EGG AND POULTRY RAISING AT HOME

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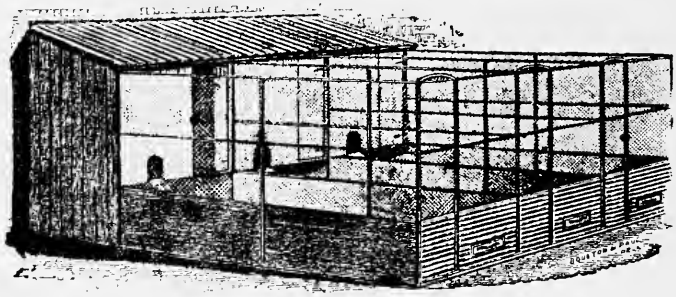

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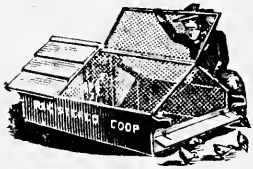

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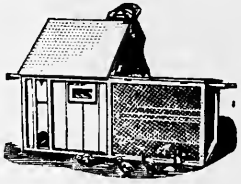

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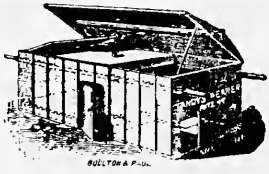

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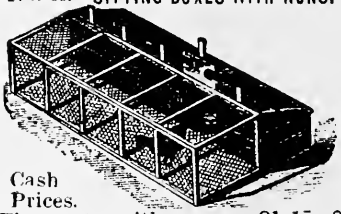

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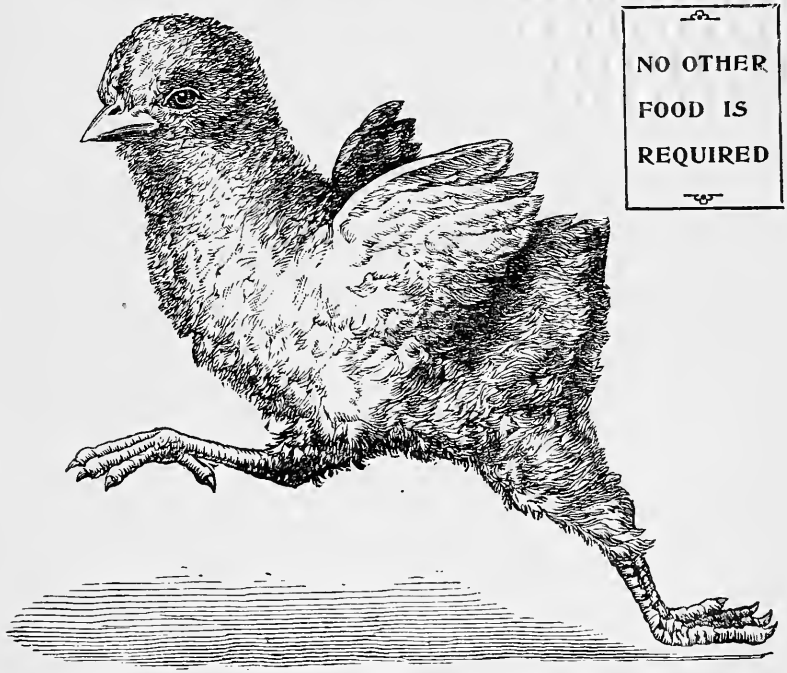

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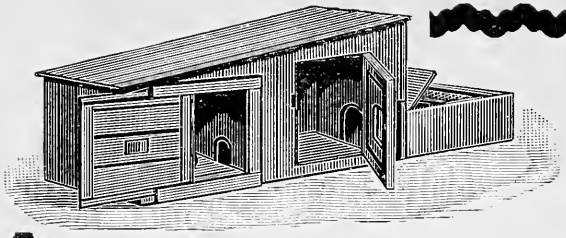

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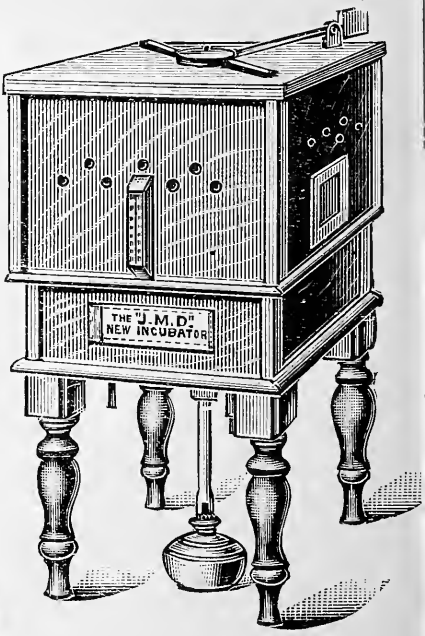

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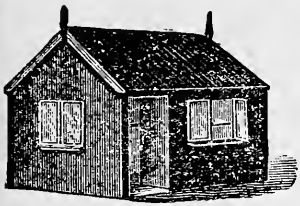

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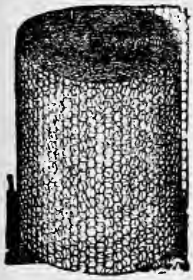

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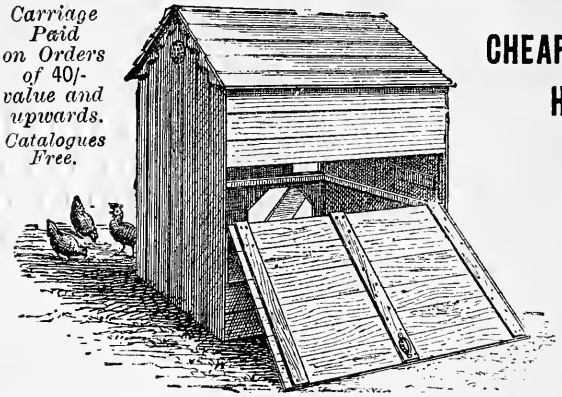

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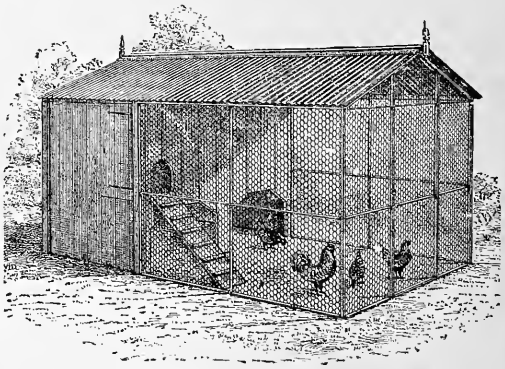

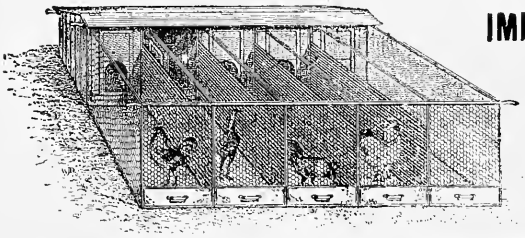

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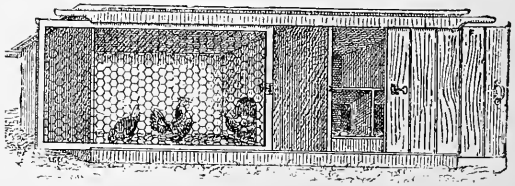

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NORFOLK IRONWORKS, NORWICH.

EGG AND POULTRY RAISING AT HOME.

BY

W. M. ELKINGTON.

ILLUSTRATED.

LONDON:
L. UPCOTT GILL, BAZAAR BUILDINGS, DRURY LANE, W.C.
(FORMERLY OF 170, STRAND).
NEW YORK:
CHARLES SCRIBNER'S SONS, 153-157, FIFTH AVENUE.
1902.

CONTENTS.

The Utility Poultry Club.

President—H. Holmes-Tarn.

Vice-President—Harrison Weir.

Committee—

Simon Hunter.	G. A. Palmer.
A. Newport.	J. W. A. Pedley.
R. Orlebar.	P. Percival.

Hon. Treasurer—B. W. Horne.

The Objects of the Club are:—

(1) To encourage the breeding of pure or cross-bred birds with due regard to utility, by breeding only from selected layers.

(2) To give prizes for the most efficient and economical system of packing and marketing poultry produce.

(3) To give prizes at Shows for table poultry and eggs.

(4) To establish laying competitions between pens of birds under proper management.

(5) To obtain the best advice for members on all matters relating to the selection, breeding, and keeping of poultry.

(6) To facilitate change of blood from good laying strains between members.

(7) To encourage the formation of local Clubs pledged to carry out the development and improvement of utility characteristics in poultry.

In addition to supporting the movement for encouraging the breeding of pure and cross-bred poultry for utility purposes, Members have the advantage of the following benefits:—

The Advisory Board, consisting of 15 well-known experts on poultry-keeping, who have kindly consented to give advice to members *gratis.*

The Year Book (128 pages), containing list of Members, particulars of the Club, rules, &c., laying competitions, balance sheet, a table of poultry foodstuffs, showing their feeding values. An egg register for recording the number of eggs laid daily by each pen, and a number of account sheets; also

The Register of Breeds, containing 750 entries, giving strains and other particulars most useful for those requiring fresh blood.

Plans are supplied, at a nominal charge, of fowl and duck houses, coops, sitting boxes, cold brooders, trap nests, &c. All the plans are drawn to scale, and anyone with a slight knowledge of carpentry can work from them.

Insurance.—Amateur Members can insure the stock against fire, theft, and burglary (subject to certain conditions).

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The subscription is a *minimum* one of 2s. 6d.

Further particulars will be supplied on application to the Hon. Treasurer,

B. W. HORNE,

49, Gloucester Gardens, Hyde Park, London, W.

Note.—The Club has nearly 600 members, about 200 joining during the year.

PREFACE.

THE object of this work is to prove to many people in this country who are unable to get fresh eggs and poultry, that a practical means exists for supplying the home with the best and most nourishing food, and also to show how this can be done at little cost by utilising the waste from the household. Practical experience has proved to English poultry-keepers that though it may be impossible to extract profit from a large number of hens on account of the many incidental expenses, half-a-dozen good birds can be kept in any back-yard, at little trouble, and at the least expense. There is a huge future before this kind of poultry-keeping. Among all classes of the community the demand for eggs and poultry is large, and has to be met with foreign produce. In France and other Continental countries nearly every cottager more than meets his own demands. In England we are behind the times. The fresh egg and the succulent chicken are unknown in many homes. That the possibilities mentioned in this work are within the reach of every careful person, actual practice will show.

W. M. E.

Newbold, Rugby.
September, 1902.

EGG AND POULTRY RAISING AT HOME.

CHAPTER I.

Introduction.

So far as egg-production is concerned, statistics show that we are rapidly going from bad to worse. During the year 1901 we imported eggs alone to the value of £5,495,776, as against £5,406,141 in 1900, £5,044,392 in 1899, and £4,457,117 in 1898. Averaging the price of the eggs imported at 5s. per 100, we find that the total number sent to us last year from foreign countries was no less than 2,198,310,400—sufficient, according to the census of 1901, to apportion about fifty-three eggs to every inhabitant of the British Isles. Placed end to end, these eggs would reach round the earth, with a few thousand miles to spare, and the services of over twelve million hens would be required in their production. Presuming that six eggs a day are sufficient nourishment to keep a person in health and strength, this vast total of eggs would entirely support the populations of Manchester and Birmingham.

These figures are sufficient to give us an insight into the extent of our import trade in eggs. Beyond this,

however, the bill for table poultry and game amounted to £980,739 in 1901, as against £1,010,327 the year before, showing a decrease in this department of £29,588, though there was an increase of £225,033 in 1900 over 1899. Against these figures we find that the value of British poultry produce consumed in Great Britain in 1901 was £6,500,000, and the Irish £2,200,000.

The question is, Is this large increase in egg imports due to the failure of our own poultry-keepers? We think not, for those who do keep fowls on practical and sensible lines manage to make them profitable. It is a positive fact that poultry-keeping as an industry in connection with agriculture is largely on the increase, and it is probable that as many eggs again are now produced as were laid in this country ten years ago. Everything points to a better understanding of the management of utility fowls, too, and we cannot blame the poultry-keeper for the lack of eggs. Nor can we attribute the fault to the hens themselves, for the production and breeding of laying strains has now reached a level never before attained. Our modern breeds have been bred to such a high standard of excellence, that, with proper care, the keeping of poultry for commercial purposes is bound to pay.

We do not allow, however, that large enterprises known as "poultry farms" will prove a success, nor do we consider that direction the one in which the egg famine should be met. Commercial poultry-keeping on a large scale has never yet proved really profitable. When land has to be rented and wages have to be paid, all for the one interest of the poultry, the expenses become so heavy as to swamp all the proceeds. In conjunction with agriculture, however, poultry-keeping

can always be made profitable, even on a large scale. By the more general participation of our farmers, our yearly import bill may be reduced considerably; but we cannot hope that it will entirely disappear, and for that matter we do not desire it to, since the natural effect would be a fall in prices and the ruin of the industry.

The population of this country is growing so fast that, whilst we allow a great increase in the number of poultry-keepers, and a meritorious advance in the science of breeding, we still find ourselves getting further and further in arrear over the egg supply. We have heard a lot about the egg famine, and questions as to how it can be met. The succulent egg is a commodity whose worth is best estimated when it is scarce. At the price of twopence it partakes somewhat of the nature of a luxury; but at a penny, and frequently three-farthings, it is by far the cheapest nourishing food obtainable. When eating an egg, we are consuming one of the finest and most delicate pieces of vitalic machinery that Nature has given us, the production of which amounts to more than double the weight of the hen herself in twelve months.

So far as quality is concerned, the foreign egg is nearly, if not quite, as good as the home production, when fresh; but it comes to us a week, a fortnight, or a month old, and the wonder is, not that it finds an inferior market, but that it finds a market at all. To a certain extent, there will always be a demand for foreign eggs for cooking purposes, but nowadays it is the lot of many to use them in the place of English new-laid, simply because the latter are unobtainable. We have said it is not the fault of our hens, nor yet of our poultry-keepers. As a matter of fact, it is solely the fault of those who ought to be, but are not, poultry-keepers.

Is there any method by which our import bill for foreign eggs can be decreased and perceptibly diminished? Is there a plan by which we can be assured of a supply of fresh English eggs throughout the year, and especially in winter time? And is it possible that, concurrent with the conferring of these blessings, another would come in their train? To all these questions we answer, Yes, undoubtedly! That vast sum of money which we now pay away can nearly all be kept in our own pockets, and we may be sure of a supply of eggs both in winter and in summer without trusting to the foreigner. And the way out of the difficulty is this: *The consumer must become his own producer!*

We know this is not possible in every instance, but surely in seven cases out of ten there is no reason why the householder, and even the cottager, who has a few spare yards of ground should not keep a few fowls for his own domestic purposes? Fowls are so amenable to the will of man that they can comfortably accommodate themselves under all circumstances, and the opportunity they offer should be grasped by many thousands of householders.

Let us take an example from the French cottagers, who in many parts almost subsist on the few fowls they keep. They are a nation of poultry-keepers, and have looked upon the subject from a practical and an economic standpoint. Consequently their supply of eggs is largely in excess of the demand, and the surplus is sent over to England to take the place of what we will not produce, but might very easily, if we were less conservative in our ideas.

There are objections to the system, of course; but they can all be overcome. The town-dweller will say,

"I can't keep fowls. The neighbours and the police would be down upon me directly." Precisely so; and we agree that a noisy cock is the most objectionable neighbour we can have. But there is no necessity to keep a cock. He does not assist towards egg-production, and in a confined area it is wiser to buy fresh pullets when they are required than to breed and rear one's own chickens. No, the cock need not be taken into account in cases where space is valuable and noise is not required. As for the cackling of the hens, they are seldom noisy except when they are laying, and we think if all people kept poultry they would find pleasure rather than annoyance in hearing that cackling.

Then someone else will say: "I've got a good garden, and I don't want a lot of hens scratching about." We should not like to urge anyone to give poultry a free run where there is a well-kept garden close at hand. But there is still a further reason why a gardener should have poultry: for their manure is unexcelled for growing produce. No matter whether the adjacent garden is one's own or one's neighbour's, the fowls must be kept confined. They do not need much space. A few yards set apart, and wired in, at the bottom of the garden is all they require, and they will amply pay for the ground they occupy. In fact, the space set apart could produce no more profitable crop.

There are others who will say that poultry-keeping doesn't pay, because the farmers have tried it. Now, we are ready to admit that the system in vogue with a great many farmers at the present day does not pay, and it never will. Poultry-keeping has to be conducted with some thought for the consequences. It is not enough to merely find house room and food for a few hens. One must remember that there are good layers

and bad, and if these are allowed to breed promiscuously together there is bound to be a degeneracy in the produce.

There is absolutely no valid reason why seven out of every ten householders should not keep a few fowls, *if they are so minded.* Therein lies the point, for the great majority have no such inclination, and would not take the little trouble necessary to bring about success. Yet it would be well worth their while to exchange the scraps from the house for a supply of fresh nourishing eggs. In many cases only the successes of neighbours would bring others to an understanding of the power of the domestic hen to minister comforts and show profit.

The consumer must be his own producer, but we will not go so far as to assert that he should endeavour to meet the demands of others less fortunate or less practical. A great deal depends upon the extent of ground he has at command; and then again, whilst a few fowls that just consume the scraps from the house give a highly satisfactory result, double the number, for which food had to be bought, might not prove even profitable. The height of successful and profitable poultry-keeping is reached when hens can be fed almost entirely on bits from the household. We have been able to prove time after time, both from our own experience and from that of others, that half-a-dozen hens, kept in a small pen, and well looked after, can be fed entirely upon the scraps from the house, with just the addition of a handful of corn at night (of which a sack might be made to last a twelvemonth), and that these birds will give from 200 to 300 per cent. profit upon the capital expended. Who can ask for a better investment? Who would not sink capital in such a venture?

Fortunately, this grand investment is open to everyone, and the poor man has a far better chance of earning such a percentage than the rich man. He who invests his hundreds of pounds upon a poultry farm on a large scale may expect to lose most of it, if not all; but he who will just spend a few shillings in fitting up a run and buying a few useful birds will secure the best return that any class of livestock can produce. With his half-dozen hens he must not expect to flood the market and reap a large monetary return. Poultry-keeping on this scale is rather for domestic than for commercial purposes. The man with his half-dozen hens should keep his household in eggs all the year round. This will effect a considerable saving in domestic expenses, and in many cases it will introduce a comparative luxury and a most valuable sustaining food. No housewife can do without eggs. Even when they are never eaten on the table they are always in demand for puddings and cakes. A regular home supply would be an inestimable boon to many. And then there are times when some can be sold. At twopence each every poultry-keeper likes to sell as many eggs as he can; and though this price is only obtainable in winter, we want to show how hens can be induced to lay in cold weather, and to prove how winter egg-production is well worth attention.

As for the hens, we shall show that house scraps are the best foods they can have for egg-production; and though birds kept in small runs need a lot of care to keep them in health, we shall point out what precautions are necessary.

It must not be supposed that we limit the number of hens to half-a-dozen. Let him who has room at his command keep as many as he likes, so long as he can

feed them cheaply. Poultry-farming pure and simple does not pay because, in the first place, rent and labour make big items; secondly, because personal attention—so very necessary to fowls—cannot be given to such a great number; and, thirdly, because every scrap of food has to be bought. When we speak of half-a-dozen hens we refer more particularly to the case of the cottager who has a small space and a limited amount of food. The fowls may still pay when food has to be bought for them; but the huge profit we have spoken of will not be secured. The most profitable form of egg-production stops short when the supply of household scraps is overrun.

We would mention here that though we shall show in a later chapter how a few ducklings can be profitably raised, there is no satisfaction in keeping ducks for egg production on a small piece of ground. Such breeds as Indian Runner ducks pay well on a farm, but the small poultry keeper would find them rather a nuisance than a source of profit.

CHAPTER II.

The Choice of a Breed.

What breed am I to keep to bring about the astonishing result previously mentioned? Is there any difference between one breed and another, and between one family or strain and another? Yes, there is a vast amount of difference, and the subject needs to be treated of fully, for until one understands the rules that govern breeds and breeding, one cannot be expected to take up poultry-keeping with intelligence.

First of all, we will consider the habits and characteristics of the various probable breeds, so that we can readily conclude what are their qualifications, and select the best. By "probable breeds" we mean those that in our opinion are worthy to be considered as useful layers, for we could not class Game fowls under that category, and we must also acknowledge that the grand old Dorking, prince of table-fowls, is not a sufficiently good layer to fit it to figure as one of the best for the present purpose. Then, again, Brahmas and Cochins, at one time considered the best layers, have been completely superseded by the modern varieties, many of which have been evolved from crosses among the older breeds. Of French fowls, such as Houdans, Crêve Cœurs, and La Flèche, we cannot speak with any encouragement as layers, the best of this

class being the Faverolles, which, after all, is not so prolific as some of our English varieties.

Coming to the "probables," we must point out that they are divided into two distinct classes. Those known

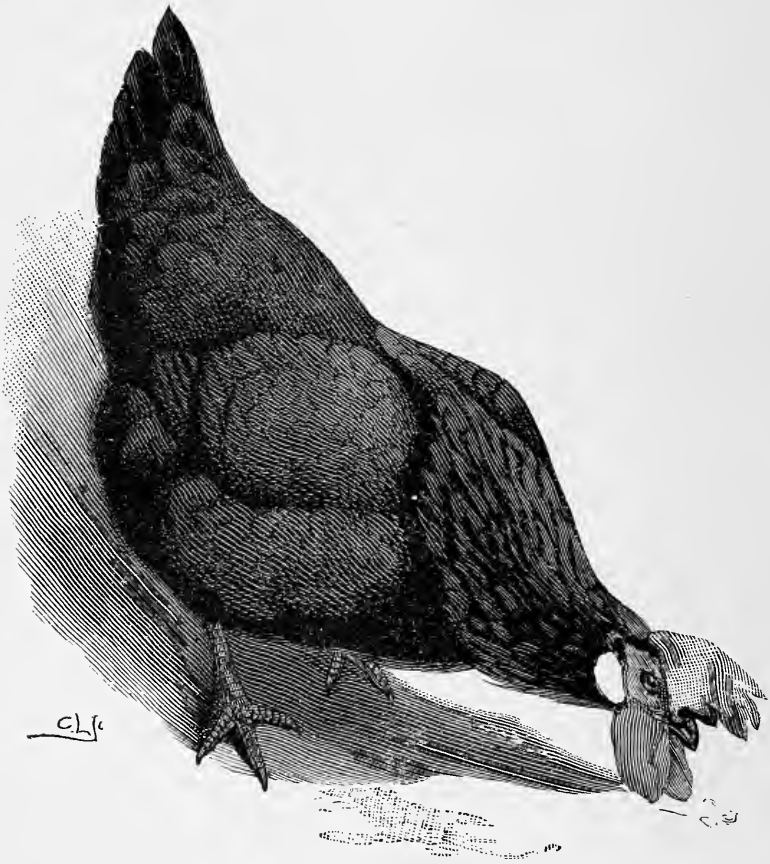

FIG. 1.—MINORCA HEN.

as the *lighter* breeds are the non-sitters, and among them are included Minorcas, Leghorns, Anconas, Andalusians, and Hamburghs; whilst the *heavier* breeds are sitters, and include Wyandottes, Orpingtons, Plymouth Rocks, Langshans, &c. Other points of

difference are found in the eggs, for the lighter breeds lay white eggs, while the others produce brown or tinted eggs. Further, the heavier breeds carry more flesh, and are therefore better suited for table purposes, though, with the exception of Langshans, we do not

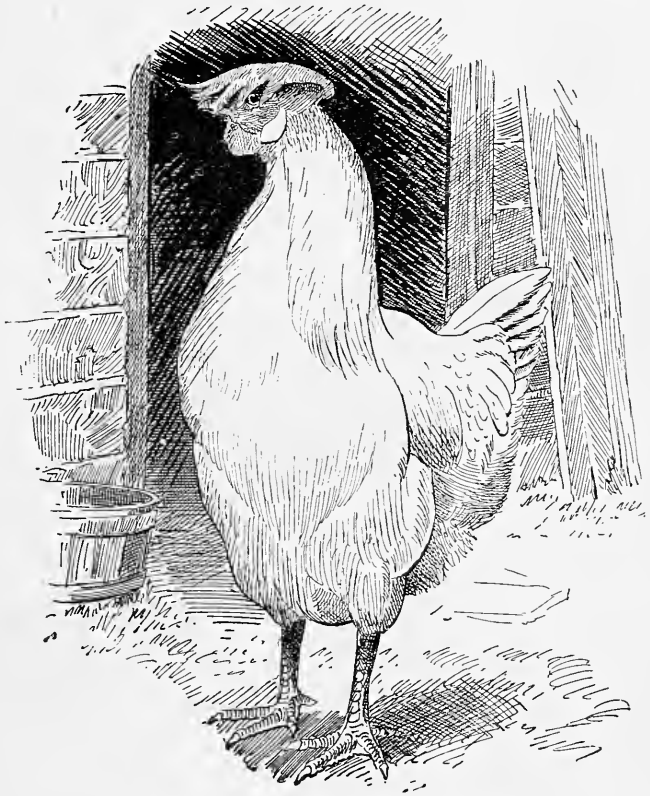

Fig. 2.—White Leghorn Hen.

know that the flesh of the heavier breeds is of any better quality than that of the others. Although it has been stubbornly denied by partisans of the lighter breeds, our experience has shown us that the heavier breeds are hardier, and that they are better winter layers in an exposed situation; but as we are prepared

to give the birds a well-sheltered situation, in this case the matter is not so important.

The question is, however, In which class shall we find the most suitable breed? and before we come to that it is worth while considering if it is necessary to have pure-bred birds. Well, we must have either pure

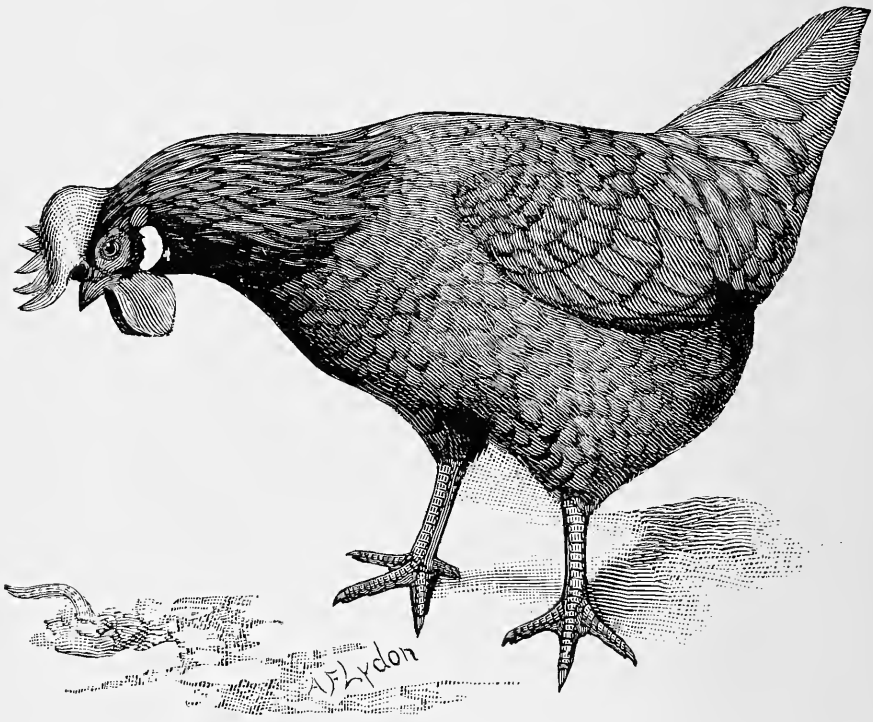

Fig. 3.—Andalusian Hen.

or cross-bred fowls. Mongrels are out of the question. A mongrel is a degenerate, that has been allowed to come upon the earth with no fixed purpose, and without selection in breeding. Such a bird cannot be expected to be a layer; and though thousands of poultry-keepers still stick to mongrel birds, it is not because they

consider them the best for egg-production, but because they have never troubled to go into the subject, and have merely kept fowls without thought or care for the

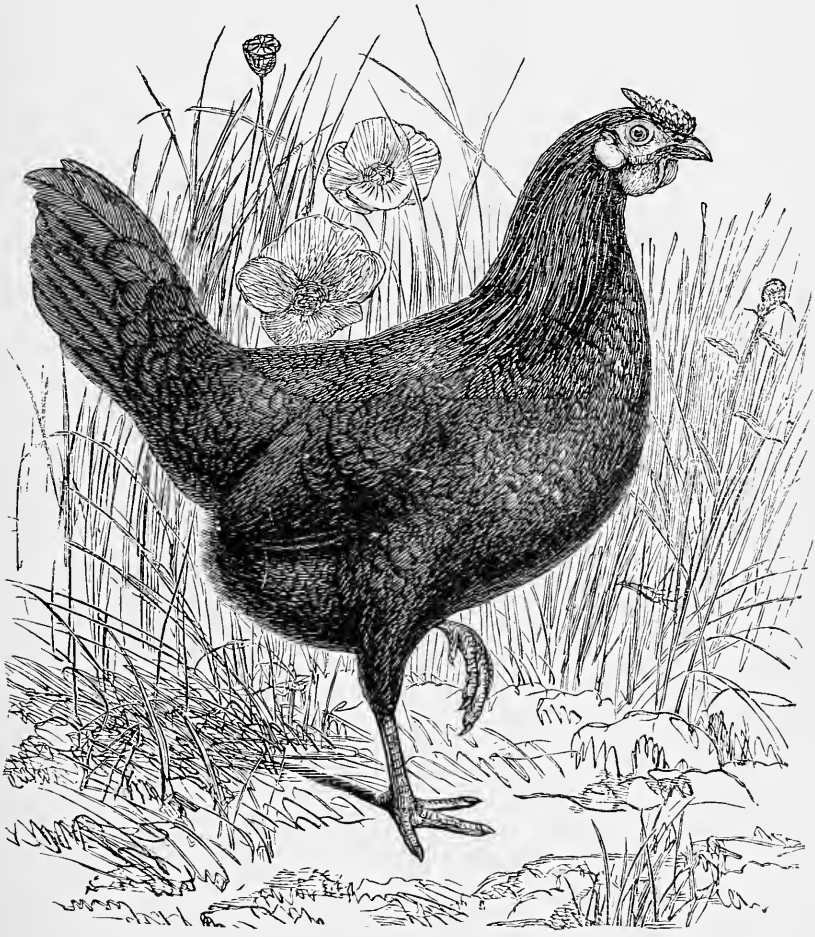

Fig. 4.—Black Hamburgh Hen.

result. Let them just consider the matter, and realise that they are feeding fowls which give only half the return that properly-bred ones would.

Between pure and cross-bred birds there is little to choose, so long as the cross-breds have been sensibly crossed, with a view to improving their egg-producing character. Wherever one has space to breed, however, the pure-bred are undoubtedly the most profitable, for eggs from these can very often be sold for sitting at prices much above the ordinary market value. But where the space is so limited that a male bird cannot

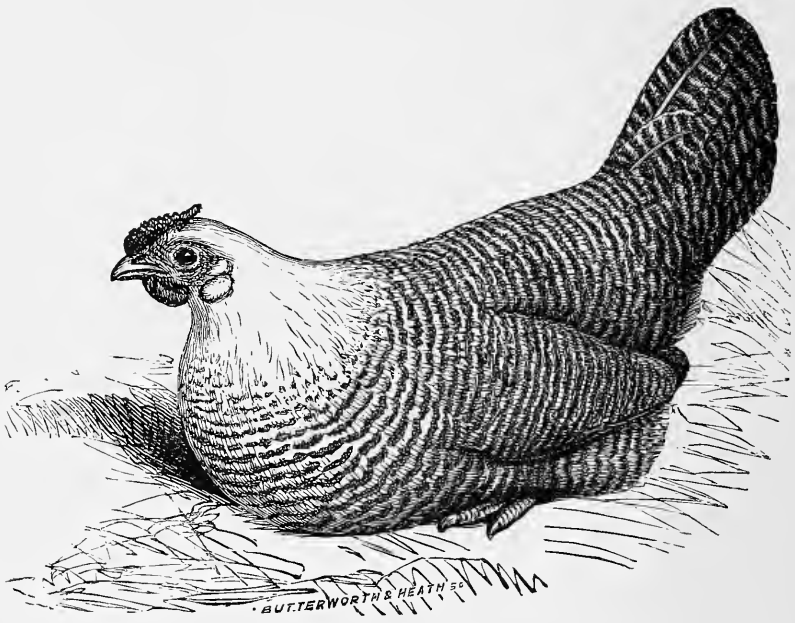

Fig. 5.—Silver-pencilled Hamburgh Hen.

be kept, and the only object is to get plenty of eggs, good cross-breds perhaps have the advantage, for they are certainly cheaper to buy, in the first place, though it must be remembered that if they are to be sold at the end of their laying year, before they go into a moult, they will only realise a low price in comparison with that which purchased them.

We can now go on to the subject of the pure breeds,

and return to the crosses later on. Which shall it be, a heavy or a light breed? The heavy breeds are hardier, and when exposed to very severe weather they would undoubtedly give a better return as winter layers.

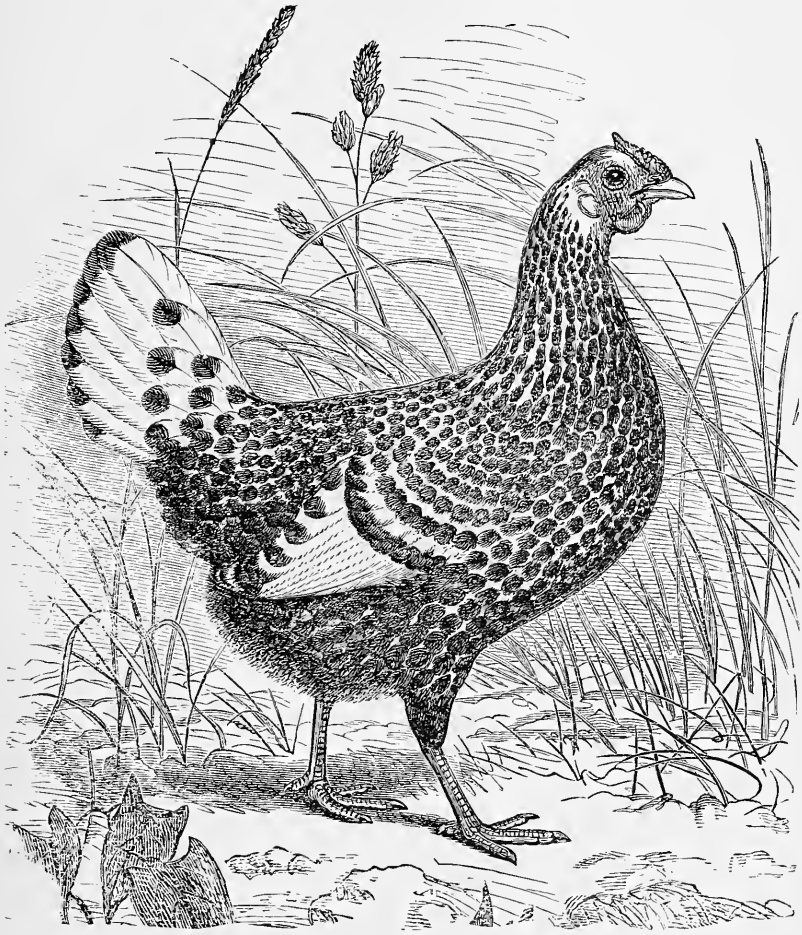

FIG. 6.—SILVER-SPANGLED HAMBURGH HEN.

But then we are going to have our runs protected, and we must remember that there is a serious fault to be found with these heavier breeds, for broody hens are not required in the small egg-producing establishment;

and we know, from our own experience, that these troublesome birds are a great disappointment in spring and summer, when one or the other is almost sure to be on the nest. Again, although the brown eggs of

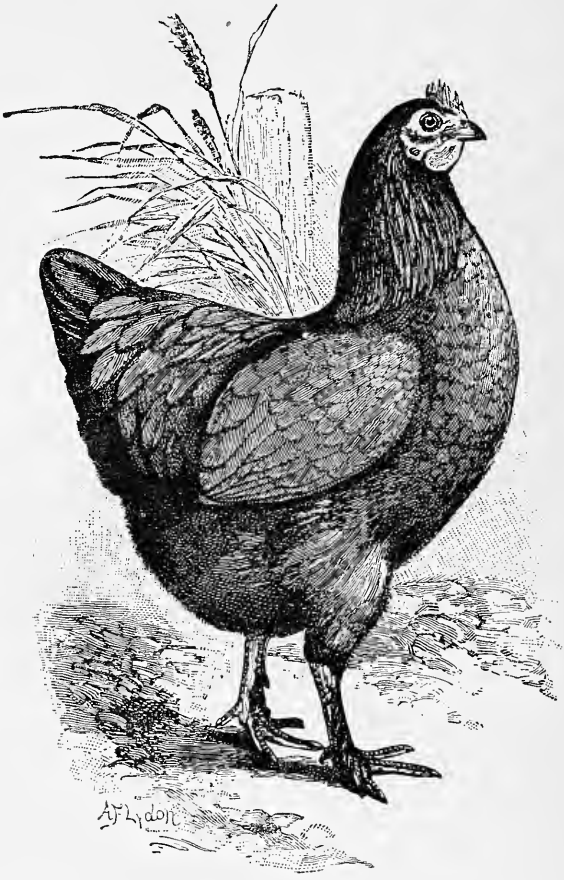

FIG. 7.—LANGSHAN HEN.

the heavier breeds are preferred by some customers, this item need hardly be considered when they are for household purposes, for the contents of a white-shelled egg are just as good as those of another with a brown or tinted shell. As for the superior table

qualities of the heavier breeds, the keeper of half-a-dozen hens will not stop to consider them; and the man who keeps more than that number will not consider them sufficiently important to outweigh the advantages hitherto named.

There are still further reasons for the selection of

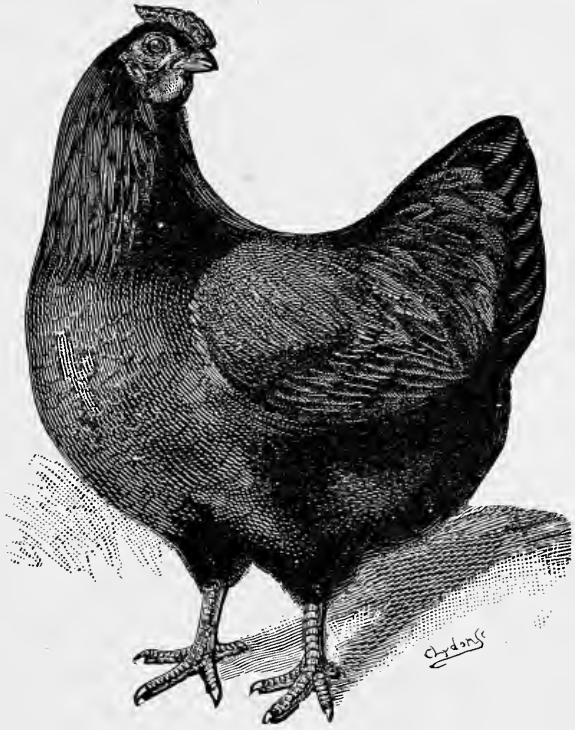

Fig. 8.—Orpington Hen.

the lighter class of fowls. These birds are more sprightly and active, and better able to stand confinement than the others. With a little straw, ashes, or dust, they will amuse themselves for hours scratching and exercising, and so long as they will do this half the battle of keeping them in good health is won. Finally, so far as we can prove, the lighter breeds are

the smaller eaters, and, so long as they are kept sheltered in winter and healthy in summer, they give a greater production in eggs for the amount of food they consume. Without a doubt, the lighter breeds are the better fitted for this work of egg-production in confinement, and we can proceed to select the best from among them.

There are two breeds which stand out prominently, and they are Minorcas and Leghorns. Of the others we can speak with some degree of praise, for we have found Anconas hardy, and prolific layers in cold weather; and Hamburghs, though more delicate, are capital spring egg-producers. Andalusians, which are merely a Minorca cross, have many useful qualities, but they have been bred too much for show purposes, and their laying is not so good as it should be. Minorcas and Leghorns are undoubtedly the best of the lighter breeds, and it is difficult to say which is the best, for in this case everything depends upon strain. The Leghorn is perhaps the hardier of the two, but the Minorca is a splendid layer when kept in a sheltered run, and certainly produces the largest egg, which is a point in its favour. Moreover, Minorcas, being black, look much better when kept in a small run than coloured fowls, and, as appearance goes a long way with some people, this is another prominent consideration. But, whichever is selected, we would point out that the difference will be found in strain more than in breed, of which subject we shall speak later on, as its importance warrants.

For those who would prefer brown eggs, and who do not object to the occasional brooding propensities, we would recommend the Wyandotte, as being our best and hardiest winter-laying breed under difficult circum-

stances, and a comparatively moderate sitter. The Plymouth Rock follows it closely, and the Langshan, besides being a good layer, is an excellent table bird. Orpingtons are very hardy, and prolific winter layers, but their brooding propensities would break the heart of an egg-producing poultry-keeper.

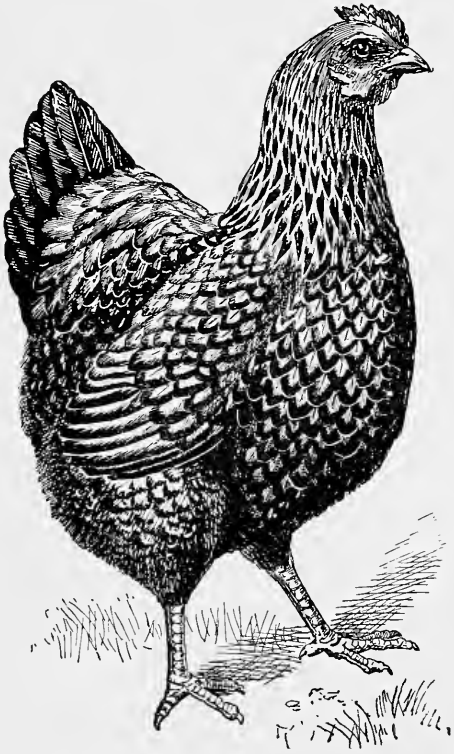

Fig. 9.—Silver Wyandotte Hen.

And now the question recurs, Will the Minorca—which breed we will suppose is chosen—prove a more profitable fowl than the cross-bred for this purpose? That is, will it pay the keeper of half-a-dozen hens better than the other? This all depends upon the initial cost. If good laying Minorca pullets are to be

bought for 5s. each, and equally good cross-breds for 4s., we should choose the latter. But they must be equally as good.

Taking them altogether, we consider pure-bred fowls are more reliable as layers than cross-breds. But, on the other hand, there are certain strains of cross-breds which are equally as prolific as the best pure-breds. Whether pure or cross, we must expect to have to pay a fairly high price for birds of really good laying strains. That is to say, whereas useful mongrels can be secured for 2s. 6d. each, a well-bred layer—and a good layer must be well-bred—would realise from 3s. 6d. to 4s. In comparison, the latter are very cheap. Bad pure-breds and bad cross-breds can sometimes be bought as cheaply as mongrels; but as they do not pay one-half the percentage on their capital that the good birds do on theirs, it is not wise to study this sort of economy. The choice between pure birds and cross-breds is best left to one's own taste, and if the beginner is anything of a fancier, and desires to reap pleasure, as well as profit, from the fowls, he will probably decide in favour of the pure-breds.

It should be pointed out that many of the modern so called pure breeds are merely crosses, but are generally accepted as pure, since they have been crossed with an object in view, and bred steadfastly to that object for many years. Minorcas are a branch of the Spanish family, but they are of considerable antiquity, and it is thought by many that they were the actual progenitors of the Spanish blood.

As to the difference in strain, everything depends upon whether birds have been bred for laying purposes or not. The fancier and exhibitor in most cases cares little for such things as laying properties, if he can

get his exhibition points without them; but if he can get a combination of the two he is all the more pleased. We owe our best and most useful breeds to the fancier, and so we must not be too hard upon him. He has undoubtedly spoilt some breeds, but he has improved others.

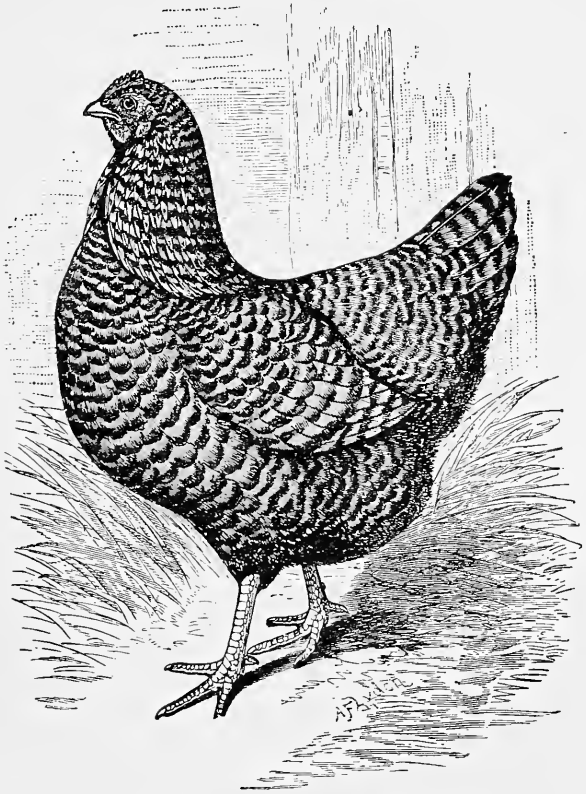

Fig. 10.—Plymouth Rock Hen.

Breeding for laying is just as necessary as breeding for fancy points, and we must get birds of a strain that has been improved in this way. It is all done by selection. The careful breeder knows his best hens, and he picks them out year by year for his breeding pen. He mates them with a male bird from an equally

good strain, or from his own strain distantly related, and it follows that the majority of the produce, so far as the pullets are concerned, are good laying birds. Next year, if he again selects a few of the very best layers, and breeds from them, he again gets improved stock, and any breeder can testify that in a few years a grand laying strain can be built up with proper care.

There are numbers of careful breeders in this country, and advice as to where they may be found is not difficult to obtain. The best plan is to go to one of them, state your wants, and ask him to quote as low a price as possible for really good birds. Do not try to save sixpence by having inferior birds. At the most, good layers should not cost more than 4s. each (plenty of them at such a price can be procured through *The Bazaar*), for you do not require show points, and cannot be expected to pay for them. A bird may still be pure bred, and not possess any qualifications for exhibition; and consequently one only buys the laying qualities in such cases, though those are certainly valuable, and realise deservedly higher prices than is the case with degenerate specimens.

If cross-breds are used, we should prefer either the Minorca-Black Hamburgh or the Minorca-Langshan. The former makes a prolific layer, but it does not harden the birds; whilst the latter not only produces hardier fowls than the Minorca, but it brings a large proportion of coloured eggs. As comparatively few birds of this cross are troubled with broodiness, and as they are very good table-birds, as well as most prolific layers, we consider it one of the most useful we can have.

When the poultry-keeper who has space is breeding among cross-breds, he must take care not to let his stock degenerate into mongrels. If he wishes to keep

the first cross, he should mate his hens with a cockerel of the same cross from another strain; and if he finds the hens are inclined to broodiness in summer, and more eggs are required, he can mate a Minorca cock to them, whilst of course a Langshan cock would lead the stock in the other direction.

The best time to buy is about September—before the pullets commence to lay. It is not wise to select too early birds, that may fall into a premature moult. Those hatched in March and April are the best; they usually begin to lay in October, and continue all through the winter. More advice on this subject will be found in the chapter on "How to Keep the Fowls."

CHAPTER III.

Where to Keep the Fowls.

It is all very well to know which is the most suitable breed, but an even more important question, from the would-be poultry-keeper's point of view, is where to keep the birds. The gardening enthusiast says he does not want them scratching about his ground, and the man who respects his neighbour will not permit them to roam at will over his own and other people's premises. The fowls must be confined, but everyone will want to know how much ground he requires, and whether it is possible for the man who has only a small patch of ground at the back of his house to keep these profit-bearing creatures. Certainly, so long as he can spare a space 18ft. by 6ft. at the bottom of his yard or garden; that is all we ask, and it is quite enough for the half-dozen hens we have been talking about. Properly cared for, they will be as contented, and do as well, as if they had an acre of ground, and, what is more, they will lay more eggs, for such sheltered runs, or "scratching sheds," as they are called, as we shall devise are the best of all places for winter egg-production.

This space of 18ft. by 6ft. takes very little out of even a small garden. We could not ask for less, for fowls need some little exercise, whatever kind they are, and we cannot keep them tied up in a space in

which they can hardly turn. Where the novice can spare more room, by all means let him keep more fowls. As we cannot know everyone's conveniences, we take the space we have mentioned as the smallest standard, and show, in the accompanying ground-plan, how it can be best laid out.

When the yard or garden is bounded by a brick, stone, or wooden fence, so much the better, for three sides of the pen are thus provided. If the fencing is merely palings, the best plan is to nail boards all round the three sides. Wherever it is possible, we prefer a

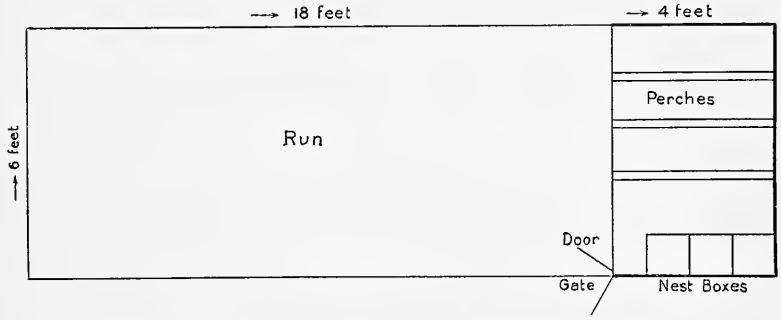

FIG. 11.—GROUND PLAN OF HOUSE AND RUN.

southern aspect; and where the bottom of the garden does not face to the south, it would be a good plan to construct the pen upon one side of it, in which case one end, at any rate, must be built. We shall require the accompanying front view, as well as the ground-plan, to help us to proceed further.

The height of the front, both of the house and of the run, is 5ft., while at the back it is 6ft., this fall of 1ft. in 6ft. being sufficient to throw off the wet from a good roof. Of the 18ft. which comprises the length of the entire pen, the house takes up 4ft. at one end, being thus 6ft. by 4ft. The house must be entirely closed

in. The front of the run may be open but for a foot-and-a-half of boarding at the bottom, the rest being covered in with wire netting.

When building the place, the best way to commence is to procure half-a-dozen stout posts (4in. square battens are as good as anything), and three of these posts must be 6ft. out of the ground, and the other three 5ft. One of the 6ft. posts must be planted at each end of the 18ft. run, and the other at a distance of 4ft. from whichever end the roosting-house is to be. The

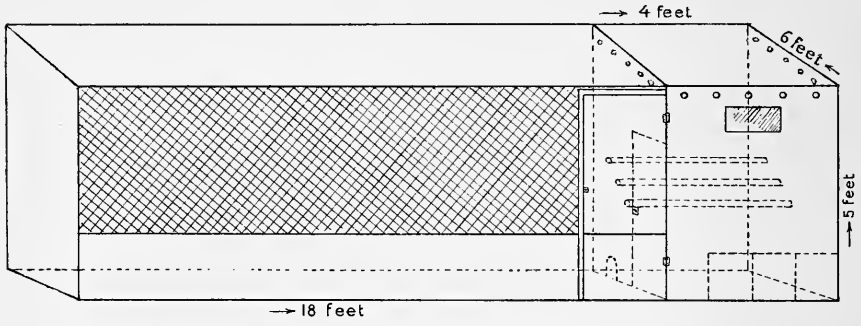

FIG. 12.—FRONT VIEW OF HOUSE AND RUN.

shorter posts must then be planted in the same way, parallel to the others, and at a distance of 6ft. from them—the width of the pen we have given in our plan.

To proceed with the house. If there is a stone-built or wooden wall that can be utilised for two sides, so much the better. Bearers of 2in. by 3in. timber can then be laid upon the posts, with stays at the foot of the house, which will be sufficient to nail the boards to. In the front of the house a small window should be provided, as shown, and in that side open to the run a door should be cut and fitted, whilst a hole for the birds' ingress and egress should be cut, either in the door itself or in the wall. The window should be

fixed so that it can be taken out in summer and a piece of wire netting put in its place. As for ventilation in ordinary times, a number of 2in. holes might be cut all round, beneath the eaves. The actual construction of the house portion is then finished, except the roof, and we can go to the outer run.

Where there is no boundary wall to make use of, the end of the run opposite to the house should be boarded in, thus sheltering the birds from cold winds. This object can be completely attained by putting boards to a height of 18in. at the foot of the front, leaving only 3ft. or 3ft. 6in. to be covered with wire netting. This foot-board is especially useful in winter in protecting the birds, and it is also of some value in summer, where the pen has a southern aspect, in shielding the birds, to a certain extent, from the rays of the sun.

The wire netting may be of 2in. mesh, and it can be tightly and firmly secured with a few staples.

Now as regards the gateway into the run. A lighter post should be set up about 2ft. 6in. from the house for it to swing against; and the door itself, which can be hinged on to the corner-post of the house, may be made with a frame covered with wire netting and the same height of boarding at the foot as is used in the front of the run. In the accompanying view we have not shown the wire netting on the gate, in order that the interior arrangements of the house may be more distinctly seen.

Coming to the roof of the house, we must devote a little care and expense to this, in order to make it thoroughly watertight, for nothing is so injurious to laying hens in winter time as having to wade about in mud and slush. The roof should cover house and run

as well, and first of all we would secure 1in. boarding and lay it on in the shorter lengths with the pitch of the roof and not lengthwise. Each board should lap over about 3in. to throw off all the rain, and when they are fixed they should be covered over with roofing felt, an excellent preparation, which is comparatively cheap, and which will last for years if properly treated. All that is needed to keep it for a lifetime is a few pennyworths of tar every year, and as soon after it is laid as possible it should have one or two coatings of tar to keep it hard and watertight. At the same time, the outer woodwork might be similarly treated; and if all the posts have a coat of tar at the foot before being put into the ground they will keep as long again.

Now for the interior arrangements. First of all, both the gate of the run and the door of the house should open outwards, and if the door is of the same width as the gate, it will be found that when one goes into the house it can be thrown back to fill the gate space without shutting the gate. Just inside the door of the house, the nest-boxes should be set against the front wall, as shown in the ground plan, and not under the perches. These nests can easily be made out of orange-boxes, one box being divided into three compartments with little trouble.

The perches should be fixed so that they can easily be taken out. If one of the walls is of brick or stone, it is not difficult to chip out grooves into which the perches will fit, and if both walls are of wood, sockets can be made by nailing pieces of wood to take the perches. The advantage of having them loose is that they can be taken down and cleaned—a necessary precaution when insects get about. The perches should be about 3in. broad, and sufficiently thick to carry the

weight of the fowls upon them. The lowest should not be more than 30in. from the ground, so that the birds can easily fly up.

The floor of the house may be of boards, bricks, or cement. To do the work properly we should prefer either the bricks or the cement, and as it is very little trouble to lay down a brick floor on such a small space, we think that plan will commend itself to the majority. If a few spadefuls of soil be thrown over the bricks they will set well together without any mortar.

So far as the outer run is concerned, no further flooring than the mother-earth is necessary, but it is very necessary to provide a few barrow-loads of fine ashes and dust, and to put a good layer of straw down. Hens are curious creatures. They like nothing better than to bathe in dust and ashes, to throw it all over them, and to sift it down among their feathers to the skin. It is a relief to them, just as a water bath is to us, and when they are troubled with insects it is one way to free themselves.

As for the straw, in that lies the very health of the birds. Give them a plain run, without straw, and throw the food down for them merely to pick it up, and they will mope, and become wretched. The straw is for their daily exercise and work. The food should be thrown down among it, and they will scratch it over and over again to find a morsel. It also keeps their feet dry and warm in winter, and if forked or turned over every now and again, it will last for a fortnight before it needs to be renewed. Straw should not be an expensive item. Most tradesmen and shopkeepers have their goods packed in it, and do not know what to do with it all. This packing straw is just the

thing that is needed, and it will not cost much if it has to be bought.

In the middle of the run we would erect a perch, on which the birds will delight to sit and plume themselves. Two posts can be put into the ground, leaving about 2ft. above the floor, and a rail can be nailed thereto. We prefer also to put one or two single nests about the run, as the birds sometimes like to make use of them, rather than those in the house. A little platform can be made in the corner, about 1ft. or 18in. above the ground, and a nest placed upon it. They may even be put up higher, for birds delight to get up into elevated places.

Whilst discussing the interior arrangements, we must not forget the water tank. As we shall show in a subsequent connection, pure water is very necessary to the health and well-being of the birds, and the vessel in which it stands should be placed so that it can be easily cleaned and replenished without the trouble of going into the run. An earthenware dish can be kept clean as well as anything, and it should be placed inside the run. A very good plan is to cut a small hole at the foot of the boarding that lines the run, so that the pan will just fit in it, and can be drawn out and replaced without trouble.

In warm weather the door of the roosting-house should be left open, and, as we have said before, the glass in the window should be removed. A little straw on the floor of the roosting-house, as well as in the run, will help to keep it sweet and clean, for when shaken up the droppings all fall through.

All these arrangements may have oppressed the minds of would-be poultry-keepers with a sense of the necessity for tremendous expenditure. Granted, if we set out

to build the structure we have planned with new timber, we should have a fairly heavy bill to settle. If the back and two ends of the run had to be constructed as well, we could not possibly do it complete under £3 or £4. But, as economy must play a prominent part in the system of poultry-keeping we are defining, we have no intention of running anyone into expense, if he can possibly get some secondhand wood to answer the purpose. We have already pointed out that the plan and the scale we have adopted is only a specimen one, and it need not be adhered to, so long as the amount of space be utilised, for we must not crowd birds in a small compass.

To answer the purpose of a house, various packing-cases may be resorted to. One of the best houses of the kind we have seen was made out of a piano-case; and when a door, window, perches, and a proper roof had been added, it served the purpose admirably. Other houses we have seen have been made out of large packing-cases, and these, when a roof has been added, do quite as well as a more expensive structure. In fact, we urge their use whenever they can be got, and in default we must take pains to get the cheapest wood that is obtainable. Where the packing-cases have cracks and crevices, these can be stopped by cutting strips of roofing felt, and nailing on.

Though these methods are cheap, the result need not be poor. So long as the structure is solid, water-tight, and gives sufficient ventilation, it will answer the purpose, for a hen lays no better in an ornamental house than in a plain one. At the end of this book we shall show how space can be economised, and give further plans for houses, &c. For the present, the above instructions will serve to show how the repre-

sentative backyard or garden can be fitted up with a poultry-run of moderate dimensions, and it will solve the question of where to keep the fowls.

Finally, we must point out how the place can be preserved, and kept sweet and clean. We have already referred to the value of tar as a preservative. It should be used as a coating for all the outer woodwork. Inside, however, limewash should be resorted to, and the walls of the roosting-house, as well as those of the run, should be washed every three months. Nest-boxes and perches may be served in the same way, for the limewash helps to keep the insects down, though if these pests become numerous the best plan is to paint the perches and the nest-boxes with paraffin. The straw in the roosting-house should be turned over and shaken every day, and if this is done it only need be thrown out every week or ten days, when the droppings can also be swept out. An accumulation of filth in such a small place will certainly lead to disaster sooner or later. The birds must be kept clean if they are to be healthy, and to give a satisfactory return in eggs.

CHAPTER IV.

How to Keep the Fowls.

This is the next important question. The beginner wants to know how the birds are to be kept, how they are to be fed, and how they are to be managed; and perhaps first of all, what qualification is necessary to enable him to keep a few fowls with success. As a matter of fact, and although we are always anxious to impress upon all who would keep poultry upon an extensive scale the absolute necessity of previous experience, there is nothing required to enable one to be successful with a few fowls, except instinctive common-sense. It has to be remembered that fowls are living and feeling creatures, amenable to the treatment meted out to them by their keepers; that overfeeding and under-feeding are liable to affect them in the same way as they might human beings; that careless management, bad accommodation, and filthy surroundings all tend to bad results; and that diseases can be avoided just as they can in the case of ourselves —by ordinary care and attention to health and manner of living. No person need have any qualification to keep a few hens if he will carefully study and follow the rules we lay down. These rules will not be outrageous in their demands. We want to make it as easy as we can for everyone, for we know from ex-

perience that a lot of fussy details are apt to become monotonous, and drop out of use. Whatever advice we give here should be followed, and we are sure the result will well repay the trouble.

Now, as to the food. We have already stated that the very best that can be used for egg-production consists of the scraps, bits of meat, bread, vegetables, etc., that come from the table. Some people put such scraps into a swill-tub for the pig, others give them to a dog, whilst others merely deposit them in the dust-heap. We have no objection to the pig, nor to the dog, but it seems a cruel shame that so much valuable food, which might be turned into nutritious eggs, should be thrown away.

Let all who have ever wasted the scraps in this way try a different plan, and if the method of turning them into eggs is not more profitable and more desirable, we shall be vastly surprised. Let them keep a bucket or a pot for the purpose, and put into it all the crusts and scraps of dry bread, bones, fat, potato-parings, cooked potatoes, and vegetables that are left. The remainders of puddings, pies, and cakes; in fact, everything edible that is not consumed by the household can be put on one side for the fowls. Every night, let this pot be put upon the fire to boil until the potato-parings are soft. If there are any bones, cut the meat off them into small pieces, and mix up with the other food. It can then stand all night, and will be fit to give to the birds first thing in the morning. Very often, when there is much fat in the pot, it sets almost like jelly, and in any case all liquid should be strained off before the food is given to the fowls.

In feeding, only sufficient should be given to satisfy the hunger of the birds, and not to gorge them. Most

hens will continue to eat as long as food is thrown to them, but especially where they are kept in close confinement this plan is not to be recommended. It is difficult to say how much a fowl can eat, for appetites vary. One must use judgment, and give sufficient to satisfy the bird, but not to encourage it to eat. There should never be anything left upon the ground after a meal. At the next feeding-time the birds should be hungry and eager for more; they should therefore not be fed between the regular meals. These may commence with the breakfast, as early as possible in the morning. At noon, some lighter food, such as cooked vegetables and raw greenstuff—chopped grass, cabbage-leaves, or lettuce, will serve the purpose—should be given in moderation; and at night the birds can have what is left in the pot from the morning feed.

It is at night, however, that sometimes a little corn is necessary, and, beyond perhaps a handful of barley-flour mixed with the breakfast, there is no necessity for buying foods. It is possible to keep a few birds entirely on scraps, if the scraps are sufficient; but as the barley-meal helps to stiffen the soft food, and a little hard corn is good for the digestion and for the condition, it will repay one to use both, especially as the amount of purchased food consumed need only be very small. If there are sufficient scraps from the pot to form part of the evening meal, we should only give about two handfuls of corn among half-a-dozen hens to finish off the day. The mid-day meal of green food is very necessary to keep the birds in good health, for, when closely confined and fed on such rich food as household scraps, the blood becomes heated, and the cooling effects of the green food are of great value.

Grit is a necessity that cannot be overlooked. It

must be understood that, as a hen is not blessed with teeth, the food passes into her crop, and on into the gizzard, where it is ground up in order that it can be digested. To assist this grinding, sharp stones are necessary; and, if one watches a fowl that has its liberty, it will be seen to frequently pick up and swallow small stones and other fragments. When dissecting dead fowls, we have frequently found the gizzards well supplied with bits of stone, coal, nails, and other things. As the stones become worn and smooth they are passed from the system, and must be replaced by others. Now, how can a hen kept closely confined supply herself with this necessary if it is not given to her? We have known plenty of birds kept entirely without grit, but they were frequently troubled with indigestion, and liver complaint sooner or later made its appearance. Nature has decreed that sharp stones are necessary to help the birds digest their food, and we must follow out its instructions. You can get a hundredweight of sharp flint grit for a few shillings, and a small boxful kept in the run will keep the birds in good health and temper.

In addition, laying hens need something to help form the shell of their eggs. It often happens that a good layer kept in close confinement will lay a soft-shelled egg, and this is solely due to want of lime to form the shell. The constant production of eggs entails a great drain upon the supply of lime in the system, and this has to be regularly recruited. Old mortar broken up into small pieces will be consumed by the birds, but the best plan is to buy a hundredweight of calcined oyster-shell, which can be procured at the same price as the grit.

The supply of water is an important matter, and care

should be taken to keep it clean and cool, especially in summer-time. A pie-dish or other earthenware vessel is as good as anything, and if it is set upon a couple of bricks, the fowls will be able to drink without stepping in it or upsetting it, as they frequently will do when it is on the ground. Every now and again the dish should be scrubbed out, and before it is replenished it should be swilled out.

There should be considerable difference between the management of laying hens in winter and in summer. In winter every effort should be made to get eggs. No artificial heat is needed in the houses, for coddling defeats the very ends we have in view, and the houses should be so sheltered that the birds need never feel the cold. Then they have the advantage of the scratching-shed all day, secure from all the wet, and sheltered from the worst of the wind. In such circumstances they are many degrees warmer than birds out in the fields, and all that is required to make them lay is good egg-producing food, but not too much of it.

In the first place, however, the birds must be of the right age; and if they are pullets, they should commence to lay at about the age of six or seven months, which is about the usual time for Minorcas or Leghorns. As we have already pointed out, it is no use having birds commencing to lay in August or September, for they will merely produce a few eggs, fall into a moult, and take all winter to get over it. The best time for such birds to commence laying is the middle of October; and, if they are hatched in April, they will generally commence and continue throughout the winter, unless they are checked by carelessness in management or lack of egg-producing food.

For inducing the pullets to commence to lay, warm food is very useful: and if the pot of scraps boiled overnight be put upon the fire in the morning, it will be quite hot enough in a very few minutes. This hot meal should be continued every morning throughout the winter. It will be found to have a wonderful effect in stimulating egg-production, for, when given to hens early on a cold morning, it puts a healthy glow through them, and quickens the oviparous organs to activity, where cold food would have no such effect.

As much animal food, in some shape or form, as possible should be given in winter; and where it is found that sufficient meat is not contained among the household scraps, a supply of this splendid material for egg-production can be found in the offal that is generally to be had from a butcher's shop, which should be boiled and cut up. We do not ask our readers to trouble themselves by collecting butchers' offal for their fowls; but we advise them that, where other animal food cannot be obtained, this substitute is well worth looking after. The evening feed of corn is necessary in winter to provide a stay for the birds through the long night, and it will be found in all that we advise that internal heat is what is required to stimulate the egg-supply in cold weather.

In summer-time, however, this internal heat would be too much for the birds, and very light feeding is necessary for those that are closely confined in a small run. Meat is no longer necessary to provide warmth and material for egg-production, and the birds are better without it. Bread-crusts, cooked potatoes, and all vegetable foods are best, and a little meal to stiffen the soft food will complete a good diet of the household scraps. A little corn at night should also be given;

but whereas a mixture of maize, barley, wheat, and dari may be utilised in winter, it is advisable to dispense with the maize and barley when the weather gets warmer. Plenty of green food is absolutely necessary, and it should be given almost entirely for the noon-day meal. Anything in the way of greenstuff, such as lettuce, cabbage, chopped pea-pods, or grass, will serve the purpose; and if it is found that the food given is too rich, and the fowls' blood gets too heated, a decoction of nettle-tea, which is easily made by boiling the nettles and straining off the liquid, should be given to drink occasionally. Those who live in large towns and cannot get greenstuff so easily, can buy sufficient rough stuff at a greengrocer's for a penny to last the half-dozen birds a week, whilst some people grow rye grass in boxes for this purpose.

In summer, even more than in winter, plenty of exercise is necessary to keep the birds in health and condition, and any corn given should be thrown down among the loose straw, where the birds will scratch for it. The dust-bath is always in request in hot weather, and it is a good plan to put a few bricks round a corner of the run, dig some of the earth out, and fill up with dust and loose ashes.

It is in summer-time that broody hens prove such a trouble, and all who keep birds of the heavier breeds must expect to have a lot of annoyance from this cause. Some of the lighter breeds occasionally go broody, but a sitting Minorca or Leghorn is decidedly a *rara avis*. Whenever a hen goes broody, and is not required for sitting purposes, she can be restrained very easily. If you have no other convenience, put her under a box, with plenty of light and ventilation, or in a chicken-coop, keeping her there for three or four days, and

feeding her sparingly. In nine cases out of ten this will be sufficient to turn her mind from the subject of sitting; and when she once more has her liberty she will go about her duties as usual, and commence to lay again in from a week to a fortnight. Such methods as putting a broody hen under a pump or kicking her about the yard are still resorted to by ignorant persons; common-sense will tell us, however, that such brutality can have no *good* effect, but, on the other hand, must do an immense amount of harm to a living creature.

It is naturally more profitable to produce eggs in winter; but, though we must do all we can to induce the birds to lay well in the cold weather, they should not be allowed to take a rest when summer comes. Every fowl moults out at a certain period, and this moult generally occurs in the late summer, after the bird has attained full growth. That is why very early-hatched chickens usually lay a few eggs, and then begin to moult during the hot days of August and September, for it is the heat that prompts a bird to cast off its old clothing, and the provision of Nature which puts her in possession of a new and more perfect outfit in view of the winter.

Sometimes later-hatched birds will go into a moult as late as October, if they are kept in very warm houses, and especially if they are put into show-pens and exhibited in warm show-rooms a great deal. Great heat will cause a fowl to moult, and it is therefore not until July or August, when we have the most intensely hot days and nights, that the majority of fowls begin to cast their feathers. A good bird, which commences laying in the autumn—about the middle or end of October—should continue right up to July, though not regularly, of course, for the system needs a short rest

occasionally, and there are a few periods when the bird will not produce an egg for a week.

Much has been written about the egg-capacity of various birds. We have heard of some marvellous birds that laid 240 eggs each in a year, but we never saw them. The best record within our own experience was 188 eggs in twelve months, and this record was created by a Golden Wyandotte pullet, kept in a small, sheltered run such as we have pictured. The majority of her eggs were laid in the cold weather—between October and April—and she only went broody twice in the twelve months, and was easily restrained. But one does not often come across such a bird, and the possessor of a flock that average 140 or 150 in the twelve months can count himself lucky. The usual production of the ordinary mongrel fowls that roam about farmers' yards is between forty and sixty a year, though a few perhaps manage to get as high as eighty. One hundred and twenty is a very fair record, and if one can be sure of getting hens that will not fall below this number the profit should be good.

We have already pointed out that eggs pay best when produced in winter, and a strain that will lay well in all sorts of weather is much to be preferred to one that may be prolific in spring and summer, but is influenced by every spell of cold. During the winter of 1900-1901 we kept a pen of four Partridge Wyandotte pullets in a small run, not particularly sheltered, and their record was an excellent one. During one period in January we had twelve eggs from the four birds in four days; at another time, in February, we had twenty-four eggs in eight days; and during March we secured thirty-three eggs in nine days, one of the birds actually laying twice in one day, though the second egg was

soft-shelled. This we consider a record production; and it was attained by good, warm food, consisting largely of household scraps, with plenty of opportunity for scratching. As this result can be achieved by everyone who takes the trouble to get reliable stock, there are grand opportunities for the small poultry-keeper.

Upon the subject of profit, if the eggs are to be sold, we cannot make any definite statement. Many people ask us how much a year they could make by keeping so many hens; but so much depends upon circumstances that the profit might be *nil* or it might be considerable. When eggs are very scarce—from the beginning of November up to Christmas—they realise twopence each, and if one can only get a good supply at that time there is money to be made. We have already shown what are the likeliest birds to lay about that time, and how they can be got. As the food consists mainly of household scraps, and very little has to be bought, there is a good margin of profit, and this is the case in summer as well as in winter, for, though the price drops considerably, and eggs have to be sold at the rate of eighteen or twenty for a shilling, there is practically little expense in their production. The more extensive poultry-keeper, who has to buy all his food, finds it hardly pays to produce eggs in summer, and he consequently turns most of his attention to winter laying.

In many cases it will be found desirable, when eggs are so cheap, to put them in pickle till a time comes when they are greatly in demand. Preserved eggs are sold at the shops from 1d. to 1½d. each, and at this price it pays to pickle them. In the same way, the housewife will find it as profitable to keep them for

cooking purposes. The great thing is to take them from the nests as soon after they are laid as possible, and put them into pickle at once, for if hens sit on them for a time, as they often do in summer, there is great danger of their spoiling.

There are several popular methods of preserving eggs, but perhaps the cheapest, and certainly the most reliable and simplest, is known as the "water-glass" system. This water-glass is an alkaline silicate which dissolves in water, and the raw material may be purchased from most chemists in tins at about 4d. per pound. A pound of the water-glass in 10 pints of water is the right proportion. The solution should be put into a stone jar, the eggs, which must be cleaned, placed into it whilst fresh, and the jar then sealed up with parchment or paper. You may open the jar every day to put in the eggs as they are laid, but it should be kept sealed up at other times, and should be stored in the coolest place available. This method is gradually superseding the old principle of preserving in lime, and we consider its popularity well deserved.

This chapter will help to show how the fowls should be kept, and any matter not touched upon will be treated of in another connection. One thing we must impress on our readers: Personal attention is one of the secrets of success in poultry-keeping. When a man takes a keen interest in his birds, ministers to their wants, and in every way tries to improve their lot, he is bound to be successful; but as soon as he gets tired of looking after them, deputes the work to someone else, who in turn cares little what becomes of the poor creatures, and they are left to their own resources, all prospect of success vanishes, and the poultry may as well be disposed of.

CHAPTER V.

How to Maintain and Replenish the Stock.

This problem may appear a difficult one to the poultry-keeper who has only a small space and is unable to hatch chickens. Some people in such cases keep their old hens until they are worn out and die of disease or old age, and whether they lay or not. They cannot make up their minds to do right for fear of doing wrong, and so they let things take their chance; and no matter how auspiciously they have started, they always end up with failure. Now, we have shown how anyone can commence successfully, and we must help with further advice, so that the operations do not relapse into failure. It is not sufficient to advise one how to start poultry-keeping. Many people are able to do that without advice. The trouble lies in the carrying-out of it successfully.

We will suppose that we bought half-a-dozen pullets in October. They would, or should, produce eggs for us throughout the winter and following spring, falling into a moult about July or August. If we keep them over their moult, they will probably begin to lay again in November, and should then continue to produce eggs until their second moult, at the end of the following summer. The question is, Shall we keep the birds for

the two seasons, or dispose of them before they fall into the first moult? for on no account should we try to keep them for more than two laying seasons. We have made lots of experiments with old birds, and though we have had some that continued to lay well during their old age, and at the present time have one six-year-old hen that can compete with many pullets, we find that, as a rule, the third season shows a considerable falling-off in the number of eggs. Some people say that a hen's second season is her best; but we are not inclined to accept this as a rule, for some birds may lay more eggs in their first, and others in their second year.

But to return to the question before us. If we sell the birds after they have finished their first laying season, and just before they fall into a moult, we shall be spared the expense of keeping them through the period of rest, during which there is no return and we shall have our pen empty till we buy a fresh stock in October. Whereas if we keep the birds for their second season, we shall have to give away a lot of food without having any return, and the hens may not recover from their moult until the end of November or December, just when eggs are at their highest value. If the birds have proved themselves thoroughly diligent layers throughout their first season, we should certainly keep them for another year, knowing that we could trust them to pay us a profit, whereas others we might buy might turn out inferior. And if they had proved only moderate producers, we should just as readily get rid of them, fighting shy of the dealer who supplied us when we required another consignment.

If neither of the above reasons swayed our opinion, we should be inclined to dispose of the birds after their first season, simply because of the saving we should

effect during the time the birds are in moult. And we must point out that the small poultry-keeper cannot expect to produce eggs all the year round. He can get them in winter, in spring, and in early summer, but from the end of July to October he must generally expect to leave the supply to the farmers, who, having a large number of birds, are able to hatch a certain number for laying at a time when the majority of the stock are in moult.

Now, in the transactions of buying and selling laying stock one must expect to suffer loss. One cannot expect to buy good laying birds at the beginning of their season of productiveness at 4s. each, and sell them at the end for the same price. Very few people care to buy birds just when they are going into a moult, and 2s. 6d. each is a good price for them at that time. If they are to make 2s. 6d. or 3s. each, the best plan is to advertise them for their laying qualities before they have finished laying in June, when there are generally some customers for that class of stock; but if they are kept until egg-production is completed, it will pay best to turn them into food for the household.

A hen is not usually in good condition after a heavy laying season, and in order to improve her it is necessary, directly she ceases laying in July or August, to shut her up in a cool place, and feed her for a week on as much household scraps and meal as she will eat. This plan is only efficacious when it is carried out promptly, for if a bird goes into a moult she will not regain her condition until it is over. A week of good feeding usually puts a nice bit of flesh upon a bird, and if the treatment is commenced before she actually finishes laying, she will make a good meal when boiled—for we cannot recommend a roasted hen.

When boiled for about three hours she will be quite tender, and if not as succulent as a chicken, at least as profitable.

The treatment will be the same whether the hens are disposed of after the first or the second season, and though we have already pointed out that a saving can be effected by having one's pen empty during the idle season, it must be remembered that as a loss must be suffered on every transaction of buying and selling, it falls more lightly if it comes every other year, and not every year. The decision can best be influenced by circumstances, and the poultry-keeper will generally be able to decide which course will pay him better. The facts that we have mentioned will probably help him to that decision.

But we must not take it for granted that everyone is so badly off for space that chickens cannot be bred and reared. So far it has suited us to take for an example the case of the man who can only keep half-a-dozen birds, for those who are able to accommodate more will find the advice given equally applicable. But now we must depart from that rule, and give some help as regards maintenance of the stock by means of breeding, by those who are able to do it. Wherever there is sufficient space for the purpose, this is by far the most reliable plan, for the breeder is able to pick out his most useful birds and breed from them only, thus assuring the improvement of the strain. The question as to whether the hens should be disposed of after the first or second season again arises; but in this connection, as a number of chickens are bred each year, it will be found necessary to dispose of at least some of the old birds to make room for them. A careful poultry-keeper will watch the habits of his birds, and

he will know which are his best layers, so that if he clears out the least useful of the old stock every year, he will keep his birds up to a high standard of excellence. The age limit should only exceed two years in the case of exceptional layers and valuable breeding birds, for older birds of mediocre value are only occupying the places of more useful creatures.

Now for breeding. The females should have been selected in the same way as those in the case of the smaller poultry-keeper, and a good active male bird should be secured from another strain of equally good laying powers. It is no use mating good laying hens with a cock picked up anywhere, for the produce will only deteriorate, and we want it to show an improvement year by year. A good strong, active cockerel can be bought for about 5s., and he may be mated with from six to eight hens. You can always tell a good breeder. If he is fond of his hens, wins their confidence, and calls them to feed round him, you may be sure of fertile eggs; but if he is a bad-tempered, greedy, and cruel mate, it is well to change him before relying upon the eggs for hatching purposes.

We have already said that the best time for hatching winter layers of the heavier breeds is from March to the end of April, and for the lighter breeds, such as Leghorns, Minorcas, and Anconas, of which our stock generally consists, from the middle of April to the end of May; and we would point out that it is only profitable to hatch earlier than these dates when chickens are required for table purposes, of which we shall have something to say in a later chapter.

If the male bird is active, the eggs may be relied upon after he has been in the pen about three weeks, and it should be understood that the fact of the females

having run with another male at some other time will not have any effect upon the progeny, unless it is very recent, and the eggs fertilised by the other cock have not been all laid. From ten to fourteen days usually elapse after a male has been taken away before the eggs are unfertile; and another fortnight (or, better still, three weeks) should pass after the male has been re-introduced before the eggs are set. If this rule is remembered, it will save a lot of trouble and disappointment.

When breeding, be careful to select only the best laying hens, so that the next season's stock may be as good as, if not better than, the parents.

The next question is to find the sitting hen, and where only the lighter and non-sitting varieties are kept, this will form another awkward problem. The question now arises, Will it pay to use an incubator? Without hesitation we say, No, unless a large number of chickens have to be reared—eighty or a hundred, at least. The art of artificial incubation is in a more or less perfect state, and for the present we consider that an incubator is only profitable when very early chickens have to be hatched, and when a large number are required. The small poultry-keeper is better without one of these machines, for they are expensive, a great trouble, and a considerable source of loss, unless the management is perfect. On the other hand, the poultry-keeper who only keeps birds of the lighter breeds must buy his broody hens, and this runs to expense, too. The cost of the hens' keep and the cost of the oil for the incubator are about the same, but the cost of a machine that may only be required once or twice in a season will be much more than that of three or four broody hens that would do the same work; and whereas

the hens hatch and rear as well, the incubator only performs the former office, and another machine, equally expensive, has to be requisitioned for the rearing process. On the whole, the broody hen is far more suitable for this class of poultry-keeping, and as farmers generally have plenty at the season of year when we shall require them, they can be bought at about 2s. 6d. each.

A nest or nests can be easily made. Buy an orange-box from your grocer, and divide it into three parts, each large enough for a nest. Nail a strip across the bottom to keep the material of the nest in, and the contrivance is complete. Eggs need moisture during hatching, and to insure this put a spadeful of loose earth in each nest, scoop out a round hole in the centre, and line it with soft hay or straw. When you get the broody hen, put her on the nest with a pot egg, and place a board before the opening, leaving a little space for air and light, so that she cannot escape. Some hens don't like being moved from one nest to another, and often refuse to sit, whilst others are quite willing to settle down under any conditions. The best plan is to let the hen sit upon the pot egg for a couple of days, and if she seems quiet, and has quite made up her mind to settle down, the eggs can then be introduced.

Twelve or thirteen eggs is the usual number for each hen, according to the size of both eggs and hen. It is better to have too few than too many, and especially in cold weather, for if a hen is not able to cover them all, most of the eggs get left out in the cold at one time or another, and most of the batch are ruined. We have set as many as twenty eggs under a very large hen, but thirteen may be taken as the usual number to be successful with.

Eggs for sitting purposes should be marked with the date when they were laid, and on no account should they be used when more than a week old. It is also as well to mark them with the date on which they are set, as these matters are liable to slip one's memory.

The nest should be placed in a quiet spot, where the hen is not likely to be disturbed, and where she can get plenty of fresh air. Every morning she should be lifted off, if she will not come off of her own accord when some food is thrown down before her. Place the two hands under her legs, and lift her bodily off the nest, so that she does not drag any eggs with her. Let her have some hard corn rather than household scraps or soft food. Mixed corn, including wheat, barley, and a little maize, is the best, and water and grit should be provided, with a little green stuff now and again. Let the hen run about and stretch her legs for ten minutes, and then see that she goes back upon the nest, and put the board before her. The time for her to be off may be extended gradually from ten minutes to twenty at the end of the period of incubation.

About the tenth day the eggs should be tested. Darken the place where the nest is, put a candle handy upon a box or a chair, and having blackened a piece of stout cardboard, cut a hole in it rather smaller than a moderate-sized egg. Then take each egg by turn, hold it in the hole in the cardboard, and put it before the candle. If the egg is unfertile, it will be perfectly clear; but if it contains a chicken the greater part will show dark and dense, whilst an air-chamber will be seen at the large end. All the unfertiles should be removed from the nest, and they may be boiled up for the chickens when the latter make their appearance, whilst the hen will have less difficulty in covering what

remain. This is why testing is so necessary to success in hatching, and why it should not be neglected.

In warm weather it will be found advisable to sprinkle a little lukewarm water upon the eggs every other day after testing, for if this is not done the lining skin becomes tough, and the chickens have a difficulty in making their exit.

The youngsters should appear on the twenty-first day of incubation, and any fertile eggs that have not chipped

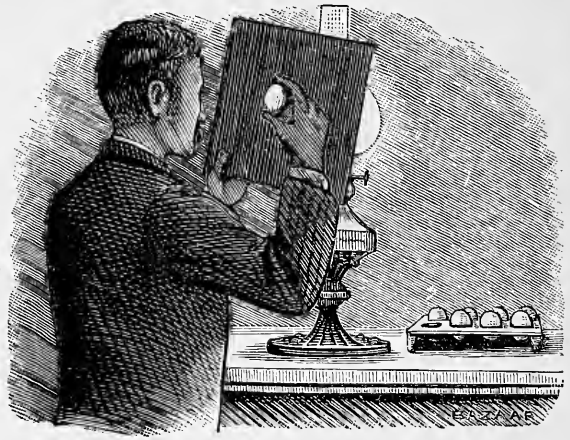

Fig. 13.—Testing Eggs.

on that day may be tested by being put into a basin of lukewarm water. If the egg sinks the chicken is dead, but if it floats the chicken is alive, and then the shell can be chipped at the large end, so that it will be seen if the bird is in a position to get out. Sometimes the head gets twisted round to the smaller end, and by means of gently cracking the shell the chicken can be released. Whenever cripples appear it is the wisest plan to kill them, for they never do well, and are an endless source of trouble.

When all the chickens are hatched, and perfectly

dry, they can be removed with their mother to a coop placed in some nice spot where there is plenty of sun and little wind, and where the ground has not been overrun by other fowls. We shall, in another chapter, show how to make a cheap coop, and we would advise that a good sprinkling of straw chaff be put upon the ground to keep the feet dry and warm. But first of all the hen should have a good feed, and as the chickens will eat nothing until they are at least twenty-four hours old, they can be left under the mother's wing.

The first few feeds for the chickens should consist of hard-boiled egg chopped fine, mixed with a little barley meal. After two or three days some groats or small cracked wheat can be given, and from that time the meals, which should be given every two or three hours, and a little at a time, can consist of chopped meat or household scraps, cracked wheat and groats, bone meal, and barley meal. The bone meal can be bought cheaply, and there are several chicken preparations that can also be used with advantage, such as Spratt's Chicken Meal, Pike and Tucker's Biscuit and Meat Food, Old Calabar Food, Armitage's Chicken Food, and others, which can be obtained in large or small quantities.

When the young birds can be allowed to run about without fear of their damaging anything, they will thrive all the better; but when this is not possible a wire run should be put before the coop, and the whole contrivance should be moved frequently from place to place, for nothing is so bad for young birds as to be kept on foul ground. They should be provided with grit, green food, and pure water, and with sensible treatment and no coddling they will thrive and grow fast. Coddling is harmful; chickens need to be hardened,

and not pampered so that their health can only be depended upon in warm weather.

When they attain the age of about eight or ten weeks the chickens should be ready to leave the mother, and the best plan then is to put them in a good-sized run with a comfortable little house to themselves. Later, they can be put out where they can have a better run, if that is obtainable, and by degrees the cockerels can be killed off for table purposes, leaving the best of the pullets which are to do duty in the place of the old birds that are to be cleared off. By this means year by year we shall maintain and replenish our laying stock with what we can thoroughly rely upon, for we shall know that the young birds have been bred by careful selection from our most prolific hens.

CHAPTER VI.

How to Produce Table Chickens.

In this connection, the poultry-keeper who can only keep half-a-dozen hens will be less interested than one who can find space for a few chicken-coops and a breeding-yard; for, much as table birds may be desired, they cannot be produced upon the small space set aside for the laying hens. We do not wish the question of table chickens to interfere with that of egg-production. Our aim in this work is to show novices how they can keep fowls with profit, primarily for egg-production; but where there are breeding and hatching, table chickens crop up as a matter of course, and, whilst we are about it, it will pay us to manage them properly and with a view to profit. We shall not ask our readers even to breed for table purposes. We want them to remember the rules we have laid down about breeding for egg-production, and they will find, if they follow our instructions, that they will have plenty of young cockerels that can, with a little reasonable management, be turned into nice table specimens.

The profitable production and marketing of table chickens is not yet properly understood in this country. It seems to have been an accepted idea among farmers and other poultry-keepers that a bird must have size to be suitable for the table. Consequently, cockerels have

been kept until they have attained adult size, and then have been sold at an average of 2s. 6d. each. Anyone who understands the matter knows how impossible it is to rear, kill, and sell a bird for 2s. 6d., after keeping it till it attains the age of five or six months. If we reckon its age at twenty weeks, and the food it consumes at the value of 1½d. per week, we find that the 2s. 6d. is already covered, and that there is nothing to show for all our labour and trouble. These large chickens are usually sold about September and October, having been hatched in May or April, and as there is always a plentiful supply of birds of that kind about that time, it is not always that 2s. 6d. can be obtained.

Now, when we remember that during June and up to July there is a good demand for plump, young chickens at from 2s. 6d. to 3s. each, it appears foolish in the extreme to keep our birds another two or three months to realise less for them. We are considering Leghorns and Minorcas more than the heavier breeds in this book, and we are able to speak of them from experience, for we have sold cockerels of both varieties in a local market for from 2s. 6d. to 3s. each, when they were less than three months old. Birds of these breeds, though smaller, are even better for the early chicken purposes than the heavier varieties, because they are more precocious, and are at the age of three months what one of the others would hardly attain at four, so far as condition is concerned.

Many poultry-keepers hatch this kind of bird as early as February, and kill them all off for the spring chicken market about May, when good fat birds make excellent prices. As much as 7s. 6d. and 8s. a couple have been made of well-got-up Leghorn cockerels, and as these birds are little larger than pheasants, it will

be realised that it is more profitable to sell them than to consume them at home. Those who have the space, time, and inclination might profitably hatch a few early chickens for this especial purpose, but it should not be done if it is likely to prejudice the rearing of the young stock that are to replenish the ranks of the laying hens. In that case the early chickens are best let alone, and we must rely for table birds upon the cockerels that are bound to turn up when we are hatching our general stock.

The treatment of chickens up to the time when they leave the hen has already been described, and we need only add that when they are weaned the cockerels can be sorted out and put into a run by themselves. They will not require a large expanse of ground; just a few square yards, kept clean and shaded from the sun, will answer the purpose very well.

In the case of breeds like Leghorns, Minorcas, and Anconas, it is easy to recognise the cockerels, for at the age of eight or ten weeks these precocious youngsters usually have a fair-sized comb, while that of the pullet has not yet sprung. In the heavier breeds, and where the comb is of the rose shape, this characteristic is not so plainly apparent; but a cockerel can generally be recognised in those breeds by his comparatively tailless rump, while the pullet has web-feathers in her tail, like those of the Leghorn and Minorca cockerel.

Having been penned by themselves, the cockerels must then have especial attention in the matter of feeding. We need to bring them on as fast as possible, to increase their size, and to make them plump at the same time, for if one of these young chickens is not plump it is absolutely valueless. It will pay us to make a little extra outlay in this connection, for the

better the birds are, the more profit they will bring us. A little money may therefore be spent upon bone-meal, and if this is used every morning with the soft food it will help the growth to a remarkable extent. But we want condition as well as, and even more than, mere size, and this can best be attained by feeding upon the most nourishing foods. Whenever scraps of meat or fat can be spared from the house, they should be chopped up finely and given to the birds; and, besides this, there should always be a good supply of vegetables, breadcrumbs and other scraps. The hard corn should consist chiefly of wheat, and if the birds can be induced to eat oats they will be sure to benefit.

As we have before pointed out, the run where the chickens are kept should be perfectly clean and dry. Ashes are good to form a floor, for they can be raked over, and the birds can indulge in a dust-bath among them. The house should be roomy and well ventilated, as well as thoroughly weather-proof, but as it will only be occupied by these table chickens for a few weeks in warm weather, there is little fear of rain or cold, and it is well to provide plenty of ventilation. A few low perches should be fixed in the house, but they should be about 3in. broad, and either flat or rounded, for when young chickens roost upon narrow, sharp-edged perches their breast-bones are very often pressed out of shape, and of course they are then ruined for market purposes.

With this treatment, and meals given frequently, but not in such large quantities that food is left to lie about and become stale, the young birds should grow quickly, and get fat at the same time.

Very often it may happen that some special treatment is necessary to bring them on at the last, for the

birds should not be put upon the market until they are quite plump. In such cases the chickens should be penned in coops for a week or ten days, and be fed continually upon the best food obtainable. Half-a-dozen birds can be put in one coop: when they are in companies like this they are encouraged to eat one against the other, and do not mope as they would if they were alone.

Here, again, it will pay to spend a little money, and the best fattening food obtainable for such birds is ground oats; this can best be obtained from Surrey or Sussex dealers, in which districts it is largely used for bringing on the noted fat fowls that come from those parts. It can be given mixed in equal parts with barley-meal about twice a day, and at this rate very little will be required to fatten a score of chickens. For the other meals, chopped meat and fat should be largely used, and a little corn, in the shape of wheat or oats, can be given at night.

After a week or ten days of this treatment, the birds should be in the height of condition, and as soon as ever they feel plump they should be killed, carefully plucked so that the skin is not torn, dressed, and sent to market. If you have a good number to dispose of, you would do well to communicate with one of the big London firms in the Central Market, from whom you would get the best prices; but, if there are only a few to go off, there is seldom any trouble in selling them locally.

Householders will ask, Does it pay to kill the chickens so young for one's own consumption? It may be argued that a Leghorn chicken at the age of three months does not provide much picking for a large family; but, on the other hand, it must be remembered

that when a Leghorn cockerel attains adult size it is by no means a profitable table-bird, and its period of excellence in that respect ceases after it has attained the age of three months, and as soon as it begins to develop its frame. Again, the additional size gained in a couple of months would not compensate for the cost of keep during that time, for, counting the flesh alone, there is very little more upon a bird five or six months old than upon a plump chicken, and it is certainly not of such good quality. There is another good reason why we should kill early, and that is to make more room for our pullets, which we must bring on as well as we can. Where space is a consideration, this is an important matter, and on the whole we are sure that the most profitable manner of disposing of the surplus cockerels for table purposes will be found in following the rules we have laid down.

CHAPTER VII.

How to Produce Table Ducklings.

This subject deserves to find space here, for there are several reasons why the production of table ducks should receive attention. In the first place, very little space is required, and the accommodation need not be elaborate, so that nearly everyone who can put aside a little piece of ground for the purpose can raise his own table ducklings. Secondly, these birds can be produced so profitably, if certain rules are followed, that the trouble is well repaid, and we know many people who do not care to keep laying hens, but who rear a nice lot of ducks every year, and that in a small back-yard.

It is commonly supposed that ducks cannot be reared without water, that they need a good grass field to run upon, and that a farm is the only place where they can be kept properly. That is all nonsense. Ducks seldom pay upon a farm, and we do not advise any of our readers to keep stock birds for laying purposes, for tney may rely upon other producers for their eggs for hatching. Contrary to general opinion, ducklings can not only be reared for table profitably without water, but the less they see of what is generally considered their native element the better for them. And in the same way with the grass run. Ducks that are allowed

to roam about at will may grow to a good size, but they never get fat, for the exercise keeps them in hard-working condition, whereas the life of a table duckling is so short that no time can be spared for it to grow alone, for growth must be attained at the same time as the table condition is gradually being built up.

The characteristics of ducklings need to be thoroughly understood. A bird may grow and attain adult size in from ten to thirteen weeks, and whilst it has up to that time been covered with down, it will, at the end of that period, commence to assume the stronger feathers commonly known as pin-feathers. Now, the idea of the table-duckling producer is to get his birds fat before these pin-feathers make their appearance, for their growth entails such an immense amount of nourishment that not only is all the food the bird consumes required to assist in the production of these strong feathers, but, though the duck might be ever so fat before the feathers commenced to grow, all its condition would disappear in the process, so great a strain is it upon the system. Consequently, unless these birds are killed in their first prime, they will have to be kept until the feathers have all grown and the birds can once more be fattened, and this will involve such an addition of cost that the result will show a balance on the wrong side. We have had considerable experience with ducks, having kept them under various conditions. But we can truthfully say that only under certain conditions have we been able to keep them with profit, and those conditions were that the birds were killed off as early as they were fit before the feathers grew.

The poultry-keeper who has only a small space at his command cannot keep stock ducks for laying

purposes, and it would not pay him to do so; consequently he must rely for his eggs upon some farmer who has a good stock of large-framed birds. Aylesbury, Pekin, or a cross between those two breeds, are the best for the purpose, and the stock birds should be large and healthy. We have never experienced any difficulty in getting duck eggs for sitting, and if there is no other way, a small advertisement in *The Bazaar* or in a local paper will very quickly bring forward a source of supply.

It is very important to notice that there is a certain season for table ducklings, and whilst they prove undoubtedly profitable during that period, they are scarcely worth rearing at other times. This season commences in April and ceases about the middle of July, being at its height during the month of May. The prices for thoroughly well-fattened birds of good quality range during that time from 3s. 6d. to 6s. each, and as after that time 2s. 6d. is about the usual price for a table duck, it will be seen how necessary it is to get the birds ready so that they will realise the higher values. We must therefore remember that it takes four weeks to hatch the birds, and we may reckon upon another twelve weeks to bring them to the market, so that if we want to have them fit to kill at the end of May, when prices are as good as at any time in the season, we must have the eggs set under the hens by the first or second week in February, as the end of March is about the latest date at which the young birds should emerge from the shells. There is often some difficulty in getting eggs as early as February, and the price paid will range from 2d. to 3d. each; but if you will advise the duck-keepers to use hot soft food in the mornings the production of eggs will be much increased.

It will be seen from this that one must be early in the field to reap a profit from table ducklings.

The eggs should be set under hens in the same way as other eggs, and the only difference in the management is that twenty-eight days are required for hatching, and rather more moisture is necessary. The treatment of young ducks should, however, be different from that of young chickens. Ducks are hardier, and should be encouraged to rough it more. Pampering and coddling are the worst evils that can befall them. Once a duckling is coddled its career is very doubtful, and in the generality of cases it will contract cramp, cold, or some other disease that usually attacks delicate creatures. Consequently the hen should not be encouraged to brood her charges all day (as she would do in the case of chickens), and they, in turn, should be fed out in the open, away from the hen, so that they will always be encouraged to look out for themselves and to keep out in the fresh air. Then they grow so quickly that at about the age of four weeks the hen can be taken away, and unless the weather is particularly cold, they will do very well at night in a house without any artificial warmth.

As for the feeding, the first few meals should consist of hard-boiled egg chopped finely and mixed with bone meal and barley meal. The bone meal will be found particularly valuable in rearing young ducks, for it aids the growth remarkably and helps to produce a large frame, on which the other foods will put the flesh and fat. After three or four days the chopped egg may be stopped, and from that time the food should consist of barley meal mixed with a little bone meal, and varied with household scraps of all kinds. No hard corn

should be given, but green food is necessary to keep the blood in order.

Animal food in some form has the most beneficial effect upon growing ducks. We should not attempt to rear them without it, and whenever we have not enough scraps of meat from the household we supplement these by getting rough pieces of meat and fat, or even offal, from the butcher, and boiling it up for the birds. Not only do the birds like it, but it helps both the growth and the condition, and we can confidently assert that it brings them to maturity quite a week earlier, and in

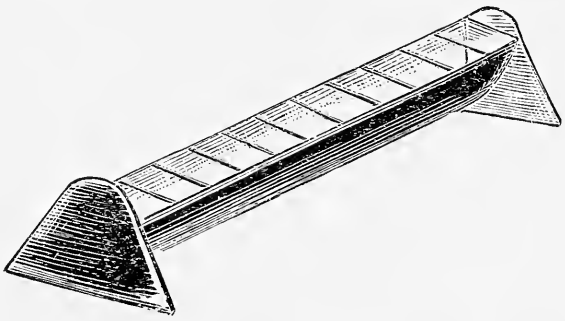

Fig. 14.—Tamlin's Feeding-trough for Ducks.

better and plumper condition. It should be cut up into small pieces and mixed with the meal, and should be given about twice a day.

We would point out here that soon after being hatched the birds should be fed every two hours, but by the time they are a month old three times a day will be sufficient, and this rate may continue up till their death, as much food being given at a time as they will eat, and not enough to waste or to get stale.

When the ducklings leave the hen they should be put all together into a small pen, with a house for sleeping in. We shall show the kind of house to be

used in a later chapter. The run can be made either by putting up a couple of boards or some wire netting to a height of about 18in. or 2ft. The floor of the run should be of gravel or loose ashes, for it can then be kept clean, and the floor of the house should be laid with a good bed of straw, which should be cleared out and renewed whenever it gets dirty or damp. Ventilation in the house is absolutely essential. Great space for the run is not necessary, as it is desirable to keep the birds without any exercise.

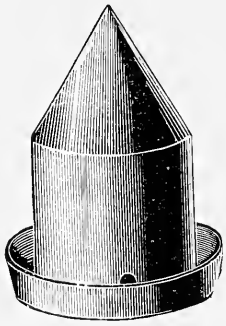

Fig. 15.—Procter's Drinking-fountain for Ducks.

The question of water is an important one. The ducklings should only be allowed a little for drinking purposes, and they should by no means be allowed to have access to a continual supply, or the water will run through them and counteract all the good the food has done. The best thing for them is a small water fountain, from which they can drink and into which they cannot get. A long shallow trough should be provided for putting the food in, at which all the birds can eat together, and this should be removed after each meal, and should be kept clean. We give illustrations of suitable utensils.

One must watch for the pin-feathers growing. Directly they begin to show the ducks should be killed; indeed, if the birds can be got into good condition, they should be marketed before the feathers appear, for not only do these absorb all the nourishment that should go to the body, but they make the plucking of the birds a much harder task. We have killed birds as young as ten weeks, and it will be found that if they go more than twelve weeks the pin-feathers will certainly make their appearance. Therefore feed the birds well, and bring them quickly to condition. Then kill, pluck, and dress, and market them wherever you can do so to the best advantage. Big London merchants, hotels, or large private families are generally the best customers. When the birds are intended for the household the same rules should be followed, for while we are about it it will pay us to have good ducks rather than inferior ones.

Turkeys and geese need not be discussed here, as they can only be kept profitably upon a farm. Ducklings, however, will provide a good return for the outlay of capital and trouble.

CHAPTER VIII.

How to Prevent and to Cure Diseases.

We do not wish to frighten the would-be poultry-keeper by a long list of diseases and ailments to which fowls are liable to fall victims; nor is it wise to encourage a false sense of security by avoiding the subject altogether. Fowls, like all other living creatures, are prone to ailments of various kinds. They may be affected by the weather, by food, by stuffy houses, by filthy surroundings and impure air, by lack of grit and of green food, or by accidents. Some poultry-keepers have kept fowls for years, and have never had more than a slight case of cold, while others have had their yards attacked by diseases, and have suffered considerable loss. There may be a certain element of luck about it, but really and truly it is a matter of treatment and of heredity. If you buy fowls from an unhealthy stock, you can never be sure of keeping disease away from your yards. Sooner or later it will make its appearance, and the wisest of all courses in such a case is to clear out the whole stock, and start again with more reliable birds. Such an affliction as liver disease may run in a stock for years if the parents and all their offspring are not cleared out. It may only show itself after a year or two, but its effect is deadly, and is sufficient to ruin all poultry-keeping operations.

Injudicious treatment is of course the source of all diseases, for liver complaint is caused through over-feeding and over-fattening, without exercise, green food, and grit. Birds kept in confinement are prone to it. Fortunately, it seldom attacks the lighter and more active breeds, but has a greater effect upon the more slothful varieties, and especially such heavy birds as Cochins and Brahmas. Colds of all stages are due in the same way to carelessness or too much carefulness, for they may be the result of draughty and damp houses, or of too much coddling. The latter is the worst treatment that can be meted out to poultry, young or old. It renders them liable to contract colds on the slightest provocation, and makes them so delicate that they are seldom reliable for breeding purposes, and are so greatly affected by cold weather that egg-production immediately ceases.

In all cases where the disease is infectious, the affected bird should be immediately isolated, and, if death ensues, as it nearly always does in such cases, the carcase should be buried deep somewhere away from the fowl-run. If the case is a bad one, the wisest course is to kill the bird at once, and, after its death, it is a judicious precaution to disinfect all places and buildings that the affected bird has come in contact with. Whenever there is disease among the stock, it is far cheaper to kill off or clear out the birds at once, disinfect the place by sprinkling liquid carbolic or Condy's Fluid about, and buy a new lot, than to wait until the poor creatures gradually die off.

To simplify the subject, we shall treat of each disease or complaint that is liable to appear among the stock, and, besides giving instructions for the cure, when a

cure is possible, point out how it is caused and how it may be guarded against.

Cholera is practically very severe diarrhœa. The affected bird is very thirsty, and its discharges are very thin and white, after being of a green colour in the first stages. Remedies are generally useless. The bird should be isolated immediately, and the best plan is to kill it at once, disinfecting all the houses, drinking-vessels, etc., it has come in contact with.

Cold, as we have said, may be caused by draughty houses, damp ground and houses, or may be the effect of too much coddling. Isolate the bird, and put it in a place free from draughts and of nice even temperature; give it plenty of soft food, with a little poultry-powder added, and occasionally give a roup pill, which can be obtained from any veterinary chemist. The poultry-powder can be bought at, and mixed by, a chemist. The recipe we have used is: 4oz. of aniseed, 2oz. of Peruvian bark, 1oz. of gentian, 1oz. of saccharated carbonate of iron, ½oz. of cayenne pepper; powder, and mix. Take good care of the bird, and keep it confined, or the cold may develop into roup. The cold can easily be identified by snuffling and rattling in the throat. See also "Roup."

Cramp in chickens is a frequent complaint in very damp weather, when the birds are cooped on the bare ground, on cold stone floors, or even on bare boards. The toes lose their use, and the birds are unable to stand. The afflicted bird should be removed to a dry, warm place, where the floor is covered with straw, chaff, or peat-moss. Let the legs stand in warm mustard-and-water for a short time occasionally, and if they are then dried, and wrapped in flannel, they will soon

recover. A little poultry powder should be given. This complaint is similar to rheumatism in adult fowls, and in this case the mustard-and-water bath is necessary, and a pill containing ½gr. of opium should be given daily. Stimulating food, such as cooked meat and a little poultry-powder in the meal, will help the bird to recover.

Crop-Bound is the name given to denote the state of a fowl's crop when the passage to the gizzard becomes

Fig. 16.—Operation on Crop-bound Fowl.

blocked. This state may sometimes be caused by the bird eating a great deal of grass, or when much hard corn is given, and it becomes swollen inside the crop, there may be a difficulty in passing it away. Fortunately, this complaint does not often make its appearance, for if the crop cannot be emptied by kneading it, an operation must be performed. If possible, squeeze

the food out of the crop through the mouth, and if this is not effective a little warm water poured down the throat may help the process. If the crop can be emptied, give half-a-teaspoonful of castor oil, and feed moderately on soft food for some days. Supposing all this to be ineffective, the crop must be cut. With a sharp knife a slit must be made in the neck, avoiding all blood vessels, and another in the crop, so that it can be emptied. In sewing up fine silk should be used, and the inner skin of the crop should be stitched first, and then the outer skin of the bird. The method of stitching is shown in the illustration. The letters *a*, *a*, *a*, denote stitches in the inner skin, and *b*, *b*, *b*, *b*, in the outer skin. The outer stitches should be between the inner ones. In the case of a valuable bird it is advisable to let some experienced person perform this operation.

Diarrhœa may be caused by a sudden change in feeding, or even in the weather, and it can be recognised by a looseness that is unmistakeable. If it is taken in hand in good time, it can be prevented from going further by giving the bird boiled rice, with a little chalk powdered over it. If the boiled rice and barley form the principal food, the bird will soon get right. Bone-meal, made from raw bones ground up finely, is an excellent preventive of this complaint. See also "Cholera."

Egg-Bound is a complaint more frequently met with than crop-bound, and can be identified by the hen remaining for a long time on her nest and straining. A small dose of castor oil or Epsom salts frequently effects a cure, but in more serious cases the vent needs to be oiled, and this can be done by a feather being dipped in sweet oil and passed up. Great care should

be taken not to break the egg, or the internal organs of the bird may be ruptured. The egg can sometimes be loosened by passing an oiled finger up the vent, but it is always advisable to take it in hand at once, and not to let the matter develop into a serious case.

Egg-Eating is not a disease, but a very bad and ruinous habit among laying hens, and birds are encouraged in this habit when egg-shells and broken eggs are thrown to them. Sometimes a hen breaks an egg in her nest, and, having once eaten the luscious morsel, she becomes a confirmed egg-eater. Very often she can be cured if a rotten egg that has gone bad in hatching is put in the nest. When the bird pecks at it it will probably explode, and in any case a mouthful of the horrible flavour will settle her propensity for egg-eating. If you have no rotten eggs, crack an ordinary specimen, remove the contents, fill it up with a mixture of mustard and pepper, and seal it up again with stamp paper. If this remedy does not check the habit, a specially-constructed nest-box must be used, in which the eggs roll out of sight directly they are laid.

Gapes is a complaint that attacks chickens, and is connected with the presence of a small tick that is to be found upon the heads of the birds. It has been said that the tick, or louse, or whatever it is, conveys the eggs of a small worm into the mouth of the chicken. From these small white worms make their way into the windpipe, and then give much trouble, causing the birds to gape, which is the symptom of the complaint. There are two remedies. One is, to dip a feather in a weak solution of Jeyes' Fluid, pass it down the throat, and twist it round till it brings up the worms. The other is to hold the chicken's head, with its mouth open,

over carbolic fumes until it is almost choked, and though this seems cruel it is undoubtedly effective. Gape pills are made by some chemists, and much is claimed for them. To destroy the lice, or ticks, beforementioned, the best plan is to rub some paraffin upon the head of the chicken.

Indigestion often affects fowls that are fed solely on soft food and household scraps, as the gizzard does not have its proper amount of work. In other cases, lack of grit may be the cause. The symptoms are loss of appetite and all interest in life, as well as great thirst; therefore, water should only be given in moderation. A good remedy is to give to each bird each day a pill containing 5gr. of rhubarb, with the addition every fourth day of 1gr. of calomel. A chemist will make up these pills. The affected bird should be fed carefully and moderately on soft food, with some cooked meat cut up into small pieces. To guard against this complaint, feed moderately, give a little hard corn and plenty of grit, and provide exercise for the birds. See also "Liver Complaint."

Insects constitute such a pest that they must be treated of in this category. Young chickens frequently lose their lives through insect pests, and old birds are often so overrun with lice that they lose all their condition and their usefulness. Birds should be examined for lice and fleas, and broody hens especially. The remedy should be applied at once. We have never done much good with insect-powder, but have found that the best plan is to rub paraffin among the feathers and well into the skin. Insects cannot stand this: it will either kill them or drive them out. Wherever they are to be found the paraffin should be applied. When the birds

have been treated, the houses, perches, and nest-boxes should be painted with the oil. It will not take much to just wipe it over all places where the pests may breed, and it is so efficacious that with its help insects of all kinds can quickly be overcome. A dust-bath in the run is beneficial for the fowls, and it should be provided, whether there are insects or not.

Liver Disease is one of the most deadly complaints, and causes much loss among flocks of the heavier breeds, such as Brahmas and Cochins. Indigestion, if allowed to go on, will develop into this disease, and it is generally constitutional or is caught by infection. The affected bird will have an unhealthy, yellow look about the face and comb, the droppings will be yellow and very loose, and in bad cases the bird will waste away to mere skin and bone. When once the disease takes a hold there is no remedy for it, and the most merciful and wisest course is to destroy the bird, and disinfect the place where it has been. When an affected bird is killed and opened, the liver will be found to be of an enormous size, with large masses of tubercules. To guard against this dangerous complaint, do not feed too generously, be careful about giving stimulants, use plenty of flint grit, and, if the birds are kept within a small space, see that they are encouraged to take plenty of exercise.

Moulting is not a disease, but it is a weakened condition of the system, and consequently often leads to various ailments. Adult birds moult during the summer season, casting off the old feathers and growing a new supply in view of the coming winter. Being kept in a warm, stuffy place frequently causes birds to moult, and as the process is a considerable strain upon

the system, the birds should have tonics, in the form of poultry-powder, and plenty of soft, nourishing food. When a bird is a very long time over its moult, it will sometimes be found that the old feathers need pulling out. In growing the new plumage plenty of good strengthening food must be given, and tonics of all kinds are most beneficial. Old birds sometimes die during the moult, as the system is so impoverished. They should therefore be watched and well cared for.

Pip is not a disease in itself, but the term is often applied to the dry and hard appearance at the end of a sick bird's tongue, which is practically just the same as a foul or furred tongue in a human being. The remedy will be found in restoring the general health of the bird.

Rheumatism in adult fowls is similar to cramp in young ones, and the paragraph on that complaint should be consulted.

Roup is merely a developed cold, and is so deadly and infectious that whole yards have been devastated by it. There is an offensive discharge from the nostrils, and these organs become choked with thick, cheesy matter. The bird should be immediately isolated, and the ground where it has been well disinfected. A remedy may be tried. The nostrils and face should be bathed with warm water having a little disinfectant in it, and the bird should be given a dose of castor-oil. Roup pills should be given according to the instructions of their makers; and, if this treatment does not show an improvement after being continued for a few days, the bird should be destroyed and buried out of the way. If any of the other birds show symptoms of a cold, they should at once be treated as we have detailed

above, so that further developments may be nipped in the bud.

Scaly Leg is a disfigurement rather than a disease having any effect upon the general health of the birds. A very small insect burrows among the scales of the leg, and throws up the unsightly formation. Pick up the bird, wash its legs well in warm water, so that some of the loose scales will easily brush off, and then apply an ointment made of paraffin mixed with just sufficient flowers of sulphur to give it a body. If this operation be persistently repeated every other day the complaint will disappear in a very short time. It is generally caused by damp and dirty runs, and is very contagious. Though it does not affect the health of the birds unless the case is very severe, the remedy is so simple that it should always be applied.

Soft-Shelled Eggs may be attributed to two causes. In the first place, when a bird lays a number of what are sometimes called wind eggs, but which are really properly-formed eggs without shells, it is a sign of over-feeding, and the best plan is to let the bird go without a meal, and then feed more moderately afterwards. But if an egg is found only partially shelled occasionally, it shows that the hen is not getting sufficient lime to properly shell the number of eggs she is laying. Therefore every poultry-keeper should keep his birds well supplied with calcined oyster-shell, which can be bought so cheaply that a few shillingsworth will last a year. Old mortar is also useful; so, in fact, is anything that contains lime.

Above are briefly treated all the complaints liable to crop up in a small poultry-yard. In every case it will be seen that they can be guarded against, and though

we are all only human, and apt at all times to neglect precautions when they entail a little trouble, it will pay us well to continually fight against disease. When ailments do appear the next best thing is to treat them immediately. In several cases we have shown how trivial complaints develop into deadly disease. Cold may become roup, diarrhœa may develop into cholera, and indigestion into liver complaint. Therefore, never delay, but as soon as any symptoms appear, and you can recognise them as indicating any particular complaint, set to work with the remedy. In nearly all cases isolation is necessary, and it stands to reason that it is the worst possible policy to allow a diseased bird to run about among its fellows. A warm, dry corner in an outhouse will serve as a hospital, and where the case is mild, and the treatment is applied sufficiently early, there should be no difficulty in effecting a cure. But prevention is still better, and a careful following of the rules of health will save much trouble and loss.

CHAPTER IX.

Some Houses and Appliances.

The poultry-keeper who knows how to handle tools is in a much better position to make his operations a success than the one who must rely for every little thing he requires upon a manufacturer or a hired man. In this chapter we shall endeavour to briefly show what can be done in the way of building cheap appliances, and the diagrams will give an idea of what is required to complete what are, we consider, the simplest, as well as the cheapest, contrivances obtainable.

In some cases space is a great consideration, and a few feet that can be spared is an important concession. Consequently a house that takes up none of the space required by the run should be in much demand. The accompanying diagram shows that such a house is possible, and it does away with the necessity for a separate dry shelter, and makes a handsome structure, in addition. We have used these dry-shelter houses for some years, and for all purposes, and the only thing we have against them is that draughts are liable to rise through the cracks of the floor. Now, this can easily be remedied, and though many people go so far as to say that fowls cannot be kept in these houses in cold weather, we know that this is a great exaggeration, and that the only fault of the structure can be eradicated

by using good 1in. boards for the floor, and by nailing a thin slat of wood, or a strip of strong brown paper or tarred felt, along each joint.

Set up in a back garden, this house is by no means unsightly, and the only building further required is a fence of wire netting to keep the birds within bounds. If a couple of 12in. boards are put at the foot of this fence lengthwise, all round the pen, they will keep the

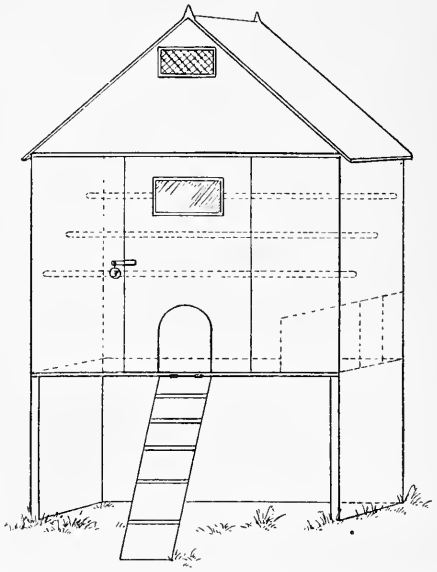

Fig. 17.—House with Dry Shelter.

birds sheltered from the wind, and the space beneath the house will provide the requisite shelter from the rain. The system may not be quite so thorough as that of the scratching-shed mentioned in a previous chapter, but it is cheaper, and in spring and summer at least the birds are better in the open air. In this case the run must be either of gravel or of dry ashes. Never try to keep a small run with grass, for it is bound to become foul and muddy, and the birds do far

better on something that dries quickly and that can be turned over or replenished.

In building this house, the great thing is to make it strong and serviceable. Good strong corner-posts, with good quality matchboarding, will serve to make the body. For the roof, we prefer to use 1in. deal-boards, and to cover them over with felt, which is tarred at least once a year. This makes it impervious to the weather, and such a place will last practically for ever if it is kept painted.

The ladder by which the birds mount to the roost should be hinged to the floor, and not to the foot of the door, so that the door can be easily opened when the eggs are collected, for the nest-boxes may be ranged along either or both sides. At night the ladder should be hinged-up to close up the entrance, and thus keep the place snug and cosy. Ample ventilation is provided by open spaces at each gable, and a pane of glass in the door is useful, though not absolutely necessary.

We do not give any directions as to size, for the place should be made to suit the number of fowls one requires to keep. The floor should be quite a couple of feet from the ground, and for large birds 2ft. 6in. will be found more suitable. In the shelter thus provided the birds can make their dust-bath, and on very wet days it is advisable to feed them there, throwing the food down among some straw, so as to encourage them to take exercise.

Under no circumstances can the house be made without some outlay, for though we have built more than one out of packing-cases, there is a lot of timber required, and the work will be found lengthy; but, when complete, the place is so useful and so economical where space is a prominent consideration, that it proves

itself a decidedly cheap building. The pattern need not of course always be the same.

Sometimes a house can be built in the corner of two brick walls, and a considerable saving is thereby effected. A lean-to roof can be put on, in order to save expense, in such cases. One can always make alterations and improvements to suit one's circumstances.

Next, we come to a cheap duck-house, and this is such a simple affair that very little explanation is necessary. The diagram shows a very small building, about 2ft. 6in. high, 2ft. 6in. broad, and 3ft. 6in. long;

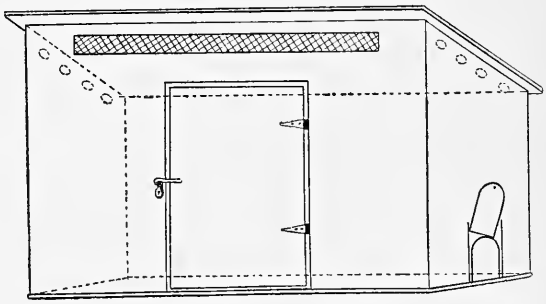

Fig. 18.—A Cheap Duck House.

but in such a house we have reared and kept a dozen ducklings, and, if more than these are required, larger houses can be built, although the height is quite sufficient. A good deal of ventilation is required, and this can best be provided by cutting out a piece at the top in the front, 2ft. 6in. long and 3in. broad. Holes along each end are also required. A door in the front enables one to clean out the place without any trouble, whereas if it was placed at either end it would be a matter of difficulty to reach to the other. The entrance can be at one end, and a flap should be provided that can be let down at night. When rats make their

appearance, as they often do when there are young ducklings about, the bottom of the house can be covered with fine-meshed wire netting: the rodents are quite unable to get through this.

A chicken-coop is the simplest appliance to make. Get a good stout box or packing-case, about 2ft. 6in. square, or perhaps 2ft. 6in. long, 2ft. wide, and 2ft. deep. If you require a door, leave one side in; if not, knock it out. Then knock out the opposite side, cut away the walls to a medium gradient, and put on a new sloping side to act as the roof. Put a bit of tarred

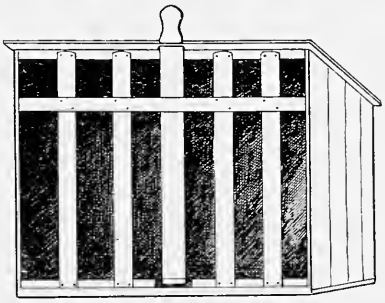

FIG. 19.—A CHEAP CHICKEN COOP.

felt upon the roof, and then the reclaimed packing-case can be turned up with the original top to the front. Next, some strips of ½in. matchboarding, about 2in. broad, should be nailed from top to bottom, about 3in. apart, and the centre one of these should be made to pass through a hole cut into the overhanging roof, and to fit into a socket cut in the floor. A crosspiece should be nailed about 3in. or 4in. from the top, so that in very cold weather a flap can be hinged to it, and let down at night, leaving a good space for ventilation at the top; or this flap can be made independent, to fix upon the front of the coop, and be held with thumb-screws.

A nest-box for sitting purposes can be made out of an orange-box. This is what we have always used; and as these boxes have three compartments the proper size for a nest already made, all that is necessary is a 3in. strip along the foot of the front, to keep the nest in. If these boxes are used for laying-nests, a strip of wood should be nailed along the open space at the top, so that droppings do not fall through.

When incubators and rearers are required, bought articles generally prove the cheaper and more reliable. This is especially the case with incubators, though some very serviceable rearers can be made by amateurs. The subject, however, is hardly one for us to consider.

CHAPTER X.

Conclusion.

Before we conclude this book, a few remarks upon the marketing of eggs will not be out of place; for no matter how few we may have to sell, it will pay us to put them on the market in a good state. In the first place, eggs should be collected at least twice a day in warm weather, for there are generally a lot of hens sitting upon the nests at such a time, and the germ of an egg that has been sat upon by two or three hens will begin to sprout, and the egg will spoil. Keep the eggs in a cool place in summer, and in winter somewhere where they cannot get frozen. When selling or using the eggs, take away those that have been laid the longest; and when storing them after collection, put them always at one end, and take away from the other end, so that none are left to get stale.

As for marketing, the small poultry-keeper will do best to sell his surplus eggs to a private customer, and thus save the middleman's profit for himself. There should be no difficulty in finding someone ready to take one's whole production the year round.

Finally, we would impress some of the principal facts embodied in this work. In the first place, remember when you are buying fowls that you must

select them for laying qualities; and if you breed from them to replenish your stock, do not forget that by careful selection and breeding you can get stock that will lay from 150 to 180 eggs a year, whilst if you neglect them and leave them to take their chance they will do well to produce 100. Bear in mind that if you keep more birds than your premises can comfortably accommodate, or more than you can properly look after, you are liable to lose rather than make money; also that the greatest profit will come from those birds that are kept mainly upon the household scraps, and which entail little monetary expenditure. If you do well with a few fowls, as you are sure to do if you follow our instructions, do not become anxious to increase your stock to make more money, or your success may, and probably will, disappear. Remember that personal attention is necessary, and that all complaints or diseases must be treated at once. If the stock you commence with is not giving a satisfactory return, clear it out at the end of the season, and get a better lot.

Do not spend money lavishly on anything. Be economical, but not stingy. In feeding, give as much as the birds eat with a good appetite. Enough is better than a feast, for a feast is the worst thing they can have. Give plenty of green food, grit, and calcined oyster-shell. Provide pure water, and keep the houses and runs sweet and clean, and the birds free from insects. Treat them as creatures of flesh and blood, and they will prove amenable to your care, and will repay it in the most satisfactory manner.

This is the simplest form of poultry-keeping, and it is undoubtedly the most profitable. A trial will speedily prove this fact, and it will help us to keep the

foreigner away from our markets, will provide food and nourishment for hundreds of homes, and will make the keeping of poultry what it is in other countries, and what it should be in England—a national industry.

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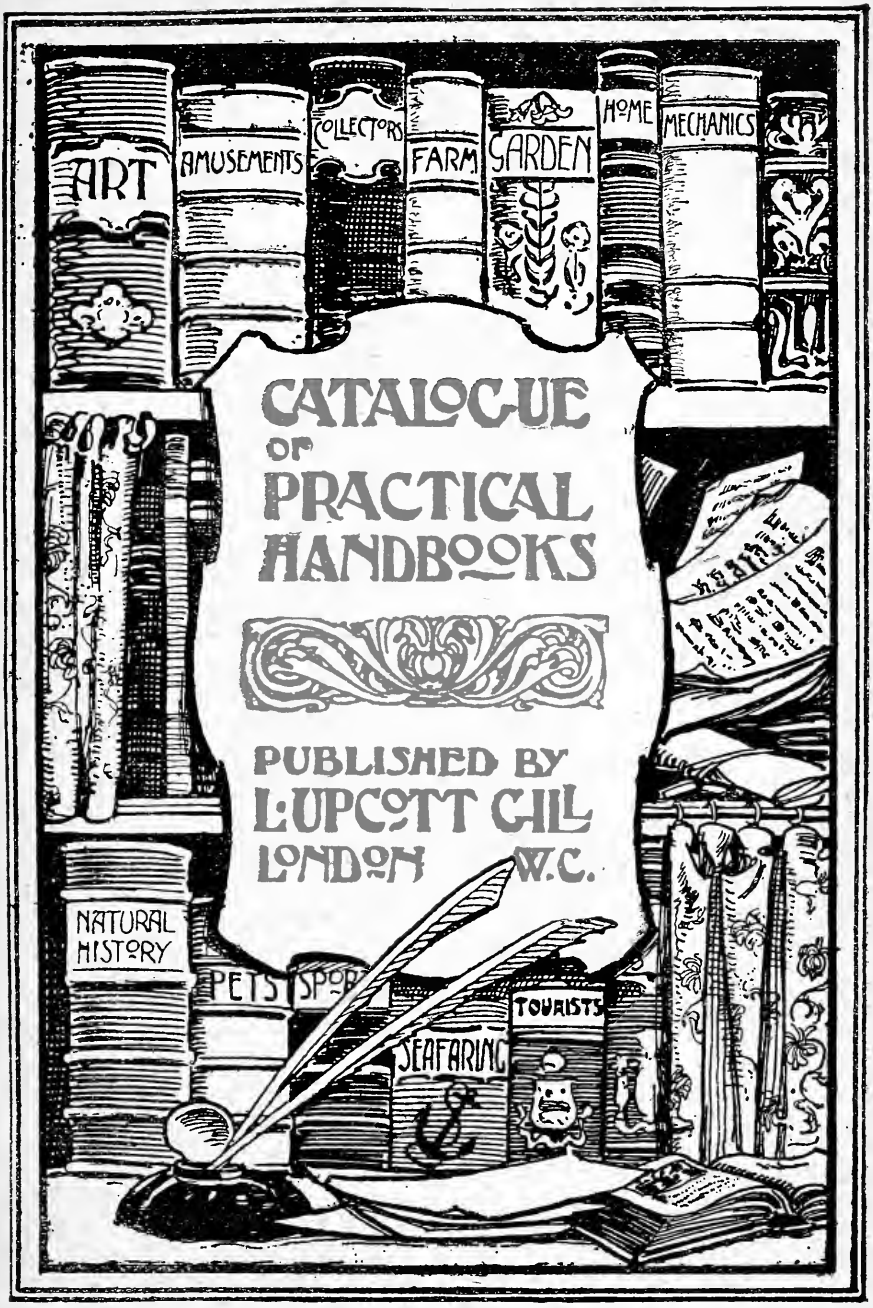

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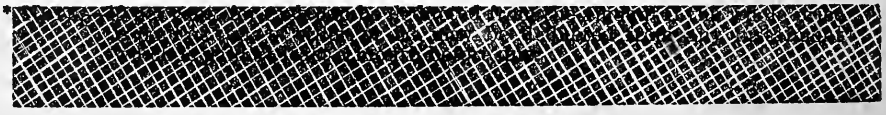

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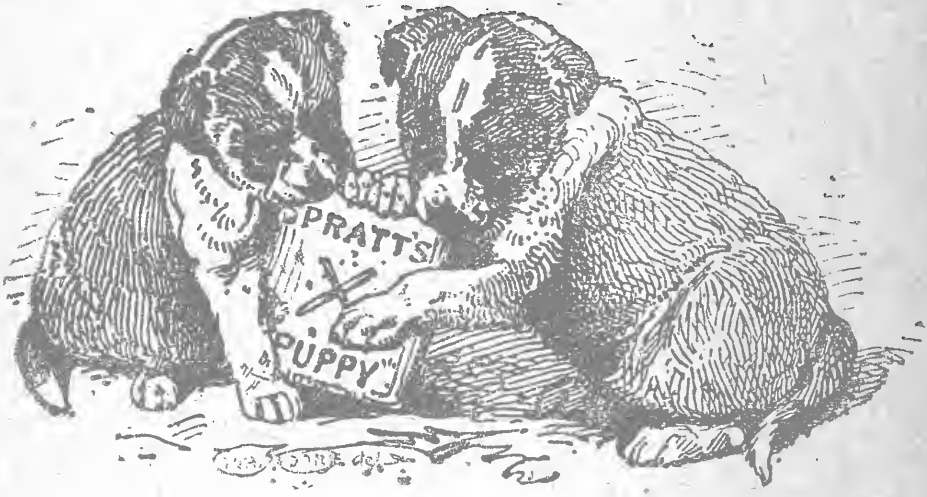

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