The Rearing of Chickens.

WILLIAM A. BARTLET.

AT this season of the year, the thoughts of all poultry-keepers naturally turn to the question of chicken rearing, for upon the success or otherwise of this important part of their duties depends the future well-being of their undertakings.

The first essential is to see that all incubators, brooders, etc., are in tip-top order in every way, the greatest possible attention being paid to ensure that every part of the outfit be scrupulously clean, before commencing operations. Incubators are mentioned, although outside the limits of this article, because chickens from a dirty incubator can never be successfully reared.

Chickens may be reared naturally, *i.e.*, with the mother hen. If this method be adopted, the hen should be dusted with some infecting powder before being set and again a couple of days before the chickens are due to hatch. A good powder can be cheaply made by thoroughly mixing 1 lb. sodium fluoride, 1 lb. flowers of sulphur, 1 lb. of tobacco dust and 1 lb. of air slaked white lime—the two latter being first run through a very fine sieve. After mixing in a basin, the whole lot should be run through the sieve as this helps thorough mixing. This powder may be used for dusting fowls of any age, and it is most effective. If the mother hen be troubled with scaly legs, these should be thoroughly washed with soap and water, and thereafter painted with carbolineum, using a brush with hard short bristles. A "Glory" brush is just the thing. The feeding of the naturally reared chicks can be the same as those reared in a brooder, but the chick food should be protected in such a way that only the babies can get the more expensive diet.

Feeding.

Chicks should not be fed for at least 48 hours after hatching—it is quite safe to leave them without food for 72 hours. The reason for this is that the last act of the chickens before leaving the shell is to absorb the yolk of the egg into its body through the naval. The yolk-sak is connected with the stomach by a vein-like duct through which the liquid yolk flows as required for the upkeep of life. Nature has provided that as soon as the flow ceases the duct and yolk-sak are dissolved and absorbed into the system of the chicken. If fed too early, and especially if such food as hard boiled eggs be supplied, there is no call made by the stomach on this natural supply, with the result that the flow of yolk ceases, absorption of the duct takes place, leaving the unconsumed portion of the yolk in the body of the chicken. There being now no outlet for this mass, it quickly becomes putrid, inflammation in an acute form is set up, while diarrhoea appears, the chicken droops and in nine cases out of ten, dies. Since the longer period before feeding has been adopted (it used to be 24 hours) and the total elimination of hard boiled eggs from the menu, white diarrhoea has been practically unknown among the chickens in my yards.

The first feed is pine-head oatmeal placed on clean river sand. The oatmeal is slightly moistened with sweet milk, but not sufficiently so as to make the grains cling together. It may be here mentioned that the cement floor is covered with clean river sand to the depth of about three inches, and this is the only covering used. The chickens seem to thrive in this better than with a covering of either wheat chaff or grass. The morning drink for the first four days or so after feeding has commenced, is a weak solution of sweet milk and water. Clean water is available during the rest of the day in vessels so constructed that the chickens cannot drown themselves.

After a couple of days' feeding with the oatmeal, and chick grain alternately, dry food is kept before the chickens from early morning to 2 or 3 p.m., when the hoppers are either closed or removed. A small quantity of finely crushed grains is thrown to the chickens occassionally to keep them busy, as this helps to prevent toe-picking, but the big feed of grain is given shortly before sun-set, so that the chickens go to roost with bulging crops, as this carries them through the long night. Any grains left over are eagerly dug for in the sand at the first glimpse of daylight.

At the close of this article, the mixtures used for the various ages are printed. They are simple, comparatively cheap and have given excellent results for a considerable number of years. In addition to these mixtures, a supply of fine charcoal, shell and grit is kept where the chickens can get them. Green food is also fed daily, sprouted oats being always available if other greens fail. After the first week, sour milk is given as a drink every morning, and is greatly relished, and does much to build up a strong virile chicken.

Now, as regards brooding. Cold brooders are quite excellent for the rearing of chicks in small numbers, and there are many types of these brooders both on the market and to be seen in poultry yards. With large numbers of chickens, however, artificial heat certainly reduces labour and attention. The warmth attracts the chicks, and they run to the brooder if they feel at all chilled. On the other hand, in the cold brooder, there is no such attraction, as heat is only generated after the chicks have been for some time in the brooder. This means that the poultry attendant has to drive the little babies in and let them out to feed and water at frequent intervals, especially in cold weather, thus giving extra labour and time.

If coal brooders be used, and they are becoming more and more common every year, be careful to use only anthracite coal, as the ordinary variety gives off sulphurous and other fumes to such an extent that the chickens are slowly gassed, and drooping wings and listlessness generally soon become apparent. Again, a cool brooder tends to make the air very dry, and it is useful to have a stand for sprouting oats in a corner of the brooding house, as moisture is taken up from them into the atmosphere, and prevents attacks of bronchitis. A paraffin tin or two of water placed in the room also helps. (I have not gone into details of hot water brooding, as those using this method, probably know more than I do about chicken rearing by this method.)

Direct sunshine is absolutely essential to successful effort. Special glass is being used in cold countries to allow the ultra spectum rays of sunshine to reach the chickens, but in this country few chickens need be more than a week old before being allowed into a sunlit run, provided that some sort of protection, about 2 to 3 feet high, be placed round the run to keep off the cold winds which are occassionally encountered, especially on the high veld. The outside run should be as fresh as possible and should lie idle for at least eight months of the year. One reason why early hatched chickens do so much better than the late hatchings, is that the later birds are generally reared on ground already contaminated by the earlier broods.

If entirely new ground could be given, it would be found that August and September-hatched grow as well as those hatched in June and July. Many poultry breeders advocate early hatching, but this is a question that requires consideration. Early hatching is useful on occasions, especially if a trade be done in the sale of pedigree cockerels. Again it may be found advantageous to hatch some pullets early, in as much as, although these will come into lay in December and moult towards the end of March or the beginning of April, yet after the moult is over these pullets will make quite useful breeders if the owner be short of that class of stock. The pullet eggs laid in December, 1926, and January and February this year were worth from 8*d*. to 1*s*. per doz., and were sometimes difficult to sell at these prices, whereas in March, April and May, they increased from 1/6 to 3 per doz. The early hatched pullets were then moulting, and it would have paid much better to have had them hatched later so as to be in full lay when eggs were dearer.

For commercial purposes, I consider July and August the best hatching months for heavy breeds, while August and September are most suitable for the light breeds, the middle of July to the middle of August being ideal for the former and the middle of August to the middle of September for the latter. These dates are for the high velt, but the climate in South Africa varies so much that no definite dates would be suitable for the whole of the vast sub-continent.

The pullets should then come into lay during the latter half of February or the beginning of March, and will lay right through the season when eggs are dearest.

The main thing in chicken rearing is to keep the little things growing from start to finish, but do not force in any way. Precocious pullets laying at 4 to 4½ months old are a delight to the beginner, but the old hand prefers to get the first eggs from a flock of from 5½ to 6 months old in the case of light breeds, and from 6 to 7 months old for heavy breeds.

One point that should be made clear is that the baby chickens require as narrow a ration as a hen in full lay. Chickens about two months old often droop and gradually waste away until death takes place.

A Greenish Tinge.

If such chickens be examined carefully a greenish tinge may be apparent in the skin underneath the back portion of the wing and sometimes over most of the outer skin of the abdomen. This tinge emanate from the gall bladder. An examination will show the bladder greatly distended and full of greenish coloured liquid, which being greatly in excess of the requirements of the body, oozes through and gradually poisons the system. This excess of gall is caused through the insufficient supply of flesh forming food, or in other words, the feeding of too wide a ration, i.e., one deficient in protein, especially animal matter. In nature, the young of all birds are generally hatched in the spring months of the year when there is an abundant supply of insect life easily obtainable and this, along with young and tender plant life, forms the largest part of the food of the young birds for some very considerable time. Animal protein, therefore, would appear to be essential to the well-being of the young chickens and this can be supplied in the form of meat or fish-meal.

In nature, the supply of insect life gradually dies down as Autumn approaches and in its place comes an ample supply of seeds of all sorts. The supply of tender green food also diminishes. The result is that the young birds become pulp and lay on a supply of fat sufficient to carry them over

the winter months when food of all sorts is scarce. It is only when the store of fat has been used up that wild birds begin to think of mating up and laying their eggs for the rearing of the next generation.

The domestic fowl being differently fed and warmly housed, should not wait until the spring of the year before commencing to lay.

Natural Conditions Upset.

Natural conditions are entirely upset in a well managed poultry yard. These may, however, be found to a great extent on many farms where the fowls are left to take care of themselves, picking up such food as they can find and roosting in trees or in some other exposed place. Very few winter eggs will be collected from birds reared under such conditions.

Get Rid of the Cockerels.

After the chickens are six or eight weeks old, the cockerels of the light breeds can easily be distinguished and these should be separated from the pullets. Unless these be pedigree bred or egg production, or be the progeny of show specimens, the sooner they are got rid of the better. Young cockerels of the light breeds, weighing from a pound to a pound and a half, can generally, be sold at the rate of about sixpence a pound, live-weight, and it pays better to sell them at that size than to wait until they weigh from four to five pounds. To the man who has to buy everything, the extra weight will have been bought at a cost of food that will not leave any return for the trouble taken. Further, the disposal of surplus cockerels allows the extra space for the growing pullets and what a difference this makes to their welfare!

Separating the Sexes.

The question of determining the sexes is often, in some of the heavy breeds, a difficult one. For instance, in the case of Wyandottes it is sometimes almost impossible to tell the sex until the neck and the saddle hackles commence to grow. The wattles of the cockerels sometimes grow faster than those of the pullets, but this test is by no means infallible. Except in the matter of extra space for the pullets the renewal of the cockerels of the heavy breeds is not so essential as in the case of the light breeds, for they are not nearly so precocious and do not worry the pullets until they are at least four or five months old. Whether these heavy breed cockerels can be kept as a payable proposition is a point which each poultry farmer must decide for himself. If free range can be given it may pay handsomely to rear them to a weight of six or seven pounds and then especially fatten them off for a week or two before sending to market. This is a trade which must come, but first of all the consuming public needs much education before they realize that there must be a very considerable difference in price between a scraggy, illfed, often diseased, probably ancient fowl and a young, tender, and plump one.

Should Light Breed Cockerels be Dubbed?

Pedigree cockerels may be managed much the same as pullets, only the culling of weak birds must be very much stricter, and should be commenced as soon as defects begin to show. One culling is quite insufficient as it is only when the bones set, about the time that the adult plumage appears, that malformation in body structure become apparent. If one out of three cockerels passes the final test, I am usually quite satisfied. This balance will be well worth breeding from. One point which appears to be much debated

is whether light breed cockerels, intended solely for the breeding pen and not for the show bench, should be dubbed. I am of opinion, that for flock breeding, where six or eight cockerels are sometimes run together, it is best to dub them when they are three or four months old. There is less chance of fighting in a large flock than when there are only two or three cockerels placed with the hens, but there is still that chance and dubbed birds cannot damage each other to the same extent as those which are not dubbed. Further, I find, that birds dubbed at this age seem to develop more fully than those left in a natural state and to give better fertility when mated up.

The cockerels having been disposed of except those intended for breeding purposes, it is necessary to consider what is to be done with the growing pullets.

The Growing Pullets.

The pullets should be given as much room as is possible, plenty of house room and plenty of outside run. Overcrowding is the greatest curse and prevention of the successful rearing of all young birds. The runs used for rearing should have been lying idle for some very considerable time. So much am I convinced of this that in the plan I have drawn up for laying out my new poultry plant, I have set aside eight runs, each 50 feet by 120 feet, for rearing the pullets. These runs will be used only from the time the pullets are removed from the brooder-house until they are ready to be drafted either to the laying sheds or to single pens, that is, just before they commence to lay. This would be a matter of from three to, at the outside, four months and these runs will be idle during the remainder of the year.

Every poultry farmer has not sufficient ground to allow for this, but as far as possible the pullets should be removed from the brooder house at from six to eight weeks old, according to the state of the weather, and their new quarters should be as ample as possible in every way. If these runs have been planted with Kikuyu grass so much the better, as no green food will then need to be fed to the birds, unless a little occasionally for a change.

At this stage no forcing of any kind must be attempted. The birds should grow slowly, but surely, so that they build up a well-developed body before egg production commences. From four to six months old the meat or fish-meal, fed earlier, can be somewhat reduced; and the birds put gradually on to the full laying mash after they have been placed in the quarters which they are to remain in during the pullet laying year.

The Partial Moult.

Pullets hatched during the period recommended towards the beginning of this article, if placed in their laying quarters just before commencing to lay, should not drop into even a partial moult, but the earlier hatched birds are very liable to do so. There has been much discussion of late as to the cause of this. The general opinion is that owing to the warm days of summer and early autumn the sexual reproductive organs of these early hatched pullets are developed before their bodies are fully matured. The strain of producing eggs and growing at the same time is too much for the birds and the whole system is reduced in vigour. Condition is lost and a mould ensues. English and American breeders have recently advocated the feeding of maize in fairly large quantities to such pullets, even going so far as to recommend placing the maize in troughs so that the birds can continue to feed later than is possible if the grain is placed amongst the litter. In this way the condition of the birds is maintained and, although somewhat fewer

eggs are produced per week, the ultimate gain, if the moult can be staved off, is very considerable, as the eggs produced late are worth at least double of those produced in December and January.

Preventing Early Laying.

Moving the birds from one house to another when between four to four and a half months old, in the case of light breed pullets, is advocated as it tends to stop early laying somewhat. The heavy breeds may be moved at five to five and a half months. However, feeding a fairly wide ration at this time will have more effect. Once the pullets have been put into their permanent quarters, just before commencing to lay, they should not be moved again, otherwise a moult is almost sure to follow. This is no doubt one of the reasons why so large a percentage of the birds moult at the beginning of the laying tests, especially so in the case of light breeds. These are much more excitable than most of the heavy breeds.

Again, the tamer one can keep one's pullets the better layers they will be. This is probably a reason why trap-nested pullets often lay better than their untrapped sisters. The constant handling ultimately makes them so accustomed to the attendant that they become so tame and contented that they do not waste energy flying and rushing about at every slight sound. For the same reason strangers should not be allowed to actually enter the laying houses.

Growing Stage Mash.

The following is a mash used from the age of about four to five months, according to breed, and, during the time before the introduction of the laying mash when egg production is to be encouraged. Any other similar mixture can be used, according to what can be most easily obtained at a cheap rate. Forcing must not be allowed at this stage, especially in the case of earlier hatched pullets. In the case of those hatched later, the weather being cooler when they are at the developing stage, they can naturally be fed a somewhat narrower ration than their older sisters. Otherwise they might, and probably would, remain out of profit too long.

The mash advocated is: 400 lb. wheaten bran; 150 lb. fine pollard; 150 lb. Sussex oats; 100 lb. lucerne meal; 50 lb. meat and bone meal; 20 lb. fine bone flour; 3 lb. fine salt.

This is fed with crushed mealies only as a grain feed. If wheat can be obtained at a reasonable price it may be fed with advantage twice a week. Further if abundance of green food is procurable, the lucerne meal may be omitted from the mash.

Very many points have not been touched upon in this article. However, beginners may get some benefit from what I have written. The following are the mixtures used from babyhood to four months old, after which the chickens are treated as adults, with the addition in their mash of an extra percentage of bone flour for a month or two, and less meat or fish meal.

Chicken Mixtures.

No. 1.—Dry Mash: from 4 Days to 4 Weeks.

100 lb. wheaten bran, 25 lb. fine pollard, 25 lb. Sussex ground oats, 15. lb. lucerne meal (finely sifted), 10 lb. good meat and bone meal or fish meal, 5 lb. bone flour or fine bone meal, ½ lb. fine table salt.

No. 1.—Chicken Grain.

100 lb. finely crushed and screened yellow maize, 200 lb .kibbled wheat or good cockle wheat.

No. 2. Chicken Dry Mesh: from 4 Weeks to 4 Months.

300 lb. bran, 150 lb. pollard, 150 lb. Sussex ground oats, 100 lb. fine lucerne meal; 50 lb. good meat or fish meal, 20 lb. bone flour or fine bone meal, 2 lb. fine table salt.

No. 2. Chicken Grain.

200 lb. kibbled wheat or good cockle wheat, 200 lb. finely crushed and screened yellow maize, 100 lb. white Kaffir corn, 100 lb. fairly finely crushed peas.—*The South African Poultry Magazine,* Vol. XXIII., Nos. 185 and 189, 1927.