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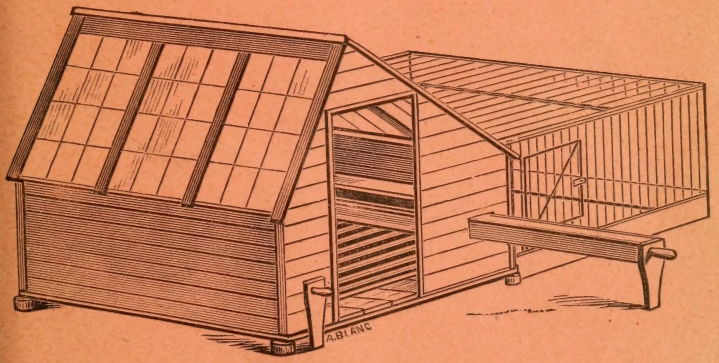
PRACTICAL

CAPONIZING

AND

HOW TO MAKE POULTRY PAY.



BY

WM. H. WIGMORE.

PHILADELPHIA, PA.
1886.


Wm. H. Wigmore
MANUFACTURER
107 South Eighth St.
PHILADELPHIA, PA.
PATD JUNE 22, 1886 Copyrighted 1885.
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PRACTICAL CAPONIZING

AND

HOW TO MAKE POULTRY PAY,

OR

A GUIDE TO MANAGEMENT.

CONTAINING DETAILS OF THE BUSINESS, CAPITAL REQUIRED, BEST BREEDS AND CROSSES, DISEASES, MANAGEMENT OF CHICKS, KEEPING POULTRY IN SMALL OR LARGE FLOCKS, AND OTHER VALUABLE INFORMATION.

BY

WM. H. WIGMORE.

PHILADELPHIA, PA:
FRANKLIN NEWS COMPANY,
Sole Agents for the Trade.
No. 725 FILBERT STREET.
1886.

TO THE READER.

In presenting this book to the reader I have drawn largely upon the Poultry Deparment of *The Farm and Garden*, which embraces contributions from some of the most practical poultrymen in the United States. Hence, I do not give the results derived by a single individual, but of a number. The book is not only a convenient reference and compilation, but is also a condensed form of a vast amount of useful information. I have endeavored to discard *theory*, and present *facts* derived from *experience* only. I believe that the reader will agree with me that in no other volume of its size can so much valuable information be found at such low cost. And with this expectation of the readers' favorable appreciation, I trust success will attend the efforts of all.

W. H. W.

PRACTICAL CAPONIZING,

BY

WM. H. WIGMORE.

The art of caponizing seems to be very little known or understood in this country. I therefore mean to condense the form as practiced by the best and most experienced English, French, and Chinese experts, together with such information as I have been enabled to gather from other sources. Poulterers and farmers wishing to become experts in the operation of making capons would do well to imiate surgeons who always try their hand on dead subjects before performing on the living. The operation is quite simple, and in France and Italy is frequently allotted to mere children.

The advantage of capons is a much larger fowl. They grow to the size of a turkey, or in other words, they increase in size as a steer does to an ox. Their meat is sweeter and of a finer flavor, therefore it sells at a much higher price. They can be made useful in raising or mothering many more young chicks from a hen or an incubator than the hen will on account of their large size. They like the chicks' company, neither hens nor cocks having any use for them. Should they object to the young chicks, coop them up in a dark place for a few days, then they will gladly take the chicks under their wing. It is a common thing in France to put a small bell on his neck to keep the chick with him, it takes the place of the hens clucking.

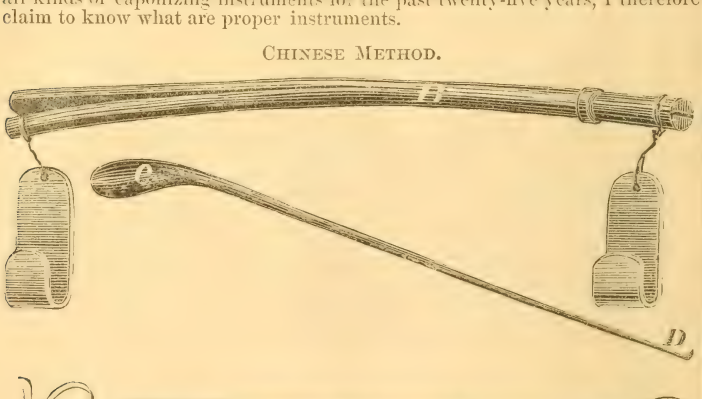
On Cruelty of Caponizing.

The operation can be performed in less than two minutes, therefore on the score of cruelty there can be very little said. It is no more cruel than castrating calves, colts, lambs and pigs. Not only so, but male birds which could not be kept together without great danger of constant conflicts, will live in peace and amity, besides many more can be housed together. The former reason would of itself be sufficient to warrant the adoption of caponizing, for the pain suffered by the bird is infinitisimal as compared with a single fight. The benefit, therefore, altogether outweighs any objection on the score of cruelty. But where there is the additional inducement of obtaining very much greater size in the fowls, with very little outlay, it is surprising that the plan has not been very largely adopted. In France capons and poulardes are very numerous indeed, even in the ordinary markets, and it is found that birds so treated thrive much better, fatten to a greater extent, and as they are not so restless in temperament. lay on a finer quality of flesh.

First, then, the question of profit, which in all commercial matters must have pre-eminent weight Upon this score, fowls intended for the table should be caponized, because the chickens so treated can thus be made the most of, and will realize for the breeder more than they otherwise would. Many persons object to the giving of unnecessary pain, but there are certain things that may be done in which the pain is small compared with the benefit and caponizing we regard as one. Causing pain for mere wantonness or pleasure is at all times to be strongly condemned, but as in this case, where the infliction of a very slight pain saves greater suffering, and is attended by so many benefits, there can be no legimate objection to it. But it is most important that any one who undertakes the work should be able to perform it without bungling, or very much unnecessary pain will be caused.

It is very essential that proper instruments should be used, and I claim that mine have no equal in the market. I have manufactured and operated with all kinds of caponizing instruments for the past twenty-five years, I therefore claim to know what are proper instruments.

CHINESE METHOD.



Chinese Instruments.

The bevelled knife *a* on the forceps is for making the incision. The whalebone *B*, with a hook at each end, is the spreader for holding the wound open. Hook *D* is for tearing the thin skin open. Tube *F*, with horse hair at the end

is for sawing off the testicle. Spoon *c* is for scooping out the testicles after they are cut loose, also for spooning out the blood. This set, I consider, takes great skill to operate with. I believe very few persons have patience enough to learn with this set. There are numerous other sets on the market, some of which are a trifle improvement over the Chinese.

Experts.

There are several experts in my vicinity, who state that it is a common occurrence for them to make ten dollars a day caponizing cockerels for poulterers and farmers in their neighborhood. Therefore, those having a taste for this line of business could turn quite a number of dollars into their pockets by becoming experts, and do the caponizing for farmers within a radius of five or ten miles

Capon Advance.

I believe in a few years farmers to their great surprise, will wonder why they could not see the profit there is in caponized fowls; besides there will be capons on the bill of fare, different flavors,—celery, parsley, mint, etc., as the canvasback duck gets its fine flavor from the wild celery they feed upon. I will endeavor to enlighten my patrons from year to year by the enlargement and improvement in my book with facts on poultry and caponizing, as I have quite a stock of capons on hand of my own making, and I am giving them very close attention on a thoroughly business principal, and in my next year's edition, I will be able to give my readers a number of new points in regard to them.

Best Breeds.

Brahma, Cochins, Plymouth Rocks, Wyandottes, Dominiques and Dorkins make fine capons. The advantage is the same with almost every breed, even the common dung hill. Always select the largest breed you have. At present if you were to call for capon at your hotel or cafe you would not know whether it was a fine or common breed, unless you had made a study of their taste. Most anyone who has eaten capon can tell them by the taste as they are very tender and of fine flavor; in fact very few hotel managers or caterers know themselves of what breed they are serving to their customers.

Benefit to the Farmer.

The question is often asked me would it pay a farmer to raise capons for his own use. The following is proof that it will. If they put 100 per cent. more money into the poulterer's pocket, by the increase in price, and from 30 to 50 per cent. more weight, the farmers table will gain the extra weight without any extra cost.

Profit in Capons.

Every farm and poultry journal and poultryman will acknowledge that capons pay well to raise. You ask the farmer why they do not raise them. They generally say I cannot or have not nerve enough to coponize. They should follow the example of a lady who wrote for my patent set and instructions, which was as follows:

"Dear Sir: After receiving your patent set, I read the instructions over several times carefully, I operated on four dead cockerels. I then tried to cut a live one but could not, I took up the knife and laid it down several times, at last I nerved myself up to the task and after the first incision to my own surprise my nervousness all left me, the following two days I caponized 120 cockerels, and only lost three, besides I attended to my regular housework."

I will here give you an idea of the extra profit she gets over the cockerels. She would have the 120 cockerels at 8 months old weighing 4 pounds each or 480 pounds, and sell them for 13 cents per pound, which would net $62.40, but as they are caponized, at 8 months old they will weigh 6 pounds each or 720 pounds, and sell for 18 cents per pound, and will net her 129.60. You see this is more than 100 per cent. profit over the cockerels.

Another fact I will refer you to in the *Poultry Magnet* on page 85, June number of 1886 signed Blake, Cardington, O., who caponized 22 birds without losing one. They did well and averaged 10½ pounds dressed. He sent them to the New York market, and they sold for 21 cents per pound or $48.50, after deducting the express charges, commission, etc. The lot netted him 43.75. These same birds, if not caponized, would have weighed but 7 pounds each and sold at the same market for 15 cents per pound, and brought but $23.10, without deducting the express charges, commission, etc.

The time is not far distant when the incubator will enable us to capon all the year round.

Slips.

Slips are partly caponized fowls, and they are not very easily told from the cockerels, only by their large size and the wound on their side. They are often as large as the full capon. The cause of their being slips comes from leaving some of the testicle within. This piece will grow quite large, and in some cases larger than ordinary, and it is filled with a watery substance. They are quite a nuisance to the hens, as they are constantly chasing them. There seems at present to be more slips on the market than full capons and they bring within 2 or 3 cents of the capon price. I am confident the operator will not have a slip after operating upon a dozen birds with my set. Should you leave a small particle within, it is extremely easy to spoon it out with aid of the slot in my scoop twister.

Feed.

There is no difference in their food from other fowls after the first few days. They, of course, are without food from 24 to 36 hours before being operated upon, therefore are very hungry. They should be fed very sparingly for the first day or two on scalded corn meal with a little salt, then you can give them more. After a week give them plenty of food; you will find them very ravenous for a month or two, then they gradually ease up and eat considerably less. If they are confined give them some bone meal, broken clam and oyster shell. They should have plenty of the best water you have. Do not allow them to drink from dirty little puddles or stagnant ponds, which give them a bad flavor, beside causing them to die. They should be kept

separate for the first month or two, as you do not want your other fowls over-fed, which would be the case if you were to satisfy the capons' appetites. Any number can be housed together, on account of their quiet nature, so long as you keep their quarters clean and healthy.

For Market.

For market dress them as you would a turkey, with feathers on their necks, wings and tail. The retailer can make them very showy by putting a narrow ribbon around their necks and wings, as a butcher does his prize beef, veal and lamb.

Ducks.

It is more difficult to caponize ducks than any other fowl as they are very compact; their entrails filling them up completely. At three months old their testicles are harder to get hold of. They are much longer and narrower, and lay closer to the back bone than in cockerels, it is common for their bowels to protrude through the incision while endeavoring to catch the testicles in the scoop; something that never happens with any other fowl.

Turkeys.

The only thing against caponizing young gobblers is their tender nature. I am giving them considerable attention at present, and therefore hope in the near future to give the public some interesting points on them.

Pullets.

Pullets that do not lay in due time may be made poulardes. Open their *left* side between the first and second rib, same as you would a cockerel, but do not tear open the thin skin covering the bowels, but look in the same position that you find the testicles in a cockerel, allowing the sun to shine in at the same time, you will see the egg cluster quite plain. If they are fine like small fish roe they will not lay for some time, in which case I would recommend altering them.

Operation.

Tear open the thin skin you will see two milky white cords or tubes leading down from the egg cluster. The upper or larger one which is about the size of thin wrapping string is the egg passage. Take hold of it with a pair of tweezers or a bent piece of wire for a hook and cut out about an inch, which will stop her producing eggs, and make her grow larger and improve in flavor same as a capon. But if some of the eggs are the size of a pea or larger, you may know she will begin laying soon and I would save her. The

cut in her side will heal up and not interfere with her a particle. The egg passage in a pullet about to lay is considerably enlarged, and after she has laid for awhile it becomes the heaviest entrail she has. I would advise those wishing to make poulardes to kill a four months old pullet and an old laying hen and cut their lett leg off at the hip joint, then the plate from the second rib down, which will expose the bowels. Ease them out toward the front then you will easily see the bowels and egg passages in both. The bowel passage being on the right and the egg on the left side. Now you wish to make sure of the egg passage in the pullet, introduce the probe just below the egg cluster, pushing it gently down the passage, and it will make its exit at the proper place. By doing this you know precisely what you have to do to make poulardes. Without this dissecting I consider it impossible to know what to cut, unless you have been shown by an experienced person. Some advise cutting below the flank. I consider the above best because you can see the condition of their eggs, besides it is a safer place to cut.

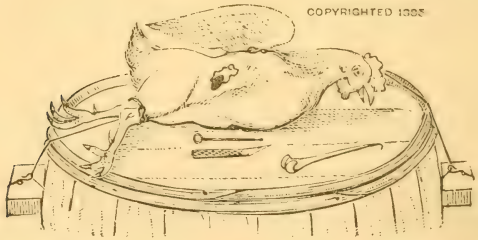


Figure 1.

This cut shows plainly my method of holding the fowl. One cord around both wings, the other around the legs above the knee joints.

I would here state that the following illustrations were not drawn and engraved, but they were photographed from a live cockerel, and the hands shown are my own, besides there was not a feather plucked from this bird's side. I generally bare enough of the flesh by wetting the feathers and turning them under as a man would in twisting his moustache. Figs. 6 and 7 are photographs of a dead cockerel. Each and every piece of my set is entirely new and original with myself. Any scoop twister without patented June 22, 1886, stamped on it is an infringement.

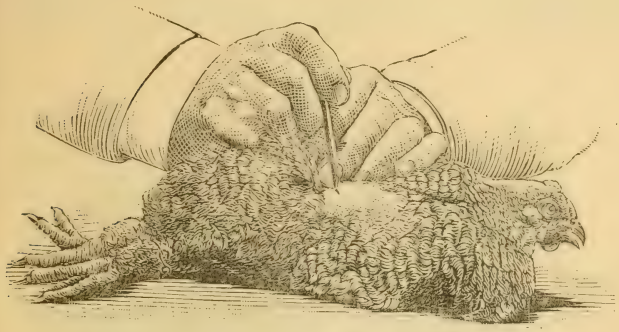


Fig. 2. (*Copyrighted 1886.*)

Fig. 2 shows the fowl in position and the operator in the act of making the first incision.

Operation.

First have a narrow table, box or barrel so you can move it around and get the sun on the fowl in any position you wish, as the sun is a great help to a learner. Lay the fowl upon its left side. Wrap the cord twice around the bird's legs above the knees. With one wrap they are liable to kick themselves out of the loop. This style hooks enables you to make a slip-loop quickly. The other cord put once around his wings. The opposite ends of the cords attach to a half brick or a weight of some kind, then let them hang down over the sides of the table as shown in Fig. 1, by this means you have them secure.

Wet the bird's side and feathers with cold water to prevent bleeding, and it will also make the feathers stay where you want them, by twisting them under as a man would his moustache. This will enable you to perform the operation without pulling a feather. Pull the flesh on the side down towards the hip, so when the operation is over the hole between the ribs will be entirely closed by the skin going back to its place. Therefore the opening in the skin will be $\frac{3}{4}$ of an inch above that between the ribs, enabling the wound to heal up in a day or two. The incision must be made between the first and second rib about $\frac{1}{2}$ inch long. When you are ready to cut push the point of the knife in quickly one-quarter of an inch, and hold it there a second, as he will work his ribs up and down just at that moment. Then he will become

quiet, increase the cut to ½ inch. Lay the knife down, keeping the skin in place with the left hand. Now you are ready for the spreader. See Fig. 3.

Take the spreader between the thumb and first finger, press it until the two ends come together. Then insert the hooked ends in the incision itb

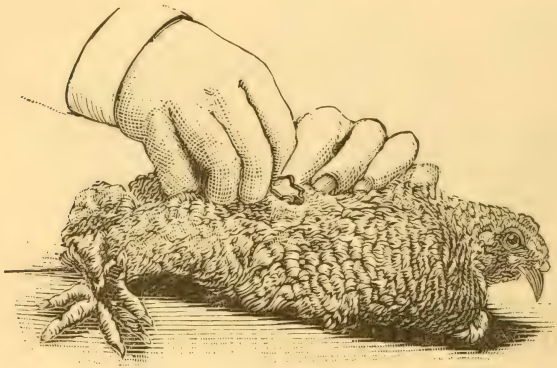


Fig. 3. (*Copyrighted 1886.*)

the spring end towards the bird's feet. Now turn the spring part towards the bird's back, making sure to have the hooks between the ribs. Hold the spreader in position with the left hand, Take up the knife again. See Fig. 4.

Increase the opening by cutting toward the backbone, and forward on a line between the ribs, until it is large enough to admit the free passage of the scoop twister. Care must be taken not to go too near the backbone. After a little practice you will be able to do this cutting and draw little or no blood, by cutting on a line with the veins instead of crossing them. Should they bleed much wipe it off with a damp rag or small sponge before you tear open the thin skin. Otherwise the blood will run in on the testicles and make the lower one harder to find. Take up the scoop twister. See Fig. 5.

With the hook end tear open the thin skin until you have the right testicle well in view, and plenty large enough to press the scoop twister through.

This hook must be used with care or you may puncture an artery or the bowels.

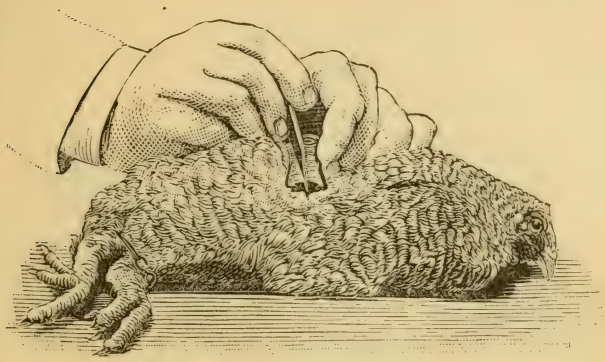


Fig. 4. (*Copyrighted 1886.*)

Take the probe in your left hand. With the ring handle push the bowels

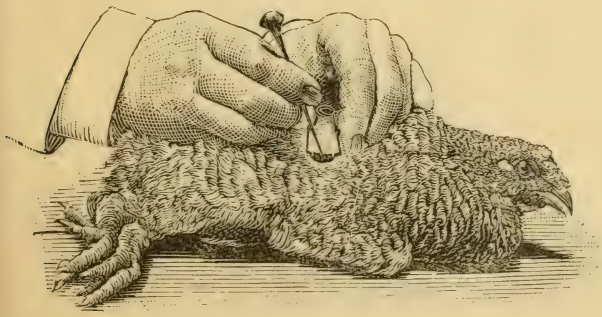


Fig. 5. (*Copyrighted 1886.*)

side, and just below you will see the left testicle. Introduce the scoop wister with your right hand. See Fig. 6:

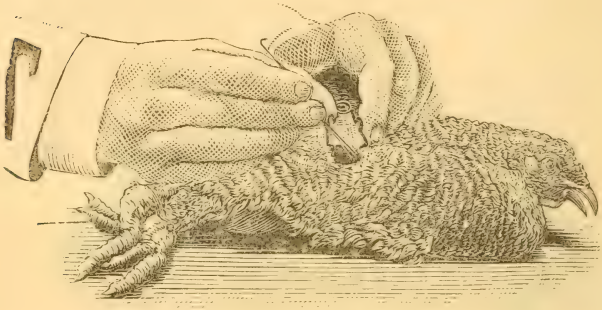


Fig. 6. (*Copyrighted 1886.*)

Catching the lower or left testicle endways in the scoop as shown in Fig. 7

Fig. 7. (*Copyrighted 1886.*)

Gently shaking it to get it all in, and make the spermatic cord settle we down in the slot. Then begin to twist the testicle off. At this point learne

will find the probe very valuable for keeping the testicle in the scoop, as it sometimes slips out, also for preventing the bowels being twisted up by the scoop. A number of these difficulties disappear with a little practice. An experienced person will find little or no use for the probe.

Now remove the right or upper testicle. See Fig. 8.

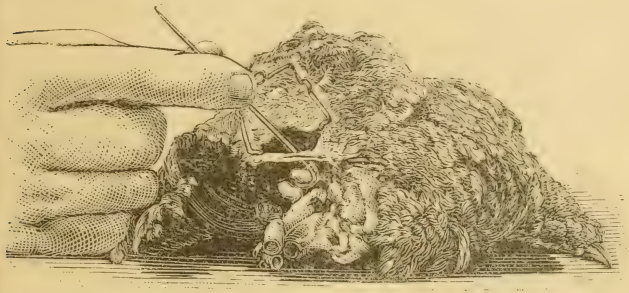


Fig. 8. (Copyrighted 1886.)

Same as the left. Both testicles are shown in Figs. 7 and 8, to give you their exact position. The left testicle should always be taken out first, as it is the hardest to remove. If you remove the right one first and cause the bird to bleed, it will run over the lower one, then you cannot see it as well, and will have much more trouble in getting it out. But when the left one is out it will not be over ten seconds before you have the right one out. I find most beginners want to remove the upper one first. They say they have a better view when the right one is out of the way, but that is only an excuse. Many persons like to do the easiest part first, therefore I insist on the lower one being removed first.

If you should leave a small piece in by not getting it all in the scoop properly, put the scoop in again and catch it in the slot, even if it is no larger than a pin's head, as these are the pieces that produce slips.

If the testicle is very large, which you will find is the case with a four month old Leghorn, take the scoop full out, then go after the balance until you have it entirely out.

If you cause much blood to flow, spoon it out with the scoop twister.

The next day after the operation if you find they have a windy swelling, just run a darning needle through the skin and it will all escape. Sometimes I just let them go and they come all right themselves.

If you should cut an artery in the operation, they are as good for food as if they had been bled in the neck.

If all right after the operation, they generally have a passage.

Most every writer on capons says it is more humane to twist than to cu their testicles off. Cockrels can be caponized at any age, but the older the more liable they are to bleed to death.

MR. P. H. JACOBS, who is an authority on poultry, says:

The heaviest and largest capons are produced by crossing a Dorking cock on Brahma or Cochin hens. The largest, with two successive crosses, is t mate a Houdan cock with Brahma, Cochin, or Langshan hens, and then mate the pullets of the cross with Plymouth Rock cockerels, which gives yellow legs and skin. A strong, large Pit Game Cock, mated with Brahmas, or any of the pullets of the above crosses, makes not only a fair-sized capon, bu one that excels in meat on the breast. A Brahma cock on Cochin hens i also excellent, while Plymouth Rock cocks on Brahmas or Cochins makes fine capon. Avoid such breeds as Leghorns, Hamburgs, Black Spanish o Polish, for capons. The Wyandotte may be used on large, coarse hens, how ever, whenever desired.

CAPONS AND CAPONIZING.—It may seem rather premature to speak o capons and caponizing this early in the season, yet we wish to call the atten tion of breeders to the matter so they can prepare in time for securing th solid cash benefits which will surely come from thus making use of all th surplus cockerels which are not (if pure bred) good enough to bring remu nerative prices for breeding stock.

The very first thing to do is to keep the birds growing vigorously from th start, so they will be in good condition and be of good size when from three to four months old, at which time the operation can be safely performed using proper instruments, such improved instruments as are generally used and also the fact that capons pay handsome profits, the price does not seem to be so excessive as may seem at first. Printed diagrams, together with explicit directions accompany each set, and even when a breeder has had n former experience, he can soon become expert by practicing on a few birds And it is often advantageous to experiment first with one or two dead birds and then try your hand on a few live ones. The proportion of birds which die under the operation is very small indeed, and, in the hands of an exper ienced person, does not exceed two per cent. The birds which do die unde the operation generally do so in a very few minutes, and if at once bled ar as good for table use as a fowl can well be, so the loss is still further reduced and amounts to almost nothing, practically.

Of course common chicks are just as good for this purpose as pure-bre ones, and are the ones generally used, though we would suggest that, whe breeding for the purpose of making capons, only large fowls, or large breed should be bred, as weight is a large item of desirability. The Light Brahma or the Partridge Cochin — in fact any of the Brahma or Cochin breeds—ar the best for the purpose, whether bred pure, or on the best common hens From such breeds, when hatched early and kept in vigorous growth by lib eral feeding, the very finest and highest priced capons can be obtained, an we would advise our breeders, if they have not yet tried the experiment, t give it a trial this season, and especially so if they raise large flocks of tha kind of fowls each season for sale, either for food or for breeding purposes.— *Fanciers' Weekly, Ashland, Ohio, May* 22, 1886.

CAPONIZING pays. The flesh of capons is decidedly sweeter and of finer flavor than that of cocks. They gain from two to four pounds in weight, while the cost of feeding is no more. If the farmer could once get a taste of a capon, there would be a great reduction in the number of roosters on his place. After capons have once been introduced into a market, there will be a great demand for them. Any large breed will make fine capons. The operation can be performed at any age, but from two to six months gives the best results. I do not see that the birds suffer any pain after the first incision. They lie motionless unless you touch their heads. To show how little people in general know about caponizing, I can relate a fact that came under my observation. At a poultry farm where I was visiting, a lady called and examined some capons. When told what they were, she said they were splendid birds, and asked the proprietor to be sure and send her a setting of their eggs. It made considerable laughter after her departure.— *H. W. H., Rural New Yorker, June* 19, 1886.

WE ARE often asked about caponizing instruments. W. H. Wigmore's are a good article, and he sells them at a reasonable price, and gives full directions with each set. No. 107 South Eighth street.—*Farm Journal, Chicago, July*, 1886.

CAPONIZING.— This practice is becoming more common, and as roosters are hatched in as large quantities as hens, it will considerably increase the poultryman's profits. It is not hard to learn how to do it, and we predict that capons will always find a ready sale at a high price. A flock of Brown Leghorns which we have, seems to have had an epidemic of roosters, forty-one being hatched out of a total of sixty-six. This would make a waste unless utilized by caponizing.—*Farm and Garden, July*, 1886.

ALL of our readers who are anyway interested in raising poultry for profit should read the advertisement of Wm. H. Wigmore, of Philadelphia, Pa., which appears on the poultry page. We have examined these instruments for caponizing; they are fine German silver, and the cheapest in price of any caponizing instruments manufactured. If you wish to know how to caponize, send for his circular.—*Ohio Farmer, Dec.* 12, 1886.

HIS EXCELLENCEY THE CAPON.— The gallinaceous fowl of this description, whose fame so often used to reach us from foreign countries, has at length made his apperance among us. As he is popular wherever known, he will probably remain. The supply of capon meat in this country has never been equal to the demand; and the writer of this has never had any difficulty in disposing of these fowls, when dressed, at from 20 to 25 cents a pound.— *Country Gentleman.*

CAPONIZING.— The profits of caponizing to poultry raisers have been so often set forth, and are so evident to any intelligent man who gives it the slightest thought, that little need be said at this day in its favor. Many poultry raisers who would practice it are deterred by the imaginary trouble and difficulty in procuring the necessary instruments. As to the trouble the

word imaginary very correctly describes it. A little practice will enable an one to do it safely and expeditiously. As to the instruments the advertis ment of Wm. H. Wigmore, in this issue, tells where and how they can l obtained.—*Practical Farmer, Philadelphia, June 5,* 1886.

ELSEWHERE in this paper will be found an advertisement of Wigmore caponizing tools. Those interested will do well to write him for particular They are very highly recommended.—*Orange County Farmer, June* 3, 188

CAPONIZING.—Strange as it may seem, we have met with a number of o dinarily intelligent persons who supposed a capon to belong to a distinc class of fowls, as do the Wyandottes, Houdans, etc. For fear that othe may share a similar notion, it may be well to say that a Capon is a male bir altered, and bears the same relation to other fowls as the ox to the bull, an may be produced from any breed of fowls. A Capon will out-grow a cock o the same age, just as an ox excels a bull in weight, and for the same reaso which are, that castration makes an animal less restless and quarrelsome an less of the nutriment it digests is divested from flesh-forming. Caponizin may be defended against objections on the score of cruelty just as well a castrating colts, calves, pigs, etc. The rearing of Capons will certainly l followed to a great extent in this country so soon as the people learn the ex cellent quality of the flesh, which is not only extremely delicate and juicy but the birds grow to nearly the size of turkeys, and are so quiet that the growth is produced with less feed than in the case of other fowls. I woul say to those who are engaged in the poultry business, they cannot dispose o their culls in a better way than to caponize them; they may be of any breed but such as Cochins, Brahmas and Wyandottes are the best. I caponize twenty-two last season without losing a bird. They did well and average 10½ pounds dressed, March 3, 1886, and sold in the New York market for 2 cents per pound. After deducting express charges, commission, etc., the lo netted me $43.75. Now as I have been asked a great many times by thos who are interested in poultry, "does Caponizing pay," I would like to as the readers of the *Magnet* what they think of it.

Cardington, Ohio. BLAKE.

—*Poultry Magnet, June,* 1886.

REFERENCES.

HESTONVILLE, PA., June 1, 1886.

MR. WM. H. WIGMORE,

DEAR SIR:—I received your caponizing set on May 28th and I operated on 40 cockerels the next day, to my great surprise, in tw hours, the day after I was again surprised to know that I caponized 3 in on minute and thirty seconds each, the best I have done with any other set wa from 3 to 5 minutes, therefore I feel that I cannot say too much in recom mending your set. Yours, Truly, G. C. MENCH.

ROCHESTER, N. Y., August 2, 1886.

WM. H. WIGMORE,

DEAR SIR:—Since receiving that case of Caponizing instruments from you last spring, I have had them in constant use up to date and have caponized 2500 cockerels and also performed a similar operation on 982 pullets. Being a professional caponizer, I can say this much in favor of your instruments—that out of the four different kinds that I had been using, I can cheerfully recommend your Caponizing instruments to the fraternity at large. Wishing you unbounded success, I remain, Yours fraternally, E. R. BADGER.

BALTIMORE, MD., May 25, 1886.

MR. WM. H. WIGMORE,

DEAR SIR:—I have cut quite a number of birds, but I generally have more slips than capons. I am satisfied after altering 10 cockerels, your set is the best I ever saw. I believe with a little practice with your scoop twister, slips will be unknown. CHAS. M. MEDIARY.

PHILADELPHIA, PA., July 20, 1886.

WM. H. WIGMORE,

DEAR SIR:—I wish to convey to you my thanks for the successful manner in which you treated my small lot of cockerels. My man said that he could see the chicks had grown in the few days we had them from the place, and I know that I can see the growth each day. You remember I said I kept two good, fair specimen cockerels to mark the change in the birds treated by you, the others not treated. They do not require as much care as you enjoined on me, as I find them strong and feed with the other birds. Shall want a full set of the instruments for myself, as I expect to try my own skill, and do not ever expect to keep cockerels as I have done before, but shall have all my chicks attended to in this way, it saves so much trouble among the male chicks. I shall take the weight next week, that we may note the increase. I found the weight, per pair, to be 5 pounds after the operation. Very respectfully, THOS. M. SEEDS.

BATTLE CREEK, MICH., June 23, 1886,

WM. H. WIGMORE,

DEAR SIR:—Yours of the 19th received, also the instruments a day later. I am much pleased with your set. H. G. SPAULDING.

ANNAPOLIS, MD., May 25, 1886.

MR. WM. H. WIGMORE:

DEAR SIR:—I received your Patent Farmers' Caponizing Set by mail on the 10th inst. After altering several cockerels, I am satisfied that they are superior to any I ever used. The scoop twister is great; it saves so much worrying and fingering of the fowl. E. BREWER.

CHICAGO, ILL., April 15, 1886.

WM. H. WIGMORE,

DEAR SIR:—Your tools, I like very much. C. J. WARD.

POULTRY AS A SOURCE OF PROFIT.

That poultry and eggs are always in demand, is shown by the fact that we do not produce enough for our home consumption. That the poultry market may be overstocked, is feared by many who contemplate making poultry a matter of profit. It requires but a few minutes' thought to dispel such fallacy, as many of our oldest poultrymen can remember the time when the turkeys were driven to market on the roads, and hundreds of baskets of eggs were carried to the cities in wagons. As soon as the railroads penetrated in every direction, the prediction was that the demand would be far below the supply. The prices, however, to the surprise of those who had so predicted, advanced, and although the facilities of the present day are sufficient to bring into market eggs from every section of the country, however remote, the fact stands forth that the prices during all seasons are nearly three times as high as they were previous to the increased facilities. The product of carcasses and eggs are ten times greater, while the expense of marketing such is much less, yet the insatiable demand cannot be supplied, and Europe is called upon to send over a portion of her stock on hand every season, in order to help us out. There never will be any danger of over-production, as the demand will still further increase with the supply. This has been fully demonstrated in the case of the blackberry, which formerly found its way to market from the roadsides and along the ditches, as well as from the fence corners, but which is now cultivated so extensively that from one station in New Jersey alone, a train of cars loaded with the fruit, leaves for New York city every day during the season, and yet, the prices obtained are higher than when the blackberry was but the gleaning of waste places. And why is this demand created? It is due to the fact that when articles reach the market in large quantities, the low prices for a while tempt the buyers, and in the course of time the articles become an indispensable adjunct to the regular family supply, and must afterwards be procured at any price. In other words, not only the increased population, but the *education* of the buyers to the article as a necessity influences the demand, while any excess of food in one direction causes a corresponding depression in another, and hence the purchasers of poultry are taken from the ranks of those who use substitutes, and consequently no over-production can occur until an equilibrium in every article used for food is reached, which is nearly impossible. As long as there are plenty of eggs and poultry in market buyers will have them; and granting that by some possibility there may be an over-production in *quantity*, there will still be a great demand for *quality*, and the poultryman who

markets only the plump, fat carcasses, and sends only perfectly fresh eggs to his customers, will always find himself besieged for *more* while others are begging for sales. Hence, over-production of *good* articles has never occurred.

THE CAPITAL REQUIRED.

Among the many inquiries made regarding the matter of raising poultry in large numbers, is "How much capital is required?" If the inquirer will but compare the poultry business with any other, a little reflection will enable him to unravel for himself whatever mystery may be attached to it. If $1000 be invested in a mercantile pursuit, the interest on capital invested, at six per cent., amounts to $60, and a dividend of ten per cent. will give $100, or a total of $160 on an investment of $1000. It is conceded that a return of $160 on a capital of $1000, every year, is an excellent one, and why not take the same view of the poultry business? We are safe in asserting that $160 can easily be made on $1000 invested in poultry, and even more; but the above is given to show that the beginner does not fail simply because he cannot secure several hundred dollars on a small investment. The poultry business will give as large returns as any other, in proportion to capital invested, provided proper care and management is bestowed. The difficulty with most persons is that they expect too much. They are not disposed to take a business view of the matter, but desire the poultry business to do what they would not for a moment expect from any other, which is a return of the capital in one season. We have often had parties to ask if they could maintain a family with the poultry business, on an investment of a few hundred dollars, something which they would not hope for in any other enterprise.

Five cents a pound will cover the expense of raising chicks to the age of three months. That is for the feed, but we must also consider that in order to hatch and raise a brood of chicks, there is the value of the eggs from which the chick is produced, the interest on capital invested in quarters, fences, etc., and the labor of caring for the fowls. The larger the number of chicks raised the smaller the expense proportionately, as but little more care and labor is required for a large number than for a smaller. In one lot of 3000 chicks on a farm in New Jersey, a strict account of all the expenses developed the fact that while but five cents was required for producing a pound of poultry, the total cost for buildings, labor, feed, and interest, was nine cents. This sum may be safely estimated as the maximum cost of producing a pound of poultry, but it may be reduced or increased in proportion to the number raised, the larger the number, as we stated before, the smaller the expense for each chick. The expense for food will not be diminished or increased, but the buildings, fences, and labor will fluctuate in value according to the number.

It has been estimated that the cost of the quarters amounts to about one dollar per head, or rather, that it requires about $10 to build a house for ten fowls, and $100 for a house for one hundred fowls, but it is apparent that

the larger the house the cheaper the cost proportionately, while so far as the labor is concerned, one can as easily feed one hundred fowls as ten, and also keep the quarters clean more economically as compared with the fewer number. Yet, in the face of these advantages in favor of the keeping of poultry in large numbers, the general result heretofore has been that the smaller the number the larger the profit, a result entirely at variance with the rules applying to all other industries. This can only be accounted for on the supposition that the small flocks receive more attention than the large ones, and it is probably the solution of the problem. Those who have a few fowls only, are careful to feed them a variety, and the quarters are made as comfortable as possible, not a day passing by that some member of the family does not assist in caring for the fowls, while larger numbers are often overlooked, and many of the essential details neglected.

The cost, of course, depends upon the labor, but with a small flock there is a bestowal of labor which is not valued, being performed by children and ladies as a source of pleasure, but which would be considered as an important item in an account kept with a large flock. That nine cents will cover all the cost is a fair estimate, and it leaves a large margin for profit if the chicks are hatched early and advantage be taken of high prices. Even if only 12 cents per pound be realized the profit is 33⅓ per cent., which is much larger than may be expected from many other sources.

BREEDING FOR MARKET.

While it is admitted that the markings and plumage of a bird is an index to its purity, yet we often see the sacrificing of some of the best in the flock because of a slight defect that does no injury, but which serves as a disqualification in the show room. This practice has been very damaging to the value of the breeds for utility, as the plumage in no manner affects the laying qualities or adds to the attractiveness of the fowls for market. And yet, without a strict adherence to some definite rule by which the breeders of thoroughbred poultry can be guided, our flocks would degenerate into dunghills and their characteristics as breeds be entirely lost. But there is a limit even to the fixed outward indications, and when once the desirable object has been attained of giving them a uniform exterior the more important essentials should not be overlooked. Poultry is destined to serve a grander purpose than that of being petted. The majority of those interested have no inclination to devote their time to the breeding of beautiful birds only, but prefer to realize a profit from carcasses and eggs; and hence any attempt to sacrifice vigor and strength, in order to secure a straight comb or a certain shade of color will in the end prove detrimental. This is proved already from the fact that while the fancy breeders have been more exacting in their standard requirements than any other class, yet, they have not succeeded in securing a flock of uniform show birds from the best of their prize-winners, while the Berkshire swine breeders, who give but few points to color marks, have only a small number of culls in their herds.

The farmers who raise poultry for market, however, owe much to the breeders of fancy poultry, for despite all mistakes they may have made, they have preserved the purity of the breeds, and as their standard is only in its infancy, the time will come when all the breeds will combine not only the characteristics of utility, but convey also the outward evidences of the purity of the stock.

Select those that come up to the standard in points, if you can, but do not discard a good specimen of robust constitution for a slight defect. Be liberal in allowing a few fowls to have drawbacks if such imperfections are such as to cause no injury to the offspring, but above all, select for vigor and strength. It is not always the largest fowl that is the most vigorous, but the one with full, bright eyes, heavy bone, compact body, and quick movement. In plumage see that the color of the hens harmonizes with the color of the cock. If the hens are too dark allow the cock to be somewhat lighter, and if the hens are very heavy in the body use a medium-size cock. Too much weight is not desirable in fowls, although many boast of weight in preference to other qualities. The chief object, no matter which breed is used, should be vigor and activity. An overgrown, excessively fat fowl is a nuisance, and should not be tolerated.

BREEDING FOR EGGS.

To keep hens for laying purposes, where eggs for market only are desired, is a different matter from keeping hens to provide eggs for hatching purposes. It may safely be said that for market purposes, laying, and hatching, the conditions vary. It is a well-known principle in breeding, that the female must be in a proper condition to become fruitful, and this rule applies to the hen as well as to the animal. The fat Shorthorn cows are often barren, while those that produce large quantities of milk and butter, such as the Jerseys, Holsteins, and Ayrshires, usually bear calves every year, as the production of milk prevents overfatting. In making up a pen for breeding purposes, therefore, the poultryman must consider two or three points that must be observed in order to secure good hatches when the eggs are incubated. In the first place, the eggs from pullets do not hatch as well as those from hens, unless the pullets are early hatched. This difficulty may be overcome somewhat, however, by mating two-year old cocks with them. Again, while the cockerels may be used in the yards, they should always be mated with hens, and not pullets. The conditions to be observed are to feed a sufficiency of all that tends to provide the constituent elements of an egg, without furnishing a superabundance. By feeding so that the hens must scratch, we bring them under the same conditions by which it is known that a mare kept at moderate work will produce a better foal than the one kept standing in the stable, and pampered. It is true, as has often been stated by those who sneer at improved breeds of poultry, that they are pampered too much, and especially is this true of breeding hens, as eggs from such do not hatch well, and when they

do, the chicks are weak and sickly. No amount of lime or oyster-shells will prevent soft-shelled eggs from hens over fed, while disease is liable to occur among them at any time.

We often read of hens that lay 200 eggs a year, but such statements do more harm than good, by inducing the inexperienced to believe such to be a fact. Any one who is familiar at all with poultry knows that during the fall all hens undergo the process of moulting, or shedding of the feathers. This requires, usually, about three months, or 100 days. As there are only 365 days in a year, we have 265 days left after deducting the moulting period. If a hen lays, regularly, an egg every other day, she will lay 133 eggs, but she will probably lose three months more in hatching out her broods, and even if she is a non-sitter, she will take a resting spell. As moulting is a heavy drain on the system, but few hens lay during that process, though there are exceptions, and where the number of eggs exceed one every two days, it will be found that a corresponding reduction occurs during some period of the year. While we admit that certain individual hens have been known to lay as many as 150, or even 175 eggs in a year, such cases are rare, and if one has a flock of twenty hens or more, he should be satisfied if there is an average of 100 eggs a year for the whole flock, or rather nine dozen. Four dozen out of the nine should realize thirty cents per dozen, three dozen should bring about twenty cents a dozen, and two dozen should realize fifteen cents per dozen in this section, or an average of about twenty-three cents. Of course this calculation may be wrong, but it will convey an idea of what may be expected.

Many poultry raisers provide their fowls with warm quarters, and feed regularly and on a variety, but yet they get no eggs. Such cases are numerous, and we will endeavor to point out a remedy for the difficulty. We well know that if we keep a horse in a stable, and feed him well, that he becomes restless and unhappy, and in order to keep him in good health he must be exercised. With fowls, the winter prevents foraging, and our kind readers go to the coops in the morning and give the hens a good, heavy feeding. The hens being full, are *satisfied*, and have no inducement to ramble, consequently, do not take any exercise, and become too fat. The better plan is to get some chaff, cut straw, leaves, or even dirt, and place it where the hens can scratch in it. In the morning give the hens a mess of warm food, but *only a little*. Now throw some grain into the scratching heap, and make them *work* for the balance of their meal. Feed nothing but what they will have to *work* for. At night feed them all they will eat. The object is to keep the hens busy during the day, but let them go on the roost full. Hens that are compelled to work will lay better and keep in good health, while the eggs will produce stronger chicks. They should always have a warm mess early in the morning, especially in the winter, but the meal should be so given as to leave them somewhat hungry. Do not feed them at noon, except by putting their food in the scratching heap, and never give soft food in the scratching heap. In other words, keep them scratching for oats, wheat, seeds, and even for ground shells. Give no corn except at night, and give them their night's meal without making them scratch for it.

EGGS FOR HATCHING

It is often a problem with some why they at times secure good hatches from a portion of the eggs placed under hens, while but poor results are obtained from other sittings. In the first place, in a majority of cases, the trouble is with the *eggs*, and not with the hens. For hatching purposes, especially in winter, the eggs must be collected as soon as they are laid, in order to prevent them from becoming chilled, for extreme cold is fatal to the germ. No monstrosities in eggs should be used, such as those large enough for two yolks, or that are pointed at both ends. Ordinary, smooth, medium size, well-shaped eggs should be selected, and the fresher the better. The nest in winter should be made in a warm location, which is not exposed to drafts, nor is dampness essential, though a moist nest is better for the summer. Avoid giving the hens too many eggs to cover. Common consent has adopted thirteen eggs as a sitting, no matter whether the hen is large or small, but it is more economical in winter to place only ten eggs under a hen, as she will be enabled to impart more heat to a smaller than to a larger number, as a full nest sometimes does more injury than one but partially filled, owing to the larger number of eggs that become exposed, there to remain until they in turn are changed to the centre of the nest by the hen. In extremely cold weather, an egg so exposed is destroyed by the low temperature, but if the hen succeeds in covering a smaller number, she will save the difference in the cost of the eggs required, and also hatch more and stronger chicks. It would be well if the eggs were tested after being under the hen a week; the incubator operators understand this, and why should not the same practice be followed with sitting hens? It is a very easy matter. Make an egg-tester by pasting paper boards together, or by using thin boards, if preferred. A box should be made so as to fit over a lamp globe; say a square box, with a round hole on top and an oval hole on one of the sides. Place the box over the lamp, allowing the chimney to pass through the hole on top; now darken the room, using no light but that from the lamp; hold each egg to the oval hole on the side, and look through the egg at the light. If the eggs are a week old they will appear dark, should they contain chicks, the upper part, or large end, appearing clear; this clear space around the inside of the large end is the air-sack (or air-bladder, as some term it). Below this air-sack the contents of the egg will appear dark. Should the egg contain no chick, it will appear clear, and if compared with fresh eggs, will show the same appearance; therefore always use a fresh egg for comparison. Put the dark eggs back in the nest, and keep the clear ones, cook them and keep them for feeding the young chicks.

FEEDING.

The frequent admonition to feed a variety of food is not given simply to gratify the desires or appetites of the birds, but for another purpose. The hen is used by us as a *producer*, and as she cannot produce anything without

the material from which to do so, she is useless unless her wants are supplied. She consumes a large amount of carbon every time she inhales air, while the bones, flesh, and nervous system are constantly being wasted and repaired. Should this waste be permitted, without a renewal, the bird will die—starve—although she may be fed liberally, as far as *certain kinds* of food are concerned. If she received nothing but corn, she would become very fat, as corn is rich in carbon, and her body would be kept warm from the heat created; but while fat and apparently in good condition, her bones and tissues would gradually waste away, and she would droop and die without apparent cause. But food of a carbonaceous nature is required also in some form, as the heat of the body is necessary, while carbon is an important constituent of the yolk. Corn contains a small proportion of all the elements of food, but in insufficient quantities for the proper nourishment of a laying hen. We may divide the food proper into three kinds—carbonaceous, nitrogenous and phosphatic—The minerals—lime, soda, potash, etc., must also be included.

Some of the grains, such as wheat, oats, and buckwheat, furnish quite an amount of all the elements needed, lime included, but as such foods are not perfectly balanced with all the hen requires, they serve her purposes for only a short time. Hence, when a chick is growing, the rapid formation of muscle and bone (not fat) requires food rich in nitrogen, which is best given in the form of milk or meat, and it is the absence of nitrogenous food that causes them to die when they are fed on corn meal. The egg is largely composed of nitrogen, the white especially, and the hens that are fed on meat and milk as a part of their diet, will lay in winter if kept warm. To vary the food means to vary the quality of the articles provided, in order that no element may be lacking, and while it is important that the food be of a varied character, in order to provide all the proper materials necessary, the fowls need succulent and bulky food for dietary purposes. Corn, wheat, meat, etc., are *concentrated* foods, and should be accompanied with grass, or any kind of bulky food, in order to assist digestion, as well as plenty of water, just as a horse needs hay, although he may be allowed all the grain he desires. In feeding a variety, however, do not over-feed. Never allow the stock to get too fat, or the hens will lay soft-shell eggs or none at all. Fat interferes with the generative functions. Always endeavor to make the hens exercise, by scratching for their food. If they are made to work, and are fed on food containing the necessary elements, they will lay, and cannot refrain from doing so.

RAISING CHICKS.

Broilers are usually hatched under hens in March for the earliest supply, but where the season is severe, the hens and broods must be kept in a good warm location. It is useless to attempt to raise broilers by leaving the chicks entirely to the care of the hens. They will gradually drop off one by one, until as many are left as the hen can conveniently cover, and when the minimum has been reached, the chicks will thrive. Chicks under hens demand as much care as those in brooders, especially at this season, and unless they receive it, at least one-half will perish.

While a large number of persons are convinced that artificial incubation can be made a success, yet there are some who find it a very difficult matter to raise chicks hatched in incubators. That chicks are raised every year from incubators is a fact not to be denied. In the first place, it must be considered that during incubation the chick is kept at a temperature exceeding 100°. It can no more stand a sudden change to a temperature twenty or thirty degrees cooler, than a young child can. Hence, the most important object should be to keep the brooder from 90° to 100°; for while the chick may at times run out in the cold, it must have a very warm place when it returns. One of the faults of the majority of brooders made is that the yards or runs are too large. For the first three or four weeks of the chick's existence it should have but very little space on the outside of the mother, but may be given greater range as it grows older. *Plenty of heat* and at *all times*, is very essential, and it should never be lower than 90°, but may be as much as 100°. It is better to have a brooder too warm than too cold, as the chicks will scatter and sleep near the entrance if it is too warm; but should the brooder become too cold they will crowd together. The chicks themselves will indicate whether the heat is too high or too low, as they will always crowd together when the heat is insufficient. Should they remain in a brooder over night, and the temperature is too low, even if they are apparently well the next morning, the result will be that in a few hours bowel disease will occur, which many suppose is caused by some unfavorable conditions of feeding, when the lack of heat is at the bottom of all the difficulties. It is given as a caution, then, never to allow the heat in the brooder to be so low as to compel the chickens to crowd.

We have made admonitions in regard to feeding, but the water is more important than the feed. That is, it should be so placed before the chickens that they can only reach it with their beaks. Keep water before them constantly, and give them all they can drink, but never allow a drop of it to get on the chicks, nor should they wade in it. Dampness is fatal to young chicks, while *heat* and dryness are important factors to success. Should a chick get damp it will have the croup, which is often mistaken for gapes. In feeding it is best to use hard-boiled egg for one or two days, but the food may be varied after they are three days old. Do not keep them on one kind of diet, and feed a small allowance of meat two or three times a week. Milk is excellent, whether fresh or clabbered, but too much cornmeal should not be given. It is not necessary to feed incubator chicks differently from those that are hatched under hens, except to keep them well provided. The main point in raising artificially-hatched chicks is to give them plenty of heat in the brooder, and keep them dry. Of course, the strictest cleanliness must be observed, and the chicks must not be crowded. The coops or brooders must be cleaned daily, and if they are well dusted with Persian insect powder once a week, allowing it to fall over the chicks and settle in their down, they will be free from vermin and grow rapidly.

It has been doubted on the part of some that chicks can be made to weigh two pounds at two months old, yet, such has been the case to our knowledge on several occasions. The doubt comes from those who have never *tried* to have the chicks attain that weight in the same length of time. As a rule,

the rapid increase is on the part of incubator chicks, or where only a few are raised. The reason is made easily apparent. Those hatched in incubators are constantly under the care of the operator, and are always supplied with plenty of food, which is varied, and they are also kept *dry* and *warm*, which is as important as the feeding. The chicks never receive a check in their growth from the time they come out of the shell until the two pounds are reached. A few chicks with a hen also receive extra care, every member of the family joining to add to the care and pleasure of their management. We may add that something also depends upon the breed. The Plymouth Rocks, Langshans, Brahmas, Cochins, and Wyandottes, or their crosses, are best for the purpose, but a cross of the Dorking or Houdan on any kind of a large-sized hen, will give good results. Such chicks must be forced, and although they may even get weak in the legs from high pressure feeding, yet, the comparison of them with chicks not so managed will be very marked.

HATCHING CHICKS EVERY MONTH.

Although custom has confined the hatching of chicks to the early spring months, there is no reason why they may not be hatched and raised with profit the entire year. There is not a month in the year that does not present advantages and disadvantages, and the most successful persons often meet with loss when unexpected, and success when the obstacles seem greatest.

September is an excellent time to begin hatching, not because there will be a sale for broilers when they are six weeks old, but because they can be raised with less care. In such cases the poultry raiser must take into consideration the fact that the best prices are not attainable until after Christmas, and the chicks must pass through the beginning of winter. The broilers that bring the highest prices are those that are fat, compact, and nicely feathered, and when they first come into market should weigh from one-half to three-quarters of a pound. How to raise chicks hatched in September, and yet manage to have them small enough for sale in January, is best done by crossing a black-red game bantam cock on small, compact, common hens. The game blood gives vigor, the flesh is the best of all table fowls, and the bantam size prevents rapid growth, but allows of quick feathering and age before the weather becomes too cold. As the chicks will have made sufficient growth during the fall to enable them to withstand the severity of winter, they will be able to endure much more than the chicks from standard fowls of the same age. The same rule that applies to September, may hold good for October, but November demands a cross of a larger kind, for the chicks will not grow too fast after frost. We should cross the hens with a cock of a hardy breed, and one that feathers up well, such as the Plymouth Rock (or Dominick, if the hens are large), but avoid such breeds as Hamburgs or Black Spanish, as they are too tender for winter.

The first consideration for the chicks is *dryness*. The slightest dampness is worse than cold, though *warmth* is also absolutely essential. The breeder will find that his duty will be shoveling snow, thawing drinking fountains,

nd occasionally resuscitating chicks that have been chilled, but after he has ttended to them faithfully, he will be amply rewarded by the high prices btained. Chicks hatched in November, December, and January are more eadily sold at the weight of half a pound. February and March chicks sell est at three-quarters of a pound, and April hatched chicks at a pound, the rice averaging about fifty cents a chick, the half pound selling at one ollar per pound, the three-quarters at seventy-five cents per pound, and *ro rata*.

Although the difficulties in winter may seem arduous, the prices are remuneration, but the largest and easiest profits are derived from chicks atched in the spring months—March, April, and May, owing to the expenes being lighter in comparison, the chicks not being subject to such extremes f heat and cold as during the winter and summer. The best m-uth for elling is April, and the poorest, September and October.

That chicks may be raised profitably at all times, may be made apparent rom the fact that the price seldom becomes less than twelve and one-half ents a pound, even in the dullest season, though adults often sell for much ess, while the actual cost is about five cents per pound. The summer nonths are usually considered the most unfavorable for hatching young hicks, but the cause of failure may be attributed to lice, which rapidly multiply during warm weather, the mortality being greater than in winter or pring. This difficulty is easily obviated, however, by proper management, nd as the increase of carcass is greatest during the first three months of a hick's existence, a fair profit may be realized even at low prices.

To classify each month, in a condensed form, in regard to the advantages nd disadvantages, we may state that in September chicks may be hatched, rought to a good condition, and sold in January at a fair profit, but the reeder must buy all the food and expect to do hard work before they reach he market.

October enables the breeder to have the chicks feathered before the cold eason sets in, and they may be sold with those hatched in September.

November chicks will bring good prices about the beginning of February, ut they demand the closest supervision, and unceasing care.

December chicks come at a time when they must not be allowed to roam at vill, for the cold, if allowed to injure them, brings on roup, and they gradually drop off. With plenty of warmth and sunlight, however, they may be arried forward with but little loss.

January chicks are those that produce the early pullets for winter laying, ut they must be raised without snow and ice to injure them. It is the extra are required that makes them valuable.

Both January and February are the months for raising the April market hicks; the best breeds for the purpose being those possessing strong constiutions, heavy bone, and close feathering. All chicks raised in the winter nonths grow faster the greater the proportion of artificial heat supplied.

March chicks get the benefit of the first growth of vegetation in warm, andy sections, and a variety of food is more easily obtained than previously. A cross of the Leghorn on common hens is now the best, as the chicks will

feather rapidly and come into market with greater attractions, owing to t easy maturity of the Leghorns. Chicks hatched in March sell best in Ma when about one pound each in weight.

April and May are twin months, the conditions being nearly the san The chicks will receive a greater variety, and can begin to forage. Th reach the market about the middle of June and first of July, up to whi time the prices will be from fifty cents down to twenty-five cents per pou for two pound chicks, but the cost of production will be less.

THE GROWTH OF YOUNG CHICKS.

Considerable discussion as to the growth of young fowls having reached t we give here the result of careful experiments.

The growth of chicks, as ascertained by us during the past three month was as follows, viz:—

The egg weighs					2	ounce
Chick newly hatched weighs					1¼	"
" 1 week old weighs					2	"
" 2 weeks old weighs					4	"
" 3	"	"			6¼	"
" 4	"	"			10	"
" 5	"	"			14	"
" 6	"	"			18½	"
" 7	"	"			23½	"
" 8	"	"			28	"
" 9	"	"			32	"
" 10	"	"			36	"
" 11	"	"			41	"

The chicks experimented with were Plymouth Rocks, though considerab mixed with other bloods. They were fed mostly on a mixture of bran, oa meal, and corn meal, moistened with milk or water, and baked, sometim merely cooked with boiling water. Whole wheat and skim milk chee served as a variety during th first four weeks, and the cake was sometim made richer by the addition of a little animal meal, ("pulverized dried bo and meat."). Out of quite a large flock, not one chicken died from diseas They were fed very regularly three times a day, and all they would eat u clean. A flock which increased two pounds in weight a day, consumed le than six pounds of corn meal, or its equivalent in other food in twenty-fo hours; and what vegetable or animal matter they could pick up, which, i spite of unlimited range, did not appear to be very much; at least they we always hungry when they came to their meals. From the above, you wi see that the actual expense of making one pound of "spring chicken" wa in this case, not more than four cents. The market price in cities durin July, varied between twenty and twenty-eight cents.

We might have grown these chicks still faster by giving them a greate

variety of food, but did not attempt to force them. Or we might have grown them slower, but with less expense, had we made them shift for themselves. There were *no* grasshoppers.

EXPERIMENTS WITH YOUNG CHICKS.

We are indebted to Mr. Geo. W. Pressey, of Hammonton, N. J., for the following, which has been derived by him after careful experiments in artificially hatching, brooding, and successfully raising and marketing large numbers of chicks. Constructing his own incubator and brooder, he began a series of investigations, which are valuable to all who contemplate embarking in artificial incubation. He states as follows:—

That it will cost to raise a chick, without regard to breed, one cent a week for ten weeks, the cost being proportionately less until the fifth week is reached, and greater afterwards, the cost for the fifth week being exactly one cent.

That the brood of chicks will double in weight each week until they are forty days old. He found ten chicks to weigh half a pound (together) when hatched. They doubled to a pound in a week, reached two pounds in another week, four pounds the next, and so upwards to the fortieth day, when, although they continued to increase in weight, the ratio of gain became gradually less.

That it requires one pound of feed (corn, oats, wheat, etc.) per week for each chick for ten weeks, the minimum of course being the first week, the maximum the tenth, and the fifth week denoting the average, making ten pounds of food for ten weeks. After that period the quantity necessarily increases.

That it is easier, cheaper, and safer, so far as health is concerned, to use incubators instead of hens, for hatching, but in order to get the best results, one must give care and attention to the matter, but not necessarily more than is required in any other pursuit. To care for the number of hens necessary to hatch as many chicks as a 300-egg incubator, entails more than double the time and expense.

That it has been heretofore difficult to raise chicks hatched in incubators, with most farmers and others, but by experiment he has been satisfied that a stream of pure, warm air, which he furnishes the chicks by the arrangement of the brooder, is absolutely necessary, the loss being so insignificant as to be but a trifling matter.

THE BEST BREEDS.

There is no one breed that suits all the different climates of the United States, and therefore the desire to secure a general purpose hen, like the general purpose cow, is an impossibility. When the snow is very deep the hens must

be kept indoors, and the active breeds (which are the best layers), such the Leghorns, Houdans and Hamburgs, become restive, and are soon addict to vices, such as feather-pulling, egg-eating, etc.

The hen best suited for a cold climate should have a small comb, in ord to avoid the frost, should be well feathered, and easily kept in confinemen Nor is it the best to use the pure breeds exclusively, as they are bred, as rule, too fine. The beginner should rely on crosses for his purpose, seekir to combine the good qualities of several breeds in one. The hardiness of t Plymouth Rocks, the heavy feathering of the Cochins, the early maturity the Leghorns, and the small combs of the Brahmas and Wyandottes shoul be secured; and at the same time there must be retained yellow legs, skir and good laying qualities. The best foundation is the common fowl, for th reason that it is always acclimated. The first thing to do is to increase th size, which may be done by the use of a light Brahma cock, which also in plants the small pea comb. A cross of the Rose-comb White Leghorn wi give early-maturing qualities, and if the cross is continued by the use of th Wyandotte, the size is again larger and the comb small, with plump bodie and golden yellow skin and legs. Occasionally, for a change, a dash of th Pea-comb Partridge Cochin may be used with advantage; but whenever cross with the Cochin or Plymouth Rock is made, it should be followed wit Wyandotte, as one of the principal objects should be to breed for small combs

One-fourth Leghorn blood is enough in any cross, as the Leghorn blood pre dominates. A half-bred Leghorn hen will have nearly as large a comb, an be nearly as small in size, as a pure-bred one, and in making crosses use th Leghorn cock with hens of the larger breeds instead of the other way. A good, heavy fluff on a hen indicates that she is well protected against cold and if the houses are warm and comfortable, the hens well cared for, and mad to *scratch* for all they eat, there will be no difficulty about getting eggs i winter. But to get eggs in winter, if the climate is severe, there is no re liance to be placed in Black Spanish, Hamburgs, Houdans or Polish. Th Leghorns may be partially excepted, but the best are the Brahmas, Langshans Cochins, Wyandottes and Plymouth Rocks, the good qualities of all of whic may be combined, to a certain extent, by judicious crossing

There are many mistakes made in winter management due to a lack o knowledge of the proper mode of feeding and protecting against cold. T keep the hens closely confined in a poultry house because the weather is col is to deprive them of pure air and exercise. At the same time, if they ar exposed to cold winds they will not lay. Some breeds go through the winte without injury to the combs and wattles by freezing, such as the Brahmas, fo which reason they are considered by many as the best winter layers. Thi claim is not true. The Brahmas are no better for winter laying than th Leghorns, if the latter are properly protected, but the small combs and wattle of the Brahmas do not present a large surface to the action of the frost, an and they are consequently exempt in that respect. They are also heavily feathered, and are usually gross feeders and create more animal heat than the Leghorns. But the Leghorns will lay more eggs than the Brahmas if the poultry house is kept warm, as has been demonstrated by actual experiment. While the Brahmas are better protected, yet they are more easily fatted

which is not desirable in a winter layer. Exercise is another important matter. Fowls do not have a preference for the inside of a poultry house, no matter how cold, the season may be. If a shed, or an enclosed space, in which there is a free circulation of air, is provided as a scratching place in the day time, (if the north, east and west sides are closed,) they will keep in good condition, but they should be kept at work, and not so fed as to induce them to sit around and grow fat. The combs of Leghorns may be cut off if preferred, but such will be unnecessary if they are protected against the winds and kept busy, as exercise keeps the blood in circulation, prevents over-fatting, and consequently wards off disease.

Nothing but the yellow color of the skin and golden legs seems to please the purchasers, but there is no reason to be given for such preference except in appearance. The yellow skin gives an indication of a fat fowl which is deceptive, while the skin of such fowls is always very thick and tough. The dark-legged fowls are, as a rule, preferred in all other countries but this. The Houdan in France, the Dorking in England, and the Langshan in China, are rightly the favorites, and are superior, for table purposes, to any of the yellow-legged varieties.

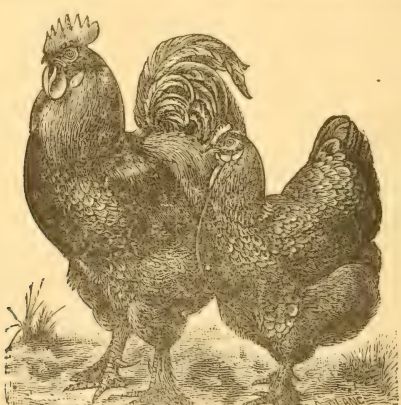
The Langshan, with its thin, white skin, juicy flesh, full thighs, and plump breasts, is one of the best table fowls we have, but its legs (which are useless, of course, for table purposes) are dark, which is enough to condemn it in the eyes of those who judge by external appearances only. In fact it is almost an intermediate bird between a chicken and a turkey, so clearly does it resemble the latter in some respects.

The Houdan is more compact than the Langshan, and has a large quantity of meat on small bones. It is of the best quality of carcass and regarded in France as inferior to none, but, like the Langshan, is subject to the American prejudice against dark legs. The Dorking, which has stood the test in England for nearly three-quarters of a century, is kept in the rear here, owing to the color of its legs, while many of our best-laying breeds, such as the Hamburgs, Black Spanish, and Polish are discarded for the same reason, although they are not classed among the best as table fowls.

Even in the selection of broilers, prejudice steps in and prevents the breeder from offering the best. A young Leghorn is rarely preferred, owing to its full development of feathers, yet there is no chick more attractive for the table than a young Leghorn. Because a young Brahma has no feathers it is supposed to be younger and more suitable for broiling, which supposition is not only erroneous, but leads to the rejection of many other varieties. For providing the table with choice meat, either as broilers or for roasting, the Games are the equals of any, but the willow legs and horn-colored beaks prevent the attainment of the highest prices, yet there is no known breed with yellow legs that can compare with them. Among the crosses, that of the Game rooster with Houdan, Dorking, or Langshan hens is admirable, and even upon the yellow-legged Cochin or Brahma the improvement in quality is marked. If the yellow-legged breeds must still be the favorites, crosses of the Leghorns on some of the Asiatic breeds are best, as the fine bone of the former with the hardiness of the latter enables the poultryman to have greater success as well as improvement in the quality of his stock.

LANGSHANS.

The more the Langshans are tried, the better they are liked. A strong prejudice existed against them on account of their dark legs, but as sensible people are reflecting that the legs are the most useless part about a fowl, so far as table purposes are concerned, the breed is becoming more popular. The Langshan is a large fowl—nearly as large as the Brahma—and yet the pullets sometimes lay as early as the pullets of the Leghorns. We can put our hands on two pullets that began to lay when they were five month old, and a score that began before they were six months old. When we say that much in their favor, it is not all, for they lay as steadily after they begin as any other fowls. They are not non-sitters like Leghorns, but they do not incline



LANGSHANS.

to sit as quickly as the Brahmas, though they make excellent mothers, and begin to lay again before leaving the chicks. For the table they are fine. The flesh is close-grained and tender, dresses white, and the body is full, compact, and nice-looking. If there is any one particular fowl that may be claimed as a perfect one, it is the Langshan, but as no one breed answers for *all* purposes, it is safe to say that this breed comes nearer to that desideratum than any other.

The plumage, carriage, and form is simply magnificent. A black in color, the lustre is heightened by a greenish cast that adds a polish and brilliancy unsurpassed. They are beautiful in every respect, and are as useful as they are pretty. One cannot judge by looking at a young chick what the adult

Langshan is. The grown bird must be seen to be appreciated, for the lustre does not fully appear on them until they are completely endowed with their hackles, saddle-feathers, and tails. The young chicks are white and black when hatched, but the white gradually disappears, and they grow very fast. It is safe to say that the Langshan chicks can hold their own against any, and are intelligent and gentle.

Crossed on other fowls, they impress themselves very strongly, and make a good cross with any breed. If crossed with Black Spanish, the cross has the straight comb of both parents, and they are hardier than the Spanish, though the latter has clean legs while those of the Langshan are feathered heavily. We are not afraid to recommend the Langshans to any one, for they are about as good as can be found for nearly all purposes.

This cut represents a pair of Major Croad's imported Langshans, direct from their native place. Their plumage is of a uniform glossy black, and full of lustre; combs single, and a bright red color. The beak and legs are dark, with flesh-colored variations along the line of the mouth, and lower part of toes and sole of foot. The eye is dark, wattles and ear-lobes a bright red color; tail very full and flowing, carried rather high and forward, and furnished with good-sized sickles, which wave in the breeze as streamers. They are agile, active, and impetuous; are very prolific, grow quickly, mature early, and lay well. Although not given to being broody, they are good sitters and good mothers. Their flesh is white; they have a very thin, white skin, and as a table fowl, are equal to small turkeys, and not inferior to them in delicacy and flavor. We believe them to be the best.

DISEASES.

Nearly all diseases may be traced to filth. How many leave the droppings until they accumulate in large heaps, cannot be numbered. Some persons clean out the coops weekly, while others, by the use of absorbents defer the work to longer periods. The safest course is to clean out the houses and coops daily, as is done with the stables. It is not at all surprising that so many persons do not regard poultry as profitable, as they do not attach that importance to the business it deserves. Any farmer who did not clean out his stables oftener than once a week or a month, no matter how much absorbent material he used, would soon find his stock falling off in condition or dying of disease, and yet, because the hens are no exception to the rule, the raising of poultry is regarded by such persons as unprofitable. Poultry diseases may be prevented by cleanliness, but not otherwise. The cholera and roup may be cured a dozen times, but unless the houses and runs are kept clean, such diseases will appear as regularly as the periods of the moon. Poultry is a profitable business, but not under unfavorable conditions.

On old farms, where the hens have had the run of the farmyard for years, there is gradually accumulated a certain amount of decomposed matter from the droppings, which is not distinguishable from the dirt with which it is mixed. This condition is the cause of gapes in chicks and cholera in adults,

as has been repeatedly proved by those who have tried the experiment o feeding chicks on board floors, by which means the gapes were avoided. W do not allude to yards in which fowls are confined, but the farm yards, i which they are supposed to have plenty of room. Gapes and cholera ar more prevalent in farmyards than in the small yards used for confining fowls for the reason that the small yards are frequently cleaned and turned u with the spade. If the farmyards could be occasionally scraped over, an then thoroughly sprinkled with a solution of chloride of lime or copperas it would do much to prevent disease. What is better, is to mix an ounce o sulphuric acid with a bucket of water, and sprinkle the yards, but it is no as easily handled as the chloride of lime or copperas water. A pound o chloride of lime to ten buckets of water or a pound of copperas to fou buckets of water will answer the purpose.

CHOLERA.

This is a summer disease. What roup is to the winter, cholera is to th summer. It is a parasitic disease, arising from the rapid multiplication of minute parasite that destroys vitality by preying upon the fowls, as the para sites pass wherever the blood reaches, the liver being the principal point o attack. To cure it we must destroy the parasites, and while there are plent of remedies, they are too severe, endangering the life of the fowl. Sulphu is the agent by which all diseases may be avoided or cured, but sulphur i insoluble. The fumes of sulphur can be collected in water, which absorbs i and administered; but we can give sulphur gas in another shape. Hyposul phite of soda is a compound of soda, sulphur, and sulphur gas. It is harm less, is solid, and easily given. It acts as a cathartic, and not only destroy the parasites, but compels them to pass off. With cholera, the fowl weakened and debilitated, and care must be observed not to kill it in th endeavor to cure it.

The first thing to do is to give a teaspoonful of hyposulphite of soda, for ing it, slightly moistened, down the throat of the fowl. An hour afterward give a grain each of powdered mandrake, red pepper, ground ginger, an copperas. Each substance should be finely pulverized, mixed with a litt starch or corn meal, moistened and administered. Place the sick fowl in quiet place, give plenty of cool water, and leave it until well enough to ea Then feed on cooked food for a few days, and it will most likely be all righ The symptoms are a nervous, anxious look, drooping spirits, great thirst, a pale or black comb. It comes from filth.

ROUP.

The majority of the inquiries coming to us relate to roup. But few, ho ever, are aware of the prevalence of the disease when roup is present, as comes in such "questionable shapes" as to completely deceive many who a

inexperienced. They will, perhaps, treat for every ailment except the correct one. Roup usually causes a discharge at the nostrils, which is easily discernable. It is, as a rule, accompanied with hoarse breathing, the comb changes color, and the fowl droops. The beak will be open if breathing is very difficult, and a foul odor will prevail in the coop or will be given off by the bird. In light attacks, a sneeze, or an occasional "pip" may be heard, but the great danger is from the cases accompanied by the foul odor and hoarse breathing. The first thing to do is to remove the phlegm, which should be done gently with a soft mop, dipping the mop in a solution of Larrabaraque's chlorinated soda, to be had at any drug store. Repeat this once a day until the bird is well. Feed, either in the soft food or in the shape of a pill, a mixture of equal parts of asafœtida, ground ginger, gentine, and boracic acid, allowing a teaspoonful of the mixture to every ten fowls. It may be given night and morning. A dry, warm place is essential, as roup is caused by cold and dampness. A spoonful of kerosene oil in the soft food for ten hens will assist in preventing the disease, while the drinking water should be changed often to prevent contagion.

In addition to cholera and roup there are many minor difficulties, such as bumble foot, scaly leg, feather-pulling, etc., which may be prevented with care on the part of the poultryman. Bumble foot is common, but it never occurs if the roosts are so constructed as to permit the fowls to get upon them or descend without being compelled to fly or jump. They should be low and be made firm and steady. Scaly leg comes from a parasite. If taken in hand as soon as the first symptoms appear, is is easily prevented, but should the matter be deferred, the hens will soon have an unsightly appearance, and the legs gradually grow large and rough. By applying a mixture of kerosene and lard once or twice it will disappear, if it is done during the first stages, but when the legs are fully covered, much scraping and frequent applications are necessary. Feather pulling cannot be cured when once the vice is acquired, but by keeping the hens busy and giving them animal food in some shape at least twice a week, there will be but little danger of its appearance. Crop-bound, frosted combs, and loss of appetite may be occasioned by carelessness. With protection from winds frosted combs need not be feared, while a supply of gravel and ground shells are excellent preventives of diseases of the digestive organs. Crop-bound may arise from mechanical causes. A piece of old rag, tarred rope, or any other substance may clog up the passage to the gizzard and prevent the food being conducted from the crop. As the difficulties are more easily prevented than removed, a little foresight is all that is necessary to save vexation and annoyance, especially at a time when prices are high and production most desired.

LEG WEAKNESS.

Somehow or other we have received a great many inquiries relating to leg weakness, and the inquirers nearly all state their complaints in this manner:— "Several of my chicks move about on their knees, and cannot stand on their legs: I *feed well*, and give them every attention." Leg-weakness is

occasioned by very high feeding. It is not dangerous nor does it indicate that there is anything wrong with the chicks. It means that they have been forced, and that the increase of strength does not correspond with the growth of the body. A deficiency of phosphate or of lime in the food, which is the bone-forming material, will cause leg weakness, especially if the food is rich in nitrogen, or flesh-forming material. Carbon is the fat-forming substance, and is useless to a growing chick unless it is intended for market. Sometimes, however, the leg weakness is really a slight attack of rheumatism, especially if the weather is damp, but it comes from the same cause—forced growth. No alarm need be entertained, for the chicks generally come up again, unless the food fed is largely deficient in some respects.

How to avoid and cure leg weakness, is to feed judiciously. Plenty of meat, which is usually given with scraps from the table, is just the material that pushes the chicks rapidly forward, but meat contains very little of the phosphates. Wheat, of course, contains it, but it is not sufficient when the growth of the chicks is very rapid. Corn is injurious at such a time. But if we will add a substance that supplies the deficiency, we can then feed anything desired. Such a substance is ground bone. With ground bone and pounded oyster shells the chicks will be fully equipped to ward off leg weakness, and but very little trouble will ensue on such a system.

There is one other cause, however, which is a deficiency of green food. Highly-concentrated food given at every meal is too stimulating, and if grass, boiled potatoes, turnips, or any kind of vegetables are fed, it will be better than feeding too exclusively on the scrap diet. In cold weather the green food may be given, if preferred, in the shape of finely cut clover hay, steeped in hot water and fed warm. In fact, any kind of hay will serve such a purpose, if it is cut into short lengths and steeped. Always give a little salt in the soft food. It is as necessary for fowls as for cows or other stock. A little red pepper once in awhile is also good, but do not feed it daily, as is often suggested.

LICE.

It is sometimes an easy matter to get rid of lice on fowls, but the poultry house is not so easily managed. During June the lice will be active and increase rapidly. It is no use to attempt to rid the fowls of lice until the premises are thoroughly cleaned, as such labor is lost. If the houses are kept clean, the hens will, with the use of the dust bath, clean themselves. To rid the house of lice, first remove all filth from the roosts, floors, walls, and nests. Scrub the roosts with coal oil, not overlooking a single spot. Take the nests outside, clean them out, and with a white-wash brush apply a light coating of coal-oil to them, inside and outside. Now touch a lighted match to the nest boxes and let them burn. No damage will be done, as the oil will be quickly consumed, but such work should not be done inside the houses. Now make a bucket of whitewash, and add to it an ounce of liquid carbolic acid, and a pint of tobacco water, which may be made by pouring boiling water over tobacco refuse, and allowing the water to remain over

night with the tobacco. Apply the whitewash profusely, and dust Persian insect powder through the feathers of the hens, holding them by the legs for that purpose. Do not use grease on little chicks. Persian insect powder will remove lice from them. Little's Chemical Fluid is an excellent article to use in the place of carbolic acid, it being efficacious and non-poisonous.

DUCKS.

At the Pennsylvania State Fair we had an interview with Mr. Jas. Rankin, of South Easton, Mass., the manufacturer of the Monarch Incubator, who was, at the time of our visit, busy with 300 ducklings and chicks which he had just hatched out. Mr. Rankin is enthusiastic over his results with ducks during the past year, and gives his experience as follows:—

His adult ducks number 35, from which he hatched 3000 ducklings in his incubator, making $45 profit from each adult. He received from 18 to 30 cents per pound for the ducklings when they were about eight or nine weeks old, and at that age they weighed from 8 to 10 pounds per pair, growing nearly twice as fast as chicks. They were sold dressed, the feathers paying for the killing and picking. Each young duck yielded about two ounces of feathers, which sold at 50 cents per pound. Occasionally some of the young ducks would increase at the rate of a pound a week. On weighing them at six weeks old, they have averaged 2½ pounds, and in one week more would attain 3½ pounds. They are fed in the same manner as young chicks, but require a little more animal food. Soft food is better for them than grain. When first hatched hard-boiled egg, with stale bread soaked in milk, answers well. When three or four days old a mixture of scalded meal and middlings, to which mashed potatoes are added, makes an excellent food. Green food and meat, however, must not be omitted. The best months for selling (Boston market) are May and June, the average price per pound, wholesale, being 22 cents. They come in at a time when chicks are depressed in price. The average cost for each duck is two cents a week for nine weeks, or about five cents a pound.

Mr. Rankin's ducks begin to lay near the 1st of February, and lay about 140 eggs each per annum, commencing when five months old. They are of the Pekin variety, the yellow legs and skin and pure white feathers being desirable. The old ducks can be kept with only a large trough for bathing purposes. As to the raising of young ducks he uses no water at all, except for drinking purposes. They are kept in little yards the same as chicks, being subject to fewer diseases, and are hardy and grow fast. Mr. Rankin uses incubators entirely, being very successful, and literally astonished the visitors of the State Fair with his exhibit by bringing his eggs from Boston to Philadelphia, keeping them 18 hours out of the incubator, and hatching nearly all of them; although they were well shaken on the journey, many of them hatching out during transit. The figures given, as well as the fact that no water is required, solves the problem as to the profit to be ex-

pected from ducks, but, as Mr. Rankin states, the secret is in a good incu bator, a good breed, and good attention during the time of incubation up t the period of marketing the ducklings.

There is a profit in ducks, for they possess many good qualities not to b overlooked. In the first place they grow faster than chicks, and are ready for market when three months old. They are subject to fewer diseases, an need less care and attention. They usually lay early in the morning, an are regular in their habits. Ducks are gross feeders, and consume anything that may be offered. A pot of boiled turnips, thickened with meal and mid dlings, furnishes them with a delicacy, while the tops of vegetables ar greedily devoured. They thrive best when they have access to a pond, bu may be kept without water, except what is required for drinking, if desired but in such case they should be supplied with a ration of meat every day A large trough will serve them for bathing purposes, and if supplied with al they require, will give good returns. Ducks are voracious and greedy, an unless fed judiciously, will run up an expense nearly equal to the receipts but a large portion of their food may consist of grass and other bulky material which is better for them than too much concentrated food. They do no scratch, and should therefore have as much room for exercise as can be al lowed. The Pekins and Rouens are the largest breeds, but the Aylesbury are claimed to be the best layers.

The breeds of ducks consist of the Aylesbury, Rouen, Call, Cayuga, Muscovy Crested, and Pekin, though the Call and Muscovy are of two colors, divide into White and Colored Muscovy, and Gray and White Call ducks. Th largest is the Pekin, which averages about twenty pounds per pair, an the Rouen, which often weighs eighteen pounds per pair. Ducks deriv fish and aquatic plants from the water, and worms, seeds and grains on th land, and consequently are not very dainty; grass also being accepted. On drake with three females may be allowed. The period of incubation is fou weeks. The Pekins may be kept in yards with no running water, provide a trough be allowed them for bathing purposes. Ducks will average fron seventy to one hundred eggs per annum, though instances are known in whic they have laid as many as 150.

Ducklings, if allowed on ponds where turtles exist, will be destroyed When hatched, feed nothing for twenty-four hours. Then give boiled oat meal and corn meal, mixed with milk and eggs. After the second day piece of meat, boiled to pieces, and thickened with oat meal, should be give three times a week, adding to the mess chopped grass, cabbage or onion Cooked vegetables are excellent, as also bread soaked in milk. Feed o clean places, and give the food and water in shallow dishes. After they ar two weeks old give anything that they will eat.

RAISING GUINEAS.

When guineas are confined they seldom sit, but when given the liberty o the fields, they will hatch broods and rear them under difficulties that woul be fatal to other kinds of poultry. The young ones feather very rapidly, an

do not need brooding after they are five weeks old, unless the weather is somewhat cold. They are fed the same as young chicks, with the exception that they require meat, finely chopped, at least three times a week. As they feather so rapidly, it is necessary that they be fed often, as they will sometimes suddenly die when a few meals are missed, the feathering demanding a constant supply of nourishment. The question as to the profitableness of guineas admits of no denial. They may not be as profitable as hens when confined, but they can be raised with such little expense when they are at liberty, as to return a large profit both in eggs and flesh. They are naturally wild, and hide to lay their eggs, but often betray themselves by the noise they make. By watching them going to the nest, or coming off, they are easily detected. The flesh is dark, but contains a delicacy of flavor that approaches to wild game. They are naturally noisy, and create an alarm on the approach of intruders. When guinea eggs are placed under hens, the best way of hatching is to add a few chicks to the number, by putting hens' eggs in the nest a week after the guinea eggs are set, and the chicks will teach the young guineas to obey the hen.

There are two kinds, the Pearl and White Guinea. A Guinea hen usually lays about 100 eggs per annum, and the period of incubation is four weeks. They are monogamous, and mate, but two or more females may be allowed to one cock. They do not scratch, and inflict no damage in gardens.

GEESE.

Geese can be fatted cheaply, as they will eagerly consume chopped turnips or any other kind of cheap material at this season, but to get them very fat they should have corn also. A goose should not be too fat, as such are objectionable, but they should be fat enough to present an excellent market appearance. The young geese that have not fully completed their growth, cannot be fed too liberally, as they will not become extremely fat until matured. They do not bring as good prices as turkeys, but their flesh is preferred by many, owing to its being free from dryness, and although dark in appearance, is juicy and of good quality. The feathers are an important item, and will pay for the expense of preparation. Considering their freedom from disease, and their willingness to consume all kinds of food, they are very profitable to those who have large flocks.

A goose will lay about twenty eggs, but may be induced to lay as many as thirty if she is removed from the nest, and with good management will hatch two broods. A large goose will cover at least a dozen eggs, and she usually begins to lay about the middle of February or during March. The gander is a faithful attendant, sometimes, keeping close to his mate while she is incubating, for the purpose of driving away intruders. The period of incubation is about twenty-nine days. Grass is highly relished by geese, and they may be pastured, but such location should be of a character suitable for close cropping, as geese endeavor to eat tops and roots together. They are very voracious, and eat of anything that is fit for food.

They may be plucked for feathers two or three times during the summer, and will yield about a pound of feathers per annum worth from sixty to seventy-five cents. Geese will pair if the proportion of sexes is equal, but three geese may be permitted with one gander as a limit. They are easily restrained within enclosures by clipping their wings.

There are eight varieties of geese—the Wild, Toulouse, Embden, African, White Chinese, Brown Chinese, Egyptian, and Sebastopol. The Toulouse and Embden are the largest, and sometimes weigh sixty pounds per pair. The latter is entirely white, and also more prolific than some other breeds. A cross of the Toulouse gander with the Embden goose makes the largest bird for market. The other breeds are more ornamental than useful. The management of goslings should be similar to that of young ducks.

TURKEYS.

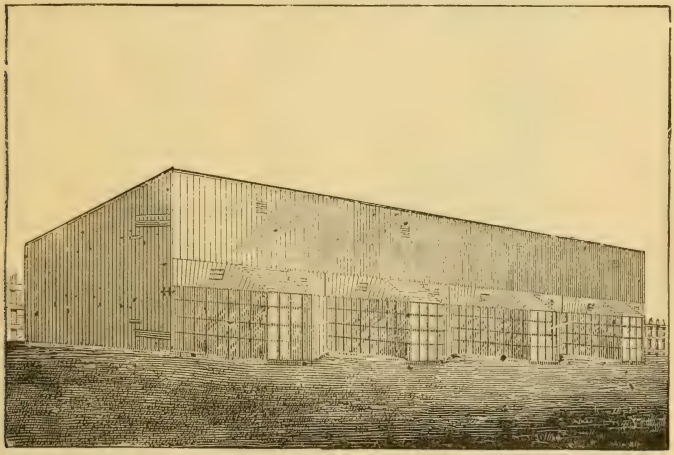
Cross a Bronze gobbler with common hens, and allow six hens with each gobbler as a limit, though fewer are better. Each hen will lay from twenty to forty eggs, according to management. The period of incubation is thirty days. Sixteen eggs constitute a sitting for a hen. Allow the young ones no food for twenty-four hours. Then feed often (but avoid overfeeding), giving food at least every two hours until they feather. The reason of this is that the growth of feathers on young turkeys is very rapid and demands a constant supply of nutrition, hence a single omission of food for a few hours sometimes proves fatal. The feed at first should be coarse corn meal, which is added to a mixture of milk and eggs. This should be cooked, and an onion chopped up and added to it. After they are three days old, feed mashed potatoes, chopped onions, ground oats and egg, well mixed with milk, and cooked. Milk is always excellent. After they are a week old the egg may be omitted, but a proportion of cooked meat and a little ground bone should be allowed. They may then be allowed grain of all kinds (corn being ground), cooked vegetables, and milk. The water should be fresh and clean, one-quarter of a teaspoonful of tincture of iron to be given in every pint of water.

One of the secrets of raising young turkeys is never to allow them to get wet or chilled. The damp grass is fatal. Keep them in a coop with the hen for three or four days, and then allow them to ramble with her *on dry days only*, keeping them in a roomy place on the approach of damp weather. They cannot be confined like chicks, as it is not their nature, but if carefully watched until they are beyond danger they are very hardy and can take care of themselves. Do not attempt to raise turkeys unless you have ample room for them to forage upon, as they are fond of straying off to long distances, and easily fly over the highest fences. Keep the male away from the hens while the latter are sitting, or he will eject them from the nests. When on the nest the hen sticks closely, and will nearly starve before she will leave it, consequently her food should not be neglected. Turkeys are subject to the same diseases as chickens, and the remedies in the case of one apply to the other.

There are seven varieties of turkeys—the Wild, Bronze, Narragansett, White, Black, Buff, and Slate, the Bronze and Narragansett being the largest in size, sometimes attaining the weight of forty pounds. All varieties prefer to roost in trees, but may, by being hatched under barnyard hens, be taught to roost in the poultry houses.

THE POULTRY HOUSES.

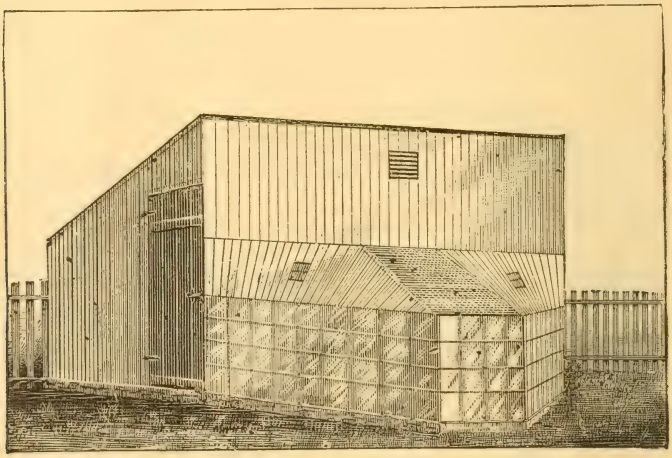
The warmer the poultry houses the better, if eggs are desired. It costs but very little to make the houses warm, and there is no excuse for frozen combs and wattles, if the poultryman is careful. Wall paper is excellent, and so is



tarred paper. If common brown paper is pasted on the wall, it will keep out the cold admirably. Make a paste of flour, adding an ounce of glue to each quart of paste, first soaking the glue in hot water. Then add a teaspoonful of carbolic acid to each gallon of paste. Use plenty of paste, and lay a course of paper straight up and down on the walls. Lay another course over this, running the paper crosswise, and lapping each layer over the first. Common newspapers may be used if the paste is used liberally. An ordinary, cheap whitewash brush is all the implement required. Should there be fear of lice, the carbolic acid will serve as a preventive, and as a precaution, a profuse dusting of Persian Insect Powder over the damp paper, as it is

applied to the walls, will render the poultry house decidedly unhealthy for all kinds of insects. It is necessary to have a close roof to prevent dampness, and the underside of the roof may also be pasted if necessary.

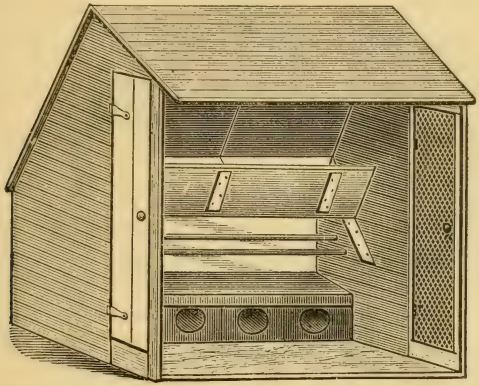
We give here a row of poultry houses, and also one of them enlarged and shown singly. The house is one that contains a large space on the *floor*, where it is most needed, there being the same room from the front to the rear, as would be contained in a larger house with the roof covering that portion to which the glass is arranged. The advantages of this house are that less lumber is required in proportion to space gained, while it also serves as a covered yard during the cold days of winter. With most poultry houses the rays of the sun do not enter until quite late in the morning, but with this arrangement, the light and heat enters as soon as the sun rises, and so continues until sundown, thus allowing heat the *whole day*. Our readers may, with the help of these illustrations, be enabled to build an economical poultry house, compared with some others, or make an improvement on the plans suggested.



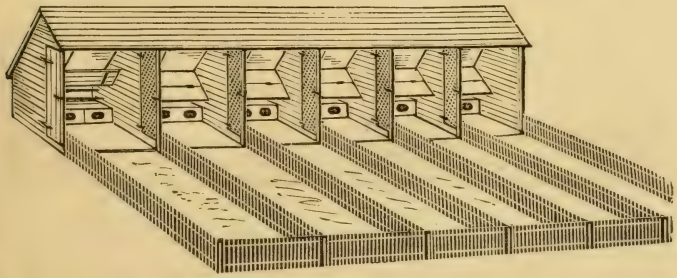
Mr. G. W. Pressey, of Hammonton, N. J., sends us illustrations of his poultry houses, one of which is shown alone, with the same arranged in a number. We can better describe it by using Mr. Pressey's language. He says:—

"I send you a pencil sketch of my poultry house. It is 60 feet long by 12 feet wide, and is divided into 12 rooms, 5 feet each. Each partition has in it

a wire screen door, 2½ x 6 feet. The front is 6 feet high, and the back is 3 feet high. At the back of these shed rooms, as will be plainly and quickly seen, are placed the roosts and nests. Under the roosts is a roosting board 2½ feet wide by five feet long, and 1 foot above the bottom of the sill. Under this are four nests, and one foot above it the two roosts. In front of



these is a partition 3½ feet wide attached to the roof, 2½ feet from the plate, and extending down in front of the roosts at a right angle, nearly as low as



the roosting board, but 10 inches in front of it, so that the hens can go to and from the roosts, when shut down for cold weather, as seen in the sheds,

excepting the first one. The lower half of this partition is hinged to the upper half, so that it can be turned up in warm weather, and for cleaning the roosting board, as seen in first shed.

"In front of these sheds are yards about 50 feet long, fan-shaped, and 15 feet wide at the outer end. This building fronts the south. The entrance door and the fence on the west end should be made of boards, to keep out the cold wind. All the others should be made of wire cloth, so the sun will shine in the yards and sheds as much as possible. In very cold climates, it may be found best to close the fronts of the sheds with glass in cold, stormy weather, but here we do not think it best.

"The little room in which the hens sleep, is nicely warmed with the animal heat of the ten or twelve hens which we keep in each pen. These apartments may be made twice as large for twenty-five hens each, if the eggs are not to be hatched. Being open at the bottom, the poisonous gases, being heavier than pure air, drop out, and we have proper ventilation, the greatest possible saving of animal heat, and both in the cheapest, most compact, and convenient form.

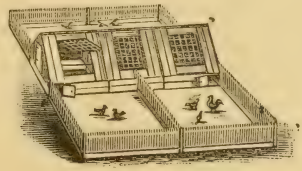
"I have used these sheds three seasons for breeding pure Langshan fowls, and I am satisfied it is the best plan of which I know anything. If it proves of benefit to your readers, I shall feel well repaid."

POULTRY HOUSE FOR CHICKS.

More fowls are destroyed in infancy, like humans, by injudicious feeding, than at any other time. The first four weeks' management of the young chicks is everything, for no after-cares can compensate for neglect during the critical period. For the first twenty-four hours no food should be given the chicks of any kind. At first they may be given hard-boiled egg, chopped fine. This need only be given two or three days, when the food should be changed to one consisting of oatmeal cooked in milk to which an egg has been added. The second week the milk and oatmeal gruel, stiffly made, should be continued, and good wheat screenings allowed also. After the second week the food may be varied so as to consist of anything they will eat, but do not confine them to a single article of diet, as disease of the bowels may occur. Green grass, cooked vegetables, and milk may be given freely. The chicks should not be allowed to roam outside with the hen, if possible, until the sun is well up, as dampness is more injurious to them than cold. When very young feed every two hours, as feathers, bone and meat are forming very fast, requiring plenty of nourishment. When cleanliness is observed but few diseases appear. Never let a surplus of food remain after the feeding is over, but see that they are sufficiently supplied before taking the excess away. Young chicks are not troublesome to raise if a little system and care is practiced.

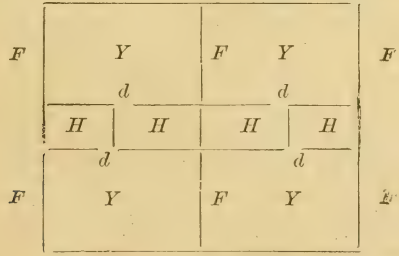
Our artist has prepared another of his admirable poultry houses for the same farmer. In many instances it is desirable to keep the breeds separate, and the cut a' ove shows houses for three varieties of chickens. The two outside houses h ve doors opening toward the front out of which the poultry can

come at pleasure. The centre house, though it has a window facing front and south, has its door opening into a yard at the back. The inside partitions can be made simply with lath doors for the owner. By being in a row they can be made much more cheaply, and no arrangement other than this will



allow so small an amount of ground to make three yards. For breeders and those wanting more than three houses, the following plan can be added to the first:

H H H H represents four houses such as are shown in the first picture. *Y Y Y Y* are the four yards, made by fence *F F F F*, and at *d d d d* are the doors from which poultry can enter the yards. The houses should each have glass at south as shown in first cut.



THE ROOSTS.

The instinct of self-preservation prompts fowls to perch on the highest point they can attain when seeking the quarters at night. This is done because they naturally desire to be far above the reach of danger from below, and they go under shelter to avoid the enemies that fly in the air. This instinct of the fowl is well known, and yet a large majority of breeders construct their roosts in such a manner as to have the rear cross piece higher than the next, and so continuing, until the first one is quite low. If anyone will take

a look into the quarters at night after the fowls have retired, it will be seen that no matter how much room there may be on the roots, a portion of the lower space will be unoccupied, while the higher poles will be crowded, the fowls being as compactly pressed together as though the packing process had been purposely done to get them all as high as possible.

There are several objections to such roosts, not only so far as the discomfort of the fowls is concerned, but because they are unsightly, unhandy, and filthy. The gridiron roost, with its low and high perches, is an obstacle in the way of cleaning the coop. It takes up unnecessary space, and it compels the heavy fowls to jump higher, at the risk of knocking over the small ones, and an occasional fall is the consequence when coming off. Not only are the feet injured, but bruises and jars to the body are also the result.

Perches should all be on the level with each other, and should be made easily removable. By so doing the fowls will not crowd each other, and the perches can be cleaned and washed with coal oil occasionally. No injury from getting on or off will occur, and no conflict for preference of position will take place, to say nothing of superior ventilation, &c.

CLEANLINESS IN THE POULTRY HOUSE.

It is a disagreeable task at all times to clean out the poultry houses and coops, but, like every other undertaking, much depends on the systematic manner in which the work is performed. We have seen persons labor hard all day, in the midst of filth, with shovel and hoe, cleaning the poultry house, and when the job was finished but little appearance of cleanliness was added to . There is an easy, neat, effectual way of cleaning the poultry house, which, if adopted, removes the dread and disgust of the work, and makes it a pleasure instead of an annoyance. The first consideration is the construction of the floors. Dry dirt will not answer, for the reason that it absorbs the impurities, and the filth can only be removed with the dirt, thus entailing the necessity of changing the entire floor and substituting fresh material. We have found the use of the broom to be the cleanest, easiest, and best method of removing the droppings, but in order to do so, the floor must be hard. Wood is the best material, but a wooden floor is liable to become a harboring place for rats, unless it is well closed underneath, or raised sufficiently to allow a cat or terrier to run in and out under it. When this is done the cold air comes up into the poultry house in winter, and makes the wooden floors objectionable. Cement is better, for it not only prevents vermin from entering, but also the drafts. The cheapest way to make such a floor is to take 1 barrel of lime, 2 of sand, 1 of fine gravel, 1 bushel of cement, and 2 gallons liquid coal tar. Mix the ingredients dry, then add water, and spread evenly on a hard surface which has been graveled. The coal tar may be brought to a proper consistency with coal oil. It keeps away lice, and colors the cement. Let the floor remain undisturbed for twenty-four hours, and add another coating in order to stop the cracks.

WIGMORE'S PATENT FARMERS'

CAPONIZING SET.

The art of caponizing seems to be very little known in this country; the operation, however, is quite simple, and in France and Italy is frequently allotted to mere children. I have manufactured and operated with all kinds of caponizing instruments for the past twenty-five years, and not being satisfied with any of my own or other makes, until I invented the present set, which I am satisfied is perfect, and therefore had patented June 22, 1886. My set is especially invented to enable farmers and poulterers to do their own caponizing. With my improved set, after a little practice, you will not have over three per cent. killed. Slips or partly-caponized fowls will be unknown. I am daily receiving congratulations from farmers and poulterers using my sets in all parts of the United States and Canada, and experts speak of them in the highest terms. With my set you can caponize, without assistance, quicker and cleaner than with any other, and with apparently little or no pain to the fowl, as they lay almost motionless after the first incision.

The advantages of capons are much larger fowls, sweeter and finer meat, and they sell at a much higher price. They will rear and care for many more young chicks from an incubator or hen, than a hen will, on account of their large size. They like the young chicks' company, neither hens nor cocks having any use for them. The hen after bringing out a brood, coop and feed her up for a few days, then let her run with the flock and she will lay again. Capons do not require as much food as cockerels, on account of their quiet nature, the food all going to flesh.

Fifty to one hundred per cent. more profit is made on capons.

No farmer who raises poultry can afford to be without my book and set.

My book: PRACTICAL CAPONIZING AND HOW TO MAKE POULTRY PAY, contains 40 pages, of which 12 are devoted to caponizing with 8 illustrations of the operation at different points photographed from life.

My set consists of one fine steel knife; one steel nickle-plated spreader, both well adapted for the purpose; my improved German-silver cutting and twisting scoop, with fine hook on opposite end; one fine German-silver probe, and four German-silver hooks attached to cords for quickly securing the fowl; all in a fine velvet-lined case, with my 25-cent book: PRACTICAL CAPONIZING AND HOW TO MAKE POULTRY PAY, sent to any address by mail, on receipt of price, $3.00. Send postal order or registered letter

INVENTOR AND MANUFACTURER,

WM. H. WIGMORE, 107 S. EIGHTH ST., PHILADELPHIA, PA., U. S. A.