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PREFACE

HAVING been very successful in egg-production and poultry-rearing, which have been pursued entirely for pleasure, I think, perhaps, the little volume which I have compiled might be found useful to amateurs. I have studied all the best authorities on poultry-keeping, and listened to everyone's advice who knew anything about fowls, and have deduced from these authorities the systems I have found to answer best.

Respecting poultry diseases I simply quote the experiences of others, and name the remedies I should use myself, as, I am thankful to say, I have not had much practical knowledge of them, as my fowls have hardly ever ailed, with the exception now and then of bronchial attacks or catarrh with old birds, and gapes with chicks, and the latter very rarely. This satisfactory result I attribute to personal care, always mixing their food and feeding them myself, cleaning out their roosts and supervising the raking over and cleaning of their runs, keeping them warm and yet giving plenty of ventilation without draughts; in cold weather always shutting them in their houses at night, so that they should not be out in the runs in the very early morning till they have had their warm food; and in frosty weather the water-pans and

fountains should be emptied in the afternoon, as frozen water is most injurious. In winter, when others have been lamenting their scarcity of eggs, I have always had plenty to supply the house and to give away.

I feel sure that if gentlewomen, young or old, were to look after their fowls themselves—not trust entirely to servants or paid dependents—and kept good laying breeds, *crosses* or otherwise, there would be no cry of, ‘My fowls are not attempting to lay.’

Many of my quotations are those of well-known poultry-rearers, among them Mr. Cooke and others, and from ‘Farm and Home,’ ‘Farm, Field, and Fireside,’ from which I have received most valuable advice and hints, and I strongly recommend all amateur poultry-keepers to take in these papers weekly.

H. A. DE SALIS.

NEW-LAID EGGS

Poultry-Raising

THE conditions of success in poultry-raising are something more than the possession of numerous fowls of strong constitutions. During a portion of the year at least they must be provided with warm, dry, well-lighted quarters, and regularly supplied with food and water. If fowls can be kept healthy the secret of success has been discovered. Two things are most necessary—abundance of fresh air *without draughts*, and *perfect dryness*. A damp house is an unhealthy house. One of the greatest objections to confining a lot of fowls in a small house is the difficulty of keeping the house dry.

Birds require protection from the blazing rays of the sun as much as from rain, snow, and cold winds. When poultry are kept upon a moor or some large open piece of ground where hedges, banks, and walls are only conspicuous by their absence, sheds might be made in the following way: Procure a hurdle of *any kind*, then weave gorse, common bracken, or good stiff straw into the hurdle and tie firmly down with cord or wire; then place the hurdle against a hedge, bank, or wall some 3 or 4 ft. high and fasten firmly, and to hold the outer side use two short props of 2 ft. or 2 ft. 6 in., and drive them into the ground; then the front of the hurdle can be fastened firmly on to them and a capital covering is secured. It is advisable to close both ends with smaller hurdles.

Persons residing on their own freeholds might make excellent shelters by planting quick-growing shrubs, which, besides being thus useful, are pleasing to the eye.

Poultry Houses and Runs

The first point to be regarded is the giving of sufficient air-space for the number of fowls to be kept. Overcrowding is a great mistake. Very large houses are not recommended, as there is always during the winter season a great bank of cold air the fowls cannot withstand, and which starves them the whole night long. Ventilation is another point, as it is absolutely necessary, and is essential to health. Unless a poultry house be well and properly ventilated fowls cannot be kept healthy for any length of time; for constantly breathing impure and tainted air will sooner or later cause sickness as surely with fowls as with human beings. A little pure air goes a good way with a hen. A constant stream of it is not needed, or a draught through the house, nor are ventilators required. The best way to ventilate is to open the doors and windows during the day, and when night comes, or cold weather, close them up tightly. A house 6 ft. square will provide ample accommodation for a dozen large fowls or sixteen medium-sized ones. The cheapest material for a fowl house is wood; three-quarter inch matching answers the purpose, inch boarding if the floors be made of wood.

The roof should project at least 3 in. all round, and be covered with roofing felt, and when finished should be well tarred all over and a little rough sand sprinkled over it. It will be found very durable. The tarring process should be repeated once a year, and will preserve it and make it last for years, or corrugated iron can be used also for roofing.

Another house can be arranged for two broods, the dimensions 20 ft. long, 6 ft. wide, and $7\frac{1}{2}$ ft. high. The lower end of the roof is $2\frac{1}{2}$ ft. from the ground. The house should face the south and the interior painted throughout

with the impenetrable paint. Once a month the paint should be washed with carbolic soapsuds, to keep it free from insects. There should be a passage with a room on each side, and each room lighted by a window 28 by 24 in., 3 ft. from the ground. The roosts should be even with the windows, and the drop boards 8 in. below. The nests are below the drop boards, and can be easily reached from the passage by simply turning a wooden button and letting down a door to extend the whole length of the partition. The passage should be 3 ft. wide and 6 ft. long, and be fitted with two small ventilators, one above the door and the other at the opposite end of the hall. The partitions that enclose the hall ought to extend almost as high as the door, and are so constructed that they can be readily removed. This plan is very simple, and the house is easily constructed, and combines all the conveniences possible in so small a space. From either house chickens should be excluded; otherwise they soon overcrowd the limited space, when the result is that there is an end to the healthful state of the inmates, and losses quickly take the place of profits.

Mann, of Belle Vue Farm, has a capital book of poultry illustrations and poultry appliances.

For runs a transparent wire-wove roofing is very useful; it gives a soft, subdued light and protects the fowls from the sun; it is durable, waterproof, and unbreakable.

There should be 1 ft. of perch room at least to every bird, unless the breed is very small. The perches should be set at the same level, about 2 ft. from the floor, and about the same distance from each other. They should be made of larch poles, about 4 in. in diameter, cut in two and nailed the flat side downwards. The bark is best left on, as it affords sure footing to the fowls.

Perches should never be fixtures; they should be so arranged that they drop into a socket, so that they can be lifted up at any time and scraped and washed. Perches should always be kept low, as then the birds do not hurt themselves when they fly down, or when an egg is dropped underneath it seldom breaks. Another thing is, when

they are kept low all the foul air and smell rises to the top of the house.

Perches should be $2\frac{1}{2}$ in. wide, and the sharp edges bevelled off, as their being made in this way protects the young birds from getting crooked breast-bones.

The inside walls should be well coated with fresh slacked lime.

The foundations for the floor should be dug out a foot deep, filled in with rough bricks, and covered with cement. Wooden floors are bad, as they soon become foul. Another flooring that is very good is, after digging out a foot deep fill in for two-thirds this space with rubble and coarse gravel, which should be well beaten down, and complete the floor with sand. Where sand is not available, a compost made of cinder ashes, fine gravel, quick lime, and water should be spread over the rubble, and sufficiently thick to rise three inches above the outside ground. Many think that the best way to make the floor is of hard concrete, and also a ground floor composed of two parts hot lime and a third part of fine cinder ash, allowed to set hard, is good.

Underneath each perch a tray or board should be arranged to receive the night droppings, placing a layer of sand or ashes on the board, and removing daily, or three times a week.

For the runs, Mr. Cook's advice is best, and I will quote what he says.

'Fowls kept in runs should have the earth constantly changed, which is best done after wet weather, as the top scum may then be removed in cakes. The run should always be dug over once a week, as the loose earth occupies the fowls in scratching.'

Runs are much better covered in, so as to provide shade in summer and shelter from the wet and wind in winter. A perch should be placed in the covered run, as fowls are fond of sitting on a perch to plume themselves.

The door of the roosting house should, if possible, be left open for a few hours daily to air it, and I find it a

good plan to have an inner wire door, so as to enable the airing of the house and yet prevent the fowls getting out.

In every run there should be a dust bath, which should consist of three parts of sand and sifted ashes, mixed with a little insect powder and some disinfectant powder. The addition of flour of sulphur has the effect of brightening the plumage.

Some poultry-keepers heat their fowl houses in winter, but it generally does more harm than good, as I consider it makes the birds delicate, as on cold mornings, coming out of their warm houses into the cold air and standing about, they catch cold, which often ends in roup. In summer they should be kept cool by giving as much ventilation as possible, taking care that it is not too draughty. In winter the roosting-place should be entirely free from draughts, and yet have sufficient ventilation to keep the air pure and sweet. The heat from the fowls' bodies is sufficient to keep the house at a proper temperature, so long as the accommodation is not in excess of what is required by the inmates.

Keep the temperature of the fowls' bodies up by proper feeding; then the roost will not require heating artificially.

I have been told old newspapers or brown wrapping-paper can be used for keeping the poultry house warm by making some good paste, using equal parts of rye and wheat flour, and putting it on the walls freely; then lay on the paper; when dry lay on another layer, and then daub it all over with a coating of paste; and that it will last a winter, and then in the warm weather it can be removed, to prevent the harbouring of vermin; after removing, smear the walls with kerosene.

Cleanliness

Is an all-important factor in the management of fowl houses, and experience teaches us that fowls are injuriously affected by the emanations from filthy quarters, and all houses and runs should be kept scrupulously clean, all droppings

removed, and all vermin destroyed. The removal of all filth and dirt is the first thing, for though the house may be cleaned *daily* by brushing out the floor and removing the droppings, it wants periodical cleaning and fumigating besides. Carbolic powders should be strewn about the floors, which will help to rid the old hens of vermin. Personal oversight is necessary to secure satisfactory rearing and keeping of fowls. A servant does not give the same care and attention to the fowls' needs as does their owner, because the former is interested in his pay, whilst the latter is interested in his birds, and fowls amply repay any extra trouble taken for their benefit.

Dry road dust and coal ashes are cheap and effectual deodorisers. The floor should be dug up every week, and in the course of three years should be renewed, and this earth becomes a valuable addition to the garden. Minute particles of animal matter are exhaled from the lungs of the fowls, or thrown off by the pores of the skin, and settle upon the walls, partitions, nests, and everywhere, all of which must be destroyed.

Cleaning the Fowl House

First remove all filth and dirt; a scraper, broom, and shovel will be necessary; every particle of droppings, every bit of dust or ashes, every straw that is found in the nest must be removed, and the interior carefully fumigated. Whitewashing should be frequent.

Put a few pounds of sulphur into an iron pot, saturate it with kerosene, and after driving out all the fowls apply a match to it and close all the windows and doors and other apertures, and then go out yourself. In four or five hours the fumes of sulphur will have destroyed vermin and all germs of disease. Then get lime, pour hot water over it and let it slake; thin it with water to the proper consistency; stir in a handful of salt, a few ounces of carbolic acid, and a little glue or prepared size to prevent its rubbing off, and put a sponge on the end of a stick and proceed to whiten the walls, the ceiling and wood-work,

the laying-boxes, the perches, and all the crevices at the ends of them. Rub kerosene into all crevices where whitewash cannot reach. This should be done on a bright sunny day, so that the door of the fowl house might be left open for it to get thoroughly dry.

This process should be gone through every spring and autumn.

Carbolic acid, in the proportion of a fluid ounce to a gallon of water, should constantly be distributed about the house. There is nothing worse for fowls than a poultry house reeking with filth, the floor covered with the excreta and the walls ornamented with cobwebs and dust, and the air full of the fumes of ammonia and decomposition.

Feeding Fowls

Fowls should always have a run and a scratch before they are fed in the morning (except in the very cold weather and snow).

When fowls do not run after their food greedily, always stop feeding at once. Do not give them anything more till the next meal.

Hens that have not begun to lay should have a little poultry powder in their morning meal, as it will soon bring them on to lay, and plenty of it should be given, as it is as necessary for them as teeth to animals; indeed, I give it three times a week during the winter. If this is neglected the appetite and plumage are affected as well as their laying powers. When hens look like laying for weeks and do not do so, and are very heavy, they should have their grain buried, so that they have to scratch for all they can get.

Grit is a most important factor in chicken-feeding. Chicks as soon as they are hatched should be supplied with it. Flint grit is the best.

Salt is very essential for fowls and should be mixed with their soft food in the same proportion as we use it ourselves.

All fowls should have plenty of green food all the year round, such as cabbages, turnips, beets, &c., and apples.

The latter is especially good for fowls, and should be chopped finely, so that the fowls can pick it up like grain.

It is a good plan to give them two or three times a week a mess of green food, chopped nicely, and mixed with almost dry meal and scraps of meat, a sprinkling of salt water, a dash of pepper or pinch of ginger. It is a dish fowls especially enjoy.

All vegetable tops or roots should be chopped, and they should always be fresh and succulent, and never allowed to wither.

In the winter it is a good thing to soften the corn by boiling it for twenty minutes. Let it stand till it soaks up the water, and give it to the fowls hot. Give them a little of this, and finish up with a little hard corn; also in the winter I give them twice a week a heaped-up teaspoonful of mustard mixed up in their food to ten fowls. I myself find it a good plan to keep a bucket under the scullery table, in which all table scraps, are thrown, cold potatoes, bits of meat, &c.; and in the hot weather, immediately after the kitchen dinner, a large saucepan is put on the fire filled with all the scraps, and then middlings added, hot water poured on it and then simmered for two or three hours, then the liquor poured off and all mixed up into a good stiff paste, and leave it ready for the morning meal, mixing in grit and poultry powder when necessary. In the winter time it should be warmed up in the early morning, so that the fowls have a hot feed.

It is most important the male bird should be looked after, as often he will call his hens round him and not touch the food himself, and the result is unfertile eggs. When this is the case, Mr. Cook advises that a *small* trough should be erected where the cock can reach best, and not the hens. The trough should be small, just large enough for him to peck out of without injuring his comb, and made to stand firm. It can be placed on the top of a thick bit of wood. It should not be deeper than two inches, and three inches long, and the same width, and made in the shape of a pig's trough.

Egg-shells broken up *very small*, sand and *small* gravel, or ordinary road scrapings, are much liked by poultry, and should be mixed with their food.

Maize I never give except in the winter, and then only in small quantities, as it makes too much fat and tends to give them liver disease.

Wheat is the best grain to give, but it is necessary they should have variety, and I find dari, French buckwheat, barley, and a little wheat is a good mixture.

Good oats should be given as a change. Hempseed is good in the breeding and moulting seasons, and especially good for the male bird, as there will be then very little chance of unfertile eggs, and it is good for bringing young chickens into condition.

Fish is good for fowls, given moderately. Dandelions and stinging-nettles are valuable herbs for the poultry yard.

Put the latter into a saucepan, and pour boiling water over them, and cover them over. These mixed with their morning meal, with a little salt, are very cooling to their blood. Dandelion leaves can be cut into small pieces and given raw.

Watercress is also beneficial to them. In the winter, when cabbages and green food are scarce, it is a good plan to have boxes in which rape, mustard, and maize seeds are sown, as they grow very quickly.

It is wonderful what a difference warm food will make in the supply of eggs during the cold weather.

Meat and scraps of bread and potato peelings from the house should be mixed up in middlings for the morning meal.

To keep the combs a good colour give a little meat and poultry powder mixed in the food.

Regularity in Feeding Poultry

Mr. F. Leach, of Ansonia, who is a rearer of fine poultry, believes in feeding most regularly. He is unable to be at home at night before the chickens go to roost, and in order

that they may be fed without fail he has rigged up an apparatus. 'The quantity of grain is placed in a tin can which is suspended from a string and weighted. An alarm clock in the outer coop releases the string at a certain hour, when the can turns upside down and throws out the corn. There are four coops, and each has its can, all working at the same time.' The best times are early morning and half an hour before roosting in the long days. In the winter two meals are sufficient, as they go to roost so early.

Care of Sitters

When the sitting hen has been placed upon the eggs she should be disturbed as little as possible. She should have food and water within easy reach every morning, so that there should be no unnecessary cooling of the eggs. Her food should consist largely of good sound corn, as this contains a large amount of carbon with which to keep up the animal heat. Grit in some form should be supplied and mixed in with it. About once a week (the last time a day or two before hatching) she should be dusted with some good insect destroyer. Shake it over her back and she will bristle up, opening her feathers and allowing it to go through the plumage down to the skin.

Tobacco dust is most excellent.

Hatching

Hens should be chosen in preference to pullets for hatching purposes, as they are more careful, and will allow themselves to be touched, whereas pullets are rather inclined to be wild.

The eggs set should be as fresh as possible, as they hatch out much stronger and quicker than those which have been kept some time.

It is a mistake to set a hen on too many eggs. In the winter nine is sufficient for a good-sized hen, and thirteen in the spring and summer.

It is said, Leave a hen alone while she is hatching, which is very good advice for the inexperienced. But thousands of chicks' lives have been saved by timely help.

If during incubation an egg should get cracked, a piece of thin paper should be pasted over the crack, and it will probably hatch out with the others. Twice I have found eggs cracked and resorted to this plan, and the chicks arrived safe and strong. Often one or two of the eggs are backward in hatching; then the shell should be cracked gently all round at the large end and some pieces of the shell carefully picked off, the position of the beak of the chick be ascertained, and a small aperture made, so as to give the chick relief; it should then be replaced under the hen. It is a great mistake to interfere too early with the eggs, as hundreds are lost through over-anxiety to hurry the young ones into the world.

If the chicks are slow in hatching—that is, some hatching much sooner than the others—I generally take those hatched away from the hen, and place them in a box lined with wadding, and wrap them in flannel. Place them near the fire till the others are ready, and then they are placed back with the hen.

When a hen is off her nest the eggs should be examined, and should one be broken it must be removed, and any that may be in the least soiled wiped with a cloth dipped in tepid water.

The nest must not be allowed to dry up.

Warm, moist weather is best for hatching purposes, and the nest will then retain the proper degree of moisture; but should the weather be very hot and dry, a small quantity of warm water may be sprinkled on the eggs during the absence of the hen, care being taken it is not too hot.

Sitting hens, as far as practicable, should be isolated from each other. Vermin must be kept down. Sprinkle sulphur in the nest just before hatching comes off.

After the chickens are hatched they must be kept in a warm place. Dry mould is the best absorbent for the floor

of the coops, whilst in cold weather dry ashes with a layer of straw is useful.

The water must be attended to. It must be perfectly fresh and clean and changed often (I give mine always filtered water). Keep the chicks *dry* and warm; cold is not so difficult to contend with as damp.

After the chickens are hatched the hen should have a *good* meal, otherwise she would eat the chicks' food. As young chickens can do no harm, it is a good plan to let them have the run of the garden in search of worms and insects.

Early Hatching

The difficulty of early hatching where incubators are not used is to find broody hens. The birds that sit in March are generally one-year-old pullets, and if two-year-old hens become broody, these seldom begin to lay till the turn of the year, and often March is here before the first egg makes its appearance.

But when a hen about fifteen months old hatches a brood late in the summer, she will probably moult during the business, and the extra feeding during the time she runs with her brood will bring her into laying condition, so that eggs will be plentiful in the autumn and winter, and she will be ready to sit early in the spring.

Rearing Young Fowls

The cockerels should be separated from the pullets as soon as they begin running after the pullets. They will not fight among themselves if they are not allowed to see the pullets, and they develop much more quickly and become finer birds when separated from the pullets.

To Feed Young Chickens

The best food for chicks is hard-boiled eggs chopped up fine, and mixed with groats or coarse oatmeal, upon which they should be kept for the first four days, after

which time they may be given biscuit meal *soaked in hot* water, but given dry, and dry groats. A little finely chopped meat is a great help to them, and brings them on wonderfully. Until they are a fortnight old they should be fed every hour. When a fortnight old every two hours will do, and after they are a month old every four hours.

Barley, maize meal, and buckwheat meal are good for them, but I consider they thrive best on biscuit meal alternately with canary seed. I also give them bone-meal mixed with their food once a day, after they are a fortnight old, and continue this till they are six weeks old. When they are three weeks old, their food may be varied by giving once a day some dog biscuit soaked, but given dry. Alternately with this give boiled rice. This should be given separately and sparingly. The hen should always be fed with grain before feeding the chicks, or she will eat the food intended for them. When the hen is a long time in hatching, the first hatched require feeding before the others are hatched.

Care of Chickens

When chickens are fed and cared for to keep them no more than at a standstill the food given is actually thrown away. It is the most wasteful and extravagant method of feeding possible. There will be no return for investment.

Whenever the young chicks look a little drooping, catch them at once and examine under the wings. Blow the fluff away very quickly, as the vermin are so very sharp in warm weather. If there be any vermin, dust them with insect powder. If they have no vermin look into the mouth and see if that be clear. Should there be any white spots, isolate the birds and mop the throat well with a feather dipped in roup lotion, which will soon remove all the white spots, after which use roup powders. Always boil the water, or filter it, before giving it to young chicks, changing it several times daily, and give roup powder twice a week mixed in their food. This keeps them in good condition.

The food must not be given too soft or wet, as it produces diarrhœa—groats, dry rice, and stale breadcrumbs, and very little water to drink if affected. When they are a fortnight old they may have French buckwheat, dari, wheat, and barley.

Chickens under three weeks old should be fed as often as they will eat greedily.

Use poultry powder in their food after three weeks old, and a little meat should be given, and plenty of grit. Bone-meal for young chickens mixed in the meal is especially good for them, particularly so when kept in a closed-in run.

When young chicks show symptoms of sickness by looking rough in feather, hanging their wings, and moping by themselves with their eyes partly closed, their diet should be changed. A little boiled rice should be given two or three times a week. Groats are the best dry food. A little wheat may be given, and a little French buckwheat, but neither English nor German, as the husks are so injurious.

A little bone-meal and meat is good for them.

If the chick's crop is hard a few drops of salad oil should be given, and if chicks appear very weak a little cod liver oil and toasted bread soaked in tea has a wonderful effect.

Feeding Coop for Chicks

The illustration given on p. 15, and recommended in 'Farm, Field, and Fireside,' shows a device which is designed to give little chicks a chance to take their food without being harassed and robbed by the older fowls. It consists of a slatted box, four feet long, twenty inches wide, and a foot high. The lower parts of the sides are covered with boards and the remainder of the coop with laths. The bottom is left open, the box resting on the ground. At each end next to the ground is an opening three inches wide and a little more in height, to admit the chicks. The food is scattered inside on the ground through the slatted

top. A coop of the dimensions named will be sufficient for thirty chicks until they are four weeks old. It should

be removed to fresh ground every two or three days. These changes will help to keep the birds clean and therefore healthy.

Moulting

This is always a great strain on the fowl's system. When they shed their feathers the body very easily takes cold, as when the little quills of the old feathers have come out of the skin they leave holes, so that the cold is able to penetrate through the body, and where young quills begin to grow at once a great strain is caused to the system. The quills grow from 1 in. to 3 in. long before the feathers begin to unfold out of them. The whole of the nutriment of the feather is in the quill, and when old birds shed their plumes quickly and their fresh ones seem to come at once it tries them immensely. Fowls which moult during October and November want especial care. The comb shrinks to much below its usual size and becomes very pale. Where fowls only shed a few feathers at a time, and do not become featherless, they do not require *quite* so much care.

When fowls are moulting they should have their soft food as hot as they can eat it, and some of Cook's poultry powder put into it every other day will help them to get their new feathers more quickly. Birds as a rule get much lighter in weight while they are undergoing a change

of feathers, especially when it is late in the season. A bird which will weigh 6 lbs. when she begins to moult will often only weigh $4\frac{1}{2}$ lbs. when she has got all her new feathers. Though fowls lose weight whilst they are shedding their feathers, many of them become internally very fat afterwards, and therefore require a tonic to help them, or else they become lazy and inactive, as if in the middle of winter, some not caring even about coming out of the roost except just for one meal a day.

The time of the formation of the coat of feathers that succeeds the downy covering of the newly-hatched chicks and the moulting season of older fowls is a critical period, and requires constant vigilance in supplying such food as will give nutriment to shell and tissue, and to young chicks a generous diet must be given from the time of incubation till the wing and tail feathers get developed.

Care of Laying Fowls in Winter

They require a good hot breakfast, and warm water should be given them, and they should not be let out early in the morning in the rime or snow, as it checks their laying.

Where possible it is best to let them out for a few minutes to feed and then drive them back into the house. Peat-moss litter should be put into the house, as it is warm and dry to the fowls' feet. Fowls should not be allowed to stand about on cold or wet or damp mornings. Cook says it is a good plan if it is very cold at night to boil the grain and give it them hot. The corn should be put into water in a saucepan early in the day, so that it stands and soaks till a short time before it is required; then it should be stood by the fire to come gradually on to boil, and then allowed to boil for not more than 10 to 15 minutes. It should only just be covered with water.

Notes

February and March are very important months, as the hens will be beginning to sit. And it is a well-known

fact that chickens hatched in these months will make autumn and winter layers, and plenty of eggs will be available in between November and December. As soon as hens get broody they should be set. All coops, feeding runs, and other appliances should be well cleaned and limewashed before they are used.

July and August are the two months of the year when poultry-keepers have the least to do. The eggs fall off in number, and some of the hens 'go light'—that is, they lose flesh and yet eat greedily. The only way is to pick them up, or else to notice if they walk stiffly. This generally tells of either liver disease or broken eggs congealed in the oviduct, for which there is no cure. Hens often begin to shed their feathers in July, and if so it would be a pity to kill them, as they become early winter layers.

The stock cocks must be looked to this month. Mr. Cook advises that if they get thin and beat the hens when they are feeding, it is a sign something is wrong—usually consumption or liver disease—and they should be killed, as they are totally unfit for breeding purposes. If two-year-old cocks have a swelling under their feet or between their toes, they should be killed; they will not breed early chickens for next year, as the eggs could not be depended on till April or May. The chicks should be well examined to see there is no vermin. These are to be found round the stomach, under the wings, and at the root of the tail; they should be well dusted with insect powder. Lay the chicken on its back, rub the powder well in, and well dust it all over. Sometimes there are nits round the head; if so, mix a little warm lard and precipitate powder to a paste, and rub in. The stock cocks should be examined for vermin, which are often found round the tail, and sometimes a nest of them will be found at the end of the breast-bone.

Fowls in the Autumn

Houses should be limewashed, and the roofs tarred.

If there is a weak place in the roof, a little tar should be placed over, then a thick piece of brown paper pasted over, and then another coat of tar, and scatter some dust over it whilst it is wet. In a fortnight's time give it another coat of tar.

The hen-house should be whitewashed, the old nests cleaned and fumigated. The roosts should be brushed over with kerosene, by which means all lice may be destroyed. A little carbolic powder strewn about the hen-house floors will help to keep the hens free from vermin.

The cockerels should be separated from the pullets if it can be conveniently done. It is a good plan to give the old hens a hot meal for breakfast with a little sulphur mixed with it—a dessertspoonful for ten or twelve hens. This should only be given in the early autumn, and never when the weather is wet or cold. A *little* common salt should be given, but not much.

Breeds of Fowls

Anconas	Indian Game
Andalusians	La Flèche
Barn-door Fowls	Langshans
Black Java	Leghorns
Brahmas	Malay
Cochins	Minorcas
Coucous de Morleau	Orpingtons
Crève-cœurs	Plymouth Rocks
Dominiques	Polish
Dorkings	Redcaps
Game Fowls	Scotch Greys
Guinea Fowls	Spanish
Hamburghs	Surrey and Sussex
Houdans	Wyandottes

Cross-Bred Fowls

Houdan Cochin	Game Dorking
„ Minorca	Plymouth Rock Brahma
„ Plymouth Rock	„ Dorking
„ Leghorn	Spanish Game
„ Spanish	„ Brahma
„ Andalusian	„ Cochin
„ Hamburgh	„ Leghorn
„ Dorking	„ Dorking
„ Langshan	Langshan Brahma
„ Wyandotte	„ Plymouth Rock
„ Game	Cochin Dorking
Minorca Plymouth	„ Brahma
„ Brahma	Hamburgh Plymouth Rock
„ Hamburgh	„ Dorking
„ Langshan	„ Cochin
Black-leg Brahma	Game Cochin
„ Dorking	Andalusian Cochin
„ Plymouth	Crèveœur Cochin
„ Minorca	White Dorking
„ Cochin	„ Cochin
„ Hamburgh	Light Brahma
Dorking Brahma	White-leg White Dorking
Game Hamburgh	Surrey Fowls
„ Plymouth Rock	

Andalusians

These fowls are very similar in style and character to the Minorcas. Mr. Wright asserts that they came originally from Andalusia, in Spain, but a very great breeder of these fowls testifies that the birds come from Honduras. Their colour is slaty grey; the male is very upright in carriage, long-legged, legs free from feathers, and thin toes; the general appearance large, light, active, broad at shoulders, tapering to the tail; the neck long, carried

well back, with flowing hackle; back rather round and slanting, the breast rounded and carried well forward, a large and deep head, long beak, medium and single comb, perfectly straight and upright and deeply serrated and brilliant, very long wattles, fine and thin in texture; the face bare of feathers and free from white deaf ears, medium smooth, flat, felting close to head and free from wrinkles, pure white long wings carried tightly to the body, the long back feathers coming well over the points. Tail and sickles arched, carried well up, but not squirrel fashion. The eyes bright orange or red. Colour a deep slate blue, with a lacing of darker colour or even black on each feather, is preferable; legs dark leaden blue, the breast a deep blue.

The cock's hackle, saddle, and sickle should be black and deep purple, with a rich gloss. The hen's characteristics are similar to the cock's, with the exception that the comb falls over to one side.

These fowls are excellent layers of large white eggs and do well in confinement; the chicks feather quickly and the pullets lay early. They cross well with the Dorking or Houdan or Cochins. Andalusians are non-sitters. They do not make good table birds, as their flesh is not white.

Black Java Fowls

The Java is an admirable table fowl; its skin a rich gold, the flesh abundant, tender, juicy, and fine-flavoured. It ranks high as a winter layer, as well as all through the year. The eggs are of good size, many very large; the shells are tinted, some very brown. In hardiness both as chicks and mature fowls they are almost unequalled. They are very gentle. Their points are: comb single, evenly serrated and upright, face red, medium-sized white deaf ears, dark beak, plumage black with a green lustre, and legs a dark yellow. They are neither non-sitters nor persistent sitters. They require a great deal of green food.

Brahma, or Brahmapootra Fowl

This breed was formerly more popular than it is now.

There are two varieties of the Brahma, the dark and light, both of which present the same external characteristics, namely, tall massive frame, full square breasts, small neat head surmounted by a pen or triple comb, large, powerful thighs and legs and heavy feathery hocks, small wings and tail, and long, well-arched neck covered with abundant hackle.

The comb has three small ridges running side by side with the centre, one rather higher than the other two, and not more than half an inch in height. The tail of the male is different from that of all other fowls except such as are of the Asiatic type, and is composed of a bunch of short feathers, with but a slight curve at the end, the whole rising straight up from the body. The height should be very nearly that of the head.

The legs are orange yellow in colour, and medium in length.

Dark Brahmas combine the colours of silver-white and black, the latter predominating in the cock. The breast and tail are of a brilliant black, though in a few instances the former is mottled and white, and the leg-feathering is usually of the same colour. The other parts of the body may be termed black and silvery white. The markings on a good dark Brahma hen are very pretty. The ground colour of pullets is clear grey, and on each feather there is a pencilling following the outline of the feather of black, or a darker shade than the body colour. The hackle is silvery white, sharply striped with black, or pencilled as on the body, and the tail black, or black edged with grey.

Light Brahmas have in both sexes a silvery white colour almost throughout the plumage. In the cocks the head is never white. The neck hackle is striped with black, the striping being more dense at the lower part of the hackle; the wing primaries are black edged with white, the secondaries white on outside web and black on

part of inside web ; the tail is black, and the tail coverts glossy black, the two upper ones laced with white ; the leg feather is black and white mixed. The beak is yellow, with or without a dark stripe ; the deaf ears, comb, wattles, face and eyes red in both Light and Dark Brahmas.

They are admirable for crossing to secure size and stamina. They attain their full size early, and are regarded as in their prime at eight or nine months. They are good fowls to keep in confinement, as they are very hardy. Their eggs are brown ; they make good sitters and mothers. They make capital table birds, and are very meaty.

Cochins

The varieties of Cochins now bred are Buff, White, Partridge, Cuckoo, and Black. The first-named varieties are preferred. Cinnamon Cochins are seldom now bred. There are many points which recommend them to poultry breeders : they are winter layers. The Buffs are the oldest of the varieties of Cochins. The beauty of these fowls consists largely in the uniformity of the buff colouring without markings.

Cochin fowls are peculiarly tame, and allow themselves to be handled and fondled without fear, and they are well adapted to be kept in a state of confinement, for their weight and the peculiar form of their wings prevent their flying to any height, and therefore their roosting places should be broad, and not more than about one or two inches from the ground.

Buff Cochins

Good-bred Cochin cocks should be of one colour throughout. It does not matter if they be of a dark or light buff, as long as they are of one distinct colour. The breast and under fluff are paler in colour, and have not any gloss on them. The neck hackles, back, saddle, and

shoulders should be of the same shade—the shoulders perhaps a trifle darker, the tail a rich chestnut. Feathers on the legs and toes should be long, and should grow to the nails of the middle and outside toes, and ought to be of the same colour as the under part of the body, and free from white. Yellow legs, and four toes on each foot. The fluff underneath should be very full, so as to meet the leg feathers. The comb single and very erect and evenly serrated; beak a yellowish brown, the face and ear-lobes red. The breast should be very broad. The hens are much the same as the cocks, excepting that their combs are smaller and their feathers lack the gloss that is so noticeable in the male.

They lay very brown eggs, but rather small.

The Cochin is a hardy breed, and stands confinement and cold well.

They are not good table birds unless they are crossed, but they are first-rate layers. A pure Cochin is not a good sitter, as their feathers are too long and stand out from the body; the eggs in consequence do not get the warmth of the hen's body.

Partridge Cochins.—The cocks are termed 'Black Reds,' from the fact of their bodies being black with red or orange neck and rump hackles, the back a bright deep red, and the wing coverts the same colour. Down the centre of each of the feathers of the neck hackle is a streak of black, which gives a pretty and variegated appearance. The hens are handsomer in plumage than the cocks; they are uniformly marked or spangled all over their feathers, grouse markings being clearly and well defined, giving the hens, in the eyes of some fanciers, a very beautiful appearance. In their economic properties the Partridge Cochin does not differ much from the other members of the same family. It is a much better winter than summer layer. The eggs are rich in colour, but very small as compared with the size of the fowl laying them.

Cuckoo Cochins are of a pale slate colour, usually

known as 'speckled,' and are not so heavily feathered as the other varieties.

The Coucou de Morleau

This is a French variety named after a French town and the colour of the birds ; they are of the Cochin class, but an improvement on the Cochin character, being better layers and better table fowls.

Their skin and legs are white instead of yellow. They are less heavily feathered, and are consequently better sitters and mothers. They are cuckoo-coloured.

The Crèvecœur Fowl

This fowl has entirely black plumage, according to Mr. John Lemoine, the great authority on French poultry. It can attain a very large size ; its chest is very open, its legs strong and black and well separated.

The hens are of large size, and the cocks have a magnificent structure and manner, and a full-tufted plumage, entirely black with violet reflections. The cock is greenish under the neck, and over the throat the feathers are long and erected in a straight line, then falling elegantly back. The beak is black, with high and very open nostrils, and bears a strong tuft of fine and reversible feathers. Below the beak it is ornamented with a thick cravat and a pointing beard, and the comb has two pointed horns at the top, and is wide at the base, separating above. The ears are small, blue in colour, and are hidden under the beard. The barb feathers are very small. The crowing of the Crèvecœur cock has a peculiar sound, which differs from that of every other fowl, and is at once recognisable. The hen has a full plumage of a dull black ; the head is strong and furnished with a very full crest, high, round, and well developed. Beneath the beak it has also a cravat ; the beard is very prominent, beak black ; and the nostrils large and open. The feathers of the ears are small and bluish white, while the beard feathers are small and the

crest rudimentary. As the hen gets older the beard feathers are often white, and this colour comes into the crest.

These hens never sit, and are said to produce 120 eggs yearly. The eggs are large and pure white, and weigh about two and a half ounces each.

They are very quiet and amiable, and very sensitive to cold and fogs, and especially prone to cold.

Crosses

Cochin Brahma.—A Brahma cock and a Cochin hen make a splendid cross, producing very good winter layers. They are apt to become broody often in the spring. The chickens are hardy and may be hatched all through the winter.

Cochin Dorkings make large, handsome birds, and are good autumn and winter layers. They make first-rate sitters and good mothers. They are very tiresome in becoming broody often in the spring and summer.

Hamburgh Cochin.—Mr. Cook recommends crossing a Hamburgh cock with Partridge or Buff Cochin hens. The plumage is handsome; they are enormous layers.

Game Cochin.—A good game cock should run with Cochin hens. They lay rich small eggs, and are very hardy.

Andalusian Cochins are hardy and good layers.

Crèveœur Cochin is also a satisfactory cross.

White Dorking—*White Cochin*.—Cross a Cochin cock with Dorking hens. They make good table fowls; their flesh is white and juicy. They are very hardy, but not first-rate layers. They make excellent sitters and mothers.

Dominiques

Are the oldest of the American breeds, and resemble the Cuckoo Dorking, having four toes, a rose comb, and bright yellow legs. They are very hardy, good table birds, and first-rate layers.

Dorkings

A purely English breed, and the best table birds there are.

They are divided into four distinct breeds—one pure white, with a rose comb and five toes on each foot; another the Coloured Dorking, another the Silver Grey, and the fourth the Cuckoo.

They all resemble each other in shape and have short white legs with five toes on each foot.

The Coloured Dorkings are very large birds. The cock's breast and tail should be black, the hackle and saddle feathers striped grey and black, the upper and lower part of the wings greyish white, and the middle bar black.

The hen's breast should be of a reddish-brown tipped with black, and the feathers on the top part of the back showing a light brown stripe in the centre.

The Silver Grey is a much smaller variety. The cock has a purely black breast with a silvery white hackle and saddle. The hen's back should be of a delicate pale grey, the breast a light brown colour, and the hackles striped black and white.

Cuckoo Dorkings are rather small, with cuckoo marking. Their feathers are a greyish white tipped with slate colour at the end, and resemble those of the Plymouth Rock. They lay very well in summer, but very scantily in winter. Their eggs are very round and white, and nearly the same size at both ends. The hens are first-rate sitters and most affectionate, careful mothers. Dorkings are not so hardy as many other breeds. They do best on chalky or gravelly soil, and are the best and most valued of all table poultry, having white legs, white flesh, and plump, full breasts.

Game Fowls

There are several varieties of these birds. They should be of medium size. The cocks should rarely reach six

pounds in weight, and under four pounds for the hens. They require plenty of liberty.

The carriage of game fowls should be bold, with the feet firmly planted on the ground. The general appearance of the bird should be firm and hard, the feathers strong and lying close to the body.

The plumage should be firm, hard, and glossy. Cock's tail well arched, and the hen's should form a fan. The game cock's legs should be fleshy and strong, the neck long and arched, and the head long, thin, and graceful, with well-curved, strong, stout beak; the eye large, full, and *very* brilliant; the comb single, small, thin, and very erect; the spur dense and sharp.

The cocks are generally 'dubbed' when the birds are about four or five months old.

The flesh of game fowls is very white and most delicate in flavour.

Game fowls will lay and breed for several years without intermission. The hens are wonderful sitters and mothers; they lay smallish brown eggs of a most delicious flavour.

They are divided into the following varieties: black reds, brown reds, duckwing poll, pure white, pure black, brassy-winged, ginger red duns, hennies, and tassels.

Black Reds.—The cocks are a rich orange red on the hackle and saddle, shading lighter at the tips, with no stripe or black markings in their feathers, which should be as crisp and scant as possible. The breast and tail and nether parts of the body should be black, the upper part of the wing a deep red with black edging, the centre part black, and the end an orange brown. Face and eye red, legs long, round, and yellow-coloured.

The hen's back and wings should be partridge-marked, and the under part of the body lighter. The hackles are striped a pale gold colour or black, the breast a pale ashy salmon.

Brown Reds.—The breast of the cocks is mottled brown, the feathers being laced with gold, the hackle and saddle bright gold striped with black; wing feathers are dark, and

the back and shoulders dark red, legs olive-coloured, face purple, and eye dark brown. The hens should be olive-black, except the hackle, which should be gold striped with black, and have a laced breast like the cock's.

Duckwing.—The cocks have a straw-coloured breast, neck, and saddle, deepening to maroon red. The wing feathers light, with a steel blue bar across the wing. The outer flight feathers are white; the hen's resemble Black Red in colour, with a silvery ground for the crown.

Piles, or white-breasted reds, the points of which are, in the cock, body colour white, neck and saddle hackle feathers and secondaries a golden chestnut, back and wing-bow dark claret. Hens, body colour creamy white, breast salmon brown, hackle white, clear golden stripe, legs in both sexes yellow or sallow, carriage upstanding and smart.

Guinea Fowls

Mr. Stephen Beale says Guinea Fowls are not nearly so much kept as they should be, as they are very profitable. They run in pairs, and prefer to seek their own food as long as they can find a supply for themselves. They are very valuable on farms where they have a wide range, as they destroy a large number of insects and do not scratch up seeds. They also consume grass and young seeds, as well as the seeds of undesirable weeds and grasses.

An article in 'The Country Gentleman' says that it is usual for the Guinea Fowl to lay in the nearest hedge-bottom or among a group of nettles. The nest is soon found out by observing when the cock is alone, and watching to see from what direction the hen returns. She always does her best to hide her eggs by picking fresh grass and laying it upon them, which lie on the ground and not on any regular nest. She begins to lay about the end of April, and will generally produce altogether about a hundred eggs. If she shows signs of wanting to sit, this must not be allowed, and she will soon begin to lay again. Eggs should not be set any later

than the second week in June, as they take a month to hatch ; and though the chicks are easily raised in June and July, they will, if hatched later, probably succumb to the first cold.

When young, they require chopped eggs ; and if insects can be supplied to them so much the better. The proper number for a setting is sixteen. Each hen should provide three settings. The eggs are very rich.

Guinea Fowls are of a slate colour, and each feather is covered with small white spots. Mr. Cook recommends everyone who keeps poultry to keep these birds, as they are first-rate to keep fowl-stealers away. Should a stranger pass within a hundred yards of them, they will give an alarm at once, crying out at the top of their voices.

In the male the wattles are of a purplish red, and in the female they are red without any mixture of blue, and are of a smaller size.

The eggs of the Guinea Fowl are small and are of a pale yellowish-red colour, dotted with small dark spots, and are very delicate eating.

Hamburghs

Hamburghs are divided into three varieties : Black, Spangled, and Pencilled.

The *Black Hamburgh* is the largest of the many varieties of the Hamburgh family. It is by no means a large fowl, though it makes an excellent table bird. Its feathers lie peculiarly close and tight about its body. It has no deceptive fluffiness and plenty of breast meat. It is pheasantlike in shape. The plumage is black, lying on a brilliant metallic green, very lustrous in the sunlight. Comb, face, and wattles a deep rich red. Eyes large, full, and red, ear lobes pure white, round and smooth. Back and breast broad, legs dark blue. Cock's tail ample and flowing.

For the production of eggs the Black Hamburghs can scarcely be beaten. Their eggs are small.

Black Hamburgs are supposed to be non-sitters, and never to become broody, but this is not absolutely the case, for a large proportion of them become more or less affected with broodiness some time during the year, and not a few will, if allowed, sit steadily and mother carefully.

Their tendency to broodiness may soon be checked, and they may be made soon to lay again. They are said to be the result from a cross with Spanish.

Spangled Hamburgs are classified under the sub-varieties of Golden-Spangled and Silver-Spangled, and are most beautifully marked. The colour of the Golden-Spangled is a deep rich bay, the cock's tail being pure black, the breast marked with half-moonlike spangles at the tops of the feathers. The hackle and saddle are sharply striped with black, the wing has two bars formed by the spangles of the coverts. The flights are also spangled. Small white ear lobes, rose combs ending in a point behind, blue legs and four claws.

Silver-Spangled.—The ground colour is a silvery white. The cock should have a spangled breast and wings striped black and white, the hackles and tail white, the ends of the feathers mixed with diamond-like spangles. The hens should be spangled on breast, back, saddle, and thighs, the neck hackles striped black and white, the long wing feathers and tail very white with black spots on the ends. In other respects they are like the gold-spangled variety.

Gold-Pencilled Hamburgs resemble the spangled varieties. The cocks are of a rich bay colouring, with the exception of the tail, which is black edged with bay; the feathers between the end of the wings and thighs and some of the wing feathers are evenly pencilled with black.

The hens are of a bay ground colour, pencilled by a quantity of even metallic black bars across the feathers, continued from the base of the hackle, which should be quite free from marking to the end of the tail.

The Silver Pencil cocks are similar to the Golden, the whole body being white and the tail laced with black. The

hens are evenly pencilled nearly all over the body, the only part not marked being the hackle, which is almost white.

Houdans

Houdans are the best known and most popular of the French breeds; they can hardly be called hardy fowls, though they may become acclimatised and able to stand our English temperature, but at present in their pure state they are rather susceptible to cold and roup. In dry, sheltered, and sunny spots they are one of the most useful breeds that can be kept.

They are excellent layers, and in favourable positions will produce almost as many eggs as some of our reputed laying breeds. Their eggs are white, large, and shapely, and they are first-class table birds. Their flesh has the favourite tint and their bones are small. One drawback to this breed is their liability to become crop-bound. The passage from the crop to the gizzard being very small, they require careful feeding. These fowls are non-sitters.

Houdans are handsome birds. Both cocks and hens are of the same colours, black feathers tipped with white, and very regular markings; the cock is darker on the back, with greenish feathers in the tail. They have large crests and muffling with feathers round the ears and under the beak. The comb is an open leaf or antler-like in shape, and the legs mottled black and white and short. This is a fine breed to keep for crossing purposes, and they cross well with Cochins, Minorcas, Plymouth Rocks, Leghorns, Spanish, Andalusians, Hamburgs, Dorkings, Langshans, Game, and Wyandottes, preferring the last-named.

Indian or Cornish Game

These fowls were very famous in Cornwall some thirty years ago. It is, as the Americans call it, 'the fowl of fowls.'

Their characteristics are, or should be, according to the standard at the Indian Game Club: rather long and thickish, skull broadish, neck medium, long and slightly arched, horn colour or yellow striped with horn, beak well curved and stout where set on head; the face smooth and fine in texture, the throat not as bare as in English game, being dotted over with small feathers; the comb (in undubbed birds) irregular pea comb, the more regular however the better, small, closely set on to head; deaf ears, small and very scanty wattles; very slightly beetle-browed eye, full and bold, of yellow colour, short hackle just covering base of neck (twisted hackle objectionable); very thick and compact in shape, broad at shoulders, the shoulder butts showing prominently, but the bird must not be hollow-backed; the body should taper towards the tail, the back flattish, breast wide, fair depth, and prominent but well rounded, wings short and closely carried to body, well rounded at point and closely tucked at ends, carried rather high in front. Legs very strong and thick, thighs round and stout, medium length, and well scaled shank to give a gamey appearance. Toes long, straight, and strong, and well apart, the back toe low and nearly flat on the ground. Cock's tail medium length, with a few short, narrow, secondary sickles and tail coverts. Tail close, hard, glossy, and drooping. Hen's tail rather short, carried low, well venetianed but close. It should be carried somewhat higher than the cock's.

Plumage short, hard, and close; upright, commanding, and courageous carriage, back sloping downwards to the tail.

Colours of Cock.—Breast, underbody, and thighs a green glossy black; neck hackle the same, with brown and crimson shafts to feathers; back, saddle, and saddle hackle a mixture of rich green, glossy black, and brown crimson, the former predominating; wing bow chestnut with metallic green, glossy black wing bar. Tail green glossy black.

Hen.—Ground colour chestnut brown with beautiful

lacing ; of medium size ; lacing of metallic green, glossy black, looking as if raised or embossed.

Shank in both sexes yellow or orange, the deeper the colour the better.

Face, deaf ears, wattles, and comb a rich red.

La Flèche

This is a French variety and very lately known. Black in plumage with a brilliant lustre, the ear lobes large and white, the face bright red and free from feathers ; the comb is in the shape of a pair of straight horns. The legs are rather long and slaty blue, with four claws on each foot. They lay large eggs, but are delicate and subject to roup.

Langshans

These are good all-round fowls, as they are very hardy, good table birds, and lay fine large brown eggs. There are two kinds, black and white. The Langshan has beautiful glossy plumage and something of the Black Cochin make. It has black legs slightly feathered down to the outside toe, not the middle one, which should not have any. They are rather long-legged fowls and carry themselves very erect. They have red ear lobes ; their combs are evenly serrated and erect both in cock and hen.

A Langshan and Plymouth Rock is a splendid cross. They are splendid layers of large tinted eggs, and very hardy ; they make most capital mothers, are very gentle and timid, and make good table birds. The Langshan chickens, when hatched, are black on the back and pale yellow underneath.

White Langshans

It is a peculiarity of black fowls to produce now and then a white chick or white 'sports.' *White Langshans*

have been so produced in China, and imported into this country. Some have been produced in this way, and others have been made by crossing with white breeds.

Some White Langshans are the produce of a cross with the White Cochins, and others with the White Plymouth Rock.

Leghorns

There are now several varieties of the Leghorn—the White, Brown, the Cuckoo or Dominique Leghorn, Red Leghorn, Black Leghorn, Buff Leghorn, Duckwing Game Leghorn, Mottled Leghorn—but the Brown, White, Black, and Cuckoo are most generally known.

Brown Leghorns.—The cock's comb should be fine in texture, large, single, perfectly straight and erect, with five even deep serrations, extending well over the back of the neck, free from excrescences and wrinkles, and of a brilliant red; wattles long, thin, and fine in texture. Face fine in texture and free from wrinkles; large ear lobes rather pendant, solid, white, and free from folds, and closely fitting to the head. Neck long, with deep rich bay hackle pencilled with a fine and intensely black stripe down the centre, ending in a sharp point, with dark under colour, as white is a fatal defect. The neck should be carried upright.

The general appearance is light and active, large at the shoulders and tapering towards the tail. Beak and toenails yellow, eye red, legs a brilliant yellow.

Head and hackle rich orange red striped with black, crimson red at the front of the hackle below the wattles. Back and shoulder coverts deep crimson, red, or maroon. Wing coverts steel blue with green reflections forming a broad bar across the wing. Primaries black edged with brown; secondaries, part of outer web forming 'wing bay,' deep bay colour; remaining feathers, forming 'wing butt,' black. Saddle a rich orange red striped with black. Breast and under parts glossy black free from brown or white splashes. Tail black flossed with green. Tail coverts black edged with brown.

The hens should have a pure salmon breast, rich golden hackle with a broad black stripe, pencilled black wings free from a tinge of red; fine solid white ear lobes, and combs that are rather above the medium size and fall well over on one side.

Newly hatched Leghorn chicks should be a sandy brown when they come from the shell, a dash or two of darker brown being observable here and there.

They should have neither black nor white in their plumage.

Leghorns are hardy birds and first-rate layers. They are rather small and not first-rate table birds. Mr. Wright says of them that 'they are as layers the best we have ever met with in moderate confinement,' and that 'a more pleasing style of bird could not possibly be. They lay white eggs, very rich in flavour, and are non-sitters.'

White Leghorns are generally considered superior to the brown, they breed so true. Sometimes a few of the pullets show one or two dark feathers, but as a rule they are very slight. They are good when they are kept pure, or excellent to cross with any other breed.

They are *first-class* layers all the year round, and lay as well confined in a small space as when they have their liberty. The chicks are very hardy. If kept in confined runs, and fertile eggs are required, six hens only should be allowed with one cock, but where there is a grass run ten or twelve hens might run with one male bird.

The eggs hatch out well; the chicks are strong and grow very fast, and if kept in sheltered houses and roosts could be hatched out all the winter. Leghorns are very active.

The plumage of both cock and hen should be white throughout, and free from feathers of any other colour, though occasionally they have dark spots. The ear lobes have a tinge of yellow upon them; the legs should be of a deep yellow colour when they are young.

Mr. Cook says: 'Bone meal and ground oyster shells

should be given very sparingly after the chickens are four months old, otherwise the legs will become pale. A good proportion of meat may be given, which brings their combs out well. They are very active birds, and are continually on the move.'

The hens begin to lay from four to six months old. They are hardy birds, and can be hatched out in January, and go till August, but the earlier they are hatched the finer birds they grow. They are a beautifully-shaped bird.

Buff Leghorns.—This variety hails from Denmark, and as this breed is not yet so well known as it is likely to be, I will quote Mr. L. C. Verrey's description of them, or what they should be from his description.

'They should be identical in shape, size, comb, lobes, and legs with the Brown and White Leghorns. In the breast and under parts, either a good lemon or orange colour quite solid. Hackle, back, shoulders, and saddle of the foregoing colours, but rather deeper in tint; tail a little deeper still in shade, with sickles and coverts to harmonise. The hen a solid lemon or orange colour, with the hackle richer or deeper in tint; the tail the same colour as the body.' He then goes on to say 'he is doubtful if either of the mentioned shades can be produced by breeding from Leghorns pure and simple, and can only be arrived at by infusing Cochin blood. Buff Leghorns have as yet much white in tail and flights, and are darker on breast and lighter in hackle than desirable. The pullets are fairly sound in colour, but of different shades, and some are inclined to run to whitish tails, and show faint white irregular pencillings in plumage.'

Mr. Verrey goes on to say 'that breeders of Pile Leghorns generally have a few chickens that come nearly buff in colour,' and he recommends that 'Pile Leghorns should be used with the existing Buffs, and so keep the race pure Leghorn, for it will take some time to get the Buffs to breed true to colour.' He further says, 'I am satisfied that the Buff Leghorn should remain with white flights and

white tail feathers edged with buff, and with true Leghorn characteristics, rather than I would have a breed with an exhibitor's aim only, viz. colour.'

As egg producers they quite equal the other varieties.

Pale Leghorns resemble pale game, are the result between the white and brown breeds, and are white splashed with brown.

The *Cuckoo*, or Dominique Leghorn, the marking of which consists of bands of dark blue on a light grey or even white ground.

Duckwing Game Leghorn.—The Duckwing Game, Silver-grey Dorking, and Leghorn participate in the manufacture.

Mottled Leghorns resemble the brown variety in colour, but the whole body is splashed with white.

Brown Leghorns cross well with Brahma Dorkings and Minorcas, Cochins, Hamburgs, and best of all with Plymouth Rocks.

The Brown Leghorn-Brahma cross should be by a Leghorn cock and Brahma hens. This cross is very hardy, and they are excellent layers of large eggs, principally brown. They make good sitters and mothers; they do not make good table birds, as their flesh is yellow.

Brown Leghorn-Dorking birds make very good table birds, though not large.

Leghorn-Minorca make excellent summer and winter layers of large white eggs, but not good table birds.

Leghorn-Cochin make pretty birds, are good layers, lay good-sized tinted eggs, and make good sitters and mothers.

Leghorn-Hamburg lay small white eggs, but very rich in flavour.

The Leghorn-Plymouth Rock is a first-rate cross. A Leghorn cock, either brown or white, can run with seven Plymouth Rock hens.

They are wonderful layers of a fair-sized tinted egg. They are extremely hardy, and when birds are only required as egg-producers they are unsurpassed. They make good table birds; their flesh is white and juicy.

Plymouth Rock cocks should never be allowed to run with Leghorn hens. They make good sitters and mothers.

Malay Fowls

Resemble long-legged barn-door fowls. They are of a darkish brown streaked with yellow, and sometimes they are streaked with white. They should be crossed with Dorkings, and then they are found to be good layers and sitters, as well as good table birds.

Minorcas

These fowls are splendid layers; their eggs are of a good size and flavour; they are most admirably suited for confined runs, and they are good table birds, as they are of excellent flavour. There are two varieties of this breed, Black and White. Minorcas have bright red faces with white ear lobes and large combs. Their legs are dark. They are non-sitters and lay very large round-shaped white eggs, which often weigh over $2\frac{1}{2}$ ounces each.

The eggs hatch out well and the chickens fledge fairly well, and they are known to lay as early as seven months old. It is best to breed from a one- or two-year-old bird and a strong vigorous cockerel. These birds stand confinement well and they can be kept in a very small space. Mr. Cook observes that six Minorca hens put into a warm run, 2 yards by 6, will lay as many eggs as those which have a grass run or field to run over.

If the run is bleak it should be sheltered from the cold east winds, which often turn the birds' combs black, and especially in frosty weather, when the ends of their combs become frost-bitten, particularly those of the cocks. The birds should be let out for a *very* short time when it is freezing hard, and some employment found for them, such as scraping for a little small grain scattered among a heap of horse manure, or some short loose rubbish laid down in the road. Pure Minorcas should not have any white on the face. The cock's comb should be very

erect, very evenly serrated, and the serrations rather deep; the comb itself of a fine texture, feeling soft to the hand and free from side stripes. They should not have large wrinkles or thumb marks on the side of the comb. Wattles long, rounded at the ends, and fine in texture; the face should be a brilliant red and as free from feathers as possible, the ear lobes pure white and almond-shaped, flat, fitting quite close to the head, and quite free from creases and red streaks. The beaks should be black or dark horn colour, and nicely curved; carriage erect. The plumage should be black throughout, brilliantly glossy, especially the hackles and saddle glassy green black; the tail should stand out well, not too near the head, the sickle tail feathers long and tapering; legs dark, with white toe-nails and four toes on each foot. The hens are black throughout, with red face, white ear lobes rather rounder than the male's but not so long, comb evenly serrated and falling over one side. A pure Minorca is not a large fowl.

When Minorca chicks are first hatched they are of a whitish yellow underneath and round the head. Moulting goes very hard with good laying Minorcas, especially when they lay into November. They require special attention.

As a table bird the Black Minorca takes a high position. Naturally plump, its bones are small, flesh white and juicy and turkey-like in flavour, and though it does not rank among the larger breed of fowls it yet attains a size and sufficient weight to give it a just claim to be considered a good table bird, the average weight of pullets being from $4\frac{1}{2}$ lbs. to 6 lbs., and of cockerels from 6 to $7\frac{1}{2}$ lbs. at six months old. They are non-sitters.

White Minorcas are the same in all points as the Black, only white plumage instead of black, and the legs white.

Orpingtons

These birds are of recent introduction, are home-made, and were manufactured from Langshan, Black Minorca,

and Plymouth Rock. The plumage is black; they lay very fair-sized eggs, and for table their flesh is very white, of delicate flavour and remarkably fine texture. There are two varieties: the Single-comb Black Orpington, and the Rose-comb Black Orpington. Mr. Cook is the original breeder of them. They combine the blood of Minorca, Langshan, and Plymouth Rock. Mr. Cook thus describes them: 'They are very easy to breed, are hardy as chickens, and feather and grow fast. They answer every purpose. They have white skin and flesh, and therefore make first-rate table birds; splendid layers of brown eggs, and not liable to get so fat internally.'

The plumage is very glossy; single combs evenly serrated in both sexes, standing erect in the cock, not large but neat; red face and ear lobes, black or dark legs; four toes on each foot, well spread out. The hen's comb may fall a little to one side, if evenly serrated and without folds in it.

Rose-Comb Black Orpingtons.—Are similar to the Orpingtons in shape and colour, but have a rose comb. They are large birds, free from white in the ear lobes. They are wonderful winter layers of rather small brown eggs.

Their plumage should be black throughout in both sexes; rose combs set close to the head with a small peak at the back, and the neater it is the better; red face, red ear lobes, hazel eyes, black, nicely-curved beak, black legs, and white toe-nails. The cock's tail should have fine hanging feathers on each side, with a brilliant metallic green on them.

The chickens when first hatched should be black on the back and white underneath, and hale on the legs.

Plymouth Rocks

This is a large American breed, imported into England by Mr. Long. They have smooth yellow legs, short tails, and single combs. They are cuckoo-marked throughout.

The cock's breast should be of the same colour as the

hen's body. In the hackles and saddles the markings should be much finer; red face and ear lobes, single comb, red, evenly serrated crest. They make good sitters and mothers, but are apt to be broody too often. They are capital layers of medium-sized pale brown eggs, are splendid table birds, and are a first-rate breed to keep. A cross between Leghorn cocks and Rock hens makes the best layers anyone can possibly have, besides very good table birds. The chicks when first hatched are black, with a small white oval mark on the heads.

Poland Fowls

They are a very noble-looking race, all its varieties possessing a well-developed crest or tuft of feathers on the top of the head. There are a great many varieties—the Golden Polish, the Silver, the White-crested Black, the Buff or Chamois, the Blue-grey, and Cuckoo or Speckled.

Their combs are very small and completely hidden by the crest. The wattles are small, and seen only in the White-crested variety. The legs are of medium length, blue in colour, and four-toed. The colour of the plumage differs with the variety. The Golden Polands have a ground colour of golden bay laced with black. The Silvers have a white ground with black markings. The White-crested are a lustrous black with a pure white crest, and as free from black feathers in the front of the crest as possible. The Chamois colour is buff, evenly and distinctly laced with white. Polish fowls are fairly hardy, and they should be kept in large covered runs, where their immense crests do not get saturated with wet. They do not thrive on damp soils; on dry sheltered ground they succeed and lay well. The eggs are of medium size; the meat is very good, but the size is not great.

Redcaps

This breed is very similar to the Golden Spangled Hamburg, both in colour and shape. They are reddish-

brown, with a kind of black half-moon marks. They have large rose combs, though not quite so large as the Hamburgs. Their ear lobes are red. The chickens when hatched are of a light buff colour, with light and dark brown stripes on the back. They lay fair-sized white eggs.

Scotch Greys

This is a very valuable breed of poultry, and very popular in Scotland. It is a non-sitter, though occasionally a hen may show a disposition to sit. They are something after the Dorking breed, but the carriage and shape are more upright than in that breed, and the bird is more active. Cocks weigh from eight to nine and a half pounds when a year old, and the hens, as a rule, a pound less.

The groundwork of the plumage is a beautiful blue grey with neat moons of a metallic black on every feather, and in good specimens the tail feathers of the cock will be marked right to the tip. The comb of the cock is large and single, the wattles proportionately long, and with the face and ear lobes bright scarlet. In the hen the comb should fall slightly over to one side. The legs are white, but if mottled a little with black this is not objected to. It is a good layer of large white eggs, which are well-flavoured, averaging about 120 to 130 eggs per annum. As table fowls they are not much inferior to Dorkings.

Scotch Greys are not suitable to confined yards, and they require plenty of green food.

Spanish Fowls

This is a very favourite breed, as they stand confinement and town life well, and as producers of large brown eggs they are most valuable. They go on laying all the year round except in moulting time. They are non-sitters.

In appearance they are very handsome and aristocratic-looking birds. Their colour is a lustrous black, and they

should be without a suspicion of white or any other colour in their plumage. They have long legs, which render them rather unsightly as table birds. The cocks are very majestic in their gait. The combs are very long and single, and are erect in the males, and should fall over to one side in the females. They have immensely large ear lobes, very white. Their faces are white, though except in first-rate specimens one often finds that the face has more or less red over the eyes. The chickens are a long time in fledging, and are delicate, and require a little toast and ale twice daily, and also meat and milk occasionally.

The chickens have always white feathers in the flight portion of the wings, which become black as they grow.

There are also the White Spanish, the points being similar to the black, except in colour.

The Wyandotte

These are a very good all-round fowl to keep. They are first-class layers of a good, brown, medium-sized egg, good sitters, and very careful mothers.

Another thing is, if when they become broody they are shut in for three days, they will begin to lay again at once. They are capital winter layers. The chickens are very hardy and bear cold well. They are fairly good table birds, and on the score of beauty they are hard to beat. They are of good size, elegant carriage, and lovely plumage.

They have large rose combs with a beak protruding over the back of the head, face and ear lobes red, beaks yellow and strong, legs bright yellow with four toes on each foot, well spread out from each other, tails black.

The cock is of the same colour as a dark Brahma, saddle and hackles white striped with black, back and wings of a silvery white slightly edged with black.

They should have the breasts laced on a bright golden or silver ground.

In the hen the breast, back, and wings are spangled, whilst the under feathers are beautifully laced, and also at

the top of the thighs, the middle of the feather being white, edged all round with black. The centre bars of the wing are white, just edged with black.

The Wyandottes are an American breed, but do not always breed true. Mr. Cook says they are a cross between Silver-spangled Hamburgh and dark Brahma.

They are very large birds.

Bantams

These are kept principally for fancy purposes. There are several varieties, the chief of which are Game, Golden, and Silver-laced Sebrights, White and Black Rose-combed, Booted and Feather-legged Pekin, Japanese, Duckwing, and Black Reds. Sebrights are the smallest.

The cock has a gold or silver ground, each feather being minutely and perfectly laced, with a very narrow black edging extending to the tail. He has no sickles; the wings are carried low, and his deaf ears are perfectly white.

Black Bantams have a rose comb, and are exceedingly small, have red faces and small white ear lobes, free from wrinkles or red spots, black legs, and four toes on each foot.

White Bantams should be pure white, with white legs and rose combs.

Booted Bantams are white, with vulture-hocked feathers on their legs.

Japanese are white, dumpy birds, with large single combs and long black tails laced with white.

Pekin or Nankin Bantams are simply diminutive Cochins.

Game Bantams are simply diminutive game fowl.

To get Bantams small, which is their beauty, they should not be hatched out early in the season. June and July are the best months for hatching them out.

Bantams are as a rule excellent, attentive mothers, and very good layers of small, deliciously flavoured eggs.

Bantam chicks require rather more animal food than

those of other fowls, and for a week or two extra care must be taken to keep them dry. To keep down their size they should be fed scantily, and should have more hard grain than soft food ; rice is good for them.

Diseases Poultry are Subject To

1. Diseases of nervous system :—Apoplexy, paralysis, vertigo, neuralgia, and debility.

2. Diseases of the lungs and air passages :—Cold, catarrh, bronchitis, pneumonia, roup, consumption, gripes, and pip.

3. Diseases of digestive organs :—Diarrhœa, cholera crop-bound, dysentery, indigestion, constipation, liver disease, and inflammation of the bowels.

4. Diseases of the egg organs :—Inflammation of oviduct, soft-shelled eggs, eggs broken within the body, egg-bound, hernia, and discharge from oviduct.

5. Diseases of the locomotive organs :—Rheumatism, cramp, gout, leg-weakness, and bumble-foot, various comb diseases, poisoning, dropsy, tumours, feather-eating, egg-eating, and canker.

Apoplexy

Over-feeding produces this ailment ; the bird generally falls down suddenly and becomes motionless.

Pour cold water on the head and open a vein under the wing, which must be done by a longitudinal slit, *not a cross cut*. Keep on a light diet with plenty of green food, isolated and quiet. Also give a teaspoonful of liquorice powder.

Baldness

Is caused by deficiency of green food. Feed well, give plenty of green food, and apply to the bald place a little ointment made of green iodide of mercury one part, to eleven parts of *fresh* lard (no salt in it), and use night and morning for a week.

Broken Legs

If valuable chicks should by any accident get their legs broken, it is quite possible to cure them.

Bind as quickly as possible a strip of linen cloth half an inch wide and eight inches long round the fractured member, drawing each end of the bandage tight, and tying with a thread. Then take a strip of cloth five inches wide and cut two holes in it for the chick or fowl's legs to go through, and hang it up to a hook. Place a piece of shingle between the bird and hook to act as a spreader, so that his weight would not squeeze him; additional strips of cloth to be placed before and behind him to prevent his falling out.

Place the food on a movable shelf just far enough away to touch the end of his toes.

Three times a day, for four days, bathe the broken leg with arnica. Then he may be taken down if a chick (a fowl would take two or three days longer), and place him in a soft nest, and in a day or two remove the bandages, and in about ten days the bird is likely to be well and about again.

Some persons poultice the leg for a couple of days, and then wrap it in cotton wool, and splint it very tight, and if this is done at once it will be quite well at the end of a fortnight.

Broken Wings

If the bird is valuable the wings may be mended by tying the points of the quill feathers together in a natural position.

Bronchitis

Keep the bird warm and hold its head over hot steam medicated with hops, and three or four times daily give a few drops of brandy and milk. Two or three drops of spirits of camphor in a teaspoonful of glycerine will be found useful. When it is getting better put a few grains of sulphate of iron in its drinking water. Soft

warm food should be given, and do not let it be exposed to damp or cold for some days after.

Bumble Foot

Poultice the foot or feet, as the case may be, so as to bring the swelling to a head, and do not break it too soon. Continue the poulticing for a short time after, so as to extract the whole of the growth. The birds should not perch until after the wound has healed, and all dirt and irritating matters should be *kept out*.

Canker

Canker is the yellowish deposit that forms in the angle of the mouth at the opening of the mandibles, and upon the mucous membrane lining of the mouth and throat, and especially at the trachea. It is sometimes mere ulceration indicating impurity of the blood, at other times it is a symptom of diphtheritic roup.

When the fowl seems strong and vigorous, the mere removal of the deposit and a few applications of lunar caustic or burnt alum to the affected parts will effect a cure, or a solution of tannin in water. But where there is constitutional weakness, the treatment must be both constitutional and local. For constitutional treatment give capsules containing two grains of quinine and six or seven drops of tincture of iron, night and morning. For local treatment wash the head, nostrils, and eyes in salt and water, remove the deposit, causing as little bleeding as possible, and sprinkle upon the affected parts iodoform. This powder is expensive, but little is required for an application. It should be kept in a bottle tightly corked. Give, as the fowl recovers, milk thickened with isinglass, which is most soothing, also finely minced beef, and, in severe cases, a few drops of brandy may be mixed with the emulsion, as also cod liver oil.

Catarrh, or Common Cold

Mix roup powder in the soft food, and give the worst each one teaspoonful of glycerine and then one of stewed linseed.

If there is any rattling in the throat, it proceeds from a slight stoppage of the bronchial tubes, and nothing is so good for it as glycerine and stewed linseed. If the face is swollen and the nostrils run, Mr. Cook recommends bathing the face with warm milk and water; then wipe it dry and apply a little iodine with a feather on the fleshy part of the face where the swelling is (but not in the eyes).

Roup powder in the form of pills, and a little castor oil, should be administered. A week's treatment generally cures; they should not be allowed in the run during their treatment. The symptoms are watery discharge from the nostrils, which gradually gets thicker, and the eyes become more or less bleared.

The cause is generally exposure to cold east and northerly winds, damp and draughty roosting houses.

Chickenpox

Is characterised by the appearance of numerous small ulcers on the head and face, which become covered with scabs. This disease attacks Spanish and Leghorns more frequently than other breeds. It is contagious. The affected parts should be kept clean with Castile soap and warm water, and applications of vinegar and chloride of potassium should be made. Sulphur given internally will be found beneficial.

Cholera (Fowl)

The cause of this disease is overcrowding, bad sanitary management, and unwholesome and irregular feeding, which cause the development of bacteria and afterwards blood-poisoning. It generally attacks the liver, which

becomes enlarged and softened; the gall bladder becomes clogged up and the whole digestive process impeded. The disease is very contagious, and fowls showing symptoms of it should be isolated from the others. The principal symptom is that the excreta are yellow, which are generally white. Sometimes it commences with diarrhoea, which increases in violence, the evacuations being slimy white with some particles of red, and tinged with yellow, and when very bad changing to a green colour. As the disease progresses the skin is very red, especially the rump portion, the temperature of the bird rises, the comb becomes very pale, the appetite fails, and the fowl shows great weakness and it soon dies, often in convulsions.

This disease lasts from one to seven days. If the fowls are not valuable it is best to kill them at once and have their bodies burnt, and give a dose of kerosene oil to the healthy birds in their soft food, in the proportion of one tablespoonful to two quarts of the meal. The run, house, feeding troughs, and water fountains must be cleaned and disinfected by sprinkling thoroughly about one per cent. solution of carbolic acid. All excreta must be taken away and burnt, and the whole run, &c., whitewashed. The following are recommended remedies in the earliest stage of the disease.

No. 1.

Force down the fowl's throat 10 drops of strong tincture of *Eucalyptus globulus*, 4 to 6 grains of common salt, $\frac{1}{2}$ teaspoonful of cayenne.

One dose in a tablespoonful of water to be given at once, and in 24 hours the fowl is generally relieved.

No. 2.

Add a teaspoonful of strong liquid carbolic acid to $1\frac{1}{2}$ pint of water. Mix all their soft food with this water, and let the birds eat what they will of it. If they do not eat, give them a teaspoonful of the water twice a day. Keep the birds warm and dry, and give no drinking water.

No. 3.

4 parts hyposulphate of soda, 2 parts boracic acid, 1 part mandrake root, 1 part cayenne, 1 part rosin. 1 part pulverised

rhubarb. Give each fowl a teaspoonful, and repeat every hour till relieved. When the birds are recovering give each a few drops of tincture of iron in a spoonful of warm water.

A writer in 'Farm, Field, and Fireside' advises one tablespoonful of pine tar, in a small pan which will hold water, and to confine the diseased fowls so that they cannot have access to any other drink, and it will effect a cure. The writer had proved the efficacy of this by using it himself for ten years.

When purging is very profuse, chlorodyne and carbolic acid are good. Use three to six measures of the former in a dessertspoonful of water, and one of the latter pure, dissolved in ten drops of glycerine and given in a dessertspoonful of water.

Consumption

When fowls are wasting without any apparent disorder, a teaspoonful of cod liver oil per day will be found a most efficacious remedy.

Cramp

In cramp the feet become contracted, and the fowl unable to move its legs; generally caused by damp and cold. To cure it, put the chicken's legs into hot water and bathe them well, and rub some of Elliman's embrocation upon the legs. Wrap them in flannel, and keep the bird in a basket for a few days; repeat the dressing if necessary.

Crop-bound

This is caused by food not passing into the stomach by reason of the gizzard getting stopped up, and the crop becoming distended. The fowl should be kept in a warm place, and given three drops of aconite in half a pint of water. Warm food should be given very sparingly, mixed with a little liquorice, ginger, aniseed, and sulphate of iron. Roup sometimes sets in after the bird is crop-bound, and it is a good plan to wash its face and nostrils with carbolic acid diluted in the proportion of one to sixty of water.

When a fowl is crop-bound, it will be often noticed to take up food and lay it down again, and drink a quantity of water, which causes the crop to turn hard.

Mr. Cook advises (what I always have done) two teaspoonfuls of castor oil and a little warm water to be given, and to rub the crop gently, so as to remove its contents.

If the crop does not get softer in three hours, the warm water and rubbing should be repeated, and again if still ineffectual. The crop must be opened by placing the bird on its back, getting some one to hold it; then part all the feathers down the centre of the crop, without pulling them out; then make an incision at the top of the crop with a small and sharp penknife, carefully avoiding cutting any of the large blood-vessels in the outer skin. The hole should be an inch long; the end of a teaspoon can be used to empty the crop, which must be *very* carefully and gently done.

The crop should be washed out with a little warm water, and a little salad oil put round the inside with a feather, and then sewn up with silk, each skin being sewn up separately. Wipe the wound dry, and give *no water* for thirty hours.

Soft food should be made with a little hot milk, just enough to make it moist. It must be made fresh every feeding time, and the fowl will be well in two or three days.

Some poultry rearers give a quarter of a teaspoonful of jalap mixed with butter in the form of a pill, instead of the castor oil.

Diarrhœa

Give a teaspoonful of salad oil, followed by five grains of rhubarb and ten grains of carbonate of soda, or three to six drops of chlorodyne, in a dessertspoonful of water or port wine every four hours.

In severe cases a pill containing one grain each of tannic acid and opium is an effectual remedy. During the attack, and for a little time after, feed on soft food and give no green stuff.

Eczema

The symptoms are an eruption of minute vesicles, which generally run together and break.

The wattles, comb, and face are chiefly attacked, and it is caused by over-stimulating food. It is found most frequently in highly-bred fowls.

The following treatment is recommended:—Ten or twenty grains of sulphate of magnesia, a grain of calomel, followed by three grains of carbonate of iron twice a day in a teaspoonful of water, and apply locally benzoated oxide of zinc ointment twice a day.

In very severe cases, when the scabs are very hard, they may be removed after first softening them with warm water and dressing the parts with the following preparation :

½ ounce oxide of zinc
    „ olive oil
2 drachms tincture of arnica
1 drachm spirit of camphor
10 minims pure carbolic acid
7 ounces rose-water

to be applied three times a day.

Give plenty of fresh green food and plain nutritious diet.

Egg-bound

Inability to lay from the unusual size of the egg. A dose or two of salad oil and some chopped groundsel affords relief. Generally also a feather dipped in castor oil may be passed up the egg passage *very carefully*. Soft unstimulating food should be given.

Egg Organs Inflamed

Is caused by over-feeding. The birds go on to the nest without laying, or they lay shell-less eggs, and drop their eggs from the perch and elsewhere. They should be fed on boiled mashed potatoes and boiled rice for a week.

Give a dessertspoonful of salad oil, or a pill made with one grain of calomel and one-twelfth grain of tartar emetic every second day for the same time.

Fowls Losing Feathers

Fowls sometimes pick out their feathers when they are in runs, for occupation's sake. The best thing is to give them plenty of good sharp flint grit and poultry powders, and a little sulphur in their food will help the growth of new feathers.

Frostbites

These affect the comb and wattles chiefly, but may also cause injury to the feet. A careful examination of poultry should be made after any severe cold weather, to see whether the combs and wattles have been touched. If the trouble has been detected before the frozen part has thawed out, it should be subjected to friction with snow or very cold water till the frost has been removed. The fowl must not be brought near the fire or into a warm apartment until this thawing process has been completed. After the thawing out, bathe the affected parts in camphorated spirit or compound tincture of myrrh, and anoint with glycerine, sweet oil, or turpentine ointment.

Gapes

Dip a feather in paraffin and then put it down the bird's throat and twist the feather round a few times and withdraw it.

I am told that paraffin floating on the drinking-water answers sometimes, but I have never tried it.

This disease is common to chickens. The symptoms are frequent yawning and gaping, which is caused by peculiar parasitic worms adhering to the inside of the windpipe. It generally seizes chicks about three weeks old. Their feathers become ruffled, they have no appetite,

and sometimes there is a moisture from the mouth. It is often produced by drinking stagnant or dirty water, also by poor food and paucity of green meat.

Mr. Bailey recommends two camphor pills the size of a garden pea as another excellent remedy. Another is to make a pill of soot and fat, and give it to the ailing bird, which I find very effectual.

Mr. Cook recommends one teaspoonful of Jeyes's Disinfectant to one tablespoonful of water. The gullet should be worked up by the thumb and finger so that the windpipe is within easy reach. Dip the feather in the solution and put it down from two to five inches, according to the size of the chicken. Twist it round two or three times, and if the chick is much distressed put a salad oil feather down its windpipe, and then a teaspoonful of water.

A knob of quicklime put into the drinking fountain, sufficient to make it milky when stirred, and then let it settle and pour off for use, is a good preventive.

Leg Weakness

Young cockerels that grow very quickly are subject to this. The symptoms are sitting down to eat their food, dropping down quickly and frequently, and tumbling over.

They should have bone meal mixed with the soft food, and meat given them. Put a tablespoonful of Parrish's Chemical Food to a pint of water in the drinking trough.

Bathe the bird's legs and feet in hot water and rub in some Elliman's Embrocation, and wrap them up in flannel. The birds should not roost, and should be put in a basket or on moss peat for a time. Birds with leg weakness should not be kept for stock birds.

Lice

There are four species of lice which affect fowls. Three kinds infest their bodies, while the fourth sort makes its home within the nests, on the perches, and elsewhere,

whence it issues at night to feed upon the birds when upon the roost.

Lice cause great depression and loss of health. The tufts of crested fowls form a favourite shelter for parasites. When lice are discovered on the fowls, dust them thoroughly with Persian, Dalmatian, or carbolic powder. Suds of carbolic soap applied to various parts of the body, especially under the wings, the vent, head and neck, or a bath of one part carbolic acid and sixty parts water, into which plunge the fowls and thoroughly saturate their feathers. But in cold weather great care must be taken to prevent them catching cold ; therefore an ointment of lard, sulphur, and kerosene oil, equal parts, may be applied to adult fowls, and perhaps is better.

To rid the house, remove all filth ; whitewash and fumigate.

Liver

Liver complaints come from various causes. Inbreeding is the primary cause.

Lameness is a sure sign that the bird is affected with liver disease, and there is no cure for it. Birds should not be eaten, neither should their eggs be used. It is not infectious.

Fowls in confinement are most liable to this complaint. The symptoms are a yellow cast and sunken look about the face, the comb pale, and the eyes dull ; they drink the first thing in the morning before eating, and take a dislike to soft food.

Want of sharp grit is a great factor for liver complaint in fowls, and too much maize in the feeding is another cause.

Hot weather is bad for them, though they will stand any amount of cold.

Inflammation of the Liver

This is often caused by insufficient exercise, overfeeding, exposure to damp, cold, or intense heat, and sometimes it is occasioned by scrofula and tuberculosis.

The best plan to pursue is to feed sparingly for a time, using bread soaked in milk or lime-water, or boiled rice.

Separate ailing birds from the rest and dose them with half a grain each of calomel and opium. Repeat this every six hours and follow up with ten-grain doses of tartrate of potash morning and evening. Diarrhœa, if present, should be checked by chlorodyne, and the breast and abdomen held over steam.

Another remedy is to give an aperient, such as sulphate of magnesia and bicarbonate of soda; ten grains of each should be given daily for a week, and doses of homœopathic tincture of podophyllum twice a day.

I find dandelions and watercresses cut up in small pieces and given in the food are the best remedies, with Cook's roup powders given twice a week.

Boiled rice for a change, for the evening meal, is good.

When fowls have had liver disease their excreta are very yellow, and they waste away and become almost skin and bone.

Pip

This complaint begins with a softening of the beak, and increases to such a degree of soreness that the bird is unable to pick up food, and if not attended to will starve. To cure it, take up the bird and nip off with your forefinger and thumb $\frac{1}{8}$ of an inch at the tip of the beak, and the cure is effected. Then comes the formation of a tough white membranous substance on the tongue and back part of the mouth, with loss of appetite and feverish restlessness; generally from some disease, such as catarrh, or roup, or gapes.

Anoint the tongue with pure glycerine or salad oil, and then scrape away the white membrane with the forefinger, with a piece of rag dipped in a weak solution of alum, for a day or two, and then apply glycerine again; give a dose of roup powder. Pip is said by some authorities to be caused by drinking foul water; therefore care should be taken that they have always pure fresh water. During

the time they should be fed on barley meal made into a stiff paste.

A West Indian Cure for Pip.—Take a lump of butter the size of a nut, and a piece of aloes the size of a pea; make into a pill, and put it down the fowl's throat. An hour after the cure is complete.

Pneumonia, or Inflammation of the Lungs

The symptoms are, breathing very hard, keeping the mouth open, and appearing to be in pain. They usually drink a quantity of water, unless very bad, and keep closing their eyes.

This may only be a bad bronchial cold. Give at once a few spoonfuls of linseed, as warm as they can swallow it, and keep the birds in a warm room, and rub a little mustard and vinegar, mixed thin, under the wing in the bare place, about an inch from the joint. I generally find this cure them; and when cured they should not be allowed to run into the cold air.

If very bad and weak try this remedy:—

Keep the chickens in a warm place, and paint the skin on the back in the region of the lungs with tincture of iodine. Give them, in half a teaspoonful of warm milk, one drop of spirits of camphor and five drops of brandy three or four times a day. Chop up a little raw beef very finely, and mix in their soft food occasionally. To ease the bird, two drops of chlorodyne may be given in a teaspoonful of linseed oil. If very weak a little port wine and beaten egg may be given.

Poultry with Swollen Tongue

Moisten the swelling with roup lotion, and then the substance may be removed with the quill of a feather. Then bathe the mouth every morning with warm milk and water for a week,

Rattling in the Throat

When a fowl rattles in the throat, pour some warm linseed tea down its throat.

If you place the little naked spot under the wing close to the ear, you can easily detect whether it is on the lungs or in the throat. If from the lungs, rub a little tincture of arnica on the skin just over the lungs with a feather.

Rheumatism

When fowls have rheumatism in the legs, the wings suddenly fall, and the fowls fall forwards on their breast. They should be warmly housed, and have the legs rubbed with St. Jacob's Oil every night and morning, and give at every convenient opportunity a spoonful of a saturated *solution* in water of salicine. A little cayenne will also do good.

Roup

Deaths from roup in fowls occur mostly in the third stage of roup, or *swell-head*, as it is often called.

This form of the disease is contracted by contact with birds already affected, or from a neglected cold which is allowed to run on.

Roup in its first stage is simply a slight catarrh, which is easily cured by feeding for a few days on hot soft food containing a strong tonic. Then it arrives at the stage where the discharge from the beak thickens and becomes offensive. They must be given in addition an injection in the nostrils—lard and kerosene of each one tablespoonful, to which add ten drops of carbolic acid.

When the head swells and the discharge becomes offensive, it is useless to try and effect a cure, and to kill is the only thing to do.

The causes are various. Fowls kept on cold damp soil will be subject to it, or when placed in a draught, some-

times through the door of their house being kept open all night, or when draughts reach them on their perch during the night; through bad ventilation and uncleanness of their house and run.

When a bird is suspected of having roup it should be separated from the others and removed to a dry warm place. If it has only running at the nostrils, the best thing is to put a teaspoonful of compound essence of linseed in a pint of its drinking water, changing the water twice a day.

This is a good preparation I always keep by me, as a dose may be given with great gain to the stock in the autumn and winter months, also in wet weather. Also mix some of Cook's roup powder with their soft food.

If the face is swollen, get some camomile flowers, pour boiling water on them, and bathe with it when it is cold.

If the running matter have turned into yellow matter, get a quarter of an ounce of sulphate of copper, dissolve in a pint of water, wash the nostrils and mouth out twice a day, not letting the bird swallow it. If matter adhere to the top of the windpipe after being washed with the solution it will become hard and dry, when scrape it off, and if it grows again, repeat the operation. When the matter is taken off, the bird will most likely bleed a little, then give a teaspoonful of glycerine. If it does not pick up its food, feed it with soft stuff made into rolls two inches long dipped in water. They *must* have food somehow.

A remedy recommended by a well-known poultry-breeder is to wash the nostrils, eyes, and mouth with Labarraque's solution of chlorinated soda, diluted with twice its bulk of water. Feed on warm food, slightly seasoned with cayenne, and have twenty pills made up of 20 grs. cayenne, 10 grs. sulphate of copper, 1 fluid drachm of copaiba, and give one night and morning. Continue the washing process twice a day during the attack, and give half a teaspoonful of Epsom salts the first day of the attack, and a second one if necessary on the third day.

Diphtheritic Roup

This is roup seriously aggravated, and generally either causes death or leaves the fowl in a very ailing condition; the symptoms are very offensive breath and great discharge from the nostrils, which dries all round the outside, and a thick mucus from the mouth, which causes heavy breathing. A thick cheesy matter forms on the tongue, and increases so much that the tongue often protrudes from the mouth.

The fowl should be placed in warm moist air, and all pus and matter carefully removed from the mouth with a piece of sponge fastened to a small paintbrush handle, and moistened with warm carbolised water.

Mix together half an ounce of balsam of copaiba, half an ounce of cayenne pepper, half an ounce of liquorice powder, thirty grains of sulphate of iron (dry), about one tablespoonful of wheat flour, and add sufficient glycerine to make it into a stiff paste. This will make 128 pills; roll them in flour and finish them, and give the fowls one pill night and morning; chicks only half the dose. If specks appear the parts should be painted with tannic acid five grains and one ounce of glycerine.

The fowl must be well nourished with mucilaginous food, a little at a time and often. Milk thickened with arrowroot forms the best diet, and finely minced raw beef may be mixed with it, also cod liver oil. When quite recovered, tonics should be given and the bird kept from damp and cold for some time after.

Another poultry breeder recommends the following lotion: Half an ounce of sulphate of copper (poison) in a pint and a quarter of distilled water, and bottle it. Soak a small bit of sponge with it tied on to the end of a small stick, and make a wedge-shaped point at the other, and well scrub off all cheesy spots in mouth and throat. When cleaning the mouth, press all the discharge out of nostrils and work the lotion well up the same, pressing it thoroughly with thumb and finger, which causes the dis-

charge to come out of slit in the roof of the mouth, which can be removed with a feather dipped in the lotion. Great care must be taken that only a very little of the lotion goes down the throat.

A small piece of sulphate of copper may now be fixed securely in a slit in the end of another piece of stick, which must be used to cauterise all the diphtheritic blotches in the mouth and throat. This will not require using more than two or three days in succession. 'This treatment,' the writer observes, 'cures the very worst cases in a week or ten days.'

Scaly Legs

This is really but a parasitical excrescence, and seldom happens to poultry that are continuously well cared for.

Rub the legs with an ointment of equal parts paraffin and sulphur, made into a paste and rubbed on each morning, or soak the legs well in soap and water, using Spratt's poultry soap with a little soda in it as hot as can be borne for ten minutes. After drying, rub the above mixture well in and leave it smeared over.

Scours

Rice boiled with plenty of water, so that the grains do not stick together, and when done the water should be strained and then a little finely powdered chalk sprinkled over it. Give this at midday daily till better.

Sneezing Chickens

Keep the chicks warm and feed on soft nourishing food sprinkled with cayenne or ginger. If very bad, a very small dose of Glauber's salts will be found effective. Sponge the nostrils and eyelids from time to time with warm water into which a little Labarraque's solution of chlorinated soda has been placed, and keep the chicks from being exposed to cold or showery weather for some days after recovery.

Swollen Feet

This, if taken in time, may be soon cured by carefully paring the hardened surface and touching the parts daily with one drop of acetic acid. The bird must not be allowed to perch and must have a soft bed during the time. If the swelling breaks the growth should be carefully dissected and nitrate of silver applied; great care must be taken to keep out the dirt. Poulticing is good under these circumstances, and carbolic acid should be applied.

Swollen Toes

Bathe the bird's feet with hot water, and apply some tincture of arnica with a feather to the toes. If there should be any matter, prick the toes and squeeze it out.

Swollen Wattles

When the wattles swell and appear heavy, there is generally an accumulation of matter in them. They should be pricked at the bottom, and then gently squeeze the matter out, bathe with warm water, and paint with vaseline. They should be painted with arnica to reduce the swelling.

Vertigo

Caused by over-feeding, and the symptoms are ruffled plumage, staggering as they walk, and often *temporary* blindness. The treatment should be similar to that for apoplexy, and the diet reduced, and salad oil or Glauber's salts given.

White Comb

The comb has white scales on it, which look like a fungoid growth, but this seldom occurs to fowls which are well looked after and kept clean.

The best thing is to paint the comb with glycerine.

Worms

The symptoms are a capricious appetite, unhealthy-looking coat, the feathers lacking gloss and having a dead and ruffled appearance, and general debility. When birds are thus the evacuations should be looked to for the presence of these parasites. A good dose of Epsom salts, followed by sulphur in the food, is helpful. Garlicks are excellent for this purpose. Another remedy is to let them fast for twenty-four hours, and then mix some very strong roup powder into pellets with soft meal: a tablespoonful of meal, three parts of a teaspoonful of roup powder, with a little fat, to each fowl.

In three hours the worms will have come away, and they can have their soft food as usual.

Wounds and Ulcers,

Caused either by fighting or accident, should be kept clean by gently washing and painting the parts lightly with Venice turpentine, and when they begin to heal, a little lapis calaminaris may be sprinkled over the parts daily.

Feeding Fowls for Market

One of the weekly poultry papers writes: 'If by feeding with one bushel of corn in a week, instead of two weeks, you get the increased size, the birds will be ready for market so much the sooner, and one week often makes a wide difference in the net receipts from young chicks. The same food should not be given two days in succession; the bill of fare should vary through the week or more.

'Feed twice a day; soft food in the mornings, slightly seasoned with ground cayenne, and whole grain at night, particularly in winter, when it remains in the crop and gizzard, digesting gradually through the long nights. Do not fail to give boiled meat, summer or winter, whenever the fowls are shut up where they cannot procure insects.' Raw meat may be given occasionally; fresh vegetables

should be given daily. Clover, cut short, and grass, is good for them in summer, and raw cabbage and boiled potatoes in winter.

Killing and Dressing Fowls for Market

‘Hens should be killed just before going into moult,’ says the ‘Fancier’s Gazette;’ ‘if not, the killing must be put off for seven or eight weeks, and consequently extra expense is incurred, and the profitable return is not so great, which makes a good deal of difference in the balance sheet when it is struck at the end of the year. For the birds to be in the best condition for cooking, they should be killed just as they begin to shed their feathers, at which time they will be found to be tender, juicy, and plump, but if kept longer than this they will not be fit for some considerable time, as during the moult the birds lose greatly in weight, some quite as much as one pound, and the later in the season they cast their feathers the greater the loss.’ The first step after they have been properly fattened is that they should be put into a pen from sixteen to twenty-four hours without food, to have their crops empty, for a full crop causes the skin to turn very dark a few hours after being killed.

There are several modes of killing—beheading, and sticking them in the throat in the ordinary way, or wringing their necks. There is another way, by striking them on the back of the head or neck with a heavy stick.

In killing, whichever way it is to be, the bird’s legs should be tied together by string, and the wings interlocked to prevent fluttering. If it is to be beheaded the neck should be placed on a block, and with a sharp chopper severed at one blow; if to be stuck, the head of the bird should be held in the left hand with the throat towards the executioner, and the bill held open, and with a very sharp thin-bladed knife make a double or V-shaped cut at the back of the tongue, severing the two arteries, and the bird will very quickly bleed to death, not leaving a scar.

After hanging up for half an hour, it should be plucked, as the feathers can be pulled out very easily whilst the body is warm. After the birds are plucked, they should be hung up in a cool place for a few days.

Many persons place the fowl immediately after killing it in a tub of cold water, and it is held there till it has ceased to kick, when it must be directly taken out, and then the feathers will come out by themselves as easily as if scalded. Care must be taken to hold the chicken long enough, but not too long, in the water, and to remove the feathers immediately.

The skin is not torn or disfigured in any way, and it requires no more than five minutes to kill and dress a bird in this way.

Many also, to improve the appearance of the bird, plunge the body, as soon as plucked, into boiling water for a few minutes, as it makes the skin look clean and nice, and helps to make the bird plump.

In plucking remove the wing and tail feathers first, then the smaller ones. Pen-feathers may be removed by means of pincers.

I do not speak from experience, as I have never seen a fowl killed, nor do I wish to, as one becomes attached to the poor things, but, as it is a necessary performance, I have described what I have heard are the best ways.

The most advised plan, given in 'Farm, Field, and Fireside,' is to have a barrel provided with a number of nails driven in round the open edge. A number of loops of twine about six inches long are also provided. The bird is fastened by noosing the loop round the legs, and is hung in the barrel head downwards. The head is then taken in the left hand and a sharp-pointed knife is pushed through the throat close to the vertebræ, and drawn forward so as to cut the throat clear through, by which sensation is at once arrested and the fowl bleeds to death rapidly and painlessly. Being confined in the barrel the splashing from the fluttering is avoided and everything is done in a cleanly and easy manner. It should be scalded for plucking by taking

a pail three-quarters full of boiling water and plunging the bird into it, drawing it up and down a few times. Keep up the scalding heat by adding a quart of boiling water occasionally.

Preparing Fowls for Exhibition

The following method is strongly recommended. Select birds which match well, and carefully wash their heads and legs. Put them in a nice dry room pretty thickly covered with clean straw, and scatter a few handfuls of wheat about. In scratching for the wheat the fowls clean themselves. A little sulphate of iron is dissolved in the drinking water, in order to improve the colour of the ears and comb. The food should consist of oatmeal and Indian meal well boiled, together with a small quantity of salt just to season it. When properly done it resembles a thick jelly. Twice during the day rice is given, prepared by boiling 1 lb. in a pint of water until the water is dissolved, then adding as much milk as it will take up without getting thin, with a handful of coarse brown sugar. Keep stirring until done, then put into a bowl to cool. This keeps them from purging. Green food should be supplied. White and light-coloured fowls often require a thorough washing.

To get White Leghorns into show condition they should be kept in a pen shaded from the light from ten to fourteen days before the show, and the coop should be placed back to the light and even a fine piece of canvas nailed in front. But be sure to give plenty of ventilation. And they must be washed in a tub of warm water, with a little soap in it. The fowls should stand in the water and well soak the feathers. Then scrub them well and rinse them with blue water with the chill off. The fowls must then be dried—put into a *drying basket* and set before the fire—and give them two roup pills to prevent their catching cold. They should be washed two or three days before they are to be exhibited, in order that they may become perfectly dry.

When dry, brush the feathers carefully, each feather the way it lies, with a fine hat brush; brush the fluff feathers with a clothes brush. Rub the comb, face, and wattles with a little glycerine and rose-water. Sometimes they are oiled to make them red and bright. The feet and legs should be scrubbed with a nail-brush. Get all the dirt out very carefully, and gently pick out any dirt between the toes with a toothpick (not metal), and then wash the feet again. Give them plenty of grit, green food, and water, and a little meat.

Houdans' feathers only require to be sponged over and made wet. A little of Spratt's poultry soap could be put in the water. The crest, legs, and feet require scrubbing. The feathers must always be sponged the same way.

When birds are washed it is a good plan to give them two roup pills, to prevent their catching cold. Birds with yellow legs should have them soaked and scrubbed with a nail-brush.

To get cocks' combs in grand order for showing they should be rubbed for five minutes every day with vaseline with the thumb and finger, gently removing any loose scab. The comb will get cherry red, smooth, soft, and perfectly free from black spots of hard blood caused by fighting, also scurf. The bird should *face* the light, or his comb is likely to 'go over.'

Washing White Fowls for Exhibition

Have a tub large enough for the fowl to stand in, and in it place some very hot water and dissolve in it some of Spratt's poultry soap. As soon as the water is cool enough to be able to put in the hand without scalding it, take a sponge and sluice the fowl till the feathers are *thoroughly* wet, after which rinse the bird in slightly blue water. Then take a clean sponge and sluice with clean lukewarm water, then take a good bath towel and rub them dry. This should all be done early in the morning. After the birds are washed they should be placed in covered baskets (made on purpose)

with clean straw at the bottom and placed before the fire, turning the basket round now and again. The room should be kept at the same temperature. After the feathers are dry they should be brushed most carefully and gently with a fine soft brush. The feet and legs must be carefully brushed and scrubbed with a nail-brush.

Best Breeds of Poultry

For a good egg-producing variety, Leghorns are about the best, both Brown and White. The latter lay large white eggs, the Browns rather small. Minorcas and Andalusians lay a great number of large white eggs, but they require dry runs, as they are not suited to damp situations. These are all non-sitters.

For those who prefer brown eggs, some of the sitting breeds must be kept—Langshans, Orpingtons, Wyandottes, and Plymouth Rocks, the Orpingtons and Rocks especially. They are very hardy, capital table birds, and very good layers.

Light Brahmas are very good layers, and their eggs *very* large.

The great thing for those who want a quantity of eggs is to get their fowls of a 'good laying strain,' and to endeavour to improve the strain of those they have by selecting each year the best layers to breed from.

For table birds the Dorking excels all others; Houdans are also very good. Crèveçœurs and La Flèches are most delicate and perfect for the table, but are not suitable for England.

Plymouth Rocks are *very* good for the table.

Those who breed for the early market should get a cross between a game cock and Dorking hens.

For egg-farming there is little doubt but that a good cross greatly increases the egg baskets. The best crosses are the Leghorn and Plymouth Rock and next the Langshan-Minorca. There is really but little difference in the number of eggs laid in twelve months between the

Leghorns, Minorcas, Rocks, and Orpingtons. The Orpingtons and Leghorns lay most eggs in the winter months, especially the former; but at the end of the twelvemonth the Minorcas and Rocks are usually very nearly equal to them.

To Breed for Eggs only

For the purpose of egg-production only, Leghorns stand first; of the various sub-breeds, Black, White, Brown, and Piebald are about alike as regards egg-production, if they come of a good laying strain, giving the preference slightly to the White.

Another necessary thing is to keep the birds up to the highest standard of selection and careful breeding; that is, avoid close breeding, eliminate all sick or weakly birds, and use only the best and most vigorous productions from each season's hatching for stock purposes.

If birds run all together, season after season, in-bred from generation to generation, the stock becomes weak, they lose their good qualities, and at last come down to laying a fifth of the eggs produced by the first lot.

The Leghorn egg is supposed to be a smaller egg than most, but it is not necessarily so; of course it will not equal in bulk the egg produced by a fowl twice its weight, but in proportion to its size the Leghorn, under proper treatment, will produce eggs that are a very fair size. Minorcas run Leghorns *very* close in laying, and next come Plymouth Rocks. But most poultry-rearers have their own ideas on the subject, and recommend other sorts; but still, for those who wish to breed for eggs only, I can only repeat the advice just offered. I myself keep Brown and White Leghorns, Rocks, Minorcas, and crosses from them, and do not wish to change to better my stock.

Crossing Fowls

In mating the birds, they should be of opposite tendencies, so that the good points of one may counterbalance

the failings of the other. The cocks and hens should be about an equal size, and where a large breed is mated with a smaller one the hens should be of the larger breed and the cock of the smaller.

Stock Cock

Should be as near perfection as possible in size, in colour, in marking, in character of comb, wattles, ear lobes. In carriage and style he should approach perfection; in constitution he should be very strong and vigorous; in disposition he should be active, courageous, high-spirited, gallant and amorous. In breeding he should be the descendant on both male and female sides of the best specimens of his variety.

Fertilisation of Eggs

Some poultry-keepers consider that a large number of eggs are fertilised at one time, but a great writer on poultry matters states, that if a hen which has never run before with a male bird is put into a run with a cock in the middle of the day, and which has been running with other hens all the forenoon, he will pay his attention to her, and if she is put into another run where there is no male bird and sits on her eggs, only one chicken will be produced from them. If a hen is put with a cock the first thing in the morning, or with one which has not been kept by himself for some time, the first two or three eggs laid will be fertile; but put a hen with a cock at night just before he goes to roost, and the result will be that not a single egg gets fertilised. The best plan is to allow the cock to run with the hens on alternate days. When the weather is very cold, the eggs can hardly be expected to be good, the cold affecting the male portion of the colony. Generally it will be found that when a hen is in full lay there are from three to ten of varying-sized eggs in her, and the third one laid will be found to be a fertile

one. If a hen does not run with a cock at all, and then is put with one, the first fertile egg may be laid five days after, or perhaps it may be a day or two longer.

Breeding Table Fowls

Mate a white-legged Plymouth Rock cock with any hens, and this will produce a first-rate table fowl. The Plymouth Rock Brahma is a very good cross. They are more like young turkeys than chickens if they are kept till six or seven months old, and then well fattened. To produce good plump spring chickens, nothing grows faster than the Houdan and Indian Game; they are very white in the flesh and skin, and fatten quickly; their legs are very white. Early chickens of this cross can be killed when twelve weeks old. A Houdan cock should be mated with an Indian Game hen. Houdan cocks are the best birds to use for producing good table birds and layers. If Houdans are crossed with Leghorns or Hamburgs, the result is very plump little birds for the table.

Hints for Poultry Keepers

Persons who keep fowls and sift their coal ashes will not be afflicted with vermin if they sift the ashes into the fowl run.

Always make the poultry houses as air-tight as possible before cold weather sets in.

To get good results fowls should be on one side purely bred. Fresh blood should be introduced every two years, as in-breeding produces constitutional weakness and destroys the vigour of the stock, which causes many of the diseases fowls are liable to.

Keep the fowl houses clean, to save the fowls from bad air, for the accumulation of droppings is one of the causes of disease among fowls.

Lack of shade in hot weather, and much exposure to the sun, is also a great friend to disease.

Ample dust-baths should be provided in every poultry house, small or large, for unless the fowls have a way of cleaning their bodies while confined they will soon get diseased and lousy; these should be constantly sprinkled with carbolic acid. A regular supply of milk-food for hens has a great tendency to prevent their sitting and keeps them laying.

Keep a vessel of lime-water and mix with it a small quantity of soft food. Towards the close of the moulting season make a number of new nests.

Golden Rules to keep Fowls in Health

(Farm, Field, and Fireside)

Have a comfortable house, properly ventilated, free from draughts. Keep everything scrupulously clean; remove droppings daily, or three times a week at least. Wash out the feeding and drinking vessels.

A good plan is to fill a sponge with some good disinfectant and hang up in the house. Feed well but not too much. In winter give a little fat, good grain and a variety of it; green food of some sort daily, and a little meat once or twice a week. Avoid vermin. Sprinkle roosts with kerosene spray, the walls with diluted carbolic acid, and puff insect powders through the feathers.

Points in Poultry-Rearing

The following are from the report of the Central Experiment Farm, Ottawa, Canada.

1. Make hens lay when eggs are dearest.
2. Breed stock when eggs are cheap.
3. Keep a non-sitting breed to lay when sitters are hatching, and pay expenses of the latter.
4. Breed as many chicks as possible and as early as possible. They all represent so much money.
5. Keep all the pullets.

6. Kill or otherwise dispose of all hens after three years of age.

7. Breed the flesh-formers for market. Feed them up to as great a weight as possible.

8. Well-fattened, well-dressed poultry will bring the best prices from the best customers.

9. If not accustomed to poultry begin with a small number. Learn to make a success of the few, then go on with a larger number.

10. Do not neglect to give lime, gravel, meat, plenty of clean water, green food, dust bath, &c.

11. Keep strict account of expenditure and receipts.

Combs

By examining a fowl's comb the state of its health can generally be told.

If the birds are ailing the comb will lose colour and become less firm in texture.

As the malady increases the colour decreases, till a very sick bird will show a comb of a livid, dull, pale crimson colour, or ashy in appearance. Fowls in the height of health and strength should have blood-red, bright, and full combs.

The comb of a fowl should be daily consulted. Notice the comb of a laying hen or pullet, who should carry an unfailing sign of healthfulness on her head in the shape of a blood-red, bright, and full comb.

A vigorous cock or cockerel will carry the same sign, though not perhaps in so eminent a degree as his mate.

Fattening

Comparatively close confinement and cleanliness are necessary. Fattening should be done quickly. Ten days to two weeks are ample. Feed three times a day, morning meal of boiled potatoes and maize meal mixed, at noon ground oats and boiled rice, and at night whole corn.

The fattening coop should be placed away from the other birds, and should be roomy enough to hold several without crowding.

To make Hens Sit

Put them in a comfortable nest made in a dark corner. Next cover the nest with a bit of sacking and give the hen china eggs in the nest.

When she has sat steadily for some time the real eggs may be put under her.

Poultry Hospital

An essential is a hospital for sick fowls, especially in cases of contagious disease.

The hospital should be made with special reference to warmth, light, ventilation, and isolation.

It is not necessary it should be large, but it should have a shelf or cupboard to hold medicines, a good window for light, and be well ventilated.

Fumigating Fowl Houses

Henry Stewart says: 'As a disinfectant the value of sulphur is well known. By burning it the sulphur is oxidised and becomes a poisonous vapour known as sulphurous acid. This acid quickly kills all kinds of germs of all the contagious diseases of farm animals by exposure to the fumes of burning sulphur; and wherever these diseases have appeared they may be warded off by closing every crack and cranny and fumigating with sulphur wrapped in paper moistened with kerosene oil to make it more inflammable, screwing up the paper and lighting one end. The papers for safety should be put in an iron pot. One ounce of sulphur will be sufficient to fumigate and disinfect a small poultry house.

'The buildings should be tightly closed to retain the fumes. Of course the fowls should all be removed *pro tem.*'

Orchards and Poultry

Poultry should be kept in orchards where practicable, as great benefits arise from it. The grass is kept down by them, weeds are killed; the growth of the trees becomes vigorous and the foliage luxuriant, and the fruit abundant and free from worms and other pests.

Mating

The best results are obtained by using male birds between the ages of nine and eighteen months.

Male birds should be kept by themselves until they are nine months old, and after they have been mated, when it is convenient to do so, an occasional rest will be serviceable.

Making Brooding Hens Lay

Let the hens stay on the nest for a day or two, then remove them to a coop and place where they can see the other fowls and all that is going on around them. The coop should have a few bars of wood at the bottom, each about an inch wide, and the same distance between them, so as to prevent the hen sitting. Food and water should be supplied in small quantities only. In two or three days the fit of broodiness will pass away.

Broody Fowls, to Check

Put the broody fowls in a coop that has bars at the bottom, or put them in a hamper, and give them a little water once a day, and in three days they will have got over their incubating fever.

Some people hang them in a basket on the branch of a tree. Some shut them in a barrel with an inch of cold water at the bottom, which is a cruel plan. I find the best way is to shut them up in the dark with no nests or perches,

and only give them a small quantity of food once a day, with a quart of clean water, in which put fifteen drops of aconite. About the third day the hens will be cured.

Grit

A good supply of flint grit is most necessary, as are teeth to animals.

A writer in 'Farm, Field, and Fireside' recommends breaking up once a week winkle shells, dried bones, and oyster shells small, and putting them away in an old meat tin fixed in the yard, and giving not all at once but two or three times weekly. Grit helps much to the production of eggs. If it is neglected, it affects the appetite and plumage as well as the laying powers.

Meat for Fowls

Save all refuse meat and buy in addition liver, lights, heart and all, and boil all together for two hours or more. Then chop finely, and mix with meal in the water in which it has been boiled.

Apples for Fowls in Winter

Sweet apples are very good for fowls, and in winter when green food is scarce the fruit should be chopped small and thrown to the fowls to pick up.

Rice for Fowls

This is a wonderfully quick flesh-forming food, and good both for chicks and ducklings. It should be well cooked but not sloppy. One pint of rice to one quart of water, and let simmer slowly.

How to make Hens Lay

Give rather more than a teaspoonful of olive oil to each fowl in their food twice a week.

Keeping Eggs for Sitting

This depends on circumstances. In very cold weather a week old is the longest time, and then the eggs must have been kept where frost could not get to them, as extreme cold kills the germ. In the summer eggs may be kept with safety for a fortnight; but, if possible, the freshest eggs are always best, and produce the finest and strongest chicks. The best plan to keep them for sitting is to put the eggs, large end downwards, in a box filled with bran. They should be as near of an age as possible. Excessively large or small eggs should never be used, as disappointment so often ensues unless they are of an average size and good shapes.

Preserving Eggs for Winter Use

Mr. Joseph Craven's method :—

Put them into freshly made lime-water, and before boiling the egg should be pricked with a needle, or it will crack.

To preserve, say, 1,000 eggs, take thirty-six pounds of lime in lumps and place in a strong stone vessel, pouring over the same two gallons of boiling water; then cover over with strong sacking, taking care the same does not fire, and leave in a safe place till quite cold; then mix well with cold water (twelve gallons), adding seven pounds of coarse salt, and pour carefully over the eggs, quite covering them, leaving out any sediment that may have settled at the bottom of the pan. This pickle, if rightly made, will frost over as if covered with very thin ice in a week, and if it does not happen add more lime till the desired end is gained. From time to time sprinkle a little fresh slacked lime over the surface, to keep up the strength of the pickle. These eggs should not be more than a week old, and must be perfectly sound.

The recipe I use is to take three gallons of water, one

quart of quick lime, half an ounce of cream of tartar, and a handful of salt. Mix lime-water overnight, to get the lime thoroughly slacked, then add the other ingredients, and it is ready for the eggs, which should be put in day after day as soon after laying as possible. An earthenware pan with a close-fitting lid is best.

Australian eggs are preserved in the following simple manner: The vessels in which the eggs are to be placed are glass jars with patent stoppers, vulcanised indiarubber joints making them perfectly air-tight. As soon as the eggs have been collected, the jars are stood in hot water for some time, and left until the air in them has become thoroughly warm and rarefied. The jars having been heated, the eggs are wrapped up in paper to prevent knocking together, and placed in the warm receptacles, their pointed ends being uppermost. The jars are immediately closed up, and then, and not until then, are removed from the hot water. It is said that if this process is skilfully carried out, the eggs will be as fit for the breakfast table as on the day they were laid many months after they have been put in the jars. The great secret of success in carrying out this method is, no doubt, to thoroughly heat the air in the jars. The eggs will stand a better chance of keeping if the paper in which they are packed is previously baked and used warm. Patent stoppered jars are not absolutely necessary, any stopper answering which effectually excludes the air.

Preserving Eggs for Winter

Eggs from hens which run by themselves will keep much longer than those from hens which run with males. A fertilised egg will only keep one-third as long as a sterile one.

Eggs, to Pack

Wrap each egg separately in fine tissue paper, then tie a wisp of hay round it. Line a strong wooden box with

hay, and the eggs should be packed small end downwards in sawdust or hay. Fill the box well with sawdust and fasten with screws to avoid hammering. Light circular baskets, made by Mr. J. Plater, of Bradford Street, Birmingham, are perhaps better than wooden boxes.

Egg-Eating

Try mixing up together some flour, cayenne pepper, and mustard, filling an egg-shell with it and putting it in the run. The egg-shell should be as perfect in appearance as possible.

Feather-Plucking

The only way to cure them is to cut the plucker's beak, removing the sharp horn with a penknife, taking care not to cut too deep.

Sometimes placing them in a coop by themselves for a fortnight will cure fowls of this habit. Another plan is to put the fowls with a hen that has had her feathers cut short and covered with mustard mixed stiff with vinegar.

Fleas in Poultry

Use pyrethrum or insect powder. The bird should be held whilst the feathers are parted, and the insect powder should be dredged in—a *little* of the powder especially at the throat, neck, and top of the head.

Water for Poultry

Be sure that the water is clean and frequently renewed. Dirty water is a frequent cause of disease. Germs float in it, and get transferred to the hen. Water that stands in the sun becomes a flood of putrescent matter, or alive with bacilli which it has received from the air.

Hens Difficult in Laying

When a hen cannot lay, wet a finger and apply a little salt to the vent, and she will lay in a few minutes.

Fowls are subject to atmospheric influences, and if healthy fowls seem suddenly struck with illness that cannot be explained, a copious meal of bread steeped in ale will often prove a speedy and effectual remedy.

For adults nothing will restore strength like eggs boiled hard and chopped fine.

The best way to break up bones is to bake them, then break them up with a heavy hammer.

Eggs for Setting

They can be kept from seven to fifteen days, and should be put into a box with the small end downwards.

Covering Setting Eggs

When a hen is sitting in the months of January, February, or March, and she leaves her nest for food, it is a good plan to dip a piece of flannel in warm water, and place it on the nest over the eggs. It prevents their chilling.

Eggs and Feeding

An egg represents a large amount of nutriment of the most condensed sort, and a hen that lays 150 eggs per year will need sixteen or seventeen pounds more of nutriment for this purpose alone, than one laying half that number.

Working Hens and Incubators together

A hen and an incubator may often work together in perfect harmony.

Get the hens in laying condition early. When they begin to get broody and want to sit as soon as they become so on the nest of china eggs, place under each of them three eggs from the incubator which are due to hatch in

two or three days. Let the eggs hatch under them, and let them brood the chicks for a fortnight, when, after cleansing them thoroughly with vermin powder, remove the chicks to a brooder. Another plan is, on the day's hatch in the incubator give the broody hens a full complement of chicks. Sunny days are the best possible medicine for fowls, the best tonic they can have.

Fowls of Different Ages should be Fed Differently

In some breeds, as, for instance, the Plymouth Rock, if a hen over two years old gets very fat, she refuses to lay an egg, while pullets of one year may be rolling in fat and will lay daily.

Growing fowls should have a larger allowance of food. The first crop of clover hay, it is said, cut short and scalded, comes nearer filling the place of green grass than any other fodder, and is very nutritious.

It is a bad plan to lay down strict undeviating rules about many things.

In feeding fowls, one must be governed, says the 'Country Gentleman,' to a great degree by the state of the weather and its temperature. In cold weather a good warm breakfast of boiled grain, or equal parts of wheat, bran, and corn meal, cooked in sweet milk and seasoned with a pinch of salt, is very much relished by the hens. When the rain is pouring down, and everything is wet and sloppy, a panful of dry grain seems to touch the hungry spot exactly.

Locking up Poultry Houses

Those who have any regard for their poultry will see the houses are locked up nightly, as a guard against poultry thieves. A good padlock should be on both roost and run doors. There is an invention in the shape of an alarm which produces a report like a rifle, and can be heard

at a great distance. It looks like a large lock with a spring attached to a bolt, which, when in operation, shoots a one-inch cartridge out of a receptacle previously charged.

The alarm may be attached to a wire or cord, and the moment it is touched off goes the spring and bang goes the alarm. For myself I consider there is nothing like a dog to run loose. A half-bred bulldog or a collie would be best. A bitch is best; she cannot be bribed by a scent, as a dog can, and she is not so likely to stray as a dog. The dog should be loose. I am told that a thief can easily quiet a dog, so that he will not bark, but the stuff they use to make a dog quiet makes a female much fiercer.

Drainage

Good drainage is an important factor towards keeping fowls in health, and is as necessary as sunlight and ventilation. Surface-water should never be allowed to stand upon the ground where poultry run, for if the premises are not well drained disease will lurk there.

Fowls minus Feathers, and Feather-Plucking

Loss of feathers sometimes happens from not having a sufficient number of hens running with a cock, and that he is consequently too active, or it may be due to feather-plucking. If the latter, dip a sponge in paraffin and apply it to the bare places, which will generally stop it.

Charcoal

Where birds are kept in confinement a small trough of fresh charcoal broken in small lumps, placed in a sheltered spot, is good.

Early in the hatching season a large proportion of the chicks come cockerels, as usually the cockerels have the most influence over the union, and then, later in the season, more pullets are produced; the cockerels then being weaker the germs of the eggs are so likewise.

Peat Moss

This should be put down four inches thick on the floor.

There is nothing so good as this for the floors of rearers, it being soft and warm for the chickens' feet.

How to Treat Troublesome Cocks

The culprit should be shut up in a coop by himself out of sight of the hens for a fortnight. This generally cures. If this does not answer, his legs should be tied loosely with cord about five inches apart, so that he can walk about, but not quickly.

Neatsfoot Oil

Is an excellent remedy for various poultry diseases, and every poultry-keeper should keep some in readiness.

It makes an excellent liniment for sores, cuts, or wounds. A teaspoonful of spirits of turpentine in a gill of neatsfoot oil is an excellent medicine for roup if a few drops be injected in each nostril, and is also excellent for swollen eyes and head when applied externally. It is the best remedy for scaly legs, and if applied on the heads of fowls it kills the large lice instantly.

Egg-Eating

Where there is suspicion of eggs being eaten, the only thing to do is to watch carefully. Where birds only turn over the eggs and do not eat, watch further, for egg-eaters begin to eat at once, and clear away all traces of the shell. A good plan is to lay an egg in the run, and watch, and the moment any bird begins to eat it, take it away at once, remove the white, and mix the yolk up very strongly with mustard and ammonia and replace the egg in the run. This is generally an effectual cure the first time, though occasionally it may be necessary to repeat the dose with another egg; but if eggs are still eaten after, the delinquents must be killed.

Take a small box, remove the nails, but replace the top, and make an opening for the entrance of the hen near the top. Make the hole about one foot square. For laying hens let the nest be low down in the box and the eggs are safe, as the hen will not have room to do more than come out, and it will also be rather too dark for her to commence operations in the way of eating. Her first impulse will be to jump out and cackle. Do not have the nest too low down, or she may not get out. If she begins to want to sit, raise the nest so that she can walk in on the eggs, and thus avoid breaking them, as at this time she will remain on the nest, and will not eat her eggs.

Tar

A generous application of tar to all the joints, cracks, and crevices of the inside of the fowl-houses before white-washing is a very good thing, as this absorbs or drives away any taint of disease, and makes the premises wholesome.

To vermin, lice, &c., the smell of tar is very repulsive, and but few will remain if the cracks, &c., are all tarred.

Peat Moss Nests

Make the most satisfactory nests, both for laying and sitting purposes. For a laying hen a properly constructed peat nest will last twelve months, and even then can be turned out without a trace of smell or vermin.

It is a good plan to give a greater depth to a sitting hen. The best way of making them is to spread a thick layer of finely-sifted ashes from the house grates, mixed with a little sulphur or any other insect destroyer. Upon this foundation place several inches of thoroughly broken up peat moss. For the sitting hen, if it is slightly damped when made, it keeps its shape as well as a nest of earth. Should an egg get broken, little or no damage

accrues to the other eggs. The peat acts like a styptic to a wound; it absorbs and dries the wetness. Vermin do not breed in peat.

Remedy for Thin-shelled Eggs

Put a lump of unslaked lime the size of an egg into about one gallon of drinking water. Break oyster shells fine, and mix with soft food (giving less stimulating food), a handful to every dozen fowls, and the same quantity of pure bone-meal.

If this does not effect a cure, try to check laying for a time by giving no soft food, and feed sparingly on rice and potatoes, giving each hen a pill composed of one grain of calomel and $\frac{1}{12}$ of a grain of tartar emetic.

To distinguish Old Hens from Pullets

An old hen is generally coarse in head, comb, legs, and feet; her legs are generally very rough, and she is less active in her movements than a pullet.

To Cook Old Fowls

Fowls after the second year are not so profitable for laying, but still they are nice and tender, either for roasting or boiling, and should be fattened for killing after they have finished laying, and just before commencing to moult. In the morning give them scalded barley-meal, maize, and sharps, and mix the house scraps with it; at noon a good feed of green stuff, and before they go to roost as much maize as they can eat, and if a little skim milk so much the better. When killed, partly boil them, and afterwards roast them.

Old Fowls for Invalid Food

Cut up an old fowl into pieces, place it in a jar, cover it with water, then place the jar containing the fowl in

a good-sized saucepan of boiling water ; keep the water boiling ten or twelve hours, so that the fowl will just be on the simmer the whole time. When done, strain the gravy from the meat, leave the fat on the top, and do not take it off till wanted, as the fat preserves the jelly. Spread a little of the jelly on some thin bread, add a little salt, and it will be found delicious.

Do not throw away the meat left from the jelly, but get some ham or lean pork, and mince it up together ; season to taste. Make some pastry, using the fat off the top, and it will make a splendid pie.

Fowl Tonic

A good tonic for fowls, favouring the production of eggs, is :—

Dissolve 1 lb. of sulphate of iron in a gallon of water, adding 1 oz. of sulphuric acid. Give one teaspoonful of this mixture to one pint of water twice daily.

Poultry Vocabulary

Cock, a male bird over one year old.

Cockerel, a male bird not a year old.

Chicks and Chickens, newly hatched fowl.

Chicken applies to any age under a year old.

Clutch is applied to the batch of eggs sat upon by the fowl, and to the brood of chickens hatched therefrom.

Breed, any variety of fowl presenting distinctive characteristics.

Brood, the family of chicks belonging to a single mother.

Broody, a term applied to a fowl that desires to sit.

Strain, a race of fowls that has been carefully bred by one breeder for a number of years, and has attained an individuality of its own.

Pullet, a young hen under a year old.

Rooster, a term used for a cock or cockerel.

Cockerels suffering from Debility

Dr. Woodroffe Hill recommends :

Tincture of perchloride of iron two drachms, compound tincture of gentian two drachms, lime water two ounces, eggs two, cod liver oil four ounces.

Shake thoroughly up into an emulsion and give two teaspoonfuls twice a day.

Weight and Yield of Eggs

The following statement shows the weight and yield of eggs of the different prominent breeds of fowls :—

Light Brahmas and Partridge Cochins—eggs, seven to the pound ; they lay 80 to 200 per annum, or even more, according to treatment and keeping.

Dark Brahmas, eight to the pound, and about seventy per annum.

Black, White, and Buff Cochins, eight to the pound, 100 or less per annum.

Plymouth Rocks, eight to the pound, 100 per annum.

Houdans, eight to the pound, 150 per annum.

La Flèche, seven to the pound, 150 per annum.

Black Spanish, seven to the pound, 150 per annum.

Dominiques, nine to the pound, 130 per annum.

Game Fowls, nine to the pound, 130 per annum.

Leghorns, nine to the pound, 150 to 200 per annum.

Hamburghs, nine to the pound, 175 per annum.

Polish, nine to the pound, 150 per annum.

Bantams, sixteen to the pound, 60 per annum.

Turkeys, five to the pound, 30 to 60 per annum.

Ducks, five to six to the pound, 30 to 60 per annum.

Geese, four to the pound, 20 per annum.

Guinea fowls, eleven to the pound, 60 per annum.

The eggs of the modern improved breeds of fowls have gained one-third in weight as compared with eggs formerly laid.

To Destroy Rats

(*Various Ways*)

1. Melt one pound of lard with a very gentle heat in a glass bottle plunged into warm water; then add half an ounce of phosphorus and one pint of proof spirit. Cork the bottle securely, and as it cools shake it frequently so as to mix the phosphorus uniformly. When cold, pour off the spirits and thicken the mixture with flour. Place near the rat-holes small portions of this mixture, which being luminous in the dark, attracts them, and is eaten greedily.

2. Mix powdered nux vomica with oatmeal, and lay it in their haunts, observing proper precaution to prevent accidents.

3. Mix oatmeal with a little powdered phosphorus.

4. Fix pieces of broken glass in the holes and lay some along their runs.

It is a good plan to entice and deceive them by first placing a little bread and butter about their runs when they come out at night, and after a week mix phosphorus paste with it, and rats will not give much further trouble, as they will run to their holes and die.

I read the following description of a rat trap in a poultry weekly, which perhaps my readers might like to try: 'A friend of mine was repairing a house previous to moving into it, and he had been using plaster of Paris to stop up the cracks in the wall. When he went home one night, he left the dry plaster on the floor, and some water near; and when he returned to work the next morning, he was surprised to find four large rats dead on the floor, all being swelled out. They had been eating the plaster and drinking the water, and the latter had set the plaster hard in their stomachs and killed them, the material then forming a very simple poison.'

On Incubators

Not having tried incubators myself I cannot speak for them, as I know nothing about them. My poultry-keeping is not extensive enough to require an incubator, as my poultry work is a labour of love and pleasure; but, of course, where poultry culture is carried on in a large way for profit, there is no doubt incubators are most necessary to ensure chickens all the year round, and I can recommend the series of articles on the Raising of Poultry and Incubation by the Vicar of Leonard Stanley, Gloucestershire. His papers are most interesting and practical. Also in 'Farm, Field, and Fireside,' April 4, 1890, there is a description of a brooder that I should try were I going in for incubators.

The Parts that Make up a Fowl

1, crop; 2, wattle; 3, beak; 4, comb; 5, face; 6, deaf ear; 7, ear lobe; 8, hackle; 9, back; 10, sickle; 11, tail; 12, tail coverts; 13, saddle; 14, secondaries; 15, wing coverts; 16, fluff; 17, hock; 18, shank or leg; 19, spur; 20, keel or breastbone; 21, breast or body; 22, wing bow or shoulder.

Ducklings

Ducklings have very little need of a mother except to brood them at night, except when they are hatched quite early. When the weather is cool a good-sized hen can care for as many as fifteen or twenty. When first hatched it is better to confine them in a low movable pen, made of boards six inches wide and any length convenient. These boards should be nailed across the corners, affording the ducklings shelter from sudden storms and the sun.

Water in shallow vessels should be plentifully supplied, covered with close lattice work to keep the ducklings from getting into and fouling it. A good plan to make sure the ducklings will be all right in the morning is to place an empty barrel on its side inside the pen, with a nicely-fitted and ventilated cover for a door, and the ducklings closed within; otherwise one or two may be missing in the morning. When they are large enough to get through they will be able to take care of themselves. The enclosure can be shifted about, so that the ground need not be fouled. Ducklings will thrive on the coarsest fare, provided only that it is always fresh and sweet.

A good mixture for them is ground white oats, sifted three parts, shorts four parts, bran one part, ground oil meal one part. When using it first mix the ingredients in a dry state, then take only a sufficient quantity of the mixture for one feeding, and after salting it slightly scald thoroughly with boiling water and when cool enough feed. It should not be sloppy, but just wet enough to soften and swell the grains. But for the first fortnight Spratt's food may be given; occasionally, for a change, scraps of meat and boiled rice. They should be fed regularly and frequently. Give plenty of shelter from the sun in hot weather, as they cannot stand extremes of either heat or cold.

To Rear Ducklings for Profit

Ducks will pay better than any other kind of poultry, if properly managed. This includes the entire exclusion of water to swim in. A yard 25 feet by 100 feet is large enough for forty ducks, each with a brood; but there should be another provided for alternate use. It is best to rear the broods under hens till they are ten days old, when each brood should be kept separate in a small pen bordered by a twelve-inch-wide board. A water-tight chalet should be enclosed and arranged for the ducklings to nestle on in the form of a semicircle, having no corners for the birds to crowd in and smother each other. This is what one authority writes.

Ducks

A lady writes:—‘After April get the ducklings from seven to eight weeks old. Divide part of the ground into pens six feet square; make the pens with wire in front. Take two bags of cement, and after making a foundation of fine gravelly stones, mixed with water, and a little cement well rammed in, leaving a slope from back to front, cement the bottom of the pens, making a gutter to run along the front into a drain or tub, which is to admit of the pens being flushed with water every day. Six pens of this size will fatten about 100 ducklings from the second week till they are fit to kill. Never give water to drink, nor a bath, but all the skim milk possible; feed on egg and biscuit food every two hours for the first three days; afterwards on bread and milk, barley meal, biscuit meal, and cooked potatoes. At two or three weeks old, take the hen from the ducklings, leaving the latter in twenties. At first feed four times a day, the best thing with good corn in a pan of milk. Remove all food that is not eaten in one hour after it has been given. Give them straw to lie on, and chopped green food daily.’

The young ducklings should be fed for the first fortnight on hard-boiled eggs, coarse oatmeal, and rice boiled so as to remain in the whole grain, and should have milk to drink and the food mixed with it. After a fortnight their food should consist of wheatsharps, cornmeal, and a small portion of locust bean meal, which is a first-rate fat-producer. These meals should be mixed alternately with potatoes or swede turnips, boiled and mixed with plenty of beef or mutton dripping whilst the liquor is boiling hot, in order that the meals may be well mixed. Meals with cold or partially warmed water cause inflammation and diarrhoea. Cracked Indian corn, varied with buckwheat and rice, should be given for the last meal. The great thing in rearing ducklings is feeding them often and giving them just as much as they can eat quickly. They should be fed for the first fortnight seven times a day. When they are a fortnight old until they are six weeks three meals a day will be enough; they should be fit for killing at *ten weeks*. Barley is not good for young ducklings; it neither fattens nor produces quick growth, and digests badly. Ducklings should be kept moderately warm for the first two or three weeks, but not so warm as ducks. After this they only need to be kept dry and clean.

The bedding should be changed often, so that they will not rest on damp or cold, and care must be taken to keep them out of the rain until they are fairly fledged. In winter ducklings should have warm food the first thing in the morning—biscuit meal mixed with middlings or barley meal, and scraps of meat.

For the evening boil the grain three or four times a week, and a little raw meat should be given occasionally, such as paunches, &c.

Pekin and Aylesbury ducks are the best pure breeds to keep. The Pekins do not become broody, while the Aylesbury do. For all-round qualities a cross between the two breeds cannot be surpassed. *Pekins* lay fairly well, attain a good weight, and do not require any water except for drinking purposes; they are better when kept

away from a pond or stream. They are good foragers and refuse hardly any recognised food.

The Pekin duck is of Chinese origin and is comparatively new to Europe. For table purposes the Pekin duck is not so good, as it is smaller, and the flavour not so good, being rather dry. In shape it differs from other breeds. It is devoid of keel and the carriage is almost upright, for the legs are placed far back in the body. The head is short and thick and the bill strong and stout. Their colour should be white with a yellow tinge. There is an under colour that gives the idea of yellow or buff to the plumage when viewed in certain lights; the bill deep orange, the eye black, legs and feet bright orange, and small in bone. The tail feathers are larger and stronger than in other breeds.

The Aylesbury Duck

This is pure white in plumage and of the boat shape. It is the best of all breeds for producing early ducklings, and from the very first they must be well fed with flesh-and-fat-forming food. For the first few days hard-boiled eggs, rice, and bread are given, after which barley meal mixed with grains and toppings. In every pen should be placed a trough of grit, if possible; this should be obtained from the Vale of Aylesbury, as it is to this grit almost all the merits of the Aylesbury duck are attributed.

Muscovy Ducks

These ducks should be crossed with the Aylesbury, as they make fine large birds of good flavour, as the Muscovy duck itself is not of a very good flavour, and has a very dark skin.

Their plumage is black and white in large patches of colour. The drake is a very large bird, the side of the face naked, and has a red space round the eye, and on the top of the beak there is also a red flesh-like substance, and has no curly feathers in the tail. The duck is very much

smaller and of the same colour as the male, but not so brilliant.

Cayuga Ducks

This is a more scarce breed ; it has a dark green lustrous plumage.

Mr. Cook says they fatten quicker than any other breed and lay very fairly, though the eggs are small, the ducks being themselves small. They are first-rate for eating ; they are generally crossed with the Rouen, when they attain a very fair size.

Rouen Ducks

These are similar to the wild mallard ; the beautiful colours and markings are the same ; the body is longer and equals in size the Aylesbury duck, though it cannot compete with it as far as early markets are considered, as the Rouen matures much slower and makes more frame flesh at first.

In shape they should be deep and massive, the head large and rather snaky in appearance, the bill large and flat, tapering gradually, and almost in a line with the top of the skull ; the neck gracefully carried, back broad and well arched, keel as deep as possible and very even, as deep in front as behind. The Rouen drake has lustrous green plumage on head and neck, the lower part of the latter having a distinct white ring, but not quite uniting at the back. The breast is dark and purplish brown and green. The duck is brown pencilled with blacker brown, the wings having bars of purple edged with white. Both sexes generally breed true to colour.

Geese

They may be very profitable if properly managed, and one advantage in keeping them is, they are capital property protectors, as being very quick of hearing, and if

they hear the slightest noise at night they make a terrific cackling. They are as great enemies to burglars as a dog, baby, or night light. About three geese should be allowed to one gander if he is an average bird, though some ganders may be allowed four or five.

Goslings are very little trouble and easily reared, and should be fed for the first month on scalded biscuit meal, with whole groats and small wheat put into the drinking water.

The old gander should never run with the goslings, as he pays more attention to them than to his hens.

Italian Geese

Are principally white with a grey head; they are small, broad and compact and very hardy, and wonderful layers. Their colouring is as Mr. Cook describes, much the same as a silky hair between feather and down.

Embden Geese

The pure Embden goose is entirely a white bird, having a flesh-coloured bill, with bright orange legs and feet. They are very good mothers, but not the best layers, and are very good table birds. It is recommended for market purposes to cross them with Toulouse geese. Toulouse geese are larger birds, and the young from the cross are larger than their Embden parents, and the meat of better quality.

Toulouse or Grey Geese

These are easily reared, and a very large breed: square-legged and squarely built, very compact in form, the lower parts of the old birds nearly touching the ground as they walk. Their heads are large, their necks upright and thick, and they have remarkably deep bodies. Their plumage is grey, with the under parts a dirty white. The head and back

part of neck are dark grey, also wing quills; the breast is lighter, bill a dark orange, legs bright orange.

A pure Embden gander is the best white breed, and crosses well with the Italian goose. They eat splendidly and are ready for table at twelve weeks old.

Fattening of Geese

The fattening of geese should not extend over a longer period than three weeks, as if kept longer they begin to lose flesh again. Six weeks before they are required they should be shut up in lots of about ten or twelve in a darkened house, and fed scantily with their usual food. At first, let them have plenty of water in a trough small enough to prevent their getting into it. Cover the floor with straw, and put some rough sand and gravel in a corner. They should be fed twice daily with soft food consisting of boiled barley and dry oatmeal, rice boiled in milk, and now and then boiled potatoes mixed with middlings. Cabbages may be given, and during the last fortnight scalded maize mixed with middlings is a capital food.

Turkeys

At the end of April and beginning of May turkey chickens will be making their appearance.

Young turkeys require immense care. Extremes of heat and cold must be strenuously avoided, as well as damp. Coops for the mothers should be made light and large, about four feet square, the roof sloping towards the back and projecting some two inches beyond the coop itself, which prevents the rain falling into the coop and keeps the ground dry round it. The coop should be eighteen inches high at the back, and the front of it should consist of staves about two inches wide, hollowed out about four inches from the ground, so as to afford a wider space for the chicks to go in and out. The

turkey and her young should be placed in this as soon as they are ready to leave the nest. A well-known writer on poultry says: 'The chicks should never be removed from the turkey during hatching. Turkey chicks are stupid little creatures at first, and seem to know nothing about eating, nor are they apt pupils. The simplest plan is to set a couple of hen's eggs when the turkey has been sitting a week; the chick will then hatch out at the same time as the turkeys, and teach the latter how to eat without any trouble.' Place the coop on *perfectly* dry ground. For the first week they should be fed on hard-boiled eggs mixed with some minced dandelion leaves; and where dandelions cannot be procured, use chopped onions or nettles. Feed every three hours the first week, and filtered water should be given at the same time. At a week old breadcrumbs and barley meal can be gradually added, and at the end of three weeks the egg can be left off. Later, give wheat or buckwheat, but avoid new corn. After a month or six weeks they will eat anything. Boiled potatoes are good for them, also sunflower seeds are excellent. The food should be given in the morning as warm as they can eat it. The hen should be confined in the coop for a month at least, after which she may be let out for a couple of hours daily. Keep all grass in the immediate neighbourhood of the coop cut short, for long wet grass will create much mischief, as if roup breaks out it is not easily got rid of. The chicks should be always kept under shelter during keen biting winds and strong sunshine. They begin to 'shoot the red' at two months old, and then a few weeks later this is accomplished, the rearing process is over, and the young turkeys will stand any weather without fear of consequences.

Turkeys require *great care and attention* at the time of 'shooting the red,' but after that time they are really very hardy birds, and will roost out in most inclement weather.

Turkeys require a great deal of sharp grit, and if the soil is chalky plenty of sand must be provided and

scattered about on the rearing ground. All young turkey chicks must be protected from rain and wind, a slight shower or much wind proving often fatal to them. Mr. Willis Harris, the great authority on turkey-rearing, says that the chicks having very small crops, they must be fed every two or three hours from sunrise to sunset.

Their first meal after being hatched should consist of raw eggs beaten up with milk, boiled to a custard, or the eggs boiled hard and pressed through a wire sieve. This should be their first week's food, and then dandelion mixed up with the egg and boiled with biscuit meal should be their food for another fortnight. After three weeks the egg food can be left off, and the five meals a day consist of oatmeal porridge for the first, biscuit meal for the second, maize cooked the same as hominy for the third, boiled rice for the fourth, and for the fifth small grain, such as dari groats, canary millet, and hemp seed. As the birds grow older, the number of feeds may be lessened, ground oats, middlings, wheat, and barley substituted for the smaller grain. Dandelion, mustard, lettuce, and young nettles should be plentifully given. Spratt's crissel, bullock's liver, boiled or raw, passed through a mincing machine. A supply of animal food in abundance is necessary when the birds are young. If fed on soft food for the first three weeks they require no water. Until the poults are three months old they should not perch, but be kept bedded down upon straw, and when first allowed to roost, the perches, which should be flat and about six inches wide, should be covered with a piece of old sacking stuffed with straw, to prevent the heavy cockerels having crooked breasts. To fatten them they should be allowed full liberty and fed three times a day, the gobblers being separated from the pullets. Turkeys always require plenty of fresh pure air, water fresh and clean, and kept in the shade and renewed several times daily.

Young Turkeys

Remove the broody hen from off her old nest ; at dusk place her within an enclosure with a nestful of tempting-looking eggs in sight. Once a day after this she should be gently lifted from her nest and put out for a short run to procure food and drink, the door of the house being closed at other times to guard against intrusion. The nest is best made on the ground, a place the requisite size being hollowed out and lined with a handful of grass.

Young turkeys are so tender and easily crushed, that it is a good plan to remove them from the nest when a few hours old, and keep them in a basket lined with flannel. On the second day they might have an occasional airing and be offered something to eat. Their food should be hard-boiled eggs chopped finely, biscuit meal, scalded groats and middlings, with sharp grit. Fresh onion tops chopped fine should be given whilst the poults are small, but after they can run about they prefer tender blades of grass and the leaves of the white clover. When three days old the poults should be put with their mother in a large roomy coop on the short grass. When four days old, if the weather is clear and bright, the mother with her brood should be let out for a short run. When they are a fortnight old they may be let out in the morning after the dew has dried and allowed to remain out all day, taking care to house them on the approach of a shower. Till a fortnight old they should be fed five times a day, after which three times will be sufficient. Sweet milk should be given in a shallow pan once a day ; after a fortnight they may be fed on small grain.

A turkey cock should not be allowed to live more than two years, at which age he should be fattened for the table. One cock should run with six hens. Hen turkeys are very shy at the times of laying and sitting, and should therefore have their nests placed in retired places and never disturbed. The cock must not be allowed to go near

at these times, as he would drive her from her nest and destroy the eggs. The hen will sit on from nine to fifteen eggs, according to her size. They sit for twenty-eight days; if they seem weak and drooping two or three mustard seeds may be given in the course of the day.

To Fatten Turkeys

They should be put into large sheds, which should be rather dark, but they must be fed in the light. They should have plenty of ventilation and kept fairly warm, the house bedded down with moss peat or short straw, and their perches should be about two feet from the floor.

They should be fed on ground oats and barley meal with potatoes boiled and mixed in. The last fortnight they should have good fat pot-liquor. A little of Cook's Fattening Powder mixed in helps them very much. They do not require any water. They should always be killed after being cooped up about a fortnight, as they will suffer in health and get out of condition.

Hen turkeys fatten more quickly than cocks.

The Cambridge Speckled Turkeys are the best birds to keep.

When turkeys are required only for table purposes, it is best to cross the Cambridge Bronze with the Black Norfolk.

There are several varieties of the turkey species. The Norfolk black breed were formerly the most esteemed, but recently they have been crossed with the large Virginian turkey, and a valuable mixed breed has been the result.

One of the chief conditions of successful turkey-breeding is a *light soil*; a clayey one is very bad for them.

Turkeys are subject to a kind of distemper or sickness during their infancy, but if the soil is suitable, their house dry and warm, their feeding good, and they are kept in good health till they shoot the red, they will do well.

The French people fatten their turkeys by giving them boluses of meal, such as barley meal, oatmeal, or buckwheat meal; commencing with two or three daily, and increasing the quantity in the course of time, as many are given as the bird can manage to take.

ADDENDA

I ALWAYS use a safety chicken coop and run till the chicks are a month old, when they are removed to a larger run. It is made with shutter, for shade and shelter during the day, and for closing at night. A piece of galvanised chain is attached to the shutter, so that the coop may be shaded to any degree. A sliding rod is provided, to admit of the hen being let into the run, if required, and it is made to take to pieces; it is cat- and rat-proof. Langham and Co., King's Lynn, are the makers.

A nest and sitting-box is much to be recommended with the box fitted with a wire bottom, so that it may be moved without disturbing the hen, at the same time removing the moisture from the ground, and prevents rats burrowing into the nest.

It can be procured at Spratt's, Bermondsey.

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