

CERROS DE TRINCHERAS OF THE ARIZONA PAPAGUERIA

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THE Papago country of southern Arizona is a region of special significance as a marginal area of human occupation, actual and potential. The region lies along the international boundary east of the Colorado River. It is essentially desertic, with a rainfall generally ranging from about five to about fifteen inches. In the present phase the Papago Indian settlements constitute a striking example of adjustment to a harsh environment; but the evidences of earlier occupation are also an integral part of the landscape.

PAPAGO ORIGINS

Hohokam is the name generally applied to the prehistoric inhabitants of the Salt and Gila Valleys, the present home of the Pima Indians. Until recently, the Hohokam were believed to have been responsible for all prehistoric artifacts and structures found in this region, including the Casa Grande ruin near the Gila and the sizable ruins in the Salt River Valley and also about 225 miles of traceable prehistoric canals. Recently, convincing evidence has been advanced to show that the builders of these larger structures were temporary invaders, Salado people, they have been called, from the northeast. They are distinguished from the earlier and permanent occupants of the region, who are designated as the Hohokam and as the ancestors of the present Pima Indians.¹

Papago origins are definitely tied up with those of their Pima kinsmen. Hence, if it is conclusively proved that the Pima Indians are lineal descendants of the Hohokam, then the Papago people and culture can also be considered as descendent from the Hohokam people and culture. Papago construction is ephemeral; abandoned village sites of prehistoric time have lost their identity except for potsherds. However, there are a number of fortified hills with defense walls and rock terraces for house sites, called by the Mexicans *cerros de trincheras*, "hills with entrenchments."

Geographers have been familiarized with *cerros de trincheras* in northern Sonora through the work of Sauer and Brand.²

¹ Investigations and conclusions as set forth in the *Medallion Papers*, published from Gila Pueblo, Arizona. See especially H. S. Gladwin: Excavations at Snaketown, Vol. 2, *Medallion Papers No. 26*, 1937, Chapters 2 and 3 (pp. 9-21).

² Carl Sauer and Donald Brand: Prehistoric Settlements of Sonora, With Special Reference to Cerros de Trincheras, *Univ. of California Publ. in Geogr.*, Vol. 5, No. 3, 1931. Earlier references by Pfefferkorn, Bandelier, McGee, Lumboltz, and Ellsworth Huntington are cited on pp. 69-70.

DISTRIBUTION OF THE TRINCHERAS

Trincheras occur in the greatest number and on the grandest scale, and are of the best construction, in the Magdalena River drainage basin of northern Sonora. Peripheral areas with less numerous cerros de trincheras extend eastward to Chihuahua and northward

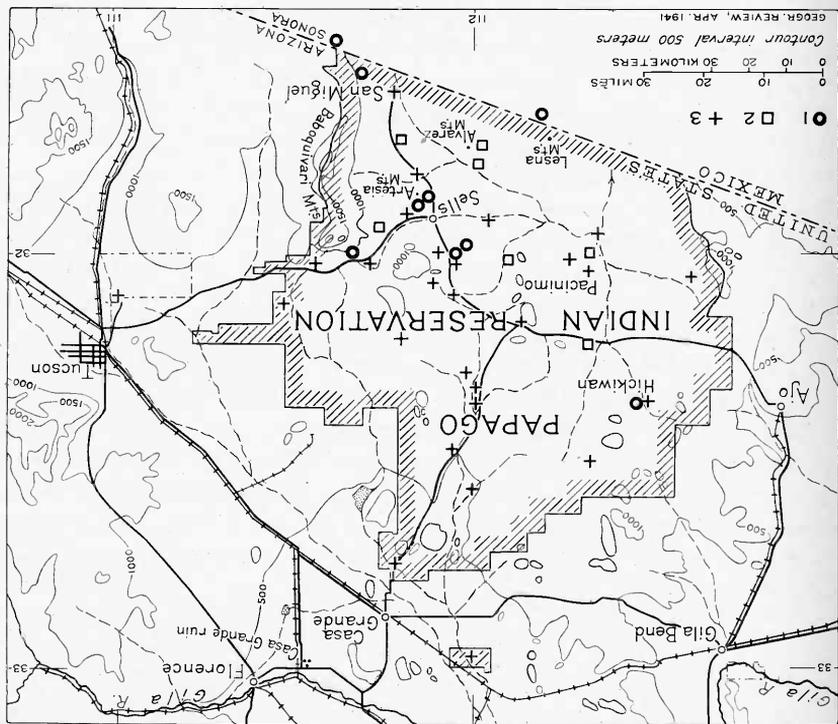


FIG. 1.—Map of the Papago Indian Reservation. Key: 1, cerros de trincheras; 2, adobe or store enclosures; 3, some of the more important Papago villages.

into the Papago country of Arizona. Sauer's map shows one example north of the boundary line, but at that date, 1930-1931, only two or three were known. At the present time seven examples are known (Fig. 1). Of the two in the low Artesia Mountains, one is about a mile and a half south of Sells, the Papago Indian agency, the other about three miles southeast of Sells and about two miles southwest of the Papago village of Artesia. Both are comparatively insignificant. One of the best examples is about $4\frac{1}{2}$ miles east of the village of San Miguel and about the same distance from the international boundary. Almost equally good are the trincheras on two of the buttes about $5\frac{1}{2}$ miles northwest of Sells. Another cerro of less importance is located at the north end of the Baboquivari Mountains near the abandoned village of Val Kuk. The most isolated and farthest north lies just east of the present village of Hickiwan. There are others just

across the Mexican boundary: one at the south end of the Baboquivari Mountains near the village of Pozo Verde and two others about $2\frac{1}{2}$ miles east of the Lesna Mountains.

As the Papago country of Arizona has been pretty well explored, it is not likely that other cerros de trincheras exist in this region; but certainly there are many unreported ones across the international boundary. A number have recently been reported along the valley of the upper Altar, a northern tributary of the Magdalena, and westward.

STRUCTURAL ELEMENTS OF THE TRINCHERAS

The cerros de trincheras at the Mexican village of Las Trincheras in the Magdalena Valley, "the most elaborate prehistoric works known to exist in northwestern Mexico," may be considered the classic example. As prehistoric monuments they are hardly comparable with the larger pueblos of the Colorado Plateau, but they are also hardly less challenging of interest. The smaller trincheras in Arizona can best be understood by comparison with them.

Immediately south of the Mexican village of Las Trincheras is a ridge about half a mile long with a northeast-southwest axis. Rock terraces extend along its entire length on the northwest slope, which faces the valley and the village at its foot. The open concavity of the hill on this side, together with the rock terraces, gives the appearance of an immense open amphitheater. The terraces begin at the foot of the hill and continue to the summit and part way down the southeast slope; twenty-nine were counted along a straight line from base to summit. They lack continuity; and although most of them are more than a hundred feet long and almost level, they are unrelated to the levels of adjacent terraces. The length of a given terrace is related to the length of the steep slope and the rock material favoring construction. In height the terraces range from several feet to eight or nine feet. Filling behind the walls makes flat benches averaging 15 or 16 feet in width.

The occurrence of the same structural elements in the Arizona trincheras suggests that they are of the same culture, if not by the same people, but are peripheral. The characteristic features, which occur in varying proportions and arrangement according to the importance and morphology of the site, are: (1) walled terraces filled flush with rubble for defensive house sites; (2) cross walls on some of these, suggesting rooms; (3) low circular walls of small diameter, evidently house sites; (4) breastworks of low, roughly constructed walls across vulnerable slopes or approaches; (5) plazas enclosed by low walls, the situation of which would seem to suggest ceremonial or social use and not defense; (6) universal occurrence of plain redware potsherds somewhat similar to the plainware used by the Papago

and Pima Indians today, and also occasional shards of distinctive painted ware.

About three miles northeast of Las Trincheras is a smaller terraced hill, the "Cerrito de Las Trincheras." The trincheras rise from a level near the base almost to the summit. They are not so



FIG. 2



FIG. 3

FIG. 2—Terrace near the top of the hill at Trincheras, Mexico. The wall is about nine feet in height. FIG. 3—One of the terraces at Trincheras, Mexico; a flat bench, fifteen or sixteen feet in width, filled flush with angular rubble.

wide or so well built as those on the larger ridge; in fact, they closely resemble the ones in Arizona.

THE DEFENSE MOTIVE

The types of construction and their arrangement on the hill sites in Arizona, even more than in Sonora, are so indicative of the defense motive that any other explanation seems absurd. The only serious alternative, Ellsworth Huntington's theory of climatic change and pressure of population, which made terraced agriculture necessary has been disposed of by Sauer, and calls for no further attention here.³ Typical of the Arizona cerros de trincheras is "Echtoi-ki," the middle one of three basaltic hills $5\frac{1}{2}$ miles northwest of Sells. The name means "House of Echtoi"—Echtoi being the traditional hero, magic medicine man, or elder brother of the Papago—and may have been suggested by the precipitous, knoblike summit. It is evident from the character of this butte and also of others in the region that the trincheras builders preferred buttes of small summit area that were bounded largely by cliffs and steep, rugged slopes easy to defend. The abundance of potsherds on the flat at the foot of the north slope of Echtoi-ki indicates the site of a prehistoric village.

³ Sauer and Brand, *op. cit.*, pp. 119-121.



FIG. 4



FIG. 5



FIG. 6

FIG. 4—View across the east saddle of Ectoi-ki. Note the four defense walls crossing the saddle directly at this most vulnerable point.

FIG. 5—Haak Muerto, *cerros de trincheras* about four and a half miles east of the village of San Miguel. View from the northeast. Note the windows on the southwest corner.

FIG. 6—Near view of the windows on Haak Muerto.

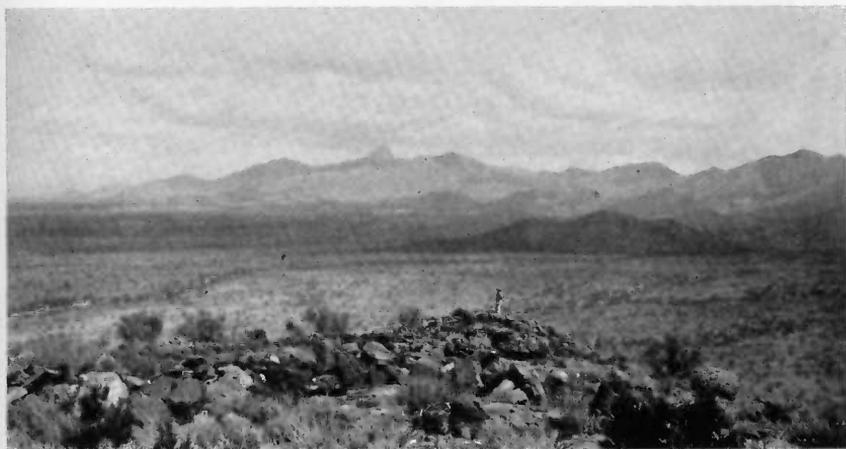


FIG. 7



FIG. 8



FIG. 9

FIG. 7—House sites on Haak Muerto.

FIG. 8—Defense wall on Haak Muerto.

FIG. 9—Parapet-like defense of point on Haak Muerto.

This was very likely the companion village, occupied when safety permitted.

A mile and a quarter southwest of Ectoi-ki, on the opposite side of the same group of basaltic hills, is a similar site. This butte, which rises to a point, is bounded by cliffs on the south, east, and west sides, the steepest cliffs, a couple of hundred feet high, being on the



FIG. 10.—Minor *cerros de trincheras* about one and a half miles south of Sells.

south side, facing the plain. The summit is therefore approachable from the north only, and all structures are on the north slope. Five lines of defense walls guarded the settlement. The larger part of the village was between the fourth and fifth walls, where the slope is about 8° . The slopes are steeper both above and below, and the walls extend along the steepest places.

These people may have had fields on the neighboring flats, as the present-day Papago have. The nearest present settlements are about three miles due west, where there are five wattle houses and a corral, and about 40° north of west, where there are four houses. The flats toward the south, near Sells Wash, are nearer but have no settlements or fields at present.

Archeological investigations reveal that the prehistoric ancestors of the Papago and Pima, or their predecessors in this region, lived in pit houses consisting of a superstructure over an excavation several feet deep. The *trincheras* builders may also have built pit houses where surface conditions permitted; but on these rock surfaces excavation was impossible, and the rock-wall enclosures may have been a substitute. The superstructures presumably were like those of pit houses and similar to the modern Papago wattle house or the round *ki* formerly used.

The *cerro de trincheras* east of San Miguel is another basalt butte, somewhat similar to that southwest of Ectoi-ki but somewhat larger in area and not so high. It, too, is bounded by cliffs on the south, east, and west sides, though the cliffs on the east and west

sides are not so nearly continuous as that on the south. The surface slopes toward the north and northwest. This butte is called Haak Muerto; for, according to Papago mythology, it was here that the traditional bad woman or monster of the Papago met her death. The large window at the southeast corner was where she supposedly broke through when her head struck the roof of the cave as she tried to escape. The little window was broken by Eehto's foot when he pressed it down on the Haak's head.

Haak Muerto rises as a basalt residual through the detritus of the bajada slope hardly two miles from the base of the Baboquivari Range. It is not near any likely site for fields under present conditions. However, the drainage is concentrated around the south side of the butte into a rather large wash. A ditch of prehistoric construction extends from this wash several miles westward to a modern *charco* (pool). Fields might have been made in this area. About two miles to the south a number of trash mounds and numerous potsherds indicate an old village site.

The other cerros de trincheras in the Papago country are on a smaller scale and merely repeat elements already described.

Sauer and Brand observed that in Sonora the trincheras were generally located on the north slopes in the southern part of the region and on the south slopes in the northern part. This they attributed to the difference in temperature. This would seem doubtful, however, inasmuch as the range of latitude is too small to make so great a difference in the temperature. The Arizona trincheras, on the very northern periphery, show no such correlation; in fact, the most important ones are on the north slopes. All slopes were utilized, however; and the location of all the structures seems to have been definitely governed by morphological factors in relation to need of, and facility for, defense.

ECONOMIC CONSIDERATIONS

It is reasonable to suppose that the trincheras builders supported themselves, as the Papago were doing when the white man arrived, largely by farming patches in suitable sites where floodwaters could be spread over the fields. On all these sites, then, one naturally looks for the nearest areas where soil and water would permit the working of fields. Until the United States Indian Service dug deep wells at the villages of the Papago, these Indians found it necessary to have reserve villages in the foothills of the mountains, where a water supply was assured. At their field sites they were dependent on *charcos*, artificial pools in which surface runoff was collected. When the charcos dried up, they had to retreat to the foothill villages. The distance between field villages and foothill villages ranged from two

to twenty miles. The migration between such villages occurred several times a year according to seasonal activities at the fields and the rains. The trincheras were reserve villages for defense; and their distance from fields was no greater than that between the present-day plains and foothills villages.

Favorable sites for fields are pretty well preempted in the Papago country today. Local conditions have changed sufficiently, even within historical time, to cause the abandonment of some old sites and the development of new ones, chiefly as the result of erosion and sedimentation. Hence one need not necessarily look to present field sites for the location of the fields that sustained the trincheras dwellers.

With respect to surface drainage, any considerable land unit of the Papago country may be resolved roughly into the following elements:

1. Steep, rugged mountain slopes with deep, narrow valleys with a steep gradient.
2. Bajada slopes, commonly with a gradient of 2° to 4° , traversed by numerous washes, somewhat entrenched and roughly parallel. Degradation is dominant.
3. Lower slopes with a gradient of less than 2° , where sedimentation tends to predominate and the washes anastomose. Aggradation is dominant.
4. The flats, traversed by the main washes. The axial lines of drainage tend to run at right angles, or nearly so, to the drainage lines of the slopes.

These types of surface tend to lie roughly in belts between the mountains and the main washes; but where the mountains are far apart, the pattern becomes more complex. As water is most abundant on and under the flats of the axial washes, it might be supposed that they would be most suitable for fields and farming communities. Actually, we find comparatively few field sites on these flats. There are several reasons for this, which may be summed up by saying that here nature is too difficult for a primitive people to subdue and keep under control. Hence most of the field and village sites are on the bordering low slopes nearly at right angles to the flats. Here the waters from the bajada washes spread out and deposit alluvium. From a high point the bounds of these areas can be fairly well recognized; for in seasons of more than the average rainfall the slopes are generally grassy, and in long dry seasons they appear bare and dusty.

The cerros de trincheras tend to be located near these belts, since they are either residual outliers on the bajada, such as Haak Muerto, or summits on the margin of low mountain or hill groups that are on too small a scale to have extended bajada slopes around them, such as the cerros near Sells.

Two of the cerros de trincheras are near important present-day villages and fields, and undoubtedly their occupants tilled the same areas that are tilled today. The cerro near Vaf Kuk may have been used as a reserve site, just as the modern village of Vaf Kuk was used until it was abandoned a few years ago. The trincheras inhabitants may have tilled the same fields, which are about two miles away. The inhabitants of the other sites very likely had fields in areas where there are few or no fields at the present time.

The problem of water supply for the trincheras inhabitants is more difficult to solve than that of food. Hollows in the rocks, "rock tanks," may be suggested; but none of the Arizona cerros de trincheras have natural tanks near them that are worthy of notice. Furthermore, all of them except Vaf Kuk are composed of more or less porous volcanic rock. Water must have been carried up from neighboring arroyo seeps or wells. It is difficult to conceive how enough water could be on hand at any time to outlast a protracted siege, but perhaps attacks were only sporadic.

WHO BUILT THE TRINCHERAS?

When and by whom were the trincheras built? The Papago in general explain them as having been constructed by their forebears for defense against the Apache. Batqui, the village visited and mentioned by Father Kino, is supposed to have been destroyed by the Apache in 1767; and from that time down to about 1878 they were accustomed to raid into the Papago country. Thus it is almost certain that the trincheras were used for defense by the Papago within historical time. Their loose construction also indicates no great age.

In addition to the masonry structures on the hills, there are several remains of enclosures in the open country. These were nearly all built of adobe, and their ephemeral character is evidence of recent construction. They are explained as forts used in wars of the Papago with the Apache and a war with Mexicans in 1884. One of these old forts stands at the north end of the Alvarez Mountains where a narrow valley or canyon cuts through. Another is about three miles west of the mountains. This seems to have been also an old field site, though the level surface is now cut by arroyos. There are at least three such forts in the Pacinimo district. One of these is at Santa Cruz; another, which is now only a mound, is near San Simon.

Occasional finds of painted-ware potsherds, particularly from Hickiwan, are of a type not used within several centuries. This would seem to indicate that the trincheras are prehistoric; and the problem of their builders is tied up with that of the possible relationship between the modern Papago and Pima and the Hohokam. Those who adhere to the idea of an invading Salado people find in

the trincheras a suggestion that the early Papago—the Hohokam—sought thus to resist and repel the encroachments of these invaders, who would have been less vigorous and persistent here because of the desert environment, in contrast with the desirable lands on the Gila and Salt Rivers.

This explanation overlooks the fact that the Arizona trincheras include the same structural elements common to those in Sonora and that their number increases southward. The period of the Salado invasion, after the great drought at the end of the thirteenth century, was a period of general unrest; and the trincheras as a whole may have been the result of pressure from more than one source.

A distinct type of pottery decoration suggests that the trincheras builders represent a distinct culture and people—temporary occupants of the region, not Hohokam. Crossfinds of potsherds indicate that the trincheras people occupied the region from about A.D. 800 to 1200. However, trincheras as walled fortifications are characteristic of the region and are not confined to a distinct culture. Other people also built them, and the last ones were undoubtedly built by the ancestors of the Papago and as late as 1400 or even later. In relation to the trincheras culture of Sonora the Arizona trincheras are distinctly marginal and were probably the abodes of poorer or inferior groups.

DESCRIPTIVE DETAILS OF TRINCHERAS: THE TYPE EXAMPLE

The terraces at Las Trincheras, Sonora, become higher toward the summit, and they are also better constructed and better preserved. On the lower terraces detritus of finer texture washed down from above has covered and obscured the rubble filling. Potsherds, almost exclusively plain redware, are abundant on the lower terraces but are scarce on the upper ones. These facts suggest that the lower terraces were occupied much earlier and probably longer than the upper ones. Perhaps as defense became more difficult, the people built higher terraces farther up the slope and retreated to them. It is most likely that they were not all occupied at the same time and that occupation was successive toward the top.

On the highest point, at the southwest end of the ridge, is a low wall breastwork enclosure characteristic of many of the fortified hills. On the southeast slope of this summit are the best built and best preserved of the trincheras. On one of them is a series of partly walled, semicircular house sites. On the terrace above, sunk into the rubble, is a series of walled pits about two or three feet in diameter shaped like an inverted cone. These are believed to have been used for cooking mescal, the hearts of the agave plant, a delicacy prized by Indian tribes of the Southwest down to the present time. Low walls of both square and semicircular houses are also found occasionally on the terraces of the northwest slope. They suggest the purpose and use of the terraces; but evidently the house construction, like that of the present-day Indians, was essentially of wood, brush, and thatching, plastered with mud. All disintegrated completely with the passage of time.

The other two summits on the ridge have no walled forts; but on top of the saddle between the northeast and middle summits there are a number of round walled enclosures built on rocky slopes, but not on terraces. The wall of one of them is five to six feet in height. The fact that the entrances all face downslope irrespective of direction suggests the need for watchful eyes from a place of residence

Temporary breastworks should have had their entrances from the rear. The number and arrangement of such walled enclosures in the Arizona trincheras sites are also indicative of house sites.

On the flattest part of this summit area there is one rectangular enclosure, 25 feet long by 15 feet wide, with an indirect entrance in the southwest corner. It could hardly have been used either as a dwelling or as a fort. Near the foot of the hill is a large plaza, suggestive of ceremonial or social use.

On the terraces of the Cerrito de Las Trincheras, the small hill to the northeast, distinct cross walls, as though between rooms, are common. The trincheras extend along the northwest and southeast slopes; on the other slopes there are only scattered house sites. Low, roughly constructed breastwork walls cross the gentle slope at the base of the cerro at the east end. Of especial interest are the numerous intricate petroglyphs on the rocks over the summit, suggestive of an art center or colony.

TRINCHERAS AT ECHTOI-KI

Terraces for house sites run along the steep north and south slopes just below the precipitous knob. They are widest and most regular in linear and level arrangement on the south side. Just below these house-site terraces a cliff 20 to 30 feet high extends across a lava bed, making defense particularly easy. On the north side the terraces are mostly short and irregular because of the broken slope.

There are no defense walls on the summit of Eehto-ki; but no artificial reinforcement was necessary. The bounding cliffs and the small summit area alone would have made this an effective last stand or retreat.

On the saddles at the east and west ends of the summit the terraces for house sites give way to defense walls. There are some defense walls on the other slopes, but they reach their greatest height and thickness at these points most vulnerable to attack. They cross the saddles directly and continue down the slopes on both sides to 25° or 30°. Thus they were built across the lines of probable attack instead of along the contours. On the north side they run diagonal to the slope.

The houses of the site southwest of Eehto-ki are both round and square. The square ones have no enclosing walls, and the walls of the round houses are too low for use in defense, some of them hardly more than a circle of stones. Their clustered arrangement also discounts interpretation as breastworks, though they do tend to be arranged in rows along contours.

Above the fifth wall on this site the slope is steeper and rockier. There are only a few houses, and these are set far apart. They are much larger than those below, and all are enclosed by walls. This arrangement suggests a privileged class, such as a priesthood, set apart on the higher, more desirable site.

The fourth defense wall, just below the main village, is the highest and longest and is roughly thrown up like all the others. A break in the middle was protected by a parapet or L-shaped branch. The third wall branches from the fourth near the west end and nearly runs into it at the east end. The second and fifth walls are also fairly high and continuous.

HAAK MUERTO

Twelve typical defense walls were counted along a direct line down the north-west slope. The flat summit on the south end of the butte was protected by redoubts on projecting points and by three parallel defense walls. Below these walls down the north slope are several terraces for house sites. Still lower, where the slope is least, there are a number of round house sites, an arrangement similar to that of the cerro de trincheras southwest of Eehto-ki. Below these are most of the low defense walls, discontinuous and roughly piled. The last one is not far from the bottom.