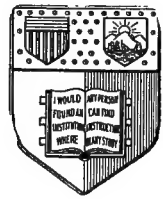
SQUABS FOR PROFIT

WILLIAM B. RICE
AND
WILLIAM E. COX



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WILLIAM E. RICE (SEATED) AND WILLIAM E. COX.

Squabs for Profit

A PRACTICAL TREATISE ON THE RAISING OF SQUABS FROM THE EGG TO MARKET, BEING A HANDBOOK FOR THE BEGINNER AND A GUIDE FOR THE EXPERIENCED BREEDER

By

WILLIAM E. RICE *and* WILLIAM E. COX

ILLUSTRATED

New York

ORANGE JUDD COMPANY

1906

PUBLISHER'S PREFACE.

We take pleasure in prefacing this splendid book with a combination picture of the authors, William E. Rice and William E. Cox, who have jointly written from practical experience the most complete work of the kind ever published. Mr. Rice is seated in the chair, with his favorite dog at his feet and a handsome Homer pigeon on the stand.

ORANGE JUDD COMPANY.

AUTHOR'S PREFACE.

In presenting this book to the public, the authors appreciate the fact that it is not perfect, but we have endeavored to embody details of practical and hard-earned experiences. We have constantly had in mind the beginner and inexperienced squab raiser. We have endeavored to point out the way to success, but the individual and not the book will determine whether success or failure is the result. Many people think they can succeed with squabs if they follow specific instructions and hints given them by others. No man or woman has any business to undertake to raise pigeons for pleasure or market unless they really love the work, and are willing to attend to the minor details on which success, nine times out of ten, depends.

In the preparation of this book, the authors wish to gratefully acknowledge the assistance they have received from Prof. W. G. Johnson of the *American Agriculturist,* who read the entire manuscript and has made many valuable suggestions, besides making part of the pictures here reproduced. Professor Johnson personally visited our plant and made a most careful study of every detail of our work and his suggestions are, therefore, all the more valuable. We wish also to extend our thanks to Mr. H. W. Poarch for most of the splendid photographs reproduced in these pages.

It is the hope of the authors that this book will serve as a guide to the inexperienced and be helpful and suggestive to the practical breeder. If this volume in any way answers the numerous questions that are sent to us, we shall feel well repaid for our labor. When readers note any errors, typographical or otherwise, they will confer a favor on the authors by calling attention to them so that corrections can be made in future editions.

THE AUTHORS

New Jersey,
1906.

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SQUABS FOR PROFIT

CHAPTER I

Remarkable Story of Success

A brief story of the success of Mr. Rice in the squab business is best told by himself as follows: To have $50 increase to $3,000 in seven years is quite satisfactory as an investment; but this result is even more gratifying when accomplished without interfering with the regular hours of another business. Squab raising has done this for me in the time mentioned, while I managed a shirt factory, running from 50 to 60 machines.

Twenty years' experience raising chickens in incubators and brooders had hammered into me the necessity for painstaking care in all the daily details of management. This training had likewise somewhat equipped me for the task of selecting the best specimens. When the "pigeon fever" set in, I felt that I had an experience which, while not pigeon knowledge, would be of value to me in my new venture.

The first purchase.—The first birds I bought were common stock, which the owner had in an old corn crib; some of them were sick and he was anxious to dispose of them. With his aid, I picked out 12 birds, and was fortunate in getting an equal number of each sex. These birds did fairly well from the beginning,

and for several weeks I was pleased with them. Later I went to see a friend who had some high pedigree Homers which had won first prize in several hotly contested races. A simple glance at these superb birds made me dissatisfied with mine. The next day I sold my entire lot.

My next purchase was 25 pairs of racing Homers, for which I paid $25. They were a wonderful bargain, which I can never hope to repeat. Another $25 had been used previously in refitting a brooder house for the occupancy of my birds. Thus the second attempt, or my real beginning, was fairly launched. The birds gave me quick results in squabs. As fast as any money was accumulated from my birds, I began to add to my flock, by the purchase of other Homers. I also saved all the best young birds from my little flock.

Selecting and adding good strains.—At this time there was a Homing club of half a dozen members in my own city. They were all eager to win first prizes in their frequent contests from 100 to 600 miles. Some of their stock had cost $30 a pair. From this choice stock, I was able at times to buy young birds at a little above market price for squabs, thus supplementing my first purchase by others of sound constitution and strong vigor. I was thus able to secure several different strains of blood, but all first-class Homers.

My flock soon outgrew the capacity of the old brooder house. The problem of financing a new and satisfactory building was before me. I determined to erect a five-pen house as shown in Fig. 1. It was 12 x 40 feet and built to accommodate 250 pairs of birds. I paid down what cash I had saved up from the sale of

squabs, and gave my note for the balance, $250, depending on the birds to furnish the cash to meet the note, and they did.

Enlarging the plant.—The completion of the house and filling it with good birds was a pleasant task.

FIG. 1—ONE OF THE FIVE-PEN BREEDING HOUSES.

This was done gradually by buying new birds and saving from the increase of my growing flock. In due time, a second house was erected and paid for in the same way as the first. After shorter intervals, still a third house of the same size was added, thus making the entire capacity 750 pairs of pigeons, exclusive of the original brooder house. A general view of my plant is shown in Fig. 2.

Particular emphasis must be laid on the fact that $50 was the original amount of the capital I put into the business; every other penny was earned by the birds. They proved themselves most substantial and reliable bankers, besides furnishing me much pleasure in admiring their beautiful colors and graceful forms. At the end of seven years my plant inventoried as follows:

750 pairs Homers, actually mated, valued at $2.50 or	$1,875
Three buildings, 12x40 feet, estimated at $250, or	750
Feed bin, fountain and sundries, valued at	100
250 pairs of young birds, at $1.50, or	375
Thus making a total valuation	$3,100

The showing is even better than represented by these figures. As soon as my flock attained considerable growth, I was obliged to hire assistance to help in the morning work, dress the squabs and do the weekly cleaning on Saturdays. For the three years of this period this weekly expense ranged from $5 to $7.

Difficulties overcome.—It must not be supposed that my success came as easy as its recital might indicate. There were many drawbacks and heavy losses

FIG. 2—GENERAL VIEW OF A SECTION OF THE PLANT.

from ignorance, on my part, of proper methods of feeding, from diseases and faulty methods of management. On the whole, I am quite well satisfied with the venture. I am still doing business at the old stand and expect to continue adding to my plant as the profits warrant it. In the following pages, with the assistance of my friend and co-worker, William Edward Cox, we have attempted to bring together facts which we hope will be helpful to beginners and serve as a guide to others who have had some experience breeding and handling pigeons.

CHAPTER II.

Important Facts to Know

There are certain facts essential to the management of pigeons which can easily be learned by anyone before attempting to raise squabs; if not thus learned failure very frequently follows. These facts are as simple as important; some are so axiomatic it seems foolish to mention them. But because many have started in the business and utterly failed for the lack of just such knowledge, prominence is given them at the very beginning of this work.

Mating habits of pigeons.—Pigeons are monogamous, that is, one male and one female constitute a pair, after they have chosen each other as mates. This does not mean that a male and a female placed together will always mate, for it is the custom of pigeons to have a period of love making. When they have mated, they usually remain true to each other during life. This fact further means that if one has 50 cocks and 50 hens, he may not succeed in getting 50 mated pairs; for until the birds select each other there can be no mates. Some birds may not mate at all. This simple fact, which has so important a bearing in squab raising, was noted by the philosopher Pliny more than eighteen centuries ago.

Age of most profitable birds.—Birds under a year old are not profitable. Very precocious ones will sometimes mate when six or even four months old; but such instances are very exceptional. Again, the first two squabs raised by young parents are usually poorly nourished. If they are raised they usually

bring a small price in the market. It can be set down as a rule, therefore, that no profit can be realized from a flock of birds until they are fully a year old.

Age limit of profitable birds.—Birds more than nine or ten years old are unprofitable. Here again exceptions are occasionally met; we have known of a single instance of a pair of birds continuing profitable at eighteen years of age. These cases are so exceptional, however, a beginner will do well to remember that after birds are nine years old they are not likely to to be a source of profit.

Unmated birds are unprofitable.—Until pigeons have accepted each other as mates, there will be no attempt at housekeeping or nest-making. Neither eggs nor squabs will appear. Nevertheless, feeding twice a day with unfailing regularity by the owner must be continued. How long will be required by a flock, say 50 birds of each sex, to mate is a question which can be answered only by the birds themselves; but the feeding expense and care must continue until the mating is accomplished.

Keep mated and unmated birds separate.—No unmated birds must be permitted in the breeding quarters. This one simple rule is of great value in raising squabs. Ignorance of or neglect to enforce it annually causes heavy losses among squab breeders. To rear squabs profitably, the birds must be peaceable. Sometimes a bird will fight with the lawful occupants of a nest. Frequently, in such cases, the eggs will be broken or the young squabs are thrown to the floor. Often an unmated hen will cause fights among the mated cock birds. Unmated birds of either sex have no place or business in the breeding pen; separate quarters must be provided for them to insure success.

Inbreeding unprofitable.—Inbred birds, lacking vitality, are unprofitable. This is likewise a fruitful source of loss in raising squabs. If eggs are laid, and the squab does not have strength enough to break the shell, or if the eggs do hatch and the squabs die when one or two days old, it is very evident that no

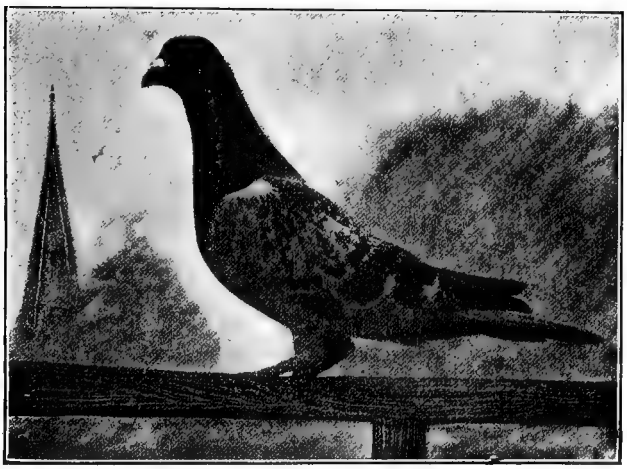

FIG. 3—YOUNG HOMER COCK.

profit can be expected. Usually such cases are caused by a lack of vitality in the parents. In many instances, such troubles are directly traceable to careless inbreeding. There is no remedy for a constitutional lack of vitality, except the knife.

Avoid diseased birds.—This is so plain that comment seems unnecessary. It is hardly likely that anyone would, knowingly, buy a bird affected by disease. Avoid birds that crouch in a corner or those with drooping head or tail. A pigeon, however, may have

FIG. 4—EGGS AND SQUABS JUST HATCHED.

canker without being detected, unless a careful inspection of the mouth and throat is made. A purchaser, unused to pigeons, may easily get lousy birds. They are dangerous and better be knifed rather than attempt to keep them, unless the vermin are destroyed at once. When these pests have once secured a foothold, they increase so rapidly they will kill both squabs and parent birds in short order if neglected.

Beware of birds from unscrupulous dealers.—Birds bought from unreliable dealers are often unprofitable. This is because some dealers buy many birds from various sources, and know nothing specific about them. Our correspondence during the last three years warrants us in stating that there has been a probable loss of more than $10,000 to people who have bought pigeons. These correspondents have nearly always made the same complaint. They bought birds because they were told they were mated; but after keeping them, in some instances a full year, they have found not more than 25 per cent were mated, in some cases, less than 10 per cent. Some of these dealers have agents in various parts of the country hunting for birds. One of these agents assured us that in one year he shipped 2,000 pairs of birds, at 75 cents a pair, to a certain firm. He did not raise the birds himself but bought them in a local market.

All breeding birds should be banded.—Birds should be banded before being placed in the breeding pen. The purpose of this banding is to enable the owner to keep accurate records. Frequently a bird dies. The record is consulted, and the unmated bird

FIG. 5—SQUABS 48 HOURS OLD AND 10 DAYS OLD.

can be removed from the pen until a new mate is selected. In addition to the above, the record should include the number of squabs each pair of birds produce. In this manner the unprofitable ones may be eliminated. It is further an aid to prevent inbreeding. When youngsters are banded while in the nest and their numbers recorded, they can be distinguished from others. This would be impossible after they have left the nest without bands and after they have mingled with others; for many pigeons very closely resemble each other in color and markings.

Squabs cannot feed themselves.—Nature provides the mother bird with a substance sometimes called "pigeon-milk," produced in the crop and resembling cottage cheese. This is injected into the mouth of the squab during the first five or six days. Grain is gradually added during the last day or two, after which the youngster is put on a full grain diet. Until the squab leaves the nest it is absolutely dependent on its parents for all its food and drink.

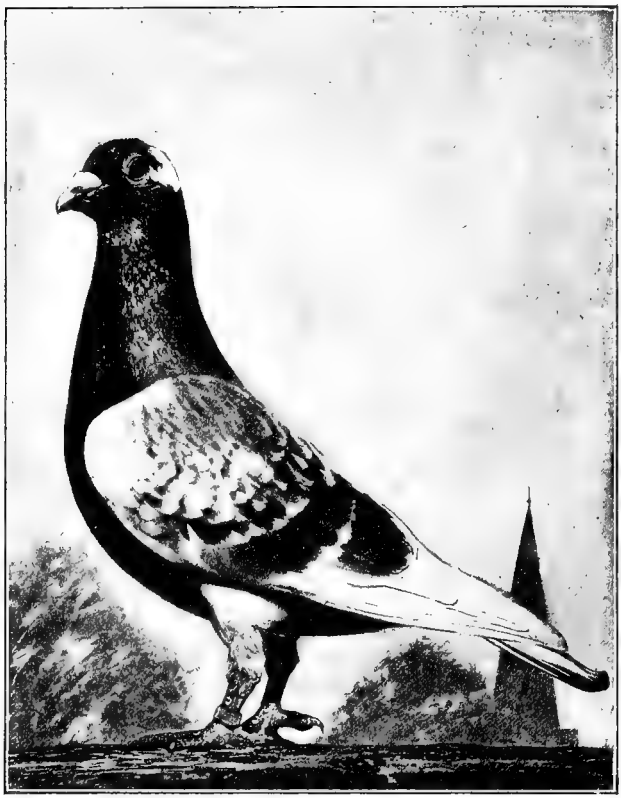

FIG. 6—AN IDEAL HOMER PIGEON.

CHAPTER III.

The Best Squab Raisers

Very few pigeons, other than Homers, are used by practical squab breeders. As yet, no pigeon has been found combining the excellent qualities possessed by the Homer. An ideal bird is shown in Fig. 6. The Homer is alert, erect of carriage, bright-eyed, full-breasted, square-shouldered, large-throated; is a good feeder, not lazy, cares well for its young and is very prolific, sturdy and of vigorous constitution. Large-throated birds are necessary in squab raising. Many squabs of some varieties are choked to death during feeding because the pieces of feed are too large for their throats. This happens usually as the parent is passing from the "pigeon-milk-stage" and begins feeding full grain only. Such casualties seldom occur with Homers.

The necessity of birds having sound, vigorous constitutions is apparent. Squabs from such stock can be expected to exhibit the good qualities of their parents. It is likewise clearly understood that in order to win first prizes in races, ranging from 500 to 1,000 miles, birds must not be deficient in strength, speed and endurance.

The best squabs for market.—To be profitable breeders, the parents must be good feeders and care well for their young. It must be remembered that squabs stay in their nests until they are four or five weeks old and all their feed must be given them by their parents. Squabs must be marketed before leaving the nest because they lose flesh rapidly as soon as

they get on the floor. Commission men grade squabs by weight. The grades are 7, 8, 9 or 10 pounds, etc., to the dozen. The highest price is paid for the plumpest and heaviest birds. Squabs running 8 pounds to the dozen is an average weight. As an example of the way squabs usually run, we give below the details of a shipment made October 12, 1905.

4 10-12 dozen squabs, averaging 9 pounds per dozen at $4	$19.33
3 9-12 dozen squabs, averaging 8 pounds per dozen at $3.75	14.16
1-12 dozen squabs, at the rate of 7 pounds per dozen at $3	.25
Total	$33.74

These figures show that seven-pound squabs at that time were much less profitable than eight-pound squabs; that nine-pound birds brought about 7 per cent more than eight-pound birds. The same condition holds good now. It should be noted that the largest number of birds were in the nine-pound class and that only one bird was graded in the seven-pound class.

We shipped 106 birds the following week. The price had advanced 25 cents as follows:

4 dozen squabs, averaging 9 pounds per dozen at $4.25	$17.00
4 3-12 dozen squabs, averaging 8 pounds per dozen at $4	17.00
7-12 dozen squabs, averaging 7 pounds per dozen at $3.25	1.89
Total	$35.89

It will be observed that the light-weight squabs were few. The heavy birds were but three less than the medium-weight ones, while the amount received

was exactly the same in these two cases. In other words, it took three more of the medium-weight squabs to bring $17 than of the heavy-weight ones. Of the 220 squabs in the two shipments, only eight birds or less than 4 per cent were graded in the seven-pound class. To produce such squabs requires good stock and careful management; but first-class Homer stock is equal to the task. In fact, in the shipments mentioned, 6 dozen squabs graded 10 pounds to the dozen. Our aim in breeding is to develop birds that will produce the largest possible number of heavy squabs suitable for the market when four weeks, or less, old. Our birds consist of nearly all straight Homer stock. A few birds have a mixture of Dragoon blood. We have clung persistently to the Homer strains, because we cannot get the reliable evidence of any other pigeon that will equal their record.

Number of squabs a year from one pair.—There are those who publish claims that their particular variety or strain will produce 10 or 12 pairs of squabs a year. Let us look, for a moment, at the possibilities of such results. The hen pigeon lays an egg and skips a day; usually on the third day she lays the second egg; incubation requires 17 days, at the end of which time the squabs hatch. Thus, 20 days are required from first egg to time of hatching. For nearly a week the squabs are fed on "pigeon-milk."

For the sake of argument, we will suppose that at the end of another week, or 14 days from the time the squabs hatched, the hen begins laying again. It must be remembered, however, that the squabs must be fed until they are about four weeks old before they are ready for market. Suppose, however, that the hen

FIG. 7—SQUABS ONLY A FEW HOURS OLD.

does begin laying again at the end of 14 days. Therefore 34 days have elapsed since the first egg was laid. Dividing 365 by 34 we get 10 and a fraction or the total number of possible broods under such conditions for a year. It is clear, therefore, that it is impossible to get 12 broods unless we shorten the time between hatching and the next laying.

In this calculation, no allowance has been made for infertile eggs, or squabs dying in the nest, neither have we considered any cessation of squab production during the molting season. It is quite customary for birds to rest during their molting period. A claim of 12 pairs of squabs from a single pair of pigeons in a year is preposterous. We are willing to display our doubt, publicly, that there is anywhere in the world a flock of 25 pairs of pigeons having a record of 12 pairs of squabs for each pair in a single consecutive 12 months.

The highest average we have obtained with our flock, and we do not claim perfection by any means, is nine pairs of squabs to each pair. This record was made with 25 pairs of young, selected Homers. The results outlined in the opening chapter were made with an average of 5½ pairs for the entire flock. Could we maintain an average of nine pairs, our net increase from squabs would be augmented at least $1,575 a year from a flock of 750 pairs of breeders.

Experiences with other breeds.—In our early pigeon keeping, we made some experiments with Runt, Duchesse and other breeds. The Runt is the giant among pigeons, but is not prolific. It is a slow breeder, yielding sometimes as low as three or four squabs in a year. The experiments with the Duchesse were, likewise, disappointing as to yield compared with

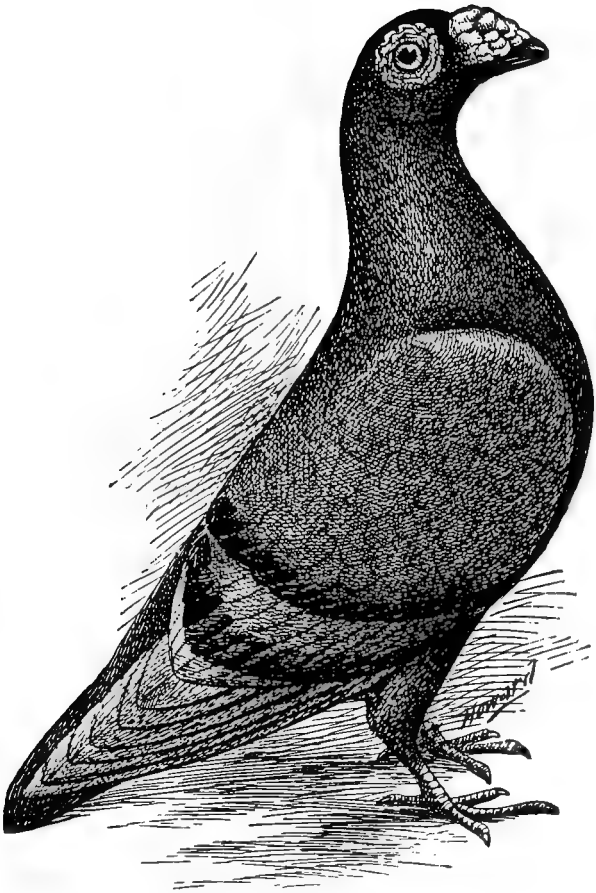

FIG 8 –TYPICAL BLUE DRAGOON PIGEON.

From Farmers' Bul. No. 177, U. S. Dept. of Agri.

the Homer. The presence of feathers on the legs of the Duchesse made dressing more troublesome. Dragoons also fell short. One of these birds is shown in Fig. 8.

There are numerous breeders in our section with flocks of 500 to 2,000 pairs kept for squab raising. The Homer constitutes the larger portion of these flocks. Some of our breeders, however, have a sprinkling of the blood of the Dragoon, Duchesse, Runt, Modaines, Red Cameaux, Owls, Archangels and Scandaroons. In fact, they have every variety obtainable, besides crosses of many kinds. We are keeping in touch with the yields of these flocks. Thus far there is no evidence in size of squabs, number produced, or prices realized, that makes us at all envious.

When a breeder produces a bird which will surely surpass the Homer, we shall adopt it very quickly. We shall cling to the Homer, however, until well satisfied that the new claimant is its equal, with a year's yield as proof. We are in the business for the money there is in selling squabs. It is to our advantage, therefore, to have the kind of birds that will produce the best results in dollars and cents.

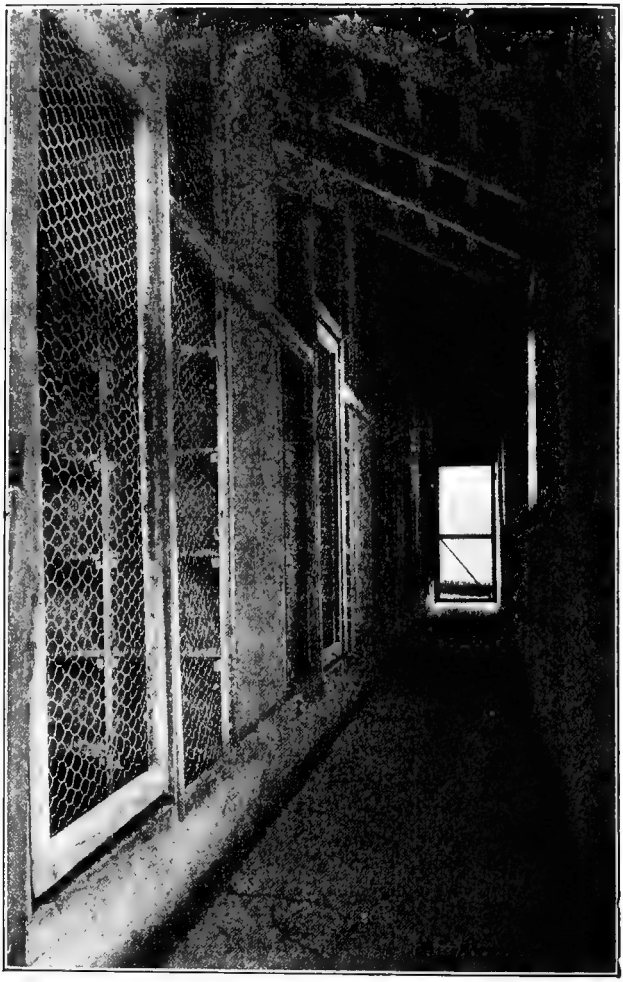

FIG. 9—INTERIOR OF BREEDING HOUSE.

Showing aisle and arrangement of door to each pen.

CHAPTER IV.

The Ideal Pigeon House

A quiet, well-ventilated and comfortable house is necessary for pigeons. In selecting a site great care should be taken to secure one convenient for attending to the daily wants of the birds. A well-drained, sandy and gravelly soil with a gradual slope to the south makes an ideal location for the house and the accompanying yards or flies. Low, damp places should be avoided, especially where water is liable to stand after rain. In such places the water soon becomes polluted by the droppings of the birds and sooner or later induces disease and disaster. Buildings facing the south are most desirable. It is sometimes permissible to have buildings facing the east, but a southern exposure is preferable. There should be no obstructions which shut out the morning sun. It is also desirable to have evergreens or other trees and buildings to protect the site from the north and west winds.

Never place the house on the ground. It not only induces dampness, but furnishes a harbor for rats, weasels, minks and other animals. The house should be set on a pier of bricks, stone or wood, 12 to 18 inches from the ground. There can be no hope of success in raising squabs if such animals as mentioned above have free access to the breeding quarters. They will not only kill the squabs, but frighten the parent birds. We know of an instance where rats killed 20 squabs in a small pen in a single night. The old birds were so frightened that only a few squabs were produced for several weeks

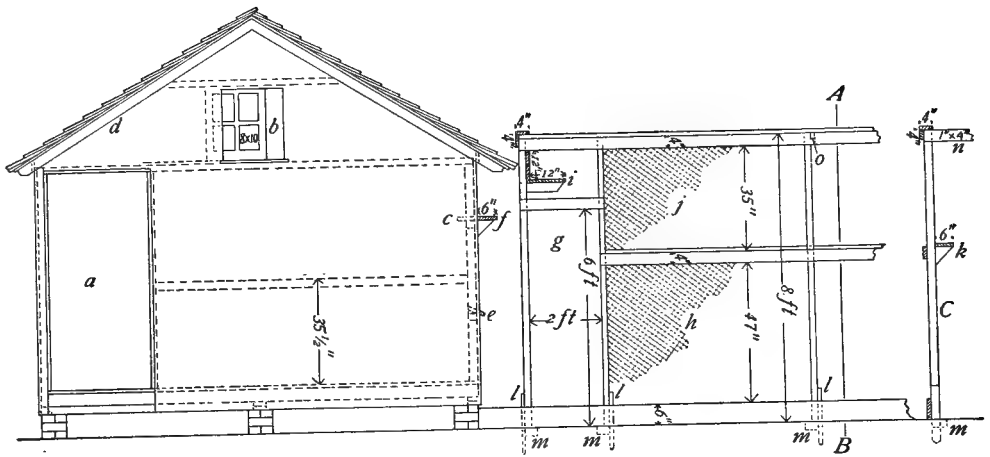

FIG. 10—SECTIONAL VIEW OF HOUSE AND YARD.

A cross section from A to B is shown at C.

afterwards. Within a stone's throw of our pens are eight barns which contain many rats. While these rodents are often seen crossing adjoining lots to our premises to drink from the bathtubs or basins in the yards, we have never lost a squab from their depredations. In fact, we have never seen any indications of their presence within the pens.

The house.—Our houses are 12 x 40 feet, divided into five sections or pens of equal size. An alleyway, as shown in Fig. 9, running the entire length of the house, cuts off nearly 3 feet, thus making the ground floor of each pen 8 x 9 feet, as shown in Fig. 11 at B. These pens are of sufficient size to accommodate 50 pairs of breeders. Each pen is furnished with 100 to 200 nests. (Fig. 13.) In no case should a house be built for more than 250 pairs nor more than 50 pairs in each pen. Some successful breeders prefer single houses holding not more than 50 pairs of birds, but five single houses will cost considerably more than one built in five sections, as here described. When under one roof, it requires less time and labor in attending to the birds than when they are in separate and smaller houses. When a smaller house is desired, one can be constructed according to the plans shown in Fig 14. This can be adapted to either 25 or 50 pairs of breeders.

For permanent use, there is no economy in erecting a building of poor materials. This applies to the roof as well as to the body of the building. Our houses are constructed of first-class lumber, including good cedar shingles. They are given two coats of paint outside, and are thoroughly whitewashed inside after they have been seasoned before they are considered ready for the birds. A new building should

not be used under any circumstances until it is thoroughly seasoned and dried out. This is especially true if it is constructed of green or unseasoned lumber or erected during damp weather. We once lost $80 worth of good breeding stock by carelessness in this respect. Our third building had been erected late in the fall and we were anxious to fill it with birds. The birds were put in as soon as it was finished. We had several days of damp weather and the inside walls of the building were saturated with moisture which trickled down the sides in tiny streams. We added to our folly, in this respect, by keeping the windows and doors tightly closed. When we came to our senses we thoroughly aired the building and mopped off the moisture from the inside walls. By thorough ventilation we had no further losses.

The end section of one of our buildings is used as a storeroom and for dressing squabs. It is also used as a hospital for sick birds. Over the grain bins, which are of ample size for a week's supply, we have arranged several compartments, with sliding doors, in which the sick birds are kept and watched. In this room we keep a supply of granulated charcoal, sharp grit, cracked oyster shells, fine table salt, medicines, etc. An oil stove is used to warm the room in cold weather when we are dressing squabs.

Light and ventilation.—In each gable near the peak, as shown in Fig. 10, at "b", is a sliding window with four panes of glass, each 8 x 10 inches. There are two windows on the front or south side as shown in Fig. 12, section A, each with six panes, 8 x 12 inches. There are also two six-pane windows on the north side of the house. These are used for ventilation and are located about equal distance between

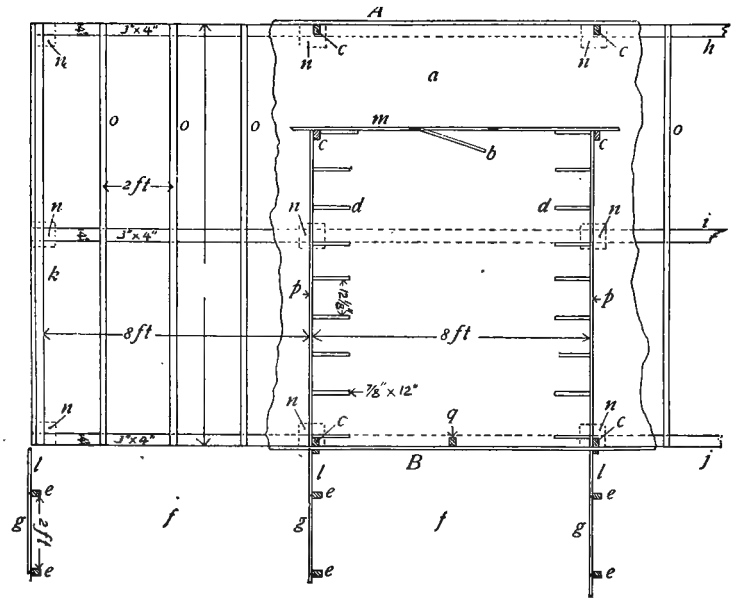

FIG. 11—GROUND PLAN OF HOUSE (A), PEN (B) AND YARD (f).

For description see page 34.

the pens so as to give proper ventilation for each two sections. One of these windows is shown in Fig. 10, section B, at "a". All the windows are made so as to slide easily and are covered with wire netting on the outside.

In each inside partition, near the gable, is a two-foot opening covered with wire netting as shown at "a", in Fig. 13. These openings are above the nests as indicated, and permit a free circulation of air through the various sections. As an additional means of ventilation, some breeders erect cupolas with slatted sides in the center of each house. There is no possible objection to their use, except that they slightly increase the cost of the building. We have not found them necessary in our houses. We would, however, advise their use in houses longer than 40 feet.

Doors.—Strong, wooden doors, under lock and key, are provided at either end of the alleyway leading outside. These doors swing outward. They are also provided on the inside with self-closing doors covered with wire netting, as shown in Fig. 9. The doors leading into the sections or pens are covered with wire netting, as well as those leading into the yard or fly, as shown at "b", Fig. 13. All doors are supplied with strong hinges, such as are used on screen doors and are self-closing. This feature is of special value as it effectually prevents the escape of birds from carelessness in leaving doors open when one enters or leaves the building or yard.

Materials and construction.—Three rows of brick, stone or concrete piers 12 to 18 inches high serve as a foundation for the buildings. The 3 x 4-inch sills rest upon these as shown at "h", "i", "j" in Fig. 11. The 2 x 4-inch joists are laid 2 feet apart on these sills.

The floor is laid of seven-eighth-inch matched North Carolina pine, tongued and grooved. The interior should be boarded vertically with seven-eighth-inch beaded North Carolina pine, tongued and grooved. In such a climate as we have in New Jersey, it is not necessary to plaster the inside walls or sheath them throughout with building paper. We use building paper only on the north side of the house. In colder climates, however, it would undoubtedly be better to give such protection throughout. The partitions between the sections are constructed of one-inch boards, 12 inches wide. The interior of the alley-way is thoroughly ceiled with boards of the same kind, as shown in Fig. 9. These partitions extend to the roof, leaving a two-foot opening for ventilation near the gable, as shown at "a", Fig. 13.

Nests and roosts.—The sectional view shown in Fig. 13 gives a good idea of the interior arrangement of the nests. These are placed against the partition. It is not desirable to have all the upright boards extend to the floor. If arranged as shown in Fig. 13, so as to have the bottom nest about 15 inches from the floor, there will be no place for mice or other vermin to hide. It should be noted in Fig. 13, that the center, upright board and the one next to the aisle extend to the floor. Two boards at the right extend to the roof, where they are securely fastened. These nests are made of one-inch boards and are, when completed, 12 inches wide, 12 inches deep and 10 inches high. The cleats are one-inch square, nailed 10 inches apart on either side of the upright boards, as shown in the figure. The bottom of the nest consists of one-inch boards, 12 inches wide, cut in 11⅞-inch lengths. This slight allowance makes it easy to remove the bottom

of the nests when it is desirable to clean them. Each section or pen contains two sets of nest boxes, one against each partition. If constructed as shown in Fig. 13, there will be 46 nests on each side, or 92 in all. It is desirable to have an extra number of nests rather than crowd the birds too much. This makes ample room for resting places when some of the birds are in their nests. Some birds will persist in building their nests on the floor. In such cases it is best to humor them and make no attempt to compel them to nest elsewhere, unless they accept their new quarters after a trial or two.

We do not recommend the use of individual perches within the houses. In our experience, we have seen no advantage from them. It is desirable to visit each house every night before retiring and see that everything is all right. The birds will, almost invariably, be found each in a separate box; the same birds in the same box every night. They are thus secluded and do not soil each other nor foul the floors as they do when occupying individual perches outside the boxes. We do not recommend running boards within the pen; they are a disadvantage. A cock inclined to play the boss can chase away other birds and keep the whole flock in an uproar, if running boards are provided. Where each bird has a separate resting place, little opportunity is given for fighting, and if it be attempted the bird within the box has a great advantage over the one outside and soon compels the retreat of its adversary.

Nesting pans.—We advise the use of small earthenware nesting pans, such as are shown in Fig. 7. Frequently a pair of birds will refuse to use them and persist in building on the floor of the nest box. In such

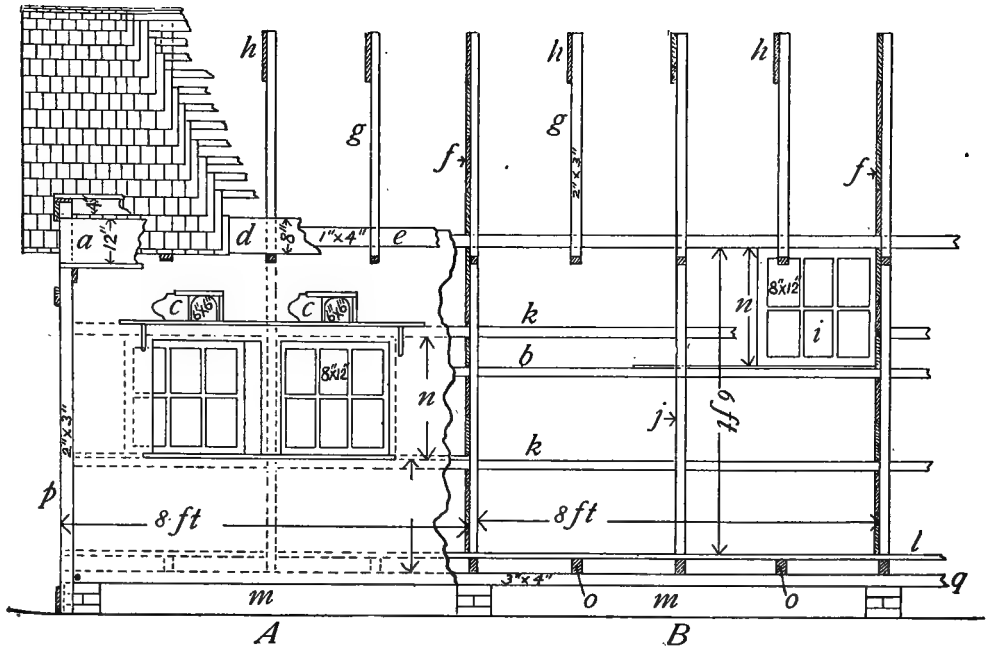

FIG. 12—FRONT VIEW OF AN IDEAL HOUSE.

One section at A, enclosed and another at B, representing interior arrangement. For description see page 34.

cases, we usually test the birds a couple of times, giving them a nesting pan, but if they refuse it, we allow them to have their own way rather than disturb them. We use tobacco stems in our breeding houses. The stems are purchased by the bale and cut into four to six-inch lengths and placed in the house where the birds can get at them. It is frequently desirable, after the foundation of the nest is made, to supply the birds with a little straw to complete their nests. The straw is not absolutely necessary, and, unless the tobacco stems are very coarse, they serve the purpose very well and are a safeguard against lice and other vermin.

The fly or yard.—To give birds the proper exercise and an opportunity of bathing and sunning themselves in the open air a fly or yard is necessary. Our yards are 32 feet long, 8 feet wide and 8 feet high, as shown in Fig. 1. For details about the construction of the yard, see Fig. 10. A yard of this size is fully large enough. In one of our houses, however, the yard is only 21 feet long. We have not noticed any bad results from its use. There should be no cross perches or roosting poles through the yard. A six-inch board on each side of the yard and across its ends is desirable. On this board the birds rest, walk, or sun themselves, as shown at "f", "i" and "k", in Fig. 10. The frames should be made of 2 x 3-inch hemlock posts. These are arranged as shown in Fig. 10.

The birds enter the yards or pens through six-inch openings as shown at "c", in Fig. 12. On either side of these openings are six-inch shelves which serve as a landing or run, as shown at "e", in Fig. 13, and at "c", and "f", in Fig. 10. These openings are provided

with slides as shown at "c", in Fig. 12. The slides on each pen are connected by rods so that all the exits can be closed at one time, if desired. These openings are closed when a bird or pair of birds is caught. At other times, both day and night, summer and winter, they are always open.

Attached to the frame of the fly, and immediately above the exit and entry holes, is a 12-inch shelf as shown at "i", in Fig. 10, which serves the double purpose of a sunning place for the birds and prevents rain or snow beating into the house through the openings. There are a series of doors or gates connecting each yard as shown at "g", Fig. 10.

The surface of the ground in each yard should be excavated about 6 inches deep and filled with clean, sharp sand. This sand should be removed and replaced at least four times a year. We find that the sand removed from the yard makes an excellent fertilizer, as it contains the droppings of the birds. This sand floor furnishes an ideal place for birds to sun themselves and dry their feathers after their baths. Our yards are always clean and dry, as shown in Fig. 15.

Artificial shading not necessary.—Many of our correspondents ask if shade is necessary and whether the stretching of muslin or other cloth over the fly is not desirable. None of our yards have shade of any kind, with the exception of one which gets the shade from a large tree in the afternoon. We have never noticed any difference in the health of the birds in the shaded pen. While we do not believe that artificial shade is necessary, there can be no objection to using it if wanted. In such a case, however, the muslin or cloth should be so arranged that it can be easily rolled up.

Heating the house.—Frequently inquiries are made about heating this house in midwinter. In our climate, artificial heating is not necessary as the temperature rarely touches zero. It is the exception when it goes below zero in our section of New Jersey. Our buildings are well constructed of matched lumber, tongued and grooved, and sheathed on the north side with building paper. The paper is tacked to both sides of the studding before the weather boards and inside boards are put on. We find this sufficient for our house in this climate. No sheathing is put on either end or on the south side of the house. We use the common stone, two-gallon water fountains in our houses and have never had one of them freeze in the daytime in a pen fully occupied by birds, even when the outside temperature was down to zero. In severe weather, we always empty the fountains at night, rather than take chances of their freezing and bursting.

Sectional view of house and yard.—Description of Fig. 10: a, door; b, window; c. inside lighting board; d, 1 x 3-inch barge; e, 1 x 5-inch window sill; f, six-inch lighting board; g, 2 x 6-inch gate in each yard with wire netting and spring hinges; h, four-foot poultry wire; i, twelve-inch sunning board full width of yard; j, three-foot poultry wire; k, walking board along each side of the yard and across the end south of the house; l, stake to hold bottom of post; m, half of brick just below the surface of the ground on which the bottoms of the posts rest; n, 1 x 4-inch brace nailed across the yard to post opposite; o, 1 x 4-inch brace board. A cross section of the yard from A to B is shown at C.

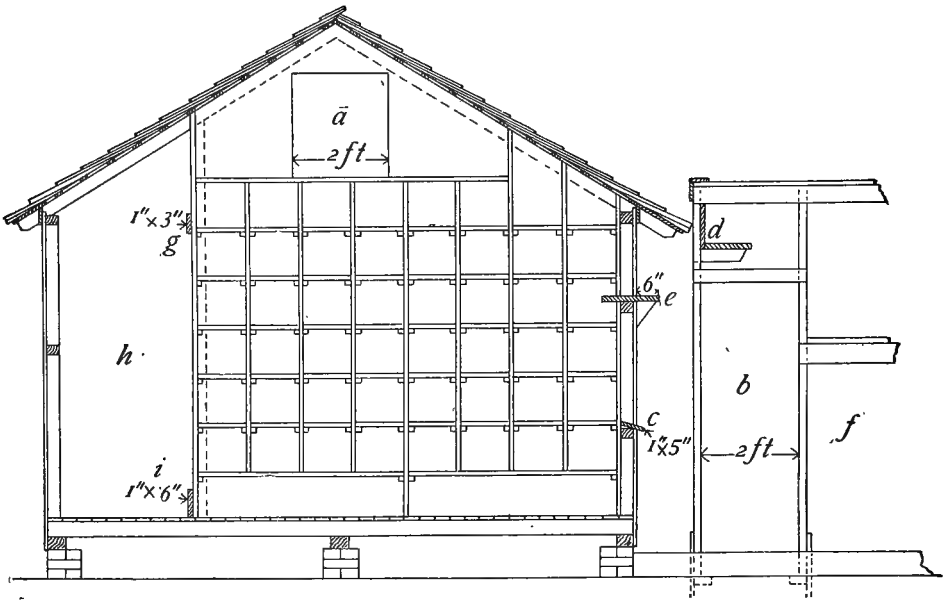

FIG. 13—INTERIOR OF A HOUSE, SHOWING ARRANGEMENT OF NESTS AGAINST PARTITION.

For description see page 35.

Ground plan of house, pen and yard.—Description of Fig. 11: A, general plan; B, section of pen; Description: a, three-foot alleyway; b, two-foot door covered with wire netting; c, 2 x 3-inch studding; d, upright portion between nests. Do not let each of these portions come to the floor. In this respect, the plan has been modified. It is better to follow the plan shown in Fig. 13; e, 2 x 3-inch posts in yard; f, yard; g, two-foot gate; h, i, j, 3 x 4-inch sills; l, six-inch board; m, six-inch board along bottom; n, piers; o, 2 x 4-inch joints; p, partitions between pens; q, studding between the windows.

Front view of house showing arrangement of frame.—Description of Fig. 12: The section shown at A represents the south of front side of the house. This is sided up with seven-eighth-inch North Carolina pine beaded, tongued and grooved. At B is shown an adjoining section or pen, representing arrangement of frame for construction. Studding, stringers, plates and rafters are made of 2 x 3-inch hemlock; the sills 3 x 4-inch hemlock. Description: a, part of fly next to the house, showing angle of sunning board running full length of the house. (See also d, Fig. 13); b, full length, back side; c, slide to entrance and exit; d, eight-inch eaves board; f, partition between pens; g, 2 x three-inch rafters; h, 1 x 12-inch board nailed across rafters at peak to strengthen them; i, sliding window in rear of house, two of these each 40-foot house; j, center post in front side between windows; k, front stringer; l, floor, made of seven-eighth-inch North Carolina pine, tongued and grooved; m, fill in between piers with rough boards; n, distance to fit window sash; o, 2 x 4-inch hemlock joists set 2 feet apart on sills; p, 2 x 3-inch post outside in yard next to house; q, 3 x 4-inch hemlock sills.

Interior section of a pen.—Description of Fig. 13: This section shows arrangement of nests and interior windows for ventilation against an inside partition. Description: a, two-foot opening covered with wire netting; b, two-foot gate in yard; c, 1 x 5-inch window sill, d, twelve-inch sunning board and protector; e, six-inch lighting board on either side of the entrance; f, yard partitions; g, 1 x 3 strip full length of the house at top of doors; h, alleyway; i, 1 x 6-inch board along floor full length of house. There should be no nest boxes on the floor. Note carefully the arrangement of the nest partitions; only the center board extends to the floor; while partitions two and three from the right or front extend to and are securely fastened to the rafters. This arrangement is simple and very satisfactory, furnishing 46 nests on either side of a pen, making 92 in all. If desired, more nests can be secured by extending the center nest partition as well as the second one to the left to the roof. This leaves a two-foot opening for the ventilating window between them, besides allowing plenty of room for four to six more nests on each side.

Small house for 25 pairs.—We have had many inquiries for a plan of a small, inexpensive house suitable for 25 pairs of birds. The sketches shown in Fig. 14 are designed for this purpose. This house is 8 feet wide, 6 feet deep, 6 feet high in front, sloping to 4 feet in the rear. It can be constructed out of old lumber or scraps, without the use of heavy sills and joists and frame such as is used in the larger houses. The sectional view shown in the lower half of the figure is sufficiently clear to give an idea of construction. The yard is 16 feet long, 8 feet wide and 7½ feet high. The front view at the upper left-hand

corner shows the arrangement of the windows. There should be two sashes, so arranged that they will slide past each other. The entrance and lighting board can be arranged like those in the large house, if desired.

The interior arrangement is shown in the upper right-hand corner of the figure. This is what one would see if looking through the window from the outside. With this arrangement, 64 nests are provided. If desired, the 16 nests on the side next the door can be left out. In such a case, the end tier could be extended to the side wall, thus making four more nest boxes, or 52 in all; about the right number for 50 birds. In constructing these nests, keep them off the floor. The water fountain and feed tray can be placed in the center of the floor as indicated. It would also be advisable to have a six-pane window in the door so arranged that it can be slid up and down. This would afford better ventilation, especially during hot weather. The windows should be covered with wire netting. Details of construction can be adapted from the large house, to meet conditions.

Proper ventilation.—Lack of proper ventilation must certainly prove serious to the birds. The health of the parent birds as well as that of the squabs will suffer if the pen is close and stuffy. Elsewhere (page 24) a heavy loss is narrated from keeping a house closed tightly. It was, therefore, very damp in the enclosures. Many birds were lost. In the case cited the house was newly constructed, largely of unseasoned lumber.

Colds, which may develop into roup or canker, can be contracted in a close and too warm a pen. Under such conditions, the birds go into the open air, often

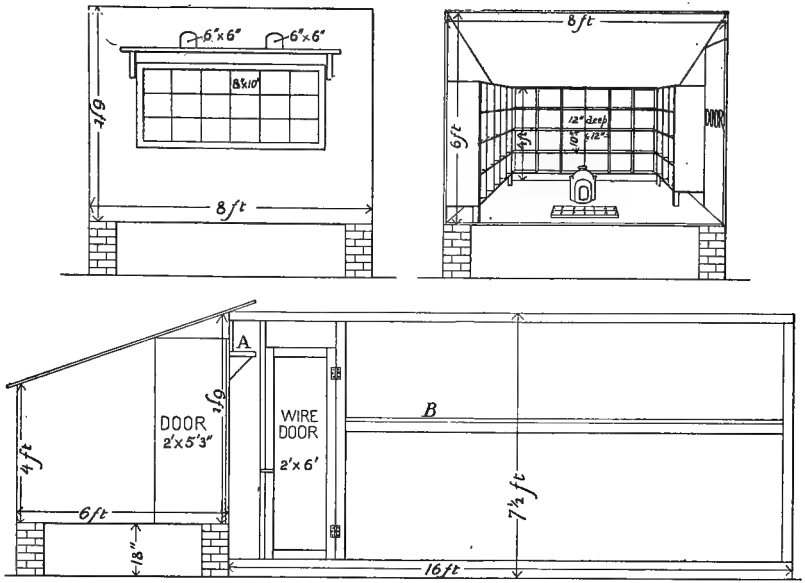

FIG. 14—PLANS FOR A SMALL HOUSE SUITABLE FOR 25 PAIRS OF PIGEONS.

For description see page 35.

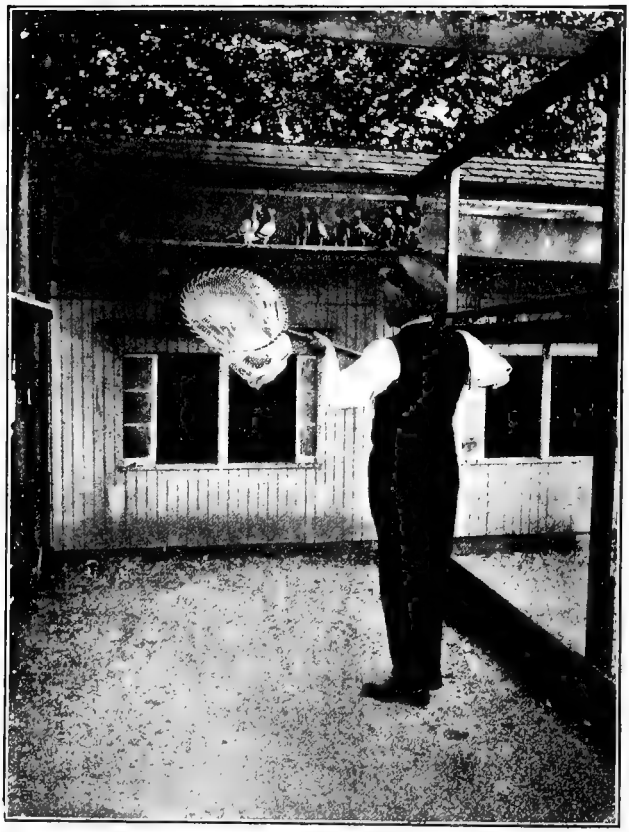

FIG. 15—MR. RICE NETTING A BIRD IN THE YARD.

cooling off too quickly. The stuffy, impure atmosphere in a house will affect the birds, making them listless, while their appetites fall off. Such birds fail to feed their squabs properly. By inattention to ventilation, canker, cholera or roup, if once established, will find much more inviting conditions in which to work than where the house is properly ventilated and disinfected.

Much danger lies in the opposite condition, if there is too much ventilation, or where drafts strike the birds. Frequently, cases of cold and canker are traceable to a knot hole or crack in a board through which cold air has blown directly on the squabs. How best to secure the proper amount of ventilation and to avoid cold drafts on one hand and impure air on the other is quite a problem.

In this chapter (pages 24 and 26) full descriptions of sliding windows and doors are given. The exit holes are kept open constantly, day and night, at all seasons, except when closed temporarily to catch a bird. The windows facing the south are kept closed during the cold season, but are opened in warmer weather, except when storms occur. The doors and windows in the gables play an important part in ventilation. The gable window, against which the wind is blowing, should never be open, but the opposite one open fully. The same is true of entry doors.

By exercising care in these details a well ventilated house can be secured and free from strong currents of air. The birds breathe pure, fresh air at all times and never appear listless. Their bright eyes, strong and hearty appetites attest their good health. Such birds take good care of their young, while the squabs reflect the good qualities of their parents.

CHAPTER V.

What Pigeons Should Eat and Drink

All food and water for pigeons must be of purest quality. The beginner needs to emphasize the word "must" for he will frequently have opportunity to buy what is called, "pigeon wheat", or grain good enough for pigeons offered at a much less price than milling wheat or corn to be ground for family use. When the beginner tries to practice economy by purchasing such grains, because they are cheaper, disease very commonly evens matters by making a visit at the same time. We so firmly believe that impure food and water cause diseases among pigeons that we desire to emphasize, at the very beginning, that neither food nor water which the breeder is unwilling to use at his own table should be given to pigeons.

This may sound extreme. We have known some breeders, however, who disregarded it and they wheeled out a whole barrow full of birds one morning and buried them in a trench. In our early experience we did a little graveyard business, by feeding corn which had been heated. This case was so unusual that a full explanation will be valuable The corn was bought in August at a time when all grains are supposed to be well seasoned. This particular lot of grain had been kept in a tight bin. The weather had continued damp and muggy for an unusually long period and fermentation of the grain had begun. When fed, the birds sickened and many died. We did not know

the grain was damaged until it was found to be extremely hot by thrusting the hand deeply into it. Feeding this unsound grain cost the lives of some very valuable birds.

Importance of pure wheat and corn.—Grains after being harvested pass through a period of sweating in shock, stack, mow or bin, as the case may be. While passing through this stage, if put in the stack or mow too green or damp they will heat. The same result may ensue if threshed immediately after harvest, stored in a bin or heap and not frequently stirred, if no good system of ventilation is provided. Until new grains have been carefully and thoroughly cured they are unsafe to feed. A good nose and a competent taste are the best guides in examining the food supply for pigeons. We seldom feed new wheat before October 1 or new corn until after Christmas. In no case do we feed either corn or wheat or any other grain, unless they pass a critical test of nose and palate.

Other grains.—Besides wheat and corn, the other staples are Canada peas, kafir corn, German millet and hemp. Corn must be cracked, but the other grains are fed whole. Unless one can get a very small-grained corn, whole grains are too large for the squabs' throats. All the meal must be sifted from the cracked corn. The birds cannot eat fine particles and if these are allowed to accumulate in the feed trough, they usually heat and contaminate the other grain. On the other hand, if unsifted cracked corn is placed in bulk it will surely heat in damp weather.

Keeping the supply fresh.—Well seasoned grains, other than cracked corn, may be safely stored in quantity, if care is taken to see that they keep pure and sweet. Cracked corn should be supplied each week.

Each new supply is thoroughly examined. The dealer is well assured that any grain not fully up to the standard of quality will be rejected.

Dangers from too much grain.—Too much wheat in the ration will cause bowel disturbance, while new wheat, even in small quantity, is dangerous. This grain, if fed largely, also has a tendency to darken the flesh. Too much corn is heating and will soon throw the birds out of condition. Hemp is a grain rich in oil, and if fed too liberally will cause vertigo. Peas

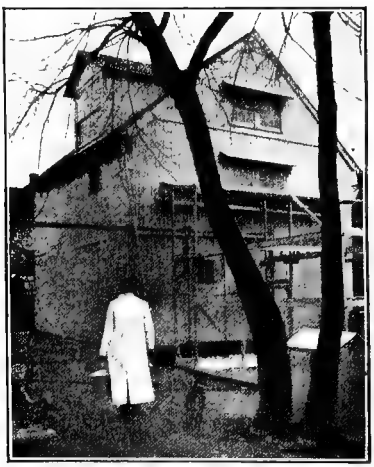

FIG. 16—THE MORNING FEED.

are a great muscle maker and tend to whiten the flesh somewhat. Corn if fed largely will make yellow flesh.

What we feed.—Birds do best on a balanced ration. For several years we have been feeding the following: For the morning feed, we use equal parts by measure of sifted, cracked corn, wheat, Canada peas, and kafir

corn. The afternoon feed contains equal parts of the same grains with the addition of millet. On Thursday and Sunday we substitute hemp for millet in the afternoon feed. Many breeders object to the cost of this ration. Sometimes peas and kafir corn, as well as the other grains, fluctuate much in price, and whenever one advances the temptation is to reduce the quantity of that particular grain in the ration. Our success is largely due to sticking to this ration, irrespective of the cost, for it gives larger and plumper squabs than any other we have ever tried. We used many different rations before hitting upon this.

Grit and other materials.—But the best birds fed only of the above ration would not long continue in health. They need a constant supply of sharp grit so that the gizzard may grind the food. Cracked oyster shells, or some other equivalent, are also needed to furnish lime for egg shell. Charcoal is an excellent purifier and aid to digestion. Common fine table salt is good for the same purpose. The first three articles are broken into pieces about the size of half a grain of wheat. Small shallow cigar boxes are convenient and when filled will last a week. A self-feeding box with four compartments may be used. Many breeders are timid about using table salt in free supply, saying that birds have been known to gorge themselves when fed in this way. This is true, but it is also true that no bird in our pens ever died from eating too much salt. If birds have been deprived of salt until they are very hungry for it, some will doubtless eat too much. When fine salt is kept before them in full supply they eat no more than is necessary. To birds just bought, we are very careful to give a limited supply until they have gradually satisfied themselves.

It is the heaviest and highest priced squabs that make the most dollars. Our shipments run very uniformly in this respect, but we did not do nearly so well when feeding other rations than the one just given. There are several breeders in our town. Three of them have flocks approximately the same size as ours. They ship to the same commission house as we, but often their prices average 5 to 10 cents a pair less than ours. In a shipment of 100 birds, the difference amounts to enough to buy considerable feed.

Pure water necessary.—Care must be exercised in providing the purest water for the birds. No water should be used unless its purity is unquestioned. The fountain from which the birds drink must be of such design as will prevent the droppings from fouling the supply. The round galvanized fountains, with separate reservoir and basin, are faulty because they furnish too much space for droppings. We use two-gallon stone or glazed earthen fountains with a single lip or cup, as shown in Fig. 18.

The earth surface of the fly must be kept smooth and free from holes, so that water cannot remain in pools after rains. Pigeons are very fond of drinking from such pools. Hence, they will get foul water if permitted to do so. They are also fond of snow. Because we believe snow fosters diarrhea, we shovel it from the flies as soon as it has fallen. This also prevents the formation of pools.

The place to feed.—The only safe place for giving feed and water to the birds is inside the pens. The feeding trough is 6 feet long, 12 inches wide and 2 1-2 inches deep, in the clear. The reason for feeding inside the pen is obvious. The pen and the trough are always dry. The feed has no chance of spoiling or

souring. If the trough were outside, exposed to the weather, both trough and grain would become wet, and any portion of the grain left over might sour before morning, especially during the hot, muggy nights of dog days. The pigeons would eat of this sour grain early in the morning, before the regular feeding time. There is no surer way of making sick birds than letting them eat sour feed.

Feeding twice a day is suffiient and serves the excellent purpose of enabling the breeder to know the appetites of the birds. If a little of the morning ration remains in the trough at the afternoon feeding time a little less quantity may be given; while, if the troughs are empty, a little more may be given. The rule for feeding is to feed generously all the pigeons will eat, but not enough to cloy their appetites. Permanent feeders, in which a large supply of feed is kept constantly before the birds, are objectionable, for the reason just mentioned. Feed in bulk can be sorted out by the birds and they waste more or less in the sorting process.

Laxative grains.—Wheat, millet, and kafir corn are more or less laxative and judgment must be used at all times when feeding birds. When dampness in and about the nests indicates looseness of the bowels, omit one of these grains, or shorten the quantity of each of them and make up the deficiency by a larger quantity of the balance of the ration.

Feeding for plump squabs.—Some people are trying to get good squabs by buying the birds which they think will give the best results. We secure the results by feeding best grains. Of course, much credit is due to careful selection of stock, but very much is also

FIG. 17—SQUABS FOUR WEEKS OLD, READY FOR THE MARKET.

due to the very careful attention given all grain purchased, and the care taken to see that it is kept in bins secure from any possibility of being damaged. Much is also due to the invariable rule of feeding promptly at the appointed meal time. No engagement is permitted to interfere with punctuality in feeding.

Even with the best of stock shipments, squabs could not possibly run uniform as to size of the individual birds unless they received most careful attention. It is a pleasure to the commission man, as well as to the breeder, to have squabs uniform. It adds much to the profit.

Our shipments frequently contain squabs averaging 8 pounds to the dozen, and very often a majority are heavier than this. In speaking of squabs the dressed weight is meant, except where specified. Sometime ago we weighed squabs before and after dressing and found that live birds, weighing 20 ounces apiece or 40 ounces to the pair, when bled and dressed, ready for market, weighed 17 ounces each, or 34 ounces to the pair, showing a loss of 6 ounces to a pair of birds. The loss on squabs weighing less would, of course, be in proportion.

These uniform results are due, as already indicated, to great care in the selection of purest grains, to persistent adherence to a steady ration, irrespective of its cost, and to taking great care that birds have a generous supply at each feeding.

What others are doing.—We have had an opportunity to note what some other breeders who are not careful in these particulars are getting in the way of results. Some uniformly feed either a small quantity of one grain when it advances in price, or leave it out of the ration altogether; the result is always shown in

poorer squabs. Other breeders are afraid the cost of feeding will be too large, so they follow the plan of feeding a limited quantity at first, and in the course of a half hour make a second visit to the pen and give more feed, evidently trying by this means to feed just the exact quantity the birds will consume. Still other breeders make even a third visit, thus feeding in installments.

Birds fed in this manner will never care for their squabs as well as those not interrupted; for even when accustomed to the owner, it is seldom he can go into a pen of 50 pairs of birds without disturbing the timid ones. If these have flown away from the feeding trough to their nests, hearing the approaching footsteps, the owner may think the birds are satisfied and need no more grain. As a consequence either parent birds or squabs go hungry till the next meal. A parsimonious feeder will raise skinny squabs.

The temptation to substitute lower priced grain for that costing more is one that appeals to the pocketbook, especially of the inexperienced breeder. He needs to keep a record, both of the cost of his feed and the prices obtained for his squabs, not for one week alone, but continuously. When he keeps such a record he will always find that his greater profits are when he is feeding at the greater cost. By this we mean, of course, that he is feeding according to the ration advised and not by giving higher priced grains and leaving out one ingredient of this ration.

When one considers that squabs are marketed at four weeks of age, at which time they are nearly as large as their parents and almost fully fledged, as shown in Fig. 17, he must realize that nature is doing excellent

work. This cannot be done unless the best of materials are furnished. Let us see just what the increase means. A squab at birth weighs about half an ounce; at four weeks old 12 ounces; that is, at the rate of 9 pounds to the dozen. In view of the rapid growth necessary to attain such weight, the squab must not suffer any check for want of food or any other cause. Suppose now that by putting double the regular quantity of wheat in the ration, both parents and squabs are thrown into diarrhea and suffer from the effects of this malady a couple of days before it is stopped. The growth would be checked and the squabs could not possibly regain their plumpness. It cannot be made up.

Musty grain or grain which has been heated might cause even more serious trouble. Foul water for a single supply might also cause loss in weight if not death. The neglect to furnish grit, charcoal, shells or salt may also be a source of loss. If grit is withheld the food cannot be properly ground and assimilated. The system would soon be thrown out of order without these adjuncts. This also is true, in a measure, of charcoal and salt. If there is an insufficient supply of lime, soft-shelled eggs will result and a single sitting of such eggs would cut off one-sixth the profits of a pair of birds.

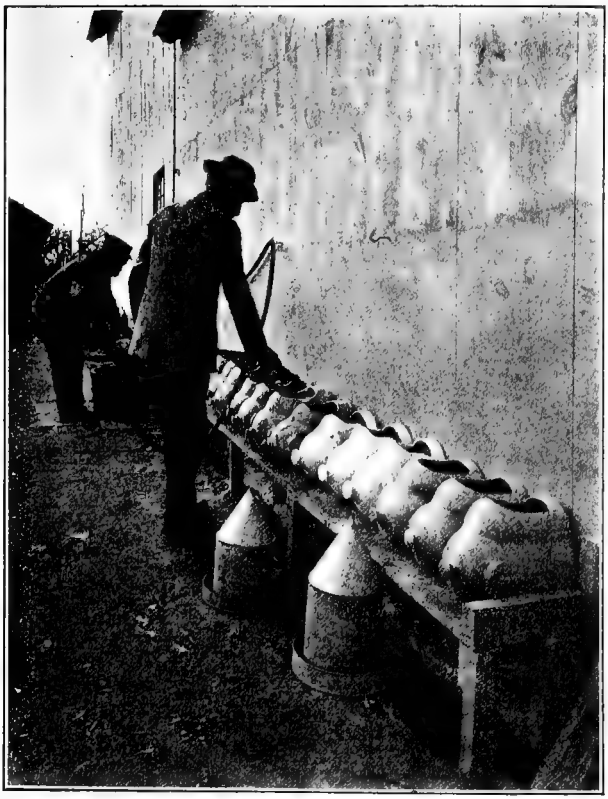

FIG. 18—FILLING THE DRINKING FOUNTAINS.

CHAPTER VI.

Daily Routine of Management

The following description of the care which pigeons need daily is such as we have practiced day after day for several years. The first thing in the morning, the water fountains, constructed of glazed earthenware, holding 2 gallons each, are collected and taken to the hydrant. Each one is thoroughly cleaned with a small brush to enter the mouth and scrubbed inside as far as possible. They are then shaken, rinsed out and placed on a bench until all are finished. They are filled with a hose, as seen in Fig. 18. One fountain is placed in each pen. During cold weather, watering in the morning is a sufficient daily supply, but when warmer days come and especially during the hot season, we carry water to the pens at noon and replenish the fountains.

Details about feeding.—After the fountains are all placed the feed is given. This is mixed by filling a grocer's tin scoop, having a capacity of three pints, with each kind of grain in turn, and emptying each scoopful in a tin pail holding about 16 quarts. After unlocking the door of the first house we pass along the alley to the extreme end. Two scoopfuls of the mixture are placed in the trough in each pen. Each of the five pens is thus fed on the ration. This method of feeding does not disturb the birds, as would be the case if the opposite order was observed. In coming back from the end of the alley, if we began feeding as we entered, many of the birds would fly away from the feed trough and miss the opportunity of getting their

share of some of the best grains. Experienced breeders are very careful not to disturb the birds at feeding time. Some breeders have houses constructed with doors at either end. In such cases, the attendant feeds each lot of birds as he passes and goes out the opposite door. As soon as the birds are fed we lock the door. For an hour or more no one is permitted to enter, not even the proprietors. While the birds are engaged in feeding their young they should not be disturbed. Unless squabs are well fed they cannot be expected to develop the large, plump bodies so desirable at the end of the fourth week.

Amount of feed.—No precise rule can be given as to quantity of feed necessary. Two scoopfuls, or about 1½ quarts, is the normal quantity for a pen containing 50 pairs. It is evident, however, that when there are only a few squabs in the nests, less feed will be required than when there are three times as many. A safe guide for the quantity of feed necessary is daily observation of the amount left over from the previous feeding. If the trough contains some feed, slightly reduce the next ration. On the other hand, if none is left over increase it.

Never enter a pen more than once at each feeding time. Feed generously so that there is a full supply for both squabs and parent birds. It must be remembered that the squabs are helpless in the nests and cannot get any food unless the parents bring it to them. If there is a short supply furnished, the parents might not go hungry more than once before they fully satisfied themselves and gave what was left, if any, to the squabs. Stingy feeders will surely have skinny squabs to sell.

Observe regularity in feeding.—The birds are usually waiting and know when the hour for feeding arrives. In the morning, feed at 6 o'clock during summer and at 7 o'clock in winter; the afternoon meal should be given at 4.30 o'clock in summer and at 3.30 o'clock in winter. We have followed this practice for the last five years and have scarcely ever varied five minutes of the set time. At noon, we make the rounds of the house, carefully noting each pen and correcting anything which may be amiss.

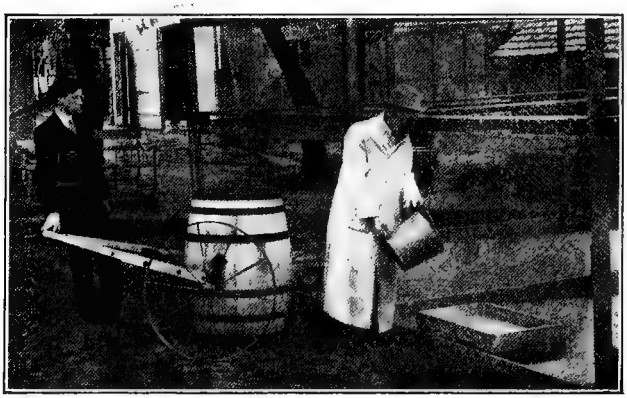

FIG. 19—MR. RICE AND HIS SON PREPARING THE BATH

The bath.—During warm weather we let the birds have a bath. The bathtub in the end of each fly is filled from a water barrel on wheels. A pail of water is poured through the wire netting into each tub, as shown in Fig. 19. The birds greatly enjoy the bath. They splash about, dipping their heads beneath the surface, and throw the water over their shoulders, then shake themselves, and by a rapid wing-motion free

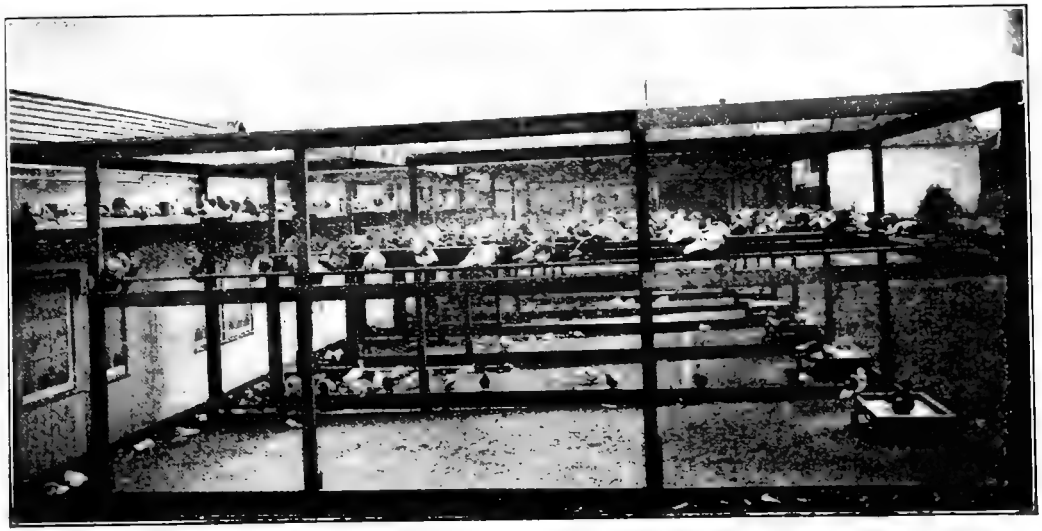

FIG. 20—BIRDS BATHING AND SUNNING THEMSELVES.

themselves of the water. The birds stretch themselves out on the sand and running boards and dry their feathers in the sun, as shown in Fig. 20. In about an hour the tubs are cleaned, emptied and turned upside down. By emptying them the birds are prevented from drinking the water which becomes quite foul and milky from bathing. Turning them upside down insures a tub free from droppings for the next bath.

Cleaning the houses.—Every Saturday, year in and year out, our houses are cleaned as follows: Beginning with the topmost nest, unless it has been freshly made or contains eggs or squabs, the bottom board is pulled out and the entire mass of nest materials and excrement is scraped on the floor. Each nest in turn is thus cleaned, going from top to bottom, so that what falls from one nest in taking off the bottom board will drop into a nest not cleaned. Each cross tier is taken in turn, and when all the nests are cleaned the floor is scraped, the scrapings being shoveled into a wheelbarrow in the entry for removal to the manure heap. Powdered carbolated lime is sprinkled in every nest and on the floor of the pen after each weekly cleaning. Care is used to fill all cracks and corners, and enough is put on all moist places to absorb the dampness. Clean sand to the depth of a quarter of an inch is then placed on the floor. The four boxes containing grit, charcoal, oyster shells and salt are also removed, the boxes cleaned and a fresh supply put in each.

Tobacco stems and hay, cut in six-inch pieces, in ample supply for nest building, are also placed within the pen at each weekly cleaning. This weekly cleaning is expensive, but the manure pays the bill.

CHAPTER VII.

Age and Sex of Pigeons

Age.—By making a record of the date of birth, and placing a band on the leg of the squab, as described on page 92 the age can be told as long as the band remains in position and the record is not lost. This is the only infallible rule that covers all cases.

Sex.—On the correct determination of sex depends the proper purchase of birds, and on this hangs the profit of the flock. By the difference in their physical appearance, of say 100 birds, an expert can possibly tell the sex of 90 per cent. In the remaining 10 per cent, in many cases, the resemblance of the birds is so nearly alike that no amount of experience is of benefit in settling the question. Usually the cock bird is larger and with a thicker neck. He struts about more than the hen. The hen is smaller, of neater appearance at the head and neck. The bones about the vent are a trifle wider apart in the female than in the male. When held outstretched, with his head in one hand and his feet in the other, the male will sometimes drop his tail downward, while the hen shifts hers to one side. In many cases the hen is of as masculine appearance as the male. She is sometimes even larger than the average male, and often her actions would stamp her as a cock bird.

How experienced breeders are deceived.—Three breeders of several years' experience, with flocks of 500 pairs, recently wanted 20 hens. They went together and agreed in their combined judgement that

they had picked out 20 hens. It was shortly proved that three were cocks. The novice will thus have to admit his inability to distinguish the sexes, if experts fail in so many instances. The perusal of other chapters, we trust, has taught the necessity of having mated birds in beginning the squab business. He must recognize, therefore, that he is entirely at the mercy of the seller. If the dealer is honest, has mated his birds and has made a list of them, he can guarantee

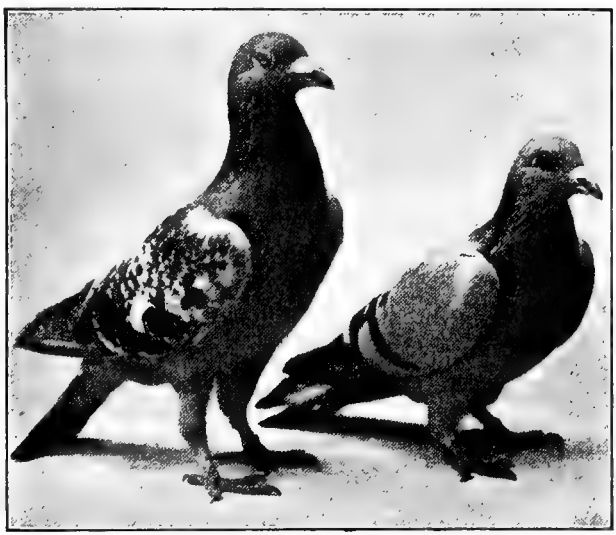

FIG. 21—HOMERS SIX MONTHS OLD.

the sexes. If he has not mated them and cannot furnish a list of the individuals which constitute a pair, he simply guesses at the sex, making a dupe of the buyer and enriching himself.

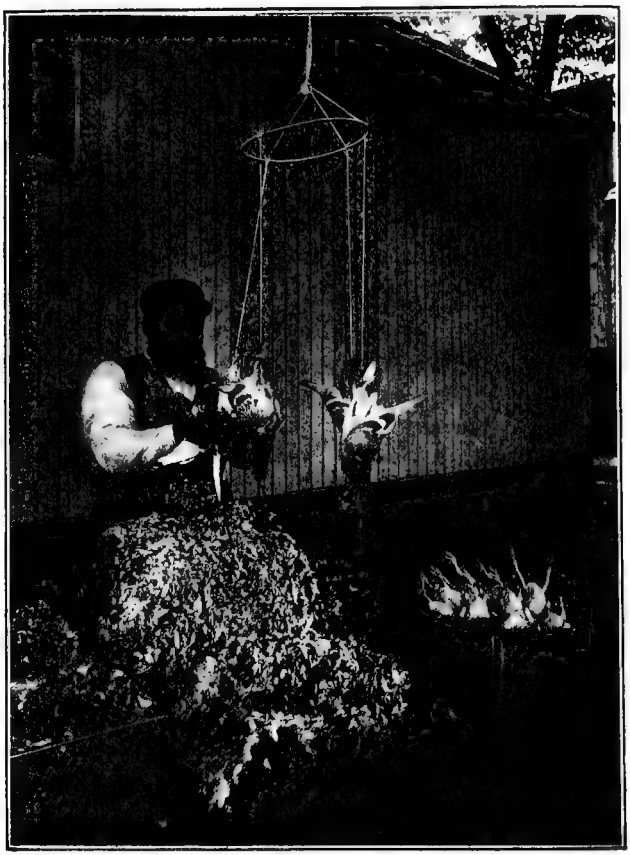

FIG. 23.—SQUABS SUSPENDED FOR KILLING AND PICKING.

A Homer pigeon at six months cannot be distinguished from one six years old. At six months the birds are of mature size, as shown in Fig. 21, while those at six years, show no sign of increasing age, as seen in Fig. 22. With other varieties, notably Antwerps, Carriers and Dragoons, the size of the wattles, the warty growth about the bill, and the cere, the same growth about the eyes, indicate age. But in the Homers there is often no perceptible difference in the growth of either cere or wattle in the ages mentioned.

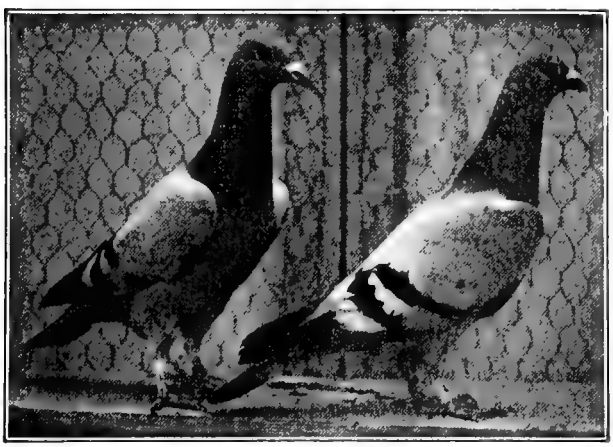

FIG. 22—HOMERS SIX YEARS OLD.

In this respect again, the buyer is at the mercy of the seller. If the latter is not honest and does not know the age of his birds, the buyer stands a good chance of making a poor bargain.

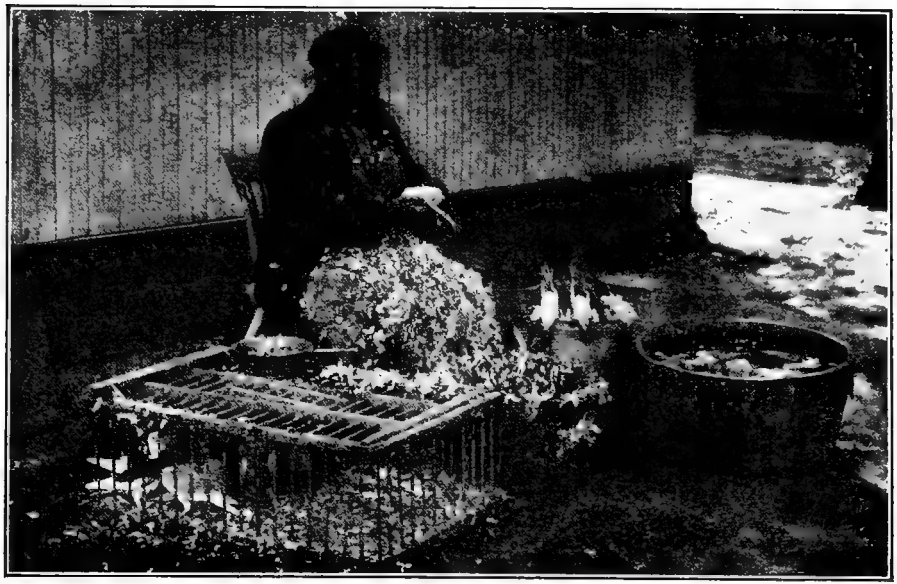

FIG. 24—PLUCKING PIN-FEATHERS FROM SQUABS.

CHAPTER VIII.

Dressing and Marketing Squabs

Squabs should be marketed with empty crops. To insure this, the feed of the previous afternoon should be given in such quantity that none will be left over for the birds to eat the morning of the killing day. We dress squabs once a week on Thursday. If the weather is cold, we first light the oil stove in the picking room.

All squabs of suitable size are taken from the nest and placed in a hamper. A little experience is necessary for a beginner to judge the proper size and weight. But after a few squabs are handled one soon becomes expert. The squabs are taken in turn from each of the pens, placed in the hampers, and taken to the dressing room. A faithful colored man, familiarly known as Pink, has picked all our squabs for several seasons.

Equipment necessary.—Before beginning the actual dressing, tubs of cold water should be placed in the room, also a small basin filled with water handy to the picker, who seats himself ready for action, with a hamper of squabs at his side. Suspended by a cord from above is an iron ring 10 to 12 inches in diameter, to which are attached four double strings as long as desired. A squab is taken from the hamper, the end of the string is made into a noose and slipped around both feet with the ends of both wings crossed over the feet. Each squab is thus hung at the ends of the strings as shown in Fig. 23.

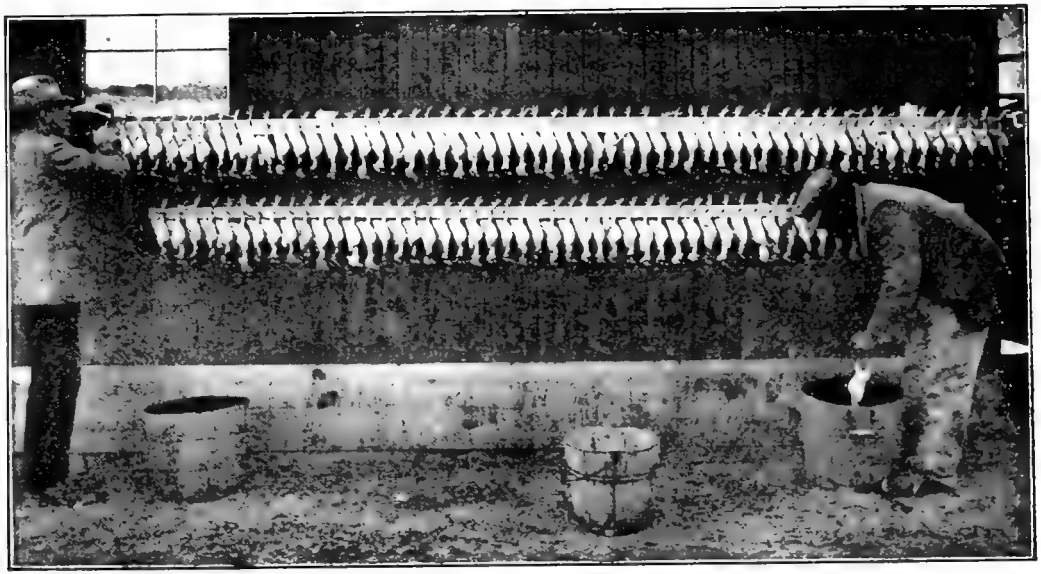

FIG. 25—DRAINING AND SORTING SQUABS FOR MARKET.

How squabs are killed.—The picker inserts the blade of the killing knife well back into the roof of the mouth, thrusting it into the brain, and draws it forward severing the arteries of the head. Each of the four squabs is thus bled, when the feathers are removed in the order in which the birds are killed. He then dips the ends of his fingers and thumb in the basin of water and to avoid tearing the skin begins at the lower half of the breast, picking downward. When these feathers are removed, he picks the upper half, pulling the feathers upward. The back of the bird is then picked and the feathers from both wings removed at one time by holding the wings in the left hand and pulling the quills with the right. As soon as the bird is thus rough picked, it is handed to an assistant, who removes all pin feathers with a small knife, as shown in Fig. 24. When finished the squab is dropped into a tub of cold water to remove the animal heat as quickly as possible. When one becomes expert in picking, he can rough dress 20 squabs in an hour.

Draining and sorting squabs.—When all the squabs are picked, the filth from their feet and the blood from their mouths are entirely washed off and they are put into a second tub of water. After this is done they are hung on a rack to drain, as illustrated in Fig. 25. While thus hanging, all undersized squabs are removed and disposed of separately.

Packing.—Except during cold weather, it is necessary to use ice in shipping birds. Select a box of sufficient size to hold the shipment, put a layer of cracked ice in the bottom, carefully place the squabs on their backs with heads all turned one way, alternating each layer of squabs with a layer of cracked ice, and top off with a generous supply of ice. The lid

is then securely fastened and a tag is tacked on, bearing the name of the shipper plainly written on it.

Formerly, we were much annoyed by having squabs stolen on the way to market, and were obliged to make several claims against the express company. Lately we have pasted strips of paper on each edge of the box connecting the lid with the sides, so that if any attempt is made to remove the lid the paper will be torn. Our consignee is notified of this arrangement beforehand so he can at once call the attention of the express agent to any tampering with the box.

Use of ice water.—One writer has suggested that a tank of ice water be constantly on hand in which the squabs may be placed after killing each day. We see no advantage in this, and its expense would certainly be objectionable, because even in very large establishments the squabs would be marketed the same day they are dressed. An objection to the plan is that if they are placed in ice water before the animal heat is extracted they often turn dark.

Cold storage.—We are informed that one large breeder is experimenting by putting his dressed squabs in cold storage in the summer, when the price is low, and holding them for better prices during December, January and February. We have no doubt the difference in price would pay all charges for refrigeration and leave a snug balance, because very often squabs sell during the summer for about 50 cents a pair; we have received as high as 96 cents during the month of December. Care should be taken if anyone wishes to experiment in thus holding squabs for a better market, that none but first-class stock and only those which have been carefully dressed with the animal heat promptly extracted are used.

Withhold feed before killing.—Curtailing the quantity of the previous afternoon's feed and selecting the squabs before the morning feed is given, have always given empty crops. We have never had to cut open and remove the contents of crops bulging with freshly eaten grain. It is always a poor practice to send inferior squabs to market with prime birds, for the price will almost always be severely cut. We cull out all such birds and send them to the local market. Seldom does the number exceed half a dozen such birds, including dark skinned ones. The commission firm knows beforehand that our shipment will run uniform. In Fig. 26, a fine lot of squabs, dressing 10 pounds a dozen, is shown.

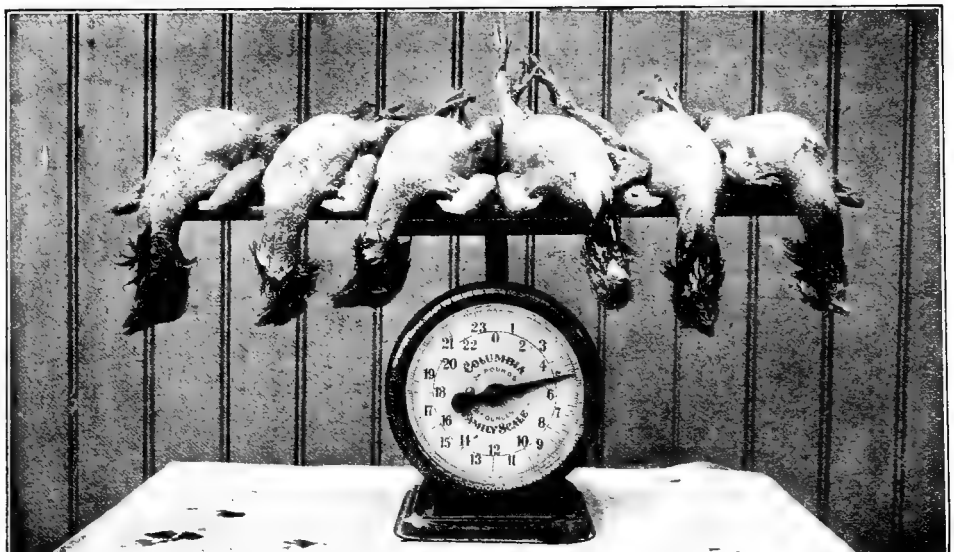

FIG. 26.—SQUABS DRESSING 10 POUNDS PER DOZEN.

CHAPTER IX.

Causes of Chilled Eggs and Other Losses

The price for squabs has always ruled high during the winter months, when every breeder desires to have as large a production as possible. If he can secure this, the margin of profit is so much greater than during other seasons of the year, when prices rule low. All experienced breeders take very careful pains to see that there are no causes which might lessen the number of squabs at this season. It is a fact, however, that in many breeding establishments very severe losses occur during cold weather from chilled eggs and squabs dying in the nests.

In our neighborhood these losses have sometimes assumed large proportions. One flock of 500 pairs, during January, 1904, lost 144 eggs, 64 squabs and marketed only 166 squabs. In another flock of the same size as few as 24 squabs were ready for market in one week, and seldom more than 40. A third similar flock suffered a loss during one week in February of 106 eggs and squabs, while the losses for several previous weeks had likewise been large.

During January, 1904, with a flock of the same number as mentioned above, we sent to market 303 squabs. Our losses were only 16 during that month. During this period, squabs were netting at least 90 cents a pair, after deducting expressage and 5 per cent commission. The feed bills for these flocks, when fed in the best manner, would amount to about $18 a week. Hence, 20 pairs of squabs at 90 cents a pair were necessary to meet that expense. This fourth flock, with 303 squabs,

sold at 90 cents a pair, amounted to $136.35, while the first flock, with 166 squabs, netted $74.70, or a difference of $61.65. The flocks being of the same size, the difference in the amount of feed consumed would not be very large. That used by the extra number of squabs in the flock showed the best results.

Mice as a cause of trouble.—One of these breeders came to us complaining of his ill luck and wondering what could be the trouble. We asked him if he had any mice in the pen. He was sure he had none, and felt certain that the presence of the mice in the nests would not cause any trouble. We told him we were exceedingly careful to keep all mice out of our pens. They cause trouble whenever they find quarters in a squab's nest. By squirming about underneath the bird and running about the edge of the nests, the parent birds are frightened and seek another position. This exposes the eggs or squabs, as the case may be, without the warmth of the body of the parent bird. When the bird attempts again to enter the nest it will leave if it finds the mice still there. Two or three such visits will occupy enough time for the eggs to become chilled or young squabs frozen if the weather was extremely cold.

This particular breeder came again after the lapse of another week, and complained a second time of his continued losses. We still suggested mice, but he was still incredulous. Finally he concluded to make a thorough examination. He secured the services of Pink, our attendant, who began work at the top nest in the corner of the first pen he entered. More than a dozen mice ran out of this nest, and the next two produced about an equal number. The owner had said to Pink that it was not necessary to examine these nests

because he was sure no mice were there. Pink kept steadily at work until he finished the building. The net slaughter amounted to more than 100 mice. This breeder had not been selling sufficient squabs to pay his feed bills, but in a short time his receipts showed a comfortable margin above expenses.

All breeders who are suffering losses from either of these sources during the winter months should make very careful inspection of their pigeon houses to see if mice are present. Frequently, these pests may not be noticed at all during the day, but if the owner should step in the house at night without a light, and stand quietly for a few moments, listening intently, he might very soon become satisfied that his house contains mice.

In the chapter on buildings (page 21) particular stress is laid upon the necessity of allowing no hiding places under which mice can secrete themselves. We keep a continual watch, especially at the beginning of cold weather, when mice are very apt to seek the shelter of a warm house. Although our buildings are all set on piers, we have not devised any method as yet, by which we can prevent the entrance of these creatures into the pigeon quarters. It is only by eternal vigilance that we can keep our houses free from them.

Lack of vitality is another cause.—While poor results will be obtained by a flock of such birds at any time of the year, it is most annoying during the time of high prices. Two principal causes of lack of vitality are inbreeding and lice. If birds have been permitted to develop and mate in haphazard fashion, without care being taken to prevent nest-mates from mating, the owner may be certain that ill results will follow.

FIG. 27—PROPER WAY TO HOLD A BIRD.

The complaints of many correspondents on this one point have convinced us that the trouble is widespread. Any breeder who has a flock which gives poor results during the warm weather, should satisfy himself as to the vitality of the flock before the winter campaign begins. If it is at fault in this respect, it should be disposed of and a new flock substituted before the season of high prices.

A breeder may be quite sure his birds lack vigor and should be disposed of if the eggs fail to hatch or the young squabs are weaklings in spite of apparently first-class management, generous supplies of pure water and properly proportioned grains, grit and other accessories.

The presence of lice is a second source of lack of vitality. When these creatures are so numerous as practically to swarm in the nests and on the bodies of squabs and birds, they will soon so annoy and enfeeble the birds as to cause the production of squabs low in vitality. The young birds will soon die, and, in many cases, even the parents themselves may be killed.

CHAPTER X.

The Molting Season

Molt means, to shed or cast the hair, feathers, skin, horns or the like, as an animal or bird. As applied to pigeons, molting means the periodical casting of the feathers, to be succeeded by a new growth. Usually this molting takes place but once a year, but occasionally pigeons have been known to molt twice yearly. This process is a drain on the physical and nervous systems. Pigeons do not usually raise many squabs during their molting period. This result is, perhaps, not to be wondered at, when we consider that much of the food must be appropriated to produce new feathers. Often during molting, a whole flock will entirely cease egg production; in others, the few eggs which are laid often lack fertility, or where some squabs are produced, the parents fail to give them as good care as when in full vigor. Hence, skinny, undersized squabs result.

Effect of molting on production.—Nature provides that only a few feathers be shed at one time. The process is a slow one, lasting, in some cases, one to three months. In some instances, however, many feathers fall off together, leaving a bare patch on the breast or back to be burned red by the hot sun. Squab production during the molting season is very much curtailed and in some flocks may cease during almost the entire period. Especially is this true with flocks where careless feeding and management have affected the health of the birds. The best measure of successful management is to bring the flock up to the molting season in

fine health and vigor, have them molt in the shortest time, with the least possible cessation of squab production.

Hemp as a feed for molting birds.—We have never had satisfactory production during the molting period until 1905. We made some changes in feeding which we hoped might serve the double purpose of keeping up the uniform good health of the flock, and of getting them through feather shedding and growing in a short time. This change in feed was made at the suggestion of Mr. Cox, whose argument was that farmers gave their horses flax seed with the idea that it facilitated the shedding of their coats. He urged the use of this or some other rich seed to see if molting might not be shortened, the general health of the bird sustained, and the yield of squabs kept up. Instead of using flax seed, we decided to use hemp, an oily, rich grain we thought might safely be fed with good results.

How to feed hemp.—We gave 6 quarts of hemp in the ration three times a week; that is, 6 quarts in 16 quarts of the ration. This we fed during the molting season, with excellent results and no harmful consequences. Nor did we stint the quantity of millet, but continued using it in full amount every afternoon. Our birds molted more evenly, worked better, looked better, and we secured more squabs than during any other molting season. In fact, the molting seemed to make no difference to very many of the birds. We had some birds working with their breasts entirely bare. One week we killed 124 squabs and saved 20, making a total of 144. Of these, 35 weighed, when dressed, 14 ounces apiece, while two balanced exactly 1 pound each. We never before attempted to save young birds during the molting season. We feel that

the good results were due almost entirely to this method of feeding, and, especially, to the rich hemp given in the ration.

It is necessary to discontinue the extra quantity of hemp as soon as the molting has been accomplished. We noticed some of the birds shed some feathers of a new coat before the quantity was cut down. We shall continue the use of hemp seed for another year with at least a portion of the flock. We shall also experiment with a pen of birds, using flax seed instead of hemp, or with a combination of these grains.

The molting season may fairly be said to reflect the care the birds have had during the year. If the ration has been stinted, and they come up to this period in an enfeebled condition, they will give very slight returns; but if kept during the whole season in continuous, sturdy, vigorous health, they may be expected by this change in the ration to be profitable even during the molting period.

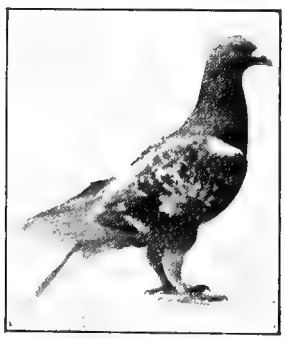

FIG. 28—A GOOD BREEDER.

CHAPTER XI.

Mated Birds Defined

There are two sources of definitions of the word, "mate." Webster defines it as follows:

Mate, n.—One who customarily associates with another; a companion; an associate; an object which is associated or combined with a similar object. Hence, specifically, a husband or wife; and among the lower animals, one of a pair associated for propagation and the care of their young.

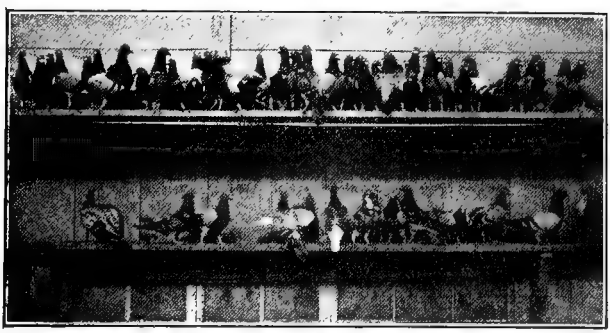

FIG. 29—IN THE YARD OF A MATING PEN.

Mate, v. i.—To be or become a mate or mates, especially in sexual companionship; as some birds mate for life; this bird will not mate with another one.

The second source of definition was adopted by some dealers who buy birds and sell them at a good profit to gullible patrons. Some of these dealers have written their complaining customers that, "among pigeons

mated birds usually means an equal number of each sex." One advertiser promises to sell "extra mated Homers." Another is flexible and will fill orders "according to any system of mating." These phrases are all ambiguous and misleading. An "equal number of each sex" does not imply a single mate or pair any more than a crowd of men and women means husbands and wives; an "extra" mated bird is a nonentity, for if it is mated at all it cannot be more mated, since pigeons are monogamous; again, bearing clearly in mind the habits of birds, which attend to mating in their own way, it is difficult to understand what is meant by promises to fill orders according to "any system of mating." The pigeons have followed their own way, which has never changed and never will. It is an established law of nature no man can change.

Some advertisers are fond of the statement that young birds will mate at the end of six months. This is true of a few pairs in every hundred, but the practical breeder, who has had any experience does not make such statements. It is true that we have, at present, a single pair of young birds which mated when four months of age, but the first pair of squabs did not amount to anything, and our experience of 10 years has taught us to expect no substantial returns until the flock is a year old. An honest person who desires to make helpful statements will tell a beginner to provide a fund to buy feed for the young birds until they are a year old.

While it is true that birds will choose their own mates, care must be taken that brothers and sisters and cousins do not mate; for if this is allowed a few generations will cause such degeneration that lack of vitality will be apparent and infertile eggs or puny,

weakly squabs will result. How best to avoid such results is told in Chapter XIV.

Another misleading announcement is that a dealer's birds are "mated equally as to sexes," and again one guarantees 90 per cent of the birds to be mated. In Chapter XII attention is called to the fact that pigeons do not mate until after a courtship, but when once mated they usually remain true to each other during life. This courtship and mating will take just the amount of time that the birds themselves decide; but if they do not decide to mate, they will simply add to the feeding expense as long as they are kept.

A beginner frequently desires to know how long a flock of say 50 cocks and 50 hens will take in mating. This is a question which all experienced breeders refer to the birds themselves. When they have mated the time can then be told. This much can be said, that if they are healthy, vigorous and young birds, are fed properly and given good care, and are really of equal number as to the sexes, they ought to mate without much delay and if they do not, there is a grave suspicion that some of the named conditions are lacking.

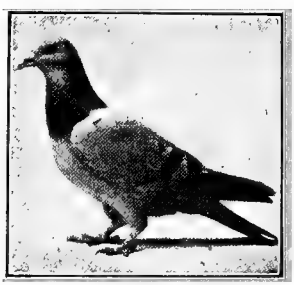

FIG. 30.—FROM THE NEST.

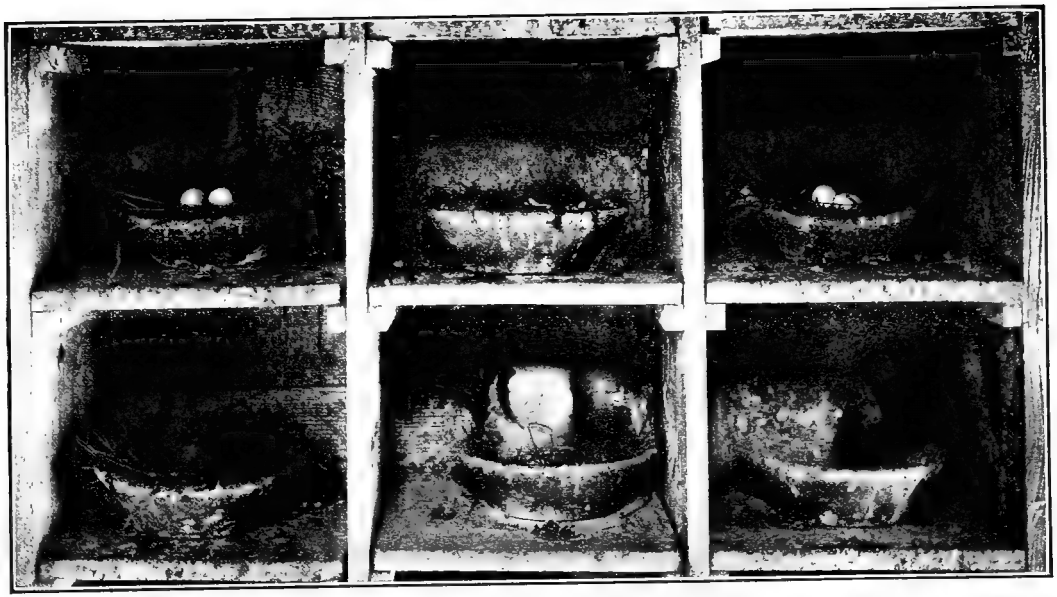

FIG. 31—GENERAL VIEW IN BREEDING PEN

CHAPTER XII.

How to Buy Birds

In no department of the business of squab raising is common sense more needed than when birds are purchased. Every beginner enters the business, presumably, to make money, and is very foolish if he blocks all expectation of success by purchasing birds without careful investigation. The safest plan of all is to buy no more than say 10 pairs of birds of a reliable dealer who will give all facts about them. These can be kept in an easily improvised house of sufficient size. A piano or organ box will do for temporary purposes. A few weeks will convince the embryo breeder whether he needs to enlarge it or not. If successful he will feel safe in putting more money into the enterprise. On the other hand, if he discovers he is not fitted for the business, his experience will not have cost him much.

It is well not to be too much afraid the market will be glutted before one can get a good-sized flock, unless many birds are bought at one time. Too many have bought in this way, and parted with much money before they gained the necessary experience. In many such cases the owner acquired more experience than money. The seller should be questioned on all the points mentioned on page 85. Unless he can give satisfactory answers, the buyer should let him alone.

Let us illustrate.—A leading Sunday paper contained an advertisement of 100 pairs of pure-blooded Homers for sale. The advertisement was truthful, but the birds were absolutely worthless for squab raising.

They were worn out birds whose owner had lost money on them the two years previous. He had sorted them out of his flock and sold them to a dealer. We happened to know the birds in this particular instance, for the owner had asked us to advise him. We told him he had a lot of old birds which he was keeping at much expense. He kept them two years longer, hoping they might do better, but his income scarcely equaled his expenses and he sold out. Our

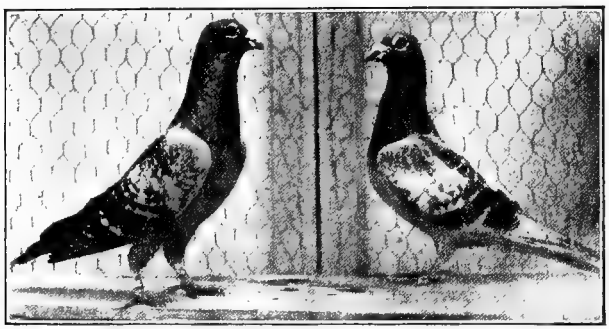

FIG. 32—MATED PAIR OF YOUNG HOMERS.

correspondence has been weighted with bitter complaints from those who have bought birds of extensive advertisers, but secured no satisfactory results after patient waiting.

Experiences cited.—The following are a few of such letters: "In March, 1904, I purchased the remnant of a flock of 200 squab breeders. These birds were purchased in August, 1903. During the time they were owned by the other party 100 died or escaped and I got the remaining 100. The first purchaser did not get an egg during the time she owned them, nor did they even build a nest."

The following letter is from the Pacific coast: "I got 42 birds two years ago in July. I bought what were recommended as 'extra mated.' I had them from July to February 12 before a squab was hatched. Then as a few more were hatched they began to die and I lost 75 per cent of all the birds."

The next letter is from a lady in the middle west: "I bought 12 pairs of birds and after much delay found I had only eight hens out of the lot. Everybody from whom I tried to buy extra hens said: 'You must have bought your birds from a certain party.' They named the very company from which I purchased my stock. I mentioned this fact in my letter to the company, but they were quite indignant, and have promised to send me hens to replace the missing ones. If they cannot do any better than they first attempted, I do not know whether I shall get hens or not."

A gentleman in a New Jersey town erected a pigeon house at a cost of $260 and bought 150 pairs of birds of a Philadelphia dealer. He gave the birds painstaking care and after 18 months had not sold enough squabs to pay the feed bill. Many of the birds never mated. He went out of the business. To-day the house stands empty and unused as a reminder of the foolishness of unwise buying. Another person felt obliged, because of ill health, to seek another occupation. Magazine advertisements promised an easy way to make sure money with little work to squab raisers, and $600 was soon invested. At the end of a year the receipts had amounted to $200, the business was abandoned and the old occupation re-entered. In this case the $600 represented the total savings of a number of years of hard work in an exacting employment.

We could quote from scores of letters from correspondents in almost every state and from Canada, reciting such disappointments and failures. More than 99 per cent of these correspondents had purchased their stock of dealers, whose advertisements occupy large space in some of the leading magazines and periodicals; in fact, 90 per cent of the letters came from persons who had purchased of one dealer. Many of the complaints were that but few of the birds would mate, even after being kept six months or a year.

This chapter would have been more appropriately headed, perhaps, had we said: "How Not to Buy Birds." We desired to emphasize the costly and disastrous manner in which some breeders have attempted to make a start by buying of unscrupulous dealers, who know but little about pigeons or willfully misrepresent those they sell. Any honest man who deals in pigeons, knows whether his birds are mated or not and should be willing to give a written guarantee to that effect. If he has a large flock he cannot know that they are mated unless he keeps a record and notes down each pair of birds as they have mated. If he has kept such a record, it is a very simple matter to copy the list and give it to his customer, who will then have some evidence of the reliability of the seller.

If a dealer, big or little, cannot give this written list, showing the pairs, our advice is, shun him. Nine times out of ten, the dealer will get your money and you will get a lot of worthless birds.

The guarantee.—Now let us inquire what the terms guarantee and warrantee mean. Webster says: "Guarantee, *v. t.*, to engage, assure, or secure a thing

that may be depended on; to warrant. Warrant, *v. t.* 4. (*Law*) (*d*) To assure, as a thing sold to a purchaser; that is, to engage that the thing is what it appears, or is represented to be, which implies a covenant to make good any defect or loss incurred by it. Warranty, *n.* 2. (*Modern Law*) An engagement or undertaking, expressed or implied that a certain fact regarding the subject of a contract is, or shall be, as it is expressly or impliedly declared or promised to be. In sales of goods by persons in possession, there is an implied warranty of title, but as to the quality of goods, the rule of every sale is *caveat emptor.*" This definition is satisfactory until we come to the last two words, which mean, "let the buyer beware."

Let us see how easy it is for a dealer to do business who starts selling pigeons with *"Caveat emptor,"* as part of his capital. Suppose he advertises heavily in from 100 to 300 of the more prominent daily, weekly and monthly papers; that some of the yearly charges for such advertising amount to $1,000 or more a year, the whole aggregate running into a respectable sum. Now because young pigeons must be a year old before they are profitably mated, a large plant must be provided if one is to fill orders for 500 to 1,000 pairs at a time and do business enough to pay the advertising bills. A house 40 feet long will accommodate 250 pairs of birds. Four such houses, or one house four times as long, is needed for 1,000 pairs of birds and for 5,000 pairs twenty times as long, etc. We soon realize how enormous a plant the large dealers must have if they raise the birds they sell.

Suppose again a dealer has agents in various parts of the country buying and shipping birds to him. He guesses at their ages, sex, etc. He does not know

whether they were prolific squab producers or not. The best he can do is to give the buyer a mess of guesses, instead of definite, reliable, first-hand information. Under such conditions how can a producer know anything about his birds when the shipper himself did not know anything about them? A local

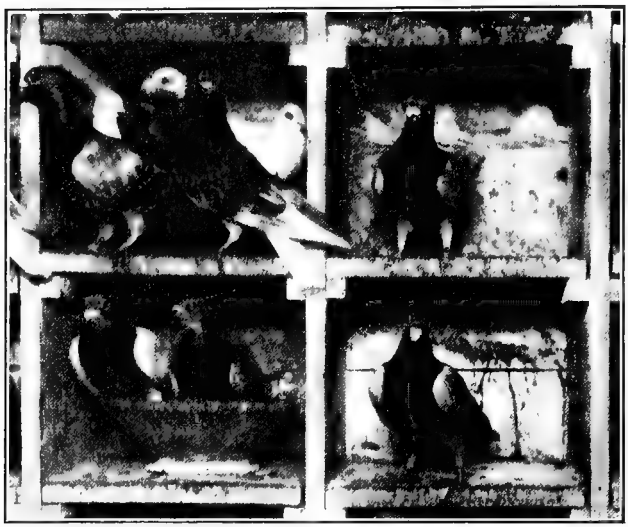

FIG. 33—YOUNG BIRDS IN MATING PEN.

The pair in the lower left hand nest have mated and selected this nest.

breeder, mentioned elsewhere, informed us that one year he shipped more than 2,000 pairs of birds to a large dealer. He did not raise all the birds himself, but bought largely in the open market. He guessed at the sexes as best he could and received 75 cents a pair for the birds. Now, if the dealer sold them for

$1.50 per pair, he made nearly 100 per cent, for the expressage would amount to but little. If they were thought worthy of a larger figure, they might have been sold for $2 to $2.50 a pair, in which case, the profits would range from nearly 166 2-3 to 233 1-3 per cent. A business from which it is possible to realize such returns can stand quite a lot of advertising.

An example of buying.—A young man read an advertisement about squabs in one of the most reputable periodicals, corresponded with the dealer and ordered 200 pairs of birds. He sent $50 extra, because the dealer could also furnish feed. The birds and feed came, the latter having the tag of a New York supply house on the bags. Seventy-five of the birds soon died. Upon examination, the grain was found to be damaged. The young man's father pronounced it unfit for hog feed. An additional 20 pairs of birds had been bought from a western dealer. These 20 pairs of birds raised more squabs than the rest of the 200 pairs. A pigeon house had been erected at a cost of $175. At the end of the year, $800 had been expended. The flock was of no consequence and was sold to a farmer at 20 cents a pair. How then shall a buyer get good birds? Simply ask questions, and if you cannot get satisfactory answers, do not buy.

Ask the following questions.—Have you raised the birds you offer for sale? How old are they? Are they inbred? Are they mated? Are they banded? How many squabs did each pair produce last year? Have they canker? Have they lice? Will you write a warranty that they are mated? Will you give a list showing which two birds are mated so that if one dies I can tell its mate? Will you write a guarantee that unless the birds mate inside of four weeks after I get them you will refund the money.

FIG. 34—YOUNG BIRDS IN ROOST.

It should be noted that only one bird occupies a nest. This indicates that none of them have mated, otherwise the pair would be in the same nest. Photograph made by flashlight at night in pen.

An honest dealer is not only willing to answer all such questions, but will back them up with his written guarantee. A gentleman on the Pacific coast bought 100 pairs of birds from a New England concern, kept them six months and did not get 20 pairs of squabs. These birds had been bought without any written guarantee that the birds were mated. He then bought 12 pairs with the written promise that the birds were mated and would soon go to work. These birds were shipped 3,000 miles, the same distance as the others purchased. In six weeks after their arrival, each pair had eggs or squabs. The birds proved the dealer's words were true. In the former case, they did not sustain the dealer's promises.

The only way to sell properly mated birds is to take them off the nests containing their own eggs or squabs. The seller then knows positively that his birds are mated. He can truthfully and fearlessly guarantee that they are mated. We say fearlessly, for his birds, if they mated, may be trusted implicitly to back up his word by making nests shortly after they are established in their new quarters.

CHAPTER XIII.

Selecting and Raising Young Birds for Breeders

To keep a flock of pigeons in continuous profit it is necessary to replace the old birds before their usefulness ceases with hardy young stock. A good plan, if one has say 500 pairs, is to have a difference of a year in the ages of each 100 pairs of birds, so that when the members of the oldest flock are seven years old they may be sold, and another flock the next year, and so on. An honest person in selling such birds will, of course, give full facts as to age, so that the purchaser may not be deceived in his purchase.

Selecting young stock thus to replace the older ones is very important. Until 1905 we saved very few birds except during the months of March, April, May and June. But as narrated in the chapter on molting, we had so much better success with our flock during this usually trying period, that we saved many birds during that time. Only birds from best and most prolific breeders are selected, care being taken to avoid any from parents which have been breeding dark skinned squabs, or raising poorly nourished birds, or those lacking in any essential of first-class stock.

The young birds must stay in the home quarters until they are from five to six weeks old. They will begin to leave the nest when about four weeks old and any which it is desirable to keep as breeders must have been banded before they have gotten out of the nest. This is a very trying period for the youngsters for they must learn to eat and drink for themselves, because the parents quickly cease giving full care and

expect the youngsters to shift for themselves, even to find the food trough and water fountain. It is usually fully six weeks before they can be considered able to look out for themselves and to be put in a separate enclosure.

In this separate pen they will do much better, for they cannot be harassed by the older birds. When caught for transferring all youngsters should have the tail feathers plucked out. This is best done by holding the bird as represented in the illustration on page 70. By grasping all the tail quills in the right hand, they may be pulled at one quick pull and without any seeming injury to the bird. The advantage claimed is that birds so treated usually get through the molting season better than those whose tail feathers have not been plucked.

The youngsters must not be expected to thrive on indifferent treatment. They are to be the birds from which future profits must be had, and must have the same careful feeding and attention that is given to the breeding pens. No stinting of food or carelessness in the quality of water can be tolerated. They must be intelligently fed and reared. Any false economy in quantity or quality of the ration will show itself to the owner's loss.

Roosting pointers.—The birds must not be allowed to roost out in the fly at night, even in the summer time. Last year we had very many inquiries as to the cause of sore eyes, cold in the eyes, and canker in the eyes, among young birds. In nearly all cases these young birds were permitted to be in the fly all night, subject to sudden changes of temperature and heavy beating rains. We had in our own flocks no cases of this trouble for we had learned several seasons before

to see every night that every bird was inside the pen by nightfall. When any did not of themselves go inside, we caught them and put them where they ought to be. It will not do to expect the birds to go in themselves, for sometimes they will not and sometimes a bird playing the boss will station himelf at the entrance and prevent all the other birds going in. We have known birds to act this way possibly in a spirit of mischief.

Once we saw two such birds, one on the inside and the other on the outside of the exit holes, by running

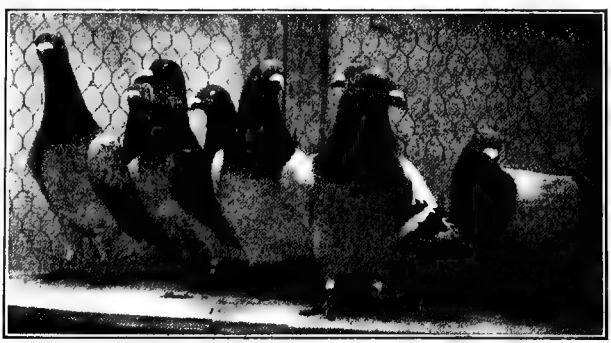

FIG. 35 —YOUNG BIRDS IN THE MATING YARD.

along the boards effectually fight off all desiring to enter until one bird put a stop to the bossing. He seemed to act with almost human intelligence. He flew quietly to the farther end of the pen, and putting himself at full speed flew directly at the boss, and giving him a sound cuff, knocked him off the board, went immediately inside and repeated the trick with the other offender. Then he came out and made the circuit of the fly, as much as to say, "you can all come in now, the bosses have quit business."

Pen for young birds.—The birds are kept in the youngsters' pen until they are surely mated. Too much haste must not be used to remove them. They must be firmly established at housekeeping, for the first pairs of squabs are usually of little consequence. From 200 to 300 youngsters can be kept in the regular sized pen while they are growing, but care must be taken to see that an equal number of each sex are in the pen, so that all may have a mate. Let the youngsters have full use of the bath and let everything be done to ensure their comfort and steady growth.

No old, makeshift house should be used for young birds. They should have the best and the best conditions possible. Especially note to see that there are no leaks in the roof, through which water might drip on the birds, and make dampness inside, and also that no boards have been warped, through which drafts may blow upon them. Give them compound tincture of gentian, two tablespoonfuls in water fountain, once a week during the molting season. Once every week for the balance of the year give one tablespoonful of the tincture to the gallon when they seem to need it. A lump of lime the size of a hickory nut dropped in the water fountain once during two weeks is a benefit to youngsters as well as the breeders. We always use it.

Beyond the precautions mentioned of not permitting the youngsters related to each other to mate, make no attempt to control their selection of mates. Except where there are particular reasons for desiring to have certain birds to mate, they can best be trusted to attend to their courtship in their own way. The result is likely to be better than if one meddles with the matchmaking.

CHAPTER XIV.

Banding Birds and Keeping Records

Two kinds of bands, aluminum and German silver, are in use. They may be either closed or open. Closed bands are made of seamless tubing sawed in suitable widths, while open ones are of thin strips of metal about 1 3-8 inches long by 3-16 inch wide. The necessary letters and figures are put on with steel stamps. Closed bands must be placed on the leg of squabs while still in the nest and quite often before they are a week old. They are most easily applied by drawing three toes forward and the hind one backward, and slipping the band on them while in that position, as shown in Fig. 36. It is impossible to use closed bands after squabs are more than a week old, at which time the feet are too large for the bands to slip over. The open bands can be placed at any time. as they are simply rolled around the leg with the free end bent closely in. They will move easily upon the leg. The method of holding an old bird for banding is shown in Fig. 37. Each band bears the initial of the owner's last name, figures to represent the number of the bird and the letter "c," for cock or "h," for hen. The seamless band cannot be lost or removed when once placed, while the open band is sometimes lost and may be removed. These bands can be purchased of dealers, or if one desires he can make them himself from seamless tubing for closed bands. The tools necessary are a hack saw, steel stamps and a piece of round rolled iron, a trifle less in diameter than the diameter of the tubing. The iron rod is inserted in the tubing,

when the initial or figure is struck on with the stamp and a tap of the hammer. By the purchase of sheet metal cut in strips of proper width, anyone can easily make the open bands. We use open bands, for we sometimes buy choice birds to get a different strain of blood, when we can place such bands on them, but could not use a closed band.

Our record keeping has been a very simple one of recording nest mates with a view of preventing in-breeding. This is effectually done by banding in the nest, and by using the open style; we do not have to place it during the first week of the squab's life but can put it on at any time before the squab is old enough to leave the nest. No other method than this will surely distinguish the nest mates. We number the birds consecutively and make a record as follows:

R 1146 C wh sp
R 1147 H R ch

R 1148 C B B

R 1149 C Bl ch
R 1150 H D B

Explanation of record chart.—We underscore after recording the squabs of each nest. The letter R, is the initial of Rice; the numbers run consecutively; C, stands for Cock; 1146 being a white-splashed, and 1147 a red-checkered hen. The underscore shows that these two were from the same nest. The blue-barred cock, 1148, was the only occupant of that nest, as the underscore indicates, the other squab having died, or the egg failed to hatch. No. 1149 is a black-checkered

cock (Bl meaning black and B blue), and 1150 a dun-barred hen. These latter two again are from the same nest. If we save more than one pair of squabs from a given nest we note such fact on the margin of the entry leaf of our record book. The egg first hatched is usually a cock and the other a hen. This is not an infallible rule, for sometimes there are two cocks in the same nest, while at other times the opposite is true.

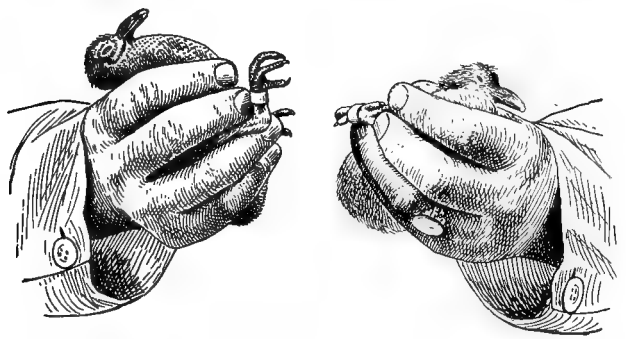

FIG 36—METHOD OF PUTTING CLOSED BANDS ON YOUNG BIRDS

But in about 90 per cent of cases the above rule will apply. This very simple method of record keeping serves the admirable purpose of preventing inbreeding, as follows: The record indicates 1146 and 1147 are brother and sister. They must therefore not be permitted to mate. The hen, 1147, could safely be mated with 1149 or 1148, as the record shows that all three are from different nests. No. 1148 could be permitted to mate with either 1147 or 1150.

Neglect to keep a record so that the breeder may know what he is doing has wrecked many squab plants which were prosperous for a short time. When the

young were saved for breeders and permitted to mate in any haphazard way, a few generations of such carelessness brought about such enfeebled constitutions that not only was all idea of profit entirely eliminated, but the owner reached a condition of affairs that was absolutely without remedy. Nothing could be done except to begin over.

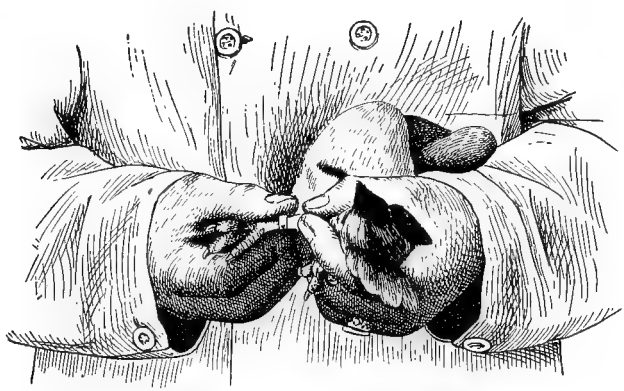

FIG. 37—METHOD OF PUTTING OPEN BANDS ON OLD BIRDS.

A more complete record would include such information as the number of squabs from each nest, together with their size and details, such as carelessness or extra care on the part of the parents. To facilitate the gathering of information we would number each nest, placing on each a little rack with a card in it. At feeding time a few minutes would enable us to make such notes on the cards as desired. Once a week the cards could be taken to the house at night and their notings transferred to a permanent record, each card being numbered to correspond to the number of the nest from which it was taken.

We feel that the benefits to be derived from such record keeping would much more than pay for the extra trouble, for we believe that in our flock there are some unproductive pairs, which we would weed out if we had the time to do it. These birds cost fully a dollar a year for feed and if they do not give more than one or two pairs of squabs a year they ought not to be kept. In a flock of 750 pairs of breeders, an increase of half a pair of squabs to the average would mean 375 pairs, which at the average price of squabs for the year, 60 cents, would be $225. This sum would surely pay for the extra work. It is one which we feel is of possible attainment.

CHAPTER XV

Amount to be Safely Invested

A question frequently asked is: "Can large capital be safely invested?" To this we answer, yes and no. Yes, if a man has had several years' successful experience in keeping pigeons, and knows where he can buy the kind of stock he must have. We would say no, with emphasis, if any person, who has merely a lot of money, thinks he or she can be successful by investing it in a big lot of birds and the necessary buildings at the start. We believe it is not at all possible for anybody profitably to put, say, $5000 in the business in the first six months, if he has had no previous experience. So far as danger of overstocking the market with squabs is concerned, the fellow who begins with a little experience and carefully selects his best birds, will, in our judgment, be doing more to keep the market supplied than half a dozen of the other fellows, who have only money and no experience in the squab business.

Interesting experiences.—Our correspondence has given us interesting experience on this very question. Some persons who had considerable means at their command came to us for advice. When they had made careful investigation along the lines we suggested, they very wisely refused to enter the business until they could secure the services of a thoroughly competent man to run their plant.

We recall two cases in point: One was a New York business man, who was willing to invest from $5,000 to $10,000 in the squab business. He wanted to know

what returns he would get the first month and what he might expect during the first year. When we explained that we did not know any source of supply whence he could get good birds in such quantity he seemed surprised. He had supposed that it was only necessary to write to some large dealer and have a shipment of mated birds made at once. Upon further advice, he wrote some of the most extensive pigeon

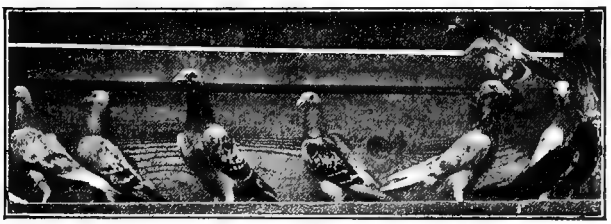

FIG. 38—SUNNING SHELF UNDER THE EAVES.

advertisers and requested replies to the following questions: What is the age of the pigeons you will furnish me? How many squabs did they produce last year? Are they banded? Are they mated? Will you furnish a guarantee that all the birds are mated? Will you furnish a list, showing which two birds constitute a pair?

We had explained to him that unless he bought mated birds and had a list, showing which two were mates, he would have to do this work as soon as he received them, otherwise, he could not expect any profit until this was done. After receiving several replies, with no assurances of getting mated birds with a written guarantee, he concluded not to go into the business of squab raising.

Another was the case of a professional man, who desired to buy a farm within two hours' ride of New York city and engage in the squab business. He desired to make a specialty of furnishing squabs to hospital and physicians' trade. This gentleman had the same difficulty in getting satisfactory replies to his letters as the one mentioned above. He was practical enough to see that if he did not get the right kind of a flock at the start he could not expect satisfactory results.

We have in mind a minister who was about to remove from Michigan to Massachusetts. He was obliged to relinquish his pulpit duties because of failing health and desired to go into the squab business in connection with poultry. He wrote a very full letter, asking many points about the proper way to begin. He followed our suggestion and wrote to several dealers, all of whom guaranteed to sell mated birds, at least their advertisements were so worded. After receiving several replies, he wrote us that each dealer had fought shy of giving any guarantee. They said their birds were mated, but they would not guarantee them to be mated. The reverend gentleman agreed with us, that if a dealer said his birds were mated, and was not willing to back it with a written guarantee, no one could put any confidence in the statement.

Requisites of success.—The question of success hinges largely on one's ability to get mated birds, birds which are actually raising squabs at the time of purchase. Such birds will get to work, except, perhaps, in the height of the molting season, within two weeks after being placed in new quarters. If capital cannot secure such birds, one must wait until his birds mate. He must employ two persons of sufficient intelligence and honesty to catch and make records of the

birds as they mate. This is slow, but no success can be expected until mated and non-mated birds are separated. The work must be done. The way to do this is to find by observation which two birds make the nest, and when an egg is laid to determine which is the hen and which the cock bird of each particular pair. Then one man keeps his eye on, say, the cock, which he catches, using the net; the other keeps the

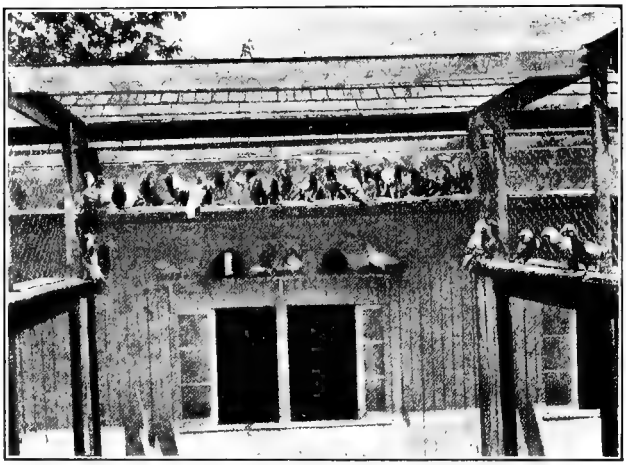

FIG. 39—PEN OF SPLENDID HOMER BREEDERS.

Note open windows covered with wire netting.

hen in sight, until it is caught. Until this work has been done, and done faithfully, there can be no expectation of profit. Breeders all know it takes much time to observe and catch a single pair of mated birds. It should be done only by those whose experience and training fit them for the task.

Unless this work has been done and a list of the mated birds furnished, the man with unlimited capital has no chance for any returns until he selects the mated birds and puts his flock in shape to give profits. There may be now and then an instance in which birds may all be mated and go to work, even though no list of birds has been furnished, but in the absence of such a list, when a bird dies, it is very difficult, and in a large flock almost impossible, to know the widow or widower, as the case may be. To judge from the mass of letters complaining that birds are not mated, it is very evident that some of the big advertising dealers are not mating their birds before selling them, and that in the pigeon business the term "mated birds" usually means merely that an equal number of birds of each sex will be sent in a shipment.

CHAPTER XVI.

Diseases. Parasites and Remedies

With good, wholesome food, proper housing and care, very little disease is usually encountered. The best preventives of diseases, as cited in our Bulletin No. 177, published by the United States Department of Agriculture, are: (1) A dry house, free from drafts; (2) untainted grains; (3) pure water; (4) regularity of feeding; and (5) cleanliness.

Going light—This disease is characterized by moping and drooping of the bird, which, when examined, will usually be found to be thin in the flesh. Diarrhea is frequently the first symptom, which may be checked by a dose of sweet fern tea. If the discharge is slimy give a dropperful of cod liver oil and creosote every night and morning until improvement is noticed. This remedy is prepared by mixing 1 dram of creosote with 2 ounces of cod liver oil. By a dropper is meant the little instrument which is used in filling fountain pens, and which is very convenient to use in giving drops or small doses.

If the disease has so far progressed that the bird breathes heavily or gasps for breath, use what some have designated as the "hatchet" remedy, that is, kill the bird. This disease usually manifests itself only during the molting season, and in all cases the tail quills should be plucked.

We think the disease is often due to unsound grain or permitting feed to lie on the ground and sour. In light attacks three drops of compound tincture of gentian is sometimes sufficient to effect a cure, if the tail

has been plucked. Too hard driving by the cock bird may cause the trouble, by preventing the hen from getting full quantity of food. The first diarrhea may be caused by feeding too much wheat, or grain that is too new. A good remedy in such cases is to give two droppersful of sweet fern tea at once.

Roup.—Roup may be known by a discharge from the nostrils and a very offensive breath, and is probably the sequence of a neglected cold, coupled with a diseased condition of the bird. It is very contagious and requires careful treatment. Fill a small oil can with camphorated oil, and after washing the nostrils well, put three or four drops in each of them and one or two in the mouth. Another remedy is to use two drops of kerosene oil in the nostrils and one or two in the mouth. Watch birds carefully until cured. If the birds are well taken care of, this remedy is a sure cure.

Vertigo.—When afflicted with vertigo the bird turns its head over its shoulder and seems dizzy, frequently falling down. It is probably an affection of the brain. We have known a bird with vertigo to live for two years, always having a spell when we entered the coop. We have never known a case to be cured, and the best treatment is the "hatchet" remedy.

Leg and wing troubles.—In some cases, the legs of the bird seem too weak to support the body. Homers and short-legged varieties very seldom have this trouble. Inbreeding we believe to be one of the chief causes. Do not inbreed, always keep a record, and mate carefully, and you need not fear this trouble.

Birds sometimes may strike their wings in going in or out of the entrance, or may hit each other with their wings in fighting, and such blows may cause

lumps to form. Some advise opening such a lump with a knife, but this treatment, in my experience, has always caused a stiff joint, and we cannot recommend it. The only remedy we have found effectual is to paint the part occasionally with tincture of iodine. We have successfully treated several cases in this way, but never had a successful one with the knife treatment.

A swelling sometimes forms on the wing joint next the body. All varieties are more or less subject to

FIG. 40—YOUNG BIRD.

this. The swelling has no corruption in it. The remedy is to paint with iodine tincture, and, if the wing droops, lessen the weight by plucking the wing quills.

Canker.—The appearance of canker is indicated by a profuse discharge of cheesy matter from the side of the mouth. As soon as noticed, treatment should be given. Prepare a solution of bluestone, and with a small camel's hair brush swab well the part affected. Do this two days in succession and then with a

match stem carefully remove the cheesy growth, being very careful not to draw blood, and then put a small quantity of powdered sulphur in the throat. Do not attempt to check the discharge as it first appears except by treating as mentioned. If the bird is badly cankered before treatment begins, and the mouth well clotted, or if there is a large cankerous lump well down in the throat, treatment seldom is of any avail, and usually such a case is best remedied by killing the bird. In the case of valuable birds the knife may be used as a last resort.

To keep the flock free from this disease feed only sound grains and give the purest of water. Never place newly purchased birds in the flies until first inspected thoroughly by opening the mouth to see if any canker exists. When any is found, they should be handed back to the seller, for canker is one of the most dreaded diseases.

When the disease is mild in form, by the prompt use of the remedies recommended here, favorable results are almost always secured.

Cholera.—This is the worst of all diseases with which the breeder contends, and more loss is occasioned by this complaint than by all others combined. It runs its course with fatal rapidity, and, when once present in a flock, may quickly decimate the pens. Happily, however, the cause of cholera may almost always be traced to bad management and bad feeding, so that a careful and intelligent breeder seldom is called upon to carry out dead birds by the bucketful, as sometimes happens with flocks poorly kept.

Usually when first affected the bird mopes about with a full crop, which if examined will be found to be full of water with a very offensive smell. When

this is observed the bird must be carefully caught, the water gently squeezed from the crop, and a dropperful of the cod liver oil and creosote mixture administered.

If the whole flock is diseased, put 10 drops of carbolic acid to a gallon of their drinking water for two mornings. Be very careful what you feed, and watch the flock very closely, because if this trouble gets a foothold the entire flock may die in a short time. After having used the carbolic acid, use a tablespoonful of tincture of gentian to the gallon of drinking water three times in succession. If birds are well cared for this disease need cause very little anxiety, but lack of cleanliness and unsound food and impure water invite the disease in its worst form.

Lice.—There are two kinds of lice which infest pigeons: (1) The long variety, which confines itself to the wings and is seldom troublesome; and (2) the small round louse, which preys on the head and body of the bird, and, if allowed to increase, will deplete the blood and cause death.

These pests breed at so astonishing a rate in warm weather that, if they once get a foothold, vigorous measures must be promptly used, or all weak or ailing birds will be literally eaten up. If a loft becomes infested, clean out thoroughly and use kerosene oil freely in nests and perches, seeing that the oil saturates all surfaces and gets into all cracks and crevices, and that the corners are not forgotten. Then at the weekly cleaning scatter powdered lime well saturated with crude carbolic acid in the corners of all the nests.

Sawdust should not be used for the bottoms of nests and on the floors, as is sometimes suggested, unless it be first treated well with carbolic acid, and even then

the propriety of using it is doubtful. The worst affliction of lice the writer's pigeons ever suffered was when he used sawdust. The nest pans fairly swarmed with them. When he got rid of them, which required heroic treatment with kerosene and dusting the birds with Persian insect powder, after thoroughly cleaning the house, he never used sawdust again.

Attention to cleanliness and regular baths for the birds are essential in avoiding these pests. Birds that have three baths a week, houses well cleaned weekly, carbolated lime scattered in nests, and tobacco stems for nests will not be troubled with body lice. In buying new stock carefully examine for lice, and if any are found dust with Persian insect powder or snuff, keep them separate, and be sure that you have killed all lice before placing them with the breeding flock.

Sweet fern tea.—In addition to the specific remedies already mentioned, there are several general ones which are most useful in squab raising. Gather the leaves of the Sweet fern, or Meadow fern, (*Myrica asplenifolia*) in August. Dry them in the shade and hang them in strong paper bags. To make the tea, boil a double handful of the leaves in two gallons of water; let it boil away one-half; strain and put away in bottles or jugs where there is no danger of freezing. Use a teacupful of the tea in two gallons of water, putting it in the drinking fountains. This tea is an excellent remedy for diarrhea and looseness of the bowels.

Tincture of gentian.—This is an excellent tonic for birds. It can be used throughout the year, but especially during the molting season. We also find it good whenever the birds do not seem to be in prime condition. We use the compound tincture or extract in the drinking fountains at the rate of one tablespoonful to a gallon of water.

Lime water.—A lump of good stone lime in the drinking water once in two weeks is beneficial. To prepare it, get a piece of fresh building lime and expose it to the air a day or so until cracks form all over the lump; then place it in a tin can with a tightly fitting lid. It can be easily broken in small pieces, as desired. A small piece the size of an ordinary hickory nut in the water once in two weeks is of benefit to the

FIG. 41—SIX MONTHS OLD.

birds. It furnishes some lime for the birds, besides helping to purify the fountain.

Disinfecting the water fountain.—The water fountain being difficult to clean should be purified more thoroughly than can be done in the morning washing, as shown in Fig. 18. At least three times a month it is well to disinfect the drinking fountains with a strong solution of crude carbolic acid. Allow this

liquid to remain in the fountain a few minutes after a thorough shaking. Ten drops of the refined carbolic acid in fountain once a week is advantageous.

Dry carbolated lime.—Powdered or dry carbolated lime is prepared by adding a scant teacupful of crude carbolic acid to a peck of air-slaked, sifted lime. This is employed in the weekly cleaning. It is dusted in the nests, on the roosts, runs and floors.

Liquid carbolated lime.—To prepare liquid carbolated lime, use a teaspoonful of crude carbolic acid to 2 gallons of whitewash. This is used for whitewashing the entire interior of the house twice a year.

CHAPTER XVII.

Miscellaneous Items

Bird hospitals.—In the general purpose room we make provision for sick birds or any birds needing special attention. Our hospital has seven cells or divisions. It is made with a slatted front; i. e., a front composed of slats, with the door sliding up and down. This furnishes comfortable quarters and an easy arrangement for treating all sick birds.

Cost of feeding.—The price of grains suitable for pigeons and squabs fluctuates according to the changing market conditions. The cost of feeding a pair of birds a year is about $1.04, when food supplies can be bought at the following prices: Wheat, 80 cents per bushel; sifted cracked corn, $1 per hundred pounds; Kafir corn, 90 cents per bushel; millet, 90 cents; hemp, $1.30; and peas, $1.10 per bushel.

Utility of barren birds.—We have a hen whose eggs never hatch. She is mated, however. This pair is used as foster parents. They duly accept and take good care of any squabs entrusted to their keeping. They reach nearer a record of 12 pairs of squabs a year than any pair we have ever known.

Transferring squabs.—Sometimes a bird dies thus breaking the mating. Frequently in such cases young squabs are left in the nest. At other times three eggs will be found in a nest, the extra one probably being from a hen other than the regular occupant of the nest. Other nests may contain but one squab. In such cases squabs may be transferred. Care should be taken to have squabs of about the same age in the

same nest. Never take a squab from a nest while the parents are feeding "pigeon milk."

How to carry a bird.—The proper way to carry a bird in the hand is shown in Fig. 27. Let the legs drop between the first and second fingers, while the thumb is clasped about the tail and ends of the wings. Held in this position, the bird cannot struggle and injure itself. It can be carried any distance without fear of injury.

Receiving birds.—When newly purchased birds are to be added to the flock, they should be critically examined, when still in the hamper. Look for signs of lice, symptoms of canker or other diseases. They should never be placed in the breeding quarters until the fact of their being mated is fully established.

Will shipping birds break mating?—Frequently customers complain to dealers that the birds they bought do not mate. A common reply is that the buyer must have patience, as shipping birds a long distance often breaks up mating. We have not known of a single instance in which mated birds, actually taken off the eggs or squabs, have failed to go to work promptly after shipment. Such action proves conclusively that the birds were mated at the time the purchase was made.

How to catch birds.—In the pen birds may often be easily caught by approaching quietly, holding the hands above the head. Usually the bird flies upward and by a quick motion with a little practice often it can be secured. In the fly, however, a large net, such as that shown in Fig. 15, is used. The net is hung on a ring 3 feet in diameter, having a handle about 3 feet long. The net must be used to catch flying birds. Never try to capture a bird as it flies

toward you, as a broken wing or bruised head may result. Watch closely and as the bird is even with you make a quick pass with the net in the same direction it is flying. Make a quick half turn of the handle at the same time, so the bag of the net lies against the ring. Thus caught the bird cannot escape. In Fig. 15, Mr. Rice is shown at the instant he secured the bird. Note the character of the net and the method of holding it.

Will mated birds always stay mated?—The almost invariable rule is, that birds once mated will stay thus. There are exceptions, however, to all rules. For instance, in molting, the cock of a certain pair may be recovered and in good health long before his mate. About the same time, a hen of another pair may have finished molting in advance of her mate. The respective mates of these birds may not finish molting for several weeks. In such cases, although rare, we have known the molted birds to mate.

Dun hens yielding hen squabs.—In our pens we have a few dun hens mated to birds not dun in color. One pair, however, both cock and hen, are duns. The peculiarity of these matings is that about 90 per cent of their progeny are hens. They are prolific and altogether desirable. We will not attempt to explain this excellent peculiarity, but the fact remains constant in all our observations. Usually in a flock of youngsters there will be more cocks than hens. These dun matings help us out in evening up the sexes and we guard them carefully.

Proper price for mated birds.—A good way to estimate the value of mated birds is to add to the market value of the squabs their cost of feeding, care and mating until they are old enough to bring profitable

returns to the purchaser. The average yearly price for squabs per pair in 1904 was 60 cents; in 1905, 62 cents. The cost of feed for a year will add another $1, making the cost $1.60. To this amount must be added a fair figure for the necessary time and labor in selecting and catching the mated birds, making records of their numbers and the value of the eggs or squabs in the nests at the time of sale. Selling the mated birds at $2.50 a pair does not give a large profit. It will not permit large advertising bills, if all the above steps are considered. If they are not, no man can guarantee mated birds. Buying birds at, say, $1 a pair and selling them a little later as mated birds, when in fact they are not, at $2.50 a pair, will leave a comfortable margin of dishonest profit.

Dark-skinned squabs.—It is the aim of every breeder to raise all light-skinned squabs, or as few dark-skinned ones as possible. Many correspondents have asked where they can secure White Homers, thinking they can get birds which will always produce white-skinned squabs. The color of the feathers has nothing to do with the color of the skin; but the color of the skin will very often be indicated by the color of the legs. In purchasing, reject all dark-legged birds, unless an examination of the skin under the feathers shows it to be light colored.

A bird of solid black color seldom gives a dark-skinned squab. "Pink," our faithful helper, who is shown in Fig 23, and who has done all our picking for several years, besides doing a great deal for other breeders in this vicinity, says he has never seen a dark-skinned squab from a jet black pigeon; but has often noticed dark-skinned ones from birds of pure white plumage.

The kind of feed has some effect on the color of the skin. Peas have a tendency to make a whiter

skin; corn a more yellow one; while wheat, if fed too largely, will surely give a darker hue to the skin. A well-balanced ration will not only give best results as to plumpness and size, but also as to color.

Account keeping.—Any business requires a careful system of keeping accounts so that at any time the exact financial condition of the enterprise may be known. Our method is the very simple one of entering all receipts on one side of the account, and all disbursements on the other, but it is attended to daily and at the end of each month we know exactly how the plant is running and on the last day of the year the balance sheet tells the story.

A record is kept of the number of squabs produced and sold and a column tells the cost of feed and other supplies. The same necessity exists in raising squabs of knowing how the business is paying as in any other. A breeder careless of his accounts can easily run further into debt with a poor purchase than he would care to unless he puts down all outgoes at the time. Some breeders sell squabs and pay their feed bills and guess they are doing well enough, but at the end of the year they do not have any cash surplus from the business.

When prices are high and the whole flock working well it is easy to be deceived into thinking the flock is paying well, but there are other times during the year when the production of squabs falls off, and a loss occurs. Unless exact records are made daily the footings of the columns of expenses at the end of the year may exceed that of the income. Keeping an accurate account enables one to keep a finger on the business and to detect and stop any leaks.

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