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THE OSTRICH INDUSTRY  
UNITED STATES!



BY

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## THE OSTRICH INDUSTRY IN THE UNITED STATES.

By A. R. LEE,

*Junior Animal Husbandman, Animal Husbandry Division.*

### HISTORY.

Ostrich farming is in its infancy in the United States, the first ostriches having been imported in 1882. Other importations followed, but it was some time before success was obtained in the reproduction of ostriches in this country. The first ostrich breeders in the United States learned through experience alone, as there was available very little information on ostrich breeding and management and no data concerning their care and management as adapted to climatic and soil conditions in this country.

### DISTRIBUTION AND ADAPTATION.

From these importations the ostrich farms have been built up and breeders have located in various parts of the United States, so that to-day there are ostrich farms in Arizona, Arkansas, California, Florida, and Texas. Complete statistics of the number of ostriches in this country are not available, but reports received from all of the large and the majority of the smaller ostrich farms show that there were at least 6,100 breeding or feather-producing ostriches in the United States in January, 1910. These ostriches were distributed among the States approximately as follows: Arizona, 80 per cent; California, 17 per cent; Arkansas, 2 per cent; while Texas and Florida together reported less than 1 per cent of the total number in this country.

Ostriches apparently thrive best in a warm, dry climate, but they **have** not been tried extensively enough under other climatic conditions in the United States to see whether or not they may become adapted to a climate where the precipitation is greater. The precipitation during the year 1908 in the various States in which ostriches are raised was as follows: Arizona, 15.15 inches;<sup>0</sup> Arkansas, 48.88 inches; California, 18.78 inches; Florida, 47.33 inches; Texas, 32.91 inches.

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<sup>0</sup> Figures furnished by the Weather Bureau.

The small number of ostriches raised in Florida and Texas is partly because it is only recently that ostriches have been introduced there, so that it is impossible either to draw any definite conclusions as to the future of the ostrich industry in these States or to tell how important a part precipitation has in determining the favorable location of ostrich farms.

The question of the nature of the country most favorable for ostriches is largely affected by the kind of vegetation peculiarly suited to the soil, which in turn is undoubtedly affected by the amount of rainfall. Alfalfa pasture makes an ideal run for the birds, furnishing a large percentage of their food; hence a soil which is or can be made suitable for alfalfa is one of the essentials to success in ostrich farming. A dry, sandy soil, made suitable by drainage and irrigation for raising alfalfa, has proven best adapted to successful ostrich farming. Such a soil is generally peculiarly adapted for raising large crops of alfalfa, and makes an ideal soil for an alfalfa pasture. Under such conditions it is essential to have some shade.

#### BREEDS AND MANAGEMENT.

There are two breeds of ostriches in this country—the so-called South African breed, which was originally imported from the southern part of Africa, and the Nubian, imported from northern Africa. The South African ostrich is the most popular breed in the United States, most of the ostriches being of this breed.

There is considerable variation in the color of the naked skin of ostriches in this country. The South African breed, both male and female, have blue, drab, gray, or grayish-blue skin on the neck and legs, most of these ostriches having a blue skin, while the skin of the Nubian male is red or pink and of the female a light yellow.

If allowed to sit, an ostrich female will lay from 12 to 15 eggs and then rear a brood of young. Different individuals vary greatly in their annual egg yield, which would naturally be expected from birds domesticated for only such a short time, as they have not been raised in large enough numbers to allow much selection. The value of ostrich eggs for hatching as compared with their value for human consumption has a tendency to make the owner use all the eggs for incubation. If eggs are removed from the nest as fast as they are laid, the ostrich female will lay more than one clutch of eggs. Records of egg yields of 100 eggs in a year have been recorded, but data regarding the average egg yield are very scarce and unsatisfactory. The average egg yield in this country where the eggs are hatched by artificial methods is much below this figure, probably not over 55 eggs a year. An ostrich egg weighs about 3½ pounds and would contain as much food as 2½ dozen of hens' eggs of average size. As

the female begins to lay when from 3 to 4 years of age, and will lay until she is 35 or more years old, the production of egg material during her life is enormous, provided she comes from a good producing strain.

Breeding birds may be paired off separately, run in trios, or run in flocks and allowed to breed promiscuously. In this country the first and third methods are in about equal favor, while only a few breeders use the second method. In most cases all the young birds are run in troops of from 20 to 50 birds until they are 1 year old, when they are separated according to sex. The birds are mated, either in pairs or trios (a cock and two hens), when about 3½ years old.

Ostriches are pastured on alfalfa runs inclosed by fences 5½ feet high. Partition fences may be 18 inches from the ground, but the outside fence must be tight to keep out animals. One acre of alfalfa will support 4 ostriches, but the common practice is to supplement the pasture by feeding more or less grain throughout the year, thus keeping more birds to the acre, and to feed grain and alfalfa hay during the winter. Alfalfa meal, wheat bran, barley, oats, and corn are fed in varying amounts, while bone, granite, and gravel are kept before the birds most of the time. Corn is fed only during the winter, and then in very small quantities. When there is no growing green food, a mature ostrich will consume about 3 pounds of alfalfa hay and 1 pound of grain daily.

Ostriches have not been experimented with to any large extent to find out either the best rations to feed or in what condition to keep the birds in order to produce the best quality and largest quantity of feathers. Undoubtedly the condition of the bird at quilling time has a very marked influence on the growth of the succeeding crop of feathers; the better the condition of the bird at quilling time the quicker will be the growth of a new crop. As the most critical time in the life of a feather is during the first few months of its growth, some breeders partially starve their birds for a short time while the quills are ripening and then give full rations at quilling time in order to have the birds in the best of condition, or improving in condition, when the new feathers begin to grow. In some instances it appears that it takes longer for a feather to mature on a highly nourished bird than on one less highly fed, but in such a case a longer feather is secured than would be obtained from a bird not fed so freely.

#### INCUBATION.

Both natural and artificial methods of incubation are used, but incubators have been adapted for hatching ostrich eggs and are used with good results by most ostrich breeders. An incubator provided with moisture pans and a system of ventilation to care for the mois-

ture should prove very successful in the hatching of ostrich eggs. Incubators made for hatching ostrich eggs are constructed to hold from 30 to 50 eggs, which size is preferred by the ostrich breeders.

Eggs are turned from one to three times daily and are examined frequently to note the evaporation of the moisture and the development of the embryo. Water is placed in the incubator about the fourth week and left in until the chicks are about through hatching. The time to put in the water and the proper amount depend on local conditions. Each operator works out this problem for himself, carefully noting the size of the air cell in the egg. The period of incubation is forty-two days, and toward the end of this period, when the chick "peeps" in the shell, the operator cracks the shell, thus aiding the chick to escape.

Natural incubation is used and preferred by a few breeders. It would seem that if removing the eggs from an ostrich hen as fast as they are laid would increase the annual egg yield of each hen, it would be advisable to do this, and to use artificial methods of incubation entirely. On the other hand, it may be that better hatches and stronger chicks can be secured by natural methods of incubation. In some places nests out in the open proved unsatisfactory, as they were subject to floods caused by spring showers.

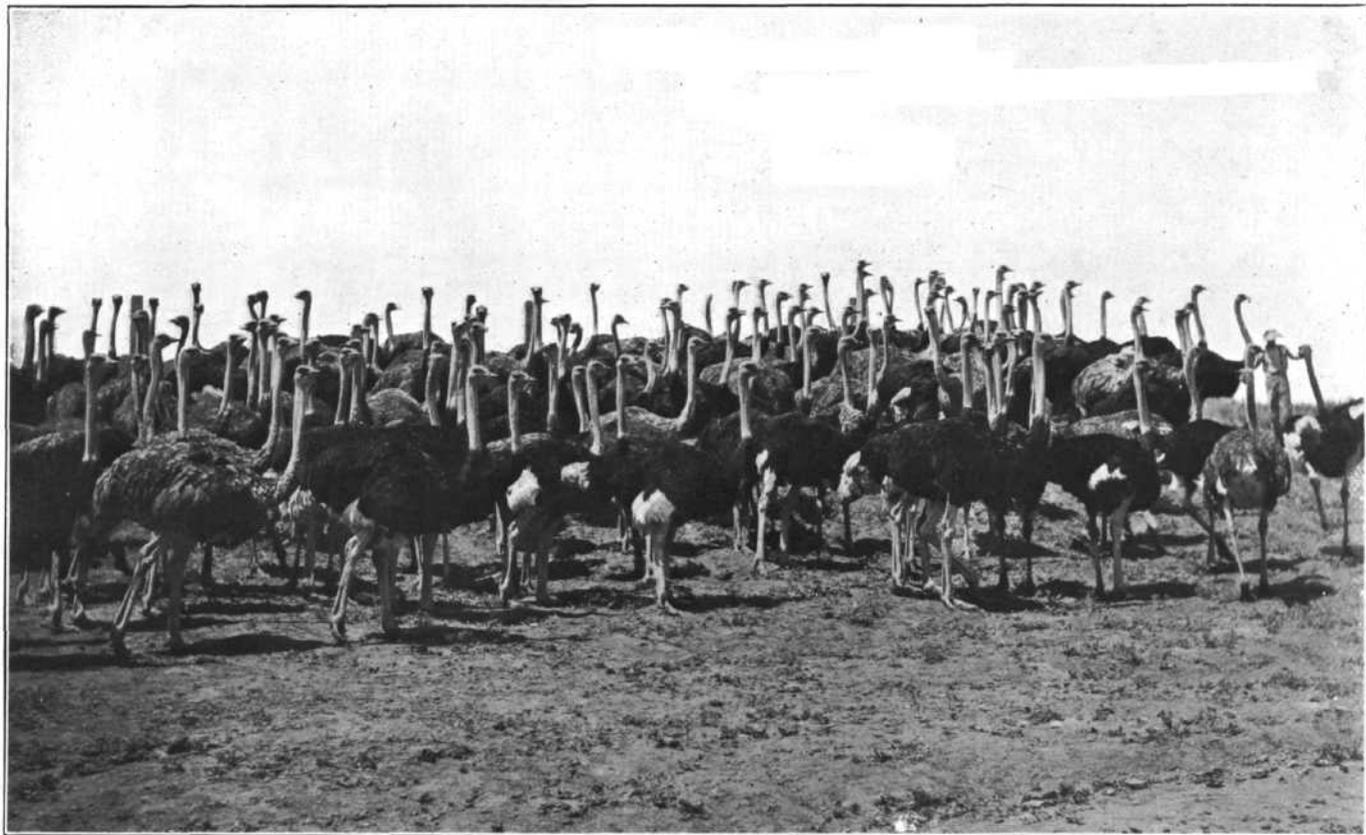
#### BROODING.

All ostrich chicks are raised artificially rather than by the ostrich hen. It is advisable to supply heat until the chick is about 1 week old, gradually reducing the amount of heat until, by the end of a week or ten days, depending on the weather, the source of heat is taken away. Chicks need close care and attention for some time. They should be fed the same kinds of grain, green feed, and grit that are supplied to the breeding stock, these feeds being adapted to the size of the birds.

Ostriches are called "chicks" until their first crop of feathers are removed, after which time they are known as "young birds" until they are 1 year old, when they are called "plucking birds" or "feather birds."

#### PARASITES AND DISEASES.

When kept under good conditions and properly fed, ostriches are very free from diseases and parasites. A few breeders report constipation among both the young birds and the breeding stock. This is probably caused by improper feeding. The following remedy has been used successfully in treating this trouble: Mix together 8 ounces of Socotran aloes, 1 ounce of calomel, 4 drams of powdered capsicum, and 1 ounce of oil of juniper, and divide the mass into eight parts. Give two doses at an interval of a few days, each dose to contain **one**



A FLOCK OF OSTRICHES IN CALIFORNIA.

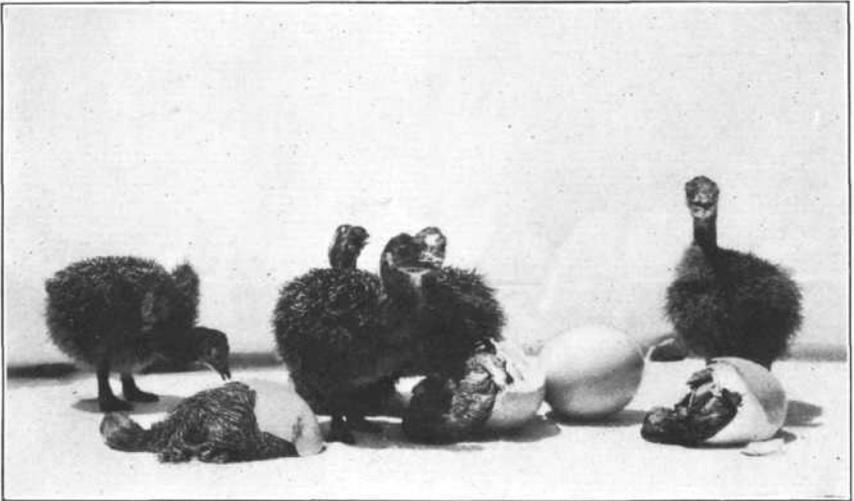


FIG. 1.—OSTRICH CHICKS HATCHING AND JUST HATCHED.

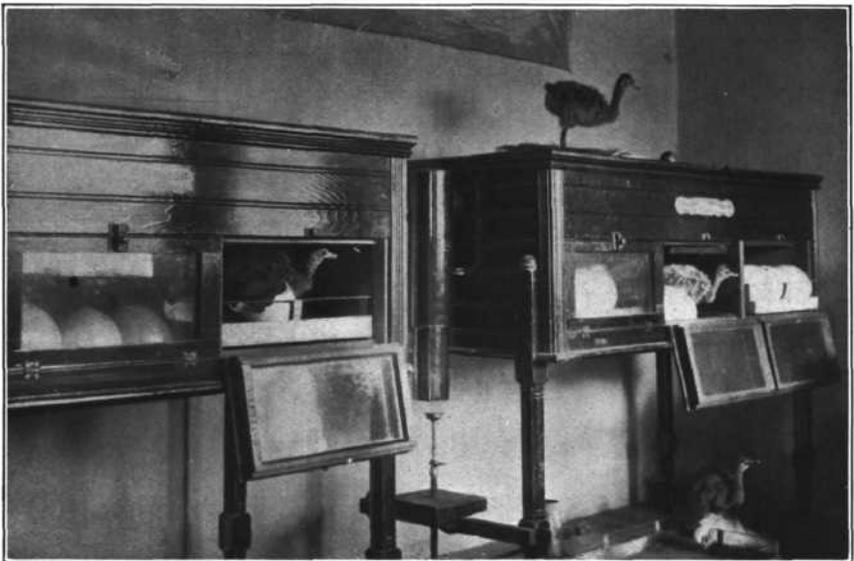


FIG. 2.—OSTRICH CHICKS HATCHING BY ARTIFICIAL INCUBATION.



FIG. 1.—PLUCKING AN OSTRICH.



FIG. 2.—YOUNG OSTRICHES.

pill or ball made of one of the parts mentioned above. This dose is recommended for an adult bird, and a smaller dose should be used for young birds, depending on their size. Epsom salts are also sometimes fed to aid the removal of any irritating matter in the bird's system. In any trouble of this kind the most essential thing is to remove the cause.

Ostriches are occasionally infested with a mite, but never in large enough numbers to injure the bird, although some breeders think that the presence of this mite may have some influence on the quality of the feathers produced. In South Africa much loss of vitality in young birds is caused by tapeworms and *Strongylus douglassi* or wireworms. These affect the young birds, and, by lowering the vitality, have a very detrimental effect on the growth of the feathers. Turpentine is used quite extensively in removing these wireworms from the intestines. Fortunately this country is very free from this scourge, as up to the present time no cases of this trouble have been noted here.

#### PLUCKING.

The young birds are plucked when they are 6 months old and then at intervals of from eight to eleven months. The majority of breeders allow a nine months' interval, which time appears to be best suited for the production of the best quality of feathers in this country. Still there is considerable variation in the length of the interval allowed between pluckings, and there is some difference of opinion, so that one can not state definitely that any fixed interval is best. The growth of the feathers, the condition of the bird, and the time of the year all affect the best time for quilling.

The wing feathers are cut and the "shorts" and "tails" are pulled either at the same time or a month or so later. In South Africa the quills of the coverts are drawn two months before the quills of the wings. The quill stumps are pulled from sixty to ninety days after clipping the wing feathers. Some farmers allow the stumps to fall out, but generally the growth of the succeeding feather is hastened by removing the quill stump by hand. The Yearbook of the Department of Agriculture for 1905 contains a detailed account of plucking and sorting ostrich feathers.

#### FUTURE OF THE OSTRICH INDUSTRY.

The demand for ostrich feathers in this country is constantly increasing, while the quantity produced here scarcely affects importations, which are steadily increasing. The Report of Commerce and Navigation for 1908, prepared by the Bureau of Statistics of the Department of Commerce and Labor, shows that \$3,568,152 worth of raw and dressed feathers were imported into the United States during

that year. Under the present tariff law there is a duty of 20 per cent ad valorem on raw and 60 per cent on dyed or prepared ostrich feathers. It has been demonstrated that various parts of the United States are adapted to ostrich raising, and now that the results of experience have shown some of the ways in which ostrich farms may be managed successfully, there is every reason to believe that there will be a steady but marked growth in the ostrich industry in the near future. The demand for literature and the number of inquiries received by the Bureau for information concerning ostriches indicate that the number of individuals who are interested in ostrich farming is rapidly increasing.

The profit to be derived from the business will depend on the management, on the success secured in the raising of the young birds, and on the production of feathers of good quality. The average yearly yield of feathers from an ostrich is 1½ pounds. Birds produce from 12 to 20 ounces of feathers at each plucking, with an average of 16 ounces. The total weight of an average yield is divided about as follows: "Wings," 48 per cent; "short stuff," 25 per cent; and "tails," 27 per cent. The amount received from the feathers of each bird varies from \$20 to \$30, depending upon the yield and the price of the product. The average return during the year 1909 was \$25.93 per bird. While both ostrich eggs and flesh may be used for human consumption, the amount to be derived from these products is hardly worth considering. As each pair of breeding birds is worth about \$800, and chicks 6 months old are valued at \$100, any deaths from accidents or any inability to raise chicks greatly lessen the profit to be derived from the business. Allowing for some loss in these ways, and charging a fair interest on the investment, the business can be operated to return a fair profit.

