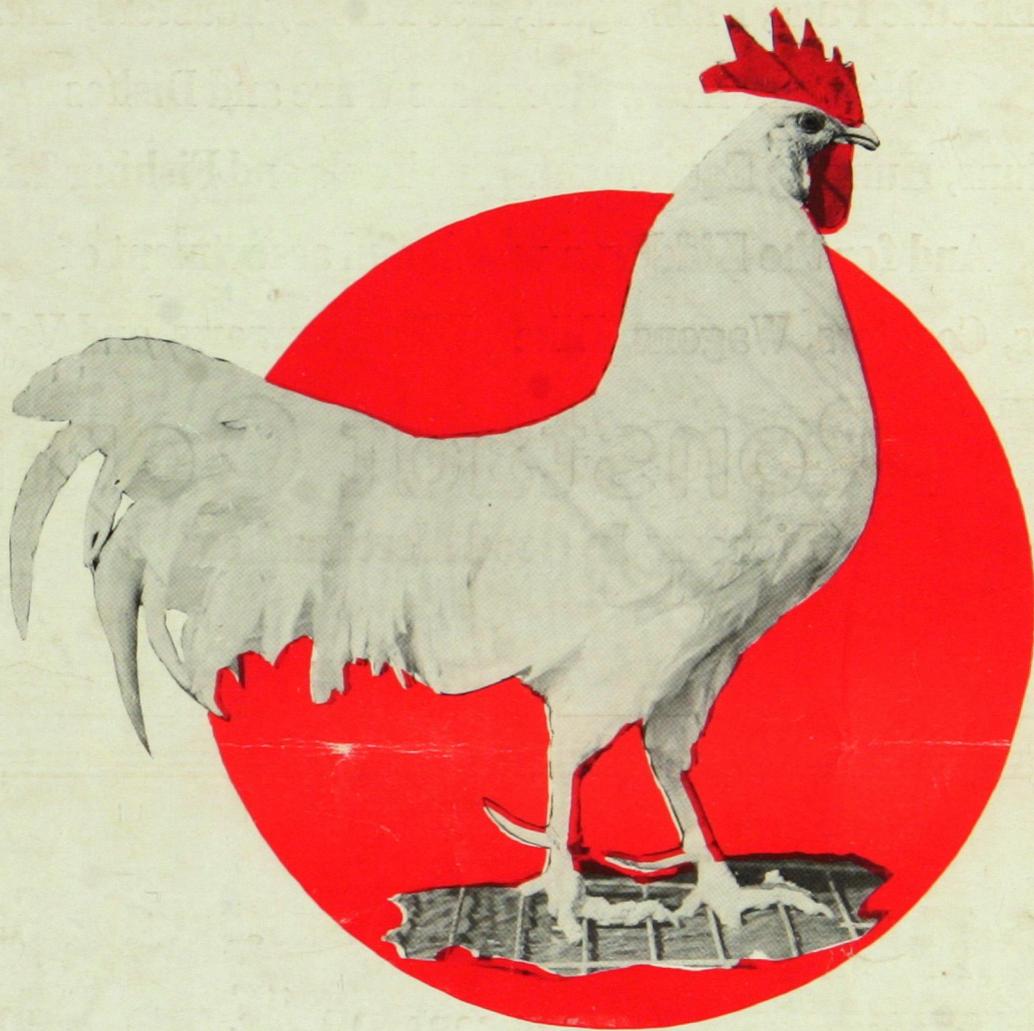


H. B. Hinds

Arizona State Poultry Federation

- Official Year Book, 1929 -



Exposition Number

ARIZONA POULTRY
STATE FEDERATION

**ARIZONA
CATTLEMAN AND FARMER**

TUESDAY, DECEMBER 11, 1928

NP 9791
P 112
P 87



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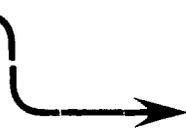
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"Poultry --- A Vital Industry To Arizona"

---Governor Hunt

November 22, 1928.

Dear Mr. Embleton:

I was glad to receive your letter of November 15th, advising me of the preparations being made to hold the second annual state poultry show of the Arizona State Poultry Federation. The Arizona State Poultry Federation has done a very useful work for our state in the development of the poultry industry. It has pointed out to our people the advantages and profits in poultry culture. By its expert knowledge it has served to guide the efforts of

many poultry raisers along the proper lines. It has pointed out many of the pitfalls which otherwise they would have encountered. In its educational work, showing the better and more profitable strains of poultry, and informing growers as to proper methods, the federation has saved large sums to those interested in this line of work and has added greatly to total production.

The lowly hen is commonly referred to as the mortgage lifter of the farmer. I think that phrase aptly illustrates the importance and value of the country industry to our state.

It frequently happens that the profits made from hens, mark the difference between profit and loss in the operation of many of our farms. In many instances, farming would not pay were it not for the side issue of poultry raising carried on in connection therewith.

The Arizona State Poultry Federation is doing a valuable and constructive work for Arizona and I am glad to add my endorsement to the same.

Very respectfully,

GEORGE W. HUNT

Governor.



Arizona's Chief Executive

President's Annual Message To Members:

It is with pleasure that we again have this opportunity of greeting our poultry friends through the medium of our Second Annual Poultry Yearbook. Although our first attempt in issuing a Yearbook was received very favorably we feel that this present Yearbook far surpasses the first one in every respect, including size, quality of material, and general makeup. We hope to continue this Yearbook as a part of the annual service of the Arizona State Poultry Federation to its membership and other poultry friends.

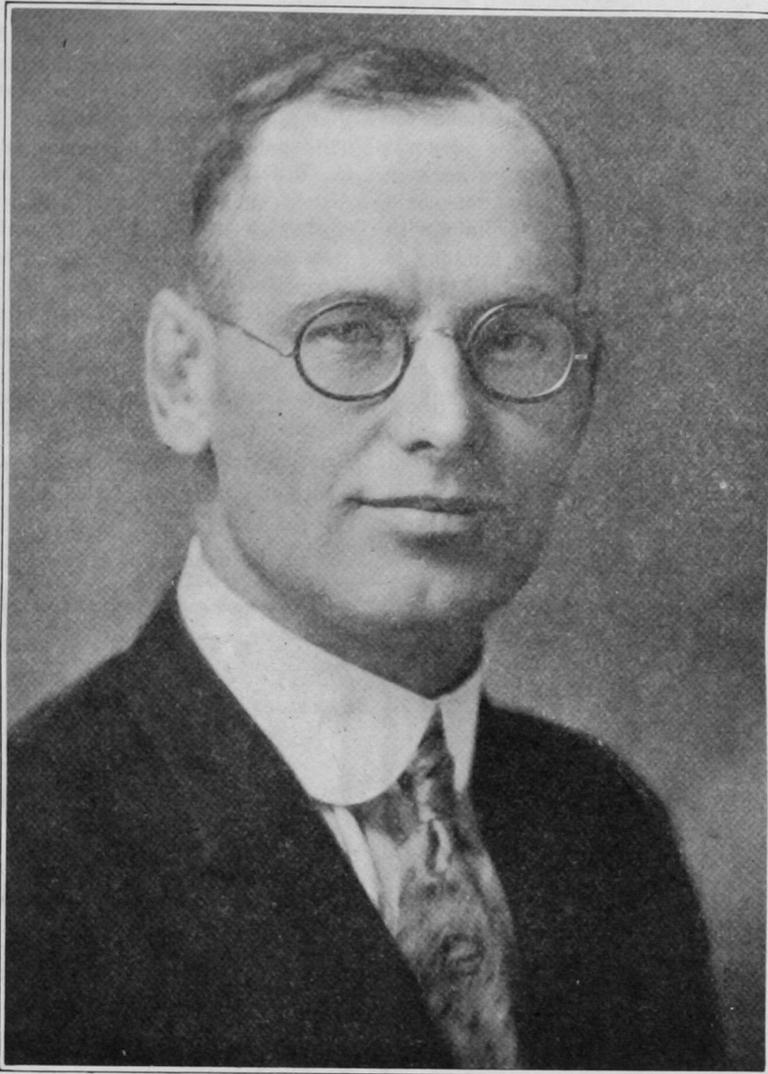
The second annual Federation Show to be held in Phoenix in the Armory from December 13 to 16 inclusive, is another great service the Arizona State Poultry Federation is rendering the poultry public of Arizona. This promises to be even a better show than was held at Tucson last year.

There is much more the Federation can do in order to have the power and prestige it is entitled to, the Federation must have the membership and support of every poultryman and woman in Arizona.

That the Federation has been able to command the respect of some of the most powerful civic forces in the State is apparent from the expressions of these bodies, expressions from whom we quote:

Phoenix Chamber of Commerce:

"We realize very fully the splendid work which the State Poultry Federation is doing for the Poultry industries of this State. We believe in the future of poultry as being splendidly adapted to small farm activities. We believe that the efforts of the Poultry Federation in work-



Harry E. Embleton

ing towards better poultry, accredited hatcheries and in various other ways is helping materially in pro-

moting the poultry industry of the State.

"A poultry show unquestionably

stimulates interest, furnishing an opportunity for those who are dealing with poultry growers to become more closely acquainted and, in short, elevates the poultry industry in the minds of the general public."

Arizona Industrial Congress:

"The poultry industry can be made a great asset to us in the future and every effort made to increase the value of this industry is looked on with favor by the other industries of the State. Your association is doing a valuable work in educational lines and we believe that the State poultry Show, so well started last year, should be continued so as to give opportunity to check up each year on the quality of our poultry production."

Tucson Chamber of Commerce:

"Your Association's first show held last year started a program for the further development of the poultry industry of the State of Arizona. We have witnessed the good results obtained from that show. Poultry has a great future in Arizona and a State Poultry Show such as arranged by your Association does much to further the industry. Therefore your activities are necessary, worthy and such as should receive the full cooperation of the business and farming interests of our State."

Attention is also called to Governor Hunt's statement found above.

Here's hoping that all of the poultrymen and women will get behind the Arizona State Poultry Federation so that the year 1929 will prove to be the banner one of the Federation.

HARRY E. EMBLETON,

President.

Arizona Accredited Hatcheries

By Wm. Sprietsma

What do we mean by "accreditation" of baby chicks? Simply that hatcheries that have subjected themselves to the rules and regulations of the particular organization that governs them in regard to the sale of their baby chicks can be relied upon to furnish chicks according to a certain specification.

Accreditation is a comparatively new development in making the product of commercial hatcheries more uniform and reliable, although some states have had it for several years.

Arizona with its small hatching capacity has not felt the need of accreditation strongly until this year.

Accredited Chicks Better

Many purchasers of baby chicks will not order chicks from any but

an accredited hatchery. A great deal of business has been lost to Arizona hatcheries because there has been no accreditation here. Poultrymen and women have felt, and perhaps justly so, that the chicks of an accredited hatchery were generally better than those from one that was not accredited.

Hatcheries survive only as long as the chicks that they produce and sell thrive and ultimately make a profit for the purchaser of the chicks. Any movement that goes to make better chicks is of great value not only to the purchasers of the chicks, but to the hatcheries as well and should be heartily supported by both the buyer and seller.

Several of the leading hatcherymen of the state, realizing the need

for accreditation at this time have formed an organization named the Arizona Accredited Hatchery Association.

Supported by University of Arizona

We are fortunate in Arizona in having a particularly strong poultry department in the College of Agriculture of the University of Arizona. The hatcherymen of the state were quick to realize that the most efficient plan of operation would be one in which the University through its extension service, would furnish the necessary inspectors to see that the rules and regulations of the accredited hatchery association were strictly adhered to.

Upon the inspectors lies the success or failure of any accreditation plan. It is up to them to see that

the hatcheries that are accredited are actually producing chicks according to the specifications called for in the various grades. In effect it means that the inspectors guarantee, in so far as it is humanly possible to do so, that the chicks produced by accredited hatcheries are of a certain specific grade.

Individual hatcheries may set a standard that is equal to the accredited hatcheries, but herein lies their weakness: There is nothing outside of their conscience to keep them to that standard. Accredited hatcheries are governed by an inspector that insists that they live up to the rules. And if they persist in violating a rule they are dropped from the accredited list.

(Continued on Page 7.)

Poultry and Dairying A Good Combination

By CLYDE F. ROWE,

Extension Specialist in Poultry and Dairying

The question of whether poultry and dairying can be successfully combined for better profits is frequently asked. The answer depends on a number of things. Land, labor and capital involved, location, feed, and marketing facilities must necessarily be considered.

Under average conditions in the Salt River Valley 1.4 acres of land are necessary to supply hay and pasture for one milk cow per year. For a twenty-cow herd it would require about 30 to 35 acres, taking out enough for buildings, lots, etc.

Under the same conditions about 3 acres would be required to accommodate a 2500 bird poultry flock, which is probably the most economical unit. If the two are combined, it is possible to make a savings of this three acres by allowing the poultry to have free range of the farm. Ordinarily as good or better results can be expected under range conditions as would be expected under confinement. It must be remembered that if production is to be had, there is little or no saving of feed under range conditions.

The problem of labor is very important. The combination of these two enterprises often results in a better distribution of the labor available, or a more economical employment.

Quite frequently it is expected that the amount of labor given to each enterprise would be reduced, but this is not so, and the practice usually results in a losse in production.

In localities where it is necessary to buy all the food for the dairy and poultry the proposition is largely one of diversification. Fluid milk prices having been such that separators are not used to any considerable extent, where marketing facilities do not permit the sale of fluid milk, the skim milk becomes a very valuable poultry feed, and will largely replace the expensive protein feeds in the mash. Parkhurst, of Idaho Experiments, found that skim milk gave the greatest return of any of the common protein feeds investigated. Numerous

experiments have been made with milk as the source of protein, and the results have been very satisfactory. It is usually figured that one gallon of skim milk will replace one pound of meat scraps. This would mean a price of about six cents per gallon.

In discussing this question we have considered the most economical unit in each case. In combining the two these units might well be reduced or increased to suit local conditions. Many dairymen in Arizona are using this combination with good results, whereas some have found it unsatisfactory. Most generally poor results have come from a lack of good attention rather than from a poor combination.

The Use of Poultry and Eggs In the Diet

By MAUDE EMI JENKINS,
Department of Home Economics,
University of Arizona

The use of poultry and eggs by man goes back long before the dawn of written history. Early man lived by hunting small game at which he cast sticks and stones. Some of these no doubt were bush hens from which has come the highly bred fowls of today. Man, no doubt, robbed bird's nests and sucked the eggs very much as the small boy in rural districts does today. From such small beginnings developed a desire for the palatable flavor of both the flesh and eggs of an easily domesticated game bird.

The present day methods of preparing both egg and meat dishes are so well known that it is not necessary to give detailed directions for many dishes,—but a few general principles that apply to the cooking of all protein foods may not come amiss at this time. The protein with which every housewife is familiar is white of egg. If she were to take a good thermometer and test the temperature at which egg white hardens she would be surprised that it is considerably below the boiling point of water.

If egg white is cooked at a high temperature, the protein hardens so much and so rapidly that a tough rubber-like mass is formed which has

little flavor. If it is cooked slowly at lower temperatures the protein coagulates into a jelly-like substance that is tender and pleasant to taste. This point should be borne in mind in the preparation of all protein dishes such as eggs, lean meat, cheese, etc. If we wish to retain the rich flavors and juices in protein foods such as lean meat, we start cooking them at high temperatures so that a tough rubber-like coating is formed on the outside. This takes from 5 to 15 minutes, depending on the materials to be cooked and their size. Nearly every woman does this when she browns a roast in a frying pan before putting in a roasting pan in the oven. The important thing

to be remembered is, that the temperature must be reduced and the long slow cooking given if one wishes a tender palatable product.

Long Slow Cooking Improves Fried Chicken

Some people forget this fact when they prepare fried chicken for instance, and continue cooking at a high temperature with the result that the chicken is stringy and tough. Chicken to be tender and tasty should be well rolled in flour and then placed in a skillet containing considerable hot fat, and quickly browned to a light golden brown. The gas should then be turned low, or, if one is so fortunate as to have a coal

(Continued on Page 15.)

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LARGEST COTTON MARKETING ORGANIZATION IN THE SOUTHWEST

The Poultry Industry

By H. EMBLETON.

Early History

Interest in poultry originated by sea captains bringing into this country oddly marked fowls from foreign parts. These were given to friends who in turn bred and reared them merely as a pastime. Various colored and shaped fowls evolved from selective crossings of the offspring from this original stock. In the course of time the type and color of these crosses were standardized through the medium of the poultry shows. Poultry shows came into existence about 1880.

It was while fowls were being kept as a hobby that their economic value was first observed. Through proper selection and mating their egg producing possibilities were greatly developed and their quality of meat greatly improved. With the increasing demand for eggs and poultry meat, the poultry industry soon assumed commercial importance and much larger sized flocks were in evidence.

Many factors were responsible for the growing demand for poultry. At first it was merely a question of supplying home needs on the farm and any eggs beyond this need was a waste because of no demand for them. However, as the population began to group themselves into cities and these cities grew in size, it was necessary for the people on the farms to produce not only what they needed themselves, but also what was needed by the people in the cities. This caused a growth in the number of people engaged in poultry farming and also allowed for a greater expansion in the size of the individual flocks.

In the early development of the industry it was not possible to ship eggs any distance or to hold them over a long period because of their deterioration. Improvement in transportation facilities, both in the reducing of the time it was necessary to have eggs in transit, and also because of the introduction of refrigerator cars, it became possible to transport eggs a great distance from where they were produced and have them received in an edible condition. Cold storage facilities enabled eggs to be held over a longer period of time and still have them edible.

Better knowledge on the part of the producer as to conditions necessary on the farm for the producing of a better quality of egg along with improved transportation facilities caused a greater consumption of eggs.

While the flocks were small and kept as a side issue on the farm "Old Biddy" was satisfactory both as an incubator and brooder. As the size of the flocks increased it was necessary to use a more economical way of incubating and brooding. This brought into existence the artificial incubators and brooders. The capacities of these at first were relatively small. As demands increased the sizes of this class of equipment was enlarged until today many thousands of eggs are hatched in one incubator at the same time, and many thousands of chicks were brooded on the same farm at one time.

Production in the original poultry was low—only two dozen eggs a year. Through better selection and more accurate knowledge of breeding it has been possible to breed individual birds that have laid as many as 350 eggs in 365 days. Just recently two different pens of ten birds each have averaged better than 300 eggs each during a 365 day period.

In the early days of the industry as the size of the flocks increased troubles in the way of disease increased in proportion and threatened to be a barrier to further development in the industry, until the experiment stations came to the rescue with information which led to the control and prevention of troubles of this nature.

Much of the improvement in egg production came about through better feeding methods, and later through a more thorough knowledge of breeding principles. Here again, it is necessary to thank the experiment stations for having worked out the fundamental principle underlying our present knowledge of these two practices.

The Present

The World War with its heavy demand for poultry and eggs along with the abnormal increase in prices for these two commodities was a great impetus toward increasing the interest and development in the poultry industry. Many who were unqualified both in experience and capital were lured into the industry and were able to survive because of the abnormal prices. When the war was over and trends became normal many were forced out of the poultry business and it appeared as if the industry was overcrowded. Recent surveys have proven that this assumption was false and that the whole movement was merely one of stabilization. As it now stands competition is making it imperative that any one entering the industry with a hope of surviving in it must first have a realization of the amount of capital necessary to profitably finance the business and then to have the necessary knowledge with which to make the business a success.

In other words they must realize that poultry is a business subject to all the laws governing any other business. It is well known that the cause of most of the failures in business is first due to a lack of capital, and secondly to a lack of knowledge concerning the business.

A recent survey conducted by the University of Arizona and the United States Department of Agriculture in the Salt River Valley of Arizona has brought to light much valuable information concerning the present status of the poultry industry both within Arizona and the United States. It has also indicated the sound practices and weak points in our present methods with poultry.

In this survey it was noted that 63 per cent of all the poultry and eggs in the United States were produced in the middle western states. So the small flock on the general farm is still the backbone of the poultry industry nationally. Arizona produces a fraction of 1 per cent. From this it can be seen that as far as the national situation is concerned Arizona plays very little part in it.

That there is a shortage of fifty carloads of eggs annually in Arizona, and that these eggs had to be shipped in from other states was also an outstanding fact of this survey. This condition exists in spite of the fact that there has been approximately a 50 per cent increase in the industry within the state since 1920.

There seems to be an abundance of poultry meat produced in Arizona most of which is a by-product incident to the production of eggs. Arizona exports poultry meat but in spite of this fact Arizona markets are glutted with poultry meat at certain

(Continued on Page 30.)

The City of PHOENIX

*Extends a Hearty
and Cordial
Welcome*

to the

Arizona Poultry Federation

and appreciates the honor of
having their Annual Show.

Phoenix realizes the possibilities of the Poultry Industry and its important part in the growth of Arizona. The Federation can render poultrymen valuable aid in stabilizing their industry and in promoting the welfare of their members.

Again, Phoenix bids you welcome, and extends every good wish for the success of your organization.

F. J. PADDOCK,
Mayor

C. E. GRIGGS,
City Manager

Poultry, Rabbits and Pigeons At 1928 Arizona State Fair

By W. F. FETTERLY, Superintendent

The Poultry, Pigeon and Rabbit exhibits at the Arizona State Fair in 1928 was larger than ever before shown at one time in the State of Arizona. There was over two thousand head of stock shown in this department. And 204 different varieties, greeted the eyes of the spectators when they arrived at this display. Many was not aware, that as many different varieties of Pigeons and Rabbits existed. And were agreeably surprised to see so much quality and the number of different kinds of stock displayed.

In the pigeon department alone there was displayed ninety-four varieties of these useful and beautiful bird. The White King classes were the largest of any of the pigeon classes, and a win in that isle meant that one had to have real stock to even get in the ribbons, there being 24 old and 19 young pairs displayed. This class was followed by the Red Carneau, another very popular breed and while the numbers were not as large, as was the case with the White Kings, still the quality was there, and many sales were made at attractive prices. It was only a few years ago that one would see only a few pairs of pigeons at any Arizona Poultry Show. This year there was nearly 700 head all told displayed. And at the rate the industry is increasing, it will be only a matter of a short time, before we will have as large a display in this department as

anywhere in the United States.

In the regular poultry classes, the Single Comb Rhode Island Reds, were the largest class, although not quite as large as in some previous shows. However, the quality was even better than ever before. There was at least 14 birds to my knowledge that were purchased from large breeders, that did not get into the ribbons. While at the same time in two cases that I know of the same breeder that had imported stock on display, received prizes on that stock which he had produced in his own yards. Yet the prizes paid for these imported birds, was by far larger than those same two breeders mentioned, would ask for their best, of the stock produced by them on their own plant.

The Barred Plymouth Rock came back with a vengeance this year for the first time in many years, and the quality was there. There is no better breed in the world today than the Barred Rock, providing it is bred and raised right, and it was very apparent this year that the Barred Rocks at the State Fair show was bred and raised by master breeders. The poorest Barred Rock displayed at the 1928 show, would have beaten the first prize winner of two or three years ago at this same show. So I say that the quality and size of Barred Rock alley was a revelation to the judges, public, and to myself. Nothing pleases me better than to see a worthy breed come into its own after a slump in popularity,

which nearly all good varieties suffer at some time or another during their career. "But as the Irishman says, YOU CAN'T KEEP A GOOD MAN DOWN." And so it is with a good variety of poultry, you simply can't keep them down, at least for any length of time.

The White Leghorns, Buff Minorcas, White Plymouth Rocks, were about tied in numbers, and the quality in all these excellent varieties of high class birds was in my estimation, better than ever before, except in the case of White Leghorns, which was mostly of ordinary stock except a few cases, notably the First Prize pen. This pen was headed by a cock bird that was awarded the BEST MALE IN THE SHOW all breeds competing. So one may know that he was a beauty in order to win this highly coveted prize. The Buff Minorcas was probably the hardest class that Judge W. M. Wise had to handle, this was especially true of the four pens on display, he stated that in his estimation that this was the most difficult class he had in the show, owing to the likeness of these pens. He could easily have changed the awards all around, and still been nearly right as there was so little to choose between them. That the smallest kind of a defect in one feather was taken into consideration in order to make the awards.

The many varieties of Poultry, Bantams and Pigeons displayed by C. A. Barr of Phoenix, as usual attract-



W. F. Fetterly

ed thousands of fanciers and spectators. This display alone is worth going many miles to see. Mr. Barr has some forty odd varieties of the featured tribe. Mostly of which are known as the rare breeds and varieties. And he shows them not only in Arizona shows but many California shows and elsewhere. Always winning his share of the premiums offered.

The Turkey exhibit was the great-
(Continued on Page 32.)

To Increase Profits, Mr. Poultryman, Feed Arizona Star

A Special Poultry Feed For Every Fowl From Baby Chicks To Laying Hens
MADE BY THE MILLERS OF THE FAMOUS ARIZONA STAR FLOUR

Years of experience has taught us how to mix feeds for Arizona hens and chicks. Made of prime, re-cleaned seeds and cracked grains with other bone and body building ingredients added, Arizona Star Feeds are the best feed-and-health insurance a poultryman can buy for his flock. Special "Iktonized" and "Cod Liver Oil" Mashs are also available.



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PHOENIX — MESA — TEMPE — GLENDALE — SAFFORD

The Poultry Industry of the Salt River Valley

By M. E. BEMIS,

Industrial & Agricultural Secretary
Phoenix Chamber of Commerce

Although the poultry industry has been increasing to a very marked extent for a considerable period of time the population has also been increasing. In the mining districts egg production is comparatively unimportant, and the population has increased very rapidly in the larger towns such as Phoenix and Tucson. For this reason the poultry production has not yet caught up with the demands within the state.

The poultry industry here is confined mostly to the production of eggs. Poultry for meat is largely a side line, although there are many farm flocks of heavier breeds and many small flocks in the suburban residence districts, and this is a phase of the industry which might be profitably expanded. On the commercial farms the consensus of opinion seems to be that egg production is most profitable, and consequently the White Leghorns are the most popular breed.

There are certain advantages which we have which outweigh any possible disadvantages, and probably on the whole our opportunities are a little greater than that of any other section of the United States. Chief of these advantages, of course, is climate. This means that the expense of housing is materially lessened because it is not necessary to house against the inclement weather which prevails in practically all parts of the country, even on the Pacific Coast.

We have at the present time a considerable number of successful poultry growers who are maintaining their flocks entirely without houses. Chicks, when they have been graduated from the brooder houses are placed on out-of-door roosts and so maintained during life. Flock owners following this method are almost invariably convinced that egg production, even during winter months, is not materially less than where the flocks are housed, and the cost of these special roosting platforms is probably not more than 15 percent of the cost of houses.

Another advantage which we have here is the long growing season, which permits of the production of green feed twelve months of the year. In addition many poultry producers are finding that alfalfa hay, if it is the leafy variety, may be kept before the hens at all times, and this, while not entirely a substitute for green feed, seems to help in maintaining health and to some extent does furnish the needs which are supplied from green feed.

As previously stated, mining towns and other large cities furnish splendid markets for poultry and eggs.

Recently there has been formed in the Salt River Valley, an egg-marketing association known as the Poultry Producers of Arizona.

Comparative monthly prices of association eggs from July 18, 1927 to June 30, 1928, inclusive:

July, 1927 .....	.2054
August, 1927 .....	.2229
September, 1927 .....	.2970
October, 1927 .....	.3803
November, 1927 .....	.4001
December, 1927 .....	.3905
January, 1928 .....	.2948
February, 1928 .....	.1808
March, 1928 .....	.1503
April, 1928 .....	.1473

May, 1928 .....	.1441
June, 1928 .....	.2334

The Egg-Laying Contest carried on at the University of Arizona, and consisting of 200 selected Arizona-bred birds has made some wonderful records. Several birds have produced above 300 eggs a year, and the average for the entire contest last year was second among the Egg-Laying Contest in the United States and records so far achieved for 1928 indicate that this year's record will be close to the top, if indeed it does not lead all of the contests in the country.

An Accredited Hatchery Association, which is composed of most of the larger hatcheries of Arizona has been formed, and at this time there seems to be an excellent opportunity for more high class breeders, not only of White Leghorns, but of the other popular breeds as well.

The Poultry Department at the University of Arizona has done some excellent work, and in addition to the Egg-Laying Contest, flocks are maintained, experimental data is being obtained, and an Extension Poultryman is available to assist poultry growers.

Most commercial poultry growers do not attempt to grow any considerable amount of the feed required,—finding it more economical to buy from growers or dealers. A considerable part of the grain used for poultry is grown on farms in the Salt River Valley, and the tendency is to use as large a percentage of home-grown feeds as can be utilized economically. The principal grains raised in the Salt River Valley are: wheat, barley and grain sorghums, (Milo, Kafir and Hegari.) The grain sorghums largely take the place of corn. Dried buttermilk is also produced here, and there is also available from near-by quarries an excellent quality of limestone grit.

The use of electricity on modern poultry farms is increasing. Electricity for operating incubators, brooders, and for lighting the houses in the winter months to lengthen the day, for pumping water and grinding feed is more convenient, cleaner and safer than any heat or power.

Electric lines are now being extended through the salt River Valley to carry electric energy to every farm house. This power is developed from plants on the irrigation system, and is available at a low rate.

The cost of electricity has been found to be less than one and one-half cents a chick. The cost of brooding with an electric brooder is about one and one-tenth cents for each chick for five weeks. In this mild climate chicks are usually ready to leave the brooder at the end of the fifth week.

It is generally believed by those who are in a position to know, that the poultry industry here, offering as it does the special advantages named, will become increasingly more important, until within a short time, instead of importing eggs from other states we shall be shipping them to eastern markets, as it has been proved that we can produce as economically as can be produced in eastern sections where egg production has become the major industry, and it has also been proved that we can produce and are producing eggs of a quality which will enable them to find ready markets among critical consumers.

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Truly they are your home stores. We are vitally interested in Arizona and Arizona products and we always buy and sell merchandise made and grown in Arizona whenever possible. It pays to trade at home.

Bayless Stores, Inc.

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Doctor: You say he has a throat complaint?

Nurse: Yes, he can't get anything to drink.

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Cigarette lighters have done more than anything else toward increasing the sale of matches.

NOTICE OF SALE

Notice is hereby given that the following goods will be sold for storage charges, at public auction, to the highest bidder, for cash, at the Warehouse of the TUCSON WAREHOUSE & TRANSFER COMPANY, Seventh Avenue and Sixth Street, at Eight O'Clock in the forenoon on the 31st day of December, 1928.

- | | |
|---|-------------------------------|
| Name of owner or person for whose account goods are held. | Goods to be sold. |
| C. O. Foltz | 1 trunk. |
| V. R. McCormick | 4 boxes, tool chest, etc. |
| Charles F. L. Bock | Household goods. |
| Mrs. F. C. Florez | Household goods. |
| Mrs. Carmela Jones | 2 pianos and household goods. |
| Miss Nora Deupree | 12 boxes, etc. |
| Iva Kelly | 4 barrels, boxes, etc. |
| H. R. Borchardt | 3 trunks, etc. |
| Mrs. J. E. Harvey, Jr. | 1 box. |
| C. F. Leach | sewing machine, etc. |
| Walter Le Compte | 1 trunk. |
| A. H. Gracey | 1 trunk. |
| R. L. Pyatt | 2 boxes. |
| William Wendnagel | 2 trunks, 1 suit case. |
| J. J. Sullivan | 1 bundle. |
| Mrs. Crane | 1 cook stove. |
| W. J. Murtuffi | Household goods. |
| L. E. Gaskill | 1 trunk, 1 chest, 1 table. |
| Stein Brill Corporation | 2 extractor cylinders, etc. |
| G. C. Blaine | 1 victrola. |
| Walter Dupont | 1 trunk. |
| Arizona Decorating Company | Flags, etc. |
| Roy Dobin | 1 show case. |
- TUCSON WAREHOUSE & TRANSFER CO.
By H. W. Harpham, Secretary.
Published Dec. 4-11-18, 1928.

NOTICE TO CREDITORS
No. 4851

IN THE SUPERIOR COURT OF PIMA COUNTY, STATE OF ARIZONA
Estate of Edna Lawrence, deceased.
Notice is hereby given by the undersigned, C. E. Lawrence, Administrator of the estate of Edna Lawrence, deceased, to the creditors of and all persons having claims against the said deceased, to exhibit them, with the necessary vouchers, within four (4) months after the first publication of this notice to the said Administrator at the law office of John C. Haynes, 131 North Stone Avenue, Tucson, Pima County, Arizona, the same being the place for the transaction of the business of said estate in said County of Pima, State of Arizona.

C. E. LAWRENCE,
Administrator of the Estate of Edna Lawrence, deceased.
Dated Tucson, Arizona, this 4th day of December, 1928.
JOHN C. HAYNES, Atty.
Published Dec. 4-11-18-25, 1928.

ARTICLES OF INCORPORATION OF

JOHN W. MURPHY BUILDING COMPANY
KNOW ALL MEN BY THESE PRESENTS: That we the undersigned do hereby associate ourselves together for the purpose of forming a corporation under the laws of the State of Arizona and do hereby adopt the following Articles of Incorporation:

ARTICLE I.
The names and residences and Post Office addresses of the incorporators are as follows, to-wit: John W. Murphey, 2230 East Speedway, Tucson, Arizona; Leo B. Keith, 329 West Franklin Street, Tucson, Arizona.

ARTICLE II.
The name of the corporation is: John W. Murphey Building Company.

ARTICLE III.
The principal place for the transaction of business of this corporation shall be Tucson, Pima County, Arizona, but it may maintain branch offices, hold meetings and transact business at any place or places in the United States.

ARTICLE IV.
The general nature of the business proposed to be transacted by this corporation, at any place within the United States, is: to engage generally in the business of contracting for the planning, financing, erecting, constructing, building, repairing, remodeling, demolishing, decorating, furnishing and equipping of buildings of every kind, class and description; to engage generally in the business of contractor, builder, and dealer in lumber, tile, brick, stone, iron, steel, cement, plumbing materials and every kind of building material; to buy and sell commercial paper and other evidences of indebtedness; to loan and borrow money, to execute promissory notes and to secure the same by real or chattel mortgage or upon such other security or terms as may be arranged; to own, handle, control, issue, cancel and re-issue shares of its own capital stock; to buy, own, handle, control, vote, sell and otherwise deal in shares, bonds and stocks of other corporations; to make contracts, to purchase, lease, bond, locate or otherwise acquire or exchange, sell or otherwise dispose of, pledge, mortgage, hypothecate and deal in real estate and any and all kinds of personal property; to survey, subdivide, plat, declare restrictions on land subdivisions, improve and develop lands for the purpose of sale or otherwise, and to do and perform all things needful and lawful for the development and improvement of the same for residence and improvement or sale and to do and perform all other deeds, accounts and things incident or convenient to its general business.

ARTICLE V.
The amount of the capital stocks of this corporation is One Million (\$1,000,000.00) Dollars, divided into ten thousand shares of

the par value of One Hundred (\$100.00) Dollars each. Stock shall be issued when paid for in cash, services or property and shall be issued as fully paid and shall be forever non-assessable. The judgment of the Board of Directors as to the value of the property taken in exchange for stock shall be conclusive in the absence of fraud.

ARTICLE VI.
The time of the commencement of this corporation, for and in behalf of this corporation, to accept and incorporation shall be the date on which a Certificate of Incorporation is issued by the Corporation Commission of the State of Arizona and it shall terminate twenty-five (25) years thereafter, unless renewed in the manner provided by law.

ARTICLE VII.
Until the first annual election, the affairs of this corporation shall be conducted by a Board of Three (3) Directors who shall be stock-holders in the corporation. The names of the persons appointed to serve as directors of this corporation until the annual election of directors and until their successors are duly elected and qualified are as follows, to-wit: John W. Murphey, Helen G. Murphey and Leo B. Keith.

ARTICLE VIII.
The officers of this corporation shall be a president, vice-president and secretary-treasurer; that until the first annual election of officers and until their successors are duly elected and qualified the following named persons are constituted the officers: John W. Murphey, President; Helen G. Murphey, Vice-President; Leo B. Keith, Secretary-Treasurer.

ARTICLE IX.
The annual meetings of the stock-holders of the corporation shall be held on the third Monday in January of each year, commencing with the year 1929, at such place and hour as may be prescribed by the by-laws of the corporation. Special meetings may be held at such time and place and in such manner as may be prescribed in the by-laws of the corporation. If, at any time, a vacancy shall occur in the Board of Directors, such vacancy may be filled by the remaining directors in office. The person so chosen to fill a vacancy shall serve during the unexpired time of his predecessor and until his successor is elected and qualified.

ARTICLE X.
The by-laws of this corporation shall be adopted by and may be amended and revised by the Board of Directors until and unless otherwise provided by resolution of the stock-holders.

ARTICLE XI.
The highest amount of indebtedness or liability direct or contingent to which this corporation may, at any time, subject itself is Six Hundred and Sixty-six Thousand, Six Hundred and Sixty-six and Sixty-six One-Hundredths (\$666,666.66) Dollars.

ARTICLE XII.
The private property of stock-holders in this corporation shall be forever exempt from all liability for corporate debts.

ARTICLE XIII.
John C. Haynes, of Tucson, Pima County, Arizona, who has been a bona fide resident of the State of Arizona, for the last three (3) years is hereby appointed the law-

acknowledge service and upon whom may be served all necessary process in any action, suit or proceedings that may be brought against this corporation. The Board of Directors of this corporation may revoke the appointment of agent at any time and shall have power to fill any vacancy in such position.
IN WITNESS WHEREOF we have hereunto set our hands this 9th day of November, A. D. 1928.

JOHN W. MURPHEY,
LEO B. KEITH.
STATE OF ARIZONA,)
County of Pima.)

This instrument was acknowledged before me this 9th day of November, A. D. 1928, by JOHN W. MURPHEY and LEO B. KEITH.

JOHN C. HAYNES,
Notary Public in and for the County of Pima, State of Arizona.
My Commission Will Expire February 7, 1932.
Pub. Nov. 13, 20, 27, Dec. 4, 11, 18th, 1928.
JOHN C. HAYNES, Attorney.

NOTICE OF CONTEST

(For publication.)
Department of the Interior,
United States Land Office.
Ct. 6863
Phoenix, Arizona.
Nov. 22, 1928.

To JOHN JOSEPH NANGLE, of Pastime Park, Tucson, Arizona, Contestee:
You are hereby notified that W. L. Cochran, as his post office address, did on Nov. 17th, 1928, file in this office his duly corroborated application to contest and secure the cancellation of your Stock Raising Homestead Entry, Serial No. 060684, made Jan. 14th, 1927, for the whole of Section 13, Township 12S, Range 10 E. G. & S. R. B. & M. Meridian, and as grounds for his contest he alleges that you are not living on said land, that you have never lived on said land, that you have never made any improvements on said land, and that you are to the best of his knowledge and belief not a resident of the State of Arizona, and that you have willfully abandoned your claim to said land.

You are, therefore, further notified that the said allegations will be taken as confessed, and your said entry will be canceled without further right to be heard, either before this office or on appeal, if you fail to file in this office within twenty days after the FOURTH publication of this notice, as shown below, your answer, under oath, specifically responding to these allegations of contest, together with due proof that you have served a copy of your answer on the said contestant either in person or by registered mail.

You should state in your answer the name of the post office to which you desire future notices to be sent to you.
HENRY A. MORGAN,
Register.
First publication 12-4-28.
Second publication 12-11-28.
Third publication 12-18-28.
Fourth publication 1-1-29.

Poultrymen of Arizona:

A GOOD sound bank that extends you every consideration within the limits of good banking is necessary in helping you to build your business on a sound basis. A proper banking connection very often means success in any business and naturally this applies to the fat growing poultry industry.

THIS BANK is interested in and believes in the poultry industry. We pride ourselves on having a large number of successful poultrymen as our customers and hope to add to our list. Our officers are at your service and we extend you a cordial invitation to come in and use this service.

Arizona Southwest Bank

Tucson

Douglas

Arizona Accredited Hatcheries

(Continued from page 1)
Grades of Chicks

The grades of chicks produced by members of the Arizona Accredited Hatchery Association shall be designated as Grade A, certified—Grade AA, certified and Grade AAA, certified.

The following rules and regulations govern the accredited hatcheries:

CERTIFICATION

Grade A Certified Leghorn Flocks:

In order to meet the requirements of Grade A Certified the birds shall be selected by an official state inspector at least once each year, shall be subject to his inspection without notice at all times, and shall be mated to males out of R. O. P. females, with records of not less than 200 eggs during their first year's production.

Grade A Certified Eggs:

In order to meet the requirements of the above grade, eggs shall come from only a Grade A Certified flocks, weigh at least one and seven-eighths ounces each, and average at least 23 ounces per dozen, shall be delivered only in clean, sanitary cases, and shall meet the requirements of the general regulation.

Grade A Certified Chicks:

In order to meet the requirements of the above grade, chicks shall be hatched only from Grade A Certified eggs, and in certified hatcheries. Grade A Certified chicks shall be sold only in clean, sanitary packages, as outlined in the general regulations, and chicks sold for re-sale shall lose their certified identity except among certified hatcheries.

Grade AA Certified Leghorn Flocks:

The requirements for this grade of flock shall be the same as in the case of Grade A Certified flocks, except that the birds shall be mated to males out of R. O. P. females with records of not less than 225 eggs during their first year's production.

Grade AA Certified Eggs:

The requirements for this grade of eggs shall be the same as for Grade A Certified eggs except that they shall come from Grade AA Certified flocks only.

Grade AA Certified Chicks:

The requirements for this grade of chicks shall be the same as in the case of Grade A Certified chicks except that they shall be hatched from Grade AA Certified eggs only.

The requirements for this grade of flock shall be the same as in the case of Grade A Certified flocks except that the birds shall be mated to males out of R. O. P. females with records of not less than 250 eggs during their first year's production.

Grade AAA Certified Eggs:

The requirements for this grade of eggs shall be the same as for Grade A Certified eggs except that they shall come from Grade AAA Certified flocks only.

Grade AAA Certified Chicks:

The requirements for this grade of chicks shall be the same as in the case of Grade A Certified chicks except that they shall be hatched from Grade AAA Certified eggs only.

Other Breeds

Breeds other than while leghorns will not be accredited during the same year 1929, but will be added to the accredited list as conditions warrant.

Accredited Hatcheries:

In order to meet the requirements of the above grade, hatcheries will offer for sale only accredited chicks in the breeds included in this plan. They shall be inspected at least

twice during the hatching season and shall be subject to inspection without notice at all times by an official state inspector. They shall keep a complete record of purchases, hatches, and sales of eggs, chicks, and breeding stock in all breeds certified under this plan.

General Regulations For Certification

1. All birds shall be pure bred and of good, standard quality.

2. All flocks, eggs, chicks, and hatcheries shall be inspected by an official state inspector according to the requirements given under the different grades, and shall be subject to inspection without notice by an official state inspector at all times.

3. All inspectors shall be appointed by the Arizona Accredited Hatchery Association and approved by Poultry Department and Extension Poultryman of the University of Arizona.

4. All poultry laying houses, breeding pens, and incubators or houses shall be kept clean, well lighted, well ventilated, and free from excessive dampness, and shall be kept thoroughly disinfected.

5. Land in the immediate vicinity of the poultry laying and breeding houses and incubator houses shall be kept in as sanitary a condition as possible, being cultivated and planted to crops where possible.

6. In the disinfection of poultry houses, hatcheries, incubators, and incubator equipment, standard permitted disinfectants only shall be used.

7. All eggs used in any stage of this plan shall be reasonably uniform in size and shape, sound in shell, and shall be reasonably free from dirt or any other substance which would tend to injure the chicks hatched therefrom.

8. All chicks shall be normal and representative of the breed and variety at hatching time.

9. Shipments of chicks shall be made in clean, approved types of chicken boxes, properly ventilated, and securely tied, and shall be shipped to reach the ultimate purchaser within 72 hours of the time of hatching, as now prescribed by the U. S. postal regulations.

10. Breeding stock, hatching eggs, and chicks sold or offered for sale shall be designated by official labels or tags defining the grade in strict accordance with the regulations of this standard breeding plan.

11. All flocks producing eggs for hatching under this plan shall be fed a ration that is conducive to production of normal eggs. Green feed shall be supplied in liberal quantity throughout the breeding season.

12. Eggs used for hatching under this plan shall weigh not less than one and seven-eighths ounces each or average at least 23 ounces per dozen.

13. All birds used for breeding purposes under this plan shall be leg-banded with an official sealed leg-band, approved by the Association, and all birds rejected shall have their tails clipped.

Open to All Hatcheries

All hatcheries are invited to membership in the Arizona Accredited Hatchery Association. The greater the membership the more benefit that will accrue to each individual member.

The following agreement, signed by the owner of the hatchery and forwarded to Wm. M. Sprietsma, Prop. Gold Spot Poultry Farm, Route 5, Box 238, Phoenix, Arizona, who is

secretary-treasurer of the organization, is the first step necessary toward becoming accredited.

Hatcherymen's Agreement

I, or we, the owner of the undersigned hatchery, or hatcheries, hereby agree to conform to and abide by all the requirements as outlined in the Arizona Accredited Hatcherymen's Association, and further agree to pay one dollar per M. egg hatching capacity to the treasurer of the Association for use in meeting the necessary expenses in carrying out this breeding plan. We hereby further agree to pay the expenses of inspector while certifying flocks producing eggs for our hatchery, or shall make arrangements for owner of the flock to care for same during the hatching season of 1928 and 1929.

Signed:.....
 Owner or Agent.

Winter wheat makes excellent pasture and can be used for this purpose when other pastures fail. Livestock can be left in the wheat field all winter if the ground remains dry and there is plenty of plant growth. If care is taken to prevent excessive pasturing and grazing when the soil is wet, injury to the wheat crop is not likely to occur.

The leading variety of blackberries now being grown in Florida is the Florida Marvel. The Experiment station has found that this variety does well on a wide variety of soils.

It may be well to hold a postmortem on whatever fowls are found dead at this time of year, to see if roundworms or secum worms are present in the flocks. If they are add to the dry mash 2 per cent by weight of finely powdered tobacco dust, containing at least 1.5 per cent nicotine, to control the worms. This will lessen the danger to young chicks and poults next spring.

—o—
 Half a loaf is better than no rest at all.

Tudor's Pioneer Hatcheries

—Second Oldest in Kansas—
 Now entering on our twentieth year.

BABY CHICKS OF SUPERIOR QUALITY

Thirteen varieties of purebred Smith-hatched chicks all from stock blood-tested for Bacillary White Diarrhea. Some State Certified — Some Accredited

“Buy Tudor's Chicks for Profits.”

**Tudor's Pioneer Hatcheries
 Topeka, Kansas**

Peerless Grocers

A group of Independent Retail Grocers who own and operate their own stores. Our enormous purchasing power permits us to own our merchandise at the lowest cost. We maintain low prices on everything.

Due largely to our efforts there is no place in the country where groceries are sold on such a close margin between the wholesaler's cost and our selling prices.

Peerless Grocers

Deserve Your Patronage

ARIZONA CATTLEMAN AND FARMER



A weekly newspaper covering all southwestern activities.
Established in 1917.

Entered as second class matter March 30, 1917, at the post office at Tucson, Arizona, under the Act of March 3, 1879.

Address all newsmatter, subscription letters and general information communications to Arizona Cattleman and Farmer, P. O. Box 1715 Tucson, Ariz.

ROBERT A. WEBSTER, Editor
C. Edgar Goyette, Publisher

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GET ON THE BANDWAGON!

This being a Poultry Edition we're addressing this to those interested in poultry and rabbits. By getting on the bandwagon we mean, in the interests of YOURSELF and the industry in which you are engaged JOIN THE ARIZONA STATE POULTRY FEDERATION. This organization is the foundation upon which your success can be built. Its objects and purposes are wholly to your interests and as an organization you can protect your rights, secure favorable legislation when needed, and in general have the strength of numbers behind you in all legitimate matters. The dues are so little and the possibilities so great that we cannot see how a single poultryman can fail to join. Send your dollar to H. B. Hinds, secretary-treasurer, care the University of Arizona and DO IT NOW!

FAITH IN ARIZONA

Throughout this edition you will find advertisements of those who appreciate the real worth of this great industry to Arizona. True, lots of them have something to sell you, but behind it all we have found in securing these ads a genuine desire to help the Federation and to aid in establishing the poultry industry on a firm basis. Over and over again we have heard expressions of confidence in the poultry industry and the belief that it will assume a front rank position in the business of the state. Because of their faith in Arizona and the poultry industry we ask that our readers whenever possible give consideration to these good people. Co-operation is the key to success!

THE FARMERS' DEEP INTEREST IN MUSCLE SHOALS

At the present session of Congress the question of a final disposal of the important problem of the great government plant at Muscle Shoals is to be taken up. The power companies are opposed to the utilization of the huge dam and power plant in the interest of the American farmer, because the prosperity of the farmer is of less moment to them than the construction of manufacturing plants that consume power. Likewise, the chemical industry is opposed because it is committed to branches of that industry that, in a feeble way, manufacture fixed nitrogen, and to others that on a very great scale produce acid phosphate. The production of acid phosphate would not compete with the ammonium sulphate that mainly would be made at Muscle Shoals, even if the entire capacity of that water power were to be dedicated to the American farmer. When a soil needs soluble phosphate for its maximum production, soluble phosphate is what it needs, and on the other hand if the soil requires ammonium sulphate, or other forms of nitrogen, no amount of acid phosphate can take its place.

The American farmer has not kept pace with the Europeans in the production of foods, because we do not fertilize seriously. It is a remarkable fact that 84 per cent of all the phosphate prepared in the United States is consumed in the Southern States, almost all of which is employed on cotton. Fifty-two per cent of all fertilizers in this country are bought by the South, which indicates incidentally how little is used. We average about 12 bushels of wheat per acre against the European average of 30, and we get only about 90 bushels of potatoes against their 205. It is altogether a matter of fertilization, as appears from the fact that we use only 40 pounds of fertilizer per acre as an average, while the average for Germany, even before she started on her campaign of intensive production of fixed nitrogen, was 188 pounds per acre, and the corresponding figure for Great Britain is 162 pounds.

If we should apply fertilizer at the same rate per acre as do the Europeans we would consume in addition to what we now put upon the land about 700,000 tons of fixed nitrogen yearly. Unless we do that the fertility of the soils of this country will become so reduced within a few years that we will become largely dependent upon foreign sources of supply for the necessities of life. The natural fertility of the soil is a wasting asset. Jacob G. Lipman, one of America's greatest agronomists, has computed that our total losses of nitrogen from tilled lands, resulting from drainage losses and from nitrogen removed by crops and either exported in one form or another or destroyed, amounts to the equivalent in terms of ammonium sulphate of 15,000,000 tons annually, or 3,061,000 tons of nitrogen. Of this huge deficit only about 200,000 tons is restored by the application of fertilizer, which demonstrates the steady approach of starvation.

The most immediate source of relief lies in the utilization of the great energy of the Tennessee river at Muscle Shoals for the fixation of atmospheric nitrogen by either the Claude or the Haber-Bosch process, and its conversion into sulphate of ammonia for the farmers of this country. The greater part of the cost has already been incurred, at the expense of the American taxpayer. The existence of this tempting morsel has excited the greed of the power and other corporations who seek to have it awarded to them for a song. The opponents of the farmer's interests have a habit of pretending that the water power at Muscle Shoals is able to produce only an insignificant amount of fixed nitrogen annually, which is always based on the obsolete arc-process, but no sane man today would be guilty of installing so ridiculously inefficient a system. The actual capacity of the falls, by the Claude or the Haber-Bosch process, is about 187,000 tons of fixed nitrogen per year, based

upon four times the mean low rating of approximately 100,000 horsepower.

We will not pretend to say what sulphate of ammonia would cost if honestly produced at Muscle Shoals. It would certainly be only a fraction of its cost as a by-product of the coke ovens, and the price at the coke ovens, is about \$2.40 per hundred. There is nothing so much needed on our desert soils as various forms of nitrogenous products. If made and equitably distributed from Muscle Shoals it would be the cheapest and most valuable fertilizer that the Arizona farmer could employ. It would not merely make two blades of grass grow where one grew before, but would treble and quadruple the output of our lands—our cotton, our alfalfa, and the rest. Germany can do it. Then why not we? Germany with an area of less than 200,000 square miles, against our 3,026,789, has developed the fixed nitrogen industry to a production of 500,000 tons per annum, whereas the total American output from all sources is only 140,000 tons.

Every American farmer has it in his power to take a very important part in deciding this vital question of Muscle Shoals. The way to do it is to write a personal letter to your senator and congressman. A distinguished western senator said to the representative of a commission sent to Washington to see that justice was done to the war minerals producers, "Get a thousand individuals who are vitally interested in the passage of this relief bill to write me why it ought to pass, and I think that will put it through. All the men who are opposed have made themselves heard, and they have secured from all the associations interested in its non-passage memorials on the subject, but we need to hear from the men who actually have been injured." Fifteen hundred letters were obtained by telegraphic solicitation, and the bill passed against the protests of the big interests. The American Congress is representative in the truest sense, and becomes the tool of the rascals mainly because it hears the opinions of the rascals and almost never gets the voice of the plain people whose interests are at stake.

ORGANIZATION

One of the greatest weaknesses with poultrymen is the fact that they as individuals, try to exert influence on a state-wide basis. The hope that results can be accomplished on this basis is futile. Years ago business and industry realized that by joining together in larger groups they could carry on their lines of endeavor more economically and hereby better meet competition which was becoming keener year by year. Hence the general country wide move into merging and combining.

The poultrymen should awaken to this possibility and learn a lesson from their more experienced brothers in business and industry. Instead of continuing to stay by themselves and act individually they should be planning to get together into groups so that they can benefit by the force and prestige an organization made up of many members can exert, where it would be impossible for any one individual of this group, as an individual, to exert any influence whatsoever.

Arizona has a State Poultry Federation organized for the very purpose of affording the individuals an opportunity of joining together with others of like inclinations so that their combined influence can be made affective along lines that would be of benefit to the poultrymen as a whole. The plan calls for the organization of county groups and then for these groups to federate together into a central state organization.

So far this movement has not met with the response it is justified in receiving. Everyone interested in poultry should be able to see the logic and value of this movement. They should join the organization and take an active interest in all its endeavors. An organization is only as strong as the quality and quantities of its membership make it.

WHEREVER YOU GO IN ARIZONA

Map of Arizona showing cities: YUMA, CANTON, PARKER, WILLIAMS, FLAGSTAFF, WINSLOW, PETRIFIED FOREST, LAKE TERRY, PRESCOTT, PEORIA, SCOTTSDALE, ROOSEVELT LAKE, GLENDALE, CASHION, PHOENIX, MESA, BUCKEYE, CHANDLER, FLORENCE, CASA GRANDE, TUCSON, NOGALES, BISBEE, DOUGLAS, SAN XAVIER, HIBBION.

SAFeway Pay 'n' Takit

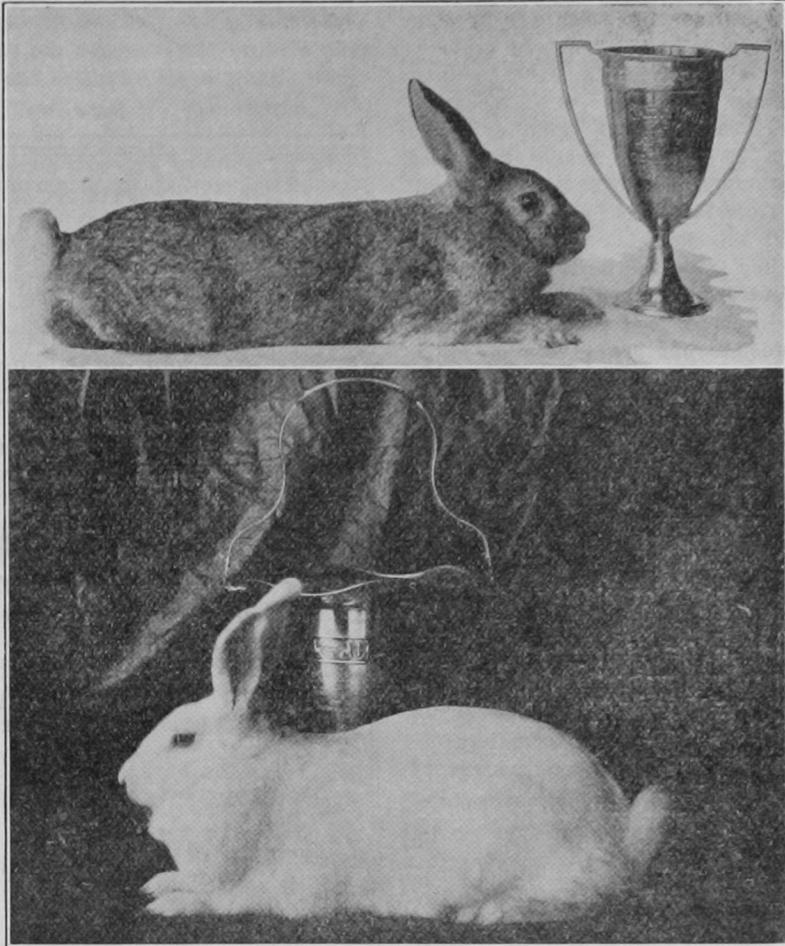
A Few Pointers On Rabbit Raising For Profit

By JOHN W. WELLS,
Rt. 6, Phoenix, Ariz.

Remember profit must be made with rabbits, so let's start right. Get a start of quick growing, well bred rabbits for breeders, of solid colors, such as White Giants, American Whites, New Zealand Whites of New Zealand Reds, but if Reds, be sure

have four rings, well pronounced prime, you have a pelt worth anywhere from 50 to \$2.00 each, or double your meat. That's where your profit is.

We have information on fur, so let's butcher one. Take rabbit by back or hind legs, take a short piece of round wood or broom-handle, hit just behind ears, hang up on hook



Arden Fur Farm Prize Rabbits

to have them red all over and be sure to have strains with fur, not just hair, as fur is worth money and hair just so much a pound—65c for felt.

We will say I kill ten New Zealand Fryers, dressing 2½ pounds each. They are sold at 40c per pound or \$1.00. I sell the pelt for 35c to 50c or one-third or one-half as much as the meat brought. Then I receive a good profit by skinning and stretching pelt. Any child can do it in three minutes, or faster after you learn. I just sold ten New Zealand Red pelts for \$12.50, so I am not talking at random. When getting ready to slaughter, rub hand very briskly against the grain three or four times, then smooth down. If prime you won't have any loose hair on hand, otherwise, you will. When preparing hides for shipment be sure to grade them at home. Any black spots in skin indicates unprime. White skins show prime hide. Put all prime hides in one hundle, unprime hides in No. 2. Mark them, No. 1, tie well, Mark No. 2, tie well. Then bale them in burlap, put your name and address inside on tag, with name of company going to, as sometimes tag on outside gets lost. Send by parcel post to Shubert, Chicago, and you won't throw away any more skins, as they will bring you very near as much as the meat if prime and are of these colors: Red—good fur; Blue—good fur; White—good fur; Chinchilla—good fur; Shotted—no value; Gray—very little value; Good furred Whites always a high price, due to being easy matched; Chinchilla very hard to match but easier than New Zealand Reds. Reds must be Red all over to be quality. Chinchilla must have dense fur with three rings and should

by hind legs, cut head off, front feet at first joint. Tear hide by twisting at back or cutting grip around leg with thumb and finger, shove downward to crotch vigorously on each leg, then run finger under skin, but not under fat, pull up. Then cut below vent, do same on back, cut or twist tail off, but both legs on hooks, grab skin, jery quick downward and skin is off, ready to stretch. Have fur inside as you would mink.

Let's get some idea of a standard rabbit. I will just take commercial breeds: New Zealand Bucks, over 3 pounds, under 11 pounds; does over 9 pounds, under 12 pounds. American White and Blue, Bucks 8 pounds to 10 pounds, does 9 to 11 pounds. Standard Chinchillas, Bucks 5½ pounds to 6½ pounds, does 6 to 7 pounds. Heavy White Chinchillas, Bucks 7½ to 9 pounds, Does 8 to 11 pounds. Giant Chinchillas, Bucks 10 or over, Does 11 pounds or over. Flemish Giants, all colors, Bucks 13 pounds and as much as possible, Does 15 pounds and as much more as possible. White Bevern and Blue Bevern, 7 pounds and over. Silver Black Giants, Bucks 12 pounds or more, Does 14 pounds or better.

The above are the breeds that are best for meat and good for fur. We have other breeds good for fur, but weak on meat. Always pick doe with good length, buck with good type and color. Give good clean feed, clean water, and clean hutches and they will work for you, otherwise, you will have sickness and losses and no profit. Quality hay and quality rolled barley, a little red wheat or red bran with barley is very good feed. Any member of the association may write me on any question, I will answer if I can.

Baked Ham and Sweet Potatoes

There IS a Sunday Dinner!

Crinkly brown baked Cactus ham, all stuck up with cloves and candied sweets—now your talking man!

And one of the most economical meat dishes you can buy too. There will be a trail worn to the refrigerator for cold baked ham sandwich snacks Sunday night.



Say
"Cactus
Ham, Please."

You will appreciate the finer flavor of Cactus hams that comes from using young, tender pork legs and the utmost care we use in the curing of them. There is a total absence of the strong taste of less carefully prepared ham. Just delicious ham flavor at its best. Buy a whole hame for greater economy or a half if you like... At your favorite market.

ARIZONA PACKING CO.

"Serving the State With Government Inspected Meats"

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HELD IN THIS CITY

Squab Raising For Pleasure and Profit

By M. E. BRODERICK

Squab raising, wherever seriously undertaken can be made into a good business. Money can be made more effectively in this business than in the poultry business. They take less land and buildings than poultry, and do not need to be replenished like a flock of hens, as pigeons mate in pairs, male and female, and generally for life unless broken up on account of improper mating, or if the male is slow in providing a nest or home for the female, she will leave him for a more aggressive male.

Often at moulting time if one of the pair finishes the moult before the other, they will split up and mate with a bird of another pair that

food in the craw for several days before the young hatch, known as pigeon milk. This soft food or milk is very essential to the life of the baby squabs, and if it does not receive it, as sometimes happens from young females, the squab will die.

Both male and female feed the squabs and take their turns covering them, until they are several days old. At this time the old birds both go out hunting the food needed for the young. When the squabs are from twelve to eighteen days old, the female again lays two eggs in another nest, and both take their turn setting as before and both feeding the squabs when off the eggs, until they are about three weeks old,

pigeons or dove family, is the only bird that feeds in this way.

Pigeons should be provided with drinking fountains and bathing pans separate, as they bathe daily and are generally free from lice. They should be provided with boxes of salt, oyster shell, grit, and charcoal. They require lots of salt and feed it regularly to their young. They require lots of green food and if flying out will provide their own. If kept in closed pens they should be provided with lettuce, spinach, cabbage, mustard or some other form of green food. They eat any kind of sound grain or seed, preferring wild seed to other. A pair of squab raisers will eat from 100 to 120 pounds of feed a year; this includes their squabs until they leave the nest.

Contrary to popular belief, they like a mash feed for a change and appreciate old bread very much.

Nest material should be provided where the birds can get to it, and they will carry it into the nests. Any coarse hay or tobacco stems will do; alfalfa hay is excellent. The young do not mate until after shedding their first, or baby feathers. These feathers have a bright, metallic sheen, especially around the neck and head, before they are old enough to mate. As a rule, it is better to get mated pairs from some reliable breeder, as beginners often get discouraged while waiting on young birds to mate.

There are a great many kinds of pigeons, but the squad birds or those that produce rapidly and are large enough for table use, are the Homers, Carneaux Maltese Hens, Mon-

danes, Runts, etc.

The Homers are generally conceded to be the hardiest and fastest producers of marketable squabs, although some of the other varieties produce larger squabs.

Six pairs of well-mated pigeons will furnish a nice squag dinner two or three times a month for the average family. And as they can be served so many different ways, one never gets tired of them. The medicinal qualities contained in the young squab are of great value to the un-

(Continued on page 23)



Mr. Broderick, displaying his famous "Dinty Moore" prize Homer flyer of his well-known flock. "Dinty" has flown steadily for years—he was born Dec. 18, 1914, and is still busily engaged in raising young. At the tie of the Santa Isabel Massacre in Mexico, "Dinty" flew with news from Paral, Mexico, to El Paso, Texas. Needless to say, "Dinty" rules the roost at the Broderick home in Safford.

is through moulting and ready to go to work. As a rule the female is productive from six to ten years, while the male will remain productive for life and may be mated from time to time with younger females. Pigeons will live naturally for sixteen to eighteen years.

They take care of their own young and practically take care of themselves. Each pair properly mated will produce eight to ten pairs of squabs a year and twelve pair of squabs are not uncommon. Both male and female take turn incubating the eggs and feeding the squabs.

The female lays the eggs and sits on them from about 4:30 p.m. through the night until about 9 a.m. the next day. The male then goes on the eggs, relieving her, and sits on them during the day until about 4:30 p. m., or generally about feeding time. The eggs incubate in 19 days and the male and female accumulate a soft

the old birds again start accumulating the soft food at this time, and the male does practically all of the feeding until the next squabs are hatched. The older squabs are then driven from the nest to shift for themselves, and are generally four to five weeks old.

Each pair should be provided with two nests close together, as they will have both occupied most of the time. No odd birds should be allowed in the breeding pens as they will break up pairs and fight, kill squabs and break eggs.

Open front sheds in the southern states, with small mesh wire across the front, and nests in the rear, are all the equipment needed. They need plenty of clean water at all times. The parent bird cannot feed the young without first taking a drink, as they take the young bird's bill into their own, and throw or blow the feed into the squab's throat. The

Mister Chicken Man

I'll take 500 or 1000 Federer Brahma chicks, brood them, figure feed cost, mortality, everything (debiting expenses and crediting returns, eggs and yellow meat) over 3 months, 6 months, year or more, wager \$500.00 I'll come out financially ahead of any breed. Hundreds satisfied customers, repeats thousands chicks — proves our claim. Brahma Friers produce 3 to 4 lbs. yellow meat 3 months — profit 30 to 60c—hens \$2.00 up—egg records 300 eggs yearly. Special low prices. Details mail.

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Poultry Health

By H. B. HINDS

The statement is generally accepted that diseases are the greatest hindrance to the development of animal and poultry husbandry, also there is one other form of animal life that suffers more from the ravages of disease than fowls. The losses from the general maladies are heavy and those from infectious ones are extremely so. Hens in particular suffer from a wide range of diseases and parasitisms. While it is easy to understand that heavy losses may occur in localities where fowls are kept in large numbers, it should also be remembered that they are proportionately heavy in smaller flocks. In the latter circumstance the loss of a few hens is often the cause of much privation among their owners who are dependent upon their fowls for the necessities of life.

The general diseases of poultry have received relatively little attention, probably because the pathology of the fowl is not sufficiently understood. What is the reaction of their tissues to injury? In what way does their resistance to wound infection differ from mammals? Their abnormally high temperature might account for the difference.

Parasitisms and infectious disease organisms have been carefully studied. In some cases sufficient information regarding them is available and if properly used the maladies may be prevented.

The relative value of the individual fowl is small, and because of the large numbers involved, methods for disease prevention must be given to the flock. Individual treatments may not be practical except with valuable birds. Sanitation and preventive measures should be practiced.

The structure of the bird differs in some respects from that of mammals. These differences will be noted as they have a direct bearing on some of our common avian diseases. The alimentary system probably presents the most marked differences. In fowls there is no provision for mastication of food in the mouth owing to the absence of teeth. The beak takes up the food which is immediately passed by the tongue to the pharynx. From there it enters the esophagus, and is carried to the crop for storage and softening. The food next enters the stomach and is forced into the gizzard where it is reduced to a semi-fluid mass and emptied into the intestines.

The respiratory system in fowls resembles more nearly the reptilian type of formation in that air sacs are employed. Due to their peculiar formation, respiratory diseases are responsible for enormous losses in fowls.

The skin of birds is without sweat glands, excess moisture being given off in the droppings and by respiration, which in the bird averages 135 per minute. The fowl also has the high temperature of 107 degrees. It can be seen from these figures that the fowl is a high-speed machine, which probably accounts for the fact that adverse environmental conditions affect them so greatly.

Hygiene and Sanitation

Both hygiene and sanitation are essential. A bird must have healthy surroundings to remain healthy and profitable. There is a direct relationship between the soil and the health of the birds running thereon. A wet soil or damp spots favor

parasites. Continued use of the same soil for several years without disinfection and strict sanitation is inviting disaster.

Buildings should be located so as to permit unobstructed illumination of the interior by sunlight. The frequency with which houses must be cleaned and disinfected should be borne in mind when they are constructed. Nests, perches, and fittings should be profitable. Some details of construction will assist in dissemination of parasites. Chicken wire stretched under the roosts will prevent birds from coming in contact with droppings.

In cleaning a house the object is not so much the removal of visible dirt and filth collections as the destruction of disease producing bacteria. The bowel discharge contains enormous numbers of disease-producing organisms which are carried by the feet of other birds to the water and feed hoppers. In addition to the harmful bacteria there are many other organisms, as tape and round worms. There are, too, external parasites which are responsible for heavy losses.

The cleaning process should then include, (1) removal of refuse and manure, (2) the use of disinfectants to destroy bacteria, and (3) the application of insecticides to destroy lice, mites and blue bugs.

The efficiency of a disinfectant depends on the thoroughness of the cleaning process previous to the application of the disinfectant. Solutions will not penetrate into large masses of refuse. Burn or bury all refuse from houses in which disease has appeared.

Remember that most disinfectants are also good insecticides but insecticides are not as a rule good disinfectants.

The direct rays of the sun are a very effective disinfectant agent but its penetrating power is limited to the surface area, and, as a result, large masses of filth are not sterilized. The sun's rays should be utilized but it should be remembered that they cannot accomplish everything.

There is a long list of prepared disinfectants on the markets and most of them give satisfactory results. Generally they are coal tar preparations. The important point is to soak every nook and corner and to use too much rather than too little.

Generally it is impossible completely to isolate sick birds and it will be found advisable to kill and burn the carcass. This removes a source of infection from the farm. I have seen sick birds that were merely placed in another pen, separated only by a wire fence. This is certainly not isolation.

Sell all birds which have been in quarantine, because a "cured" bird will always be a menace to the flock, possible as a carrier of infection.

The poultry owner should be quick to note any abnormalities in his flock. These birds should be examined and a postmortem held on several of them. External symptoms are indications of specific diseases but postmortem appearances lead to a more definite diagnosis. This examination is quite easily made and all birds which die from causes outside of injuries should be autopsied.

(Continued from page 12)

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Poultry Health

(Continued from page 11)

How to Make a Postmortem Examination

1. Kill the bird by dislocating the neck, never by cutting off the head or bleeding.
2. Remove the breast by cutting just back of the point of the breast bone forward through the ribs. This shows the liver, heart, lungs, spleen and intestines.
3. Examine for size, color, etc.
4. Remove and examine intestines for worms, thickening of the walls, ulcers, etc.
5. Examine kidneys.
6. Open esophagus and trachea examining for nodules.

Some Common Diseases

New diseases are being discovered and as the poultry population increases more diseases will appear. As poultry raising is closely associated with farming, all persons engaged in agricultural activities should be familiar with the common diseases and their method of control.

Let it be understood that medicinal treatment alone without regard to predisposing factors usually fails. We receive numerous letters describing certain diseases, but control measures cannot be given without knowing the predisposing factors. These may be described as any factor which will lower the resistance of the fowl. The more important ones are chilling, worm infestation and improper feeding.

We recognize two factors involved in an infection; first, the predisposing factors and second, the infecting agent itself. It may be assumed that the latter, the agent, is well distrib-

uted and the poultryman must build up the resistance of his birds to such a plane that the infecting agent cannot gain a foothold.

Cold and Roup

Predisposing factors: Inadequate diet, overcrowding, worm infestation, ventilation, drafts, overcrowding, etc.

Symptoms: Attention is first directed to the birds by bits of straw or feathers sticking to the nostrils. The fowls are sluggish and have an unthrifty appearance. An offensive odor is present. Nasal catarrh is considered a symptom and is in itself not a disease.

Treatment: Remove the cause. Drafts are very injurious and the birds should not be forced to roost in a draft. Fresh air is essential.

Free the birds of lice and intestinal parasites. Remove affected birds from the flock and give Epsom Salts at the rate of one pound per 100 birds. Dip the heads of affected birds in sheep dip solution, 1-8 pint in a 3-gallon jar of water, and leave for approximately 20 seconds.

A cold is considered a contagious disease and one that may be easily transmitted by means of the feed hopper and drinking fountain. Because of this fact birds should have entirely recovered before being returned to the flock.

Bronchitis

Predisposing factors: Inadequate diet, overcrowding, worm infestation and nasal catarrh.

Symptoms: Bronchitis is characterized by its sudden onset, gasping for breath with wheezing and rattling sounds, and ending in death or

recovery in a short time. Birds show marked depression, ruffled feathers, neck drawn in, and eyes closed. Breathing is very difficult in later stages and the bird stands in almost a vertical position with head and neck extended, mouth open and gasping for breath.

In the trachea (windpipe) are found the chief hemorrhage vary from a severe hemorrhage inflammation of the mucous lining to a complete stoppage of the windpipe with mucous material.

Treatment: The following treatments have been recommended as being effective: fifteen grains of equal parts of ammonium chloride and ammonium carbonate given in a capsule once or twice daily or one ounce of this material in a wet mash for 25 or 30 birds. Beechwood creosote vapor is also used; get a shovelful of hot coals and pour over it one tablespoonful of Beechwood creosote. Use one pail for every 15 feet of a 20-foot deep house. Close house up tight and leave for about one hour. Give three treatments every six hours in severe cases. Individual treatments may consist of giving the birds two drops of Beechwood creosote in a little codliver oil daily.

Death appears to be due to suffocation from occlusion of the windpipe, so any measure that will relieve this condition will save many birds. Isolate sick birds and keep houses and equipment disinfected, together with good care seems to give best results.

Fowl Typhoid

Predisposing factors: Infected soil, poor sanitation, infected water fountains, and sparrows feeding with the flock.

Symptoms: Elevation of temper-

ature, anemic condition of face, comb and wattles. A sulphur colored discharge. Finding of birds dead on roosts or around the yard. There is a loss of appetite. Birds are generally dead five or six days after the first symptoms are noticed.

Treatment: Sanitation, isolation or destruction of suspects, disinfection of fountains and mash hoppers, safe disposition of the carcasses of birds dying of the disease, and vaccination of well birds.

Botulism

Predisposing factors: Access to decayed animal matter.

Symptoms: Sudden appearance of limberneck in the flock. Bright red comb, feathers easily pulled out and a limber neck are the most characteristic symptoms. Generally several of the flock are affected at the same time.

Treatment: Find the cause and remove it. The unaffected birds should be confined until the cause is located. Also give them a dose of Epsom Salts. Sick birds may be given a physic such as Epsom Salts. Recovery may occur.

Aspergillosis (Brooder Pneumonia)

Predisposing factors: Birds scratching in moldy litter or eating moldy grain. Crowding chicks in a poorly ventilated house favors aspergillosis development.

Symptoms: This disease affects the pulmonary system. Accelerated breathing, fever, diarrhea, sleepiness and finally suffocation precedes death.

Treatment: It is not advisable to attempt treatment because of the deep-seated location of this fungus, its resistance to remedial treatments and the advanced stage of

(Continued on page 17)

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Incubation and Brooding

H. B. HINDS.
Hatching Eggs

The hen lays eggs not for the purpose of supplying us with a nutritious food, but to reproduce her kind. Every part of the eggs makes a specific contribution to the new life, which is the baby chick. To understand, therefore, how to care properly for hatching eggs it is necessary to know the function of each part of the egg in developing the chick.

The shell, or retaining wall is composed largely of calcium which during incubation is used to supply strength to the bone of the developing chick. Being porous, it also permit the exchange of oxygen and carbon dioxide which takes place during incubation. To prevent too rapid evaporation of the water content of the egg these pores are covered with a gelatinous substance. This also prevent decaying organisms from entering the egg. Removal of this material, as by washing, greatly decreases the keeping qualities and hatchability of the egg.

An air cell is formed by the separation of the two inner shell membranes. This air cell is usually at the large end of the egg and supplies air for the chick to breathe just before it breaks the shell. Should the egg be so roughly handled as to break the inner membrane the air cell floats and the chick is unable to breathe. The same thing happens when hatching eggs are packed with the large end down.

The white and yolk of the egg are used for food; the former for the first sixteen days of incubation and the latter as a source of nourishment for the period following and immediately after breaking of the shell. Thus we see that each portion of the egg has a definite part in the reproduction of the chick.

It has also been proved that the hatching power of the egg deteriorates rapidly after the sixth day. It

is, therefore, not advisable to keep eggs longer than eight days before setting. Too, after the third day it is essential that they be turned twice daily if satisfactory hatches are to be obtained.

Clean, smooth shelled, medium sized eggs weighing from 22 to 26 ounces per dozen should be selected for hatching. Selection of the eggs is a very good place to begin culling operations. The old idea regarding long pointed eggs hatching into cockerels and round eggs into pullets has no foundation and may be disregarded. Selection of eggs which conform to the above description, produced by vigorous stock, is the first step necessary to a successful hatching and brooding season.

It would be impossible to too strongly emphasize the advisability of securing eggs from vigorous, mature stock. With adequate equipment and perfect hatching conditions mediocre results will be obtained unless the eggs are secured from superior breeding stock. The modern poultryman realizes that a high quality chick is necessary at the present time since poor quality chicks are too great a handicap. Quality chicks pay dividends.

Natural Method of Incubation

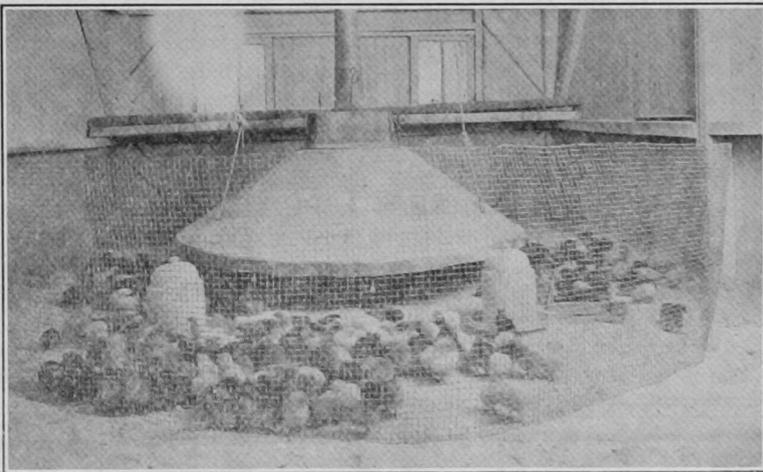
The lowly hen taught man many principles of incubation. All have been copied but none improved upon and some not successfully duplicated. I refer to the secret process by which the hen gives every egg on which she sits a film of oily substance. This properly regulates the evaporation of moisture. Man has applied oily substances to the shell of the egg with the result that all pose defeated.

A setting hen is one bird that can sit on the job and keep busy. Experiments show that the setting hen turns her eggs from 3 to 5 times per hour and that every egg makes three

complete movements at each turning. Consider the enormous number of movements in 24 hours. With an average of 4 turnings per hour of a minimum of 15 eggs each making three movements, we find the total or 4320 movements each day. This may explain why the setting hen hatches such a large percentage of vigorous chicks. We seldom note a crippled, weak or deformed chick.

The average poultryman, considers the broody hen as one of his greatest problems. She is abused and mistreated for her desire to have a nest of eggs and produce a family of chickens which man may use to his economic advantage. The hen will persist in setting even

(Continued on page 16)



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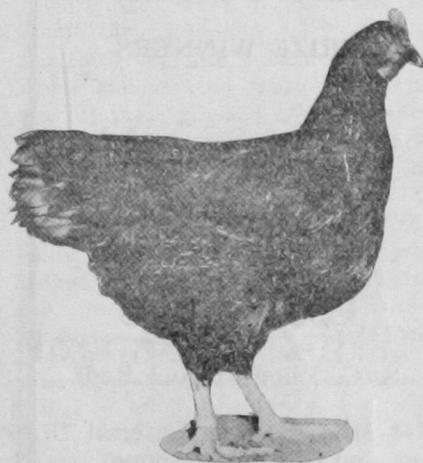
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How the County Agents of Arizona Feel About The Poultry Situation

NOTE: In the following statements the county agricultural agents have set forth their views as to the poultry situation within their various counties. This information will undoubtedly be of untold value and interest.—(Editor.)

Apache

"Four years ago, the Extension Service of the University of Arizona put on some Poultry House building demonstrations, having in mind the proper education of the public in Poultry House construction. This was fairly successful, as three or four poultrymen build modern Poultry Houses.

"Three years ago we had one successful Commercial Poultry man in Apache County and two years ago we had seven. This year we have eleven. We are hoping that in the future it will continue to progress as it has in the last few years.

"We use in this county, for the most part, White Leghorns, because we have not been successful in brooding the other kind of chickens. These White Leghorns have been doing fairly well since they are producing eggs at 14c per dozen for some of the poultrymen in this county. Of course, we realize that we not only have a good Poultry county, but we have chicken feed fairly reasonable in prices.

"As to our markets, we sell of course, some of our eggs locally but

most of our eggs are shipped to Holbrook and there handled on a commission by the Navajo County Poultrymen. To date, so far as I know, this has been fairly satisfactory.

The Dairy industry is progressing a little and we hope that the Poultry business will continue with the Dairy business to be successful."

D. W. ROGERS,
County Agent.

Coconino

"Poultry, in Coconino county, is limited mostly to the general farms of the county. In most instances the farmers, who are keeping poultry, grow a part, at least, of the feed consumed by the poultry. In this way it fits into the general scheme of the dry farmer of Coconino county and adds a nice sum to the total for the year's business.

"There are, in Coconino county, a number of farmers, who keep from 250 to 500 birds. These flocks are scattered over a large area. However the greater majority of the flocks are located in the farming country east of Flagstaff. One of the largest flocks in the county is located east of Williams about six miles. The farmers of the Red Lake country north of Williams are maintaining a few fair sized flocks.

Poultry raising on a "purely commercial" basis is not known in the county."

LEE H. GOULD,
County Agricultural Agent.

Graham
Poultry Situation in Graham County

During recent years poultry raising on a commercial scale has developed into an important industry in Graham County. A number of factors have contributed to this development. The most important of these factors are:

- 1—The ideal winter climate, eliminating the necessity for expensive housing.
- 2—Adequate shade in summer.
- 3—Economical feeds in the form of locally produced grains.
- 4—An economical and abundant supply of home grown, green feed throughout the entire year.
- 5—Excellent cash markets for the poultry products in the nearby mining towns.

Breeds

Although a large number of the Mediterranean and American breeds are found in the county, the commercial farms are limited exclusively to the Single Comb White Leghorns.

Cost of Production of Eggs

The items entering into the cost of production include costs of raising young stock in addition to maintaining laying stock. This accounts for the large quantity of feed consumed per hen, the average being 97 pounds. A large part of the feed is consumed by the young stock. Because of the fact that it is not practical to keep a separate account on the young stock, and since egg production is the major consideration, the maintenance of the flock was considered an essential item of cost and included. After figuring the averages for six typical poultry farms in Graham County, which included 3600 laying hens, it was found that the average net cost per

dozen eggs was \$.312 and the margin of profit per dozen eggs was \$.081. The margin of profit per hen was \$1.09.

The cost of labor, which next to feed costs is the most important item of cost, varies with the number of birds in the flock and with the facilities for economizing labor. In all cases the labor charge per hen decreases as the size of the flock increases.

For no single year during a seven-

year period have eggs sold for less than cost of production, and with the exception of the year 1927 the average yearly prices have provided a satisfactory margin over costs.

Markets

The principal markets for eggs produced in Graham County are in the mining towns in the southeast. (Continued on page 18)

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Contains
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Tucson, Arizona

The Use of Poultry and Eggs In the Diet

(Continued from Page 2.)

or wood range the skillet should be placed toward the back of the stove. One or two tablespoons of hot water should be added from time to time and a tight cover put over the top of the skillet to retain the steam. At the end of three-quarters of an hour or an hour when the meat is tender, the cover should be removed and the heat increased to quickly finish browning. A chicken so prepared should be tender and juicy and "fairly melt in the mouth."

We all think of young fried chicken as the food for special dinners because of its good flavor. However, old fowls if properly cooked will give even richer flavor than a young chicken, and may be just as tender. One method of accomplishing this result is to put the fowl, after being properly cleaned and trussed, into a basin in a steamer over boiling water, and steam for a number of hours or until tender. The basin catches and retains both the juices of the fowl and the condensed steam so that a rich gravy is obtained. When the fowl is tender, it may be removed from the steamer and baked in a hot oven for a few minutes until brown. Before browning, one may dredge the skin of the fowl with flour if desired; butter may be poured over the fowl frequently while it is browning; or some of the gravy collected during the steaming process may be used instead of butter. This really gives nicer flavor to the meat than either flour or butter, and is less expensive. In any case the fowl should be basted every five minutes, while it is browning, in order to keep the skin tender, for some persons think the skin the most delicious part of the meat.

How to Make Good Gravy

Well-made gravy is an important adjunct to nicely roasted meat. Nearly everyone likes brown gravy, and it is very little extra work to brown the flour before using it as thickening for the gravy. The flour should be placed in an iron skillet if one has one as the flour is less likely to burn; however, a light sheet iron frying pan may be used if one is careful to stir the flour constantly. A low heat is applied and the flour stirred so that it will not stick to the utensil. Just about the time one begins to think it will never brown, is just about the time when extra patience brings its reward, for the flour begins to turn a cream color, and then quickly becomes a dark rich brown. One should stir the browning flour constantly at this stage so as to avoid burning. Carefully browned flour is ample compensation for the extra trouble as it gives much better flavor than flour browned in fat, and it is also more digestible. It is a good idea to brown considerable flour at one time and then keep it in a glass jar for use as needed. It should be borne in mind, however, that the thickening properties of browned flour are only about one-third that of unbrowned flour. For example, if one wished to make one cup of gravy, two level tablespoons of unbrowned flour should be used; but it would take six tablespoons of browned flour to make one cup of brown gravy.

Fricassed Chicken With Dumplings

If one wishes to fricassee an old fowl, the same principle of long slow cooking to soften the protein still holds good as in roasting. When the bird has boiled until it is tender and the stock rich, instead of thickening the stock for gravy it is

a pleasant change to make dumplings. Dumplings to be light and fluffy should have no fat added to them. The following is a standard recipe to follow. All measurements are level:

- 1 cup flour
 - ¼ teaspoon salt
 - 2 teaspoons baking powder.
 - ½ cup milk, or a little more depending upon the brand of flour.
- Some brands of flour absorb more liquid than others.

The above mixture should be mixed quickly the same as one would mix baking powder biscuits. It should then be dropped by tablespoonfuls into the boiling gravy, in such a manner as to rest on the pieces of chicken which will act as support. A tight cover should be put on the kettle and boiling continued for fifteen minutes, during which time the kettle should be covered to avoid the escape of steam. At the end of this time the dumplings should be light and fluffy and ready to serve.

Chicken With Noodles

Another pleasing variation is to serve noodles with an old fowl that has been well cooked. When the meat is nice and tender it may be removed from the liquid and well made noodles sprinkled slowly into the boiling gravy, which should then be cooked from one-half hour to one hour, so that the noodles may triple in volume and be so well cooked that the starch will be free of the raw flavor and the finished product, rich and tasty. An excellent recipe for noodles is to add as much flour as a well beaten egg plus one tablespoon of water will absorb, and still roll out easily. The dough should be rolled very thin and allowed to dry slightly so that it can be cut in very tiny strips with a sharp knife. These strips if properly cooked will increase in size when cooked the same as spaghetti does, and is much richer because of the egg.

Low Temperatures Required For Egg Dishes and Cheese

Other protein foods such as eggs and cheese should be cooked more slowly than is usually done. If the housewife would take three sauce pans, each of which will hold 3 or 4 cups of water, and take three eggs, she could try the following interesting experiment for her own satisfaction:

(1) Fill one saucepan with cold water, put the egg into the cold water, and bring to the boiling point as rapidly as possible. Remove egg from water as soon as boiling point is reached, and at once break open the egg. Examine the white and yolk for their texture. (2) Put another egg into boiling water and boil 3 minutes at the end of which time remove egg, break it open and examine the white and yolk. (3) Put the third egg into 3 cups of boiling water and set the sauce pan with egg off the stove and allow to stand for seven minutes. Then examine the texture of this egg. It will be found that in No. 1, the white is hard and the yolk raw; in No. 2 the white is hard and the yolk slightly cooked; in the third one, the white and the yolk are both jelly-like,—the texture that a person who is fond

of a soft cooked egg will like. If one wishes the third egg not quite so soft, it can be allowed to stand in the water as long as ten minutes. Some persons speak of an egg cooked in this way as coddled. If one once acquired the habit of cooking eggs in this manner one will be better pleased with the result than either of the other methods produce.

How to Make An Attractive Omelet

The following suggestions may produce pleasant changes from the usual methods of serving eggs. Some persons are very much pleased with fluffy omelets, which are not at all difficult to make. If one has never made omelets it is better to start with a one-egg omelet and as skill is acquired one may add more and more eggs. The writer finds that a six-egg omelet is about as large as is convenient to handle; however, some people handle larger ones very successfully. The following is a one-egg omelet but may be multiplied by any number desired.

Separate the white and yolk of a fresh egg. Beat the white until stiff and dry. Quickly beat the yolk to which has been added salt and pepper as desired and 1 tablespoonful of milk or water. Fold the yolk into the white just enough to incorporate the yolk. Have a frying pan well oiled both on the bottom and the sides. This should be heated, but not enough to burn the fat, as burned fat gives an unattractive appearance to the omelet. The fluffy egg mixture should be gently placed in the frying pan and heated gently until the sides and bottom are a delicate brown, as may be determined by gently raising the omelet from the pan with a knife slipped down between the pan and the omelet. The omelet should be placed in a moderate oven for about seven minutes. It should puff up and be very light and feathery in that time, and slightly dry on top. Remove from oven, and quickly slip it out of the frying pan into a hot platter, folding it over like a pocketbook roll as it is slipped out of the frying pan. A pleasant variation is to put grated cheese on the top of the omelet just before folding it over. Jelly is also good.

An omelet that is not fluffy is made by beating the whites and yolks of eggs together. A tablespoon of milk is added for each egg used. Bits of cooked bacon, cooked ham, cooked corn, or cheese may or may not be added as desired. The mixture is placed in a well oiled frying pan, and as it cooks, the cooked part should be folded up in such a manner as to let the soft part run down onto the pan and cook in its turn. When it has been folded little by little until it is all cooked but not hard, it may be served on a hot platter garnished with bits of parsley.

Fondue is a good way to use eggs, cheese, and milk, and also any dry bread that has accumulated. For a family of five or six persons the following proportions are suggested: Melt 3 tablespoons of butter (¼ of a pound) or bacon fat, in the top of a double boiler over boiling water; to this add 8 tablespoons of flour and

blend thoroughly. Then add 4 cups of milk and stir until it has thickened which will take about ten minutes. Put the cover on and allow it to cook over the boiling water for three-quarters of an hour or an hour if possible. This gets rid of the raw starch flavor and brings out a good flavor. Add to this 2 cups of ground or grated cheese and 1 teaspoon of salt. Allow the cheese to melt. At this point it is Welch rarebit and may be served on toasted bread. But to make it into a fondue the well-beaten yolks of 4 eggs should be added, and two cups of toasted half-inch bread cubes. The mixture should then be removed from over the boiling water and the stiffly beaten whites of four eggs folded into it. Turn it all into a well oiled casserole and bake in a moderate oven until it is puffy and a golden brown.

A simple and easy way to induce people to eat eggs who are tired of them cooked in the usual ways is to prepare eggs a la goldenrod. The eggs should be cooked hard. The whites and yolks are then separated. The whites are cut up into ½ inch cubes and put in a white sauce, made by putting 2 tablespoons of butter in the top of a double boiler. Two tablespoons of flour and ½ teaspoon of salt should be well blended with this melted butter and 1 cup of milk added. This should be stirred until it thickens and allowed to cook for ¼ of an hour to develop good flavor. The whites are added to this which may then be served on toast. The yolks which have been put through a potato ricer or a strainer are then sprinkled over the top to make it look attractive.

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INCUBATION AND BROODING

(Continued from page 13)

though our methods of management have been such as to discourage the practice. She will continue to be the rule by which we measure incubation accomplishments as she sets the standard or goal to which we are striving. Man pays her compliments by intrusting high priced valuable eggs to her keeping. He knows that, though she be voiceless and a creature of routine man with all his ability has not as yet a device which can equal the mother intuition in the reproduction of her young.

We prepare a nest in a sheltered protected place and fill it with eggs, either 13, 15 or 17, depending on the size of the hen. Some authorities contend that better results are obtained if each hen is given only 13 eggs. At any rate an odd number is always used. Our only part in the program is to supply feed and water daily and to keep her from being disturbed.

The hen willingly assumes all responsibility for high and low temperatures, proper humidity, ventilation and turning of the eggs. A good two-year-old hen of the American or Asiatic breed is the best incubator we have and though being rapidly replaced because of increased numbers of chicks desired, will always be the standard by which results of incubators are compared.

Artificial Method of Incubation

The present incubator represents a very old principle. The Egyptians and Chinese are given credit for originating artificial incubation. In 1870 the first American-made machine was successfully used. Today every type form, style and model is available on the market.

There is no doubt but that the modern incubator is the greatest sensation in the poultry world. While lacking in efficiency as compared to the hen it has the advantage of quality production at any season of the year. It represents a large initial investment, and skill and responsibility is required in the operation.

A few chicks can be hatched with very crude devices. The process is expensive however, and the aim of hatcherymen is to hatch the largest number of vigorous chicks from a certain number of eggs.

The incubation period varies with the different species of poultry, as follows:

Pigeons	17 days
Chickens	21 days
Pheasants	24 days
Turkeys	28 days
Ducks (common)	28 days
Muscovy ducks	35 days
Peafowl	28 days
Goose	30 days

Due to the fact that ideal conditions do not always prevail the above periods may vary slightly in either direction. Several factors influence the length of the incubation period and may be listed as follows: Age of eggs at setting, temperature in the machine, and uniformity of temperature during the hatch. White shelled eggs generally hatch from 20 to 24 hours before brown shelled eggs and for this reason should be incubated on separate trays.

With the breeding stock selected, fed and properly cared for there should be no question of low fertility or hatchability. There are, however, a number of ways in which the inexperienced breeder may err in the practical management of his flock and get unfavorable results.

Special attention might be called to some of the more common mistakes of this nature:

a. Overfat hens—Hens must be cared for prior to as well as after the breeding season begins. A bird should be well fleshed but not fat.

b. Exhausted hens and pullets—Early hatched pullets which have been forced for production throughout the fall and winter months will not be in condition for the breeding pen in the early spring. It is advisable to pen the breeders separately and make no effort to get eggs from them until the breeding season.

c. Immature pullets—The use of young pullets is believed to be a general cause of poor hatches and weak chicks. Well matured pullets that are producing standard sized normal eggs may be used with safety.

d. Males not in good condition—What has been said regarding females applies equally to the males.

e. Immature cockerels—The chief objection to the use of cockerels, assuming that they are developed, is that they are unable to stand service for long periods. Care must be exercised in regard to the number of females allotted to a given male. Immature cockerels may be removed from the breeding pen at intervals for a rest period.

f. Unsuitable rations—The eggs from birds fed a properly balanced ration gave a much higher percentage of hatch. Exact experiments conducted at a mid-west station showed the following results—good ration, 60 percent hatch; poor ration, 24 percent hatch.

g. Too long breeding season—It frequently happens that a breeding pen which gave good results in the early part of the season fails to give the same results later in the year. Birds that lay heavily for long periods will show a lack of vigor and there is no practical way of preventing it.

h. Too little animal food—Tests show that a deficiency of animal food will affect the hatchability of eggs. Meat scraps may over-stimulate the egg organs and care should be taken to regulate the amount fed.

i. Too little green feed—Green feed should always be fed breeding birds. A small amount should be given daily.

j. Defective incubation—The incubator may be improperly operated or the ventilation and humidity of the air in the cellar may be inadequate.

k. Physiological changes—Certain changes which occur during the last day of incubation. A direct reference is made to the assimilation of the unabsorbed yolk which occurs on the nineteenth day of incubation. About 20 percent of the mortality before hatching occurs at this period.

The hatchery operator and flock

owner has no control over the deaths during yolk assimilation but it is within their power to remedy the other conditions and thereby reduce the losses.

The Incubator

What incubator shall I buy? This is a common question and is as unanswerable as, what suit shall I buy? There are more than sixty different makes of incubators and this list is constantly being increased. These vary greatly in quality and cost of construction. It is probable that any reliable incubator will give satisfactory results if filled with hatchable eggs and operated according to instructions.

Selection will depend on preference, cost and the size of your business. The low priced incubator can be purchased for 10 to 12 cents per egg capacity, while medium to high-priced machines will cost 20 to 25 cents per egg capacity. The principal advantage of the lower-priced machine is the small initial investment, although a better location, where the room temperature fluctuates very little, is necessary. The higher priced incubator is not seriously affected by sudden atmospheric changes and may be used for 20 to 30 years.

The type purchased is purely a matter of preference. Incubators are designated according to the heating systems they use; hot water, hot air, and electric. The vital part of the machine is the heating system since an unvarying, constant flow of heat to all parts of the incubation chamber is necessary.

The hot water system consists of a series of hollow pipes arranged in the top of the incubator. This system is connected to a hot water jacket on the outside of the machine. The entire system is filled with water which is kept heated by a kerosene lamp placed inside the water jacket. Ventilation in this machine is supplied through holes or openings in the bottom, sides, or top of the incubator chamber. The rate of air change depends upon the difference in temperature inside and outside the machine.

The hot air type is similar to the hot air furnaces commonly used in

heating dwellings. There is a very rapid change of air in the incubation chamber, as well as quickly heating up and cooling down.

The electrically heated machine is now being used by many hatcherymen. It consists of a series of coils generally located in the top or bottom of the machine. There is a freedom from fire risks and if a uniform current is available this type is very satisfactory.

Machines of the hot water and electric type are often equipped with electric fans to supply forced ventilation. Moisture trays are available (Continued on page 20)

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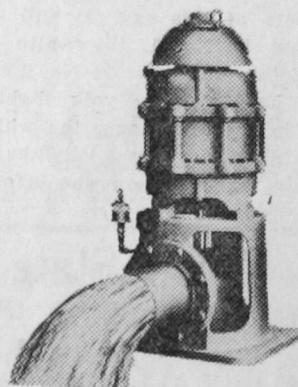
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Poultry Health

(Continued from page 12)
the disease when symptoms are observed.

Prevention will prevent a recurrence. Care in the selection of grain and litter, together with dryness in the brooder house is sufficient.

Coccidiosis

Predisposing factors: Dampness, unsanitary conditions, and running young chicks with mature birds.

Symptoms: In chicks coccidiosis runs a rapid course. The usual symptoms found in debilitating intestinal troubles are present, such as weakness, droopy wing, loss of appetite and drowsiness. The droppings are semi-fluid and may be stained with a brownish tinge. In acute cases they are bloody. Death usually occurs in a few days. In mature fowls the disease assumes a chronic form, death occurring after a considerable interval.

In the semi-acute type the comb turns pale and the bird becomes listless. Appetite is ravenous when bird is aroused at feeding time.

Treatment: Generally unsatisfactory however, the following may give relief. Give one-third teaspoonful of crude catechu to each gallon of drinking water. Bichloride of mercury in the water in the strength of 1 to 6000 or potassium permanganate 1 to 500.

The more recent recommendations call for a liberal feeding of sour milk. This seems to have a greater therapeutic value than drug treatments.

Tape Worms

Predisposing factors: Filth, inter-

mediate hosts and weakened vitality.

Symptoms: Muscular deficiency, loss of appetite, weakness, unthriftiness and retarded growth.

Treatment: Clean premises to reduce the number of houseflies, which are hosts for one stage in the life cycle of the worm.

Kamala capsules give satisfactory results although there is danger of a molt and a drop in production when given to laying birds. Pullets before coming into production, and hens which have ceased laying may be treated with safety.

Concentrated lye is also frequently used.

Round Worms

Tobacco or nicotine will control this parasite. Kamala is recommended for both the tape and round worm. A bad lice infection lowers the resistance of the birds to such an extent that it is an easy prey for other diseases. They are designated as neck, wing, or body lice depending on the place on the body where found.

Treatment: A properly cleaned plant with occasionally delousing the birds will hold this parasite in check. Sodium flouride may be used with either the pinch or dip method. The pinch method consists of placing a small amount of the chemical under each wing, on the back and breast and below the vent.

Dipping consists of submerging the bird in a pail of water to which has been added one ounce of commercial sodium flouride for each gallon of water. Care should be taken to dip birds on warm days.

One pound of sodium flouride will treat 100 birds by the pinch method and 300 by the dip system.

This insect is a native of the Southwest. It is also known as a poultry tick.

Many inexperienced poultrymen are unaware of the presence of this unwelcome guest until the birds begin to show marked symptoms, such as weakness of legs and wings, paleness, emaciated conditions, a loss of appetite and often death.

Diagnosis consists of finding the insects on the birds and in the cracks and crevices of the house. The adult tick is a very hardy insect since it is well protected from contact sprays by a tough leathery coat. It has been known to live for 30 months without food.

The young hatch from eggs and immediately begin their search for a host to which they attach themselves. After gorging with blood they release themselves and hide in cracks about the house, returning to their hosts for their nightly meal.

Treatment consists of prevention by sanitation and the regular application of sprays, such as carbolenum, creosote dips or oils. Thorough spraying is essential. It may be necessary to treat the mature birds to rid them of the young ticks. An application of sulphur and lard is effective.

Scaly leg is caused by a small mite, which affects the legs of the fowl. The first evidence of infestation consists of the appearance of greyish areas which gradually grow together and thicken. In advanced cases scales are found which great-

ly increases the size of the legs and toes and interferes with the motion of the joints.

Itching is indicated by the pecking of the lesion by the bird. Removal of the outside crusts reveals a raw inflamed skin.

Treatment: Soak the legs in warm soapy water to thoroughly clean them. Apply a mixture of sulphur and lard or crude petroleum to the legs. Kerosene may also be used. A second application of any remedy is generally recommended.

Bumblefoot is characterized by a slow swelling of the foot that finally results in an abscess. The cause of this condition are perches too

(Continued on page 24)

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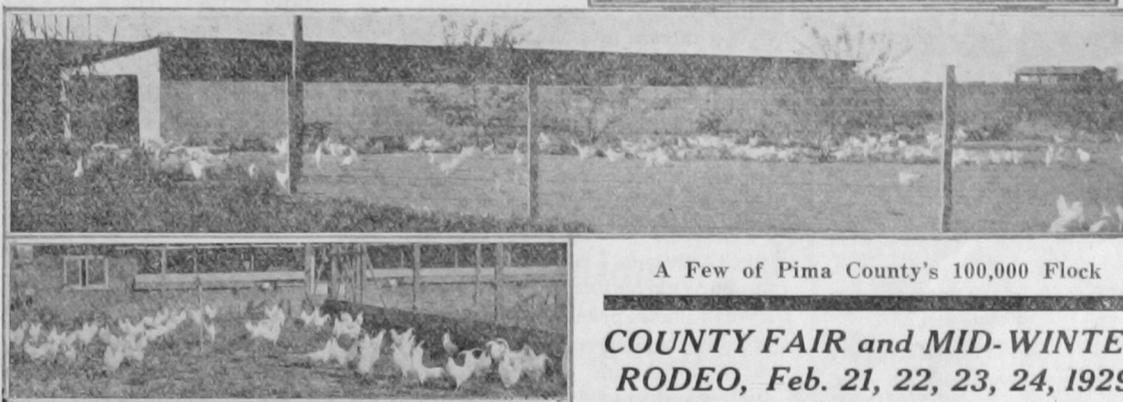
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TUCSON, ARIZONA

This Advertisement Published By Authority Pima County Immigration Commissioner

HOW THE COUNTY AGENTS OF ARIZONA FEEL ABOUT THE POULTRY SITUATION

(Continued from page 14)

ern part of the state. Approximately 98 percent of the total production finds a market within the State. The shipments to the Globe and Miami districts were somewhat larger than usual during 1927 due to the large amount of construction work under way in that section. Normally a larger percentage of the local eggs find a market in the Bisbee-Douglas and Clifton-Morenci districts in Arizona and in Silver City, New Mexico.

Outlook

The surplus production of Graham County eggs must find a market very largely in the mining towns within the State. These eggs are in competition for a market with eggs produced in other sections of Southern Arizona, and eggs primarily from cold storage, from California and other states. It is estimated that approximately 50 per cent of the eggs consumed in Arizona are imported from outside the State.

It is apparent that the local poultry industry has room for considerable expansion, provided local poultrymen can produce eggs on a cost basis, comparable with that of other producing centers when allowance is made for the advantage in transportation rates to the accessible markets. However, it is apparent that any considerable expansion in the local poultry industry must be accompanied by some provision for local cold storage facilities to absorb the surplus production of eggs during the spring and summer months and distribute these storage holdings to the markets during the fall and winter months when production is at a minimum.

Turkeys

A turkey association known as THE GRAHAM COUNTY TURKEY GROWERS' ASSOCIATION, has been formed recently and are beginning to function with very good results.

The latter part of November 1928 they shipped a carload of turkeys from the valley, receiving 37½c dressed weight for their best turkeys and 10c off for their second best.

Greenlee

The Duncan Valley in Greenlee County, Arizona, is ideally situated for successful poultry keeping. A mild climate exists twelve months out of the year, the winters are temperate and the summers are cool enough to

insure a maximum of work from the birds. The Duncan Valley embraces one of the richest soils in the United States, which provides for the growing of an abundance of poultry feeds. Green feeds are available during the entire year. Nearby mining towns consume all of the eggs produced at fancy prices. There is an ample market outlet for a large increase in production of eggs.

While the poultry industry is in its infancy in Greenlee County, there are several flocks ranging from 300 to 1000 laying hens which are yielding excellent profits for the owners. A fair income can be consistently expected from a well managed flock of 1000 birds.

Poultry pests and diseases are kept well under control by flock owners here. A great deal of success in controlling roup is due to the abundance of green feed during the entire year. The percentage of mortality in the flock is very low, running approximately 3% per year.

The most reliable indication that this valley is especially adapted for the poultry industry, is the fact that there isn't a single instance of a poultryman starting in the business here, and going out of business. On the other hand it is noteworthy to mention that all poultrymen places are showing improvements each year, in such forms as new dwellings, water systems, new poultry houses, fences, and home conveniences.

Maricopa

Poultry Industry in the Salt River Valley

Poultry growers have made some very important and definite steps toward placing their industry on a more profitable and economic basis, which in turn, has greatly improved the quality of their products. There has been recently organized, the Poultry Producers of Arizona Association. This is made up of many of the leading poultry growers in the County and they are, at the present time, handling a large quantity of eggs produced in this County. They are putting out a quality of egg that the consumer appreciates and comes back for more.

The other very important achievement during the past year, has been the organization of the Accredited Hatchery Association. This association will greatly benefit the industry, in that poultry growers, not only within the county but in the state will be able to avail themselves of baby chicks and hatching eggs of known production.

The Agricultural Extension Poultrymen and representatives from the Poultry Department of the University of Arizona are doing the flock inspection and culling.

Generally the poultry industry in this County has a very definite place in our agriculture and where poultrymen have practiced good methods of breeding, feeding, culling and rigid sanitation, have made the industry extremely profitable.

HARRY STEWART,
County Agent.

Navajo

The county is in a better situation with respect to poultry now than at any time in the past. There are about 20% fewer birds than in 1927 but the quality is better due to improved management. There is no serious sickness, neither has there been during the past year. In the matter of health the condition is better than for three years.



Harold C. Schwalen, M. S.,

Associate Professor of Agricultural Engineering, who prepared the article on page 21 entitled "The Water Supply and Pumping Equipment for the Small Ranch Home." Mr. Schwalen is very well versed on this subject through a combination of technical training and practical experience and observation. If you are interested in pumping equipment you will be interested in this article.

Distinctly the line is being drawn between egg and meat production. Several people are now specializing on meat production, using reds for the purpose. They are marketed as fryers, broilers, and mature birds. Prices are attractive and production should be considerably increased.

Those who are adapted to and like poultry keeping are continuing in the egg production industry, using White Leghorns for the purpose. A number of people who were at first very enthusiastic have quit the poultry industry. They found that poultry raising requires attention to every detail, and to this they were not adapted.

There are fewer turkeys this year than last incident to unfavorable weather and management conditions in the spring. The decrease is approximately 17%. However, more than the usual number of people have raised a few turkeys. This industry should be stimulated and production much increased to meet market demands.

There are comparatively few ducks and geese. From year to year the number is on the increase.

Rabbits are beginning to be generally raised. There is good demand for the meat and fur is in demand to a limited extent. On many farms a few rabbits are kept for home meat supply.

Yours very truly,
C. R. FELLERUP,
County Agent.

Yavapai

Poultry Industry in Pima County Making Rapid Development

Pima County has no possibility of development on the thousands of acres of fertile land contiguous to Tucson an extensive irrigation project such as the Salt River Valley. However, a large amount of this land not situated in the irrigated belt, can and will be utilized for the production of poultry. The character of the soil, together with our favorable climatic conditions, make this section one of the most promising and desirable for the development of an intensive poultry industry in the entire Southwest. The business is already of a successful commercial basis, and making a healthy growth. The soil referred to is well drain-

ed, keeps the birds clean, and can be bought at a small fraction of that charged for similar land in many other sections of the country. Low overhead should be an important attraction to those with limited capital. While the water supply is ample to care for the needs of the poultry, a few shade and fruit trees and a family garden, there is not, generally, a sufficient supply in the surface strata for commercial gardening or fruit growing. Those now in the business, or who may in the future develop tracts of land for colonization, the question of water supply could probably be most cheaply and efficiently handled by putting down a deep well and installing suitable equipment for supplying the entire tract.

The poultry industry is at the present time one of Tucson's greatest opportunities to give year around employment to a host of people who would like to locate here and be assured of a good home and a livelihood.
(Continued on page 19)

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HOW THE COUNTY AGENTS OF ARIZONA FEEL ABOUT THE POULTRY SITUATION

(Continued from page 18)

hood; and, of course, the amount of original wealth creation would mean a great deal to the welfare of this community. This condition can best be brought about by individuals with capital developing colonization projects as has been so successfully done in California. These projects should be promoted upon a reasonable margin of profit, and on such terms that the buyer has a fair chance to make good. Upon the sale of a two-acre unit of land with water, the buyer would be given such financial assistance as his capital and experience would warrant.

As poultry raising here is vastly different than in many other sections, it would probably be best for all those lacking in local experience to start with 500 to 1000 pullets and increase each year until 2000 to 4000 laying stock were maintained the year around. Such commercial flocks should bring in a gross return of three to four dollars per hen, with a net return of 75c to \$1.50.

The hen population of Pima County is probably 75,000, and it is no vain dream to predict that it will be five or six times this figure five years from now. To attain this goal, the poultrymen must be given a reasonable degree of cooperation in developing an adequate marketing system, and the providing of suitable cold storage facilities that will allow a normal growth of the industry.

Pinal

Turkey raising has received quite a stimulus during the past year.

There are probably about 5000 turkeys to be marketed in this valley during the present season. C. M. Cornman is the largest shipper and he will ship about 2000.

At the present time November 22, fancy hens are bringing 40c and fine young toms 42c, f. o. b. Los Angeles. Growers are shipping only prime stock, holding back anything which is not finished for a later market. Number 2's are bringing 10c per pound less under No. 1's.

Conditions here are ideal for turkey growing. A farmer farming 160 acres can grow 150 to 200 turkeys and hardly know where the feed for them comes from. Weather conditions are particularly fine during the spring which reduces loss in poult and we have but a 13-hour run to Los Angeles market.

Yours very truly,

K. K. HENNESSY,

County Agricultural Agent.

Pinal

There are about thirty or forty thousand hens in the county. Ninety per cent of these are White Leghorns.

The poultry situation is not as good this year as it was last. Prices are better, as you well know, but production is poor. Baby chicks developed slower this year than normally. As a result, they have been slow in coming into production and after coming into production they have been slow to work up to maximum production; in fact, we don't seem to be able to reach the maximum as yet. On the whole, I think the poul-

trymen are more discouraged than they have been for the past two or three years. If prices hold up good in the spring they no doubt will be able to overcome any of the handicaps which they have gone through during the fall and winter.

Yours very truly,

GUY HODGOOD,

County Agricultural Agent.

Yuma

The poultry industry in Yuma Valley is still in its infancy. Cotton and alfalfa have absorbed the interest of the farmers to such an extent that poultry has hardly been given a thought. Small farm folks are generally kept to supply eggs and fryers for the family consumption, beyond this their place in the farm scheme is negligible. There are, however in the neighborhood of twenty flocks of 200 to 1000 birds that are supplying a part of the family's cash income. These flocks have been kept at practically the same size for the last few years, but the farm flocks of 25 to 100 hens have rapidly increased or decreased in size, as the price of eggs has increased or decreased in the spring and fall.

During the past spring and summer small farm flocks were rapidly disposed of at an average price of 20 to 27 cents a pound. Outside buyers with trucks made regular trips into the valley and had little trouble in going away loaded.

Fall chicks have not been purchased in near the quantity as in other years.

Poultry diseases such as roup and diphtheria have been more common

during the past year than ever before.

The prescribed remedies for diphtheria and roup have been of small value.

No treatment prescribed for use in air-tight houses could be used as we have no air-tight poultry houses.

The most common houses are protected from the wind on the west and north and open on the other two sides.

In my estimation no place is more adaptable to poultry than is the Yuma valley. The only thing we lack is the inclination. Chickens can run out in the sunshine the year round. —Plenty of greens and feed can be grown any month of the year.

Yuma furnishes a good market for eggs, except for a few spring months. The price at the present time being 50 cents per dozen.

California has to help us supply our market most of the year. It is estimated that Yuma County purchases near 10,000 cases of California eggs yearly.

In 1926 a fairly accurate, store to store check, showed Yuma, Somerton and Gadsden alone brought in by truck and railroad 7,000 cases of California eggs, mostly pullet eggs. Our farm flocks have not increased since that time and our consumption of poultry products has.

"My mother-in-law is staying with us this week."

"She's your house guest?"

"Sure; did you think she was staying in the garage?"—Texas Ranger.

Profitable Poultry

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has been

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MAINTAIN FLOCKS OUT OF DOORS

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The production of high quality eggs has been demonstrated through the co-operative marketing organization

THE POULTRY PRODUCERS OF ARIZONA

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Phoenix Chamber of Commerce

PHOENIX, ARIZONA

INCUBATION AND BROODING

(Continued from page 16)

and should be used in all machines. There is a size for every purpose, ranging from 50 egg to 52,000 egg capacity. Large machines are cheaper to buy and operate than an equal capacity in small machines. There is no serious objection to running a large machine without a full quote of eggs, but there is no way of making a small one hold more than its capacity. If in doubt get the next larger size. The size to purchase will depend on the size of the breeding flock. Eggs should be carefully selected and not incubated merely to fill the incubator to capacity.

As a rule, ventilation and moisture are the manufacturers' problems and he can safely be assumed to have solved them in a general way. Instructions for final adjustments to conform to local conditions may be secured from the manufacturers instructions. You may be assured that these instructions are given after much investigation and by a party who is vitally interested in his product giving satisfactory service.

I remember the heading of a compartment in the files of a certain professor in poultry. It was listed as "Mistakes in Artificial Incubation." In this file were letters and complaints describing conditions which were directly responsible for unsatisfactory hatches. I would hesitate to mention them all but will list a few of the more common ones as follows: getting incubator too late in the season; failure to set up and adjust correctly; locating incubator where ventilation is poor; operating without instructions; irregular hours for the work; using undesirable eggs; flame too high; flame too low; making changes in equipment of incubator; using untested thermometers; thermometer not in correct position; too high temperature to start; failure to test eggs; neglecting the lamp; turning eggs with oily fingers; neglecting to turn eggs; taking chicks out too soon; and the biggest mistake of all is not to have suitable brooding facilities for the chicks.

This list could be continued indefinitely and probably you are not responsible for any acts of a similar nature but these common mistakes are occurring daily during the hatching season. Only one thing can result—failure.

If you buy your chicks from a hatchery you will be concerned with only one of the above list, namely adequate brooding facilities. Whatever other mistakes are made, at least let somebody else make this one.

Brooding and Brooders

Brooding chicks by the natural method, while practical with small flocks, and as an emergency method, is not practiced where large numbers are to be raised.

Chick raising is the most difficult part of the poultrymen's work. To bring newly hatched broods through the danger period in good health and with minimum losses calls for skill and judgment. This is true without regard to the method of brooding followed. It is further true that well-selected brooding equipment will greatly reduce these difficulties and practically eliminate the element of chance.

Types of brooders are almost as numerous as types of incubators and there is a style for every purpose. It is not necessary to dwell on the merits and defects of each brooder or system of brooding. There are, however, a few general considerations which apply to all brooding practices which may be mentioned.

Chicks can seldom be weaned from artificial heat until they are over four weeks of age and generally need to be brooded for six weeks or more. Hence, if the incubators are being run continuously there must be brooder capacity for two successive hatches or double the number required for one hatch. If this precaution is not taken it is necessary to put the first chicks in a cold room, when only three weeks old. This will result in heavy losses. Regulate your purchases of hatchery chicks to accommodate your brooder capacity. Your hatcheryman will heartily recommend this as he is anxious to see your chicks develop properly.

Assuming that adequate brooding equipment is available it is essential that it be tested and ready for the chicks when they arrived. The temperature to be maintained under the hover will vary with the style of brooder used, the kind and position of the thermometer, the outside temperature, and the age of the chicks. For this reason it is not possible to fix an exact schedule of hover temperature. Observance of the chicks is a good guide although it cannot be entirely relied upon as it is possible to acustom chicks to a temperature which is abnormally high. Use of a thermometer plus the actions of the chicks will generally be the best guide to follow. Some operators depend on the "feel" when the hand is thrust under the hover. Experience is necessary for this test and it is not generally recommended.

One rule which is sometimes followed is to have the temperature 100° F. the first week, reducing it at the rate of 5° per week until a temperature of 80° is reached. This reading should be taken from a thermometer, the bulb of which just reaches the chicks' back.

There are no definite standards for estimating brooder capacity. Formerly brooder manufacturers had listed the rated capacity for their equipment for day-old chicks. Today this condition is being remedied and the rated capacity is for the entire period, mortality being considered. This is a step in the right direction which will tend to overcome the overcrowding evil.

If you have equipment and are in doubt about its capacity, the following rule may be applied; get the number of square inches under the hover (heating unit subtracted) and divide by 4 to get the capacity of day-old chicks; by 6 for number of 3-weeks old chicks, and by 8 for number of 5 weeks old chicks. Don't guess at the capacity of your equipment, find out how many chicks you can accommodate as the manner in which your chicks are raised determines the number of pullets which go in the houses next fall.

All brooder vices are directly traceable to crowding or improper management. Use of training perches great-

ly discourages cannibalism, toe picking, and is an aid when the heat is finally discontinued.

A poultry survey in a mid-west state showed the following causes of chick losses; 2-3 soil contamination, 1-4 carelessness and lack of equipment, and 1-10 to things beyond control. The Arizona poultryman has an ideal type of poultry soil, easily kept clean, so should materially lower that large item with which other less fortunate states must contend.

With good egg or chicks from vigorous stock your success is largely assured and the good pullets in the laying houses will point the way to ease over the hard times in the poultry game and scatter the despondency of the rainy day.

FOR THE FUN OF IT

"Those whom we are pleased to look down upon as 'underwitted,'" says Railway and Locomotive Engineering, "are frequently very much better equipped with native shrewdness than we realize. In a Scottish village lived Jamie Fleeman, who was known as the 'innocent,' or fool, of the neighborhood. People used to offer him a sixpence or a penny, and the fool would always choose the big coin of small value. One day a stranger asked, 'Do you not know the difference in value that you always take the penny?'"

"Aye, frin, I ken the difference," replied the fool, 'but if I took the sixpence they would never try me again!'"

Be kind to all dumb animals
And give small birds a crumb,
Be kind to human beings, too—
They're sometimes pretty dumb.
—Anonymous.

GRAMMATICAL LANTS

Schoolmaster: "Now I want you to tell me which of those words are singular and which are plural. Tomkins, you take the first, 'trousers.'" Tomkins (after deliberation): "Singular at the top and plural lower down, sir."

REVIVED

Our favorite gag for the season, dug up from the files:

"Say, Jones, how much did that fish weigh you caught last Tuesday?"

"How much'd I tell yuh it weighed when I told yuh last Tuesday? It ain't shrunk none, Bill; it ain't shrunk none."—Richmond Times-Dispatch.

A Jewish gentleman boarded a street car with his small son and handed the conductor a single fare.

"Why, how old is that boy?" asked the conductor.

"Four."

"Well, he certainly looks more than four years old."

"Hm! Am I responsible if he worries?"—Rutgers Chanticleer.

BEING GOOD TO DAD

The family around the corner observed Father's day by letting him wash the car.—Buffalo Evening News.

PROOF OF AFFECTION

"How's your garden coming along, old man?"

"We had it for dinner last night."
—aPthfinder.

Dr. Harry S. Schornick

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GUY C. GRIFFIN,
Arizona

The Water Supply and Pumping Equipment For the Small Ranch Home

By H. C. SCHWALEN,
University of Arizona

The first requisites of a water supply for the suburban home or small ranch should be an adequate supply of pure water and so protected that it will not be subject to contamination from any source whatsoever. Drilled wells with the casing projecting six inches or so above the ground surface are easily protected from surface contamination. Dug wells or pits should all be constructed with a concrete collar extending above the ground surface. A satisfactory method of finishing the bottom of a dug well is to only rig the pit just above the water surface and then put down a joint of perforated pipe or casing. The top of this pipe or casing can be kept covered. Where the depth to water is as much as forty to fifty feet and the ground caves will be found as low in cost in most instances to put in a drilled well and casing. It is not advisable to put down drilled wells of less than six inches in diameter.

Water for household purposes, sprinkling the lawn and for piping to the outbuildings should be under pressure. An elevated tank with a tight fitting top will supply the necessary pressure and serve as a reservoir supply for irrigation purposes and also constitutes a reserve in case of a breakdown of the pumping plant. The irrigation of a small vegetable garden, fruit and shade trees and probably some small plots of green feed, will require the full

stream of the pump, to which can be added a large stream from the tank.

When a maximum of not more than thirty or forty gallons per minute is required, the single stroke cylinder pump is most commonly used. The pump consists of a brass lined cylinder with foot valve and plunger, pump rods, drop pipe and the pump jack or power head. A small gas engine or electric motor may be used for power with either gear, belt, or chain drive. Because of the low speed of this type of pump its capacity is limited and a maximum of possibly fifty gallons per minute may be secured from a six-inch cylinder under a very low lift. The maximum speed for low lifts is about forty strokes per minute and for lifts of ninety to one hundred feet the speed must be decreased to about thirty strokes per minute. When possible, the cylinder should be placed below the water surface to keep the leathers from drying out when the pump is not used for some time. Where a drive point is used the cylinder should be placed as close to the water surface as possible and never over fifteen feet above it. This type of pump is the lowest in first cost and, in some cases rather cheaply constructed, with the result, that considerable attention is required to keep it properly lubricated, replacing worn parts, renewing the plunger leathers and the packing in the stuffing box in the pump head. The efficiency of these pumps varies

greatly depending upon the condition of the cylinder, valves, and plunger, and upon the size of the drop pipe used, and in some cases may be as low as twenty-five percent and as high as sixty or seventy percent.

In case a larger quantity of water is required with the same diameter cylinder and length of stroke the double acting pump may be used which pumps water on both the up and down stroke of the plunger. This is usually accomplished by means of a specially designed cylinder and plunger with a more complicated set of valves. The capacity of this pump is almost double that of the single stroke cylinder pump of the same stroke and diameter and is likewise more expensive and in many cases more likely to get out of order.

Double and even triple plungers working in the same cylinder and with hollow rods working within each other are adapted to pumping under high lifts and will deliver two or three times the amount of water which can be secured from the single-action plunger pump. The discharge from pumps of this type is fairly constant and to further cut down the pulsation in flow some manufacturers have patented designs whereby an overlapping of the strokes takes place. The almost steady load on this type of pump results in much less wear on the pump and its efficiency is higher than that of almost all other pumps. The first cost of these pumps is high

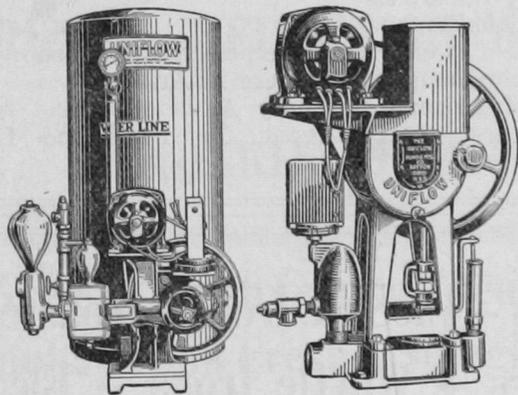
and where sandy water is pumped the maintenance and repair to valves, cylinders and plungers is also very expensive. Pumps of this type, with a capacity of 100 gallons per minute, can be installed in wells as small as six inches in diameter. It is not advisable to plan on an installation of this kind, however, without first checking the straightness and verticality of the well as there are not many drilled wells which are not crooked to some extent at least. If a pump is forced into a crooked hole, excessive wear takes place on the pump rods and other working parts of the pump, such that the life of the pump may be greatly shortened.

The horizontal centrifugal, single-stage pump is one of the most efficient and satisfactory of all the different types of pumps where 100 gallons per minute or more water is to be pumped, and where it is installed under the particular conditions for which it is adapted. It must be placed close to the water table such that its suction lift will not exceed twenty feet; higher efficiency will be secured if the suction lift is under fifteen feet. For this reason it is not adapted to use where there is either a large annual or seasonal fluctuation of the water table or where the capacity of the well is so small that the draw-down is as much as twenty feet. The pump must be placed at the bottom of the pit or just above the water surface in a dug well and since

(Continued on page 24)

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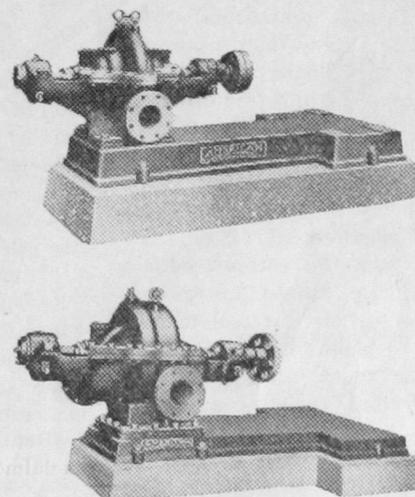
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Shade Trees For the Poultry Yard

By D. W. ALBERT,
University of Arizona

In selecting shade trees for the poultry yard it is important that a fast growing tree be planted that will shade as quickly as possible. It is preferable to plant deciduous trees as they not only furnish shade during the hot summer months but lose their leaves in the fall and allow full sun light during the winter. There are a number of ornamental trees and a few fruit trees that will not only furnish a quick shade for the poultry but if some care and thought is given to the planting plan they will add materially to the attractiveness of the entire poultry plant.

The Arizona cottonwood, so common to this part of the country, is one of our largest and most rapid growing shade trees. Only the staminate trees should be planted as the pestillate trees are very annoying in the spring of the year when they start shedding cotton. The cottonwood holds its leaves late in the fall and is one of the earliest to come out into leaf in the spring. It can be grown readily from cuttings which makes the initial cost of the trees very small.

Another tree similar in growth to the cottonwood is the Russian Poplar, commonly spoken of as the Balsam Poplar or the Balm of Gilead. This poplar can be distinguished from the Arizona cottonwood by the netted appearance and grayish color of the undersurface of the leaves.

The Chinese elm while not so widely grown as some of our more common shade trees should be given careful consideration in the selection of trees for planting in the poultry yard. It makes a very rapid growth when planted in good soil and supplied with an abundance of irrigation water. In outline it is very similar to the Arizona ash and makes a very attractive and ornamental tree. Like the cottonwood it can be easily propagated by means of cuttings. The one objection to this tree is its susceptibility to root rot and should not be planted except in soil known to be free of this disease.

The Arizona ash is one of our finest shade and ornamental trees. Its growth is slower than either the cottonwood or Chinese elm but has the advantage of not requiring as much irrigation water. The tree is hardy, long lived and thrives in both mesa and valley soils.

The mulberry is similar in growth and water requirement to the Arizona ash. Like the cottonwood the staminate and pestillate flowers are produced on different trees, making it possible to plant either fruiting or near fruiting types. Either the blue or white fruited varieties are well adapted to Arizona conditions. The weeping mulberry when grafted on the white mulberry at a height of 5 or 6 feet from the ground makes a perfect umbrella shaped head. The dense foliage and weeping branches make an ideal shelter for the chickens during the hot summer days.

There are a number of fruit trees that make a comparatively rapid growth which can be used as shade trees. Such fruit trees as the apricot, peach and some plum varieties



D. W. ALBERT

cot, peach and some plum varieties make very desirable shade trees and with little additional care will return a small revenue from the fruit produced.

In cases where water for irrigation purposes is limited the native mesquite can be used for shade. When once established it can get along without irrigation water for several months at a time. It is, however, very responsive to small amounts of water and will make a fairly rapid growth in our shallow soils. With a little judicious pruning during the first two or three years after planting it can be made into a very attractive tree.

ACCOMMODATING

An old Chinaman delivering laundry in a mining camp heard a noise and espied a huge brown bear sniffing his tracks in the newly fallen snow.

"Huh!" he gasped. "You likee my tracks, I make some mo'e."

It is said that recently, while visiting at the White House, Mrs. Herbert Hoover was shown about the place by Mrs. Coolidge. When they reached a certain room, Mrs. Hoover remarked, "So this is where the next president and I will sleep is it?"

A colored maid who was at that time in the room, tidying it up, answered, "Say, Missus, does you know that Al Smith is goin' to be the next president?"

A professor of biology addresses his class thus:

"I propose to show you a very fine specimen of a dissected frog which I have in this parcel."

Undoing the parcel he disclosed some sandwiches, a hard-boiled egg and some fruit.

"But, surely, I ate my lunch!" he exclaimed.

"Conductor! Help me off the train."

"Sure."

"You see, I'm stout and I have to get off the train backwards; the porter thinks I'm getting on and gives me a shove on again. I'm five stations past my destination now."

—Brown Jug.

ASK NOAH, HE KNOWS

A mule driver was trying to drive his mule through a gate. The stubborn animal would do anything except go through that gate.

"Want any help, chum?" asked a passerby.

"No," replied the driver, "but I'd like to know how Noah got two of these blighters into the ark!"—Open Road.

THE DIFFERENCE

The modernists say, "There ain't no hell." The fundamentalists say, "The hell there ain't!"

—Wash. & Lee Mink.

"Ma! Looqit the pretty little collar on that lady's dress."

"Hush, Johnny! That's the lady's skirt."

—Dartmouth Jack o'Lantern.

A CONFIRMED OPTIMIST

A negro waiter employed in a certain cafe "sees good in everything."

One afternoon a customer entered and ordered soft-shelled crabs. When they had been served he said to the waiter, "Henry, these crabs are very small."

"Yessuh."

"And they don't seem very fresh either."

"Well, suh, it's lucky den dat dey's small, ain't it?"—Pickup.

SHOO!

Porter: Did yo' miss dat train, suh?

Overheated Traveler: No! I didn't like to see it around, so I chased it out of the yard.—Brooklyn Eagle.

THRIFTY TAMMAS

"And they call America the land of free speech," said the disgusted Scot when the telephone operator told him to put a nickel in the box. —Montreal Star.

Smith: "Did I leave an umbrella here yesterday?"

Barber: "What kind of an umbrella?"

Smith: "Oh, any kind. I'm not fussy."

**G. E.
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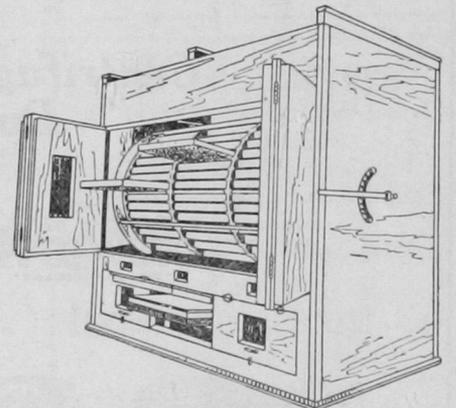
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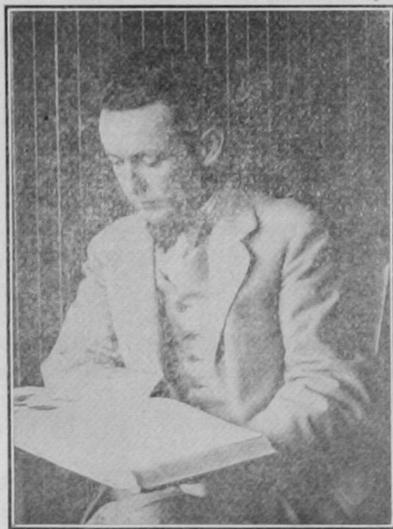
Winter Green Feeds For Poultry

By M. F. WHARTON,

Poultrymen in the warmer sections of Arizona are often hard pressed for some sort of green feed after the alfalfa season is finished. Many rely on the waste from lettuce packing sheds but this supply is often not regular enough to furnish fresh unwilted green stuff when needed. It is possible to produce a great variety of green crops during the winter months that will furnish the entire amount needed or at least amplify that procured elsewhere.

The easiest type of green food to raise in abundance on a small plot of ground during the winter is some one of the cereal crops such as barley, oats, rye or any other of the same type that produces a rapid growth of succulent foliage. These crops are best planted early in the fall and may be broadcast in bordered beds and irrigated either by flooding or sprinkling. Successive cuttings can be made and following each cutting a liberal irrigation will produce another crop in a very few weeks.

There are many vegetables that produce a considerable amount of succulent foliage that is usable by the poultryman. Of these may be mentioned: lettuce, spinach, kale, Swiss chard, New Zealand spinach and a new type of lettuce especially bred up to produce a large amount of green stuff and named chicken or rabbit lettuce. This lettuce grows upright with a long stalk some two to three feet high and is really a seed producing type of lettuce rather than the commercial heading type. Many of the local and coastal seed companies handle the seed of this type lettuce.



M. F. WHARTON

These vegetable crops are all produced in a similar manner and usually grown on a raised bed. The soil should be heavily manured and worked deep. The beds should be formed by making irrigation furrows every four feet. The shoulder of the bed should be high enough to prevent flooding when the furrows are filled with irrigating water. Seed is usually drilled in along the shoulder of the raised bed and is irrigated immediately and long enough for the irrigating water to sub to the center of the bed. Frequent irrigations and shallow but frequent cultivations will induce rapid growth. The larger plants; kale, lettuce and Swiss Chard should be thinned to space from sixteen inches to two feet in the row. This thinning will produce considerable green stuff at the time and the operation may be prolonged

over a considerable period of time and regulated by the daily amount needed by the flock.

In order to have green stuff growing of a size to produce large quantities of foliage early in the fall it is well to start preparing the seed bed in the late summer. Young plants may be grown in a protected seedbed where the sun strikes only in early morning and later afternoon. A seedbed may be constructed with a cheesecloth top that will protect the young plants sufficiently from the sun. The young plants are grown in a broadcast bed or in rows and are seeded early in August. Transplanting to the field takes place during the middle of September or after the extreme heat of summer has broken. Transplant in the late afternoon and soak the bed immediately with water. Still better results may be obtained by placing a small amount of water in the hole before placing the plant in it.

Stripping the plants of leaves will stimulate more rapid growth but care should be taken to leave the center bud and a few circles of leaves. Severe stripping will often cause the plant to die before it can send out new leaves.

SQUAB RAISING FOR PLEASURE AND PROFIT

(Continued from page 10)

der-nourished child or invalid.

Dr. T. Shannon McGillivray, a widely-known physician, explains about pigeons: "The juice of the squab contains from two to five ounces of liquid protoplasm—a substance read-

ily absorbed into the blood—and is one of the most nourishing fluids known to the medical profession for the treatment of children suffering from indigestion, dyspepsia, chlorosis, or any other wasting disease due to malnutrition." Continuing, he said, "protoplasm is the life-giving, active, growing part of any animal or bird, and the less solid and more fluid it is, the faster the growth. The young pigeon previous to its leaving the nest has from two to five ounces of protoplasm and at the age of four and a half weeks it weighs more than it ever will again. Then it leaves the nest. The liquid protoplasm drains off and in forty-eight hours it weighs several ounces lighter, and this speedy growth is retarded or completely stopped.

Quickly Lose Value as Remedy

"This explains why the young pigeon is useless as a remedy in diseases of children after it leaves the nest—it has then lost its liquor protoplasm. Squabs are richer in lecithin than chicken. Lecithin is the chief component of the nervous system."

Hayward, Calif., advertised these mysterious qualities of the squab to renew life and the slogan, "Eat more squab," was made to convey to the people a thoughtful solicitation for their welfare. The market began to take on new life. San Francisco began eating more squab, and in an unbelievably short time San Francisco took all the squabs raised in Hayward, and Hayward became the center of squab raising in the United States.

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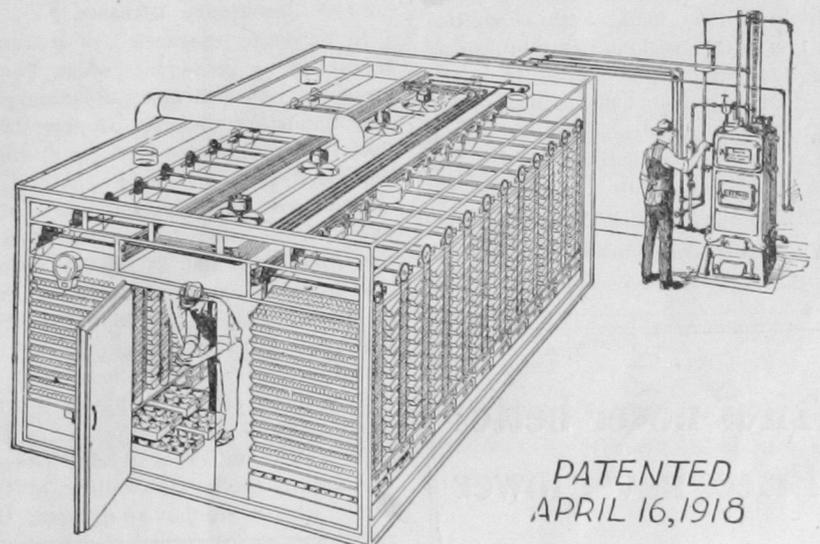
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D. T. FARROW CHICKERIES

PHOENIX, ARIZONA

The Water Supply and Pumping Equipment For the Small Ranch Home

(Continued from page 21)

it must be run at high speed the ideal drive is therefore the direct-connected electric motor. The use of the small horizontal centrifugal pump with engine drive and inclined belt way is limited, as it is impractical to have the pump set much over fifteen feet below the ground surface or below the engine.

There are many places where a supply of from 100 to 200 gallons per minute can be secured from a well with very little draw-down and under these conditions the horizontal centrifugal pump with direct-connected motor installed in a pit, forms an ideal system for the country home, supplying water for domestic use and irrigations. It must be primed before starting and the two most common methods are by means of a foot valve in the suction to keep the pump full of water at all times, and the use of a small hand pump to exhaust the air from the top of the pump casing, the discharge being closed with check valve. Foot valves should never be used if the total lift is over forty feet. The principal disadvantage of having the pump and motor in the bottom of a pit is that the frequent inspection for oiling of the pump and motor, and for other minor adjustments will very often be neglected.

The University has had a direct-connected unit of this type in the bottom of an eighty-foot, concrete-lined pit, which was in continuous operation for a period of twelve years. The pump operates under a head of 120 feet and discharges approximately 300 gallons per minute. The only repairs made have been in the replacing of one or two sets of shaft sleeves or bushings. This pump has more than paid for the cost of the expensive concrete lined shaft or pit thru the saving in repairs, maintenance and replacements which would have been necessary with almost any other type of pump.

Another type of pump which is sometimes used is the multi-stage turbine centrifugal or propeller pump which is now made with capacities as low as 100 gallons per minute and small enough to be placed in a six-inch drilled well. These pumps are run at high speed and can be direct-connected to a vertical motor. The bowls of the pump are always set below the water surface and preferably they should be set deep enough so that they are covered at all times

when the pump is running. It can be used under conditions of a fluctuating water table and also where the draw-down is great. Its efficiency and capacity, however, will both be affected by operating under conditions for which it is designed. The life of a pump of this type depends almost wholly on the life of the bearings on the long pump shaft extending from the pump head to the bowls. The positive lubrication of these pump bearings must be secured and sand and grit excluded, or the life of the pumps will be short. The first cost of this type of pump is high as is also the cost for repairs, adjustments or inspection of the pump as it means the pulling of the whole pump each time it is worked on.

Where only water for household purposes is required the small hydro-pneumatic system with pressure tanks and complete automatic control are coming into much use. They are usually motor driven with small double acting piston pump for shallow wells or with the single-acting plunger pump for deep wells. It has advantages over the elevated tank system in that practically fresh water is supplied at all times, it requires attention only at regular intervals for oiling, and it supplies water at any desired pressure.

Poultry Health

(Continued from page 17)

high; roosting on too narrow perches and any injury to the bottom of the foot.

Symptoms: This condition is seldom seen in more than one or two birds at a time. The bird appears lame and when the foot is examined a hot painful swelling is noticed. This may be an abscess with a core-like center or a hard growth.

Treatment: The abscess may be lanced but unless the bird is valuable it is advisable to market it. The operation is generally successful but it will require some time for the wound to heal.

Deficiency Diseases

Non-specific diseases are generally caused by inadequate diets. These are known as deficiency diseases and are important because of the fact that they predispose birds to specific diseases.

The most common deficiency diseases are caused by an inadequacy of vitamin A and D in the ration. The former causes a condition known as nutritional roup which is often confused with the type of roup resulting from improper housing.

Symptoms of Avitaminosis A: Inflammation of the membranes of the eyes; collection of a white cheesy exudate in the eye; swelling of the head; with a similar swelling of the

mucus glands of the mouth.

The bird has ruffled plumage and is hard to rouse. There is no foul smell which is so characteristic of roup. Just before death there is a profuse white diarrhea.

Control: Supplying foods that contain liberal quantities of vitamin A. Feeds that are considered high in this essential are, yellow cornmeal, alfalfa leaves, and green feed.

Avitaminosis D: Characterized by weak legs, swollen joints and crooked breastbone.

This vitamin is probably not as important to mature birds, due to the fact that they are in direct sunlight during the day. With baby chicks it is associated with calcium-phosphorus metabolism and is a very important factor in their development.

Control: Consists in giving chicks direct sunlight several hours each day. Sunlight through window glass has very little effect on prevention of leg weakness. This is due to the fact that the ultra-violet rays are deflected.

Bad Habits

Egg eating: Caused by an egg getting broken and birds getting a taste of it. Watch for offenders and remove them. Yolk-stained beaks help in their identification.

Darkened nests with oyster shells continuously before the birds help reduce the losses.

Cannibalism: Caused by getting taste of blood. It may be necessary to cut off 1-8 of the upper beak. This is easily done and is effective.

Toe picking: Commonly noticed with brooder chicks. Keeping chicks busy and removal of injured birds is necessary. A little sweet oil in a dish as a drink is sometimes used.

Feather pulling: This is a habit often started by itching resulting from parasites of the skin. Generally there are a few offenders which can be identified and should be removed.

Exercise and liberal amounts of green feed may assist in reducing the trouble.

We are told that the Chinese physician is primarily employed to keep the patients from becoming ill and only secondarily to cure him. This should

be the primary object of the poultry keeper for the ounce of prevention is certainly worth the pound of cure.

Visitor: "My poor man! I presume it was the desire for drink that brought you here?"

Prisoner: "Not at all, I never expected to get any in this place."

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R/D		C right hip to shoulder.	S. M. Bull,	Rodeo, N. M.
B		C left hip. H right thigh.	F. V. Brown,	Flagstaff, Ariz.
LX		C right shoulder. H right thigh.	E. N. Spurlock,	Chandler, Arizona.
T		C right shoulder.	Chas. G. Craner,	Phoenix, Arizona.

Cost of Producing Poultry Products in Graham County

By J. W. WRIGHT,

County Agricultural Agent

During recent years poultry raising on a commercial scale has developed into an important industry in Graham County. A number of factors have contributed to this development. The most important of these factors are:

1. The ideal winter climate, eliminating the necessity for expensive housing.
2. Adequate shade in summer.
3. Economical feeds in the form of locally produced grain.
4. An economical supply of home grown feed throughout the entire year.
5. Excellent cash markets for poultry products in the near-by mining towns.

The increasing local interest in the industry has created a demand for data relative to production costs and possible profit margins. In an attempt to supply the demand for this type of information, cost accounts have been kept on eight poultry farms, which are typical of the poultry industry in this locality. The cost of producing eggs, and the cost of producing White Leghorn pullets were the chief items taken into consideration in assembling these cost data. It is believed that the average figures for the group in each case represent fairly accurately the average costs in this county.

Method of Computing Costs

In computing costs the following bases were used:

1. All man labor, including the poultryman's own labor and hired labor was charged at the rate of

thirty cents per hour.

2. Horse labor was charged at the rate of ten cents per hour.

3. The use of truck or automobile in transporting feed and poultry products was charged at the rate of ten cents per mile to cover operation costs together with interest on investment and depreciation on the machine.

4. All feed and other cash expenses were charged at actual cost.

5. Green feed, when home grown, was charged at cost of feeding.

6. Interest on investment in land, buildings, equipment and stock was charged at the rate of six per cent of the total valuation.

7. Taxes were calculated at the exact rate of state, county, and special school taxes. The approximate assessed valuations were used in each case.

8. The housing charge represents a five per cent annual depreciation on poultry houses and equipment.

Labor, feed and material requirements in terms of quantities as well as money costs are included. It is believed that this feature will give the data permanent value, for as prices vary, the figures can be brought up to date by computing costs in terms of current prices.

Cost of Producing Eggs

The cost of producing a dozen eggs is set forth in detail in Table No. 1 on the following page. The detailed items of cost in this table have been reduced to a basis of averages per laying hen so as to make the figures comparable. The figures in the first two columns represent the cost items for the individual farm,

the number of which appears at the top of the column. The figures in the County average columns represent the average for six typical poultry farms and include a total of 3600 laying hens.

The cost items include costs of raising young stock in addition to the maintenance of laying stock. This accounts for the large quantity of feed consumed per hen, the average being 97 pounds. A part of this feed was consumed by the young stock. Because of the fact that it was not practical in most cases to keep a separate account on the young stock, and since egg production is the major consideration, the maintenance of the flock was considered an essential item of cost and was included in the totals. Any difference in total inventory value of the stock at the end of the year as compared with the beginning of the year was taken into consideration in determining net cost per hen and net cost per dozen eggs.

Figures obtained from a number of Experiment Stations indicate that the average feed consumption per mature hen for White Leghorns is approximately 72 pounds and for Rhode Island Reds and Barred Rocks about 85 pounds per year. The quantity of feed consumed will vary with kind of feed, and number of eggs produced as well as with the size of the hen.

The cost of labor, which next to feed is the most important item of cost, varies with the number of birds in the flock and with the facilities for economizing labor. In all cases the labor charge per hen decreased

as the size of the flock increased.

The average production of 157 eggs per hen is fairly satisfactory for commercial flocks. On the basis of a net annual cost of \$4.05 per hen and the 1925 egg price, a production of 123.6 eggs per hen per year is required to break even. Of course the production required to equal cost will vary not only with egg prices but with net cost per hen. The margin of 1.09c profit per hen is ample to make commercial poultry production an attractive enterprise in this locality. This margin, of course, will vary from year to year with variations in egg prices as well as with prices of feed. The average net cost of 31.2 cents per dozen eggs is well below the usual average price received per dozen eggs, thus making a satisfactory margin of profit a reasonably assured thing for the poultryman who can produce eggs on this cost basis.

Returns were calculated on the following basis:

1. Margin of profit per hen.
2. Margin of profit per dozen eggs.
3. Return per hour of man labor.
4. Interest return on investment.

The return per hour of man labor was calculated from the formula:

Market value of product—(Net cost—cost of man labor) Number of hours of man labor.

Calculated on this basis the average return for man labor was 60 cents per hour as will be noted in Table No. 1.

The rate of interest earned on investment was 28 percent. This was calculated from the formula:

Market value of product—(Net cost

(Continued on page 28)

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Fourteen Stores in Arizona--The Farther You Go From One the Nearer You Are to Another

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that
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Winning confidence every day and on each and every purchase made is the true foundation of this business.

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Today the J. C. PENNEY CO. has in operation 1024 community serving stores. We are serving millions of customers daily. The reason for this growth and patronage is that its merchandise has consistently met the SERVICE test of QUALITY.

Quality is that part of your purchase you can not see, but we have kept faith with our customers now for more than Twenty-Five Years.

WHY DON'T YOU HOLD "SALES"?

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We buy and sell only standard, first quality goods. We do not buy bankrupt stocks or "seconds." New goods arrive almost daily at our stores and nothing remains on our shelves long enough to become soiled or shop worn. Our new merchandise is marked just as low as possible. You get the advantage of this low price EVERY DAY—and not just on "sale" days.

Turkeys In Arizona

By C. M. CORNMAN

In order to select our breeding stock, early in November, we took our entire flock of 2,500 birds through the counting pens. At this time each bird was handled, the toe marks read, and all the good individuals received a spot of white paint on the back, between the wings. This makes them easy to be seen when among the rest of the flock. Nothing but the best developed, most vigorous, early hatched birds are selected. We can tell these by means of toe marks, which are punched differently, for birds that are unrelated. In this way we have our own unrelated stock for breeders. This is quite an item in a large flock of toms, for toms not raised together fight very badly sometimes.

With our breeding stock selected, the next thing is to get them in the best of condition for the breeding season, so that they will produce eggs, which hatch husky, perky, livable poults. This can best be done on a ration of grain, milk, and an abundance of succulent green feed. Care must be taken not to have breeding stock too fat.

We turn our breeders (hens and toms) all out together in a heavy brush pasture of about 20 acres. We do not alternate toms, and have always had a high per cent of fertility. However this method would not be practical in open pens.

The hens make their nests and lay their first clutch of eggs in pasteboard boxes, and turned twice daily. The bran keeps the temperature fairly uniform. When the hen goes to setting she is brought in and put on a nest in our "Setting Battery." We have two of these batteries, each constructed to hold 104 turkey hens. They are made of old railroad ties for supports, board partitions, and old boards covered with dirt for a roof. Each nest is two feet by four feet with a six inch light board at the bottom and covers for the front of the nests. Previous to the setting time we run water down a little ditch, for about three weeks, to thoroughly soak the ground. This makes enough moisture in the nest for the eggs not to dry out too much. We also pour luke warm water over the eggs two or three times before hatching.

We set the hens 25 and 50 to a unit, on 16 eggs each, and the nests are closed. Every other day we take off each unit separately, to exercise, feed and water, and return them to their nests, and close the nests again. Then we proceed in a like manner with the next unit. When the eggs begin to pip we close the nests and leave them alone for three days. At the end of three days the hatch is complete, and the unit is ready to move. The turks are all out to the front of the nest, they have learned their own mother's call, and all are eager for food and Arizona sunshine. We take one nest at a time, remove the mother bird and put the poults in a tub or box on the truck, and the old ones in a crate. They are then taken to their first destination, a fine succulent patch of alfalfa. At this time we toe punch the poults so that we can later tell "who" they are. A record is kept of the different marks.

We make the pens for this unit in the following manner: We have steel fence posts, which are driven in a circle in the alfalfa, standing on the back of a truck to do this work. Then we enclose it with a fence with



C. M. Cornman and a flock of his "Top Pricers."

the large mesh of the fence on the ground. This enables the little poults to run as far as they will, and keeps the hens confined. Later we feed the poults outside the fence, and the hens do not need such expensive food as the little beginners.

When a unit of hens and poults are placed in this pen of alfalfa, which has been timed to the hatch, and is tender and succulent, they immediately begin to eat, as they have had no food for three days. We do not give them any water the first day, but let them eat of this tender alfalfa, which cleans out their intestinal tract, and puts them in condition for other feeds. We feed the poults a little grain feed the evening of their first day out of the nest. This feed consists of three-minute rolled oats, in about the proportion of one tablespoonful to fifty poults. We hold it aloft and it drifts out over the green alfalfa, and the poults see it and begin picking at it, and in this way are soon eating.

We feed the poults oats in this manner for about three days, together with semi-solid buttermilk. They are then put on a baby chick mash, and changes made in their feed as they grow older. Other units are started in the same way, in the same field of alfalfa, and when they are from three to five weeks old the bunches are merged. We continued this system this past season until we had over 2,500 birds all in one flock, and the earliest hatched only 28 days older than the youngest.

From this point (about ten weeks old) on to the "Chopping Block" it is a matter of sanitation, an abundance of succulent green feed, and the necessary amount of grain to balance their ration.

WAS MARATHONER

Bill entered a hotel in El Paso, Texas, placed his umbrella in the stand and tied a card to it on which was written:

"This umbrella belongs to a prize-fighter. Will be back in ten minutes."

When he returned the umbrella was gone. However, the card was still there, with this addition:

"Umbrella was taken by a champion long distance runner. Won't be back at all."

HE KNED!

"The time will come," shouted the speaker, "when women will get men's wages."

"Yes," said a little man in the corner. "Next Saturday night."

PHOENIX COW MAKES CHAMPIONSHIP PRODUCTION RECORD

PHOENIX, Ariz., Nov. 27.—Noble Torono's Valeria 713296, owned by Clude Hussey of Phoenix, Ariz., won the State Yearling Class Championship of Arizona in the 365-day division, following the completion of her recent production test. She was also awarded a Silver Medal with the championship record, yielding a total of 503.46 pounds of butterfat and 8,239 pounds of milk with 6.11 per cent butterfat during the test. This splendid young heifer made the fifty-pound list in the tenth month of her test with a yield of 50.32 pounds of buttfat. She made her test record on two milkings per day and carried calf 190 days of the 365.

She superseded University Topsy Draconis 527143, tested by the University of Arizona. University Topsy Draconis was awarded the championship on a record of 366.26 pounds of butterfat and 6,591 pounds of milk made in a test started when she was 1 year and 11 months of age.

Noble Torono's Valeria is the daughter of Burum's Noble Torono 212097. Her dam is the Register of Merit cow, Noble's Mignonette 565039.

Social Errors

It's wrong to select a new set of bridge-work while other people are around. You should never pick your teeth in public.

STICKING TO LAMB

A writer in the Scientific Monthly asserts that both porcupine and skunk are mighty fine eating. We are not much interested. We are afraid of prickly heat and halitosis.

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Work And Dress Apparel
For The Outdoor Man

Ducks For Profit

F. O. ANDERSON, Poultryman
U. S. Government Indian Vocational
School, Phoenix, Arizona.

Like chickens, ducks are raised both on general farms as a branch of farming and on commercial duck farms where they are kept on a large scale.

Ducks are hardy and easy to raise. Ducks are not so susceptible to disease as chickens, and the mortality in ducks is very slight.

The production of ducks for table purposes is confined principally to the eastern section of the country in the vicinity of such cities as New York, Philadelphia and Boston. Salt River Valley has excellent climatic conditions for the production of ducks. A large number of northern and eastern people are attracted here during the winter months thus increasing home consumption.

There are eleven standardized breeds of duck, divided according to their usefulness into three classes: The meat class including the Pekin, Aylesburg, Muscovy, Rouen Cayuga, Buff and Swedish.

The Egg Class includes but one breed: The Indian Runner of which there are three standard varieties.

The Ornamental Class including the Call, White Crested, and Black East Indian. All of these breeds with the exception of the Muscovy, are said to have originated from the Mallard or wild duck.

The most popular among the meat breeds is the Pekin Duck. One commercial farms they are marketed as green ducks, these being ducklings they that are rapidly grown and marketed when they are from eight to twelve weeks old and weigh from four to six pounds apiece. Having white plumage and yellow skin they make a very plump and fine looking carcass when dressed, demanding fancy prices, their meat being very delicious.

The Egg Breed, the Indian Runner, has been called the Leghorn of the duck family. Last year a pen of five Indian Runner Ducks in an egg-laying contest made a world's record for the pen with 347 eggs average. One hen duck laying 365 eggs. This report was published in the "Poultry Tribune" issue of October, 1927.

The Ornamental Class is kept principally for exhibition purposes.

Satisfactory houses for ducks can be constructed following the same plans as recommended for poultry houses. Buildings and yards should be so arranged as to minimize labor and at the same time allow for the future development of the plant. Roosts and dropping boards are not needed.

Ducks are usually mated in the proportion of one male to every seven or eight females during the early breeding season. Later in the season this number may be increased to ten females to one male and still secure good fertility. A pond or stream is very essential especially for breeding ducks as they will give

better fertility when they have access to water during the breeding season than those kept continually inland.

The period of incubation is 28 days except in the case of Muscovies which take from 33 to 35 days to hatch. When duck farming is carried on to any considerable extent, artificial incubation is usually employed. This same rule as follows incubating hens' eggs applies also to ducks, save washing the dirty duck eggs before incubation as this does not injure their hatching qualities. Ducklings do not come out of the shell as quickly as chicks after the shell is pipped. It usually takes from 24 to 48 hours for the ducklings to hatch after the shell is pipped. Ducks' eggs require more moisture than hen eggs especially when hatching time approaches.

When hatching duck eggs artificially the incubator should be run at 102 degrees F. during the first three weeks and 103 degrees F. during the final week. The incubator is handled practically the same as when hatching hen eggs with the exception of supplying more moisture during the last week of incubation. The eggs should be cooled each day after the seventh and up to the twenty-first day inclusive; also the eggs are turned twice daily after the second day in the machine and throughout the hatch up to the twenty-sixth day. As in the case of hens' eggs, ducks' should be tested on the seventh and fourteenth days of incubation. This is very necessary as ducks' eggs having dead germs decompose very quickly and give off a very offensive odor.

The brooding of ducks is much easier than in the case of chickens, especially when artificial brooding is employed. The brooder should be run at a temperature of 95 degrees F. for the first ten days, gradually reducing to 85 and 80 degrees F. The young ducks should be confined to the proximity of the hover for a few days until they learn where to return for warmth.

Ducks may be fed on rations recommended for fowls and chickens with additional sand or grit added in the mash. Better results are obtained by feeding plenty of green and vegetable feeds, also larger proportions of mash. Indian Runner Ducks should be fed laying mash throughout the year for best results, differing only from laying mash fed to hens by more sharp sand or grit being added. The reason for this is that ducks do not have craws for softening the food as hens do, before it is taken into the gizzard.

Meat Class Ducks are fed a maintenance ration after they stop laying in the summer until about December 1st when a laying ration is given and the amount of mash is increased.

Ducklings do not need feed until they are from 24 to 36 hours old, after which they may be fed five times daily on a mixture of equal parts by measure of rolled oats and bread crumbs with three per cent of sharp sand mixed with the feed. About the third day this feed is changed to equal parts bread, rolled oats, bran, and corn meal; then after the seventh day to three parts of bran, one part each of low-grade wheat flour, and of corn meal, ten per cent of green feed, and five per cent of beef scraps with about three per cent of sand or grit in all of the rations.

(Continued on page 28)

THE RANCHER'S MARKET PLACE

Read for profit, use for results. The classified columns of the Arizona Cattleman and Farmer are read by all the most progressive stockmen and farmers in Arizona, New Mexico, Texas and California. Classified Rates—3c per word per insertion.

CABBAGE AND ONION PLANTS
Frost Proof cabbage plants, 100 35c, 300 70c, 500 \$1, 1,000 \$1.75. Bermuda onion plants, 100 30c, 500 75c, 1,000 \$1.25. Cauliflower, 50 60c, 100 \$1, 1,000 \$6. Strawberry, 50 60c, 100 \$1, 500 \$3.50, all parcel post prepaid. Satisfaction guaranteed. Express collect, cabbage, 1,000 \$1; onions in crates of 6,000, \$4.20. Pearsall Plant Growers Co., Pearsall, Texas.

WANTED—FARMS
WANT TO HEAR from owner having farm for sale; give particulars and lowest price. John J. Black, Box 90, Chippewa Falls, Wisconsin.

FARM WANTED—To hear from owner of land for sale. O. Hawley, Baldwin, Wis.

WANTED—TO BUY
All old Envelopes with U. S. and Confederate Postage Stamps on them used before year 1880, I pay \$1.00 to \$10.00 each for old envelopes with pictures of flags, soldiers, etc., on them, used during the war between the North and South from 1861 to 1866. Used or unused stamps before 1880. Send all you have for my inspection or write for surprising information FREE. Address A. V. Rice, 2652 Asbury Ave., Evanston, Ill.

FRUIT LANDS
FOR SALE—Fruit Acres. Acre tracts with matured peach or apricot trees. Wonderful location; just right for chickens and rabbits. Terms if desired. Address Box P, care of Arizona Cattleman & Farmer. Tucson, Ariz.

HARDY Alfalfa Seed 93% pure, \$10.00 per bushel; Sweet Clover 95% pure \$4.50. Return seed if not satisfied. Geo Bowman, Concordia, Kansas.

PERSONAL
WOULD YOU MARRY girl 18, \$25,000, will inherit \$50,000; widow 40, \$78,000? Photos, descriptions free. Club. Mrs. Warn, 8377 W. 4th St., Los Angeles, Calif.

KNOW—your future. Let the stars tell. Send dime and birthday. Nancy Ann, Box 649, Sta. C, Los Angeles, Calif.

IF YOU wish a wealthy, pretty wife, write Doris Dawn, East Cleveland, Ohio. (stamp).

LONELY? MEET YOUR SWEETHEART thru confidential club. Many Wealthy members. Descriptions free. FERNE GREY, Box 1156, Cleveland, Ohio.

VICTROLA FOR SALE
\$100.00 size mahogany cabinet and one dozen records—like new—\$35.00. Address C. E. Goyette, care Arizona Cattleman and Farmer.

ARTICLES OF INCORPORATION OF PHILOMENA MINING COMPANY
KNOW ALL MEN BY THESE PRESENTS: That we, the undersigned, have this day associated ourselves together for the purpose of forming a corporation under the laws of the state of Arizona, to engage in the lawful enterprises, business pursuits and occupation hereinafter specified, and for that purpose do make, subscribe and acknowledge, according to law, these Articles of Incorporation, and declare:

ARTICLE I.
The names and residences and postoffice addresses of the incorporators are W. H. Leahy, 56 North Church Street, Tucson, Arizona, and R. W. Langworthy, 48 West Pennington Street, Tucson, Arizona; and the name of the corporation shall be "PHILOMENA MINING COMPANY."

The principal place of transacting the business of the corporation shall be at the City of Tucson, Pima County, Arizona, and the corporation may have such other offices and places of business, principal or branch, either within or without the state of Arizona, for the transaction of any and all of the business of the corporation as may be established by the Board of Directors.

ARTICLE II.
The general nature of the business proposed to be transacted is as follows: To purchase, lease, option, locate or otherwise acquire, and to own, exchange, sell or otherwise dispose of, pledge, mortgage, hypothecate and deal in mines, mining claims, mineral lands, oil lands, water and water rights and other property, both real and personal, and to work, explore, operate and develop the same and to deal in the products and by-products thereof:

To purchase, lease or otherwise acquire, erect, own, operate and sell milling, smelting and other reduction works, sawmills, clay works, power plants, railroads and tramways to lead from the company's principal works:

To do a general manufacturing and mercantile business; to own, handle and control letters patent and inventions; to own, vote, cancel and re-issue shares of its own capital stock or those of other corporations; to issue bonds, notes and other evidences of indebtedness and to secure the payment of the same by mortgage, deed of trust, or otherwise; to act as agent or broker, and to borrow and loan money; and, in general, to do and perform such acts and things and transact such business, and not inconsistent with law, in any part of the world, as the Board of Directors may deem to the advantage of the corporation.

ARTICLE III.
The amount of the capital stock of this corporation shall be one million dollars (\$1,000,000.00), divided into one million shares (1,000,000) of the par value of one dollar (\$1.00) each; and said stock shall be issued fully paid and non-assessable, at such time and in such manner as the Board of Directors may determine, in exchange for cash, property, services, or other valuable right or thing, and the judgment of the Board of Directors as to the value thereof shall be conclusive.

ARTICLE IV.
The time of the commencement of this

corporation shall be the date of the issuance to it of a certificate of incorporation by the Arizona Corporation Commission, and the termination thereof shall be twenty-five years thereafter, with the privilege of renewals, as provided by law.

ARTICLE V.
The affairs and business of this corporation shall be managed and controlled by a Board of Directors of not less than five (5) nor more than thirteen (13) persons, who shall be elected annually by the stockholders at the regular annual meeting of the stockholders to be held on the first Monday in September of each year, and in such manner as shall be prescribed by the by-laws of the corporation. The Board of Directors may elect or appoint such officers and committees from their own number, to aid in the management of the business, as they see fit.

The following named persons, who are subscribers to the capital stock of this corporation, shall constitute the first board of directors, to-wit: W. H. Leahy, O. O. Prior, Geo. D. Bedell, Booth McCarsen an R. W. Langworthy.

The Board of Directors shall have power to increase the number of the members of the board at any time to not more than thirteen (13) members, by resolution duly adopted, and vacancies in the Board may be filled by the remaining members.

The Board of Directors shall have power to adopt by-laws and to prescribe in said by-laws the method of calling and holding meetings of the Board of Directors and of the stockholders. A majority of the Board shall constitute a quorum and any and all meetings at which a quorum is present shall be deemed regular meetings and have the same authority as a full board.

The Board of Directors, with the assent in writing of a majority of the outstanding stock of the company, shall have full power and authority to option, sell, lease, grant and convey or dispose of any or all of the property of the corporation.

Meetings of the Board of Directors may be held at any place, either within or without the state of Arizona.

The following named persons shall constitute the officers of this corporation until their successors are duly elected and qualified, to-wit: W. H. Leahy, President and General Manager, Geo. D. Bedell, Treasurer, and R. W. Langworthy, Secretary.

ARTICLE VI.
The highest amount of indebtedness, direct or contingent, to which this corporation is at any time to be subjected, shall be the sum of six hundred sixty thousand dollars.

ARTICLE VII.
The stockholders of this corporation and their private property shall be exempt from the corporate debts of the corporation.

ARTICLE IX.
These Articles of Incorporation, except Article VII hereof, may be amended at any time by a majority vote of the outstanding stock of the company, at any regular or special meeting of the stockholders, duly called for that purpose.

IN WITNESS WHEREOF, we have hereunto set our hands this 27th day of August, 1928.

W. H. LEAHY
R. W. LANGWORTHY.
STATE OF ARIZONA)
)SS.

County of Pima)
This instrument acknowledged before me this 27th day of August, 1928, by W. H. Leahy and R. W. Langworthy. My commission expires May 13, 1932.

(SEAL) A. T. SMITH,
NOTARY PUBLIC, Pima County, Ariz.
First Pub. 9-13-28.
Last Pub. 12-18-28.

SUMMONS
IN THE SUPERIOR COURT OF PIMA COUNTY, STATE OF ARIZONA.

Elsie May Gilbert, Plaintiff, vs. Virgil Gilbert, Defendant. No. 11636.

In the name of the State of Arizona, to Virgil Gilbert, Defendant, GREETING:

You are hereby summoned and required to appear in an action brought against you by the above-named plaintiff in the Superior Court of the State of Arizona, in and for Pima County, and answer the Complaint therein filed with the Clerk of this Court, at Tucson, in said County, within twenty days after the service upon you of this summons, if served in this County, and or in all other cases within thirty days thereafter, the times above mentioned being exclusive of the day of service, or judgment by default will be taken against you.

Given under my hand and the Seal of the Superior Court of Pima County, State of Arizona, this 21st day of November, 1928.

(Seal) LENNA H. BURGESS,
Clerk of said Superior Court.
By E. M. Lynch, Deputy.
First publication 11-27-28.
Last publication 12-18-28.

NOTICE TO CREDITORS
IN THE SUPERIOR COURT OF PIMA COUNTY, STATE OF ARIZONA.

Estate of Ray J. Lill, deceased.

Notice is hereby given by the undersigned administrator of the estate of Ray J. Lill, deceased, to the creditors of and all persons having claims against the said deceased, to exhibit them, with the necessary vouchers, within four months after the first publication of this notice to the said administrator at the office of Wm. R. Misbaugh, 46 N. Church St., Tucson, Arizona, the same being the place for the transaction of the business of said estate in said County of Pima, State of Arizona.

TUCSON REALTY & TRUST CO.,
By A. B. Hazeltine, Secretary.
Administrator of the estate of Ray J. Lill, deceased.

Dated this 26th day of Nov., 1928.
J. J. O'Dowd,
Wm. R. Misbaugh,
Attorneys.
First publication 11-27-28.
Last publication 12-18-28.

HOLSTEINS
-more Calves!

The ability to produce large healthy calves each year is an established Holstein characteristic. Holstein calves are easily raised and surpluses may be profitably vealed at early ages.

Write for literature
Extension Service.

The HOLSTEIN-FRIESIAN
ASSOCIATION OF AMERICA
230 East Ohio Street Chicago, Illinois

Cost of Producing Poultry Products in Graham County

(Continued from page 25)
—charge for interest) Capital investment.

It will be noted in this connection that under local conditions an investment of \$4.83 per hen is required. This figure includes investment in stock, land for houses and runs, fences, houses, equipment, etc. This is a matter that should be taken into consideration by those individuals who are planning to enter the poultry business. Most people have a mis-conception as to the capital requirements in the poultry business, and as a result find themselves with inadequate capital to operate the business on a profitable basis.

Very often the question comes up as to the possibilities for expansion of the poultry industry in this locality. Our available statistics are at present inadequate to provide a basis for arriving at a satisfactory answer to this question.

In Graham County there are approximately 75,000 hens. Our best calculations indicate that this number of hens produce in excess of local consumption approximately

2500 cases of 30 dozen eggs each, per year. This surplus production must find a market in the nearby mining towns in competition with eggs produced in the other sections of Southern Arizona, and eggs, primarily from cold storage, from other states. It is estimated that at least 50 per cent of the annual consumption of eggs in Arizona is imported from outside the state. It is apparent then that the local poultry industry has room for considerable expansion, provided local poultrymen can produce eggs on a cost basis comparable with that of other producing centers when allowance is made for the advantage in transportation rates to the available markets. However, it is also apparent that any considerable expansion in the local poultry industry must be accompanied by some provision for local cold storage facilities to absorb the surplus production of eggs during the spring and summer months and distribute these storage holdings onto the markets during the fall and winter months when local production is at a minimum.

TABLE NO. L—Cost of Producing Eggs, Graham County, Arizona, 1925.
(Average per pen)

Cost Items	County	Cost	Percentage of Gross Cost
FEED:			
Scratch & Mash	93.18 lbs.	\$2.826	
Green Feed		.053	
Buttermilk	1.63	.088	
Oyster shell	2.21	.044	
	97.02	\$3.011	60.0
WATER		.019	
STRAW	9.1 lbs.	.038	
LABOR:			
Man	3.62 hrs.	1.086	
Horse or Truck	.37 hrs.	.028	
		\$1.171	23.3
HOUSING	\$1.67	.080	1.6
TAXES	2.15	.089	1.8
INTEREST ON INVESTMENT	4.83	.292	5.8
EGG CASES		.055	1.1
STOCK PURCHASED		.142	2.8
MISCELLANEOUS		.120	2.4
INVENTORY DECREASE		.061	1.2
TOTAL GROSS COST		\$5.021	100.0
CREDITS:			
Inventory Increase		\$0.408	
Culls, fryers & chicks		.500	
Sacks		.048	
Miscellaneous		.014	
TOTAL CREDITS		\$0.970	19.3
NET COST PER HEN		4.051	80.7
PRODUCTION & RETURN			
PER HEN	157 eggs	5.141	
MARGIN OF PROFIT			
PER HEN		\$1.090	
RETURN PER DOZ. EGGS		.393	
NET COST PER DOZ. EGGS		.312	
MARGIN OF PROFIT PER DOZ. EGGS			
		.081	
RETURN PER HOUR			
OF MAN LABOR		.60	
INTEREST RETURN ON INVESTMENT			
		.28	
PRODUCTION EQUIVALENT TO COST			
	123.6 eggs		

PEKIN DUCKLINGS

2000 PER WEEK
\$22.50 per 100
\$200.00 per 1000

Redwing Hatchery

2044 E. Florence Ave.

Los Angeles, Calif.

CLASSIFIED POULTRY SECTION

CHICKS AND DUCKLINGS

Now available, White Leghorn chicks, 12c each; White Pekin Ducklings, 15c each; Mammoth Bronze Turkeys, 50c each... California Chick Company, Box 387, Arcade Station, Los Angeles, Calif.

MAKING MORE MONEY out of your chick investment depends upon getting large pure bred, healthy chicks. The kind that "shell out" chalk-white, standard eggs. Send today for free copy of our 40-page book which shows that "MUST HATCH" leghorn chicks deliver the goods.

MUST HATCH INCUBATOR CO., Inc.
(World's Largest Hatchery)
200 7th St. Petaluma, Calif.

MISTER CHICKEN MAN

I'll take 500 or 1000 Federer Brahma chicks, brood them, figure feed cost, mortality, everything (debiting expenses and crediting returns eggs and yellow meat) over 3 months, 6 months, year or more, wager \$500.00 I'll come out financially ahead any breed. Hundreds satisfied customers, repeats thousands chicks—proves our claim. Brahma Friers produce 3 to 4 lbs. yellow meat 3 months—profit 30 to 60c—hens \$2.00 up—egg records 300 eggs yearly. Special low prices. Details mail.

FEDERER BRAHMA FARMS
Owensmouth, Calif.

WHITE LEGHORN CHICKS FROM OREGON STOCK. You can now get these chicks hatched at our Van Nuys hatchery, safe delivery guaranteed. High production strains, HANSON, TANCRED, AND HOLLYWOOD, vigorous chicks from B. W. D. tested stock. Also Reds and Rocks. Send for latest catalogue.

RUSSELL POULTRY YARDS OF CALIFORNIA, INC.
14535 Victory Blvd., Van Nuys, Calif.

Farm Bureau Accredited Baby Chicks.

White Leghorns, R. I. Reds. Our Reds are from stock blood-tested twice, or more, for B. W. D. Safe arrival guaranteed. Transportation charges paid. Write for catalog and prices. Escondido Hatchery, Escondido, California.

TURKEYS

"GOLD MINT" Strain Mammoth Bronze Turkeys. Showed 12 birds at Ventura, California, fair, won 13 ribbons; two Sweepstakes for Best Tom and Hen in show; also won at Pomona, California, 3rd Adult Tom and 4th Yearling. Largest class ever shown on the Pacific coast. Thousand Breeders For Sale. PAUL G. OWEN, Box R, Zelzah, California.

SHELTON'S GIANT Bronze Turkeys won 84 ribbons from 83 entries during 1927. Including 9 at International Turkey Exposition, Chicago, Sept. 1928 won 42 ribbons. Best displays of California's largest shows the past five years. O. J. Shelton, 1001E. Franklin, Box 95, Pomona, Calif.

Acre Tracts

Ideally located for poultry raising. On fine road near Tucson, electricity, water, fruit trees. Small payments. Address Box K.

ARIZONA CATTLEMAN AND FARMER

Tucson, Arizona

DUCKS FOR PROFIT

(Continued from page 27)

Feed four times daily after the seventh day until the ducklings are two or three weeks old, when they need be fed only three times daily. After the ducklings are a week old the grit or sand may be fed in the mash or hopper. It is very important to feed grit in all duck rations. Beef craps is not usually fed until ducks are about a week old when above five per cent is added to the ration which amount is gradually increased to 15 per cent by the end of the third week. Gradually increase the proportion of corn meal or hegarl and alfalfa leaf and blossom meal—and decrease the proportion of bran until the ration becomes the fattening ration for the ducklings that are to be marketed. Those kept for breeding purposes should not be fed the fattening ration. Water should be available at every feeding period. This is very important.

If milk is available at profitable feeding prices the ration recommended for crate fattened chickens would give good results in fattening ducklings, producing a well bleached milk-fed green duck. Celery is also used in fattening ducklings as it adds flavor to the flesh.

Ace of Cads

The fellow who broke his engagement to one of the Siamese twins. He said he wanted a detached wife.

**INCUBATORS
BROODERS**

FOR YEARS OF SATISFACTORY SERVICE

Service delivered after purchase is the only true measure of value. Investigate—mail coupon today.

The
GRAVES
J.D. GRAVES & COMPANY
COLTON CALIF.

Send me, free, your booklet which explains how to improve chick 'quality'.

Name.....

Address.....

Chinchillas

White New Zealands

At the recent Compton Show, the largest in America, we were awarded the best Chinchilla in show, best display of Chinchillas and best display on White New Zealands; also Hubbell Silver Trophy for the best Chinchilla in show and News-Tribune Trophy for scoring the highest number of points in show, all breeds competing. Six judges awarded us forty-four ribbons.

Arden Dairy Fur Farm

Teklar Floreen, Mgr. Rabbit Dept.

EL MONTE

CALIFORNIA

TURKEYS

Because of the EXTRA PROFITS they are bringing our customers, the demands for our poulets are always greater than the supply. Write for folder and prices.

Artesia Hatchery

ARTESIA, CALIFORNIA

DEPENDABLE BABY CHICKS

Order NOW for 1929 Delivery Rhode Island Reds; Barred Rocks; White Rocks; White Wyandottes; White Leghorns; Anconas; Black Minorcas; Brown Leghorns; Buff Leghorns. White Pekin Ducklings. Write for Folder and Prices.

Artesia Hatchery

ARTESIA, CALIFORNIA

The Poultry Industry of Arizona

P. G. SPILSBURY

President Arizona Industrial Congress.

Few agricultural industries offer better possibilities in Arizona than poultry-raising.

From a production standpoint, natural conditions for the industry are as advantageous as anywhere in the country. Mild weather makes for economy in "overhead" for equipment and care; an all-year growing season is a factor to be reckoned with in producing feed. Large and growing markets in the state offer excellent opportunities for distribution, while outside markets can be easily developed for future expansion.

These are the points that can be considered assets. On the other hand there are certain other essentials which must not be overlooked. Poultry-raising, perhaps more than any other farm industry, is close akin to manufacturing. Its success must be based on quality production and efficient marketing. The future of the poultry industry in Arizona depends entirely on the ability of poultrymen to establish profitable markets, and this can be done only by themselves.

It has been demonstrated many times, and for many years, that Arizona is extremely favorable for the production of eggs and poultry. Yet the poultry industry has not developed either as rapidly or as prosperously as many other farm industries. The fault, however, is not in Arizona, but rather within the industry itself.

The poultryman in this day and age must consider himself a manufacturer. He is operating a plant producing eggs or meat, or both. His consideration must be to produce the most eggs or the most birds for a given investment in his plant and in his feed. If added expense will give him a greater proportionate production, well and good; he can not afford to prize economy for itself alone. His aim is to produce eggs or birds for the least possible cost per dozen or per pound consistent with merchantable quality.

That, however, is only half the story. Production is often the easiest part of the problem, as many manufacturers have discovered to their sorrow. The next step is selling, and that is quite another matter.

The difficulty is simply this: The poultryman is competing with his neighbors, with other poultrymen in other districts—with poultrymen in other states. The law of supply and demand is no longer a local matter, a but regional or national one. A shortage of eggs in one state may send up prices; a surplus in another may depress them. No producer can build up a successful business without developing his own markets and establishing himself so well that he can meet competition.

Now competition is getting away from the idea of price-cutting. Competition always affects prices, because it usually brings about over-production, but it can not be met by cutting prices. The American public has become educated to the idea of quality. It tries to buy economically, true enough, but it has learned that real economy consists of getting good merchandise at a reasonable price, rather than poor merchandise at a low price. Moreover, the good merchandise must look good; it must be presented in an attractive manner and demonstrate its quality. Quality always commands a premium over lack of quality.

The most encouraging thing about

the poultry industry in Arizona today is that, poultrymen are giving more attention to quality, and to establishing a reputation for quality. The latter point can not be stressed too much. The quality must be known and be recognized by the public; therefore it must be uniform. Arizona poultrymen have never had any difficulty in producing quality, but in the past they have been handicapped by lack of uniformity in it.

This has been brought out in every study the Industrial Congress has made in the poultry industry. It isn't the fault of any particular individual, nor the dealers, nor of the public, but rather the result of a combination of factors that can be remedied only by the industry as a whole.

It is a well known fact that eggs shipped into Arizona have commanded better prices than Arizona eggs for some years. This is not entirely the case today, but it is still true to a great extent. The reason is perfectly obvious. The public prefers eggs that have established a reputation for quality.

When outside eggs, or a certain brand of Arizona eggs, command a better price than the ordinary local egg you will find that they have sold themselves on quality. They come in a uniform package under an established trade name; they are graded very uniformly as to size and color; they are uniformly fresh and infertile; they are of the same grade month in and month out, regardless of price. They are not necessarily any better than eggs sitting nearby in a sack, unidentified and less closely graded, but the public is willing to pay a little more and takes less chances.

The answer, of course, is co-operative marketing. The individual producer finds it a hard job, and an expensive one, to establish his own private brand and go through all the processes of strict grading and neat packing for his small production. Most of them feel they can not try. The result often is that the poultryman delivers his eggs to any one of a number of wholesalers or retailers who are handling eggs in connection with other produce. The wholesaler or retailer may take the trouble to grade them or he may put them on sale just as eggs; in either case the producer receives less, for prices, after all, are determined by what the ultimate consumer will pay.

The co-operative, however, works differently. Since it receives eggs from many poultrymen, it can grade them, guarantee them, put them into neat packages and soon have people asking for that certain brand, because it's uniformly good. Since the association has a considerable volume, it can do all this at smaller unit expense than any individual, and can attain far greater uniformity than the individual poultrymen could, even if they each attempted to follow a uniform grade. Wholesalers and retailers are glad to buy from the association, for it saves them a great deal of trouble and expense, but in any event public demand itself is the real assurance of markets.

Centralized grading and centralized distribution are not all the advantages of co-operative marketing. A central association can store eggs in times of over-production where an individual can not; an association can develop outside markets, through selling organization and ability to ship in large quantity, where no single poultryman ever could. An association can help to regulate production and stabilize prices.

It is not always clear sailing for co-operatives. An association is only as strong as its membership; any business has to have time to become stabilized. No organization can revolutionize an industry in a short space of time, and its members must be prepared for results to come gradually, not expecting everything at once but rather looking to the future. Its success is always in their hands. If they do not give it volume, it can not succeed; if they do not stick to it for a reasonable length of time, it must fail.

Agriculture now is learning the lesson which manufacturing learned
(Continued on Page 30.)

Useful Oronite FARM PRODUCTS

Oronite Live Stock Oil

Non-irritating MINERAL oil evacuant for live stock showing poor appetite, drought-stricken or impoverished cattle, or after long periods of dry feed.

Oronite Poultry House Spray

For killing insects in chicken coops, hog pens, barns, sheep corrals, etc.

Oronite Shingle Oil

Adds years to the life of shingles—can also be used in stain formulas.

Oronite Roof Paint

Economical protection for prepared or metal roofs.

Oronite Paint Thinner

"A-1 Grade"—Big saving—uniform, quick drying.

Oronite Waterproofing Compound

Canvas or leather—the water can't leak through! For tents, tarpaulins, boots, etc.

Oronite Spring Oil

Speedily removes spring squeaks and prevents rust. Long 14-spout.

STANDARD OIL COMPANY OF CALIFORNIA

Wrenn's Hens Winners

Our pen of White Leghorns won first again in the 1927-28 egg laying contest at the University of Arizona with 2467 eggs to their credit for 259 days. We also won high hen with 299 eggs. This hen was kept to finish 365 days and made the 300 mark.

Last year we had high pen, 2734 eggs; high hen, 319 eggs; second hen, 293 eggs, and was high for four winter months.

A Few 1927 Hatched Males For Sale

Write for prices on hatching eggs.

Our matings will be better than ever.

A. C. WRENN
Florence, Arizona

POULTRY - PIGEONS - RABBITS

VISTA INCOME ESTATES

Arizona's Finest Suburban Community

THE HOME YOU HAVE ALWAYS
WANTED

ONE HALF ACRE AND UP
DEPENDING ON SIZE OF FAMILY

Your feed stuff, equipment and supplies bought and delivered to your door at cost. Your poultry products picked up at your door and marketed for you, and a poultry, pigeon and rabbit expert on the ground every day for three years to teach you the business in order that you may be assured a success in this industry.

Just 7½ miles from the postoffice in Phoenix in the best highly restricted community. Electricity, domestic water under pressure in steel pipe. Streets and irrigation water laterals in and paid for. No assessments and an A-1 water right.

Finest public school adjoins this property. Free bus system for children to and from school. Paved boulevards, fine shade trees, permanent race restrictions and high class building restrictions throughout this property, and all good citrus land.

These estates may be purchased for as little as \$310.00. A small payment down and balance monthly. Or we will finance your complete home, land and equipment on small payment down and balance like rent.

A beautiful suburban home, a good living and a weekly bankable income from the same piece of land.

This project is a LANE-SMITH development and therefore must be good. Phone 7122 or write to

VISTA INCOME ESTATES

309 North Central Avenue
PHOENIX, ARIZONA

Home-Grown Grains For Poultry

E. S. TURVILLE

The tendency for poultrymen to become specialists, rather than merely diversified farmers, has had a marked effect on the use of local grown feed. The farmer, quite naturally, wishes to use his own field products in his poultry yards, but the man who buys all his feed is not especially interested in the source of it, whether it be Arizona grown or Kansas. What he wants is an efficient poultry feed and value for his money.

In its heavy producing grain sections, Arizona produces efficiently wheat, barley, and the sorghum grains—milo and hegari. White corn is grown to some extent, but yellow corn—the poultryman's delight, does not yield satisfactorily, except in the higher altitudes. If, therefore, the home-grown grains are to be used extensively in supplying the rapidly growing demand for poultry feed, it will be necessary for the producer to convince the feeder that he has what the latter wants and will provide it at a satisfactory price.

The situation will best be explained by considering the various grains separately.

Wheat

The poultrymen like wheat, but the competition for human consumption raises the price to a point where its usage is usually somewhat restricted.

Barley

Arizona produces a lot of barley, Maricopa county alone producing at present an average of around 7000 tons per year. But the poultryman raises some objection to this grain. He says the birds don't like it. There would seem to be a basis for this criticism. However, this objection does not hold when rolled barley is used, and neither is it true when the barley is soaked—fermented in water or milk, preferably the latter. Barley is, of course, not a complete feed, and must be supplemented much as is suggested for the sorghums below.

Sorghum Grains

While there is some difference in the feeding value as among Milo and hegari, the various sorghum grains these differences are relatively slight and the grains may well be considered as of one class.

As in the case of barley the objection is raised that the birds do not like the sorghums. On the other hand, numerous cases may be found where the grain is apparently being eaten with a relish. The question arises: What dictates a bird's taste? There are, of course, a number of answers to this question; but two of these are of outstanding importance. In the first place, birds must become accustomed to new feeds. In the second place, the taste is largely dictated by the bird's physical needs. If its body is decidedly lacking in vitamins, a hen will instinctively select yellow corn rather than milo. The yellow corn is rich in vitamins; milo is not. The same statement may be made regarding deficiencies in protein or minerals. In this connection, we would quote a statement by Dr. Margaret Cammack Smith, Home Economics Research Specialist, University of Arizona. Dr. Smith says, "Though feeding experiments with grown sorghum grains, hegari and red milo are inferior to yellow corn in Vitamine A content, evidence is being accumulated which indicates that these sorghum grains can be successfully fed at high levels (75 to

90% of the ration) if supplemented with protein, minerals and Vitamine A containing feeds, such as alfalfa, tankage, etc."

Consider the matter, then, from this angle: Is the hens' dislike of the sorghums the fault of these grains, or does this lie in our method of feeding them? Beyond a doubt, much of the present prejudice against the sorghums is the result of faulty feeding methods. These grains are low in Vitamine A, protein and minerals; but the liberal use of alfalfa (carrying the Vitamine A) and some more or less concentrated protein feed, together with proper access to the minerals, would increase the popularity of these home grown feeds considerably. The poultry-dairyman can materially increase his use of such grains by fermenting them in milk. This process adds to the palatability and digestibility of the food and sup-

THE POULTRY INDUSTRY OF ARIZONA

(Continued from Page 29.)

many years ago. Small manufacturing plants were forced to combine in self-defense, in order to be able to sell their products at a profitable price and without wasteful expense. Producers today are learning to combine for the same reason.

Arizona even now is producing less than half of the eggs it is consuming. In climate, in soil, in water, it offers exceptional possibilities for the development of a large and prosperous poultry industry. Other industries of the state are ready to give it every possible support, but its progress must come from within, not from without. An excellent start has been made in the starting of co-operative marketing, and conditions were never more favorable to establish the whole industry on a solid and permanent basis. But that can be done only by co-operation—united action by poultrymen themselves.

THE POULTRY INDUSTRY

(Continued from Page 3.)

seasons of the year. If ways and means could be devised whereby there could be a greater utilization of poultry meat it would be a great benefit to the poultry industry.

One of the weakest spots in the present day practices in poultry is the fact that the stock used as a basis for egg production is not as productive as it should be for maximum profit. This fact stood out vividly in the above mentioned survey. Approximately one-third of the farms surveyed had an average production of 190 eggs. These farms were making money with poultry. Another third was getting just enough production to keep them in the business but not enough to make them very much of a profit. The remaining one-third of the farms was operating at a loss because of poor foundation stock.

In many cases too much capital was tied up in the business in accordance with the size of the business. Poultry farms were being operated on land too high in value for the purpose of poultry when cheaper land would do just as well. In some instances the cost of the buildings and equipment was higher than it need be for practical results.

There is a limit to the profit one bird can make in a year even under the most favorable circumstances. It is generally agreed that this limit is one dollar a bird after all expenses

plies the necessary protein. An abundant supply of leafy alfalfa (green or cured), with some mineral mixture, will produce results of a very satisfactory nature, considering that all the feed is home-grown.

As suggested in the opening paragraph, the specialized poultryman is in the market to buy feed—the most value for the least money. If growers of the home grown feeds want his trade they must find a way of proving to him that they have a product worth the money.

are paid. It, therefore, stands to reason that a flock handled as a unit must be at least made up of 2000 birds in order that a comfortable living can be made from it.

Incidentally the average investment a bird in a poultry enterprise will have to be in the neighborhood of four dollars to be properly equipped. This includes the cost of the land, the pumping systems, delivery costs, houses, brooding equipment, and other necessary items of expense. If for every four dollar investment, one can realize a one-dollar profit, it is all that can be hoped for, and much more than is realized from most lines of business.

The Future

A poultry farm as a unit is a comparatively small unit when compared to the value of the industry as a whole. There is no question but that the selling and buying of these small units could be more economically done if combined into larger units through co-operation. The grouping together of eggs for sale collectively provides a means by which more uniform grades can be established and supplied in the quantities demanded by the trade. The public have been educated to buy by brand. Collective marketing would allow for the establishing of brands whereas this could not be done with the comparatively small output from each individual farm.

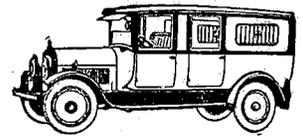
The hatching and selling of chicks is becoming an important part of the poultry business. This part of the industry has been handicapped in Arizona because of the fact that it had to meet a competition which has practiced selling chicks on a graded basis known as accreditation. Now that the hatcherymen of Arizona have established a similar system they

should be able to meet this competition on a more equal footing.

No industry or business can have much of an influence as a whole while operating as many disassociated and organized units. It is only by the organizing of these individual units into local groups and then federating these groups into a central state organization that the industry as a whole can exert its full influence. It was with this in mind that the Arizona State Poultry Federation was organized and it would be to the great benefit of all poultrymen in Arizona if they would band together in this organization, and take an active interest in all matters pertaining to it.

An economical way to utilize velvet-bean pasture in the south is to allow hogs to follow the cattle. Hogs will eat practically all the beans braken from the plans and wasted by the cattle. A good stand of velvet beans should produce about 200 pounds of beef and 100 pounds of pork per acre.

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Views of Board Member

J. N. MALIN, Tucson

The Arizona State Poultry Federation, in relation to the Poultry Industry:

We do not mean by the Poultry Industry, the specialized Egg ranches alone, but the far greater, and the more important part of the industry, the family poultry lot; the commercial egg ranchers are only a phase of

the industry, and who knows but a passing phase, to be succeeded by the poultry farm in its truse sense of hatching, breeding and sale of fryers or meat fowls of the various kinds profitable to produce.

The greatest advance in the industry, will come from the countless hundreds of potential family poultry lots, throughout the state.

To this end, the Arizona State

Poultry Federation is dedicated. Its influence on the industry of the state will be measured by the loyalty of poultry men to the Federation, together with an aggressive program for its upbuilding, with an educational program, with poultry Shows, Exhibits, boys and girls clubs, putting out to these clubs, stock of the highest quality.

Every working family with a large back lot should have some poultry; for the convenience and satisfaction of having good eggs and meat; many have found it profitable, and a great help in times of slack employment.

In many parts of the state, but little or no housing is necessary. With a spark of energy, and a pinch of mother gumption, any one can make a little profit on a small flock of hens. There are no secret formulas to learn, just plain simple care.

Arizona poultrymen will lay the surest foundation for success in building up their flocks by selection, and hatching their own chix; the Federation has rendered a valuable serv-

ice by starting the system of producing accredited chix. From these chix the family poultry lot may be stocked.

Let the state federation stage a poultry exhibit once each year in every community in addition to the Annual Show. These small exhibits will help every community and be of untold value in building up the small flocks. Teach them to use the help they have at hand, namely, our State specialists, and County Agents, in selecting breeding stock and feeding formulas. They will be glad to help.

The way is so simple even a child can find both profit and pleasure in keeping a small flock of hens.

LOCAL COLOR

A well-read man was Farmer Gray,
With knowledge by the peck,
And yet he cries most every day,
"I swan, gosh-ding, by heck."
"Why do you use those silly words?"
I asked him with respect.
Said he: "We've summer boarders
now,
"And they want dialect!"—Judge.

Local Concern Provides Poultry Grit Lime

The specie of Jungle Fowl known as Gallus Bankiva is believed to be the ancestor of the present-day chicken. The Jungle Fowl in its natural state probably laid a clutch of a dozen eggs yearly and was able to supply its nutritional requirements by eating wild grains and grasses. Pebbles and bit of gravel furnished the limited amount of minerals needed in the formation of such a small number of eggs and for the development of the young.

An entirely different situation exists today. The hen has been bred up and fed up to a point where she has been known to lay 351 eggs in 365 days. Hens laying 300 eggs a year are not uncommon, and some poultrymen have secured a flock average of over 200 eggs per hen in large-sized flocks. The average farm hen of the United States lays about 60 eggs yearly. Under present-day conditions, the ration of the hen must be adjusted to meet the requirements of heavier egg production.

That whole grains and the products found in ground mashes are lacking in minerals, particularly Calcium Carbonate and Phosphorous, has been verified many times by analyses and feeding experiments. At one of the experiment stations the supply of oyster shell and ground limestone was purposely withheld from a pen of laying hens. The hens reached a condition where the craving for lime was so great that they ate the whitewash from the walls of their quarters.

Other experimenters have found that hens receiving no Calcium except that occurring in a grain mash food continued laying until there was a depletion in Calcium, Magnesium and Phosphorous in the bones and the carcass. In still another test it was found that the average egg production was 69.4% greater in hens receiving oyster shell and ground limestone than in those not receiving added Calcium. The addition of Calcium Carbonate to a corn-butter-milk diet increased the weight of the egg shells nearly 40% in one month, whereas withholding it from hens that had been getting it caused a decrease in the same time of 20%. As may be realized, the egg shell becomes thinner when insufficient Calcium is in the diet.

It has also been found in hatching eggs from hens that did not receive enough Calcium, that the embryos

lacked vigor and many of them died during the incubation period.

Under the stress of heavy egg production the oyster shell which a hen eats does not supply all of the Calcium needed. Because of this, high-grade limestone is added to the mash. This practice is advocated by practically all, if not all, of the Agricultural Experiment Stations in this and other countries.

The Chick in its different stages of development needs Calcium for the formation of bones, but the grains and their byproducts again fail to meet the requirements. Because of this, the Agricultural Experiment Stations advocate supplementing the ration of the Chick with some source of Calcium. Ground Limestone is an excellent source, but it is not considered advisable to use limestone containing less than 95% Calcium Carbonate. CACTUS BRAND CONTAINS ABOUT 99% 1/2 CALCIUM CARBONATE.

The above statements are a mere summary of actual experimental data resting on scientific facts. Many more could be cited, but enough has been mentioned to show the importance of ground limestone or Calcium Carbonate in the ration. The above statements can easily be verified by writing the State Agricultural College and getting their opinion on this subject.

One of Arizona's most successful poultrymen says: "They must all come to it. The including of Calcium Carbonate in my chickens' ration has increased the value of my eggs one cent a dozen, and has eliminated nearly all the shell breakage." That alone is a big item.

When feeding CACTUS BRAND CALCIUM CARBONATE, you are not feeding trash. Our pure Calcium Carbonate Grit for Chicks and Hens not only supplies grit but a goodly percentage of the lime needed, and the available percentage of lime is much higher than in ordinary oyster shell.

The poultry keepers of this State are to be congratulated that they are able to get the very highest grade Calcium Carbonate obtainable anywhere, in an Arizona product. CACTUS BRAND CALCIUM CARBONATE FOR POULTRY is mined right here in Arizona, and prepared and packed by an Arizona concern, the CACTI-ZONA NATURAL PRODUCTS CO., OF PHOENIX, ARIZONA.

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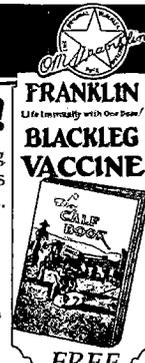
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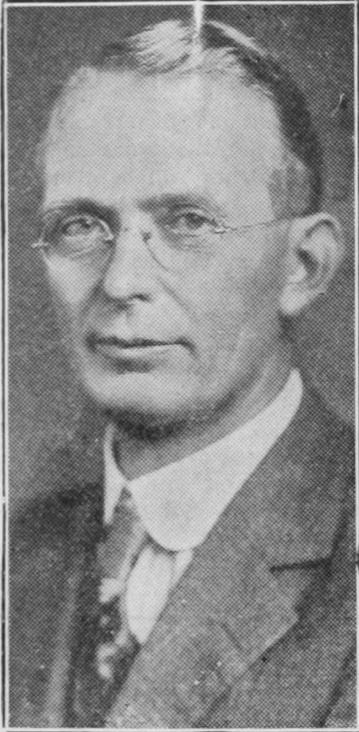



FREE

The Place of the Poultry Industry In An Agricultural Program

By E. D. BALL, Dean and Director,
University of Arizona.

The poultry industry is so universally distributed and its contribution made up from such an immense number of small units that its grand total



Dr. E. D. Ball

of production is always surprising and almost staggers belief. We speak of the corn belt and the cotton belt. There is no poultry belt, rather there is a poultry blanket over the entire nation. True there are certain areas

POULTRY, RABBITS AND PIGEONS AT THE 1928 ARIZONA STATE FAIR

(Continued from Page 4.)

est array of turkeys ever seen here, and Judge E. I. Hammond of Riverside, California, stated that it was the largest and best display of Bronze turkeys he had seen in the entire west this year. There were some eight odd specimens on exhibition, and not a poor one in the lot. Turkeys that were not in the ribbons this year, could easily have won the blue ribbon in any of our previous exhibitions. And as Judge Hammond stated one would go a long way before seeing as good a quality of stock in so large numbers shown again.

The Rabbit department also showed a decided improvement in both numbers and quality alike. We added another building for the exhibition of rabbits alone, and while this building comprised 1800 square feet of floor space, I am very glad to say it was filled to capacity. The New Zealand Red Rabbits, was the largest class in this department, and there was a real battle royal in this class, with no one exhibitor getting all the prizes by any means. The quality of this stock was such that it was a mighty hard class for Judge Hammond to handle. The animals were so much alike, that it was really a difficult task to pick the winners. The other classes of rabbits were good, although not as large as was the case with the New Zealand Reds. Judge Hammond said of the rabbits one hundred percent improvement over 1927.

Taken from every standpoint the Poultry Display at the 1928 State Fair Show was the most satisfactory the writer has ever managed. And I have had charge of some thirty shows in my life. The quality of stock was better, the birds were healthier, the judging was very sat-

isfactory. The exhibitors were well pleased, the amount of sales was greater than at any previous time in my show connection in Arizona. The spectators found the buildings, more sanitary and the birds and rabbits cooped in better shape than was possible heretofore. Owing to the increased amount of floor space and considerable additional cooping, which was purchased just prior to the opening of the show. It is safe to say that 95% of all those that attended the State Fair this year, visited this department, and all went away well satisfied with the Poultry Exhibit, many stating that it was the best they had ever seen anywhere. Numerous out of state people, from neighboring states and also some of the far eastern states, said they could not understand how we could have such an excellent show here, when their home states did not have either the quality or the quantity, to say nothing of the number of varieties that we had in Arizona.

where low food costs and especially favorable climates have combined in the development of major production, but even this production does not take care of the situation except for the equally great centers of consumption. The supply for the more sparsely settled areas, on account of the perishable nature of the product, must always be largely local in character.

The ultimate development of Arizona agriculture will be founded on the economical use of its water supply as the water supply will always be the limiting factor. While it is no doubt true that new reclamation units will be developed largely under the present type of mixed farming, at the same time older projects will be gradually shifting to crops and enterprises that give greater return for the water used and if this factor is kept in mind in the development of new projects, there will be less of loss in reconstruction in the future.

The poultry industry up at least to the point of supplying the local market offers an exceptional opportunity to obtain higher returns upon the water requirement and its development should be encouraged and its problems studied. With an industry built up on this basis and the major problems of the region worked out it may early be found that the exceptional advantages afforded by the environment will be sufficient to enable the industry to continue its expansion indefinitely.

Every year during the past ten years has seen an increase in the Poultry exhibits at the Arizona State Fair, and we look for an increase in numbers for many years yet to come. We do need however, a new building to house these exhibits as the writer is satisfied with the right kind of building and sufficient cooping that it would be possible to display at least 3500 head in this department next year. There is no better way of advertising ones stock, than by displaying them at the State Fair and Poultry Shows. And it is my honest opinion that more and more people are becoming to appreciate this fact each year. The actual enjoyment the breeder gets from winning prizes in competition with his fellow breeders, is worth the effort, even though one has nothing to sell in either breeding stock or hatching eggs. Breed and raise good stock, feed and care for them right, exhibit them at the Poultry Shows

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And Arizona is on the map without a doubt! Former desert land is now worth hundreds of dollars per acre. People have found that our health giving sunshine builds man and beast. That produces marvelous crops and in conjunction with water makes desert soil blossom like a garden. Arizona today looks as if some fairy had waved a giant wand over hills and valleys and that a great transformation had taken place. And yet it is true—just the work of man and soil blessed with a wonderful climate. We're strong for poultry—we believe that it will have a big part in the march forward—and we extend our best wishes to the Poultry Federation. When you're in town don't forget to drop in and get your provisions at the Market Inn. Just look over a few of our regular items and see the saving you can make.

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24 lb. Sack Flour.....	97c
10 Bars Laundry soap.....	38c
Butter, Creamery	54c
10-lb. Blue Karo can	61c
4 Lbs. Raisins	43c
Peaches, 2½ can	17c
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Eagle Milk	19c
Peaches, 1 gallon	50c
3-lb. Carton Soda Crackers.....	39c

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WHAT is it?

A subdivision consisting of 55 two-acre tracts to be devoted to Poultry, Rabbits, Pigeons, Fruit, Berries and Truck Farming, where a family may enjoy a delightful climate, the best of neighbors and a good independent living from two acres of choice land. An ideal location for persons having lung trouble, rheumatism or persons who need to build up their physical systems. It has the most complete water system for domestic and irrigating purposes of any sub-division in the State. Our summers are pleasant, and the nights refreshing. Each two-acre tract is supplied with water from one central well and electrical pumping plant and large steel storage tank, through iron mains laid underground to each tract. All you have to do is turn the faucet and let the water flow, no wheezing gas engines, or leaky pump valves to provoke profanity.

WHAT do you offer the purchaser?

We sell you two full acres of land, cleared of all brush and stumps, plowed and leveled ready to plant, with water piped inside your lot line, ready for use. We include with these two acres, a deed to a one fifty-fifth undivided interest in the entire water system, so that you are a part owner of the co-operative water system. Your water is secured at the actual cost of pumping, no profit to anyone. Or

We will in addition plant your two acre-tract to Kadota Figs, Japanese Persimons, a mixed orchard or to Strawberries as you may choose. If we plant your tract we fence it with steel posts, poultry netting fencing and the price is slightly more. Prices are just and reasonable, and terms liberal.

WHAT can I do on Two Acres?

We believe in the old adage, “Don't put all your eggs in one basket.” We think you will succeed best in mixed farming, having poultry, pigeons, or rabbits, and at least one acre devoted to fruit or berries, and the other acre to vegetables.

You should average at least \$1 per hen per year profit from eggs, and since your hen will have cost you about \$1, your income on investment will be 100 per cent. If you specialize in raising fryers of the heavier breeds, you should realize 50 cents per bird profit at three months old.

Strawberries and fresh vegetables should net you about \$500 per acre per year, and Figs and Japanese Persimons pay exceedingly well, after they come into bearing. Our State University has a Poultry Department second to none in the country, where you can get reliable information at any time, free for the asking. At your request they will visit your farm, and help you solve any problem that you do not understand.

Prices and terms, and additional information will be furnished on request. We do not lose interest in you after you buy.

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