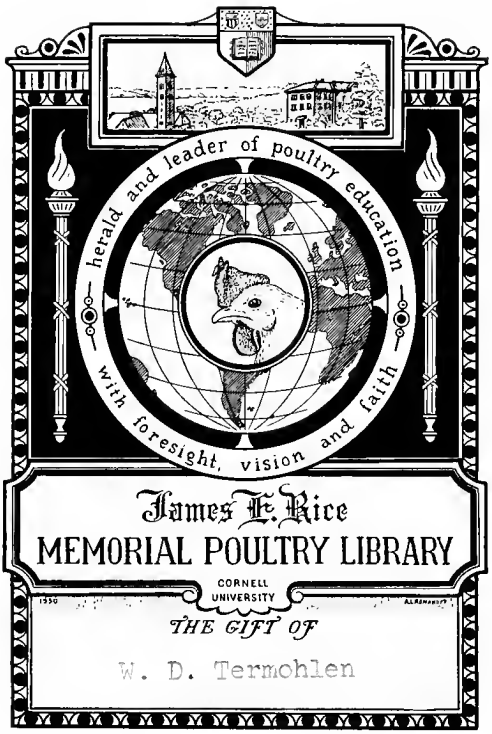
FREE SERVICE POULTRY GUIDE

H.G.SPANGLER.



H. G. SPANGLER

FREE SERVICE POULTRY GUIDE

VOLUME ONE

A Guide for Brooding, Feeding and Rearing Chicks Naturally and Artificially, with Chapters on Brooding Systems and Houses, Care and Feeding of Growing Stock, Broilers and Fryers, Roasters and Capons, Foods and Feeding

EXACTLY

WHAT TO DO, WHEN TO DO IT
HOW TO DO IT

By H. G. SPANGLER

ILLUSTRATED

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NOTICE

All purchasers of this book are entitled to free letter service on any subject pertaining to poultry, for their own personal use and benefit only, for a period of one year from the date of sale as stamped hereon, provided that they enclose with each inquiry or question an addressed stamped envelope for the reply. Each inquiry or question should be numbered and written plainly, to save time and avoid misunderstandings.

INTRODUCTORY

THE purpose of this book is to furnish reliable and practical information, general directions and advice to those interested in poultry who have not had years of practical experience, and are not getting maximum results. The original plan, combined with the free service to readers of this book, is an achievement that had never before been undertaken by any one person. Although believing that this book will serve its purpose better than any other book published, yet the writer is of the opinion that there is not nor ever can be any book or books published that will meet the needs of or furnish practical information for all conditions and circumstances on all matters pertaining to poultry, or more explicitly, to meet the individual need of every case; therefore the writer believes that if any one is capable and wishes to take up the avocation of being a real help — furnishing information and advice that will produce results — he must be able and willing to impart to and meet the needs of each individual case. The only possible, logical and practical way of doing this is to furnish a general guide book, and afterward furnish personal service to each individual.

The material contained in this book is not gathered from books, poultry journals or persons, but is the practical experience of the writer, who has spent nearly his whole life in the poultry business.

There are many poultry books and journals published that are helpful and give valuable assistance to the poultryman, fancier and beginner. Every one in the business and those who contemplate entering

the business should read all the reliable poultry literature available. However, there is poultry literature which the beginner and others would find very misleading, especially that written by those gifted with "imagining power" and ability to write an "entertaining article," whose knowledge of the practical side of the poultry business is very much limited; also the person who gathers his material from outside sources, not knowing whether it is reliable and trustworthy advice to give to others to follow. There are too many people who are willing and anxious to give advice on matters pertaining to poultry, who themselves know little or nothing of the actual care and feeding of poultry and who have never been actively engaged in the business. The real fact in the case is this: The really successful poultryman, as a rule, does not try to help others interested in the business, but is contented with his own good results of success.

Our State colleges and experiment stations are doing a great deal of good work toward helping the beginner and others interested in poultry. The information obtained from these sources, either at the college station or through literature sent out, is trustworthy advice, and no one interested in poultry should fail to keep in touch with the work carried on at these places. We all should at every opportunity co-operate with our State college and experiment station work.

The object of this book and free service is not to condemn any one's ideas, work or advice, but rather to be a real help to those interested in poultry. Poultrymen, or the would-be fanciers, do not want to spend their valuable time in reading a whole lot of matter from the hand of a poet or skilled writer, which would be of no real use to them or any one else

as far as the poultry business is concerned; so the writer has omitted all matter of no interest to those looking for poultry information and advice and has not tried to have this book read like a novel, but rather has condensed the material as much as possible, covering the different subjects in form so that any one can readily, easily and safely use any part as a guide.

H. G. SPANGLER.

GREENWOOD, MASS., January, 1914.

CHAPTER I

THE POSSIBILITIES IN POULTRY FARMING

1. THE POULTRY INDUSTRY.— The poultry business in the United States has increased enormously in the past ten years, to the extent that it is next to the largest of any industry, owing to the fact that people generally are realizing more and more every day that poultry and eggs are the most wholesome and beneficial food to be obtained. The demand for prime poultry and fresh eggs by far exceeds the supply.

In 1899 American hens laid 1,293,662,000 dozen eggs, which was seventeen dozens for every man, woman and child in the country. Ten years later, in 1909, they produced 17.3 dozen per capita, while in the year 1913 it is estimated they will produce 17.7 dozens per capita.

Statistics show that in 1899 "average best price" eggs sold at wholesale in New York at thirty-six cents; in 1904 at forty-seven cents; in 1908 at fifty-five cents; in November, 1912, at sixty cents; in August, 1913, at fifty-five cents, and in Boston, November, 1913, at sixty-five cents.

From the above statistics it will be seen that the production of eggs in the United States has increased steadily during the past fourteen years. The price of eggs also has moved steadily upward. The price and production of market poultry has increased proportionately.

The possibilities in the poultry business are unlimited to a real "live wire." No one need worry that the business of producing eggs and market poultry will ever be overdone, even though we do hear daily of many

new would-be fanciers. The population of the country is increasing every day, and not all who start in poultry make a success.

The brooding and rearing of chicks is without a doubt the most difficult part of the poultry business, the part in which so many fail. The poultryman's profits depend largely upon his ability and success in brooding and rearing the chicks. This branch of the business is really a fine art, and one that requires some study and practical experience, as success is attained only by the use of correct methods. The outcome of this branch of the business is the one that determines to a large extent the poultryman's gain or loss in balancing up the year's business. The poultryman who can raise ninety or ninety-five per cent of his chicks, and grow them right, is the one who can make a success of the business, and is the one who will have large figures on the right side of his balance sheet at the end of a year's work. If one has not the necessary knowledge and experience there are two ways by which it can be acquired: First, by years of practical experience. Second, by following advice and instructions from a reliable source.

2. Causes of Failure.— Why do so many fail to meet with success in the poultry business, or quit after a short trial? This is a question that is asked by many every day. The reasons are many, but generally all cases can be summed up as follows: Lack of interest, lack of poultry knowledge, lack of good judgment, poor business management, and sometimes insufficient funds.

There are four kinds of poultry fanciers: First, one who takes up the business for a livelihood and depends on the results as the sole means of support. Second, one who takes up the business as a side line and wants it to pay a profit, or at least to be self-supporting. Third,

one who takes up the work as a speculation or business proposition. Fourth, one who follows the business as a hobby or pastime.

Many have the impression that the poultry business does not require much skill, knowledge or business management, and all that one has to do is to provide a shelter, food and water for the birds, and the desired results will be forthcoming. Our city friends particularly, who have had no experience in farming pursuits, have a vague idea of the poultry business. Very often a well-to-do city business man will purchase a farm in the country and establish a poultry plant, investing five, ten or more thousand dollars, and equipping the plant with costly houses, utensils, and fine stock; after doing this, he expects the plant to pay a profit, or at least to be self-supporting, with a thirty to fifty-dollar per month man as manager, who, forty-nine cases out of fifty, is not a practical, experienced poultryman. One can hardly believe that a city business man, who knows the requirements of a successful enterprise, would intrust the investment of such a large sum in the hands of a cheap, inexperienced man, much less to expect results. A practical, experienced, and successful poultryman's services are in demand and are worth a good salary. There are many successful poultrymen to be had, but rather than work for a low salary they take up other lines of business, or enter the poultry business for themselves. Get a practical, trustworthy poultryman and give him full control; then, and only then, are results to be had.

The one who keeps only a few chickens or pullets to supply the table with fresh eggs and an occasional roaster, will find that in order to do this the birds must receive proper shelter, food and attention, which is not in the least difficult. It does not require any more time

to do a thing right than it does to do it in the wrong way; it may require a little more capital for houses, equipment, food and good stock when conducting the enterprise in the right way, but the item of the extra expense will be small, compared to the results that can be obtained from the use of proper methods.

3. PRECAUTIONS. — The business principles of the poultry business are not unlike principles of any other business, and must be conducted along the same lines as any other successful enterprise. Any one in the business, or any one who contemplates entering the field expecting results, or who are or will be dependent upon the results, should have definite plans in mind, and should be reasonably sure that they are starting right. Take plenty of time to think the proposition over; do not go at it in a blind sort of way. Many have gone into the poultry business and invested all their capital and time, and at the end of a year or two have found that they did not start right and did not use good business methods; consequently they are forced to quit, being in debt and with no resources to start again. Then we hear of another "poultry plant for sale." Then again, some have plenty of capital and quit after one or more years of trial, and why? Because the desired results did not materialize, due to lack of common-sense business methods. When starting in the poultry business, do not invest all available capital at the start. Save some, for it may be needed before there is any money coming in. Do not try to start and finish a large plant in one year, unless the poultry man is a practical, experienced man with plenty of capital, and knows exactly what the outcome will be. Erect substantial buildings; provide an up-to-date equipment; and, last but not least, get good foundation stock. It is

far better to get a few of the best than to have a quantity of ordinary stock.

The poultryman should investigate the demands of the market which is to consume his output. The poultry man's product for the market should be and appear in the best possible condition. A good reward is in store for the poultryman who conducts the business in the right way.

CHAPTER II

BROODING, FEEDING AND REARING CHICKS NATURALLY

4. General Information. — The skill and science in brooding is somewhat eliminated when chicks are brooded by the natural method; however, the more knowledge and experience one has in this branch, the greater will be the results.

The natural method is used mostly by the farmer and the fancier who keeps only a small flock and raises enough chickens for his own use, with occasionally a few to sell; the large breeder also sometimes uses the natural method to rear some choice birds or breeders, though, generally speaking, even the small breeder is now using artificial means of brooding and rearing chicks.

A large number of chicks can be brooded and reared in one season by the natural method; and the person who wants to get a start in the poultry business on capital that is limited — who needs all available funds for purchasing feed — can get well started in one or two seasons of diligent work by using this method, and can have considerable market poultry to sell, besides a large flock of layers. If rightly managed the revenue above expenses will be so large that a good up-to-date brooding equipment can be purchased for brooding and rearing chicks the following season.

5. Care of the Mother Hen. — If the chicks have been hatched by the natural method, the chicks and hen should be moved to the brood coop when one day old. The number of chicks that one hen will properly brood

depends on her size; a medium-sized hen will brood from twelve to fifteen, while a large hen will brood from fifteen to twenty. If two or more hens are hatching at the same time, the chicks can be given to the hens that are the largest and appear to be the best mothers. When two hens are hatching at the same time, the chicks should be given to one, unless the hatches are large and neither hen is large enough to care for the whole number. Giving the chicks of three hens to two is a good method.

If the chicks have been incubated, they should be given to the hen at night in the nest where she has been sitting for at least ten days, preferably fourteen to sixteen days; then the following morning the hen and chicks should be moved to the brood coop. In moving the hen to the brood coop she should be carefully handled, preferably in a covered box or basket. If the hen is well excited on reaching the new quarters she may change her mind, and, instead of being careful, will tread on the chicks. It is well to put the chicks in the same covered box or basket with the hen, instead of conveying them separately.

The hen should be thoroughly dusted with a good lice powder three or four days before the eggs are to hatch, or if the chicks are not hatched by the hen that is to brood them, she should be treated the same way three or four days before the chicks are given to her, and should also receive the same treatment once each week thereafter. Another good treatment for lice on hens is to spray the feathers and fluff lightly on the under side of the body, wings and vent with kerosene before putting her in the brood coop, and once each week thereafter. Kerosene will do no harm to either hen or chicks, if used carefully and moderately. It is important that the hen be kept free from lice at all times.

The mother hen should be fed equal parts of corn and

wheat (in a food cup fastened on the side of the coop, six or eight inches from the floor), and an occasional feeding of animal food and green food. She should also have grit and free access to fresh, clean water at all times. The hen would probably exist if not so well fed and cared for. If the hen is expected to properly brood her chicks, she must receive proper attention.

The hen should be confined to the coop and not let out to run with the chicks. The chicks will grow faster

A box coop and wire yard for baby chicks.

and develop into larger and better birds if allowed to guide themselves in the distance they travel from the coop, instead of being coaxed over a ten-acre field by the mother hen. This is a great mistake of many — letting the hen roam with the chicks. Do not do it! You will be surprised how much faster the chicks will grow if the hen is kept confined. If hawks, cats or other animals are liable to get the chicks when alone, and it seems necessary to allow the hen to go with the chicks

for protection, wire off a good sized run, and if there are several hens with chicks, make the wire run large enough to put in three or four coops.

Very often hens will, while brooding chicks, start laying, but will brood the chicks just the same if confined to the coop.

6. Care of the Chicks.— For detailed care of chicks see Chapter IV, which applies, with few exceptions, to chicks brooded naturally or artificially.

When chicks are brooded in cold weather a box, with two sides out and wire on one end, should be placed with open end to the coop, as a place in which to feed and water the chicks. The water should be placed near the front of the coop, so that the hen can reach it; some of the food should also be put near the coop, so the hen can reach it to teach the chicks where to find the food, otherwise she may keep them inside; when the chicks are older they will find their way outside, regardless of the hen and her coaxing to keep them inside. When chicks are brooded in warm weather, the box in connection with the coop is not needed, but instead, a small wire run should be provided for the first few days, and a board in front of the coop on which to place the food and water. It is not necessary that the food be thrown in litter when chicks are brooded by a hen and allowed to run outside, as they get all the exercise needed hunting and chasing insects.

In warm weather the chicks should be allowed to go outside from the start, using a small wire run to keep them near the coop for the first few days. In cold weather they must be confined longer to the box and coop, or put the coop inside of another house; in this case there should be litter in the box or on the floor of the house to throw the food in to induce exercise. Good judgment

should be used in letting the chicks outside in the run, according to the time of season and weather conditions. When the chicks are small, under two or three weeks old, do not allow them to stay out in the rain or run in the wet grass. In warm weather, when the chicks are two or three weeks old, take the wire run away and allow them, if possible, their liberty. They will not go far enough away to be unable to find their way back. If it is necessary to confine the chicks to a run, move the coop and run often; if this is impossible, the ground in the run should be spaded over frequently.

It is necessary that the chicks be kept free from lice at all times. If the mother hen is kept free from lice, and the coop kept clean, there will not be much danger of the chicks being bothered with lice.

7. Feeding the Chicks.— For detailed instructions on feeding chicks see Chapter V, which applies to the feeding of chicks when brooded naturally or artificially, with few exceptions.

When chicks are allowed a range where they can exercise considerably, the food should be put in feed pans or hoppers. When chicks are allowed range where they can get plenty of succulent green food, it is not necessary to supply any other, but beef scraps should be kept before them all the time, as well as grit and charcoal.

On reaching the age of seven to ten weeks, according to the time of season and weather conditions, and the chicks are fairly well feathered out, the mother hen should be put back in her former quarters or otherwise disposed of; then the pullets should be separated from the cockerels and transferred to a colony house, on range if possible, and be treated the same and have the same care as given in Chapter VII, paragraphs 45 and 46. If the cockerels have not been disposed of as broilers (see Chapter

VII, paragraphs 47 to 53, on broilers) they should be at this time large enough and in the right condition to sell as broilers. If they are to be retained for a longer period for breeding stock, roasters or capons, they should be transferred to other quarters, see Chapter IX, paragraphs 53 to 59, on roasters and capons.

8. Care of the Brood Coop. — It is absolutely necessary that the brood coop be kept dry and in a sanitary condition at all times. The coop should be thoroughly cleaned once each week, and oftener if necessary to keep it dry and free from all foul odors. Each time after cleaning, spray the coop with a good disinfectant, then put on the floor a little dry sand or coal ashes, and some cut straw or chaff.

If the coop is not a new one and has been used before, give it a thorough cleaning and spray it with a good lice paint, or a solution of carbolic acid, or paint it with thin coal tar several days before using it. This will prevent lice and mites from harboring in the crevices of the boards and will also make the work of cleaning easier afterward.

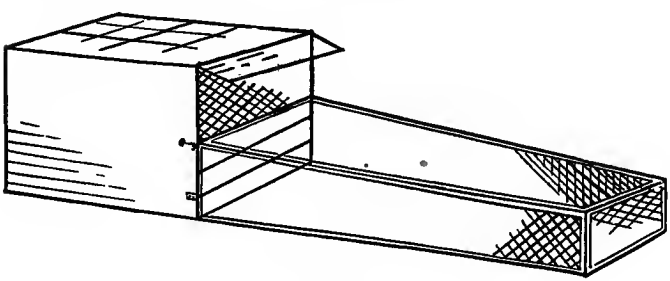
Place the coop on a dry spot and off the ground at least two inches. In hot weather, the coop should be in a shady place, if possible, where the sun will not shine on it all day long, as this would make the hen and chicks very uncomfortable, and in very hot weather would be almost unbearable.

When through using the coop for the season, do not store it away until it has had a thorough cleaning.

9. Brood Coops. — There are numerous kinds, but generally conforming to either A-shaped or box coops. The necessary things to keep in mind when making a brood coop are: To have it rain-proof, draft-proof,

rat-proof, at night, and so constructed that it can be easily cleaned and used in both cold and warm weather.

10. A Box Coop. — A brood coop for hen and chicks can be practical and not expensive. Boxes can be obtained from stores twenty-four by thirty-six inches, thirty-six by thirty-six inches and larger for ten to twenty-five cents each. First, remove the boards from that part of the box that is selected for the roof and nail them together with cleats; hinge the roof to the box, so that it can be raised to make it convenient in cleaning, and do other things necessary inside the coop. Cover the roof,



A box coop.

back and two sides with half or one-ply roofing paper; a ten by twelve-inch board, nailed to the top front, will keep the front, and the ground in front of the coop, dry in rainy weather. Remove the upper half of the boards on the front of the coop and nail them together with cleats, making a door, hinged on one side of the coop, and use a hook and eye to fasten the other side; cover this opening on the inside with half-inch mesh poultry wire. The door to this opening is used for light and ventilation; in warm weather this door should be open; for more ventilation when needed, raise the roof one-half inch at night and more in the daytime. Make a slat door for the lower

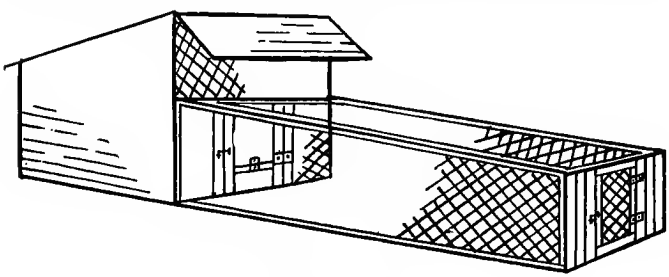
half of the front of the coop, have the slats three inches apart, which will allow the chicks room enough to go in and out.

11. A-Shaped Coop. — This style of coop is used more than any other and is a very good one; the one objection to this style coop is that when the floor is fastened permanently to the coop it is difficult to clean. This should be avoided. The floor should be hinged to the coop so it can be tipped up for cleaning. A good size is twenty-four by thirty inches floor space and twenty-six inches high; tongue and grooved boards well painted, or ordinary boards covered with roofing paper make a good roof; board up the rear of the coop with matched boards, or plain boards covered with roofing paper; put a ten inch V-shaped board in the top of the front; put slats over the remainder of the front three inches apart; make a cover of boards to fit entirely over the slat front and hinge it to the floor; in the daytime this can be used as a place on which to put the food and water; bore several half-inch holes in this door, which will serve for ventilation at night when this door is closed over the front of the coop. For more ventilation in warm weather, bore a few half-inch holes near the top of the rear of the coop; these holes can be closed at any time by using a piece of board large enough to cover the holes, held in place by a screw and a nail in the opposite side of the board.

This same style of coop can be covered with galvanized iron instead of boards; make a frame of two by two-inch material; cover the roof and rear of the coop with the sheet iron and proceed as outlined before; this makes a broad coop that is durable, sanitary and warm.

12. Wire Chick Run. — When it is necessary to use a permanent chick run, a convenient and serviceable

one can be made as follows: Make two frames six or more feet long by twenty inches high, and one end frame the width of the coop; then make a top frame the length of the side frames and the width of the end frame; cover these four frames with one-inch mesh poultry wire; use hooks and eyes to hold the frames together, except the top frame, which should be hinged to one of the side frames to serve as an opening to the run; also use two hooks and eyes to fasten the open end of the run to the coop; tack white oiled sheeting on two-thirds of the



Slant roof coop.

top frame on the run; this will serve two purposes — it will provide shade in sunny weather and shelter in stormy weather.

When only a temporary run is needed, stakes can be driven in the ground and wire stretched around the outside; wooden pegs should be driven on a slant over the bottom strand of wire into the ground, to hold the wire down snug to the ground; two staples should be driven in each stake over the top and bottom strand of wire, or the wire can be fastened permanently to good stakes; then when the run is moved, or no longer needed, the wire and stakes can be rolled up together.

CHAPTER III

BROODING CHICKS ARTIFICIALLY

13. Some Facts.— The skill in successfully brooding chicks by artificial means can be easily acquired by almost any one who will give the matter careful study and diligent work, combined with good judgment. Study your conditions carefully, take time to think them over. Do things at the right time. The first few days of a chick's life are the most important ones, and the chick's future depends greatly on the care and attention it receives at this time. Proper care, proper temperature of the hover, proper food and water are indispensable. A great many have the idea that chicks do not need expensive food, and that the cheapest food will bring as good results as any other. The most expensive foods may not be necessary, but the very best of certain kinds of foods are very essential. When buying grain, ground feed and beef scraps for chicks, always get the best obtainable, for they will be the cheapest in the end.

If one is going to be content with giving the chicks "any old thing," and let them care for themselves, do not expect many of them to live, and of those that do survive, do not expect them to become producers. The readers of this chapter are doubtless looking for information and directions on how to successfully brood and rear chicks, and if this is true, it is necessary that the advice and directions given be followed as closely as possible, if the desired results are to be obtained.

Use a good brooding equipment; the best will be the cheapest in the end. Do not try to economize by using

a cheap brooder or hover, for this and improper food, with lack of attention and interest in the work, is the cause of the majority of failures.

There is no reason for any one not being able to rear a large percentage of the chicks, unless the chicks are weaklings or have the diarrhœa germ in their bodies before reaching the brooder. If the chicks are purchased outside, and have been chilled or overheated on the way, they will of course be more difficult to raise. Where the parent stock are of poor vitality, or not properly fed and cared for, or the eggs not properly incubated, all tend to lessen the success of brooding and rearing the chicks.

There are several kinds of brooder houses and outdoor brooders; also several styles of hovers, as well as several systems of brooding. The ones generally in use are: the colony house system of brooding; continuous hot water brooder house; continuous brooder house with individually heated hovers; individual outdoor brooders; and last and least, large flock system of brooding; always use the best obtainable and most suitable to your conditions. The information and directions given in the following paragraphs apply to the different systems and conditions, although only one system or condition may be cited as an example — this being done to condense the work.

14. Care of the Brooder House.— If the brooder house is not a new one and has been used before, it should have a thorough cleaning (if not cleaned after using the last time), preferably two or three weeks before using it, and should then be sprayed with a good disinfectant. If the house is a new one, or in any way seems damp, the heater should be started several days before the house is wanted for use, so as to be sure it is perfectly dry. It is necessary that the house be kept in a sanitary condition at

all times, and sprayed frequently with a good disinfectant. When through using the house, give it a thorough cleaning; do not leave it in a filthy condition until it is wanted for use again.

15. Care of the Hover and Runs.— Sand or fine gravel, as free from soil as can be had, should be provided for in advance; store a quanity of it in a shed or some place where it can be kept dry and ready for use when needed. Put one-half inch of dry sand or fine gravel on the

A husky bunch of baby chicks two weeks old.

floor of the run and one-fourth inch on the floor under the hover. Put about one inch of dry litter such as cut alfalfa, clover, hay or straw on the sand under the hover, and about two inches on the sand in the run.

The floor under the hover should be cleaned once each week or oftener if necessary, and lightly sprayed with a good disinfectant; then put about the same quantity of dry sand and litter as mentioned before on the floor.

The runs should be cleaned and new sand and litter put in once in about four weeks, in a large brooder house where the runs are of good size; where the runs are small and in individual outdoor brooders, they should be cleaned oftener, depending on the size of the run and number of chicks.

The entire apartment of the chicks should always be kept in a sanitary condition. Dampness is very detrimental to young chicks, and it is essential that the floor and litter, as well as the hover and entire quarters, be perfectly dry at all times.

CHAPTER IV

CARE OF THE CHICKS

16. REMARKS.— Young chicks need the very best of attention, care and food. Even if they are from strong, healthy parent stock and properly incubated, it does not take much improper care and food to upset their little bodies. Ninety or ninety-five per cent of the chicks can be reared into strong, healthy stock if the proper system and methods are administered precisely.

The poultryman who is brooding and rearing several thousand chicks, in order to meet with success must give the undertaking his undivided attention; that is, nothing should be neglected, and everything should be done in the right way and at the right time. When a smaller number of chicks are being reared a corresponding amount of attention and diligent work is absolutely necessary. Of course one can attempt to rear chicks with little attention and work, but how many will be reared? And those that are, what will they be worth? Practically nothing, and usually a bill of expense. To rear fine specimens of the breed and the two-hundred-egg hen or a large, plump roaster, capon or broiler, requires the best care and food possible.

The chicks should be transferred to the brooder when about thirty-six hours old. When chicks are bought and being shipped by express, the length of time before they can be put in the brooder will vary from one to three and sometimes four days, according to the distance they are travelling; in this case they should be put in the brooder when they arrive.

17. Hover Temperature.— The temperature of the hover for baby chicks the first week, when they are under the hover, should be ninety-five to ninety-seven degrees in the early part of the season, when the weather is cold, depending somewhat on the temperature of the brooder house; later in the season, when the weather is warmer, the temperature of the hover for the first week, with the chicks under the hover, should be ninety-two to ninety-five degrees. Gradually reduce the temperature about five degrees each week, until a temperature of seventy-five degrees is reached, which should be maintained until the chicks are nearly feathered out, or transferred to colony houses or other quarters. Nearly the exact time when chicks no longer need artificial heat is when they insist on roosting outside, on top, or some distance from the hover.

When brooding in January, February and March, and especially in cold climates, the temperature, with the chicks under the hover, should be about ninety-seven degrees the first week, and gradually reduced four degrees each week. Later in the season, when the weather gets warm, do not get the idea that because it is warm outside, baby chicks do not need much artificial heat. They do; and the same amount, according to their age, within two or three degrees, as in cold weather. It is absolutely necessary that an even temperature, up to standard, be maintained both day and night; do not allow the temperature to vary five or ten degrees; in fact, do not allow it to vary at all, although two or three degrees will do no particular harm for a very short time. A large part of the mortality in chicks is due to a varying temperature, either too cold or too hot. Temperature is a very important factor in brooding chicks successfully. Many

make the serious mistake of not giving this part of brooding the necessary attention.

18. Ventilation and Fresh Air.— These are two important factors, and should be carefully considered; long brooder houses should be equipped with air cylinders, made of wood or metal, metal being preferred; as the warm air of the house will affect metal quicker than wood, and cause currents of air in the cylinder. These cylinders

Baby chicks in the outside yards to a long hot water brooder house. A gate is provided at the end of each yard.

will convey the foul air from the house and should extend down to within two feet of the floor; arrangements should also be made to admit fresh air from the outside (see paragraph 37, describing the ventilating of a brooder house). It is important that the air in the house be constantly changing, foul air going out and fresh air coming in; the amount depends on weather conditions and the age of the chicks. In ventilating a brooder house, or any kind of poultry house, be cautious and avoid

drafts. A house can be well ventilated without having any drafts whatever.

The "air cylinder" is the means of conveying the foul air from the house and the "ventilator" is the means of admitting fresh air from the outside. In cold weather when the outside temperature is zero, or below, and the chicks are under four weeks old, the ventilators should be closed at night unless the house itself is warm, then they should be left open just a little. The foul air cylinders, or other means of conveying the foul air from the house, should be partly open, and in the daytime, when it is warmer outside, these should be wide open, with the ventilators partly open, depending of course on weather conditions. Later in the season, when the weather is warmer, the air cylinders should nearly always be kept open, except in the case of a high wind; the ventilators should be kept nearly open, and at times entirely open, especially when the outside temperature is about sixty or more degrees. When the outside temperature is seventy-five or more degrees. the house should be well opened up during the warm part of the day.

The directions here given are not set rules to follow. Time of season, weather conditions, age of chicks, style and condition of the brooder house, all determine to some extent the ventilation of the house both day and night. Therefore the directions given will serve as a guide, and the operator should use good judgment and vary the regulation of the ventilators according to conditions.

Do not use hovers that throw off gas or foul air from the heater or lamp inside the hover space; the fumes should be conveyed outside the house if possible. Use a self-ventilating hover that produces a constant circulation of fresh warm air.

19. Crowding Chicks.— Do not crowd the chicks. The number of chicks to put under one hover depends on the size. Hovers are usually made to accommodate fifty, seventy-five or one hundred chicks. It is always best to put a few less under the hover than it is designed to care for, for as the chicks grow older they will need more room.

20. Confining Chicks.— Confine the chicks to twelve or fourteen inches from the hover for the first

Baby chicks one week old in outside yards to a long brooder house.

three or four days, then gradually increase the distance from the hover up to the time they are about a week old, when they should have the run of the pen; in warm weather they should be let outdoors in the run; time of season and condition of the weather will, to a great extent, govern at what age the chicks should be let outside in the run; however, even in cold weather, when the chicks are two weeks or more old, they should be let out-

doors during the warm part of the day, but they should not be allowed to crowd in a corner outside or become chilled. If the weather is stormy or very windy, keep them inside. When the chicks are older and partly feathered out they should be given their freedom of the outside run, even if it is very cold, or with snow on the ground, as at this age they will not stay out long enough to become chilled.

21. Culling the Chicks.— Culling should begin at the start and be continued right along, and on the range. When the chicks are first put under the hover see if there are any cripples or weaklings that seem doubtful; if there are, take them out and dispose of them; or if preferred, one hover can be reserved for these so they can be kept separate from the others, but generally it will not pay to spend time or bother with weak or sickly chicks. Those that survive should not be put back with the good chicks, but should be disposed of as market poultry. Twice each day, both morning and evening, at feeding time, all the chicks should be gently pushed out from under the hover, and at this time watch out for weaklings or any that have diarrhœa. All such should be disposed of or transferred to the reserved hover; never neglect doing this important part of brooding each day; also at the same time see that the litter under the hover is dry and in place. Take a pail of litter along, so that more can be put in if needed.

22. White Diarrhœa.— White diarrhœa and other sickness among chicks is generally caused from improper food, cold water, uneven temperature, either too cold or too hot, and unsanitary hovers and houses. There is no excuse for any one not being able to give the chicks proper food, and water with the chill off for baby chicks, or maintaining the right temperature and keeping the

hover and house in a sanitary condition. If poultrymen would exercise good judgment and do the right thing at the proper time, white diarrhœa and other sickness would be practically eliminated. Any chicks showing signs of white diarrhœa should at once be disposed of or isolated, and should never afterward be retained for any purpose.

For prevention of diarrhœa, use one teaspoonful of five per cent solution carbolic acid in ten quarts of water. Sour milk is valuable for chicks that show signs of diarrhœa, it has also been used with good results as a preventive. The acid in the milk tends to ward off or hold the disease in check.

CHAPTER V

FEEDING CHICKS

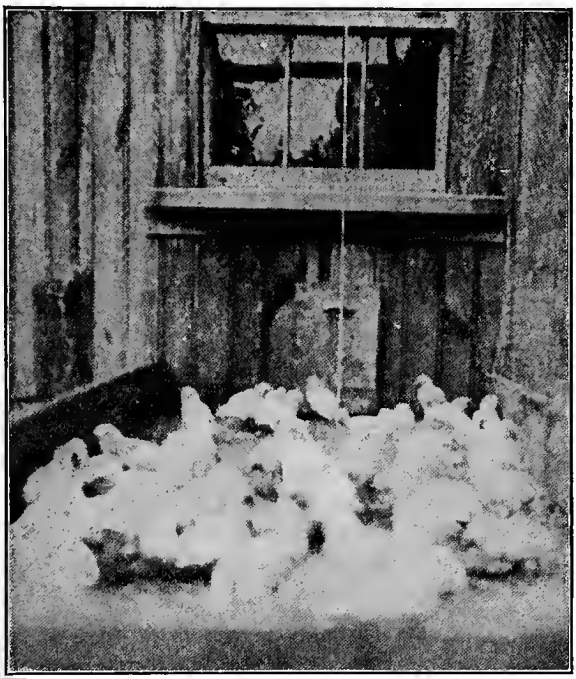
23. Time for Giving First Food.— Baby chicks should have their first food when about forty hours old. Just as the chick is hatching the yolk of the egg is absorbed into its abdomen, which is really the chick's first food, and is sufficient nourishment for from two to three days. In their natural state the first food or yolk of the egg furnishes sufficient nourishment for the chicks until they are strong enough to follow the mother hen in search of other food.

24. Water for Baby Chicks.— Baby chicks should have water with the chill off at the same time they receive their first food. The water should be served in a sanitary fount of a style that will prevent the chicks from getting in the water. In cold weather the chill should be taken from the water for the first three weeks, and for about two weeks when the weather is warmer. Ice cold or cold well water is very harmful to baby chicks, and many times causes what is termed "white diarrhœa."

In the morning, when the chicks are first given water, they are usually thirsty, especially in warm weather, and cold water, showing a temperature of thirty-five to forty degrees, will almost instantly chill some of the chicks, so they will stagger around, finally falling on their backs, and becoming things of the past; while others may survive the shock for a time, but later develop bowel trouble or other sickness.

It is advisable to feed the chicks before giving them water. Chicks should have fresh, clean water twice

each day. The founts should be kept perfectly clean by swabbing them out when the water is emptied, and they should be thoroughly washed once in two to four weeks with boiling water and sal soda.



Baby chicks in one outside yard to a long brooder house.

25. Grit for Baby Chicks.— Chick size grit should be given the chicks when they have their first food; a small quantity can be mixed with the chicks' grain, or it can be thrown in the litter for the first two weeks, when it should be supplied in a hopper or feeder to save time and prevent waste.

26. Feeding Chicks First Three Weeks.—The first three weeks feed the chicks four times each day, chick grain ration No. 1 (paragraph 66), or the best other reliable chick grain ration. It is not advisable to give baby chicks soft food. Many advocate giving the chicks soft food for the first few days or a week. Changing from one food to another will surely cause trouble. Their first food should be a hard grain ration, which will at once bring the grinding power of the gizzard into action. Do not give them any other food, except green food and animal food, for the first four weeks.

Give the chicks their first food in the litter outside the hover, and afterward all the grain given them should be put in the litter. The first two or three days give them a little more than they clean up, but after that do not overfeed at any time; feed only what they will clean up and keep enough litter on the floor so that they will have to scratch and work for all the grain they get. It is important that they be kept busy most of the time during the day.

27. Green Food for Chicks.—Give the chicks green food when they are four or five days old; feed sparingly for the first few days, and afterward give them all they want every day, such as lawn clippings, sprouted oats, or lettuce, etc., cut in quarter inch lengths. This should be fed near the middle of the day. Green food is a necessity, and it is very essential that the chicks have plenty every day. When they have the run of a grass yard where they can help themselves to tender, succulent greens, it is not necessary to supply other green food.

28. Animal Food for Chicks.—This is a necessity and should not be neglected. The best are beef scraps and meat meal, but only the best obtainable should be

given them. There are many different brands on the market, some of which are fit only for fertilizer, while others contain a large amount of hide, hair, bone, fat and pork. Get a brand that is high in protein and comparatively free from fat and oils. The scraps can be tested by putting boiling water on a small amount, which will cause fat, hair and other objectionable matter to rise on top of the water.

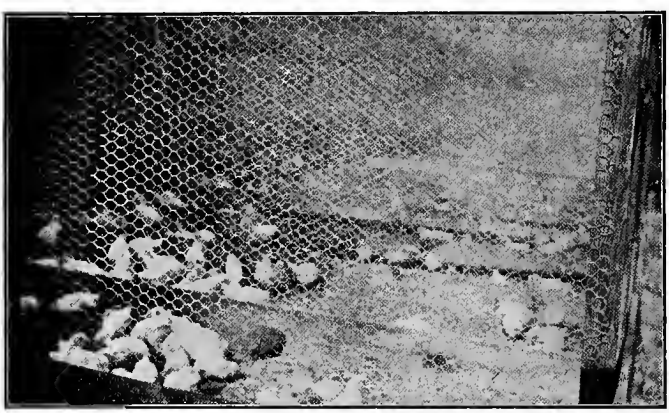
The interior of a well-lighted brooder house, equipped with individually heated hovers.

Begin giving the chicks animal food, in a shallow dish, on the fourth or fifth day, a small handful to fifty chicks each day for six or seven days; after that keep it before them all the time, preferably in a hopper or feeder to avoid waste and save time.

29. Charcoal for Baby Chicks.—It is essential that the chicks have charcoal from the start. Charcoal is a good regulator; it aids digestion and prevents bowel trouble. Chicks will consume a large amount, so much

so that the caretaker may be alarmed at the quantity they will eat; however, if it is kept constantly before them, they will not eat a harmful amount. Give the chicks granulated charcoal the second day, in a shallow dish, and keep a supply before them all the time; when they are about two weeks old the charcoal should be put in a hopper or feeder to save time and avoid waste.

30. Feeding Chicks Three Weeks up to Six Weeks of Age.— Continue feeding chick grain ration

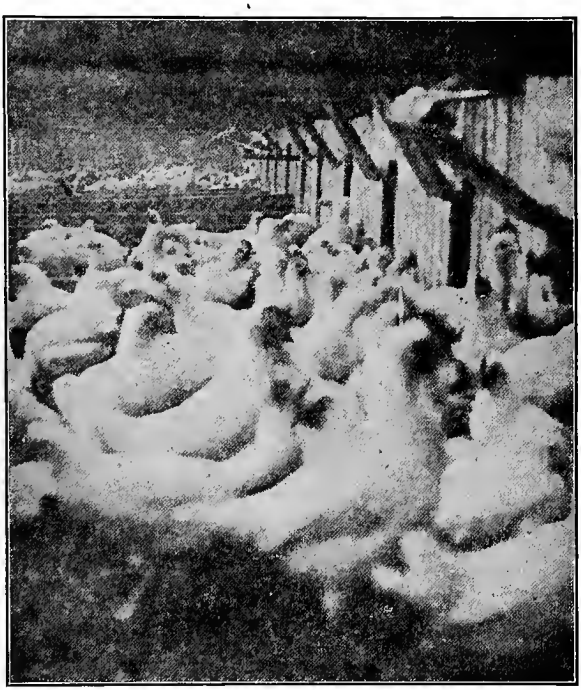


Baby chicks enjoying themselves in the morning sun, in the outside yards to a long brooder house.

No. 1 (paragraph 66), but feeding three times each day instead of four; the first feed should be given at about 6.30 or 7.00 A.M., second feed at 11.00 A.M., and the third feed at about 4.30 P.M. Be sure that there is at this time from three to four inches of litter on the floor all the time, so that the chicks will have to scratch and work for all the grain they get.

Be cautious not to overfeed the chicks; examine the

litter when you go into the pen to feed and notice if they have cleaned up the last feeding; if not, do not give them so much, or none at all. By being observing and



Leghorn broilers in one section of a long cold brooder. These male birds are in condition for the market. Farther down are shown Leghorn pullets ready to be put out on range.

using good judgment one can tell nearly the amount they will clean up each time.

Keep grit, charcoal and beef scraps constantly before them in a hopper or feeder, and see that they have all the succulent green food they want. Give them fresh

water twice each day. If at any time any of the chicks show signs of leg weakness, put a dish of bone meal before them.

31. Feeding Chicks Six Weeks Old.— When the chicks reach the age of six weeks, feed them twice each day, at 6.30 or 7.00 A.M., and about 4.30 P.M. Feed in the litter equal parts of chick grain ration No. 1 (paragraph 66) and growing grain ration No. 4 (paragraph 69), or the best other reliable growing grain ration, for seven to ten days, then feed the growing grain ration alone, as stated above, as long as they remain in the brooder house; also keep before them all the time chick dry mash ration No. 2 (paragraph 67) in a hopper or feeder. Continue keeping before them all the time beef scraps, charcoal and grit, and give them all the succulent green food they will consume. See that they have plenty of fresh water twice each day. Continue culling; any chicks that do not develop properly, or are sickly, put by themselves and dispose of them as market poultry. When building up a strain of birds that will be producers, it pays to keep only the best; however, there will be few undersized or sickly chicks if the methods outlined are administered precisely.

32. Brooder House Schedule for Baby Chicks.— 6.00 A.M., attend to the heater; see that the hover temperature is up to standard.

6.30 A.M., feed chick food. After feeding, remove each hover top or hover, and cull out any weaklings.

7.00 A.M., give fresh water; have the chill off the water until the chicks are fifteen days old.

8.30 A.M., see that each run has enough charcoal, beef scraps and grit.

8.00 to 9.00 A.M., give more ventilation, the amount depending on weather conditions.

9.00 A.M., open slides to outside yards, age of chicks and weather permitting.

10.00 A.M., feed chick food.

11.30 A.M., feed green food.

12.00 noon, attend to the heater and see that the hover temperature is up to standard.

1.30 P.M., feed chick food.

2.00 P.M., give fresh water.

4.00 P.M., or sooner if the weather is stormy or cold,

It is possible to have the pens well filled with husky birds after they have been in the brooder house for seven weeks. This photograph was taken just previous to sex separation and confining the male birds for the "special" broiler fattening process.

reduce the amount of ventilation and close the slides to the outside yards.

4.30 P.M., or sooner if the days are short, feed chick food, remove hover tops or hover and see that all the chicks go out to feed; cull out any weaklings; if more litter is needed under the hover, add it. At dusk, see that all the chicks are under the hover and comfortable.

5.00 to 6.00 P.M., attend to the heater and see if the hover temperature is up to standard.

9.00 to 10.00 P.M., attend to the heater and see that the hover temperature is up to standard.

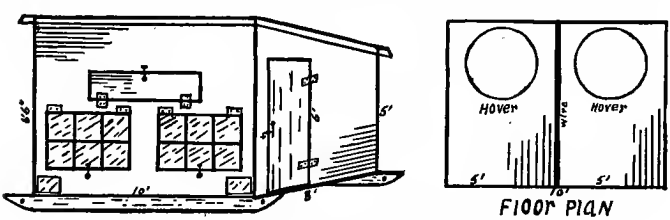
This brooder-house schedule is not a set rule to follow, but will serve as a guide. When the number of chicks that are being brooded does not require all of the operator's time it can be somewhat modified, but it is indispensable that none of the work described be neglected. The operator should use good judgment in regard to ventilating the house, letting the chicks in the outside yard, and noting when they should not be outside; the age of the chicks and weather conditions should govern these operations.

CHAPTER VI

BROODING SYSTEMS AND HOUSES

33. Colony House System of Brooding.— This is a good system for the beginner to adopt, especially the one who has not the capital to build a brooder house and colony house. After two or three years, if one chooses, a long brooder house can be erected, and the colony houses could be used for growing pullets, fattening broilers, or growing roasters and capons.

34. Two-Purpose Colony House. — A practical colony house for the purpose of brooding chicks and hous-



Two-purpose colony house.

ing growing stock can be constructed as follows: The dimensions of the house are: floor space, eight by ten feet; studding six feet, six inches in front and five feet in the rear (all inside measurements). The front and rear of the house will be the longest sides. This house should be built on two runners two by ten inches by twelve feet long, leaving a projection of twelve inches on both ends of the house. The four ends of the runners should be rounded, the shape of sled runners, so that the house can be easily moved to another place or field if wanted. Bore an inch hole in the two ends of each

runner to hitch through when moving the house. The floor joist should be two by four-inch material, spiked on the inside flush with the top of the runners; this will give six-inch space between the joist and ground to clear stone and uneven places on the ground when moving the house. The studding should be two by three inch; rafters two by four inch; matched material for siding; plain or matched roof boards. For the floor, cover the joist with rough boards, then tack on heavy building paper; on this lay matched flooring; this makes a floor that is warm, dry and air tight. Cover the roof boards with a good grade of two-ply roofing paper; also in cold climates and where the house would be used in February and March, cover the rear and two ends with one-ply roofing paper.

Have the door two feet, four inches wide by six feet high on one end, adjoining the front; which should open toward the rear of the house. Put two six-light sash with eight by ten-inch or eight by twelve-inch glass in the front of the house eight inches from the floor and equally distant from the ends of the house and each other; hinge these sashes at the top and put a snap catch on the bottom of each sash; use a cord fastened to the snap catch, running through a small pulley or staple fastened on the front of the house directly above the center of the sash, with a loop in one end of the cord and a row of nails driven in the siding two inches apart, to hook the loop on, so as to regulate the distance in opening the windows. If preferred, adjustable window rods can be bought for regulating the windows. These windows should open out, with one-inch mesh poultry wire put on the inside.

Make an opening four feet long by eighteen inches wide in the center of the front six inches above the win-

dows; make a frame to fit this opening and cover it with muslin; hinge the frame on the inside at the bottom, using a snap catch on the top; fasten a cord on the snap catch, running through a small pulley or staple fastened on the rafter, so as to regulate the distance in opening the muslin frame, the same as windows; cover this opening on the outside with one-inch mesh poultry wire. Save the boards that are taken from this opening and nail cleats on them so that they can be put back if necessary when using the house for brooding chicks in cold weather.

Make two openings seven inches wide by eight inches high, level with the floor, one on each side adjoining the ends of the house. To cover these openings have slides on the outside; these will serve to let the chicks or growing stock in and out of the house.

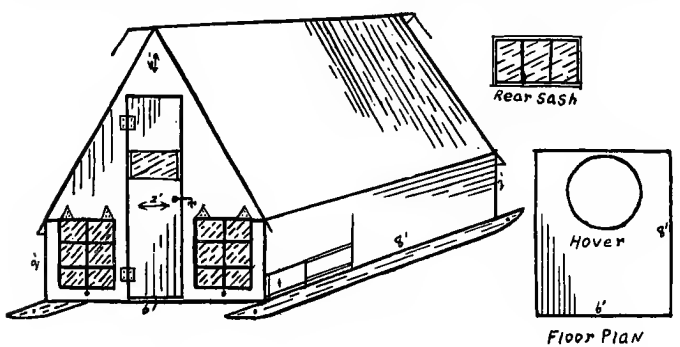
For brooding chicks, divide the house in the center with one-inch mesh poultry wire thirty inches high, making two sections five by eight feet, using two oil heated hovers in this house, one to each section, and with fifty to sixty chicks to each hover; this house provides the necessary room for one hundred to one hundred and twenty chicks.

When the chicks no longer need artificial heat, and the separation of sex can be made, remove both hovers and center wire from the house, then put in three roosts two by three inches by ten feet long, with the three-inch side up, ten inches apart; support these roosts in the center with one cross piece and short post; bevel the top edges of the roosts. This house will now accommodate forty to fifty growing pullets until they are old enough to be transferred to the laying house.

This house can be used for growing and fattening fryers, roasting chickens and capons, and will accommodate fifteen breeders or twenty layers.

In connection with the above house, when using for brooding chicks, put up a temporary chick run ten feet square, divided in the center, using one-inch mesh poultry wire thirty-six inches high, or one-inch mesh wire twelve inches high, and two-inch mesh wire twenty-four inches high; the wire can be fastened down by driving wooden pegs over the bottom strand of wire into the ground.

Other houses that have been built before can be used for the same purpose, with about the same dimensions as outlined, making the necessary alterations; the two



Two-purpose A-shaped colony house.

windows in the bottom front of the house are very necessary, as they afford plenty of light on the floor of the house, which is indispensable in rearing chicks. Other important things are proper ventilation, dryness, draft-proof and warmth.

35. Two-Purpose A-Shaped Colony House.— This house is designed and best adapted to the use of one hover when brooding chicks, and is somewhat similar to the one described in paragraph 34. This house is six by eight feet inside measurements; six feet from the floor to the ridge; two feet perpendicular sides; the door

is two feet wide and in the center of the front, with a muslin curtain twenty inches wide and twelve inches high about two-thirds of the way up. Use a three-light sash in the rear of the house, hinged at the bottom. When this house is used for growing stock, a muslin frame can be used in place of the three-light sash. The two windows mentioned in paragraph 34 should be used the same in this house, but will necessarily have to be smaller.

36. Continuous Hot Water Brooding House System. — This system of brooding is used more than any

A well-built hot water brooder house. In the rear there are an incubator cellar, egg room and feed room.

other on large plants where several hundred or thousand chicks are brooded each season. There are many poultry men who are successful, and some more or less successful, in brooding chicks with this system; then there are others who do not succeed, especially beginners. When one does not succeed, or meets with failure, sometimes it is the fault of the system. It may be the heater, the temperature regulating device, the style of hover used,

construction of the house, ventilation, etc. Then again, all these may be correct and of the best, and the cause of poor results or failure may be due to lack of knowledge, experience or bad judgment on the part of the operator in feeding and care, or unsanitary conditions, or it may be due to the chicks being of weak vitality.

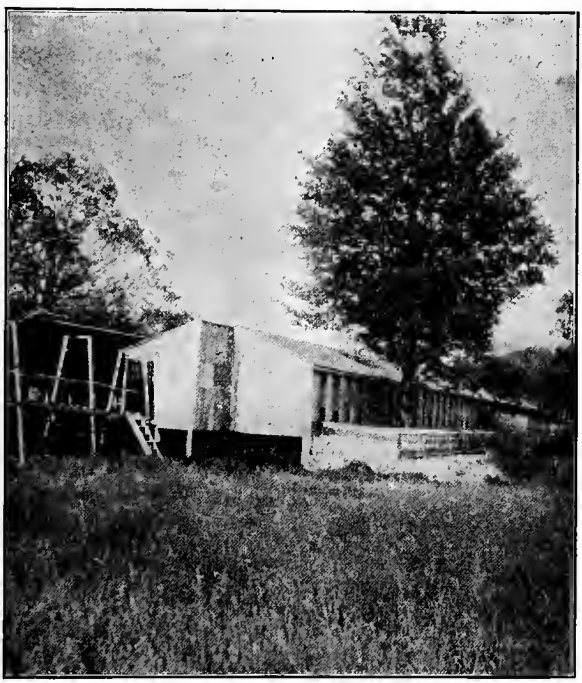
A good heating system installed in a properly constructed house will give good results, if the operator will do his part as it should be done.

There are many styles of brooder houses in use, also many styles of fixtures and equipments. Generally speaking, the majority are good, and will give good results if they are rightly used; however, there are some fixtures and equipments that would be of little or of no use to any one, and ofttimes a great detriment. Always get the best obtainable. Buy the article that has been tested and proved by actual use to have given satisfactory results.

In selecting a hot water heating system many make the great mistake of getting a heater that is too small for the system and the work required of it. Give particular attention to the size of the heater. A heater, according to its size, will care for a stated amount of pipe system and no more. It is far better to install a heater that is at least one size larger than is required for the system; a more even heat can be maintained in a large heater, as it carries a large bed of coals and will require less attention on the part of the operator. A large heater will require less coal than a smaller one to maintain the same temperature, for a stated time, for the same system.

37. Brooder House for Hot Water Pipe System. — A brooder house equipped with a hot water pipe system should be about sixteen feet wide and any length desired up to one hundred and fifty feet; if a longer house is

wanted, it is better to divide the house in the center, using two heaters in a center pit, one for each section. The side walls should be six feet, and nine feet from the floor to the ridge board. A double pitched or short front and long back roof can be used; a cement or stone foundation



A long hot water brooder house.

should be used; the sills are four by four inches; floor joists four by four inches; studding two by four inches; rafters for the short front and long back roof should be two by four inches and two by six inches respectively, and for a double pitched roof two by six

inches. The floor can be of either boards or cement, if boards are used, the floor should be of double thickness, with heavy building paper between; paint the floor with tar, which will fill up any crevices or cracks, and will also prevent the wood from becoming contaminated; the side walls should also receive a coat of tar six inches up from the floor. Rats or mice will not gnaw boards that have been tarred. The siding should be of matched boards, covered with a good grade of one or two-ply roofing paper, or matched siding and ceiling inside. The roof should be of matched roofboards, covered with a good grade of two or three-ply roofing paper, or the roof can be shingled.

In every twenty-five feet of the length of the house a double ventilator should be constructed as follows: cut an opening eight by sixteen inches in the center of the roof, put a cupola over this opening; make two air shafts eight inches square or metal cylinder which should fit tight into this opening and not project more than two inches above the roof; one air shaft should be eight or ten inches long, the other seven feet long; both of these air shafts should have a slide near the bottom, so that they can be opened any distance or closed tight at will.

There should be double six-light sash windows in the front of the house, one to every two pens, or one single six-light sash in every pen. These windows should be hung with sash weights and cord, and the bottom of the windows should be ten inches from the floor. These windows will serve to give the chicks plenty of light on the floor and also admit fresh air by lowering the upper sash, and on warm, still days both the upper and lower sash can be opened.

The walk in the rear of the house should be three feet and six inches wide, and allowing two or two and

one-half feet for the hover the pens will be ten or ten and one-half feet long, and for fifty chicks the pens should be three feet wide; for sixty-five to seventy-five chicks, three and one-half to four feet wide. For partitions between pens, use a twelve or fourteen-inch board at the bottom and one-inch mesh poultry wire, four feet high above. Communication between pens is by means of gates two feet four inches wide and four and one-half feet high adjoining the front; cut the riser board down six inches where the gates are hung; use double action spring hinges on these gates, so that they can be opened either way. If a boxed-in hover is used over the hot water pipes, the partition lengthwise of the house should be between the hover and pen; if a circular hover is used, it is better to have the partition between the walk and the hover. This partition will consist wholly of gates and uprights, a gate for each pen as wide as the pen, hung above the top edge of the hover, and should open in toward the pen. When using a boxed-in hover over the pipes, it is essential that the hover be so constructed that it can be well ventilated on top, and also on the side toward the walk. A good plan is to have the hovers two feet from the partition, dividing the walk from the pens, then the hovers can have felt on both sides, which will give good ventilation and no corners in which the chicks can crowd. A muslin frame about two feet long and four inches wide should be supplied for the top of the hover for ventilation; a board hinged over this frame should also be supplied, so that the opening can be partly closed or closed tight when necessary. Single six-light sashes should be put in the rear of the house, one sash to every twenty feet; these will give more light in the rear of the house, and should be used for more ventilation in warm weather.

When this style of house is used in the cold part of the winter, and especially in cold climates, it is advisable to plaster or seal the inside, so that a more even temperature can be maintained. This will also effect considerable to the saving in fuel. In order to obtain the best results when using a hover or hovers in a house where the temperature cannot be kept up to fifty or more degrees by the heat from the hovers themselves, it is best to supply some auxiliary heat.

Two well-lighted brooder houses, equipped with individually heated hovers.

38. Continuous Brooder House with Individually Heated Hovers. — Good results can be obtained from individually heated hovers in a long house if the right style of hover is used. Hovers should be constructed so as to be easily kept in a sanitary condition, and should be absolutely self-ventilating and self-regulating so that an even temperature can be maintained at all times, besides giving an even distribution of overhead heat.

The fumes and gases from the heater or lamp should be, if possible, conveyed outside the house. When it is impossible to convey the fumes and gases outside the house, the house itself should be well ventilated. Do not use a hover where the fumes and gases from the heater enter or have the least access to the chick chamber.

A brooder house in which to use individually heated hovers can be constructed the same as the one described in paragraph thirty-seven. A less expensive, and probably more satisfactory house for this system can be constructed as follows: any length desired by twelve feet wide; seven feet in the front and five feet in the rear. The roof should be of the single slant type; one gate only is needed for each pen, which should be in about the center of each partition, dividing the pens. The hovers should be put in the rear of the house.

When using this style house and system every third or fourth partition can be stationary, and the others only temporary; then when the chicks are old enough to do without artificial heat, the hovers and temporary partitions can be removed, and the house used for growing fryers, roasters or capons. The windows, frame work, and other details should be finished in about the same manner as the brooder house described in paragraph 37. The floor and side walls, also the studding and riser boards, should be well tarred twelve to sixteen inches up from the floor to prevent the wood from becoming contaminated. After being tarred, the floor and other woodwork can be washed perfectly clean with water. It is not necessary to use tar on cement work.

39. Individual Outdoor Brooders. — By individual outdoor brooders is meant small houses about three by six feet, some smaller and some larger, equipped with a heated hover that will care for from fifty to seventy-

five chicks. The capacity of these brooders is usually rated too high, and it is advisable to put in from ten to twenty less chicks than the manufacturer or agent recommends. For brooding chicks during the months of April and May, or when the severe winter weather is over, or in warmer climates, good results can be obtained by using outdoor brooders; they can also be used with good results in cold weather, but the brooder must be built to withstand the cold and winds; the heater and the temperature regulator must be absolutely dependable, or failure will be the outcome. When using several outdoor brooders in cold winter weather, more attention and work will be required of the operator (sometimes rather unpleasant) than if indoor brooders are used under cover, or hovers used in a colony or other house.

40. Individual Indoor Brooders.— These are small coops or boxes three by four feet, some smaller and some larger, and from twenty-six to thirty inches high, made of matched one-half or seven-eighths inch boards, with ventilators in the sides and top, and a glass door in the front. Using a heated hover inside this brooder, it can be operated in most any kind of house, even if it is not built especially warm, but the house must be well lighted, sanitary and well ventilated, without causing any drafts.

41. Home-Made Brooders. — Inexpensive brooders can be made at home, but it will not pay to try to construct a home-made hover as they are always sure to prove unsatisfactory, and in the end will cost several times the price of a practical, dependable one, in the loss of chicks, time, etc. Dry goods boxes of the right dimensions, or nearly so, can be obtained, in which to use heated hovers. Cover the three sides and top with roofing paper, also cover the floor with the same material; put a three or

four-light sash in the front, two inches from the floor, hinged on the outside at the top; cut an opening four by six inches in both sides six inches from the roof and eight inches from the front; make two slides to cover the openings, which will also serve as ventilators; cut an opening in one side six inches wide and four inches high, three inches from the floor and about four inches from the front; make a slide for this opening, which will serve to let the chicks in and out. In connection with this box brooder, an open-front box can be used in which to put the food and water. Use litter on the floor. Cover the roof with roofing paper. It should be understood that this is not a practical equipment for brooding chicks in cold weather, but later in the season, when the weather is warmer, it will serve its purpose in a practical way.

42. Hovers. — A heated hover is the proper arrangement for brooding chicks at any season of the year. Do not get the idea that baby chicks do not need a heated hover during the late spring and summer, when the weather is warmer, although if the outside temperature is ninety degrees there will be no need of heat in the hover, but many times the nights are cool and the temperature may drop to sixty or fifty degrees, which would be very detrimental to baby chicks. Then again, sometimes during the daytime it may be warm enough to do without any heat in the hover, while there will be periods during the daytime, at the same season of the year, when it would be too cold to do without heat in the hover. At any season of year, regardless of what the outside temperature may be, baby chicks need a sanitary heated hover into which to go whenever they choose; the degree of temperature in the hover will depend on the age of the chicks (see Hover Temperature, paragraph 17).

Take, for example, a hen with her chicks in their

natural state. When the chicks are young they will frequently be found hovered under the hen during the daytime and always at night, and as the chicks grow older and start to feather out instinct teaches them that they do not need the full amount of heat that the mother hen is able to give them, so they will be found hovered around her with only part of their little bodies covered by the hen's feathers; also while they are quite young on a warm night they will be found in this same position. It is not an uncommon occurrence to find one or two on the mother hen's back, when the weather temperature will permit. On the other hand, if the night happens to be cool they will be found further under the hen, and more protected by her feathers.

It will be seen that the chicks in their natural state are their own temperature regulators; they never get overheated or chilled unless the mother hen is neglectful, which rarely occurs if she has hatched the chicks she is brooding. When brooding chicks artificially we must get as close to the natural way as possible; therefore it is plain to see how necessary it is that an even temperature be constantly maintained, both day and night, the degree of which will depend on the age of the chicks. Do not crowd the chicks in the hover. The capacity of the majority of hovers is rated too high; fifty to sixty chicks is about the right number to put under a hover that is designed and recommended for seventy-five. Usually the ordinary size hover will care for seventy-five for the first fifteen to twenty days, but as the chicks grow older and larger and the hover stays the same size, where are the chicks to get the extra amount of space needed for their proper growth and development? Is it not better to put fifty chicks under the hover and rear ninety-five to ninety-eight per cent of them, than

to put seventy-five under the hover and have them dwindle down to or below fifty? It will generally be found that where a hover will properly care for a stated number of chicks up to the time when they no longer need the protection of the hover, if a larger number is trusted to the hover, the number will dwindle down to or below the number that should have been put under the hover at the start.

When purchasing a hover the essential points to keep in mind are these: Buy the very best obtainable; the best is the cheapest in the end many times over. The hover should be so constructed that it can be easily cleaned and kept in a sanitary condition. The fumes or gases from the heater or lamp should not enter the chick chamber. It should be absolutely self-regulating and self-ventilating.

43. Fireless Brooders. — While there have been much discussion and some advocates and manufacturers of fireless brooders or hovers, there are comparatively few being used. The reason that they have not become popular or extensively used is that they do not, as a rule, give good results. It requires greater skill and experience to rear chicks in a fireless brooder than in a heated one, especially in cold weather. The general idea of a fireless brooder is to have the hover built warm and small enough so that the warmth thrown off from the chicks' bodies can be retained inside the hover. In cold weather it is next to impossible to ventilate the hover properly and retain enough warmth to have the temperature up to or anywhere near what it should be, unless one spends all his time watching the hover, and even then the temperature cannot be kept up to standard. The great difficulty lies in the fact that all the chicks during the day are not in the hover at the same time;

therefore when two, three or a dozen of the number remain in the hover or go in to seek a warm place, while the rest are outside, what do they find? A warm hover with the temperature up to standard? No, but they do find a cold corner or spot where they remain in a chilly condition until more or all the chicks come inside and huddle around them, while they gradually thaw out. But sooner or later, after they have had one or more of these chillings, they will surely be things of the past. The more active ones may survive and turn out to be good specimens, but the loss of one-third or one-half of the chicks means a financial loss to the owner, and later, instead of having one hundred or more, as the case may be, of matured birds, there are only half the number, and many times there will be less than half.

It may be said that it is a case of the survival of the fittest, and the proper way to build up a strong, healthy foundation stock. It may be in the minds of some people, but not of the successful poultryman. Take a calf or lamb for example (which would be similar and a fair comparison): either may come into the world perfectly healthy, and of normal size and strength, and if not properly fed and cared for it will become weak and sickly, which will cause a setback in its proper growth and development. If it survives, it is apt to be under size and generally will not develop into as good a specimen of the breed as it would have had it been properly fed and cared for. It is exactly the same with baby chicks, and the ones that do not survive may have been perfectly healthy and of normal size and strength when hatched, and if proper food and care had been given them they would have developed into fine specimens of the breed.

The chicks in question may have come from parent stock that were not properly fed and cared for, or of weak

vitality, unhealthy or immature; on the other hand these conditions may have been of the best, and the eggs may not have been properly incubated. When these unnecessary things occur, one cannot expect to rear a large per cent of the number hatched, no matter how much good care and food are given them; again, if the chicks are what they should be when hatched, and the proper food and care are given them, a large per cent (ninety-five or more) can be reared into strong, healthy specimens.

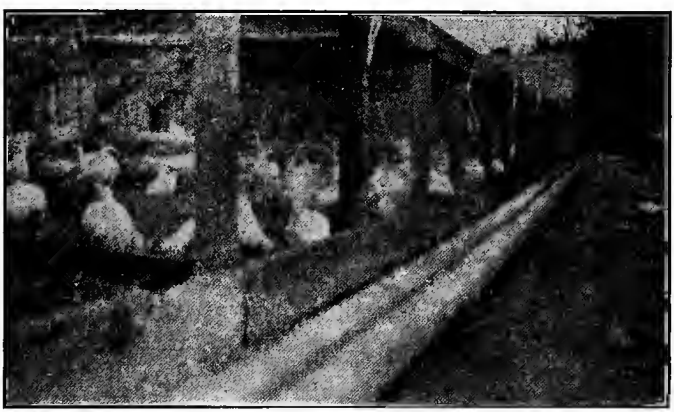
Going back to the subject of fireless brooders — there seems to be none on the market or known of that can be recommended as practical for brooding chicks in cold weather, or at any season when there is much change in temperature.

44. Large Flock System of Brooding. — By this system is meant brooding five hundred or more chicks in one flock, under one large heated hover. This system is not extensively in use and is in its infancy. The principal features are: a saving in buildings, equipment, and labor, all important items, and while it naturally would be impossible to rear as large a per cent of the chicks with this system as it would if the chicks were divided into flocks of fifty, with a single heated hover for each flock, the system is generally viewed and thought of with favor, on account of the small outlay and labor needed to brood several hundred or thousand chicks. Many are slow to credit the great claims advertised by manufacturers of large flock brooders, and want to see more proof before investing any money themselves. It is the same with any new idea or article put on the market; at first many are skeptical and slow to use or purchase, waiting for some one else to try it out. Once it gets a good name and a start, it is sure to be a success, if it is founded on merit; if not, it will soon dwindle out.

One would naturally expect a larger mortality when using a large flock brooder than from small brooders; beginners, especially, or those inexperienced, might find this system a difficult one to start with while the experienced poultryman might meet with good success. Taking everything into consideration, in summing up the two systems, the large and small flock brooder, they seem to be about even in the hands of an intelligent, experienced operator, but the small flock brooder should necessarily be favored, especially when rearing layers, breeders or show stock, as there is no doubt but that stronger, larger, healthier and finer specimens of the breed can be reared in smaller flocks.

The all-important factor is to have a properly constructed hover installed in a suitable house or room. There are large flock hovers manufactured which have given fairly good results. A suitable house or room would be one preferably about square, with only enough glass to admit the necessary light; the house or room must be absolutely draft-proof, and well ventilated by means of ventilators in the roof. Connected to this house and facing the south if possible, a scratching and exercising shed should be built; two-thirds of the front should be divided equally into glass and muslin frames. When the chicks are about three weeks old, all the feed should be put in this shed, the grain being fed in litter from two to four inches deep. It is advisable to have the shed one-half the width or length of the brooder house or room and twice as long. Communication between the brooder room and shed should be by means of a door. A slide in the bottom of the door two feet wide and six inches high should be provided to let the chicks in and out. It is necessary that the brooder room be kept as near an even temperature as possible. It is not necessary

that the shed be built as warm as the brooder room. The chicks will go out into this shed and scratch in the deep litter for the grain, and they will not become chilled, even though the temperature is considerably lower than in the brooder room, as working for the grain will start circulation and invigorate them. When their crops are filled they will go back to the hover. Do not give the chicks any grain in the brooder room after starting to



The outside yards to a long brooder house. These yards are three feet high and have a wire frame on top. Notice the burlap frames in place to provide shade on hot sunny days.

use the shed; then they will start to work and scratch as soon as they reach the shed, and the change of temperature will have no ill effect on them, but rather prove a benefit.

Failures in brooding and feeding chicks are due to nothing more nor less than lack of good common sense and judgment. Naturally not every one is cut out to succeed in the poultry business; but a large majority of

those who do attempt and fail would succeed if they would use their best judgment and good common sense.

The general care and feeding of the chicks when brooded by the large flock system should be the same as described in Chapters IV and V.

CHAPTER VII

CARE AND FEEDING OF GROWING STOCK

45. Care of the Growing Pullets. — The pullets should be separated from the cockerels as soon as the sex can be determined and they are old enough to be weaned from the brooder house and hover, and transferred to a

Part of two thousand pullets on range. Note the water pipe extending through the center, which is supplied with faucets at short intervals, thus supplying fresh water at all times.

colony house or growing house. Do not put growing pullets and cockerels together, even if both are intended for market; keep them in separate houses and yards. Both will grow faster and mature into better birds if kept in separate quarters.

The colony houses or other quarters to be used for the

growing pullets, if not new, should be thoroughly cleaned several days before they are wanted for use, and sprayed with a disinfectant, of which there are several good makes on the market. Creolin kerosene emulsion is a very good disinfectant. A good plan is to paint the roosts and immediate surroundings with tar, which will fill up the pores and cracks in the wood; when this is done there will be no places near by where mites or lice can harbor. The house should be sprayed regularly, at least once a month and oftener if necessary, with a good disinfectant.

Many believe it to be a difficult problem to keep houses and stock free from lice and mites, although it is not, if the proper precautions are taken at the start, and not neglected afterward. The poultryman may find that when houses have been neglected for some time, he will have to resort to some diligent work to get them in proper shape, but once this is done it is an easy matter to keep them clean and sanitary, if not neglected. Cleanliness and sunlight are destroyers of lice, mites and disease.

Chicks and growing stock are sure to be greatly handicapped in their proper growth and development if lice and mites are allowed to nourish themselves on their bodies.

Colony houses, brooder houses, brood coops or any kind of poultry houses, with the equipment, should be thoroughly cleaned and disinfected when through using them for the season. Do not leave them in a filthy condition until they are wanted for use again, for that would be a good way to breed disease. The details that are generally supposed to be of minor importance are as a rule very important.

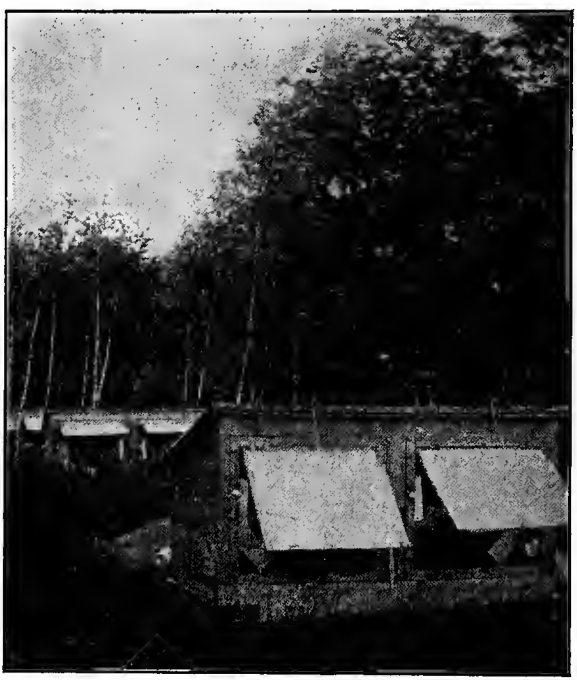
The pullets should have as much free range as is possible to give them, where they can get plenty of green

food and some shade. The range or yards intended for the growing stock should be ploughed or well worked up with a disc harrow in the spring; after ploughing, and before harrowing, use eight to ten hundred pounds of lime to the acre, spread broadcast with a shovel or lime drill; then harrow this in, mixing it well with the

An ideal range for growing pullets, where they can get plenty of young clover and orchard grass, and find shade on hot summer days. A wire door is provided on the house in addition to the wooden door, which can be left open both day and night.

soil, which will sweeten and purify it. After this is done, sow clover, or, if the ground is somewhat shaded, sow equal parts of orchard grass and clover. If grain is sown it should not be put in long before the growing stock would be there to keep it from getting too tall and tough.

Do not put growing stock of different ages and sizes together; grade them into separate quarters. When different sizes are allowed in the same house the larger ones are sure to retard the growth and development of



Small colony houses on range for growing stock. Note the arrangement of the muslin frames for protection against rain, wind and sun.

the smaller ones. The poultryman should watch the birds and be observing, and note if they are all growing properly. Also continue to cull the growing stock; any that are under size and not developing properly, or

are sickly, in fact any that are not healthy, vigorous, growing birds, dispose of them as market poultry; but do not try to sell scrawny culls as No. 1 poultry, for if this is done the estimation of the market product will be lowered.

Do not crowd the growing birds; put only such a number in the house as it will properly accommodate. As the birds grow they will need more room; there should be roosting room for each bird; if at any time they seem crowded for room, transfer some of the number to other quarters.

When there are two or more houses on the same range, or in the same yard, confine the birds to their house for the first two days, so they will become accustomed to their new quarters; then when they are let out they will not go to other houses near by, but will return to their own house at night.

Put roosts in the house before the birds are transferred to it, using two by three-inch material with the three-inch side up, bevel the top edges and do not fasten the roosts permanently; nail a board on each side of the house and cut slots in it, in which the roosts can rest. For Leghorns and the lightweight breeds, put the roosts twelve inches from the floor, and for the heavier breeds eight inches from the floor.

Do not allow the pullets to crowd in a corner of the house. Put them on the roosts the first two nights just at dusk. There is little danger of their getting crooked breastbones if roosts three inches wide are used, but there is other danger if they are allowed to crowd in a corner of the house at night, for the ones at the back of the pile will surely get overheated and weakened, which will retard their growth and proper development.

It is absolutely necessary that the house be kept

perfectly dry and sanitary at all times. The houses should be cleaned at least once each week and a small amount of dry sand or coal ashes put on the floor to take up the moisture from the droppings, and to keep any-

Growing stock on a wood range.

thing from sticking to the floor; this also makes the work of cleaning easier. When there are several houses to clean, a good plan to adopt to do the work easily and quickly is to use a horse and cart, or a hand cart, divide the box in the center with a board, put some sand or ashes

in one side, clean out the house and put the cleanings in the other side of the cart, then put the sand or coal ashes in the house; in this way the whole job can be completed

Pullets in a colony house on range. The water fount and dry mash hopper can be seen at the right in the house. These pullets have just been transferred to this house and are being confined for two days, to become accustomed to their new quarters before being allowed out on range.

in one trip. The tools needed for cleaning are a square flat shovel and broom. Have a stated time for doing each part of the work, then nothing will be neglected.

Pullets should be transferred to the laying house two or three weeks before it is time for them to start laying, so they will have ample time to get accustomed to their new surroundings and rations, then there will be no setback after they start to lay.

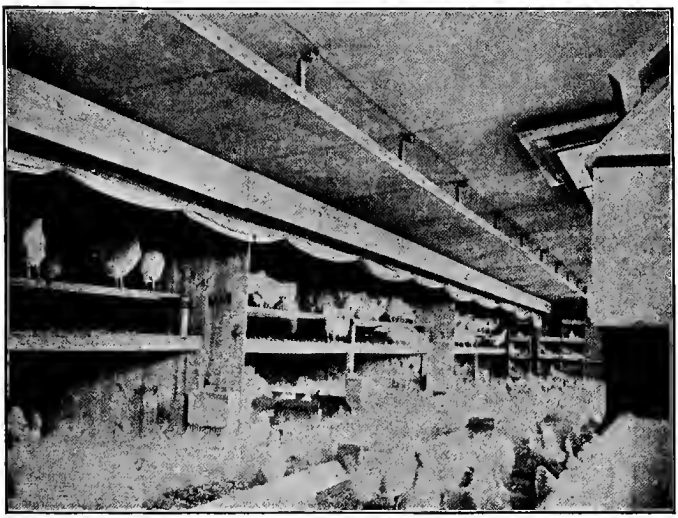
Cockerels that are retained for breeders for the farm or to sell should be cared for and fed the same as the pullets; they should have all the free range and exercise possible, so that they have ample opportunity to develop into husky, vigorous birds.

46. Feeding the Growing Pullets. — Feed the pullets near their house on the ground, "growing grain ration" No. 4 (paragraph 69), or the best other growing grain ration obtainable, the first thing in the morning and late in the afternoon, about four o'clock, all they will clean up. The first two days that the pullets are confined to the house they will necessarily have to be fed in the house; then for the next two or three days feed them outside the house; after that the grain can be hopper fed, or continue to feed the grain twice each day near the house. When land is limited and it is necessary to confine the pullets to yards, it is advisable to feed the grain in litter so as to give them all the exercise possible. The pullets should be fed as early in the morning as possible; let them out of the house and feed them the first thing that is done in the morning.

Keep growing mash ration No. 3 (paragraph 68), or the best other growing mash obtainable, constantly before them in sanitary hoppers or feeders; they should also have constant access to grit and charcoal.

When pullets are not on grass range and cannot get all the succulent green food they want, it should be supplied every day, all they will clean up, such as sprouted oats, cabbage, beet tops, mangels, green rye, rape, etc.

Oftentimes when pullets are put out on range there is plenty of green food for them for a time, and after a



An ideal, well-built and well-arranged laying house, two hundred feet long by sixteen feet wide, is divided into four sections, each section being sixteen by fifty feet, and accommodating five hundred laying pullets. Food, water, litter and egg carriers are operated on the track shown overhead. Water is supplied in a long galvanized half-round trough fastened along the front of the house. An opening is provided in the bottom of this trough and a pipe connected thereto for conveying the left-over water outside of the house. No glass is used in this house. One-third of the front is open, and muslin frames are provided for the openings; the muslin frames are always open except on very cold or windy days. On cold nights the muslin curtains, shown in front of the roosts, are let down. Long V-shaped wooden troughs are provided, in which to feed green food and vegetables. The grain is fed in deep litter and the dry mash, beef scraps, charcoal, grit and oyster shells are supplied in hoppers.

month or more the green food becomes scarce, especially in a dry spell, which often occurs during the late summer,

and the caretaker fails to supply the amount needed, either being slow to grasp the necessity of it, or thinking they will get along just as well without it. This is a great mistake. Chickens in their natural state consume quantities of green food, which supplies forms of mineral and vegetable matter not to be had in dry food stuffs, keeping them in a healthy, vigorous condition so essential to proper growth and development.

When it is desired to hasten the maturity of the birds, give them a wet mash once each day, using growing mash No. 3 (paragraph 68); use just enough liquid to make the mash wet, but not real soft.

CHAPTER VIII

BROILERS AND FRYERS

47. Squab Broilers. — The broilers business is not generally a profitable undertaking in itself, but combined with an egg farm, where the male birds are marketed as squab broilers and the pullets retained as layers to produce eggs during the fall and winter, when eggs command a high price, the two branches, if properly conducted, will make a paying proposition.

The small breeder who keeps poultry as a side line and devotes only a part of his time to the business, and does not have to depend on the profits from the poultry to support himself and family, does not need to consider seriously, or to make definite plans before making a start, as to whether the product shall be broilers, roasters, capons, eggs or fancy stock, for his small output can easily be disposed of to private families or otherwise, at most any season of the year, at good prices. While the season for squab broilers is comparatively short, the prices that can be obtained for a fancy article are well in advance of the cost of production. They are most in demand during December, January, February and March, and during these months the demand by far exceeds the supply; later the price declines and barely exceeds the cost of production, as the market is usually glutted about this time with small broilers, while the heavier broiler is in good demand; in fact, there is a ready sale for a two-pound broiler almost the whole year.

The male birds of the Leghorn breed constitute the majority of squab broilers consumed; they are small

boned, and a plump breast can be had in a comparatively short time. The Wyandottes and Rhode Island Reds are somewhat in favor and make a very good one-pound broiler. An ideal broiler is one that is small boned, plump breasted and yellow skinned; however, most markets are impartial to the color of the skin. The usual weight of a squab broiler is from twelve to twenty ounces dressed, and they are consumed by hotels, high-class restaurants, clubs, dinner parties and social functions.

48. Regular Broilers. — There is generally a good demand for a regular broiler at all times of the year. The usual weight dressed is from one and one-half to two and one-half pounds each, but different markets vary as to the weight wanted. One should investigate the market to be supplied and cater to its demands. If one tries to sell something that is in little or no demand it has been produced at a loss.

The majority of regular broilers, like squab broilers, constitute the male birds of egg farms; occasionally part of the birds, usually the early hatches, are sold as squab broilers; later, when the price declines, they are held longer and marketed as regular broilers.

49. Fryers — sometimes called springers, are most in demand during May, June and July. The weight is from two and one-half to three and one-half pounds each, dressed; however, the weight and time when wanted vary in different parts of the country. Usually in most markets after the season for broilers comes a demand for the small, soft roaster, weighing from three to four pounds each, but in some localities there is a substantial demand, during the late spring and early summer, for fryers or springers, at a price for a fancy article well in advance of the cost of production.

50. Feeding and Care of Broilers. — The chicks that are intended for broilers should be fed and cared for the same as described in Chapters IV and V, up to about six weeks old; then they should be separated from the others to quarters maintained under the same conditions, of not over seventy-five to one flock; forty to fifty is about the right number to put in one flock. Continue to keep the temperature of the hover up to standard, according to the age of the chicks as long as they need artificial heat.

Remove any litter and keep from one-fourth to one-half inch of dry sand on the floor; keep the hover and pen dry and sanitary at all times. If a run outside the house is allowed the chicks, it should be small. Continue to keep charcoal, grit and beef scraps in hoppers or feeders. Feed fattening grain ration No. 5 (paragraph 70), or the best other fattening grain ration, the first thing in the morning and about four-thirty in the afternoon on the floor of the pen all they will clean up. About eleven in the forenoon feed a wet mash, using broiler fattening mash No. 6 (paragraph 71), or the best other fattening mash, and sour milk or buttermilk. Have the mash thin enough to stir easily; ten pounds of the mash will require about fourteen or fifteen pounds of milk. Give the birds all the sour milk or buttermilk they want to drink, but either should not be old. If sour or buttermilk is not obtainable, use water for wetting the mash, and give the birds all the fresh water they want to drink. Buttermilk and sour milk are valuable foods and should be used if possible; it will pay to buy either if they cannot be produced on the same farm where the poultry is. Be sure that the milk is always sour; do not alternate from sweet to sour, as it is likely to cause bowel trouble. Sweet milk is good and all right to use for the birds, but sour milk and buttermilk are much more preferable, as they

have a tendency to promote the health of the birds in warding off diarrhœa, and also have a stimulating effect on the vitality and growth of the birds; furthermore, they add a flavor to the meat that cannot be had from any other food, and for these reasons both buttermilk and sour milk are valuable foods.

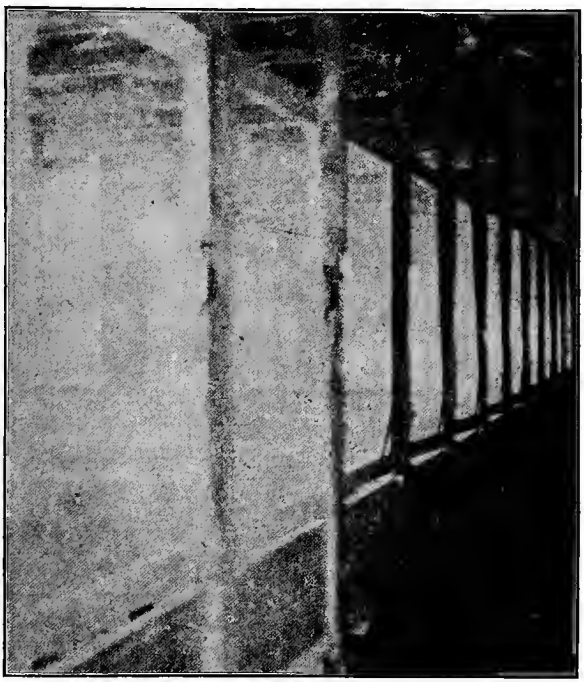
About two o'clock in the afternoon give the birds all the succulent green food they will consume, such as tender lawn clippings, young clover, sprouted oats, tender green rye, beet tops, dwarf Essex rape, or green corn, which has been sown broadcast and cut when from six to eight inches high.

Chicks should weigh three-fourths to one and one-fourth pounds each when seven to ten weeks old, depending somewhat on the breed.

Ten to twelve days before killing, confine the broilers to the house and feed a wet mash four times each day, all they will clean up in about twenty minutes, using the same mash given above (No. 6), prepared in the same way, except that it should be thinner, just so it will pour from a pail, or about as thick as griddle cake batter. Do not leave any mash before the birds longer than twenty-five minutes; make a trip to all the feed troughs and clean out any mash that may be left. If milk is not used, give the birds very little water to drink, as this will give them a desire to consume more of the mash. Discontinue all hard grain, beef scraps and all other foods except green food, which should be fed sparingly: stop feeding green food altogether for the last seven or eight days of finishing. Do not try to keep the birds on the finishing process longer than twelve days, for this is about as long as they can stand the confinement and forcing.

The operator should be observing and watch the birds very closely; if any get off their feed or act dopey,

they should be marketed at once, if in condition, or separated from the others and be fed dry grain again in litter, also charcoal, beef scraps, green food, and



Interior of long cold brooder house, the section used for special fattening broilers.

allowed free range or as much yard as possible outside the house.

51. Feeding and Care of Fryers. — The chickens that are intended for fryers should be fed and cared for the same as described for broilers, up to fifteen or eighteen

days before they are wanted for market; then confine them and feed them the same as directed for broilers.

52. KILLING, PREPARING AND MARKETING BROILERS AND FRYERS. — When weighing broilers or fryers before killing, to determine the dressed weight, allow from five to six ounces each for broilers, and from six to seven ounces each for fryers, for shrinkage in killing. It is a poor policy to kill any market poultry before it is in proper condition. The poor showing and test of the quality of market poultry that has not been "special fattened" and "softened" will mean second or third grade prices, and the producer's product will soon become known as "poor quality," and therefore lower prices will be quoted accordingly. The extra cost of putting market poultry in proper condition is a small item, compared to the extra price that can be obtained, and the reputation gained by building up a future trade that will mean a prosperous business for the producer.

The marketmen and consumers soon learn where the fancy broiler, roaster or capon is produced.

The birds that are to be killed should not have any food whatever for from twenty to twenty-four hours before killing. Give them their last food about the middle of the day, and the following morning they will be ready and in condition to prepare for market. They should be "dry picked," which is not so difficult as is generally supposed to be by the inexperienced, if one goes about the work in the right way. Hang up the bird to be killed at a convenient height for the operator, with a piece of twine looped over both legs; a barrel is about the best article to put under the bird to receive the feathers and blood; usually small broilers do not have enough good feathers to pay for the trouble of saving them, but when killing older birds, an extra barrel

should be provided in which to throw the good feathers. The coarse feathers, such as the wing and tail feathers, are not worth saving, but the fine ones should be put in the extra barrel and dried in a loft or other suitable place. These feathers will usually pay for the cost of killing and picking. When the bird is hung in place, slide the first finger and thumb of the left hand over both wings back of the second joint, and with the same finger and thumb grasp the head on the sides just back of the mouth, between the jaws; in this way the wings can be held from flopping and the head in place; also at the same time with the mouth held open, proceed with the right hand to bleed and render the bird senseless, using the small blade of a pocket knife or a killing knife made especially for the purpose. Enter the blade into the bird's mouth and cut the large veins at the back of the throat a little below the level of the lower jaw, so that the bird bleeds rather freely, then insert the blade in the center of the roof of the mouth, just back of the eyes, so that the point of the blade will reach the highest part of the head, piercing the brain; give the blade a quick twist, and if the right place is touched the bird will quiver, similar to an electric shock, affecting the whole nervous system, which has a tendency to loosen the feathers, more or less according to how well the operation is performed. With a little practice almost any one can soon become an expert, and the right spot will be seldom missed. The work of removing the feathers should be done quickly and carefully. After rendering the bird senseless, proceed at once to pull the long tail and wing feathers, pulling several at one grasp, slightly twisting and pulling sideways; next remove the feathers on both sides of the breast, then the neck, next between the legs, then the legs and wings, and last the back. Pinfeather the bird before it

has a chance to cool off, using a short-bladed, round-pointed paring knife; have the bird on the operator's lap or on a box; use the thumb and blade and pull the pinfeathers in the opposite direction from which they point, being careful not to catch the skin. Great care should be exercised during the whole operation not to tear or soil any part of the skin.

When all the pinfeathers are removed, the birds should be put into a tub of water, not ice water, but just natural, cool water, and should be left there from two to four hours, or until all of the animal heat is drawn out; then they should be washed, the feet and head preferably with a brush, also force out any blood that may be clotted in the throat or mouth, and wash the inside of the mouth clean. In warm weather the birds should then be put into a tub or tank of ice water and left there until thoroughly cold, then they should be hung up or put in a clean trough to dry. In cold weather it is not necessary to put the birds in ice water, just hang them up in a cool place, or preferably place them in a trough where they will not freeze; never allow poultry to freeze and never ship poultry until it is thoroughly cooled and dry.

Dressed poultry should be shipped in tight boxes or barrels, but preferably in a regular shipping box (which can be returned) holding ten, twelve or more birds according to the desire of the receiver. When shipping poultry any distance in warm weather, it will be necessary to ice the poultry by using a galvanized ice tank in the center of the box, placing the poultry around the tank. It is always best to wrap each bird in paraffine or waxed paper. Do not put birds of different sizes and weights in the same box; grade them and take particular pains in preparing them, so that they will appear as they should. Label the boxes as follows:

DRESSED POULTRY

FROM

Sengawood Farm

12 Capons 130 Pounds

PERISHABLE

Be prompt in making shipment, so that the receiver will get the poultry when he wants them.

CHAPTER IX

ROASTERS AND CAPONS

53. Roasters. — Producing small and large soft roasters is a profitable branch of the poultry business, if properly conducted. There are a large number of poultry farms that make a specialty of roasters, devoting all attention and time to this branch of the business. Some of the farms do a profitable business, and occasionally there is one that makes the business pay handsomely; then there are others that barely meet expenses, and some even fail entirely after one or two years' trial.

The most popular breeds for roasters are the Plymouth Rocks, Wyandottes, Rhode Island Reds, and a cross between the Light Brahmas and White Plymouth Rocks. The small soft roaster should weigh from four to six pounds each dressed, and the large soft roaster from six to nine pounds each. The large roasters in reality are generally capons, or at least they should be, caponizing being resorted to in order to produce a tender, fine-flavored bird. When they are not caponized the meat is usually stringy and tough, and does not contain the desired fine flavor. It is not possible to "finish off" a male bird that has not been caponized and have it appear in as good condition as when the bird has been caponized, and a capon will take on fat much more rapidly, being of, or assuming, a quiet disposition, and nearly always ready to consume food.

54. Capons. — There is an increasing demand in all parts of the country for capons, sometimes called large soft roasters. In this modern age of achievements no up-to-date poultryman should attempt to produce large roasting chickens without caponizing them.

The consumers of market poultry are eager and ready to pay a good price for "special fattened," "soft meated," "fine flavored" poultry. People are becoming acquainted with the fact that it is cheaper for them to pay a good price for a quantity of soft, fine flavored meat than to pay a small price for a quantity of skin and bones, together with a little tough, stringy meat.

Fifty Light Brahma capons. At the time this photograph was taken there were six thousand capons in this house. Page 77 shows this same house under construction.

If people generally would refuse to buy the inferior produce and demand a first-class article, it would induce the grower to have his product in the best possible condition, which would greatly benefit both the consumer and producer; but there are always some people who are willing to buy the third and fourth-class produce, thinking that because they get it at a low price they are saving money; if they would stop to consider the waste and

little benefit (sometimes harmful) to be derived from this class of produce, compared to the healthful benefit to be obtained from a smaller portion of a first-class article, they would change their minds.

The demand is increasing faster than the supply for small, medium and large roasting chickens and capons. No one need worry that the markets will ever be glutted with prime poultry. It is fully understood that there is bound to be some market poultry that cannot be designated as "soft meated" and fine flavored and classed as "fancy," such as old cocks, hens and culls; but even these should be confined and "special fattened" before killing, which will add greatly to their quality and weight, and will more than pay for the extra cost. This grade of poultry is used mostly for soups and broths.

The popular breeds for large roasters or capons are the Plymouth Rocks, Brahmas, Cochins, Langshans and Orpingtons, or crosses of these breeds. The season for large roasters and capons, when they are most in demand, is from November to June, and they range in weight from eight to fifteen pounds each. The season and weight, however, vary in different parts of the country.

55. Caponizing. — Undoubtedly the reason that many roasters are produced and not caponized is that the growers assume the work of caponizing to be a very difficult task. Of course it is not the easiest thing in the world to accomplish, and yet it is not so difficult as is generally supposed. This is a branch of the business which must be learned by actual practice.

The first important act is to purchase a good, practical set of instruments, and with these comes a book of instructions just how to perform the operation; but the best way to learn is to be shown by an expert operator. After watching the operation on two or three birds, the

scholar should proceed to operate on one himself, guided by the instructor, and continue operating on birds until the art is thoroughly mastered. In this way, if any birds are not properly treated, the instructor can finish the operation, thereby avoiding "slips" or losing any birds.

The birds that are to be caponized should not have any food for at least twenty hours before the operation.

Capon or "soft roaster" house under construction. This house is four hundred and fifty feet long and twenty feet wide. Notice there is ample room for large yards, which are also the same on the other side of the house.

After the operation they should be kept by themselves in a dry, sanitary place, and if the weather is favorable they can be given a run outside the house, but do not let them outside the house in wet weather.

Feed the capons a wet mash the first week, using growing mash No. 3 (paragraph 68), then gradually work back to their previous rations; give them all the green food and charcoal they will consume. Be observing

and watch the birds; if any have wind puffs, puncture them with a clean, sharp-pointed knife blade; if any of the cuts do not heal properly, bathe them with peroxide, then put on a little carbolated vaseline. When the operation is done properly there will be few cases that need attention, and the loss and "slips" should not be over two or three per cent.

56. Care of Roasters and Capons. — The chicks that are intended for roasters or capons should be cared for the same as described in detail in Chapter IV, up to the time when the chicks are old enough to do without artificial heat, or are transferred from the brooder to other quarters. The birds should be caponized when they are about twelve to fourteen weeks old, depending somewhat on the breed. From two to two and one-half pounds is about the right weight for the lighter breeds, and about three pounds for the heavy breeds.

The capons or roasters should be kept in flocks of fifty to one hundred. It is not advisable to put over one hundred in one flock, as they are apt to bunch and crowd at night. Some growers keep from two to three hundred in one flock, but it has been demonstrated that far better results can be had when about fifty are put in one flock.

The birds should be put in colony houses on free range, or in a house with yards on both sides. Alternating the birds from one yard to the other will give ample opportunity to grow all the green food they want. Disc one yard with a disc harrow and sow broadcast rape, rye, oats, sweet corn, etc. When this green food is up about four to six inches, turn the birds into this yard, then disc the other yard and sow seed as mentioned above, and by the time the green food is well cleaned up in the first yard the green food in the second yard will be ready to turn the birds into. Continue this practice up to the time

the ground freezes. Once during the season spread broadcast eight hundred to one thousand pounds of lime per acre on the soil before disking; lime, cultivation and crops will purify and keep the soil in a healthful condition.

The houses should be kept clean and in a sanitary condition. It is advisable to paint board floors and sidings with a good disinfectant, or a thin coat of tar to keep the wood from becoming contaminated, and it will also serve to keep the house free from vermin. Keep on the floor of the house about one inch of dry sand covered with a good supply of litter, such as cut straw, hay, chaff or corn fodder, and change it for new material when necessary. The house should be well lighted and airy; what is meant by airy is well ventilated, avoiding any drafts.

Birds of varied ages and sizes will not do well together in the same flock. Grade them into flocks of about the same age and size.

A very important factor is to see that the food troughs and water fountains are kept clean and sanitary. Do not overlook this, as it is a very easy matter for the food troughs to become sour and unsanitary, especially when feeding a wet mash. Wooden feed troughs should have two coats of paint, which will prevent the wet mash from soaking into the pores of the wood; then also the troughs can be easily washed out and kept in a sanitary condition.

57. Feeding Roasters and Capons. — The chicks that are intended for capons or roasters should be fed the same as described in detail in Chapter V, up to the time when they no longer need artificial heat, or are transferred from the brooder to other quarters. Then begin feeding them a wet mash once each day, at about eleven in the forenoon, all they will clean up in twenty to thirty minutes, using growing mash No. 3,

paragraph 68. Use sour milk or buttermilk if available, otherwise use water to wet the mash, just enough to have it thoroughly wet, but not real soft. Keep a hopper filled with this same mash, dry, before the birds constantly. Feed the birds all they will clean up of growing grain ration No. 4, paragraph 69, twice each day, about one hour before dusk and the first thing in the morning. Feed the grain well scattered on the ground outside the house, or in the litter on the floor of the house. Animal food, such as beef scraps, also charcoal and grit, should be kept constantly in hoppers before the birds. They should be well supplied with succulent green food; if they are on range, or in yards where they can help themselves to succulent green food, no other need be supplied. The importance of a constant supply of green food should not be overlooked.

When buttermilk or sour milk is obtainable and can be supplied at least every other day, it will add greatly to the health and growth of the birds. Fresh water should be supplied at least once each day, and if there is chance of the water becoming foul or dirty, it should be changed twice each day. If the water is supplied in sanitary protected fountains, or otherwise supplied in such a way that the water can be kept in a sanitary condition, it will not be necessary to change it oftener than once each day, which should be done the first thing after feeding in the morning.

When capons or roasters are kept during the fall and winter months, a supply of vegetables, if available, should be provided, such as potatoes, mangels, beets, cabbage, apples, etc., and fed once each day, which will promote the health and growth of the birds, and will take the place of part of the necessary green food; but some other

form of succulent green food should be supplied, in connection with the vegetable, at least twice each week.

During the late fall and winter months and on stormy days, when the birds cannot exercise outside the house, a good supply of litter should be kept on the floor and all grain fed in the litter. In order to keep the birds healthy and growing properly, it is absolutely necessary

Young capons in a yard range. The house is thirty feet wide and four hundred feet long, with yards on both sides. The pens are thirty feet square and double doors connect the pens, thus allowing a horse and cart to be driven the entire length of the house.

that they have plenty of exercise and succulent green food.

Twenty days before the birds are to be dressed for the market they should be confined to small pens just large enough so that they have ample room to feed, or transferred to fattening crates, holding from five to eight birds each. If the birds are to be pen-fattened it is not advisable to put over fifty in one pen; twenty or twenty-five is a safer number to put in one place. Previous to

confining the birds they should be selected carefully, so as to be as near uniform in size and weight as possible, and every one should be vigorous and healthy in order to stand the forcing and confinement.

Crate fattening roasters and capons is practiced quite extensively in some localities, but the cramming machine is not much in favor in this country. Market poultry of the very best quality can be produced by crate fattening and nearly as good by pen fattening.

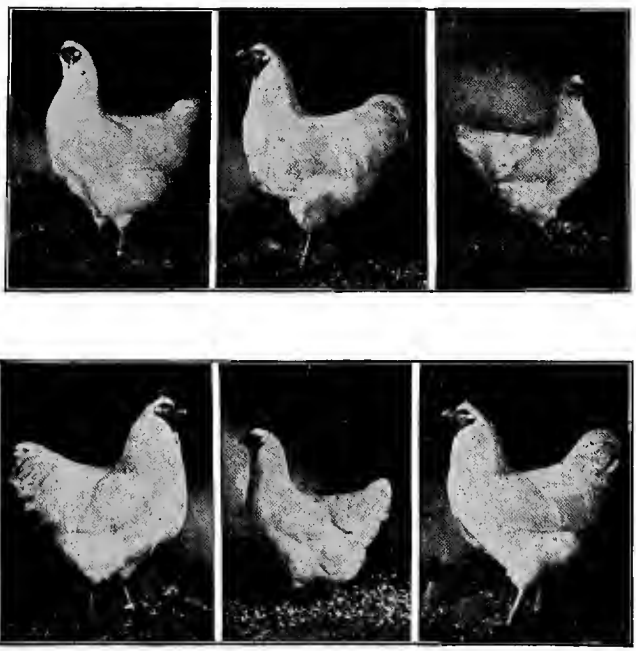
Roasters and capons that are pen or crate-fattened should be cared for and fed in much the same manner. After the birds are confined to undergo the process of "special fattening," they should be fed three times each day for the first five or six days, then fed four times each day for the remainder of the period, twelve to fifteen days. Feed a wet mash each time, using fattening mash No. 7 (paragraph 72), and sour milk or buttermilk if available; otherwise use water, and have the mash real soft, so it will pour readily from a pail, or about the consistency of griddle cake batter. Give them all they will clean up in about twenty minutes; do not leave any mash before them longer than twenty minutes. Do not give the birds any other food except the wet mash, and do not give them any water to drink, as that will give them a greater desire to consume more of the wet mash. In hot weather cold water should be put before the birds twice each day for about ten minutes, which will help to keep down the temperature of their blood.

The operator should be observing and watch the birds closely; if any appear to be losing their appetite, or their combs and head become purple or dark colored, or any become weak on their legs, remove them immediately, and if they are in good condition prepare them

at once for market; otherwise put them back on free range or where they can get plenty of exercise and green food, and feed them the same as they were fed previous to being confined for "special fattening."

58. KILLING, PREPARING AND MARKETING. — Killing and preparing roasters and capons for market should be done in much the same manner as described in detail in Chapter VIII, paragraph 52, except that the feathers on some parts of capons should be left on; the feathers usually left on are the tail feathers and wing feathers down to the second joint; the feathers part way up the back; the neck feathers nearly up the shoulders, and the feathers on the legs about half way up the hips; some markets, however, do not want so many feathers left on. One should investigate and find out just how the receiver wants the birds prepared.

The most up-to-date way of preparing and shipping is to first have the birds shaped; wrap them in waxed paraffine or oil paper, then put each bird in an individual carton that is labeled with the name of the farm, kind of bird and number of pounds. Several of the cartons can be packed in a wooden box for shipment, or the individual carton can be delivered direct to the consumer by carrier or parcel post.



October youngsters Maurice F. Delano stock.
White Plymouth Rocks.

CHAPTER X

FOODS AND RATIONS

59. Foods. — In this chapter are given the foods commonly used for poultry, with combinations of foods that have been used and tested as to their value for the different uses for which they are combined. The numbers of the combined rations given correspond with the numbers used elsewhere in this book.

The different rations given in this book will give good results if they are used according to the directions given; however, if one is using a ration or rations that are producing satisfactory results, be slow to change to other rations. One may be getting fair results from certain methods and foods, but the results may not be paying a profit, or the best profit that can be had; therefore one must be capable of solving the problem or ask the advice and instructions of some one who is capable of meeting the needs of the particular case.

When purchasing foods for poultry, always get the best obtainable. Do not buy damaged food of any kind, even if it can be had at a low price, for it will prove to be a dear food at any price. The poultryman should be a good judge of grain and ground feed, or else get some one who is competent to advise and make an explanatory comparison.

When buying grain, ground feed or combined rations of a reputable maker or dealer, one can usually rely on the brand purchased, but not always. The law requires that all mixed feeds be labeled with the ingredients and correct analysis, so one can be reasonably sure, when buying

ground feed, of knowing what the food is composed of and the analysis. Many concerns and grain dealers who make and sell prepared poultry foods know little or nothing of the requirements of poultrymen in the way of poultry foods. When purchasing foods of any kind, always get the best; and when purchasing prepared foods go to the concern that knows the poultryman's requirements.

It should be understood by any who may compute the nutritive ratio of any of the combined rations given in this chapter that some of the rations in themselves or fed alone would not, according to our best authorities, constitute a properly balanced ration; but as these rations are made up to be used and fed in connection with each other and other foods, according to directions given elsewhere in this book, it will be found that they are what they should be, and good results can be obtained from their use, if used according to the directions.

60. GREEN FOOD. — The different kinds of green food for poultry that can be had are sprouted oats, dwarf Essex rape, green corn, sown broadcast and fed when four to eight inches high; green rye, green oats, lawn clippings, young clover, spinach, beet tops, lettuce; and roots and vegetables that will partly take the place of succulent green food are mangels, beets, raw potatoes, cabbage, turnips, apples, etc. The importance of green food for poultry of all ages is not thought of seriously enough. When green food is not properly supplied, no matter how good the other foods, care and methods may be, poultry will not do well.

61. ANIMAL FOOD. — The best forms of animal food are beef scraps, fresh beef, blood meal, green bone, and fish scraps. The latter, however, are not recommended for all poultry, but only for growing stock past two

months old; even then beef scraps are preferable and far superior. All beef scraps should be tested before using; some grades are worthless and harmful, while there are others that are excellent. When using green bone, be sure that it is fresh at the time of feeding; one-half ounce daily is all that should be given a full grown bird.

62. CHARCOAL. — Do not overlook the beneficial properties in charcoal for poultry of all ages. It aids digestion, purifies the blood, acts as a regulator, and generally helps to keep the birds in a healthy condition.

63. GRIT. — Keep a constant supply of grit before poultry of all ages; it may not serve to grind the food, but no doubt a benefit is derived from grit in the way of mineral matter needed.

64. OYSTER SHELLS. — It is not necessary to keep oyster shells before all poultry, only birds that are laying need shells before them constantly; however, it will do no harm to keep shells before growing stock. Very few shells will be consumed by any birds, except those that are laying.

65. MILK. — Sweet skimmed milk, sour milk and buttermilk are valuable foods for poultry of all ages. They can be given as a drink and used to wet mashes.

RATION NO. 1

66. CHICK GRAIN RATION. — Cracked wheat, fifty pounds; fine cracked corn, thirty-five pounds; pinhead oats, twenty pounds; shredded wheat biscuit, eighteen pounds; golden millet, six pounds; split rice, ten pounds. The shredded wheat biscuit mentioned is the sweepings or broken biscuit from the mill that cannot be used for breakfast cereal. This broken shredded wheat can be had in any of the large cities or direct from the mill.

RATION NO. 2

67. Chick Dry Mash. — Wheat bran, one hundred pounds; oat middlings, fifty pounds; corn meal, forty pounds; mealed alfalfa or mealed clover, fifteen pounds; beef scraps, twenty pounds; bone meal, ten pounds; charcoal, two pounds; salt, one-half pound.

RATION NO. 3

68. Growing Mash. — Wheat bran, one hundred pounds; ground oats, one hundred pounds; corn meal, seventy-five pounds; middlings, seventy-five pounds; mealed alfalfa or clover, twenty pounds; beef scraps, forty pounds; charcoal, four pounds; salt, one pound.

RATION NO. 4

69. Growing Grain Ration. — Wheat, one hundred pounds; cracked corn, fifty pounds; clipped oats, fifty pounds. When barley can be had at a reasonable price, twenty-five pounds of barley can be substituted for twenty-five pounds of the wheat.

RATION NO. 5

70. Fattening Grain Ration. — Cracked corn, one hundred pounds; barley or buckwheat, forty pounds; wheat, forty pounds.

RATION NO. 6

71. Broiler Fattening Mash. — Oat bran, fifty pounds; low-grade flour, thirty pounds; corn meal, twenty pounds; cottonseed meal, ten pounds; beef scraps, fifteen pounds; charcoal, one pound.

RATION NO. 7

72. Fattening Mash. — Oat bran, sixty pounds; corn meal, fifty pounds; low-grade flour, forty pounds; beef scraps, twenty-five pounds; cottonseed meal, fifteen pounds; charcoal, one and one-half pounds. A small amount of molasses can be added to rations Nos. 6 and 7, just enough to sweeten the wet mash before feeding; this will make it more appetizing, and also adds to the quality of the mash as a fat producer.

73. Analysis and Value of Foods used for Poultry

Foods	Protein	Carbo-Hydrates	Fat	Nutritive Ratio
Whole corn	10.4	70.3	5.0	1:7.9
Cracked corn	8.6	73.9	3.9	1:9.5
Wheat	11.9	71.9	2.1	1:6.3
Oats	11.8	59.7	5.0	1:6.1
Barley	12.4	69.8	1.8	1:6.0
Buckwheat	10.0	65.4	2.2	1:7.0
Millet seed	12.7	58.0	3.3	1:5.2
Rice	7.4	79.2	0.4	1:10.9
Corn meal	9.2	68.7	3.8	1:8.5
Wheat bran	15.4	53.9	4.0	1:4.1
Wheat middlings	15.6	60.4	4.0	1:4.7
Low-grade flour	10.6	75.0	1.0	1:7.7
Oat bran	7.1	57.9	2.3	1:8.9
Oat feed	12.6	56.3	6.2	1:5.7
Barley meal	10.5	66.3	2.2	1:6.8
Buckwheat bran	17.1	46.4	4.4	1:3.3
Buckwheat middlings	28.9	41.9	7.1	1:2.1
Cottonseed meal	42.3	23.6	13.1	1:1.3
Beef scraps	58.0	...	32.9	1:1.4
Green bone	22.3	...	16.5	1:1.8
Buttermilk	3.9	4.0	1.0	1:1.6
Whole milk	3.5	4.8	3.7	1:4.0

Foods	Protein	Carbo-Hydrates	Fat	Nutritive Ratio
Skim milk (separated)	2.9	5.2	0.3	1:2.0
Blood meal	65.1	5.3	16.3	1:0.6
Red clover hay	12.3	38.1	3.3	1:3.7
Alfalfa hay	14.3	42.7	2.2	1:3.4
Green grass	2.3	13.8	1.0	1:7.0
Cabbage	2.4	3.9	0.4	1:2.0
Beet tops	1.3	2.3	0.3	1:2.3
Lettuce	1.0	1.6	0.2	1:2.1
Spinach	2.1	2.4	0.5	1:1.7
White potatoes	2.1	17.3	0.1	1:8.3
Mangels	1.4	5.5	0.2	1:4.3
Turnips	1.1	6.2	0.2	1:6.0
Green corn	1.8	12.2	0.5	1:7.5
Green oats	3.4	19.3	1.4	1:6.7
Green rye	2.6	6.8	0.6	1:3.0
Beets (sugar)	1.8	9.8	0.1	1:5.6

74. Balancing a Ration. — To find the nutritive ratio of any combination of foods, add the three columns separately giving the protein, carbohydrates and fat of the different foods, multiply the total of the fat column by two and one-half (one part of fat by weight has a fuel value two and one-half times as great as an equal weight of carbohydrates), add this product to the total of the carbohydrates column and the quotient will represent the amount of carbohydrates to one part of protein.

For example, take one hundred pounds corn, one hundred pounds wheat, fifty pounds oats.

	Lbs. Protein	Lbs. Carbo-Hydrates	Lbs. Fat
100 lbs. corn contain	8.6	73.9	3.9
100 lbs. wheat contain	11.9	71.9	2.1
50 lbs. oats contain	5.9	29.85	2.5
250 lbs. contain	26.4	175.65	8.5

$$26.4 : (8.5 \times 2.5) + 175.65 = 7.4$$

The nutritive ratio is one pound of protein to 7.4 pounds of carbohydrates and fat. Written 1:7.4. This ration is not rich enough in protein for growing stock, but about right in proportion for a flesh ration.

The nutritive ratio of one hundred pounds of mangels is 1:4.3 which would be considered about the right ratio for growing stock, but it is needless to say that growing stock cannot be properly grown on mangels alone; therefore it should be understood that a properly balanced

Rhode Island Reds. Fine specimens of the breed.
Maurice F. Delano stock.

ration should consist of a variety of foods that are easily assimilated, made up of a portion of animal matter, vegetable matter and mineral matter.

There is no business that is more fascinating and interesting than the poultry business. In order to make a success of any undertaking, one must be thoroughly interested in that which he is doing, to the extent that he will exercise the best there is in him to accomplish the desired result.

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