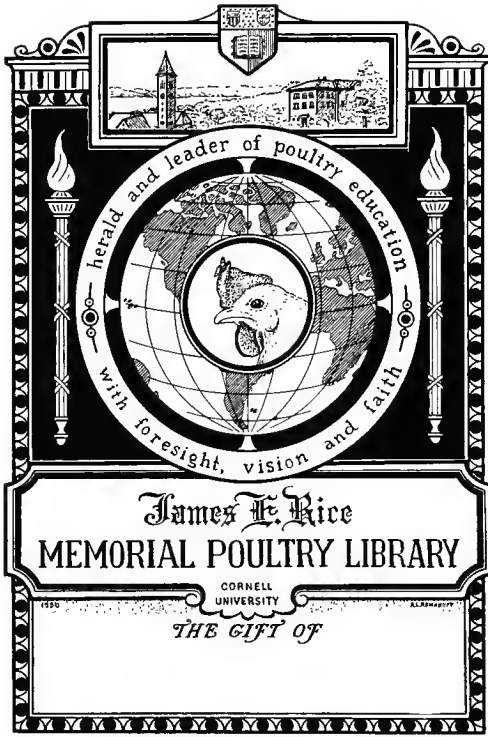

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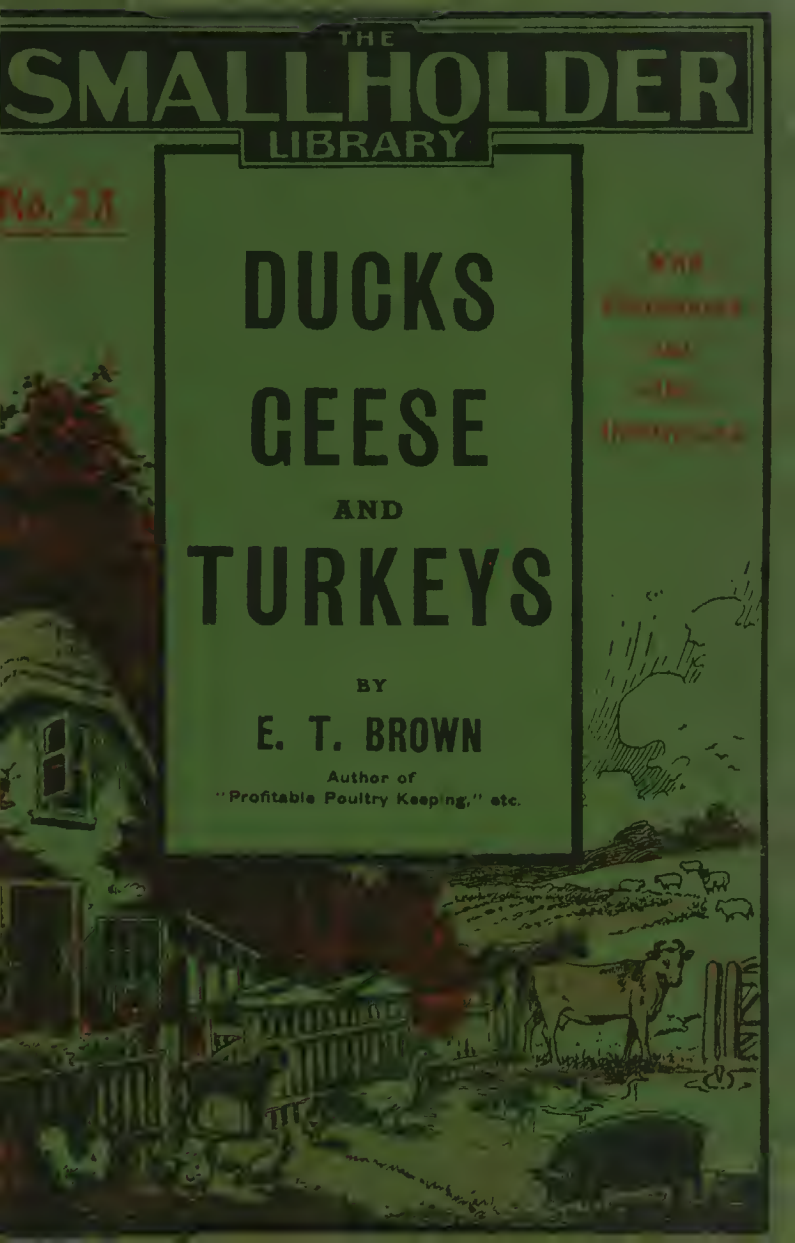
DUCKS GEESE AND TURKEYS

BY

E. T. BROWN

Author of
"Profitable Poultry Keeping," etc.



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DUCKS, GEESE AND TURKEYS

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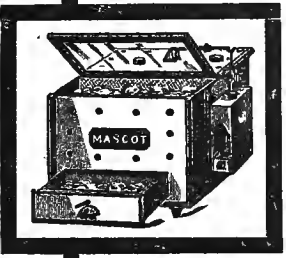

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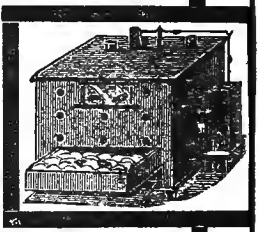

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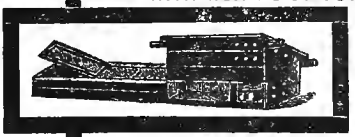

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A Flock of 5,000 Aylesbury-Pekin Ducks

DUCKS, GEESE AND TURKEYS

BY

E. T. BROWN

Author of "Profitable Poultry Keeping," "Poultry for Profit, "Farm Tractors," and "1000 Answers to 1000 Questions."

WITH SEVEN FULL-PAGE ILLUSTRATIONS AND OTHER DRAWINGS

London

C. Arthur Pearson Ltd.

1920

First Published . 1918
Second Edition . . . 1920

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DUCKS, GEESE AND TURKEYS

CHAPTER I

THE DUCK BUSINESS

THE duck business possesses many features specially to recommend it to farmers and smallholders. One is that it can be successfully conducted on a very small area. There are thousands of men and women in Buckinghamshire and Bedfordshire—the home of the duck industry—who every season rear and market upwards of two thousand birds upon considerably less than an acre of land. One man, whom I know, a few seasons ago reared and marketed over three thousand birds on just over half an acre.

Another great advantage of this trade is the fact that the overturn of capital is so very rapid. From the time the egg is laid until the duckling is ready for market—I am referring now to the early duckling trade and not to the rearing of stock birds, which is another matter—should not exceed three months. This rapid overturn of capital is a most important point to those whose funds are strictly limited.

Another obvious advantage of the early duckling trade is that there is always such an excellent demand for the birds and prices range so very high.

Last, but not least, ducklings are very easy to

rear. They are far and away easier to rear than chickens, and provided that the conditions are not too unfavourable no one need fear the task of rearing ducklings, even during the first two or three months of the year.

Absolute Cleanliness.—At the very outset I should like to emphasize the vital importance of absolute cleanliness in everything that comes into contact with ducks. So many people have the idea that it doesn't matter how dirtily ducks are kept. It is the same thing with pigs. Never was there a greater mistake than to suppose that ducks can thrive properly even when they are dirty.

It will readily be understood, too, that the soil must be kept pure. This is always important, but especially so where ducks are kept very thickly upon the ground. Under these conditions it is no use attempting to keep the runs in grass. The only thing to do is thickly to cover the ground with straw, dried leaves, or dried bracken, removing all the litter every day or two, immediately, in fact, it becomes at all dirty. This is the only way to maintain the birds in health.

Houses, runs, feeding troughs, drinking vessels, everything which the ducks use or come into contact with must be kept scrupulously clean. If not, it were better to give up duck keeping altogether. Better still it were never to start the work.

The Various Branches.—Because I have referred more particularly above to the early duckling trade it must not be thought that this is the only important branch of the business that there is. But I think it is quite right to say that it is the most important, also certainly the most profitable branch. It is really the beginning and end of the duck industry. The other branches are more or less subsidiary.

Comparatively few duckers keep their own breeding stock. They devote all their energies to the hatching and rearing of the birds. The production of eggs for the duckers is largely in the hands of farmers who specialize in ducks suitable for the table trade. This is a profitable branch, in December and January prices often ranging from 9s. 6d. to 11s. 6d. per dozen, or even more.

Duck egg production for edible purposes is also another branch about which I shall have a good deal to say. This is a side-line which is increasing largely and yields good profits.

The rearing of stock birds is likewise a profitable side-line. One has to wait longer for one's profits, it is true, for the birds are not ready for selling till they are six months or more old, but when the stock is right excellent prices are procurable.

Rearing ducks for late summer, autumn and winter consumption appeals very strongly to some people, as while the profits are smaller there is an almost entire absence of risk.

CHAPTER II

THE BEST BREEDS

THE selection of a suitable breed is a matter of the utmost importance, for upon the right choice depends in a very large measure the amount of success achieved. Select an unsuitable variety and you are handicapping yourself at the very outset.

There are in all eight distinct varieties of ducks, but many of these are purely ornamental, and as such are of no interest to anyone save those who go in for exhibiting, a risky and rarely a profitable pursuit. There are only four varieties we need trouble about—the Aylesbury, the Pekin, the Rouen, and the Indian Runner.

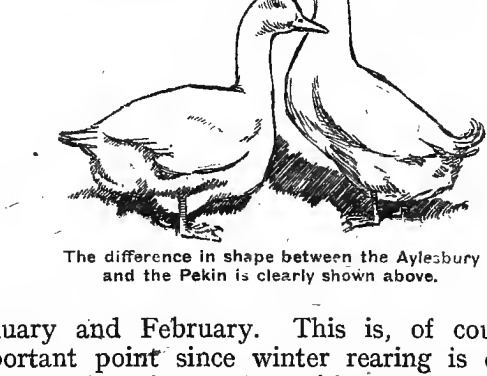
The Aylesbury.—For those who wish to cater for the early spring trade in table ducklings there is no breed to compare to the Aylesbury. It is far and away the best that there is; it has no rival so far as the particular trade is concerned.

Years and years ago this breed was known as the white English duck, but owing to the fact that it has been bred so extensively in and around the town of Aylesbury—the very centre of the early duckling industry—it has gradually become known as the Aylesbury. In a few outlying districts of England this variety is still called the White English, but the name is quickly dying down.

The Aylesbury is a dead white bird, with a full and prominent breast, running almost parallel to the ground. The back is straight and almost flat;

the wings are strong and carried closely to the sides; the legs are very strong and short, and set well back so as to balance the body, giving it what is termed a boat-shape. The weight of an adult drake is about 9 to 10 lbs., and a duck 8 to 9 lbs. The colour of the bill is a pinky white, and that of the legs bright orange.

The Aylesbury is a hardy breed, and provided that the conditions are not very unsuitable there is no difficulty whatever in rearing the ducklings in



The difference in shape between the Aylesbury and the Pekin is clearly shown above.

January and February. This is, of course, an important point since winter rearing is essential for supplying the market with early birds. The ducks are good layers, though in this point they are surpassed by the Pekin.

But the feature of greatest importance, and the one that gives the Aylesbury its unrivalled position, is its rapid development. Thousands upon thousands of Aylesburies are sent every season from Buckinghamshire and Bedfordshire to London which weigh from 4½ to 5½ lbs. when only eight weeks old. This is possible with no other variety, whatever method of feeding or forcing may be

adopted. The Pekin is at least a fortnight longer in attaining to this weight, while the Rouen is a month or five weeks.

This matter of rapid growth is of the utmost importance, for the quicker the birds can be got ready for market the more rapid the overturn. Not only so, but when prices have reached their highest point or are on the decline a fortnight may easily make a difference of several shillings per couple.

For the early spring trade the Aylesbury is without a rival.

The Pekin.—This is a breed which originated in the United States, where it is immensely popular. The first birds were imported into this country about half a century ago, and those who were responsible for their introduction thought they would quickly outplace the Aylesbury. This they have never done, although they are bred very extensively in many parts of the country.

What has always been against the variety is the colour of its flesh, which is yellow. A strong prejudice exists in this country—often quite an unreasonable one—against yellow flesh, and this fact has always militated against the popularity of this breed.

Another feature in which it is surpassed by the Aylesbury is so far as quick growth is concerned, but there is no reason why, had breeders set themselves to the task, its rate of growth could not have been greatly accelerated.

The Pekin, as already indicated, is a more prolific layer than the Aylesbury, besides which the ducklings are somewhat hardier and better able to stand unfavourable surroundings.

Very often the Aylesbury and Pekin are mistaken for one another. At first sight they are very similar, but there are really several points of dissimilarity

Although a white bird the Pekin is not a dead white as is the Aylesbury; there is a distinct canary tinge in the plumage. The beak of the Pekin is bright yellow, while that of the Aylesbury is flesh-coloured. The greatest difference, however, is in the shape. The Aylesbury is boat-shaped, while the Pekin is remarkably upright, the legs being placed much further back in the body.

The Rouens.—This is the largest duck that there is, an adult drake averaging about 11 lbs. and a duck from 9 to 9½ lbs. Like all large animals and birds it is a slow grower, and takes quite a month to five weeks longer to attain to the same weight as the Aylesbury. This means, of course, that it is of little use for the spring trade, which lasts but a short time.

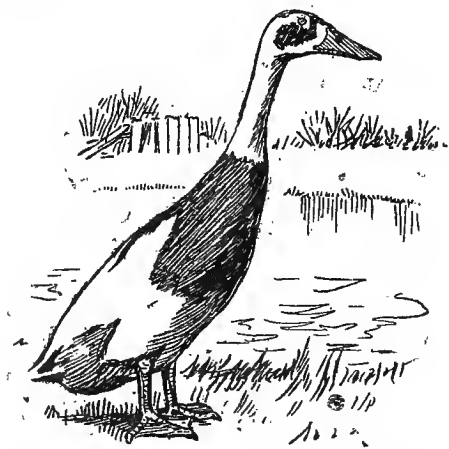
The chief value of the Rouen is for supplying the summer and autumn demand, especially as large size is a very important factor in obtaining a good price late in the season. So far as flavour and quality of flesh are concerned, I think the Rouen is much superior to either the Aylesbury or the Pekin. No one can deny that early hatched Aylesburies are extremely tasteless and insipid; their value lies not in their flesh qualities, but in the remarkable rapidity with which they develop.

It must be borne in mind in this connexion that early spring ducklings are invariably forced as much as possible, and thus it is scarcely fair to compare their flesh properties with those of birds that are allowed to grow slowly. When Aylesburies are not forced, but are permitted to develop slowly, their meat is of considerably finer quality.

The flesh of the Rouen is of a fuller and of a finer flavour than that of the other varieties, and although the birds attain to a great weight there is rarely any coarseness visible. I have seen a pair of Rouen

ducks weighing twenty-five pounds, whose flesh was tender and juicy.

The Indian Runner.—The chief value of the Indian Runner lies in its wonderfully prolific laying powers, which far excels those of any other variety. It is too small to be of real service for table purposes, although for home use in this connexion it is very suitable.



An Indian Runner Duck. The breed par excellence for egg production.

Of Indian origin, the breed was introduced into Cumberland somewhere about seventy years ago. Although locally the variety has been kept extensively for many years past, it is only within the last few years that any notice has been taken of it outside the county of Cumberland. It has now a club devoted to its interests, and it is increasing in numbers every year.

It is only as a layer that this variety possesses any real value to the smallholder. The ducks are cer-

tainly wonderfully prolific, and in this respect they equal many hens. Moreover, their eggs are very similar to those produced by ordinary fowls, and large numbers are sold as such.

The Indian Runner is fawn and white in plumage. The legs are deep orange colour, while the beak in a young bird is yellow, which changes into a dull cucumber green in a duck and a yellowish green in a drake.

CHAPTER III

THE BREEDING PEN

To achieve successful results it is not enough to choose the best breed for the purpose that the ducker has in view. He must also select his breeding stock with the utmost care. Personally, I consider that this is really a matter of supreme importance, for even though an unsuitable variety be chosen in the first instance, it is possible by proper selection to overcome its deficiencies. If, on the other hand, the most suitable breed be chosen its good points can be entirely counteracted by improper selection.

First and foremost, choose those birds which are the strongest in the particular points one is striving after. If your endeavour is to raise early ducklings for the market choose parents that possess good flesh, are of a rapid-growing strain, and of a large size. If it is eggs you are after select good layers, and so on, always remembering that like produces like. You cannot expect, or if you do expect then you are certain to be disappointed, to breed quickly maturing birds from parents which were very slow growers, or good laying stock from birds that are themselves very poor layers.

Healthy Birds only.—One might think that this is an unnecessary point to raise, since surely no one, they would argue, would be so foolish as to use an unhealthy bird in the breeding pen. But, all the same, a word of warning is necessary, for many duckers are very careless in this respect. I have many and many a time seen ducks and drakes

allowed to breed which were suffering from some complaint—a complaint, moreover, which was practically certain to be transmitted to the offspring.

The breeding pen should contain nothing but birds that are in the pink of condition. They should be active in habits, with a bright, glossy plumage, and a bright eye. Their appetites should be keen, and they should exhibit all the unmistakable signs of good health.

It must never be forgotten that if the parents are suffering from any complaint either the complaint itself or else the tendency to it, is almost certain to be transmitted to the progeny, probably in a greatly intensified form.

Age of Breeders.—Ducks and drakes in their first year should not be mated together if it can be avoided, for experience teaches us that in this case the ducklings do not possess such sound constitutions, and they rarely attain to so large a size as do the offspring of older birds.

There is no objection—as a matter of fact, it is the plan I nearly always adopt—to mate a year-old drake with ducks in their second season, or a two-year-old drake with yearling ducks. This mating, I find, produces very strong ducklings, which develop quickly and reach a large size.

Never Inbreed.—A clever and experienced ducker may use related birds for breeding purposes with apparently no evil effects. But, all the same, it is a very risky proceeding, no matter how great the skill of the poultryman. With one who is inexperienced it is merely asking for trouble. I have known many cases in which serious injury has resulted from the use of related parents, injury which has upset the careful work of years.

With ordinary fowls it is sometimes necessary to use related parents. In the formation of a new

breed, or a new variety of an existing breed, or in the establishing of a new colour, inbreeding is often essential. But so far as duck breeding is concerned there is no excuse for it. Perhaps the most serious result of inbreeding is the impaired vitality of the progeny.

Inbred ducklings are, as a rule, much more difficult to rear, while they rarely develop so well as is the case when their parents are unrelated. The prolificacy of the ducks when they attain adulthood is likewise reduced, and I have known many a good laying strain ruined in this manner.

The Influence of the Parents.—The drake's influence lies more especially in the direction of the outward qualities, and in choosing a male bird, therefore, it is necessary to see that he is large and well-developed. There is a difference between large size and merely a large quantity of feather, and this is a point that requires watching. The drake, therefore, exerts the greater influence so far as shape, feathers, general appearance and development are concerned, but at the same time he has an important bearing upon the laying qualities as well, and thus it is necessary to see that he comes from a good laying strain.

The duck, on the other hand, exerts the greater influence upon the internal organs, while she also controls to a very large extent constitution, fecundity and habits. In choosing a duck for the breeding pen she should be well made, of a fair size, and active in habits. A lazy bird is rarely satisfactory. She should be well developed in the posterior region of the body, for it is here that the egg organs are situated. Stamina and good condition are also of extreme importance, for a weak and delicate duck never produces strong and robust ducklings.

Formation of the Pen.—If too many ducks be mated to one drake a great amount of trouble is likely to arise through infertile eggs or weak germs. It will be found that a large percentage of the eggs is sterile, while those that do contain germs produce poor and delicate ducklings.

The composition of the pen is therefore a matter of importance The numbers with which I have always had the most satisfactory results are one drake to three ducks. A favourite pen in the ducking centres, and known as a "set," consists of ten ducks and three drakes, and this cannot, so far as my experience goes, be improved upon.

CHAPTER IV

FEEDING THE LAYERS

Owing to the high price of all feeding stuffs it is necessary to exercise the greatest economy in feeding stock ducks. If there be any waste or if the foods supplied be unsuitable—which really is the same thing as waste—the birds will quickly consume all the profit they are ever likely to make. Ducks are voracious eaters—another reason why care must be taken in feeding them as economically as possible.

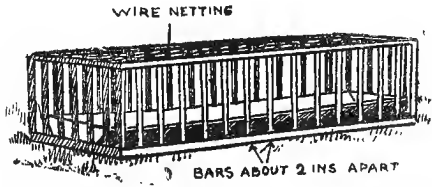
When ducks are allowed their freedom, as they should be whenever the conditions admit, they are able to gather a large quantity of food for themselves, as they are excellent foragers. In a stream or pond they are able to procure all sorts of titbits for themselves; so they are upon good meadow or arable land. A very great saving can be effected in the food bill by this means.

How to Avoid Waste.—There are two ways in which duck breeders can, and do, waste a large quantity of food. One is providing the birds with too generous a supply; the other is by throwing the food upon the ground.

Over-feeding is a mistake in many ways. For one thing it is sheer waste, and for another the birds speedily become too fat, which reduces the egg supply and encourages all sorts of complaints. Too fat ducks are as useless as too fat hens. Apart from a reduced food supply a larger proportion of

the eggs laid is likely to be infertile. Thus, not only is there a wastage of food, but a big loss occurs owing to the infertility of the eggs.

It is a most foolish practice to throw the soft food down upon the ground, for the ducks trample upon it, rendering a large part of it quite unfit for eating. But apart from this, if too much be given—and one can never know exactly how much the birds will eat—there is no way of collecting it for future use. The food



Ducks are very dirty eaters and like to trample on their food. A cage like this with the trough placed inside effectively prevents their doing so.

should always be given in a trough, in a trough, too, which prevents the ducks from tramping about on their food, as they seem particularly fond of doing.

Mash versus Grain.—Personally I am a great believer in providing ducks with mash both morning and evening. Some duckers, I know, prefer to give mash once a day and grain once a day, but I have always had better results when providing mash night and morning. If grain be given, oats is the best, followed by wheat. With barley I have always had poor results.

The mash should not be sloppy, but should be in the consistency of a stiff, crumbly-moist paste.

This is to say, not a sticky mass, but sufficiently wet to make into a ball, and sufficiently dry to crumble when thrown into the trough.

Birds enjoying a free range require but one good meal a day, unless the weather be very severe and the ground hard. As already indicated, ducks are excellent foragers, and able to procure for themselves pretty well all they require on land containing a generous proportion of animal and vegetable life. With ducks in confinement two meals are necessary, since they are able only to obtain a very limited amount of natural food. One meal should be given first thing in the morning, and the other about 3.30 or 4 p.m.

The Best Diet.—Breeding ducks thrive best upon a plain diet. They do not require rich food; in fact, such a diet is liable soon to upset their constitutions. Cheap foods, too, must be used as far as possible.

As far as possible a variety of foods should be employed. If the birds are fed day after day upon the same foods they become tired of them and do not eat sufficient to maintain a full egg supply. Variety in feeding is one of the secrets of success.

Among the chief foods that may be fed to ducks, and upon which they thrive well, are middlings, barley meal, ground oats and bran. The changes should be rung on those as far as possible. Ground oats, generally speaking, is rather too expensive a food to use commonly, but an occasional meal has a good effect.

Brewers' grains, when they can be obtained in a fresh condition and at a reasonable price, are recommended. They should not be used too generously, however; not more than about one-fifth part.

House-scraps, too, are excellent, being both cheap and nourishing—a very valuable combination. Nothing comes amiss to ducks in this connection, and all the house scraps should be carefully collected, chopped up, and dried off with meal. Garden refuse should also be used, as green stuff is necessary to maintain health and vigour.

The following are some suitable rations for stock ducks :—

1.	3 parts	by weight	middlings.
	3 parts	,,	cooked cabbage.
	1 part	,,	lean meat.
2.	3 parts	,,	bran.
	1 part	,,	bean or pea meal.
	3 parts	,,	clover chaff.
	1 part	,,	lean meat.
3.	3 parts	,,	middlings.
	3 parts	,,	Brewers' grains.
	3 parts	,,	cooked turnips.
	1 part	,,	lean meat.
4.	3 parts	,,	cooked potatoes.
	3 parts	,,	bran.
	1 part	,,	lean meat.

Maize is not recommended for ducks. It sometimes promotes egg production, but only for a few days, and it ultimately reduces the supply very considerably. It has the effect of going towards the production of fat rather than flesh or eggs, and this is a thing to be avoided.

Grit, green food and, of course, pure water should always be available for the birds.

CHAPTER V

HOUSING THE LAYERS

BECAUSE ducks are hardy birds and are able to thrive well amid more or less unfavourable surroundings many people think that it is therefore unnecessary to pay very much attention to their housing arrangements. Never was there a more mistaken impression. It is quite true that ducks are hardy, but at the same time there is no class of fowls which responds more readily to good treatment.

When damp, badly ventilated and dark houses are provided not only are the inmates unhealthy and prone to any disease which may at the time be prevalent, but the egg supply is greatly restricted. And it should never be forgotten, too, that a good house is no more expensive to build than one that is badly ventilated, dark and damp.

The Measurements.—It is just as bad to overcrowd ducks in their sleeping quarters as it is to overcrowd hens, and this is saying a good deal. They require more room than do hens, and double as much floor space should be allowed, that is, instead of 2 sq. feet each duck should have 4 sq. feet. That is to say, a house measuring 6 feet by 4 feet contains 24 sq. feet, and thus has accommodation for six adult ducks.

Since ducks sleep on the ground and do not perch a low house answers the purpose. One that is 4 feet to 4 feet 6 inches high in front, sloping down a foot

or 18 inches towards the back provides ample breathing space. The form I like best is one with the top foot or 18 inches of the front made of wire netting, over which a sliding shutter can be placed. In this way the amount of ventilation can be regulated to a nicety.

Material of sufficient thickness should be used in the construction of the house. Wood, if such be used, should be at least an inch thick, since less than this is not enough to keep the birds warm during the winter or cool during the summer. If thinner wood than this be used it should be covered with felt or thick brown paper on the outside, and then thoroughly and regularly tarred.

The Best Floor.—One of the few diseases from which ducks suffer is cramp, and thus it is necessary to pay particular attention to the flooring of the house. The best kind is the earth itself. Wood soon becomes impregnated with manure, besides which it seems to encourage cramp. Cement is too cold, while bricks being absorbent quickly absorb the liquid part of the manure, and prevent the place from smelling sweet.

The proper way to make a really good earth floor is to dig it out to the depth of 6 inches or so, refilling it with broken bricks or rubble. These should be thoroughly beaten down, and then covered with 2 inches of fine earth or gravel, well beaten down so as to form a hard floor. This makes the floor about 2 inches higher than the surrounding ground, and thus ensures dryness.

It is a mistake to place the house too near to the water's edge, for this is so very apt to make the interior damp. A spot should be chosen for it which is well above the level of the water; only in this way can dryness be assured. It should also be placed upon dry soil—dry, that is, during the winter

—for otherwise the damp is very liable to soak up through the floor and so to the litter.

Personally, I always use straw or rough hay for litter in my duck houses, as I find these to answer best. Peat moss, however, answers very well, or any of the ordinary kinds of litter commonly used in poultry houses.

The Advantage of a Run.—While it is always a good plan to give stock ducks their liberty, since under these conditions they are cheaper to feed and the ducklings are hardier, there should be some place where they can be confined for a part of the day at any rate. With ducks which are being fattened for table or with ducklings being reared for killing at an early age, a run is necessary all the time, as the less liberty such birds have the more rapidly do they grow and the quicker do they add on flesh, although, it must be admitted, generally at the expense of their constitutions.

The reason that stock ducks should be provided with a small run around the house is chiefly in order to prevent the eggs being laid in the water, as ducks are particularly fond of doing. This generally means that the eggs are broken or lost, or during severe weather they become frozen, killing the germ, and hindering them from producing a duckling. Happily ducks nearly always lay early in the morning, and thus by confining them till about 10 or 10.30 a.m. the difficulty can be easily overcome.

Another advantage of a small run around the sleeping house is that when the ducks are fed in the afternoon, about 4 or 4.30, the trough can be placed within the run, the door shut, and the birds not liberated again. Those who have ever attempted to drive a flock of ducks off a stream or pond when they did not want to go will especially appreciate this point.

A Good Example of a Pekin Drake

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A Breeding Pen of Aylesbury Ducks

The Size of Run.—This must obviously depend to a very large extent upon the number of birds, but it does not require to be at all large. For a "set" as it is termed in Buckinghamshire, consisting of ten ducks and three drakes, a run measuring 15 feet by 15 feet is quite sufficient. No attempt need be made to keep it in grass, and if it is regularly swept once or twice a week it will remain quite pure. A gravel run is the best form, since this can be swept so much more easily than earth. If a grass run be wanted it would have to be at least six times as big, and then I doubt whether it would remain in grass.

Ducks are very easy to confine, and quite low wire netting is enough to keep them within bounds. My runs are all made of netting 2 feet 6 inches high, and this I find sufficiently high to prevent them from flying over, while the mesh is 3 inches, a much cheaper size than the 2-inch mesh which is commonly used.

Low netting possesses the great advantage that it can be stepped over so easily, saving much time when feeding or cleaning out the houses. There must be a gate, of course, and it should be wide enough to allow a wheelbarrow to pass through, but the less it is used by the attendant the greater the amount of time saved.

A small trap-door should be made in the wire-netting to allow the ducks to pass through to get to the water. This is a better plan than letting them use the gates, since the less the latter are used the less trouble will there be with broken hinges, and the longer will they last.

A Good Type of House.—One of the disadvantages of the ordinary duck house is that it is so difficult to clean, because it is built quite low, not more than 4 feet 6 inches at the highest point. The question, then is: How can we build a house which, while low,

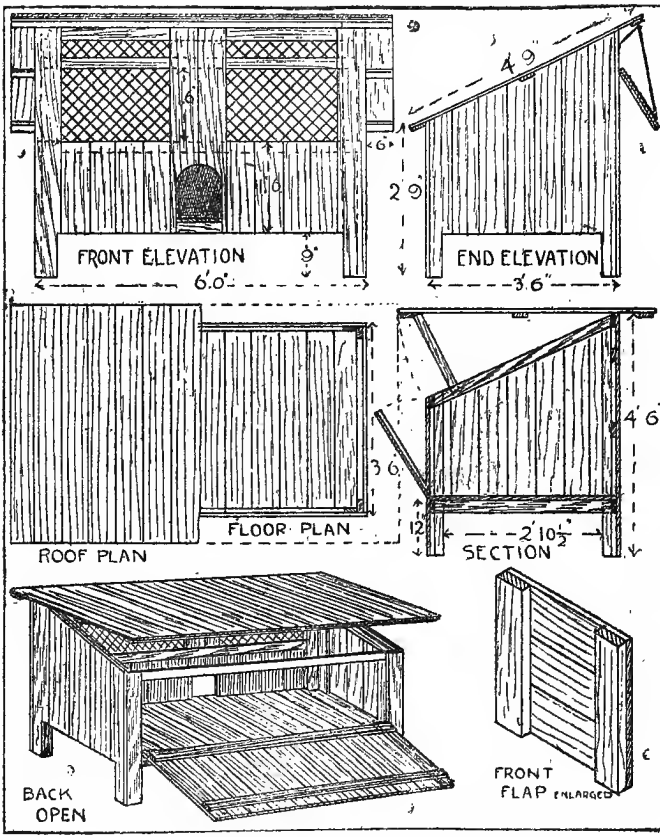
is readily cleaned out? The accompanying plan suggests a way. The roof and back are both hinged, thus enabling the interior to be cleaned out easily and quickly. There is a solution to the problem in a nutshell.

The construction of this house is no more difficult than that of any other house built in sections, and may be made by anyone who carefully follows the drawings and instructions. Tongued and grooved matching, ¾ inch thick, and deal battens 3 inches by 1 inch form the greater part of the material used.

The Front.—This, as will be seen in the front elevation, is 6 feet long and 4 feet 6 inches high. The batten framing is halved together, two uprights 4 feet 6 inches having three 3-inch and one 2-inch wide rails attached. The total length of rails, including the width of the uprights, is 5 feet 8½ inches; this allows the matching to project 1¾ inches each end. The bottom rail is 9 inches up, the next rail is 1 foot 6 inches, measuring from outside to outside. A 3-inch rail is halved at the top, and the 2-inch rail placed so as to leave a space of 4 inches between it and the one above it.

The position of the matching is evident from the drawing, the entrance being cut out 14 inches by 11 inches. The openings are covered with wire netting fastened on from the back; the larger openings are fitted with hinged flaps, as indicated in the side elevation. Either cord or chain may be used to adjust the flaps, and cross garnet hinges used for attaching them to the frame.

The Sides.—Both sides are alike; their total width is 3 feet 4½ inches, their height in front, 4 feet 6 inches, and at the back 2 feet 9 inches. The batten framing is composed of two uprights cut to the lengths given, one rail 9 inches up, another one 1 foot 6 inches, measured from outside to outside, and the



Plan of Duck House, described on opposite page.

third joining the tops of the uprights, all being 3 inches wide, and making the framing 3 feet 4½ inches wide.

Matching is nailed on as shown, a slot being subsequently cut out to allow for the batten across the middle of the roof.

The Back.—First frame up 3-inch batten, two uprights 2 feet 9 inches, and two rails, each 5 feet 8½ inches long, one 9 inches up from the bottom and the other at the top. Two boards of matching each 2 feet 9 inches long, should be cut off for the ends, and one length, 5 feet 4½ inches, nailed to the bottom batten.

The opening is filled in with a flap made as indicated in the perspective sketch; 1 foot 9-inch lengths of matching are nailed to 5 feet 4½-inch lengths of batten, the flap being hinged to the lower rail with cross garnets, and the whole thing being kept in place with buttons attached to the side uprights.

The Roof.—This is 9 feet long and 4 feet 9 inches wide, and is formed of 4 feet 9-inch lengths of matching nailed to 7-feet lengths of batten, 3 inches wide, one a little away from each end, and a third in the middle. Stout back flap hinges should be used to attach the roof to the front, while the back may be kept in place by means of hooks and eyes, or a hasp and padlock. A suitable roofing felt should be used to cover the matching, 5 yards being required in all.

The Floor.—This should be boarded with 1-inch floor boards nailed on to the edges of a 3-inch by 1-inch batten framing, the latter being made to fit inside the house, with the edges of the boards projecting so that they may rest on the upper edges of the lower rails of the ends, front and back.

Short lengths of 2-inch square material should be nailed inside the inner corners underneath the floor. These make the projecting feet of the house

much stronger and are less liable to work into soft ground.

A ladder made from floor board should be hinged, or otherwise fastened to the opening in front, and a strut fitted inside the house at the top, to hold the roof up when required. If desired, this may be made adjustable so that the roof may be kept open at any required height.

CHAPTER VI

HATCHING—ARTIFICIAL AND NATURAL

WHENEVER it is possible to do so I use broody hens rather than incubators for hatching my ducklings, for experience has taught me over and over again that the natural method yields better results. Not that the ducklings are any better or stronger, but merely that a hen can generally be depended upon to bring off a rather larger percentage of ducklings than can a machine.

But for early work one's predilections go for nothing. In December and January broody hens are an almost unknown quantity, and even when they are procurable they are rarely safe to trust upon valuable eggs—and duck eggs in December and January *are* valuable. An incubator is therefore essential.

Differences in Management.—The general principles of working an incubator are the same whether it is filled with hens' or ducks' eggs. But there are a few slight differences in management which have a great influence upon the results achieved.

When an incubator is filled with hens' eggs the temperature of the egg-drawer should be kept at 103° or 104°, according to whether it is a hot-air or a hot-water machine. In incubating ducks' eggs, however, better results are achieved if the egg-drawer is run at a temperature one degree lower—that is, 102° in a hot-air machine, and 103° in a hot-water machine.

Another matter, of great importance in running an incubator filled with ducks' eggs is to provide them with an abundance of moisture. Unless this point is attended to most carefully the inner and outer membranes—the two thin skins close up against the shell—become so thick and tough, that the duckling has great difficulty in piercing them, and probably dies of exhaustion before it is through. The beaks of ducklings are soft (before they have

It is a good plan to dip duck and goose eggs into water heated to 100 degrees once a day during the last week of incubation.

made their exit from the shell) and blunt, remember—not hard and pointed as with a chick.

The plan I have adopted for many years past is just before the egg-drawer is closed, after the eggs have received their daily cooling, to damp the eggs with a wet cloth during the first three weeks of incubation.

During the last week I made it a rule to dip the eggs bodily into a basin of water heated to about 100°. This is done immediately before the drawer is closed, otherwise too great an evaporation occurs and the eggs are chilled.

The most important points always to bear in mind when working an incubator are : The temperature within the egg-drawer must never vary ; the eggs must be cooled and turned as regularly as clockwork ; the utmost cleanliness must be observed ; and the machine must on no account be shaken or jarred. Shaking or jarring inevitably results in deformed ducklings.

Hatching by Hens.—When hatching ducks' eggs beneath a hen there are a few points in the management which are worthy of note, and the observance of which will make all the difference between success and failure.

Hens sit much more satisfactorily if they are kept quite apart from the other birds, in a place where they are not likely to be disturbed. They should, moreover, be in semi-darkness, the best plan being to provide a nest-box for their accommodation.

The size of nest-box I like best is 15 inches square and 18 inches high, for this allows the hen breathing space. If it is to be placed in a shed (the best plan during cold weather), it only requires to be made of thin material, about ½ inch thick, and it should be solid on all four sides and top. It should on no account have a floor, as this prevents a sufficiency of moisture from rising to the eggs, besides which it renders cleaning more difficult.

When the season is more advanced the nest-box is better out of doors, in which case it should be made of stouter material, and the top should slope, in order to allow the rain to drain away quickly.

Around the top of the nest-box holes should be pierced, in order to allow a gentle current of air to pass through, and also a few about 4 inches from the ground, on a level with the eggs. An abundance of fresh air is absolutely essential to good hatching results and to the production of strong ducklings.

A Good Nest.—The nest itself, of course, requires careful preparation, for unless the hen is comfortable she is unlikely to sit well. Inside the nest-box a shovelful of earth should be placed, and this should be hollowed in the centre in order that none of the eggs may roll into the corners and become cold. On the earth a little oat straw should be placed, just sufficient to prevent the eggs touching the soil.

As mentioned above duck eggs must be provided with plenty of moisture, and it is therefore a very good plan to water around the outside of the nest-box three or four times a week. The moisture quickly soaks to the earth within the box, and is then drawn by the heat of the hen's body to the eggs. This is a much better plan than damping the eggs themselves.

Other important points to observe are regular cooling of the eggs for from ten to twenty-five minutes once every day; testing for fertility on the sixth day of incubation; and suitable feeding of the hen, i.e. wheat or oats once every day, and a plentiful supply of water and grit.

CHAPTER VII

REARING—ARTIFICIAL AND NATURAL

WHILE ducklings are hardy birds and are comparatively easy to rear they respond very readily to good treatment. As a matter of fact, neglect of any sort has a most serious effect upon them, checking their growth and retarding their development. Properly looked after they are very rapid growers, and can almost be seen day by day increasing in size.

The First Day.—Under no circumstance must the ducklings be removed from beneath the hen or from the drying box of the incubator until they are quite dry, which generally takes about twenty-four hours. If they be removed too soon they are almost certain to contract chills and other complaints, which may have a most serious effect upon them throughout their lives.

When they are quite dry they should be carried in a felt or flannel lined box to the coop or brooder, which should have been got ready for them previously. In order to make the hen attentive to her family, it is a good plan to give her a feed before the ducklings are removed. If this is not done she will be so hungry that she will neglect her brood in order to satisfy her wants.

Ducklings are such hardy birds that they need very little brooding. Unless the weather be very severe they may safely be removed and put by themselves in a warm and dry shed at the end of

ten days to a fortnight. A very cold day should be avoided for the removal.

When ducklings are being artificially reared a brooder is, of course, necessary for their accommodation. There are many excellent kinds upon the market, so no difficulty is experienced in procuring a thoroughly good one. See that it is substantially made, so that it will stand constant removal; that the lamp is placed in a separate compartment; and that the ventilating arrangements are adequate. During the first couple of days a temperature of 90° should be maintained, gradually reducing to about 80° by the end of the first week. At the end of a fortnight, if the weather be not very severe, they can dispense with artificial heat.

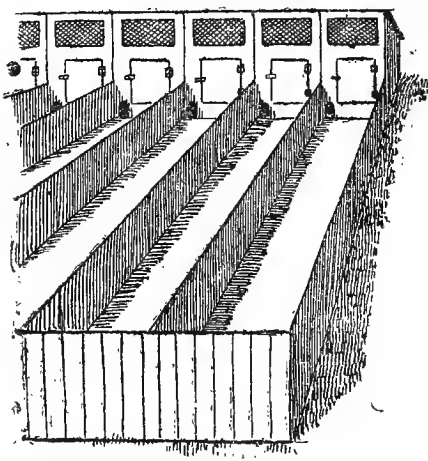
Feeding Ducklings for Market.—Variety in feeding is one of the secrets of success in rearing any class of stock, and ducklings are no exception to the rule. Forcing foods must be employed from the very first, since the great aim is to encourage rapid growth. This would have a harmful effect were the birds to be retained for breeding purposes, but as they are to be killed immediately they are large enough it may be recommended.

During the first few days hard-boiled eggs, chopped up finely and mixed with breadcrumbs or biscuit-meal, should form the chief food. This should be moistened with warm water or sweet skim milk, and be given to the birds in a fairly dry state, not sloppy. Upon barley-meal and middlings, mixed in equal proportions, the birds thrive well; so they do upon ground oats, bran (well soaked) and house-scraps.

There is, however, no more suitable food for ducklings of all ages than boiled rice. It is useful for rearing and for fattening; it is cheap, and the birds develop quickly upon it. It is very extensively

used by the duckers of Buckinghamshire and Bedfordshire, who regard it as about the best and cheapest food there is.

During the first week of the ducklings' lives they should be fed every two hours from 7 a.m. till 7 p.m. During the second week, every three hours is sufficient; while during the third, fourth, and fifth



An excellent range of duck houses, especially suitable for young stock which are being reared for table.

weeks four meals daily are enough, convenient hours being 7 a.m., 11 a.m., 3.30 p.m. and 6.30 p.m. During the fattening process, that is, during the sixth, seventh and eighth weeks, the birds should be fed thrice daily at 7 a.m., midday and 5.30 p.m.

The Housing Arrangements.—When the ducklings are old enough to dispense with artificial heat or with the mother hen they should be provided with a small well-ventilated house to sleep in at night, unless an outhouse can be made to serve the pur-

pose. As rats are very often attracted where ducklings are kept it is advisable to place a layer of small mesh wire netting an inch or two below the ground-floor.

If there is no outhouse which can be used for ducklings—and these when suitable make excellent homes—a wooden house should be made. One 6 feet long by 4 feet wide and 3 feet high at the back, with a sloping roof and adjustable shutter for ventilation in the daytime will accommodate a dozen birds until they are fit for killing.

Larger houses may be provided, according to the number of birds kept, and as many as twenty-five may be run together in one flock. Where a large number of ducklings are bred, it is a good plan to build a range of houses and yards in a sheltered situation.

Very little space is necessary in the yard, for table ducklings do better when they have little or no exercise, and for sanitary reasons it is better to have the surface of gravel or ashes, with good drainage underneath, rather than turf or bare earth. At any rate, the place must be kept clean. In a gravel run it is an easy matter to cleanse the surface by swilling it.

The house should be well bedded with litter—straw, dead leaves, or chaff, all answering the purpose. The litter must be renewed frequently, so that the place never gets wet and dirty, for, contrary to general belief, ducklings do not thrive in wet and filthy surroundings.

Rearing Stock Birds.—The rearing of ducklings intended for breeding and not for killing as soon as they are large enough is in the main the same. There are, however, a few minor differences. The chief one is that the birds should be allowed as much freedom as possible. Whereas, on the other hand,

those intended for killing should be closely confined throughout their lives. No exercise means rapid growth, but it doesn't mean strong frames and sound constitutions. And obviously, these points are of the utmost importance in breeding stock.

Another point of difference is that feeding need not be so generous, and the birds may be allowed to pick up a large part of their own food. This is not only much cheaper, but natural food is always better than the best of artificials. With the exception of those two points the rearing of ducklings for stock purposes and for marketing is similar.

CHAPTER VIII

FATTENING DUCKLINGS FOR MARKET

DURING the last three weeks of a duckling's life it grows very little, and thus it is important that before this period starts the birds shall be fairly large. The aim in fattening is to add flesh to the carcass, and the foods supplied should all be with this end in view. Bone-formers are not wanted. Thus it is necessary during the first few weeks of the birds' lives to force frame development, leaving it till the last three weeks to add on flesh.

Confinement Essential.—All the time the birds are being fattened they should be strictly confined, for the less exercise they have the more rapidly do they increase in weight. There is nothing better for their accommodation than a large shed, the floor of which is well bedded with straw, dried leaves or bracken.

The best plan is to divide the shed into pens by means of wire-netting a foot high, or else planks of wood. It is also a good plan to have the divisions quite low, so that they may be stepped over, reducing labour greatly. If it is necessary to have gates, much time is occupied in passing from one division to another.

The pens should be quite small, for the less exercise the ducklings have the better. The birds remain in these sheds during the whole of the three weeks, unless it be on the day previous to killing, when a swim cleanses the feathers and makes them of more value.

The Best Diet.—Feeding should take place three times daily, convenient times being 7 a.m., midday and 5.30 p.m. The food should be placed before the birds in troughs, and they should be allowed to eat as much as they like until their appetites are satisfied, when the food should be removed. Ducklings, like any other kind of stock, do not fatten nearly so well if food is allowed always to remain before them. Any that remains after they have satisfied their appetites, therefore, should be collected, and mixed with a little more fresh meal for the next feed.

In Buckinghamshire and Bedfordshire, the counties where the finest ducklings are produced, great reliance is placed upon boiled rice during the fattening period. This food is cheap, while it produces flesh of excellent quality.

Careful preparation is necessary, however, otherwise it is almost valueless as a food. The rice is simmered on a fire for several hours, until every particle is thoroughly swollen out. The proportion generally used is three quarts of water, one quart of rice and one pound of broken tallow greaves.

To produce the finest ducklings ground oats is recommended, but owing to its high price it only pays to employ it when a very high-class trade is being catered for. A good mixture consists of half ground oats and half barley meal or middlings, while a cheaper mixture still is composed of one-third ground oats, one-third middlings, and one-third maize meal.

Maize, however, is not recommended, since it goes to the production of fat rather than flesh—a point to be guarded against very carefully. Brewers' grains, malt culms, bran, and house scraps are all useful for mixing with more concentrated foods.

Sloppy foods are not recommended. Many people

AN INDIAN RUNNER DUCK

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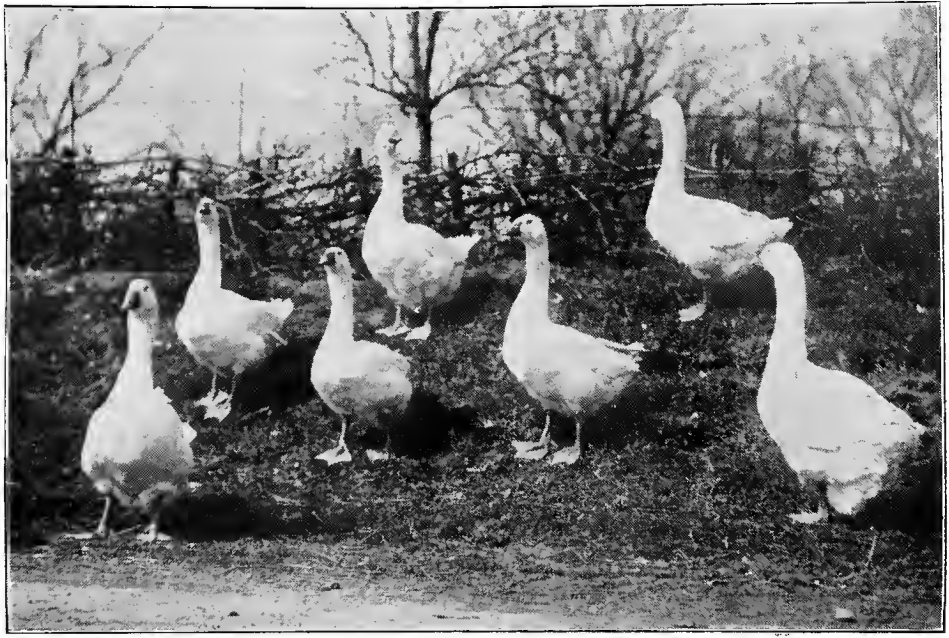

By permission of Messrs. Abbot Bros. Premier Poultry Farm, Thuxton

GROUP OF EMBDEN GEESE

All Prize-winners.

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seem to have the idea that ducklings thrive better when their food is given to them in a semi-liquid state, but this is not the case. It should be in a crumbly-moist condition.

Green Food and Grit.—These two important items in the diet should not be overlooked. Every day a supply of green food should be provided, as there is nothing that helps more to maintain health. Ordinary stinging nettles boiled, chopped up, and mixed with the midday meal, are very beneficial. When lettuces are plentiful there is nothing better ; failing these, cabbages answer excellently. Green food is cooling to the blood, and assists in keeping the birds healthy.

Another very important item is grit, for without it the birds are unable to digest their food properly. The quantity they will consume is proof of its necessity. For fattening ducklings it should be about the same size as wheat. Broken flint or glass answers the purpose better than anything else.

CHAPTER IX

MARKETING THE PRODUCE

UPON the careful marketing of ducklings much of their value depends. The eye is the inlet to the pocket just as it is to the soul, and if the birds are badly finished only a poor price will be obtained for them. It is a fact that a poor bird, which has been plucked carefully, shaped and packed in an attractive manner often fetches more money than one of excellent quality which has been finished badly. The ideal, of course, is to produce a good bird and market it in the best manner. This is what must be done if the highest prices are to be obtained.

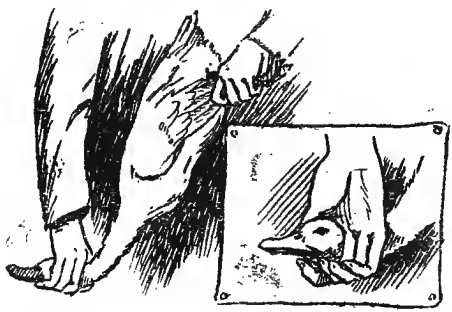
How to Kill.—Always kill the ducklings upon the place where they have been fattened. It is a great mistake to sell fat ducklings alive, since the rough handling they are bound to receive on the journey, even if it is only a few miles in a cart, has a very bad effect upon them, causing them to lose as much flesh in an hour or two as they have added during the previous week.

Do not disturb the ducklings more than you can help when you want to catch them. If one or two are required at a time, the best plan is to head them off and drive them out of the yard, instead of driving them into a corner and catching those required. If they must be handled to ascertain the condition it should be done at night.

Before killing the birds all food should be with-

held for twenty-four (if the weather be mild and muggy for thirty-six) hours. This not only improves the quality and flavour of the flesh very considerably, but also the keeping properties.

Dislocation of the neck is the simplest way of killing. The duckling should be grasped by the hocks and long wing feathers in the left hand, while the palm of the right hand is placed over the duckling's head, gripping the head between the first and second fingers. A steady backward pull should then



This shows the correct way to kill a duck.

be given, until the neck is severed, when pulling must instantly cease.

The reason that I always adopt the dislocation method is because it possesses the advantage that no blood is seen. As soon as the bird is dead, plucking should commence, for while the body is warm the feathers come out much more easily, and there is less danger of tearing the skin. All the time that plucking is proceeding the head must be held down, in order that the blood may drain away; otherwise, the flesh is dark coloured, and the keeping qualities are impaired.

Plucking and Shaping.—The removal of the feathers requires to be done very carefully, for the skin of young ducklings is tender and easily damaged. Torn skin or damaged flesh reduces the bird's appearance very greatly, and thus its value.

While plucking is proceeding the duckling's head should be hung down all the time in order that the blood may drain into the neck, leaving the flesh white. Unless all the blood drains away from the body the flesh will be dark coloured, while the flavour will be impaired as well as the keeping properties.

As soon as all the feathers are removed, and long before the body is cold the duckling should be placed on a table on its breast, and a board, heavily weighted, upon its back. It should be left like this until the body is quite cold, when it will retain a square and "breasty" shape. Under no circumstance pack the birds till they are stone cold.

Packing for Market.—This requires to be done very carefully, for otherwise the bird is liable to get damaged. It pays, I always think, to wrap up each bird in a piece of grease-proof paper or linen rag, as this protects it from harm. The crate or basket should be packed quite tightly, in order to prevent the birds from moving about on the journey. If the crate is but partly filled the birds are very unlikely to arrive at their destination in a satisfactory manner.

To summarize the points I have mentioned above:—

Kill ducklings where they have been fattened.

Starve for twenty-four to thirty-six hours previous to killing.

Kill by dislocation of the neck.

Commence plucking immediately.

Remove feathers carefully, so as not to damage the skin.

Shape as described.

Don't dispatch till they are stone cold.

Pack very carefully.

CHAPTER X

DUCKS FOR EGG PRODUCTION

It is only quite recently that any serious attention has been given to the keeping of ducks for egg production. Nearly all duckers have centred their attention upon the production of early ducklings for the table, and rarely indeed have the eggs been regarded as a valuable market commodity. Those that were not required for hatching upon the place were disposed of elsewhere for a similar purpose.

Of late, however, a good deal of attention has been devoted to the marketing of the eggs. On the continent of Europe there is a large demand for them for edible purposes, but for some reason or another they have never become very popular in this country. Yet, as a matter of fact, duck eggs are excellent either for cooking or for boiling. The flavour is rather fuller than that of an ordinary egg, but once one becomes accustomed to it it is usually greatly preferred to a hen's egg.

The Breed for Eggs.—The Indian Runner—a small duck, too small for marketing purposes—is the breed to keep for the purpose. Its great value, its only value really, lies in its wonderful prolificacy. No other variety can approach it in this respect. Once the ducks commence to lay, which they do at an early age, nothing seems to stop them, not even the coldest weather. This is the breed *par excellence* for egg production. It is no uncommon thing for an Indian Runner to lay upwards of 160 eggs in

twelve months, while individual cases are on record of ducks laying as many as 180 eggs in a season.

A very favourable feature which this breed possesses is that its eggs resemble very closely indeed those laid by hens. On a large farm in the North of England there is regularly maintained a flock of over 700 Indian Runner ducks, all the eggs from which are sent to market and disposed of as ordinary eggs. They are large and white in colour.

Cheap to Feed.—One of the great advantages possessed by this variety of ducks is the fact that they can be fed so cheaply. When they have access to a pond and to good arable or pasture land they can pretty well support themselves, requiring very little indeed in the way of artificial food. While Indian Runner ducks are roving in their disposition, they can be kept quite successfully in confinement. The laying stock, as distinct from the breeding stock, need not have access to swimming water. They lay just as many eggs if kept on dry land all the time.

In this case they must be provided with two good meals a day. They should be fed first thing in the morning, and again about an hour before they go to roost. Personally I prefer to supply them at both meals with mash, although some duckers like to give one meal a day of hard grain.

A good mash consists of the following: one part middlings, two parts bran and two parts brewers' grains. This mixture should be prepared about twelve hours before it is wanted, as this causes the meal to swell out greatly, making it more easy to digest. The mash should always be given in a crumbly-moist condition, not sloppy.

A great variety of foods may be used for the purpose of feeding ducks, among which the following rations are recommended: (1) One part barley

meal, one part middlings and three parts boiled potatoes. (2) Two parts middlings, one part bran and one part fresh cut green bone. (3) Three parts maize meal, two parts brewers' grains and one part horseflesh. (4) One part boiled potatoes and three parts bran.

A Simple House.—The housing of laying ducks is a very simple matter. A low house answers the purpose admirably, because ducks sleep on the ground and do not perch. One that is 4 feet high in front, sloping down to 3 feet at the back is ample. The front should be made of wire netting, over which there is a wooden shutter, so that the fowls are protected during bad weather. Four square feet of floor space should be allowed per bird.

CHAPTER XI

DISEASES OF DUCKS

DUCKS are among the hardiest of all varieties of poultry, and provided that care is taken in their management and that the surroundings amid which they live are not very unfavourable, it is rarely indeed that they ail anything.

In this connexion it is important to note two things. One is, that the parents must be quite unrelated to one another, and, the other, that very young ducks must not be mated to very young drakes. Breeding from relations is a fatal mistake. Sometimes, I know, one has no option but to do so, but it is a very risky proceeding and one that is bound sooner or later, and generally sooner, to affect the whole flock very injuriously.

There is no objection to using young ducks for breeding purposes provided that they are mated with a two- or three-year-old drake. In the same way, a yearling drake may quite successfully be run with two or three-year-old ducks. But to use very young drakes and equally young ducks is merely courting trouble and loss.

The following are the most common ailments from which ducks suffer :—

Catarrh.—This is really a cold in the head, usually the result of excessive damp or exposure. It shows itself by a ruffling of the feathers, sneezing and a running at the eyes and nostrils. If neglected the eyes swell and the nostrils become stopped up

with mucus. In the latter stage the disease is infectious.

Of all things, warmth is the most essential to overcome catarrh. If the bird is kept warm from the commencement there is little difficulty in curing the complaint. Soft food of a nourishing nature should be given, sprinkled with ginger or pepper. Camphor pillules are also useful. In the later stages the nostrils and eyes should be washed twice daily in warm water, in which one-sixth of vinegar has been mixed.

Consumption.—This is either the result of a neglected cold or is due to the unfavourable conditions in which the birds are kept. It will never occur unless there is gross neglect or hereditary tendencies. The symptoms are a pale face, an incessant hacking cough, and the gradual wasting of the system in spite of generous feeding. Once the disease has secured a firm hold it is only possible to prolong life for a little time, but far better is it at once to kill the bird and burn the carcase.

Diarrhœa.—The most frequent causes of this complaint are improper feeding, cold, and the presence of some irritant in the intestines. Diarrhœa and a slight looseness of the bowels must not, however, be confounded, since the latter is often the way by means of which nature corrects herself, and it is sometimes the preventive of a serious complaint.

To cure diarrhœa the first thing to do is to mix a little bone meal with the soft food. This is not only useful as a cure, but it acts also as a great preventive. Boiled rice, in which a little powdered chalk has been mixed, is also very useful in the early stages. If these prove unsuccessful stronger measures are necessary. Two drops of chlorodyne in a teaspoonful of water twice daily is recom-

mended. The duck should be fed entirely on soft food, with very little green stuff, for four or five days after the complaint has passed away.

Eczema.—This is most common among ducks which are kept in close confinement and where the sanitary conditions are not all that they should be. Apart from the excoriated surface of the skin, there is a general dullness about the bird, which has neither spirit nor appetite. The first thing is to give a cooling medicine. This may be either Epsom salts or sulphate of magnesia; this should be followed by a daily pill made of calomel, two grains; Barbadoes aloes, eight grains; gingerine, one-third grain. This is enough for three pills. The skin should be washed with a lotion made of one dram of carbolic acid and six ounces of distilled water, applied frequently with a sponge. A very liberal supply of green food is essential.

Leg-weakness.—This is perhaps the most common of all complaints affecting ducks. It is especially prevalent among young birds, particularly among those belonging to a very quickly growing variety. It is sometimes due to a more rapid growth of the frame than the legs are able to bear; but much more frequently it is the result of forcing or of a wrong system of feeding.

The first step is immediately to cease the giving of all foods that have the slightest tendency to increase flesh, and to give only those which will go towards the formation of bone. Bone meal added to the food is excellent. A dose of Epsom salts is useful, as it clears the system. To increase the circulation the legs should be well rubbed with turpentine.

Prolapsus.—This is commonly known as "down behind," and is generally due to overfeeding or excessive laying. All stimulating food should be

stopped, and the system braced by tonics. The bowel, which protrudes from the vent, should be returned, afterwards giving an astringent, such as a tablespoonful of zinc dissolved in a pint of water, of which two tablespoonfuls should be given at a time, a weak solution of alum, or vinegar and water. The complaint is always liable to return.

CHAPTER XII

THE GOOSE TRADE

DURING the last few years geese have been somewhat under a cloud, and the number kept in this country has not increased in anything like the same proportion as the other sorts of poultry. There are two reasons to account for this. One is that the public taste has changed during recent years, and the turkey has in a large measure usurped the position once held by the goose as *the* Christmas dish. The other reason dates back a good many years, and is the result of the enclosure of so much common land. At one time nearly every village had its own common, where the villagers were allowed to run their stock, and where large flocks of geese could be reared at a very small cost. The enclosure of the common lands, however, meant that cottagers were no longer able to keep a few geese.

It is not everybody who is advised to go in for this branch of the poultry business. It is always well to realize one's limitations as well as one's opportunities. In this case one's limitation is lack of space. It is no use attempting either to keep stock birds or to rear goslings on a very restricted area. Not only do the birds thrive badly under such conditions, but they quickly foul the ground.

Many smallholders whom I have visited, however, have overcome the difficulty by arranging with a neighbouring farmer to allow the geese to run over

his meadows. Others there are, too, who live near a common—for there are still many left—and they are able to let their birds roam about during the day.

A little time ago I visited a smallholding in Norfolk, where the owner had for several years past more than made his rent with the goslings he rears. His holding is only about ten acres, but it borders on a common. His birds sleep in sheds upon his holding, but first thing in the morning they are driven on to the common, where they remain contentedly all day long, returning as night approaches.

Geese as Improvers.—Quite apart from the fact that geese are profitable birds they possess another advantage, namely, that they greatly improve land over which they run. I have many times known a piece of poor almost valueless land converted into a tolerably good pasture owing to the fact that geese have been kept on it. They have the effect of encouraging the finer grasses at the expense of the coarser, provided that the land is not overstocked.

Geese are very hardy birds, and seem able to thrive almost anywhere. However cold and exposed or however low-lying and damp the situation they seem to do excellently. No class of poultry is so easy to rear as goslings, and after they are a week or ten days old they require very little attention.

Demand and Prices.—Twice in the year there is a big demand for geese, namely, at Michaelmas and at Christmas. There is a sale, of course, at other seasons, but not to a large extent. The advantages of the two markets will be discussed later.

At one time a shilling per pound was quite an ordinary price for good geese, but for the few years prior to the war top values rarely exceeded 8½d. per pound, while the majority of the birds did not realize

more than about 7½d. Even at 7½d. to 8½d. a pound goose raising is profitable. One is doing badly if one doesn't make a net profit of 3d. a pound, and this on a 14-pound or 16-pound bird is by no means insignificant.

The chief advantages of the goose business are that the birds are hardy and thrive well almost anywhere; they are able largely to support themselves if they have access to a good meadow; there is always a good demand at remunerative prices; the goslings are very easy and cheap to rear; while the land over which the birds are running is greatly improved.

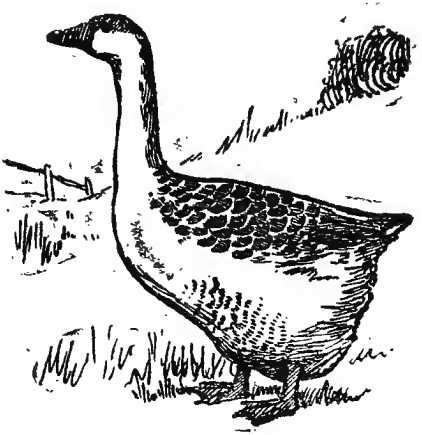
CHAPTER XIII

THE BEST BREEDS

In spite of the fact that there are no fewer than ten distinct varieties of domesticated geese there are really only two that are bred to any extent in this country—the Embden and the Toulouse. The probable reason why breeders have not thought it worth while to introduce new varieties, as they have with ordinary poultry, is because the demand for stock geese is only comparatively a small one, besides which the Embden and the Toulouse possess such excellent economic characteristics that it has been thought unnecessary to go further afield. At the same time, there are several other varieties that possess certain valuable qualities, and under certain conditions and for certain purposes they may be recommended. The remaining eight varieties are as follows: African, Canadian, Chinese, Danubian, Egyptian, Roman, Russian and Saddleback.

Toulouse versus Embden.—The chief characteristic of the Toulouse goose is its large size. A fully matured gander averages about 30 pounds, and a goose about 22 pounds, whereas the average weight of an Embden is rather less. Size is an all-important factor nowadays in determining the marketing value of a goose, and it is possible to obtain a relatively higher price for the large birds.

It is not easy to see why large birds should be so very popular, and why they should command more money, because the flesh of such is rarely as fine as that of the smaller ones, nor is the flavour or texture so satisfactory. Poulterers state, however, that 90 per cent of their customers prefer the big specimens, notwithstanding their evident drawbacks, and that they are



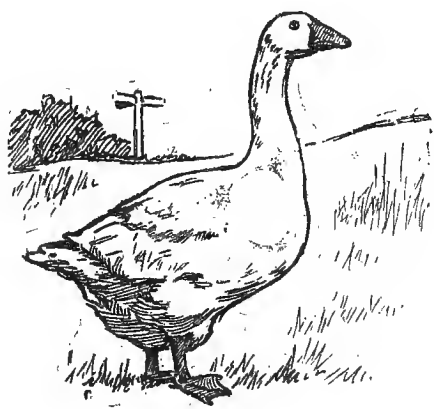
A Toulouse Goose.

apparently willing to pay more so long as they obtain large and heavy birds. The fact, therefore, that the Toulouse attains to a larger size than the Embden plays a very important part in determining its popularity, and so long as this craze for heavy weight exists it will probably retain its position.

Flesh Properties.—While the Toulouse has the advantage in size the Embden scores in the superior quality of its flesh. The Embden, moreover, lends

itself more readily to fattening than does the Toulouse, besides which it is rather a better shape when killed.

A still more important advantage possessed by the Embden is that it is a rapid grower, and at a time when its rival is tall and lanky it is in excellent killing condition. It can be brought into a good marketing state about a couple of



An Embden Goose.

months sooner than the Toulouse, which means that it is a more suitable variety for supplying the Michaelmas demand; in fact, unless the Toulouse is hatched exceptionally early in the spring it is no use whatever for the September trade.

Embden geese are not such good layers as the Toulouse, producing about thirty to thirty-five eggs in a season, whereas the Toulouse goose is generally responsible for about forty-five to fifty. By careful selection and breeding, however, this is a matter

that could be improved. The Toulouse is usually a non-sitter, but the Embden is a very persistent and attentive mother.

The External Points.—There is never any difficulty in distinguishing between these two varieties since there are so many points of dissimilarity. The Toulouse is very massive in proportions, and, when viewed sideways, appears almost square. The body is deep, broad, and long. The chest should be wide, and the keel should be deep, and should touch the ground between the legs.

A fault with many geese that one sees is that they are somewhat narrow-chested, and in selecting breeders such birds should not be allowed a place in the pen, as otherwise the fault will probably be transmitted to the offspring—possibly in an intensified form.

The head of the Toulouse is strong and massive, the bill large and orange coloured; the legs are stout and also orange in colour. A special characteristic of this breed is the dewlap or the throat or gullet, which is large and well developed.

The plumage of the Toulouse is grey and white; the head, back, thighs, and breast are grey, the colour gradually becoming lighter towards the legs and tail, where it is quite white.

The Embden, on the other hand, is pure white in plumage, with bill, legs and feet a bright orange. It appears rather smaller than it is really, owing to the fact that the feathers are close and lie near the carcase.

The body is neither so deep nor carried so near the ground as in the case of its rival; the neck is finer and more swallow-like; the head is longer; and the dewlap is altogether

absent. The body is fairly broad, and the breast, while medium in breadth, has little indication of a keel. The back is long and straight, the wings large and strong, and the paunch wide and deep.

CHAPTER XIV

THE BREEDING STOCK

With every kind of poultry, economy in feeding is most essential at the present time, owing to the shortage of food-stuffs and their high price. With stock geese this is especially important, as they are greedy eaters, and if they have their own way will consume a large quantity of meal and grain. But this is just what the goose raiser must not let them do; if he does he will find a heavy balance on the wrong side when he squares up his accounts.

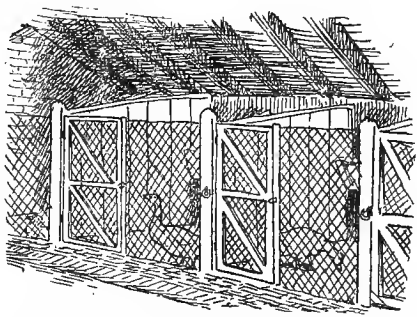
Geese are really grazing birds, and thus the difficulty of feeding them cheaply is at once overcome. When they are given access to a good meadow or pasture land they can pretty well support themselves, requiring little in the way of meal and grain. Not only do they obtain nearly all the food they want, but they do the land over which they are running a great deal of good.

In spring and early summer geese can nearly live upon the grass, especially if there be a good deal of succulent herbage. During the time they are actually laying, however, a little extra food should be provided, for laying is a strain upon the system, and unless the necessary materials are provided for the formation of eggs one cannot expect a satisfactory supply.

What to Use.—One meal a day, therefore, should be provided, and a good mixture consists of steamed

clover chaff three parts, brewers' grains three parts, and pea or bean meal one part. Any garden produce which can be spared should also be used. Cabbage or Brussels sprouts' stalks, for instance, and all the things which are usually thrown away should be boiled and used.

Housing Stock Geese.—While it is true that geese are hardy birds, this is no reason, as many people seem to imagine, for neglecting them in the way of house accommodation. Geese respond very readily



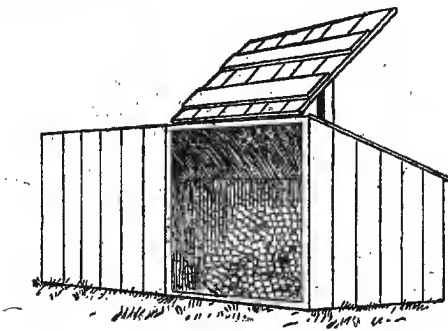
Goose pens in a corner of a barn. An excellent place both for breeding and fattening birds.

to good treatment, and the effects of neglect quickly become apparent. If the housing arrangements are inadequate eggs will be scarce and the goslings hatched from them are likely to be unsatisfactory.

It is a bad plan to allow geese and hens to roost together. A separate house should be provided for the geese. This need not be at all elaborate, the essential points being that it shall be dry, well-ventilated, and warm. A very good form of house is one built as follows: Four feet high in front, sloping to 3 feet at the back. The front is made of wire-netting, with a sloping flange along the top

to prevent rain from entering. A house like this provides ample protection. If the weather is exceptionally severe a few sacks hung down the front keep the inmates warm and cosy.

The best form of floor is the ground itself. Wood, cement and bricks are all more or less unsuitable. Wood causes cramp, cement is too cold and bricks, being porous, are likely to absorb some of the manure, causing the place very soon to give off an offensive smell.



A useful type of goose house.

If the place where the house has to stand is at all low-lying and damp—though such a place should be avoided if possible—the earth inside the house should be dug out to a depth of 5 or 6 inches, refilled with coarse gravel or broken bricks, well beaten down, and covered with fine binding gravel. There is nothing better than a floor of this description.

The Breeding Pen.—If too many geese are mated to one gander infertile eggs are bound to be the result. This is a particularly heavy loss in the case of goose eggs, since there is no market for them. Their only use is for hatching purposes. I have

always had the best results when I have mated five or six geese to one gander. Some seasons I have tried more than this number, but never with success. If five or six geese are mated to one gander it should be seen that the latter is a strong and vigorous bird.

Young geese should never be mated with a young gander. I know it is often done, but it is a mistake. There is no objection to using yearling geese, but in this case it is necessary to mate them to a gander at least two years old, while a three-year-old bird is all the better. If, on the other hand, the geese are old birds there is no reason at all why the gander should not be a yearling. In fact, this is what I recommend—two or three-year-old geese and a strong and healthy year-old gander. This mating throws excellent stock.

Another very important point to bear in mind in this connexion is that the geese and the gander should be in no way related to one another. In-breeding is a practice which should never be followed by the utility poultry-keeper. We all know that sometimes the use of related birds is necessary, such as, for instance, when one is trying to make a new breed, a new variety of an existing breed, or to establish a new colour. But for ordinary purposes, and especially with geese, it is a plan to be very strongly condemned, making the offspring narrow-chested and knock-kneed, besides ruining their constitutions, stunting their growth, and rendering successful rearing almost impossible.

CHAPTER XV

HATCHING AND REARING GOSLINGS

BECAUSE goslings are such extremely hardy birds many people seem to think that they can be neglected almost to any extent. But this is a very great mistake. It is quite true that they do not require such close attention as do chickens or young turkeys, but all the same they *do* require careful treatment, otherwise disease is likely to be prevalent or, at any rate, development is bound to be slow.

Hatching the Eggs.—All the early eggs should be placed beneath ordinary hens, while upon the last batch the goose herself may be allowed to sit. Unless the eggs are removed as they are laid the goose will want to sit when she has produced about fifteen, whereas when they are regularly removed she will probably lay double the number.

A goose egg takes about thirty days to hatch. Something depends in this connexion upon the freshness of the eggs when they are set, the fresher the egg the shorter being the period of incubation.

The hatching of goose and duck eggs is very similar, particularly in so far as the provision of moisture is concerned. If they become too dry the two thin skins close up against the shell become very tough and thick, often preventing the goslings from making their way out. A gosling's beak is quite soft and blunt, and it is unable to pierce a tough skin or a tough shell. Each day the eggs in the nest

should be sprinkled with warm water, and during the last week they should be dipped daily into water heated to 100°. Perhaps even a better plan than sprinkling the eggs is to water the earth round the outside of the nest every day, as the heat of the hen's body attracts the moisture to herself, and so through the eggs.

Regular cooling is imperative, and the hen or the goose should leave the nest for at least a quarter of an hour daily. If the weather is warm, twenty-five or even thirty minutes is none too long. Without this cooling there is grave danger of the germs being weak, and the goslings, when hatched, delicate and difficult to rear.

The First Few Days.—Under no circumstances should goslings be removed from the nest until they are quite dry, and this takes about thirty to thirty-six hours. During the time that they are drying they do not require feeding.

As soon as the goslings are quite dry they should be removed, together with the hen or the goose, as the case may be, to a large roomy coop. The coop requires to be well made, and, as far as possible, free from draughts. The earth itself should form the floor, wood on no account being employed, as it has the effect of speedily causing leg weakness and cramp—about the only complaints from which goslings suffer.

Goslings are exceedingly hardy birds, and they require very little brooding. Unless the weather is very cold, they may leave their mother at the end of a week. During the first few days of their lives there should be a run around the coop to prevent them wandering away, but after this period has elapsed the more exercise they have the better it is for them in every way. Goslings, when they begin to develop, require plenty of exercise to maintain

them strong and healthy. They cannot stand much confinement, and under such conditions speedily become listless and develop unsatisfactorily.

With goslings more than with any class of poultry is protection from the sun essential. Too much sun has a very bad effect upon them, and, if continued, is likely to cause serious mortality. The coop should be placed near a hedge or under a tree. If this is impossible, a few flake hurdles, or two ordinary hurdles fastened together with straw between, placed in an upright position against the side of the coop, affords excellent protection from wind, rain and sun.

It is a great mistake to overcrowd goslings, either in their sleeping quarters or upon the ground. Unless they have ample space in the coop, and afterwards in the shed, together with an abundance of fresh air their growth is seriously affected. They must be kept growing, and this is only possible when they are properly managed.

Not only must overcrowding be avoided in their sleeping place, but it is equally necessary that they are not reared in large numbers, unless there is plenty of land at their disposal. If any common land is accessible, more geese can safely be kept than if this privilege is not to be had.

Feeding the Young Stock.—It is obvious that upon the early feeding of the birds a great deal depends. Goslings should not be forced as in the case of ducklings, as there is plenty of time for them—especially those which are hatched early—to attain a big size by the time that Michaelmas or Christmas arrives. The food given during the early stages of growth should be of such a nature as to build up strong frames and sound constitutions. At the same time, it is necessary to exercise great care in feeding, since geese are large and voracious eaters, and unless

economy is practised the profit you might have will quickly be swallowed up by the food bill.

In order to give the birds a good start in life it pays to supply them during the first few days with hard-boiled eggs, chopped up finely, mixed with biscuit meal, and moistened with sweet milk or warm water. This is necessary only during the first few days; if the birds are doing well the egg diet may be discontinued on the third day. New-laid eggs should not, of course, be used. Infertile eggs that have been tested and rejected on the seventh day of incubation answer the purpose equally well.

Variety in feeding is one of the secrets of success, and thus it is advisable to vary the diet as much as possible. Whatever is provided, however, must be in a crumbly-moist condition, not sloppy. Sloppy food encourages all sorts of bowel troubles.

Ground oats is an excellent food for goslings; so is barley meal and middlings, either singly or mixed together. Scalded grain, too, is most suitable. It is a food which the birds like greatly, and upon which they thrive remarkably well. It requires to be well scalded, and should then be dried off with barley meal or middlings.

Economy must be practised in every possible way. While the birds are young these meals are quite suitable, for the birds' appetites are small. After a fortnight or three weeks a cheaper diet may be adopted. One good feed daily of barley meal and middlings should still be given, but the other meals may consist of bran, brewers' grains, malt culms, boiled swedes or turnips. Quite a good ration consists of two parts middlings, two parts bran, four parts boiled roots and two parts brewers' grains.

Geese are Grazers.—A great saving can be effected in the food bill by remembering that to a very large extent geese are grazing birds, and when the

youngsters have access to good pasture land they consume a large quantity of grass. This should be encouraged, for it does them good; they thrive excellently upon it, and it reduces the food bill.

Green food in one form or another is necessary towards their health and vigour. Without it their blood is liable to become heated, and their internal organs deranged. Towards the end of summer, or on poor land where the herbage is scarce, it is necessary to provide them with cabbage leaves, lettuce leaves, the tops of brussels sprouts, or some similar garden produce. Onions, too, are a valuable addition to the diet, and should be chopped up and mixed with the morning mash.

CHAPTER XVI

THE MICHAELMAS GOOSE

VERY many farmers and smallholders who raise geese for table purposes make the error of concentrating all their energies upon producing geese for the Christmas market, entirely ignoring the excellent demand which exists at Michaelmas and during the autumn generally. We, in this country, have never fully realized the many advantages of the autumn trade. On the Continent generally they have done so, as there enormous quantities are consumed at Michaelmas as during the following months. In all the markets I have visited from time to time in Central Europe I have been greatly impressed by the huge dimensions to which this trade has grown. Our farmers and smallholders would be well advised to pay much more attention to this profitable trade.

The birds that are marketed in these countries are considerably smaller than those that we are accustomed to see in our markets. Taking the average they weigh from 7 pounds to 8 pounds, whereas goose raisers in this country have always endeavoured in the past to produce large, heavy specimens. I am convinced, however, that the day of the large bird is over, and that what the market will want is a small or medium-sized bird of excellent quality.

The Breeds for Michaelmas.—For this purpose we must look for a breed that will grow rapidly, and, moreover, that will put on flesh before it is mature.

The type of bird met with in Central Europe is more like the Embden, but even this breed is, as a general rule, rather on the large side.

In America I found that they employed the Chinese goose extensively, but my own opinion is that a cross between the Chinese and the Embden gives us just the type of bird we require. Such a mating produces goslings that grow quickly and which lend themselves well to the fattening process.

In order to have geese ready for marketing at Michaelmas it is necessary to look after them well from the very commencement of their lives. Growth should be encouraged in every possible way, but not at the expense of stamina and good health. Birds that are to be killed as soon as they are large enough may be forced much more than those which are to be retained for stock purposes. The great aim when they are for killing is to force development in every way.

Where the September Trade Scores.—Prices are not quite so high at Michaelmas as they are at Christmas. Striking an average for the total trade during the last few years this is so, but at the same time it is often possible to obtain just as good a price in September as it is in December.

Even if rather lower prices were the rule at Michaelmas, it would still pay to market all the birds that are large enough, because in doing so the feeding of the birds during three months is saved, and this at an expensive time in the life of the birds. Moreover, space is economized, labour is saved, and the overturn of capital is rapid.

Another advantage is that Michaelmas geese can be almost finished off on the stubbles or on a good pasture, whereas the Christmas birds have to be provided liberally with meal and grain. These are all-important points, so that while the price of

Michaelmas geese may be rather lower than that of the Christmas birds, they yield a considerably larger profit.

Feeding Michaelmas Geese.—As I mention above very little in the way of special feeding is needed in the case of Michaelmas geese. They may be allowed to wander about during the day, and if they have access to good pasture land or to the stubbles, they are able almost to support themselves.

For a fortnight previous to killing, however, it is a good plan to confine them, and feed them liberally upon food of a fattening nature. If they are permitted to wander about till the day previous to killing they will not be in nearly such good condition, while the flesh will be hard.

In normal times barley meal and middlings in the mornings and at midday, and grain in the afternoon, is the best diet. Neither ground oats nor maize meal is recommended; the former because it is rather too expensive, the latter because it produces fat and not flesh.

During the final fortnight they should be fed three times daily, and allowed to eat at each meal as much as they desire. When their appetites are satisfied, any food that remains over should be removed, and no more provided till the next meal. While they are confined in a shed they should be provided with plenty of grit, green-stuff and drinking water.

The Housing Arrangements.—It is most necessary to avoid overcrowding the sheds in which Michaelmas geese are living. While nothing elaborate in the way of houses is needed they must be dry, warm and well ventilated. On many farms and smallholdings a disused building, such as a stable, cowshed, or any other form of shelter, may be utilized, and provides excellent accommodation.

When, however, no such buildings are available,

a house must be constructed, and wood is the usual and the cheapest material for the purpose. The house should be on a sufficiently large scale to allow 4 sq. feet of floor space for each bird—that is, for goslings that are to be killed when they are about four months old.

The building should be lofty, so as to permit plenty of fresh air to enter, without a direct draught, which, despite the fact that geese are waterfowl and very hardy, they have difficulty in withstanding. If the front of the house is boarded up to within 18 inches of the roof, plenty of fresh air will be secured. When the weather is fine and warm some farmers are in the habit of allowing their geese to sleep out in the open, but I think the birds thrive better if they are provided with a properly ventilated and well-lighted shed.

CHAPTER XVII

FATTENING AND MARKETING GEESE

SMALL geese are of little value for Christmas, and fetch lower prices proportionately than do large birds. The public demands large size, and it is willing to pay for its fancy. This is really a mistake from the consumer's point of view, for so often in buying a big bird one is paying for heavy bone and a large carcase. Fineness of bone is of extreme importance, but it seems to be seldom regarded, and so long as the bird is of massive proportions the consumer is quite content. Small Christmas birds are always at a discount, although possibly they may be of better quality and of finer texture. This is a point to remember in marketing geese, whether at Michaelmas or Christmas, for it makes a deal of difference in the prices realized.

Starving and Killing.—Under no circumstances should fattened geese be sent away alive. The rough handling they receive on the journey not only causes the quality to depreciate, but they actually lose a good deal of flesh.

In warm, muggy weather the birds should be starved for thirty-six hours previous to killing. If it is cold, twenty-four hours are sufficient. This withholding of food has an excellent effect upon both the quality and flavour, besides which it causes the flesh to remain fresh for a much longer period.

Killing is quite a simple operation. The method I like best, although few people are strong enough to

adopt it, is dislocating the neck. To do this, the birds should be held in the left hand by the hocks and long flight feathers, while the neck is gripped between the first and second fingers of the right hand; and by giving a gentle pull, at the same time bending the head backwards, the neck is broken. To kill by knifing, the bird is laid on its back on the table, and the point of a sharp knife is inserted into the slit in the roof of the mouth; it is then given a sharp press, entering the brain. Death in both cases is instantaneous and quite painless.

Plucking.—The moment the bird is dead, and before the relaxation of the muscles has been concluded, plucking should commence. While the body is warm the feathers come out much more easily and there is also less danger of tearing the skin. Very important is it to remember that while the feathers are being removed the head should be hung downwards the whole time, so that the blood may drain away. If this point is not attended to, the blood remains in the veins, imparting a disagreeable colour and flavour to the flesh.

In plucking, a long drag should be avoided; rather should the feathers be given a short, sharp pull in the opposite direction to that in which they are lying. It is a good plan to pluck the delicate parts first, namely, the breast, the back of the wings, and on the back just in front of the tail.

As soon as all the feathers are removed the goose should be laid upon a table or shelf with a heavily weighted board resting upon it. It should be allowed to remain in this position for a few hours until it is quite cold.

Packing.—It is merely wasting time and money to prepare geese well, and then to fail in sending them to market in the right way. Bad packing is responsible, perhaps more than anything else, for reducing

the value of the finished article. For one thing, it is a fatal mistake to pack the birds before they are stone cold. If they are warm when packed they deteriorate very quickly indeed, arriving at their destination flabby and discoloured, and with their value greatly reduced.

Large hampers are the best medium for packing. Those who do not possess any can hire them from the principal railway companies at a small cost. Those desirous of availing themselves of this opportunity should make early application to the local stationmaster to prevent disappointment, as there is a considerable demand for these hampers. Although it is not usual to do so I always make a practice of wrapping each bird in a piece of grease-proof paper. It prevents any damage to skin or flesh, and entails very little trouble.

CHAPTER XVIII

DISEASES OF GEESE

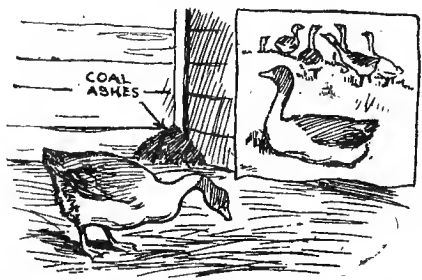
GEESE, both old and young, are peculiarly immune from disease, and provided that ordinary care is taken in their management it is very rare indeed for them to ail anything. This is one of the reasons —there are several, as I have already tried to show— why this branch is so profitable a one, because even though the prices realized for the finished article fall a long way short of those which are obtainable for turkeys, ducklings or chickens, there is practically no loss at all from disease.

There are only two complaints from which geese suffer at all commonly. The more serious of the two is a swelling and lameness of the leg. As a rule, the cause is due to poverty of blood, brought about by poor quality of food or insufficiency of feeding, but, at the same time, a predisposing cause is undoubtedly inbreeding or the use of immature stock.

Geese which are raised upon rich grass lands are rarely affected, unless the summer be unusually dry and the grass so burnt as to become wholly devoid of sap and unsuitable as a food for geese. On the other hand, we find numerous cases of lameness occurring among the geese which are raised upon land which is more suitable for tillage than for grazing, and where the grass is of a poor or dry quality.

Another contributory cause of lameness is prolonged drought. Thus, when the summer is very dry, geese suffer much more from the peculiar lameness and swelling referred to than when it is fairly wet.

The First Symptoms.—The first sign is a slight lameness, together with a desire to lie down frequently and to trail off from the flock when going to or coming from the feeding ground. At this stage the affected bird should be put under treatment, for if allowed to remain with the flock for a few days acute lameness will supervene, together with great



When a goose squats down you may be pretty sure that she is suffering from leg weakness.

heat in the knee and foot joints, and enlargement of one or both legs from the knee to the tops of the toes.

If not taken in hand before this acute stage of the disease has come, there is little hope of curing it. It causes the birds intense pain to move, and, after having lagged behind the flock for a day or two, they fall out of line and remain on some pond or stream, feeding upon water weeds of various kinds.

The Remedy.—The remedy for this complaint is

simple. Put the affected birds into a house or shed having an even floor, littered not too heavily with straw; do not allow any water for swimming, and feed liberally upon nutritious mashes or on oats steeped in water.

Drinking water must, of course, be allowed, together with plenty of grit and charcoal. A bucketful of ashes from wood or coal, thrown in a corner of the house, will suffice for the latter, and grit and lime may be supplied in the form of old mortar.

Let this treatment be continued until all trace of lameness has disappeared, when the bird may be returned to the flock. The appearance of swollen legs amongst goslings may be taken as a sign that the flock requires more liberal feeding, and considerable trouble and loss may be averted by feeding the whole flock on a meal of ground or steeped oats every evening.

Sore Heads.—Soreness of beak, head and eyes is the other common complaint to which geese are subject, and whilst the cause of this has also been attributed to poverty of blood, there is no doubt that it is caused not infrequently by an infestation of grass ticks of a small species, which fasten around the beak and eyes, causing pain, blindness and loss of blood. Similarly, sore heads are caused by contact with thistles and other stinging plants in the pastures. Treatment of this trouble is easy when the case is taken at an early stage. It consists in confining the goslings as before described and feeding them liberally, whilst the affected parts may be dressed in various ways. A daily washing of the head with warm water and carbolic soap is a simple and quite effective remedy. I have also been successful in curing affected birds by frequent washings with water to which a few drops of car-

bolic acid, Condy's or Jeyes' fluid or similar disinfectant had been added.

In both diseases the essential points of treatment are complete rest, nutritious food and local treatment of the affected parts in the manner suggested.

CHAPTER XIX

THE TURKEY TRADE

MANY poultry-keepers seem to have a strong preju dice against turkeys, and in spite of an excellent demand and high prices they prefer to leave this branch severely alone. They are wrong, however, in not making the most of their opportunities, for when the conditions are favourable there is no class of poultry which yields a better return.

The home supply is altogether inadequate to the demand, and tens of thousands of birds are imported from the Continent, from Canada and from still more distant parts. Our dealers tell us they would much prefer to trade in home produce, only that it is impossible owing to the comparative scarcity of supplies.

The Necessary Conditions.—The rearing, fattening and marketing of turkeys is a branch of poultry-keeping that is only really suitable for those who have a good deal of space at their command. It is merely courting failure to confine closely either the breeding stock or the chickens.

It is a mistake, too, to keep turkeys under unfavourable conditions. If one is living in a low-lying, damp, or in a very cold and exposed situation the work should not be undertaken; clay soil, too, is unsuited to them, and where it is of this nature much difficulty is experienced

in rearing the chickens successfully. Turkeys cannot stand confinement at all well, and unless one is able to allow them their freedom it were better to choose some other branch. A fairly light soil, however, suits them admirably, especially if there is an abundance of natural shelter to protect the young stock from the wind, rain and sun.

Why the Prejudice Exists.—The chief reason, I think, why turkeys are not kept in larger numbers is that they are commonly supposed to be very delicate, requiring incessant care to rear to maturity. It is quite true that turkeys are not, generally speaking, so robust, nor do they possess such vigorous constitutions as other kinds of poultry, but to say that they are extremely delicate is altogether an exaggeration. So long as the general laws of breeding are attended to, so long as the parents are fully matured and quite unrelated to one another, and so long as the conditions under which the birds live are favourable, then there is really very little more difficulty in rearing them successfully than ordinary chickens.

Prices of Turkeys.—Before the days of controlled prices the value of turkeys was largely determined by their size, and we may expect the same thing to occur again when prices are not controlled. There has been a craze during the last few years for birds of a very large size, and it was possible to obtain twice as much per pound for very large specimens.

There is a tendency nowadays, however, to favour the smaller birds, and of late quality has come to be regarded as of more importance than size. The opposite was the case up to a very few years ago, when size was considered as far more important than quality. This was a mistake, because the very heavy birds are coarser than small ones, and lack

the fine flavour and tenderness of the 12 to 15 pound bird.

This craze for size is happily dying out, and people are beginning to realize that quality is of more importance than mere quantity. The fact should be regarded by those intending to cater for this demand.

CHAPTER XX

THE BEST BREEDS

Of the eight varieties of domesticated turkeys the American Bronze, the Black Norfolk, the Cambridgeshire and the White are the only ones with which we need concern ourselves, since these are —particularly the first mentioned three—far and away the best. The remaining four varieties are the Narragansett, the Buff, the Fawn, and the Italian.

The American Bronze.—This is our largest turkey, and is the most popular breed both in this country and in the United States, where it originated. A fully matured cock averages from 30 pounds to 34 pounds, a yearling cockerel about 22 pounds to 24 pounds, a fully grown hen about 20 pounds, and a pullet 15 pounds. Individual specimens have attained much greater weights than these, however. A year or two ago at the Royal Show a three-year-old cock was exhibited which turned the scales at 48½ pounds, while it is stated on very good authority that a hen in the States weighed 32 pounds. But such huge birds as these are not by any means recommended for utility purposes. Generally speaking they are very unsatisfactory as breeders.

The two chief characteristics of this variety are large size and hardiness; the former especially has helped to make the breed so immensely popular, because size is of the utmost importance in marketing turkeys. The greatest admirers of the American

Bronze, however, cannot claim that the flesh is of the finest quality. There is a distinct tendency to coarseness, especially in the large specimens, and, generally speaking, first-class flavour is somewhat lacking. From a breeder's point of view, however, this is immaterial, as purchasers seem quite indifferent to the flavour provided the birds are massive and carry a huge amount of flesh.

In appearance the American Bronze is exceptionally handsome, especially the male bird. The plumage, as indicated by the name, is of a bronze colour, with a little black and grey here and there. The shanks in young birds are almost black, gradually becoming flesh-coloured as age increases. To some extent the age of the bird can be determined in this manner.

The Black Norfolk.—This variety has been bred for many generations in East Anglia, which district has gained such fame for the quality of its turkeys. It does not attain to the same weight as the American, yet under good management and favourable conditions it does not fall very far short of the Bronze

It is not quite so hardy, but it has one advantage over its rival, in that its flesh is of a finer quality. Moreover, being lighter and smaller in bone, it really carries a greater amount of flesh than its appearance indicates. This, however, appeals to the epicure more than it does to the masses, since, as previously stated, size is of first importance. The Black Norfolk is very broad and deep in body, with powerful shanks and feet of a dark colour.

The Cambridge Bronze.—This breed is the result of crossing the American with one or other of the Black varieties. Thus it possesses some advantages of each, being hardy like the former, and taking after the Black in texture of flesh and smallness of

bone. The hens of this breed are very good layers, and they may be depended upon to hatch and rear a brood of young ones every year. They fatten very readily, too, and take contentedly to confinement during the process.

In appearance they are not so handsome as the American Bronze; the plumage although bronze in colour, lacks the beautiful bright lustre of the American, and the feathers are white or silver grey at the ends. They are not quite so long in body either, as the American, but they have depth, while the legs are powerful and wide apart, and of a lighter colour than those of the Black.

The White Turkey.—There are comparatively few breeders of this variety in England, but I have the highest testimony as to their fattening properties from those who do rear them, and the excellent quality of flesh is at once apparent to all those who have tested the matter. They are considerably smaller than are the three breeds already described, while they are rather delicate and more difficult to rear than the other breeds. They are not, however, kept to any great extent by the farmer who raises for market purposes, but they are mostly kept by private breeders whose primary object is to provide for their own tables.

CHAPTER XXI

THE BREEDING STOCK

THE rearing of turkeys is a branch of utility poultry-keeping which has always been shamefully neglected in this country. Just why this has been and is so it is difficult to say, since under favourable conditions and good management it is a branch that yields very large profits. But to succeed the conditions *must* be favourable and the management *must* be good.

No kind of poultry is so easily influenced by its surroundings as turkeys, so it is merely wasting valuable time and money to attempt keeping them on a very heavy clay soil, or in a very cold and exposed or low-lying and damp situation.

The Breeding Pen.—In order to ensure a supply of eggs containing strong and vigorous germs the breeding pen should not be too large. The fact that one union with the male bird is sufficient to fertilize all the eggs of a clutch has led many people to think that an almost unlimited number of hens may be mated to one cock. This is quite wrong, however, and is responsible for many an infertile egg. More than six or eight hens should on no account be mated to one male bird, no matter how vigorous or strong he may be.

Exerting as they do so enormous an influence upon the progeny it is very necessary indeed to select the parents with great care. The good points of the parents will be reproduced in the offspring. So will

the bad points. If the parents are large and healthy the chickens produced will themselves be large and healthy. On the other hand, if the parents are undersized and of poor constitution the offspring will have these failings, probably in an intensified form.

Large size and rapid growth are two very important points in determining the value of Christmas turkeys, and thus parents which are strong in these particular points should be selected. Small parents will never produce large offspring, and therefore they are of very little use for breeding purposes.

Housing Turkeys.—It is very necessary to provide turkeys with warm, dry and well-ventilated houses. Even if the outward surroundings are not all that they should be this drawback can be largely overcome by the provision of good sleeping quarters.

It is not a good plan to allow turkeys to roost with ordinary fowls. This is not so much from the turkey's point of view as it is from the fowls, since when they all live together in the house the latter never do so well. It is much the better plan to provide quite a separate house for the turkeys.

The Necessary Requirements.—As I mention above the house must be warm, dry and airy. By warm I do not mean that it should be artificially heated, for turkeys living in such an atmosphere are particularly liable to colds and other complaints. What I do mean is that it shall be substantially built, so that a fairly equable temperature is maintained all the year round. Timber an inch in thickness ensures this, so long as the boards fit together well and there are no draughts.

Dampness is fatal to turkeys of all sizes and all ages. To house turkeys in a shed with a damp roof, damp walls or a damp floor is merely asking for trouble. See, therefore, that the house is dry.

Plenty of fresh air is also essential. There should

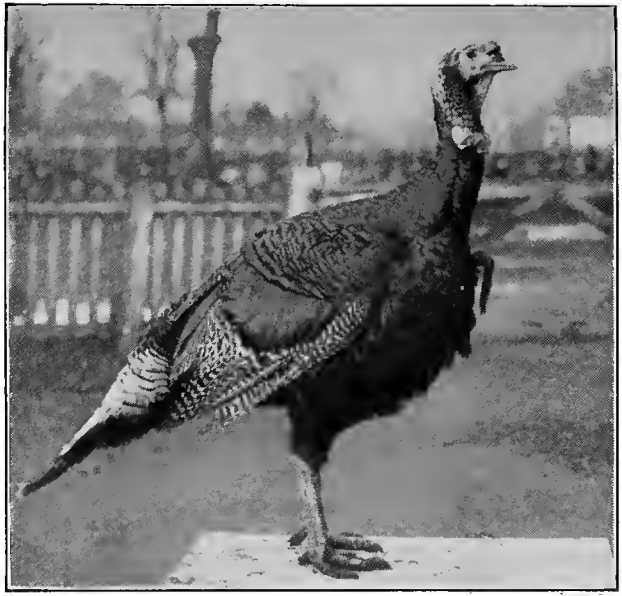


Photo by C. Aldis

CHAMPION AMERICAN BRONZE TURKEY COCK

Winner of numerous prizes, including First and Champion at Dairy Show.

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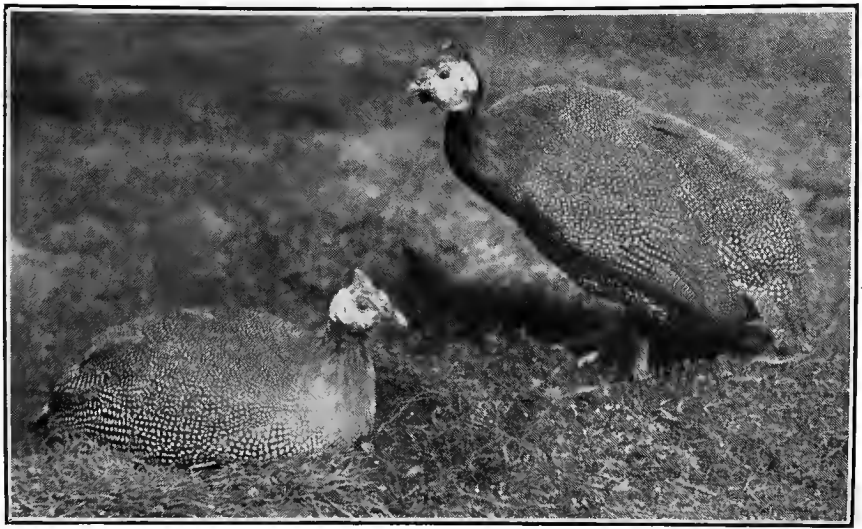

Photo by Chas. Reid

A Pair of Fine Guinea Fowls

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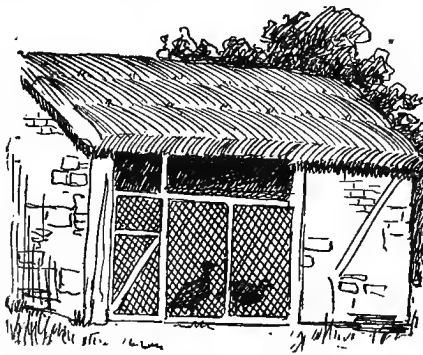
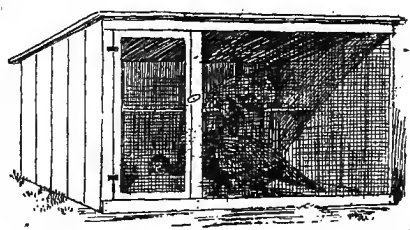
be a good system of ventilation fitted to the house, by means of which all the vitiated air can pass away quickly, its place being taken by a fresh supply. This is quite simple to arrange. Holes bored at the



A good type of turkey house.

highest points of the two ends, louvre boards, or in a large house ventilating shafts answer the purpose admirably.



Another very good type of turkey house.

Don't Overcrowd.—However well the house is ventilated the air will never remain pure and sweet if too many birds are kept therein. Of course, good ventilation in such a case is much better than poor ventilation, and to some extent overcomes the

difficulty. But, all the same, it is a great mistake to overcrowd the house.

Turkeys should be allowed roughly 6 square feet of floor space. That is to say, a house measuring 8 feet by 6 feet accommodates eight stock turkeys.

The best form of floor for a turkey house is the ground itself. Neither wood nor cement is recommended, while bricks are not altogether suitable, as they are absorbent and are apt to become impure in time. But they are preferable to cement, which is too cold. The best of all, however, is the ground, raised 6 inches or so above the surrounding land in order to ensure dryness.

The Feeding Problem.—Such excellent prices are obtainable for turkeys during the week preceding Christmas that one can, without any risk, afford to feed the birds well, always keeping an eye, however, upon the question of cost. Every penny which can be knocked off the food bill means a penny extra profit.

The most important time with stock turkeys is during the spring and early summer, because this is when they are laying. Their feeding is therefore a matter which demands serious attention, for if the food for the formation of eggs is not put into their bodies they can't reasonably be expected to lay. And neither will they.

The Best Foods.—The actual foods which should be employed is very largely a question of opportunity. It is really a matter for the individual to decide. He should consult his corn dealer or a neighbouring farmer and see with what he can be supplied at a reasonable figure.

The following is the best method I know of feeding turkeys. It is only given as a guide, and one must alter it in accordance with circumstances. Warm mash should be supplied first thing in the

morning, and a suitable ration consists of two parts ground oats, two parts middlings, one part bean or pea meal and half a part lean meat. Bran may be substituted for the middlings, but in this case rather more pea or bean meal should be added.

In the afternoon grain should be provided if any can be procured at a reasonable figure. Damaged or tail wheat is excellent. If a midday meal is given, it may consist either of mash—any food that remains over from the morning can be used up in this way—or grain.

Natural Foods.—As turkeys are always—or at any rate should always be—at liberty they are able to pick up a good deal of their own living. They should be encouraged to do this as much as possible, for it represents so great a saving in the food bill. On good land active and healthy birds are able half to support themselves, especially during the spring and early summer, when the ground abounds in animal and vegetable life. Seeds, worms, grubs, insects are all suitable, not only supporting the birds in good health and condition, but also ridding the soil of many injurious pests.

A liberal supply of grit is necessary, in order to assist in the assimilation of the food; but as a rule the birds can secure all they want for themselves. Plenty of green food likewise is essential, for without this the blood is liable to become heated and the internal organs refuse to act properly.

CHAPTER XXII

HATCHING AND REARING TURKEYS

TURKEYS are not really, although they have the reputation of being, delicate, so long as the smallholder knows how to look after them. This is not quite the right way perhaps to put it. It is no use for the smallholder to know how to look after them, unless he puts his knowledge into practice. This is really what I mean.

Whenever you hear of turkey chickens being delicate you can always trace it to one of three things: First, because the parent stock were related to one another; second, because immature stock birds have been employed; and, third, because the surroundings are unfavourable. All these things are very simply guarded against.

The use of related parents in breeding any class of stock is one of the greatest mistakes that can be made. Sometimes, of course, one has no option but to do so. In making a new breed, in establishing a new variety, in fixing a new characteristic in-breeding is oftentimes necessary, but to avoid harmful results accruing the greatest care must be taken in mating the birds. Haphazard methods spell disaster.

A turkey does not attain to full maturity until it is three years old, and it is a mistake to allow both parents to be below this age. There is no harm in using a two-year-old cock, but in this case he must be mated to three-year-old hens, and *vice versâ*.

The third reason of turkeys being delicate is that their surroundings are unfavourable. No class of stock is so easily influenced by its surroundings as are turkeys. A low-lying, damp situation renders successful rearing quite a matter of chance, with the odds against you, and it is the same if the place is very exposed and cold. Moreover, turkeys must not be cramped for space; they must have their full freedom to wander far and wide.

Hatch Under Hens.—Often have I hatched turkey eggs in an incubator, but there has invariably been a special reason for doing this. Hens should always be given the preference, for they bring out a bigger percentage of chickens, while the birds are stronger and easier to rear. I don't know why this should be so, but nevertheless it is a fact. But as broody hens are plentiful during April and May—the months when hatching should be in full swing—this involves no difficulty.

It is sometimes very difficult to find the turkey's nest, for she is a shy bird and likes to lay in as secluded a spot as possible. If the place selected is safe and not too far away, the bird may be allowed to use it, but the eggs should be removed each day as laid, dummies being substituted in their place. A good turkey hen will frequently lay twenty-five, and even thirty eggs before wanting to sit. The early eggs should be given to broody hens, quiet and reliable birds being chosen for the purpose. The last few the turkey hen herself may brood.

The sitting hen should be looked after carefully, but there is nothing particular to note in her management. She should be fed and watered each day—wheat and maize in equal proportions being the best diet. While the eggs are hatching the hen should be lifted off every few hours in order to remove the

empty egg shells and to see that everything is proceeding properly.

Turkey eggs take approximately twenty-eight days to incubate. If the eggs are quite fresh when set the chickens may make their appearance about the twenty-sixth or twenty-seventh day. Chickens which hatch in good time are stronger than those which are late. About the seventh or eighth day the eggs should be tested, and the infertiles removed.

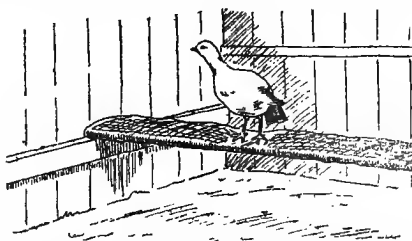
Removal to Coop.—As soon as the chickens are quite dry, but not a moment before, they should be moved to a dry and roomy coop. A wooden floor should be avoided, since this is so liable to lead to leg-weakness and cramp. If possible the coop should be placed beneath a shed or some such building, as during the first few weeks of their lives turkey chickens require protection from wind and rain.

When there is no shed available a double coop should be employed. This consists of an ordinary coop with a small covered-in run attached. However rough and inclement the weather may be, this provides a dry exercising ground for the chickens. And without plenty of exercise successful results are extremely unlikely.

Turkey chickens should remain with the hen until they are from eight to ten weeks old, by which time they should have passed the delicate stage. At this age they should be removed to a small house, which should be placed in a fairly sheltered spot, preferably near to a wood or copse, in which the birds may wander about during the day, seeking and finding all sorts of worms, grubs, insects, etc. The house must be dry, warm and well ventilated. Until turkeys are about four months old they should not be allowed to perch, and only then on a perch or shelf about 8 or 10 inches wide. Unless

this is attended to, bent breast-bones, especially in the heavier specimens, are certain to follow, which greatly detract not only from their appearance but from their value when Christmas arrives.

Feeding Turkey Chickens.—It is quite unnecessary to give turkey chickens anything to eat until they are from twenty-four to thirty-six hours old. Part of the yolk of the egg—that part which has not been employed in feeding the chicken within the shell——is absorbed by the bird immediately before it makes its exit from the shell, and this contains



Narrow perches are bad for young turkeys, since they put the breast bones out of shape, and so reduce the bird's value. The above is the kind to adopt.

sufficient nutriment to last it for a day or a day and a half.

I have experimented a good deal with the feeding of turkey chickens upon dry food, but the results have shown that this method is unsuitable. From the very first, therefore, soft food should be provided. The first feed should consist of hard-boiled eggs, chopped finely, and mixed with stale bread-crumbs or biscuit meal, preferably the latter. If the chickens are thriving well the egg diet may be discontinued at the end of five days to a week. After this, well-soaked biscuit meal, boiled rice mixed with fine oatmeal, or ground oats and sweet

milk should form the staple diet for the next week or two.

Whatever food is employed should be mixed into a crumbly-moist consistency. Sloppy foods must be avoided.

A little grain, such as cracked wheat, dari, and groats may be scattered about, for which the chickens scratch greedily.

Pure drinking-water and an abundant supply of grit and green food are essential items in the diet. The outer leaves of lettuces are particularly beneficial, but, failing these, onions, boiled nettles, and the tender leaves of cabbages answer the purpose. Lean meat is also necessary for young turkeys, and from the very first a little should be given to them every day.

Frequent Feeding Necessary.—A very important point to bear in mind in the rearing of turkeys is that their crops are very small, and thus feeding must take place frequently. During the first week they should be fed every two hours from about 6.30 a.m. to 8.30 p.m. Every three hours is sufficient during the second week, the number of meals being gradually reduced until when the chickens are seven or eight weeks old four meals daily are enough.

"*Shooting the Red.*"—Before the chickens leave the hen and are put into a house by themselves they should be safely through the period known as "shooting the red," which occurs when they are about seven to nine weeks old. It only takes a few days, but during this time the birds require careful treatment, for neglect in any shape or form is almost certain to have serious consequences. The youngsters for a few days lose their appetites, their feathers become dull, and altogether they have a listless appearance.

They must be kept away from wet, and thus it is inadvisable to liberate them first thing in the morning while the grass is damp. If it is raining the safer plan is to keep them under cover altogether.

To the morning mash there should be added one-eighth part by weight of linseed, while to a gallon of drinking-water a dessertspoonful of Parrish's Chemical Food should be added.

CHAPTER XXIII

FATTENING AND MARKETING TURKEYS

THE chief aim during the few weeks immediately prior to killing turkeys is to add as much flesh as possible to the carcass. It is too late, once the middle of November has arrived, to think of increasing the size of the frame, for during the fattening period there is practically no growth in the birds. The development of the frame should be seen to during the summer and early autumn. While it is too late to increase the size of the frame, however, it is possible to add from 4 pounds to 5 pounds of flesh to the bird during the last six weeks of its life.

While the birds are being fattened they should be confined. This is the case, of course, with any fattening animal or bird. Unlike fowls, however, turkeys should not be placed in small cages. They should be confined in a large, light and well-ventilated shed. It must, too, be dry, for damp is fatal to turkeys at any stage of their growth. Each bird should be allowed about 12 square feet of floor space, for the shed has to act as a roosting compartment as well as a scratching shed. A shed measuring 20 feet by 12 feet, therefore, provides ample accommodation for twenty birds.

Clean and abundant litter should be provided, and it should be renewed frequently. A few broad perches may be arranged at the back of the house, or else the birds may sleep on the floor.

The Best Diet.—There is no food to equal ground oats for fattening turkeys. This should be mixed with sour skim milk and made into a crumbly-moist consistency. Sloppy food of any description must be avoided. Barley meal, buckwheat meal (if it can be obtained cheaply) and middlings are all suitable, either alone or mixed with ground oats. Sour skim milk instead of water should always be used for moistening the meals.

Many turkey fatteners consider that two meals daily are sufficient, but I have always had much better results by giving three. At midday a mash is given again, while in the afternoon wheat, oats, or buckwheat is provided.

Cooked vegetables, especially potatoes, mixed with meals, is a good mixture. One-third potatoes to two-thirds meals is the best proportion. Avoid maize and maize-meal as you would the plague This food has the effect of producing fat, not flesh, and fat, moreover, which is yellow and greasy.

A little fat may be added to the mash and assists greatly in the formation of flesh, besides softening it. At the commencement of the fattening period ½ ounce per bird per day is sufficient, but the quantity should be gradually increased until towards the close 1 ounce per day is being provided.

Grit, of course, is necessary for the proper mastication of the food. A small box full of grit and about the size of peas should, therefore, always be kept in the shed. Green food is also beneficial, though not absolutely necessary, provided that sour skim milk is mixed with the food, for this has a good medicinal effect upon the birds.

Marketing Turkeys.—No food whatever should be supplied to turkeys for at least twenty-four hours previous to killing, but I have always found that this period may be extended to a day and a half

with better results. Unless the crop and intestines are quite empty the bird does not remain fresh for so long, nor is its flavour quite so satisfactory.

If it is worth while going to the trouble and expense of rearing and fattening, it is certainly worth while to pay strict attention to the final processes, for the least carelessness in this direction reduces the value of the birds very considerably.

It pays to employ only really experienced men or women for plucking, even though they have to be paid half as much again for their work. A careless man can very quickly reduce a bird's value by a shilling or eighteenpence.

However anxious one may be to get the birds to market without delay, they must on no account be packed until they are quite cold, for if they are they will arrive at their destination in a flabby, soft condition, while probably the flesh will be discoloured and the flavour greatly deteriorated.

CHAPTER XXIV

DISEASES OF TURKEYS

A TRADITION exists that turkeys are endowed with constitutions of such delicacy as to make their successful rearing a question of uncertainty and doubtful profit. One has not to seek far to discover the source from which this impression emanated. All the early writers on poultry culture, at least those who wrote in our own tongue, invariably accompanied their remarks on turkey-rearing with depressed warnings of difficulties to be expected on account of this inherent delicacy. But if the reasons that prompted their counsel are closely looked into they will be found to have been conceived because of disasters recorded by breeders who neither understood nor studied the wants and habits of the birds rather than because of any constitutional peculiarity impossible to conquer with increased experience.

And so it is to some extent in our own day, although the growth of knowledge and the adoption of a more rational method of treatment on lines more strictly in accordance with the natural habit of the species have done much to dispel the notion that turkeys cannot be made, on the score of their health, to bring as much grist to the mill as other varieties of poultry.

It cannot be denied that turkeys in the interval of their lives between hatching and attaining adult age are often a source of anxiety and disappoint-

ment. It is equally certain that they pass through critical stages in their development, at which times improper food and surroundings will, of a surety, induce more than one form of fatal disease.

But it is no less clear that if proper steps are taken to understand the nature of their physical peculiarities and to provide them with an environment as far as possible like that which they enjoy in the wild state, much will have been done to protect them from disease and enable them, when it comes, to repel it successfully.

The Wild Turkey.—Assuming—and we are safe in assuming—the woods of North America to be the natural home of the wild turkey, a comparison of its habits of life in such surroundings with the treatment to which it is subjected under domestication will help to suggest some causes of failure in rearing other than that of inherent weakness of constitution.

In unrestricted life the turkey is accustomed to a free range, and exercises powers of flight by no means inconsiderable. Plainly, then, it is ill-adapted to confined runs and limited ground space. As a perching bird, the turkey will from the age of seven or eight weeks seek the high branches of trees as a roosting place. This sylvan habit, besides providing shelter from cold winds and rain, protects it from the evil consequences of resting on wet ground.

Natural Foods the Best.—Then again, in the matter of food, that of the wild turkey includes abundant supplies of insects, fresh green food, leaves, berries, seeds and acorns, but especially must the supply of nitrogenous food be liberal. How often is this forgotten when the birds are kept in the poultry-yard, or on a patch of poor grass land, on which every insect has long before been eaten up!

The study of the turkey in natural life, therefore, teaches us that the chief conditions tending to its health and vigour are shelter, dry footing and protection from rain. Moreover, we learn that its natural diet is rich and varied both in regard to animal and vegetable components; and, lastly, the free open life in the wild state suggests that when kept in domestication turkeys will soon suffer under the opposite conditions of insufficient ventilation.

The Question of Soil.—The question of the character of the land upon which rearing operations are conducted has always been held to be one of importance, but it is not unlikely that too great stress has been laid upon the necessity for a light, sandy soil, and those poultry-keepers who have not such land are often deterred on that account from entering the ranks of the turkey industry.

A sandy soil, of course, ensures dryness, a distinct advantage, but one that is discounted by the poor quality of grass and the consequent scarcity of insect life which such land carries with it. To show that other soils are suitable, it may be said that excellent birds can and have been reared on even heavy clay soils, but a good barn or shed is essential so that a shelter on rainy days, or when the land is saturated, is always available.

Our eastern counties, justly celebrated for their production of turkeys, provide a typical soil for successful rearing. Without being too heavy, it is rich enough, and yet such land can by no means be called light and sandy. What must be most closely attended to concerns not so much the quality of the land as the knowledge that a wet range and exposure to rain are the two factors that cause most havoc among turkey poults and chicks.

Some Turkey Ailments.—A wet soil and exposure

to rain are the predisposing causes of pneumonia, and there is no other disease of turkeys, in this country, at least, to which so many losses in young stock can be traced.

Another cause of this scourge will be found to lie in the custom of shutting up a flock of turkey chicks in an ill-ventilated, close house during the night, and in the early morning, with heavy dew or rain still on the grass, releasing them to run on it. The losses by this carelessness are very considerable, and the deaths may go on, by twos and threes, each day until the cause is discovered.

Pneumonia is not the only form of lung inflammation to be traced to the effects of exposure to wet. Bronchitis and pleurisy are diseases fairly common among turkeys, though not nearly so deadly or difficult to deal with. Every breeder has also at one time or another had birds suffering from rheumatic cramp. Here, again, the same cause is at work, and whatever remedies are applied, the treatment must include warm and dry quarters.

There is another disease in which cramp and helplessness of the legs is a prominent symptom, and which must not be confounded with rheumatic cramp. Reference is made to rickets, a malady dependent upon improper feeding, which occurs when the chicks are a couple of months old, and, of course, there are many diseases of digestion, such as gastro-enteritis and dysentery, that are also the direct result of erratic systems of feeding.

Turkeys also are as prone to contract parasitic diseases as other poultry, and gapeworms, as well as certain species of worms that invade the intestinal tract, are at times a great nuisance. Turkeys reared on land by themselves are much less liable to pick up these pests than when farmed with other poultry or in woods where pheasants abound. There

are other reasons also for keeping the birds quite separate from ducks and fowls.

" *Blackhead.*"—The parasitic disease, well known in America, but happily very rare in this country, termed " blackhead," has played tremendous havoc in many yards. The precise character of the parasite that causes it is still in doubt, and more information regarding outbreaks must be collected. Turkey-breeders who may at any future time suspect their stock to be suffering from symptoms resembling those of " blackhead " will both assist investigation and at the same time benefit themselves if they will bring the epidemic to the notice of one of the many authorities who are now only too willing to help them.

CHAPTER XXV

THE MANAGEMENT OF GUINEA FOWLS

It is not everybody who has the facilities for keeping guinea fowls, and it is certainly no use attempting the work unless one has. It is merely a waste of time and money, for instance, to attempt keeping guinea fowls in confinement, while it is even more futile to try to rear the chickens under these conditions. They must have a free range. Given that, however, guinea fowls pay well.

Well-fattened guinea fowls always find a very ready sale at high prices. They are greatly in demand, especially in the west end of London, and the demand always exceeds the supply. There is also a very ready sale for guinea fowl eggs, both for incubation and eating purposes.

The flesh of the guinea fowl is of exquisite flavour, resembling somewhat closely that of a pheasant. The body is plump and well proportioned, and the amount of bone and offal to flesh is small. It is unnecessary to fatten guinea fowls; in fact, the quality and flavour of the flesh is, in a large measure, ruined by so doing.

The Best Conditions.—The most suitable soil on which to keep guinea fowls is a medium one, with a gravel subsoil. They do not do very well on clay, while on a sandy soil, though their health is excellent, they have to be fed rather more generously, since on such soils there is very little animal and vegetable life.

When guinea fowls are running over good land it is quite surprising what a large quantity of food they can procure for themselves. They are very active birds, wandering miles in search of food. On several occasions I have kept a large flock of guinea fowls for two or three months, supplying them with no food whatever during this period. Such a plan can only be followed, of course, during the spring or early summer and on a fairly rich soil.

While guinea fowls are hardy, they cannot withstand great extremes of temperature, so very exposed situations should be avoided. Under favourable conditions, however, the chickens are comparatively easy to rear, the most critical stage of their lives being during the first fortnight after hatching. Once successfully past this period they are extremely hardy.

Guinea fowls are quite unlike ordinary poultry in that they are monogamous in habits, that is to say, they always mate in pairs. The male bird remains with the same mate throughout the season, and in nearly all cases he selects the same one the following year. As many male birds must, therefore, be provided as hens. Should there happen to be more hens than cocks the latter will probably fertilize the eggs of the former, but they do not remain with them, returning at once to their own special mate. Guinea fowls usually remain in flocks, and it is remarkable how well they agree. Even the cocks rarely fight among themselves. With other fowls, however, they are liable to be somewhat quarrelsome.

Egg Production.—The number of eggs produced by guinea hens varies very greatly. Some are extremely prolific, while others do not produce more than thirty to thirty-five eggs in a season. There are many cases on record in which an individual hen

has laid upwards of 120 and even 130 eggs in a season, but such birds are few and far between. As a general rule, provided the birds are well looked after, they can be depended upon to lay from seventy-five to ninety eggs in the twelve months.

The hens usually commence to lay about the end of March or April, and the eggs should be removed each day as laid. This is not always an easy matter, however, as the hens are exceedingly shy, and always choose for their nests a spot that is very securely hidden.

Feeding and Housing.—As already stated guinea fowls are excellent foragers, and during the spring and summer, when there is plenty of animal and vegetable life in the soil, they do not require to be supplied with any artificial food. At other seasons of the year, or even during the spring and summer, should the weather be very dry and the land barren of animal and vegetable life, it is necessary to provide them with a little something to supplement what they pick up. A liberal allowance of animal food is always essential, and thus efforts should be made to supply them with lean meat, insects, worms, etc. Grit, green food, and pure water are also necessary.

As regards housing, an ordinary poultry house affords excellent accommodation for guinea fowls, so long as it is dry, well lighted, and well ventilated. I do not like the plan of allowing the birds to sleep in the open, for it makes them wild, besides reducing the egg supply very considerably. They are much better in a warm and cosy house.

Hatching the Chickens.—Guinea hens are shy and nervous birds, and it is sometimes very difficult to find their nests, since they always select as quiet and secluded a spot as possible. Efforts should be made to find the nest, however, for otherwise, when

the hen has laid a clutch of eggs she will sit on them, whereas if they are removed daily she will lay two or perhaps three times as many.

If the early eggs are to be hatched they should be placed under ordinary hens, but later on in the season the guinea hen herself may be allowed to sit, and she invariably makes an excellent mother. The period of incubation is twenty-eight days, and during this time the hen should be disturbed as little as possible. In point of fertility the eggs bear comparison with those of the pheasant—viz. the hatching percentage tends to run high under suitable conditions, but they are not so successfully entrusted to ordinary hens for incubation and rearing. Indeed, the coop method of rearing never produces such good results as are secured by allowing the parents (and the male bird assists the hen in rearing) to bring up their young ones in a semi-wild state. Nevertheless, such conditions are not generally possible or convenient, and for the ordinary purpose of the smallholder the May and June broods are the best.

Artificial hatching is quite successful in the case of guinea-fowl eggs, but seeing that the eggs are laid at a time of year when broody hens are very plentiful, there is no advantage in using a machine. Artificial rearing, on the other hand—and this naturally follows artificial hatching—is not recommended.

The Young Birds.—Once the chickens have hatched they should be disturbed as little as possible until they are quite dry. If they are removed to a coop before this has occurred they are almost certain to catch colds, if nothing more serious. As a rule they are all dry within twenty-four hours of hatching, but it is much better to leave them another six hours rather than run any risks.

The coop to which the chickens are moved should have a floor in order to keep it dry, and it is a very good plan also to have a piece of dry sacking handy to place on the boards before shutting the birds in for the night. Although the coop should be placed in a suitably open but properly sheltered position, it must always, during the early days, have a small run or wire-netted enclosure attached, otherwise the young birds will wander and become lost. At the same time plenty of exercise is necessary for the young birds, so as soon and as frequently as possible the hen should be allowed out with them, within bounds suitable to their age and development. Indeed, the earlier this method of hardening is allowed the better the birds will thrive and the more rapid will be their growth.

They will require the brooding and other attentions of the hen for six weeks or longer; but when they have reached that age, if the warm weather has set in, they will do very well on their own account, and will find much of their living if turned out in the open and allowed comparative freedom.

Feeding the Chickens.—An important point to bear in mind in the rearing of guinea chickens is that their crops are very small, and hence the birds require to be fed more frequently than is the case with ordinary fowls. During the first week of their lives feeding should take place every hour and a half, from about 6.30 a.m. till 8.30 p.m., or thereabouts. After they are a week old feeding every three hours is sufficient up to the age of a month or five weeks. After this four meals daily are sufficient.

Although I am a great believer in the dry method of feeding for chickens, I have never found it to answer at all well so far as young guinea fowls are concerned. The moist method is certainly the one to adopt. Soft food, composed of eggs, hard-boiled,

chopped up finely, mixed with biscuit meal, and moistened with sweet skim milk or water, is, perhaps, the best diet there is, and, I think, gives better results than custard, of which some breeders are very fond. Oatmeal, well soaked and thoroughly swollen out, too, is a good food, and these two should form the staple diet for the first week or so, after which time the eggs may be discontinued.

In addition, however, a variety of foods should be employed, among the most suitable being boiled rice, middlings, barley meal and ground oats. Whatever is supplied should be fairly dry, and not sloppy, for in the latter condition it is very liable to cause bowel trouble.

Towards the end of the first week progress will be considerably aided by the allowance of a fair proportion of animal food—ants' eggs, maggots, small worms, or shreds of raw meat and the early introduction of grain feeding is advisable, using at first such seeds as millet, hemp and canary.

Guinea chickens are great foragers, and from the time they are a month or six weeks old they should be given their freedom. In this manner they are able to obtain a large proportion of their own food, thus greatly reducing the cost of rearing

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The Mayflower Press, Plymouth, England.
William Brendon & Son, Ltd.

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