and love the wide open spaces. I think it is the greatest right now.

Can't you force John Hilton to work a little more? I enjoy his articles very much, and I believe your other readers also like him. Thank you for printing what I like to read.

J. R. SHERMAN

Desert at Se α .

Southwest Pacific

Dear Desert:

The Desert Magazine always has brought me a lot of pleasure, but now that I have been overseas for ten months, my enjoyment of your magazine has increased a hundred fold. It never fails to divert my mind from the present to the past. Those were wonderful days when there was peace and everyone was free to travel at will. I know that we will win, though, so I am looking forward to the future as well as back at the past.

NORMAN JOHANNESSEN

Desert in an Army Camp . . .

Camp Crowder, Missouri

Dear DM:

Your articles on mineralogy have been especially welcome here, for several men in this small company are ardent fans but more or less neophytes at field trips. This Joplin area provides a good many showy specimens, but they almost always have to be purchased, as the mines have largely played out in specimen material.

ROBERT WILLING

Desert on the Home Front . . .

Bakersfield, California

Dear Sirs:

You'll never know how important your magazine is to home front workers whose trips to desert places have been stopped for the duration. It brings our beloved wilderness to us to cheer and restore us in our labors and to maintain our love for the desert and its magic.

Please tell Marshal South and his remarkable family how a newspaperman chained to a desk envies him. He's free from telephones, censorship, political anchovies, deadbeats, regimentation and allround futility. He has his worries, I realize, but at least he can combat his difficulties with his own intelligence and his own sinew and he hasn't half a million human frailties to crop up 18 hours a day to crease his brow and disintegrate any belief he may have entertained that the human race has progressed noticeably since the time of the Borgias.

Relay to John Hilton my hope that he finds enough dough in his mine to stop worrying about it and do more writing. We want more stuff from Charles Kelly and Ed Ainsworth, Catherine and Dick Freeman and George Bradt, that ornithologist in the army. And keep my regards for fine magazine editing, month after month. It's been wonderful.

RALPH F. KREISER

Ripley Wrong on Fairy Stones . . .

Chicago, Illinois

Dear Lucile:

In May, 1940, I had an article in your DESERT entitled "Stones Where the Fairies Danced," written under the name of Mrs. White Mountain Smith. I stated that staurolites, known as Fairy Stones or Fairy Crosses, are found in many other sections besides the Fairy Stone state park in Patrick county, Virginia. My attention has been called to a Believe It or Not item which says "perfect crosses of stone are found only in Patrick county, Virginia." Unless Mr. Ripley has some information not in possession of either Encyclopedia Americana or Encyclopedia Brittanica, as well as Kraus and Slawson, I think his statement can be questioned.

The above authorities state that staurolite is very common. "From their cross shaped penetration they are called (Greek) stauros, a cross, lithos, a stone. This twinned crystal abounds in many of the crystalline schists, such as mica crystalline and gneiss. Important occurrences are Monte Campoine, Switzerland, Fannin county, Georgia, and in scores of localities in New England and North Carolina. It is found sparingly in Brazil."

The Field Book of Geology states that these twinned crystals are found all along the eastern side of the Appalachian mountains. I personally have collected them

near Taos, New Mexico.

Just what qualifications Mr. Ripley may attach to the word "perfect" may have some bearing on his statement, but I should like to have his explanation. I know how carefully Mr. Henderson and you always have checked material appearing in Desert, and for that reason I have gone into this matter very thoroughly.

MARGARET STÓNE

Tucson, Arizona

Dear Miss Harris:

Believe It or Not Ripley is not the only one who has the mistaken idea that the little staurolites are found only in the Blue Ridge mountains of Virginia. I have a folder from Natural Wonders, Inc., Harrisonburg, Va., which states that the world's only known supply of these Fairy Crosses comes from Patrick county, Virginia. The next statement on the folder rather deviates from facts: "The origin of these stones is unsolved. Leading scientists and geologists have been baffled in their attempts to find a satisfactory explanation of this phenomenon."

My Webster's Collegiate dictionary gives an explanation with no mystery mentioned. I have a nice collection picked up from the mountain near Talpa in the Taos area. My father told me that President Wilson took one of these good luck charms to Paris to that world famous conference.

MARION ESTERGREEN

"Children of the Earth" .

Hollywood, California

Dear Editor:

In your July issue, Albert Lloyd asked for information about "Child of the Earth." This queer insect's habitat apparently includes San Fernando valley as well as deserts and mesas of the Southwest. They were especially numerous before we cleared and landscaped our place.

His informant was correct when he says they look like an infant. You can almost detect an expression of surprise on their round faces when you turn one up in the soil. They have a fat, round body, tapering at the end, with striped bands of black and brownish yellow. The largest we have seen was two inches long. The head is round, about the size of a large pea, with two protruding black eyes. The legs are fairly long. They have a hard shell-like substance protecting their bodies.

MISS ALLIDA ALLEN

Los Angeles, California

Editor:

For information on Children of the Earth, see page 207, April, 1944, issue of Nature Magazine, which has an interesting article with photographs on the subject. Nature Magazine is published at 1214 16th Street, N. W., Washington, D. C.

ROBERT JOHNSON

Desert in South America . . .

Lavras, Minas, Brasil

Dear Desert:

Your magazine brings the desert to us wherever we may be. We can feel that warm dry healthy air. To plow through your pages is to plow through the sand and see and experience the desert. You bring us up onto the windswept peaks; we can almost feel that crackling-prickling sensation of warmth often noted on those high piñon and juniper covered slopes. It would be hard to say what I like best. But John L. Blackford's photos certainly do take my breath away; sometimes the inspiration which is within them is almost surreal.

I like the scientific way in which Carroll D. Scott puts nature-debunkers on the spot (April, 1944, Letters). Couldn't you get him to publish some of his studies? I know we'd all enjoy them.

I always like your quiz. I'm usually lucky if I get 12 out of 20. Once you left it out and I felt disappointed. It not only shows what we don't know but helps to build up our knowledge of desert lore.

Here in Brasil there is no such thing as a desert. There is the famous *caatinga* of the northeast, but it is more a thorn-forest. It is generally made up of thorny Leguminosae and Bromeliaceae with some Cereus. Also a milky Euphorbia, Pau Fosforo.

I have saudades roxas of the desert. I'd

like to pop into Desert Steve's for a buttermilk or a glass of goat-milk, or drive up into Whitewater canyon, or climb some of those peaks like Telescope, Charleston, San Francisco . . . but through enchanted pages we get all of those things from the Desert.

GEORGE BLACK

Call for Jerry Laudermilk . .

Klamath Falls, Oregon

Dear Friends:

Since receiving your magazine last October, I have become so well acquainted with all you nice people that I feel I can address you as my Dear Friends. Frequently I have felt like sitting down and writing you how much I enjoy all your articles.

I have read letters for and agin' poetry and think that the "fors" win hands down. Several times I have been impressed with the special beauty of some one poem and feel that all the other not so fine poetry is worthwhile if it will produce a gem now and then. I know when hunting flower agates at the Priday ranch, I have to paw through what seems to me to be tons of stuff before I find a perfect flower.

Please! MORE articles by Jerry Laudermilk. I also like the Souths and wish I had the courage to say "to heck with the world" as successfully as they have.

DOROTHEA BECKWITH

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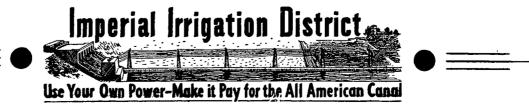
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HERE AND THERE...on the Desert

ARIZONA

Lion Hunters Balked by Chulu...

TUCSON—The Mexican chulu or coatimundi, relative of North American racoon, is appearing in such numbers in southern Arizona that lion hunters are having difficulty in hunting cougars. They are being forced to put wide leather collars on their hounds to protect them from the chulus which sometimes put whole packs of hounds to flight. Chulu has a long tail and flexible snout with which he roots for food much as the domestic pig. But he is equipped with fangs and can put up vicious fight. Immigrating from Mexico, it first began appearing in appreciable numbers in 1920. It first was reported in Santa Rita mountains in 1937 but now seems to be well scattered throughout the southern counties.

Tourists Desecrate Boothill . .

TOMBSTONE — Citizens of this famous old silver-mining town are becoming alarmed over the vandalism which is fast obliterating many of its shrines, notably the graves of Boothill cemetery. Only four markers with legible inscriptions remain. Headstones have been so stripped by souvenir hunters that identification is fast becoming impossible. Names and addresses of passing tourists have been written on some of the few remaining markers. Exquisite four-foot slab of petrified wood, placed a few years ago on grave of famous Quong Kee, is at present chiseled down to a level with the cement in which it was embedded. Residents had tried to protect the grave with a fence of ocotillo stalks but some of these have been removed and defacing continues.

Fish Catches Lions . . .

TOMBSTONE—Mountain lion weighing 81 pounds recently was trapped in the Huachuca mountains by Charles Fish, Jr., government mammal control agent. It was believed to have killed several deer in that region. This is the seventh lion Fish has trapped in two-year period. Short time ago he captured a lobo wolf which had been killing calves.

Indians Disillusion Hollywood . . .

CHINLE—Navajo Indians presented dual problem to Hollywood company filming technicolor "Queen of the Nile" near Canyon de Chelly. At first their mock fighting was too mild to suit Hollywood. Next, 157 of the tribesmen who had donned Egyptian costumes, were painfully sunburned, 72 of them in one day requiring treatment from studio doctor.

British Learn About Indians . . .

ORAIBI — Traditional misconceptions of American Indians are being broken down in England. They are learning over there about Indians from 2nd Lt. Ethel I. Jenkins, 23-year-old Hopi Indian girl, who is serving as U. S. army nurse. 'I don't carry hidden tomahawks, my father never helped to massacre pioneers." When a reporter noticed her long bob and asked if that hair-do were popular with modern Indian girls she replied, "Indian girls started cutting their hair into bobs long before the whites." Her father Sam Jenkins, one of five brothers all of whom operated trading posts, was one of tribal representatives in enactment of Indian constitution. Lt. Jenkins, typical artist's conception of an Indian girl, was born here, attended Kirkwood memorial high school at Ganado, completed the three-year course at Sage Memorial school of nursing, the only school of its kind in America, for its students must be at least one-fourth Indian. After receiving her R. N. degree in 1941 she was member of nursing staff at Hopi agency hospital, Keams Canyon. She was commissioned October 6, 1943, entering Camp White, Oregon, for her basic training. She speaks English, Hopi and Navajo; chief hobby is music.

University to Study FM . . .

TUCSON—University of Arizona is one of 59 state universities and colleges which will study and make recommendations on use of FM (radio frequency modulation) to provide educational program service to every school in the nation. Service would be transmitted over five wave lengths now allotted to education. Charts are being made to show how transmitters may be linked or overlapped to create state-wide educational network, by R. R. Lowdermilk, radio specialist of federal office of education. States asking for service charts supply the office with a list of probable program production centers.

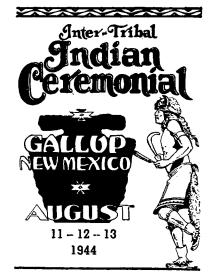
Good Buffalo Crop Predicted . . .

FLAGSTAFF—First buffalo calves of the season were appearing end of June on House Rock valley range, reports Wayne A. Lathim, deputy game warden on North Rim of Grand Canyon. At end of last spring's buffalo hunt 201 animals remained. Usually 25 per cent calf crop is expected. Ancestors of present herd were brought to Arizona early in the century. In 1926 the state purchased 87 head which since have been under administration of state game and fish commission.

CALIFORNIA

New Hope for East Mesa Work . . .

EL CENTRO-New hope for development of East Mesa lands of Imperial Valley was seen in report by secretary of interior Harold L. Ickes to U. S. senate committee on postwar economic planning containing list of 236 potential and multiple purpose projects in 17 western states, which could be included in postwar public works program. Report named 22 projects for region three, comprising Arizona, southern California, southern Nevada and western New Mexico, to come into being if the bureau be authorized to carry out the construction. Projects, said report, would irrigate 872,905 acres of new land and supply supplemental water to 456,000 acres. Report added, "Two projects in region three, the All-American canal in California and the Mesa Unit of the Gila Project in Arizona, which have been authorized and on which construction is now underway, will provide irrigation water for 433,000 acres of new lands and supplemental water for 20,000 acres now irrigated . . .'



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Mines and Mining..

Washington, D.C. . . .

The administration is planning international conference of allied and associated nations to arrange equal postwar access to all essential raw minerals. Primary consideration will be given bauxite (alumina), copper, iron ore, lead, petroleum and zinc. Secondary, to manganese, chrome, tin, mica, industrial diamonds and quartz crystals. In addition to state department interest, department of justice is interested from standpoint of watching tendencies to revive prewar cartels and nationalistic policies of large owners of natural resources. Bernard M. Baruch and Dr. C. K. Leith are mentioned as likely to head U. S. committee at the conference.

Salt Lake City, Utah . .

Coal mines administrator Harold L. Ickes has released from government control all soft coal mines in Utah. Order affects about 17 large companies which produce more than 3,000,000 tons of coal annually. Control of mines in this state, in effect since last November due to labor troubles in eastern U. S., has made little practical difference in operation, according to B. P. Manley, executive secretary Utah coal operators' association.

Washington, D. C. . . .

In announcing that magnesium and aluminum will be released for civilian consumption, war production chief Donald M. Nelson said he would not hesitate to revoke relaxation should it interfere in any way with war production program. Heretofore only small amounts of magnesium have been available for postwar experiments. Release of aluminum is expected to allow production of many items which have been banned during the past two and one-half years.

Geneva, Utah . . .

Geneva Steel plant, largest of the more than 2300 projects financed by Defense Plant corporation, was scheduled to go into production July 1. E. M. Barber, member of U. S. Steel corporation for 20 years and vice-president in charge of Columbia Steel company's defense plant division, has directed Geneva's growth from blue-print stage in December, 1941. Since that time about \$196,000,000 has been expended in construction, building railroads, developing and equipping Geneva coal mine, iron mines in Iron county and limestone and dolomite quarry near Payson.

Kingman, Arizona . .

A rare metals electronic plant is being installed by W. L. Cummings, research engineer and his associates on highway 66 near McConnico about three miles west of here. Such rarities as lights to penetrate the fog, which will aid fliers as well as motorists; infra-red light, cells and other electronics equipment; television lenses, infra-red spectrograph and mass-spectrometer for studying the elements; complicated electronic instruments made of glass tubes, wires, infra-red lights, and a fully equipped research laboratory, all will be assembled for work dealing with development and refinement of rare metals for industries contributing exclusively to the war effort.

San Francisco, California . . .

Revised edition, Manner of Locating and Holding Mineral Claims in California, by A. H. Ricketts, has been published as Bulletin No. 127 of state division of mines. It is a brief simple outline covering salient features needed by average prospector and claim owner in initiating and maintaining his possessory rights to mineral ground, issued at 25 cents plus one cent sales tax for California residents. These and other phases of American mining law, both statutory and interpreted by judicial decisions, are dealt with in detail in an extensive index in Bulletin 123, American Mining Law, by Ricketts, at \$5.00. Address Division of Mines, Ferry Bldg., San Francisco 11; State Building, 217 W. First street, Los Angeles 12; or State Office Building, Sacramento 14.

Mason, Nevada . . .

Flufftrok corporation estimated its headquarters plant here would be complete July 1, including Hammar mill and kiln for processing pearlite into insulating material from which wallboard, plaster lathe and blown insulation will be made. Raw material is trucked from company's mine at Bodie. When treated with heat, material expands 20 times normal size.

San Francisco, California . . .

In reply to the many inquiries as to whether mining claim holders must do assessment work this year, California division of mines, Ferry building, San Francisco, is giving out mimeographed copies of Act of Congress signed May 3, 1943, suspending assessment work for the duration, together with a suggested form for the notice of desire to hold such claims.

Los Angeles, California . . .

Report of fifth survey of mining activities in Nevada has been compiled and published by domestic trade department, Los Angeles chamber of commerce. Mimeographed and indexed report titled Nevada Mines Sales Opportunities, 1944, has both accurate and detailed information for manufacturers and distributors of Los Angeles county and aid to Nevada prospectors and operators for finding outlets for their products. Mines are listed by counties, each including name of owner and operator, ore produced, location, type of products, size of personnel, and other pertinent information.

Boulder City, Nevada . . .

U. S. bureau of mines has built a pilot plant here to run gasification tests on coal from Coaldale, Nevada. Washed coal it is said can be gasified in a gas producer for use in production of sponge iron.

Jacumba, California . . .

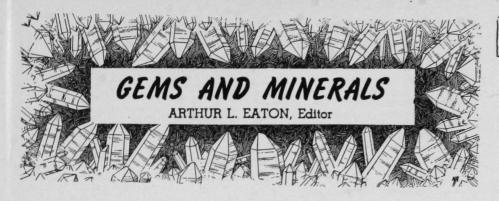
Mica Gem and Milling corporation started operations at its mica property in this district May 1. Mining is by open pit method, 25 tons millrock being crushed and screened daily. San Diego owners are Edward Boughton, secretary-treasurer, Thomas J. Williams and John Dahl.

Salt Lake City, Utah . . .

Acute labor shortage in Utah mines and heavy industries is causing lag in fulfilling war demands, indicates survey by U.S. employment service in Salt Lake area. Area includes all mines in Summit county and several large foundries in Salt Lake City, which require 5,000 men to maintain steady production. Said Kenneth B. Johnson, local USES manager, "An unwarranted wave of optimism which is sweeping the country is taking essential and needed workers from their jobs, and the situation is approaching the critical stage."

Tucson, Arizona . . .

Series of articles on early history of the Tucson meteorites, the "Irwin-Ainsa" and the "Carleton" irons, written by P. J. McGough and originally published in Popular Astronomy, has been reprinted in pamphlet form for distribution to members of the Society for the Research on Meteorites, an international scientific society. McGough, since retiring as owner of Navajo-Hopi trading company in Flagstaff, has been studying meteorites as a hobby. Each year one of the outstanding contributions to the subject is printed.



VENTURA'S "BABY VOLCANO" NOT THE ERUPTING KIND

Ventura's "baby volcano," located high on a cliff between Ventura and Santa Barbara, has been known intermittently for almost a whole century, but only once in that time has any effort been made to explain the phenomenon.

Victor Moreno, Southern Pacific watchman, discovered a column of smoke and flame pouring out of the asphalt shale high up on the side of the hill, about six weeks ago. The intensity of the outburst varies, but at times he reports that a strong down draft of wind brings so much of the unpleasant smoke down to the base of the cliff that it becomes impossible to remain near.

The fire seemed to die down about ten years ago and thus faded out of public notice. But, a few weeks ago, possibly as the result of a landslide uncovering the mouth of a cavern, the fire and resulting black smoke burst out again. Phil C. Orr, geologist of the Santa Barbara museum of natural history, declares that it is a vein of burning asphaltum, an occurrence not unknown in oil regions, and in no way a real volcano of the El Paracutín type of Mexico.

The Ventura Signal, newspaper of last century, stated in 1874 that it was caused by a brushfire setting fire to outcroppings of native sulphur. However, the Ventura county fire department recently took pieces of the shale loosened by the fire to a Santa Fe springs company for analysis, and the results seem to show that it is only a fire in an underground cavern, from an underground deposit of asphalt.

FLUORESCENT SEMI-OPAL FOUND NEAR JACUMBA

Among the shattered and crumbling bits of ancient lava on the mountain sides east of Jacumba, California, have recently been found many pieces of pure white semi-opal. These range from small chips up to two or three-inch sections. Some are found as half inch veins in either chalcedony or calcite. The semi-opal fluoresces bright yellow, the spots of calcite red, and the transparent chalcedony shows pink when coated over calcite. Some large specimens composed of spots of calcite and chalcedony, veins of semi-opal, and reflections of violet from streaks of quartz, are very showy under the cold quartz light.

COPPER DECLARED SUPERIOR FOR SYNTHETIC RUBBER

Dr. A. A. Somerville of R. T. Vanderbilt company, N. Y., at New York meeting of American chemical society's rubber division, declared that copper has become a new and effective agent in producing Buna S synthetic rubber. Two compounds of copper are much superior to any of the other chemical compounds now in use. The exact effect of copper on rubber has not been published, for military reasons. Dr. Somerville has tried many compounds of copper and found them all more or less effective, far more so than compounds of any other metal.

ULTRA-VIOLET PROSPECTORS FIND SCORPIONS FLUORESCE

An interesting occurrence, as well as a warning to those persons interested in night prospecting with an ultra-violet light, was reported from San Diego county, California. Two prospectors were searching for scheelite. One person was holding the light, while the other investigated any fluorescent specimens which might appear. As the second prospector was about to pick up an inch specimen of what seemed to be a brilliantly fluorescing piece of scheelite, suddenly it moved! Further, careful investigation with white light showed it to be a large scorpion. The men report the color of fluorescence to be very much the same as that of scheelite tungsten.

ALAMEDA COUNTY MINERALS LISTED IN STATE BULLETIN

George L. Gary, mineral technologist, has compiled the following list of minerals, all found in Alameda county, California, for Minerals of California bulletin 113: albite, alunogen, analcime, analcite, aragonite, bementite, blue vitriol, boothite, bronzite, brown hematite, calcite, chalcanthite, chalcedony, chalcopyrite, chlorite, chromite, cinnabar, copiapite, copper, copper pyrites, copperas, dolomite, enstatite, epsom salt, epsomite, feldspar, halite, halotrichite, hematite, hydromagnesite, inesite, iron alum, iron pyrites, kammerite, lawsonite, limestone, limonite, lithographic stone, magnesite, magnetite, manganite, melanterite, natrolite, red ocher, penninite, pisanite, psilomelane, pyrite, pyrolusite, pyroxene, quartz, rhodochrosite rhodonite, salt (common), talc, vivianite, wollastonite, zaratite, zeolite (see analcime), zircon.

COLORFUL MINERALS

FLUORITE—Ca F2

A very colorful mineral is fluorite. Most amateurs first notice all the bright colors—all shades of purple and lavender, blue, green, rose, yellow and combinations of two or more colors. New Mexico and other states have produced beautiful specimens of several colors, many of them showing rainbows on one or more fractures or cleavages. The crystals of fluorite are commonly cubes and clusters of twins, although octahedrons and fine cleavages are common. An entire collection of very colorful and showy specimens can be made of fluorite, including numerous clusters in many colors.

COLLECTORS' ITEMS

In my excavations in prehistoric mounds, at Wickliffe, Kentucky, and other DIGS, I have accumulated thousands of duplicates which I have decided to dispose of to other collectors at very reasonable prices. Since this is not a business with me, I cannot bother with anything less than a \$5.00 order. Remit with order, and if goods are not satisfactory, money will be refunded.

The following are a few of my collectors' items. Some are definitely unique and all are guaranteed genuine:

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AMONG THE

ROCK HUNTERS

At the regular meeting of Los Angeles lapidary society, June 5, following officers were elected for 1944-45 season: Rolland E. Willis, president; Claude B. Rosenberg, first vice-president; H. Loren Mitchell, second vice-president; Goldie E. Wood, secretary; Melvin E. Gainder, treasurer; Lelande Quick, historian.

Walter Resenfeld, scheduled to speak before Long Beach mineralogical society was injured in an auto accident so Dr. John A. Harris showed pictures of a trip to Mexico, including some of Paricutin.

W. L. Mayhew talked about Mt. Lassen district at June potluck dinner meeting of Long Beach mineralogical society. The group is perfecting plans for a mineral show to be held this autumn. Orin Purvis is to be general manager.

June field trip took Searles Lake gem and mineral society members to the summit of Telescope peak. George Pipkin sponsored the hike. Harold Schaafama of the park service acted as guide.

Constitution of Los Angeles mineralogical society provides for sustaining memberships. To be eligible members pay five dollars or more per year, in order to add to the finances of the club without raising the general dues. The society, contrary to usual custom, will continue its regular meetings during summer months.

Outstanding specimens sold at the annual June auction of Los Angeles mineralogical so-ciety were: one Death Valley aragonite, one Bingham canyon chalcanthite, one Miami, Arizona, chrysocolla, one Bisbee, Arizona, mala-chite, one Bisbee, Arizona, azurite, one Tintic district Utah energite. The sale of these and many other specimens and minerals put cash in the treasury. Auctioneers were O. C. Smith and William Harriman, Emil Soderberg, clerk, Ledona B. Kopper, cashier.

East Bay mineral society has chosen the following officers to serve from May, 1944, to May, 1945: Orlin J. Bell, president; Robert O. Deidrick, vice-president; Buster E. Sledge, 1438 88th avenue, Oakland 3, secretary; L. J. Hostetter, treasurer; Marjorie Welch, direc-

Southwest mineralogists now hold meetings at Harvard playground, 6120 Denker avenue, Los Angeles. Jeane Lippitt, corresponding secretary, reports interesting activities of the club. Monthly field trips have consisted of going to nearby places of interest, such as museums, parks, members' homes, and the beach. They have enlarged their library with books on minerals, gem stones and lapidary work.

Los Angeles mineralogical society has compiled a brief history of the group. Copies will be given to new members to acquaint them with club activities and achievements.

Members of Escondido desert club, at their May meeting, enjoyed several reels of film taken by Mrs. Helen T. Bowles of Ramona, who with her family has traveled widely in New Mexico, Arizona and California. Films featured Indians. Another recent motion picture meeting was devoted to showing of The Covered Wagon, 16mm film, with musical recordings, presented by Perry Stowe. Over 300 persons attended.

Klamath mineral club began its sixth year in April. President Kenneth McLeod and secretary John C. Yadon are serving their second terms in office.

Jade from Lander, Wyoming, is deservedly becoming well known and popular. The Lander nephrite is of excellent color and quality.

GEM MART

ADVERTISING RATE 5c a Word - Minimum \$1.00

Rose Tourmaline in Quartz, \$3.00 to \$7.50 each. Gem Kunzite 75c gram. Specimen Kunzite, \$1.50 to \$20.00 each. Blue gem Tourmaline, 50c to \$3.00 each. Jasper spheres 3 and 6 in., 3 in. Jasper sphere \$10.00; \$25.00 for large Jasper sphere or 3 in. Jade sphere. The Desert Rat's Nest, 2667 E. Colorado St., E. Pasadena, Calif.

CONICHALCITE, a basic copper arsenate, grass green, mammillary coatings on quartzite, also solid pieces. Price 50c to \$3.00 de-pending upon size and quality. W. T. Rogers, 1230 Parkway Avenue, Salt Lake City 5, Utah.

Four Colorado beauties, Fluorite, all shades of purple surrounded by purple crystals. White Quartz blended with Pyrite. White Spar crystals. Barite crystals. All 3x3 or over. Jack the Rockhound, P. O. Box 86, Carbondale, Colo.

PRASE OR CHRYSOPRASE in blue, green or emerald. About 8 in hardness, translucent, polishes to a real GEM. Generous piece \$5.00 and a piece of Cameo grade Onyx equivalent to India's finest thrown in. Small fractured piece 50c postpaid. Some experts classify this Prase as Jade, others as the Emerald. Kenneth J. Hines, San Benito, Calif.

Rock Collectors, Attention! Summer Special-\$1.00 brings you 11 specimens and a polished cabochon! \$5.00 a genuine stone cameo. The Rockologist (Chuckawalla Slim), Garvey Trailer Park, 941 E. Garvey Blvd., Garvey 32P, Calif.

Pink Muscovite on Albite Quartz—Something new for the cabinet. Specimens, 75c to \$4.50. Jay G. Ransom, 3852 Arboleda St., Pasadena 8, Calif.

Idaho-Oregon Arrowheads-Obsidian and black lava, 50c each; agate, jasper, etc., in 4 grades, 50c, 75c, \$1.00, \$1.50. Lynn Crandall, Box 697, Idaho Falls, Idaho.

Agate Jewelry and Oregon Agates: One dollar with ten cents for postage brings you four sawed moss agate slabs in excess of ½ inch by 3/4 inch for making cabochons or ring sets. These are quality. E. Lee Sigfrit, 211 Congress, Bend, Oregon.

Minerals, Fossils, Gems, Stamps, Coins, Pistols, Glass, Bills, Indian Relics, Bead Work. Catalogue 5c. Cowboy Lemley Curio Store, Las Cruces, New Mexico.

INDIAN RELICS, Curios, Coins, Minerals, Books, Old Buttons, Old Glass, Old West Photos, Weapons, Catalog 5c. Lemley Antique Store, Osborne, Kansas.

Quartz Crystals of the finest water clear quality to be had. Single points from 10c to \$10.00 each. Groups from 50c to \$50.00 each. Outstanding specimens in groups for cabinets and advanced collectors from \$5.00 up. Several bushels of broken and blemished points, mixed quality, fine for rock gardens at \$12.50 per bu. Good quality blemished points, all sizes at \$25.00 per bu. Wavelite 50c per lb. Novaculite, the beautiful gem material, in white, jet black, salmon pink, cream and blended material at 50c per lb. Or six lbs. assorted colors for \$2.50. Delivery charges extra and satisfaction or money back on every item I ship. J. L. Davis, 303 Ward Ave., Hot Springs, Ark.

INTRODUCTORY OFFER—One dollar each lot. Five all different Fluorescent Agates—polished. Thirty rough Mexican Opals. Fifty nice pieces Turquoise. Twenty different polishing specimens. Postage ten cents. Minerals and gems on approval. DR. RALPH MUELLER, Professional Building, Kansas City, Missouri.

Montana Moss Agates in the rough for gem cut-ting, \$1.00 per lb. plus postage. Elliott's Gem Shop, 26 Jergins Arcade, Long Beach 2, Calif.

50 assorted ring stones, including genuine and synthetic. \$7.50. Genuine Zircons, blue or white, 3 for \$3.75. Twelve genuine Cameos or Opals, \$2.50. B. Lowe, Box 311, St. Louis

\$2.50 brings you prepaid six rare and beautiful crystallized Arizona minerals. Vanadinite, Dioptase, Wulfenite, Willemite, Chrysocolla, Azurite. Specimens 1½x2 or larger. Wiener Mineral Co., Box 509, Tucson, Ari-

100 Jewelry Stones removed from rings, etc., \$2.00. 12 articles of Antique Jewelry, rings, pins, etc., \$3.00. B. Lowe, Box 311, St. Louis 1, Missouri.

Choice Palm Root-Full of eyes showing root and trunk structure. Very colorful. Sliced for Cabochons. 25 cents per square inch. Satisfaction guaranteed. GASKILL, 400 North Muscatel, San Gabriel, Calif.

Swisher's rocks, minerals and petrified woods. Island corals, shells, shell costume jewelry, fine copper minerals from Bisbee, Arizona. Fine quartz crystals from Arkansas. Also fine line of Art Figurines. Swisher's, 5234 So. Broadway, Los Angeles 37, California.

DESERT QUIZ ANSWERS

Questions on page 22

-Yucca. 2.-Death Valley.

-Combination church and lodge of Penitente Brotherhood.

-Applies to plants adapted, in various ways, to dry climate.

-Pyrope is type of garnet, deep red to black, sometimes improperly sold as "Cape Ruby," "Arizona Ruby," "Ruby Garnet."

-Geronimo was born near Janos, state of Chihuahua, Mexico. -Muller. 8—Oñate. 9—Prionus. -Hohokam, sometimes translated as

"People Who Are Gone." -Grand Canyon begins at mouth of

Little Colorado and ends at Grand Wash, 217½ miles away. -Colorado river explorers.

-Wm. Hickling Prescott, author of

"Conquest of Mexico."

Founder of Museum of Navajo
Ceremonial Art, in Santa Fe.

Cerium oxide. 16—Outcrop.

-Archeologist. 18-John Evans. 19-Red shale. 20-Lumholtz.

In his last bulletin of the season W. Scott Lewis offers to accept perfect sea shells in exchange for mineral specimens.

Gordon Funk described geology of Griffith park region to the 40 members of Los Angeles mineralogical society on June field trip to the bird sanctuary.

Dr. F. F. Hintz, department of geology, University of Utah, spoke on the fossil fields of Utah at the final summer meeting, June 6, of the Mineralogical Society of Utah. Specimens of celestite from southern Utah were displayed for sale after the meeting. Half the proceeds went to the society.

Francis J. Sperisen gave hints on cutting and polishing gems and discussed outstanding books on minerals at June 1 meeting of East Bay mineral society. Leland S. Chapman talked on desert mines, minerals and districts at the June 22 meeting. This was the last session of the club for this season.

Nebraska mineralogy and gem club elected the Following officers at their annual meeting: E. J. Weyrich, president; Dan H. Dunham, vice-president; Bertha C. Minardi, secretary-treasurer; J. L. Freeman, Edward F. Andrews, A. B. Nau, Sharpe Osmundson, board members. The secretary's address is 5715 N. 30, Omaha, Nebraska.

New Jersey mineralogical society has chosen the following officers for 1944: Joseph D'Agostino, president; H. E. Millson, vice-president; Dr. H. P. Walther, vice-president; G. R. Stilwell, secretary; Miss E. Hensel, treasurer; A. A. Surina, librarian; Dr. A. C. Hawkins, curator.

Albuquerque gem and mineral club has voted to change meeting dates from second Tuesdays to first and third Tuesdays. About 30 members attended the May meeting, held in the geology laboratory of the university. Bill Marion exhibited a collection of cut and polished jade. There was also a display of agates from the Big Bend country of Texas. A sound film on Arizona, its mineral resources and scenic wonders was shown.

There are five stars in the service flag of Los Angeles mineralogical society.

Fluorescent minerals were studied by Searles Lake gem and mineral society at their annual potluck supper held June 21 in Pillott's patio, Valley Wells. Several members furnished fluorescent lamps to use on known and sus-pected specimens. Swapping was brisk.

Jay Wilson gave a travel talk on collecting mineral specimens in the middle west at June meeting of Orange Belt mineralogical society. Forty members and guests were present. July meeting was to be a covered dish dinner in Perris Hill park, San Bernardino.

Mojave mineralogical society visited the Monolith Portland cement company plant, May 21. The party was divided into small groups, each with a guide, for the tour through the plant.

Peter W. Burk has been elected secretary of Orange Belt mineralogical society to succeed Doris P. Rowland who has resigned because of ill health.

Robert W. Bowman, army nurse, donated a first aid kit to Searles Lake gem and mineral society. It is an essential piece of equipment not before owned by the club, but one which they all sincerely hope they'll never need.

Cogitations

Of a Rockhound

By LOUISE EATON

Rockhounds is jus' about the most thotful 'n considerate folks there is. Whenever they has to ('r gets to) travel, they writes frens to see if there's any rocks in the vicinity that the frens would like, 'r errants they can perform for 'um. Even if the frens says no thank you, 'twould be too much bother for you, they brings 'um interestin' speciments enyhow. The recipients is pleased 'n appreciative too: nice fresh rocks is always more than welcome.

Some wartime measures, such as plastic gadgets, is not bad, but practically everyone'll be glad when paper gets unscarce again, in no one writes letters on both sides of tissue thin paper. It sure is hard to read.

Carbondale, Colorado

Dear Desert:

I've just had a rugged but a nice trip and have many colorful rocks. I am crazy about the black crystals that we found on Mt. Sofris, the most beautiful clusters of smoky quartz crystals I've ever met.

We found them in a cave, a small opening only about three feet high being the only entrance. After one enters the main cave, the galleries open out to nearly 100 feet and sometimes even more. The walls of these caverns are lined with crystals ranging in size from one half inch to some that weigh possibly two or three tons.

We penetrated this cave about 2,000 feet, at which point the crystals seem to change Which point the crystals seem to change to green or blue. This is really a beautiful sight. We intend to explore further next week. I would not advise rockhounds to get all hopped up over this find, as it is a rugged trip, above timber line, at about the 13,000-foot level. Nevertheless, I shall have some of these crystals on the market before long.

JACK O'BRIEN

Mrs. Josie Bishop entertained Searles Lake gem and mineral society on their May field trip. Mrs. Bishop lives near Cantil, high on the mesa between Dove springs and Jawbone canyon where she has a carnotite deposit. . .

San Fernando group has added gem to its title and is now known as "San Fernando valley mineral and gem society." Their secretary is Verna Mann, 430 N. Parish place, Burbank, Cali-

A 12-page 81/2x11 folder containing two articles of value to tungsten prospectors and miners is available free on inquiry to Ultra-Violet Products, Inc., 5205 Santa Monica Blvd., Los Angeles 27, California. They contain information on scheelite prospecting methods, qualitative and quantitative analyses, mine sorting, and other related subjects.

Frank Shaw, one-time mayor of Los Angeles, now a director of California mines incorporated, is directing complete surveys of the talc deposits of the region around Porterville and Lindsay, California. In order to explore the quality and quantity of the talc in this area, he has had a shaft driven into the deposit, but has not yet reported to the general public.

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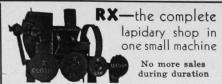
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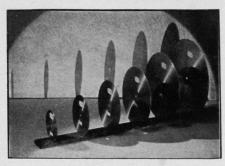
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AMATEUR GEM CUTTER

This page of Desert Magazine is for those who have, or aspire to have, their own gem cutting cts this department, is former presid to answer questions in connection

and polishing equipment. Lelande Quick, who conducts this department, is former president of Los Angeles Lapidary society. He will be glad to answer questions in connection with your lapidary work. Queries should be addressed to Desert Magazine, El Centro, Calif.

By LELANDE QUICK

People tell me that in the old days, when traveling to Europe just for pleasure was the vogue, that the greatest thrill of the whole trip was sighting the statue of Liberty as they came home. I can understand what they mean for after a six weeks' coast to coast and Great Lakes to the Gulf business trip, with all the travail of present day travel, my heart did a flip flop when I saw the first Joshua tree in the Arizona desert. After seeing the lush greenery of Virginia and Kentucky, the marvelous farms of Illinois and Indiana and the cotton fields of Oklahoma and Texas for weeks, it seemed sweet peace to see the deserts again. But folks on the train referred to them as "barren." Poor people!

It took another trip to-the Field Museum to arouse my latent resentment at the treatment of gem displays in the Pacific coast museums. know that it takes a Croesus to leave gems of the value of the Morgan collection in the Metropolitan Museum and the wonderful display in the Hall of Gems in the Field Museum, but why can't the available materials of such a great gem state be given more prominence in California museums? The museum at San Francisco has developed a splendid section on native materials but it is largely the work of one man who has made it a labor of love—Billy Pitts, many times referred to as the "Dean of the Amateur Gem Cutters." Most of the material in the San Francisco display has been cut by Pitts in a lapidary shop that the museum maintains for him. The Los Angeles museums both have displays of cabochon materials hidden away in dark alcoves with very poor light so that they cannot be seen to advantage and if you stand and observe, nine patrons out of ten will walk past the cases with never a glance. However, they all stop in the sections where the following items are well displayed—Mary Pickford's curls, Charlie Chaplin's shoes, Lon Chaney's teeth, Dorothy Lamour's sarong, Harold Lloyd's goggles and Marie Dressler's sweater.

Now these are all legitimate items of interest but it seems to me that gems, especially those cut from our native materials, should be given an equal break with old shoes and sarongs. museums all over the world there are magnificent specimens of California tourmaline, topaz and kunzite but none of our California museums contain any crystal or mineral specimen displays that can approach those in the east. If our mu-seums cannot be as large it would seem that at least the mineral displays could be as good. With more mineral and gem societies than any other state it would seem to be a fitting program for them to gather more representative displays of gems and minerals and see that they get into the museums with proper space and lighting. The museums would probably give gems and minerals a better break if the col-lectors gave them one. Look what china collectors and doll and button collectors do for museums aside from the real art patrons.

The Field Museum in Chicago has inaugurated a marvelous idea. After seeing the gems on display you may purchase gem materials in the rough for cutting or souvenirs and they offer materials at unbelievable prices. For instance, they offer a piece of malachite for a quarter that could not be bought from any gem dealer's display I ever saw for less than a dollar. Yes, I know the city pays the overhead; this is no criticism of the dealers. They also offer for sale the greatest book I have ever seen on agate and their agate display is a treat indeed, although it contains little American material. I

noticed that the few Montana moss agates drew great attention and I wondered what a case of Nipomo or Horse Canyon stuff would do, or a case of Chocolate Mountain geodes.

In Chicago I went to see R. Bensabott who claims to have the greatest collection of figures carved from gem materials. I will not dispute that for it is probably true. He has more figures carved from carnelian alone than Gump of San Francisco has in all materials. If you collect such things don't miss Bensabott's.

In June Desert Magazine I mentioned that groups in the Glendale-Burbank and Westwood-Beverly Hills area had petitioned my aid in organizing lapidary societies there and I requested anyone interested in learning the art, even if you have no equipment, to drop me a card in care of Desert Magazine. Many cards have come to me and I again request cards immediately upon publication of this item so that I can notify you when organization meetings will take place in August. I repeat that I have no interest in joining these societies and I hope no one will withdraw membership from existing societies to enter the new ones.

With this issue Amateur Gem Cutter begins its third year and I will repeat what I said just a year ago. It has been a pleasant stint and it has taught me very much. The greatest pleasure has been the steady flow of letters that have come to me from all over the country and the new friends this correspondence has brought Much has happened in the past two years and much will happen in the next two, but the peaceful calm deserts maintain their awesome silence with always as many rocks—but fewer cans and bottles. This writing of gems every month in these times, with the necessary shackling of field trips, becomes a continual whistling in the dark but each month is a month nearer the restoration of "the pursuit of happiness." The well running suddenly dry, temporarily, will increase our thirst for the desert with its 'sermons in stone."

There is a lot of talk from time to time about America becoming the gem cutting center of the world because many of the cutters are refugees here. Cutting and mounting of gems will become a great industry here, but I doubt that America will ever take the place of Idar in the preparation of ornamental gem materials because of the lack of knowledge of coloring materials. Next month I will begin giving complete instructions for the coloring of agates as it is done in the Idar district of Germany, giving one color each month.

In Chicago I met an official of the company that has developed the manufacture of boules of synthetic ruby and sapphire for use in industrial gems and I was told that the cost of manufacture is but three cents a carat. This should be a good break for the amateur gem cutter who does faceting but I was told that the jewelers are having nightmares over what it may do to the sale of precious stones.

DID YOU KNOW . .

- Carnelian was used for common implements long before it was used in jewelry.
- Cleopatra was a lavish user of carnelian beads.
- Napoleon carried an Egyptian carnelian seal as a charm.



By RANDALL HENDERSON

ITH THE ALLIED FORCES IN AFRICA-Lieutenant Paul Thomasset of the French garrison here had been telling us about some lakes of fresh water where we could catch fish-somewhere among the rocky hills to the west of our oasis. From his description, our guess was catfish.

But who would expect to find catfish in the middle of the Sahara desert! Fishermen's tales are one of the great indoor sports in America, we assured Paul, but no one ever believes them. When he saw that we doubted his story, he offered to

take us on a fishing trip.

So the party was organized: Thomasset and his native houseboy Query, Lieut. Bruce Cabot of Hollywood, and myself. The distance was 11 miles and we were to travel by jeep to the next oasis, eight miles away, and the rest of the distance by camel. The last three miles, we were told, were too rough for a jeep.

Paul sent word ahead to have the camels ready, and we left late Saturday afternoon. There was no road. We alternately mushed through sand dunes and across flats covered with huge cobblestones. No one would think of undertaking such a trip in any vehicle short of a jeep. It finally became too rugged even for our sturdy little war-wagon. A mile and a half from the oasis

it gave a final gasp and quit.

Our French guide solved the dilemma by sending Query ahead on foot to get the camels. While we waited, Paul hailed a couple of passing Arabs and asked them to come and make tea for us. Until now, I thought the British were the champion tea drinkers of the world. But my tour of duty on the Sahara has convinced me that the English people acquired the tea habit from the Arabs—and are still novices in the art of brewing and drinking the beverage.

Tea is a ritual among these turbaned desert dwellers. No caravan ever would start across the Sahara without its teapots and glasses and sugar and mint leaves. Since the war came to Africa the price of tea has skyrocketed, but an Arab will go two days without food if necessary to save money for a few ounces of tea leaves. Four or five or six times a day they stop for tea. And it always is prepared and served according to a time-hon-

ored procedure.

The properties for a tea party on this desert are two small kettles, one for water and the other for tea, and a long cloth "stocking" with tea, brick sugar and mint leaves, separated by knots to keep the ingredients from becoming mixed. Or the tea and sugar and mint leaves may be in separate goatskin pouches. The

drink is served in small glasses, never in cups.

The desert may be as barren as a salt flat in Utah, but an Arab always can find a few leaves and twigs to build a fire. While the water is heating, the tea leaves are carefully measured according to the number of persons present. They know in advance how much each will drink, and never a leaf is wasted. The tea goes into the pot. Then the brick of sugar is broken with a

little hammer especially made for that purpose. Tea and sugar just about fill the pot. The Arabs like it sweet. Finally a pinch of mint leaves is added.

Both indoors and out, the tea is prepared with the master of ceremonies sitting cross-legged on the ground with the glasses in an orderly row in front of him. The syrupy tea is mixed by pouring into one of the glasses and back into the pot. After the proper amount of mixing, the MC pours a few drops in a glass for sampling. He has made tea thousands of times exactly this way and knows to the last leaf and the last grain of sugar whether it is properly prepared. Nevertheless, it must be tasted, and if a distinguished guest is present he also is invited to test it.

Then the tea is poured—with a dexterity that would make the ace soda jerk in the home town drug store look like an awkward goof. There is a graceful flourish, and from the spout two or three feet in the air a tiny stream of tea emerges and scores a perfect bullseye in the center of the glass on the ground with never a drop lost. The whole ritual is done with professional skill that always leaves me dumb with amazement. Men and women, boys and girls—all are masters of the art of making tea. The Arab whom Paul drafted for this tea party beside the crippled jeep was a villainous-looking fellow with matted hair and dirty rags and tatters on his back. But when he started making tea he became an artist.

Three glasses are served to each guest—always. It is discourteous to drink less. It would be a sacrilege to ask for more. And when the Arab had finished serving, he washed the glasses with a few drops of water in the kettle, then threw his carbine over his shoulder and continued his journey toward the next

The sun was sinking behind the distant brown hills when the camels and their drivers arrived. Our food and canteens and blankets were packed in saddlebags, and the camels were brought to the ground with a soft-voiced "sh-sh-sh-sh" and a gentle tug on the leather rein that is attached to a ring in their nostrils.

Cabot and I each were given a baton, with instructions for guiding the animals by tapping them on the neck—the left side to turn them to the right, and vice versa. We climbed into the pocket-saddles, and hung on for dear life while the beasts got to their feet. It is a ticklish moment for a novice. There are neither stirrups nor saddle horn to cling to. Starting with his belly resting on the sand, the camel first rises on his front knees—and that gives the rider a sudden pitch backward. Then his rump comes up as he straightens out those long hind legsand the rider lurches forward. Finally the camel's shoulders come up as he straightens out his front legs. And there you are—perched on the peak of a one-hump camel, wondering where the devil you will land if he starts to buck.

But camels do not buck. They have a more docile way of expressing their dislike for humans in general and the rider in particular. From the time the drivers start putting on the saddles, they groan and grumble. I was quite sympathetic at first. I thought the drivers were cinching them up too tightly. But later I concluded that their wails and complaints were mostly bluff—or habit.

It was one of those perfect moonlight nights on the desert. A cool spring breeze was blowing and there was no sound except the soft impact of padded feet in the sand. We rode single file, through an oasis and then over drifted sand dunes. Once we stopped by some thatched huts, and the nomads who lived there brought us each a bowl of goat's milk.

We crossed a wide sandy valley and started up a rocky arroyo that soon became a cliff-walled canyon as the mountains closed in. When the boulders became too big and numerous we dismounted and led our animals. While I am not yet convinced that Nature designed a camel's back for riding purposes, I would award this beast all the blue ribbons for sure-footedness in traveling over and among the rocks. No one ever would think of taking a shod horse or mule over the boulders along that route, and a burro with packs would have become hopelessly wedged between the huge rocks on both sides. But the camels with their pad-like feet and long legs marched along without a slip or stumble.

Despite the awkward contour of a camel's back, the Arabs have designed a pack saddle that for simplicity and utility beats anything I ever saw on an American mule. Perhaps that is because the Arabs had been working at it several centuries before dude ranches were discovered.

It was 10 o'clock when we reached the first of the "lakes" described by the French lieutenant. I was not disappointed to find that they simply were natural tanks in the floor of the canyonthe tinajas of the American desert. Knowing the aridity of this country and the hundreds of miles of level sandy terrain that lay between this oasis and the nearest snow-capped peaks, it was inconceivable that there should be fresh water lakes other than from the storage of storm water.

They were lovely pools of cool sweet water, as I was to discover the next day when we visited four of them. While I was barbecuing some steaks which had arrived by plane before we left camp earlier in the day, the camel drivers unpacked their animals and brought out the teapots. There was a fringe of date palms around the pool and dry fronds provided the necessary

When we had sipped our three glasses of tea we stretched out on the sheepskins which were our beds for the night. The Arabs had spread them on the sand, with saddle and kit-bag at the head of each skin, just as a Camel Corps trooper would bed down for the night. The moon passed behind the towering cliff wall above, a gentle breeze came down the canyon and I lay there under the Sahara stars with the same feeling of relaxation and peace with the world I have experienced many times on that desert which is my home. The war seemed much farther away than the planet Mars.

We were up before sunrise and Query already was brewing our early morning tea. Then I caught my first glimpse of fish on the Sahara desert—and they truly resembled catfish. Scores of them, from eight inches to a foot long, were swimming in the pool, making ripples on the surface as they came up for air-or whatever it is that causes a catfish to stick its nose out of the water.

But we were to do our fishing farther up the canyon where the pools were deeper, Paul said. The camels were led to the water's edge where they drank their weekly ration of a half barrel each, then they were hobbled and turned loose to graze on the sparse vegetation that grew around the waterhole. The beasts passed

up a little patch of grass and began biting twigs from the thorniest Acacia bush I ever have seen. The thorns were an inch long, and the camels must have shoe-leather lining in their mouths the way they went after them.

It was a mile's hike over a jumble of rocks to the upper tanks. The camels could have made it, but we decided to walk for the exercise. There was no trail to follow. We simply picked our way where the boulders were smallest. The shattered limestone walls of the canyon reminded me so much of northern Arizona I kept looking in the overhung recesses for evidence of ancient cliff dwellings. However, this Sahara canyon lacked the coloring of Arizona and New Mexico wilderness country. Here the limestone had been burned or varnished a deep brown, and it was only in places where segments of the walls recently had broken off that we saw the reds and tans of the American desert. Also, I missed the juniper and piñon and sage and other less common plants which add both color and character to the canyons in the Navajo country. Here the walls were barren, and the silhouette on the skyline above always was rock—never a tree or shrub.

When we arrived at the tinajas we found a French soldier sitting on a rock pulling out fish. He had packed in with camels ahead of us to spend an eight-day furlough in this delightful spot. The largest of the pools was perhaps 120 feet long and 30 feet wide. Later in the day we dived off the ledges on the sidewalls, but were unable to touch bottom.

Many kinds of animals come to these waterholes to drink gazelle, wild boar, hyena and jackal. In the sand we saw the tracks of a huge cat. The French soldier said it was a tiger that he had seen it the night before. But obviously there was a flaw in the interpretation of our French-English at that point in the conversation.

Where did these fish come from? How do they survive in pools fed only by occasional storm water—in a region where Arabs abound and food always is scarce? I do not know the answers—nor were the Frenchmen able to offer more than a guess. It is quite certain that Arabs, in this part of the desert at least, do not care for fish meat, although I never have heard of a taboo against them in the Koran. Also it was evident that the cloudbursts in this country are not as frequent or as torrential as in southwestern United States. No fish would live to maturity in the flood torrents that sweep down the canyons at home, uprooting trees and turning the canyon into a churning chaos of boulders.

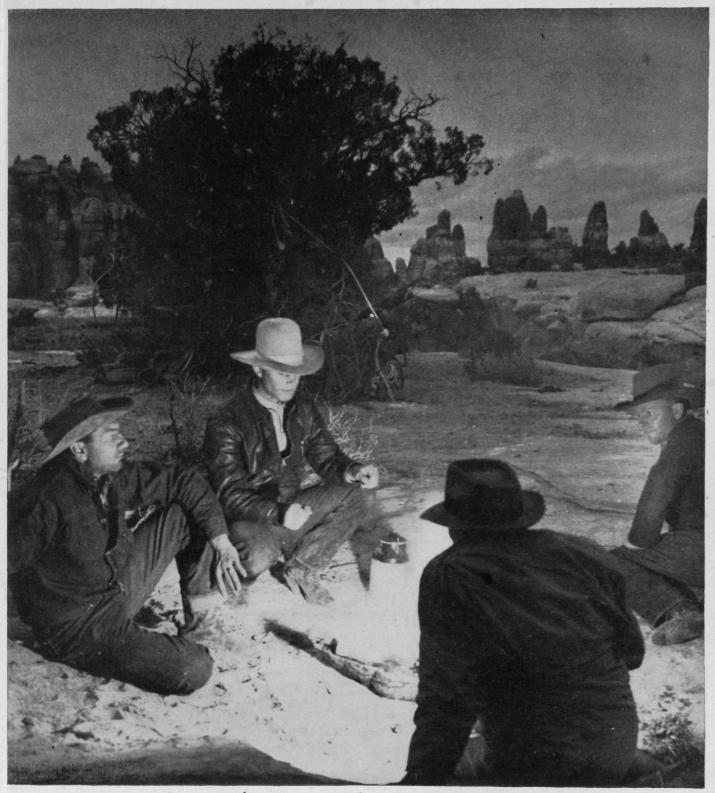
The Sahara may keep its secret. I know only that we had a delicious fish dinner, cooked by Query and served in the shade of a little oasis of native palms that grew just below the pool in which we caught the fish. We hooked three species—one resembling catfish, another like perch, and the third was a pesky little fresh water "sardine" that kept nibbling the bait off our hooks.

Then we had tea—and at midafternoon started the trek back to the home oasis. The camels went through their customary groaning and bellowing. But by now I had little sympathy for them. A beast that will pass up a luscious patch of grass to browse on a thorn tree should not be irritated by the mere tightening of a saddle girth.

A runner had been sent back to our army camp the previous evening to arrange for one of the motor mechanics to come out and repair the jeep-and when we arrived there at the end of

our camel journey, it was hitting on all cylinders.

We apologized to Lieutenant Paul for having doubted his fish story, and thanked him for a delicious variation in our weekafter-week routine of canned army rations. The feature of this trip which will remain longest in memory is the rhythmic roll of the saddle as our little caravan trekked across the dunes by moonlight. I suspect that a long day on the upper deck of a camel would become very tiresome to one not accustomed to it. But for a few hours it is a delightful experience.



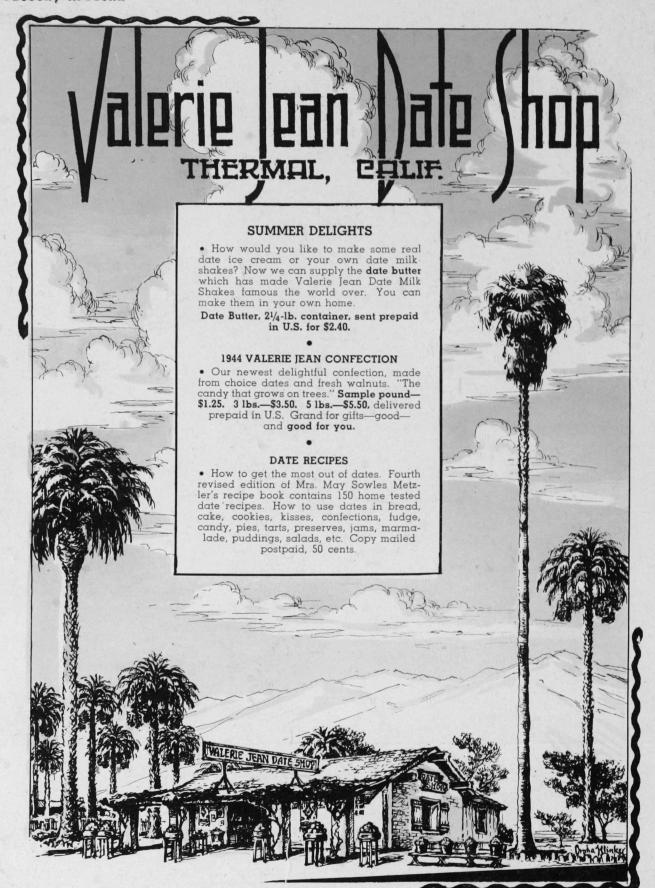
Campfire on the Utah Range

Photograph by Frank E. O'Brien, Utah state department publicity

This camp site is about three miles east of the confluence of the Colorado and Green rivers in eastern Utah, one of the remotest areas in America. In background are the little-known Needles. The party of five who made this trip—(left to right) W. T. McKinney, Arches national monument custodian, Cy Thornell and Aye Helquist, S-S ranch cowboys, Dimitri Kessell of New York, and Frank E. O'Brien, who took the picture—first traveled

by automobile from Moab 50 miles to the 1,400,000-acre S-S cattle ranch on Indian creek, then 25 miles by truck, another 25 miles by horseback, and the last mile by foot.

The boys have just finished a dinner of vegetable soup, sausage and eggs, sour-dough biscuits, native buffalo-berry jelly, and coffee made from rain water. Near the fire is a jug of newly mixed sour-dough, warming up for next morning's sour-dough biscuits.



THE

Desent

MAGAZINE



SEPTEMBER 1944

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95 CENITS

About my friend Philomel Murphy-

BY YOUR UNION OIL MINUTE MAN

The other day, we'd just opened the station for business when in storms 380 pounds of the biggest, maddest woman I've ever seen. She's jammed into a little Austin about the size of an anemic gopher.

I start to smile and say "Good morning." But this dame climbs out of her kiddie car and holds up her hand—which looks like a bunch of bananas.

"Don't say it, mister," she roars. "I know there's ten thousand guys ahead of me, I know you're busy, and I know there's a war on, too! Only just don't gripe about it. All I want is to borrow your hoist so I can switch my tires."



I grab a quick look at the identification badge pinned on her blouse. *Philomel Murphy, Riveter*, it says. I give her my best Page 1 smile.

"Hold everything, Miss Murphy," I tell her. "We do



get busy in here, just as busy as anyone can be; and sometimes we have to ask you to wait. But, we're never too busy to be helpful!"

She's still glaring at me like I was a suspected kidnaper and she was the D. A. "Are you levelin'?"

"Absolutely," I tell her. "You see, we Union Oil Minute Men wanted your business



before the war; and we certainly want it after the war. So we figure the way to keep your business is to treat you

the best we can – now. You don't need a ration coupon to get help around here. Now, I'll switch those tires for you!"



"Well I'll be d-darned," roars Philomel in a well-controlled bellow. Then she grins at me. "Come on, pal, I'll give you a hand anyway."

And you know what? She is not only trading with us regular, but she came in last week with an old-fashioned sampler like used to hang on grandmother's wall.

She'd *made* it, sewed all

the stitches with those banana fingers of hers!

I got it hanging in the station now.

It says WELCOME!

The latchstring is always out at Union Oil Minute Man Stations. Courtesy, friendliness and essential motoring services are never rationed. We're busy, yes, as busy as anyone else, but we're...

Never too busy to be helpful!

UNION
OIL
COMPANY
OF CALIFORNIA



Close-Ups

- Margaret Stone this month writes about her Indian friends of Taos Pueblo—not the Taos of the art colony which properly is called Don Fernando de Taos, but San Gerónimo de Taos, ancient home of the Taos Indians comprising two large adobe communal houses four and five stories in height, appearing today much as they did in 1540 at the coming of the Spaniards. A third Taos is that of Ranchos de Taos, the old Indian farming center. All three sections of Taos (pronounce to rime with house) lie near the base of the beautiful Sangre de Cristo mountains which rise abruptly to the east.
- Most rockhounds can only imagine what collecting via jeep might be like, but one of them already has been out looking for quartz crystals in one of those little war wagons. Randall Henderson, Desert's editor-on-leave, tells in his Sahara Diary this month how he followed the trail of crystal float to the source in a jagged mountain area where boulders were shot with vugs and seams of quartz. Only drawback—he discovered that a chisel is an inadequate tool. But rockhound equipment is scarce in the Sahara desert of Africa.
- Indian legends often have strange parallels with the folklore and history found in literature of other peoples. One such analogy is contained in the Pahute legend told this month by Charles Kelly in his mining story of southeastern Utah, "Arrows From the Rainbow."
- · Because Charles F. Lummis played such a dominant role in acquainting America with the natural wonders, antiquities and peoples of the Southwest, anyone interested in the Southwest in-evitably will be led to the life and works of this man. Hope Gilbert, whose chief enthusiasms are the archeology and the Spanish and Indian cultures of the Southwest, had the good fortune to know him personally as well as through his works. She tells in this issue some of the highlights of Lummis' life. Her work under Dr. H. E. Bolton at University of California and under Dr. Edgar L. Hewett at School of American Research in Santa Fe has inspired further research in her fields of interest. She is a resident of Pasadena, has written of her experiences among the Pueblo Indians for various publications.

CREED OF THE DESERT

By June LeMert Paxton Yucca Valley, California

When Look-out Quail mounts on a limb, Adroitly does he scan.
Full well he knows that he must keep A wary eye to guard his clan.



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-Photo by G. E. Barrett

FROM THE DESERT OF ALTAR

By Рете Wнгте Santa Paula, California

With the white clouds riding high, That is the way he came, With the sand under foot like the floor of hell And the sun above like a flame.

That is the way he came, Crawling and clawing the ground, And I wetted his cracked and bleeding lips While my dumb sheep gathered round.

He showed me his sack of crimson gold.
"There's more—much more—like sand!" said he,

"Though never a drop of water cold And never a green and blessed tree."

The days shifted by. Then—"I must go back! I have tarried too long," he cried,
And his breath came strong and his eyes flashed bold

And his strength flowed back like the tide.

So he set on his way with the white clouds high. A shadow engulfed by the distant haze; But he never came out and his bones will lie With the rocks in the sun 'til the end of days.

(This is the tale in a lonely land By a lonely fire an old man told As westward he raised a pointing hand To an endless desert of death and gold.)

CUP OF GOLD

By Edythe Hope Genee Hollywood, California

When Zeus from some Olympian hall, Was wont the rich ambrosial wine to sup, He called the gods from near and far, Holding high a golden chaliced cup; Then tiring, flung the thing away, Down embered hillsides when the sun was gone—

Today I found a shining cup Filled with the nectar of a summer dawn.

Desert Sand

By JACK GREENHILL Los Angeles, California

The desert sands are memories Of waters that have died, The silent longings of wild seas, Renounced to grief and pride.

The desert sands are smiles and sighs
A myriad years have borne,
The stifled echoes which will rise
On resurrection morn.

The desert sands are whispers which The waves and tides have told, Turned into crystals by some witch For endlessness to hold.

These sands are a forsaken breast, On which grave waters lay, Then left as birds will leave a nest For winds to tear away.

PERFUMES

By MILDRED POWERS Santa Barbara, California

A million roses wept this year in France, The lilies grow there still, and in the spring The stolid peasants gather them and brew A glorious attar full of fragrant lure.

The spices and the musk of Araby, Are honey-sweet as incense—powerful, rank, They tempt the swirling senses with delight, And smother with delicious vertigo, The very soul of man who dares their snare.

But not a dew-sweet rose in all Provence, Nor all the Orient's frankincense and myrrh, Can yield such perfume as my heart recalls . .

There is no heady fragrance in the world, So heart-break sweet as summer rain on sage!

ADOBE HOUSE

By Sadie Fuller Seagrave Oakdale, Iowa

Haunted, the neighbors say, and shake their heads.

They do not understand. They dimly see Thin vapor rising from the chimney top, And pale fruit hanging from a shadowy tree. It frightens them to push the vines aside, Their hands press lightly on the unused door They stare, bewildered, at the bright blue cups. They do not dare to cross the sanded floor. A ghostly clock, upon a crude low shelf, Counts off the time in minutes long as hours. Sometimes a woman's husky voice is heard: "O, my beloved, do you note the flowers? See how the lilies freshen in the breeze, And lift their shining heads in wordless praise. See how the hollyhocks shame the rising sun. Yet never match the splendor of our days."

Haunted, the neighbors say, and shun the place. They do not understand. They count their beads And wonder why the clearing round the house Is always free from withered stalks and weeds. A ghostly burro droops his patient head, Heedless of alien feet that swiftly pass, A brooding silence hovers . . . but there stirs A promise in the softly springing grass! This house, Beloved, which our mortal years Conceived but never knew, has substance deep. And waits fulfillment when the west wind blows And we awaken from this mortal sleep. Then will the faggot on the hearth be red, And humble knees be bent upon the floor, The Virgin Mary from her niche will smile Who long had wept to see the closed door.

ROCK WREN

By Laura Lourene LeGear Long Island, New York

Her tiny heart hangs heaven-high, Flirting with a thorny flower, Her fragile weight a butterfly— Drinking sunlight like a shower. Going to an engagement party in Taos is almost as solemn an occasion as going to a wedding. But when the rosaries finally are exchanged, and the relatives gather to taste the engagement sweet and eat Indian and Mexican food, Margaret Stone found it could be as gay as any party. This is just one of the phases of family and social life she was allowed to share when she lived for a while with her friend Josefa in one of the terraced pueblos of Taos . . . To the outside world, Taos is an art center. Aside from this about all that is known of Taos is that the men wrapped in their burnous-like blankets give an Oriental touch to the scene and the comely women are picturesque as they dip water from the creek or take fragrant loaves from outdoor ovens. Although the Taos are polite to visitors in the daytime, they withdraw at night to their whitewashed rooms in the pueblos, to live much as they have lived since before the days of Coronado, 400 years ago. It is about this side of Taos life that Margaret Stone writes this month

Where the Lagle Feathers Fell

By MARGARET STONE

OME home with me to Taos," begged Josefa when she left Sherman Institute school in California to return to her home in Taos Indian pueblo. High among the Sangre de Cristo mountains in northern New Mexico, the two huge buildings which house the entire tribe have dominated the plateau since long before the coming of Coronado's captain, Alvarado, in 1540.

These two terraced pueblos, one of four stories and the other of five, face each other across swift running Taos creek which divides the village. Across the creek are thrown rough hewed logs and here the young men gather in summer evenings to serenade their sweethearts. The scene is little changed since the coming of the Spaniards.

Then, as now, the men draped themselves in white blankets of their own weaving and the women baked their food in outdoor 'dobe ovens and did most of their homemaking on the rooftops of their sleeping rooms. Taos was Taos in 1680 when it gave refuge and aid to Popé during his rebellion against the Spanish soldiers and priests. Taos was Taos under the flag of Mexico. The Mountain Men of Kit Carson's Fur Brigade were welcomed in its plazas. The death cries of the murdered family of Governor Bent rang through its alleys, and the terrible warcry of Navajo, Comanche and Apache have sounded in many of the thickwalled rooms. Still Taos is Taos, unchanged and unmoved by the ages.

The years swept by and I still had not accepted the invitation of my Josefa. I was her "adviser" at school when she and 200 other Indian girls from a dozen tribes made life interesting. I still like to remember that my chief advice to those girls was, "Take whatever is of use to you from what the white race offers. Take only what will help you in your own way of life. Remember, and always be proud of the fact that you are Indians!" I kept in touch with Josefa during the years and I knew she had married Ramón, one of the boys who had been to school with her. I also knew that her two fine boys had been chosen to represent the Taos Indians on a ceremonial tour of Old Mexico. I wanted to know more of this tour, and the time had come to visit Josefa of Taos.

Josefa was in the dusty plaza of the old pueblo as the stage reached it. She still was beautiful. The slim youthful charm had mellowed into the calm, serene beauty of a happy contented wife and mother, but a bit of mischief lingered in her eyes. She was

San Gerónimo de Taos, or more commonly Taos Pueblo, is comprised of two facing terraced adobe buildings separated by Taos creek, seen in foreground. The creek flows through a central plaza, is crossed by great pine logs. On moonlight nights this is a rendezvous where young men serenade darkeyed maidens. New Mexico state tourist bureau photo.

well aware that a world famous artist was making a swift sketch of her as we stood chatting after our first joyous meeting. I couldn't blame him at all. She was all curves and smiles and a symphony of soft subdued colors. Her blouse was white with colored embroidery, the skirt was full and short and a faded blue. From its edge the lace ruffles of her petticoat showed as should the petticoats of all fashionable Taos matrons. Her small feet seemed smaller still in their white doeskin moccasins over which lapped the roll leggings of the same material. Over her head and shoulders was loosely draped a shawl of blue and gold and crimson.

"You are too thin, my Margo," she said, using the name of our other years. "You stay with Ramón and me and we'll fatten you up!"

"I wish I could stay forever," I answered, and meant it. The huge terraced houses were peaceful and drowsy in the afternoon sun. Behind them the snow capped mountain rose majestically from its foundation of blue green forests. Sleepy donkeys passed through the plaza, their towering loads of fragrant firewood destined for the hearths of writers and artists in the colony close by. I brought my wandering eyes back to Josefa. "I have only a few days to spend, and I want to learn all you can teach me about the real living of your people. I want to go behind the painted





Beauty and precision characterize the dances of Taos Indians. Young men, painted in the sacred colors of Taos, keep step with the thump of the tom-tom as they slip through brightly painted hoops from which the dance takes its name. Photo by Harold Kellogg, Santa Fe.

scene presented to sight seers. Most of all I want to know all about this tour to Old Mexico your boys are making."

Josefa laughed. "You haven't changed at all. You still want to know too much!"

I dropped into the daily routine of Josefa's home. For my own use she gave me a spotless little whitewashed room with its raised ledge on which my blankets were spread at night. I ate the delicious food she cooked for her family. Ramón was tall and quiet, saying little but always following his adored talkative wife and handsome sons with proud happy eyes. Such boys! Luis Malone, with his mixture of Irish and Spanish names, was the older. He had enough eager young enthusiasms for half a dozen boys. All his heart and soul just at the moment were engaged in making ready for the Mexican tour.

'Tell me all about it, Luis, from the very beginning."

"Well, last year four boys from a college in Mexico came to our school (Albuquerque Indian school) and showed us how they dance in their country. They played their guitars and sang and told us stories of the Indians in their land, and of their own people. We liked them, and we made a plan to go into Mexico and take our songs and dances and ceremonials to them. Our teachers helped us plan it, and we gained permission from Washington to go, but there was no money, Washington said. So we earned our own money! About 75 of us are going and we have money enough to pay our way, even to pay for wear and tear on the cars which will take us. While we are there we will be guests of the Mexican government, but we will camp near the villages and cities and cook our own food. O, it's going to be great!"

"How did you earn the money?"

"How? How didn't we?" He was so excited he walked back and forth across the big kitchen as he talked. "The boys washed windows and mowed yards and cut firewood and delivered it to homes. We washed and polished cars and some of us worked in stores. We did just anything to earn the money. The girls took

care of white babies and they sold embroidery and water color sketches they made. Lots of our fathers and mothers helped by

giving us baskets and blankets we could sell."

Juan Pablo, the younger son, was the dreamer, the artist of the family. The walls were covered with his clever sketches of village life. A collector would pay much for the picture he had made of a young mother and her baby. The child was trying its first steps alone and a frolicsome kid was interfering. There was everything in that small picture—humor, fear, confidence and most of all, love. Juan Pablo always saw the first pink light of dawn on the mountain tops and called the white woman to share the beauty. Someway I knew Josefa loved him best . . . "We regret to inform you that your son, Juan Pablo Abeyto, is missing in action at Bataan. It is presumed he is held prisoner by the Jabanese."

No shadow of war's blight fell on us as we three women, Josefa, Juanita, Juan Pablo's dainty sweetheart, and I perched on a cliff above the grassy cove where the lads were having their final training in the Hoop Dance. Not quite smooth enough were their movements; not quite sure of themselves, thought Ramón. Thus the older men of the pueblo sat in judgment each

day while the boys went through their paces.

The boys were stripped to moccasins and trunks. They were carefully painted in the sacred colors of Taos, and the feather headdresses arranged just as they would be during the real dances. To us, above them, the thump of the tom-tom timing the steps sounded like a muted heartbeat. And like clockwork the young boys, slender and supple slipped through the brightly painted hoops from which the dance takes its name. First one hoop was used, then two and three, and at last Ramón tossed a fourth hoop into the ring. Without missing a step in the dance the boys stepped into the hoops, brought them up over their bodies, thrust their befeathered heads through them and brought them back down over their bodies again. The old men grunted with approval.

An eagle wheeled and drifted overhead and as Josefa watched it with dreamy eyes, she told me this story of the founding of

Taos

"Far away in the north once lay a beautiful lake. From its waters rose the Taos Indians. They wandered south, far south—those lake children—until a great sickness came driving them back to the north. With them they drove big flocks of turkeys they had captured in the southern mountains and tamed. When they were very weary they stopped and built a place to live, but they were not happy there. A young chief grew up and told them they must move still farther north and they followed him.

"As they moved away from their temporary home a great eagle with the sun gleaming on its wings swept down out of the blue and kept circling ahead of them. It led them on and on until they were weary to death. Then at the foot of the big mountain there, which you know is a sacred mountain, two feathers fell from the eagle's wings, one on each side of the swift little river. There the young chief stopped. 'This is where we will build our homes for the generations to come, one big house where each feather fell.' The eagle had been hovering above but when the words rose up to him he circled once more and rose up and up until he was lost in the blue."

Tribal life has changed little during the centuries. The Taos people gravely greet white visitors when they arrive; they pose for pictures, allow white visitors to come into the front rooms of their homes and they sell them curios obtained from other tribes since the Taos have no distinctive arts and crafts; allow them to take pictures of the *tapestes*, platforms on which they pile their fodder and alfalfa hay out of reach of the goats. For a consideration a smiling matron in Indian dress will stoop at the open door of the *horno*, outdoor oven where she bakes her bread. Throughout the day the Taos people will mingle with the white people so eager to part with their money, but at night they go into their homes and steep themselves in piñon smoke and Indian ways.

"Would you like to go to Lolita's engagement party?" Josefa asked me one morning. She knew wild horses couldn't drag me away if there was any chance of being invited! She teased me awhile and then said Lolita had asked her to bring me to the party. While Josefa bustled about in her spotless kitchen preparing the engagement sweet she gave me pointers on Taos courtships, engagements and marriages. This particular pastry she was making is served only at engagement feasts and is made from nature's storehouse. Wild honey is thickened with flour made from roasted piñon nuts or sweet acorns, and into the mixture is beaten wild turkey eggs found in the nests of the big birds far up in the mountains. The mixture is shaped into flat cakes and baked or dried in the oven and then rolled in chopped sunflower seeds.

The Taos people do not enter lightly into marriage. Lolita and her lover had been to school together and when they returned to Taos they asked their parents to allow them to marry. The four parents, with a great-uncle of the girl held a meeting and approved of the step. The engagement party is given at the home of the girl and is attended only by relatives of the couple. The girl's people are all there, seated on the floor at the right of the door when the boy's folks arrive in a body. They seat themselves at the left of the door facing the other visitors. The boy enters at the front door and the girl from an inner door and they are seated between the two factions. Then the great uncle takes up the questioning. "Are you sure you want to marry with each other? Will you work and save your money and stay only with each other? Will you take care of each other in sickness? Is there anybody else either of you would rather marry?"

When he has exhausted his examination, he invites anyone present knowing of any reason why the young folks should not marry to say so then and there, or else forget about it.

Nobody advanced any reason why Lolita and Tomás should not wed and the uncle asked her, "Lolita, do you wish this marriage?" Lolita giggled and nodded her head. "Tomás, do you wish this marriage to be?" Tomás looked straight at the old man and said quite earnestly, "I do wish this marriage with Lolita to be!" Rosaries were exchanged by the young couple and they were formally engaged according to the best Taos traditions.

We vacated the big shadowy front room and went into the even larger and more shadowed kitchen, lighted only by a few flickering candles. There we feasted on all sorts of Indian and Mexican food. The engaged couple sat far apart and as far as I could tell never looked toward one another nor spoke during the evening. When each guest had tasted the engagement sweet we trooped back into the front room to view the presents. In the meantime the chest of gifts prepared by Tomás for his future wife had been brought from the home of his parents and it stood in the center of the room. It was opened first, and on top of the contents was the traditional white buckskin leggings and moccasins which each bride receives from her husband. He is obligated to kill a deer, skin it, tan the hide himself and either make the footwear or pay to have it made before he can accept his sweetheart's rosary at the party.

In my eagerness to see what was in the chest I was on tip-toe. One of the tall men wrapped in his white blanket pulled me around in front of him where I would miss nothing. I learned later that he was the boy's father. The boy's mother lifted each gift from the chest and it was passed gravely around from hand to hand, then returned to be replaced. There were bright strings of beads and cakes of colored soap, bolts of lace and embroidery for the blouses and petiticoats of the girl, a rose and yellow shawl, sills steekings and petiticoats of the girl, a rose and yellow shawl,

silk stockings and writing paper.

Each visitor presented the gift brought for the bride and they were all duly examined and appreciated. In searching for some-

Josefa's youthful charm had mellowed into the calm serene beauty of a happy wife and mother but mischief lingered in her eyes.

thing I could take I had found a bottle of perfume, "Evening in Paris," and it played its small part in an "Evening in Taos." It was amusing to see the stolid men sniffing at the fancy blue bottle with its silver stars. One weather-beaten old citizen tipped his head back time and again and with closed eyes inhaled the odor. "It smells like the love songs of my youth," was his final verdict, and no one laughed at him.

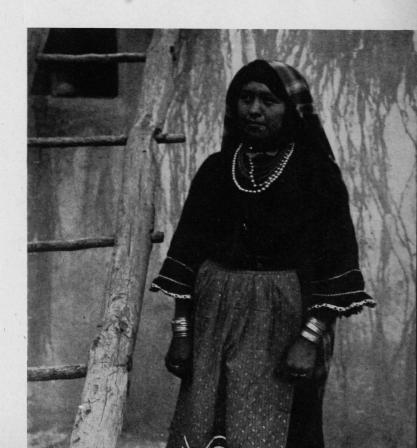
There would be a marriage in the church two weeks from that time and then the young couple would live with her people until they could build some rooms of their own, possibly atop the five-story pueblo in which we lived. The old men chosen to rule the pueblo would keep an anxious eye on the marriage and see that neither Lolita nor Tomás went to dances without the other, and that he did not ill treat her, nor she neglect her home in any way.

"I don't think they will pay much attention to the old men and their instructions," I sniffed. "O, don't you?" Josefa and Ramón both were laughing. "Well, we started out to be very independent. We moved into a big windowless room on the ground floor where my grandmother had lived. The first thing we did was to tear out some of the ancient plaster and set in a big glass window with a nice Mexican blue frame. I even had flowers inside that window!" She went into a dream of the past.

"Well?" I prompted. "It wasn't well," said Ramón. "The old men came and looked at it and said, 'Remove the window and build back the wall.' "

And Josefa had obeyed. She gathered a great pile of thyme and sedge grass and piled it on a bare spot. This was lighted and allowed to burn into coarse ashes. While the ashes still glowed, wet dirt and cut up straw and small pebbles were tossed on it and the whole mixture stirred into a stiff mass. Then Josefa took handfuls of it and shaped them into rough bricks with which she filled in the old wall as it had been. There was no appeal from the verdict of the Supreme Court of Ancients in Taos!

Windows have made their appearance now and fewer ladders are to be seen, but as late as 1740 the pueblo was guarded by means of pulling up the ladders when Comanche and Apache or Navajo approached, and only a few years ago was the Watcher of the Night abolished. I have seen the ghostly form of the sentinel, wrapped in his blanket, stalking across the rooftops, halting now and then to investigate a noise or shadow. There always





The typical white doeskin leggings over white moccasins make the Taos matron's small feet appear even smaller. A Taos maiden receives her first moccasins and leggings at the traditional formal engagement party. Her fiancé is obliged to kill a deer, skin it, tan the hide and either make the footwear or have it made before he can accept his future bride's rosary, confirming the engagement. Photo by Frashers.

was something lonely and awesome in his hourly call assuring the people under his care that they were safe.

On the last night I spent with Josefa and Ramón they brought some of the old men into their home to tell me of the ancient ways of their people.

The governor of the village told me of the treasured chest now in his care, handed from governor to governor. It contains the writings of one of the first Spanish soldiers who came to Taos. When he left he gave his record to an Indian and asked that it be kept safely until his return. Centuries have come and gone and the soldier failed to return but the Indians are keeping the faith. The chest never is opened in the presence of white people.

The Taos religion is a mixture of Catholic belief and their own native rites. In the room that night was the young priest in charge of Indian ceremonies. He explained some of their own rites to me. I was most interested in their prayer season which in a way corresponds to Lent.

Life of a Taos family is little known and little affected by white men. U. S. Indian service photo.

"About December 5 or 6 we pray," he said. "The season is sacred to the sun and we pray for an early summer and for good crops." Since the Taos Indians depend upon their fields of grain for their living no wonder they cater to the sun.

"During that time we do not hitch horses to the wagons. Our women bake bread without yeast in it, and they do all their sewing by hand, not on white man's machines. No good Taos has his hair cut then, and we do not stay with the women during the praying days. No meal is ground by the unmarried girls and the boys may practice their dances but they must not put any paint on their body or faces. After awhile, about a month, different ones of us go and sit in Glorieta canyon and pray again for summer to come and for the wheat fields to be heavy with grain. The medicine man stands in the center praying for food for all. When he is finished praying the horses are hitched to the wagons and we work hard in the fields.

The Taos people are deeply attached to their children and the group of old men teach the small boys how to dance from the time they can walk. On each November 2nd, All Souls' Day, all the people gather at the graves of their loved ones and leave food for the dead. At twilight, parents of babies who have died during the year, quietly leave the others and go up into the canyons where they leave bottles of milk and bits of cake and candy for their dead children.

All these things they keep to themselves, and about all the white visitors know is that the men wrapped in their burnous-like blankets give an Oriental touch to the scene, and that the comely smiling women are picturesque as they dip water from the creek or take the sweet smelling loaves from their outdoor ovens.

Leaving the peaceful pueblo early in the morning I drove down by the clear river and saw Lolita dipping water for her washing.

"What would you like best for your new home?" I asked. She came close to the car and with almost painful intensity said, "Do you think maybe you could send me a canary, a yellow canary to sing in a white and green cage?" I thought maybe I could, and the last time I heard from Lolita the canary joins in when she sings to small Juan Pablo safely wrapped in his cradle hung from the rafters. When Tomás heard that his friend Juan Pablo the dancer was held by the Japs, his small son was only a few hours old.

"We will call him by the name of our friend," he said, and he went into Santa Fe and enlisted. Lolita and Josefa wait for news in the old pueblo where for hundreds of years other women have waited, but Juanita welds wings for airplanes that may help rescue her beloved Juan Pablo.





Mt. Pennell, one of the five peaks of the Henry mountains, showing (left) Farmer's Knoll where Neilus Ekker and his sons are mining petrified logs containing vanadium.

Arrows From the Rainbow

The Pahutes have a legend that the petrified trees found buried in the ground and embedded in the cliffs of their ancestral home in southeastern Utah are the spent arrows of their god Shinob. In those mythical days, three great monsters were ravaging the earth. To protect the Pahute people, Shinob shot lightning-tipped trees from the rainbow to bring peace to the world. Now those same arrows are helping to destroy the monsters who are pillaging the earth today. Neilus Ekker and his tall sons are digging the arrows of Shinob from the earth where they plunged when the world was young. They contain, not lightning, but vanadium and uranium, which help speed the arrow-planes against the enemy giants of today.

By CHARLES KELLY

ONG ago when the world was young, according to Pahute legend three great monsters roamed the earth, destroying corn crops, driving off game, killing defenseless people and generally making life miserable for the Indians. Having but recently emerged from the underworld the Pahutes were weak and unskilled in the arts of war, unable to defend themselves against these three great forces of evil. At last Shinob, the great Pahute god, took pity on his helpless peo-

ple and personally came to their defense. Seizing a rainbow out of the sky he fashioned a mighty bow, and for arrows used the trunks of full grown trees tipped with lightning. Thus armed, Shinob fought and finally destroyed the monsters, bringing peace to the world.

In this epic battle, the Pahutes say, some of Shinob's arrows struck the sandstone cliffs and penetrated solid rock, leaving only their butts exposed. In certain sections of Utah they will show you these arrows

still imbedded in the cliffs. Many years ago they pointed out some of those mighty arrows to Major John Wesley Powell, who did the first geological work in southern Utah and explained how they came to be imbedded in the rock. Powell named the conglomerate formation in which he saw them Shinarump, a combination of the Pahute words *shinob*, god, and *arump*, arrow. It still is known to geologists by that poetic name.

Now, strangely enough, those petrified logs, believed by the Indians to be the spent arrows of their god Shinob, once more are doing their part to destroy the three great monsters of this latest and greatest conflict. In the Henry mountains of southeastern Utah men are busily at work digging out those legendary arrows and converting them to the uses of war. For these petrified trees contain vanadium and uranium, two strategic minerals highly important in speeding our modern war chariots against the forces of evil.

The five great peaks of the Henry mountains, some of them rising to a height of more than 12,000 feet, are surrounded by

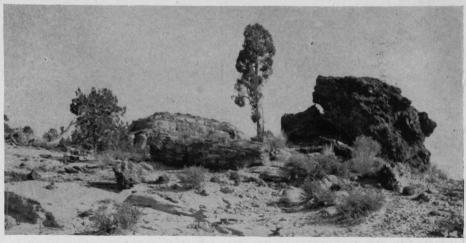
The Ekkers loading a truck with vanadium ore to be hauled 112 miles to the nearest railroad shipping point. hundreds of square miles of wild, broken, waterless desert in southeastern Utah. It is not surprising that being situated in one of the wildest and least known sections of the United States that they should have been among the last ranges to be discovered. On Major Powell's first map in 1869 he noted them as the Unknown mountains. Even today the men who really know them can be counted on the fingers of one hand.

Geological formation of these peaks is widely known as laccolithic, a type of intrusive igneous occurrence which was named and described in these same Henry mountains many years ago. But recent studies have shown that the igneous bodies here are not laccoliths but stocks, which have intruded in quite a different way.

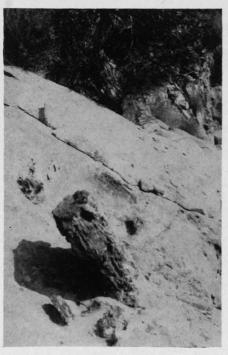
Geologists describe a stock as a domelike body of igneous rock which has been formed by the rising from the earth's interior of magma so viscous it could not spread out in a sheet but solidified in a dome shape. As it rose it broke through sedimentary strata, and in doing so it warped and folded them. These strata often are partially eroded from the top, exposing the igneous intrusives, but remnants of the folded and tilted sedimentary rocks are left around the sides of the core. Not all such examples show this erosion. Navajo mountain in northern Arizona, for example, is deeply scored by streams, yet does not have any of its igneous rock exposed.

The Henrys, though, have the broken edges of sedimentary strata lying exposed and weathered at their bases. On one such formation, near the eastern base of Middle mountain, stands a prominent butte known as Farmer's Knoll. In the base of this butte is a layer of sandstone 50 feet thick containing thousands of petrified tree trunks, some of which protrude from the solid rock.

Many years ago prospectors searching for gold in the Henrys, discovered that some of this petrified wood contained a bright yellow stain. Analysis proved it to be radio-active uranium ore. A quantity



Petrified log and huge stump eroded out of the base of Farmer's Knoll. Most of such petrified wood contains uranium and vanadium.



Pahutes believed these petrified tree trunks, eroded out of the cliffs, were arrows of their god Shinob.

was shipped to Madame Curie, who used it in her early experiments with radium.

In removing the petrified tree trunks it was found that those containing uranium were enclosed in a hard case of heavy black material several inches thick. This casing proved to be rich in vanadium. The uranium salts, being more soluble, had been concentrated in the petrified wood. Then some of the gold seekers returned to mine the petrified logs for their uranium content. As they blasted small tunnels out of the rock the base of the knoll became pockmarked.

But foreign deposits, more easily mined, kept the price low, and when it dropped even from that level the workings were abandoned. In this present war, however, with most foreign sources cut off, vanadium has become an important strategic metal. One old miner, remembering the vanadium ore found encasing uranium-bearing logs, returned to open the old workings.

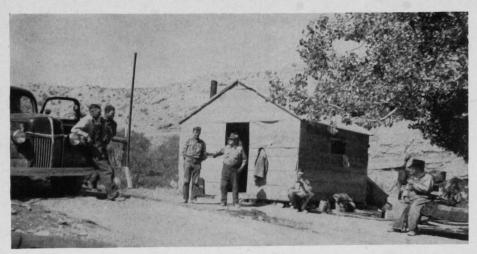
He was Neilus Ekker, who with four of his sons, all young giants, now is busily removing the "arrows of Shinob" from Farmer's Knoll to recover the black vanadium ore with which they are surrounded. His camp is located on Trachyte creek, one of the few streams of good water found in the Henrys, 112 miles from the nearest railroad.

On a recent visit to this isolated camp with Dr. A. L. Inglesby, Mr. Ekker demonstrated for us the technique of mining petrified trees. The sandstone in which they are imbedded, he explained, contains uranium and vanadium in small quantities. During countless centuries the minerals have been slowly leached out of the rock and deposited in and around the fossil tree trunks. A peculiarity of this process is that while one tree may be rich in mineral, others lying beside it often are completely barren.

Neilus Ekker, who has become expert in detecting and appraising vanadium ore, spends most of his time prospecting along

Ekker brothers uncovering a petrified log rich in vanadium.





Neilus Ekker, left, at his camp on Trachyte creek in Henry mountains, Utah.

the base of the butte for evidence of mineral. When he finds a likely spot his sons begin blasting out the ancient logs, carefully removing the outer covering of black rock. Neilus Ekker, with a practiced eye, then sorts the ore, keeping only the richest for shipment over the long, rough desert

road to Thompsons, Utah.

Ore shipped by the Ekkers averages only four per cent vanadium, which is considered high grade for this rare metal. Occasionally a log is found which may run as high as 17 per cent, but this is rare. Other vanadium ores are being mined in various parts of the country, particularly in Colorado, but most of it is low grade, averaging around one and a half to two per cent. That shipped by the Ekkers from the Henry mountains is mixed with low grade from other districts to "sweeten" it and make milling more efficient.

Refined vanadium is now worth 45 cents a pound and the Ekkers are paid on this basis. Their raw ore brings around five



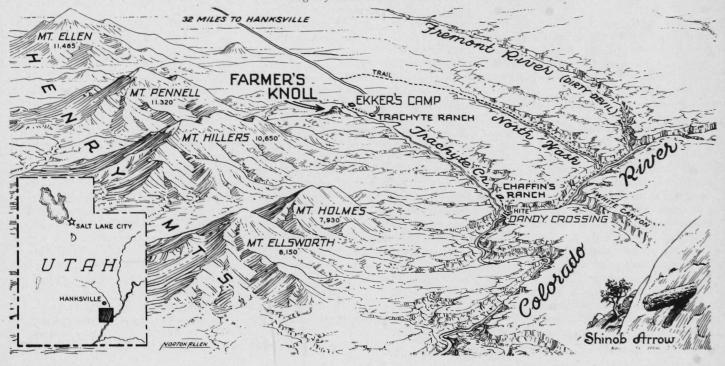
Fragments of petrified wood from Farmer's Knoll, impregnated with bright yellow uranium ore.

cents a pound, while an occasional shipment may be worth as high as ten cents. They consider themselves lucky if they recover a ton of ore a day, which is accumulated in a stock pile and hauled by truck in five or six-ton lots. Some of it may go to Durango, Colorado, but the richest is shipped to Pittsburgh, where it is refined and used to toughen steel for axles, propeller shafts and other parts subjected to great strain. Without this important alloy our military vehicles and planes would be greatly slowed down.

The uranium content of these petrified trees is low, averaging about two per cent, but occasionally a quantity of bright yellow powder may be found in the heart of a log which will go 50 per cent. This extremely high grade is saved and shipped to one of the few plants equipped to refine it, where it is made into luminous paint for watch dials and instrument panels. The yellow powder is so strongly radio-active that photographic film left in its vicinity for a short time is fogged and ruined.

Mineral bearing logs are found either in the loose rock and dirt around the base of Farmer's Knoll or in the solid rock of the knoll itself. To remove them requires an enormous amount of hand labor, and since deposition of the ore is limited to the immediate vicinity of individual logs, profits of such mining operations are not great. But recovery of vanadium for the machines of war is a vital necessity and Neilus Ekker's sons are helping the war effort as much as if they were on the front lines of battle with some of their brothers.

As though to prove the validity of the Pahute legend, these ancient "arrows of Shinob" once more are being used to help destroy the three great monsters of the modern world.



LETTERS

Photos Unfold Insect Life . .

Long Beach, California

Gentlemen:

I cannot begin to tell you how much I enjoyed the photographs and article "Intimations of an Unseen World" by Richard L. Cassell, in the July issue of your invaluable magazine.

In Death Valley a few years ago I was utterly fascinated by the "delicate tread of insect life" as Mr. Cassell so aptly puts it. I have followed the designs along the edge of a dune to its very end to find what type of insect was responsible for them. Not until I saw the pictures in your magazine was the mystery unfolded to me.

The assortment of back numbers I recently received from you is proving a source of much pleasure as each number contains information which I have long been seeking. I feel I have missed a great deal by not having in my possession each issue since the magazine's inception.

NINA CONLEY

Seeks Brigham Young Kin . .

Hamilton, Kansas

Dear Editor:

I wonder if through your magazine I might locate relatives of my late husband, F. R. Cookson, who was a nephew of one of Brigham Young's wives. My husband's parents came to America from England on their wedding trip when his mother was 16. Father Cookson often has told me how his brother John and his sister (either Elizabeth or Caroline) came here when they were very young. He never heard from his sister; John died a bachelor. It is said that Brigham Young's wife, who was my husband's aunt, was a fair and beautiful English woman. If any of her descendants are living today, I should be pleased to get in touch with them. As I grow older and have visited some in Utah, I marvel at the greatness of these people.

BERTIE COOKSON

Wants Northwest Articles Too . . .

Great Falls, Montana

Gentlemen:

My family and I like Desert Magazine, particularly geology, mining, gems and minerals, amateur gem cutter departments. The quality of the photos is splendid. The entire magazine is usually interesting and attractive.

As we have no comparable publication for our northwestern states, we folks up here in the northern Rocky Mountain regions would appreciate an occasional article of more local interest. As many of your southern readers have lived or visited here, I do not believe they would object.

GEO. W. TINTINGER

"Let the Jeep Be" Campaign . . .

San Diego, California

Desert Magazine:

Mr. Whiteside, put 'er there. I agree 105% with you on your "let the jeep be" campaign, started in the May issue. After the war I expect to go into the field of commercial prospecting and I don't want to use some old ladies' version of the fine vehicle known as a jeep for desert and mountain work. Let the government sell them as is.

And to the editor—your magazine is the finest in its line, bar none. Being a pessimist at heart, I searched this May copy of DM from cover to cover for something to gripe about, but could find nothing. It is A-1. Keep it up.

EARL L. LANGGUTH

Devises Desert Reading System . . .

Yorba Linda, California

Dear Friends:

And I really mean "friends." I would not be without your Desert Magazine for anything. I have a very special method of reading your magazine which provides me continuous pleasure. I never read the magazine entirely through at one sitting. I usually read two or three articles, a few ads, etc., then I lay it away for future reference. Then if time is plentiful, I pick up another Desert magazine and read the articles which were left unread before. In this way my magazines are always new

If you could peek into my storage closet you would find a huge stack of interesting packages which would prove familiar to you. For they are Desert magazines dating back to the very first number. I treasure them highly and they are a source of great reading pleasure and education. I enjoy the advertisements too, and read them all. In fact, I never thought it very fair for folks to absorb the splendid articles and information and overlook the advertisers who help to keep it going.

Like most of your readers, I am glad the Souths have found that there is no place like home, even if it is on top of a desert mountain peak. I had a good set of "fidgets" all the time they were gone and it was with great relief that I found them once again on Ghost Mountain. When they left to roam around over several states, I felt uprooted because everything I had ever read about them centered around Yaquitepec. Now all is well.

I like Randall Henderson's page and am looking forward to the time when we will have first hand information about the deserts of other lands.

MRS, ETHEL YORK

Heat Effect on Rattlers . .

Delta, Utah

Dear Editor:

May I add my observations of the effect of extreme and unobstructed heat on rattlesnakes?

I had a rattler on display in my newspaper office in a shallow wooden box with a plate glass cover, with tiny openings for air. I wanted a photo of it so I set up the camera out in the direct sun, adjusted the focus on the spot below where I was to set the snake box. Then I went in to bring out the snake. During the slight time I used to get accurate focus, the snake died in the tray, and through the ground glass I saw it writhe, push hard to get out—then turn partly belly-up and die-all in less than one minute.

Next season I had two rattlers in a somewhat deeper box, about eight inches deep, with plenty of ventilation and the same polished plate glass top. Having to leave on a trip I felt I could not chance an accident in my absence to my children so I determined to kill them. I took the box out back of the office, propped it so that the sun shone directly in, took out my watch and timed proceedings. In slightly over one minute one snake was dead, and before the end of the second minute the other also had succumbed.

We have plenty of rattlers in this territory and I have never yet seen one voluntarily in direct sun on a summer day. In capturing them, one can wear them down faster if he constantly herds them into the sunlight. Snakes have no porous skin, hence they actually cook.

FRANK BECKWITH

DM for Desert Nostalgia . . .

San Diego, California

Gentlemen:

I am a press agent with a dual personality. One half of me dresses up and goes to town and pounds typewriters and makes ads for a local theater. The other half likes to don faded, worn outing togs, go down to the desert and roam its vast and uneven terrain in glorious solitude. Since the war, the latter half has been all but frustrated. Desert Magazine is its only sustenance, a monthly feeding to abate that nostalgic longing.

I was surprised to find your July cover was a scene in Death Valley. At first glance it looked like the Split mountain country. Your human interest articles are especially enjoyable. The photos by Dick and Catherine Freeman in June issue of the Joshua tree blossoms were really remarkable. I love to con the trading post and gems and minerals—in fact, like most of your readers, I read the magazine from cover to cover. And the nicest thing of all is the friendly genuine spirit which draws us all into a community of interest.

MARIAN GRONAW

For 40 years Charles Fletcher Lummis interpreted the Southwest to the rest of America. He described the land and the native peoples in a style so vibrant and readable that his books and the magazines he edited have been important factors in acquainting the public with this corner of the country. In his many-roled life as editor, author, collector, translator and crusader, he won both ardent friends and bitter foes—but he remained uncompromising in his personal philosophy and his sympathies with the Indians and Spanish-Americans. No one author could compile the complete biography of Lummis, but Hope Gilbert here gives a few highlights from the life of a remarkable man.

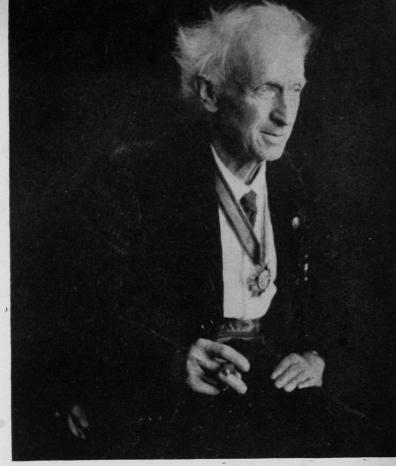
He Discovered the Southwest for Americans

By HOPE GILBERT

HROUGH the entrance of the Palace of the Governors strode a picturesque little man clad in a brown corduroy suit, a woven Indian sash girded about his waist, a large striped sack slung over his shoulder, and knotted round his head a red bandanna which accentuated his intense blue eyes and ruddy skin. As he crossed the threshold an ancient Indian rose from the corner where he had been sitting and with a bewildered expression of unbelief padded toward the newcomer on moccasined feet. As the two little white-haired men came face to face there was an exclamation of "Ay! Amigo!" and they opened their arms and embraced with emotion. In the eyes of each there were tears eloquent of the mutual affection of old comrades.

This meeting of Charles Fletcher Lummis and his Indian friend Santiago Naranjo, which I witnessed in Santa Fe, is one I shall never forget. It was 13 years since Lummis, ill and for a time totally blind, had visited his beloved New Mexico. It was during the succeeding months of that summer of 1926, and particularly during a 1200-mile archeological tour conducted under the auspices of the School of American Research, that I came to know and appreciate the scintillating Dr. Lummis, or Carlos, as his friends affectionately called him. I had heard of the unconventional young editor who had taken the West by storm in the 1880's and who had established in his home, El Alisal, the closest approach to a literary salon that Los Angeles ever had. Now I welcomed the opportunity to become acquainted with him at first hand.

Throughout his 40 years as author, editor, collector, translator, crusader, he won ardent friends and bitter foes. He hated sham and was fearless in upholding what he considered right. Originator of the slogan "See America First," he more than any other man was responsible for popularizing the Southwest. Hornets' nests of controversy he may have stirred up, but Charles



Charles Fletcher Lummis, wearing decoration of Royal Order of Isabel la Católica, presented to him by the King of Spain. Photo courtesy Southwest Museum.

Fletcher Lummis has left an enduring mark upon southwestern United States.

Founder and editor from 1894 to 1909 of Land of Sunshine, later called Out West magazine, he brought before a wide public translations of important Spanish documents relating to the Southwest and popularized the writings of such contributors as David Starr Jordan, Joaquin Miller, Edwin Markham, George Parker Winship, Frederick W. Hodge, Elizabeth and Joseph Grinnell and Sharlot Hall. Through the medium of his magazine he raised funds for the Landmarks club which he had founded for the purpose of saving from ruin many landmarks, including the California missions of San Fernando, Pala and San Juan Capistrano. The Sequoya league, incorporated by him, bettered the condition of many California Indians, particularly aiding the evicted Warner's Ranch Indians to secure a new and more desirable reservation. The Southwest Museum in Los Angeles is the outgrowth of the unremitting labors of Lummis and his co-workers of the Southwest Society of the Archaeological Institute of America, organized by him.

Writing in a colorfully vigorous, journalistic style, Charles Lummis' books had as great an influence as his Land of Sunshine in humanizing the history and wonders of the Southwest. Among his better known volumes are: "The Spanish Pioneers," "Mesa, Cañon and Pueblo," "The Land of Poco Tiempo," "A Bronco Pegasus," and "Flowers of Our Lost Romance." In 1915, in recognition of his researches in Spanish-American history and of his services in dispelling the black legend of Spanish inhumanity, the King of Spain conferred upon him the dignity of a Knight Commander of the Royal Order of Isabel la Católica.

Although my acquaintance with Dr. Lummis, extending over two summers in New Mexico, was limited, his was a personality which made a vivid and lasting impression.

It was on a brilliantly clear August morning that five cars



Lummis with long-time friend Colonel Theodore Roosevelt on steps of Occidental College during his visit to Los Angeles, March, 1911. Southwest Museum photo.

containing our party of 24 persons including Dr. Lummis, under the direction of Dr. Edgar L. Hewett of the School of American Research, assembled before the Palace of the Governors fronting the central plaza in Santa Fe. We were about to start out on an archeological tour that was to prove one of the memorable events of my life—memorable not only in the significant archeological sites visited, but also in the happy associations with an unusual group of writers, scholars and artists. When asked how I, but a year out of college, managed to "horn in" on such a distinguished company, I could only shake my head in wonder at my good fortune.

By the time we should return to Santa Fe ten days later, we would have covered a rough 1200-mile circle, going north from Santa Fe to Taos, on through San Luis valley to Mesa Verde cliff dwellings in southwestern Colorado, from there through the Navajo country to Chaco canyon with its great ruins of Pueblo Bonito and Chettro Kettl, continuing on to Zuñi and Acoma, thence farther south to the ruins of Gran Quivira, and returning via Comanche pass to Santa Fe.

This tour acted as a touchstone evoking from Dr. Lummis a flood of memories of his early days in the Southwest. He had covered this entire territory on foot or horseback, and it was like a renewal of his youth once again to visit these historic scenes.

As our line of cars started northwest, heading for the Rio Grande and the Indian and Spanish-American villages of that river valley, we were reversing the route by which Lummis had entered New Mexico on his notable transcontinental hike of 1884-85. In the evenings, as our group gathered about camp fire or hotel board, we learned interesting bits of Lummis' past.

"Life really began for me," he related, "one hot September morn in 1884. With a course at Harvard and several years of newspaper work behind me, on that day I turned my back upon the East where I had spent the entire 26 years of my life, and set out on an adventure which was to determine the whole future tenor of my life.

"I was an American," he continued, "and I was ashamed to know so little of my country. So when an offer was made to me of the city editorship of the Los Angeles *Times*, I determined to fulfill a boyhood ambition to tramp across the continent."

Nearly a half century later he recalled how, clad in a light knickerbocker suit, a hunting knife at his side, his capacious pockets stuffed with writing materials, revolver, fishing tackle, tobacco and matches, and concealed beneath his clothes a money belt filled with \$300 in small gold pieces, he eagerly set out from Cincinnati. His knapsack and rifle were sent ahead by rail to be picked up along the way.

"By the time I reached Los Angeles nearly five months later, I had covered 3507 miles replete with interest and adventure. Although this tramp cost many times the price of a railroad ticket, it was worth infinitely more in the experience, the rich fund of information and the physical enjoyment it afforded. It taught me more than all my years at Harvard."

Each week along the 3507-mile route the young adventurer forwarded a letter to the *Times* describing his impressions and experiences. These letters, appearing under the signature of "Lum" and later incorporated into a book titled "A Tramp Across the Continent," made spirited reading.

"By the time I had crossed the midwestern states and touched the Colorado line I was no longer a tenderfoot," Lummis said. "My feet were by then in a condition comparable to that of Sal, a bare-foot Georgia girl warming herself by a fire. Upon her mammy's exclamation that there was a live coal under her foot, Sal drawled, 'Which foot, Mam?'

"There was no such thing as 'thumbing' a ride in those days. The real hardship of tramping, however, was the abominable food served at wayside eating places, aptly described in a current song:

'His bread was nothin' but corndodger, His beef you couldn't chaw, But he charged you fifty cents a meal In the State of Arkansaw!' "

Ardent champion of Indians and Spanish-Americans, Lummis admitted that on this initial trek across country, although he had shaken the dust of the East from his shoes, he had not yet

Patio and fountain of Lummis' home El Alisal, showing giant sycamore which gives house its name. Southwest Museum photo, taken March, 1904.



succeeded in shaking all his eastern prejudices. "When I crossed the line from Colorado into New Mexico and advanced down the Rio Grande with its quaint Mexican villages, I was very suspicious of the dark-skinned inhabitants. Rather than approach these people, at first I went hungry. Why is it," he queried, "that the last and most difficult education seems to be that of ridding ourselves of inborn race prejudices? We all start with it; unfortunately few of us graduate from it. Virtue and vice are individual, not national traits, and we as a nation should realize that when God made mankind he did not sand all the sugar but ours."

After our archeological party had visited Taos where, to repeat Lummis' classic description, "you may catch archeology alive," the next chief stop on our itinerary was at the incomparable Mesa Verde cliff dwellings in southwestern Colorado. There, Dr. Lummis, as avid as ever for a fine "shot," made us hold our collective breath as heedless of danger he adjusted his ponderous camera and tripod on the brink of 500-foot cliffs. Throughout a period of 40 years he had been assembling a fine documentary collection of southwestern photographs and all of these pictures now have become a permanent possession of the Southwest Museum of Los Angeles.

A few days prior to our visit at Mesa Verde, the Crown Prince of Sweden and his wife, both archeological enthusiasts, had visited the cliff dwellings, crawling in and out of small doorways into the deepest recesses of the dwellings and exclaiming over their remarkable construction. Commenting upon this visit from European royalty, Lummis was moved to repeat what he had been harping on for nearly a half century: "We live in the most

Young Lummis about the time he took his tramp across the continent. Southwest Museum photo.





Lummis with Tsianina, noted Cherokee Indian singer, and his friend Santiago Naranjo, at Santa Clara pueblo, New Mexico, 1926. Photo by Odd S. Halseth.

wonderful of lands, yet we hasten abroad in quest of sights not a tenth as wonderful as countless marvels we have here at home. Too many Americans think that 'to travel' means only to go abroad. More and more I hope that Americans will be proud of knowing their native land and ashamed not to know it."

Another highlight of our tour was our visit to the "Sky City" of Acoma, in Lummis' words "the most wonderful aboriginal city on earth." He first had visited Acoma during his walking tour of 1884-85. Martin Valle, governor of the pueblo and host of Lummis at that time, was no longer alive to greet his friend.

"It was Martin Valle," Lummis explained, "who told me the startling tale of the *Mesa Encantada*, which centuries before had been the home of his people. He related to me that a violent storm had broken away the rocky trail which was the sole means of access to the mesa top and that the old people stranded there had died of starvation. My publication of the story of the Enchanted Mesa was branded by certain Eastern critics as a figment of my overly active imagination. But the last word was mine!"

The battle of words which ensued between Lummis and his assailants, in particular Professor William Libbey of Princeton, was waged intermittently for several years. In 1897 the controversy finally was settled in favor of Lummis when Dr. Frederick W. Hodge, then of the Bureau of American Ethnology, succeeded in ascending the mesa and in proving conclusively that the legend as related to Lummis by Martin Valle was based upon actual human occupation. The spring following Dr. Hodge's ascent Lummis, with a number of companions including his sixyear-old daughter Turbesé, ascended the 431-foot mesa. Fortified with his own finds Lummis proceeded in various newspapers, periodicals and his own Land of Sunshine, to flay his critics with caustic humor and to vindicate the tradition of the Acomas.

Lummis always enjoyed a contest of wits or physical endurance. He and Theodore Roosevelt had many characteristics in common: an intense interest in the West and its people, an infinite pride in their own physical development over handicaps, and

an unbounded faith in themselves and the strenuous life. Lummis' eyes still gleamed as he recalled the incident of his undergraduate days at Harvard which began for him a lifetime friendship with Roosevelt. On the Harvard bulletin board one day the following notice appeared: "If Freshman Lummis doesn't get his hair cut, '80 will do it for him." One half hour later a reply was posted: "Lummis '81 will be glad to meet the tonsorially inclined of the class of '80 individually or collectively at any time, at 16 Holyoke."

A short time after the posting of his defiant notice Lummis met Roosevelt whom until then he had known only by sight. Grinning at him amiably the admiring Teddy exploded, "Bully for you! It's your hair! Keep it if you want to, and don't let them haze you."

Although Lummis learned Greek at the age of nine years he never learned to apply the Greek philosophy of moderation. He worked at a terrific tempo, rarely getting more than one or two hours of sleep out of the 24 during his three years on the *Times* staff. The inevitable result was that he burned himself out. In December, 1887, when still in his twenties, he was stricken with paralysis, and his left arm which had been broken during his transcontinental hike and which he had been compelled to set himself, became helpless. His illness, however, proved to be a boon in disguise, for he now carried out his dream of returning to New Mexico.

The pueblo of Isleta on the Rio Grande became his home for the next four years. He refused to give in to his physical infirmities, and despite two additional strokes he undertook extensive exploration of the country on foot and on horseback, gathering historical data, studying the languages, lore and customs of Indians and Spanish-Americans, taking thousands of pictures and collecting native songs.

Of his experiences with paralysis, from which he eventually completely recovered, he said, "It was the luckiest thing that ever befell me. It taught me that man was meant to be, and ought to be, stronger than anything that can happen to him. If I couldn't have what I wanted, I decided to want what I had—this simple philosophy saved me." A psychologically interesting description of his fight to overcome paralysis is contained in a small volume by him entitled "My Friend Will."

The collecting of unrecorded Indian and Spanish-American songs which was begun in this period in New Mexico later was continued upon his return to California. Knowing the danger of extinction of countless folksongs which had been brought from Mexico and Spain, Lummis tracked down every possible native singer and recorded hundreds of songs on wax cylinders. Unfortunately the great task of transcribing these selections has precluded their becoming available to the public. Fourteen of the most delightful of these songs, with translations by Lummis and piano accompaniments by Arthur Farwell, have been published under title of "Spanish Songs of Old California," and include such pleasing numbers as "Adiós, Amores," "El Capotín," and "La Noche 'sta Serena."

It was during this period in New Mexico that Lummis met and became a close friend of the noted Swiss ethnologist and historian, Adolph Bandelier. Bandelier and Lummis on a tramp in 1890 together explored in the Pajarito plateau the cliff dwellings of the Rito de los Frijoles. These prehistoric dwellings became the setting of Bandelier's novel, "The Delight Makers," which was illustrated by photographs taken by Lummis. Lummis subsequently accompanied Bandelier on an ethnological expedition to Peru and Bolivia. Peruvian legends collected by Lummis on this expedition appeared in his book, "The Enchanted Burro."

Lummis carried a scar under one cheek bone, along the line of his mouth—the result of a close call during his sojourn at Isleta pueblo. As the cars of our touring party passed the isolated, windowless moradas of the Hermanos Penitentes, Dr. Lummis

recalled the incidents which led up to the acquisition of the scar.

His study in the late 1880's of the *Penitentes* who practice flagellation and crucifixion during Passion Week led him to seek permission to be the first to photograph their rites. This permission was granted by some of the chief Brothers. There were among them, however, certain members who bitterly resented this privilege being accorded an Anglo intruder, and who threatened to "get him." Late one dark night Lummis was summoned to the door of his Isleta home by a loud knock. Upon opening the door he could see no one in the darkness, but the silence suddenly was broken by a volley of shot. Five slugs struck Lummis and seven more penetrated the door. Only the fact that he had a thick manuscript in the pocket over his heart prevented a possibly fatal shot.

This shooting fray had a romantic outcome. The Indians called upon their young government schoolteacher, Eve Douglas, to help nurse Lummis, and not long thereafter the friendship of nurse and patient ripened into love and marriage.

The importance of Lummis' writings is not only in their pioneering work of acquainting America with an almost unknown Southwest, but in their literary value as well. Some of his books are of historical and ethnological importance, but most of them have a more personal quality. They are luminous, entertaining reports of a discerning observer, and one who had a profound sympathy with and understanding of the Indians and Spanish-Americans. The fact that after 30 and 40 years they still are being read by the public is sufficient to indicate their lasting value.

Edgar L. Hewett has said that his "Mesa, Cañon and Pueblo" is a book that "can never be displaced. There are parts of the world no one would travel in without a copy of Herodotus or Pausanias, and it will be so till the end of time. So, the traveler in the Southwest will not be fully equipped, be it centuries from now, without a copy of this latest book by Lummis, as well as some of the earlier ones."

It was in "The Land of Poco Tiempo" that he wrote the first account of the Penitente Brotherhood. In this book too are included some of the folk songs which he collected intensively over a period of seven years. "Bronco Pegasus" includes more verse and songs. "A New Mexico David," "King of the Broncos" are other volumes of New Mexico stories. Among his historical writings are "Flowers of Our Lost Romance" and "Spanish Pioneers."

Returning to Los Angeles with his wife and small daughter Turbesé in 1894, Lummis began the construction of a home which was to take 17 years in the building. The 14-room rock castle, El Alisal, situated on the Arroyo Seco in what was then a sycamore grove, was built by Lummis with his own hands assisted by an Indian boy and any friends who happened to be visiting him at the moment. Congregated there on almost any night could be found scientists, writers, opera singers, actors. Whether entertaining cowboys or presidents, Don Carlos always wore his unconventional brown corduroys. His rejoinder to remarks about his dress was, "I don't change my face for company, so why change my garb—as long as both are clean?"

The Lummis home located at 200 East Avenue 43 on the edge of the Arroyo Parkway in Highland Park, recently has become a state monument. It is being maintained and administered by the Los Angeles park department which hopes soon to open it to the public. The grounds are to be planted with desert trees, shrubs and flowers, particularly those used by the Indians of Arizona and New Mexico for food, medicine and other economic purposes. On display in the house will be many of Lummis' books, pictures and Indian artifacts which, upon his death in 1928, were left to the Southwest Museum.

In the ever-growing interest in the Southwest the influence of Charles Fletcher Lummis, pioneer advocate of "See America First," still lives.

Photographing Quail Babies in the Desert

By JOHN L. BLACKFORD

ROM the shimmering silver flats of jumping cholla that reach away to the mystic Hieroglyphic mountains of central Arizona, I came dodging through thorny mesquite scrub along the Hassayampa river to discover the quail's nest. A young Abert's towhee had led the chase and posed for the first photographs. Twice, in pursuit of him, I had dashed through a tiny "island" of tall withered grasses beside a scraggly mesquite tree. Yet I remained completely unaware of the treasure hidden there.

Then, in the circuitous hunt, I stepped directly over the flattened bird under her arching canopy of long, dead grass stems. With an explosive whirr of wings, she flushed swiftly from her eggs. There were 20 of the creamy ovals in the deep nest hollow. All were freckled with dots and blots of purplish brown. This told that it was the home address of a desert or Gambel's quail.

The number of eggs in a nest may range from eight to 22. They are short-ovate in shape, and pale ivory-yellow, cream color or cream buff, spotted and blotched irregularly with golden brown or purplish brown.



This baby desert quail, less than one hour old, didn't want to pose for John Blackford's camera. But an ancient cottonwood leaf appeared to give him momentary feeling of comfort and security. During few seconds that he was quiet the camera captured his portrait.

The desert quail's great fecundity is necessary for survival against such natural enemies as snakes, owls and coyotes. And although their enemies are many, their nests usually are more exposed than those of the chaparral species of California. It may be just a depression in the ground lined with grass or leaves. But occasionally

it is placed on top of a stump or on a low horizontal limb or even in a protected nest of another bird.

Carefully I drew back the grass blades which sheltered the unusually large clutch of eggs, and soon the camera peered into the nest from its tripod. For the second shot several eggs were turned over to pre-

Left—Concealed by tall dead grass in a mesquite thicket, author-photographer discovered the nest with 20 eggs. The cream-colored ovals splotched with purplish brown told him they were those of a Gambel quail. Right—While Blackford was still counting the eggs they started to pip. Immediately striped chicks came tumbling out of neatly uncapped shells and started exploring the outside world.



sent different markings. Three had just pipped. In all those long, tedious days of incubation I had come at the magic moment!

It was a close race to re-focus the camera and secure this additional picture of unhatched eggs before the chicks came tumbling out of their neatly uncapped shells. Each oval was chipped open quickly with a surprisingly even, circular cut around the larger end.

When the striped, downy suits of the youngsters had dried a bit, I was ready for photographs but they were not. The fuzzy first comers seemed intent on exploration. Half a dozen at a time, they scrambled over the rim of the hollow and penetrated the weedy maze around it. Their damper brothers and sisters were almost never still. With only two hands I finally assembled everybody in the nest and snapped the picture. Then the grassy thatch was replaced with care.

The adult male of the desert quail is somewhat similar to California's valley quail in the general pattern of head, chest and upper parts, but the black of his throat is barely bordered by white below and the black on his forehead and forecrown is much more noticeable. Both crown and nape or collar are bright chestnut. His saucy crest is a bit longer, but less sharply recurved and is inclined to brownish.

The chest, sides of breast and the tail are slaty grey. Feathers on the sides and back of neck are lightly bordered with distinctly-ribbed chestnut. Remainder of the back,



Adult male of Gambel quail, called by ornithologists Lophortyx gambeli. His crest is a bit longer, less recurved than that of California valley quail, the black about his head more noticeable, the scaled design underneath lacking, but upper belly distinctively black. About 10 inches in length. National Park Service photo.

wings and upper tail feathers are light brownish olive or buffy olive. Sides are rich bay striped with white; lower breast is plain brownish yellow or buffy. Upper belly is black, but lower belly is like the lower breast.

Desert quail are at home among cholla, ocotillo and incienso bushes in Lower Sonoran plant life zone, south of Coyote Wells, Imperial county, California. Photo by Phil Remington.



General coloring of the female adult is similar to the female valley quail, except the white markings on back of the neck and the abdominal scale-like bordering are almost non-existent and is more like the color of the male of its own species. Her sides are similar to the male's but the bay coloring is somewhat restricted. The immature quail and chick, although having similar markings to the adults, are considerably lighter in tone, with more grey and less brown.

Their favorite haunts are among the atriplex or salt bush, the mesquite and arrow-weed thickets or creosote plains, which are characteristic of the Lower Sonoran zone from southern California to the El Paso, Texas, area and northern Mexico. They also are found in the stunted forests of piñon pine and juniper and in the saguaro cactus and palo verde regions. Their presence always indicates nearness of water on the desert, for they must visit a watering place morning and night.

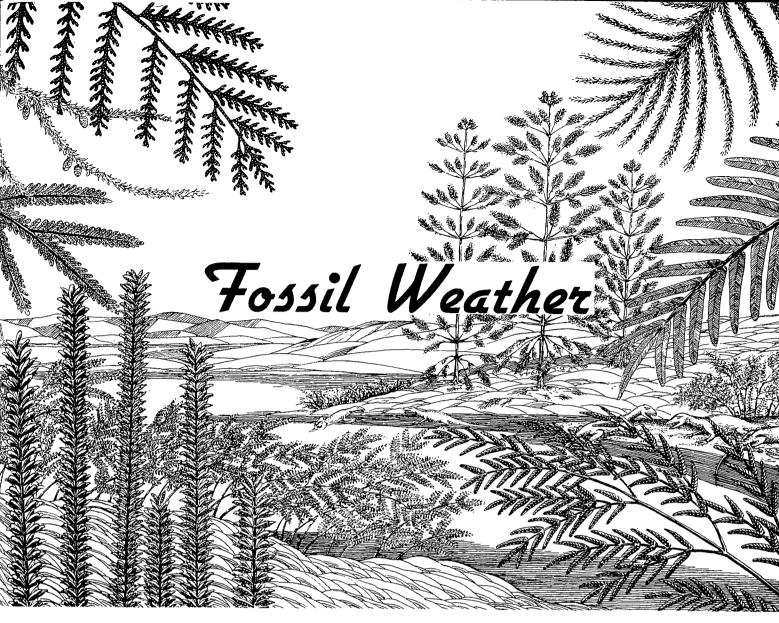
The cock's clear call from his yellowtasseled mesquite perch, or the old birds' escort of their extensive covey to a favorite waterhole are familiar rituals of the desert morning throughout the Southwest.

His call is described by Roger Tory Peterson as a querulous three-noted *chiquer-go*, somewhat more "drawling" than the California quail.

In the retreat where I found this prize nest, an occasional huge cottonwood had strayed into the mesquite growth from the nearby curving banks of the Hassayampa. Taking an old slab of the great tree's bark, I laid it on the sunny floor of the thicket.

When I again reached into the hollow. drew forth a fluffy youngster, and rested him upon the rough bark slab, the chick objected to the mounting heat. Superlatively energetic, and 15 minutes older, the quail baby was as difficult to pose as the entire nestful had been shortly before. But an ancient, broad, cottonwood leaf, laid upon the bark to cradle him, appeared momentarily to lend comfort and security. In those few, fleeting seconds of stillness the camera captured his portrait. Again placing the precocious babe beneath the roof of the little grass "hut," I slipped quickly away. An hour later, as I returned through the cacti and mesquite to make sure of their safety, the old quail was hovering them—and having no trouble at all.

Although Gambel quail eat weed seed, grain and wild fruit as do their western cousins, such fare is scarce in the desert. As a result two-thirds of their diet consists of browse—tender leaves and shoots of various plants, especially mesquite. In winter, they peck at the buds of mesquite and willow. And they will reach the very tops of mesquite trees for a feast of mistletoe berries.



Typical plant life in northern Arizona during early Permian period. Beginning upper left corner, reading down—Yakia, Ulmannia (branch with cones), Callipteris (branching frond with fern-like leaves). Sphenophyllum (erect plant, left foreground). Lower right—Supaia (branching frond). Brongniartites, Walchia (tip of branch with twigs). Middle left distance—Thicket of fern-like plants (Supaia, various species). Middle right distance—Three Walchia trees. Lizard-like reptiles are Ophiacodon mirus. Plants reconstructed by Laudermilk from "Flora of the Hermit Shale, Grand Canyon. Arizona," David White.

It is two hundred million years ago. We are standing shivering in the early dawn of northern Arizona. As the feeble starlight pales before daybreak a strange land is revealed—not the snowy San Francisco peaks, the deep cut canyons and monumental mesas we expect to see—but a monotonous broad basin bounded by low hills, something like a series of badlands gullied by thousands of arroyos—grey, red, brown and ultramarine blue. The dawn is very red from extremely fine dust constantly suspended in the air. The soil is bare. Only near the pale pools glimmering in the distance has the sparse amphibious plant life strayed a little from its watery abode . . . This is the prehistoric setting which paleontologists have reconstructed from the records in the rocks—records which tell them the kind of weather that existed in the Southwest during those far off days of the Permian period.

By JERRY LAUDERMILK

Fossil specimens in Webb School Museum, Claremont, California Collected by Ray Alf and photographed by Frank Ordway, Claremont

HE DESERT seemed to purr like a good-natured cat. It was early summer. Following the slow rain during the night, morning found the grim old desert in a playful mood. All along the trail winding south toward Kane spring, the usually hard look of the Mojave desert was mellowed by pools of clear cold rainwater filling natural basins in the weathered lava. Abundance of water had put all the desert dwellers—

flowers, chipmunks, chuckawallas and possibly even the snakes, in a holiday mood.

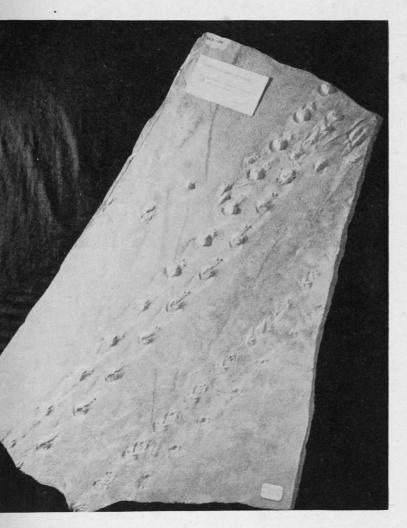
When we stopped to eat our lunch in a small cave in the lava flow we found that we were not the first human intruders who had felt this effect of expansive generosity of the desert. Long, long before, some Indian had expressed his sentiments by inscribing a few lines in the form of a rain symbol clearly understood in any man's language. From a horizontal line, the sky, there hung vertical rows of dots like a curtain, rain. It said as plainly as print, "plenty water." This was a weather report and doubtless one of the earliest from that part of the Mojave.

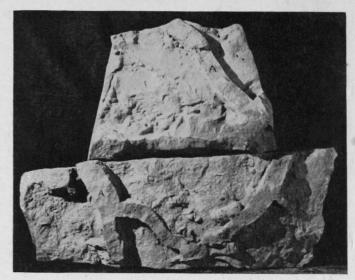
The keeping of accurate and systematic weather records is a modern institution. The ancients had nothing like it. Some specially hot summer or cold winter might be recorded, but the ordinary weather, the little seasonal features that make conversation, were lost in the shuffle of the centuries. But with the weather records which are the subject of my story this was not true.

Petrified Weather Record

Ancient weather frequently has been petrified, the signatures of its agents being engraved in the rocks. The stories they have to tell are, with few exceptions, about familiar things that happened on this planet in past ages. Then as now the same winds blew. The same rain fell and the same hail knocked twigs and buds from plants whose likenesses are known only from their portraits impressed on slabs of shale. The same sun's heat cracked the mud and slime of inland pools for eons gone and the same cold left impressions of ice crystals in the mud of swamps inhabited by life that existed even before the dinosaurs.

Some of the richest sources of these ancient weather records are the sedimentary rocks of northern Arizona where the Hermit shale, the Supai and Kaibab sandstones and others of the old red strata are exposed in the walls of Grand Canyon. Most of the weather records are found in the strata laid down during the Permian period a couple of hundred million years ago when weather seems to have been one of the biggest products. Events leading up to this period of geologic time were these:





Fossil mud cracks from Triassic period of Arizona. At AA are parts of silt-filled mud cracks which, being harder than the matrix rock, stand in relief.

Age of the Giant Plants

The Carboniferous period gradually had closed down after turning out a spectacular profusion of swamp-dwelling lowland plants. Seed-ferns, giant bullrushes, clubmosses big as pine trees and many other weird forms grew riotously under the warm-temperate and possibly always cloudy skies of the age when most of the coal beds of the world were parts of living things. The Carboniferous was the great period of swamp plants and giant insects. Afterwards came rumors of the advancing Permian, like hints of a depression about to follow close on the heels of a boom.

Maybe that is precisely what the Permian was—the slump after a time of "too much plenty." Possibly the vast accumulations of carbon dioxide that had filled the primitive atmosphere from the earlier ages had acted like a blanket to hold in the heat of the sun's radiation. In any case, there had been enormous volumes of the gas present because this had been largely withdrawn by the plant life of the time of greatest coal formation. So from this or some other cause, there came a general fall in temperature and the old established routine was disturbed. Mountains were upheaved in some places and worn down in others. This was true of some once extensive range which when leveled furnished the sediments to make the red shales and sandstones of Arizona.

Permian Age Semi-Desert

Red is the typical color of the Permian sediments everywhere in the northern hemisphere. It indicates the limit of oxidation of iron minerals in the soil. During the Carboniferous, oxidation was retarded by the enormous amounts of humus and products of decay in the soil of the old coal forests. Today where such conditions exist, iron carbonate and other ferrous salts are the products. These are greenish or light colored and not red. With a loss of carbon dioxide from the air and a resultant slowing down of plant growth, the oxygen had a chance to work uninterrupted, and the typical red, oxidized sediments were formed.

This red color of sedimentary layers, not just reddish soil, is an indication of deposition in a dry climate, and since the red

Tracks of a lizard-like reptile that lived during lower Permian time in northern Arizona. The lizards crawled over the clean-washed sand shortly after the water receded.

Probably part of a sandbar.

sediments were laid down under water which in many instances evaporated from closed basins, we are bound to conclude that much of the northern hemisphere was a combination of desert and semi-desert interspersed with lakes and pools much like the temporary lakes of the desert today. These were fed by streams which during times of rapid runoff carried in silt from distant sources.

The microscope reveals some interesting features about the old, red Permian silts now consolidated into rock. It shows fragments of quartz and feldspar with not enough clay to produce plasticity. The red pigment frequently occurs as a coating on the mineral grains or as scattered material in the cement but is not the cement itself which is usually calcite, dolomite or sometimes silica. The sand in these rocks has either angular or subangular grains and has not been handled much by water. Aeolian sand with typical round and polished grains occurs sometimes.

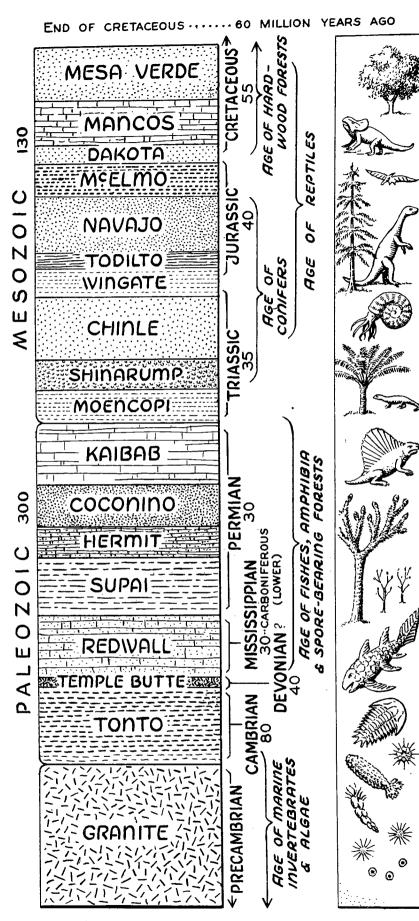
When these rocks were mud it had just the right composition to take the weather impressions to best advantage and atmospheric conditions were just right for their preservation. What conditions were like in the northern part of Coconino county during the Lower Permian can be reconstructed from the evidence we find in the Hermit shale and other sources. A typical scene may have been like this:

The early morning hours were shivering themselves toward daylight but it still was too dark to see much of the landscape. It was a strange land with some of the features of a desert so far as could be determined by the feeble starlight. Close by there seemed to be nothing but fine sand and silt which now and then was rippled into little swirls and streams by a north wind—the cold wind of the desert just before daybreak. Off in the distance, pale glimmering pools reflected the light of constellations none of which would be recognizable today. This was at least 200,000,000 years ago and even the shapes of the constellations change with the passing ages. The only sounds that broke the quiet of this Permian dawn were the whisper of the wind as it played in the sand and a distant chorus of croaks, bellowings and gargling noises from the amphibians and reptiles that lived in and around the pools.

After a tremendous red dawn, red from extremely fine dust always suspended in the upper air in those days, daylight came with a rush. The topography of the country soon was visible. Unlike the present desert landscape of mountain, canyon and mesa this tended toward the monotonous—a broad basin bounded by low hills on the order of badlands, gullied by thousands of arroyos which were free from the larger rock fragments typical of most of the arroyos we know today. Evidently there had been ages of this surface dessication and erosion because older fans and older arroyos had been buried under more recent deposits. Shades of grey, red and brown and the ultramarine blue of desert shadows were the basic colors of the landscape. In the distance there was a range of bleak hard-outlined hills but no impressive mountain range in sight. In some places dunes of paler desert sand marched slowly before the wind.

The soil was bare of anything resembling grass or even low herbage, but nearer the extensive pools that stretched away northward, sparse scattered plants bega., to appear, sometimes brilliant green by contrast but usually dulled by a layer of dust. These were dwarfish land-dwelling outposts of a plant that was amphibious but preferred the water where it grew abundantly as an attractive herb three feet high, flowerless and with leaves in whorls around a straight stem. This plant and a profusion of fern-like types were the predominant vegetation. They grew densely in the swampy soil around the pools and along the sides of the lower arroyos.

Bigger, tree-like forms were rarer and all were of the conifer



(NUMBERS INDICATE MILLIONS OF YEARS)

Geologic chart, applicable to northern Arizona, showing predominant plant and animal life of different ages. Compiled from various authorities and drawn by Norton Allen.





Left—Fossil ripple-marks from Triassic period, Arizona. Distance from ridge to ridge is 1½ inches. Right—Fossil raindrop impressions 200 million years old. Permian period, Arizona.

type. These had thin, radiating branches that ended in plumelike sprays of twigs like those of the Norfolk Island pine. Smaller plants were absent although green pond scum covered the more stagnant pools. You could have searched all this vegetation inch by inch without finding a solitary flower or blade of grass. It would be millions of years yet before either of these appeared to decorate the landscape.

Fossil Weather in Coconino

Times were hard during the Permian. Lack of water appears to have been one of the universally adverse conditions. When there was water it generally was in the wrong place or there was too much or too little, as was about to happen in the present case.

It was midmorning. Beneath the sun, which shone unusually hot through the moistureless air, dust-devils danced across the dunes and swirled away in reddish columns. At length the wind fell and in the west, beyond the hills and sand dunes, a solitary black cloud began to form. As it drew closer it took on respectable proportions; some rain fell. As is frequently the case with dry weather showers only a paltry amount of water fell in scattered drops. This thin shower that lasted only about ten minutes seemed to be all there was to it. The cloud vanished. The sun came out and the landscape settled down once more into its chronic condition of dessication.

This one feeble attempt at a rain storm only emphasized the long dry spell. The water in the pools was at low ebb from evaporation but in places where sand-spits had been covered by the lapping waves when the wind blew in the morning, the mud was wet enough to take the impressions of the raindrops left by the passing shower.

Records in the Rocks

Hot day followed hot day monotonously for months. The mud dried to a stony hardness. It was dry heat without a breath of wind to carry sand or dust to mar the cleancut impressions of the rain pits. Then one day, far away in the hills, the rain began in earnest. The streams in the arroyos which fed the pools ran torrents of water thick with mud. Millions of tons of silt were carried into the pools which were muddled to the bottoms. Much fine soil stayed in suspension for days and when this muddy water evaporated it produced a slime which dried into a thin hard coating on everything. Some plants were buried upright as they grew along the streams and today their fossils, taken from the Hermit shale, have the impressions of even the tiniest veins and hairs preserved so perfectly that the species represented by even a fragment of leaf is entirely identifiable to a paleobotanist.

Where this muddy water spread in a thin layer over the rain-drop impressions, the thirsty hard-baked soil absorbed the water with such avidity that the tiny particles of silt were drawn into the impressions with the perfection of a cast in plaster of paris. This mud layer dried and was added to by fresh layers until all traces of the rainstorm of months before were sealed between the layers of silt. More dry weather followed and baked the layers of mud all together. Eventually, these layers of hard-baked silt became rock and so, after the passage of millions of years, a single stroke of a geologist's pick may expose again to daylight the record of a brief ten-minute shower that poured on a younger and weirder earth. Countless such records of small weather-phases have been preserved.

A specimen from Arizona, now in the museum of the Webb School for Boys, at Claremont, California, shows on a slab of

fine-grained sandstone the record of one of the little tableaus enacted by the midget things that live close to the soil after any summer rain. Tiny pieces of buds and the petioles of leaves with small twigs and branches have left their record on the rain-pitted ground—then some earthworms came crawling about to look over the damage done by the storm, and tracks, twigs and all now are imperishable rock.

Sometimes the dry spells lasted for just a few days, in other cases they lasted for months or perhaps years without a drop of water falling and then the mud flats dried out just as they do today and were covered with a network of cracks which assumed different patterns according to the composition of the mud and the length of time it dried. Ordinary mud with little sand cracks a great deal from shrinkage. With much sand there is very little shrinkage, but—and here is a strange exception—in some places in Grand Canyon, near Bright Angel trail, petrified mud cracks 15 inches wide and 25 feet deep were formed in an especially sandy stratum of the Hermit shale.

Some of the cracks in red shale have been filled by dune sand which could have been transported only by a high wind. In other examples the cracks stood open to the air and were filled by slowly settling particles of light colored silt from ancient storms apparently like those of "Dust Bowl" days.

Mud crack fillings usually are of a composition different from the matrix rock, and being more resistant to weathering stand in high relief to make a pattern like elf-size garden plots separated by lilliputian adobe walls. Next to these ubiquitous mud cracks, the most common of the old weather indications are the ripple marks in sandstone.

These tell of winds that stirred the surfaces of pools of shallow water. Regularly spaced, parallel lines of corrugations which may be less than an inch to more than a foot from ridge to ridge were formed on sandy bottoms by the oscillation of the whole volume of the water which produced rhythmic patterns. The preservation of ripple marks leads to some interesting questions. In the first place, the ripple effect implies the presence of a considerable body of water. In the second, for them to have been preserved as mud casts means that they had to dry out, which in turn means that the water had to be withdrawn in some way that did not disturb the pattern. Apparently this water was lost by evaporation. But it would seem that in the time required for this to happen, fragments of floating material being concentrated at the bottom of a stagnant pool would have left some trace. But

GLOSSARY

CARBONIFEROUS-Last major division of the Paleozoic age. Roughly, the halfway mark of geologic time. Age of greatest coal formation.

CRETACEOUS—Later division of geologic time, roughly terminating the first nine-tenths. Name comes from creta, Latin for chalk since the period was one of extensive chalk deposition.

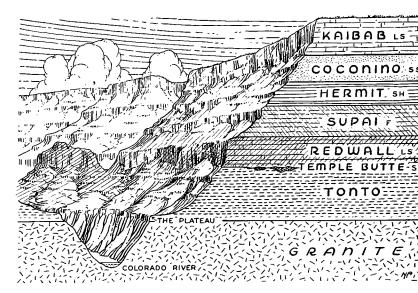
FERROUS—Descriptive of iron compounds which have not combined with all the oxygen with which they are capable of uniting.

PERMIAN —Period closing last major division of the Paleozoic. Comes immediately after the Carboniferous. Name is from Perm, a province of Russia and the classic locality.

SEDIMENTARY—A term applied to rocks composed

of material deposited by water. SEED-FERN—A family of extinct plants resembling ferns in many of their features but producing true seeds instead of spores.

SUBLIMATION—The direct evaporation of a solid substance without an intervening liquid state.



Cross section of Grand Canyon, northern Arizona, showing geologic strata which are exposed from the rim to the Colorado river below. Drawn by Norton Allen.

many specimens of ripple marked rock are perfectly clean and fresh looking. The casts were not made under water because the sand was exposed to the air while still wet. We know this from the fact that many specimens show raindrops, sun cracks and animal tracks.

In some ways the most surprising of all these old weather records are the signatures of the ice both as the impression of hail stones which then as now left a raised rim around the pit, and as crystals of ice in frozen mud.

Fossil ice crystals are not particularly rare, their apparent scarcity being due to a lack of recognition. They are found in many of the old strata but perhaps the best examples in the United States come from Lower Cretaceous rock in Texas called the Comanchean sandstone. Here we have the record of freezing temperature followed by a long, cold, dry spell. When mud freezes, part of the water separates as thin toothpick-shaped crystals. If the mud simply, thaws, the shape of the crystals will be lost in the soft mass. But a quantity of ice in dry air at a belowfreezing temperature eventually all will disappear by sublimation and leave not a trace of water behind. Apparently here is what happened in the case of the specimens from Texas:

Mud and sand banks froze during a time of exceptionally cold weather. In all probability it was a dry cold winter without rain. This weather lasted long enough for the surface mud to lose all its water as sublimed ice. Warm weather came and found the impressions of the crystals now in dry mud. Hot summer followed and baked the mud hard. Finally came rain, producing a source of muddy water which preserved the impressions as mud casts. The presence of fossil ice crystals in a particular stratum was once of great importance. Dr. J. A. Udden of the University of Texas, the authority on fossil ice crystals, tells how he once turned his knowledge of this apparently useless subject to practical advantage.

During mining operations in west Texas the most desirable mercury ore was found to occur in one special horizon. This layer was without fossils and almost indistinguishable from those above and below. Mining operations would have been particularly difficult had not Dr. Udden recognized the casts of ice crystals as a distinguishing feature of the desired strata. After that keeping to the proper zone was a simple matter.

So the natural records of ancient weather, like the symbol pecked out by some long-departed Indian, come out of the past to tell us about the times that were, and somewhere the weather record of today is being preserved to tell future men of the times



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WRITE FOR A COMPLETE CATALOG OF TITLES



In contrast to the ever present problem of scant rainfall on Ghost Mountain, the South family this month were threatened with a far greater danger—that of fire. Rider was the first to discover the ominous yellow grey smoke billowing above a butte only four miles from the anxious watchers at Yaquitepec. All night Marshal took his turn at sentry duty on a high lookout, ready to warn the others of the dreaded approach of the flames.

Desert Refuge

By MARSHAL SOUTH

ESIDE the weathered fence of dry mescal stalks, set upon end, General Machado, the largest of our trio of desert tortoises, slumbers in the shade. And beyond him, a half dozen paces away among the rocks, a big brown squirrel perches adroitly in the spreading crown of a flowering agave. His long fluffy tail hangs down as, with both front paws, he busily crams his mouth with the fleshy golden blooms.

But General Machado is interested neither in agave flowers nor in squirrels. He has outlived, and will outlive, many generations of them. Head extended upon the sand and flippers sprawled in limp ease, he dreams on. Life for desert tortoises is an unhurried thing. Their normal span of existence is very long. Is there a reliable formula for estimating a tortoise's age? We have never heard of one. But Rider, whose mind runs to the figuring out of the answers to scientific puzzles, has advanced the interesting theory that the concentric ridges or markings of the horny plates of the shell stand in the same relation to the creature's age as do the growth rings of a tree.

The theory sounds well founded, for the little regular ridges, which are characteristic of each plate, all follow the shape of the plate exactly, but in a regular area increase, from the center outwards. Exactly as do tree rings. That these markings represent growth rings is certain. The only point—and one that could be determined only by careful observation over a considerable period of years—is just what space of time does each ridge or ring represent. Does a tortoise add one expansion ridge a year to each plate, or several? Or does it take more than one year to add a ridge? Rider figures on settling this point in the course of a half dozen years or so. But perhaps some naturalist already has the answer.

This year the canyon wrens have been particularly numerous. Which is strange, for the nesting season was so severe, with cold and high winds, that the wrens passed up most of our ready-made nest boxes. Their sense told them that in times of stress it always is safer to be in close contact with the earth. So they picked embattled little hideouts among the mescal clumps, where the stormy winds howled impotently above their heads. Some of these nests are remarkably well concealed.

One nest was in the hollow of a decayed mescal butt that had been for many years overgrown by new plants. Access to the cavity was obtained through a narrow chink between two big fleshy leaves. Somehow the wrens had discovered this fortified little cavern, and had constructed within it a tiny nest. When we located it, it was well packed with very food-conscious, half-grown nestlings, who gaped at us with eager expectancy.

There must have been several well concealed wren nests close about the house. Because, later, the friendly concourse of young families, flitting through the trees and bushes in the wake of



Rudyard, Victoria and Rider entertain a young feathered friend.

proud parents, was quite large. The canyon wren usually is reputed to be a shy bird. But we have never found them so. Curiosity and not shyness always has been the chief characteristic of our Yaquitepec canyon wrens. Several times, when packing loads up the mountain trail, one of these pert brown mites has followed me for a long distance, slipping from branch to branch and rock to rock, getting ever closer. Sometimes they even have alighted on the shoulder-pack itself, examining it with bright investigative eyes.

Yesterday we had another visitor. The genial brown racer snake who has lived somewhere close around the house for several years, paid us a call. Each year he seems a little longer and bigger. But his disposition hasn't changed. He is a friendly, slightly mischievous humorist, with a facility for turning up in the most unexpected places. This time it was on a shelf of a storage alcove. Rider, who had gone to get a pair of tin snips out of a tool box, ran face foremost full against the snake's exploring nose. It was a bit dark in the alcove and contact with that inquisitive snout was rather startling. Rider came out of the archway with a yell, dropping the tin snips. The snake seemed to enjoy the joke. For when we got there he had his head cocked a bit on one side, his long slender body still extended a foot over the edge of the shelf. And you could have sworn that there was a mischievous twinkle in his eye. Rider had been so startled that he forgot his manners. He grabbed the fly-spray gun . "You-" he gasped breathlessly. "You would do that, huh! I'll show you!" And the next instant the smirking jokester found himself enveloped in a cloud of fly spray, as Rider worked the gun furiously.

The snake was offended. He whirled and darted for an exit so fast that, although I grabbed for him, intending to carry him outside, I missed my aim. In the semi-gloom he was just a brown whizz. "Ooah! he's goned through the mouse hole!" Victoria shrieked delightedly. "Look! he's twaveling to the outside!"

He was indeed. And when we dashed out and around the house he was still traveling. We caught a flash of a flirt of slender tail flicking like a whiplash through the ramarillo bushes. Rider shook the spray gun after it wrathfully: "And don't you come back," he shouted, "or you'll get more of the same medicine!"

But he did come back. The same afternoon, he poked his head out of a crevice of the terrace wall, near the water olla. Rider saw him and grinned. "You can come out," he said graciously. "I forgive you. But *don't* do it again."

Whether his words were understood or not, the snake did come out. Sliding leisurely across the hot sunlit gravel he went off into a mescal clump, probably in search of mice.

Yesterday brought another scare. A bigger and more general one. The threat of fire.

Now fire in the desert may sound improbable to anyone who

pictures a desert as being a barren expanse of rock and sand dune. But a comparatively small portion of the western American desert is of this variety. Most of it is what Dr. Hornaday has aptly termed an arboreal desert. That is, a dry area that supports a good sprinkling of arid zone bushes and dwarf trees. Our Ghost Mountain district is of this variety. Although fires are very different from those that range in heavily wooded sections they are something not to be laughed at.

Almost all desert plants are highly resinous. Many of them need only the slightest encouragement to burn briskly even when green. And when dried to tinder by the heat of the desert summer they are a food upon which fire feeds with ravenous fury. Especially in a high wind—and somehow there almost always is a high wind whenever a desert fire starts. Once the flames get under way the blazing fragments, swept aloft by the heat and driven by the wind, spread deadly brands over an ever increasing area. A desert fire can be a terrifying thing.

Yesterday evening, Rider came hurrying with the information that we had a fire "right in our back yard." The alarming news brought everyone running. From the rim rocks of Ghost Mountain we stared off across the desert at the ominous lift of yellow and steel-grey smoke. It wasn't a big fire, as yet. But it really was in our "back yard." It was less than four miles away. It was on the far side of a great sugar-loaf butte, so that we could not determine exactly where it was, or what was the extent of the blaze. If we had been able to see details perhaps it would have been less terrifying. As it was we could see only the sinister billowing smoke rising from behind the hill. The wind was strong, and setting directly towards us. Four miles seemed a very short distance.

"It will go up the side of that ridge fast," Rider speculated. "And it will come down this side of it very slow, as all fires do when they're traveling down hill. But when it hits the flat country . . ."

He didn't finish the sentence. It wasn't necessary. We were all thinking of that. And of the dense growth of yuccas and creosotes that sprinkled the lowlands in patches. We began mentally to count the number of dry sandy washes that crossed those four miles, like defense fronts between us and the enemy. We hoped that they might prove at least partial firebreaks.

"There's a good chance that, even at the very worst, Ghost Mountain won't burn much," Tanya said, her eyes roving affectionately over our tumbled mass of wind scoured boulders. "Granite doesn't offer much encouragement for flames. And our sprinkling of junipers and ramarillo bushes isn't very heavy. We're a bit different here from the lowland country. But still . . ."

We continued to watch. The smoke seemed to be increasing. The wind was freshening.

It was near sunset. And presently the red disc went down behind the distant wall of western mountains. Behind us a great moon, almost full, floated upward from the badlands and mingled its flood of silver with the dying, ruddy light of day. Dimness crowded the canyons and the lee of the hills as the shadows of night crept from their hiding places. A coyote broke the stillness with a far off, chilling wail.

And beyond the butte, four miles away, the grim cloud of yellow grey still hung against the twilight. It was neither bigger nor smaller.

"I don't think it's coming, right away," Rudyard said presently, grimacing with the intense effort of trying to stare a hole through the distant butte. "And, in the meantime, can't we go in and have our story-book reading?"

"I think we might," Tanya agreed. "We can't stand here all night."

I elected myself as the first to do sentry duty and settled down in a nice sheltered crevice of the rim rocks. But just as all the others moved off, Rider turned back. "If it gets worse," he said,

"please give me ample warning. I want to have time to put the three tortoises in a safe place. They've a right to their lives. And I've got to take care of them."

But the fire threat came to nothing. After a long vigil—merging in the end to regular excursions, far into the night, from the house to the look-out point on the cliff edge—all trace of smoke faded. The moon-washed desert dreamed through the night hours in peace.

Just as most of the perils and sorrows of life drift, after a period, into the limbo of forgotten things, so passed a period of very real anxiety. It left behind it, as its most acute memory, not the recollection of fear but of comedy—a comedy provided by the antics of a little, grey desert mouse.

This little rascal, whom I first noticed on one of my midnight trips through the house on my way to the lookout, was intent on getting some of the sweetness from the edge of a big iron pot of desert honey which we had that day melted to separate from the comb. The pot, now cool, hung from a hook and chain over the stove. From the nearest wall ledge to the pot lid was quite a long mouse jump. But the little grey busybody had made it. As I came past with a lamp in my hand, my first sight was of a grey tail and a pair of plump hindquarters balanced on the far edge of the pot lid.

Its attitude, as it leaned over with its head away below the rim while it nibbled at remnants of boiled-over honey and wax, was irresistibly suggestive of some portly dowager on her knees with a garden trowel before a pet flower bed. The temptation to give the bending little gnome a prod with a forefinger was too strong to be passed up. But almost in the same bounce with which it sprang away from pot to wall ledge it turned and bounced right back. Flinging me a glance of plain annoyance it turned its plump little back on me and bending over, again fell to nibbling.

Again I prodded. And again it jumped. If a mouse can snort it certainly did. And its beady eyes sparkled both daggers and contempt. Back it came again like the rebound of a rubber ball. Insulting human meddler! Over it leaned, farther than ever. Its tiny teeth nibbled lustily.

Anxious to see just how far things would go I kept up the comedy. So did the mouse. But I tired quicker than it did. By the time I had given it a dozen prods, and it had made as many leaps and returns, I decided that I had other and more pressing things to attend to. So I hoisted the pot away up on its chain—far out of the jumping range of even an enterprising mouse—and departed. The last sight I had of my persistent little friend was a rotund grey shape ambling off disgustedly across the top of the fireplace in search of new and easier pastures.

After the night, came the new dawn, with the shadows of apprehension forgotten in the yellow glint of the bunch grass against the rising sun on the mountain slopes. With the gold fountains of the tall mescal blooms swaying against the sparkling sky and the morning air shot through, as by fairy shuttles, by the darting flight of myriad bees and beetles swarming about the flower banners. Long, trailing spider webs glint like drifting wires of silver, and the junipers and the grey rocks loom sunlit and solid above the distant haze of the lowlands.

YOURSELF

However lowly you are born,
However high in worldly place,
The Truth lies open and unshorn,
To all of us—unveiled of face.
Nor need you pause upon the brink
Because of caste or lack of pelf.
Accept it swiftly now—and drink,
For life depends upon YOURSELF.

-Tanya South

Quailbrush and Holly Belong to This Salty Family of the Desert

By MARY BEAL

OU MAY think of Pigweeds as obnoxious weeds but we are indebted to their family, known variously as Saltbush, Pigweed, or Goosefoot, for some of our standard vegetables such as spinach and beets and for forage plants. One genus, Atriplex, commonly called Orache or Saltbush, furnishes abundant forage over most of the arid Southwest. The Indian too has made good use of Orache as a staple for his larder, grinding the seeds into a meal and boiling the salty young shoots and leaves for greens. The leaves also could be used for soap.

The tiny flowers are inconspicuous but the fruiting bushes fling sweeps of delicate color over great stretches of desert during many weeks of fall and early winter—lilac, mauve, lavender and rose. The shrubs often are so abundant as to dominate wide areas, blooming and fruiting prodigiously. Most of the species tolerate strongly alkaline or saline soil. The shrubs are compact and rounded in form, ashy-grey or almost white from the scurfy or mealy covering on the leaves and young stems, usually flowering in summer or early fall. The minute flowers cluster in the axils or form terminal spikes or panicles, the staminate and pistillate flowers on different plants. They have no corolla and the pistillate flower lacks even a calyx, being merely a pistil enclosed between two bracts, the staminate blossom having a 5-lobed calyx and 5 protruding stamens. Largest and showiest of the Saltbushes is

Atriplex lentiformis

Quailbrush (its everyday name) is a large, intricately-branched, dome-shaped shrub 5 to 10 feet high and as broad or much broader, the scurfy herbage with a silvery sheen. Leaves are variable, ovate to elliptic with blunt apex and more or less undulate, up to 1½ inches long. The flower spikes are disposed in dense panicles 4 to 8 inches long, the tiny fruiting bracts enlarging to a width of ¼ inch, the pliant axis of the spike often curved or drooping. In the fall the bracts turn lavender or rosylilac, the bushes in the sunlight like iridescent domes, especially conspicuous on the silt flats about Salton sea and the adjoining sandy areas, also in low western and southwestern parts of Arizona. One of the species most favored by Indians for food, a valuable browse for livestock.

As a side line Quailbrush maintains an animal shelter, offering sanctuary to rabbits, roadrunners and all the Small Fry that scurry about the desert. Where it abounds there is no housing shortage for the large flocks of Gambel quail that pitter-patter around that region. Range from southern Utah and Nevada through Arizona and California deserts to Mexico.

Atriplex canescens

Commonly called Wingscale, Fourwing Saltbush, Cenizo, Chamiza, or Shadscale, it probably has the widest distribution of the Saltbush shrubs and is one of the most valuable forage plants of arid regions. Important because of its great abundance as well as its high nutritive qualities. Its salty flavor, evergreen habit and unusual resistance to drought and cold make it good all-year browse, the leaves, stems, flowers and fruits all being relished by livestock. The Indians not only used the seeds for meal but concocted a remedy for ant bites from the roots and blossoms ground into a powder to be made into a paste with saliva.

Typical roundish Saltbush form, hoary-grey, 1 to 5 feet tall, rarely twice that, the main woody stems rigid and somewhat



Fruiting panicles of Quailbrush. The dome-shaped shrub is sanctuary to Gambel quail, rabbits, roadrunners and many Small Fry of the desert. Photo by the author.

brittle, the whitish scurfy twigs bearing narrow, often clustered leaves, linear or spatulate, an inch or two long, finely scurfy-hairy. The small flowers appear in lavish profusion from June to August, the staminate in noticeable, spike-like panicles, elongated but dense, the pistillate in axillary clusters, insignificant at first but very conspicuous in fruit, each twin bract developing 2 broad roundish wings about ½ inch long, the margin irregularly incised or fringed.

Adaptable to varied conditions of soil and climate, its range extends from Great Basin area to northern Mexico, from western Texas to California deserts, from very low altitudes up to 6500 feet. Prefers deep sandy soil but may be found on gravelly mesas, washes and slopes. Common on sandy or saline flats and washes throughout Arizona, Colorado and Mojave deserts, exceedingly abundant in Colorado desert, where in October the sandy reaches of the Indio-Palm Springs region are fairly illumined by the amazingly dense masses of bright light-green fruits, as striking as a flower display.

Atriplex confertifolia

Known as Shadscale, Sheepfat, and Spiny Saltbush, this too is a very important browse species. The spiny, compact, woody bushes are usually a foot or two high, occasionally 3 feet or more, growing typically in clumps of bushes, forming hummocks several feet in diameter, or as lone bushes. The rather stout woody stems are stiff, ending in spiny points. The grey scurfy leaves are ovate, broadly oval, or elliptic, the tip rounded, less than an inch in length, growing in rather crowded clusters along the branches. The flowers are arranged in spike-like panicles near ends of branches, the broadly oval bracts of the pistillate flowers enlarging as the fruit ripens to a length of ½ or ¾ inch.

It ranges from Utah and Nevada to Mojave desert, through Arizona to northern Mexico, being predominant in Utah and Nevada, and in some parts of northern Arizona has crowded out nearly everything else. Typical habitat being dry plains and hill-sides, it frequently is abundant along borders of alkaline dry lakes, following up the washes and slopes of the surrounding mountains, up to 6000 feet.

Atriplex polycarpa

Cattle Spinach is the popular name but it has no resemblance to the garden vegetable other than its high nutritive value. It follows the Atriplex fashion of compact symmetrical form (2 to 4 feet high) and pale grey coloring, its most noticeable characteristic being the very small thick leaves crowding the branchlets.

A highly important forage plant, very abundant on river bottoms and benches, sandy-gravelly plains and low hills of Arizona, Colorado and Mojave deserts, southern Nevada and Lower California.

Atriplex hymenelytra

This distinctive Saltbush, widely known as Desert Holly or Silver Holly, was featured in the second issue of Desert Magazine (December, 1937) but we can't overlook this decorative member of the clan which not so many years ago was so exploited for Christmas decorations that it was threatened with extinction. Seldom more than 2 feet high, with a gnarly woody base and many stiff branches liberally supplied with thick, wavy-margined leaves, silvery white, coarsely, irregularly and deeply toothed, the stems and leaves so densely clothed with a fine white scurf as to appear spectral, except when ample rains give it a greenish tinge or tint its young shoots mauve or lilac.

The minute flowers appear in late winter, the axillary pistillate spikes more decorative in the bud stage before the stamens show their polleny heads. Then they often are miscalled berries, because of the purplish-red translucence that veils the closed

calyx, like tiny crowded red dewdrops under a lens.

Stony hillsides, gravelly washes, canyons and mesas from Nevada through Mojave and Colorado deserts to western Arizona.

MERRIAM'S PLANT LIFE ZONES . .

Traveling in the desert, it is noticeable that certain combinations of plants occur in various regions, almost as if they were members of a tribe determined not to become separated. Usually they are all at about the same altitude although not invariably so. In order to speak of such characteristic groups of plant "affinities" botanists have used various classifications. One which is especially helpful in the Southwest is the Plant Life Zone areas devised by Dr. C. Hart Merriam. Basis of his classification is a combination of rainfall, humidity and temperature; latitude, longitude and altitude; distance from ocean, local topographic features. Thus one life zone is not necessarily a broad, well-defined band to be drawn on a map, but may be broken up and at times form an isolated "island" in the midst of totally different life zones, as in the case of desert mountain peaks. At times the zones may be quite distinct, as on San Jacinto mountain. At other places the division is more gradual and indistinct. Sometimes a species which is the predominant one in one zone may extend into two or more zones. But on the whole, plants in each zone are characteristic of that zone and have many features in common; even the animal life may be somewhat similar.

Dr. Merriam named seven zones. (The altitudes given are necessarily arbitrary as there is much overlapping, depending upon the other factors involved.) They are: Lower Sonoran—below sea level to about 3000 feet; Upper Sonoran—about 1000 to 5000; Transition—2000 to 5000; Canadian and Hudsonian—5000 to 9000; Boreal (true alpine)—9000 to 14,500.

Lower Sonoran zone comprises most of the Colorado and Mojave deserts. In order to survive the typical conditions here—low humidity, annual rainfall from 0 to 5 inches, summer temperatures from 90 to 130 degrees, extreme temperature ranges and strong drying winds—they must be equipped to conserve water and limit evaporation. In other words, as Jerry Laudermilk and Philip Munz showed in July, 1944, issue of Desert Magazine, they have to be "tough."

TRUE OR FALSE . . .

Review lesson this month reveals wide scope of subjects published in Desert Magazine. There are questions on physics, geology, gem cutting, mineralogy, history, botany, geography, Indians. To answer half of them correctly marks you a Desert Rat. More than ten right entitles you to degree of S.D.S. (Sand Dune Sage). Answers on page 34

- 1—Palm Springs, California, is located on Highway 99. True...... False.......
- 2—Lt. A. W. Whipple's 1853-4 expedition into the Southwest was for the purpose of establishing military posts. True....... False.......
- 3—Quartz always occurs in crystalline form. True...... False......
- 4—Jojoba sometimes has been used, especially by Southwest Mexicans, as a coffee substitute.

 True....... False.......
- 5—Setting for Inter-Tribal Indian ceremonial held annually in August is Santa Fe, New Mexico.

 True....... False.......
- 6—Grand Canyon at some points is 12 miles wide. True....... False.......
- 7—Piñon nuts grow on a shrub in low elevations of the desert. True....... False.......
- 8—Perpetual ice cave in lava beds of western New Mexico has been known to the public but 30 years.

 True...... False......
- 9-Fremont Island is in Lake Mead. True.... False.....
- 10—Genuine jade is found in Wyoming.
 True....... False.......
- 11—Most of Arizona, scientists believe, once was connected with the North Atlantic area by a seaway. True....... False.......
- 12—Guayule rubber project, under which about 32,000 acres of guayule plants are growing in California, Texas, Arizona and New Mexico, was discontinued by congress in June. True....... False.......
- 13-Another name for halite is salt. True...... False.......
- 14—Generally a gem cutter prefers aluminum oxide to tin oxide as his polishing agent.

 True...... False.......
- 15—Mormon Tea is known to botanists as Ephedra.
 True....... False.......
- 16—Chulu is a large bird found in the mountains of southern Arizona. True...... False.......
- 17—In the dumps around a gold mine one would be likely to see chrysocolla. True...... False......
- 18—Most desert shrubs are deciduous.

 True...... False......
- 19—White light is a combination of all colors.
 True....... False.......
- 20—Tobacco was first introduced to desert Indians by early American traders and trappers. True...... False.......

HERE AND THERE ... on the Desert

ARIZONA

Extinct Volcano "Erupts" . . .

FLAGSTAFF—Jungle of trees and grass inside Howard crater, extinct volcano, was struck by lightning and blazed into fierce flames resembling an eruption last month. Imagining ashes and lava flow, Ranger Ed Oldham and crew fought and extinguished the blaze that destroyed 20 acres of forest within cone.

Officer Dies on Desert . .

KINGMAN—Captain Howard Brady died of thirst and heat exhaustion on desert near here July 4 before local officers and civilian pilots could bring aid. Brady was enroute to auxiliary army field from gunnery school and became lost on side road.

Mexican Air Line Planned . . .

AJO—Aereo Transport company of Sonora, Mexico, completed surveys for new airline connecting Hermosillo with Tijuana with stops at Caborca, Sonoyta, San Luis and Mexicali. Company incorporated at \$27,000 will begin work on line as soon as sufficient stock has been sold in Sonoyta area.

Dam Project Surveyed . . .

KINGMAN—Bridge Canyon dam and companion project to bring Colorado river water into central Arizona would cost over \$500,000,000 and employ possibly 18,700 men for 72 months, according to survey by H. W. Bashore, U. S. reclamation commissioner. Storing 1,000,000 acre-feet of water and producing 1,000,000 horsepower of electricity this project would irrigate about 300,000 acres of new land and provide supplemental water for 300,000 already under cultivation.

Pow-Wow Successful . . .

FLAGSTAFF — Although expenses were greater this year than before, satisfactory profits were made at 16th annual All-Indian Pow-Wow and rodeo, July 2 and 4. It was most successful two-day show in history of the enterprise.

Plan for Abandoned Land . . .

YUMA—Resolution passed by county board of supervisors would sell to Gila Valley power district some 22,602 acres of land, reverted to county by tax default, for \$5,650.50. Efforts long have been made to save this area in Wellton, Roll, Mohawk valleys from total abandonment and great loss to the state.

Wolves Kill Cattle . . .

PHOENIX—Wolves crossing Mexican border into Willcox, Tucson and Nogales areas have been killing large numbers of cattle. E. M. Mercer, state fish and wildlife service agent, stated that survey is being made to determine if additional trappers are needed to augment men now employed in ridding Arizona of animals.

Paul L. Beaubien has replaced Clair V. Cook as custodian at Saguaro national monument, Cook becoming custodian at Chiricahua national monument, southeastern Arizona. George Baxter will succeed Beaubien at his former station at Walnut Canyon national monument.

Mrs. Sallie Pierce Brewer is now an official park ranger, stationed in Tumacacori national monument.

Dr. C. G. Salsbury, Ganado, was elected president of Association of Western Hospitals at meeting in San Francisco July 5.

Beautiful Pictorial Guides

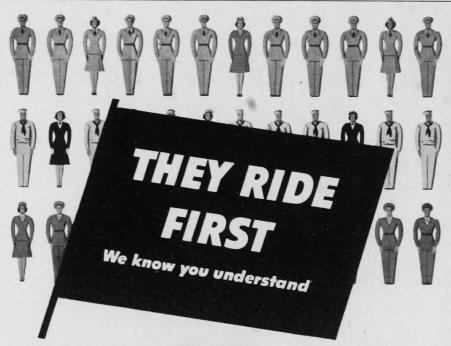
Take your friends on a trip, unrestricted by rationing, into the enchanting regions of the Southwest. Journey deep into these lands through photographfilled books, exploring ancient cultures, enjoying the vivid landscapes, getting the "feel" of the beauty and drama of old civilizations. What gift could be more welcome these stay-at-home days than a make-believe trip?

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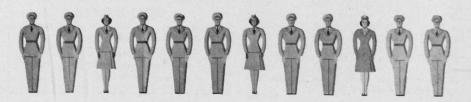
DESERT CRAFTS SHOP

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The Friendly S.P Southern Pacific



CALIFORNIA

New Naval Station . . .

TWENTYNINE PALMS—New naval base under command of Rear Admiral Elliot Buckmaster, USN, to be operated under San Diego naval air center, will be established at local air field, 11th naval district announced. This area has major advantage of little rain and all-year flying.

Mexico Granted Water . .

EL CENTRO—Authority to release water from All-American canal to irrigate 160,000 acres of cotton in Mexico was granted by Secretaries Hull and Ickes in response to telegram sent them by Evan T. Hewes, chairman Imperial Irrigation district. Water was to be served only during emergency and negotiations were undertaken with Mexican government for pay-

Wonder Drug Provides New Market

EL CENTRO—Penicillin, by requiring 5,000,000 pounds of powdered milk a year in its production, will open up new postwar markets for Imperial Valley dairymen, as well as others throughout the country, according to George Winright, assistant county farm adviser. Entire national consumption of powdered milk heretofore was but 7,000,000, and increased amount now necessary in penicillin should help bring about increased farm prosperity.

Rare Sheep Killed . . .

BLYTHE—Big horn or mountain sheep was found shot near Vidal highway July 19 by Jimmy Hill, cattleman. These sheep are virtually extinct, an estimated 50 being in the entire state of California. Stiff penalties are imposed in state and federal game laws for illegal killing of animals.

Naturalist Passes . . .

BANNING - Marshall French Gilman, nationally known scientist, died at his home here July 18, aged 73. Gilman's research led to discovery of many desert plants, some named for him. He worked also in propagating and cultivating drug plant ephedra. For several years until he retired from government service at age of 70, he was acting custodian of Death Valley national monument, establishing a nursery and botanical garden of native plants

Yucca Survey Made . . .

INDIO—Dr. J. M. Webber and his father Dr. H. J. Webber recently have completed a month's tour and survey of desert areas in Arizona, New Mexico and Southern California to determine extent of yucca growth as a source of coarse fiber. In collaboration with USDA, they have secured data on distribution and method of regeneration of plant, cost of growth, harvesting and land.

The Desert Trading Post

Classified advertising in this section costs five cents a word, \$1.00 minimum per issue— Actually about 1½ cents per thousand readers.

MISCELLANEOUS

For Sale: Complete Lapidary Shop, with five motors, show cases, many minerals and gem materials. Call Sundays from 9 a.m. to 6 p.m. H. Cotterman, 5118 Granada St., Los Ange-les 42, Calif., in Highland Park.

FOR SALE—Indian relics, 23 assortments from which to choose, \$1.00 per assortment or \$20 for all 23. All perfect specimens. Choose from these: 10 beautiful prehistoric Indian arrowheads; 10 tiny bird arrowheads; 10 arrowheads from 10 different states; 2 stone tomahawks; 4 spearheads; 5 stone net sinkers; 10 fish scalers; 2 hoes; 4 agate bird arrows; 5 flint drills; 7 flint awls; 10 beautiful round head stunning arrowheads; 4 fine sawedged arrowheads; 4 fine drill pointed arrowheads; 4 fine queer shaped arrowheads; 4 fine queer shaped arrowheads; 4 rare double notched above a barbed base arrowheads; 5 double notched above a stemmed base arrowheads; 12 small knife blades of flint; 1 rare shaped ceremonial flint; 3 flint chisels; 7 crystals from graves; 10 arrowheads of 10 different materials including petrified wood. Locations given. 100 arrowheads \$3.00. 100 very fine mixed arrowheads all perfect showy colors including many rare shapes such as drill pointed, double notched, saw edged, queer shapes, etc., location and name given, \$25.00. List free. Lears, Glenwood, Ark.

Large stock of petrified palm. Twenty tons of rock specimens. Navajo rugs, reservation hand hammered silver and baskets from many tribes. Many other handmade artifacts. Daniels Indian Trading Post, 401 West Foothill Blvd., Fontana, Calif.

RESEARCH and INVENTION may help your business. What is your problem. How are you trying to solve it? Address: BASIC RESEARCH LABORATORIES SYSTEM, 785 Lafayette Street, Denver 3, Colorado.

LIVESTOCK

KARAKULS producers of Persian Lamb fur are easy to raise and adapted to the desert which is their native home. For further in-formation write Addis Kelley, 4637 E. 52 Place, Maywood, California.

"Karakul Fur Sheep — America's Great Live-stock Opportunity—You can be a part of this fascinating business and have your Karakuls cared for by experienced rancher. Write for details, James Yoakam, National Distributor, 1128 No. Hill Ave., Pasadena, California."

REAL ESTATE

For Imperial Valley Farms-W. E. HANCOCK "The Farm Land Man" Since 1914 El Centro — -CALIFORNIA

Swimming Pool Iced . . .

PALM SPRINGS—When desert heat permeated even swimming pool at hotel here, resourceful Co-Manager Irene Foldesy dumped 300 pounds of ice into the water to cool it. But by the time photographer to record scene arrived, the ice had melted.

NEVADA

Game Refuge Surveyed . . .

WINNEMUCCA—Survey by members of forest service in Santa Rosa game refuge revealed that area is fully stocked with over 3,000 deer and forage is better than usual. It was recommended that number of deer be maintained at this figure so sufficient feed for animals in refuge would be available.

Basque Sheepmen Arrive . . .

WINNEMUCCA—Eighteen Basques from northern Spain arrived here July 25 to become sheepherders in Humboldt, Elko counties and in Idaho. Herders are hired on temporary basis, permits to remain in U. S. expiring in a few months. It is believed that blanket permits for extension of stay will be applied for before expiration date.

Park Areas Receive Funds

BOULDER CITY—Recent federal appropriation for national park service funds included allotment of \$74,500 for Boulder Dam national recreation area, \$5019 for Lehman Caves national monument.

Plan for Topographic Map . . . WINNEMUCCA—S. T. Tudor and C. N. Mortenson of U. S. department of interior have begun control surveys for topographical map of approximately 480 square miles in Little Humboldt river area between Golconda and Paradise Valley. Such a map long has been in demand by many engineers and geologists. Maps are expected to be available latter part of 1944 or early in 1945.

NEW MEXICO

Zuñi Turtleland Dry . . .

GALLUP-Because of exceptional dryness this year, Zuñi Indians returned without turtles from their traditional pilgrimage into mountains preceding Shalako ceremony. Rain dances were begun to relieve water shortage which caused Blackrock reservoir to fall to very low levels, Shalako proceeded without participation of turtles.

Wants Navajo Bride . . .

WAGON MOUND-Aged Mexican sheepman wrote Navajo agency requesting a young Indian bride to help him tend sheep and goats on his 1600-acre ranch near here. He stated he would prefer she brought her family too, and he would buy a loom for her parents to weave rugs.

THE FANTASTIC CLAN



As enjoyable as a good travelog. Tells you how to "call by name" the odd members of the spiny clan of the desert.

THE FANTASTIC CLAN by Thornber and Bonker, describes with charm and accuracy the strange and marvelous growth on the desert. An informal introduction to the common species in their native habitat, including notes on discovery, naming, uses and directions for growing. Many excellent drawings, paintings and photographs, some in full color. Endmaps, glossary, pronouncing vocabulary, index.

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Vols. 1-6	. ((except Nov. '37)\$34.00

If you need back issues to complete your files, write for a list of single copies now available.

And we're still paying \$3.00 for the November, 1937, issue . .



636 State St. El Centro, California

Dancers Ride Donkeys . . .

GALLUP—"If we don't get any gas we can hire a few donkeys!" Jemez Indian Pueblo Governor Cristino C. Panana reported in letter to M. L. Woodard, secretary of Indian Ceremonial association. Governor indicated that his dance team was ready for big reunion in Gallup in August and would arrive on time even if they had to hire donkeys for transportation.

To Restore Wildlife .

SANTA FE-Heading field party of specialists from Wildlife service and Texas A. & M. college who surveyed resources of 707,895-acre Big Bend park in southwest Texas, Dr. Walter P. Taylor stated that half century will be required to restore wildlife in the area. Grazing, hunting and other adverse uses in park must be ended before nature can heal the scars, he declared. Park opened July 1.

Indians to Purchase Lands . .

GALLUP-At current meeting of Navajo tribal council, expenditure of \$1,100,-000 for purchase of lands outside reservation to relieve congestion was urged by members. Provision included that such lands shall remain on tax rolls and be selfsupporting through payment of fees by Indians to whom allotments are made.

Carlsbad Caverns attracted 10,968 visitors during the month of May, more than any other national park, national park service declared.

Allotment of \$663.019 has been granted for protection of national parks, monuments and recreational areas in seven western states, M. R. Tillotson, regional director announced.

Irving D. Townsend, chief ranger at Hot Springs national park, Arkansas, has been promoted to custodian of Aztec ruins national monument, New Mexico.

UTAH

Hovenweep to Be Guarded

SALT LAKE CITY—Jesse L. Nussbaum, new superintendent of Mesa Verde national park, Colorado, plans to send workers to reinforce five major groups of Hovenweep, 1300 - year - old dwellings erected by cliff dwellers, so they will remain intact and not lose original planning and construction. Postwar plans for construction of modern highway to monument are being formulated.

Postwar Projects Planned . . .

SALT LAKE CITY-Reclamation bureau's postwar program contemplates construction of 18 projects in Utah, including completion of Deer Creek, at estimated cost of \$164,679,000. Of 18 projects, three of which concern power and flood control, only at Deer creek can work begin immediately. Others are still under study.

DESERT TRAVELOGS

Noteworthy scenic spots have been described in the "Mojave Desert Travelog." Ghost Towns, Crimson Canyons, Historic Mines, Rocks and Semi-Precious Stones, Desert Wildflowers, Ancient Indian writings are interestingly written, profusely illustrated with photographs and detail maps. Set of 12 travelogs, price 25c. Write to Barstow Printer-Review, Barstow, California.

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Mines and Mining..

San Diego, California .

Investigation of deposits of Iceland spar, used in bomb sights and other precision instruments, was concluded in July by Cordell Durwell, geologist, and Charles H. Reed, secretary-treasurer of bureau of mines of San Diego county. Numerous deposits were found in eastern section of Borrego valley area.

Salt Lake City, Utah . . .

Increased demand for celestite in manufacture of tracer bullets and signal flares, and oil well drilling swelled domestic production from 4041 tons in 1943 to 7566 tons in 1944. Peacetime prospect for domestic celestite however is not encouraging because of competition with English and South American producers, according to bureau of mines.

Reno, Nevada . . .

Grant H. Smith, veteran mining attorney and author of recent book, "History of the Comstock Lode," died in July in a coast hospital. Smith left his voluminous accumulation of data on the Comstock district to Mackay School of Mines, University of Nevada.

Indio, California .

High grade gallium sample found in Coachella valley has been donated to Massachusetts Institute of Technology by Clyde Hall who found rare ore on his property. Gallium has peculiar property of melting at body temperature and will have innumerable uses as soon as quantity production of extracting metal from ore is found.

Bishop, California .

Regular July monthly meeting of Western Mining council held in Bishop formed resolution to by-pass President Roosevelt's power to raise price of gold to \$41.67 and asked congress to set price at \$70.00. Blaming present war costs of labor and material, taxes and governmental regulation, various speakers maintained congress should take action to set desired price.

Winnemucca, Nevada . . .

Four large muscovite, common form of mica, claims have been located in southern Pershing county by Paul G. Reed, Ira Stanley and Walter Fitzgerald. Samples have been sent to U. S. bureau of mines to determine value of material.

Winnemucca, Nevada . . .

Under special lend-lease agreement, United States will ship 100,000,000 of silver to India to provide coins for currency needs of allied troops there and to restrict inflationary rise in prices, strengthening the rupee. News of silver agreement caused fall of nearly five rupees in price of silver because of fear of reprisals against hoarders and speculators who had bid up prices, detrimental to the rupee.

Kingman, Arizona . . .

Bill introduced into congress by California representative Clair Engle if enacted will permit loaning of federal funds to open up and rehabilitate gold mines now closed under Order L-208. Reconstruction

San Francisco, California . . .

Bulletin No. 126, containing 224 pages and 7 illustrations, is just off press and ready for sale from divisional offices in San Francisco, Sacramento and Los Angeles, state mineralogist Walter W. Bradley has announced. One of series of annual statistical reports, it contains detailed data on amount and value of metallic and nonmetallic minerals, properties and uses of over 60 mineral substances, supplemented with compendium of information on commercial minerals of California and directory of all producers. Price 75 cents, State Mineralogist, San Francisco 11, California.

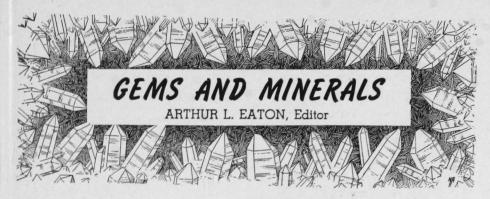
UNITED WE STAND

- The treaty abrogates the Boulder Canyon Project Act which declares that flood waters conserved by Boulder Dam shall be used "exclusively within the United States."
- Boulder Dam was built entirely on American soil by American initiative, engineering genius and money.
- The United States has solemnly contracted with American communities and states to deliver them quantities of Boulder Dam water and power, which are indispensable to their development.
- Relying on the Project Act and those contracts, American citizens have committed themselves to pay hundreds of millions of dollars for construction of works with which to use their Boulder Dam water and power.

- In Opposing Ratification of Water Treaty with Mexico... BECAUSE...
- AMERICAN COMMUNITIES, not the United States, are, under their contracts, standing the entire cost of the Boulder Dam.
- During cycles of dry years, such as have regularly occurred, and will recur, American uses of water would have to be curtailed to supply Mexican lands.
- The Treaty "guarantees" Mexico, 'for all time 1,500,000 acre feet per annum of Colorado River water—twice what Mexico had ever used prior to construction of Boulder Dam—twice what Mexico could possibly use without Boulder Dam.
- International Good-Will does not require, nor justify sacrifice of the natural, irreplaceable resources of the United States.

IF AMERICAN CITIZENS FAIL TO MAINTAIN THEIR FREEDOM, WITH ITS RIGHTS AND PRIVILEGES ON THE HOME FRONT—VICTORY OVER THE AXIS AGGRESSORS WILL HAVE BEEN IN VAIN!





MINES JOURNAL MAPS CALIFORNIA MINERALS

July issue of California journal of mines and geology contains map showing approximate location of California deposits of gas, oil, chromite, copper, gold, iron, manganese, quicksilver, silver, tungsten, zinc, lead, andalusite, kyanite, barite, sandstone, granite, slate, clay, diatomite, gems, gypsum, iodine, limestone, cement, marble, magnesite, mica, pumice, salines, soapstone, sulphur, talc and wollastonite. These booklets of the state division of mines each contain about 125 pages of materials on California minerals and mines.

IDENTIFYING DIAMONDS

Cut and polished diamonds are familiar sights all over America, in rings, pins, brooches, as well as in the windows of every jewelry store and pawn shop of the country, but uncut stones are unfamiliar to the general public, and almost as unfamiliar to all jewelers, dealers, and even to most gem cutters. Only a few diamond cutters, equipped to handle them, have ever seen many of the uncut stones.

Diamond crystals are not uncommon. They occur wherever diamonds are found. The most common crystal is the octahedron, or dodecahedron, but well formed cubes are not unknown in certain localities. A few minerals have curved surfaces, most notable among them the diamond and ruby. When the amateur finds a crystal with a curved surface, he finds it confusing to identify the exact type of crystal in his hands.

The diamond crystal has other characteristics which often help to identify it. Despite their great hardness, crystals found in the western hemisphere are almost always somewhat waterworn. A crystal surface often shows distinct triangular markings, sometimes in the form of a depression or bump. A few crystals show small but sharp triangular points. The well known rainbow colors seldom or never show themselves except in cut stones.

Diamonds are harder than any other stone, but this means little to the amateur. The public has been educated to believe that any stone "as hard as flint," or one that will scratch glass is very hard. Glass has a hardness of about six and flint, seven, the usual hardness of all quartz minerals, while a diamond is classed as ten, although it is many times as hard as a sapphire. Any medium hard stone will scratch glass, but that is no test. A sapphire crystal is hardness nine, far harder than quartz or flint. Only the diamond will make a distinct mark on it, although one sapphire will make a faint mark on another.

Among the stones mistaken for diamond, the commonest is broken crystal quartz, which shows rainbow colors at times; also, beryl, topaz, and even such soft stones as fluorite or scalenohedrons of calcite. Anyone wishing to prospect for diamonds should familiarize himself with the crystals by spending two or three dollars for small, off-color specimens. He also should provide himself with two or three sapphire specimens from some reliable dealer, for purposes of hardness tests.

SAN FERNANDO CLUB HOLDS GEM AUCTION

San Fernando Valley mineral and gem society held its annual dinner and auction July 9 at Valley Vista woman's club, North Hollywood. Fried chicken and rabbit dinner was served at 1:30, followed by the regular meeting.

President Cash Ferguson introduced 20 guests, including L. Lehman, president of Los Angeles mineral society, and his wife. Mr. Ferguson, acting as auctioneer, opened auction by selling a specimen of septeria to Jo Iverson. More than 200 specimens were sold. Outstanding bid was made by Randolph Peyton. Don Graham assisted as auctioneer. C. W. Clark, assisted by Mrs. Cash Ferguson, acted as clerk.

THE WAR WORKER'S HOBBY

By Charles G. Schweitzer Los Angeles, California

My day's work is finished, I've given my best; It's time to go home for refreshment and rest. And after my dinner, I'm now at my ease, So I go to my workshop to do what I please. The cares of the world now all pass away, My grinding the stone is just pleasant play. By day I grind gadgets, the foemen to wreck; At night I grind pendants, the lady to deck. By day I breathe hatred for foe as I grind, At night in my workshop I'm at peace with mankind.

I work with a will, and soon is revealed The beauty in stones which the Maker concealed. The hours pass quickly as wheels grind and spin, And then a sweet voice calls, "It's time to come in."

Though tired in body, at peace is my mind; A restful night's sleep prepares the day's grind.

COLORFUL MINERALS

MICA AND ALBITE

One of the most striking and colorful of all recently discovered minerals is a newcomer from New Mexico. This contains nothing entirely new to the mineralogical brotherhood, except a new combination. Much of the mass of each specimen is composed of albite, one of the feldspars. It is snow white, with the brilliant luster of feldspar on each of its cleavage faces. The other constituent is mica. The mica ranges in color from rose pink to pinkish lavender, and the small books of scales are arranged either in masses of bright color or in wide streaks through the snow white albite. Even the most complete collection will be more colorful for a fine specimen of this.

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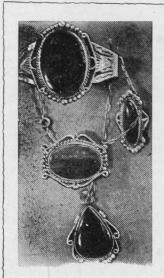
CUTTER'S ASSORTMENT. For \$1 we will send you a 3 lb. assortment of the following rough gem materials: Rhodochrosite, Variscite, Thunder Eggs, Eden Valley Wood Limb, Montana Moss Agate, Brazilian Agate, California Blue Agate, Turritella Agate, Petrified Wood and etc.

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On all orders for gem material add 20% to cover Federal Luxury Tax. Residents of California be sure to add the $2\frac{1}{2}$ % Calif. State Sales Tax.

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Northern California mineral society, at June meeting, added many new members, including May and Ida Williams, Mrs. S. A. Fryer, Bert Walker, C. L. Smith, chief warrant officer USN, Capt. C. T. Sena, Capt. Franklin R. Schwoob, medical corps USA, all of San Francisco, and R. E. Jeffrey of Inola, California. Speaker was R. E. Lamberson of Oakland, who related his properties experiences through related his prospecting experiences through Panamint range and Death Valley about 1905.

San Diego mineralogical society held the first meeting in their new quarters, auditorium of YMCA, Eighth and "C" streets, June 11. Harold W. B. Baker described his travels and explorations in Alaska. He told also of the mines, geology, terrain and climatic conditions of various parts of Alaska. New secretary is Mrs. Catherine Cheatham, 4120 Utah street, San Diego 4, California. She succeeds Mrs. Paul E. Wedgewood, who recently moved to San Bernardino. Robert W. Rowland is president.

Charles G. Schweitzer, editor and librarian of Los Angeles lapidary society, announces the following officers were elected for the coming year: R. E. Willis, president; Claude B. Rosenburg, first vice-president; H. Loren Mitchell, second vice-president; Mrs. Goldie Wood, secretary; Melvin E. Gainder, treasurer; Lelande Quick, historian. Committee chairmen appointed by the president are: Thomas Warren, constitution and bylaws; Mrs. Belle Rugg, hospitality; Ted Schroeder, mineral sales; Mrs. Charles Ewing, gem display; Ben Maben, field trips; Charles G. Schweitzer, editor and librar-

James W. Wallace, manufacturing jeweler and lapidarist, spoke on gemstone polishing for the amateur at July meeting of San Diego mineralogical society. He discussed both equipment and methods for the amateur gem cutter.

Los Angeles mineralogical society studied magnesium at their July 20 dinner meeting. William R. Harriman talked on magnesium and Richard F. Lehman on the chemical features of its recovery from sea water before showing the bureau of mines sound film depicting recovery of magnesium from ocean water. Annual auction netted the society 80 dollars made by sale of specimens donated by members. July field trip was a visit to state and county mineral exhibits at Exposition park. A lively swap fest preceded luncheon. Everyone was requested to bring at least one rock to trade.

Fifty-one members and friends of Orange Belt mineralogical society met July 16 at Perris hill park, San Bernardino, for a covered dish dinner. Mrs. D. H. Clark described a trip through Idaho for geodes and petrified wood. J. C. Filer prepared a grab bag which the members enjoyed.

Mrs. Nettie Welch, Alameda, held open house July 9 for members of Northern California mineral society. She provided trading material for those interested. Bob Deiderick of Oak land was July 19 speaker. He discussed mineral localities of California, many of which he has visited. Mineral specimens illustrated his talk. Lapidary class, under F. J. Sperisen, is proving an interesting and absorbing pastime.

Various types of jasper were the subject for June meeting of Golden Empire mineral society, which met with President Owens. Members had fine exhibit of uncut, cut and polished specimens. Door prize was specimen of Glenn county jasper, and a piece of Morgan Hill jasper was given winner of the mineral naming contest. Northern California, Washington and Oregon boast some of the finest jaspers in the world, and there is much interest in collecting it.

Marquette geologists association, of Chicago, Illinois, is one of the coming societies of the country, to judge by their new and enlarged bulletin. The 1944 officers are Stevens T. Norvell, president; John Reese, vice-chairman; Margery Scanlon, secretary-treasurer; Thomas Scanlon, membership; Mrs. Val Rutkowski, program; and H. Richardson, curator-librarian. Future plans include new bulletins, interesting programs and as many field trips and picnics as possible. Mrs. Bernice Platte and Mrs. Florence Richardson are co-editors of the bulletin.

Eighty-five members of Los Angeles lapidary society enjoyed a potluck luncheon and rock trading bee at the home of Mr. and Mrs. S. P. Hansen, in Eagle Rock district. Mr. Hansen's collection of cut and polished stones was on display. Ben Maben, in charge of arrangements, plans other novel "field trips."

GEM MART

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Rose Tourmaline in Quartz, \$3.00 to \$7.50 each. Gem Kunzite 75c gram. Specimen Kunzite, \$1.50 to \$20.00 each. Blue gem Tourmaline, 50c to \$3.00 each. Jasper spheres 3 and 6 in., 3 in. Jasper sphere \$10.00; \$25.00 for large Jasper sphere or 3 in. Jade sphere. The Desert Rat's Nest, 2667 E. Colorado St., E. Pasadena, Calif.

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- Rock Collectors, Attention! Summer Special-\$1.00 brings you 11 specimens and a polished cabochon! \$5.00 a genuine stone cameo. The Rockologist (Chuckawalla Slim), Garvey Trailer Park, 941 E. Garvey Blvd., Garvey 32P, Calif.
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- Idaho-Oregon Arrowheads-Obsidian and black lava, 50c each; agate, jasper, etc., in 4 grades, 50c, 75c, \$1.00, \$1.50. Lynn Crandall, Box 697, Idaho Falls, Idaho.
- Minerals, Fossils, Gems, Stamps, Coins, Pistols, Glass, Bills, Indian Relics, Bead Work. Catalogue 5c. Cowboy Lemley Curio Store, Las Cruces, New Mexico.
- INDIAN RELICS, Curios, Coins, Minerals, Books, Old Buttons, Old Glass, Old West Photos, Weapons, Catalog 5c. Lemley Antique Store, Osborne, Kansas.

- Closing Out: Beach Moonstones, Agate, Jasper, Mint Canyon Agate. 15c lb. Come after it. White, 410 N. Broadway, Redondo Beach, California.
- Agate Chips, require no sawing, one pound assortment 75c. Small slabbed pieces ½ inch and up one ounce 30c, 1/4 pound \$1.00. ES-CALANTE AGATE COMPANY, Box 941, Grand Junction, Colorado.
- Jewelry stones removed from rings, etc. 100 assorted \$2.40. B. Lowe, Box 311, St. Louis 1,
- INTRODUCTORY OFFER-One dollar each lot. Five all different Fluorescent Agatespolished. Thirty rough Mexican Opals. Fifty nice pieces Turquoise. Twenty different polishing specimens. Postage ten cents. Minerals and gems on approval. DR. RALPH MUELLER, Professional Building, Kansas City, Missouri.
- Montana Moss Agates in the rough for gem cutting, \$1.00 per lb. plus postage. Elliott's Gem Shop, 26 Jergins Arcade, Long Beach 2, Calif.
- \$2.50 brings you prepaid six rare and beautiful crystallized Arizona minerals. Vanadinite, Dioptase, Wulfenite, Willemite, Chrysocolla, Azurite. Specimens 1½2x2 or larger. Wiener Mineral Co., Box 509, Tucson, Ari-
- Choice Palm Root—Full of eyes showing root and trunk structure. Very colorful. Sliced for Cabochons. 25 cents per square inch. Satisfaction guaranteed. GASKILL, 400 North Muscatel, San Gabriel, Calif.
- 50 ring stones, including genuine and synthetic
 —\$7.50. 12 genuine Opals or Cameos— \$2.75. Plus 20% tax. B. Lowe, Box 311, St. Louis 1, Mo.

TRUE OR FALSE ANSWERS

Quiz on page 28.

- 1-False. Palm Springs is on Highway
- 2-False. He surveyed rail route from Ft. Smith, Ark., to Pacific Coast along 35th parallel.

 3—False. Quartz may be crystalline or
- amorphous, the latter without def-inite internal molecular structure.
- True. Jojoba, or goatnut, when dried, ground and roasted makes palatable beverage.
- -False. Ceremonial is held in Gallup, New Mexico.
- 6-True. Grand Canyon width varies. from about five to 12 miles.
- 7-False. They are from Piñon pine tree which grows on desert mountains.
- -False. Lummis found it in 1891 while bear hunting and described it in his book "Some Strange Corners of Our Country," published that
- year. –False. Fremont Island is in Great Salt Lake.
- -True. Good quality jade occurs in Lander county.
- 11-True. Pre-cambrian Ontaric sea, a wide shallow strip of water, extended from Southern California, through much of the Southwest, northeasterly to Labrador—about 400 million years ago.
- 12-False. Project was extended for one year from June, 1944.
- -True.
- 14-False. One objection is that aluminum takes longer to get a good polish. -True.
- 16—False. Chulu, or coatimundi, is a relative of racoon, which has been migrating into southern Arizona from Mexico.
- 17-False. Blue or blue-green chrysocolla would be found at a copper mine. It is a copper silicate.
- 18—False. 19—True. 20—False. There are several native tobaccos. Nicotiana attenuata is one of the commonest.

Fresno meeting of Sequoia mineral society at Holmes playground in July was their largest gathering of the year according to Gates U. Burrell, president. The register showed 76 members, relatives and friends present. Several members who had been unable to attend Parlier meetings were present at Fresno. The speaker, Dr. McKim, his wife, and Mr. and Mrs. Crawford were presented cabochons. Not the least interesting part of the program was a bountiful potluck supper.

Searles Lake gem and mineral society held their regular July meeting at Wagon Wheel mine, property of Bill and Alice Lewis, July field trip was a visit to the home of Mr. and Mrs. V. L. Carr at Little lake. Those who did not mind the hot July sun visited Coso hot springs in search of obsidian, sulphur and cin-

Myron Everts, head of Arthur A. Everts Jewelry company, one of the Southwest's leading jewelers, was speaker at July 11 meeting of Texas mineral society, held in Baker hotel, Dallas. His subject was gem stones-genuine and snythetic. Mounted, unmounted and gem rough stones were exhibited by the speaker to illustrate his talk. Subject for August meeting was to be the color theory as applied to minerals, by George Kadel, instructor in graphic arts, Crozier technical high school, Dallas. Mr. Kadel is a member of national association of color re-

The regular July meeting of Sequoia mineral society was held July 4 in Dinuba city park, Dinuba, California. Prizes were furnished by members, each prize marked either lapidary or specimen on the outside. Drawings were held from the sturdy prize boxes which had been made by Ross Snyder.

Membership of Los Angeles lapidary society is limited to 200 members and has almost reached that number. Displays of stones and cut material at each of the 12 meetings of the year have replaced general annual exhibit. Also, each month has featured a field trip to the different parks, or a visit to homes of members.

Gem Collectors club, Seattle, Washington, held a picnic, July 9, at the Reachmond beach home of Mr. and Mrs. Jack Landon. Rocks were shown and discussed, the rock fireplace admired, and some members looked for agates on the beach. Another picnic was enjoyed August 6 at Kennear park, Seattle.

Long Beach mineralogical society held its regular meeting July 14, at Nine Hole club house, Long Beach. Member Roy Wagner, speaker, gave members a special treat when he demonstrated all those vague terms one reads about such as "bead test," "heat test," "streak and color test." Also some analytical tests were made.

Paul VanderEike, editor of Mineral notes and news, addressed Kern county mineral society at June meeting on subject of fluorescence. He explained "that matter is mostly space, and that when the electrons of the atoms are bombarded with ultra violet light waves they are momentarily shot out of their orbits. When these electrons return to their former position, the energy released is converted into visible light.'

Lassen rocks and mineral society travelled to Gold Run, about six miles from Susanville, California, June 25. Ice cream and coffee were furnished free, but members brought their lunches. Earl Mason supplied prizes. Beautiful setting of Gold Run added much to the interest of the

Cogitations

Of a Rockhound By LOUISE EATON

This is the time of year that you begins to be glad that you still has a chance to get out on the desert. Gas 'n tires permittin'. About August you'd have sold the whole waste of sand 'n heat 'n bugs fer 15 cents Mexican money. But now nights 'r gettin' coolish, stars sparkles like dimons 'n yure nearly sick inside with longin' to get out into the peace of unpeopled places. Provided of course there's rocks handy in um!

Tacoma agate club was host to Seattle Gem Collectors club at Salt Water park, August 20.

June meeting of Marquette geologists association, Chicago, was given over to two pictures exhibited by Thomas Scanlon. One on the geology of petroleum, showed how oil deposits were formed millions of years ago, and how geologists locate the deposits today. The other picture, dealing with placer gold, depicted the methods of panning gold during the California gold rush of '49.

Mineralogical Society of Southern California held its annual dinner and exhibit June 11 at home of L. W. Giddings on East Colorado street. Dinner was followed by the meeting at which ribbons were awarded for general mineral collections, crystal groups, crystals, polished slabs and flats, cabochons, facet cut stones, spheres, trays, jewelry, fossils and rock types. Annual meeting of M.S.S.C. always features an auction. Members either donate specimens, or bring them to be sold on a 20 per cent basis. Committees were: Harold Hart, L. W. Giddings, exhibits; Morris R. Ebersole, K. N. Reed, L. W. Vance, H. G. Kirkpatrick, W. J. Perkin, Victoria, Rodelsche, austrian, Horse, M. Victoria Rodekohr, auction; Harry and Mrs. Gee, decorations; Dorothy Chamberlain, Lillie Rhorer, reception; D. B. Scott, S. Hill, E. W. Chapman, judges.

Selma lapidary class of Sequoia mineral society meets every Monday at 7 p. m. and lasts as late as may be desired. This is a change of hour from the one previously announced.

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June meeting of Long Beach mineralogical society took the form of a potluck supper. Mrs. R. O. Patterson won the door prize, a large polished slab of Nevada wood. W. L. Mayhew spoke on eruptions of Mt. Lassen from personal experience. Society proudly announces they are now owners of two war bonds. Earl Sartwell exhibited a drill which he had made and allowed the members to make notes and sketches. A polished heart was given to Mrs. Potter, retiring refreshment chairman, and a fine cabochon to each of her assistants, Lucile and Mrs. Cutler. Jesse Hardman will be the new chairman, with Mrs. Patterson and Mrs. Sopher as her helpers.

New officers of Texas mineral society are: Dr. L. A. Nelson, president; C. L. Doss, secretary-treasurer; A. L. Jarvis, G. E. Shackelford, Dr. H. A. Trexler, T. D. Copeland, board of directors. Mr. Copeland is the retiring president.

. .

An expected production of about three thousand tons of cobalt is reported from the mountains of Spain. The newly discovered deposit shows, on analysis, to have about 5.9 per cent cobalt.

GUIDE TO QUARTZ FAMILY

Quartz Family Minerals, by Dake, Fleener and Wilson, answers a long felt demand for definite knowledge of the stones, gems, and minerals of the quartz family. This book contains simple, definite descriptions which are easily un-derstood by the amateur, and complete enough for the professional mineralogist. Some of the best sections deal with opal, agate, petrified wood, geodes, thunder eggs, sagenite, quartz crystals, amethyst, and cabochon and facet cutting. There seems to be no other book which deals exclusively with quartz minerals, or which handles, names and describes all of them as completely. 304 pages, \$2.50.

HOW THE GERMANS SAY IT

The Germans boast of their beautiful language. Here is a sample from "Die Edelsteine" of W. Rau, verlagsbuchhandlung, J. J. Weber, Leipzig:

Katzenauge-cat's eye; Smarago - emerald; Blauer zircon-blue zircon; Bergkristall mit einschlussen—quartz with inclusions; Rauch-quartzkristall—smoky quartz crystal; Mexicanischer opal-Mexican opal.



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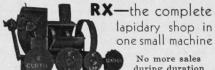
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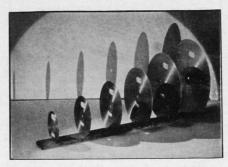


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AMATEUR GEM CUTTER

This page of Desert Magazine is for those who have, or aspire to have, their own gem cutting

and polishing equipment. Lelande Quick, who conducts this department, is former president of Los Angeles Lapidary society. He will be glad to answer questions in connection with your lapidary work. Queries should be addressed to Desert Magazine, El Centro, Calif.

By LELANDE QUICK

The end of the war looming on the horizon brings me letters from the desert expressing real alarm that its end will only mean the descending of jeeps with hordes of rockhounds on desert areas. So much vandalism has been practiced under gasoline rationing that our desert friends are having nightmares about what may happen when restrictions are lifted.

August Desert Magazine reports that in famous Boothill cemetery at Tombstone there are only four markers left that are legible and that names of passing tourists cover these. Most tombstones have been carried off as souvenirs. Visitors at old and well known gem locations report that the destruction of materials is appal-

Probably the most harrassed individual is Mark Foster who operates the Rainbow Ridge opal mine and other properties in Virgin Valley, Nevada, the most remote place I could imagine under gasoline rationing. It seems that people can persuade ration boards that they are "ill and must go to the desert," then they travel hundreds of miles to Virgin Valley. One man arrived with 50 fruit lugs he confidently expected to fill with precious opal. Another party had Foster guide them about for three days for which they generously tipped him \$2.00. Bags of valuable quicksilver ore were taken from a prominent mine during the lunch hour by rockhounds who were combing the dumps.

It isn't only the amateurs-who may be pardonably ignorant—who commit these nuisances but as Foster says "a rockdealer wrote for permission to come in company with an honorable geologist. Then he began sneaking in with friends and carrying off the green fluorescent opal in pick-up loads. A state employee stole one of the loads and paid helpers 50 cents an hour to carry it in sacks to the road. A fence was cut for convenience and I got the blame." Foster left the valley for a while and double padlocked the mine. When he returned everything was destroyed and it took him 42 days to get reorganized. On the 4th of July this year, despite rationing, flocks of people evidently planned a Virgin Valley trip for they arrived in droves, ignored markers and began to raid the claims and tear up the dump car tracks. Virgin Valley is public domain but legitimate claims are private property and they are plainly posted. Foster's company has an investment of \$85,000 in their property and, as he says, "people don't invest that sum in a business to turn it into a picnic ground. If an investment of \$85,000 and years of mining failed to yield opals in paying quantities how do you expect to find opals on a short visit here?

It is anyone's privilege to visit Virgin Valley of course. I intend to go there someday myself But this is just one example of the unthinking public becoming pests and robbers and giving a black eye to all considerate rockhounds by disregard for private property. The same thing exists with relation to the beanfields at Nipomo in San Luis Obispo county, California. I predict that the public will become such pests there that every farmer in the area will have a gun loaded with buckshot handy for anyone who steeps in a field. It is not the fault of published information about such places that causes trouble; it is just plain human nature. City folks would be horrified indeed if the desert folks descended on them some weekend, carried off the tombstones as souvenirs and broke into factories closed for the weekend to help themselves to cart loads of products. The people in the des-

erts are just as shocked and indignant at the vile behavior of some city visitors. In the postwar period we should all be cautious and courteous, sane and sensible, ladies and gentlemen when "wastes," a word too easily we visit the desert misunderstood and wilfully misinterpreted.

Dan Dunham of Omaha, Nebraska, requests information about the so-called "cat's eyes ing sent home by members of the armed forces stationed in the south seas. From intensive inquiry I cull nothing of authoritative information but most people claim they are a fossil shell usually found in the water but sometimes on the beaches. They are called cat's eyes because they have a green eye set in a brown background rimmed with white. When they are well centered and well polished they are somewhat attractive. They have nothing other than a sentimental value but as a permanent souvenir they are splendid for they need so little storage space.

Cutting them is not difficult. Since they apparently are silicified shell they are about as hard as agate. I have cut and polished but one of them and it presented no problem at all but responded well to grinding on a 220 wheel and polishing on a 220 sander followed by tin oxide on a felt buff. The shells usually are larger than a lead pencil eraser but seldom as large as a dime. If any reader possesses other information I should appreciate having it.

Last month I promised to tell how agates are colored in Idar, Germany, the center of the industry for centuries. I will give the methods for one color each month and this month I will advise how to color agates red.

Everyone has observed how agates found on the surface and colored from brown to red are white inside when cut. This is caused by the heat of the sun. If such agates are further heated in ovens they often will turn red throughout due to the iron compounds in the stone. Agate, being crypto-crystalline, can have iron compounds introduced by absorption when little or no iron exists as determined by surface coloring. The best method is to soak the agate in iron nitrate. To make homemade iron nitrate a half pound of iron nails should be soaked in four times their weight of concentrated nitric acid. This will produce a slimy mass which should be allowed to settle. The solution is skimmed and the settling process repeated several times until the liquid is clear. Agates should be washed and freed of oil and dirt and immersed in the liquid for two to three weeks for stones up to about 1½ inches thick and three to four weeks for stones up to four inches thick. Stones thicker than four inches rarely can be colored throughout.

After soaking the stone is saturated with iron nitrate which will become red when the stone is heated. It depends on your own ingenuity how this is done as the agate should be slowly heat-ed and slowly cooled to prevent fracturing. People in the desert regions can use the sun but this is slow. People in California can store the stones in the bottom of their incinerators but in other sections of the country where these are not used probably the most satisfactory method is to bake the stones in a loaf of bread to permit slow heating and cooling. Those who have ac-cess to temperature controlled furnaces or laboratory equipment have the ideal arrangement. All heated stones are brittle and present more difficult grinding and polishing problems as they easily fracture and chip.



By RANDALL HENDERSON

ITH THE ALLIED FORCES IN AFRICA—This Sahara oasis has an abundant supply of good water. By abundant, I mean there is ample for reasonable domestic needs of the 1500 French and natives who dwell here plus enough to irrigate scores of tiny gardens along the banks of the wadi which runs through the mud and rock village.

The source of water is a vast underground reservoir fed by periodic rain storms. It requires no expert in geology to understand the nature of this reservoir. Visualize a long V-shaped valley with a precipitous escarpment on one side, a ridge of low hills on the other, and a well-sealed underground dike at the lower end of the valley where the two ridges meet. Into this basin flows the storm runoff from hundreds of square miles of desert. Here it sinks into the sand, watering the roots of thousands of palm trees and providing a constant source of cool clear water for Sahara tribesmen.

There are hundreds of wells in the oasis, with the water level at from 12 to 15 feet below the surface. The natives tell me that during long periods of drought the water level is lowered somewhat, but the healthy condition of many aged date palms is evidence that the reservoir never goes dry.

The Arabs draw their water from open wells with goatskin buckets. Those who have gardens spend many hours every day filling a storage tank above ground adjoining the well, and then watering their little patches of tomatoes, melons, onions, turnips, cabbage and wheat by gravity. It is no task for a lazy man, growing food by such methods. For our army camp we have a portable pump and a trailer tank.

Tomorrow we will start drawing water from a new well, dug by the French military for the exclusive use of the American camp. The well is in the bottom of the wadi. In the California desert a man would be crazy to dig a well in such a place. The first storm flood that came down from the wash would fill it with sand, if it didn't wash it out entirely. But the French selected the site—and they know their Sahara much better than I do. Anyway, I hope they are right for it required much time and correspondence to get the necessary cement in here by plane.

Workmen on the new well first dug a pit down to water level. Then they placed a flat disc of iron, like a huge metal washer, on the damp sand. Inside diameter of the disc was four feet. On this iron foundation they began laying the circular wall of stone and mortar. Two natives inside the ring scooped out sand, and as they undermined the wall from the inside it sank under its own weight inch by inch. Soon the diggers were in water up to their knees, then their waists and finally their chins. At that point they would hold their breath and duck under the water to bring up another spadeful of sand. We wanted a generous supply of water, so we brought in the portable pump to enable the workers to go deeper. When they reached nine feet the water was flowing into the well nearly as fast as we could pump it out and when we no longer could keep ahead of the incoming seepage we hoisted the men out on a rope and the job was finished.

We put a cement lid with padlock on the top—and as an additional safeguard we chlorinate the water.

Before I had been at this station 15 minutes I knew I was going to climb the 2300-foot escarpment along the east side of the flying field. In the gravel that covers the area I saw many broken specimens of quartz crystal, some of them with well-preserved terminal facets.

Crystals in the float means crystals in the hills—and the urge of the incurable rockhound is to start climbing in search for the mother rock. Later I learned that the army chaplain who flies in once a month to look after the spiritual welfare of the soldiers here, had taught geology before the war. The chaplain also was interested in the source of those crystals.

Together we left camp before daybreak one morning, with a few sandwiches and plenty of water. The only tool I could find was an old chisel from the camp garage. The jeep took us within a mile of the base of the range. Then the rocks that littered the bajada became too big and numerous even for a jeep. We found the source of the crystals almost before we were well started on our hike. We encountered them in a field of broken limestone boulders soon after we started up the mountain slope. The boulders were shot with vugs and seams of quartz. But we did not do so well as collectors. The rock was very hard, and our lone tool inadequate for the job of extracting the crystals.

The climb to the top of the escarpment was full of interest, despite the fact that we found little of value for a collector. This great uplift of limestone once was the bottom of an ocean. Fossil material was everywhere. One spur of the ridge was topped with a chaos of rock that made me think of those imaginary sketches of the earth's crust before there was life. It was a devil's garden where one easily could become lost among the fissures and craters that gashed the surface. Another flat-topped area was paved with petrified mud. It was so realistic I stepped out on it half expecting to sink to my shoe-tops. And yet I knew it could be nothing but rock. We were not the first to climb this escarpment. On the plateau at the top were camel trails, although I still am puzzled to know how the beasts made it up the precipitous grade. I have reached the conclusion that a camel can go anywhere a goat can travel. The reason for the camel trails was apparent. At intervals all over the plateau were the prayer shrines of devout Mohammedans. These shrines generally take the form of slabs of flagstone propped on end in a circle or semi-circle. When I first encountered them on this desert I thought they were graves, but now I know they were erected for worship. The Arabs do not neglect their prayers.

While we ate our lunch on the escarpment, we discussed the many similarities between the Christian and the Mohammedan religions. The Arabs believe in one God, Allah. Mohammed is his prophet. My houseboy, Braheme is a devout Mohammedan. He has told me about his creed: "Good Arab do not steal, no drink cognac, give plenty chop to poor neighbor, always tell

truth. Then when he die Mohammed take him up . . ." At that point Braheme's English vocabulary ran out, and he gave a sweep of his hand toward the sky. If we all had the faith of my 11-year-old houseboy, this would be a better world.

We picked our way down the rocky face of the mountain and had just reached the floor of the valley when I saw two mounds of rock that looked strangely familiar. Located about 100 feet apart were almost perfect duplicates of many Indian trail shrines I have seen on the American desert. They occur along the old Cahuilla trails that criss-cross the Colorado desert in Southern California, and in the Navajo country in Arizona and New Mexico. Arthur Woodward wrote about them in the Desert Magazine, January, 1941.

These on the Sahara were equal to the largest of the American mounds, nearly four feet high and 15 feet in diameter at the base. Just plain piles of small water-worn boulders, but obviously placed there by human hands. According to legend, the American Indian stopped along his trail and added a rock to the mound to insure a safe and speedy journey. The Navajo today

often add a twig of juniper as they pass.

There was only one noticeable difference between these mounds and scores of others I have seen on exploring trips at home. This variation was due to the difference in the character of the rock here. These mounds were built of marine fossils of the stromatoporoidea type which cover this whole area. They were built of fossils because that was the most convenient rock to use. I hope to learn more about these mounds before I leave here.

Yesterday we said goodbye to Sergeant Melvin Maloney. We were sorry to lose Maloney. He was transferred to another station. Outside of working hours he was poet, artist and philosopher. Not one of those silent heavy thinkers, but a merry quickwitted fellow with a glorious sense of humor and a line of patter that was a sure cure for the GI blues.

In addition to his other duties, Maloney was manager of the camp Post Exchange which is open during the noon hour each day. Selling cigarettes and soap and chewing gum may be a drab business for some folks, but for Maloney it was high adventure. The walls of his tiny storeroom were hung with his paintings of palm trees and mosques and Arab maidens. He took up painting as a pastime after he came to this station. And while he passed out PX rations he entertained his customers by pointing out the crudities of his art work. His art never would win any prizes, but it was great fun for him—and it saved him the boredom which is the curse of less imaginative minds at this isolated station. Maloney was the happiest man on the post despite his bad art —or perhaps because of it.

Eight-year-old Bopepe was broken-hearted when he went out to the field to see Maloney off on the plane. He tried bravely to hold back the tears, and then hid his face in his arms when he could repress them no longer. The little Arab boy had just lost his best friend. He had been the sergeant's helper in the PX, made up his cot every day, policed his quarters for the weekly inspection and stood by with admiring eyes while his big Amer-

ican pal painted Sahara landscapes.

But Bopepe is still among friends. Every soldier on the post loves the bright-eyed little son of the desert. He doesn't speak English, but he understands nearly everything that is said to him. Bopepe is just one of several Arab youngsters whom we Americans would like to take home with us if it were possible.

Wadou is another of our favorites. He is 14. Wadou is a handsome lad with a sturdy pair of shoulders. He works on our native labor gang—and despite his youth and small stature does a man's share. One day I sent him out with three adult Arabs to put a fresh coating of whitewash on the stone markers along the runway. It wasn't a highly skilled task, but painting rocks was something new in the lives of these Arab workmen. I indicated what was to be done and then stood by to see how they would go about it. The older men were awkward at first, but not Wadou. He immediately became the self-appointed fore-

man of detail and soon had the job well organized. He has a pair of sparkling black eyes and a smile that would melt the heart of a snow man.

Then there is 11-year-old Braheme, my houseboy. The ages I quote are not accurate. None of these sons of the Sahara tribesmen know exactly how old they are by the calendar which you and I understand. Braheme's father owns several camels and a hundred date palms, which means he is well-to-do according to Arab standards. Braheme not only does my laundry and housekeeping duties well, but he is a sort of liaison for the American officers in their dealings with the local population. In addition to his native language and French, he has acquired a fair understanding of English during the 15 months he has been with Americans.

Braheme has had only one year of school. His home is a black tent of camel's hair surrounded by a high mud wall. His bed is a goatskin on a rough stone floor. His playmates have been the unwashed and unclothed little urchins of the dusty oasis. And yet he has wisdom beyond his years, and traits which we identify with culture—modesty, gentleness, honesty, industry, diplomacy and a fine understanding of human nature.

Don't let anyone tell you that the Arabs are an inferior race. Give them the dignity of free men, and schools for their children, and ample wages for their industry—and they in turn can teach the white-skinned races some virtues which we have neglected

or forgotten.

Bopepe and Wadou and Braheme typify the best traits to be found among our neighbors in the oasis here. But my picture would not be an accurate cross-section of the primitive life in this desert without a glimpse of the ignorance also to be found.

This evening just before supper there was much chattering outside the quarters. We went out to see what was going on. A crowd of Arabs and Negroes were in the yard. The center of interest was a sullen-looking black in custody of a native policeman. The houseboys explained that the prisoner had stolen some clothing from an American officer formerly stationed here, and had just been captured. While the palaver was going on, Gabriel, our Senegalese soldier-watchman rushed out of the little room where he sleeps and started lashing the naked back of the prisoner with a heavy belt.

Of course we stopped that. Since the story was being told to us in three languages, and the natives were in a high state of excitement over the capture of the thief, it was rather confusing at first. The theft had occurred long before any of us now stationed here were on the post. When the story became clear we instructed the policeman to turn the prisoner over to the French authorities.

Later, we learned that the Negro in custody had been a slave owned by Houmedi, the local native chieftain. We also learned the reason for all the excitement among the natives. Houmedi had sent the slave over to us to be killed. "He's no good, shoot him," was the terse message.

I think Gabriel was quite surprised when we made him quit lashing the man. And I suspect the crowd was disappointed when we ordered the thief taken to jail instead of standing him up in front of a firing squad.

But we should not judge too harshly the inhumanity of these untutored tribesmen. Only 80 years have elapsed since human chattels were beaten and killed in our own civilized U.S.A.

* * *

Like all humans everywhere, the Arabs have an inherent capacity for both love and hate, for both honesty and dishonesty, courage and cowardice, generosity and selfishness, for tolerance and haughty arrogance. You and I have those same potentials in us, just as do the English and Germans and Russians and Chinese and Eskimos and all the other races of man. None of us is altogether good, nor hopelessly bad. These hereditary potentials plus environment, and the decisions we make and the will with which we carry on are the factors which shape our lives. The color of skin, the geography of birthplace, are secondary.



"WHY" OF WEATHER IS SIMPLIFIED FOR LAYMEN

Eric Sloane, artist, author, flyer and scientist, has mastered the infinitely variegated beauty and meaning of clouds and has made an unusual contribution to aeronautical literature in CLOUDS, AIR AND WIND. In clear, concise text, he takes the mystery out of meteorology, and by means of amusing pictorial charts and graphs and his own full-page paintings gives visual instruction in the elements of that science.

Clouds, air strata, fog, wind and rain take on new meaning and romance. The author's appreciation of atmospheric scenery and his knowledge of the subject should be a source of inspiration to young air-minded Americans.

If you have ever wondered about such weather magic as black lightning, rings around the moon, or whirlwinds; if you believe the folklore about storms and fair weather, if you have any pet theories of your own about predictions, you will enjoy and make use of Mr. Sloane's chapters on just such things, all cleverly but accurately illustrated. From his simple explanations, you will be able to look into the sky right where you are, identify the cloud formations above and predict the kind of weather that will result from their presence.

A chart of instruments for weather reading, and an easy lesson in map reading also are included. For the first time, the story of clouds and weather from the flyer's point of view is told for the layman in simple language and colorful pictures.

As proof of the fact that the book is the best simplified work on meteorology, the U. S. army air corps and pre-flight training schools over the country have adopted this new book for use in instruction.

Devin-Adair company, New York, 1941. Size 9x12½. \$3.00.—Aliton Marsh

ARCHEOLOGIST'S LECTURES AND NOTES ARE PUBLISHEED

To read the works of Edgar L. Hewett is to experience vicariously a life of widening horizons, of adventuring in many fields of thought. When he wrote such books as ANCIENT LIFE IN THE AMERICAN SOUTHWEST he used the language of everyday, which he demonstrated could be done without sacrifice of scientific accuracy. Now his lectures and essays, which have influenced innumerable students of ethnology, are being published in a series of small books, the first of

which is FROM CAVE DWELLINGS TO MOUNT OLYMPUS, expressing some of his thoughts on the striving of man from darkness to light. University of New Mexico Press. \$1.50

GUIDE TO READING AND MAKING MAPS

DOWN TO EARTH MAPPING FOR EVERYBODY is a timely publication for a map-conscious public. Its clear, readable style and many diagrams and drawings bring the subject of map making and reading within reach of everyone. The author David Greenhood not only is qualified to treat the subject from the theoretical viewpoint, but from his experience in teaching the subject at Carnegie Institute of Technology, has been able to present it in a simple practical manner.

How to read maps and find exact locations of any point, explanation of latitude and longitude and Greenwich meridian, the drawing of maps to scale for ready calculation of distance, reading of the compass with meaning of magnetic north and south, are a few of the useful chapters. The different types of maps, such as relief, aerial and the various projections, with their respective uses and qualifications, are explained and illustrated.

Greenhood says the first man actually to measure the earth was a poet—Erathosthenes, a Greek living in Alexandria, 200 B.C. How he happened to begin this new branch of science and how he proceeded, is one of the many fascinating sidelights, anecdotes and thumbnail biographies which are woven through the text.

Materials needed and progressive steps in map making are treated in Part Two. Third part tells the prospective map collector how to proceed.

Ralph Graeter, illustrator, is art director of Life magazine and a leading scientific artist. Three of the maps used as examples of various phases of map making were drawn for Desert Magazine by Norton Allen.

The average reader of today is confronted with an amazing array of sky maps, of geological, historical and statistical maps, weather maps of past and present, maps showing all the works of man on this earth. Greenhood's book is this bewildered person's answer to more intelligent reading.

Holiday House, New York, 1944. Size 8½x11, 250 illus., 262 pp. \$4.00.

-Norton Allen

THUMBNAIL BIOGRAPHIES OF FAMOUS AMERICAN INDIANS

Brief biographical sketches of 250 North American Indians, arranged in approximate chronological order, have been compiled by G. I. Groves in FAMOUS AMERICAN INDIANS, published this year by the author.

A period of almost 400 years is covered, from 1540 when the beautiful Princess Cofachiqui, ruler of the Creeks, failed to satisfy De Soto's gold seeking Spaniards with pearls, to the Crow scout Curley, sole survivor of the Custer brigade at the battle of the Little Big Horn, who died in 1923.

Readers doubtless will miss many of their favorite Indian characters; others may not recognize some of them by the versions used in this volume. For example, Red Sleeves' more commonly used "Mangas Coloradas" is not given as an alternate. Usually Cochise' son's name is given as Nachise or Nachez; yet only "Nahche" is given.

Among other Indians of the Southwest tribes represented are Ouray, the Ute chief and staunch friend of the whites; the Navajo Manuelito; Francisco who obtained release of Olive Oatman from the Mojave Indians; the Chiricahua Apache chief Geronimo, and Sarah Winnemucca, daughter of Chief Winnemucca of Nevada. 86 illus., 272 pp. \$2.00.

---Pearl Barter

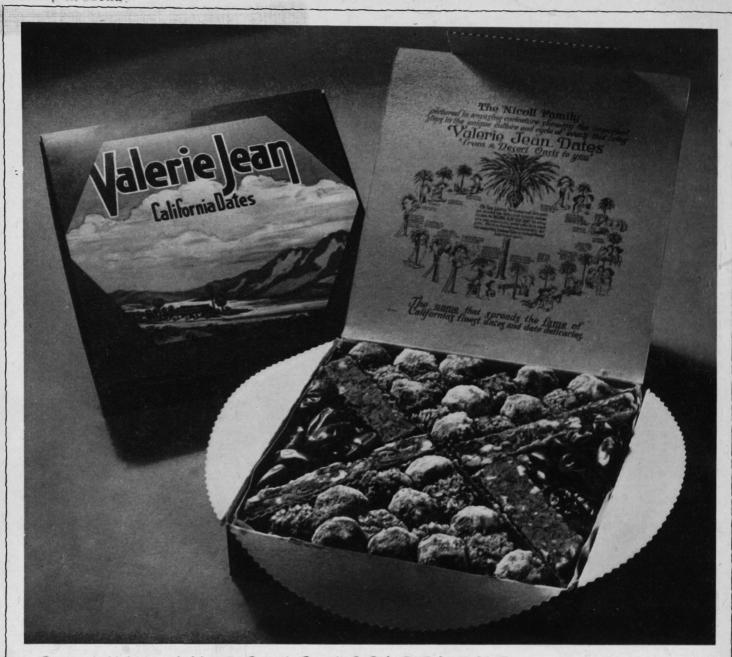
LEARN SPANISH .

Our Latin neighbors across the Southwest border, besides sharing a common historical heritage with us, are destined to play an even greater influential role in the future. Essential to an understanding of their countries in forming postwar policies is a working knowledge of their language—easy to learn. The books below present a modern, thorough method of learning to speak the Spanish language.

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GOLD RUSH JOURNAL MOST VALUABLE WORK ON '49 DAYS

When news of California's gold discovery reached the east, Joseph Goldsborough Bruff was working as an artist and draftsman in the Bureau of Topographical Engineers in Washington, D. C. Bitten by the gold bug, like thousands of others, he decided to make the journey to California in the spring of 1849, and organized a company of young men, of which he was elected captain. On the Lassen Cutoff his company ran into disaster and abandoned their captain, who spent the winter in a starvation camp. After an absence of two years Bruff reached home without having mined an ounce of gold.

Hundreds of men who joined the gold rush kept journals, many of which have been published. Few were ever intended for publication and to a certain extent they are all alike. But when Bruff started West he did so with the intention of writing a book, and never for a day forgot that purpose, even when at the point of death. Being an artist he made hundreds of sketches of scenes along the way to illustrate his work. Guarding his manuscript and sketches with his life he finally reached home, but found his work too

POEMS OF NEW MEXICO . . .

Roy A. Keech has translated into poetry the rhythm and beauty of traditional life in the Southwest...its rituals and arts, its legends and landscapps. Mood and spirit of Indian and Spanish-American cultures in distinctive style. Your friends will appreciate one of these afft volumes. Limited offer.

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- DESERT CRAFTS SHOP
636 State Street El Centro, California

voluminous to interest publishers at that time

Now, 95 years later, the journals and drawings of J. G. Bruff at last have been published by Columbia University Press, with his drawings and voluminous notes by the editors, Georgia Willis Read and Ruth Gaines. Nothing so interesting and comprehensive previously has been published on this subject. It is doubtful if anything ever will be found to equal it. His drawings alone are worth the price (\$15), while the editorial notes, which required an unbelievable amount of patient research, are as valuable as the text of the journals. Altogether this is the most colossal work ever presented on the subject of the gold rush and will be found not only a document of intense human interest, but an indispensable reference work on the exciting days of '49. Its editors and publishers have made the most outstanding contribution to the literature of that period, in GOLD RUSH.

---CHARLES KELLY

SOUTHWEST ADVENTURE IS IN SANTA FE TRAIL BOOK

The Santa Fe Trail leads to the heart of the Southwest. Its history embraces a story of explorers, fortunes and romance from the time the earliest Spanish explorers swung up through Mexico or west from Florida until the advent of the railroad.

Its travelers number into thousands, each with a mission, a hope, a dream of a new western world. To some the call was the lure of gold, that destroyed far more men than it made rich; to others it was a desire for high adventure or independence; still others bore the Holy Cross and became martyrs in the cause of Christianity. But whatever their incentive, each group had to face danger and privation, cruelty from nature and savages, before the goal of the West was attained.

Agnes Laut, author of other historical works, has missed none of the drama of the trail in her book, PILGRIMS OF THE SANTA FE. The heroism and tragedy of this fascinating portion of American history are traced in the stories of Narvaez, first Spanish explorer, the French march from New Orleans, the American caravans, army patrols, Mormons, Kearney's army in the Mexican war, the famous Indian scouts, the Forty-niners, and the railroad.

Grosset and Dunlap, New York, 1931. Photos, maps, index. \$1.29. —A.M.

SURVEY MADE OF NAVAJO AND PUEBLO SILVERWORK

Atsidi Sani, the first Navajo to become a silversmith, learned his craft from a Mexican between 1850 and 1870, and the Zuñi smiths in turn were taught by the Navajo. These are the conclusions of John Adair, who has presented a readable study of the American Indian metalcrafts in his book THE NAVAJO AND PUEBLO SILVERSMITHS.

Through the cooperation of Indians now living, the author has been able to give an authentic report not only of the history of Indian silver work, but of the methods and techniques of manufacture down through the years. Primitive forges and homemade tools still are being used in many hogans and pueblos of the Southwest today.

The commercialism of Indian silver work began in 1899 when the Fred Harvey company first began to buy bracelets and rings and other items from the Navajo for resale to white travelers in the Southwest. Previous to that time tribesmen made silver only for their own use and for occasional sale to soldiers stationed on the reservations.

Through exhaustive examination of the principal museum collections of Navajo and Pueblo silver work, and through detailed observation of the tribal smiths at work, the author has acquired an intimate knowledge not only of the mechanics of the craft but of its place in Indian culture past and present.

A chapter on origin of design is of special interest to those who have wondered about the symbolism of the figures used for the decoration of silver jewelry made by Indians.

Much revealing information is given on the importance of metalcraft in the economic and social life of the Indians today, and the effects of the white man's commercialization of the native arts. The present practice on the part of wholesale buyers of paying for Indian silver work by the ounce has resulted in lower standards of quality. However, good Indian silver and turquoise jewelry still may be obtained by buyers who are willing to pay the price which invariably attaches to quality. This book will be an invaluable aid to those who desire to become better judges of the quality of native craftsmanship.

The author formerly was manager of Navajo Arts and Crafts Guild, and is now a sergeant in the United States Army Air Forces.

Published by University of Oklanoma Press, 1944. Many halftone illustrations, map, chart. Appendix, bibliography and index. 220 pages. \$4.00.

-RANDALL HENDERSON

DESERT

Close-Ups

- Since John Hilton wrote his story of the Holmes brothers and their lead mining at Castle Dome, in early summer, disaster has overtaken the camp. As is typical of the desert, it came in form of a violent thunderstorm which flooded and destroyed the workings where the high grade galena was discovered. All machinery and equipment were lost, the men barely escaping with their lives. After surmounting disheartening obstacles George, although ill from overwork and heat, now has brought the mine back into production.
- We're sure most gem cutters never have dreamed what really was happening when they were polishing a rock. After they have read Jerry Laudermilk's next story, to appear soon, those rocks never again will look the same. Besides diagrams to explain the scientific basis of the story, he has made drawings of eerie, unbelievable scenes found on actual specimens of polished geodes.
- So far as is known the map drawn by Norton Allen based on sketch by author Marion Estergreen for this month's travelog is the first ever made of the New Mexico cave area. Besides being a writer of feature articles Marion has had considerable verse published and is known as poet laureate of New Mexico. She has a handsome young son, with the navy somewhere in the Southwest Pacific, whose hobbies are mining and geology.
- Although the main lures for John Blackford's camera are Southwest landscapes, such as appear this month in Desert Wonderlands, he is also interested in desert wildlife. Readers saw his winning photos of baby quail in the September issue. Soon Desert will publish more of his photos of birds and animals in their desert homes.
- In the neat clean pueblo of Isleta about 12 miles south of Albuquerque, New Mexico, E. F. Hudson photographed the Indian outdoor ovens shown on this month's cover. He says "they really glow in the sun, perhaps because of the golden colored straw used in the mud for their construction." In the warm sunlit days of autumn these ovens are surrounded by color—the sky is intense blue, great strings of brilliant peppers are scarlet against golden adobe walls.

CREED OF THE DESERT

By June LeMert Paxton Yucca Valley, California

The sun beats down on an ancient lake, Blue and green in the glare; But the water and trees can never appease, For 'tis a mirage shimmering there.



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WALK SLOWLY

By Constance Walker Los Angeles, California

Walk slowly when you reach the desert's rim In friendly greeting to the noble band Of Joshuas on the iridescent strand, For sudden brilliance may seem strangely grim.
A million stars have let their splinters limn
The unity of earth and sky—in sand;
And one may touch a warm and kindly hand As golden trumpets clearly herald Him.

Be still—be still—no longer rushed and tense And let the gleaming hush at last relate The triumph of a spirit filled with peace! For evil has no power or eloquence To conquer poise the silence can translate Where those who trusted God have found surcease.

DESERT LAND

By Helen L. Vogel San Diego, California

And all about the everlasting hills Rise, to fold in with protecting arms The undulating sands, the washes, fills, The ranches nesting deep within the palms.

All moon-washed like a meteor's afterglow, Is the aura on the desert's brow, To rim each silent shape or thing below With light suffused that Night can but endow.

That space of quiet animates, at length, Night, so peace becomes a living force, And flows through earth and man in hidden strength.

An inflow deeper than the ocean's course.

And when at dawn, the everlasting hills Cast aside their purple robes for rose, The Day unlocks her treasure chest and spills Her gems, and every hour wears regal clothes.

TAKE ME BACK TO THE **PANAMINTS**

By MARCUS Z. LYTLE San Diego, California

Take me back to the Panamints Where the world is desert and sky! Lay me under a piñon bough, Leave me alone, to die!

Take me back to the sagebrush plain That shawls old Telescope Peak, Where the silence is vast as the spread of space With only the wind to speak!

Leave me here in the umbered rock That sentinels Emigrant Pass, Where the Panamint daisies tongue the snow High over a salt morass!

Take me back to the Panamints Ere I lose the dimming trail! Turn my eyes to the rising moon, My ears to the desert gale!

SAND DUNES AND SAGE

By Lela M. Willhite Fresno, California

I would never ask for more than this: —or care how fleetly time goes by—
The low-crooning winds that deserts kiss and pale mauve tones of the western sky.

No one heart could forever hold all of this beauty for its own While gaunt mountains loom in serrate mould as giant breakers that the ocean's thrown,

And wind tossed dunes all alined in deep shadowed tawny curves Where its vast floors of sagebrush wind beyond the sand dunes' swerves.

Land That God Forgot

By Q. D. SPIVENS Banning, California

Land of the starlit diadem. Low hanging gems afire, Lighting the path of hope Leading to heart's desire.

Land of down drifting moonglow Lighting the darkest nook, Changing by limn of silver The land that God forsook.

Land of Cibola's legend, Hoarder of Golden Fleece, Land of the gift of silence, Place of eternal peace.

Land of healing sunshine, Giver of health and ruth Haven for humble and lowly, Abode of simple truth.

Land of surcease of sorrow, Healer of blighted pride, Land for the sorely stricken, Refuge whatever betide.

Land for a new beginning, Freedom in humble cot, Home for the disenchanted-The desert—"that God forgot."

. . . WILLING BONDAGE

By Marion Estergreen Albuquerque, New Mexico

The desert is my only home, Vast ocean waves of sand Stretch endlessly; where lone winds roam The stately yuccas stand.

The desert weaves its magic spell Around the turbulent heart, Ill thoughts die and all is well. I feel new rapture start.

Where gusts of cleansing desert air Purify the multitude It holds my heart a captive here Of peaceful solitude!

TO THE SALTON SEA

By Edwin Steet Whittier, California

Soft and blue the twilight glows, Yuccas sway in the winds of night, The sun rays dance where the grey trail shows While little waves break in silvery lace On lonely shore, by silent waste A sombre vigil keeping.

Beyond are mountains white and cold The plan of the ages their secrets hold,
The slopes in purple shadows lie
While above are peaks both bold and high.
The peace of the stars drifts down from above Soft and tender as the Salton Sea Whispering a note of mystery.

Oh, wide spread shimmering sea With shore line dim and low, Thou art a Mecca in a sandy stretch Where beauteous verbenas grow Draped in wondrous tintings At dawn and set of sun, With a spectral moon hanging low in the sky To light it when day is done.

DESERT DICTATOR

By Irene Bruce Reno, Nevada

Only the sun is a dictator here: With wind he orders release From bartering creed and trespassing fear, And the sands in return build peace.

DESERT NIGHT

By CHESNEY W. CARVER San Marino, California

Come, walk with me on a desert road at night. The sage is sweet, slight mystic noises speak.

And when it's dark, the Milky Way unfolds A lighted path across the sparkling sky.

Some far off sound may reach the listening ear-The pulsing rhythm of a distant heavy train, Or the weird polyphony of a single lean covote

But over all, a soothing stillness reigns.

In deep content, unharried by the throngs That jostle thru the market place and crowd The thoroughfares of eager, restless men, Let's humbly walk and breathe the fragrant •

CACTUS BLOOM

By George Scott Gleason Flagstaff, Arizona

He who has not beheld its scarlet Adorning the sand-swept floor, Nor felt the sting, sharp, oh sharp of thorn Knows but naught of desert lore.

Scarlet! Oh beautiful scarlet! He who has not seen its glow, Much that the desert holds has not been his, He has missed too much of beauty, I know.

• • DESERT NIGHT

By MABEL WILTON Los Angeles, California

Night, a wild black desert steed, Descends from lofty heights To gallop madly o'er the desert land Until the first pink fingers Of a desert dawn Reach out to touch him-Then he is gone.

PROVIDENCE

By Frances Hopkins Newark, New Jersey

Men have cursed The secretive desert In their thirst. Had they but known, Their succor stood In cacti, barrier-grown.

• DON'T TREAD ON ME!

•

By Mrs. J. C. DAVIS San Bernardino, California

Coiled into a living spring For the lightning stroke he makes, Swifter than a lightning flash, Roused and heady, he awakes! How the sound reverberant Of his whirring castanets Pales the cheek and sends the heart Beating to the time he sets! All the air is redolent, Odorous, as of muscat bloom— Or of faded mignonette In a closely shuttered room. Slowly, now his coils relax.
Slowly, but without a pause;
Hasting not and resting not—
Thus His Majesty withdraws! Orderly his slow retreat To the long roll's sonorous sound; Muffled now, his war drum's beat, Ceaseless, comes from underground. Sound to bate the bravest breath;

THE DESERT MAGAZINE

Sound that might the dead awake;

Music for the Dance of Death!

Tocsin of the Rattlesnake!

George and Kenneth Holmes are gold miners—but now they're mining lead. A few years ago they would have laughed if you had mentioned lead to them—but that was before Pearl Harbor. Today, at the long-deserted mining camp in the Castle Domes of western Arizona, they have accomplished a conversion from the mining of gold nuggets to lead for bullets. The jangling sounds issuing from the shafts, the groaning of trucks hauling the ore to the mill on the Gila, are like spectral sounds, for since the days following World War I, Castle Dome had been a ghost mining camp . . . not quite a ghost camp. For Eliza de Luce stayed on through the years, her faith in its comeback never wavering. She became known as Queen of the Castle Dome, mistress of a realm of silent wilderness gilded by glorious sunrises, colored by cactus flowers and scented with sage. Now her conviction has been justified, as she sees the Holmes brothers bring war-vital lead from the depths of her holdings.

Nuggets to Bullets at Castle Dome

By JOHN W. HILTON Photographs by Harlow Wellesley Jones

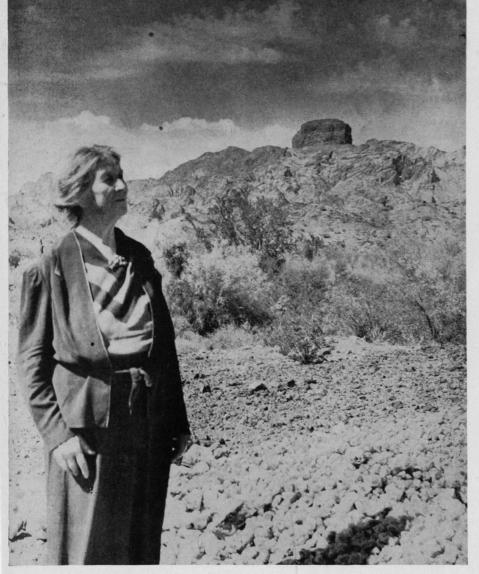
EN YEARS ago, if you had suggested to George and Kenneth Holmes that someday they would be lead miners, they would have laughed and passed it off as one of those things that just couldn't happen.

The Holmes brothers are gold miners. Until recently, they always had been gold miners. Most folks will remember their rich strike at the Silver Queen mine (later called the Golden Queen) near Mojave, California, in 1933. It was one of the most important gold discoveries in United States in the present century. They sold out five months after the strike for \$3,170,000.

I remember talking with George Holmes soon after the famous bonanza had been uncovered. He told me they were selling out and I asked him what he would do with all the money.

"Oh, we're going to keep on prospecting," he said. "There's nothing like it in the world. It's 'clean money' when it comes fresh from the ground, and there are more mines yet to be found in the West than have been uncovered up to now." He smiled with that far away look that comes when he talks about prospecting. Mining is a grand game, he said, and the only thing to mine is gold and silver.

Following the sale of the Silver Queen in 1934, little was heard of the Holmes family for several years. In its first issue in November, 1937, Desert Magazine told about the customs mill Kenneth Holmes had installed on the banks of the Colorado river near Yuma, Arizona. At that time the Holmes were prospecting and developing some claims in the nearby Cargo Muchacho mountains, notably the Padre y Madre mine which had been discovered by Mexican prospectors many years before. The mill was a success but the mines hardly were paying their own way. Then one morning after a heavy cloudburst Kenneth was walking along the base of a hill near one of their diggings and saw a ledge the flash flood had uncovered. It was a rich find and from then on the mill hummed with high grade ore. Kenneth still smiles with satisfaction when he tells about the first \$20,000 brick of gold from the Padre y Madre.



Mrs. De Luce has two claims to fame. For many years she has been the "guardian goddess" and moving spirit of Castle Dome. When others left the mining camp she stayed on, her faith in its comeback unshaken. Her other claim to the spotlight is the achievement of her favorite grandson. Her treasured photo of him shows a small boy trying to stand on his head. That small boy is today's outstanding war correspondent Daniel De Luce.

"It was the prettiest gold I ever saw," he said, "and we kept pouring others like it until the war started."

Recently I spent a day with George Holmes. "Pearl Harbor changed a lot of things," he said. "Gold didn't seem so important after that. The metals needed for war were copper, zinc, tin, aluminum, lead, and others. We immediately made plans to transfer our operations to one of the strategic minerals."

And that is why the Holmes brothers went to Castle Dome, Arizona, and reopened the old lead mine there.

The first time my wife Eunice and I visited Castle Dome it was a ghost camp. Everywhere was evidence of intensive operation at some previous date. Old mines and dumps from the early Mexican diggings in this area dotted the hills. But since the period of World War I there had been little activity except the assessment work done by a few hopeful claim owners who still had faith in the revival of the old field. The old Mexican miners' shacks,

made of ocotillo stalks plastered with mud gradually were crumbling away, and the unpainted lean-tos of a previous generation of miners were empty. Their windows were gone and their sagging doors were open to the desert wind.

Mr. Hack lived on one side of the wash in the largest house in camp and made pets of the desert quail. On the other side lived Eliza de Luce, "Queen of Castle Dome." Old prospectors had mentioned her by that title long before my initial visit to Castle Dome when I learned her name.

Mrs. de Luce has lived at Castle Dome many years, under conditions that most people would regard as hardships. But she would not have traded her colorful domain in the Castle Domes for the finest home in the grandest city in the world. After all, she owned the sunrise that each morning gilded the great dome of the mountains overlooking her camp, the glorious flowers that crowned the giant saguaro each season, the desert birds which nest in large numbers in the shel-

tered coves and ravines of the serrated Castle Domes, the silhouette of needle-like Picacho peak against the sunset of the western skies. She never tired of telling us of the glories of her realm—and we agreed with her.

"And then," she said, "there is my mine. The camp will boom again someday, and I have the finest holdings in the district."

This first visit with Mrs. de Luce was years before World War II, and I tried not to show my skepticism when she began telling me about the wealth that remained to be discovered in the old mine tunnels beneath the surface. I had heard this sort of thing in every ghost town I ever had visited where one or more of the old timers remained. It will be her turn to smile when she reads this, for it was Mrs. de Luce's mine which the Holmes group leased. Lead is being hauled out in millions of pounds from five shafts on her old property. The longer I live on the desert the less I am inclined to discount the statements and the hopes of the old-timers.

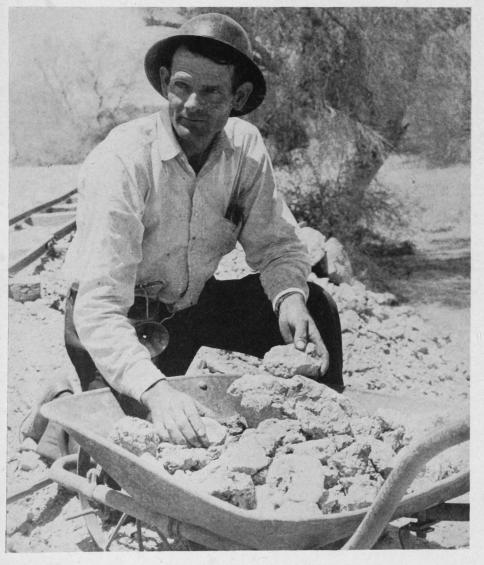
On my most recent trip to Castle Dome I accompanied Colonel Senay and Major Church of the U. S. Army on their final trip of inspection to the army campsites which had been abandoned in the Yuma county area. I induced them to stop at Castle Dome, just for a fleeting glimpse of the old mining camp. On the well-graded Yuma-Quartzsite road we passed trucks hauling lead ore to the mill on the Gila river, and other trucks hauling water

to the camp at Castle Dome. The Holmes brothers were inclined to apologize for their housing and camp facilities. But they have made their men comfortable despite the obstacles of rationing, priorities, transportation and red tape. For lunch in the cook shack we had meat and beans and salad, all well prepared, and hot tortillas served by the smiling señoritas who run this part of the establishment. I could get along very well on such fare. George Holmes pointed out that they could not build for permanency because the government might decide at any time that the lead supply is adequate, and make it necessary to close down.

In the meantime the Castle Dome mines are making an important contribution to the national stock pile of lead. Last year they produced 3,000,000 pounds of the heavy metal, and this year the output has increased. Castle Dome is the fifth largest producer of lead in the state of Arizona—and who knows when it may move ahead to a higher place, for the "Holmes luck" seems to be holding out.

The Holmes brothers discuss their operations with extreme modesty, but listening to their story I had a feeling that luck is a very minor element in their success. At a depth of 140 feet they decided to go prospecting underground by running a cross-cut tunnel. Instead of making this

Art Warner, brother-in-law of the Holmes brothers and mine foreman, inspects a wheelbarrow of high grade. This ore is nearly pure galena and carbonates and it would be a waste of time to mill it.



cross-cut in the direction of existing veins they ventured out in unproved ground.

I do not know whether it was a sound theory or a good hunch, but after a bore of 200 feet it led them to a virgin five-foot vein of high grade ore. Incidentally, this discovery will make the difference between mining bullets at a loss and at a profit. They knew when they started that their chances of making money in the lead mining business were very slim. They only hoped to get the job done and lose as little as possible. Many such mines are financed with government money. When the war ends suddenly the government, not the miners, will take the loss. But in this project the Holmes were spending their own money and taking their own chances. They have never sold stock to finance their mining operations, and they intend to adhere to that policy. They prefer to lose their own money if the venture fails, and take the winnings if there is a profit.

We wanted to see this virgin vein so gladly accepted an invitation to go underground. The hoist was a primitive affair—



One of the main shafts on the Arizona lead property.



a huge ore bucket lowered on a steel cable driven by a gasoline engine.

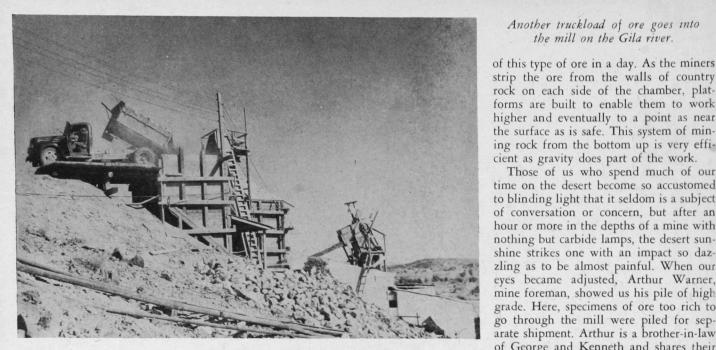
They gave us "hard hats" and carbide lamps and led us to the rim of the shaft. The bucket swung free over the top of the hole. The trick of going down in the mine was to reach out and get a firm grip on the cable and then pull oneself over the edge of the bucket as it swung to and fro over the shaft entrance. It would carry two passengers, one with his feet in the bucket and the other standing on the edge clinging to the cable above.

George Holmes and Colonel Senay went down first. As they disappeared in the blackness below I recalled that only a few days before the colonel had told me he did not like going underground. He had taken a dislike to the experience during his days in the dugouts in France in World War I. But he was grinning as he dropped down the shaft, so I guess he had forgotten about his inhibitions against underground.

Major Church and I went down next. It wasn't an unpleasant trip after we got our balance on the bucket. The only mishap was when I smelled something burning, and discovered my pants were on fire. I was standing on the edge of the bucket and the major was so interested in everything that was going on he forgot for a moment there was a live flame on his carbide lamp. He was holding it against my leg.

Holmes took us along the drift in the original mine to the working face where

George Holmes and John Hilton ready to ride the bucket down the shaft. They are wearing "iron hats" provided for the occasion.



Another truckload of ore goes into the mill on the Gila river.

strip the ore from the walls of country rock on each side of the chamber, platforms are built to enable them to work higher and eventually to a point as near the surface as is safe. This system of mining rock from the bottom up is very efficient as gravity does part of the work.

Those of us who spend much of our time on the desert become so accustomed to blinding light that it seldom is a subject of conversation or concern, but after an hour or more in the depths of a mine with nothing but carbide lamps, the desert sunshine strikes one with an impact so dazzling as to be almost painful. When our eyes became adjusted, Arthur Warner, mine foreman, showed us his pile of high grade. Here, specimens of ore too rich to go through the mill were piled for separate shipment. Arthur is a brother-in-law of George and Kenneth and shares their pride in the new strike. I am ashamed to admit that when our hosts insisted, we took still more specimens from this glittering pile of rock, which in the sunlight

men were breaking down ore. Frankly, it was a little disappointing. There were no glittering cubes of galena—just greybrown rock. However, we were assured that it was pay ore. This rock was being loaded by the muckers into a bucket similar to the one that brought us down the shaft, then pulled along some tracks to the shaft and hoisted to the surface where it was loaded in ore trucks for the mill.

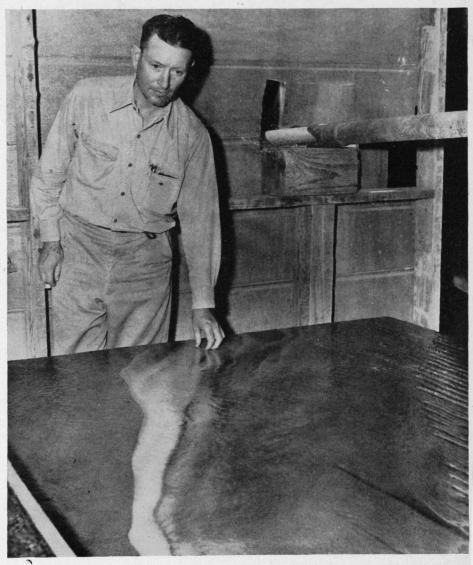
Then we entered a cross-cut tunnel that comes in at right angles. Originally this had been an exploratory tunnel, and the rock ceiling was so low I was continually bumping my iron hat on its projections. Two hundred feet does not seem very far on the surface, especially on the desert, but in an underground tunnel chiseled out of solid rock it is quite a walk. At the end of the walk we emerged in a chamber where the new vein had been tapped. Here the picture that met our gaze was worth many times the inconvenience of such a trip. We were in a natural jewelry store that glittered in the light of our carbide lamps like something in a fairy tale. Short drifts had been started both ways along the course of the vein. It was a mineral collector's paradise and a miner's dream come

Masses of finely crystallized carbonates of lead (cerrusite and anglesite) formed a snowy background for nodules of silvery metallic galena (lead sulphide) which reflected our lights like dazzling jewels, with here and there crystal masses of fluorite and bright green silver stains to finish off the color display.

Kenneth Holmes demonstrated for us a gadget which is a sort of pneumatic rock

At the mill, ore is ground fine and separated by a series of "jig" tables. Here George Holmes inspects concentrates at the end of the last table.

drill used to break the ore loose overhead, dropping it on the floor ready to be mucked out. With such a tool one good miner can stope out a tremendous tonnage



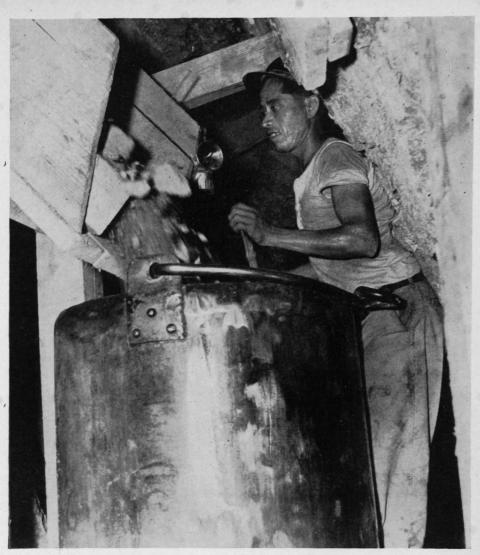
seemed even more dazzling than the crystals we had seen below the surface.

At another shaft we watched ore being loaded on trucks by a small skip loader, used to reduce manpower. This equipment is utilized whenever practicable. As we were standing there I saw in a pile of ore what appeared to be a piece of rusted steel with crystals of galena and fluorite attached to one side. I showed it to George.

He explained that it was an old mining wedge used in the mines at Castle Dome in the days before dynamite was available. Holmes' men have been cleaning out some of the old shafts, obtaining ore once discarded because it was too low grade to be recovered by the crude methods then in use. In this old rubble several relics of the early mining days have been recovered. In addition to the old wedges they have found ancient cowhide buckets, old jugs and bottles with the makers' names and dates blown in, and enough tools to set up quite a museum of antiquated mining equipment. One of the items is a newspaper dated October 27, 1873.

As the ore is taken out it is hauled to a mill located on the Gila river to the south. This mill handles 100 tons of rock daily, and Kenneth is as proud of his high percentage of recovery, as is George of the way he keeps the ore rolling out of the mine shafts.

Those sacks of drab colored concentrates, however, do not fully take the place of the glittering gold bricks which the Holmes brothers are accustomed to extracting from the ore they mine. These men have gold in their blood, and when the war clouds break away they will be back with their first love—mining precious metal.



In this part of the shaft, ore is being "pulled" from a chute which leads to a stope above. When the bucket is filled, it is wheeled out to the main shaft where it is drawn to the surface.



These are some of the crewmen of the Arizona Lead company at Castle Dome.

Golden Rabbitbrush is Indian Chewing-gum

F YOU have seen Goldenrod's tossing yellow plumes flood the autumn weeks with lavish color, Goldenrod and autumn always are linked together in your thoughts. On the desert there are cousins of Goldenrod that play a like part, often much more spectacular because of their amazing abundance. These are the Rabbitbrushes, sometimes called Golden Bush, which is the literal meaning of its scientific name, Chrysothamnus, but Rabbitbrush has been recognized for many years as the common name both by botanists and non-botanists.

Vast expanses of arid gravelly plains and mesas of the Mojave desert and the Great Basin area of Nevada and Utah are dominated by the bright gold of Rabbitbrush in countless numbers. One of the Sunflower family's most prominent western members, these low rounded shrubs frequently form dense stands to the exclusion of nearly everything else. Most of the species are many-branched shrubs of the open plains and foothills, some of them favoring alkaline soils, varying from 2 to 5 feet in height and as broad or broader, growing from a deep taproot, usually several loose-barked trunks from a single base.

They are more or less strongly odorous, the stems clothed with a closely-packed felty covering of wooly hairs often infil-trated with a resinous substance. The leaves are narrow, and the heads of small, tubular, rayless flowers are assembled in showy clusters at the ends of the branches, completely covering the bush with a brilliant mantle of gold throughout autumn, proving a magnet for bees and other insects.

Indians made a yellow dye from the boiled flowers and used the straight stems for arrows, wickerwork, and windbreaks about their garden patches. A decoction made from the twigs of one species was used as a remedy for coughs and chest pains. The Pahute Indians of Utah, Nevada and adjacent California evolved a chewing gum from the masticated wood and inner bark by chewing it slowly to a pulp and spitting out the refuse fibers until only a little mass of pure rubber was left. Some groups also formed balls with these wads of gum for youthful

This special Indian chewing gum brought attention to the presence of rubber in Rabbitbrush and led to investigation by University of California scientists. We are told the first samples of this rubber for scientific study were chewed out of Rabbitbrush by Indians of Benton, California, in 1918. Twenty-five pounds of it were produced by human jaws! Chrysil is the name adopted for this particular rubber. It is not a latex, which comes from a milky sap, but it is high grade and vulcanizes readily, ranking next to rubber from Brazil and the Malay Peninsula. To extract chrysil the brush must be cut and crushed and then ground fine enough to separate the rubber particles from the mass of fibers by flotation. Since the commonest species happens to be the one with a feasible rubber content, the name Rubber Rabbitbrush has been suggested as appropriate for our featured species,

Chrysothamnus nauseosus

This very complex species has been subdivided into 22 recognized varieties which can be separated into the grey forms and the green forms, according to the color of matted wooly hairs felting the herbage. All forms have a stout, woody, shreddybarked base and numerous branches which produce annually a multitude of slender, erect, flexile twigs, each ending in a rounding cyme of small golden flowers, splendidly in evidence from August to November. Of the grey-felted varieties,



Despite the name that botanists gave it, Rubber Rabbit-brush has a pleasing aromatic fragrance, suggestive of tropical fruits.

gnaphalodes is the common one on gravelly or sandy mesas, benches, and slopes of the Mojave desert, adjacent Inyo and Mono counties, western Nevada and northern Arizona. The very many slender young twigs are tough and pliable, with scanty foliage, the very narrow leaves an inch or less long and often recurved, falling early. The herbage has a pleasing aromatic fragrance, suggestive of tropical fruits. The grey forms are more apt to be scattered about than the green ones but this variety often forms belts of considerable extent, perhaps the largest area being one in the western Mojave desert 30 miles long by 2 miles wide.

The variety speciosus, densely leafy to the summit of the grey or greenish-white twigs, is especially handsome because of the amazing abundance of golden-yellow flowers, the corollas longer and the round-topped cyme rather loose. The widelylinear stiff leaves are up to 21/2 inches long. The pale grey coating of matted wool is partly deciduous, the leaves then becoming greenish. You'll find it in eastern California, western Nevada and Arizona but not in great abundance.

Variety consimilis is the green form common on alkaline flats of the Great Basin, extending from Utah and Nevada to California and well down into Arizona and New Mexico. The slender erect twigs are very leafy, the thread-like leaves an inch or two long and somewhat resinous, the compact felty covering of the stems yellowish-green. The congested flower clusters are pyramidal or cylindric, blooming from July to November.

A robust green variety is viridulus, the rather stout, rigid stems densely felted with yellowish-green, and leafy to the top, the narrow leaves green but slightly hairy on both sides, the herbage having a heavy disagreeable odor. The involucres are hairless but sticky with a resinous exudation. The pyramidal or globose cyme is densely crowded, the corollas with noticeably long, narrow, spreading lobes. It grows in western Nevada and the Mono and Inyo county deserts of California.

Another very leafy robust variety is graveolens, the straight erect twigs yellowish-green to nearly white, their matted felt compact and smooth, the leaves broadly linear, the flower heads crowded into flat-topped or rounding cymes. It is found in the Death Valley region and wide adjoining areas, from Nevada and Utah to New Mexico, often appearing in dense extensive

Variety mohavensis inhabits well-drained soil not obviously alkaline, from the west side of Owens Valley, through western Mojave desert to the desert slopes of the San Bernardino mountains. Its green-felted, wand-like branches often nearly leafless and rush-like, the few leaves thread-like, the flower clusters congested, rounded or somewhat elongated. Quite common in Joshua Tree national monument.



View from inside Lower Cave, sometimes called Ceremonial Cave from Taos Indian legend of ancient human sacrifices offered before the entrance. U. S. Forest Service photo, courtesy Paul Albright.

Cave Where Brujas Dwell

When Marion Estergreen asked Taoseños about going to some caves which she had heard were about twelve miles north of town, most of the answers were indefinite, some evasive, others warning. Brujas, they said, haunted the lower cave. By day they assumed the shape of rabbits, but at nightfall the spirits roamed the cave area, and no sensible person would go near. Besides, there were dark legends of human sacrifices on the great boulder before the granite entrance. As to the upper cave, they were even more dubious. As one old-timer put it, "There jest ain't none, and don't let nobody kid ya." But not being among the "sensible ones," Marion went anyway—to the haunted cave and to the cave that didn't exist!

By MARION ESTERGREEN



OW FAR are these caves and falls from Taos?" I asked Bert Phillips, one of Taos' foremost artists. He was the only person I could find who had visited the caves.

"They are located about 12 miles from Taos by way of Arroyo Seco village," he replied. "I visited the lower cave last year . . . took two Pueblo Indian models with me. Had a hard time getting them to accompany me. You know the Taos Pueblo Indians believe the lower cave is haunted by brujas—spirits or witches that take the form of rabbits by day, and roam that area unre-

Señor Martinez the adobe maker, and companions, in wagon which took the Estergreen party to the cave area. View near Arroyo Seco village in Sangre de Cristo mountains. Photo by L. Pascual Martinez, Carson national forest ranger.

stricted by night. The Indians say the upper cave is not haunted. I have never been there."

The artist caught my expression of interest. "This canyon," he continued, "where the caves, cliffs and waterfalls are located is about two miles from the little village of Arroyo Seco at the foot of the Arroyo Seco range of mountains between Rio Hondo canyon and Arroyo Seco canyon. The cave canyon has no official name. Nor have the caves."

The next day Mary Lattimer, another artist friend, Brownie Moore and I drove by car to Arroyo Seco village. There we hired an old adobe maker, Nieves Martinez, and his young son to drive us to the caves in their wagon. The trail was far too rough to attempt by car.

"Is there really an upper cave?" I asked Señor Martinez, who answered in broken English, "Yes, my son say he have been there many time."

Few people in Taos ever had heard of these caves, and fewer had visited them. One old-timer had said, "Yep, I have heared tell of a haunted cave in them mountains. I ain't never been there. And as fer that there upper cave this here artist been telling you about, well, there jest ain't none, and don't let nobody kid ya on that score, lady." With that the old villager had let go a stream of tobacco juice between his grey-white beard without moving a muscle from his position against the lamp post.

The breeze was freighted with the pungent perfume of juniper and piñon which, as we rode higher, mingled with the good earthy smell of horses as they sweated and tugged to carry their load up the hilly incline.

After two miles of this, which took us three quarters of an hour, the trail ended in a natural parking spot between two mountains with the deep unnamed canyon on our left. We were





Shimmering green-white aspens grow thick in the Sangre de Cristos among the Ponderosa pines and Douglas firs.

Photo by the author.

at the base of the Arroyo Seco range, part of the beautiful Sangre de Cristo mountains.

With the Martinez boy and his father as our guides, we scrambled over the hill, following the brink of the gorge about 300 feet. Then began the descent through the mass of oak underbrush into the canyon of the caves.

We already could see the tall, grey lava-like cliffs towering above the tangle of Ponderosa pine and Douglas fir trees. A thin ribbon of water fell over the trough-like cliffs into a pool at the entrance below the large, yawning cave. On closer examination the cliffs which housed the cave were not lava rock, but grey granite, cut and carved by the elements for many centuries. A huge lone boulder stood by the entrance of the deserted looking cave. So this was Sacrificial Rock of which the Indian legends whisper tales of human sacrifices!

Legends, Indian born, sprang to mind. In ancient days, so the stories go, during pagan ceremonies of warring tribes who came to steal and plunder from the peaceable Taos Pueblos, human sacrifices were made on this boulder. In this high walled canyon a group of Taos Indians tried to hide from their evil pursuers only to be found and put to death. The *brujas* that roam this area are thought to be evil witches and must be avoided by all sensible Indians.

At that moment, although it was nearly 10:30 in the morning, the sun came up making a dramatic appearance, gleaming down from the crevical rock cliffs like a halo above a shrine. It shone on the group of green-white aspens shimmering among the fir and pine. An occasional pine, tall and stately, rose above shrubs of dwarf juniper and birch.

"Let's send the boy back for our lunch and pillows while we explore the cave," suggested Mary.

We entered the amphitheater-like cavern. The insistent hum of hurrying water droned in our ears. One interesting feature of the cave was a side cavern at one end which goes back about ten

The main cave is 50 feet deep, 100 feet wide and about 70 feet high. Solid rock forms the walls and ceiling, but not the floor, which is of soft dirt. The cave was devoid of insect or vegetable life.

Mary had gone on to the side cavern while I stood and listened to the metallic click of the falls echo back and forth in the dark hollow cave.

Marion Estergreen back from the falls trip and ready to write her story. Photo by Leo Zilavy.

THE DESERT MAGAZINE

"Will you look at this!" Mary was pointing at something. I expected to feel a *bruja* swish past me. Then I laughed! When my eyes became accustomed to the darkness I saw a ladder made of small pine tree trunks. It had been placed to the roof of the rock cavern. Closer examination revealed a hole in the granite rock ceiling large enough to permit the passage of a very small person.

We asked the Martinez boy, who had just returned with the lunch and pillows, to climb to the cave room above. He called down through the opening that there was an enclosed, dark cavern muy grande (very large) with only the one opening. That description would have to suffice, for besides being too large to get through the opening, I was very eager to try to find

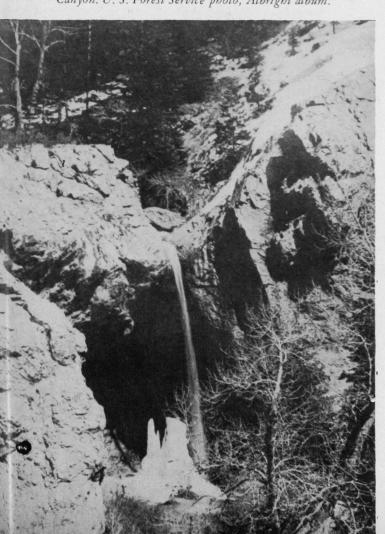
the upper cave before lunch.

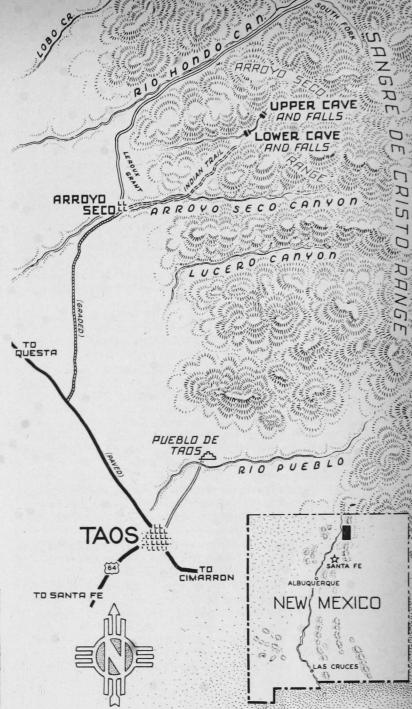
Mary wished to sketch the peculiar granite formation of the cliffs, and Brownie didn't like to hike. They stayed at the lower cave while Señor Martinez, his boy and I started on our three-fourths mile ascent to the upper cave. It was about 11 o'clock on that fine August morning. As the Martinez boy had been to the upper cave, he was our guide. I marveled at his agility as he scrambled over the rocks like a young mountain goat. He and his father would break the trail for me to follow through the tangle of fir trees and underbrush by the creek. I would have to crawl on my hands and knees in many places.

The slopes of the mountains where we detoured from the creek bed were so steep in places we had to pull ourselves by grasping protruding shrubs of juniper and oak, using rocks for footholds. Bluebells looking like blue stars in the rock crevices, grew more turquoise as we climbed higher. Tiny wild strawberries, far sweeter than any I ever had eaten, grew in grassy

patches by the creek beds.

Remote cave and waterfall located in an unnamed canyon north of Taos, New Mexico. Unknown photographer mistakenly labeled it Lucero Falls, but they are not in Lucero Canyon. U. S. Forest Service photo, Albright album.





As the season advances, a gay succession of flowers carpet the mountain sides and wave in the high-altitude breeze—the red and yellow columbine, scarlet Indian paintbrush, the pink-throated blue pentstemon or the scarlet beard-tongue variety, red gilia, dainty purple verbenas, the rare star-shaped mentzelia which opens in the evening or when fooled by a sudden afternoon darkening of the sky for a thunderstorm, and a charming azure species of the gentian.

The saucy blue jay with his handsome crest dominates this region with his gay chatter.

We came to a steep cliff green with protruding dwarf juniper and flowering blue stargrass. But the earth was too loose for footholds, so we had to find another way to climb. I sat down on a boulder and listened to the gurgle of the water. I was tired. I felt that somehow we had missed the way to the upper cave, and was ready to give up when the boy appeared from around the bend with joyful yells, "It is there, it is there!" He pointed around the mountain.

Resuming our climb up the creek bed, pushing brush twigs from our faces and sidestepping rocks it was but a short distance to the brown-grey cliffs which housed the upper cave.

This spot held none of the eerie loneliness of the lower cave. The stillness was broken only by the soft sound of falling water as the slender lacy waterfall spun a silver thread across the deep, dark cave and fell into the flower-edged pool below.

Señor Martinez, his son and I rested on the grassy creek bank and looked down the steep canyon. It is a wild, untouched wilderness with vegetation so heavy and thick it is impossible to travel even by horseback. The rough canyon is adorned with redstemmed dogwood, wild mock orange, snowberry shrubs, choke cherry bushes, fine-leaved birch, and the less decorative alder shrubs.

Taos Indians visit these upper falls on foot and use the water for medicinal purposes. They call it Medicine Water, as they call all good water.

Looking up we saw the summit of the steep water-polished granite cliffs. Here and there green shrubs flecked the rock's

This upper cave, resting high in the walled cliffs, is deeper than the lower cave. The Martinez boy took matches—we had forgotten to bring a flashlight—and although he went far back, he couldn't find the end of the cave.

On the return trip I slid (with disastrous results to my breeches) down the mountain where we had so laboriously pulled ourselves up by shrubs. It took about half the time. We followed the stream too far down, coming to a deep precipice where the stream tumbled over with a bound. Far below on the gleaming boulder we saw a tiny figure basking in the sun. "Hello there!" I yelled, and Mary answered, "Hello, your-

self. Come on down. We're hungry.

'And so are we," I called back.

While Señor Martinez prepared to make coffee the boy gathered wood for a fire. Brownie and Mary spread the cloth and set forth our lunch of cold beef and ham sandwiches, fruit, cookies and a large bowl of potato salad.

The tantalizing aroma of mountain-cooked coffee occupied our minds for a time. Then I decided to learn what I could of

the Spanish-American's superstition of the cave.

The señor smiled indulgently as he answered my question with, "My people have no belief about this cave. We call it Cascada, which means waterfall." He called my attention to the fact that the haunted cave and waterfalls weren't in Arroyo Seco or Lucero canyon, and asked me what the name is with my people for this canyon.

"I understand this canyon has no official name," I answered. "It is between Arroyo Seco canyon and Rio Hondo canyon, but certainly not in Lucero canyon as some wandering photographer erroneously labeled the pictures taken for Paul Albright's al-

bum."

Darkness comes early to this deep canyon, walled in by high cliffs. All too soon the sun was setting behind the mountains. Brownie packed the coffee pot in the lunch basket. Mary finished her sketch and suggested we had better start back as it looked like rain.

"Yes, I think we should. This is the time of year a cloudburst will wash you down the arroyo if you try to cross during a rain."

As the horses trotted down the mountain we could see all over the valley below us. We were in a vast bowl completely surrounded by mountains which now were obliterated by rain clouds in the west.

I couldn't help thinking of the war and this gas rationing. We could not visit these mountains again until it is over.

But the pinkish-lavender bee plants will grace the slopes, the columbine blossom, the yarrow, the vervain and the wild geranium will bloom again each year. The chattering blue jay will fly lightly to the highest pine branch where the thrush recently had sung his crystal welcome, and under the wild grass the red robin will search for worms. Whether I saw or heard, this will go on until I return again to the Sangre de Cristosland of canyons and arroyos—where brujas dwell in Ceremonial Cave.

DESERT QUIZ . .

Answers to more than one half of this month's quiz questions will be found in a recent issue of Desert Magazine. Several others will have been encountered sometime during the past year. Answers on page 28.

- 1—Famous art colony in northern New Mexico properly is called— Don Fernando de Taos..... San Gerónimo de Taos...... Ranchos de Taos......
- -Highest peak in the Henry mountains of Utah is— Mt. Ellsworth...... Mt. Ellen...... Mt. Pennell...... Mt. Hillers.....
- -Companion of Chas. F. Lummis on trips in Southwest and South America was— Adolph Bandelier.... Edgar L. Hewett...... Joaquin Miller..... Frederick W. Hodge......

4—About the maximum number of eggs one would find in a Gambel quail's nest is— 6.... 12.... 22.... 28....

- 5—Large reptile-like animals were characteristic of the— Precambrian..... Paleozoic..... Permian..... Mesozoic.....
- -Main evidence that prehistoric Indians of Arizona and Mexico traded with each other is-Hieroglyphics...... Clay effigies...... Shell money...... Copper bells......

-Irrigation has been known in Arizona for about— 75 years...... 500...... 1000...... 1900.......

- -President of United Indian Traders association, which handles large proportion of Southwest Indian handcraft, is— M. L. Woodard...... John Wetherill..... Roman Hubbell..... John Collier.....
- 9-Number of miles which have been explored in the connecting underground chambers of Carlsbad Caverns, New Mexico, is about—Six..... 16...... 32...... 64......
- 10—Idar, Germany, is noted as a center of—Diamond cutting...... Manufacture of precision instruments...... Artificial coloring of gem stones...... Watch making...
- 11—Range between Panamint Valley and Death Valley is— Argus...... Amargosa...... Funeral..... Panamint......
- 12—Papago Indians of southern Arizona are of the same linguistic stock as the-Hopi...... Yuma...... Apache.....
- 13—Albuquerque, New Mexico, was named for— Indian chief...... Mythical figure...... Spanish duke...... Pioneer founder......
- -Navajo Indians call themselves— Navaho...... Indios..... Diné..... Hohokam.....
- 15-Indians of Imperial Valley region were- Cocopah...... Diegueño...... Kamia..... Chemehuevi.....
- -Sedimentary rock was made by— Solidification of molten material...... Deposition of material by water...... Processes acting on pre-existing rocks.......
- -The desert shrub Quailbrush is a member of the-Buckthorn family...... Sunflower family...... Buckwheat family...... Pigweed family......
- -Mission San Xavier del Bac, in southern Arizona, was founded in— 1685.... 1700.... 1725.... 1768....
- -Botanist who devised well known Plant Life Zone scale, to describe characteristic plant growth in various regions, was— C. Hart Merriam...... Philip A. Munz...... Edmund Jaeger...... Willis L. Jepson.....
- 20—Best gem stone to use in hardness test for diamond is— Sapphire...... Quartz..... Flint...... Beryl.....

Victoria is growing fast. Along with her new braided hair-do, she is assuming added duties and responsibilities about the household of Yaquitepec on Ghost Mountain. She helps sort clay for pottery making. On twinkling feet she gathers dry sticks for the fuel baskets. She guards the water barrels from invading insects. She even is the self-appointed weather lookout for the rain-thirsty mountain top. But as a blow-pipe expert, her lusty lungs proved her undoing—and made Rudyard forget his chiv-

Desert Refuge

By MARSHAL SOUTH

HE BIG ocotillo on the southwest slope of Ghost Mountain finally blew down, and a few days ago Rider and I went down to bring it home. For many months it had been slowly drying and getting more and more shaky in the winds. So when a last gale put an end to the drama, we went as quickly as possible in order to secure the wood before beetles and borers and all the other agents of decay could get ahead of

We like ocotillo wood for many reasons besides its excellent burning qualities. The thicker portions of the spiny wands, when peeled of their leathery armor of bark and spikes, make smooth white poles that are handy for a multitude of uses around a primitive establishment such as Yaquitepec. Also, when properly seasoned, the wood is tempting for carving purposes. It is not entirely satisfactory for this as it is a bit brittle and short grained, with an annoying habit of chipping off when the design calls for fine details. But it is nice to work with, nevertheless. And one can achieve quite satisfactory and ornamental bottle stoppers and knife handles and such nick-nacks from it. Rider and Rudyard, by means of boring and whittling, often make themselves whistles from the white wood-whistles which, as silence shatterers, are entirely too satisfactory.

It was quite a job lugging the fallen old monarch up over the tumbled boulders to a spot where we could divide it into sections for carrying. But the job was completed finally and all the good wood peeled and put up under the roof to season. The bark and spines and all the small sections went into the fuel baskets for immediate burning. Although dead ocotillos make marvelous fuel we have to be more careful in handling it than any other. The reason for this is that the spines are so distributed that no matter how small a fragment of broken stalk lies on the ground there always will be one or more spikes pointing upwardslike those devilish spiked iron devices which were used in early warfare for hindering the movements of infantry and cavalry. Yaquitepec is a barefoot establishment, and although our feet are toughened, the upturned ocotillo thorn is damaging. So ocotillo fuel always is burned first-and with scrupulous

watchfulness that no fragment escape.

There are thorns AND thorns. Those of the much talkedabout cholla-like a great many other things of exaggerated reputation—are probably the least dangerous. We don't worry about ordinary chollas. The staghorn, which is the kind most widely spread over Ghost Mountain, isn't half as bad as it is painted. The youngsters get spiked and pincushioned with them constantly—and yank the adhering sections from their feet by means of two stones, used pincer-wise, and go on as though nothing had happened. The silver cholla-Bigelovii-is different. That we do treat with respect. It has a nasty disposition. And if it doesn't actually jump at you, as it is fabled to do, it nevertheless is bad medicine. So we give it a wide berth. For-



Marshal South dragging a fallen ocotillo up the rocky slope of Ghost Mountain.

tunately those sections of Ghost Mountain which we range constantly are not over supplied with Bigelow's cholla.

The two types of spines which do call for constant watchfulness are those of the mescal (the agave) and the beavertail. Oddly enough these are at opposite ends of the thorn scalethose of the mescals being vicious, needle-sharp daggers from an inch and a half to two inches or more long, and those of the beavertail cactus being so small that one needs a magnifying glass to see them. If you run hard into the stiletto shaped weapons of the mescal, with any portion of your anatomy, you are in for trouble. The thorn, like a slender jade dagger, almost invariably breaks off deep in the wound in such a way that it often defies extraction.

On the other hand if you have an argument with the fuzzy brown spine fluff of a beavertail it may be hours, sometimes days, before you will get rid of the last of the intensely irritating, microscopic little stickers. The points of nearly all desert thorns seem to carry a poison particularly adapted to make punctured flesh ache. Perhaps, in this respect, the handsome Mojave yucca —the Spanish Bayonet—can claim highest honors. Yes, there are thorns AND thorns. But what true desert dweller would trade any one of them for fairest flowers or tenderest ferns of rain-drifted forests?

The cisterns are dropping lower and lower. Last season, just a few days before we returned to Yaquitepec from our year-long desert search, a heavy downpour passed over Ghost Mountain and we had hoped the anniversary of that shower would bring another. But so far we have been disappointed. There have been not even any promising showings of thunderstorm forma-tions, despite the fact that Victoria faithfully stares off at the dark line of the horizon each night, looking for them. Several times fitful, distant flashes have brought her running to us with the breathless information that there was certain to "be a wain tonight" because "the distances are jus' full of lightling." But so far the lightning has been an empty promise.

A good many things now wait upon the rain. Walls and cistern building, as well as the replenishment of domestic water supply. Wool that needs washing before it can be carded and spun. A new garden frame. One acquires a high valuation of water when its supply is limited. It is true that our storage capacity steadily increases. But so also does our consumption of the precious fluid. As our little clan grows there are more and more demands upon the cisterns. And on summer days it is astonishing how quickly a big olla of water, swinging in the breeze to cool, can be emptied. Yes, we need rain.

Last night about midnight, I got up and went into the house to see how the pots were drying. Tanya had made a couple of large ones during the afternoon and had set them to harden on the inside table. There is always a thrilling uncertainty about the drying of handmade desert pottery. Clay is temperamental. Seemingly perfect ollas and bowls, fashioned with care, and a joy to behold when wet, on drying will develop mysterious cracks which utterly ruin them. On the other hand a pot flung together in a hurry to serve some pressing need will astonish

us by drying out as a perfect and flawless creation.

A brief inspection, by lantern light, of Tanya's handicraft convinced me that the drying process was not proceeding rapidly enough-there was danger ahead. So I carried the two jars outside and placed them in an angle of an unfinished wall where the free sweep of the desert wind would hasten their setting. The stars burned with crystal clearness. Through the broken thatch of the ramada the moon made patterns of ghostly light. Wind marched against the mountain with a steady roar, rocketing upward from the protecting edge of the cliff and hurtling past overhead with the rushing sound of an invisible torrent. Stray gusts of it, swooping downward, came charging around the house, slatting loose thatch and drawing weird music from an insecurely fastened sheet of roofing iron.

After I had settled the pots safely in their new position the mystery of the night held me. So, instead of returning to bed, I picked myself a nice comfortable vantage point upon the top of the outdoor work bench, squatting there, Indian fashion, in the moon-fretted shadow of the ramada, while the wind spirits trampled ceaselessly overhead and the moonlight wove blankets of jet and silver in the swaying branches of the junipers.

There is something about the feel of a moonlit desert night which calls to unfathomed deeps within the heart; which stirs vague memories of long forgotten things. Small wonder that from desert lands and from their nomadic peoples, forced to solitude and the tending of flocks under sunlight and starlight, have come to us so much that is worth while. For it is by meditation that man increases his understanding. Times, and conditions of liberty and progress, have little to do with it. There have been as great minds and as great philosophers in all ages. Contentment, happiness and understanding come from within -not from one's surroundings.

Victoria's hair is long enough now to be easily braided. And a proud little miss she is with her new style of hairdressing. Busy and merry the whole day long, Victoria grows fast. She loves to work and always is hunting new duties. She gathers dry sticks among the bushes and rocks and trots tirelessly on twinkling feet to heap her loads in the fuel basket by the stove. One of her regular jobs is to guard the outside water barrel against bees whenever it has to be uncovered for filling ollas and house crocks.

Bees, both tame and wild, are water-thirsty in the summer desert. The tiniest opening serves as entrance to barrel or tank. Victoria's job is to stand by the barrel and whenever a bucketful is removed, to carefully shoo off the snooping bees and replace the cloth cover. Then, upon tiptoe, and with both little arms flung around the cloth to hold it down in the playful wind gusts, she stands guard until we return for the next bucket. Victoria is proud of this job. She usually sighs with regret when it is over and the cloth covers of the barrels have been securely

tied down into place.

All the openings of water barrels and tanks on Ghost Mountain are cloth covered. No other scheme works. Ordinary lids will not serve. For here we have to make our containers tight not only against small animals, lizards and bees, but also against ants which can get through almost anything. A time saving trick for keeping a cloth securely bound down over a barrel top is to use one of those long coiled springs usually employed to pull screen doors shut, as a section of the tie cord. Then, when once you have the cord adjusted tight, you don't have to untie it each time. Simply stretch the spring a bit and slip it off. A stout rubber band cut from a section of old auto tube will serve equally well, but doesn't last long in the desert heat, as compared with a spring.

Last Sunday afternoon I dug out an old copy of the National Geographic magazine from the bookcase and read the youngsters an account of the excavations at the old Indian settlement of Pueblo Bonito in New Mexico. They are tremendously in-

terested in such things. Not only because their own desert existence approaches very closely the life led by the ancients, but also because on their recent long trek they became familiar with the type of country in which these old time Indian communities had their setting. So while the big scaly lizards waddled over the sun-scorched boulders and the heat waves danced across the distance of the thirsty lowlands, the three of them lay on a blanket beside me in the shade, listening with eager ears as the words on the printed page rolled back the sands and mystery from a chapter of desert life that was closed a thousand years

To understand the story of ancient Pueblo Bonito, one must be familiar by personal experience with conditions which are similar. It was this knowledge which made my young audience so appreciative. They studied everything from a practical angle. All pictures were scrutinized with extreme care. The construction of ancient buildings and underground kivas was commented upon. Shapes and decorations of old pottery received careful

attention.

Unhampered by modern fetishes or by the molds unconsciously imposed by association with mass thought, our youngsters have free rein to weigh and appraise the good points and the bad of both primitive and modern worlds. Armed also with an understanding of time, not as a make-believe span to be measured by clock-ticks or by the ephemeral duration of human life, but as a state which exists, they can better appreciate the significance of the rise and decay of communities and empires. It is life that counts, and the way it is lived, whether it be in Pueblo Bonito or at Yaquitepec. And as they roll out a bit of clay for a coil to build a pot with, or pound a mescal leaf to obtain a few strands of fiber, our youngsters get a great thrill out of the knowledge of that shadowy, but very real bond, which binds the present to the past.

Primitive methods, though, occasionally bring their moments of comedy. As yesterday when Rudyard, having decided that he would make a little wooden bowl by the process of burning out the center of a mesquite block by means of a coal and a blow-

pipe, tried to teach the art to Victoria.
"You just blow it slightly," he said, handing her the little tube. "Just enough to keep the coal burning steadily. Blow just

slightly—you understand.

So Victoria took the tube and blew "slightly." Victoria has a good pair of desert-grown lungs. The coal hopped from its charred hollow like a shot from a catapult and struck Rudyard squarely upon the tip of his nose. Rudyard has an explosive temper and there are times when he forgets chivalry. This was one of them. He made a pass at Victoria and hit her. And she promptly hit him back. They both are good scrappers. So for a time, before the "storm troopers" could be rushed to the spot, the uproar was considerable. Later on, however, when quiet had been restored and the two combatants had been sent outside with a piece of cake each, we heard them talking over the mat-

"You know I said you were jus' to blow it slightly," Rudyard explained, between munches.

"But I did, Ruggie, I did," Victoria protested. "I blowed it all the slightly I could. Really I couldn't have blowed it any more slightlier."

THUS LIVE

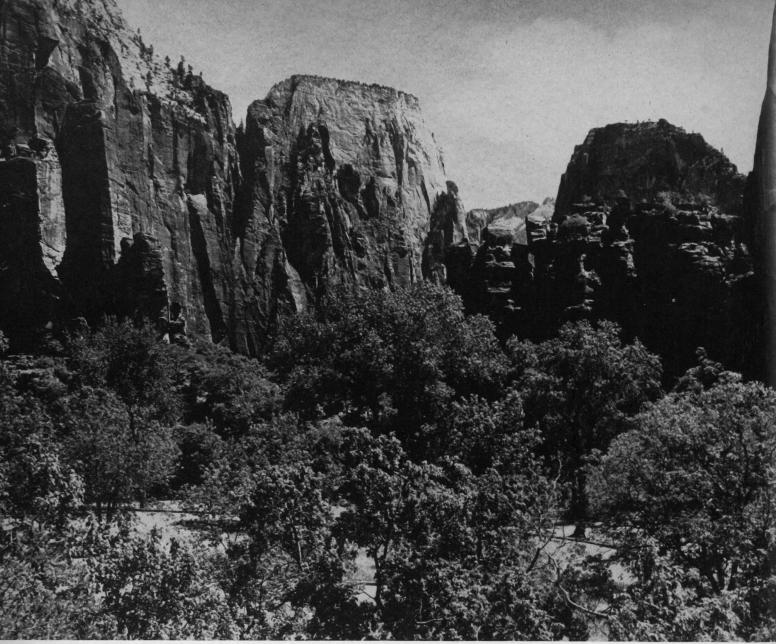
Thus live: To give and not to gain, To love—not hate; To strive for Truth in every grain, Nor fear your fate. And face with courage, not despair, Each little death The soul encounters, as we fare Life's endless path.

-Tanya South

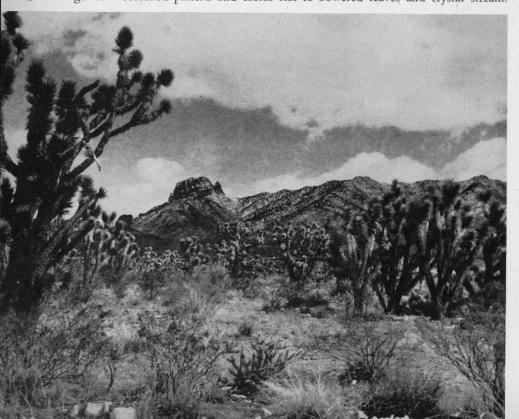
Desert Wonderlands

Photographs and Text by John Lindsey Blackford

Aravaipa Canyon, Arizona



Towering dizzily from living green to blue vault of sky above, rocky bastions rim Aravaipa Canyon and wall a hidden world (preceding page). Swiftly comes the magic change from scorched plateau and cactus flat to bowered leaves and crystal stream.



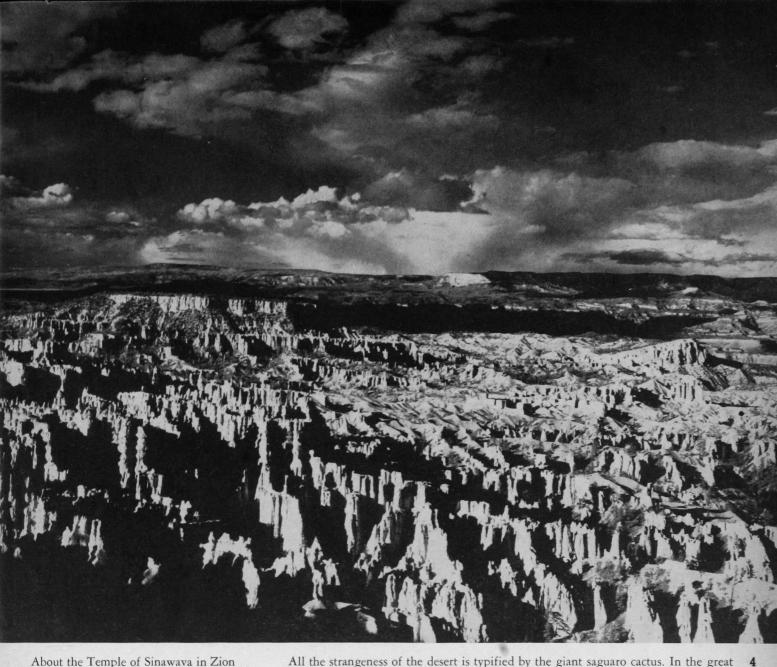
DESERT WONDERLANDS

The desert is a land of wonderlands. Where the distances possess all, where the tawny desert floor wrinkles in terrible heatwhere there is nothing it seems yet there is a palm filled canyon, weird badlands of exotic color, a fantastic forest. There may be a cliff dripping with coolness and tapestried with fern, a purple peak piercing the molten gold of sundown, or colossal monuments standing in splendor as at the funeral of the gods. Surprisingly here, unexpectedly there, will be discovered amazing wonderlands within this land of wonder.

THE DESERT MAGAZINE







About the Temple of Sinawava in Zion Canyon, Utah, (2) is gathered the full majesty of that vividly tinted gorge. Thrones and summits, chasms and sentinel peaks tell an epochal story of the past. And in the depths of this coliseum of the ages lush verdure creates an oasis prodigal in its unforgettable beauty.

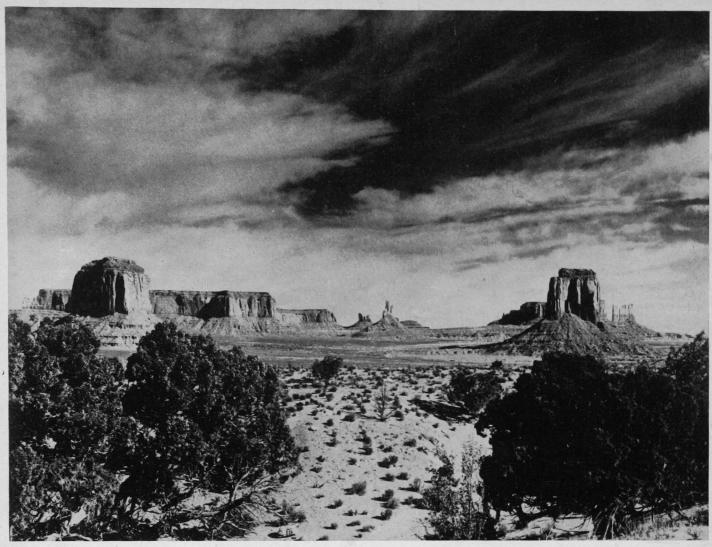
Weird as some forest of Carboniferous time is the great Joshua Tree forest (3) that ranges the northern Arizona slopes of Table Mountain north of Chloride and sweeps on beside the trail toward Gold Basin and Pierce's Ferry. Little else in the desert is like it; nowhere else save in the desert could it be found.

Half to the desert, half to the hills belongs the wonderland of Bryce Canyon (4). Washed from the passionately colored Pink Cliffs formation, its great amphitheater steps down to the White Cliffs and they in turn to the Vermilion, a giant stairs palisading Utah's romantic wastelands.

All the strangeness of the desert is typified by the giant saguaro cactus. In the great Saguaro Forest (5) at the foot of the Tanque Verde and Rincons in southern Arizona it is mysterious, defiant, forbidding, yet its charm and fascination are equally real.

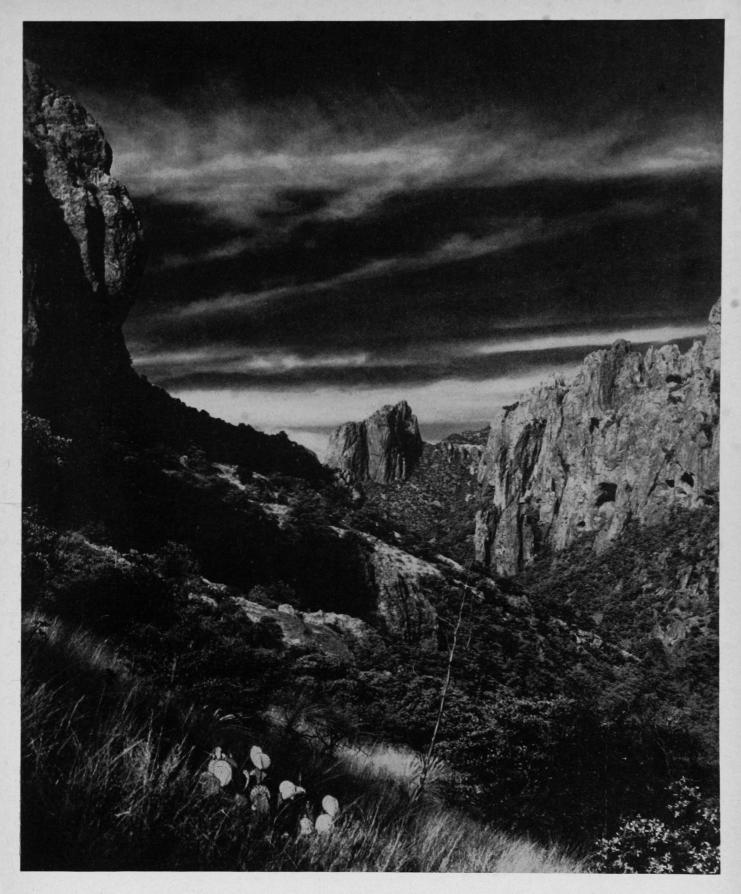


OCTOBER, 1944



Like mighty ruins of a primal world or some Stonehenge of the giants, mesas and monuments of Monument Valley (above) rise in grandeur and sublimity from the measureless spaces of their vast basin in Utah and Arizona. In their timeless presence, wonder is transformed to awe, and volubility flees before silence. Cane cactus, beavertail, flapjack and porcupine prickly pear, Joshua, hedgehog, and bisnaga—odd names describing even odder inhabitants of the Date Creek desert, central Arizona. Across its shimmering floor, between gaunt skeletal ranges, fantastic growths crowd together (below) in this garden of the sun.





Cave Creek Canyon

Chiricahua Mountains, Arizona. Along the South Fork of Cave Creek in the Chiricahuas, in a canyon of brilliant color whose cavern-pitted ramparts vault in stupendous bulwarks to the sky, we discover a fantasy of tree and

flower. Yucca grows with feathery, long-leaved Arizona yellow pine and dapple-trunked sycamore. Mingling with them dark cypress merge with agave, oak, and prickly pear. Barely within the mountains' grasp, this wonderland is indisputably of the desert.

Mines and Mining..

Washington, D. C.

Immediate free world market for gold and relaxing of limitations on mining, as well as use of gold and silver in world fund were proposed at Bretton Woods international monetary conference in August. Resolutions passed at two-day meeting of mining officials from 11 western states will be presented to meeting of governors sometime this fall.

Henderson, Nevada . . .

War production board has ordered Basic Magnesium, Inc., in Clark county to close down two more units, leaving four out of ten in operation, cutting production 40 per cent. F. O. Case, manager, estimated that about 400 employes would be affected, leaving approximately 2000 to produce the 4,500,000 pounds of magnesium monthly now assigned to BMI.

Kingman, Arizona . . .

Keystone mill in Mineral Park recently was purchased and reopened by W. L. Witt and associates of Henderson, Nevada. Unit will be thoroughly renovated and equipped to handle 150 tons ore per day. Mines throughout district are already prepared to ship ore to custom mill and many other mines are expected to reopen because of new mill. Nevada group believe lead, zinc and copper will be in demand for some time to come and that gold and silver possibilities in area merit consideration also.



TODAY . . .

Your motor needs all the protection you can give it for longer life. Wise owners look for the Green and White sign where quality QUAKER STATE Motor Oil is sold.

Winnemucca, Nevada . .

Senator James G. Scrugham, chairman of subcommittee on mining and minerals industry, is planning immediate studies of postwar possibilities of all domestic mining operations. This will be integrated with foreign mineral procurement investigation, reports to be issued later in the fall. Data also will be gathered on wartime critical and strategic minerals program.

Brawley, California . . .

Amerada Oil company, it is reported, will start drilling operations in Brawley or Heber-El Centro sections of Imperial Valley within next six months, having invested nearly quarter of a million dollars in leases. Company recorded 100 leases on land in Heber-Jasper-Verde districts, August 1.

Goldfield, Nevada . . .

Henry J. Kaiser has purchased \$70,000,000 in gypsum plants and deposits throughout the West in preparation for mass scale postwar home building industry which is expected to employ hundreds of thousands of workers. By using lightweight steel for trusses, new plastic cement for exteriors and gypsum wall boards for interiors, cost car be cut 23 per cent under existing methods and materials, according to Kaiser.

Bozeman, Montana

Only important U. S. deposit of corundum, second hardest known mineral, is being developed near Bozeman, J. Reed Lane, WPB deputy director announced. Fuller Corundum mine is scheduled to ship ore in late October, supplying most of nation's needs in this vital war mineral. It has abrasive qualities necessary in manufacture of precision instruments, grinding of lenses.

Santa Fe, New Mexico . . .

Famous Tiffany turquoise mines south of here recently were purchased by former Ambassador James W. Gerard, New York City. It is not yet certain whether mines will be reopened. Gerard recently acquired the 10,000-acre Mocho ranch in the area.

Denver, Colorado . .

Largest of its kind on record is 44-pound quartz crystal found in Devil's Head area by Louis H. Binderup of Denver. Specimen is a single crystal 19 inches long. Crystal of optical and electrical quality are in high demand for production of precision-cut quartz wafers in army and navy radio sets and other instruments for war, but this specimen it is announced will be kept as a collector's item.

Salt Lake City, Utah . . .

Dr. L. U. Gardner of New York, one of nation's leading authorities on silicosis and tuberculosis, has stated that virtual extinction of the two diseases lies ahead if management and labor work together on reasonable preventive measures. Essential steps toward elimination are positive control of silica dust in mines and employment only of persons not predisposed to tuberculosis as determined by X-ray photographs.

El Paso, Texas . . .

International Mining day will be held by city chamber of commerce Nov. 10 and 11. American institute of mining and metallurgical engineers expects to hold meeting in connection with event, and visitors from entire Southwest are expected to attend.

Albuquerque, New Mexico . . .

New bulletins, Nos. 19 and 20, issued by state bureau of mines and mineral resources describe occurrences and future possibilities of silver and manganese-iron ores in Boston Hill and Chloride Flat, New Mexico. Also described is stratigraphy of northern New Mexico, of special interest to oil and gas operators in that district.

Carson, Nevada . . .

Nearly 100 operators of mines, mills and smelters in state have suspended work during last year because of manpower shortage and wartime federal control. Small operators and miners in quicksilver, gold and silver have been hardest hit, leaving only 146 units in operation in state.

WE WILL BUY . . .

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They should be in fair condition to permit resale. Check your list of Desert Magazines and if you have extras send them to us.

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DESERT MAGAZINE

636 State Street El Centro, California

.. on the Desert

ARIZONA

Hunting Dates Given .

PHOENIX—Deer hunting season in northern zone of Arizona will be Oct. 16-Nov. 15. Exceptions will be Kaibab national forest and Bill Williams wildlife management area where controlled hunting will be necessary. Southern zone dates are Nov. 1-30. From Nov. 18-23, 800 permits will be issued to take one buck or doe regardless of age to help reduce breeding potential of herd. Antelope and elk, two greatest game animals, are on protected list this year.

Rain Fails Hopi Dancers .

HOLBROOK-No rain fell during Hopi Snake Dance in August although lightning flashed and thunder roared several minutes after completion of supplication for rain. Five Indian children participated for first time, since armed forces had taken older members usually used in dance, but none from Shungopovi and Shipaulavi villages participating were bitten by rattlesnakes during ceremony.

Rainfall Crumbles Walls . . . TOMBSTONE—Remains of old adobe First National bank building partially crumbled from heavy rainfall during August, damaging the famous landmark. Block of storerooms and corner of building on Allen street also caved in, furthering disintegration of old adobe sites in this historic mining town.

Brown Bear Killed . . .

SAFFORD — Large one-eyed brown bear weighing 450 pounds was killed in Graham mountains in August by C. W. Luster, game warden. Same bear was believed to have been raiding garbage pits at Pinecrest summer camps and killing pigs at Cluff ranch, two miles below camp.

Dr. Grady Gammage, president Arizona State Teachers college at Flagstaff, was named president of American Association of Teachers Colleges August 19, at Jackson's Mill, W. Va., meeting.

CALIFORNIA

Dehydration Mill Planned . . .

BRAWLEY-New alfalfa dehydration plant being built by Douthitt corporation of Chicago north of here is expected to go into operation sometime in October, according to members of Imperial Hay Growers association. Mill will handle 50 tons of alfalfa per day, finished product of meal going to outside markets. It is hoped that independent laboratory to study soils, fertilizer, production and food values will be set up in connection with mill.

Mountain Lions Caught . .

INDIO-James Wellman, cattle rancher, caught 130-pound male mountain lion in trap set for coyotes August 3 in Pinyon Flats section. This was third he had caught in recent weeks, collecting \$20 bounty for males and \$30 for females. He believes there are still some lions in same district of San Jacinto mountains.

Seed Shipment to Allies

EL CENTRO-Imperial Valley has raised and shipped 18,000,000 pounds of vegetable seed for allies during past year, 15,000,000 pounds being sent to Russia and United Kingdom alone. It is estimated that one 10,000-ton cargo ship could be used to send seed enough to produce food for 500 million people, while 950 ships of equal tonnage would be required to transport seed's equivalent in food.

Grapefruit Crop Good .

INDIO-Another 5,000,000-box crop of desert grapefruit is in prospect for season, according to Desert Grapefruit Industry Committee, Inc. Investigation shows that yield in Coachella, Imperial and Yuma areas has increased while drop is slated for Salt River valley in Arizona.

INSCRIPTION HOUSE

THE PAINTED DESERT POST Tonalea, Arizona

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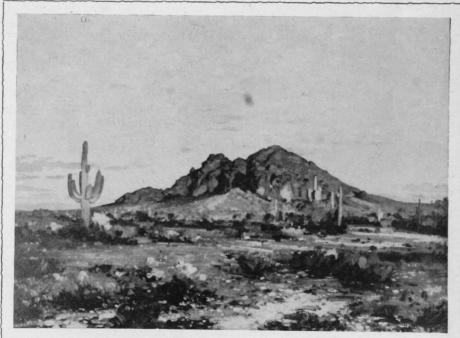


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"Sunlight on the Mountain"

Red-gold and smoky azure of Arizona are combined in this beautiful full color lithograph of Camelback Mountain, near Phoenix. Each 16x12 print signed by artist Lon Megargee and printed on white mat suitable for framing. Place your gift orders early to assure delivery, and we will mail them as you instruct.

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Jacumba Hot Springs Sold . . .

JACUMBA—W. A. Hansen of Fullerton recently purchased holdings of Jacumba Hot Springs company, located on highway from El Centro to San Diego. Transfer includes four-story hotel, apartments, park, hot springs, bath house, swimming pool, auto court and cottages and nearly all surrounding real estate. Bert B. L. Vaughn had owned property since 1919, being founder, manager and unofficial mayor of mountain village until now.

Date Booklet Issued .

INDIO—Informative booklet entitled "Growing Up," publicizing Coachella valley's date industry, recently was compiled by M. C. McDonald and edited by officials of date cooperative. Many individuals, corporations and libraries have requested copies of booklet which describes history and growth of United Date Growers of California.

Air Station Expanded . . .

HOLTVILLE — Expansion costing \$734,147 is being made at Navy auxiliary air station here, Eleventh naval district disclosed August 10. Contract awarded A. Farnell Blair, San Francisco, includes two hangars, training building, three temporary barracks, bachelor officers' quarters, Waves barracks, officers' mess, brig, two storehouses and addition to dispensary.

Aqueduct Line Planned . . .

HEMET—Plans are being prepared for construction of large conduit from San Jacinto tunnel of Colorado river aqueduct to San Diego, according to word from Metropolitan water district of Los Angeles. Because of tremendous population growth in San Diego, supplying of dependable water ways long has been urged by army, navy, aircraft and civil authorities

The Desert Trading Post

Classified advertising in this section costs five cents a word, \$1.00 minimum per issue— Actually about 1½ cents per thousand readers.

MISCELLANEOUS

SMALL POST-WAR BUSINESS FOR SALE—A going business for six years necessarily discontinued during the war. One office man and one mechanic can resume as materials become available but now is the time to get ready. The products are The Johns Gem Cutter, The Johns Thin Section Cutter, The Johns Potters Wheel, The Johns Lineoleum Print-Press, The Johns Nick Remover and Polisher for Glassware. Manufactured parts, gated metal patterns, jigs and special tools, advertising set-ups, printed matter, good will, etc. No machine shop equipment included. Reason for selling is poor health of sole owner. Geo. McD. Johns, Rt. 3, Box 112-A, San Antonio 2, Texas.

WHY SPEND YOUR ENERGY trying something that cannot be done your way? Give Nature a chance to succeed? BASIC RE-SEARCH LABORATORIES SYSTEM, 785 Lafayette Street, Denver 3, Colorado.

FOR SALE—Indian relics, 23 assortments from which to choose, \$1.00 per assortment or \$20 for all 23. All perfect specimens. Choose from these: 10 beautiful prehistoric Indian arrowheads; 10 tiny bird arrowheads; 10 arrowheads from 10 different states; 2 stone tomahawks; 4 spearheads; 5 stone net sinkers; 10 fish scalers; 2 hoes; 4 agate bird arrows; 5 flint drills; 7 flint awls; 10 beautiful round head stunning arrowheads; 4 fine sawedged arrowheads; 4 fine flying bird arrowheads; 4 fine drill pointed arrowheads; 4 fine queer shaped arrowheads; 4 rare double notched above a barbed base arrowheads; 5 double notched above a stemmed base arrowheads; 12 small knife blades of flint; 1 rare shaped ceremonial flint; 3 flint chisels; 7 crystals from graves; 10. arrowheads of 10 different materials including petrified wood. Locations given. 100 arrowheads \$3.00. 100 very fine mixed arrowheads all perfect showy colors including many rare shapes such as drill pointed, double notched, saw edged, queer shapes, etc., location and name given, \$25.00. List free. Lears, Glenwood, Ark.

Large stock of petrified palm. Twenty tons of rock specimens. Navajo rugs, reservation hand hammered silver and baskets from many tribes. Many other handmade artifacts. Daniels Indian Trading Post, 401 West Foothill Blvd., Fontana, Calif.

Let us do your shopping. Our knowledge of merchandise is at your service. We will buy any article for you from "a button to a steam shovel" for a nominal service charge. Coast Cities Shopping and Buying Service, 623 Storey Bldg., Los Angeles 14, Calif., or 403 Maritime Bldg., Seattle 4, Wash.

Indian Relics: 20 genuine Indian arrowheads \$1.00, Catalog. Geo. Holder, Glenwood, Ark.

BALL BEARING ARBORS—3/4-in. shaft 16 inches long \$11.75; one inch shaft \$15.75. These arbors are very good for grinders. sanders and buffers. This includes pulley and bolts ready to bolt to your bench. Send \$5.00 with order. All prices F.O.B. L. A. Calif. We also carry lapidary supplies. Open Saturday and Sunday from 9 a. m. to 7 p. m. 5118 Granada St., Los Angeles 42, California, in Highland Park.

WANTED, for general work and to assist cook in a small resort, a married couple or two women. Write giving all particulars and salaries required, to Desert Lodge-Rancho Borrego, Borrego, Julian P. O., California.

LIVESTOCK

KARAKULS producers of Persian Lamb fur are easy to raise and adapted to the desert which is their native home. For further information write Addis Kelley, 4637 E. 52 Place, Maywood, California.

"Karakul Fur Sheep — America's Great Livestock Opportunity—You can be a part of this fascinating business and have your Karakuls cared for by experienced rancher. Write for details, James Yoakam, National Distributor, 1128 No. Hill Ave., Pasadena, California."

NEVADA

Nevada Silver for Nevada Sailors

CARSON CITY—Treasure chest of Nevada Magnesium will carry 2,000 silver dollars minted here to crew of U.S.S. Nevada, American battleship which aided in invasion of Europe, Governor E. P. Carville announced. Coins will be used by officers and crew members as good-luck charms... chest is expected to wind up on desk of commander for use as cigar container!

Indian Students Join Up . . .

STEWART—Approximately 300 students of Stewart Indian school have joined armed services since war, four of them girls who have enlisted in WAC. This represents larger proportion of enlistments than from any other school containing same age group. Nearly all young men from the school enlist upon reaching 17, and because of excellent physical education program they seldom are rejected.

Legion Convention Held . . .

WINNEMUCCA — This city was chosen as site for 1945 Nevada department convention of American Legion at session held at Las Vegas in August. Newly elected officers include J. William Schaefer, commander; I. A. Lougaris, national executive committeeman, and Theo Garrett, first vice commander.

Temperature Lower . . .

CARSON CITY—Average July temperature for state was 71.2 degrees, or 1.4 below mean for past 56 years. Highest recorded was 113 degrees at Overton on 17th while lowest recorded was 28 degrees at Mala Vista ranch on 10th.

Coal Company Formed .

GOLDFIELD—Sierra Coke and Coal company has become incorporated and plans to operate coal fields at Coaldale, north of here. Main product is to be ammonium sulphate, used as fertilizer. Experiments are being made for use of coal in coke, tar and by-products of tar.

Yacht Club Possibility . . .

LAS VEGAS—Plans are underway to form Lake Mead yacht club, sponsored by city chamber of commerce. Unusual setting and favorable year-round weather are lake's assets for this sport, according to Frederick C. Brewer, well-known yachtsman. Program would include complete clubhouse, commissary, moorings, marine railway launch, car ramp, bathing beach and maintenance and repair shops.

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NEW MEXICO

Ceremonial Profits Totaled .

GALLUP-At least \$15,000 was received for Indian handmade arts and crafts during annual programs of Inter-Tribal Indian Ceremonial August 11-13, M. L. Woodard, secretary, announced. In normal times an estimated \$200,000 is spent during Ceremonial by visitors, and still larger amounts are anticipated during the postwar period. This 23rd annual presentation of event set new peak in attendance, an estimated 10,000 or 12,000 witnessing the five programs.

Murderer Was "Bewitched"

ALBUQUERQUE -- Ignacio Candelaria, 59, confessed to fatal stabbing of estranged wife and her adopted son while believing himself bewitched. He said his wife cast spell over a doll and buried it, causing him to lose all his strength. She refused to cure him, and when Navajo medicine man could not break spell, Candelaria killed his wife and her son Adolfo Montoya, 23, when the latter attempted to defend her.

Poe Original Lost . . .

SANTA FE-A. S. Bigelow has offered \$5000 reward for return of original copy of Edgar Allan Poe's "Tamerlane." He said that paper-covered volume was one most highly sought by book collectors and was lost or stolen early in August during move from a ranch north of Pecos to Santa Fe.

Tenth of Paguate Serves . . .

ALBUQUERQUE—The 726 residents of Paguate village of Isleta Pueblo dedicated village service flag at ceremony August 11. List of 71 names, near ten per cent of population, was read and dedicatory address was made by Abel Paisano, councilman of pueblo.

Famous Pottery Maker Dies . . .

SAN JUAN-Mrs. Keyasita A. Trujillo, well known pottery maker of San Juan Pueblo died here early in August She and her husband had been Pueblo's representatives at Chicago world's fair, 1934, had gone on to Washington where they met President Roosevelt. Mrs. Trujillo had won many first prizes at Gallup Índian Ceremonials and Santa Fe Fiestas.

Frontier Leader Passes . . .

SANTA FE-Miguel Antonio Otero, former territorial governor of New Mexico, died in his sleep August 7, aged 84. Frontier veteran at 20, Otero knew many famous men and women of early West and took an active part in its settlement. Late years were devoted to writing of memoirs including "My Life on the Frontier" and "My Nine Years as Governor of the Territory of New Mexico."

Five fishermen in August reported black bear and cinnamon bear in Hondo canyon, area rarely visited by bear.

UTAH

Scabies Endanger Sheep . .

SALT LAKE CITY - Epidemic of sheep scabies threatens to ruin eastern markets for Utah, Idaho and Nevada sheepmen, L. Tate, Minnesota law enforcement officer here on inspection tour, declared. Western sheep are free from disease up to point of shipment but contact it from contaminated transportation vehicles and feed and water pens. Measures are being taken to disinfect such items and check spread of scabies.

State Parks Considered . . .

SALT LAKE CITY—Officials of Utah department of publicity and industrial development have designated nearly 40 areas in state for consideration for inclusion in system of state parks and monuments. Some areas would include extensive acreage and others only monuments commemorating state historical sites. At present, only one state park and no monuments are being maintained.

Many Predators Killed . . .

SALT LAKE CITY—Efforts of federal fish and wild life service and hunters combined to kill and trap some 20,000 predatory animals throughout state during past year. Bounties of over \$70,194 have been paid for killing of 10,078 coyotes, 1501 bobcats, 47 cougars and one wolf.

Lake Dispute Settled . . .

CEDAR CITY—Old controversy over water of Navajo lake, fishing and camping resort, was settled after meetings between interested parties and state fish and game commission in August. Dike, damaged last May by dynamiting, will be repaired and raised two feet, new headgates and spillways to be constructed also. Storage of 2000 acre feet of water will be turned over to Virgin river during irrigating season, river water users agreeing to pay onefourth expenses of repairs and construc-

Great Lake Diminishes . . .

SALT LAKE CITY—Great Salt lake has fluctuated some 18 feet in depth since first measurement by gauges in 1850, according to chart released by M. T. Wilson, U. S. geological survey engineer. Level of 1850 was 4201 feet above sea level, all-time high was almost 4212; lake is now just under 4195, showing steady decline of about foot and a half a year. Irrigation and evaporation may someday leave lake a dry bed of salt say some geolo-

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Noteworthy scenic spots have been described in the "Mojave Desert Travelog." Ghost Towns, Crimson Canyons, Historic Mines, Rocks and Semi-Precious Stones, Desert Wildflowers, Ancient Indian writings are interestingly written, profusely illustrated with photographs and detail maps. Set of 12 travelogs, price 25c. Write to Barstow Printer-Review, Barstow, California.

A WESTERN THRILL

"Courage," a remarkable oil painting 20x60 feet, the Covered Wagon Train crossing the desert in '68. Over a year in painting. On display (free) at Knott's Berry Place where the Boysenberry was introduced to the world and famous for fried chicken dinners with luscious Boysenberry pie.

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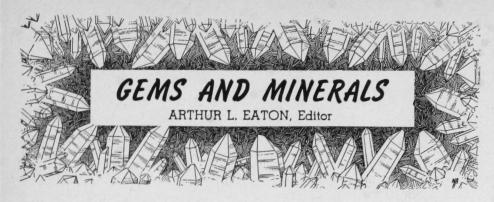
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MAGAZINE

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El Centro, California



LOS ANGELES MINERAL CLUB HONORS PAST PRESIDENTS

Los Angeles Mineralogical society observed a past presidents' night August 17 at Boos Brothers cafeteria, 530 South Hill. Topic for the evening was "My Interest in Mineralogy as a

Past presidents of the group are: Dr. Thomas Clements, 1932-33-34; Dr. Howard R. Hill, 1935; Mrs. Gertrude McMullen, 1936-37; Dr. John A. Herman, 1938; O. C. Smith, 1939; M. Ernest Peterson, 1941; B. Gordon Funk, Smith, 1939;

September field trip was at the home of president Richard Lehman. The mineral collection of the society was on display. Swapping was in or-

LAPIDARY SOCIETY HAS OUTSTANDING PROGRAM

One of the most interesting and instructive meetings of Los Angeles Lapidary society was held August 7. In the absence of program chairman Loren Mitchell, Fred Rugg took charge of the program. He spoke on the dangers of the desert, from personal experience dating back to 1910 when he drove a team through Imperial Valley.

Herbert Monlux, who spent July near Mono craters, spoke on that region and presented each member with a volcanic bomb. Mrs. Belle Rugg sketched a trip which she took into Chuckawal la mountains. Chas. G. Schweitzer entertained the group with narration of a trip to Horse can-

More than 100 members and guests enjoyed the meeting, presided over by president Rolland E. Willis. There was an unusually good display of polished stones.

ROCKHOUND'S PRAYER

By CARROLL DEWILTON SCOTT

Rock polishing is my hobby, I shall not want for exercise . . . It maketh me lie down in broad pastures, It leadeth me beside dry water courses . . . It restoreth my youth, It leadeth me in the paths of the desert tortoise, for my hobby's sake . . . Yea, though I walk thru Death Valley, I will fear no disappointment, for the gems are there also, the nodules and the crystals they comfort me . . . Thou preparest the tablelands before me with chalcedony, enough for me and my enemies. Oh for gas and oil till my tank runneth over . . . Surely this hobby shall follow me all the days of my life and I will dwell in a house full of rocks forever.

The spectroscope has been used for many years to discover and identify the elements and minerals in the sun's surface and corona. Each element when heated enough to become a gas, as in the sun's corona or the laboratory, shows its own distinct color or shade of color. Nearly all elements known on earth, except gold, phosphorus, mercury, and two or three others, have been identified in the past from the sun spec-trum. Just recently, the spectra of gold and thorium, a rare radioactive element, have been discovered and checked.

SOUTHWEST MINERALOGISTS REPORT ACTIVE SUMMER

Jeanne M. Lippitt, corresponding secretary Southwest Mineralogists, Inc., reports the society has been active throughout the summer months. Study group under Mr. Eales has learned how to identify minerals by hardness and streak test. Moving pictures of Luray cav-erns of Virginia and Carlsbad caverns of New Mexico illustrated a talk by Victor Arcienega on limestone caverns, at July 21 meeting. July 30 marked the annual trip to Western Trails museum and the home of Mr. and Mrs. Marion Speers of Huntington Beach.

Roscoe A. Goodcell of the Automobile Club of Southern California gave the members an in-teresting talk on the Alaskan highway, illus-trating his talk with 110 colored slides. August 26 field trip was to the home of Joe and Florence Vercellone in South Gate.

COLORFUL MINERALS

AMAZONITE

Amazonite or amazonstone is a variety of microcline feldspar, potassium aluminum silicate. Common microcline ranges from snow white to cream in color, often is beautifully lined, and has brilliant feldspar luster on cleavage faces. But amazonite boasts a light green to almost emerald green color, and sometimes fine hexagonal crystals with a low pyramid. Amazonite found massive at Amelia courthouse, Virginia, and many other places, including San Diego county, California, and Arizona. Pike's peak area, Colorado, furnishes perhaps the most beautiful specimens-great masses of fine, deep green colored crystals.

Color Aids Identification

Field Book of Common Rocks and Minerals, by F. B. Loomis, is an excellent book for either beginner or professional. It contains simply worded sections on the six crystal systems, hardness, cleavage, etc. About 170 pages deal with minerals; another 100 pages with all types of common rocks—sedimentary, igneous and metamorphic, as well as coal, petroleum, etc. One of the most interesting and valuable parts of the book is the group of 73 plates of photos and drawings of rocks and minerals, most of them done accurately in full color. Many amateurs find these color plates useful in identification of their newly found specimens and crystals. \$3.50.

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AMONG THE

ROCK HUNTERS

Ernest Chapman talked on minerals and crystal cavities of the New Jersey region at August
11 meeting of Pacific mineral society. He emphasized zeolites and displayed many choice specimens.

August mineral notes and news, publication of California Federation of Mineralogical societies, published a picture of Sequoia group taken at the Dinuba picnic.

Fred C. Johnson, for 14 years a resident of Africa, discussed diamonds and mining methods at August 11 meeting of Long Beach mineral-ogical society. Jesse Hardman has arranged a display of specimens in Long Beach main library as an advertisement of the mineral show October 15.

Most of the mineral club monthly bulletins contain articles of information and interest to members. For instance, August Sequoia bulletin discusses sardonyx; Searles Lake, Hot Springs deposits of Coso mountains; Marquette, fossils; Pacific mineralogist, mineralogy as a hobby.

During June, July and August New Jersey mineralogical society did not issue bulletins due to transportation problem. Regular meetings were resumed September 5 at Plainfield public library. Speaker was Mr. L. Vogt of WPB, whose subject was radium.

Pacific mineral society on September 8 had a motion picture night through courtesy of Aluminum Company of America. Films, shown at Hershey Arms hotel, Los Angeles, were "Unfinished Rainbows," a technicolor production starring Alan Ladd, "Aluminum — Mine to Metal" and "Aluminum Fabricating Processes."

Searles Lake gem and mineral society continued activity through the hot summer months. Mr. and Mrs. John McPherson were hosts to the group August 16. Mr. McPherson talked on the history and mining development of his section of the Argus range, about 11 miles north of Trona. Robert L. Sherman gave the second half of his talk on astronomy, using his home made telescope. New members will join with old helping Ann Pipkin put on the annual hobby show October 21-22 in the high school auditorium. Attendance is expected to reach 1000.

Arthur L. Flagg reports that Mineralogical Society of Arizona found it worth while to hold informal meetings through the summer months. The group met on the Arizona museum lawn with all museum facilities available. Annual picnic was June 4 with 60 in attendance. Regular schedule will be resumed October 5, and continue on first and third Thursdays through May, 1945. Pertinent motion pictures will be shown once a month.

GEM MART

ADVERTISING RATE 5c a Word - Minimum \$1.00

AURICHALCITE, the double carbonate of zinc and copper, a really beautiful mineral, from a new locality. Prices 50c to \$3.00 per specimen. W. T. Rogers, 1230 Parkway Ave., Salt Lake City 5, Utah.

ROCK COLLECTORS ATTENTION—FALL SPECIAL OFFER—24 different, labeled, rocks, minerals, crystals; my selection, colorful, rare, showy. Postpaid \$10.00. Also with this offer, a free cabochon, your choice of moss or marked agate, opal, moonstone, turquoise, petrified wood, carnelian. You name it. The Rockologist (Chuckawalla Slim), Garvey Trailer Park, 941 E. Garvey Blvd., Garvey 32P, California.

Have a hobby, spend the long winter evenings in happiness. Permit me to start you in mineral collecting. For \$10.00 I will ship you 15 beautiful Colorado minerals, size 2x2, each one labeled. Try it and find happiness. All ads in past issues still good. Jack the Rockhound. P. O. Box 86, Carbondale, Colorado.

Wanted:to buy, sell and exchange specimens outstandingly rare and beautiful. Sam Par-ker, 2160 East Van Buren, Phoenix, Ariz.

Selling out. Army calls. Assorted gem rocks (rough). 10 lbs. \$2.50. Also cabinet specimens. Leon Hansen, Colfax, Calif.

Elba Iron Ore: Rare, in blade and crystal form, 25c up to \$5.00 piece. Something new for collectors. Valley Art Shoppe, 21108 Devonshire Blvd., Chatsworth, Calif.

Oregon Plume Agate in rough slabs for making ring, brooch or pendant sets, \$4.00 to \$15.00. Polished sets \$5.50 to \$20.00. A few exceptional pieces at higher prices. These are the finest agates of Oregon's sagebrush country. E. Lee Sigfrit, 211 Congress Ave., Bend, Ore-

Rose Tourmaline in Quartz, \$3.00 to \$7.50 each. Gem Kunzite 75c gram. Specimen Kunzite, \$1.50 to \$20.00 each. Blue gem Tourmaline, 50c to \$3.00 each. Jasper spheres 3 and 6 in., 3 in. Jasper sphere \$10.00; \$25.00 for large Jasper sphere or 3 in. Jade sphere. The Desert Rat's Nest, 2667 E. Colorado St., E. Pasadena Calif E. Pasadena, Calif.

Antique Jewelry: 12 articles antique jewelry, brooches, rings, lockets, chains, etc. \$3.60. 12 assorted hatpins—\$3.00. 12 stickpins \$2.75. B. Lowe, Box 311, St. Louis 1, Mo.

Pink Muscovite on Albite Quartz-Something new for the cabinet. Specimens, 75c to \$4.50. Jay G. Ransom, 3852 Arboleda St., Pasadena 8, Calif.

Minerals, Fossils, Gems, Stamps, Coins, Pistols, Glass, Bills, Indian Relics, Bead Work. Catalogue 5c. Cowboy Lemley Curio Store, Las Cruces, New Mexico.

Peacock Copper Specimens. Beautiful specimens. Colors range from natural golden brown, blue purple, red pink, in wonderful combinations. No two specimens have same coloring, but all are specimens of beauty. Sizes range from 2x2 to 3½x4. Any amount between \$1.00 and \$6.00 will bring you one of these beauties, add postage please. Jack the Rockhound, P. O. Box 86, Carbondale,

Agate Chips, require no sawing, one pound assortment 75c. Small slabbed pieces ½ inch and up one ounce 30c, 1/4 pound \$1.00. ES-CALANTE AGATE COMPANY, Box 941, Grand Junction, Colorado.

Jewelry stones removed from rings, etc. 100 assorted \$2.40. B. Lowe, Box 311, St. Louis 1, Missouri.

INTRODUCTORY OFFER—One dollar each lot. Five all different Fluorescent Agates polished. Thirty rough Mexican Opals. Fifty nice pieces Turquoise. Twenty different polishing specimens. Postage ten cents. Minerals and gems on approval. DR. RALPH MUELLER, Professional Building, Kansas City, Missouri.

Montana Moss Agates in the rough for gem cutting, \$1.00 per lb. plus postage. Elliott's Gem Shop, 26 Jergins Arcade, Long Beach 2, Calif.

\$2.50 brings you prepaid six rare and beautiful crystallized Arizona minerals. Vanadinite, Dioptase, Wulfenite, Willemite, Chrysocolla, Azurite. Specimens 1½x2 or larger. Wiener Mineral Co., Box 509, Tucson, Ari-

Choice Palm Root-Full of eyes showing root and trunk structure. Very colorful. Sliced for Cabochons. 25 cents per square inch. Satisfaction guaranteed. GASKILL, 400 North Muscatel, San Gabriel, Calif.

50 ring stones, including genuine and synthetic
—\$7.50. 12 genuine Opals or Cameos—
\$2.75. Plus 20% tax. B. Lowe, Box 311, St. Louis 1, Mo.

INDIAN RELICS, Curios, Coins, Minerals, Books, Old Buttons, Old Glass, Old West Photos, Weapons, Catalog 5c. Lemley Antique Store, Osborne, Kansas.

Quartz crystals of the finest water clear quality to be had. Single points from 10c to \$10.00 each. Groups from 50c to \$50.00 each. Outstanding specimens in groups for cabinets and advanced collectors from \$5.00 up. Several bushels of broken and blemished points, mixed quality, fine for rock gardens at \$12.50 per Bu. Good quality blemished points, all sizes at \$25.00 per Bu. Wavelite 50c per Lb. Novaculite, the beautiful gem material, in white, jet black, salmon pink, cream and blended material at 50c per Lb. Or six Lbs. Asstd. Colors for \$2.50. Delivery Charges extra and satisfaction or money back on every item I ship. J. L. Davis, 303 Ward Ave., Hot Springs, Ark.

DESERT QUIZ ANSWERS

Ouestions on page 14

1—Don Fernando de Taos. 2—Mt. Ellen, 11,485 feet elevation.

-Adolph Bandelier.

-Mesozoic.

-Copper bells of Mexican origin have been found in excavations in northern Arizona, particularly at Wupatki Ruin.

-Remains of Hohokam (People That Are Gone) irrigation canals still are to be seen south of Phoenix, Arizona, in Casa Grande ruin area. Scientists believe they were used between 200 B. C. and 500 A. D.

-M. L. Woodard, Gallup, N. M.

-32 miles have been explored, but only about seven miles have well lighted trails.

-Coloring of gem stones for commercial use.

11—Panamint range.12—Hopi. The Papago speak Shoshon-ean which is also the stock of the Hopi.

Spanish Duke of Albuquerque. 14-Diné, meaning The People.

-The Yuman-speaking Kamia whose descendants now are found with the Yuma and Cocopah.

-Deposition by water.

17—Pigweed, or Saltbush family.
18—1700. 19—C. Hart Merriam.
20—Sapphire. It is hardness nine, only the diamond will make a scratch on

Tables Identifying Minerals

Tables For the Determination of Minerals, by E. H. Kravs and W. F. Hunt, is the answer to a long felt need. Few prospectors or amateurs have either the exact technical knowledge or the necessary equipment to make careful chemical or other tests for the identification of minerals or deposits. Kravs and Hunt's book is made up of a series of tables of the physical characteristics of minerals which can be determined by anyone. It puts a vast fund of information about 250 common minerals at the service of all. 266 pages. Price \$3.00.

Western miners have been notified by the war production board that no further supply of iceland spar, used in the manufacture of gun sights, precision instruments, dichroiscopes, etc., will be needed after October 1. H. G. Taylor of WPB said the army and navy have announced a reduction in requirements of iceland spar and estimate that their requirements soon will be filled by existing stock piles.

Marquette geologists association, Chicago, resumed meetings September 9.

Rocky Mountain federation has planned a traveling or loan collection of minerals. Each active member society contributes a small collection of rare or exceptional specimens from its locality. Mineralogical Society of Arizona started a group of 20 unusual minerals on its rounds October 1. Exchange is made monthly.

Sequoia mineral society met at Reedley August 1. Members displayed agate, with emphasis on sardonyx. A game of mineral identification intrigued participants. Bill Dyck gave a small Arizona peridot to each member who was born in August.

Fifty-six members and visitors of Orange Belt mineralogical society met for a covered dish dinner in Pinetum at Sylvan park, Redlands, August 13. First prize went to Dr. D. H. Clark for most interesting experiences as rock collector.

Members of Mineralogical Society of Utah enjoyed rare treat September 3 when they held their first annual dinner at CCC camp in beautiful Albin basin at upper Alta. Miss Betty Jones headed arrangements committee. Dinner marked last field outing of the year and members were free to bring guests.

New Jersey mineralogical society has elected following officers for 1944-45: Joseph D'Agostino of NBC, New York, president; H. Millson, Calco Chemical Co., vice-president; Dr. P. Walther, vice-president; G. R. Stilwell, Bell Laboratories, New York, secretary; Miss E. Hensel, Plainfield public schools, treasurer; D. A. Surina, Plainfield public schools, librarian; Dr. A. C. Hawkins, Lucius Pitkin Co., New York, curator.

Americans would wonder less about the demand for tin, and the apparent scarcity, if they knew of some of the numberless uses to which it is put in the war effort. The new battleship Missouri carries almost 100 tons of tin mixed with its other metals. Every warship, of every type, carries great quantities of this fine metal. The radio uses it in many of its parts, also the gas mask, the bombsight, and a thousand and one other military and naval instruments. Save your tin for the government, and you will be helping both the army and navy on their way to Tokyo and Berlin.

OCCURRENCE OF HERKIMER QUARTZ CRYSTALS DESCRIBED

By EDMUND EVERETT HOBBS, SR.

The famous Herkimer quartz crystals of Herkimer county, New York, occur either in pocket cavities in Little Falls dolomite, or, as this rock disintegrates, the many small doubly-terminated crystals locally called "Little Falls diamonds," are found loose in the top soil. The native rock of the vicinity is either massive dolomite, dolomite rhombs, or dolomitic limestone. The crystals are found only in certain phases of the dolomite itself, known as the Beekmantown formations.

In the deep railroad cut of the West Shore railroad at Little Falls, N. Y., one can see the strata to perfection. In the bottom of the cut, are seen Cambrian age rocks, such as Little Falls granite, gneiss, etc. Above this, Little Falls dolomite, and at the top, the strange and curious Little Falls Cryptozoan ledge.

Herkimer quartz crystals are hexagonal, with a six-sided pyramid on each end. In the smaller crystals, and even a few of the larger ones, the sides or faces of the main crystal all appear to be of the same uniform size and shape. But, in many large crystals, the sides are quite irregular in form and shape. These are known as trapezohedral or trapezohedrons (cf Dana). In this latter type, hardly any two of the faces are of the same shape or size.

Many small Little Falls "diamonds" are perfect brilliants, without striations, imperfections or inclusions. They have fine luster and many have been cut into gem stones for rings and brooches. However, the larger crystals are notably lacking in the fine luster and transparency so noticeable in the small ones, but have instead, fractures, flaws, drops of water or other liquid, specks of carbon or iron, and are thus unsuitable for gems or other uses.

While most of the Herkimer county crystals, the ones for which the collectors go in a big way, are doubly terminated, some with single terminations, often cloudy or smoky, are found at Diamond hill near Salisbury, N. Y. Also, even near the fine "Herkimer diamonds" dolomite cavities sometimes are coated with dirty-looking drusy quartz, and these cavities never produce desirable crystals. Most of the brilliant Little Falls crystals already have been collected. At Middlevale, about all of the largest doubly-terminated gems, and even the crystal freaks, have been gathered.

Fluorescent stones sometimes appear. Donald Hurley, a collector who specializes in quartz, states, "Much of our Herkimer quartz possesses fluorescent traits or possibilities with a cold quartz lamp, and some of my Middlevale, N. Y. quartz crystals fluoresce beautifully and show spots of green, gold and yellow fluorescence."

Doubly-terminated crystals are rare in the places where dolomite rhombs and calcite are in evidence. But there are exceptions to the rule. Arthur Davis on one of his collecting trips made an unusual discovery of a large calcite crystal with a cavity in one side, and within this county, a double-terminated Middlevale quartz crystal. The quartz termination lying deepest in the calcite and the inside of the calcite cavity itself both were deeply striated.

Other unusual finds have been a large crystal badly shattered inside, but with the other side still intact; a group of three large and two small inter-grown crystals, with a water bubble blown out of one of them so as to form a geode; and a large Diamond Hill crystal with one termination almost effaced by rubbing on the dolomite.

The area of Herkimer county, where good crystals have been found, is quite small but if one perseveres, good gem crystals still may be found in many places, although not as easily as in past years.

Cogitations. Of a Rockhound

Of a Rockhound

By LOUISE EATON

Don't yu love to see a nexpert rock-houn meet up with a unknown speciment! He duz a little licking, hefts th rock, scratches at it with a pocket nife, uses a hand lens on all sides 'n corners, fondles it a while then consults Dana to see if maybe his guess at identification is purhaps correct, before takin th rok to the labratory to make further tests. By the time he's finished with it he shure knows all there is to know about it.

There'll probally be more rockhouns in the comin generashun than there is now bucuz rockhouns' children, 'n specially grandchildren, seems jus natcherally to be born rockhouns. Bout the furst thing they duz when they starts navigatin is to find all th rox in reach. Then shure as shootin they licks um meditatively. Like gron ups xactly. Then when they can walk they cumz in proud as punch, sayin, "Here wok, Bumpo, here nice fresh wok." The future looks bright for attendance at gem 'n mineral clubs.

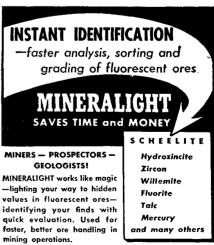
Mama rockhouns has to be patient bout clutter in th house. Papa rockhouns 'n their frens are adept at strewin rox over tables 'n uther flat surfaces, but not so good at cleanin up afterward.

Imperial Valley gem and mineral society is placing a display of cut and polished material in their showcase in county court house, El Centro.

Paragraphs in Long Beach mineral news are separated by the announcement: Long Beach mineral show, October 15, 1944.

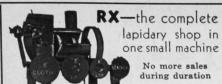
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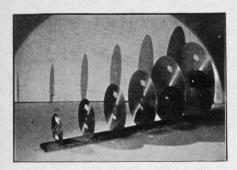
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AMATEUR GEM CUTTER

This page of Desert Magazine is for those who have, or aspire to have, their own gem cutting acts this department, is former presid to answer questions in connection

and polishing equipment. Lelande Quick, who conducts this department, is former president of Los Angeles Lapidary society. He will be glad to answer questions in connection with your lapidary work. Queries should be addressed to Desert Magazine, El Centro, Calif.

By LELANDE QUICK

This isn't the place for it but I wanted to tell you that the war will be over on October 27. It happened this way. When I returned recently from the east a doctor friend told me this story in all seriousness. A patient of his had been to New York in April. It was her first trip there so she thought the best way to see a lot of it quickly and cheaply would be from the top of a bus. She boarded one and climbed upstairs. The only seat available was next to a Chinese and as she sat down he tipped his hat and smilingly handed her a dime. Before she had a chance to protest the seeming effrontery he told her that she would need it to pay her fare as she had left her purse on the bureau in her hotel room. Tearing open her handbag she found it was true and she was properly confused. She was filled with wonder and questions of course but try as she would she could not form one question of the many she wanted answered when her samaritan invited her to do so. He soon had to alight from the bus so he said "perhaps madame would like the answer to the question that is on everyone's lips. The war will be over on October 27." And with that he was

Now there could be many interpretations of that prediction. The war could be over before this appears which wouldn't make the prophecy so ridiculous because it would still be true. Perhaps there are many versions of this tale, a tale that Alexander Woolcott would have drooled over, but I have heard no others.

I mention it because it started a train of thinking that has been bothering me for weeks. I would like to employ the services of "Ching" to tell me which one of a load of Chocolate Mountain geodes contains red crystals, to tell me just when they plow at Nipomo so that I could arrive while they were doing it and fill a sack with agates, to tell me when the best stones are "running" at Redondo Beach, to tell me where there is another Virgin valley, to tell me just where to dig for the best thunder eggs and to tell me of many undiscovered gem Sometimes I get unreasonable requests like the one that came recently: "Mr. Quick, I'm just going to put myself in your hands for the duration. Tell me all the spots in San Bernardino county (the largest in the country) where I can find agate and chalcedony." I would turn over correspondence like that to "Ching" for reply. I could use him in so many ways. Before I ground a gem at all I would ask him if the final result would be worth it all and I'd take his advice-if the war IS over on October 27.

Having recently had occasion to purchase an expensive piece of carved coral for my collection I was gratified to learn that there was no 20 per cent federal tax on it "because," said the clerk, 'there is only a tax on mineral figures, none on animal or vegetable and coral is vegetable matter." I tried to correct her by telling her it was animal matter but she ridiculed the idea for hadn't she seen the coral reefs growing like flowers with her very own eyes? It seemed futile to tell her that coral is the skeletons of countless polyps turned to carbonate of lime so I completed my purchase, grateful that I did not have to pay the heavy tax. But since it is a mineral it seems the government has missed a bet and I wonder if one could refuse to pay any tax on jewelry made of petrified wood on the ground that it was "vegetable matter." There is no tax on ivory because it is animal matter and these points are good to know.

While jade, ivory, coral and other carved gem figures always have commanded fancy prices they never again will be sold for as little as they are now for a world is coming soon where no artisan will work for four cents a day as did the Chinese who carved most of the figures now in existence. It is safe to say that any figure purchased at a hundred dollars today will be worth many times that in the markets of a few years from now. In purchasing such materials remember to purchase carving and not size. Purchase hard hand labor and not just material. A two inch figure intricately carved with great imagination is far greater in value than a six inch figure with large smooth areas and little carving.

Following last month's advice on coloring agates red I am giving herewith the methods used in Idar, Germany, for coloring agates blue.

Dissolve nine ounces of potassium ferrocyanide in a quart of water and permit the stone to be colored to soak in it about three weeks. After washing it thoroughly it should be placed in a saturated solution of ferrous sulphate made by adding that chemical to a quart of water until no more will dissolve. In about ten days the stone is removed and dried in the sun. If the stone is not the desired shade it is returned to the ferrous sulphate solution until the desired shade is attained. Chalcedony and jasper colored in this manner is referred to as "Swiss lapis."

If a dark blue is desired a few drops of nitric acid and a few of sulphuric acid should be added to the ferrous sulphate or the first solution can be changed to ferri-cyanide instead of ferrocyanide (red prussiate of potash instead of yellow).

The chemicals used in these coloring processes can be bought by the pound for very little from your local laboratory supply house or direct from chemical companies. Remember that sulphuric acid and water has an explosive action when warm and too concentrated. Otherwise no danger attends the use of these acids. All of these coloring agents work better if a way can be found to keep the solutions warm during the soaking.

DID YOU KNOW . . .

- Amygdaloid is the Greek word for almond and agates, usually almond shaped, are referred to as being amygdaloidal.
- Most agates are small, being rarely larger than an orange except agates from South America. The geodes found in this country are a combination of agate and quartz and are larger than solid agates.
- The largest agate ever found weighed two tons.
- Agates usually occur wherever trap rock exists.
- Unless chalcedony is banded it is not agate.
- Despite the appearance to the naked eye there are thousands of bands to an inch of thickness. As many as 17,000 to the inch have been counted.
- Until recently the agate was the birthstone for June having been superseded by the pearl.
- The largest agate diggings in the world at present are in the Catalan districts of Artigas, Uruguay.

LEITERS ...

Souths Would Be Self-Sustaining . . .

Grand View, Idaho

Dear Desert:

Mrs. Baur, in her "chest-thumping" letter, seems to have missed the fine high glow that burns in all of Marshal South's writings. The lady cannot know any intimate things about desert life or she would realize that all he writes is of vital interest to one who knows his desert.

Sustaining life on any desert is no small matter. I have never felt the slightest degree of the "I-am-better-and-wiser" attitude in any of his articles. One must be wise, that is true, to live on the desert. One must be wiser than the city dweller—to the ways of the desert—to sustain life there. Marshal South might be helpless in the city, but I do not believe he would. He is too inventive for that.

Mrs. Baur asks what the South family would do for food and paper and doctor bills if it were not for the city folks. My answer is that the South family would get along all right. There is a spirit in his and Mrs. South's writings that is vital, strong and full of courage that could not die out.

About all this criticism he must smile in tolerance. You cannot open some people's eyes to the desert. Mr. South must feel as the great artist did when he with others stood before his painting of the Master standing by the door with a lighted lantern in His hand. Someone said to the artist, "You have not finished the painting—you have forgotten to put a handle on the door." The great artist replied, "Yes, it is finished. That is the door to the human heart. It can be opened from the inside only."

E. A. BRUBACHER

No Ego in South Articles . . .

Marion, Ohio

My Dear Miss Harris:

Please tell Marshal South to pay no attention to the Los Angeles lady with the shoulder chip who seems to regard herself superior to those who live outside city limits. She no doubt can secure the information she wants by writing Washington, D. C., for bulletins on the subjects she likes. Many of your readers are not vitally or practically interested in making adobe bricks or preparing a mescal roast, but all the charm of his letters would be lost if such items were omitted.

Many of us are exiled from the desert, just now, much farther away than Los Angeles, and the South letters help greatly in bringing the desert to us here in the east.

We have read all South's letters and found no trace of ego in any of them.

MRS. C. L. DOBBINS

Open Letter to Marshal South . . .

Figarden, California

I have thought for a long time I would write in protest of your superciliousness but I waited to cool off. Then your article of May, 1944, was the last straw in your effrontery to the Southwest.

As a native of this country, born and bred of people who have been here not two or three generations but seven and eight and longer, I feel it is a duty to let DM know how I and other readers I have consulted feel about the space accorded you in this otherwise fine magazine. I have known life firsthand from early childhood, barefooted, among the rattlesnakes in the back countries of Texas, New Mexico, Arizona and California. And that childhood dates back to more than 50 years. I knew it in the raw and this sham of yours is pretty stupid stuff.

If you were on the square with yourself you could see as well as we that you are gratifying your own selfish desire to make and dominate your own little world. You are kidding yourself that you are doing something big for your children, but you are making inhibited little snobs of them—not the aristocratic type but more brutish and uncouth and even more artificial than your hated aristocrat, as Rudyard's vocabulary shows. Being a misfit is your privilege but it is society's business when you set up a small dictatorship to manufacture misfits, even if they are your own children.

You have gone off on a tangent of getting back to nature in a physical way which is as futile as the one in which the Balzac character went in the "Search of the Absolute," and like his, your family will be sacrificed on the altar of your fetishism. If you made a fraction of the effort to do some original thinking that you do to make some spectacular physical imitation of a Southwest native, you really would benefit yourself and mankind.

You will not rise above that "realm of tooth and claw," in which you mention living, by climbing a mountain. Tanya's poems show that she knows this truth, but you are so concerned with platitudes of barefoot health and diet fads, to say nothing of poor. Indian craft counterfeits, that you seem to have no sense of values. But in the meantime you write down to us that we are all out of step but you in this grand march. My friends and I have grown up with the Indians. They are our friends, and they do not need a tenderfoot's pretended defense.

SUSAN GROENE

Are Desert Men Egoists? ...

Baker, California

Dear Desert Mag:

Mrs. John C. Baur, Jr., writes a delicately suggestive letter of disapproval to which most of us Desert dwellers will have to plead guilty, with extenuating circumstances.

Desert dwellers do not display nearly as much trepidation and ignorance when in the city as city people do in the desert. City people on their first trip to the desert nearly always are disgusted until they have spent enough time to become sensitive to its beauties and peacefulness. Then they often display more enthusiasm than the oldtimers and wish to remain indefinitely. Desert dwellers enjoy a city visit for a short time but the longer they stay the more disgusted they become. Ever hear of a desert dweller wishing to escape to the city? Lots of us desert dwellers spend our vacations seeing more of the desert. Ever hear of a city man spending his vacation seeing more of the city?

Select any city man you wish, put him where he can get no manufactured supplies; put Marshal South in the same position and Mr. City Man will lag so far behind that there would be no comparison. With a small fraction of the raw materials City Man will require, Marshal will keep his family in opulence. I will give hearty odds on that, and I have never seen Marshal. But I do know many desert dwellers, and I doubt that Marshal is below par.

How can any desert dweller always hide the feeling of "I-am-better-and-wiser-thanyou-because-I-live-on-the-desert." Everything animate that lives on the desert has that look.

ELMO PROCTOR

More Power to Chest-Thumping . . .

Utica, Ohio

Dear DM:

Why must you publish such a letter as Mrs. Baur's in the August issue? Her distorted viewpoint and destructive criticism ruins an otherwise harmonious page of letters. More power to Marshal South and his chest-thumping! They have found peace, solitude and independence. They are free from the veneer of civilization.

B. JAY PURDY

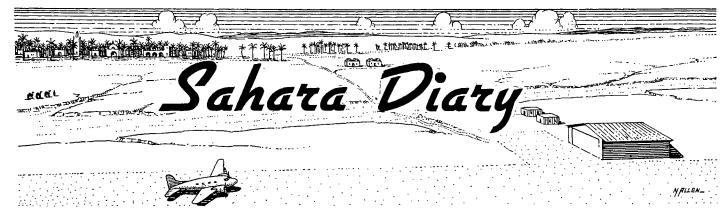
South Not a Chest-Thumper . . .

Prescott, Arizona

Editor Desert Magazine:

Marshal South is not, and never will be, a "chest-thumper." He is so humble, so thoroughly imbued with a love of nature in her lowliest forms that people "of the world" sometimes mistake him. He speaks of the things of the soul—lasting things—and he finds them in a desert land amid a desolation that would strike terror to the heart of a person less attuned to the Infinite.

DORA SESSIONS LEE



By RANDALL HENDERSON

ITH THE ALLIED FORCES IN NORTH AFRICA—Early in May when the temperatures at this Sahara oasis reached 113 degrees at midday I was ready to predict that we were in for a long hot summer. But I have had to revise many of my schoolbook notions about arid North Africa. I have learned that the Sahara is neither an unbroken expanse of rolling sand dunes, nor a region where unbearably hot days follow each other with such monotony that only the strongest can survive and keep their sanity.

Neither of these concepts is accurate. It is true there are great plains of sand. I have flown over them for hours. But it also is true that these sand wastes are broken by mountain ranges, gorges, escarpments, plateaus, buttes and in fact all the topographic features which give endless variety to our own Ameri-

can desert.

As for the weather in this western region of the Sahara, it is unpredictable—at least for a tenderfoot from southwestern U.S.A. One day in June the traffic crew loaded two big generators on a transport plane at noon—and the metal was so hot the men had to use thick pads of rags to protect their hands. Ordinary gloves were not adequate. And that night we slept under a blanket. There are many days when a haze of yellow dust closes in around us until we cannot see the high escarpment four miles from the field. At the same time there is hardly enough breeze to fill the windsock that gives landing direction to the pilots.

The weather officer explains that this haze is due to sandstorms elsewhere on the Sahara. The fine dust is carried aloft at some distant point, and when there happens to be no wind overhead here to keep it moving it descends on us in a yellow fog. Likewise, the sand that whirls aloft when we have a strong wind may shower down many hours later on the black tents of desert nomads many hundreds of miles from here.

So we get the dust both going up and coming down. When the wind blows we are blasted with our own dust. And when the wind stops we are showered with a thick haze of yellow flour that was carried aloft elsewhere on the desert. There is always

a sandstorm blowing somewhere on the Sahara.

But I do not mean to imply that summertime on the Sahara is a season of perpetual dust. The nights, with few exceptions, are delightful. The air generally clears after sundown. There are no malarial mosquitoes here and we sleep out under the stars. Toward morning a cool breeze nearly always makes it necessary to pull on a sheet or even a blanket. This refreshing breeze continues until eight or nine o'clock. If you were to fly into our field for a brief visit during these early morning hours you would go home and tell your friends that the Sahara has the most delightful summer climate on earth. But if your plane was delayed a few hours and you stepped off your transport into the scorching dust-laden blast of early afternoon you would ever after yow that this climate was manufactured in hell—and not too far away at that.

Anyway, we have lots of variety. Too much of it at times.

For instance at noon today while a plane circled overhead getting landing instructions the wind changed directions three times in 18 minutes. The pilot finally decided we were all crazy down here in the radio room, and hung up his headphone and picked his own runway. That was the smart thing to do under the circumstances.

With all its sandstorms and dust-fogs, the Sahara has its advantages. I prefer it to the humid sticky atmosphere of tropical Africa where I was stationed a year ago. It took six months to get the musty smell out of my clothes after that tropical assignment. Here there is sand in our salt at times, but we never have to unscrew the top of the shaker to get the seasoning out.

Our first summer shower came late one afternoon while we were eating our evening chop. The sky clouded over and a blast of wind filled the air with dust. I looked out the window just in time to see the top blow off my jeep. Then the rain came. Rain on the desert! You have to spend months on a dry parched desert to appreciate the miracle of rain. There was a hum of excitement around the mess table. Some of the men rushed out on the porch to see the shower. Others started a song. The half-naked Arab mess boys went out to feel the cool drops of water on their bodies. Two of them tackled the job of restoring the top on the jeep—glad for an excuse to be out in the rain.

When it was over I went outside with the others. Everyone was in high spirits, but there was something lacking. Then I knew what it was. The scent of creosote. Rain on my home desert fills the air with the pungent odor of greasewood. I like that smell. Rain and creosote have been associated together in my life for so many years that this Sahara shower did not seem quite natural. There is no greasewood here—but it was a welcome

shower for all that.

This evening just before sundown I heard singing so weird and familiar that I rushed out of my quarters to see from whence it came. The picture it brought to my mind was of painted Indians—the Antelope clansmen coming out of their kiva and trotting along in single file toward the open court where they are to participate in the annual Snake Dance of the Hopi Indians in northern Arizona.

At first there was no one in sight, but the chant grew louder, and then around the corner of a mud building a half block away came a motley gang of blacks—Senegalese, not Arabs. Many of them live on this oasis. Two of them pulled a two-wheeled cart, others were pushing, and some were just straggling along. Their song was not the falsetto of the Navajo, but the gutteral chant of the Hopi mesa with a staccato emphasis at certain intervals. It was a chord that one unconsciously identifies with primitive people. Such music stirs something deep within one—it never can be forgotten.

The blacks, many of whom are on slave status—although under French law they could have their freedom if they wanted it







The Sahara Oasis where Capt. Henderson is stationed extends for many miles along the dry sandy bed of an African wadi. This picture, taken by the Desert Magazine editor, shows just a small section of the oasis. These are all native date palms, and underneath the dunes in which they are growing is a great underground reservoir—a catch basin filled at irregular intervals by the storm waters from the surrounding rainshed. Two grass buts which are occupied by nomad Arabs during the annual date harvest season are seen among the trees.

It is easy to understand why 14-year-old Wadou is a favorite with the American soldiers. He is one of the native laborers employed to maintain the airfield. Until they have passed the adolescent age Arab boys wear a scalp lock for religious reasons. They are all good Moslems.

Street in the native village located in the oasis. These dwellings are of mud and stone with mud roofs. They are extremely cool during the summer and provide comfortable housing, but are almost without furniture. The Arabs sleep on goatskins spread on the mud or stone floor. Meals generally are cooked in a small stone fireplace, and the prepared victuals are served on the floor with the family seated around them on skins or rugs. Only a small part of the desert population lives within such settlements as these—a majority of the Arabs being nomads who seldom come to "town."

—dance and sing in the oasis nearly every evening. These evening festivals are more like darky camp meetings than the ceremonial dances of the aborigines. But somewhere out of the past this little group of mud-haulers had revived a chant from the ancient jungle or desert—and that was the song that brought me out of my quarters with visions of the dancing clansmen of Hopi. Only once in the six months I have been here have I heard that unforgettable music.

* * *

Houmadi, the chief of this oasis, is building a new business block in the market place. Rather, Houmadi sits by in a flowing white tunic while his Senegalese laborers haul mud and make the adobe bricks for the structure. It was one of his work gangs who sang the ancient chant I mentioned above.

Throughout central Africa the mud for a new building normally would be carried on the heads of the workers. But Houmadi is progressive. He salvaged some old automobile wheels. They came from the junk yard where lie the relics of vehicles once used for the long stage run from the seacoast to this oasis. With these wheels, the chief made carts, also of salvaged material, to speed up the transport of mud and rocks, or whatever is to be hauled. One cart with a half dozen men will move as much mud as would require a hundred head-carriers. This oasis is becoming civilized.

* * *

Many of the air travelers who pass through this desert service station and off-load for a few minutes while the plane is being refueled, now carry souvenirs. I have given permits to two of the native metalsmiths who turn out crudely hammered paper knives and ingenious padlocks of brass and copper, to bring their products to the airport. They are picturesque salesmen in their blue robes and turbans. They speak only a few words of English, and when the customer is unable to understand their broken French, they squat down and draw figures in the sand. The prices always are quoted in francs, for that is the only kind of money we ever see here—ragged paper francs issued by the various French territorial governments in many sizes and designs.

The two Arabs are very jealous of each other. One of them is a better craftsman than the other. The inferior workman complains that his competitor charges too much for his wares. I have been assured by each of them that the other is "no good."

Every few days Hamed offers me a bribe to cancel the permit of Sidi, and vice versa. But I am against monopoly. We have some of it in America. It is no good.

*

If any of the readers of Desert Magazine are curious to know the location of this oasis on the Sahara, I can give them exact information without violating any of the army's rules for security. Our geographical position is identified by a sign which one of the boys stuck up along the runway. It reads:



I overheard some of the men arguing about the distance to hell. The soldier who put the sign up was defending his figures by explaining that it happened to be a cool day when he took the measurement.

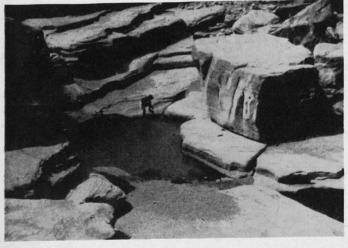
In previous Diary notes I described my camel trip to the fishing and swimming pools we found in a canyon about 11 miles from our camp. When I returned from that trip and told the men in my outfit about the fine swimming hole I had found, they all wanted to go there. So we arranged a weekly camel excursion. Every Saturday afternoon a caravan treks out of camp with GI's perched on a half dozen or more of the camels. The trippers sleep that night on the floor of the rocky canyon where the natural tanks are located, and return Sunday afternoon, having had a fish dinner cooked on an open fire, and "plenty good swim," as Taleb explains it. Taleb usually goes along as interpreter.

Recently I made a return visit to the tinajas. This was in midsummer, and after a three-hour camel ride on a 112-degree aft-









1—It's a sandy desert—but these date palms have their roots in water.

2—Bopepe would like to return to America with his soldier friends.

3—Braheme (left) and Ahmed are employed as houseboys in the American camp. They are devout Mohammedans and faithful workers. They speak Arabic and French, and have learned enough English since the American soldiers have been stationed at their oasis to serve as interpreters. 4—The Sahara has its waterholes—refilled at long inter-

vals by storm water.

ernoon, I assure you the cool water in the bottom of the canyon was a gift from heaven.

The dates were beginning to ripen and several families of nomads were camping in the little oasis that grows near the water. One of the Arabs wore the insignia of a high chief. They were all very friendly, and visited our camp and gave us a generous supply of their dates. We slept that night on the sand among the palms, and the rustle of wind blowing through dry palm fronds brought the same drowsy contentment I have felt scores of times before, camping among the native palms of the oases on the Southern California desert.

But my dreams of rustling palm fronds on the home desert received a rude interruption before morning. For reasons which I probably will never know, Hou-ao, our cameleer, decided during the night that he wanted to sing. Maybe the army chop which we fed him for supper did not agree with him, or perhaps he was happy over having the first full meal he had eaten in many months. Anyway, about three a. m. he opened up with a loud chant that awakened everyone in camp. His voice was raspy and his music without melody. We stood it for about 15 minutes and then I asked Taleb to explain to Hou-ao that while his singing was very grand, the Americans requested that he go a mile down the canyon to finish his concert. And that was that. We heard no more from Hou-ao. Apparently he felt no resentment—at least not after we had stuffed him with a good breakfast.

We took a last dip in the cool water, and returned to our base camp in midafternoon, reaching the barracks just as a sandstorm blotted out the landscape. The camels were so glad to be rid of us they even omitted the usual groaning and bellowing when we off-loaded. And the GI's were glad too. Three hours in the pocket-seat of a camel saddle is about all a tenderfoot can take at one sitting—and enjoy.

The nomads are trekking in from all this desert region for the date harvest. There will be singing and dancing and camelracing in the oasis. This is a time when everyone will have plenty to eat. These desert folks are still living in an economy of scarcity. The main problem of their existence is food. Yet despite the ever-present struggle for enough to eat they appear to be quite contented with their lot. No less so, I suspect, than my American neighbors at home who under normal peace-time conditions are living in an economy of abundance—and haven't yet figured out a way to distribute that abundance equitably.

But we will solve that problem. The pace of human progress is very slow at times—but over a long span of time it is always forward. In the meantime the mighty German military machine appears to be near the point of collapse. We already are making plans here for a joint celebration of French, Arabs and Americans, to be held on Surrender Day.

I am sure the local Arabs will put much enthusiasm into the festivities. Relations between the native tribesmen and the American soldiers have been very cordial. The Arabs will miss the food and payrolls and goodwill we have passed along to them. And on our part there will always be in memory a kindly feeling for the dark-skinned neighbors who never failed to greet us with a smile and a military salute.



Rand

ARLY in July, I believe it was the 5th, Rand wrote me: "No doubt you've been wondering what has become of one son, GI Model 1920. The question cannot be answered yet. But I am in fine fettle and spirits are good . . . My head is buzzing with ideas for my next editorial for Desert Magazine. Nothing on paper yet but with the proper cooperation I will have it out in two or three weeks."

Two days later Rand was killed in action—on Saipan. He was with the 2nd Marine division. The message was relayed to me in Africa August 3. I know now the heartache that the daily casualty lists bring to hundreds of parents. Those daily lists in the newspapers are something remote and impersonal—until one

you love is among them.

Rand was an idealist, and like all idealists, something of a philosopher. He and I have camped together on the desert and in the mountains since he was eight. In the evenings he would sit on his bedroll by the flickering campfire and discuss his philosophy of life, and his plans.

He believed his generation would create a world in which there would be more of cooperation, more of tolerance, less of greed and fear and hatred. When he en-

listed in the Marines he felt that he would be fighting for those ideals.

Rand was never bitter. He felt that the human family is involved in a great world-wide struggle between freedom-loving people on the one side, and those who would impose some form of racial or economic slavery upon their fellow-men on the other. And that the conflict, in its broader concept, is not merely a conflict between nations, but a horizontal cleavage in which men of good will in every race and nation are opposed to those with ignorant and selfish motives.

The war, he felt, is merely a symptom of a deep-seated unrest in the hearts of men and women around the world. The Axis powers must be defeated. But that would not be the final answer. The "master race" would be beaten—but there still would remain the problem of the "master men" within every race and nation—men who regard themselves as superior because their skin is white, men who take advantage of human inertia to make a racket of unionism, men who form combines and cartels to restrict production and control prices, men who resent strongly centralized government because it interferes with the "free enterprise" of powerful and ruthless capital.

Rand felt that excessive wealth and extreme poverty no less than Germans and Japanese are the enemies of peace and happiness. He was planning to be a writer because he wanted to be a crusader for the things in which he believed,

and he felt that his most effective weapon would be a typewriter.

There are many men and women in America who share Rand's ideals. We have a small but potent group of them on the staff of Desert Magazine—associates who will carry on because we want to keep faith with the men who have given their lives in this war, and we believe in the ultimate triumph of ideals for which their lives have been sacrificed.

-RANDALL HENDERSON

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UNITED WE STAND

- The treaty abrogates the Boulder Canyon Project Act which declares that flood waters conserved by Boulder Dam shall be used "exclusively within the United States"
- Boulder Dam was built entirely on American soil by American initiative, engineering genius and money.
- The United States has solemnly contracted with American communities and states to deliver them quantities of Boulder Dam water and power, which are indispensable to their development.
- Relying on the Project Act and those contracts, American citizens have committed themselves to pay hundreds of millions of dollars for construction of works with which to use their Boulder Dam water and power.

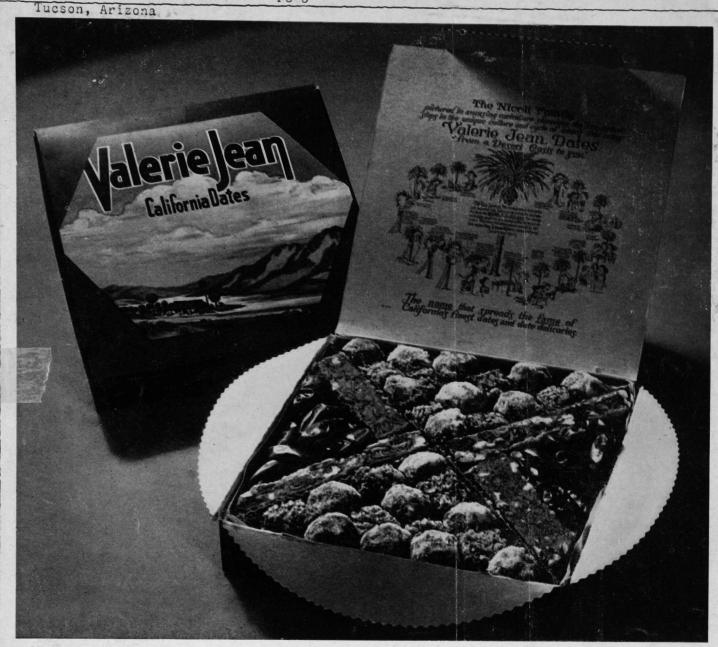
In Opposing Ratification of Water Treaty with Mexico... BECAUSE...

- AMERICAN COMMUNITIES, not the United States, are, under their contracts, standing the entire cost of the Boulder Dam.
- During cycles of dry years, such as have regularly occurred, and will recur, American uses of water would have to be curtailed to supply Mexican lands.
- The Treaty "guarantees" Mexico, for all time 1,500,000 acre feet per annum of Colorado River water—twice what Mexico had ever used prior to construction of Boulder Dam—twice what Mexico could possibly use without Boulder Dam.
- International Good-Will does not require, nor justify sacrifice of the natural, irreplaceable resources of the United States.

IF AMERICAN CITIZENS FAIL TO MAINTAIN THEIR FREEDOM, WITH ITS RIGHTS AND PRIVILEGES ON THE HOME FRONT—VICTORY OVER THE AXIS AGGRESSORS WILL HAVE BEEN IN VAIN!



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