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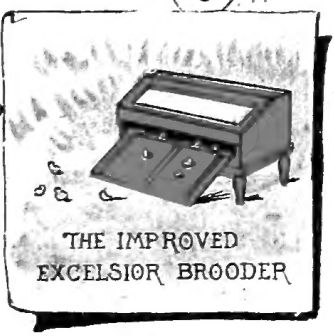

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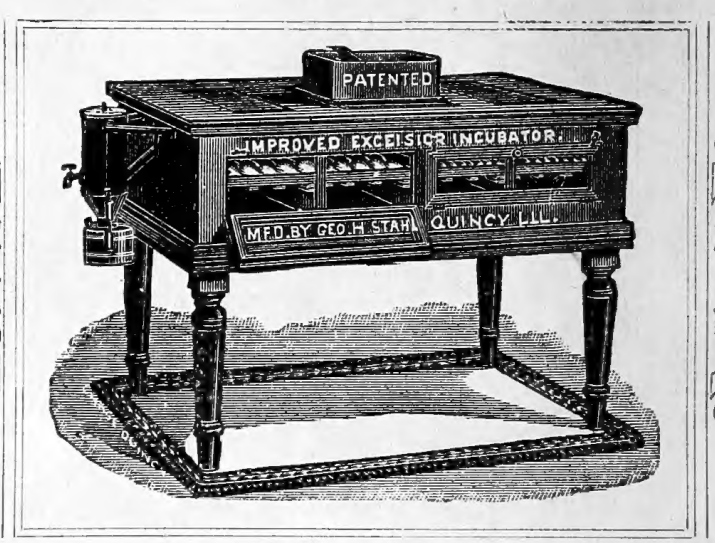

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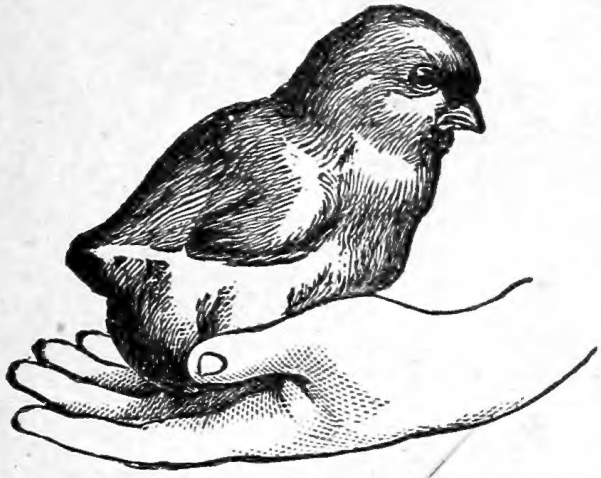
POULTRY BOOK



BY FANNY FIELD,

Poultry Editor of the PRAIRIE FARMER, ORANGE JUDD FARMER, and a frequent contributor to the OHIO FARMER, and other farm and poultry papers.

QUINCY, ILLINOIS.

TO

THE POULTRY FRATERNITY

THIS BOOK IS DEDICATED.

VOLK, JONES & MC MEIN, PRINTERS, QUINCY, ILL.

TO MY READERS.

In writing this book the object I had in view was to give in plain, everyday English just such information about poultry raising as my own experience and observation has taught me that every beginner in the poultry business is anxious to obtain. Hoping that my work may help you all, I am

Your sincere friend and well-wisher,

FANNY FIELD

FANNY FIELD.

THE EXCELSIOR POULTRY BOOK.

CHAPTER I.

POULTRY RAISING PAYS.

Some people are inclined to the belief that the poultry business is a rather small business, while others claim that "the annual value of the poultry product of the United States exceeds that of the wheat crop." Now I don't know much about the size of the poultry business taken as a whole—don't know whether "poultry is king" or not, but I do know from my own experience in poultry raising, and from the experience of other poultry raisers, that poultry can be made to pay a greater profit in proportion to the time, labor, and money invested than any other crop that can be grown on a farm—boys and girls excepted. This may sound like an extravagant statement, but I know exactly what I am writing about, and have the facts and figures to back up my statements.

Of my own success in the poultry business I will not say much here, lest it sound too much like "bragging"; suffice it to say that I made my poultry pay from the start, and after I had mastered the business the profits exceeded my most sanguine expectations. But I am going to tell you what some of my friends and acquaintances have done with poultry. One commenced half a dozen years ago with 50 hens, a very small stock of experience with poultry, and made a clear profit of $70 the first year. The second year he made $128 from 95 hens; the third year $329 from 200 hens; the fourth year he bought an incubator and brooders, and with their help cleared almost $500 from 250 hens, which was more than he made from all the other crops raised that year on his 80-acre farm; and it was not a bad year for the other crops either. The fifth year my farmer friend added another incubator to his outfit, and at the close of the year found that he could honestly claim a clear profit of $900 from his poultry business. This last year he cleared about $1500 from his poultry, and over one-half of the profit was from his spring chickens and ducks alone.

Another poultry raiser, who makes market eggs the main thing, but who raises a few hundred broilers each season, and sells a good many eggs for hatching, writes me that he has for the past four years made from $800 to $1000 a year from a breeding stock of 300 fowls kept on a little 25-acre farm, "and worked out carpentering about quarter of the time besides."

Still another poultryman, who devotes his time and talents to the spring chicken business, hatching and raising the chickens wholly by artificial methods, cleared $2500 last year, and that too without working any harder, perhaps not so hard, as some of his farmer neighbors who didn't make more than half as much.

And from other poultry raisers in different parts of our country, whose

experience and opinions I have been at some trouble to get for your benefit, I have obtained figures which show a profit from $1.00 to $5.00 per head on every fowl kept for breeding stock. Now just compare the profits of the poultry business with the credit side of other branches of farming. Take your dairy: suppose you keep six cows; then, of course, you sell either milk or butter. How much profit do you make from your cows per head in a year? One farmer who keeps six cows and sells butter at a little above the average price for good dairy butter, told me that his cows brought him an average yearly profit of $20.00 per head. He values his cows at $40.00 each. One of his neighbors, a woman, keeps sixteen hens, and makes a profit of $20.00 a year from them—as much as he makes from a cow. The sixteen hens are worth $12 00— not quite one-third as much as one of the cows. From 100 hens she could make more money than he makes from six cows, and that too with less work, and less than half the capital.

Take your root crops, your grain crops, or your hay. How much profit can a farmer make on an acre of land devoted to grain or root crops, or to hay? Can he make a profit of $100 per acre on wheat, corn, or potatoes? I don't know; but I do know that a poultry raiser who understands his business can make more than $100 profit from an acre of land devoted to the production of poultry and eggs for the market.

Yes, poultry raising pays. It has paid others, and it will certainly pay you if you go at it in a sensible, business-like way, and stick to it.

SOME WORK IN IT.

The man or woman who goes into the poultry business with the expectation of making a great deal of money without working much for it, will get most sublimely left. I want you to understand at the very outset that this poultry business is not an "easy" sort of business that will pretty much run itself, and still pay a big profit. Poultry raising is no "royal road" to wealth; neither is it a short cut across lots. To be sure there is no great amount of what is usually called "heavy" work connected with poultry raising, but there is an immense amount of light work, unceasing care and watchfulness, a patient attention to minute details, a continual looking after little things needed in order to make the business successful. And come to think the matter over, all these things put together do make pretty hard, "wearing" kind of work after all; and it is just the kind of work that men generally don't like to do, consequently they neglect it, and that is the reason so many men fail to make poultry pay.

Success or failure in poultry keeping does not depend wholly upon any one thing, but upon many little things. A close looking after and prompt attention to all the petty details of poultry management will ensure success, while a neglect of this little thing to-day, that little thing to-morrow, and some other little thing the next day, each one of which may seem but a trifle when considered alone, will in the end cause failure. Look closely after your business, keep track of everything connected with it, and do everything just when the time comes to do that thing. Success in poultry raising, as in any other honest calling, can only be won by the steady, faithful, "plodding" worker.

BRAINS NEEDED.

There are men in the world, and we all know some of them, who seem to think that the poultry business will do well enough for women,

but is entirely beneath the dignity of a full-grown man Of course they know that a good many men are making money in the poultry business, but they argue that these successful poultry keepers must have a soft spot somewhere in their heads; that there must be a screw loose somewhere in their make-up—something which renders them incapable of managing any other branch of farming, else surely they would not spend their time fussing with a lot of hens. Let me tell you, my misguided brother, that it requires just as much common sense and judgment, just as much of the qualities of mind known in common parlance as "gumption" and "calculation," just as many *brains* to manage a poultry farm successfully as it does to manage a cattle or sheep ranch, a wheat or a dairy farm, or any other farm that amounts to anything.

CAN'T BE OVERDONE.

A good many farmers who know well enough that poultry raising pays are afraid to keep more than a dozen or so fowls for fear that this poultry business will soon be overdone, and prices for poultry and eggs fall away below the cost of raising. Now you needn't worry a bit about that. Croakers have talked that way ever since Mrs. Noah insisted on taking her favorite hen into the ark. I have no doubt but that Noah, or some of the boys, told her that after the shower there wouldn't be any market for eggs and chickens, and besides they didn't believe the old hen was worth saving anyway. But Mrs. Noah had her way (women generally do), and I have never heard of a time from that day to this when *good* poultry, or *fresh* eggs had to be given away because there was no paying market for them, and I don't believe any one else has.

The production of poultry and eggs has increased enormously during the last ten years, but still the demand for prime poultry and fresh eggs is ahead of the supply, and there has been no falling off in prices. The American hen does not supply our own markets. Every year millions of dozens of eggs are imported from Canada, and from across the ocean. The people who are so afraid that the poultry business will be overdone, do not take into consideration the enormous and steady increase of popula ion, or the fact that as production increases consumption will increase. The time may come when production will increase to such an extent that prices will be somewhat lower than now, but as prices decrease the poultry raiser will learn to cheapen production so that he will still have a big margin for profit.

POULTRY ON THE FARM.

If it pays to produce poultry and eggs to sell, and it certainly does, it will pay to produce them for home consumption. I never raised much pork or beef, but those who have, and figured out the cost of raising, declare that it costs less to raise a chicken than it does the same number of pounds of beef or pork. Anyway, it is handy for the farmer's wife who lives in a place where other fresh meat cannot often be obtained in warm weather, to have her supply of fresh meat in the shape of lusty young roosters, or good fat hens, for she can kill enough for one meal at a time, while the next meal can run around without danger of spoiling before wanted.

The farmer who keeps a moderate-sized flock of poultry—say from 50 to 100 hens, can keep them cheaper than anybody else, for the reason that he can give them practically unlimited range during at least one-

half of the year, when they will pick up a good share of their living; and during the other half of the year he can feed them largely on refuse food, unsalable vegetables, etc., much of which would otherwise go largely to waste.

Besides furnishing the farmer's table with a cheap, abundant, and convenient supply of fresh meat, the poultry flock greatly benefit the farmer by devouring injurious worms and insects. In many places farmers have given up trying to raise plums on account of the injury done by the plum curculio, but if they will keep the ground around the trees destitute of grass, and allow the fowls to loaf there, the biddies will capture the mischief-making insects as they come out of the ground, and your fruit will escape the bite which ruins it.

The value of poultry manure is also an item that farmers should not lose sight of. In any part of the country where the land requires manure in order to induce it to produce paying crops, the manure from a flock of fowls will, if saved in good shape and properly applied to the land, pay for all the time spent in caring for the fowls. A Massachusetts farmer, who keeps 62 hens, says that the hens make two barrels of manure while eight head of cattle are making one cord, and the two barrels of manure, used as he uses it, will grow just as much corn as the cord of stable manure. And one of my acquaintances who makes a specialty of growing vegetables for market, but who also keeps a flock of 60 fowls and raises one or two hundred chickens every year, says: "Poultry manure is a valuable fertilizer, quite as valuable as any of the commercial fertilizers, and I consider that the manure from my poultry pays fully one-third the cost of keeping the flock."

POULTRY IN LIMITED SPACE.

But while a farm is the best place to raise poultry, it does not follow that every poultry raiser must have a big farm for his hens to ramble over. Poultry can be profitably kept in limited space. I know of many paying flocks that are confined the year round to the limits of their houses and yards. Many village poultry keepers, who are obliged to keep their poultry confined, make their hens pay better than the majority of farmers' flocks. They have better fowls than the farmer, more comfortable houses, and bestow better food and care.

POULTRY RAISING FOR WOMEN.

For women who possess an average amount of health and strength, and who have or can get a few acres of land, I can recommend the poultry business as a means of livelihood. I know several women who are supporting themselves, and others dependent upon them, from the profits of their poultry business; and other women can do as well, provided they go into the business with a determination to succeed, and stick to it. Poultry keeping has none of the drawbacks that many occupations present to women who have themselves and children to support. There is but little work connected with poultry raising that a woman cannot do better than most men A woman may not be able to build poultry houses, or drive the posts for the yard fences, but it is not necessary that she should be able to do such things any more than it is necessary that she should be able to make the dish-pan that she washes dishes in, or the darning needle that she uses in mending stockings, or the cradle that holds the baby. Poultry raising does not require the

exercise of any great amount of mere brute strength, but it does, as I have remarked before, require patience, gentleness, unceasing, watchful care, and a close attention to minute details, and for this reason most women are especially fitted for the work. I believe that most women are born poultry raisers; anyway they generally master the details of the business quicker, and make their fowls pay better, than men do under like conditions.

Another point in favor of poultry raising is that it is work that can and must be done at home, and the children, instead of being a hindrance, can be taught to help in many ways. Next, poultry raising has always, so far as my knowledge extends, been considered women's work (I suppose that is the reason why some men consider it too small business for them), and a woman can engage in it without the fear of being pointed at as a "dreadful creature"—out of her "proper sphere." Besides this it is a business that can be started with very little capital, and will soon yield an income. It is not like investing your money where you must wait six months or a year before any returns begin to come in.

And for women, farmers' wives and daughters, and others living in country places, who do not wish to devote their whole time to earning money, but who do wish and feel the need of devoting a part of their time to some money-making occupation, there are but few things that come within their reach that will pay as well in cash as a small flock of fowls well cared for.

FOR INVALIDS.

Right here I want to put in a protest against the perpetual reiteration by some poultry writers of the old, old story to the effect that poultry-keeping is a very suitable and profitable occupation for half-invalid women who are not strong enough to engage in any employment that requires downright hard work—that a half invalid woman can make a living by raising poultry. A semi-invalid may undertake some of the lighter work connected with poultry raising—she may even assume the entire care of a small flock of fowls, and in many cases be greatly benefited by the out-door air and exercise, but she certainly cannot do enough to support herself. It is with poultry raising as with any other occupation that women may engage in,—the ones that make "big money"—the successful ones, are the ones that do the most and best work; and in order to do her best a woman must possess her full power of health and strength. I do not write this to discourage any one, but to warn them against indulging in hopes that cannot be realized, and going beyond their strength in the vain effort to do the work of well women. Let your work be according to your strength; and then if your health and strength increases you can increase your work accordingly.

WHAT BOYS AND GIRLS HAVE DONE.

In the report of the Poultry Committee of the Massachusetts Board of Agriculture we find an account of a youth who built a moderate sized poultry house, bought a small flock of fowls, took care of them while attending school, and doing his share of the "chores", and in one year and a half cleared, after paying for all food consumed, one hundred and forty dollars; and yet he spent no more time in caring for his poultry than many of his schoolmates did in amusements which profited them nothing beyond the passing pleasure of the moment.

Another young man who reached his twenty-first birthday this last summer had then $800 in bank, which he had cleared from his poultry in the six years preceding his majority, besides doing his share of the other work on a 200-acre farm.

And the girls are not one bit behind the boys. Among my acquaintances there is a farmer's daughter who a few months ago bought a $175 parlor organ, and paid for it with the money she made from her poultry in the last two years.

Another farmer's daughter of fourteen, very fond of reading history and biography, wanted some books which her parents could not afford to buy for her. Her father said: "Katie, I'll give you a chance to earn the books you want. I'll turn the poultry all over to you, and you may have all you can make over and above expenses. I will allow you market price for all the eggs and chickens used at home, and shall charge you for food furnished your poultry, but you must keep an accurate account of everything." That was two years ago, and now Katie has almost $100 worth of books which she has bought with her poultry money, and there is not a prouder, happier girl in seventeen States.

What these young people have done other boys and girls can do if they will; and I advise the farmers whose sons and daughters want to engage in poultry raising to let them go ahead. The business will pay in cash; and better than that your boys and girls will learn to think and manage for themselves, will learn to like farm life better, and will acquire business habits, and habits of system and economy that will be of incalculable benefit to them in the future.

WHEN TO BEGIN.

There is a market for poultry products all the year round; you don't have to wait six months or a year before the returns begin to come in; so you can begin almost any time (except perhaps in the "dead" of a northwestern winter), after you have decided that you can and will make poultry pay, and have money enough to begin with.

WHERE TO BEGIN.

To those who propose to make the market poultry business their chief business, the location of the poultry farm is a matter of importance. It must be near a good market; but in these days of express trains, fast freights, and refrigerator cars, it is not necessary that the poultry farm should be on high-priced land close to a city or large village. You can go back several hundred miles from a city, and still be near your market, provided you are on a through line of railroad.

Besides our cities, manufacturing and mining villages are good markets for poultry products. I once lived in a mining village where during half the year it was almost impossible to get fresh eggs and chickens at any price; and when we could get them the prices were higher than in the city market sixty miles away. And now in the country village which is my present abiding place, and which is within "teaming" distance of two large manufacturing places, fresh eggs nearly always command higher prices than in New York or Boston. Any of the New England States, New York, Eastern Pennsylvania, and New Jersey are good States to move to to go into the business of raising poultry and eggs for market. Of course you won't have a chance to do so much "growing up with the country" in the East as you would in the West;

but all the same there are no better places in the United States, or anywhere else, for profitable poultry raising than some of those rocky New England "hill-farms," where the land, what there is of it, is so poor naturally that it won't grow pennyroyal. Many of those hill-farms, those with good buildings on them too, can be bought for a ridiculously low price; and when you get "settled" on one of them, instead of being "a thousand miles from anywhere," you will be near good schools, churches, and good neighbors; and as for a market for your poultry products, you can't get out of reach of a good market if you try. In most places poultry and eggs can be sold for "cash at the door."

But bear in mind that poultry properly managed will pay in any locality; so if you desire to undertake the business, either as a means of livelihood, or as a sort of "side show" to provide yourselves with some extras that could not otherwise be afforded, do not hesitate because you happen to live where you cannot obtain the high prices that the Eastern poultry raiser gets for his poultry products, but go ahead and do the best you can right where you are. 'Half a loaf is better than no bread" every time.

HOW TO BEGIN.

Do not imagine that you can begin with 1,000, or even 500 fowls, and make them pay. You can't do it. It requires a good deal of poultry knowledge to enable one to successfully manage 500 fowls, and you can not buy this knowledge with the fowls, or "catch" it like the measles or whooping-cough or learn it in "six easy lessons". The poultry business must be learned just like any other business, by study and practice. Begin at the beginning and learn one thing at a time. Begin with a small flock of fowls, and as your poultry knowledge increases, you can increase the size of your flock until you have as many as you can manage profitably. Twenty-five or thirty laying hens will be enough for those who have had no experience with poultry to begin with; while those who have already had good success with that number may safely venture to try a flock of 50, 75, or even 100 hens.

If you are at present engaged in anything by which you can make a living, don't, because somebody is making more money with poultry than you are in your business, quit everything and rush headlong into the poultry business. Stick to your other work, but get a few fowls and care for them between times, and study up the hen business at odd times when your other work does not press. In this way you will get a good deal of poultry knowledge without losing time from your regular work, or encroaching upon whatever capital you may happen to have. After a while your poultry business will grow until you can no longer manage it in the odds and ends of time that you can spare from your regular occupation; then you can drop all other work, and devote your time and talents to the poultry business with a certainty of realizing a fair per cent on the investment.

HOW MUCH CAPITAL?

"Once upon a time" a Yankee who had just moved into a new place wanted to start in the poultry business, but was too poor, or too stingy, to buy the necessary fowls, so he contrived a way to get them for nothing. He borrowed a sitting hen from one neighbor, a dozen of eggs from another, put them together, and in course of time the hen hatched every egg, and raised them until they were old enough to care for themselves,

He could then return the hen to her owner, but how about the eggs? That puzzled him at first, but finally he hit upon the plan of keeping the hen until she laid a dozen eggs; then he "paid" the borrowed eggs, returned the borrowed hen and remarked: "I calkerlate I've got as nice a brood of chickens as anybody, and they aint cost me a cent neither!"

Now I don't want any of you to begin the poultry business that way, but I do want to impress upon your minds that you do not need several hundred dollars in order to make a start in the poultry business. If you already have or can have the use of a small piece of land—half an acre or so,—and have any old building that can be transformed into a comfortable poultry house, it will require but very little cash capital to begin with. Among my friends there is one woman, a mechanic's wife, who clears about $300 a year from the sale of broilers that she raises in a building and small yard that occupies one corner of a village lot of one-third of an acre, and she commenced with just $25.00 in cash and a dozen of the commonest kind of common fowls. If you have the land you only need cash enough to buy some fowls, build the house and fences, and buy food enough to last until the returns begin to come in.

PAY AS YOU GO.

If you have not money enough to build just such a house as you want, and buy as many fowls as you wish to start with, don't go in debt, but do the best you can with what money you have If you can do no better begin with one hen, a dozen eggs, and a chicken coop. Better begin that way than to begin with borrowed money, or go in debt for anything. Pay as you go.

LOOK AFTER THE LITTLE THINGS.

Failure in the poultry business comes from seemingly little things. A little neglect here, a little more there, a little waste of food to-day, a little more to-morrow, and putting off until to-morrow or next day the work which should be done to-day, are all little things, but they all count, and in the long run will bring disappointment and pecuniary loss as surely as two and two make four.

KEEP ACCOUNTS.

When you start your poultry business, start a poultry account, and keep it right along as long as you keep in the business; then you can always tell just where your business stands, and how much it pays. You will not need a "set of books," or any elaborate "system of book keeping" for a poultry account; all you really need is a blank book in which to charge the fowls with all expense incurred, and credit them with all the eggs and chickens used and sold.

DON'T BE DISCOURAGED

And give up if everything does not go smoothly from the start. The poultry business will have its ups and downs like any other business, but if you are determined to succeed, and stick to your business right through thick and thin, you will succeed. Start out with an ironclad determination to succeed, no matter what obstacle may be in your path; never let a doubt of your ability to overcome all difficulties enter your mind; work away bravely and hopefully in the face of all discouragements, and your ultimate success is as sure as anything in this world can be.

CHAPTER II.

ABOUT BREEDS.

As market poultry raisers, and the world generally outside of a few fanciers, care little or nothing about the "origin and history of the domestic fowl," or the origin of the different breeds, and I don't know much of anything about it anyway,—don't know, or care, whether the "*Gallus bunkiva*" or some other *Gallus* was the parent of our domestic fowls, I shall not burden these pages with much "history", but shall tell what I do know about the leading breeds. It is not where a breed came from, or what it was long ago, but what it *is*, and what it is good for *now* that interests the great mass of poultry raisers.

It is absolutely necessary that the beginner in poultry raising should have some knowledge of the merits of the prominent breeds in order to enable him to select the breed best adapted to his climate, and to the special purpose for which he proposes to keep fowls. One of the reasons why so many poultry raisers have failed to achieve the highest degree of success, is because they had not the "best breed" for their purpose. If you fail that way it will not be my fault.

First, I will, for the benefit of the uninitiated,—that they may better understand my description of the different breeds, explain the meaning of some of the

TECHNICAL TERMS USED.

Beard.—A bunch of feathers under the throat of some breeds of chickens

Cock.—A male fowl over one year old.

Cockerel.—A male fowl under one year old.

Cushion.—The mass of feathers over the rump of a hen, covering the tail—chiefly developed in Cochins.

Dubbing.—Cutting off the comb, wattles and ear-lobes, so as to leave the head smooth.

Ear-lobes.—The folds of bare skin hanging just below the ears—sometimes called the "deaf ears."

Face.—The bare skin around the eye.

Fluff.—Soft, downy feathers about the thighs—chiefly developed in Asiatics.

Hackles.—The long, narrow feathers on the necks of fowls.

Hock.—The joint between the thigh and shank.

Mossy.—Confused or indistinct marking in the plumage.

Pea-comb.—A triple comb resembling three combs in one—the middle one the highest.

Penciling.—Small markings, or stripes over a feather.

Primaries.—The flight feathers of the wings, hidden when the wing is closed.

Pullet.—A young hen—one under a year old. The term is not properly applicable after the bird is a year old.

Rooster.—A name applied to both cock and cockerel.

Saddle.—The posterior part of the back reaching to the tail in a cock, and answering to the cushion in a hen.

Secondaries.—The quill feathers of the wings which are visible when the wings are folded.

Shaft.—The stem or quill part of a feather.

Shank.—The lower or scaly part of the leg.

Sickles.—The pair of long curved feathers in a cock's tail.

Spangling.—The marking produced by a spot or splash on each feather, differing from the ground color.

Strain.—A race of fowls that has been carefully bred by one breeder, or his successor, for a number of years, and has acquired an individual character of its own.

Spur.—The sharp defensive weapon on the heel of a cock.

Wattles.—The depending structure at each side of the base of the beak, chiefly developed in the males.

Vulture-Hock.—Stiff, projecting feathers at the hock joint.

Wing-Bars.—A line of dark color across the middle of the wings.

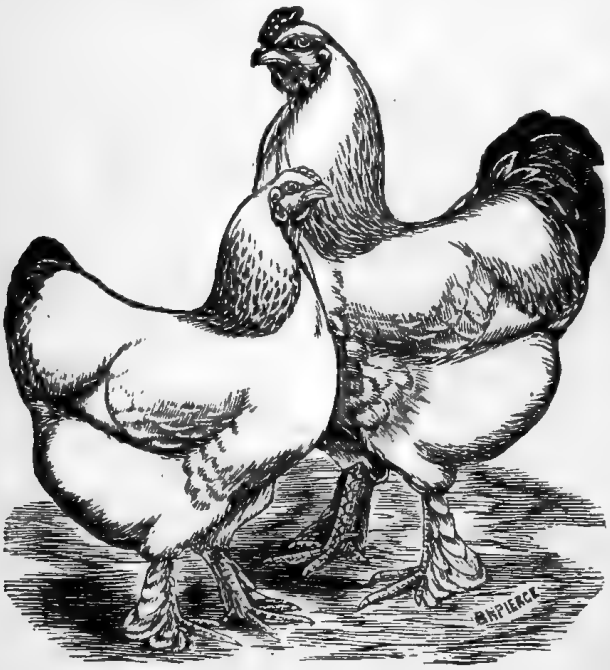
Wing-Bows.—The upper, or shoulder part of the wings.

Wing Coverts.—The broad feathers covering the roots of the secondary quills.

For the above definitions I am indebted to "Wright's Illustrated Book of Poultry."

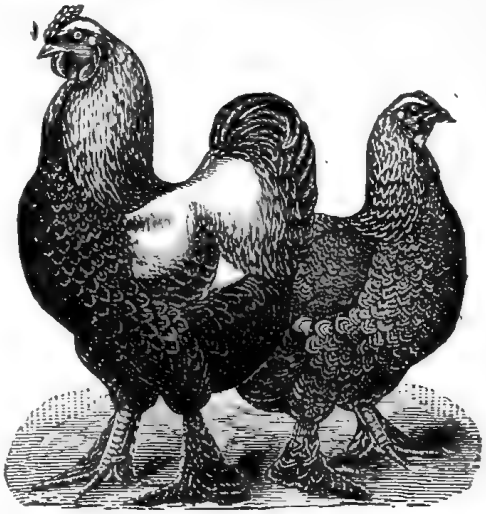
LIGHT BRAHMAS.

This cut correctly represents a pair of Light Brahmas. Their plumage is white throughout, except a distinct black stripe down the center of the hackle feathers, black primaries, secondaries black on the inner web, black tail, and glossy greenish black tail coverts. They have small pea-combs, small wattles, bright red ear-lobes and yellow legs, which are feathered to the extremity of the outer and middle toes. Hens of this breed, at one year old, weigh from seven to ten pounds, cocks from nine to twelve pounds. As they are naturally quiet fowls, and cannot fly much, a fence four feet high will keep them within bounds. They are good winter layers of large eggs, good sitters and good mothers. The pullets commence laying when about six months old. The farmer who wants a breed of fowls that will lay in winter, that can easily be fenced in or out when necessary, and that will at five or six months old give the greatest dressed weight in return for the food and care bestowed, will find the Light Brahmas a grand good breed for his purpose.



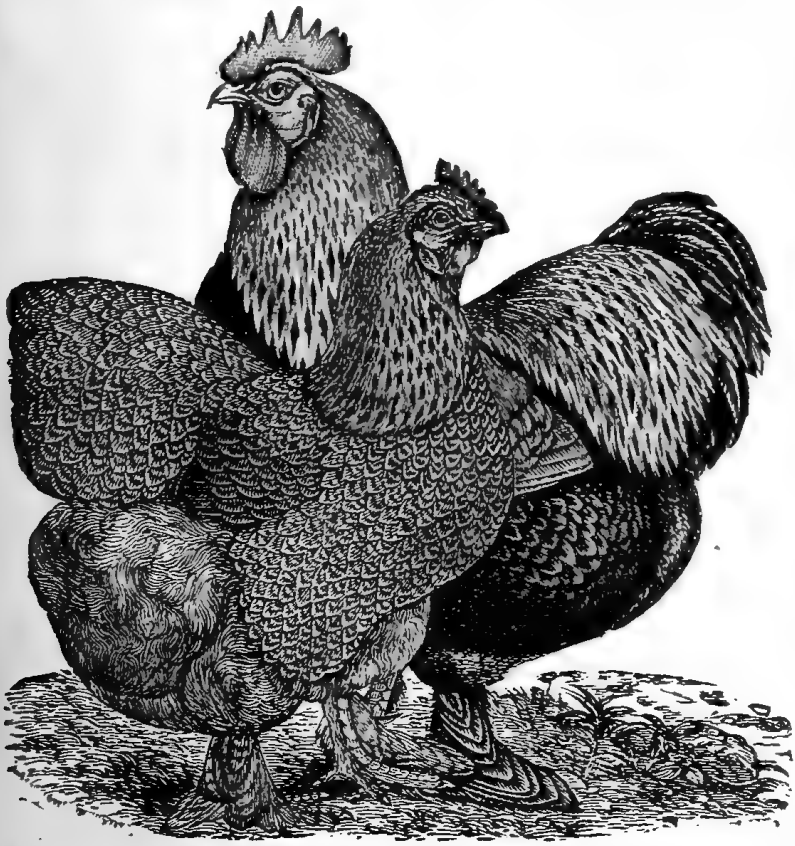
DARK BRAHMAS.

This cut shows a pair of Dark Brahmas. The plumage of the male is black, except the hackle and saddle feathers, which are silvery-white with a distinct black stripe down the center of each feather, the silvery-white wing-coverts and wing-bows, and the white outer web of the secondaries. Legs are yellow, or reddish-yellow, and feathers like the Light Brahmas. The hens of this breed are a beautiful steel-gray in color, with distinct dark penciling throughout. The hackles are like those of the male bird. Comb, wattles, and ear-lobes of both sexes are like those of the Light Brahmas. They equal the Light Brahmas in size, but lay slightly smaller eggs. As winter layers, as sitters and mothers, and as a farm and market fowl they are fully the equals of the Light Brahmas, though for some reason they are not as extensively bred.



PARTRIDGE COCHINS.

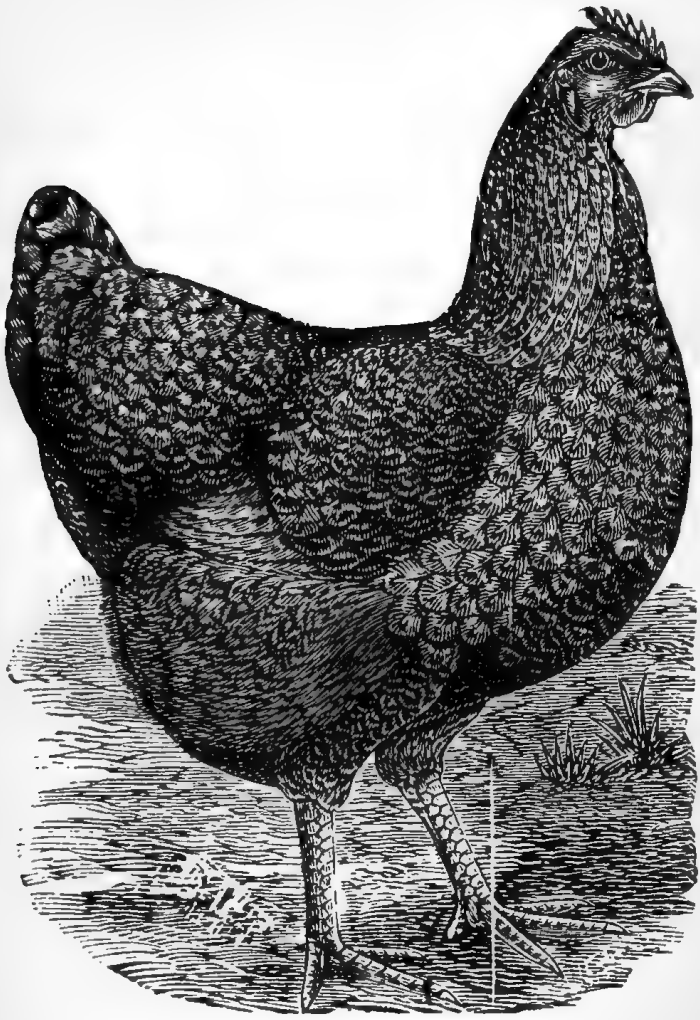
Here we have a cut of a pair of Partridge Cochins. The plumage of the male is black, except the hackle and saddle feathers, which are a rich red, with a black stripe down the middle of each feather, and the wings, which are marked with rich bay color. The main color of the hen is a rich brown, penciled with a darker brown; but the hackles are a reddish-gold with the black stripe in the center of each feather, and the tail black and almost concealed by the cushion. Both sexes have yellow legs, feathered like the Brahmas, rather small, upright single combs, and somewhat larger wattles and ear-lobes than the Brahmas. Weight about the same as the Brahmas. With us the Partridge Cochins



excelled other breeds in the number of eggs laid during winter. The pullets usually commenced laying two or three weeks earlier than Brahma pullets of the same age, fed and cared for the same way. Their eggs are not quite so large as Light Brahma eggs.

OTHER COCHINS.

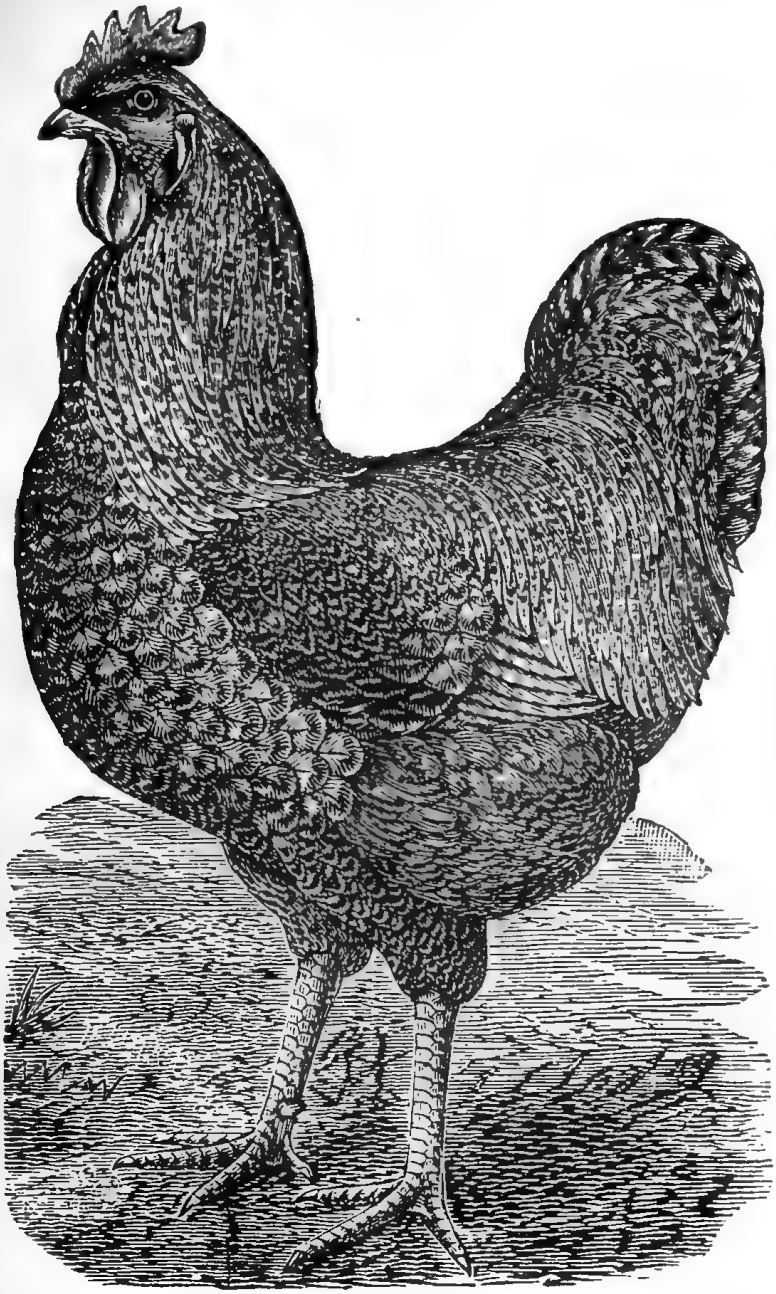
Besides the Partridge Cochins we have four other varieties of the breed—the Buff, Black, White, and the Pea-comb Partridge Cochins. The last named variety is exactly like the single comb variety, with the single exception of the comb. This variety is not now a "Standard" variety, but the hens lay just as well as though recognized by the Standard; and according to my notions a pea-comb looks better than a single one; anyway it will stand more cold without freezing. Black Cochins are black throughout; White Cochins entirely white, and the Buff Cochins a clear, rich buff, except the tail-coverts, which are dark chestnut, or chestnut mixed with black. These varieties all have the single combs, and yellow, feathered legs and toes of the Partridge Cochin. Standard weights for all varieties of Cochins are the same, but we never could get our Blacks and our Whites quite as heavy as the other varieties of the Cochin family; and with the same food and care our Partridge Cochins would outlay the others. The White Cochins came next, while the Buffs were the poorest layers, though their eggs were larger, quite as large as the Light Brahma egg. The Cochins are not better on the wing than the Brahmas, and can therefore be easily fenced in or out. As sitters and mothers all the varieties of the Cochin family can be depended upon.



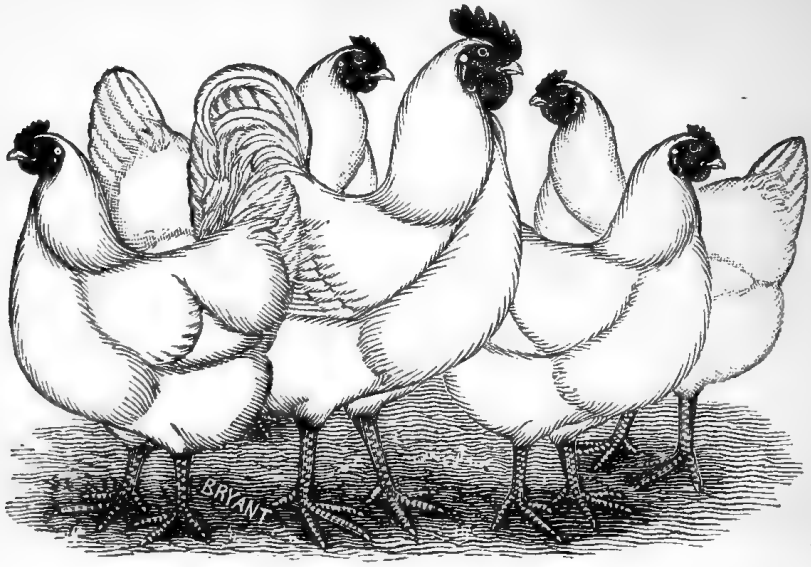
BARRED PLYMOUTH ROCKS.

This is an illustration of a Barred Plymouth Rock hen—a Dominique or hawk-colored fowl, with single comb and clean yellow legs, and a plump, "meaty"-looking body. Looks as if she could scratch for her living, too.

This fellow is her mate, and he looks like the hen, except that he is bigger, and a shade or two lighter in color.

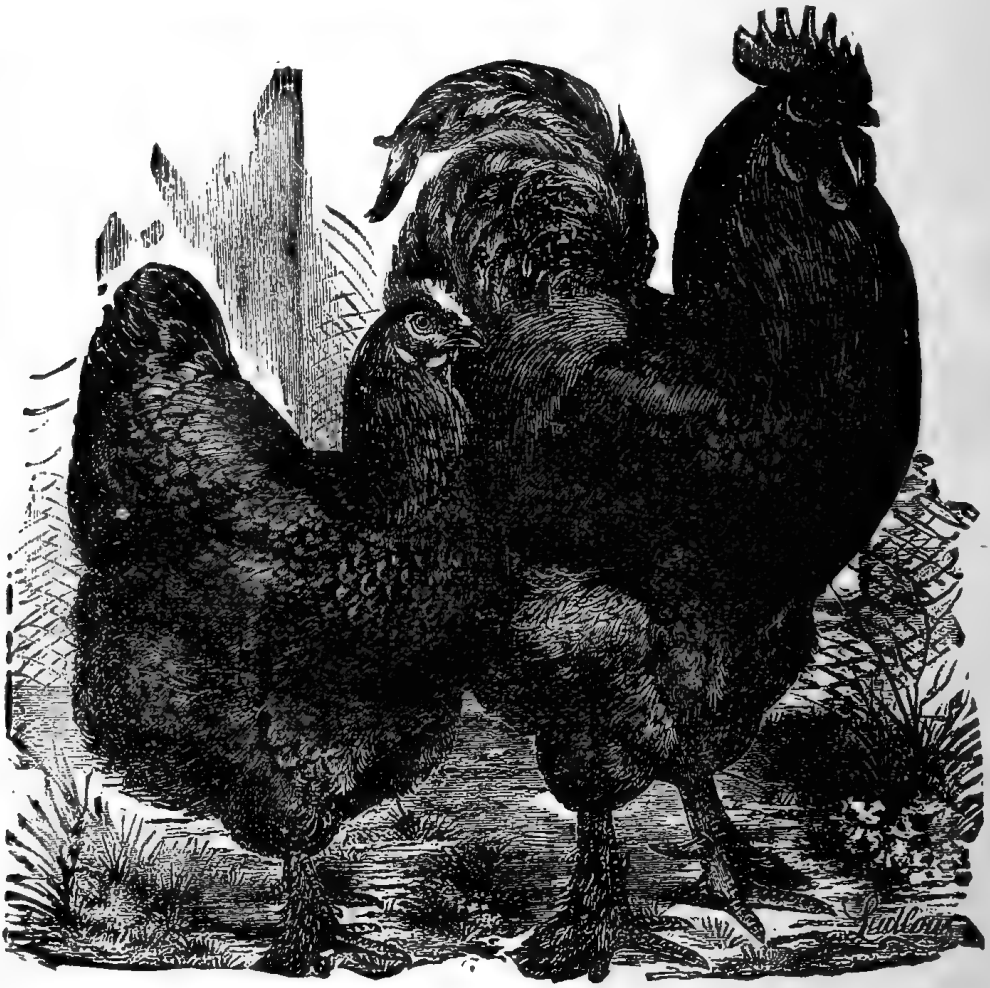


There is another variety of colored Plymouth Rocks, called the Barred Pea-comb Plymouth Rocks, and they are exactly like the single-comb variety except in the matter of comb. Both these varieties of Plymouth Rocks are next the Brahmas in size; and as for useful qualities—well, for a general farm and market fowl for those who desire to keep but one breed, and want that one good for everything, the Plymouth Rocks are ahead of anything else that wears feathers. There are other breeds that are better for some special purposes, but as a "general utility" fowl none come up to the Rocks. The Plymouth Rocks mature earlier than the Brahmas and Cochins—the females usually laying when five months old.



WHITE PLYMOUTH ROCKS.

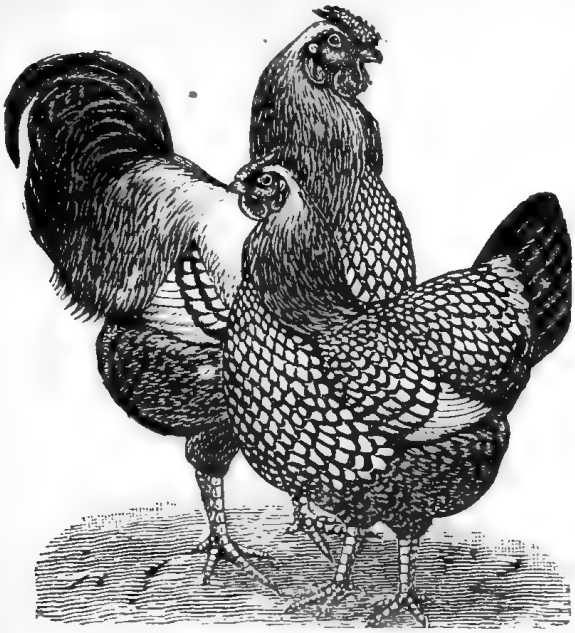
This illustration shows a group of White Plymouth Rocks. Except in color of plumage they look like the single comb colored Rocks. They are a comparatively new breed, but are already very popular, and probably are destined to rank with the colored varieties.



LANGSHANS.

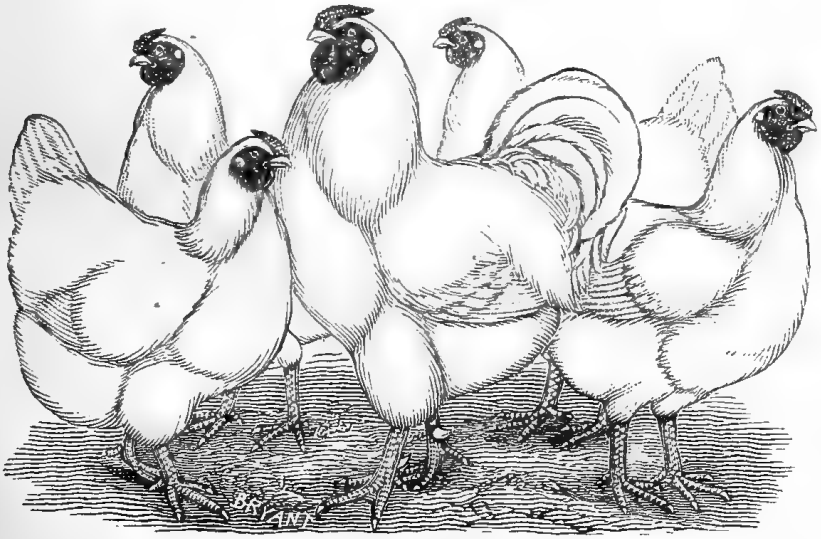
Here we have an illustration of a pair of Langshans. In color the Langshans are black with a greenish tinge. They have single combs,

and feathered legs. In size, as winter layers, as sitters and mothers, and for market, the Langshans equal the Brahmas.



LACED WYANDOTTES.

Here we have a cut of a pair of Laced Wyandottes, a comparatively new but very popular breed. In size and shape they are like the Plymouth Rocks; in color, they are black and white, the feathers on the breast of both cock and hen, and on back of hen, being black, with a white spot in center of each feather. They have low rose combs (a double comb, somewhat wider than a pea-comb, and the top evenly covered with small points), and yellow legs. As a general purpose fowl they rank next the Plymouth Rocks.



WHITE WYANDOTTES.

This is a group of White Wyandottes. They are the counterparts of the Laced Wyandottes in everything except color.

BROWN LEGHORNS.

There are six different varieties of the Leghorn family—the Black, Brown, White, Dominique, Rose-comb Brown and Rose-comb White. Our illustration shows a trio of the Single-comb Brown, which is the most popular variety of this very popular breed.

The prevailing color of the Brown Leghorn hens is brown; the back is dark brown penciled with lighter brown; the breast a dark salmon-brown, shading off to a lighter color on the under-part of the body; the

body brown, and the neck feathers yellowish-brown striped with black. Large, single combs, drooping to one side, white ear-lobes, and bright yellow legs, with a narrow black stripe down each toe.

The Brown Leghorn rooster is more gorgeously arrayed than his mate; his neck feathers are a golden-bay striped with black; back dark red striped with golden-bay; breast and under-part of body black; and the large tail is adorned with long, well-curved, greenish-black sickle feathers. Legs, feet and ear-lobes like those of the hen; comb large, single and erect.

The plumage of the Black Leghorns is black throughout; that of the White Leghorns is entirely white, while the Dominique Leghorns are in color like the Plymouth Rocks. Other points same as in the Brown Leghorns.

The Rose-comb varieties of the Leghorn family are like the Single-

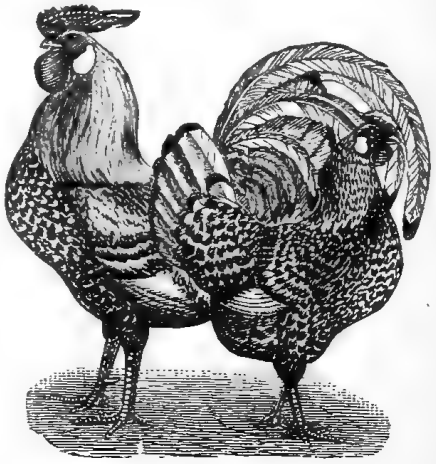
comb varieties, except that they have a rose instead of a single comb. The Leghorns are small fowls, the hens weighing from three to four pounds, the cock from four to five pounds. They mature early (cockerels crowing at six weeks, and pullets laying at four months); are hardy, good foragers, great layers, and non-sitters. Leghorn eggs are small when compared with the larger breeds, but still are of fair size; and as in most markets "an egg is an egg" regardless of size, and a dozen of eggs that weigh twenty-four ounces will bring no more money than a dozen that pulls down the scales at thirty or more ounces, the fact that Leghorn eggs are not so large as those of some larger breed is a matter of little consequence to the majority of those who keep poultry "on purpose" to produce eggs for the general market.

THE BEST VARIETY OF LEGHORNS.

I have never been able to discover any great amount of difference in the egg-producing qualities of the different varieties of Leghorns. Given the same food, care, and housing, one variety will undoubtedly do as well as another; still I advise the poultry keeper who lives where the winters are severe and who has not an extra comfortable house, but whose heart is "set" on having Leghorns, to keep the Rose-comb Leghorns in preference to the Single-comb variety. He will find the "Rose-combs" better winter layers than the Single-combs would be under the same conditions. Why? Simply because the rose-comb being so low and flat on the head, it will endure a greater degree of cold without freezing.

HAMBURGS.

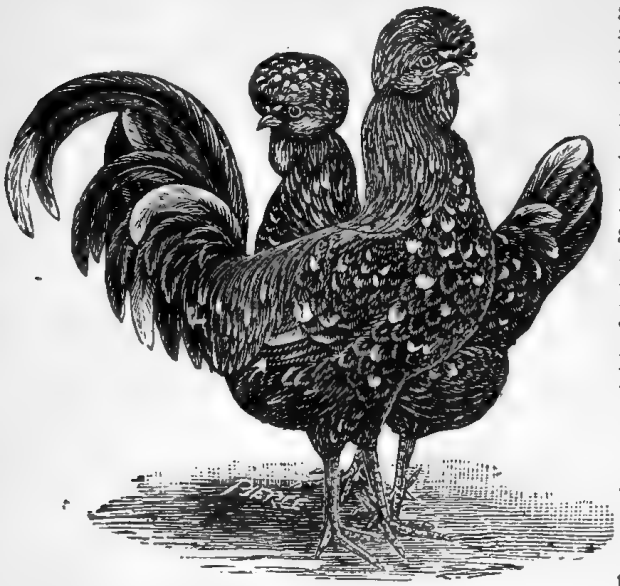
There are six different varieties of Hamburgs—the Black, White, Silver Spangled, Golden Spangled, Silver Penciled, and Golden Penciled. Our cut is intended to represent a pair of the Silver Spangled variety. Years ago the several varieties of fowls now known as Hamburgs were called Creoles, Bolton Grays, Pheasants, and 'Dutch Everlasting Layers." Many old farmers still speak of those fowls as the best layers they ever had.



All varieties of Hamburgs have good sized rose combs, white ear-lobes, dark legs, and large tails. Hamburgs are non-sitters; good foragers; the grown fowls hardy as the average if allowed full liberty, but they do not seem to bear confinement as well as some other breeds. They are somewhat smaller than the Leghorns, mature a little earlier, and lay smaller eggs, but when rightly cared for will lay a greater number of eggs in a year than any other breed of fowls in the Standard or out of it. Hamburg chicks should not be coaxed out of their shells into a "cold and unfeeling world" before settled warm weather comes in the spring, for they don't take kindly to the cold, wet spells of early spring weather. But this tenderness is hardly a drawback, for the Hamburgs mature so early that it is not necessary or advisable to hatch them before May.

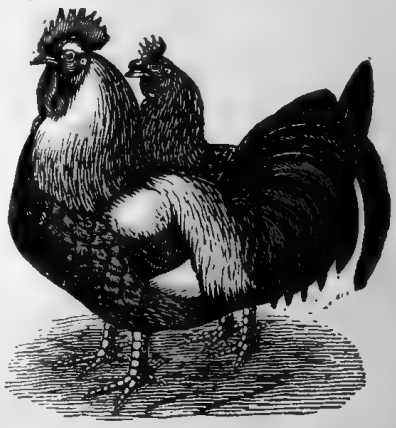
HOUDANS.

Here we have an illustration of a pair of black-and-white, five-toed, top-knot, bearded fowls called Houdans, and a grand good breed the Houdans are. They are of medium size, i. e., they are larger than the Leghorns but not so large as the Plymouth Rocks; plump, full breasted, well-shaped, small-boned fowls, with pinkish-white legs mottled with lead color, and present a fine appearance when properly dressed for market. Their eggs are larger than those of the Leghorns, and they rival that breed in the number they will produce in a year. As winter layers, the Houdans have not as yet achieved much of a reputation, but I believe that it is owing more to mismanagement on the part of their owners than to any defect in the fowls. Houdans are good foragers, and, like the Leghorns and Hamburgs, do best where they can have as much of creation as they care to wander over for a foraging ground. I firmly believe that Houdans will pick up a living where other fowls would starve to death. As chicks and as fowls, Houdans are very hardy. The chicks feather up quickly and mature early, the pullets commencing to lay at between four and five months. They are non-sitting, therefore hens of some other breed must be kept for sitters, unless an incubator is used.



DORKINGS.

This cut represents a pair of Silver Gray Dorkings—a variety of a breed that is not yet very popular in this country, but in England, where the Dorkings are bred to perfection, they are the favorites for farm fowls and take the lead as table fowls. There are three varieties of the Dorkings—the White, the Colored and the Silver Gray. The White Dorkings have clear white plumage, rose combs and white or flesh-colored legs. Colored Dorkings have either single or rose combs, and plumage of various colors; other points same as the White. The breast, body and tail of the Silver Gray Dorking cock are black; the back and wing-bows silvery-white; the neck feathers silvery-white striped with black; other points same as Colored Dorkings. The Silver Gray hens have silvery-white neck feathers; silvery or slaty-gray backs; salmon-red breasts, shading to gray towards the sides; silvery or slaty-gray on the under part of the body, and brown and slaty-gray tail feathers.



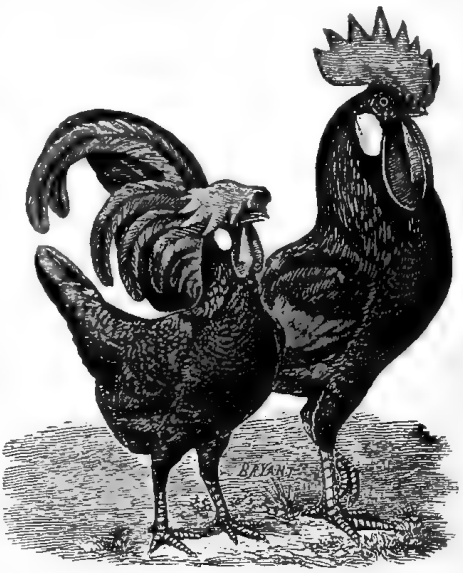
Dorkings are medium-sized fowls, good but not extra layers, good sit-

ters, good mothers, and the chicks mature early, being fit for the table any time after ten or twelve weeks from the shell. We found early hatched Dorking chicks quite difficult to rear; they drooped and died during spells of cold wet weather that the little Rocks, Houdans, Leghorns and Asiatics didn't seem to mind much. Later-hatched Dorkings did better In English markets a plump Dorking fowl will command a higher price than a fowl of any other breed, but during the two years that we bred them we couldn't find anybody who was willing to pay any more for a Dorking than for Plymouth Rocks; in fact, we cannot truthfully say that the Dorkings excelled our Rocks in any points, except that they carried a little more breast-meat, while in hardiness and as layers the Rocks were far ahead of the Dorkings. Taken altogether the Dorkings have not been a success in this country except in dry and healthy localities; but it seems to me that if breeders would take more pains to toughen and acclimate the Dorkings, they might hold a place next to our own Plymouth Rocks.

JAVAS.

There are three varieties of Javas—the Black, White, and the Mottled, which are black and white mixed. The Black Javas are the "parent variety" of this breed—the white originating in spurts from the black, and the Mottled from a cross between the Black and White.

The Black Javas have single combs, black legs; are about the size of the Plymouth Rocks, and resemble the Dorkings in shape. They are hardy, good foragers, excellent layers of large eggs, good sitters, and good mothers. The White and the Mottled Javas are comparatively new breeds, and I have had no experience with them; therefore will only say that those who have tried them are quite enthusiastic in their praise; some claim that they equal the Leghorns in egg-production.



MINORCAS.

There are two varieties of the Minorcas—the Black and the White. Our illustration represents a pair of the Black variety. The Blacks have glossy black plumage and dark legs; the Whites, pure white plumage and pinkish shanks. Both varieties are alike in shape, have white ear-lobes, large wattles and enormous single combs, which are erect on the cocks and lop over to one side on the hens, In size they come about half way between the Leghorns and Plymouth Rocks. They are non-sitters, and will rival the Leghorns as egg-producers.

THE BLACK SPANISH,

Usually called the White Faced Black Spanish, and the Black Minorcas look almost exactly alike, except that the Spanish have very large white "faces"—so large that the fowls look unevenly balanced. The old-fashioned Red Faced Black Spanish were grand layers of very large white eggs, and breeders now claim that the "improved" (?) Spanish, i. e.

the White Faced Black Spanish, are vastly superior to the old favorites; but the cold and unpalatable fact is that in order to secure this exaggerated face development the majority of breeders of Black Spanish fowls have sacrificed vigor and productiveness—"improved" the once good and deservedly popular Red Faced Black Spanish fowls "off the face of the earth," and given us fowls that may "score" high in the show room, but in egg production are inferior to the old Red Faced breed from which they came. However, there are still some strains of Black Spanish that are famous layers, and the poultry raiser who seeks to buy Black Spanish fowls for utility should see to it that they are from a laying strain.

POLISH FOWLS.

There are seven varieties of Polish fowls—the White, White Crested Black, Golden, Silver, Bearded Golden, Bearded Silver, and Bearded White. Our cut shows a pair of the best known and handsomest variety—the White Crested Black. The crests are pure white, the rest of the plumage glossy black, making a beautiful and striking contrast They have V-shaped combs, white ear-lobes, dark legs. White Polish are pure white throughout; other points same as the Black, except that the legs are not so dark. Golden Polish are golden-bay in color—the ends of the feathers laced or spangled with black; other points like the White. Silver Polish are silvery-white, and the feathers laced or spangled with black; other points like the White. Give each of the three last-named varieties a full, thick beard and very small wattles, and you have the Bearded White, Bearded Silver, and Bearded Golden Polish.

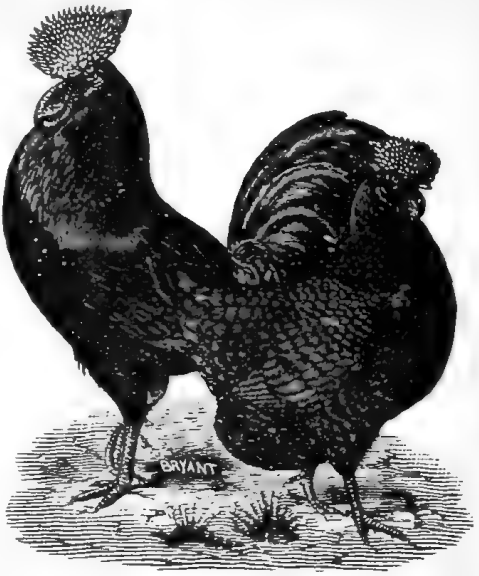
The Polish Fowls are non-sitters and prolific layers—almost equalling the Leghorns in the number produced in a year. Some poultry writers claim that the Polish fowls are not hardy; I used to think so; but later experience has convinced me that they are of average hardiness, and that the chicks are easy to raise, provided they are not hatched until after settled warm weather comes in the spring. And as the Polish, like the Leghorns and Hamburgs, mature early, it is not necessary to hatch them before May. Polish are about the size of Leghorns—possibly a bit larger.

AMERICAN DOMINIQUES

Are shaped something like the Dorkings, colored like the Plymouth Rocks, and have a rose-comb like the Hamburgs. They are hardy, mature early, good foragers, good layers, good sitters, good mothers—in fact a good general purpose fowl. They are larger than the Leghorns, but do not average so large as the Plymouth Rocks. The Dominiques are an old breed—the oldest of our American breeds, and, as one poultry writer has well said, "no better or stronger blood flows in our fowl stock." From this variety comes much of the excellence of our Plymouth Rocks.

RED CAPS.

This cut shows a pair of Red Caps, a new breed that is *said* to possess "more important qualities than any other breed"; time alone will show whether they deserve half the good things that those who breed them claim for them. The males of this breed are red and black, with large rose comb dotted all over the top with small points, and slate-colored legs. The plumage of the hens is of a rich, chestnut brown, each feather spangled with black; comb and legs like those of the males. Cocks weigh from six to eight pounds; hens from five to six. The Red Caps are hardy, mature early and are extra good layers.

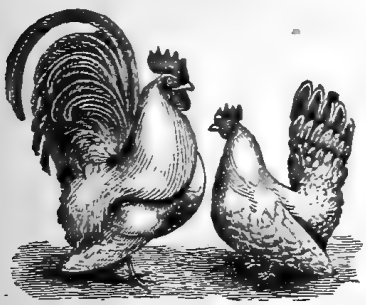


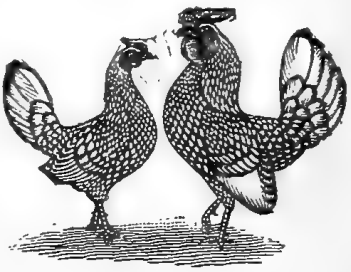
GAMES.

There are a good many different varieties of Game fowls, but I shall not waste "valuable space" by going into "particulars" in regard to the looks of those in each variety; in fact I shouldn't mention the Games at all here were it not for the fact that some misguided poultry writers are always recommending Games for farm fowls. I've tried Games on a farm, and I don't hanker after any more. Those Games gave me more trouble than any other fowls I ever had before or since. The chicks were easy to raise—they simply came out of the shell and went to scratching and fighting, and kept it up right along; but all the same we didn't find them profitable for the reason that the old Game rooster, not content with fighting everything on the place, "sallied forth" and killed about all the roosters in the neighborhood, and we had to pay for them. No, I don't believe in Games for farm fowls; but if you will have them, take the kind that strikes your fancy. So far as useful qualities are concerned (and the Games are good layers), one variety is just as good as another; and as for scratching, fighting and "raising cain generally" one variety is just as bad as another, if not worse.

BANTAMS.

The cut of miniature fowls with drooping wings and exaggerated tail represents a pair of Japanese Bantams. They have pure white plumage (except the wonderful tail, which is black), single combs, and short, bright yellow legs. The standard weight for cocks is twenty-eight ounces; for hens, twenty-four ounces. The next illustration is of a pair of Golden Sebright Bantams. Their plumage is a rich golden yellow, each feather very evenly laced with a narrow edging of black; rose combs, and slaty-blue legs; weight same as the Japanese Bantams. The Silver Sebright Bantams are like the Golden





except that their plumage is white laced with black. There are several other varieties of Bantams, all handsome and equally worthy of mention, but lack of space prevents particular mention of each variety.

What good are these miniature fowls? Well, they are generally kept for pets, and for show purposes, but they have their useful qualities, too. They are good layers, and as they can be kept in small houses and runs, can be kept by many who, from lack of room and the nearness of neighbors, are deterred from keeping larger fowls. On this subject the Poultry World very sensibly says: "No neater, prettier, or more attractive pets can be given to the little ones of the household to care for than Bantams; for their small size, handsome plumage, and proud ways make them objects of unfailing interest. Bantams are hardy, and many an enterprising boy has put a number of stray dollars in his pockets from the sale of his surplus stock—money which he prized more, and which did him more good than that not earned by his own exertions. Show us the boy who is fond of his pet Bantams, and takes good care of them, rearing the young successfully year after year, and we can then point him out as one who will be successful as a stock breeder in future years, whether he breeds poultry or larger stock."

OTHER BREEDS.

There are many other breeds of fowls besides those mentioned in this book, but those herein mentioned are at present those that are most worthy of notice in a work like this. The "American Standard of Excellence," a copyrighted book published by the American Poultry Association, minutely describes all the standard breeds of fowls, ducks, geese and turkeys, and can be obtained of all publishers of poultry papers. The price is one dollar.

THE BEST BREED.

"But which is really the best breed?" That depends: If you want non-sitters that will produce the *greatest number* of eggs in a year, take the Leghorns or Hamburgs; but if you want non-sitters that will lay *good-sized* eggs, take the Houdans, Black Spanish, Minorcas, or White Crested Black Polish. These last mentioned breeds do not, as a rule, lay as many eggs in the year as the Hamburgs and Leghorns, but their eggs make up in size what they lack in number, and the poultry raiser who inends to supply private customers with fresh eggs will find that it will pay better in the long run to keep fowls that lay good-sized eggs. But always bear in mind that these non-sitting breeds will not bear confinement to yards as well as those that are heavier and less active. And because they are non-sitters don't expect them to lay every day, Sunday and all, the year round. They must and will take a rest once in a while.

For winter layers take the Cochins, Brahmas, or Langshans. These breeds will also, if given full range and forced to scratch for part of their living, do fairly well at the egg business in summer. For those who must keep their fowls confined to yards the year round, the Cochins, Brahmas and Langshans have no superiors. For "all the year round" layers, there are the Plymouth Rocks, Dominiques, Wyandottes, and Javas. For spring chickens, i. e., chickens to sell for broilers, the Plymouth Rocks head the list; next come the Wyandottes, Dominiques, and the Houdans. For large chickens to sell either alive or dressed in the fall or winter, the Brahmas, Cochins and Langshans are "the best"

because the biggest. For the largest capons, mate pure-bred Light Brahma hens with Partridge Cochin cocks. The cockerels from this cross make the largest capons. The pullets grow to a great size, and are desirable for market, but not to keep. Pure Brahmas, Cochins, Plymouth Rocks, Langshans, Wyandottes and Javas are good for capons, but do not grow to the size of the Brahma-Cochin cross. Of course cockerels of any breed can be caponized, but as increased size is one of the objects of caponizing, it hardly pays to operate on the smaller breeds. There are some people in the world, and some of them live in the United States, who have a notion that the fowls of some particular breed are much better for table use than anything else that wears feathers, and are willing to pay an extra price for the fowls that they fancy; if your market demands fowls of any particular breed, or you get hold of a class of private customers who imagine that Dorkings, or Leghorns, or Houdans, or any other kind of fowl flesh is better than all others, just keep the kind that they like and are willing to pay most for. It is my private odinion that not one in a thousand of these particular people could ever tell by the taste of a chicken (provided all were equally well-raised and well-cooked), whether they wore Houdan, Plymouth, Game, or Brahma feathers when alive; but when they are willing to pay extra for what they consider the best, don't "argue" with them; pocket the extra cash, and keep your private opinions to yourself, unless you happen to agree with them.

For a general purpose fowl, i. e., for general farm and market fowls for those who desire to keep but one breed, and want that one good for pretty much every purpose for which fowls are kept, the Plymouth Rocks stand at the head; the Dominiques and Wyandottes come next.

Poultry raisers who live "down South" will find the Hamburgs, Leghorns, Spanish, Houdans, Rocks, Dominiques, Wyandottes and Javas better suited to their climate than the Brahmas and Cochins.

Village residents, and those who must keep their fowls confined to yards the year round, will find the Brahmas, Cochins and Langshans the best breeds for them, as they bear confinement better than the breeds that are naturally more active.

To sum up on the subject of the "best breed," find out just what kind of fowls are most in demand in the market where you expect to sell, and then raise the kind that the market calls for.

THE COST OF KEEPING THE DIFFERENT BREEDS

Does not vary so much as the breeders of some varieties would have us believe. It costs more to grow the large breeds to a laying age than it does the smaller ones, but after they have reached that age there is but little difference in the amount of food necessary to keep hens of the different breeds in laying order.

NEW BREEDS.

Every few years new breeds, or new varieties of some of the old breeds, are brought before the public, and those who introduce them usually claim that the new are in all points vastly superior to the old, but it will pay you to go slow at first on all new breeds, no matter who introduces them. Get a sitting of eggs, or a pair or so of the fowls, and try them before you buy more; then if they prove valuable you can increase your stock; while on the other hand, if they do not come up to the mark you won't be much out of pocket.

COMMON FOWLS.

And now I am going to say a well-deserved good word for the common fowls. They are of all shapes and colors that fowls ever grow, and they are usually neglected, abused, half-starved, and left to shift for themselves generally; but for all that they generally pay their way and more too—live and thrive, and bring up big families of healthy chickens under the most discouraging circumstances. Our common fowls are extremely hardy, good foragers, mature early, are good layers, good sitters and excellent mothers; and if you cannot afford to start with a stock of pure bred fowls, believe me it will pay to start with common fowls. Take the same pains with them that you would with a stock of thoroughbreds, and they will respond quickly and generously. There is something—a good deal—in blood, but there is also an immense deal in care and feed.

HOW TO IMPROVE COMMON FOWLS.

If size be your object, select your biggest common hens and mate them with a rooster of some of the larger breeds; if you desire egg-production, select the hens that you know to be the best layers, and mate them with roosters of some of the breeds that are noted as layers; and for any other special purpose select males from a breed that possesses the qualities that you desire. Chickens from these crosses will be "half-blood", and much superior to common fowls. The next year mate the best of the half blood pullets to pure-bred cocks, and keep the best of the pullets from this cross for breeding stock the third year. In this way, always keeping your best hens and pullets each year, and using only thoroughbred cocks, you will in a few years have a flock of fowls that for all practical purposes will be just as good as though you had started out with thoroughbreds.

If you have not the cash to buy pure-bred cocks to mate with hens to begin with, don't think that you can do nothing towards improving your common fowls. Common fowls can be greatly improved in point of size by always selecting the largest and best to "keep over" to breed from; and the laying qualities can be improved by always setting only the eggs from the hens that are known to be the best layers. On some farms where this course has been steadily followed year after year, the fowls have greatly increased in size, and rival the Leghorns and Hamburgs in egg-production. In one case that came under my observation, in five years from the time the improving process commenced the average egg product from the hens had increased one-third, and the average weight of the fowls had increased in about the same proportion. In all that time no "fresh blood" was introduced into the flock; the improvement was wholly due to food, care, and the selection of the best each year. Of course the same results could have been reached in two years by the use of thoroughbred roosters; but the woman who owned those hens didn't have the thoroughbred roosters, or yet the money to buy them, so she went ahead and did the best she could with such fowls as she had, and her best was very good indeed. It is a fact that the third winter after she began her work of improvement her hens laid more eggs than any other flock in the neighborhood; and there were some thoroughbred flocks among her neighbors'.

Now you needn't try to twist this into an argument or anything else in favor of common fowls over the improved varieties, for it isn't any-

thing of the kind. I believe in improved varieties of fowls, believe that thoroughbred and very high grade fowls will pay the farmer and market poultry raiser better than common fowls, just as surely as the thoroughbred and grade Jersey or Holstein cow will pay the farmer and dairyman better than a common cow; but I also believe that there are many, very many, who have read so much of the book that has been written about starting with "the best" that they really believe it will not pay to start until they have money enough to buy a flock of high-priced thoroughbred fowls, and I am trying to show them that it will pay to start with "just common fowls," and improve the flock as they go along. That's all.

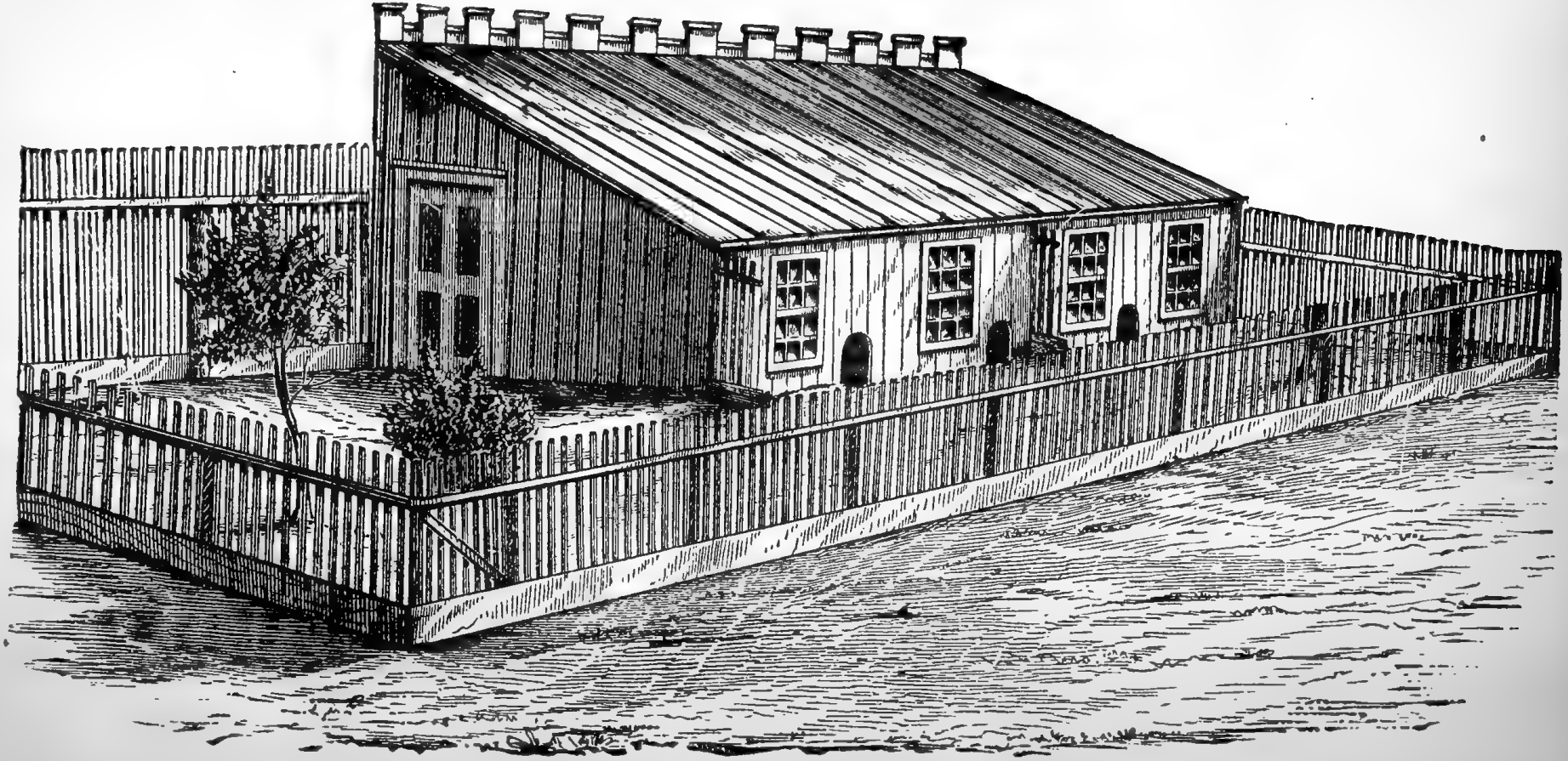


Fig. 1.

CHAPTER III.

ABOUT HOUSES, YARDS, ETC.

In building a poultry house the main things to be considered are plenty of room, warmth, good drainage, light, ventilation, and convenience. These things secured, it does not matter, so far as the hens are concerned, what the house "looks like" on the outside or inside.

The size of the house must be determined by the number of fowls to be kept through the winter. Most poultry houses are too small for the number of fowls kept. In localities where the fowls must be confined to the house the greater part of the time during the winter, the poultry house should contain from three to three and one-half square feet of floor room for each fowl; and besides this, and connected with the house, there should be a shed of some sort where the fowls can scratch and loaf during the days when the weather is such that they cannot take the necessary exercise in the open air. When the poultry house is so situated that the fowls can have the run of the barn yard and cattle sheds, the poultry shed will not be necessary. I know that much has been written against allowing fowls to run in barn yards and scratch in manure piles but all the same hens take to such places as naturally as ducks take to water, and I have never yet seen any sickness that resulted from allowing fowls to run in well-drained, well-littered barn yards and cattle sheds.

Concerning warmth in poultry houses, we speak of "warm poultry houses" because it is a convenient mode of expression, but we all know that a building cannot be warm in itself; the heat must come from the sun's rays, from a fire, from the interior of the earth, or by crowding many fowls into a small close house. The last-named method is particularly objectionable because unhealthy. A large number of fowls kept in a small, tight room will generate heat enough to raise the temperature of the room above the freezing point when it is many degrees below zero outside, but the air so warmed will be almost rank poison, and the fowls nearly stifled. Fowls kept in such close quarters will not long remain healthy, and unhealthy fowls don't pay.

Generally speaking, it does not pay to warm a poultry house by the use of fuel, except for raising early chickens and ducks; the expense and trouble of keeping up fires eats up a good share of the profits of poultry raising. And besides, fowls that are kept in houses warmed by fires soon become very sensitive to cold, take cold upon exposure to the outer air, and then roup and kindred diseases follow. Still there are cases where it may pay the poultry raiser to keep a fire in the poultry house in severe weather; then the question is whether to use wood or coal. A good coal stove needs but little attention, but with a coal fire the air cannot be kept so pure as when wood is used. If coal must be used it is better to have the chimney at one end of the room where the fowls are kept, the stove in a small room at the other end of the building, and utilize the heat by means of hot air pipes or flues passing

through the room to be warmed, and to the chimney. In warming a poultry house by burning wood in a common wood stove, the great drawback is the almost constant attendance required in order to keep a tolerably even temperature. The fire must be replenished often during the night as well as during the day; and this getting up in the middle of the night, with the thermometer way below nothing, to fill up the hen-house stove, is no fun, as we know by cold experience. Then, if ever, one laments having embarked in the poultry business. And then there is always the danger of fire. The best, and the safe way to keep a wood fire in a poultry house is in a brick stove with close fitting iron doors—one small door in one side near the bottom for convenience in building a fire and removing ashes, and a large round door, or trap, in the top, where large "chunks" and "knots" of wood, too large to be used anywhere else, and too tough to be profitably worked up, can be put in. Such a stove needs to be replenished but twice a day, as when closed up the wood burns slowly, and the bricks hold heat a long time. With a brick stove, and proper ventilation, an almost uniform temperature can be kept night and day. Any mason can build such a stove, and plain iron doors and fittings can be obtained at any foundry, or ordered through any hardware dealer.

Probably the cheapest and best method of using artificial heat in large poultry houses is by the use of a green-house boiler and hot water pipes. Any one desiring full particulars in regard to fitting up with either steam or hot water apparatus can obtain them, together with an estimate of expense, by applying to plumbers or steam-fitters.

But after all, what the majority of poultry raisers want to know is, how to build a poultry house so that it will be comfortable enough inside without a fire when the mercury is ten, twenty or more degrees below zero outside. We can do this by utilizing the sun's rays, and the heat from the interior of the earth. By building a house into a south side hill where it will be surrounded on three sides by earth, and putting windows in the south side, a comfortable, uniform temperature can be secured, regardless of the downward freaks of the mercury outside. When there is no side hill handy the poultry raiser can secure warmth in his fowl house from the radiation of the earth's heat, by "banking" the house so thick that the frost cannot penetrate through, or by building the walls of the house of sod. When the embankment or the sod walls are so thick that the frost cannot get through, such houses are just as comfortable as the side hill houses, and in them fowls will be comfortable right through the fiercest blizzard that ever blew in the Northwest. Where winters are not so severe as in the extreme north and northwestern parts of our country, sufficient warmth may be secured by the use of building paper, or by building double walls and filling the space between with sawdust, chaff, or spent tan bark.

The ground where the poultry house stands should be well drained; if not so naturally then it should be done artificially, for a damp poultry house is a decidedly unhealthy place for fowls. A good share of the disease and loss in some poultry flocks might be directly traced to the damp houses.

The poultry house should be light, but don't overdo the window business, and make the south side about all glass, as some misguided poultry writers recommend. Too much glass is as bad as not enough.

On sunny days in winter these houses with "nearly all glass" fronts will be very warm—sometimes too warm for comfort, in the middle of the day, but as soon as the sun gets around so it does not shine in, the heat is radiated very fast, so that before morning the room is very cold. Have no more glass in the south side of your poultry house than you would in the south side of a dwelling house of same size; and have shutters to close over the windows on winter nights; they will prevent such rapid loss of heat and so secure a uniform temperature at night. And the same shutters that prevent loss of heat in cold weather will keep out the hot rays of the summer sun.

The best way to ventilate a poultry house is to have a box shaft run from within a foot of the floor out two or three feet above the roof. There should be two of these ventilators, 6x8, in a house where 100 fowls are kept. There should be a slide in the bottom of each ventilator, so that they may be partly closed in extreme cold weather; and a top above the ventilator outside to keep out snow and rain.

In regard to convenience, every poultry keeper must decide for himself; I will only suggest that where any considerable number of fowls are kept, a passage-way along the rear, or through the center of the house, so arranged that the fowls can be fed and watered, and the eggs gathered without going in among the fowls, is a convenient arrangement. In this passage way feed can be stored, kerosene, oyster shells, disinfectants, tools, and other things needed for the fowls, and for use in and about the poultry house, can be stored. And the nest boxes can be so arranged that when a hen takes a notion to sit, and you take a notion to allow it, the box can be turned to face into the alley, and thus secure the sitter from annoyance by the other hens. A stove for cooking food could also be put up in this alley.

COST OF POULTRY HOUSES.

"How much will it cost to build a poultry house for 100 hens, if one does the work himself?" is one of the questions I am often asked. That depends very much upon the price of lumber in your locality. I know of one 100-hen house that was built in Massachusetts, where lumber and wages are high, at a cost of some few cents less than $100 for material and carpenter's wages. Another Massachusetts poultry keeper put up a house that would accommodate 500 hens at a cost of $400. He did nearly all the work himself. While in Ohio, we had several poultry houses that would accommodate 50 fowls apiece, put up for a little less than $30.00 each. All work was hired. One of my friends "out west" built a poultry house for 100 hens at a cost of less than $10 00 for material. All that he bought was a few rough boards, nails, glass and window sash. The rest of the house was made of rough poles, sods and straw, and he did the work himself. The house didn't "handsome much", but it was extremely comfortable, and his hens laid right through an extremely cold winter. Hens don't care for looks, but they do like to be comfortable, and they won't lay in winter unless they are so.

SOME PLANS FOR POULTRY HOUSES.

The full page illustration (Fig. 1, page 30) shows the elevation of a poultry house that is turned around "hind side before," and has the windows in the lower part, which should face the south—an arrangement which has proved very satisfactory to the poultry raisers who

have tried it. A house like this can be built any desired length, and divided into different sized rooms to suit the convenience of the owner. It should be six feet high in front, and ten or twelve at the rear, according to the width. A passage-way three feet wide extends the whole length of the building. The windows are hung with weights, and by a simple arrangement of cords and pulleys can be raised or lowered by pulling a cord in the alley. The space over the passage-way in one house like this was used for storing chicken coops when not in use. In another it was finished with a tight floor and used as a roosting place, the fowls "climbing to rest" by means of a ladder which will be described farther on. In still another there was a pile of refuse hay, and a few nest boxes scattered in the "loft," and how the hens did like to lay up there.

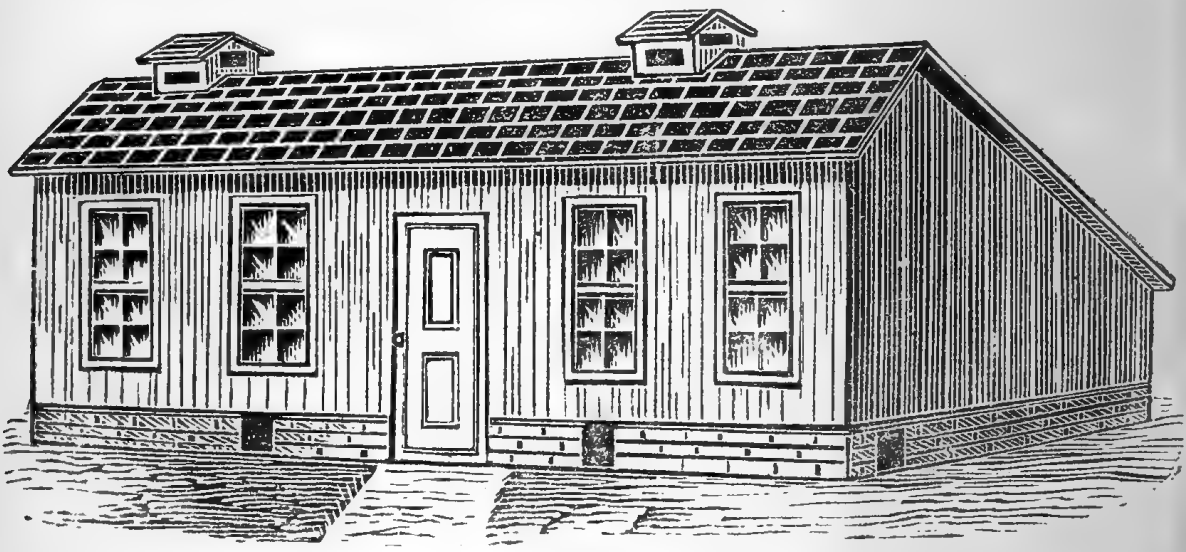


Fig. 2.

Fig. 2 shows a good house for one hundred fowls. It is 50x12 feet, which gives five rooms 10x12 feet, four of which can be used for fowls, while the fifth can be used for storing food, etc., sitting hens in season, and if desired a stove for cooking food can be set up in this room. In case a stove is desired, have a chimney in the center. There is no window in this center room, but it is sufficiently light, for the partitions are of wire netting down to within two feet of the floor. Still if "more light" is desired, a window could be put in the upper half of the door. The house is set on a stone foundation, and in this foundation openings are left for the fowls. One of the openings is in the west end and does not show in the illustration. Ventilation is secured by the two box ventilators. Roosts and nests arranged to suit the fancy of the owner. For the use of this cut we are indebted to the Ohio Farmer.

Fig. 3 shows a neat little poultry house, twenty feet long, eight feet wide on the ground, six feet high in the rear, and six and a half feet in the roof. It is built of matched and dressed lumber, battened and painted. The frame is 3x4 joist, lathed and filled in with saw-dust on all sides and roof, then plastered; gravel bottom; three windows of twelve lights 9x13, and a small window in upper half of door to admit the morning light. The nests are on the ground, under the windows. This house proved a success in a severe winter, the thermometer indi-

cating only 3° *below freezing*, when it was 26° *below zero* outside. If I were going to build after this style, would double board with building paper between instead of the lath and plaster, and for convenience I would place the nests under the roosting platforms at the back side of the house, and have openings for the fowls under the windows. A house like this can be extended to any desired length. No ventilators are shown in the cut, but there should be the box ventilators put in.

The following description of a poultry house was taken from the Ohio Farmer, and was written by A. C. Pepoon, an Ohio poultryman, who planned it for one hundred Brown Leghorns: Building stands east and west, so as to face the south; sixty feet long, twenty-five feet wide; foundation of brick or cobble stone, 2 feet above ground and one foot in the ground; roof one-third pitch, making the building ten feet three inches high in the center; door in each end, and over the doors a small door for ventilation. In the south half of the roof put at least ten windows, one half at peak, with the others at or near the eaves. The upper might be put in flat with the roof, and the lower would be better as dormer windows, and rise from the foundation, but this would make the cost considerable more than to put them in with the pitch of the roof. The ends and roof should be made double, with at least a two-inch air space, and also a sheathing of tarred paper between. Of course this makes the cost much more, but it will pay in the end; the fowls will not feel the sudden changes of temperature in winter, and unless there is long continued cold weather, the temperature of the air in the building will not go down to, or much below, freezing. The outside of building should be banked up all around as high as the foundation wall. To do this I would draw dirt and grade it up and make it permanent. Put a ventilator in the center, extending at least four feet above the roof and two feet below into the building; it should be sixteen inches square, and over the top and about four inches above a roof or cover, so as to keep out the snow and rain. This ventilator should be kept open all the time, and the end ventilators over the doors only opened when necessary. The ventilator in the center can be used for a chimney by running a stove pipe up through the center and having a galvanized sheet iron top above the ventilator. The doors should be double and fit tight.

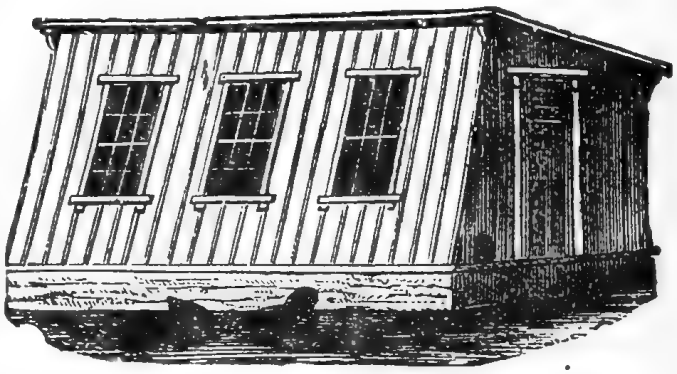


Fig. 3.

Fig. 4 shows another man's (S. L. Roberts of Nebraska) notions of a house for Brown Leghorns. Mr. Roberts says: I have a superb pen of Brown Leghorns, with extra fine, large combs, and although our thermometers registered 15° below, yet my fowls all came through the frosts of winter untouched. I have two buildings exactly alike, each eight feet wide, sixteen feet long, eight feet to top of square in front and four feet behind. These pens stand ten feet apart, with a roosting

coop between. The roosting coop is four feet by ten feet, two feet high in front, and one foot high behind, with a two-foot pit or cellar under it, with roosts on a level with the ground. Two trunk ventilators run

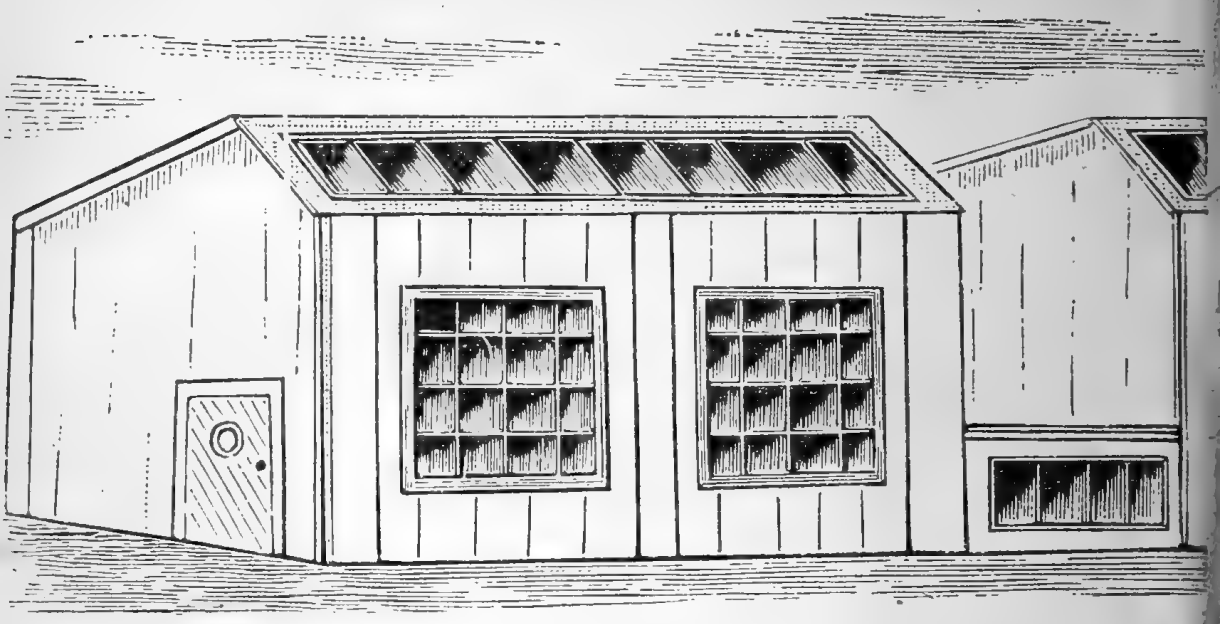


Fig. 4.

down within six inches of the ground, with a division in the middle. This coop answers for both pens. The cost is trifling, three twelve-inch boards ten feet long and the roof completes the building. A hole cut into this from each pen and it is finished. I can heartily recommend this roosting coop to all breeders of Leghorns for winter. The advantages are many. It is warm in winter and cool in summer; and it is difficult for night prowlers to secure their booty. By this plan your poultry house can be kept clean, you will have healthy birds and plenty of eggs. You can close it up when you give the morning meal. Fowls will have no chance to learn the habit of loafing on the roosts half of the day. The objection to glass fronts is overcome, as the cold does not reach them, and no one need pity me when he sees one hundred and fifty panes of 10x12 glass in a house eight feet by sixteen feet. No fancier should have his fowls roosting in the daily quarters when it is so easily remedied with

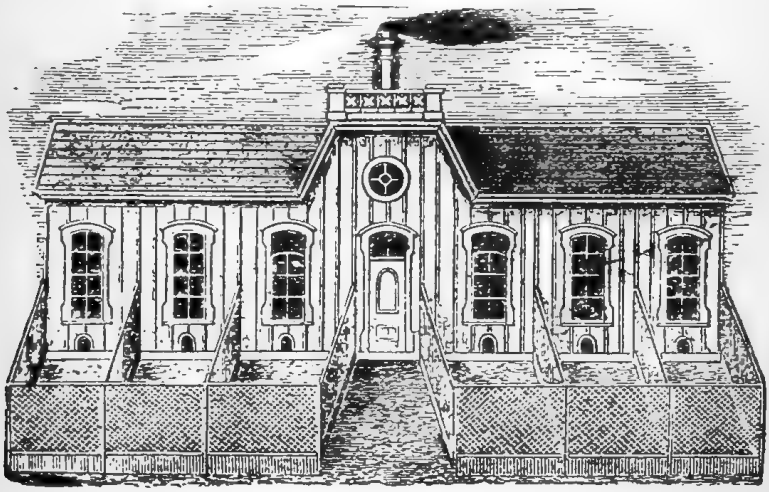


Fig. 5.

so many advantages. The best and cheapest material to use for building is twelve-inch hemlock flooring tongued and grooved, which costs from $16 to $18 per M, according to location. This used as siding should be put on up and down. It also makes a good warm roof, covered with

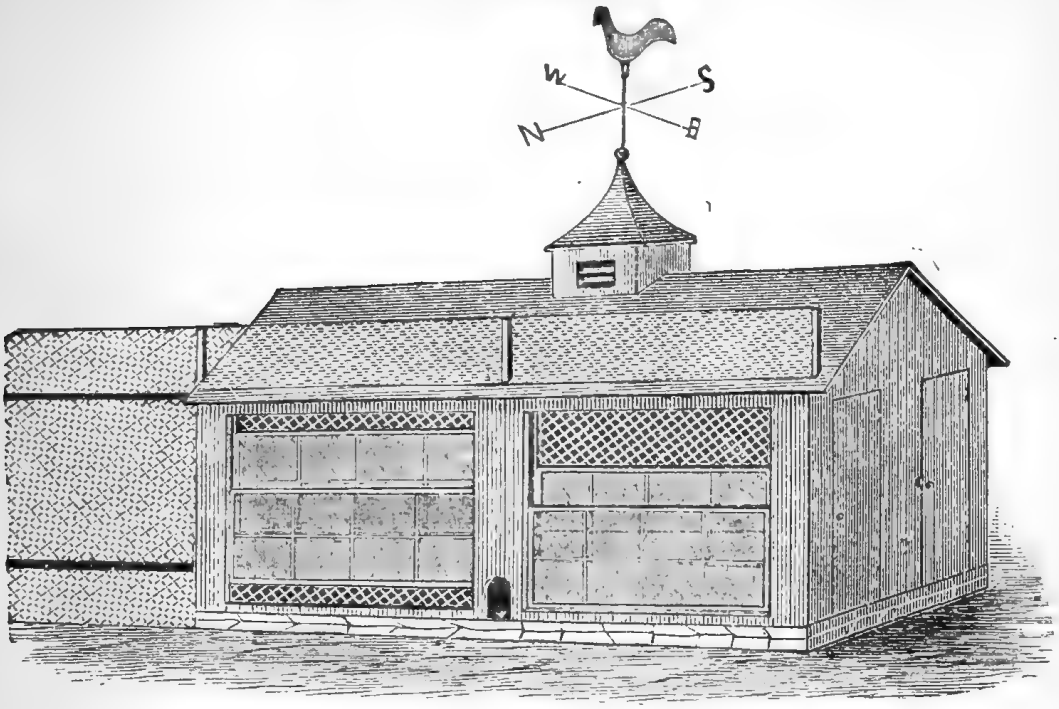


Fig. 6.

two-ply tarred felt. I have the roof and north end of pens covered with three-ply tarred felt, the balance with the roosting coop is covered with two-ply felt. Inside of the pens everything is neat and clean, and the air is fresh and sweet, thanks to the roosting coop and trunk ventilators.

Fig. 5 shows a neat-looking poultry house arranged for the keeping of several different breeds, though of course it will answer just as well where only one breed is kept. The middle room is used for a store room, and is furnished with a stove for cooking feed.

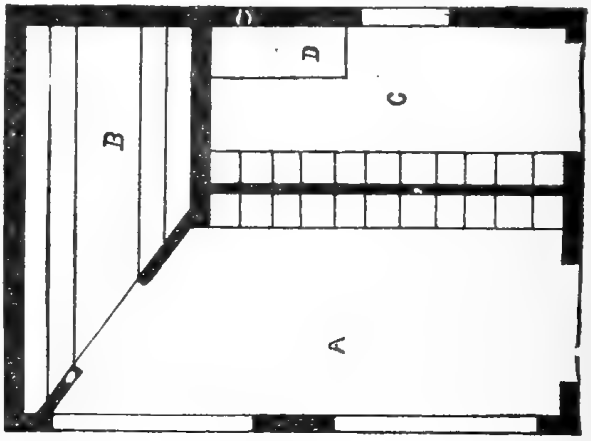


Fig. 7.

Fig. 6 shows the elevation, and Fig. 7 the ground plan of a poultry house 15x18 feet, that will meet the requirements of the poultry raiser who desires to winter from fifty to seventy-five fowls. A represents the laying room; B, the roosting room; C, the room for feed and sitting hens, and D a bin for grain. The nest boxes shown in the partition between the laying and sitting rooms are intended to slide back and forth. A house like this can be built any desired length, and a

continuous passage-way made by changing the arrangement of the roosts. Instead of having so much glass in the front as shown in the cut, I would have two fair-sized windows, and then a small four-light window in the upper half of each door.

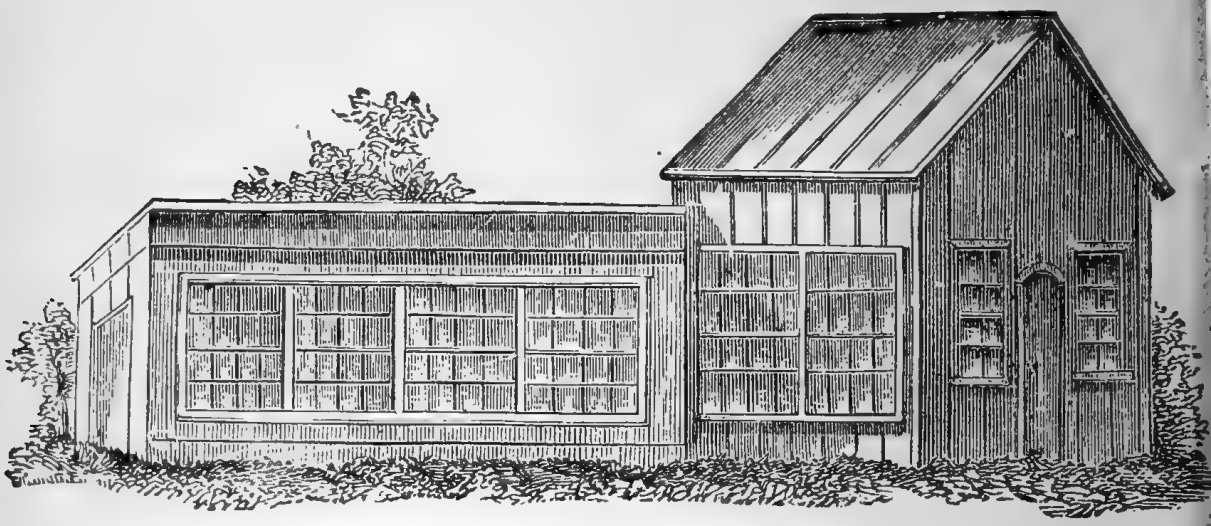


Fig. 8.

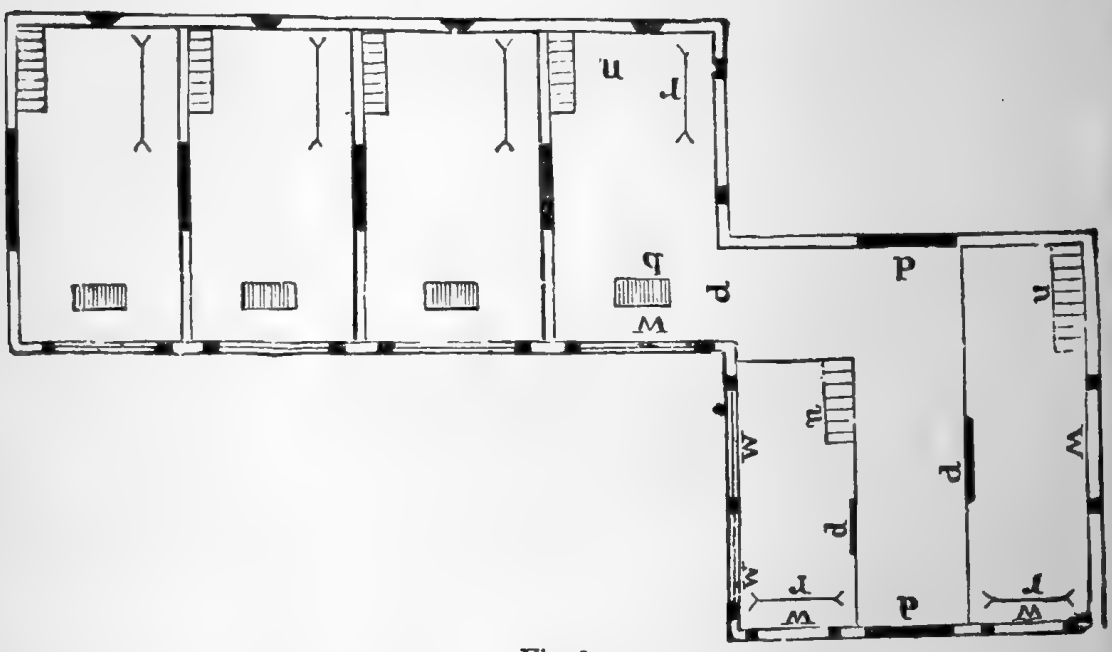


Fig. 9.

Fig. 8 shows the elevation, and Fig. 9 the ground plan of a house for the farmer who desires to winter a good-sized flock of hens, and have plenty of room for raising early chickens. D represents the doors; P, the passage-way; W, the windows; N, the nests; R, roosts, and B the dusting boxes.

The openings for the fowls should be under the windows; and there should be a box ventilator in the main building, also one in the wing.

Fig. 10 shows the elevation (minus the ventilators) of a very convenient poultry house which can be built ten or twelve feet wide, and any desired length.

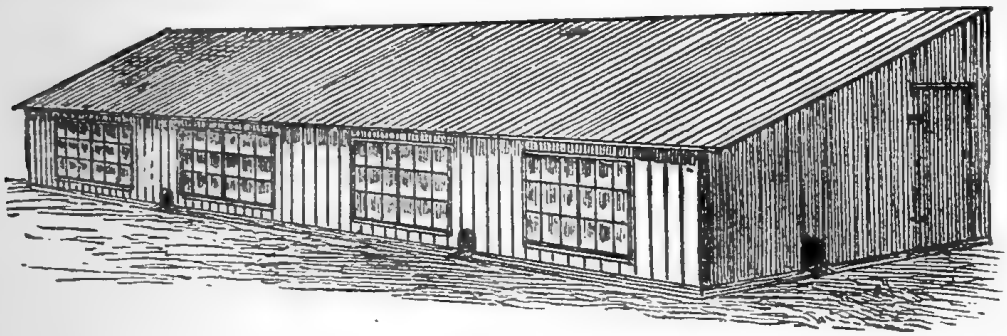
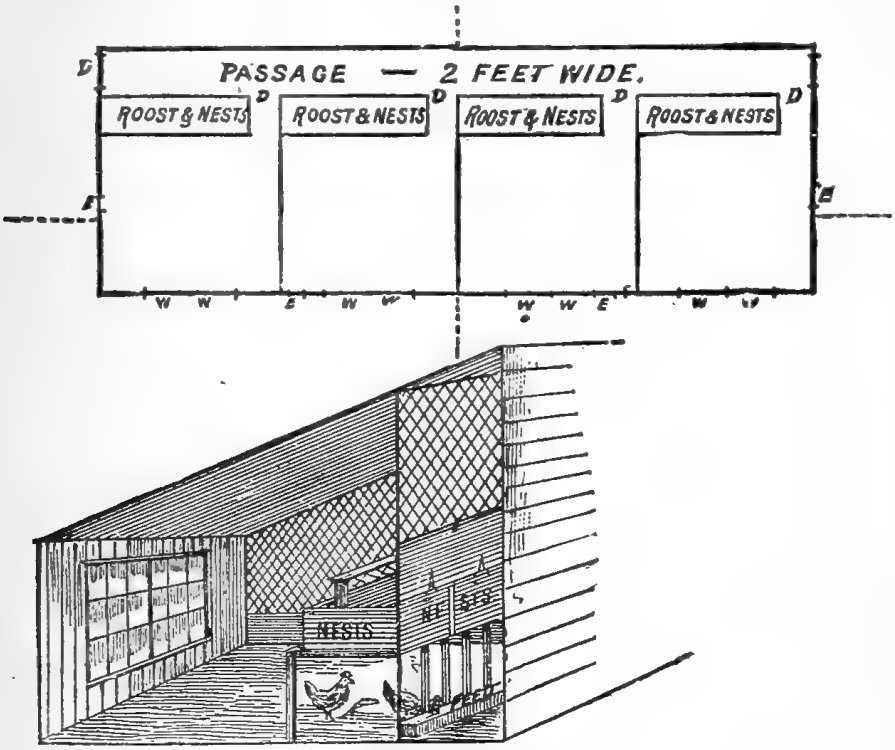


Fig. 10.

Figs. 11 and 12 show the ground and end view of the inside arrangements of this house.

One of the most comfortable and generally satisfactory poultry houses that we ever owned was one-half of a barn cellar. The barn was built on the south side of a hill, and the cellar walls were of stone.



Figs. 11 and 12.

The inside of the half that was used for a poultry house was finished off with matched boards. There were two large windows in the front, with board shutters to close over them winter nights. A box ventilator ran up through the barn floor into the room above. A door opened into the manure cellar, and in cold weather the fowls spent the greater part of the time during daylight scratching in the manure piles, and

scratching and loafing in the barnyard and sheds. When the mercury was down to 22° below zero outside, it was above the freezing point in that cellar.

Our next illustration, Fig. 13, shows a neat little poultry house with roof sloping nearly to the ground back, while the front is nearly all glass, with board shutters to cover it when necessary. The windows are protected inside by wire netting.

Another very satisfactory house in which we wintered 100 hens, was forty-eight feet long, eight feet wide, seven and one-half feet high in front, and four and one-half in rear. Shed roof shingled. South side and east end double boarded, and banked up to the bottom of the windows, leaving a passage-way to the door in east end, and also one for the fowls. On the north side and west end it was banked to the eaves. Four windows in the south side, with broad shutters. Two box ventilators extending up through the roof. For inside arrangements we had perches enough put up along the north side and west end to accommodate the fowls, a wide platform under the perches, and nest boxes under the platform. A dusting box in front of each window. The house was divided into four rooms by means of three lath partitions, each partition having a lath door.

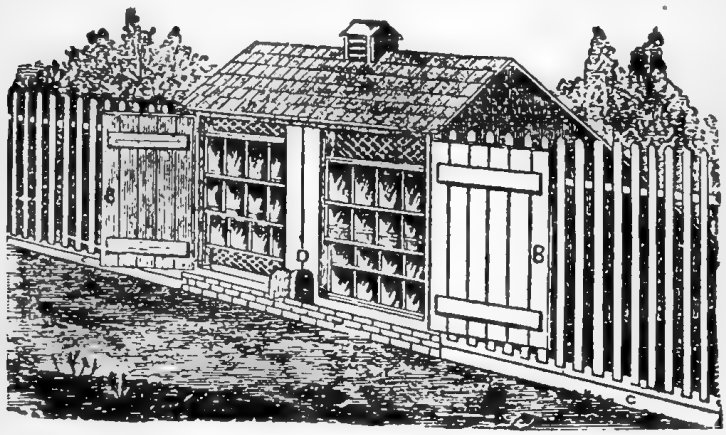


Fig. 13.

One of the cheapest and most comfortable poultry houses that I ever saw was made of rough posts, poles, a few rough boards, and straw, and this is how it was done: A stout frame-work was made of the posts and poles, and then the straw was stacked several feet deep all over and around it, leaving only the south side open. The rough boards were used to partition off a roosting and laying room at the back side of the immense shed. There was not a pane of glass in this "poultry house," and the only cash outlay was for the few boards, nails and spikes; but it was a comfortable place for poultry, and the hens that were wintered there laid right along regardless of the outside weather, while the next neighbor who burned his straw stack to "get it out of the way," and let his fowls roost anywhere they could find a place because he couldn't afford to build a poultry house," bought eggs for home consumption.

Finally, concerning plans for poultry houses, I will say that we have not given many because we do not think it necessary. A dozen plans such as we have given, for plain, practical buildings of moderate cost —such as the vast majority of farmers and market poultry raisers want, and which any man who is commonly handy with tools, and who possesses an average amount of good judgment, can put up with but little assistance from a regular carpenter, are better than a book full of

plans of elaborate and costly buildings. Poultry raisers who desire something different from the houses we have shown and described, can easily enlarge and modify the plans to suit their individual needs or fancy; and if the hints we have given in regard to plenty of room, light, warmth, ventilation, etc., are acted upon the houses will doubtless be satisfactory. On many farms there are old buildings, which can, by heeding the afore-mentioned hints, be "made over" into convenient, comfortable poultry houses, and that too at small cost outside of the labor.

FLOORS IN POULTRY HOUSES.

Whether to have floors in poultry houses or not, is a question that has caused a good deal of discussion among poultry raisers and writers, but after all that has been said and written for and against, it is a question that each one must decide for himself. When the ground location of the house is very dry and well drained a board floor is not necessary; but where there is danger from dampness it is better to have a floor, either of plank or cement. Poultry house floors should always be kept covered with dry earth four or five inches thick.

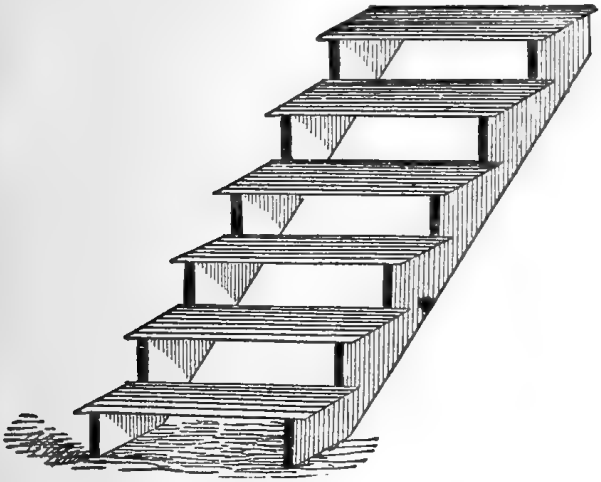


Fig. 14.

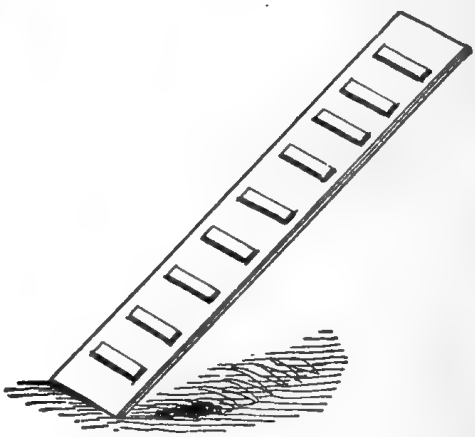


Fig. 15.

INSIDE FIXTURES.

We shall not say much about inside fixtures for poultry houses, simply because it is not necessary. The main things are to have roosts and nests enough to accommodate the number of fowls kept, feed and water vessels, and when the roosts are in the higher part of the building, some feet from the floor, ladders or steps for the fowls to go up and down on. The usual plan in arranging the inside fixtures, is to have a broad platform under the perches to catch the droppings, the nests under the platforms, and the feed and water dishes wherever convenient. Where there is a passage-way running the length of the house, the roosts, nests and feed and water fixtures can be arranged as shown in Fig. 12. Some poultry keepers, in order to make the most of the floor space, put the nest boxes on a platform a foot or more from the floor, another platform over the nests, and the roosting perches above. When this arrangement, or any other, is made for having the roosts high, steps like Fig. 14, or a ladder like Fig. 15, should be made for heavy fowls are often lamed or otherwise injured, and sometimes

killed outright, by jumping from high perches. Perches for the heavy breeds of fowls should never be more than eighteen inches from the floor unless a ladder of some kind is provided. The ladder shown by Fig. 15 is simply a wide board with thick cleats nailed on at regular intervals.

The perches should be either flat or half round on top, and broad enough to enable the fowls to sit on them comfortably. The poultry raiser who compels his fowls to roost on a *small* round pole, or on a *narrow* flat strip of board, with sharp edges, ought to be fined and imprisoned for cruelty to animals, and would be if I could have my way about it. The perches should all be on the same level, for if one is higher than the rest the fowls are apt to crowd on to that and leave the others. Perches, and in fact all inside fixtures of fowl houses, should be made so that they can be easily moved and cleaned.

NESTS.

It really makes no difference what you use for nest boxes, provided they are movable, do not take up too much room, are fixed so that the hens can get in and out easily, and are kept free from lice. Nail kegs, with a hole in one side, as shown by Fig. 16, make capital nests. When nests like this are used for the large breeds, a block of wood or something should be placed on the floor to enable the hens to get in and out easily, for be it known that the majority of hens of the large breeds can't or won't get into a nest a foot from the floor unless they can do so without any effort at flying. Small or medium sized hens can easily hop up into such nests, but hens that weigh seven or eight pounds don't find it easy work, and after a few attempts give up. And these nail keg nests, or any other deep nests, should always, especially for the large breeds, be kept nearly full of nesting, so that the hens will not be obliged to jump down onto the eggs in the nest. Bottomless boxes, sixteen or eighteen inches square, made of light boards, and with a strip four or five inches wide nailed across the front at the bottom to keep the nesting in place, make good nests. They are light, easy to move, easy to keep clean, and can be put almost anywhere you want them, indoors or out. When these nest boxes are put under the platform beneath the roosts, with the open side facing the wall, a portion of the back of the box should be hinged on with leather straps; then the eggs can be gathered without the bother of either reaching around the box or turning it around. And when the boxes are thus fixed, several of them can be placed side by side and close together, under the platform, only leaving sufficient room at each end of the row, and between the boxes and side of the house for the hens to pass in and out. Generally speaking, this plan of arranging these nest boxes is the best that can be devised; the boxes being under the platform, the fowls cannot loaf on top of them, as some fowls always seem "possessed" to do, and being turned around "hind side before," and placed close together, the nests are quite dark inside, and afford what most hens evi-

Fig. 16.

dently desire—a quiet, secluded place in which to deposit their eggs. When all the floor space is needed for the fowls, and consequently the nest boxes must be placed on a platform raised from the floor, they should not be placed close together with the open side facing out, but should be set on the platform sideways, with room enough between for the hens to pass in and out. But if you will have the open side of the nest face out, have the platform some inches wider than the boxes, so that the hens can hop on to the platform, and then step into the nest.

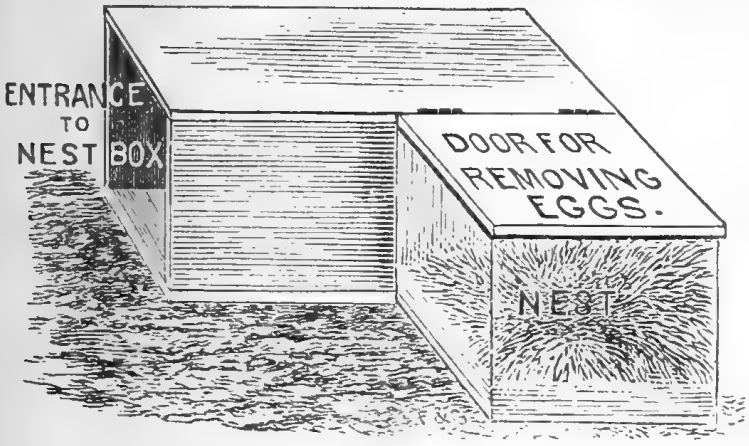


Fig. 17.

Fig. 17 shows a sort of combination nest box, which makes the nest dark inside, and which will doubtless give satisfaction when there is plenty of floor space. These boxes could be arranged on a platform, but the platform would have to be pretty wide.

But whatever kind of nests you have, have enough of them; otherwise several hens will crowd into one nest, and scold, fight and break eggs, and carry on generally in a way that will make poultry raising seem a vain mockery. Six nests are none too many for twenty-five hens. Sometimes, even when there is a nest apiece in the house, several hens will insist upon using the same nest at the same time. At one time we had three Plymouth Rock hens that would all crowd into one particular nest. I had more nests made, but not one of the perverse three would use them. They would walk around the new boxes, and into them, and calmly return to the same old box. I kept putting in new nests of different kinds until there was no more room, but still the quarreling went on; then I took out the favorite nest, and those sinful hens went to quarreling over the next one. I only conquered by separating the combatants. Nowadays, if hens of mine were to carry on in such a sinful manner I should build some nests like Fig. 18. When the hen goes into the nest box shown at the back, the door in the front closes, and keeps other hens from intruding. When the

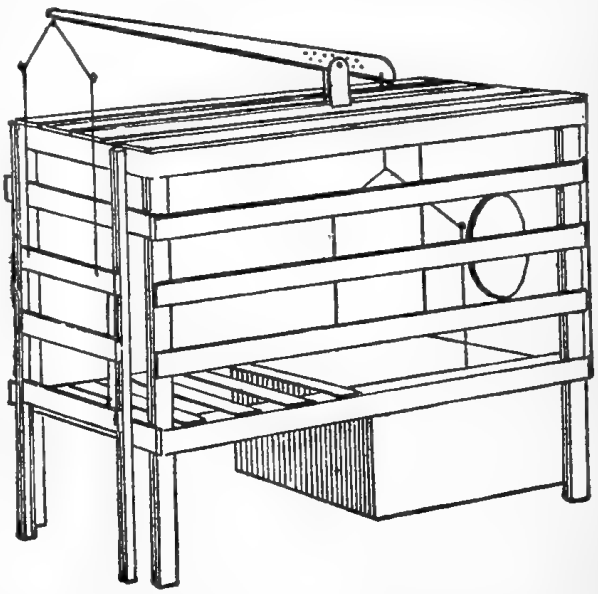


Fig. 18.

hen gets through and steps out of the nest, the door opens and she is free. The round hole shown at the back is for convenience in removing the eggs.

OTHER INSIDE FIXTURES.

Feeding troughs or boxes and drinking vessels of some kind are a necessity in every well-regulated poultry house. The best are very simple and cheap. Fig. 19 shows a good-looking, serviceable trough for either food or water—one that can be cheaply and quickly made. The only objection to this trough is that fowls will sometimes forget their "manners" and put their feet in it; but this can be overcome by hinging on a slat cover, or by making it like Fig. 20. A good receptacle for food and drink can be made by taking a nail keg, driving down the hoops and securing them firmly with nails; then with an auger and knife remove a section of every other stave four or five inches from the bottom. In this "openwork" keg put the food, and while the hens can get at the food easily, they cannot get in and waste it by tramping around in it. These kegs can be used for watering fowls by placing a dish of water inside. Fig. 21 shows how a common wooden pail can be fixed for a convenient drinking vessel. Another handy feed vesselis just an old tin pan suspended by three cords or wires just high enough from the floor so that the fowls can reach the food easily. For a water vessel, suspend a tight pan the same way, fill an empty fruit can with water and quickly invert in the pan. The top of the fruit can should first be cut off evenly all around and one or two small holes be punched in the sides about half an inch from the top; then when the can is filled and inverted in the pan, the water will run out until it gets to the top of the holes, and remain at that depth as long as there is water left in the can, for when the water is above the holes they admit no air, but when, by the fowls drinking, the water in the pan is lowered below the holes, more water will run out of the can until the holes are again covered. But, after all, there is no drinking vessel for grown fowls that suits me quite so well as a gallon, stoneware milk crock. They won't rust out, and they are the easiest to keep clean of any drinking vessels that I ever tried, and I have tried a good many "drinking fountains."

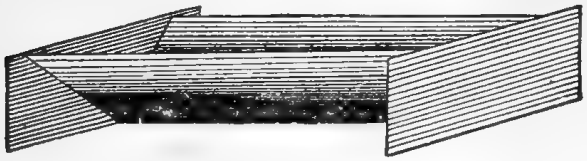


Fig. 19.

Fig. 20.

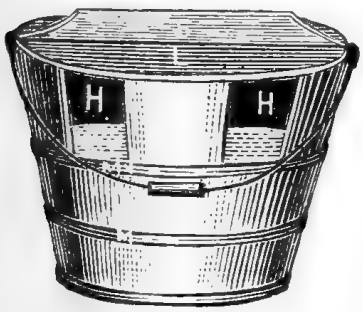


Fig. 21.

Besides the feed and water vessels, you need something to hold a supply of crushed oyster shells, gravel, charcoal, etc., and for this pur-

pose I know of nothing cheaper and handier than a box made like Fig. 22, and hung to the side of the building.

Your fowls also need a dusting box, especially in cold weather. This is just a frame a foot deep, and three or four feet square (or of any desired length and width), set on the floor of the poultry house in such

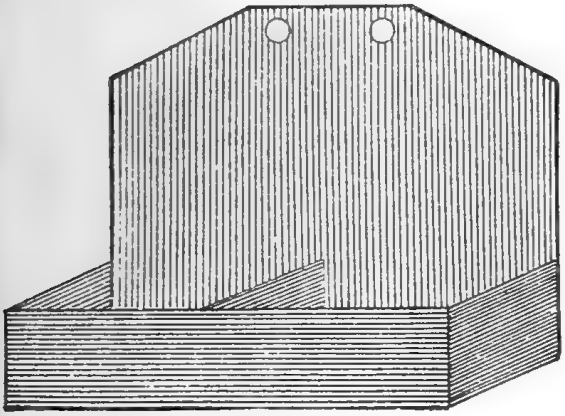


Fig. 22.

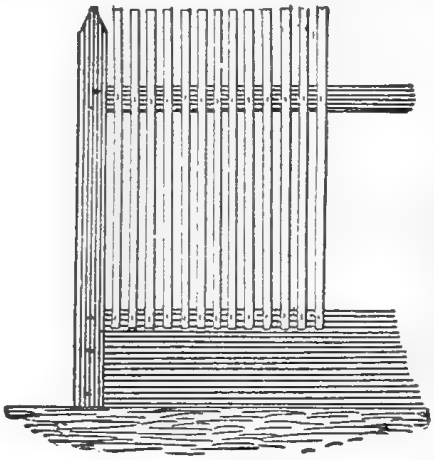


Fig. 23.

a position that the sun will shine in it in midday, and filled two thirds full with a mixture of two-thirds dry road dust, and one-third perfectly dry wood or coal ashes.

YARDS AND FENCES.

Every poultry raiser should give his fowls as much range as possible. Whenever practicable, let your fowls range over the whole farm excepting the dooryard; at other times give them as large a yard as you can afford to. There is not the slightest danger of giving them too large a yard.

Galvanized wire netting makes a very handsome and durable fence. It can be obtained in any width from eighteen inches up to six feet, and only costs about a cent a square foot when taken in full rolls. In putting up a netting fence, the netting should be tightly stretched, and with staples made for the purpose, fastened securely to posts set firmly in the ground some 8 or 10 feet apart. A very good fence, which can in most places be put up a little cheaper than the netting, is made of plastering lath, with a wide board at the bottom. Fig. 23 shows the mode of construction.

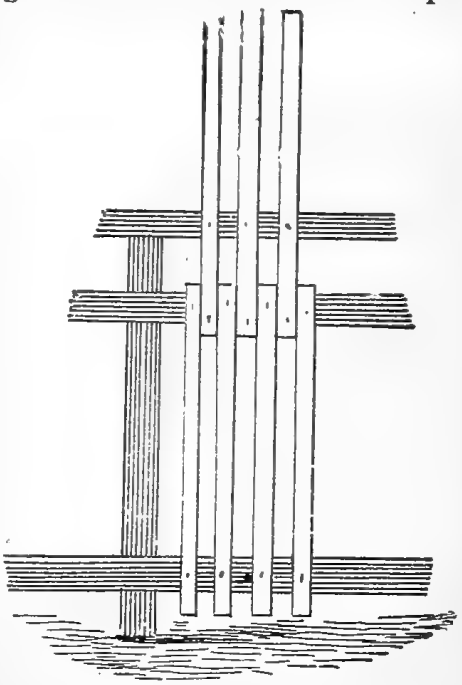


Fig. 24.

The height of the fence must be determined by the breed. One length of lath, with a ten or twelve inch board at the bottom, will be high enough to confine any of the large breeds. For the smaller breeds a lath fence can be built like Fig. 24, with the exception of the bottom board, which

should bewider and come to the ground, as shown in Fig. 23. Putting on two rows of the lath, and the wide board at the bottom, makes the fence good eight feet high.

When a fence that can be easily moved is required, make fence without posts, as shown by Fig. 25, only have a wide board at the bottom, and nail the lath directly on that. This makes a fence about five feet high, and one that is difficult for the fowls to fly over. This fence was invented by Waldo F. Brown, and he enumerates its advantages as

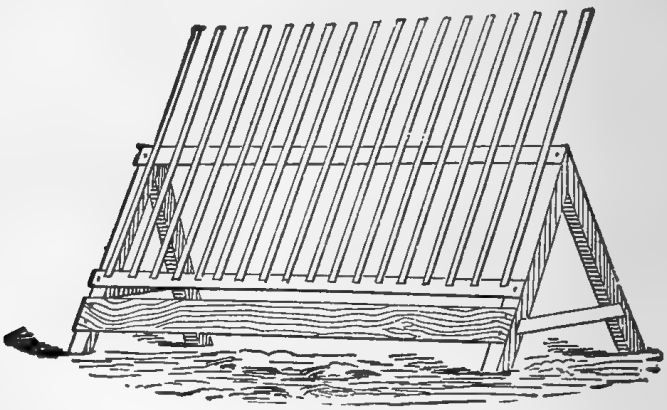
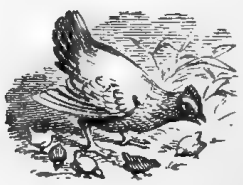


Fig. 25.

follows: "1st. Its cheapness; material costing about fifty-five cents a rod. 2d. Nearly all the work of making it can be done under cover in stormy weather, and the fence can be set up when the ground is frozen so hard that it would be impossible to dig post-holes. 3rd. It can be easily moved from one place to another."

To prevent this fence from blowing over in a gale, Mr. Brown says: "Drive a short stake at each pair of trusses and drive a nail through the brace-board into it. Most of these stakes need not be more than a foot above ground when driven, but occasionally a stake should come up to the top of the truss." The panels of this fence are eight feet long, the trusses three and one-half feet high.



CHAPTER IV.

EGGS IN WINTER.—HOW TO GET THEM.

If you want to "raise" eggs to sell in winter, when prices are high, you must keep hens of the right age to lay, give them a comfortable house, and the right kind of food and care. Generally speaking, it takes about three months for hens to complete the annual process of shedding their old feathers and growing new ones, and as hens lay but few, if any, eggs during their moulting period, because the food and force that would otherwise go to egg-production goes to grow new feathers, hens that begin to moult *late* in the fall should not be kept for winter layers. Dispose of such hens as soon as they cease to pay their way in eggs, before they get to the pin-feathery stage of the moulting period. The hens to "keep over" are the ones that begin to moult in August. If healthy and well-cared for, these hens will pass through the moult all right, begin to lay in November and keep it up through the winter, and, with short intervals of rest, through the succeeding spring, summer and early fall; then they will be among the late-moulting hens, and should be disposed of. As a rule, hens moult later each succeeding year of their lives, and the poultry raiser whose chief object in keeping hens is to produce eggs for market, will not find it profitable to keep hens through the third winter.

But the stock intended for winter layers must not be all hens in their second year; at least half the flock should be pullets; and they should be hatched early enough in the season to reach the usual laying age of their breed or strain about the first of October. Then, if you house and otherwise care for them properly, they will, with occasional short intervals of rest, lay along until midsummer, when they will begin the annual moult. About that time the price of eggs usually begins to go up, but your old hens, which will not moult until later, will keep on laying until just about the time your spring pullets begin to lay; and by the time the spring pullets have laid out the first litter, and are taking a breathing spell, the hens that began their moult in midsummer, will be ready to begin business. By managing this way, each year keeping enough of the best pullets to take the place of the old hens, that must be disposed of because no longer profitable to keep for layers, you can keep up your stock, and have eggs "all the year round;" but the "heft" of the eggs will be produced when the prices are the highest.

WHEN TO HATCH PULLETS FOR WINTER LAYERS.

As a rule, Brahmas, Cochins and Langshans should be hatched from the first of March to the middle of April; Plymouth Rocks, Wyandottes, Javas, Dominiques and other medium-sized breeds during April, and the smaller breeds in May, and even as late as the middle of June.

WHY NOT BUY THE PULLETS?

I am frequently asked: "Would it not be cheaper for the poultry raiser, whose main object in the hen business is to "raise" eggs for market, to buy enough pullets each fall to keep up his laying stock, than it

would to bother with the hatching and raising them?" Possibly it would be cheaper to buy your pullets than it would be to raise them, if you could only buy those of the right age that had been raised for layers—fed for eggs from the day they were hatched; but let me tell you that not many such pullets are raised, and the men and women who raise them want them right at home. The fact is, if you want pullets that you can depend upon to commence laying when they reach the usual laying age of the breed to which they belong, and to keep it up, you must raise them yourself. It makes a "sight" of difference whether pullets are well raised from the start or whether they are left to shift for themselves mostly. I have had Light Brahma pullets that were fed for eggs from the start that commenced laying a whole month earlier than others of the same breed, that were hatched the same day, but were raised after the usual fashion on most farms, i. e., they were fed on raw corn-meal once or twice a day while running with the hen, and after she weaned them were left to take their chances with the older fowls. How to feed and care for pullets so that they will begin to lay as early in life as it is possible for them to do is told in Chapter VI.

ABOUT THE FOOD.

When you have a comfortable poultry house, and a flock of hens and pullets of the right age to lay, the next thing is the food and care necessary to induce said hens and pullets to attend strictly to the business of producing eggs. Every morning, from the time when the cold, chilly nights and frosty mornings come in the fall until settled warm weather comes again in the spring, give your hens a warm breakfast of cooked or scalded food. Some folks will probably tell you that cooking food and feeding it warm to poultry is all nonsense anyway, that fowls and birds in the wild state don't ever have warm or cooked food, and yet live and thrive; but if they do make such remarks just tell them, as I often have, that you don't care a cent what fowls in the wild state live on, or whether they take it hot or cold—that you are not keeping fowls in a wild state, but in a domesticated state; and that you are keeping them for profit, and propose to feed them so as to make them pay, and that "times" have changed, anyhow. If that does not settle them assume a dreamy, abstracted expression, and ask about how many eggs fowls and birds in the wild state lay in winter.

I said give the breakfast in the morning, and when I say morning I mean morning, not the middle of the forenoon. It is queer what singular notions some farmers have about the proper time for giving the farm stock breakfast. They will rush to the barn and stables before breakfast and feed the horses, cows, sheep, pigs, everything except the fowls; they must wait until after breakfast is over at the house, and then if the weather is very cold very likely they must wait another hour before their owners get around with the feed pails. But, all the same, the hens are expected to lay, and "blessed" if they do not. Morning in cold weather comes just about the time the sun gets up, and you should have an invariable, unalterable, cast-iron rule to the effect that your hens must have their warm breakfast by sunrise at the latest, and it should be somebody's business to attend to that very thing. Don't give the same kind of cooked food every morning right through the winter. Give a variety. Give as much variety as possible. I don't like the same kind of breakfast fifty or sixty mornings in succession, and I don't believe

hens do either. Anyway, I have noticed that, other conditions being equal, the hens that were fed on the greatest variety of cooked food for their morning meals, were the ones that laid the most eggs in cold weather. One of the reasons why the small flocks kept by some village residents lay more eggs in proportion to the number of fowls than the larger flocks of large poultry raisers is because they get a greater variety of food. These small flocks generally get all the table scraps, and consequently get about as much variety in their food as their owner has. Bits of bread, cheese, meat, cake, pie, doughnuts, all kinds of vegetables are served up to the hens. Nothing in the way of food comes amiss. But on the farm all such scraps are usually fed to the pigs, while the hens, if given a warm breakfast at all, are served with scalded corn-meal and wheat bran every morning. Of course, where a large number of fowls are kept, the table scraps will not be sufficient to make the fowls' breakfast every morning; but if all the scraps are carefully saved in something kept for the purpose there will be enough to give an occasional breakfast that will be liked by the fowls The best way to prepare these table scraps is to scald (or boil if necessary) enough to soften them, and then mix in enough wheat bran to make a stiff, crumbly mass. Now, that makes one breakfast a week—perhaps two; it depends upon the size of your flock, the size of your family and the saving qualities of the housekeeper.

For some of the other breakfasts, boil up the small potatoes, apples, turnips, carrots, beets, parsnips, beans, peas, squashes, pumpkins, celery tops, sometimes one thing, sometimes another, mash them, and then mix up with bran and shorts, and sometimes a little corn-meal. When potatoes are used, mix with bran mostly; for apples and the more watery vegetables use about one part each of corn-meal and shorts to two parts of bran. A kettleful of this feed can be cooked in the evening, and if left on the back of the kitchen stove, or near it, with an old rug or blanket over and around it, it will keep warm enough for breakfast.

Some mornings when you don't have any of this feed or any other on hand, just scald "chop" feed with hot water, or hot skim milk, and feed it while warm. This "chop" feed is made of equal quantities of corn and oats ground together, and then mixed with an equal quantity of wheat bran. This makes a handy breakfast for Monday morning.

Don't have any of this cooked food soft and sloppy; mix it thick enough to "stand alone." And don't feed too much. Don't even give all they can eat. An allowance of a heaping tablespoonful to each fowl is enough for one meal. Of course they would eat twice or three times as much, but then, after eating all they could hold, they would settle down somewhere and keep still until their crops were partly empty at least. But, if only partly satisfied, they will at once go to scratching around in the litter for the grain that I am going to tell you to scatter there.

THE NEXT MEAL—NUMBER OF MEALS.

Some poultry raisers feed their fowls regularly three times a day, and declare that the man who only feeds his twice a day half starves them; while the man who feeds twice a day feels sure that the one who feeds three times a day feeds altogether too much for the fowls' good. How many meals ought they to have in winter? Two, and a lunch all the time between meals. But that does not mean that you are to keep a dish of grain, or other food, where they can help themselves at all times.

What I mean is, that soon after the fowls have had their breakfast, in an hour at most, scatter some grain, oats, wheat, buckwheat, and sometimes a little sunflower seed and corn, into the litter on the floor, and let the hens scratch it out at their leisure. Don't throw out much grain at a time—a pint or so at a time, well scattered into the litter on the floor, is sufficient for 25 or 30 fowls. That pint of grain will keep them scratching until noon, and until night too for that matter, for they will keep on scratching for more long after the last bit has been scratched out and swallowed. This scratching amuses the fowls, keeps them out of mischief, gives them the exercise needed to keep them healthy and from laying on too much fat, helps them keep warm in cold weather, and does them no end of good generally. About noon throw out another pint of grain; this will keep them busy during the afternoon.

SUPPER.

Then along towards sundown, just before the fowls go to roost, give them a supper of grain—corn about two-thirds of the time through cold weather. While cold corn digests slowly, it is a heat-producing grain, and consequently is the thing to "stand by" during long, cold nights. But don't feed corn, or any other grain that you give at night, cold—especially if the weather is very cold. If you want to send your fowls off to bed feeling comfortable and thankful, give them hot grain for supper—just as hot as they can eat it. Put the corn or other grain in a kettle or pan and set it in the oven or on the back part of the stove, and stir it occasionally until it gets warm clear through. Mind now, I don't mean that you are to put water in with the grain; I mean hot, *dry* grain. If some grains on the bottom of the kettle should happen to get scorched, or even charred, it will do no harm; the hens will eat it, and it will do them good, too. All nonsense to fuss warming corn? Well, you may think so, but stop a minute and think how you would feel if you were sent off to bed some cold winter night with your stomach full of cold corn or wheat. I don't believe you would find it comfortable. No, of course, you ain't a hen, but all the same hens have feelings, and I don't believe a hen feels much better under the circumstances than you would. It always pays to make hens comfortable. Be careful and not feed the grain too hot. To find out just how it should be, pick up a handful and hold it tightly in your closed hand; if it burns, of course it is too hot, but if it makes your hand feel warm and good, it is just right. Have it quite as hot as you can bear to hold in your hand, for it will cool some in carrying it out and distributing it.

In regard to the quantity of grain that should be given for supper, no exact rule can be given; but generally speaking two quarts of good solid grain will be enough for twenty-five or thirty hens.

GREEN FOOD.

If we would keep our fowls in the best of health, and have them lay regularly in cold weather, we must supply them with some kind of green food that will, as nearly as possible, fill the place of the green grass, etc., that they get while at large in warm weather. Some poultry raisers claim that raw cabbage is "the best" green food, while others declare that rowen and clover are better than cabbage. So far as my experience goes, I think the better way is to feed both if you can get them. Hang the head of cabbage to the side of the house where the fowls can reach

it, and let them help themselves; and don't you worry about their eating too much good food; when it is where they can get at it all the time they won't eat enough to hurt them.

The rowen can be fed dry or steamed, but the better way is to steam it. Put it in a pail or tub at night, pour on a little boiling water, cover closely, and leave it until morning; then mix it in with the morning feed. Unless the rowen is very fine, it should be cut fine before steaming. A quart of this rowen before it is wet will be enough to mix with feed for twenty-five hens. Give it two or three times a week; on the mornings when you give the "chop" feed, in with the table scraps, and when you use boiled potatoes. When clover hay is used instead of the rowen, the leaves and heads should be stripped from the stalks before steaming. When fed dry, put the rowen, cut fine, in a sort of rack fastened to the side of the house; then the fowls can pull it out as they want it, and it will not be trampled on and wasted, as it would be if thrown on the floor.

Ensilage—i. e., clover and grass kept in silos—is good green food for fowls. To prepare ensilage for fowls, cut the clover or grass into half inch lengths, pack it solid into a barrel or hogshead, then take a jack-screw and press it down as much as you think the barrel will stand; take off the screw, fill up again, put on the head (a round board which fits into the barrel), press down again, and then weight down with stones to hold in place. Besides grass and clover, onion tops, small onions, soft, loose heads of cabbage, turnip tops, etc., can be cut up fine, mixed together, and put up the same way. At first, hens don't take to ensilage, but after they once get the taste of it they devour it greedily.

MEAT.

Besides the regular meals and the green food, fowls must have some kind of animal food, or something that will take its place, every day. I say every day because I believe that it is with meat as it is with green food, a little every day is better for the fowls than two or three big meals a week and none at other times. If you have plenty of milk to give your fowls, and can give a meal of raw bone about twice a week, you need not bother to get meat for your hens. I know by experience that plenty of milk, sweet, sour, or buttermilk, and an occasional meal of raw bone, will fill the place of a daily meal of meat.

But not every farmer can get enough milk and bone. Well, then give some milk, some meat some bone, and finish out with an occasional feed of sunflower seed or hemp seed. These seeds are rich in oil, and when fed in moderation have proved a valuable addition to the bill of fare for poultry. Cottonseed meal, linseed meal, and gluten meal can to a certain extent be used to take the place of animal food. Of these the gluten meal, which is made from the "chit" of corn and is the refuse from the manufacture of starch, is the most valuable. It contains nearly thirty per cent of nitrogenous matter, and only about five per cent of oil. Cottonseed meal and linseed meal are both very rich in nitrogenous matter, cottonseed meal containing forty per cent, and the linseed meal thirty per cent; but both contain a much larger per cent of oil than the gluten meal, the cottonseed meal containing some twelve or thirteen per cent of oil, the linseed oil about ten per cent; but if fed judiciously in connection with other food, they can be fed profitably. About a pint of either linseed or cottonseed meal, or a little more of the gluten meal

is sufficient to mix with the morning feed for twenty hens. Feed it two or three times a week, and on other days use instead, the milk, bone and such scraps of meat as you have The variety is better than any one thing all the time, and by thus using what milk, raw bone, refuse meat, etc., that can be had on nearly every farm, and "piecing out" with some of the meals mentioned, the farmer who only keeps a moderate-sized flock of fowls can keep them supplied through the winter with something that will fill the place of the bugs and worms which they pick up while running at large in warm weather. But when large numbers of hens are kept, it will be necessary to buy some kind of meat food. We prefer the cooked and ground beef scraps—which can be bought cheaply by the bag or barrel—to any other meat that we have ever tried. These prepared scraps are fine, about as dry as meal, and all ready to mix in with soft food.

How much meat at once when meat is on the bill of fare? Well, if you will stop and think you will see that it is not at all likely that hens pick up any great amount of meat food at once when running at large in summer, so we will take the hint, and not give much at a time in winter. Because some meat is good for laying hens, many inexperienced poultry raisers feed too much, and the last state of those hens is worse than the first. A pint and a half of beef scraps is enough to mix with the morning food for twenty hens. When you use fresh meat scraps from your butcher, either cooked and chopped fine, or ground fine without cooking, use one third less. I believe in mixing all meat, whether beef scraps, or fresh meat, cooked or raw, with the soft food, for then each fowl gets its share, and gets it regularly.

DRINK.

The next thing is the drink. Many farmers who would not think of depriving their fowls of drink in warm weather, make no effort to supply them with water in cold weather. They seem to think that the biddies can get along somehow without drink. Probably they can "get along" without a good many things that the successful poultry raiser supplies, but the fowls that "get along somehow" are not the ones that pay the large dividends. During cold weather keep a supply of pure, fresh water, or milk, sometimes one, sometimes the other, by them during the greater part of the day. But don't give it to them *cold.* Very cold milk or water chills the body, retards digestion, and lessens the production of eggs. Warm drink and warm food makes the fowls feel comfortable. It is an easy matter to supply a constant supply of warm drink if you only know how. For a small flock of fowls, put a small kerosene lamp in a wooden bucket, and set a pan of water or milk over it. A very small flame will keep the drink warm. The bucket should be fastened to the floor. The lamp should be one of the kind that does not need a chimney. One or two holes in the side of the bucket will be necessary for ventilation, otherwise the lamp will not burn long.

Another arrangement that suits me better is a cask, or some kind of water reservoir, fitted with a drop faucet. The faucet can be fitted to the cask in a few minutes. Set the cask on a block of wood, or something that will raise it a foot or so from the floor, set a drinking vessel of some kind on a block under the faucet, and adjust the stem until the water drops just about as fast as the fowls will drink it up. Fill the cask with hot water every morning, wrap old blankets about the cask, and the water will keep warm about all day. The hot water constantly

dropping into the cooler water in the vessel keeps the fowls supplied with fresh water that is just about right—neither too hot or too cold. Drop faucets can be had for twenty-five cents apiece, and will last forever almost. Instead of wrapping with old blankets, I suppose the water cask could be fixed in a box and packed around with sawdust to keep the heat in. I never tried it, but see no reason why it cannot be fixed that way, and think it would be better than the blankets. Unless some such arrangement as I have described is used to keep the drink at a comfortable temperature, carry out warm drink regularly twice a day, once an hour or so after breakfast, and again in the middle of the afternoon, and after the fowls have had a good drink all around, empty the vessels.

GRAVEL AND OYSTER SHELLS.

Besides the food and drink, you must keep your fowls constantly supplied with gravel and crushed oyster shells, or something that will take the place of these things. The gravel is necessary to enable the fowls to grind up the hard food as it passes through the gizzard, and the oyster shells furnish lime which goes to form egg shells. Old crockery pounded into bits is as good as gravel. Some poultry writers advise keeping a box of pounded glass by the fowls—say that it is better for grinding material than either gravel or broken crockery; but while it may be as good, it certainly is no better than gravel or broken crockery, and pounding glass into bits of suitable size for hens to swallow is not what I call "pretty work." Pounding the crockery isn't exactly fun, but pounding glass is ten times worse, as you will say after you try it and get some of the fine sharp "splinters" in your fingers, your face, and perhaps in your eyes.

And some of these same poultry raisers also claim that it is entirely unnecessary to feed oyster shells, or ground bone, or anything of the kind—that all the lime necessary for egg-shell material is found in the food; that a hen can't digest oyster shells, anyway, and therefore it is worse than useless, positively injurious, to give hens shells. To all of which I reply that I don't suppose a hen or anything else can digest the hard, pearly part of an oyster shell, and I am not aware that anybody ever claimed that that part of the shell could be digested; but it does help furnish grinding material for the hens. And I don't know whether the softer part of the shell can be digested or not, and I don't care. But this much I do know about it: A flock of hens that had no shells or any other lime except what came from their food (and they were fed chiefly on wheat, oats and vegetables) for some little time were laying a large proportion of thin-shelled eggs—so thin that they were worthless for hatching; but in three days after the shells were supplied, the thin-shelled eggs were few and far between, and in a week there were none. We have experimented that way several times, and always with the same result, when the hens were laying freely. With a flock of Buff Cochins that we experimented with, the oyster shells didn't make any difference one way or the other; but as they were only laying at the rate of one egg apiece in three days, I suppose there was lime enough in their food to supply their need for egg shell material. The other hens, when the shells did make a difference, were laying at the rate of two eggs apiece in three days. Careful observation showed me that the greatest layers ate more of the shells (even when supplied with plenty of gravel) than the poor layers, and from that fact I concluded that a

hen wouldn't eat more shells than she needed, and that she wouldn't eat them anyway unless she needed them: so I shall continue to feed shells, and advise others to do the same, and shall not bother my head to find out whether they digest or not.

When you get out of oyster shells, or if you happen to live where they cannot be readily obtained, give lime in some other form. Old plaster, or mortar, fills the bill, and is greedily devoured by fowls. But oyster shells are now so generally used by poultry keepers throughout the country that all dealers in poultry supplies keep them on hand, and in some parts of the country, especially in the Eastern States, every country grocer keeps them as much as he does sugar or salt, so that they are within reach of nearly every farmer. Large poultry raisers will find it more profitable to order of dealers in large quantities than to buy at retail of the village grocer.

RAW BONE.

I have already mentioned raw bone as an article of food for poultry, but I wish to make a "few more remarks" about it. I do not mean the bone meal of commerce, though that is valuable for fowls and some should be fed when the raw article cannot be had. By raw bones I mean green bones right from the butcher, with the scraps of meat clinging to them. Next best are the bones that have been boiled or baked; such bones are usually thrown into the fire and burned until nothing but the limy portions remain, and then thrown to the hens; or else they are carelessly thrown out for the dogs and hens to pick at, and left kicking about the yard. This is sheer waste of valuable poultry food. These bones, whether raw, or whether from boiled or baked meat, are quite as valuable as so much sound grain, and should all be saved and crushed for poultry. Hand and power mills for crushing bones can be had at reasonable prices, and are worth all they cost. If you want anything of the kind, address Geo. H. Stahl, Quincy, Illinois, for a catalogue of his grinding mills. I have used his $5 hand mill for grinding dry bones, cracking corn, wheat, beans, peas and all kinds of dry stuff; also his green bone mill, and both gave perfect satisfaction.

VALUE OF APPLES FOR POULTRY FOOD.

I have mentioned apples for poultry food, but possibly some of my readers may think that they are not much good—"hardly worth enough to pay for the trouble of cooking" as one of my neighbors once remarked. I used to think that apples were pretty "thin" food for hens, but one year our supply of potatoes and other vegetables fell short, and as we had plenty of apples we tried cooking some of the poorest. The result was so satisfactory that the next year we saved all the cider apples and stored them away for the hens. For laying hens we consider the apples worth more than potatoes, but for fattening fowls the potatoes are the most valuable. One of my poultry raising friends who keeps some 500 laying hens through the winter considers that it pays him to buy cider apples for his hens, paying from 6 to 10 cents a bushel for them in the orchard in the fall.

Hens are very fond of raw sweet apples, and will greatly relish an occasional meal in winter as a change from a steady diet of other green food.

CONDIMENTS AND "EGG FOODS."

If there is one subject concerning which the mind of the average poultry raiser is in a state of almost hopeless bewilderment, it is this

"egg-food," "condiment," "stimulant," and "tonic" business; and no wonder, for one can hardly pick up a poultry journal, or an agricultural paper, without seeing at least half a dozen advertisements of as many different kinds of "egg-food," every one of which is recommended as "the best and cheapest," and "invaluable to every one who keeps fowls." We are told that the use of these egg-foods will make hens of any age or breed lay right through the coldest weather, that hens will do with less other food when fed these egg-producing foods, etc. When the anxious seeker after information turns from the advertisements to the reading columns, he is more bewildered than before; one poultry writer condems the use of all egg-foods, won't even admit that a little salt and pepper may be good for fowls; another declares that his fowls have been greatly benefited by the use of some particular egg-food; a third is undecided about the matter, a fourth knows that his fowls were injured by the use of stimulants; and so it goes, and the reader is no wiser than when he began. I believe in seasoning all soft food with a li tle salt and a dash of pepper, and I used to believe in other condiments, honestly thought the fowls were benefited by them, but after a time doubts crept into my cranium, and I experimented, and the result was that I dropped everything but salt and pepper. I am thoroughly convinced that if fowls are properly fed, and otherwise properly cared for, no artificial egg-food of any kind is ever necessary for hens, and as generally used they are positively injurious. By the use of some of these egg-foods the hens can be forced to lay a greater number of eggs in a given time than they otherwise would, but this forced egg-production soon uses up the hens; and besides, these forced eggs will not hatch well, and those that do hatch will not produce so strong, healthy chickens as eggs from hens that have never been thus forced. If you don't want the eggs to hatch, and don't want to keep the hens af er they have "layed out," you can perhaps make it pay to force them through one winter on the high pressure plan—provided you get your egg-food cheap enough.

RECIPES FOR EGG-FOOD.

If you will have egg-food, don't buy it; make it yourself; it will be just as good—or bad—as the "boughten" article, and ever so much cheaper. Here are the recipes:

Egg-Food No. 1.—Ten pounds best ground beef scraps, 5 pounds fine ground bone, 2 pounds powdered charcoal, 1 pound sulphur, 2 ounces cayenne, 4 ounces salt. One quart of this mixture each day to every 100 hens.

Egg-Food No. 2.—Seventy per cent of ground oyster shells, 15 per cent of fine ground bone, 5 per cent ground gypsum, 2 per cent of apothecary's carbonate of iron, 4 per cent of sand, and 4 per cent of cayenne pepper. Two tablespoonfuls a day to every six fowls.

Egg-Food No. 3.—One pound each of fine ground bone, dried meat, linseed meal and fenugreek; an ounce each of sulphur, pepper, ginger and copperas. Tablespoonful once a day to every six hens.

Egg-Food No. 4.—Two pounds each of ground bone and ground meat, a pound each of charcoal and fenugreek, half a pound of salt, an ounce each of sulphur, pepper, baking soda and ginger. Tablespoonful a day to six hens.

Egg-Food No. 5.—One pound each of bone meal, linseed meal and char-

coal, one-fourth of a pound each of sulphur, copperas, saffron and salt, and two ounces of red pepper. Tablespoonful to every six hens once a day.

VARIETY OF FOOD NECESSARY.

If you ever get a notion into your head that you can figure out a perfect food for laying hens—a ration that shall contain all the elements that enter into the composition of an egg—just so much of this thing and that thing, everything in just the right proportion—something that you can feed right along every day, get it out before you fool away any time in experimenting. I misplaced a good deal of time and money on this "perfect food notion" business; also tried a good many perfect rations figured out by others, but such foods didn't fill the bill. Our figures were all right, but the hens wouldn't carry out their part of the program; after a short time of living on our "perfect food," they invariably went back on it—only ate enough to keep death off, quit laying, and seemed out of sorts generally. After a few such experiments, it dawned upon my mind that if I were confined to one kind of food I should probably get sick of it, no matter how perfect the food might be in itself, and that hens were built pretty much the same way; so since that time I have steadily adhered to the plan of feeding about everything edible that I could get, provided it was fresh and wholesome, and it has worked wonderfully well.

EXERCISE.

A few pages back I mentioned the benefit it would be to the fowls to scratch their grain out of a pile of litter; now here I want to impress it upon your minds that fowls *must* have exercise to keep them in good health. In warm weather when they can wander about at will they get the necessary amount of exercise by walking and scratching. In winter they cannot walk around so much, and if they cannot make it up by scratching more, they will not long keep in good health and good laying order. Lack of sufficient exercise is in many cases the only reason why fowls do not lay in winter. Then give your hens a chance to scratch by keeping the hen house floor well littered with forest leaves, chaff and sweepings from the barn, or if nothing better can be had, cut straw; and encourage them to "improve their opportunities" by scattering grain in this litter, as I have before directed. If your poultry house is anywhere near the barn yard, keep a path open from the poultry house to the barn yard, and let the fowls go back and forth at will. If at any time the path gets icy, strew it with chaff or sawdust.

DON'T KEEP THEM SHUT UP.

Every year, as soon as the first snow comes, some poultry writers who ought to know better give a lot of advice about keeping hens in out of the cold, not allowing them to walk on the snow or eat it, etc. There is no sense in such advice. Hens will do better, keep in better health through the winter, be less liable to colds and roup, if allowed the privilege of going out of doors about every day, than they will if kept confined closely to the house all the time. If the snow drifts up about your hen house, shovel it away from the front, clear to the ground; keep a place cleared in front where the fowls can get out for an airing. It won't hurt them to step on the snow; and as for eating it, our hens

always ate all they wanted, and I never saw any ill effects from it. One thing sure; it never gave them the toothache. Hens that are regularly supplied with drink will not hanker much after snow.

If you live where "awful" deep snows, blizzards and 40 to 50 degrees below zero weather prevails during the winter, you should of course keep your fowls shut in during such spells of weather. It is in such localities that a closed shed adjoining the poultry house is a handy thing to have.

CARE.

What do I mean by that? Well I mean just *care*, and let me tell you that means a good deal for a word of only four letters. Care means getting up and feeding the fowls in the morning; it means keeping the fowls supplied with drink; it means keeping the vessels for food and drink clean; it means keeping the fowls and house free from lice; it means keeping the dust-bin supplied with dust; it means watching for the first symptoms of ill-health among the flock, and taking the case in hand in season; it means keeping the oyster shells and gravel before the fowls all the time; it means—well it means a general watchful oversight of your flock all the time, and constant attention to all the minute details of the work—doing everything when it should be done.

To sum up on this subject of getting eggs in winter, a comfortable house, fowls of the right age, and good care are the "secret" of winter eggs.

CHAPTER V.

EGGS IN SUMMER.—HOW TO PRESERVE EGGS, ETC.

Food.—Try to bear in mind that fowls need less food in summer than in winter, and that those that have full liberty on a farm should be given less than those confined to yards. A moderate-sized flock of fowls will, when on free range, pick up the greater part of their living during warm weather. On some farms, where a good deal of grain is raised, the fowls can, for several weeks after grain harvest, pick up all their living, i. e., if the grain fields are anywhere within reach of the fowls. The French have a fashion of building poultry houses on wheels, and moving them right into the grain fields after harvest. This French fashion is a good one, and it might pay to imitate it here. Have you ever been through a pasture field in late summer, when the grasshoppers were so numerous that they rose in clouds at every step? And didn't you wish you could turn your fowls into that field? We have. If we had some of those movable houses we could move them into the pastures and let the fowls feast on the hoppers. It would save a good deal of chicken feed. When the fowls can only pick up part of their living, the other part should be furnished in the shape of two scant rations a day—the morning meal of table scraps mixed with bran, the supper of oats or wheat Fowls that are confined to yards, and are therefore entirely dependent upon you for food, should of course be gived more food, and a greater variety.

Green Food.—Fowls that are allowed free range over the farm can get a constant supply of grass from the time it starts in the spring until after a killing frost in the fall, and their owner need take no thought in regard to the green food; but the fowls that are confined to yards must have green food supplied to them daily. What did you say? Something about the yard being in sod, and you supposed it would grow grass enough to keep the fowls supplied? Well, perhaps it would if managed right, but as usually managed it does not. Let me tell you that twenty fowls kept in a yard containing one-eighth of an acre will, in a short time, so trample out and kill all the finer grass that there will be but little if any left that will be fit to eat. I have seen poultry yards so bare of grass that a pair of hungry grasshoppers could not have obtained a square meal, and yet, because the dry, almost bare sod was there, the owners of the yard supposed their fowls could "pick up grass enough;" they also wondered why their hens didn't lay better.

Now "supposing" won't do in the poultry yard; anyway it won't keep the fowls in green food; at least it never did ours. Farmers who keep their fowls confined to yards can easily supply them with a daily meal of fresh green food by letting them out for half an hour each day, just at sunset, for a run on the fresh grass When only allowed their liberty for a short time each day, they will not spend their time in getting into mischief, but will "improve the occasion" to get a square meal of fresh grass, and perhaps catch a belated bug or two, and then will return to their houses at their usual bed-time, and can be shut in.

Town and village poultry keepers who only keep a few fowls can also

give their fowls a meal of fresh grass the same way, by turning them out on the lawn for a short time just at night each day. Or they can clip a little grass every day and feed it to the fowls while fresh. The best time to cut it is in the morning while the dew is on, and then set it away in the shade until about noon, and give it to the fowls then for a lunch.

Another way to secure a constant supply of green grass is to have two yards for each flock of fowls, and use them alternately throughout the season. And still another—one that is largely practiced by poultry raisers, is to spade up a portion of the yard, enclose it with a few movable panels of wire or lath fence, sow grass seed thickly, and when it is up a few inches, turn the fowls on for a few hours daily, and let them help themselves. While they are eating this patch of grass, another is growing; and when the second is ready a third patch is started. You can keep this up a whole season, and wind up in the fall by sowing a patch of rye that the fowls can feed on until snow covers it; and again in the spring as soon as the snow is gone. Of course there is some work in it, but it gives the fowls the best of green food, and by thus turning over the sod and growing a crop on it, it is purified, and the same ground can be used year after year for a poultry yard, and not become unhealthy for the fowls.

Meat.—Fowls that have full liberty do not need any meat during warm weather besides what they can pick up in the shape of bugs, worms, etc.; but those that are confined to yards all, or the greater part of the time, should have a little meat daily - about half as much as in winter. Where only a small flock is kept the scraps and trimmings from the meat used in the family will probably be sufficient; but where large numbers are kept I should advise the use of the ground beef scraps in addition to the home supply of scraps. But be sure these are always fresh, for meat that is "tainted" will almost surely cause sickness among fowls. Your nose will tell you whether the scraps are fit for poultry food or not; if there is no unpleasant, sickening odor apparent when your nose is close to the open barrel, they are all right.

Drink.—Unless you are fortunate enough to have a spring, or a stream of clear running water on your premises where your fowls can get at it at all times, keep a supply of pure fresh water by them; don't, by failing to supply them with clean water, force them to slake their thirst at the sink drain, or from any puddle of impure water they come across. I am not prepared to say positively that ordinarily impure or dirty water will actually cause disease, but such water certainly does the fowls no good, and it is well enough always to keep on the safe side by supplying pure, fresh water. Twice or three times a day in warm weather carry your fowls fresh cool water. Don't pour it in an old tin pan and set it in the sun; use some of the drinking vessels mentioned in a previous chapter, and set them in the shade. No shade handy? Well then, make some. Drive four stakes in the ground, saw off the tops square, nail on a cover, and set your drinking vessel under that.

To supply fresh water without the trouble of refilling the drinking vessels through the day, get a cask that will hold water enough to last through the day, one of Wheelock's drop faucets, put the two together, fill the cask with cold water, set it on a block or bench in the shade, wet an old blanket and wrap about it, set a vessel under the faucet to catch the water as it drops, and the arrangement is complete. The evapora-

tion of water from the wet blanket will keep the water inside the cask cool. Or the cask might be packed in sawdust, as suggested in last chapter. The same arrangement answers equally well for summer and winter—only in one case it is filled with hot water, and in the other with cold. Where large numbers of fowls are kept in different yards one of these cask "fountains" in each yard will save a "sight" of work in watering the fowls.

And do keep the drinking vessels clean; it is no use to put clean water in a vessel that has not been cleaned for so long that it is green and slimy around the edges. Scrub them out with hot water often enough to keep them clean.

Besides supplying your fowls with water, give them, especially those confined to yards, all the milk you can spare for them. When they have a pan of milk every day, no meat will be needed.

Shade.—Did you ever notice how fowls seek the shady side of the buildings, the shelter of bushes and weeds during the middle of the day in hot weather? They don't like to stay out exposed to the hot rays of the sun any better than you, and it isn't healthy for them to be thus exposed, either. The fowls that have their full liberty can usually find shade somewhere on the premises, but for those that are confined to yards destitute of trees and bushes, you must provide some shelter from the burning rays of the mid-summer sun. Of course they can go into their house, but they don't like to; they want a shady place out of doors where they can loaf, wallow in the dust, and talk over poultry matters. The "properest" thing we know of for shade is a currant bush. There is nothing better than a big currant bush, except a whole row of them. When the hen can wallow in the dust under the shade of a currant bush, and reach up and pick the green currants, or the ripe ones, she is just about as happy and contented as she can be. So I advise you to set out currant bushes all around your poultry yard fences; or if that is likely to overdo the currant business, set some gooseberry bushes, raspberry and blackberry vines, quince bushes, plum and cherry trees. In this way you will not only furnish shade for the fowls, but, as soon as the bushes and vines come into bearing, you will have paying crops of berries and fruit besides what the fowls eat; and the fruit will be all the fairer for the fowls wallowing about the roots of the trees and vines, and devouring the bugs and worms.

While the trees, etc., are growing large enough to afford the necessary amount of shade, you can provide shade by planting quick-growing plants and vines, or making cheap sheds. Some of the best plants for this purpose are sunflower, corn, and artichokes planted thickly. Cheap sheds can be made by driving two posts in the ground, about three and a half feet high, and some eight feet apart. Across the top of these posts nail a stout cross-piece, and then place boards some eight or ten feet long, with one end resting on the cross-piece, and projecting a foot or so beyond, the other on the ground. The ground under these sheds should be spaded up, so that the fowls will have a chance to wallow in the earth. If you have no cheap, refuse lumber on hand, use rough poles instead of boards, and then cover with straw or old corn-fodder—anything that will make shade.

Lime, Gravel, Etc.—Because your fowls can get at the ground, do not imagine that they no longer need the supply of crushed oyster shells or lime in some other shape. Keep a supply where they can help them-

selves every day in the year. They will eat no more than they need. Just so about gravel. Fowls need it all the time, but some farmers who take pains to supply it or some substitute in winter, take no further thought about it as soon as the hens can get to the ground. They seem to think the hens can pick up enough anywhere; and so they can if the soil of the farm is gravelly. But on many farms there is no gravelly soil within reach of the fowls. On a farm where I once lived there was not gravel enough on the place to supply the needs of half a dozen hens —except what was brought on. If you live on such a farm, haul a load of gravel from somewhere and dump it down where the fowls can help themselves. It is my firm belief that a "never-failing" supply of gravel and crushed oyster shells would prevent a good deal of the cholera sickness among fowls.

The House.—No one thing is more essential to the health and comfort of fowls in hot weather than clean, well-ventilated roosting-places. The fortunate poultry raisers who live where owls, foxes and other chicken thieves trouble not, can turn their fowls out of doors in the spring and let them roost in the open air through the summer and the early fall, and it will be a wise thing to do; but unfavored poultry keepers must do the next best thing—remove doors and windows, and use screen doors and windows made of galvanized wire netting. This arrangement converts the close poultry house into the next best thing to an open, airy shed.

Exercise.—Fowls that have the privilege of rambling over as much of creation as they choose to explore, will take all the exercise they need to keep in good health; but not so with fowls that are confined to yards; unless some extra inducements are held out to entice them to exercise, they soon tire of their yards and stand around in a listless sort of way, as if life had no charms for them, or else do their level best to get the other side of the fence. To keep them well and contented. keep them busy. A portion of their yard should be kept spaded or ploughed up, and then seeds of grain of any kind can be scattered occasionally, and raked or hoed in. At other times the grain should be scattered, sowed all over the yard. Not a grain will be lost; the fowls will hunt and scratch it all out, and in so doing get the needed exercise, and in a natural way.

HOW TO GET THE HIGHEST PRICE FOR EGGS.

If you have anywhere from ten to twenty, or thirty, or more dozens of eggs to sell every week, don't sell to the country store-keeper, or the village grocer for just what he chooses to give in "store pay," but either ship regularly to a city commission house that handles eggs, or else sell direct to private customers in your nearest village or city. If you live within easy teaming distance of a city or large village, and want to sell eggs to private customers, go right around and call at the houses until you find your customers—people who will agree to take a certain number of fresh eggs every week, or every two weeks, and pay a few cents per dozen more than the price of store eggs. There are plenty of such people in every city, and in every fair-sized village in the United States, and you can find them if you look for them. After you find your customers take them *clean, good-sized fresh* eggs regularly at the time agreed upon. Warrant every egg fresh, and see that every egg *is* fresh. If by any chance a bad or stale egg should get in with the others make it good

to your customers. By steadily following this course you will always have a steady, sure, paying market for all the eggs you can "raise," even when the markets are full of stale and "preserved" eggs in various stages of badness.

If for any reason this way of marketing eggs is impracticable for you, ship direct to the city market if possible. If you have not enough to ship every week alone, get some of your neighbors, whom you can trust to put in only fresh eggs, to join with you. For nearly all city markets eggs should be packed in Stevens' 3 dozen egg cases. These cases are made of solid white pine, have hinges, fastenings and partitions, all ready for use, and cost 90 cents each for the 30 dozen size. Railroads and express companies return the empty cases free of charge. If you want smaller cases, for 15 dozen, you can make them at home, using Stevens' pasteboard partitions, which can be obtained of dealers in poultry supplies. Always keep the cases in good repair, so as to secure against breaking while on the road. Put a light layer of perfectly clean, sweet, dry straw on the botton of the case before filling the first section, and another light layer on top of last section, before putting on the cover. Keep the cases clean, free from any unwholesome, stale smell, and to do this pack only *sound, fresh, clean* eggs. If by any chance an egg should be broken, and the section daubed, put in a new clean section.

In cold weather, barrels are used largely for shipping eggs, especially for the New York market, as many eggs are sold there for re-shipment to other points. An ordinary flour barrel will hold about seventy dozen. The poultry raiser who wants smaller packages in barrel shape should get half barrels. It requires some "knack" to pack a barrel of eggs properly, but if the following directions, which are from the "Shippers' Guide" of James Rowland, 85 Warren street, New York City, are carefully followed, the eggs will come out all right:

"Clean, bright, and perfectly dry rye straw makes the best packing. The least dampness is bad, and is sure to have a damaging effect on the eggs. The straw should be cut fine and even, from a half to three-quarters of an inch in length, and entirely free from long straw. When rye straw cannot be obtained, clean, dry and bright wheat straw can be used. Never use oat straw, as it is apt to gather dampness.

The best barrels to use are round-hooped ones, and of the right size to hold seventy-five dozen each, namely: a barrel measuring 17½ inches at the heads, 21 inches at the bilge, and 31 inches length of staves. Put fourteen layers of eggs in each barrel of this height, being sure to keep them well apart in the layers, so that the straw will work in between the eggs. When ordinary flour barrels are used, seventy dozen is all that can be safely packed in them, or thirteen layers. Put about four and one half dozen in the first layer, and increase one half dozen to the layer up to six and one half dozen in the two middle layers, and then decrease at the same rate. There should be three inches of straw between the eggs and each head of the barrel, and enough between each layer to keep the eggs well apart. The eggs should be placed with the ends towards the sides of the barrel, but not touching by an inch or more. After each two or three layers are put in, they should be well settled by using a plank follower, and gently shaking the barrel until well settled. In heading, great care should be used in having the head press firmly on the straw filling, so that the eggs cannot work loose in the barrel by handling, but not so tight, of course, as to break them.

The importance of good packing would be better appreciated by shippers if they could see their consignees selling the eggs. When the head is taken out of a barrel properly packed with crisp, elastic straw, the head springs up, and the eggs show up in good condition. But the removal of the head from a barrel packed with musty, damp straw scares the customer; then if the packing has sagged down any, leaving room for the eggs to shift, the top layers, from careless handling, have a number of broken eggs that have matted the straw, the customer thinks the whole barrel is in the same condition, and not only refuses to buy that barrel, but looks with suspicion upon that entire lot or brand.

The eggs in each barrel should be of uniform quality as far as freshness and cleanliness are concerned. If a shipper has stale or dirty eggs and wants to ship them, he should put them in separate packages with a distinct mark, as deception in such cases causes merchants trouble with their customers, and will only reflect on the original shipper. The regular brand should be uniform in every respect in order to secure and maintain a reputation. All doubtful eggs should be sorted out, marked, and shipped separately.

Dealers should employ none but good, careful packers,—those who take pride in doing their work well. The one who does the heading should be a man of good judgment, careful and painstaking,—one who will do his work without breaking the eggs on the top layer, and at the same time secure them against shifting. Too much care cannot be taken in this part of the work, because nothing injures a brand and interferes with the sale more than broken eggs on the top layer.

From June until the middle of September, eggs should be forwarded by express; at other seasons of the year they can be sent by freight."

In winter, to guard against freezing, use more packing at ends and sides of barrel. And in winter, especially in shipping long distances, it is better to ship by express than by freight. The chances of breaking will be greatly lessened if in addition to the three inches of short straw at the top and bottom of barrel, a little long, soft hay or straw be used. Put this evenly on bottom of barrel before putting in the other packing, and on top after the last layer of the other packing is on. This plan is recommended by James Rowland & Co., commission merchants of New York City, and we know by experience it works well. Make the count correctly, and mark it honestly on the barrel. Also put upon barrels and cases your name and address, and the address of firm to which the package is sent. If you expect to make a business of shipping, have some particular mark or brand of your own, and put it on all packages. Then if you ship the best, if your goods are always as represented, and get to market in attractive shape, you will soon establish a reputation that will pay in dollars and cents, for your brand of eggs will find ready sale at top prices when less desirable brands are selling for less, or not at all. Nearly all commission merchants will, upon application, furnish stencil-plates for marking to those who propose to ship regularly to their house.

HOW TO PRESERVE EGGS.

To those whose knowledge of preserving eggs is limited to what they have read on the subject, it doubtless seems as if there were really no need to write anything more about it—that the numerous recipes which have been published time and again, and which are said to preserve the eggs so perfectly that at the end of three, six or nine months, as the case

may be, they "cannot be told from fresh eggs," covers the whole ground —that all the farmer or poultry raiser needs to do in order to pocket big profits, is to gather the eggs, pack them, wait until the price gets up to the highest notch, and then sell as fresh eggs. But those who have tried, as I have, nearly all the known methods of preserving eggs, and carefully noted results, know that something more than a receipt, as usually given, is needed to insure success. The receipt for the lime method goes the rounds regularly year after year—so much lime, so much salt, so much water, but that is not all that is necessary to enable a novice to "lime" eggs so that the business will pay. An inexperienced hand cannot even "dry pack" eggs with any certainty of success unless his "receipt" contains more definite and sensible directions than is usually given in such receipt. The doing, or leaving undone, some little thing not mentioned in the receipt has ruined a good many lots of eggs that would otherwise have been good.

The Lime Method is the one that has been, and is now most used by those who pack large numbers of eggs. These limed eggs are *not* as good as fresh laid eggs. The method of preserving eggs *perfectly* for any length of time has not yet been discovered, and probably there is no way to do it, for there is air enough inside the egg to spoil it, eventually, no matter what method is used to "preserve" it. But although the limed eggs and eggs preserved by ther methods are not as good as fresh laid eggs, and never command so high a price, still the *best* brands are very good—a good deal better than no eggs, and sell at prices that leave big profits for the packer. When city markets have been full of inferior limed and other kinds of preserved eggs that were almost unsalable at half the price of fresh eggs, the best limed sold up to within six or eight cents a dozen of the price of fresh.

For pickle for 500 dozen or so of eggs, take one bushel of the best white fresh lime, one peck of clean rock salt, two pounds of cream of tartar, and 250 quarts of pure water. For a greater or less number of eggs the quantity can be increased or diminished in proportion. Take the lime with some of the water, as if for whitewashing. After thoroughly slacking, add the rest of the water and let it stand 24 hours, stirring several times during that time. When well settled carefully dip off the clear liquid so as not to disturb the lime at the bottom. Then add the salt and cream of tartar, stirring occasionally until the salt is dissolved; then it is ready for the eggs. To put the eggs in the pickle, use a dipper made by punching a tin basin full of holes, and attaching a long handle. A basin that will hold three dozen is a convenient size, though some prefer a larger one. The handle should be about three feet long and firmly fastened to the dish. Any tinner can make one if you tell him just what you want. Fill the dipper full of eggs, let it down into the pickle, and when near the bottom turn the eggs out carefully. When the eggs are about a foot deep on the bottom, spread over them a little of the "milky" pickle, made by lightly stirring up the top of the lime that settled in the barrel or hogshead where you made the pickle. The object in putting in this milky pickle is to have the fine particles of lime, which gives it the milky appearance, close the pores of the shells. If you get too much of this lime in it will stick to the shells and greatly increase the work of cleaning them for market; and if you don't get enough in the pores will not be closed, and the whites will be thin and watery. Experience alone can teach you about the right quantity, but

until you can "guess" accurately be sure and get in enough, for although it makes extra work, too much is better than not enough. After you get in the milky pickle, put in another foot of eggs, then more of the milky part, and so on, until your tank, or whatever you pack in, is full to within four inches of the top. Then cover with a piece of white cotton cloth, and on top of the cloth spread about three inches of the lime that settled in making the pickle. Always keep the pickle over this lime. For a cover, lay some lath, or strips of board across the top, and over these a piece of sacking or matting. Never cover tight with a board cover.

It makes no difference what you pack the eggs in, provided it is clean and sweet, and does not leak. Some packers use large tanks or vats built in a cellar around the walls with about half their depth below the surface; others use immense tubs made for the purpose. Lard tierces and kerosene barrels are also used. To clean a kerosene barrel, set it on fire inside and burn until it is slightly charred; then smother out the fire by turning the barrel bottom upwards. Scrape off the char, fill with lime water and let it stand several days. There must be no smell of kerosene about the barrel when the pickle is put in. Lard tierces are cleaned by scraping as clean as possible, then scrubbing thoroughly with hot, strong soap suds, and afterwards putting in a peck of ashes, filling up with water and letting stand a few days, when it should be emptied, and washed before putting in the pickle. A lard tierce will hold from 160 to 170 dozen. Before putting in the pickle a faucet should be put in each barrel or tank, near the bottom, so that the pickle can be drawn off when necessary.

A cellar that is perfectly free from all foul odors, and that can be kept at a steady, low temperature—not over 50°, and as much lower as possible down to any point above freezing, is the place for eggs, for they will not keep where it is warm, or where the mercury is continually wandering up and down from 35° or 40° to 60° or 70° or higher.

Eggs for packing must be *fresh* (those from hens not running with cocks preferred), with clean, perfect shells. Dirty, stale, cracked eggs will not keep, and may spoil the pickle. If you pack only the eggs that are laid by your own hens, you can of course take them fresh from the nest and put them immediately in the pickle. Of such eggs you need not loose one per cent of the number packed. But if you buy eggs to pack, you must, to be on the safe side, "candle" every one before putting them in the pickle, unless you get them fresh from your neighbors every day, and you are sure that you can depend upon said neighbors to furnish fresh eggs only. This "candling" eggs is one of the things that you cannot learn wholly from a recipe; it can only be perfectly learned by practice, and it takes quite a bit of practice to enable one to "candle" and "check" eggs rapidly, and tell certainly which eggs are fresh and whole, and which are not. Anybody can tell when an egg is rotten, and almost any one can soon pick out the eggs that are so old that the yolk has settled to one side, but it takes an "expert" to detect the egg that is almost but not quite good enough to go into the pickle. And anybody who is not half blind can see a decided crack in an egg, but only the practical eye and ear can detect the tiny crack that, although hardly visible to the sharpest eyes, is enough to spoil the egg after it is in the pickle.

To candle eggs the expert darkens the room, places a lighted candle

(tallow or paraffine) on a table or box before him, has a basket of eggs handy; also baskets or cases to put the eggs in after candling. Then he takes two or three eggs in each hand, holds them close to the lighted candle, looks through them as he gives them a quick, rotary motion, turning them nearly around. The first pair examined, by a "slight of hand" acquired by long practice, the next two or three are slipped forward and examined the same way. Then they are "checked" by striking the shells lightly and quickly together. A clear, what might be called a ringing, sound shows that both shells are perfect; a dull sound indicates that one of the eggs is cracked, and then the operator ascertains which one by examining with the eye, or by trying both on another egg. All this is done rapidly, though to read about it one would think it a slow process. How one can tell the ones that are almost, but not quite good, I can't describe on paper, but if you take eggs that you know to be fresh, and examine them before the candle you will know just how they look; then examine eggs of different ages carefully, the same way, and note the difference. That's the way I learned and you can learn more in that way in an hour than you could learn in any other way in a week.

Sometimes the pickle will change color, the thin crust which forms on top disappears, the pickle "works," foams, and emits a disagreeable odor. This is caused by broken eggs, foul barrels, or by using impure water for the pickle. In such cases the best way is to take the eggs out, throw out the pickle and make new; but some packers, if the pickle be not very foul, draw off two-thirds of the pickle and fill up with fresh.

When drawing off the pickle, either for the purpose of filling up with new, or to take the eggs out for market, do not draw off more than two-thirds before taking out some of the eggs, for when a large number of eggs are packed in one receptacle the weight of the eggs is liable to break those in bottom of the tank if all the pickle be taken out at once.

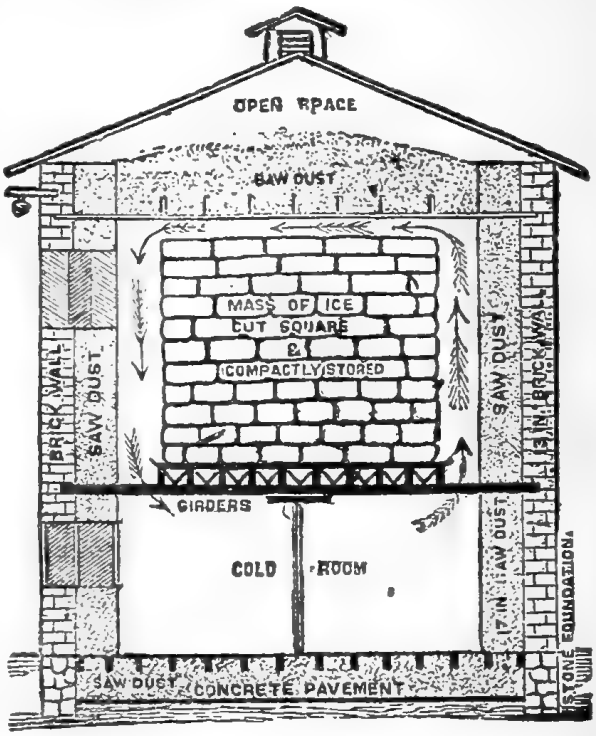
When the time comes to market the eggs, take them out of the pickle, wash clean by putting them, a few dozen at a time, in a tub of clean water, and stirring them carefully with the hand. After washing put them in a cool airy place to dry, and when dry candle out the spoiled ones before packing for market. If any eggs are found that are encrusted with lime, they should be laid out and fully cleaned before packing. The average per cent of loss among the large packers who buy up eggs wherever they can get them, is about ten per cent of the whole number put in the pickle, but greater care would probably reduce this to about five per cent.

Ice-House, or "Cold Storage" Eggs, are eggs that have been kept in a "cold room" in an ice house. They are usually better than limed eggs, and sell for a few cents a dozen more than the best limed. But after being taken from the refrigerators these cold storage eggs will not keep as long as the limed eggs will after being taken from the pickle. Farmers who have an ice house (and every farmer ought to have one), can have a cold room in it, and keep the eggs laid in warm weather until the price goes up.

The following description of an ice house containing a cold room was taken from the *New England Homestead*, and is the best I have seen:

The building is 25 feet square, inside measurement, and 22 feet from the floor of the cool room to the ceiling over the ice. The outside wall is of brick, 13 inches thick. The walls should have a solid stone foun-

dation, and the floor of the ice room, which is over the cool room, must be well supported by solid posts in the co'd room To prevent drip into the cold room, the ice is stored on tight V-shaped troughs which carry off all the water. The floor of the cool room is best made of concrete. The doors must be double or triple, perfectly tight, and two of them must never be open at the same time. The cool room is 9 feet high, and the ice room 12 feet. The window in the cool room has three sashes, with air spaces between. Inside of the brick wall, and 16 or 18 inches from it, there is a board partition, and the space is filled with sawdust. The ice is cut square and packed solid in the ice room, leaving a space all around the ice. By this plan there is no sawdust in contact with the ice, and the air of the room circulates all around and over the ice. On the floor abve the ice room there should be two feet and a half of well packed sawdust or turners' shavings. As long as the temperature of the goods stored is above the temperature of the room, there will be a gentle draught around the mass of ice, and of course all moisture and vapor in the air, and odors from the goods will condense on the ice, and pass off, so that you can keep not only eggs, but butter, milk, fruit, and meat all in the same room without danger of injuring the flavor of anything so kept. The features of this plan can be carried out by arranging a room inside another building.



For cold storage, eggs are better packed in cases. When taken from the cold room they will "sweat." After they dry off, candle and repack for market.

Our Method.—After experimenting with several different methods of preserving eggs for winter use and for market, we are convinced that simply packing in salt is the easiest and best method for housekeepers who desire to put down a few dozens for winter use, and for poultry keepers who only have a barrel, or two or three barrels to pack for market. They may be packed in anything that is clean and handy, boxes, barrels, jars, nail kegs, tubs, pails, etc. The eggs for this method of preserving, as for all others, shou'd be fresh, clean and uncracked. Cover the bottom of the barrel, or whatever you pack in, with three inches of salt; upon this place the eggs, on end, and far enough apart so that they will not touch each other, or the sides of the barrel; then cover entirely with salt, put on another layer of eggs as before, and so on until the box or barrel is full. Keep them in the cellar, and do not turn the package as some poultry writers recommend. When the eggs are packed on end, as they should be, the turning of the package upside

down every few days is not only useless work, but positively injurious to the eggs. We have tried both ways, and know whereof we write. We have kept eggs thus packed from the middle of April until the middle of October, in a cellar where the temperature ranged from 50 to 60 degrees, and they were good, every one of them, at the expiration of that time. At another time we put a jar of eggs in the cellar the last of October, and there they remained untouched until the next June, when we took them out. They were not "as good as fresh laid eggs," and we didn't expect they would be; but still they were good; the whites were not so thick and firm as those of fresh eggs, but the yolks were in good shape and had not stuck to the shell, and the eggs beat up "light," though not so "frothy" as new laid eggs.

If a cellar is very damp the salt will be apt to melt and settle down so as to leave the eggs exposed, but most farm house cellars are dry enough to keep eggs packed in salt, if the packages are set up from the cellar bottom.

The item of salt enough to pack several barrels of eggs looks large on the debit side of the account, and probably the cost of salt is one of the reasons why this method is not more generally used; but after all the salt method is not so expensive in the long run as seems at first thought, for the same salt can be used over and over again. The grade of salt used is that known as coarse fine.

Other Methods.—Farmers and poultry raisers who have or can have a dry, clean cellar, where the temperature will not go above 55°, can keep eggs for fully three months, perhaps longer, by setting them on end in racks made for the purpose. It does not matter how the racks are made—any way that will hold the eggs in place will do. The usual way is to bore 1½ inch holes in boards, and then slip these boards into frames that will hold them like shelves, one above another.

Eggs packed in *perfectly dry* bran, oats, corn meal, coal ashes, etc, and kept in a cool, *perfectly dry* cellar, have kept good from three to five months, and might have kept longer had we continued the experiment. But when these packing materials were used and the packages put in a damp cellar, the eggs at the end of three months had various disagreeable flavors, according to the packing material used, and as many of the shells were discolored, the looks as well as the taste were injured. Eggs that were packed in salt at the same time, and kept in the same cellar, were all right at the end of four months, when we took them out. The cellar was not very damp—only moderately so during wet spells of weather.

There are various other methods, such as varnishing, coating with melted wax, gum-arabic, packing in jars and covering with melted lard, etc, but while some of these methods may keep the eggs good as long as it is profitable to hold them, they require too much work to make them profitable for the large packers to use; and there is no sense in the housekeeper taking so much trouble, when the eggs can be so easily and safely packed in salt.

ABOUT SELLING PRESERVED EGGS.

Now about marketing these preserved eggs: Don't hold them too long. It is better usually to sell in November and December than to wait longer. You certainly should not hold preserved eggs until February, and along into March, as I have known some inexperienced pack-

ers to do. After the middle of January the prices of preserved eggs go down hill in proportion as fresh eggs come into market.

And don't try to sell your preserved eggs for anything except just what they are. When you send a consignment to your commission merchant mark the package plainly "Preserved Eggs," and in the letter which should always be sent when the eggs are shipped, or one mail before, you should also state that they are preserved eggs. Of course the men who inspect the eggs upon arrival will know as soon as they see eggs that they are not fresh laid, but your stating in the letter that they are preserved eggs, and so marking the packages, will show that you are honest—and not trying to pass off preserved eggs as fresh.

When shipping by express it is advisable to put a duplicate of the letter sent by mail in one of your packages, and mark this package "Bill" on outside. This advice about the letter of advice holds good when you are shipping anything, fresh eggs, preserved eggs, dressed poultry, or any kind of produce to be sold by a commission house, for it vexes commission men to receive a consignment without any letter of advice.

A WORD OF WARNING.

Every year or two somebody, sometimes several somebodies, who are anxious to get a living without honestly working for it, advertise some "new and infallible recipe" which they claim will preserve eggs for any length of time so perfectly that no one can tell them from fresh laid eggs. Thousands of these receipts are sold at prices ranging from one to ten dollars, but instead of being "new and infallible," they are new and worthless, or else some of the old and tried recipes which I have given here changed by the addition of a little of one or more substances that do not in any way add to the preservative qualities of the original recipe. There is a set of poultry "sharks" who make a business of doing this, and some of them have made thousands of dollars by it. A few years ago an Ohio man picked up a salt and lime recipe in an agricultural paper, copied it, adding a little baking soda and saltpetre to the original recipe, had five thousand of them printed, advertised them as some new method, and in less than two years sold them all at $3 apiece. Unless you have money to throw away, don't send anybody a cent for any so-called new method of preserving eggs. Of course it is not unlikely that some better method than any we now know of may be discovered, but when it is it will not be advertised; the fortunate man or woman who discovers it will hold on to it until he or she gets rich enough out of it, and then it will either be given outright to the public, or sold to some other person or firm, who will in turn guard the secret as long as it is their interest to do so.

CHAPTER VI.

WHICH TELLS HOW TO HATCH AND RAISE CHICKENS BY THE OLD HEN METHOD.

Care of the Breeding Stock.—To insure eggs that will, under the proper conditions, give strong, healthy chickens, the breeding stock must be strong and healthy. Give your breeding fowls as much range as possible. If obliged to confine them to the limits of the house and a small yard, force them to exercise by scattering their grain in litter in the house and shed, and around the yard, when practicable. Do not overfeed; give them enough to keep the hens in good laying order, but no more. Do not give them any "egg-food;" eggs from fowls that have been run on the high pressure plan do not usually hatch well, and the chicks that do get out of their shells are a weak lot. If you keep a large flock of fowls chiefly for the purpose of producing eggs for market, you will of course want them to produce as many eggs as possible in fall and winter, when the eggs command high prices, and will do your level best to induce them to shell out through the high price season; in that case keep the fowls that you intend to breed from separate from the main flock, and avoid giving food and condiments that will stimulate egg-production.

Do not overdo the rooster business. Too many roosters in one flock, or two few hens with one rooster, is as bad as not enough; in fact too many roosters are worse than not enough, for when the number of male birds is out of all proportion to the number of females in the flock, the hens are so worried by the everlasting attentions of the roosters that they become disgusted, mad, and dodge them entirely. For the non-sitting breeds, and the Plymouth Rocks, Wyandottes, Dominiques, and Javas, one rooster to every twenty hens is enough when the fowls are on free range; but when confined to yards there should be one rooster to every dozen or fourteen hens. For the Asiatic breeds, one rooster to every fifteen hens when the flock has full liberty; otherwise one rooster to ten hens. If you have only a pair or trio of thoroughbred fowls that you want to breed from, put with them a few common hens that lay eggs of a different color, or else keep the rooster away from the hens except for a few hours each day. I used to have a notion that it was a good plan to keep the sexes apart until within ten days or so of the time when the eggs were wanted for incubation, but I have entirely recovered from that notion. I found out by experience that when the roosters were with the hens right along for a month or six weeks before the eggs were wanted for incubation, nearly every egg was fertile; while, on the other hand, when a strange rooster was put with the hens only ten days or so previous to the time of using the eggs for setting, a large per cent of the eggs were unfertile; therefore, when you have to buy male birds, I advise you to buy early—in the fall, if possible—but certainly early enough so that they can be with the hens at least a month before you set any eggs. When you raise your breeding stock, let the sexes run together right along after

the moulting season is over. When your fowls are once mated, do not, unless absolutely necessary, change rooster during the hatching season; but if obliged to do so, do not, if you want the eggs to hatch true to the new mating, set the eggs laid during the first ten days after the change of male birds.

Selection of Eggs.—In selecting eggs for hatching, reject all that are misshapen, those that are so much larger than the average that they evidently contain double yolks, those that are under the average size for the breed, and those that have very thin shells. Smooth-surfaced, well-proportioned, firm-shelled eggs, neither over nor under the usual size for the variety, are always the best for hatching; and if poultry raisers would always bear this in mind, there would be less disappointment in the hatching of eggs. Eggs from second and later litters are better for hatching than those of the first litter laid by a pullet.

The Sex of Eggs.—The notions which some people cherish, and which travel the rounds of the poultry and agricultural press regularly every season, in regard to distinguishing the sex of the eggs by means of the shape, position of the air-cell, wrinkles on the end, etc., are but "notions," and "nothing more." It is impossible for any one to tell beforehand whether an egg will hatch a pullet or cockerel. I speak positively because I have made many experiments in order to find out if it were possible to distinguish the "rooster eggs" from the "pullet eggs." In the early days of my poultry pilgrimage so many farmers and farmers' wives, who had raised chickens more years than I had lived, told me that they knew the round eggs always produced pullets, and the longish eggs roosters, that I half believed there must be something in it; so I set five hens on thirteen round eggs apiece. A few days later another old poultry raiser said that was "all nonsense;" that "the biggest eggs always hatched roosters, and the smaller ones pullets." I set the next four hens on "smallish" eggs. Then a man said the smooth eggs hatched pullets, and those with wrinkles on the end hatched cockerels. That was a "new wrinkle" to me, but he was a big man, and as I always had a good deal of confidence in big men, I next set three hens on eggs that were entirely innocent of wrinkles on the ends or anywhere else. Next I read somewhere that the position of the air-cell decided the question of sex—that the eggs which had the air-cell right in the end contained the male germ, while those that had the air-cell a little to one side contained the female germ. I couldn't see what under the sun the air-cell had to do with it, but I set the next hens on eggs that had the air-cells in the proper place for pullets. A few days afterward I happened to think that I had set all pullet eggs, and that a few roosters might be handy to have in the poultry family; so I at once set two old hens that were trying to hatch some china nest eggs on thirteen "rooster" eggs apiece. Some of the eggs were pointed, some had wrinkles and some had the air-cell on the end.

In due time the hens that were set on "pullet" eggs came off with chicks, and most of the chicks grew up; but alas! for my hopes of all pullets. Out of the 200 chickens that grew up over one half were roosters! The two hens that were set especially for roosters hatched twenty-one chickens, twenty of which we raised. Nine of the twenty were pullets. The next season we were told by an "authority" that for pullets we must set eggs from young hens mated with an old rooster. We bought some three-year-old roosters and mated them with

one-year-old hens. "Now," said I, "we will have all the pullets we want;" but the wise man said, "Don't count your pullets until they are hatched." I didn't; I waited until some of the chickens began to crow and in other ways conduct themselves as no pullets of my acquaintance ever did before. Then I counted them, and found that seven more than half were roosters. Since then I have made many experiments in the same line, but no matter whether the eggs were selected for roosters or pullets, or taken "just as it happened," they always panned out about the same—sometimes a few more roosters than pullets, and sometimes a few less—but taking the whole season through, the sexes were usually pretty evenly divided.

Care of the Eggs.—In cold weather gather the eggs often enough to prevent them from getting chilled. If they are soiled, wipe them with a damp cloth. Keep them in the cellar or in some other place where they will be in a tolerably even temperature, but not where they will chill, or where they will be so warm that they will soon spoil. If they are to be put under the hen in two or three days it will not be necessary to turn them, but if they must be kept a week or more turn them every other day. Do not keep them too long. A fair per cent of eggs that are four or five weeks old will hatch, provided they were fertile to begin with and were properly cared for, but the strongiest, healthiest chicks come from eggs that are not over two weeks old at the outside.

Have a Place for the Sitters.—Do not allow your hens to sit just where they take a notion, unless indeed they take a notion to sit in some place where there will be no danger of their being molested by the other fowls. If you allow a hen to sit where the laying hens can disturb her, they will, in nineteen cases out of twenty, "improve the occasion." As soon as the layers find out a nest has been appropriated for family purposes, the majority of them will, by some strange perversity of hen nature, conclude that that particular nest be the very best to lay in. So they seek to take forcible possession; the sitter objects, and the result is broken eggs, and a state of things generally that inspires the poultry raiser with a wild desire to wring the neck of every hen on the place. If you have a poultry house with a passage-way running along the length of the building, and the nests so arranged that they can be turned around to face into the passage, you are all right; you have only to turn the nest around, and then your sitter is where the laying hens cannot annoy her. If your house has no convenient passage-way, and you have no separate building or room that you can use for the sitting hens, you can easily make a separate room by putting a partition of lath or of wire netting across one end of your poultry house. One season 400 of our early chickens were hatched in a 10x12 room thus partitioned off one end of one of the houses. We had 30 sitting hens in there at one time—part of them sitting in boxes that were on a wide platform that ran around three sides of the room, the rest in boxes under the platform. We found this arrangement of having the sitting hens all together in one place much more convenient than when we had them scattered around in different places.

How to Prepare the Nest and Set the Hen.—Put a few inches of earth in the bottom of the nest box; hollow it out a little in the middle, so that the eggs will not roll away to the corners of the box, but not so much that they will pile up in the middle, cover the earth with some broken straw, fine hay or chaff, dead leaves or dry grass, among which scatter

some tobacco leaves, snuff, fine cut tobacco, or sulphur, as a preventative against lice; then put in four or five nest eggs, and the nest is ready for the sitter. But don't move the hen to the new nest the very first night when you find her on the nest when she should be on the roost; just let her sit on the old nest a day or two until she fully decides that she wants to sit three weeks. Then when sitting fever is well on, remove her after dark to the nest you have prepared for her, place her on the nest eggs, fasten a board in front of the nest, leave it there until after dark the next evening, and then remove it. In nearly every case the hen will accept the situation—i. e., if she is reasonably tame, and you handle her gently,—come off the next morning when you feed and water the sitter, eat her breakfast, "arrange her toilet," and return to her nest; then you may safely remove the nest eggs, and give her the eggs that you want transformed into chickens. But if she refuses to return to the nest within a reasonable time, put her back, and fasten her in for another day and night. At the end of that time she will either be reconciled, or so mad that she won't sit at all.

When we depended upon hens to do the hatching, and did not have sitters enough of our own, we bought sitting hens of neighbors, and moved them to her place, and in but one case out of a hundred or more did we fail to induce the strange hen to stick to her business in her new quarters.

Whenever possible, set two or more hens at the same time, so that when the chicks come out you can give all the chicks to one, two or three hens, according to the number of hens and chicks, and let the other hens return to the laying flock; or if you are short of sitters you can set the extra hens again on another clutch of eggs. If properly cared for a hen can sit six weeks, and come off in good health.

The number of eggs which should be placed under each sitter must be determined by the season of the year, the size of the hen and the size of the eggs. Very early in the season not more than ten or eleven eggs should be given even to a large hen; later, after the first of April, give thirteen or fourteen; and still later, a hen of average Plymouth Rock size may have fifteen or sixteen.

Your nest boxes should all have a number marked plainly on them; then when you set a hen you should note down the date when chicks are due from that number.

Care of the Sitting Hens.—When you give the hen the eggs, and again about ten days before the chicks are due, dust her thoroughly with either sulphur or insect powder, taking extra pains to get it well into the feathers on the under part of the body. Besides taking this precaution against lice, you should also have a dust bath in the room where the sitters can dust themselves.

Feed and water the sitters regularly at least once a day, at just about the same time each day; then they will expect you at that time, and will usually come off promptly about as soon as you get the feed into the feed dishes. Give only grain to sitting hens, and the drink should be water, not milk. While your hens are eating, drinking, dusting themselves, etc., you should remain in the room, and take the opportunity to see that the eggs are all right. If you find any broken, and the other eggs and nesting soiled, "spot" that nest, and as soon as possible after the hens are back on duty you must put new nesting in the nest, and carefully wash the daubed eggs in warm water. In cold

weather this must be done as quickly as possible in order that the eggs may not be chilled.

When your hens are ready to go back to their nests, see that each hen goes to her own nest. When the nest boxes are all alike in shape and size, it is well to paint the front of each one a different color so that the hens can the more readily distinguish one nest from another. You needn't laugh at the idea; I have tried it and know that the hens did not make half as many mistakes in getting back to their nests as they did before. If at any time some of your hens won't come off to eat, let them alone. Any hen that has sense enough to sit, knows enough to eat when she is hungry, and she probably knows when she is hungry a good deal better than you do. We have had a good many hens that would only come off every other day, and they did just as well in the hatching line as those that came off regularly every day.

Fig. 1.

When your hens are all back in their proper places, remove the food that is left, empty the water dishes and put all away, for if you leave food and drink in sight some of the hens may take a notion to come off when you are not there, go onto the wrong nest, and "raise Cain" generally. Remove the droppings of the setting hens each day after they are back on their nests; otherwise the room will soon become foul smelling. Keep a supply of gravel, crushed oyster shells, and crushed charcoal in the room where the sitters can help themselves.

Test the Eggs.—It is a great advantage to test the eggs on the fifth day of incubation, for as sitting hens are sometimes scarce when wanted most, you can, by testing the eggs and throwing out those that are unfertile make room for more eggs. When several hens have been set at one time, all the fertile eggs can be given to some of the hens, and the other hens given a fresh lot. And even when sitting hens are plenty it is well to throw out the unfertile eggs, for it leaves more room in the nest for those that remain. Testing eggs is a very simple matter; all you have to do is to hold the eggs, one at a time, between your eye and a strong light, and determine by the appearance of the inside whether it contains a live embryo, a dead one, or is "barren," i. e., never been fertilized. At the first testing, on the fifth day, the barren eggs look like Fig. 1—light and clear, like a fresh egg. These eggs will not hatch at all, and should be at once removed from the nest, and put away in a cool place, to use for food for the chicks. Fig. 2 shows about how a fertile egg (one with a live embryo) will look when viewed through the tester at the fifth day. You will see a small dark spot, with tiny red veins radiating through

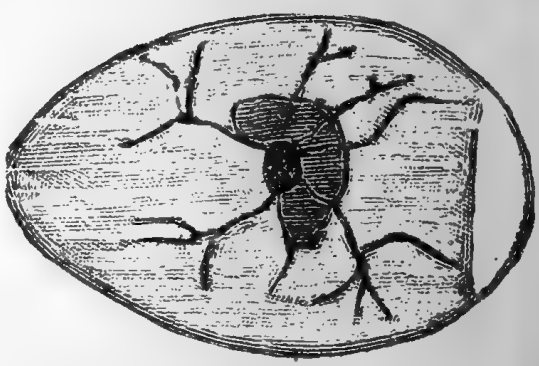


Fig. 2.

it. It somewhat resembles a spider with legs of different lengths. When the embryo is dead, the egg will look more like Fig. 3—the veins will appear broken and cloudy, not clear and distinct as in the live embryo. Sometimes the dark spot will be found adhering to the shell. These eggs will soon be rotten and offensive. When you are in doubt as to whether the embryo is alive or dead, mark the egg and put it back until the next testing, which should be on the tenth day. At this second testing the live embryo will look something like Fig. 4, and if you hold the egg perfectly still you can see the embryo move. The dead embryo will be motionless, without much semblance of form—sometimes not any; it depends upon how long it has been dead. At the third testing, on the fifteenth day, the live chick will about fill the shell, and the greater part of it will look dark, like Fig. 5. The eggs that are no good—well, you can smell them if the germ has been dead several days. We do not pretend to say that the illustrations of eggs are exactly "true to life," but they will give you a better idea of how the eggs look than could be conveyed by words alone. They were prepared expressly for *The Ohio Farmer*, and it is owing to the courtesy of the editor of that paper that we are enabled to give our readers the benefit of them. About the egg-tester: You can buy one for twenty-five or thirty cents, or you can make one. Get a wooden or a pasteboard box large enough to hold a small kerosene lamp; cut a hole in the top and another, about the size of an egg, in one side, just where it will come opposite the flame when the lamp is lighted. Hinge the opposite side, so that it can be used as a door; or, if that is too much bother, throw a dark cloth over that side after your lamp is in. Set the lamp in so that the hole in the top will be exactly over the top of the chimney, then there will be no smoking. Partly darken the room and hold eggs between the hole in the side of the box and your eye.

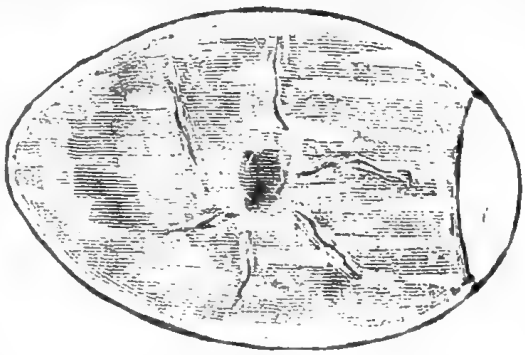


Fig. 3.

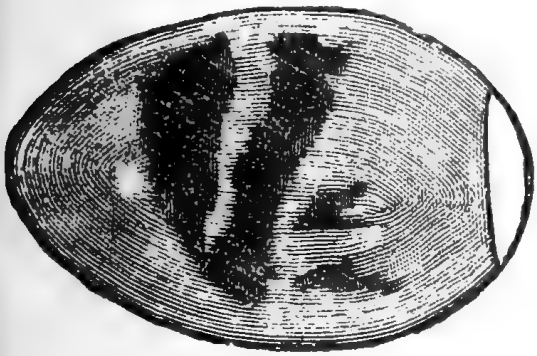


Fig. 4.

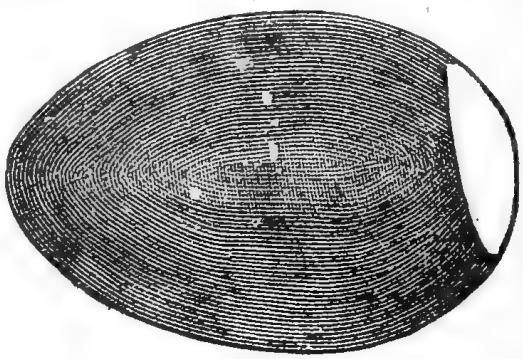


Fig. 5.

Not Necessary to Sprinkle the Eggs during Incubation.—For a long time I firmly believed that unless a hen was set on the ground it was absolutely necessary that the eggs should be sprinkled with warm water every day during the last ten days of incubation; anyway, I faithfully

sprinkled the eggs when the hens were off for their feed, and as I usually obtained good hatches I took it for granted that the sprinkling had something to do with it, and never thought of questioning the "authorities" who said it was necessary. But after a little, old, mongrel hen laid sixteen eggs in a box of scrap-iron the wood-shed, and hatched fifteen chicks from them, and another hen, calmly ignoring the tradition concerning moisture, sneaked into the barn and laid fourteen eggs in a pile of straw that was as dry as a patent office report, and then hatched every one of them; and other foolish and conceited old hens and perverse pullets stole their nests in all sorts of places—some on the ground, some high and dry in the hay-loft, some in old barrels and boxes in the wood-shed, and all alike hatched nearly every egg, I arrived at the conclusion that sprinkling the eggs was all nonsense—a foolish waste of time—and just quit; and the eggs hatched just as well as before.

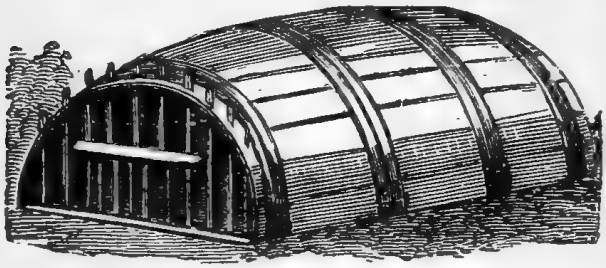


Fig. 6.

CHICKEN COOPS.

If you are wise in your day and generation, you will if possible find time along through the winter to get the chicken coops ready for use when wanted; anyway you will have them ready by the time the chicks are due to hatch.

I am not very particular about the shape of a chicken coop, provided it is a decent looking affair, but I am particular about the size. It makes me mad to see a hen confined in a coop so small that she can't turn around without bumping her head against the top, hitting her elbows on the sides, and stepping on some of her family. I believe that a coop for a hen and a good sized brood of chickens should have fully four square feet of ground room, and be high enough in the center, so that the hen can stand upright when she wants to. Fig. 6 in this chapter is an illustration of a "barrel coop, but it should not be made of a common flour barrel, simply because a barrel of that size is not large enough. Use a hogshead, lard tierce, or a kerosene barrel. Here are the directions which the genius who invented this coop gave for making it:

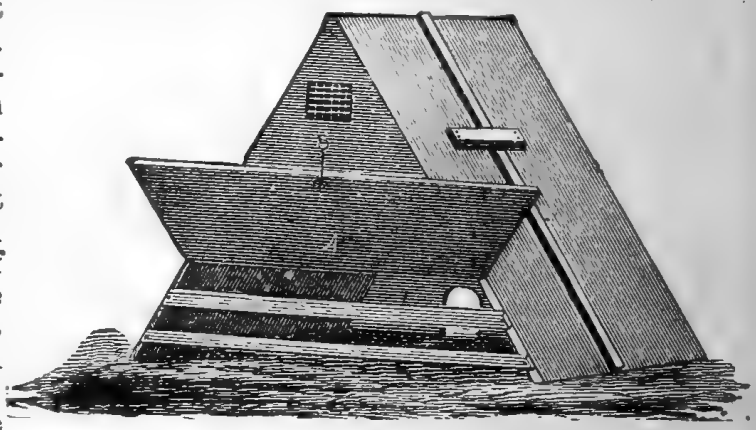


Fig. 7.

"Nail every hoop on each side of a seam or line between the staves, with an inch nail; clinch nails are best; after nailing the hoops all tight, saw off the hoops on each side of the seam. This leaves you with two half barrels, or half circles, each of which will make a fine

coop. The pieces that formed the bottom (or top) of the barrel can be nailed in again at the back end of this novel coop, and the upper part should be fastened with leather hinges, so as to open at pleasure; bore a few augur holes in the back for ventilation. Nail two parallel laths on the front, to fasten the slats to, make two of the latter to slide in and out; make a floor of rough boards to stand the barrel on, just a trifle smaller than the latter, so that rain will be shed outside on the ground. A coat of thick paint, or some waterproof roofing, tacked on will complete as nice a coop as any one need want, and at little or no expense."

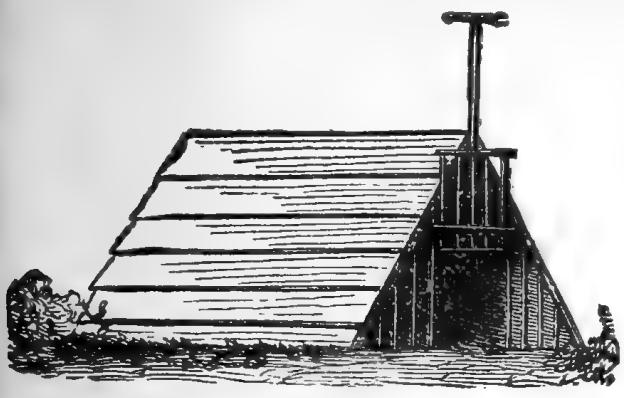


Fig. 8.

Fig. 7 shows a "good old-fashioned coop," with some modern improvements. The illustration shows so plainly how the coop is made that no description is needed. Fig. 8 shows another old-fashioned coop; Fig. 9 shows a new-fashioned one that is ornamental as well as usefull. The upper half of the front is of wire netting, which admits air and light, while the projecting roof keeps out sun and rain. The lower half is made of perpendicular slats, placed far enough apart to allow the chicks to pass in and out. Hinged to the bottom of coop in front is a door, which can be turned up over the slat front and fastened with a wooden "button," or with a hook, making all secure at night. Fig. 10 shows a box coop with a small lath pen in front. Fig. 11 shows a good style coop, with a run of wire netting; and Fig. 12 shows a desirable coop with a run made of lath. The lath in this run, like those in the pen shown in Fig. 10, are placed far enough apart to allow the chicks to pass in and out, but still near enough to confine the hen, and to prevent other fowls and older chickens from entering. You will find these runs handy to have in front of any coop, for they give you a chance to feed the little chicks where the mother hen, other fowls or half grown chickens cannot gobble up the food prepared expressly for the little fellows. By using the wire netting, or by putting the laths closer together, you can, when necessary, keep the chicks from wandering around in wet weather.

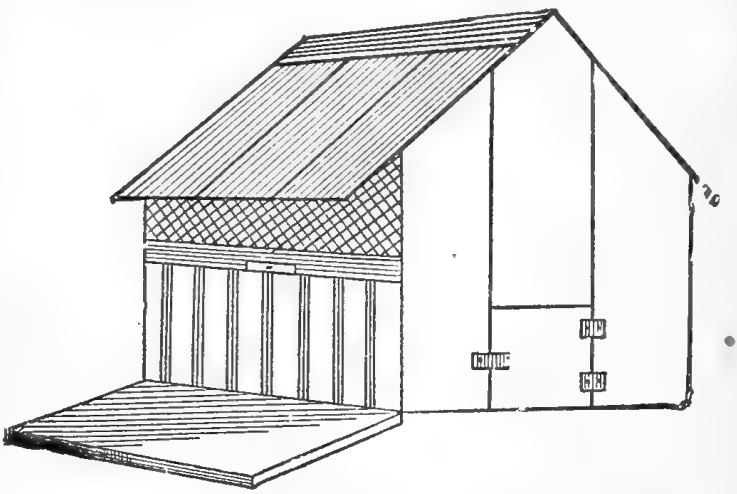


Fig. 9.

These coops can be made with or without floors. Do not have floors unless necessary on account of cold and dampness, or to keep rats out.

If you must have a floor cover it two or three inches deep with sand or earth. A coop with a bare board floor is not a fit place for either hen or chickens, and the man or woman who compels a hen to keep house in such a place ought to be fined for cruelty to animals.

The coops that have no floors should be moved to a fresh spot of ground often enough to keep them clean,—say once a week, at least; and those with board floors should have the floor scraped and fresh earth put in as often as once a week.

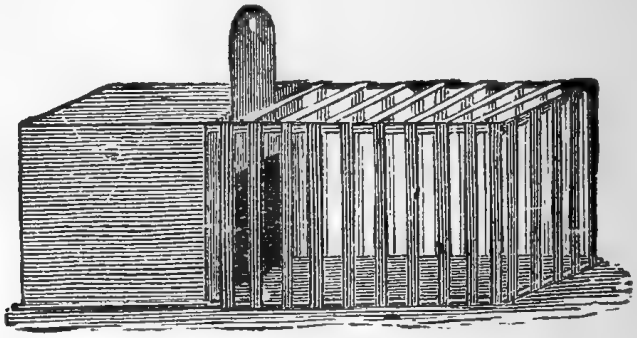


Fig. 10.

If you have an orchard anywhere within reasonable distance of the farm buildings, that is the place to coop your hens with chicks. If that be not practicable coop them near the corn field, potato field, and near the vegetable garden. Anyway, don't huddle them up within a rod of the back door. Better go some little distance from the house to feed them than to have them too near, Chickens around a dwelling house yard are a perfect nuisance.

If you try to raise any very early chickens with hen mothers, you must coop them in a house, or in a shed that can be closed up in stormy weather.

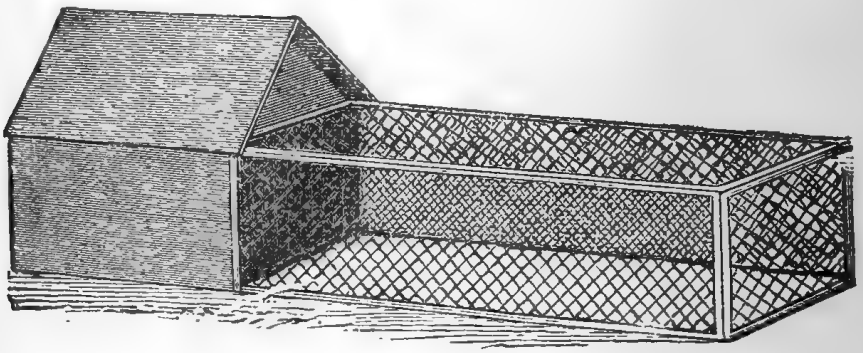


Fig. 11.

Coops that have been once used should be thoroughly whitewashed, or else as thoroughly wet with coal oil, before another hen sets up housekeeping in it. Strict attention to this point will save much trouble from lice.

After you are through with the coops for the season, put them somewhere under cover if possible, if not, put them all together in some place where they will not be in the way, instead of leaving them scattered "all over the lots" just where they were used last.

HOW TO FEED AND CARE FOR THE CHICKENS.

When the chicks are coming out of the shell they should under all ordinary circumstances be let alone. Sometimes a hen will be restless and tramp about in the nest when she feels the chicks nestling under her, and in such cases it will be well to remove the chicks from the nest as soon as dry, and keep them in a warm place in the house until all are hatched. Or if you want to reset a hen, you will have to remove her chicks as soon as they are hatched and dry, in order to prevent her from getting out of the notion of sitting longer. But generally speaking, the more you let a hen alone at hatching time the better she will do. To prevent the hens whose chicks are just coming out from coming off to feed when you feed the others, go to the hens that are due and give them some corn before you feed the others; then shut them in their nests until after the others are through, and the feed removed. When the hen is not bothered too much, she will usually stay on the nest until all the chicks are out, and for about twelve hours

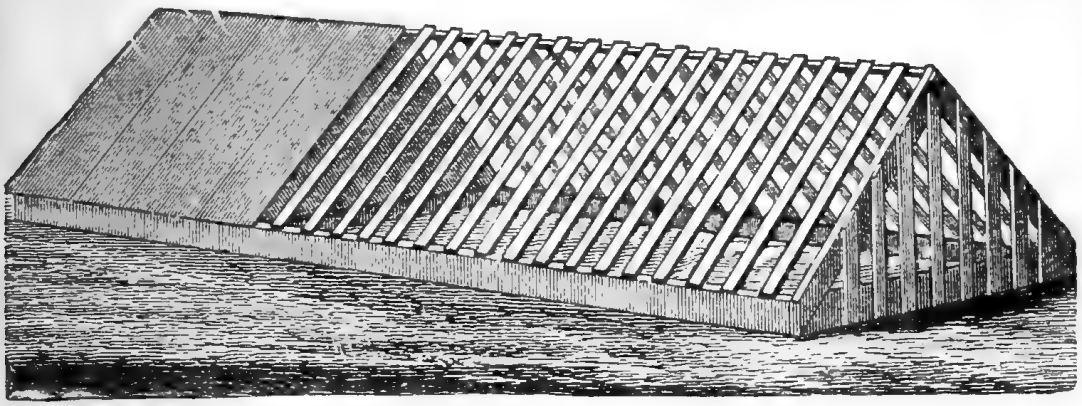


Fig. 12.

afterwards. By the end of that time the chicks will be poking out from under the hen to see what is going on in the outside world, and the whole family should then be removed to the coop. Now is your time, if you want to give a hen any chicks besides those she hatched, to slip the extra chicks in with her's before she has a chance to count her family. If you slip the extra chicks under her just before she leaves the nest, or just after she settles down in the coop, she will never know but that she hatched them all. Sometimes a dark hen will object to mothering a single white chick, even though she hatched it, but if given a half dozen or more white chicks she will mother them all. And I have had white hens that wouldn't own a black chick, but such cranky hens are not common; generally a hen will mother all the chicks you give her if you double up the broods at the right time.

But because a hen is willing to adopt some extra chickens don't give her all that she can possibly stretch her wings over; from fifteen to twenty, according to the size of the hen and the season, will do much better than a larger family.

When removing the hen and her brood to the coop is the time to use more lice preventatives. If you prepared the nest powdered the hen, and had a dust bath handy, as I told you, the hen and chicks will probably come from the nest free from lice, but all the same you shoul

examine both hen and chicks, and if you find any lice, dust the hen with insect powder before you put her into the coop; then when she gathers the chicks under her they will get their share from her feathers. But whether you find any lice or not, put a drop of kerosene on the head of each chick as a preventative against the big head lice. The quickest and best way to apply it is to have some in an old cup, and as you pick up each chick just dip the tip of the forefinger in the kerosene and rub it on the top of the chick's head, taking care not to get too much of the oil, and to keep it out of the eyes. Just a twitch is sufficient.

The Food.—Don't be in a hurry to feed the chickens as soon as you find they are out of the shell. They don't need food the first day, and won't eat unless it is actually forced down them. The yolk of the egg which is absorbed just before the chick leaves the shell affords sufficient nourishment for the first twenty or twenty-four hours, and if you force food down a chick soon after hatching the chances are that you will kill it.

Time was when I firmly believed that chicks must be fed for the first two or three days on the regulation "hard boiled eggs and bread crumbs," mixed one-third eggs to two-thirds bread crumbs; and I faithfully prepared such food for all the chickens that came into the word on our place, until—well, I just got tired of it, and went to experimenting. My experiments turned out so well—the chickens were so strong, and grew so fast, and there was so little sickness among them, that I do not hesitate to declare that the "boiled egg and bread crumb" food is not necessary; one thing sure, I shall never fool away any more time boiling eggs and rubbing them up in bread crumbs.

For the "first meal," wet up corn-meal and shorts—two parts of meal to one of shorts—with either milk or water enough to make a pretty stiff dough, season with a little salt, pepper and soda, and bake the loaf slowly until done. Crumble the inside of this 'johnny cake" and feed it dry; pour a little water on the outside crust and soak it just enough so it will crumble. Keep the chicks on this food for the first three days; then give corn-meal and shorts—three parts of meal to one of shorts—scalded to make a stiff, crumbly dough, and seasoned lightly with salt and pepper. Sometimes, say once or twice a week, give oat meal in place of the shorts; and sometimes use boiled potatoes, and table scraps mixed up with corn-meal. After the chicks are a week or ten days old, mix in either oil meal or ground beef scraps—a heaping tablespoonful of either to each pint of meal before scalding. Twice a week mix in either Imperial Egg Food, or Sheridan's Condition Powder, in the proportion of a heaping tablespoonful to every fifty chickens; and on two other days in a week throw in, once a day, a handful of bone meal for the same number of chickens. The Condition Powder or Egg Food promotes early feathering, and helps keep the digestive organs in good order, while the bone meal tends to prevent leg weakness. When you give either the Powder or the Egg Food, leave out the salt and pepper. This scalded dough should be allowed to get nearly cold before feeding. It is a good plan to mix the morning feed up the night before.

When the chicks are ten days old begin feeding cracked corn and wheat, and as soon as they eat it readily make it the last meal at night.

For the first month feed your chickens five times a day regularly—

the first feed as soon as possible after sunrise, the last just before dark. After the first month, four times a day until the hen weans them. Give what they will eat up clean each time, and don't waste the soft food by throwing it on the ground, where it will be trod into the dirt and a good deal wasted. Have some shallow feed troughs, or feed on clean pieces of board.

After the hen weans the chicks, don't leave them to scramble for their food among the older fowls. Give them a good feed of the scalded meal and shorts, etc., in the morning, and keep cracked corn, wheat and oats where they can help themselves through the day. At night a full feed of the grain.

To prevent the old fowls from appropriating the food meant for the chicks, put in under a feed rack made like Fig. 13. When it rains lay some boards over the top; or you can make them with a board top instead of using the lath.

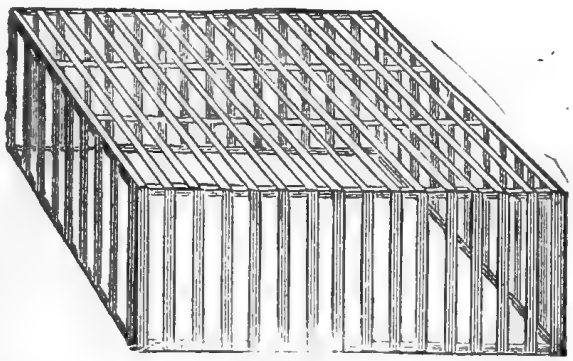


Fig. 13.

Drink.—Don't give your chickens any drink the first week or two; they are just as well off without it—perhaps better. After that, keep water or skim milk where they can get it when they want it. For young chicks have the drink in shallow vessels, so that if they get in they can get out again. Put a stone as big as your fist in the middle of each dish, which will keep the dish right side up and in place.

Gravel and Oyster Shells.—Lack of gravel is a fruitful cause of indigestion among young chicks that are kept on a clayey soil, and lack of lime food is in many cases the sole cause of leg weakness in chickens from two to three months old; therefore, unless the soil on your farm be naturally gravelly, keep your young chickens supplied with gravel, and keep the crushed oyster shells handy anyway. It is easier and cheaper to do this than it is to cure indigestion or brace up weak legs.

Green Food.—Chickens that do not get into the world until about the time the grass starts, and are allowed full liberty all, or the greater part of the time, will find all the green food they need; but if you hatch any before the grass starts you must, in addition to other food, furnish a daily supply of green food of some kind until they can get at the grass. Chopped cabbage, and onion and lettuce, mixed in with the dough, will fill the bill. Oats and grass seed can be sown thickly in shallow boxes of earth, and when three or four inches high cut and fed the same way. A regular supply of green food of some kind is one of the things that early chicks must have in order to keep them in good health.

Meat.—Where a large number of chickens are raised, meat must be fed right along, as I directed you to mix in with this scalded food, even though the chickens have liberty to wander where they please; but if only a few broods are raised, the meat may be dropped after the chicks are three weeks old, for they will pick up enough insects to supply all the meat food they will need. Of course, very early chickens must have meat supplied regularly until the weather is warm enough to start the early bug and worm.

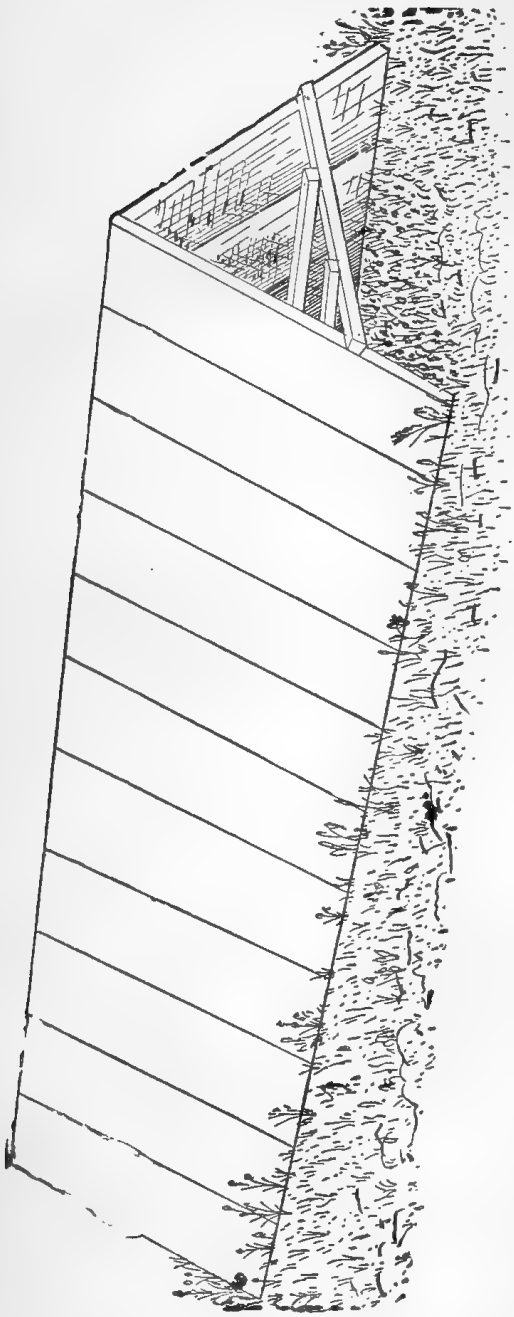


Fig. 14.

Give them Range.—For the first three days the chicks and hen should be confined to the limits of the coop and run; then the chicks should be allowed to go in and out at will, except on very rainy days while they are still small, when they should be confined to the coop and run. When the chicks are two weeks old, open the coop on pleasant mornings after the wet is nearly off the grass, and let the hen wander at will until night-fall—provided you have not growing crops where she can injure them by scratching. If you do not find it practicable to thus give the hen liberty with her brood, let her out every day for a couple of hours or so before sundown. After the hen leaves them allow them free range for all the time until you market them, or put them into winter quarters. Chickens can be grown to the broiler age and size if kept confined to the limits of the house and yard, or even if confined wholly to the house, but if you would grow strong, healthy breeding stock, or fine pullets for layers the following fall and winter, you must give them range after they are about three months old; and if you can give it as I have directed, before that age, all the better.

After the Chickens are Weaned don't be in a hurry to crowd them into the poultry house. Let them remain in the nursing coop at night until they outgrow them; then either let them take to the trees, or colonize them in roosting sheds like the one shown by Fig. 14.

If foxes or thieving cats are troublesome in your locality, make wire screen doors for each end of the shed, and then you can close it up

easily after the chicks have gone to roost. If there are neither owls nor chicken thieves to molest your chickens, and you have an orchard where they can roost, I should advise the trees for a roosting place until cold weather in the fall. For two seasons our chickens roosted in the apple trees in our orchard from the time the left the nursing coops until the latter part of October, and they were an uncommonly fine lot of chickens. We didn't drive the chickens into the trees; the coops were placed under and around the trees in the first place, and the chickens took to the trees when they got ready.

A great deal of nonsense has been written about the liability of crooked breast-bones and wry tails in chickens that are allowed to roost until pretty well grown, but the truth of the matter is there is almost no danger of such "crookedness" when the perches are of the right size and shape. If you colonize the chicks put up broad, flat perches, so that the chicks can sit on them; and have them placed so that the chicks will not be crowded against the side of the shed or wherever they roost. No, the branches of trees are not flat; but when chicks take to a tree they will, if left to themselves, choose a limb on which they can rest comfortably. Out of nine hundred chickens raised one year, we had but one crooked breast-bone, and no wry tails, among all the chicks that roosted in trees or on broad, flat perches in the sheds, but wry tails were numerous among the chicks that were colonized in small houses without perches.

Large Brahma and Cochin chickens must be colonized anyway, for it is not often that they will try to get into the trees to roost, unless the limbs are very near the ground. Put some 25 or 30 of about the same age in each shed. Don't huddle the sheds all together, but scatter them all over the lots. Move them occasionally, or else scrape off the top of the earth under them, and throw in some fresh earth. To teach the chickens to roost in these sheds, take them from the coops after dark, put them in the sheds, and keep them shut in for three or four days. For convenience in feeding and watering, place a lath feeding rack at each end of the shed. Before you let them out move the coops from which they were taken away from the old places. The first time you let them out, let it be only an hour or two before sundown. Probably all will go back to the shed at roosting time; but if not, you must ca ch them after dark, put them back, and keep them shut up for three or four days more.

By the middle of October, at latest—the first would be better—the chickens that are to be wintered should be put in the poultry house. To accomplish this with but little trouble, go out after dark, with an assistant to hold a lantern, catch the chickens, put them in the house, shut them in for a week, and by the end of that time they will have forgotten all about their old roosting places. When you are catching the chickens, if you miss some, don't chase them over all creation and scare them out of a month's growth. just let them alone until the next night, and try again.

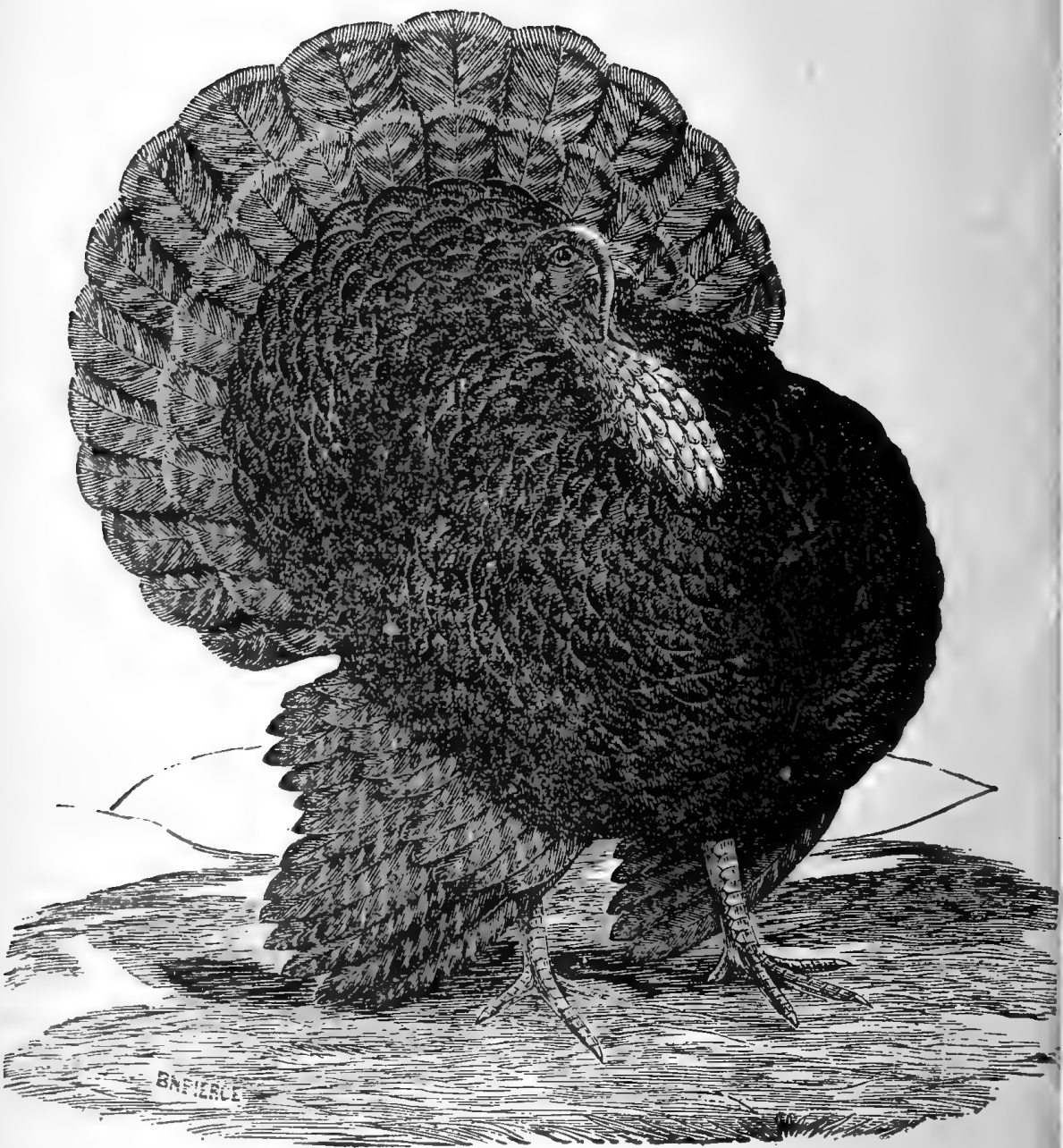


Fig. 1—BRONZE TURKEY.

CHAPTER VII.

TURKEYS.

Most farmers who undertake to raise a brood or so of turkeys, do so with a feeling of uncertainty as to the ultimate result. Still it is not a difficult matter to raise turkeys, provided one knows how; and turkey raising is certainly a very profitable branch of the poultry business. I have never seen the time when good, fat turkeys would not bring remunerative prices. The first step to be taken towards success in turkey raising is to secure good breeding stock. The parent birds must be strong, healthy, of good size, and mature specimens. No greater mistake could be made than that of buying inferior breeding stock, just because it can be obtained for less than the price asked for good, mature birds. When possible to avoid it, do not breed from a yearling gobbler; but when no other can be obtained select one of the earliest and largest of last season's hatch. Hens two years old and over, are better for breeders than those that are younger.

In regard to the "best breed"—for that question is sure to come up as soon as one mentions chickens, ducks, geese, or turkeys—there is really not much choice, except in size. The Standard recognizes six different breeds: Bronze, White, Black, Buff, Slate, and Narraganset; and then there is the old-fashioned mongrel variety, which isn't such a bad variety after all; but on account of the inferior size of the mongrels, they are not so profitable to raise for market as some of the larger breeds.

Bronze turkeys are the largest and handsomest of the whole turkey tribe. The illustration, Fig. 1, is intended to represent a Bronze turkey, but no cut can do justice to their beauty. The main color of the plumage is, as the name indicates, bronze—dark in the shade, but when viewed in the sunlight each feather glistens like burnished gold. On account of their great size Bronze turkeys are great favorites with those who raise turkeys for market; well-grown males of this breed will weigh from eighteen to twenty-two pounds alive, at six months, and the females from ten to fourteen pounds at the same age. Mature gobblers will weigh from thirty to forty pounds, hens from eighteen to twenty-two pounds. They do not reach maturity until the third year.

The White Holland ranks next to the Bronze in size, and is an excellent variety to raise for market. It is rapidly growing in favor with market poultry raisers. See Fig. 2.

The Narragansets are very popular among the farmers of southern New England, where great numbers are annually raised for market. Their plumage is a rich metallic black, each feather ending in a broad, light steel-gray band edged with black.

The other varieties are all good, but not so large as the three named. Farmers who have only common stock can, by mating the hens with a gobbler of any of the larger varieties, produce good market birds.

The breeding stock secured and mated (one gobbler to every ten or a dozen hens), which should be by the middle of January at latest, feed sparingly from that time until March. I don't mean starve them, but

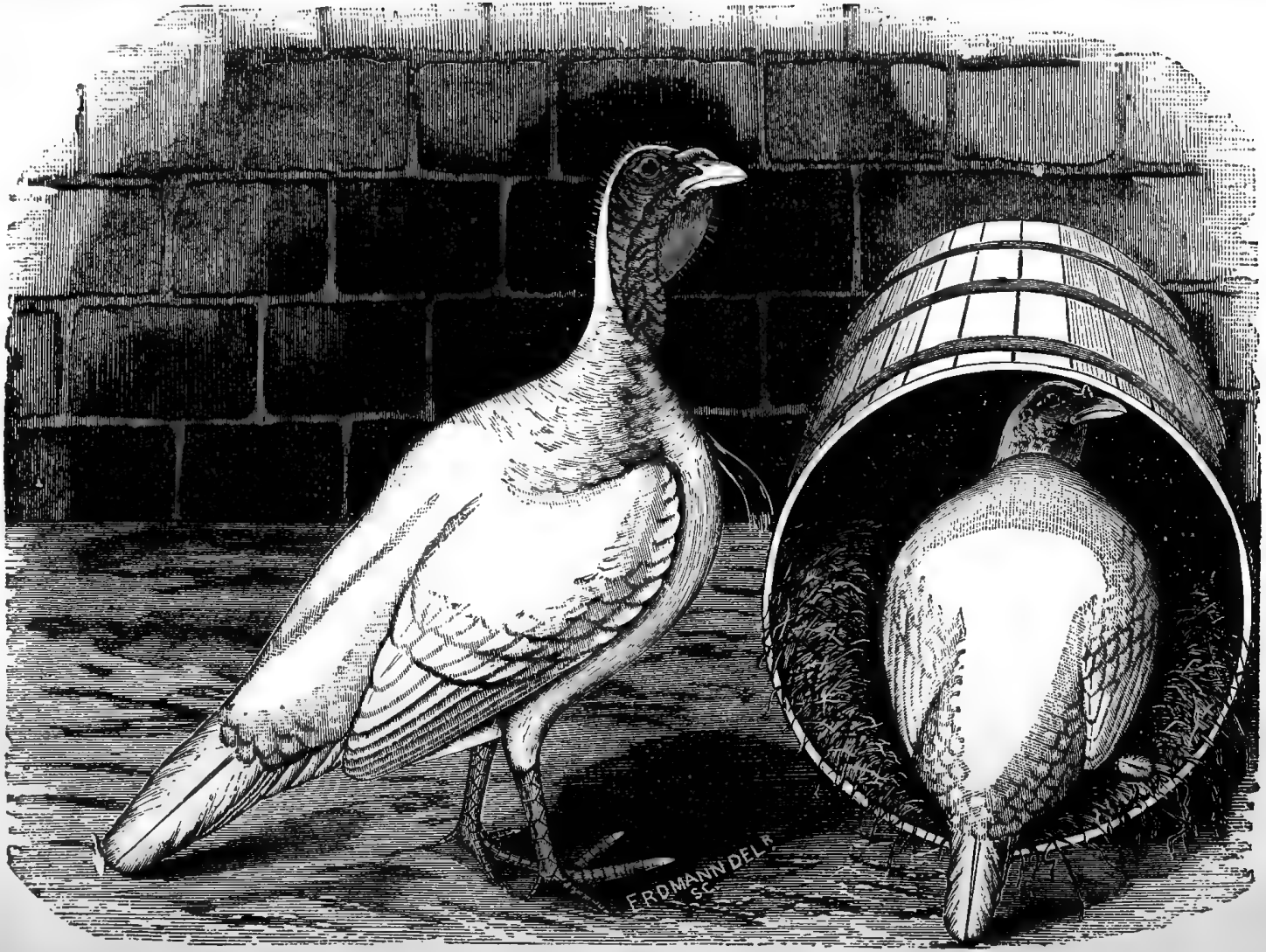


Fig. 2—WHITE TURKEYS.

only give food enough to keep them in "good working order." Fat turkeys will not lay so well as those that are thinner in flesh. Give green food and meat of some kind as often as four times a week after the first of February, and the hens will commence laying quite as early as it is desirable to have them.

It is natural for turkeys to hide their nests, and while I believe in humoring their whims in that respect, I do not believe that it is necessary to allow them to wander a mile from the farm buildings and deposit their eggs where no living thing—except, perhaps, crows and foxes—can find them. Long experience with turkeys has convinced me that it is possible to induce them to lay pretty much where one wants them to. By much petting of our turkeys, and by never allowing them to be frightened or driven about by either man or beast, we have made them so tame that they will generally go into the hen house and lay in nests like any other sensible biddies; but all this takes time and patience, and the average poultry raiser had better fix up nests in secluded places, not too near nor too far from the farm buildings. Don't make "nice" nests; turkeys have a prejudice against "nice" nests that are prepared especially for them. An old barrel turned on its side in some secluded fence corner and partly covered with brush, brush thrown carelessly around an old stump, and other such arrangements, suit turkeys; and also delude them into the belief that they are hiding their nests.

If the eggs are not allowed to accumulate in the nest, the turkey will lay from thirty to forty eggs before offering to sit. The eggs first laid should be set under hens. When the turkey has laid fifteen to twenty eggs and the danger of chilly nights is past, the eggs may be left in the nest as laid, and when the turkey gets ready she will go to work and hatch every one of them. If she concludes to sit before she has a nest full of eggs, fill it up with some of those that you have taken from her. A good-sized turkey will cover twenty eggs. It is a good plan to raise a few chickens with each brood, for when chickens and turkeys are raised together the turkeys are less inclined to wander when young, are tamer, and when weaned will learn to come home at night with their foster brothers and sisters. And, besides, when turkeys and chickens are raised together, the grown turkeys seldom fight chickens.

Don't set turkey eggs too early; as a general thing it is not advisable to have them hatch before the grass is well started. When the turkey hen sits in her own nest out of doors, let her alone. Some turkey raisers recommend taking the sitting turkey from her nest every day for feed and water, but we don't believe in it. Turkeys are close sitters, but they are not bent on starving themselves to death, and if left to act their own pleasure, they will usually come off every other day, and if they are reasonably tame, they will come around the buildings for food. When possible set two or three turkeys at one time; then, when they hatch, give all the young to one hen and the others will lay again. These late hatched turkeys will make fine birds for the late winter market.

When the turkey eggs are set under hens, follow the same directions that have already been given for preparing nests for sitting hens.

When the young turkeys are first hatched let them severely alone for the first twenty-four hours; they do not need food before the expiration of that time, and, as they are delicate at first, handling injures them; in fact, a good many are killed outright by much handling while they are very young. When they are twenty-four hours old the turkeys will

be quite strong on their feet, and with the mother should be removed to a coop, which should be clean and dry, and have a board floor covered with sand or gravel.

The first food for young turkeys should be the same as for young chickens; and for the first two weeks feed nothing else. The third week commence feeding cooked corn-meal. Do not give a full feed of meal at first, but add a little more each day until, at four and five weeks, they may be fed entirely on corn-meal, cooked potatoes, and about any cooked food that one would give to chickens of the same age. A very little cooked meat may be mixed with the food once each day until they are big enough to forage for fresh meat; but when plenty of sour milk can be had, the meat is not necessary. Onion tops and lettuce chopped fine and mixed with the food is greatly relished by young turkeys, and is very beneficial dining the first few weeks. Never feed any raw meal to young turkeys; it should always be cooked for the first ten or twelve weeks. Feeding young turkeys raw meal, feeding meal too soon, and feeding grain before they are able to digest it will kill about one half of the number hatched.

Feed young turkeys often, five or six times a day, until they are three months old. If you expect fine, large birds for Thanksgiving you must keep them growing right straight along; full feed for the first three months will work a decided difference in the weight of the bird when market day comes. When they are three months old feed them cracked corn, wheat, oats, wheat screenings, etc, but no whole corn until cold weather. After the third month turkeys will, if insect food be abundant, pick up a good deal of their living, and so long as the insects hold out will thrive on two meals a day.

Young turkeys must be kept dry and comfortable during the first ten or twelve weeks of their lives, or until they are fully feathered and have thrown out the red on their heads. Exposure to cold and wet, tramping about in the grass before the dew is off, and damp, filthy coops, will thin out a flock of young turkeys with alarming rapidity. To keep the young turkeys out of the wet grass use the safety coops and runs, or else make a pen in front of the coop by placing wide boards on edge and fastening in position. The boards should be from fifteen to eighteen inches wide, and for a dozen young turkeys the pen should enclose some fifteen square feet. For a few days after the poults are hatched, whether you raise them with a hen mother or a turkey mother, they must be confined to this coop and pen; then if all appear strong and well, and the weather favorable, open the pen and give the young turkeys liberty after the sun has completely dried the dew off the grass.

Should a sudden shower come up while your young turkeys are out in the fields, you must turn out and drive them to the coops. If any are chilled take them to the house, dry and warm them thoroughly, give them a good feed with plenty of ginger or red pepper in it, and then return to the mother hen. A good way to revive chilled turkeys is to dip them, all except the heads, in quite warm water, and hold them there until they show signs of life; then wrap them up, and keep in a warm place in the house until they are thoroughly warm and dry.

See that your turkeys come home every night. A hen mother will bring her brood home at night-fall, but for the first few nights the turkey mother must be hunted up and driven home, else she will squat down wherever night happens to overtake her, and get up in the morn-

ing and drag her brood around through the wet grass long before you think of getting out of bed. After you have driven her home a few nights she will probably come without any urging, especially if you always give her a good meal after she gets into the pen.

After they are fully feathered and have thrown out the red on their heads, which usually occurs at about three months, young turkeys are quite hardy, and may be allowed unlimited range at all times.

To fatten turkeys give them their accustomed range and all the cooked corn meal and potatoes they will eat up clean twice a day; plenty of grain at night, and milk to drink at all times. Mix a little pulverized charcoal in the food once a day. Three weeks of this feeding, and your turkeys will be in the best possible condition for the table; that is, if they have been growing and in good condition from the start. Remember that no amount of stuffing for a few weeks just before killing, will make a prime, extra-large, table or market bird out of a turkey that has been starved and stunted from the beginning.

DUCKS.

Ducks may be profitably kept on any farm that has a pond, swamp, or stream of running water within its limits, and is within reach of a city market; but the farmer who has not the advantage of a city market, can hardly make it pay to keep ducks unless he wants the eggs, meat and feathers for home use, or can sell the eggs for fancy prices. In large cities ducks' eggs will bring extra prices just before Easter; but at country stores "an egg is an egg", and ducks' eggs that weigh from three to three and one-half ounces each will bring no more per dozen than hens' eggs that weigh two ounces each. City dealers will pay from twenty-five to thirty-five cents a pound for prime live duck feathers, country merchants and peddlers about one-third as much. Prime young ducks will command paying prices in most city markets; in remote country places it is difficult to sell them at any price.

Ducks can be raised with only plenty of water to drink; but after all, they are water fowls, and do best when they have access to a pond or stream, for, aside from the enjoyment that they doubtless derive from paddling about in the water, they pick up a great deal of food about such places, and it is the very kind of food that suits them best. The Pekins, Rouens and Aylesburys are the leading varieties.

The Pekins (see Fig. 3) are pure white, or creamy white, with yellow bills and orange-colored legs and feet. They are easy to raise, hardy, great layers of large, pure white eggs, and excellent market birds. Full-grown Pekins will weigh, when fattened for market, from sixteen to twenty pounds a pair.

The Rouen Ducks (see Fig. 4) are marked almost exactly like the wild Mallards; in fact they are the wild Mallards domesticated and improved. In size and useful qualities they rank next to the Pekins.

The Aylesburys do not often grow so large as the Pekins, but in other respects they rank about the same.

Concerning the Black Cayugas, a variety not so well known as those already mentioned, the "Complete Poultry Book" has the following: "This fine breed is American, and is supposed to have originated in the neighborhood of Cayuga Lake, New York, by a cross between the wild black or Buenos Ayres duck and the wild Mallard. The markings of the Cayuga duck are Black throughout, except a narrow white collar around

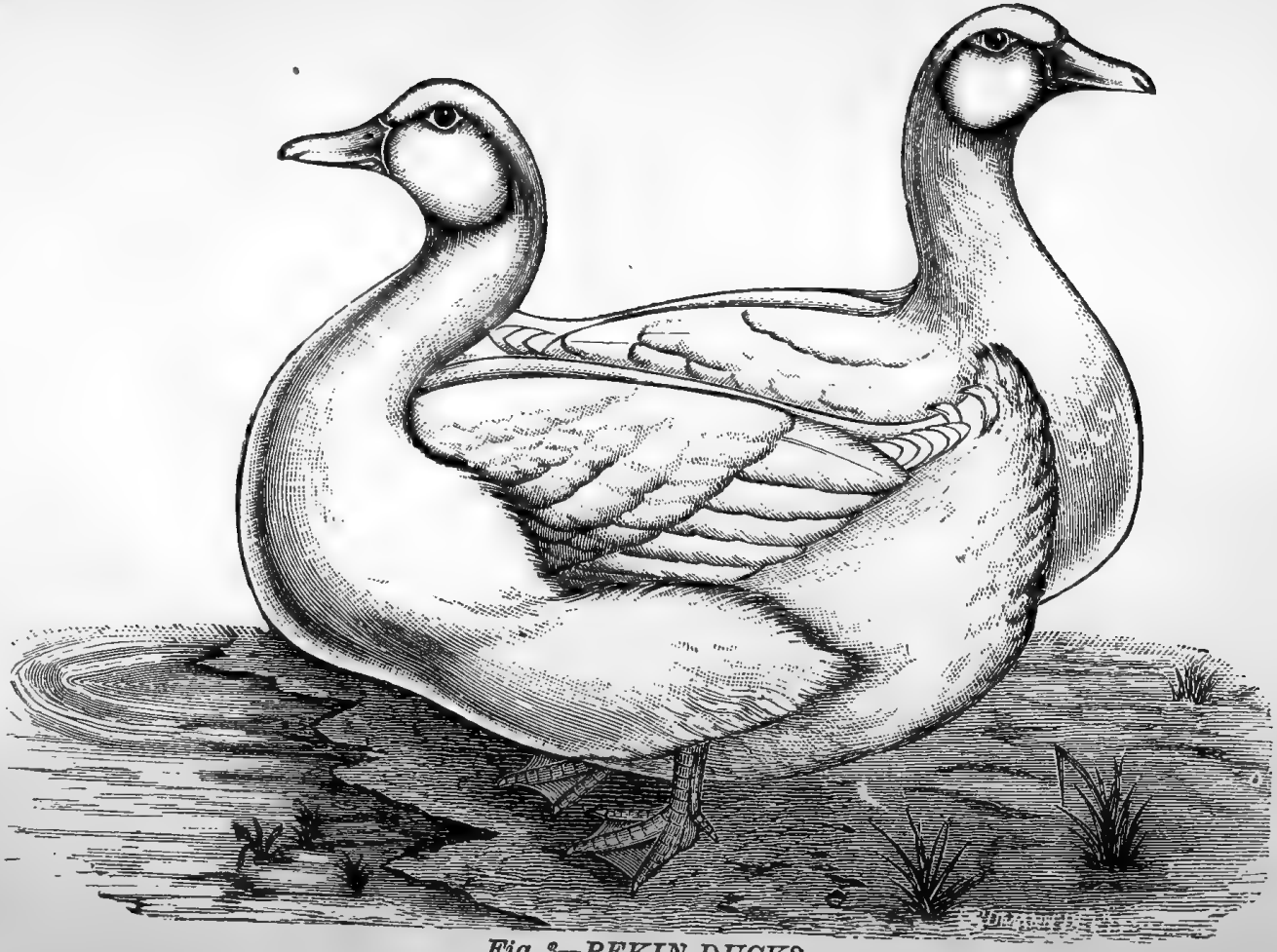


Fig. 3—PEKIN DUCKS.

the neck and white flecks on the breast, which latter tend to increase with age and are avoided by breeders as much as possible. Both ducks and drakes show a greenish tinge about the head. These Cayugas are very hardy; nearly as large as the Rouens, good layers and easily fattened. They are very quiet in thesr habits and a fence a foot high will turn them. They are good sitters but careless mothers, hens being for these, as for other ducklings, the best mothers."

There are two varieties of Muscovy ducks,—the White and the Colored. The Colored are black mixed with white. Young Muscovy ducks are excellent table birds, but their flesh is not so desirable as they grow older. Drakes of this variety are quarelsome, and cannot be kept

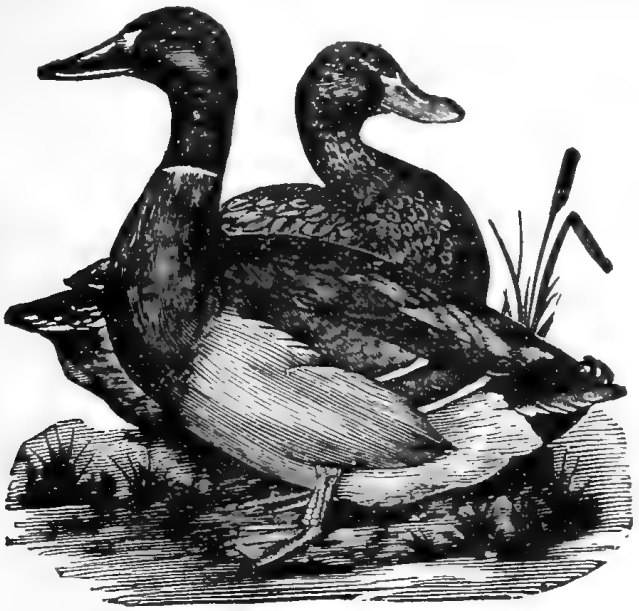


Fig. 4—Rouen Ducks.

with chickens and turkeys. Muscovies are great flyers, and cannot be fenced in like the Pekins, Rouens and Cayugas. Muscovy drakes weigh from ten to eleven pounds; ducks from five to seven.

A flock of ducks around the door-yard or the barn-yard is an unmitigated nuisance, and for that reason a piece of land around the stream or pond should be set apart for their use, and they should be confined to its limits. Where the fence crosses a stream put it in water gates. It is said that ducks will endure the severe weather of our coldest winters without shelter, but it is certainly not good economy to keep them that way, and the fact that they always seek shelter during driving storms of sleet and snow, and in extremely cold weather, convinces me that they need it. Upon our farm there is a long, low building, a few rods from the water, and I find that in winter and during the cold rains in early spring and late in fall the ducks spend a good deal of time there. The building or shed is but five feet high in front and slopes down to within a foot of the ground at the back. It was built of refuse lumber; has a board roof; three windows, each containing six panes of seven by nine glass in the south side; no floor, but every fall a few loads of dry gravel are put in, which keeps it free from filth. Under each window there is an opening for the ducks and along the rear there are nests.

Ducks are very much inclined to lay around anywhere, and a little management is necessary in order to secure the eggs. The best way is to shut them up at night during the laying season. Ducks always lay at night, or very early in the morning, so the eggs can be collected and the ducks fed and turned out by sunrise. In front of our duck house there is a good-sized yard, and as they are always fed in that yard they come regularly at sundown for their supper, when they are shut in for the night.

A trough of water should always be kept in the pen or yard where the ducks are shut up at night, unless the weather is freezing cold, and in that case they should be supplied with drink when given their supper. Ducks are often killed by giving them a hearty supper without drink, and then shutting them up all night where they can not get at water, and when not killed outright there is no doubt but that they suffer greatly from thirst.

Ducks generally make poor mothers, and as they lay a long time before offering to sit, it is necessary to set the eggs under hens. The directions that have been given for the management of turkeys' eggs during incubation will answer equally well for ducks' eggs. Ducks' eggs usually hatch well. Ducklings should not be hatched too early; those hatched in April and May will grow to a good size for the early fall market, and those hatched later will make fine birds for the winter market. Until they are fully feathered ducklings are liable to die of chills and damp, caused by exposure to cold and wet, as young turkeys, and for this reason they must be kept out of the dew and rain, and away from ponds and streams until they are some six weeks old.

As soon as the ducklings are well out of the shell, whether the mother be a hen or duck, coop them up in a coop with a pen like the one I have already described for turkeys. The ducklings cannot climb over the sides of this pen, and should be confined to it for about a week. Water that has had the chill taken off may be supplied in shallow pans, and the ducklings will dabble around in it and enjoy it. Have your duck coops as far as convenient from the stream or pond, and they must be moved at least three times a week to fresh ground. After the ducklings are a week old, if they had a hen mother, the pen may be opened on pleasant days after the dew is off the grass, and the mother and her brood allowed liberty to wander around in search of food. By the time they are six weeks old their under feathers will be well out and they may be allowed unlimited range.

Ducklings are great eaters, and will eat almost anything in the shape of food. Feed cooked food, with plenty of green food until they are old enough to give free range. Almost any kind of food that you would give chicks and young turkeys is good for ducklings. Until they take to the pond or stream, unless insect forage is plenty, feed a little cooked meat. Feed often, but never give all they can possibly swallow; sometimes ducklings will eat until they kill themselves. After they take to the water the ducklings will pick up a large amount of the food that suits them best, and for this reason ducks are most economically raised in the neighborhood of ponds, streams, wet marshes, or near the sea.

To get fine, large ducks, keep them growing from the beginning, and for three weeks before sending to market feed extra rations of cooked potatoes and corn-meal, with whole corn at night. Ducks that are to be kept over for breeding stock should be fed through the winter on grain,

with an occasional meal of green food. Keep the best for breeding stock, allow one drake for every three ducks.

In regard to picking live ducks, the following directions from *The Prairie Farmer* will be found useful. "The proper time for picking ducks may be ascertained by catching two or three out of your flock and pulling out a few feathers here and there; if they pull hard and the quills are filled with bloody fluid, the feathers are not 'ripe,' and must be left a while longer; but if they come out easily, and the quills are clear, the feathers are called 'ripe,' and the birds should be picked at once, or they will lose the greater part of their feathers. To pick a duck before the feathers are ripe is to injure the fowl very much. You will find a bunch of long, rather coarse feathers under each wing; do not pluck them, they support the wings. When picking, take but few feathers at a time between the thumb and forefinger, and give a short, quick jerk downward; with a little practice you will soon get the 'knack' of picking easily and rapidly. Before commencing tie the duck's legs together, not with a cord that may cut into the flesh and lame the bird, but with a tolerably wide strip of cloth; and if the ducks are inclined to pinch with their bills, draw an old cotton stocking over the head; but with the exception now and then of a vicious old drake, our Pekins are as tame as kittens, so we never bother ourselves or the ducks with the 'night-caps.' Handle laying ducks carefully, and sitting ducks and ducks that you intend to set soon should not be picked. When handling young ducks do not lift or carry them by the legs with the head hanging downwards; their bodies are heavy, bones tender and easily broken, or joints may be dislocated. In hot weather a great deal of the down may be taken from the drakes, but the down never should be taken in cold weather. Ducks can usually be picked from four to six times a year."

GEESE.

No fowls can be so cheaply raised as geese, and farmers who have a pasture containing a pond or stream of water will find the rearing of geese very profitable. There is always a good demand, and at good prices too, for live geese feathers, and prime geese, dressed or alive, will bring paying prices in any city market throughout the late fall, winter and early spring months. In New York extra market geese can be sold nearly the year round. The leading varieties of thoroughbred geese are the Toulouse, Embden, or Bremen, as they are sometimes called, and the China.

The Toulouse geese are the largest in the world, weighing, when fully matured at three years of age, from thirty to forty pounds a pair. Goslings of this variety will weigh from four to six pounds apiece when four weeks old. In color the Toulouse are dark gray on the back, shading off to light gray, and almost white on the under part of the body. They have fine feathers; are not so noisy as common geese; goslings easy to raise, and are considered stronger than common goslings. Fig. 5 is a fine illustration of a pair of Toulouse geese.

The Embden are not quite so large as the Toulouse, but many consider the flesh superior; and the pure white feathers will, in some markets, bring a higher price than those of colored geese. The Embdens are quite hardy, and the goslings are as easy to raise as those of the Toulouse variety.

There are two varieties of the China geese—the Brown and the White—but they are really the same thing, except in color of their plumage.

The China geese are not so large as the Toulouse and the Embden, but they are better layers, while their reputation for early maturity, hardiness, and quality of feathers, is quite up to that of the larger breeds.

The very finest market geese are produced from a cross between the Toulouse and the Embden. These cross-bred birds grow larger than either of the thoroughbreds, and their flesh is remarkably fine. All the geese should be pure Embden and the gander a pure Toulouse. These cross-bred geese should never be kept for future breeders, for they produce young of inferior size and quality.

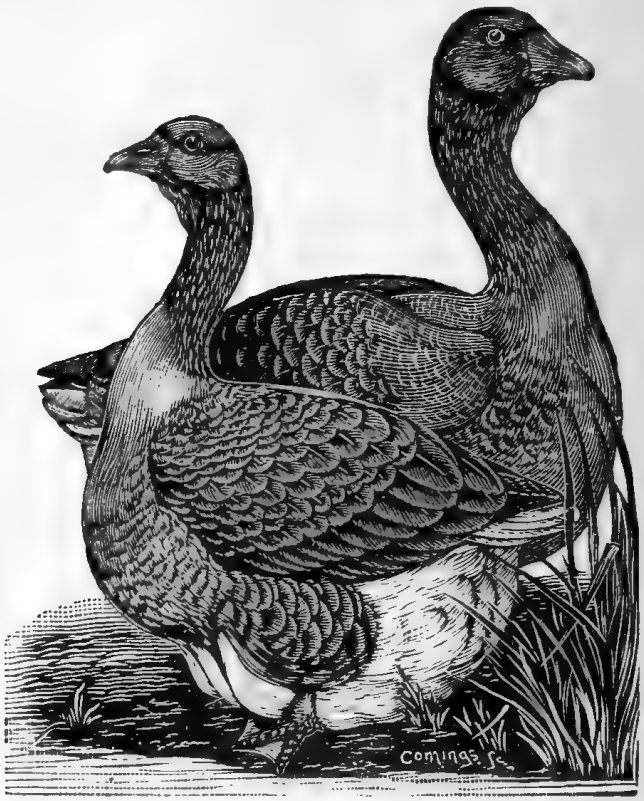


Fig. 5—Toulouse Geese.

Three geese can be mated to one gander, and the same breeding stock kept up for several years. Keep breeding geese thin in flesh, they will lay better and their eggs will hatch better than when kept on a full feed of grain. The best breeders turn out to pasture as soon as the snow is gone, and after the grass is well up feed nothing. After the geese are turned out to pasture they can get along without shelter, but it is a good plan to have a shed somewhere near the water.

Geese commence laying from the latter part of February to the middle of March, and lay from twenty to thirty eggs before offering to sit. The time for hatching goslings is from the middle of April to June. The eggs should be set under hens, especially if you keep the Toulouse. The Embden and China geese sit well and make good mothers. When set under hens goose eggs need the same care during incubation as duck and turkey eggs, but when geese sit, let them alone.

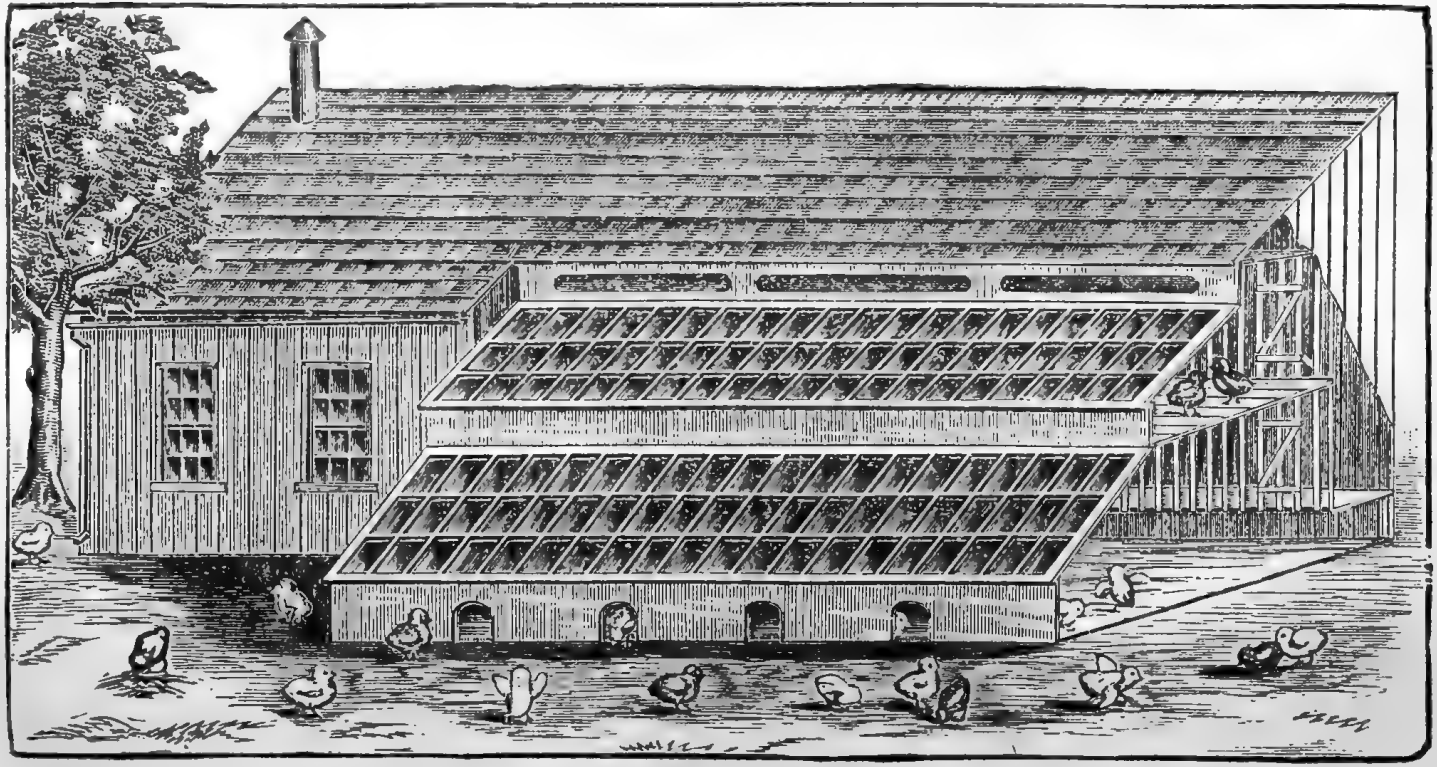
When the goslings are out they must have a warm, dry coop, and like young ducks and turkeys they must be sheltered from storms and kept

out of the dew for the first four or five weeks. Give goslings the same food recommended for ducklings. When five or six weeks old they may be turned out to pasture, and the rations gradually reduced to one meal a day. If on good pasture they will grow on grass alone after the first six or seven weeks; but if extra large geese are desired it will pay to give scalded meal or boiled turnips mixed with bran and meal once a day.

Concerning the fattening of geese for market a writer in the *Poultry World* says:

"Geese may be fattened for market at two different periods of their lives, either at the age of six or eight weeks, when they are termed *green geese*, and are highly esteemed, or when they have attained their full growth. The method is very nearly the same, plenty of wholesome food and limited space for exercise, as the more quiet they remain the faster they will fatten. Since all geese are gregarious and sociable, if only a part of the flock are to be fattened they had best be fastened up where they will not see their accustomed companions, as, should they feel lonely, they are apt to sulk and refuse food."

Most geese are sold in winter, and these should be fed (after the supply of grass is cut off by frost), with boiled corn, cooked potatoes, boiled oats and barley meal, with rowen soaked in warm water and sprinkled with meal. Of course they must at all times have plenty of water to drink. The *Poultry World* writer, before quoted from, says that "care must be taken to seize just the right time for killing your fatted geese, as when they have reached a certain limit they begin to fall off". Geese can be picked two or three times during the season, according to the weather. Full-grown Toulouse geese will yield nearly half a pound of feathers at a picking. To pick geese, follow the directions for picking ducks, given on another page.



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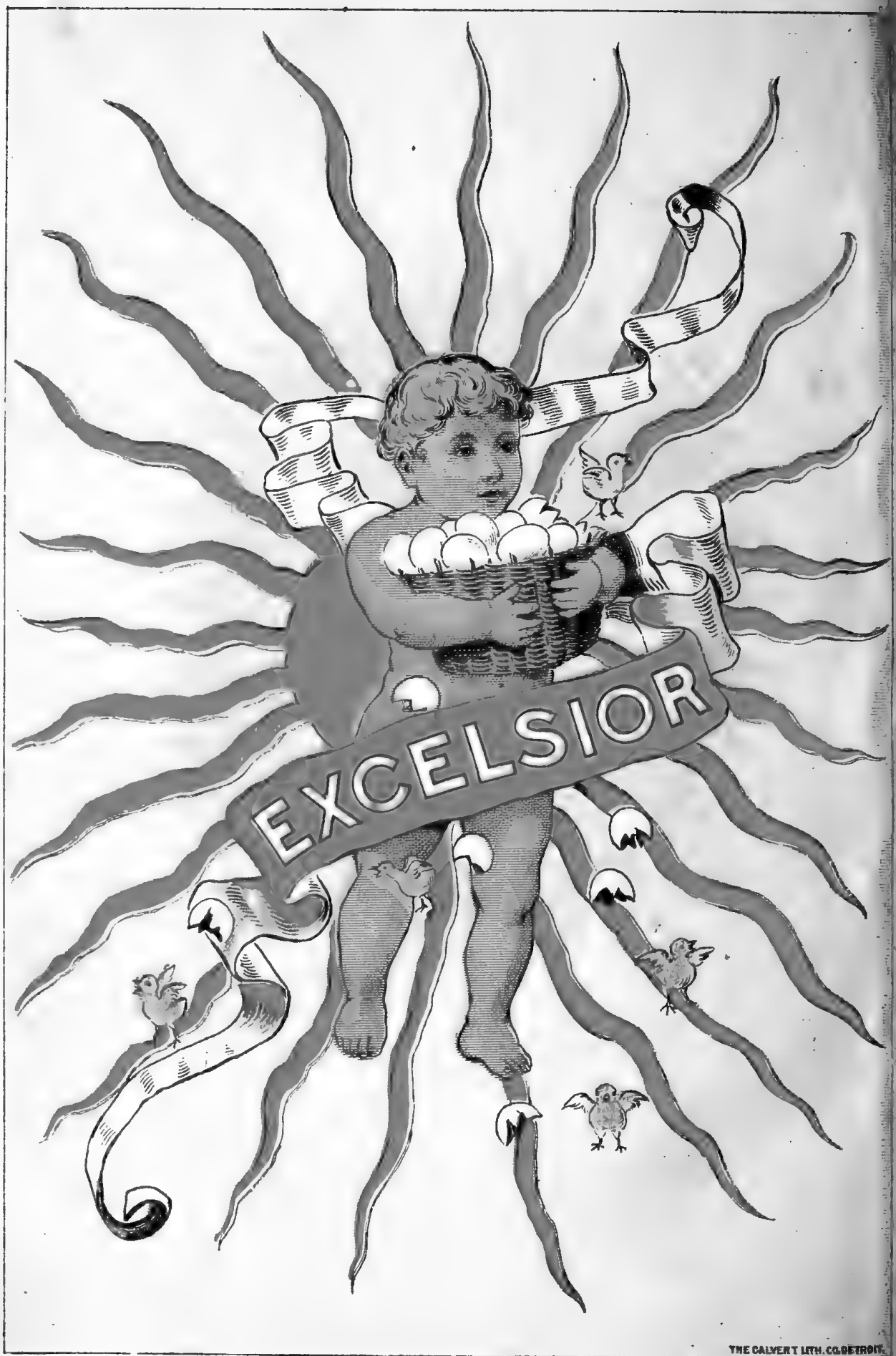
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