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SQUAB RAISING.

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INTRODUCTION.

Pigeons are kept in all parts of the United States, but most of the large squab-producing plants are found near the large cities in the Northeastern States and on the Pacific coast. Many pigeons are kept as a side issue on general farms in the Middle West and South, but the average value of the pigeons in these sections is only from 15 to 25 cents apiece, compared with 40 to 55 cents in New York and New Jersey. Prolific pigeons producing large squabs are kept confined in pens on most squab-producing plants, while common pigeons, which are less prolific and produce smaller squabs of a poorer quality, are kept on the general farms and are usually allowed their freedom. This bulletin discusses the general management of pigeons for the production of squabs and also contains a summary of data on the management of pigeons and the cost of squab production secured from pigeon breeders throughout the United States.

Pigeon raising is conducted successfully as a special business, also as a side issue on a small scale in towns and cities and on general farms. The demand for squabs, especially in large cities, is gradually increasing. Squabs are often used to replace the supply of dressed game which is decreasing in this country. The supply of squabs, however, appears to be increasing about as rapidly as the demand, judging from the average price. An average annual profit of $1.50 per pair of breeders is considered good on successful plants producing only squabs for market. Success in a special calling requires experience, business ability, and a good market. Most of the large successful pigeon farms make a business of selling breeding stock and are not devoted primarily to the production of squabs for market. There have been many failures on squab plants, as the profit in this business has frequently been greatly overestimated and the care of the stock regarded as something very easy in which anyone could succeed.

NOTE.—This bulletin discusses the general management of pigeons for the production of squabs, and also contains a summary of data secured from pigeon breeders throughout the United States. It will be of interest to anyone considering the production of squabs for market.

Many people can keep pigeons successfully as a side issue, although this requires constant oversight and careful attention to details. The greatest difficulties confronting the successful raiser of pigeons seem to be in securing good breeding stock and finding a good market for the produce of a small flock. Pigeons are a profitable source of income on general farms where they may secure much of their feed from the fields, provided they are not a nuisance and the loss by shooting and by hawks, owls, and cats is not large. They can also be raised successfully on farms where they are closely confined, provided the squabs can be marketed to good advantage.

VARIETIES SUITABLE FOR SQUAB RAISING.

There are a great many varieties of pigeons, but only a few are used extensively in squab culture; of these the Homer is generally

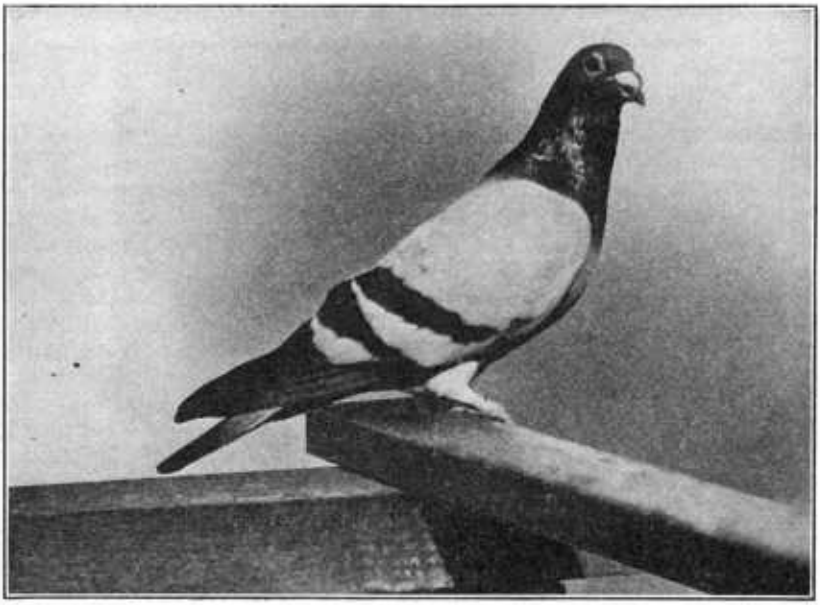

FIG. 1.—Homer pigeon.

considered the most popular variety. The small common pigeon is probably most widely distributed on farms. These pigeons produce small squabs, frequently of poor quality, and are not as prolific as the varieties hereinafter discussed.

THE HOMER.

The Homer (fig. 1) derives its name from the fact that it will usually return home if allowed freedom, even when taken hundreds of miles away. This trait necessitates keeping this variety confined if the pigeons have been purchased. The Homer is one of the best squab producers, because it is prolific and is a good feeder and mother. It has been bred largely for racing or flying, and little attention has been paid to plumage color, so that we have a variety of colors in this breed.

THE CARNEAUX.

The Carneaux pigeon (fig. 2) has recently become popular as a squab producer in this country. This variety is somewhat larger than the Homer and is claimed to be about as prolific and as good a feeder. Size is important in the production of squabs, as their value varies directly with this factor. The Carneaux has a variety of colors, but those with red and yellow shades are most common. The variety appears to equal the Homer as a squab producer, although it is not as widely distributed in this country.

OTHER VARIETIES.

Several other varieties of pigeons which are larger than the Homer are used on a small scale in squab breeding, especially in crossing

FIG. 2.—Carneaux pigeon.

upon the Homer and Carneaux to increase the size of the squabs. The Runt (fig. 3) is one of the largest of these varieties, but is neither as prolific nor as good a breeder or feeder as the Homer. Some of the other varieties used as squab breeders are the Dragoon, the White Maltese or hen pigeon, the White King, and the common pigeon. (See figs. 4 and 5.)

SELECTING BREEDERS.

Good breeding stock is one of the prime essentials of success in squab raising. It is advisable to buy pigeons from reliable breeders; if possible, from those who guarantee their product. Many failures in squab raising have been due to poor stock, because the prospective producer secured old pigeons past their period of usefulness, or a surplus of male birds. Both the age and the sex of pigeons are hard

to determine by casual observation, which forces the buyer to depend largely on the seller's word.

There is a great difference in the value of pigeons as squab producers, even when of the same variety, making it advisable to select the birds individually for their prolificacy and vitality, for the quality and size of their squabs, and their ability properly to feed and rear offspring. Dark-colored skins, legs, or beak indicate poor quality of flesh and should be avoided by selecting birds for breeding which have white or pinkish-white skin and light-colored legs.

Pigeons are most valuable as squab producers when from 2 to 6 years of age, although many will breed until they are about 8 years old. The small varieties mate and breed at 5 to 6 months, and the larger ones at 8 to 9 months. It is advisable either to buy mated pigeons which are from 2 to 3 years old or to secure young birds 6 to

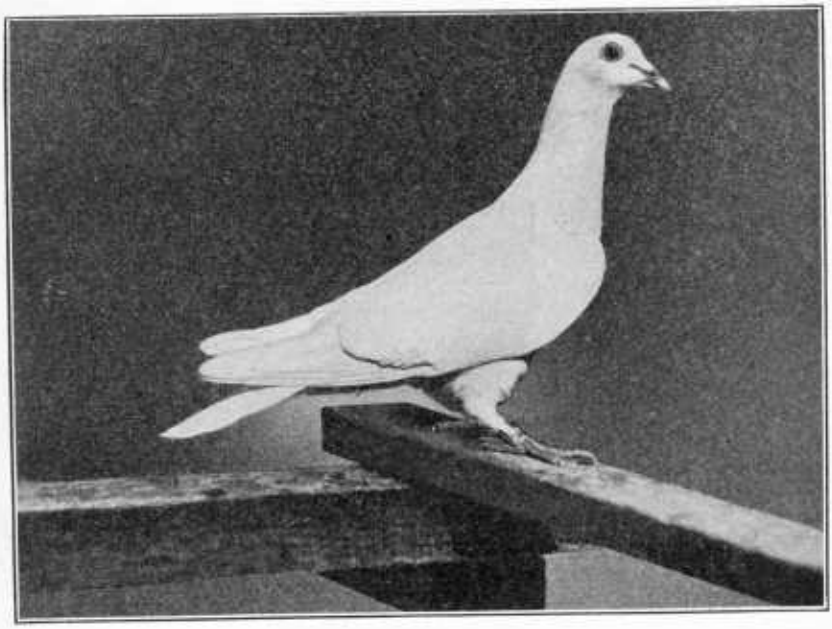

FIG. 3.—White Runt (female).

8 weeks old and mate them at the proper age. Squabs which are to be saved for breeding should be banded before they leave the nests and a record kept of their breeding. They are usually removed from the breeding pen after they are able to fly about and get their own feed. A catching net or bag made of large-mesh cotton netting, with the mouth or top about 18 inches in diameter, is very useful for catching the pigeons. Squabs hatched in April, May, and June make good breeders, while their value on the market is comparatively small at that time of the year.

MATING.

Pigeons usually mate in pairs and remain constant through life, although the mating may be changed if desired. The presence of unmated pigeons (especially males) in the pigeon loft is a source of

much trouble and usually prevents profitable results, therefore it is very essential that all birds in the breeding pens be mated. Pigeons are usually mated at from 5 to 9 months of age. There are two methods of mating, natural and forced. Males and females are placed in a pen in natural mating and allowed to select their own mates, which is usually indicated by the male billing and driving the female. If properly mated the pair will commence to build their nest and will be found together at night, while unmated birds usually remain alone. Experienced breeders, however, are occasionally deceived in selecting sex by the actions of the birds in mating.

Forced mating may be made, if the sex of the birds is known, by confining them to mating coops with a movable-wire or open-slat partition between the birds of each pair, so that they can see each

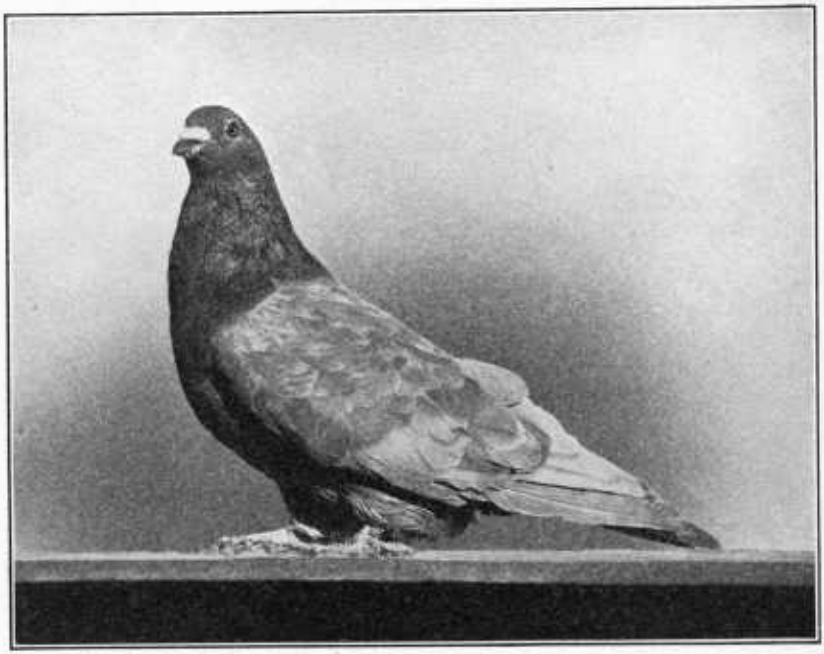

FIG. 4.—Runt cross.

other for 6 to 10 days, when they are allowed to go together and are then removed to the breeding pen if they appear to be properly mated. The male is usually placed in the mating pen one day earlier than the female. The female pigeon is usually smaller and less assertive than the male and has a smaller head and neck, although sex is a very difficult thing to determine in this way. Both natural and forced matings are used extensively with good success.

The breeders should be selected with a definite object in forced matings, using males strong in points where the females are weak. The same principle should be followed as far as possible in selecting the birds for natural mating. Old pigeons mated with young birds often give good results in breeding, making it advisable sometimes to break up and change a mating as a pair gets old and prolificacy

decreases. Some matings produce undesirable qualities in the squabs, which makes it necessary to remate or cull out the flock.

Continued close inbreeding is not desirable, and many pigeon raisers try to avoid any inbreeding. The relationship of pigeons as shown by their bands both in natural and forced matings should be considered. The danger from close inbreeding appears to depend largely on how carefully the breeders are selected, but it should be avoided by the average squab producer. Careful records of all matings should be kept. The males are usually banded on one foot and the females on the other to distinguish the sex of the birds in the

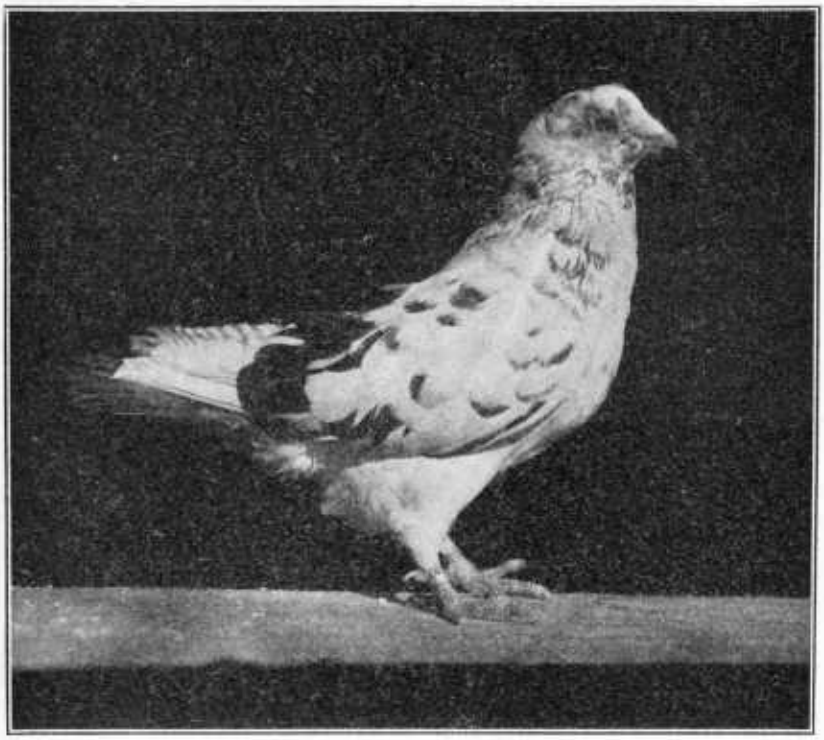

FIG. 5.—Runt cross.

breeding pen. If a breeding pigeon dies its mate should be removed from the pen and a new mating made.

BUILDINGS.

The prime essentials in pigeon houses are fresh air, dryness, sunlight, and space enough to keep the pigeons comfortable. The location should have good water drainage and air circulation in order that the floor and yards may be dry, while it should be situated for convenience in management. A southern or southeastern exposure is best. The general principles of construction which apply to poultry buildings also apply to pigeon houses. Almost any style of house can be used for pigeons, and in many cases where only a few pigeons are

kept, available buildings, such as the lofts of barns and vacant poultry houses, can be fitted up at a small cost.

A gable-roof building 10 to 15 feet wide, 6 feet from the floor to the eaves, and 8 to 9 feet to the ridge makes a good pigeon house. If a large part of the roof slopes toward the south, the house is apt to be too hot during the summer. This house can be made any length desired, but it is not usually considered advisable to keep over 400 pairs of breeders in one house. A pen 8 by 9 feet will accommodate 25 pairs of pigeons, while 40 pairs may be kept in a pen 8 by 13 feet. The necessary floor space to allow per pair varies from 2½ to 3 square feet, according to the size of the pen, as a pair of birds requires less floor space in large than in small pens. From 20 to 75 pairs of pigeons may be kept to advantage in each pen. It costs from $1.25 to $1.75 a pair to construct pigeon houses, including interior fittings and a small outside pen or flyway.

The house should be tightly constructed on all sides to prevent any drafts. More open and less expensive houses may be built in warm than in cold climates, but the house must be comfortable in cold weather. The number of squabs produced in winter in cold climates may be increased somewhat by heating the pigeon house, but this expense does not pay under average conditions in the United States. Windows should make up about one-tenth of the front of the house and should be arranged so that they can be taken out during warm weather. One window in each pen may be replaced by a muslin curtain in cold weather for ventilation when the house is shut. The windows should be placed just below the eaves to allow the sun to shine well back into the house.

FLOORS AND ALLEYS.

Pigeon houses should be constructed so that they can not easily become infested with rats. This is usually accomplished by building the house from 12 to 24 inches above the ground, using board floors, and boarding up the space between the ground and the floor, but leaving small doors so that cats and dogs can get under the house. If floors are built several inches above the ground they should be double, with building paper between the layers, except in the southern part of the United States. Alleyways 2½ to 3 feet wide are usually built on the the north side of pigeon houses which contain more than two or three pens. The pens are arranged to open into the alley so the attendant will not disturb the pigeons any more than is necessary in going through the house. Alleys increase the capacity cost of the house and are considered an unnecessary expense by some pigeon raisers.

If the pigeons are confined, a flyway, or outside yard covered with wire, is attached to the south side of the house. The flyway is usually from 6 to 8 feet high, 15 to 30 feet long, and the width of the pen. The sides are usually covered with 1-inch mesh wire, and 1 or 1½ inch wire is used on the top. A few pigeon holes about 4½ inches high and 3½ inches wide are cut in the front of the house at a convenient height, usually about 4 or 5 feet above the floor. Lighting boards 6 inches wide may be placed at the bottom of these holes both on the outside and inside of the house. Roosting boards about 4 inches wide are placed 4 or 5 feet above the ground at the end and on

the sides of the flyway. It is not considered advisable to have roosts extending across the flyway. (See fig. 6.)

INTERIOR FIXTURES.

The interior fittings should be as simple as possible and easy to clean. Two nest boxes are provided for each pair of pigeons, and it is advisable to have a few extra nests. Two nests are necessary, because the pigeons frequently start to build their second nest when their squabs are only 2 weeks old. Nest boxes are usually made about 12 inches square, although some breeders prefer to have them this width and height but from 15 to 18 inches deep. A good method of construction is to use lumber 12 inches wide for the floor of the nests, arranging each floor so that it will slide on cleats and can be easily removed and cleaned. The nests are usually built in tiers against the rear wall of the pen, extending from the floor to 7 or 8

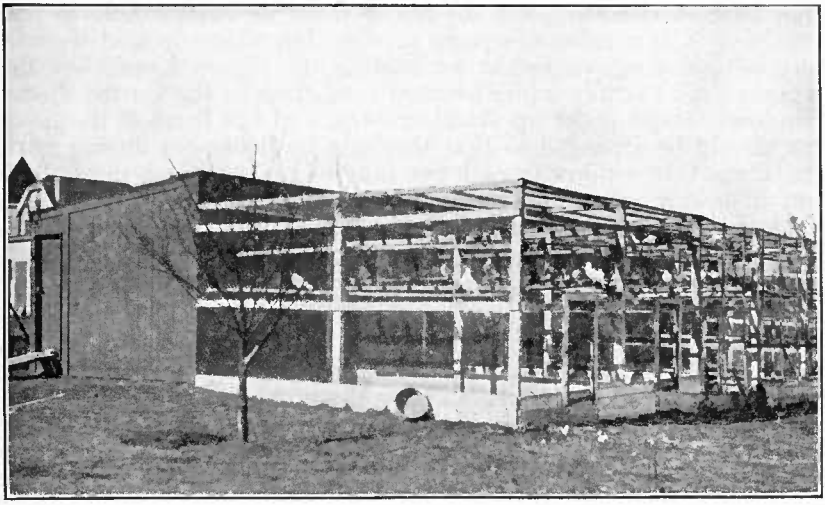

FIG. 6.—Pigeon house and fly. Note bath pan against fence.

feet high, but they may also be placed on the side walls. All partitions should be solid to the top of the nests, but it is advisable to use wire netting above the nests for ventilation. Egg or orange crates may be used for nests, but are more difficult to keep clean and less durable than nests made of boards 1 inch thick. (See fig. 7.)

Nest pans with flat bottoms may be provided for each nest, made of wood, wood fiber, or earthenware from 3 to 4 inches deep and 8 to 10 inches in diameter. They may be screwed to a board slightly larger than the nest pan if made of wood, or set directly in the nest box if of a heavier material. Some breeders claim that earthenware nests are too cold in the winter. No nest pans are used on some pigeon plants and the nesting material is retained by a 3-inch strip on the front of the nests. Short pieces of hay, straw, pine needles, and tobacco stems are used for nesting material. This is kept in an open crate or in a corner of the house and the pigeons allowed to select and build their own nests.

Roosts of various sizes, usually arranged in perpendicular rows, are placed at convenient points in the pen. A good type of roost is A-shaped, made of two boards about 5 inches wide and 6 or 7 inches long, placed directly over each other so that the pigeons will not soil one another with their droppings. If hoppers or feed troughs are used they should be of good size, while the hoppers should be constructed so that the pigeons can not waste the grain easily by throwing it onto the floor. Fountains or pans with floats in which the

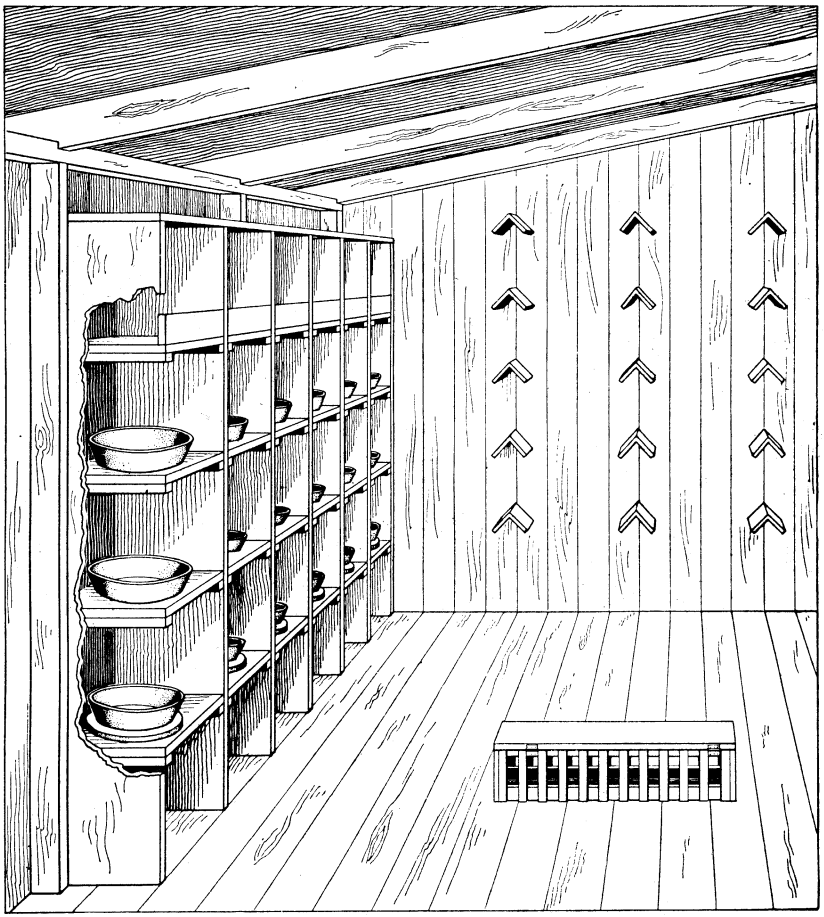

FIG. 7.—Interior of pigeon pen showing a feed hopper, roosts, nest boxes, and different kinds of nest pans.

pigeons can not bathe are best adapted for drinking vessels, while a galvanized-iron pan from 3 to 4 inches deep and 15 to 20 inches in diameter makes a good bath pan (see fig. 8).

HATCHING AND REARING SQUABS.

The hen pigeon usually lays two eggs in three days before she starts to sit. If more than two eggs are laid it is advisable to remove the extra ones, as a pair of pigeons can raise only two good squabs at

one time. The period of incubation of pigeon eggs is about 17 days. Both the male and the female pigeon sit on the eggs, the male usually relieving the female during part or most of the day. Pigeon eggs are usually fertile if the pigeons are healthy and properly fed, especially when they have free range. One squab (usually the male) frequently hatches first, and where there are several cases where one squab outgrows its nest mate, it may be advisable to sort the squabs in the nests, making the pairs as uniform as possible in size and age. They should usually be changed in the nest, however, before they are 10 days old, at which time their parents stop feeding them on pigeon milk.

Squabs are reared and fed by both of the parent birds on a thick, creamy mixture called pigeon milk, produced in the crop of the pigeons. It is very essential that the pigeons have a plentiful supply of grain while they are rearing squabs if rapid growth of the young is to be secured. Pigeons usually feed the squabs shortly after they themselves are fed and should not be disturbed at that

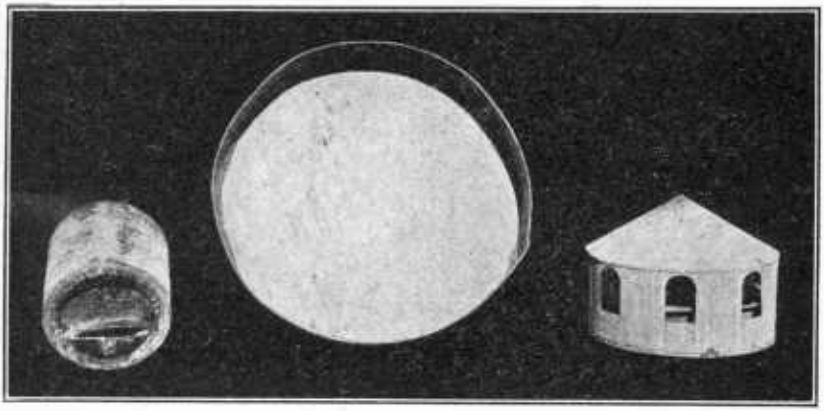

FIG. 8.—Water vessels on either side and bath pan in center.

time, thus making it advisable to water them before they are fed. Care should always be taken not to frighten or disturb pigeons or squabs any more than is absolutely necessary. If the parent birds die the squabs may sometimes be removed to a nest where there is only one squab, or they may be fed artificially, although this process takes considerable time.

FEEDING.

Many varieties of grains are used in feeding pigeons. A good mixture of staple grains may be made of equal parts by weight of cracked corn, hard red wheat, kafir corn, and Canada peas, with a small quantity (10 per cent) of hemp and millet seed added during the molting period. Other grains which may be substituted for or added to these are peanuts, oats or hulled oats, buckwheat, Egyptian corn, barley, cowpeas, and milo maize, while a small quantity of stale bread, rice, rape, millet, canary, vetch, and sunflower seed may be fed for variety. Canada peas are expensive, but seem to be essential to the best results, especially during the breeding season, and appar-

ently take the place of green feed to some extent. Peanuts are being used to some extent in place of Canada peas. Green feed such as cut clover, alfalfa and grass, lettuce, and plantain leaves may be fed to advantage, but is not absolutely essential.

A variety of good, hard grains is essential to success, and grains which are in poor condition should not be fed. Old grains which are hard are better than new soft grains, especially for pigeons with squabs. Red wheat is considered better than white wheat by many pigeon breeders. Good wheat screenings are often fed with success, as they usually contain a variety of seeds. Various stimulating seeds, such as lentils and vetch, are sometimes fed as a tonic to breeding birds during the molting period.

The grain may be fed on the floor of the pen, in troughs, or kept before the birds in hoppers (see fig. 9). It is not generally considered advisable to feed the grain on the ground, especially on heavy soil where it may get wet and moldy. Unless the floor is kept clean it is better to feed the grain in troughs than on the floor. The troughs should be made so that the pigeons will not roost on them and soil

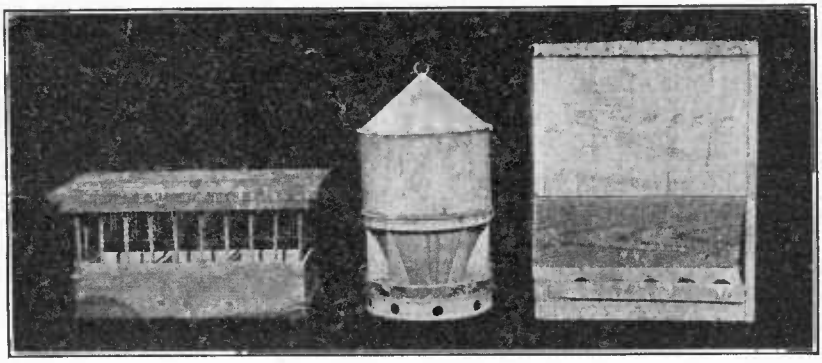

FIG. 9.—Feed hoppers, with grit hopper on the left.

the feed with their droppings. Hoppers are used with good success but may attract rats in some pigeon houses. They should be fitted with wires or nails about 2 inches apart so that the pigeons can not waste the feed by throwing it out onto the floor. If the grain is not fed in hoppers the pigeons should be fed twice daily, in the morning and in the afternoon, at regular hours, giving from 1½ to 2 quarts of grain at each meal to 20 pairs of pigeons and adding an extra pint if the pigeons have many squabs. The feeder must regulate the quantity of grain according to the appetite of the birds, giving them all they will clean up in one to two hours. The cost of feeding a pair of pigeons varies from $1 to $1.50 a year at the present price of grains (1914). Reports from a number of pigeon farms give an average cost of $1.32.

Clear drinking water, grit, broken oyster shell, and charcoal should be kept before the pigeons all the time. Salt is fed to pigeons in various forms, and a supply of this material is generally considered essential. Pigeons not accustomed to eating fine salt are apt to eat too much if given a large quantity at one time, although fine salt is used with good success by many careful feeders. Salt may be fed

in a lump form, such as rock salt or as fine salt moistened and baked into a hard lump, without danger of the pigeons eating too much. Salt may also be fed mixed with grit, charcoal, and oyster shell.

Pans of water should be provided daily except during the winter and placed in the yards or flyways. These bath pans are usually filled in the morning and emptied about noon. They should be used only about twice a week during the winter but should then be kept on the floor of the house.

MARKETING.

Squabs are fed by their parents until they are marketed, which is usually at from 3½ to 4½ weeks of age. They must be sold about this age, as the period during which they are ready for market rarely exceeds one week. Squabs are in good market condition when fully feathered under the wings, which is usually about the time they begin to leave their nests, and if not killed at this time they soon lose their baby fat and their flesh begins to get hard.

Catch the squabs to be marketed in the morning before they are fed by their parents, so that their crops will be empty. Squabs are usually killed in the same manner as poultry by cutting the arteries in the back part of the roof of the mouth and piercing the brain, but if sent to market without plucking they are usually killed by wringing or breaking the neck. The latter is done by pressing the thumb against the place where the bones of the neck join the head, until the head is dislocated. In sticking, the squabs are hung by their legs on nails or hooks, with their wings double-locked. After they are stuck the feathers are immediately plucked clean with the exception of the head, and the birds are cooled either by placing them in cold water or by hanging them in a cool place. The crop should be cut open and thoroughly cleaned if it contains any feed.

Squabs should be graded according to size and quality, as dark-colored and small squabs tend to lower the price paid for an entire shipment of mixed squabs. They are usually packed for shipment in a good supply of cracked ice, breasts up, with paraffin paper between each layer of ice and squabs. Some express companies have a special rate for squab shipments, which should be secured wherever possible. The express charges on small shipments of squabs reduce the profit materially, making it difficult to sell the squabs from a small flock at a profit if they have to be shipped to commission men. As the period at which a squab is right for market is not over one week, it is necessary to have a good-sized flock to have over one dozen squabs ready for market at one time. A local market which will take any number of squabs is a great aid to the small producer. Where one has a small flock it usually pays best to build it up until it is large enough to make good-sized shipments of squabs. This, however, requires a constant outlay without any return for some time.

The production of squabs from each pair of breeders varies from 1 or 2 to as high as 10 or 11 pairs a year, but an average of from 6 to 7 pairs is a fair estimate, although some squab breeders do better than this. Squabs usually sell at the highest prices during cold weather, as pigeons do not breed as freely during the winter as during the spring.

The price paid for squabs varies with their size, quality, and the season of the year. The quotations on the New York wholesale market in March, 1915, were as follows: Prime White, 10 pounds to the dozen, per dozen, $3.75; 9 pounds to the dozen, $3.50; 8 pounds to the dozen, $3; 7 pounds to the dozen, $2.25 to $2.50; 6 to 6½ pounds to the dozen, $1.75 to $2; dark, per dozen, $1.25 to $1.50; culls 50 to 75 cents. The price on squabs weighing 8 pounds to the dozen, which is a fair average weight from good squab plants, varies about as follows throughout the year, according to the wholesale quotations in New York: February, $4; March and April, $3.25; May and June, $2.75; August, $2.50; and December, $3.50. A summary of reports from 22 pigeon farms showed an average weight of 9 pounds to the dozen and an average price of $3.43 for the year.

MANURE.

Dry pigeon manure may be sold to tanneries in some sections at from 30 to 50 cents a bushel, if it is kept free from any foreign matter such as sand and nesting material, but the demand for this purpose appears to be very small. It has considerable value as a fertilizer and should be mixed with dry dirt or some filling material if used for this purpose, as it is quite rich.

DISEASES AND PARASITES.

The pens and yards where pigeons are confined must be kept clean. There is very little chance of making money from squabs unless the pigeons can be kept comparatively free from diseases and insect parasites. If healthy breeding stock is secured, the houses and yards kept clean, and careful attention given to the birds, diseases and parasites should not be a material factor in squab raising.

The stock should be carefully watched and any sick birds removed from the breeding pens. The house should be kept dry, clean, well ventilated, and free from drafts. The yards should be kept clean either by scraping the surface and adding fresh sand or gravel or by cultivating the land and planting it to grain if possible. Only good, sound grain should be fed.

The nests, nest boxes, and pens should be kept clean, but it is not advisable to disturb the nests which contain eggs or squabs any more than is actually necessary. The pens should be sprayed frequently with whitewash containing a little crude carbolic acid, or with a coal-tar disinfectant, and the nest boxes and perches should be examined for mites, especially in hot weather, and sprayed with kerosene oil or some commercial preparation which will kill mites, if any are found. The nests or nest pans should be cleaned out and the nesting material removed after the squabs are marketed or leave the nests.

CANKER.

Pigeons are subject to many of the diseases which affect poultry and may be treated in the same manner. Canker and the disease or condition called "going light" seem to be more prevalent in pigeons than in the domestic fowl. Canker appears as sores or cheesy patches in the mouth and throat and can usually be prevented by providing

good sanitary conditions and feeding only clean, sound grains and clean water. It may be treated by swabbing the mouth and throat with a solution of equal parts of hydrogen peroxid and water or by using dry sulphur. Enough potassium permanganate may be added to the drinking water to give it a wine color. Various remedies or preventives of disease are used in the drinking water by pigeon breeders whenever the stock appears to be in poor condition. Among these are carbolic acid, epsom salts, copper sulphate, and venetian red. Ulcers sometimes appear on the head, around the bill, eyes, mouth, or in the throat, and pigeons thus affected should usually be killed.

GOING LIGHT.

This disease or condition is more or less peculiar to pigeons and is difficult to cure. It may be brought about by feeding filthy or unsound grains, by filthy conditions, and by any factor which tends to destroy the vitality of the pigeons. The symptoms of this condition are a gradual loss of flesh, frequently accompanied by diarrhea. The practical method of treatment is to remove the cause. Pigeons in this or in any other diseased condition will often get well if allowed their freedom. Tonics are used by some pigeon breeders, especially during the molting season, but their constant use is not generally advised under normal conditions.

CAUSES OF DEAD SQUABS.

Dead squabs may be due to a variety of reasons which have been discussed somewhat throughout this article. The cause of the mortality must be found and removed if profitable results are to be secured. Some of the possible causes are extra males or unmated pigeons in the breeding pens, rats or mice in the house, and lack of vitality in the breeding stock, caused by the use of improper or the lack of sufficient feed, filthy conditions, or careless inbreeding.

DATA SECURED FROM LARGE BREEDERS.

A list of questions on pigeon raising was sent to pigeon breeders throughout the United States, and, among others, replies were received from 22 large breeders who kept from 300 to 2,200 pigeons and produced squabs for market. The records from these breeders are considered more applicable to the commercial production of squabs than the replies which were received from breeders keeping only a few pigeons for home use or pleasure. These large breeders reported keeping the Homer and Carneaux varieties almost exclusively for squab raising, with a comparatively small number of the Dragoon, Maltese Hen, and White King mentioned. All except one breeder kept their pigeons confined. The birds were mated at from 5 to 7 months old, the average mating age being 5.7 months.

Wheat, corn, kafir corn, Canada peas, millet, and hemp were the grains most commonly fed, while a number of other grains including peanuts, grass seed, oats, buckwheat, sunflower seed, rice, Egyptian corn, cowpeas, and milo maize were also used. About one-half of the breeders reported the use of some kind of green feed, including a wide range of such material. The use of rock salt was reported by one-half of the breeders, loose table salt by one-fourth, and table

salt baked into a hard lump by the rest. About 16 per cent used some extra feed, such as millet or hemp seed, during the molting period, while several who did not use any special feed for assisting the molt supplied these grains in their regular rations. One-third used hoppers in feeding the pigeons.

About one-half supplied tobacco stems as the entire or for part of the nesting material, and hay and straw were commonly used, while others used pine needles, cut pea vines, and alfalfa stems. One-half reported freedom from all diseases and about one-fourth gave canker as a common cause of sickness.

The average annual profit per pair of breeders varied from 32 cents to $3, and averaged $1.52; the feed cost from 95 cents to $2, with an average of $1.32. All sold squabs for market, while about one-half sold both as breeders and for market. The average price for the year received per dozen squabs varied from $2 to $4.62 and averaged $3.43.

The number of squabs marketed from each pair of pigeons varied from 10 to 20, and averaged 13.1; the weight per dozen squabs varied from 6 to 11 pounds, and averaged 9 pounds. Squabs were marketed at four weeks except from two farms where the average age of marketing was given as four and one-half weeks.

DATA SECURED FROM SMALL BREEDERS.

A large number of replies were received from breeders who kept less than 300 pigeons. Their answers in general agreed with those from the large pigeon breeders, although they were more varied. Many farmers objected to pigeons, claiming that they carried diseases and all kinds of vermin among stock and fowls, dirtied cisterns used for holding rain water, and ate grain from the fields and barns. A very few farmers stated that the pigeons were beneficial to the farms and ate many weed seeds. The number of pigeons in farm sections not kept confined was reported to be diminishing greatly as the country became more thickly settled.

Other varieties of pigeons mentioned, in addition to those reported from the large pigeon farms, were the Runt and the common pigeon. A few breeders separated the sexes during the molting period; that is, during late summer and early fall. Slightly more than one-half allowed their pigeons free range. Barley, rye, sorghum seed, and prepared mixed pigeon feeds were additional feeds mentioned. Most farmers who did not keep their pigeons confined fed only grains which they raised, such as corn, wheat, and oats. Twelve per cent mixed fine salt with grit and oyster shell, and 5 per cent fed the salt dissolved in the drinking water. Oyster shell and grit were supplied by most breeders. A few used special tonics during the molting period. Only 33 per cent reported the use of tobacco stems or leaves, as against 50 per cent among the larger breeders.

The diseases most frequently mentioned were canker, going light, and roup. The principal method of treatment was prevention; by keeping everything clean, using disinfectants freely, and killing sick or diseased pigeons. Remedies mentioned for preventing sickness were the use of kerosene oil, permanganate of potash, lime, copper sulphate, carbolic acid, quassia chips, epsom salts, venetian red, tincture of gentian, or a tonic in the drinking water. Dry sulphur

and diluted peroxid of hydrogen were used in treating canker, and kerosene oil for roup. A few allowed diseased pigeons their freedom when they had been kept confined. About one-fourth reported some loss from rats, but most of the larger breeders made their pens rat proof. Losses from hawks and cats were reported in some cases where the pigeons were allowed their freedom.

The average yearly profit from each pair of breeders varied from 20 cents to $7.50, and averaged $2.29. The profit from breeders who sold stock largely for breeding purposes varied from $10 to $20 per pair. The average yearly feed cost per pair varied from 40 cents to $4, and averaged $1.32. Fifty-five per cent sold squabs for market only, 33 per cent both for market and as breeders, and 12 per cent for breeders only. The number of squabs marketed from each pair of breeders varied from 5 to 22, and averaged 13.8; the weight per dozen squabs varied from 4 to 18 pounds, and averaged 10.1 pounds. Squabs were marketed at from 3 to 6 weeks; the average being 4.2 weeks. The average price for the year received per dozen squabs varied from 60 cents to $6 and averaged $3.01.

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