

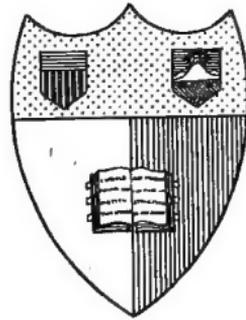


PIGEON
RAISING

by ALICE MACLEOD



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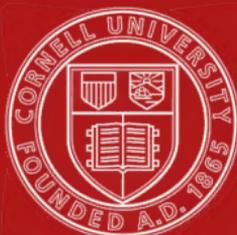
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PIGEON RAISING

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BY
ALICE MACLEOD

Illustrated



NUMBER 35



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**THE NOVICE AND HIS
MISTAKES**

PIGEON RAISING

CHAPTER I

THE NOVICE AND HIS MISTAKES

THE work of raising pigeons is light and interesting, the profits large and steady, but it is a business that must be brought to a scientific basis from the very start and it embraces many branches of very practical knowledge. Few people who go into pigeon raising take the trouble to understand this or to study the nature of pigeons on whom they are entirely dependent for success in the enterprise. Pigeons by nature are as delicate and refined as the most sensitive human beings and it requires knowledge and skill to handle them profitably. The pigeon raiser to be successful financially must center his interests on the welfare of his subjects, who are entirely dependent on him for everything, or cut loose his wire netting and let them shift for themselves.

Not every person is fitted for raising pigeons. A person of very sensitive feelings should not engage in the business. In gathering up the

squabs for market, they will cling confidently to you and gaze at you with frightened eyes of reproach from their baskets as they are driven away by the expressman, for they are as near human beings as it is possible for fowls to be. I have known strong men to give up the business on account of this, but as such things must be, I will endeavor to do good from a humane view, by devoting an entire chapter to explaining the nature and habits of pigeons.

Princes, poets, prelates, judges, and ladies of high degree have been in the ranks of the pigeon fancier during ages past, for "pigeon fancy" antedates the Christian era, and we have record that they took "keen pleasure in their pigeon lofts and the company of their birds."

The results these great people accomplished appear marvelous when we examine the various breeds that have sprung, as Darwin assures us, from the parent stock of the rock-pigeon, or wild pigeon, of Europe and North Africa. It was love for their birds that enabled them to accomplish these results, that gave them the patience to persevere through discouragements. Gentleness, kindness, and patience are the first requisites for the pigeon raiser to possess, coupled with a clear, methodical business head,

if he expects to build his own plant; if hē can afford to hire an expert to start it, it is simple enough to run it afterwards.

No one can be in the business for any length of time without improving and broadening his nature. To be successful the pigeon raiser must study his flock by spending hours, at first, quietly observing them in all their phases until he gets to know them, and they become familiar with him; and through this, unconsciously, his nature becomes gentler and kinder. This is not only my experience, but it is that of the most noted experts for centuries past.

Bearing these things in mind, the novice should be cautious how he plunges into the business without due consideration. He should bury his suspicions and listen to counsel, and never depend on his own wisdom until he has experience at the back of it. I have never found that men in the business gave wrong advice, but, on the contrary, they were willing to talk intelligently and profitably as long as I was willing to listen.

If a man makes a business of selling pigeons it is to his interest to start his customer right in order to sell him more; and if the novice buys young stock it is impossible to be cheated on the score of worn-out birds,

Many of the failures of the novice are entirely due to the neglect of some small point which he thought he could carry out independent of the counsel of the wise; as, for instance, a lady I know built exceedingly well, but she faced her houses to the north. With the stock, which she imported from the East, she certainly spent \$3,000, and she systematically lost it because her birds never got the sun. They were confined in cold, dreary houses and fly-pens. Then, she was sure the Eastern bird was a good market squab for the West, although every pigeon raiser she consulted advised her to the contrary. She was sure it was because they had stock for sale.

A Frenchman comes along and wishes to buy stock, but it must be cheap. Without any experience whatever, he builds according to his own ideas and crowds his pens with an ill-assorted lot of birds at \$2.00 a dozen; in a few months he is sold out at auction.

Another customer chooses a locality because of its beauty and climate, but, in spite of repeated warnings, miles away from the grain dealer. In just one year the six hundred magnificent birds, which I had sold to him and which I had found so profitable, were disposed of at a disgustingly low figure to be shot for sport.

Therefore, with these and many similar instances in my mind, I would suggest to the novice that if he wishes to build a successful pigeon plant he should strictly adhere to eight fundamental rules:

1. Select a good neighborhood—know that the neighbors are honest—and that there is a plentiful supply of water.

2. The pigeon houses and pens must face the south—pigeons love sunshine and running water.

3. The pigeon raiser should have a deed to his place, as pigeons cannot be moved without heavy loss.

4. Wholesale grain dealers should be within easy reach, for grain must be bought by tons. And it is also necessary to be within the precincts of express delivery.

5. There must be quick transportation to market—within, at least, a few hours, unless the birds are to be dressed and refrigerated.

6. The pigeon houses and nests must be large and roomy and the latter numerous, but the fly-pens should be small.

7. The feed must be varied—with some of the cheapest kind before the birds all the time.

8. In buying stock, buy only youngsters. Select the breed that the prospective market de-

mands—buy at least 200 or 300 for the market pen and four or five dozen for the parent stock.

Unless the intending pigeon raiser has sufficient means to follow out these rules, I would not advise him to go into the squab raising business. It does not pay to go into it on a smaller scale, for the steady income comes from regular shipments, and the income must be steady to counterbalance the regular output for grain.

A first-class, systematized, and well-cared-for pigeon plant should double its original stock every six to eight weeks. That is, if the pigeon raiser has 300 breeders he should count on having close on to 300 squabs during six or eight weeks to sell or raise, as he chooses. But, of course, he must give his pigeons the proper conditions, as it is an acknowledged fact that laying and hatching are purely optional with the pigeon. To quote a noted pigeon raiser, "The process of laying an egg is a mental operation. The female pigeon forms the egg in her body and lays it when she wants to, not when she is forced to. In other words, she lays when conditions are satisfactory to her."

I was once a novice myself, but I loved birds and I was eager to study and gain all the knowledge I could for their welfare.

When I took possession of my place, a coun-

try-town lot of 100 x 150 feet, facing the south, there was a mixed flock of 1,100 pigeons of various breeds; thoroughbred to start in with, but allowed to cross-breed among themselves. They were in one narrow house built the full width of the lot (100 feet), against a high board fence, with one fly-pen the same length and forty feet wide.

There were no squabs in the nests, and I was told it was because it was the moulting season. This is not true; a well-fed, well-housed pigeon will breed the year round. These pigeons had had nothing but wheat, wheat, wheat—and white wheat at that—from one day's end to another, dumped into large, old-fashioned feeders, allowed to get sour and filthy in damp weather.

There was a shed on the east end of the yard and I built a corresponding one on the west, filling both with modern nests. Then I built a thoroughbred pen. As there were no squabs to disturb, and as I had decided to confine my plant to two breeds and their crosses, I caught up all the thoroughbreds and sold off all but the runts and homers, which were comparatively few.

As, even then, I felt chary about the homer for the Western market, I bought in a few Maltese hens and more runts, and 110 runt-hen

crosses. These latter I turned in the main pen and allowed them to mate with the others as they chose.

While this was going on I built a small bachelor pen for odd males, and as soon as the pairs were nesting I caught up the bachelors and shut them securely in their pen until I could sell them or get mates for them, for a bachelor pigeon is a great mischief maker, entering the small households and pecking little squabs to death.

With the change of feed, which I varied from day to day, all was activity in the pigeon villages. Such billing and cooing and nest making! And right here I should like to say to those who advocate nest cleaning, I had to fill the new nests with pigeon manure before they would take them. They crowded in and fought for the old ones. The foundation of a nest should be manure—they will put clean straws on top—it keeps the squabs warm and free from vermin. No vermin can live in pigeon manure, as it is strong with ammonia.

There had been no marketing from this place. The original 700 thoroughbreds and crosses had been turned into the large pen to increase to thousands without system or discretion, with the result that they only increased 400 in a year. This, I am confident, was due to the feeding.

Like human beings, pigeons must have variety. Besides, white wheat causes dysentery among squabs, and nothing discourages pigeons from breeding so much as seeing their young die.

One of the hardest things for the pigeon raiser to contend with is rats. The grain attracts them; then they get a taste of squab; and then they will kill the old pigeons; and, finally, they will become so bold that they will come out in daytime, in the very presence of the proprietor, and kill pigeons and squabs as they sit on the nests.

They had reached the squab stage with me, to the extent of my losing fifty dollars' worth, when a pigeon fancier happening to come to my place suggested cats, and explained that there was a difference in cats: some cats wouldn't touch rats. He knew of some ratter cats and would send me three young ones—females were the best; and I must make them comfortable in the pigeon yard and pay as much attention to feeding them as I did the pigeons—fish one day, liver another, cooked meat, soup, milk, and vegetables, if they liked them.

It was the rainy season, so early next morning I set a man to work building a comfortable cat-house in the pigeon yard—one that would not leak. The cats arrived in the afternoon.

They were about six months old; two were tortoise-shell and one black and white. They snuffed about for a while, then, as it was raining, settled themselves comfortably in their house.

The ground beneath the feeders was honey-combed with rat-holes. Next morning dead rats were lying about the yard, and not a squab was missing, nor did I ever see another rat on the place.

After a few days I let the cats out during the day to run about as they chose and catch gophers in the alfalfa patch and mice in the barn. At night they cried to go into the pigeon yard.

My cats became so famous and numerous that with every lot of breeders I sold I threw in a cat. If it was a short journey, I placed the cat in the same box with the pigeons.

**HOW I SHOULD BUILD A
PIGEON PLANT**

CHAPTER II

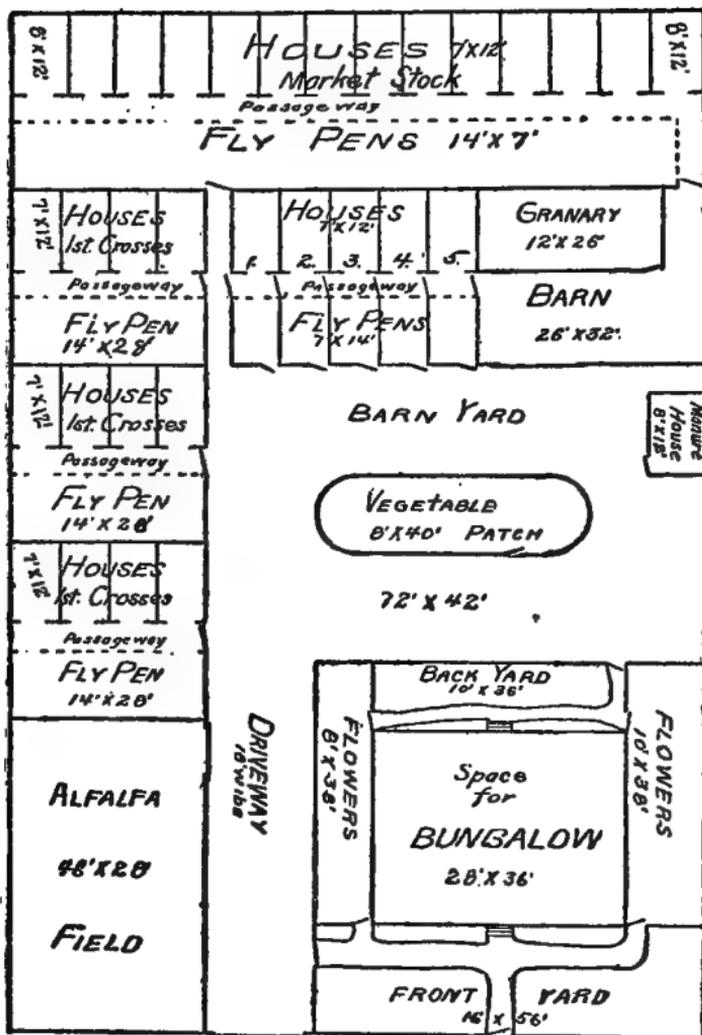
HOW I SHOULD BUILD A PIGEON PLANT

AS I have stated before, my houses were narrow sheds with nests ranging the full length on either side, where there were no windows or doors. This is an extravagant use of space. Nests built in tiers across the width of the house are by far more economical and, at the same time, this arrangement protects the pigeons from draughts; yet the house may be built open, if the climate admits.

My meaning can be understood by the accompanying diagram. Had I rebuilt on my place, this is the plan I should have adopted.

For a mild climate build the houses sixteen feet wide with four feet of this used as a passage-way in the front, leaving twelve feet for tiers of nests. These tiers should be nearly a foot and a half wide, making eight tiers to the twelve feet, and five feet and five inches, or five nests, each a foot high.

The material of these nests should be one inch rough lumber. The flooring of the nests



LAYOUT FOR PIGEON PLANT

Size of Lot—100 ft. x 150 ft.

Dotted lines=foot board 12 inches high

House 1.=Odd Pigeons

" 2.=Youngster Crosses

" 3.=Nursery Maids—Thoroughbred Youngsters

" 4.=English Runt

" 5.=Maltese Hen

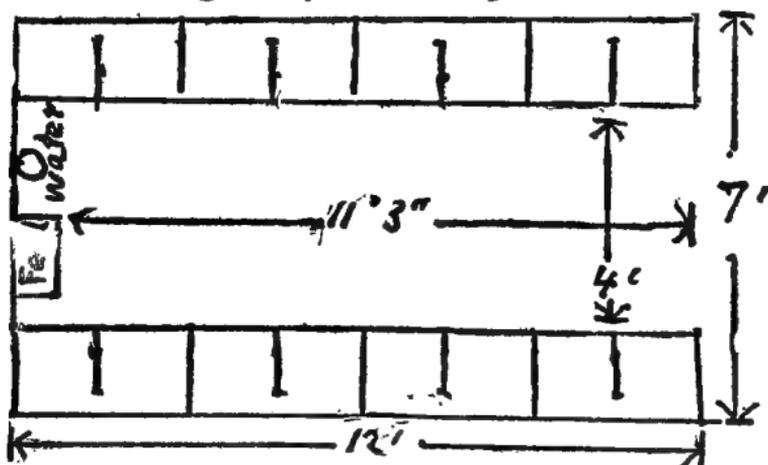
should be 1 x 18, likewise, every other partition. The other partitions should be 1 x 14, thus leaving a connecting passage-way of four inches at the rear between every two nests. For every pair of pigeons two nests must be provided and fifteen or twenty extra for every fifty pairs. This is one of the authoritative rules for profitable pigeon raising. By having a rear passage-way between the two nests, the squabs can slip from one nest to the other if there is any fighting going on. And there is also no likelihood of their tumbling off the nest, as they can indulge the spirit of adventure by climbing from one nest to the other.

So the partitions of the nests would be even with the flooring in the front. Now take half-inch boards four inches wide and saw them into 17-inch lengths; then nail slides on each side of the partitions five inches from the front and slip these 17-inch lengths into place to hold the nests in position. This gives each nest a front platform of five inches for the pigeons to stand on while feeding their squabs and a comfortable place for the male to roost when he is on guard at night.

First build the house strong and durable—it may be only a shed in appearance but it must be strong—sixteen feet wide. Then set up

partitions, extending from the floor to the roof, twelve feet long, seven feet apart and on each side, and against the outside walls, set the tiers of nests. I advise using inch lumber for the nests as you must build strong and lasting. A pair of heavy pigeons, a pair of heavy squabs, and heavy manure caked nests soon tell on thin lumber and a breakdown is often disastrous; sometimes quite as expensive as the extra half-inch in lumber would have been.

By following this plan you find you have two rows of tiers of nests facing each other with a space of four feet between. This is ample to pass in and out with a wheelbarrow for cleaning, thus making cosy little apartment houses.



DETAIL OF NEST AND HOUSE

..... Scale $\frac{1}{4}'' = 1'$
 Detail shows only one floor of nests, there being five floors.

Against the back wall of each of these little apartment houses, place a feeder for steady feed and a drinking fountain, such as are used for chickens.

Each apartment house will contain eighty nests, or forty pairs of nests, in which thirty-four pairs of pigeons can be comfortably accommodated. The front part of the house is left entirely open. The roof slants on each side from the ridge pole, being eight and one-half feet from the ground in the center, and sloping to a height of six feet on each side, including a projection of at least three or four inches beyond the house. The back, or north wall, should be made as nearly weather-proof as possible.

The four foot passage-way in the front of the house should connect with the barn so as to make it convenient to go back and forth in stormy weather. The roof sloping over this passage-way is supported by uprights—either 2 x 4, or 4 x 4—with a foot-board 1 x 12, or set in a curbing of concrete. Either way it is well to have a shallow ditch of concrete to catch the shed from the roof and carry it to the drainage for the alfalfa patch.

The floors may be dirt, boards, or concrete. I had dirt floors which I found very satisfactory and, of course, cheap. Boards are also good

and easily kept clean. If boards are used, it is best to raise the floor at least half a foot from the ground. I have heard pigeon raisers say that concrete floors are hard on the pigeon's feet.

THE FLY-PEN

Make a strong frame of 2 x 4 uprights 8 feet high (if the house is set flat on the ground without flooring) with 1 x 2 cross pieces and foot-board of 1 x 12 for the fly-pens, and cover the whole with one inch wire netting. I say one inch because flocks of small birds enter through two inch wire netting and, in a few years, eat up enough feed to pay for the whole plant. The partitions between the fly-pens, however, may be two-inch. Join the selvage of the netting by weaving them together with pliable wire. Fasten the netting to the south slope of the roof of the house, half a foot from the ridge-pole. This gives the pigeons a gently sloping roof to parade up and down on in the sun, which they dearly love to do.

The government experimented for years to get a preservative for rough lumber that would withstand the hot suns and heavy storms of Arizona and California, and yet be inexpens-

ive. A mixture of crude oil and princess brown was the result. I put it to a five year's test and found it possessed all the qualities that were claimed for it. The strong suns and winter storms of California soften exposed lumber, even though it be white-washed several times, so much that in a few years it will not hold nails.

Crude oil is extremely cheap—I paid twenty-five cents for five gallons—likewise the princess brown. It is very disagreeable stuff to handle and it is sometimes difficult to get a man to use it; but its effect is so permanent that, I have heard, it does not have to be applied a second time.

Therefore, go carefully over the houses, including roofs and nests, and the framework of the flypens with this mixture and allow all to dry thoroughly before putting to use. It takes time to do it thoroughly, but it is worth while doing well. It is not only a thorough preservative, but is healthful and no vermin can exist in it; besides being of so somber a color that it is restful to the eyes in a land of glaring sunshine.

There seems to be no rule for mixing. I merely stirred the princess brown (which is a powder) into the crude oil until it took on a suitable color. Lumber thus treated has still kept its strength and retained its color at the

end of five years, while that which had been whitewashed or had not been treated at all was so soft that it could scarcely hold the nails.

When the nests are ready, throw into each a handful of alfalfa, twigs or tobacco stems, and mash it down in the center, then scatter pigeon manure on the top. This gives them courage and they will bring more material and make it to suit themselves. Never give them nesting material that is hollow, such as straw, as vermin can hide in it. Alfalfa is solid and cheapest, even if it has to be bought by the bale. If the pigeon raiser has no alfalfa patch, he can buy a bale of the hay and get the man that delivers it to bring a hay-knife and cut it into three equal parts crosswise of the bale. This will be the right length for nest building. Place the bale on sacks to catch all the dried leaves, which the pigeons are very fond of.

MIXING CONCRETE

All building and mixing of concrete on my place I personally superintended. I asked for a man, who understood carpentering, from the Associated Charities, and with his help figured on the lumber required and mixed the concrete. I paid him \$1.50 a day.

Laying concrete is fascinating work. In lining bath tanks it is best to drive short wire nails or tacks into the sides to reinforce or hold up the sides of the lining. Although I have had concrete stick firmly to water-logged rough lumber, I think it safer to reinforce. In mixing concrete for lining, I should advise five parts sand to one part cement, mixing thoroughly first, then adding sufficient water to make a smooth paste. After it begins to set, sprinkle with water. I let mine stand ten or fourteen days before putting it to use, sprinkling it daily; if the weather was hot, several times a day.

Pigeons are great splashers and the ground for a foot or two surrounding the tanks soon becomes deep mud unless concrete floorings are put beneath the tanks. I set my tanks on four 2 x 4 uprights, with a two-inch slant toward the drain ditch; the faucet being at the highest end. The uprights were long enough to bring the tank up pretty close to the mouth of the faucet and were sunk six inches in the ground. Set the tank on the uprights and bore a hole for a plug directly over the mouth of the drain ditch before lining with cement. Dig out the ground beneath, for at least a foot surrounding the tank, four inches deep. Put in a two-inch layer of coarse gravel and cover with a thin layer

of five-to-one cement. Let this stand forty-eight hours, then fill up with two-to-one cement and you will have a most satisfactory an up-to-date pavement.

In my market stock pen, which carried as many as 1,000 pigeons at one time, I had two tanks 2 x 4 feet, and four inches deep, but the water was constantly running.

My drain pipes were built of rough lumber sunk in the ground on a gradual incline. As they were not water-tight they leaked gallons of water that might have been used advantageously for irrigation. For a first-class pigeon plant I should build them of concrete, or use terra cotta piping, whichever happens to be the cheapest.

Make the alfalfa patch gently sloping and have the drain pipes come in at different places at the top. This gives irrigation and fertilization at the same time, for there is always manure in the bath tanks. These tanks must be thoroughly cleansed and allowed to refill each day. Although I did this faithfully every day there always appeared a green scum that annoyed me exceedingly, until a kind old farmer told me to put two or three large pebbles in each tank. This kept the water clear as crystal.

THE PIGEON-NET

One of the necessary implements of the pigeon plant is a net for catching pigeons. Take a stout broom-handle to a blacksmith and get him to weld a thick iron hoop eighteen inches in diameter and fit it into the handle. Many people sew strong netting to this, but I found netting injured the pigeons' wings and two flour sacks sewed together and gathered at the bottom was much better. The pigeon raiser soon becomes very expert in catching pigeons on the fly.

COSTS AND PROFITS

CHAPTER III

COSTS AND PROFITS

THE home instinct is the thing that disturbs the pigeon; one may take young birds to any climate and with ordinarily comfortable houses they will suit themselves to the weather. Build according to the climate; if close houses are required for other fowls, build close houses for the pigeons, with windows that can be closed, but never have the nests face an opening of any kind. The plan illustrated in Chapter II has been adapted to a cold climate by closing the front, moving the tiers of nests to the front, with a window between, and making the four-foot passageway at the rear. This passage is divided from the tiers of nests by a wire-netting partition, in which is a wire door between the tiers, opposite the window, with the feed and water by the side. In this passage was placed an airtight stove for heating in cold weather. There were also sufficient windows in the north or outer wall for light and ventilation, besides a

four-light window in each gable near the peak and three covered ventilators in the roof.

The windows in the front or south wall were opened each morning sufficiently to allow the pigeons to pass into the fly-pen, and the man whose building it was told me they would break the ice in the bath tank, if it was not too thick, in order to take a bath. Climate has no effect on them if they have a comfortable home. Such a house was built at an approximate cost of \$3 to \$5 a running foot. This is complete with flying-pens and all inside fittings. He set the tiers of nests wider apart than those in my plan, which left a space of four feet. His had a space of five feet, so there should be ample room for a two-foot and thirty-inch door into the passage, leaving two feet and six inches for the feeder and drinking fountain.

He set the house a foot from the ground and made the floor double of fitted boards interlined with building paper. The outer walls were also of fitted boards covered with building paper and then clapboarded. The roof was strongly shingled and the whole building had applied to the inside a thick coat of crude oil and princess brown. He built a house fifty-one feet long, which he divided into six sections, with five fly-pens and a single passage-

way at the rear and the sixth section for a grain and store room. At first he tried without heat, and although the birds themselves did well they did not breed as frequently as when the chill was taken off the house; the second winter he put in hot water pipes, which heated more evenly than the air-tight stove. This fifty-one foot house, which housed 340 birds, or 170 pairs, when completed with all the fittings and two coats of paint on the outside cost \$250.

If homer pigeons are selected for stock, cheap boxes may be used for nests by piling them up against the partitions, but the larger breeds and their crosses must have large, roomy nests or they will breed but a few times a year.

The huge pigeon plant of Los Angeles has nothing but boxes nailed up against posts and piled up one on top of another and against each other under crude sheds, sometimes with no shed at all. But it is situated in a land of sunshine and little rain; in spite of these advantages, the statistics show that he does not receive the full value of his birds.

An old outhouse may frequently be renovated into a habitable pigeon house at little cost; the main points to be borne in mind are

whatever is built must be built permanently—time and money are both lost when mated pairs are moved about—and face pigeon houses for a sunny exposure.

With a closed house, such as I have just described, all windows should be covered with wire netting on the outside to prevent the escape of the birds in case they get into the passage, and all the windows should slide so they can be opened to any extent desired. All doors, both inside and outside, should be hung on spring hinges. In very cold climates the birds may be allowed to pass from the house to the fly through an opening in each section, five inches wide and six inches high, and rounded at the top, with a lighting board six inches wide in either side. Slides are arranged to close these openings when it is desired to confine the birds temporarily, in either fly-pen or house, for the purpose of catching any one, or in severe weather.

Perches may be added to the fly-pen by nailing brackets to the posts four feet from the ground and boards four inches wide are nailed to them to furnish the pigeons a place to alight and walk when not in flight. The window in each section for the pigeons to fly through must be closely covered on the inside with wire net-

ting, otherwise they will attempt to fly through the glass and thereby injure themselves.

In starting a pigeon plant a person may spend any amount of money he chooses, both in stock and houses. It depends entirely on the size and climate for the latter, and how anxious the breeder is to dispose of his stock for the former. I once sold a flock of seventy five-months-old birds for ninety dollars because the rainy season was coming on and I had no time to attend properly to their housing; otherwise they would have been worth triple that amount to have kept them, because most of them were thoroughbreds. If one is on the lookout many good bargains in young birds can be gotten from overstocked pigeon lofts in the fall. Three-months-old pigeons of good breeding (first crosses) usually sell at from eight to twelve dollars per dozen. A man once stocked his plant by buying the entire output of squabs from my breeders' (first crosses) pen for six months at five dollars per dozen. I merely guaranteed to send him healthy, sound squabs that could feed themselves. They ranged from six to eight weeks old. He also took three dozen thoroughbreds at ten dollars per dozen. It was in the spring, and he was extremely successful in raising them.

The prices of fancy-bred mated stock formerly ranged from five dollars to two hundred and fifty a pair, the latter price being that of prize birds, which has even gone as high as \$1,000; now, however, fine birds may be bought at from four to fifteen dollars a pair. If a person wishes to invest a large sum in a plant and does not understand the business himself, he should obtain the services of a well-recommended expert to build the plant and get it in good, systematic running order. Such a one can be obtained for \$100 a month and expenses, but he is well worth the money, for after a plant is well established it is a simple matter to run it. It is in the beginning that many details which appear of minor consideration to the novice become fatal mistakes if neglected and much good money has been lost through their neglect.

Barring mistakes, fire, thieves, and floods, there is no such thing as luck with pigeons. With the proper start these industrious, intelligent little workers merrily perform their part, if the breeder does his by giving them the proper food unstintingly. Scant or improper food and cleaning of the nests make empty nests.

The best known market in the United States

is said to be New York. Prices quoted in the newspapers are not to be relied on; the only reliable source is to write to several retail markets and inquire prices they are willing to pay for first-class squabs. The Western market is steadily rising, but at no time has it gone to the height of the New York market, although squab raisers are meeting the demand for a much larger squab than is produced for the New York market.

My squabs weighed twenty-seven pounds to the dozen and a half, compared to eight to ten pounds to the dozen of the homer, the Eastern standard market squab, yet the highest price I ever received from the market was \$4.50. The demand for my squabs was unlimited, yet the price never reached to a great height. Whereas in New York the price leaps to six and seven dollars per dozen.

Taking a mixed flock, as I did, it took me a year to get it into shape, although after a month or two it began to pay expenses. The price of grain fluctuates so much that it is impossible to set a standard of expenses, but when my birds began to pay dividends, despite the fluctuating prices of grain and market prices of squabs, they invariably evened up at the end of the year. That is, when I paid fifty dollars a

month for feed I took in a hundred a month from the market squabs. The market squabs always paid for the maintenance of the breeders and thoroughbreds, so that what I sold from those two pens was clear gain, besides those I reared for renewing and increasing stock.

On account of ill-conditioned houses I reduced my flock from 1,100 to 750, and then the expenses averaged \$50 a month and the 600 market birds averaged \$100 a month gross receipts; the 150 breeding stock and thoroughbred stock from \$10 to \$30 a month—sometimes more, sometimes less. Each bird of the market stock brought in an average of \$2.00 a year. My birds were all high-class birds, held captive, and my plant was situated in a mild climate.

Now comes an estimate of a man near Los Angeles with 100,000 birds, which are of no particular breed and mostly common, who takes in gross receipts of \$30,000 per annum. His pigeons fly free and what he makes by their foraging for some of their food (he feeds wheat and screenings three times a day) he loses by having some of his birds shot and not being able to control his flock, consequently he freely admits that he feeds several thousand

of non-producing birds. It is said that he markets 12,000 dozen squabs a year, which, if true, is a very small return from 100,000 birds, or 50,000 pairs, not being quite three squabs a year for each pair. This mammoth pigeon plant ships squabs to Los Angeles, Pasadena, and as far north as Santa Barbara. He sells them dressed, and as his pigeons are all white, or nearly so, he must receive a good revenue from the feathers, which are easily cured and will sell for from forty to sixty cents a pound.

My birds were picked breeders and nested from eight to ten times a year, producing from 4,500 to 5,000 squabs, which I marketed alive, receiving from \$2.25 to \$4.50 per dozen.

It is simply impossible to count flying pigeons. Even the best experts overestimate the numbers. I was supposed to have had 2,000, but when I began to keep strict tally on the nesting capacity of the house I discovered I had but 1,100; so it may be with this mammoth pigeon ranch, and if they were caught up by the dozen it would be found he had just half the number. When there are 500 birds in motion and as many more peeping their heads out of nests, they certainly have the appearance of 3,000 or 4,000.

I paid \$700 for my 1,100 birds and the

buildings, including fly-pens and feeders, cost in the neighborhood of \$450, which I consider was very poorly expended; but, barring all mistakes and even if the plant, roughly estimated, cost \$1,200, it was a large interest on the money. In fact, I know of very few investments that make such large returns on small capital, and certainly none that has such light and interesting work.

In breeding for market large numbers only are profitable, and if the pigeon raiser selects a straight breed for his stock it becomes a difficult problem to prevent inbreeding, which he would not have to face if his flock was that of crosses. In selecting stock, however, the pigeon raiser must cater to the demand of the market or he loses. The Western market prefers a squab large enough to be served in halves, and it is foolish for the pigeon raiser to try to raise homer stock in the West because it is advocated and demanded in the East. The Western restaurateur is willing to pay the marketman forty or fifty cents for a bird he can sell in two portions for eighty cents or a dollar. It is less trouble to handle in the dressing and cooking and is more pleasing to the eye of the consumer than the small squab, but has precisely the same delicacy of flavor. This is where so many fail

in not consulting the taste of the locality in which they live.

There is a pigeon plant of 2,000 homers in the vicinity of San Francisco which nets a clear profit to the proprietor of \$100 a month. He employed an expert at \$100 a month to go over his stock and give him advice. The advice was gradually to change his stock. Although the expert pointed out that he might be receiving \$2.25 per dozen a few weeks during the summer months and the rest of the year on up to \$4.50, where he was getting \$1.50 most of the summer and never higher than \$3.00 in the winter, he stoutly maintained that it was the valued bird of the East and he preferred not to risk a new stock. So as he was satisfied with the returns, there was nothing more to be said, but he might have been receiving at least \$200 a month.

THE VARIOUS BREEDS

CHAPTER IV

THE VARIOUS BREEDS AND THEIR MARKINGS

DARWIN divides the pigeon family into four grand divisions, but a noted fancier more simply divides it into three: the rock-pigeon, or wild bird; the domesticated, duffer, or common pigeon; and the artificial, or fancy pigeon. Several hundred varieties of the last named class, of which one hundred and fifty are named and recognized by fanciers, have been produced under domestication, some of them differing but little, others to an astonishing degree, from the wild stock, many really being almost monstrous. Yet, no matter how far removed in appearance, they all carry the same nature, habits, and primal structural points of the parent stock.

The rock-pigeon, or original stock, receives its name from inhabiting the rocky sea-coasts and neighboring islands of Europe and North Africa. It is rarely found inland except when in search of food, when it is known to fly fifty and seventy-five miles for grain. This, so Dar-

win states, is where the homing pigeon has gotten his power of endurance, fleetness, and the wonderful feat of carrying his crop full of food undigested through an entire day's flight, the operation of digestion being stayed during flight in order to feed the young at the nest.

The rock-pigeon also has a deep love of home, a trait that has been carried down through centuries of breeding in an unblemished state to his latest fancy descendant.

It is supposed that pigeons were first domesticated solely for the purpose of supplying the table; at least an early record, more than 3,000 years B. C., signifies their use for that purpose by the Egyptians; also in the Bible, Numbers 11:32, "homers" are spoken of as food for the Israelites.

From this we should conclude that the homing variety was the first deviation from the parent stock. He certainly comes nearer in appearance and is invariably used as the staple rejuvenator of the other varieties when weakened by too much inbreeding. No other species of bird has been studied with the same degree of care that he has. For centuries this breed has been employed in war, in sport, and in many scientific experiments. The reason he has been so largely used for homing is due to the fact

that the home instinct is so strong a characteristic that he will travel for hundreds of miles in order to reach that beloved spot, one thousand miles being the prize distance. Over distances they can cover in a few hours they can make a speed of fifty to ninety miles an hour. The rate of flight for long distances is very low—about two and a half days to cover 650 miles, although there is a record of 611 miles being made in twelve hours. When the maximum distance of 1,000 miles is to be traversed the average rate of flight is extremely low; from nine to fourteen days is a splendid record. It is not uncommon for birds to take fifteen, sixteen, and twenty days for such a journey. So many and severe are the trials sometimes that these graceful little creatures have to contend with on the journey that some of them return from such a distance after months, or even years. Only a few of the birds released 1,000 miles from home ever get back.

Many and pitiful are the stories told of the hardships endured by these little message bearers who many times meet their death through the ignorant curiosity of human beings; as, for example, the case of the tired little homer who, bearing the last message of the balloonist, André, from the Arctic regions, lighting on the

mast of a ship and going to sleep with his head beneath his wing, was idly shot by the captain because he recognized it as a strange bird for that latitude.

A much more humane use of the homing pigeon is practiced in China and Spain, where they are used in games. A good description of those practiced in China can be found in the *St. Nicholas* for February, 1900.

The homer is always clean-footed and trimly built for flight. His feet and legs are red and his beak is long and horn colored; these marks also come from his early progenitors, the wild pigeons of California having yellow legs and beak. The homer's head should be well shaped; it is said the homer has one-fourth more brain-room than the common pigeon.

The pigeon fancier always looks to the eye to determine his breeding; a flattened skull and heavy eye-cere show a barb cross. If the eye is dark, the head round, and beak short and close fitting, there is a preponderance of the owl type; but whatever the cross, the result will be a persistent and intelligent home-seeker that will fly later at night than any other type. Another positive point in the homer is a protruding eye-ball. The chest should be full and broad. The tail of the pigeon acts as the rud-

der in flight and should be of good length. This length is increased by pulling out the feathers in the first year. This operation is also thought to give strength to any young or weak bird.

As homing pigeons circle round several times high in the air immediately after being released, in order to get their bearings, it is a generally accepted theory that they return by means of visual landmarks. This is proved by the birds being useless in dense fog, such as they frequently have in England.

The homing pigeon is found in black, white, red, silver, dun, and cream, but is more generally seen in soft blue with strongly marked bars or checkers.

THE RUNT

The runt, a name given to it in sarcasm, is the largest and most robust among pigeons. The Roman runt, the oldest of known varieties, next to the homer, had its origin near the shores of the Mediterranean, where it had long been classed as poultry. Its main point is size, attaining a weight sometimes of nearly three pounds and a wing spread of forty-two inches from tip to tip. The runt colors are

black, white, red, dun, but are more highly prized in silver or blue. It has a noble, majestic dignity combined with perfect proportion in outlines, and with none of the grotesqueness of the later fancies in pigeons; it stands alone with the homer as nearest the parent stock except in size.

HEN PIGEONS

From the Roman runt was bred the Leghorn runt which, while of equal weight with the Roman, is peculiar in standing high upon long, bare legs, its neck curved like the letter S, and its tail and wings carried high, these peculiarities winning for it the name of "hen pigeon." From this was bred, at Malta, a smaller bird, yet carrying all the other points of the Leghorn hen, called the Maltese hen. This is the bird so highly prized by epicures throughout the West for crossing with the English runt for table use. They come in all colors and splashes.

There is another variety of hen that is called Hungarian hen. Their style of carriage is not so exaggerated as that of the Maltese hen. They come always beautifully marked in black and white, red and white, yellow and white, and blue and white,

“Pigeon Fancy” dates back some eighty years in this country, and in that time an immense amount of money has been invested in perfecting the fancy and toy breeds which are scattered broadcast over the land. Large sums have been paid for African owls, pouters, and racing homers.

THE POUTER

The pouter in appearance is farther away from the parent stock (rock pigeon) than any of the other varieties, yet by nature he has all the characteristics. He is purely a fancy pigeon and easily stands at the head of what breeding can accomplish. No bird has been bred showing such a divergence from the original type as the pouter, and therefore no bird shows the amount of breeding which he does. His distinct points are an extraordinary length of limb, wonderful crop, great length of feather, thin girth, and lightness in hand—no highly bred pouter carries much flesh. His legs should be closely covered with short, soft feathers, which gradually increase in size and quill to the toes where they spread upon the ground at right angles with the foot. He is gentle in disposition and easily tamed. It is

a comical sight to see a tall, inflated pouter bowing and cavorting about a tiny tumbler. The pouter has all the straight colors and also carries superior markings when crossed with white. There is a breed of pigmy pouters that has clean legs and feet. The crops of both of these varieties should be borne well up when inflated.

THE FANTAIL

Next to the pouter the fantail is the most extreme modification, or rather embellishment of the parent stock, for its tail contains up to thirty-six or even forty-two quill feathers in place of the twelve originally present. It has been highly bred in Scotland, England, and America. This breed is seen both plain legged and slightly booted. Besides their wonderful tails, their chief points are a haughty carriage of the head and swanlike bend of the neck. They are bred in all solid colors, but are more frequently seen in intense blacks and dazzling whites. They are peculiar in structure as not having the oil-gland.

THE CARRIER

Pigeon fanciers resent the confounding of

the homer and carrier pigeon, the latter being considered by many of them as the king of birds. His name comes from the regal carriage of his head and not from carrying messages as many novices suppose. In appearance he is totally different from the homing pigeon, having a much longer neck, large wattles at the base of his beak, and much cere about his eyes. In order to have this cere the proper whitish bloom, which is one of the most valued points of the carrier, and not tinged with pink, the fancier keeps his birds secluded from the deteriorating influences of sun and outdoor air. This is a most unnatural life for a pigeon and when followed makes the birds delicate and susceptible to disease. Exposure to the atmosphere also shrinks the cere. These points take five years at least to mature, though three years will determine their character.

The carrier has long been highly bred in England and greatly esteemed there. The colors of the carrier are solid black, blue, and white. The black by contrast brings out the bloom of his wattles to much better effect than the other two.

THE BARB

Although the barb is considered to be the

original of the carrier, it is a much smaller bird and has a short neck, broad breast, and broad flat head; wattles on beak and about the eye not so prominent, and more highly colored than the carrier; beak shorter. Both these breeds are of ancient lineage. The barb was perfected in Barbary. The eye wattles mature in the third year, and should be of equal breadth, the thickest at the outer edge, the eye standing out in the center like the hub of a wheel. His colors are red, silver, dun, white, and black.

THE JACOBIN

The jacobin is of continental origin, and has its name from the fancied resemblance, in the hooded white head, to the cowl and shaven head of the friar. The bird is small in body, the loose, silky feathering giving it a size to which its weight does not correspond. The legs and feet are clean. The difficult points in breeding are the adornings of the head, the lower part of which closely resemble a muffler; these feathers grow in two directions. The colors are red, silver, black, white, and blue.

THE TRUMPETER

The trumpeter is divided into the toy and

Russian. The former was the toy of the German fancier who bred him in all colors, and in splashes, checkers, and solids; he put bars on the wings, changed the color of the chest, the rose, and boots, giving as many names as he could produce varieties.

The Russian, on the contrary, is only to be found in straight black, or white. It is very "high-class" in the difficulties of breeding its points of rose, crest, and foot-feathers. The rose is the tuft of feathers covering the head from the base of the beak to the crest of the back, overhanging the eyes so that the bird can only see what is beneath it. The feathers must diverge from the center regularly and lie smoothly. The crest is at the back and extends from eye to eye.

The half-blinded condition of the bird and its excessive footfeathering combine to give it a groping character and a heavy appearance. The intense black plumage shows beautiful glints in the sunlight. They were first taken into England fifty years ago. The bird receives its name from the peculiar and long-continued sound of its cooing.

THE OWL AND TURBIT

The owls stand foremost among the toy

breeds. The finest specimens weigh but from five to eight ounces each. They were first brought from Tunis, Africa. The owls, turbits, and orientals make up the frilled varieties. In all there is a general resemblance in short, plump body, short, stout beak, and the frill of curled feathers upon the breast. More importance is given to the shape of the head and beak than to the frill. The feathers at the back of the turbit head are sometimes inverted or curled upwards, forming the point or shell crest, whereas the owl head is always unadorned, plain.

The turbit is in all colors and may be of one throughout, or with body white and wings or tail colored. The owl-turbit is a cross of the turbit and owl, and in a measure resembles both.

THE ORIENTALS

The orientals are considered by some the gems of the fancy, combining as they do the grace of the owl-pigeon with a peculiarly rich plumage. The varieties have their origin in Turkey, and the characteristic white spot upon the tail, found in no other variety, is considered due to their ancestor, the rock-pigeon, the only

others thus marked. The varieties of this class are the turbiteen, the blondinette, and the satinette. The colors of the orientals are peculiar to them, being pinkish brown, orange, or sulphur, seal brown, purplish black, and very light blue.

THE ARCHANGEL

The archangel has its name from *arc-en-ciel*, the rainbow, given with reference to its exceedingly rich-colored and iridescent plumage. This variety was introduced into England from the continent early in the 19th century.

THE NUN AND PRIEST

The nun, priest, and others are the toys. All are the result of the German breeder's skill and the tendency of the duffer stock, from which they were bred, to variation. This toy fancy had its origin in Germany, where it is carried to the greatest perfection. The object in it is to combine the color and marking to produce certain effects, and to make the colors retain their brilliancy and depth. The names given to the varieties refer to a fancied resemblance in the marking.

THE TUMBLER

Tumblers are prolific breeders and excellent parents, but are extremely small, so are exclusively a fancy pigeon. The tumbler's colors are bronze, black, buff, and also come in these colors mottled. In captivity tumblers cannot show off their wonderful tumbling feats, though there is a variety called "parlor tumblers" that can fly only six inches from the ground and in this attempt turn a complete double somersault. The tumbler is an amiable little fellow who is very fond of playing pranks on larger pigeons.

THE DRAGOON

The dragoon is a large bird, much resembling the homer with which it is frequently crossed for market squabs. It comes in all the homer colors and has clean legs and feet. Its principal distinguishing points from the homer are general size, heavy build, and heavy wattles at the base of beak and pronounced eye-cere.

THE DUCHESS

The duchesse is a beautiful bird with some-

thing of the build of the dragoon without the heavy cere or wattles but heavily booted with long feathers. It is principally seen in white. Many breeders consider them poor squab feeders, but I have not found them so, the feathered feet being the principal objection to them for market squabs.

NATURE AND HABITS

CHAPTER V

THE NATURE AND HABITS OF HIGH-BRED PIGEONS

I HAVE alluded to the extreme sensitiveness of the high-bred pigeon. It was my pleasure to sit for hours at a time on a camp stool in my pigeon yards and study the faces and motions of my feathered beauties. I found them capable of expressing all the emotions of human beings; love, hatred, forgiveness, sympathy, horror, disdain, remorse, charity, jealousy, avarice, vanity, tenderness, lasting affection, fickleness, domesticity, a love of gadding and gossip, dignity and reticence, sarcasm, and a love of playing jokes on one another;—yes, and pigeons laugh at, and enjoy a good joke as much as anybody,—and all of these emotions to an astonishing degree of development.

They have one universal trait, however,—cleanliness. They are the daintiest, cleanest of God's creatures, constantly bathing and preening their feathers.

Their nests look dirty and it is certainly incongruous to see a dainty, beautifully plumed pigeon sitting on a manure caked nest. Pigeon manure cannot, however, be as uncleanly as it looks and instinct certainly tells the pigeon it is not unhealthy for the young, else why should they select manure covered nests? To prove its cleansing properties, examine a manure covered roof after a drenching rain—it looks as though it had been scoured with soap and water.

Look over the nests daily to see if there are any dead squabs to be removed, but leave the nests alone; don't disturb your breeders by cleaning. If the nests are built up too high, take off the top layers, otherwise, leave them alone. They know best.

Even in the wild state the pigeon is monogamous and mates for life, but when confined where food is plentiful and he does not have to forage for each meal, the love of the male for home duties and the care of the young will sometimes lead him to maintain two mates, when his efforts to do double duty during the time of incubation and feeding will be unremitting and amusing. I had a tiny bronze tumbler that invariably maintained two mates throughout the year. This is the only case that came

under my notice, however, during my five years' experience with pigeons.

To illustrate the lasting affection of a pigeon, I will tell of a beautiful crested red runt I once owned. His mate was a little black homer, but, as I wished him mated to another runt or a Maltese hen pigeon, I gladly seized an opportunity to sell the homer one day.

I kept him for two years and although I placed him in a pen with beautiful young runts and hens, he refused to take another mate. He lived quietly in his nests and dignifiedly ate, bathed, preened his feathers, sunned himself, and took his jumping and flying exercises, but refused to mate again. He was true to his first love.

I finally sold him to a pigeon breeder who secretly laughed at my romance. Two years later he wrote me with an apology that my crested beauty had died as he had lived, a dignified example of lasting affection. I never heard whether or not his mate was equally as true.

It is next to impossible to distinguish the male from the female as they fly about the pens. The only really infallible way is to note when the male drives the female to her nest, or, if they are nesting, to note by the time of

day; for when there are eggs or young squabs, the male goes on the nest about ten in the morning and remains until four in the afternoon, when the female goes on and remains until relieved by the male the following morning at ten.

These habits are sure and regular as clock work, and I have never known pigeon experts use any other means of securing a mated pair. This fact will sometimes cause pigeon raisers to make blunders as in the following incident:

One morning there was great commotion in the market pen. A pigeon was wildly flying about from nest to nest pecking at the half-grown squabs in a frenzy. Thinking, of course, the bird was a bad-tempered bachelor, I chased him out of the house, caught him with a net, and threw him rather roughly into the bachelor pen.

He lit on the roof of the little house among a dozen or more bachelors. The poor thing crouched down in seeming agony, and, supposing I had unwittingly injured it, I watched a moment before I noticed the faces of the bachelors. Instead of bowing and cavorting around in sarcastic welcome as they usually did when I added a new member to their pen, they stood silent and awe-stricken, with horror and help-

less sympathy vividly depicted on their expressive faces.

Turning again to the subject of this unusual emotion, I saw her crouch, for it indeed proved to be a female, and rise high on her feet several times in great agony, and then with a final effort, an egg rolled out and down the sloping roof, crashing on the cement below.

What I had supposed to be a bachelor was an eggbound female, the only case, so far as I know, that occurred during my experience in pigeon raising. But I have heard that they suffer untold agony. Doubtless, my rough treatment gave her ultimate relief. It was curious, however, that the bachelors should have recognized her trouble and sympathized with her, and in so doing had attracted my attention to her. I gently caught her with my hand and placed her alone in a box with food and water for a few hours, then let her loose, when she seemed recovered, and flew happily to her nest where her mate greeted her lovingly.

Many times pigeons are extremely kind and charitable to one another. Once one of my female runts died, leaving a pair of featherless squabs, and the feeding and hovering devolved entirely on the widowed father. Just above his nests lived a pair of homers with squabs of

the same age. These homers came down daily and assisted the bereaved father to feed and hover his little ones until they were old enough to leave the nest.

Mr. Bronze Tumbler had one of his establishments in one side of an orange box, while the Newlyweds were setting up housekeeping on the other side. In the partition between was a large knot-hole through which Bronze Tumbler watched the proceedings of the young couple while he hovered his week-old squabs. As the young couple flew back and forth with straws, Mr. Bronze, with a mischievous look on his comical little face, drew straw after straw through the knot-hole until he was well-nigh buried in loot. His neighbors opposite seeing what he was up to telegraphed the news down the line, and everybody that was off duty flew to see the fun, while those attending to eggs or squabs craned their heads out of the nests to hear the chattering.

Then the little bride, coming in to settle her furniture, became cognizant of the cruel joke that had been played upon them and was at once the picture of hurt dejection; I really felt like offering her my handkerchief to wipe away her tears, for the other pigeons were having no end of amusement at her expense. In flies Mr.

Newlywed and takes in the situation at a glance, and immediately prepares for war. Little Tumbler nimbly extricates himself from straws and squabs and quickly flies out of the window, the bridegroom in hot pursuit.

Then up steps Mr. Pouter in all the gallant grandeur of inflated crop to offer sympathy to the bride. Back comes Mr. N. from a fruitless search and finds the officious pouter neatly balancing himself on the bride's threshold while he cooes condolingly. This is too much! The battle royal begins. Down on the floor they tumble where they bat at each other with outspread wings, the pouter towering high with his superior height and spindling legs. Through the entire length of the 100-foot house heads are poked out from nests piled up high on either side, while the little bride demurely sets to work drawing the stolen straws back through the knot-hole, and the mischievous Mr. Tumbler creeps back to his squabs.

If pigeons have a sufficient number of roomy, comfortable nests and are well-fed, they will begin to lay as soon as their squabs get their feathers. They are, however, like human beings and have likes and dislikes. Some prefer to nest in dark, cold corners, or on the floor, while others will breed only if they can

obtain a high dry nest where a few rays of sunshine can reach.

I had some pigeons nesting in a dark corner of the pigeon house, all first-class breeders except one pair, and they never had squabs. I took this pair out and placed them in a small pen and open house where the sun reached their nests the first thing in the morning. They became my finest breeders. I always found it profitable to humor their whims.

It is a laughable sight to see the male driving the female to her nest. He pecks at her and chases her all over the house and yard until she finally gives in and settles down on her nest, when he becomes all devoted attention and brings extra nesting material to make her comfortable. Then she, in a forgiving spirit, gratefully kisses him and tucks the straws beneath her.

The feeding of squabs by their parents is the most marvelous thing in nature.

I have stated that the male takes his regular turn on the nest. As the time approaches for the eggs to hatch, a thin watery substance forms in the crops of both parents which is called pigeon milk, and this they begin feeding to their young after they are a few hours old. Gradually the milk becomes less digested until,

by the time the squabs are fully feathered, it is whole grain soaked in water. A pigeon always eats all he can, then fills his crop with water.

As soon as it is time for the milk to form for the new babies, the parents drive the older ones off the nest to shift for themselves, if they have not already gone of their own accord. It is then time for the breeder to remove them to a youngster pen, at the same time pulling out their tail feathers, on the principle, I suppose, of cutting off a child's hair to increase its size and strength. From the market pen they are shipped before they are old enough to leave the nest—between three and four weeks old.

The milk flows easily from the parent's bill into that of the baby squab as she or he hovers it, but when it becomes less digested it requires much labor and the parent is obliged to stand. That is the reason the nests should be large, with a wide platform before them, otherwise they will become discouraged and will not breed, especially the English runt, which is the largest known pigeon. Under proper conditions I have found the runt to be as prolific a breeder as the homer and hen pigeons.

Pigeons have the reputation of eating off their heads, but the pigeon raiser must take into consideration that he is feeding four in-

stead of two. The exertion is so great in feeding their young that the parents should not be obliged to go far for food and water, and I have found that they do better with small fly-pens.

I placed six pairs in a roomy house with a fly-pen six by ten for one year. In that year I took out of that pen 120 healthy, strong squabs and the parents were in prime condition.

It is cruel and unprofitable to be rough and unkind to breeding pigeons. I should just as soon maltreat a nursing mother. If the parents are frightened while they are with milk it injures the baby squabs. At the time of the great earthquake in 1906 I lost every baby squab on my place.

I always employed gentle, quiet men to work on my place. Occasionally you can find a suitable boy, but I prefer a gentle, kindly old man, a man, perhaps, that can be gotten at the poor-house, who is glad to come for a comfortable living and ten dollars a month, and enjoys pottering about the pigeons and place. The work is really not heavy enough for an able-bodied man, and such a one is apt to be impatient and too quick in moving among nesting pigeons.

If for any reason the pigeons in milk lose their squabs, the pigeon raiser must immedi-

ately take a squab of the same age from another nest and give it to them. If they do not feed off the milk it injures them. I always went through my houses every morning and examined each nest. They knew and loved me and had confidence that I would not injure them.

BREEDING

CHAPTER VI

BREEDING

THE pigeon fancier is an artist among breeders and his work of producing living, highly colored models of beauty is the finished work of the painter. His object in breeding is different from that of most breeders in being solely to maintain the fancy points of color and outline, with no reference to utility. His material is the most impressionable known, and being wholly artificial, is as unstable. Through all the difficulties of fancy breeding it must be remembered that the male influences the external points and the female, the size, structure, and constitution. As for instance, if a carrier cock were mated to a runt female, their squabs would have the carrier's wattles and eye-cere but the runt size, structure, and constitution. Or if the cock was a jacobin, the squabs would shine forth in all the glories of muffer and hood. The breeder should select his ideal and work until he gains his point.

The tendency of all colors is to pale, and in order to enrich or maintain them, birds of different colors must be bred together. As a rule, in birds of the same blood, the young follow in color and marking the parent of the same sex, while in matings of different colors and of different strains the young follow the color and marking of the opposite sex.

Some simple rules for breeding for color are: black and red produce the same colors solid, but intensified; blue and silver produce the same colors solid, but intensified; black and silver, dun; white is splashed or blotted with whatever it is blended; to obtain rainbow, start with white and blend successively with red, blue, and silver until the proper scintillating effects are obtained. Blotches may be the first results, but persevere, using one of the three colors with each generation until the desired effect is reached. It is well worth the trial. The black bars so highly prized in the markings of modern blues come direct from their wild progenitors.

In breeding for fancy, or thoroughbred, stock a strict system of banding must be adhered to. To entirely control his future workings the breeder should band his squabs while in the nest, slipping a closed band over one foot

of each squab, while it is soft and pliable (five days old), marked with a number, thus: 270, 271. Then enter these numbers in a record book, with the date, under the number of the nest in which the squabs were hatched. The numbers are the nest-mate numbers. When the squabs are grown into pigeons the breeder adds to his record the color, marking and sex, thus:

n. 24—ps. 125 & 130, ns. 7 & 10.
Jan. 1913. 270—s. b. cock
271—b. b. hen
Mar. “ 272—b. b. hen

This means nest 24, parents 125 and 130 from nests 7 and 10. Date of hatch, January, 1913. 270 and 271 are nest-mates (in fact all squabs from ps. 125 & 130 are nest-mates)—the cock being silver-barred and the hen blue-barred. March, 1913, 272, a blue-barred hen, was the only occupant of nest 24.

As pigeons never change their nests, by means of this record book the breeder can trace back the genealogy of a pigeon for generations. If one of the parents dies and a new mate is taken, the breeder simply draws a line beneath the last hatch and starts anew, thus:

n. 24—ps. 125 & 200, ns. 7 & 40.

By looking up nests 7 and 40 the breeder can in a few moments tell who 125 and 200 are and their colors, marking, and ages, and so on as long as the book stands.

With regard to the age of breeding pigeons, cocks have been known to breed healthy, strong squabs at fifteen years of age, but, of course, they were mated to young hens.

On no account allow nest-mates to mate, though this never occurs if there are other birds to choose from.

Although it is well to allow birds to choose their own mates ordinarily, the breeder requires the use of a mating coop when he is desirous of making special points in breeding. This coop has two compartments with a removable wire partition through which the birds may see each other. Leave them for a day or two and if they appear friendly and the cock is doing everything he can to fascinate the hen, remove the partition and leave them until the hen returns the cock's caresses, then turn them into the pen intended for them. Such a coop is three feet long, two feet wide, and two feet high.

Black meat squabs are looked upon as a blemish on the breeder's skill, and the moment one is discovered it is expelled and his progeni-

tors are looked up at once. They come from no particular breed or color, but from in-breeding.

The pigeon is unique among the feathered creation in the positive similarity of the sexes, the habits during incubation, the provision for, and manner of, feeding the young, the helpless and crude condition of the young when it leaves the shell, and its rapid development and early maturity. In structural points there are also peculiar differences. The long intestine is of greater length than in any other bird, some varieties lack the oil-gland, while all are without the gall-bladder. This latter deficiency in its digestive make-up accounts for the inordinate desire for salt, characteristic of no other bird, which must be considered a craving for an absolute essential to its healthful existence. The dangers from the lack of a plentiful supply of salt I have explained in another chapter.

Another peculiar feature of the pigeon is that the shafts of his feathers are short and downless with but slight hold on the skin. All varieties shed a peculiar dust from the plumage in greater or less quantities, so that any place they occupy will in time be covered with a peculiar bloom called pigeon dust.

As the fancy breeder breeds for perfection,

after whatever model he selects, he does not allow his birds to breed more than once or twice a year, so that the accumulated strength of the parents may go into the young; this is especially true in breeding record homers. For market stock it is different. I believe young pigeons of any of the various breeds I have here mentioned can be taken and, giving them proper conditions, first-class breeders can be made from them. In selecting breeds for market, however, the breeder must conform to the requirements of the market. Birds too closely bred will make poor breeders.

Squabs that are slow to learn to eat may be fattened and taught to eat by hand feeding with hemp and millet seed slightly moistened with salted water and a little fine gravel or grit. Some breeders blow in soft food through a syringe into the squab's crop. I have never tried it, but have heard it is constantly done in Europe. There are even professional squab-feeders.

BREEDING FOR MARKET

My experience ran over many known breeds of pigeons and, for health, strength, size, shape, prolific breeders, and market value, I

give the preference to the runt-Maltese hen crosses. For breeders, squabs of the first cross; for market, squabs of the second cross.

For instance, I put my young thoroughbred stock, which was thoroughbred Maltese hens and English runts, in a pen by themselves and allowed them to choose their own mates. After I saw that they were well mated—good breeders—I took the runts that were mated with runts and hen pigeons that were mated with hen pigeons and placed them back in the thoroughbred pens. The runts and hen pigeons that were mated together I placed in the breeders' pen. The young stock from the breeders' pen was placed in a pen by itself, and when they paired and the pairs were found to be good breeders they were placed in the market pen. One can readily see that by this method the stock is constantly increasing and there is absolutely no danger of inbreeding in the breeder and market stock pens, a watch only having to be kept on the thoroughbred pens which have only a few dozen in each.

Occasionally, you will find birds that are barren, or that lay infertile eggs. Do not discard these birds as they are invaluable as nursery maids. Put them in a pen by themselves and give them the eggs from either some fine

breeders, or birds that are inferior parents, to raise. I have also given them half-grown squabs to feed after I had sold off their parents, or young squabs that were being raised for breeders that were slow about learning to eat.

Watch for the female nursery maid to retire to her nest to try to lay. After a few hours, or, perhaps, the next day, cautiously slip in a freshly laid egg of some other pigeon and a day or two later slip in another. I have even placed two at once and the foster-mother did not appear to know the difference. She may fly off the nest each time, but as soon as you are gone she will return and there will be great rejoicing in the little household at finding the egg. Like childless human beings, these nursery maids are always glad to take young squabs to feed or eggs to hatch, and, although they are incapable of reproducing themselves, the pigeon milk forms in their crops for other pigeons' squabs. By taking one or two pairs of eggs a year from good breeders you obtain more squabs without giving the breeders the exhaustive work of raising and feeding. My nursery maids were a most successful part of my pigeon plant. I raised hundreds of extra squabs in this way, and sometimes squabs that would oth-

erwise have died. It requires about seventeen days for pigeon eggs to hatch.

In selling mated pairs it must be remembered not to sell those in milk, as there is a chance of injuring the pigeons so that they will never breed again.

Pigeon raisers, to be successful, must be gentle and kindly disposed, willing to spend many hours in studying their charges. I learned to recognize every pigeon in my flock. Every face seemed to have a different expression, in which I could read their joys and sorrows.

It is indeed a thankless employment selling pigeons for breeding. As I have already stated it is purely optional with pigeons whether they breed or not.

It is always a lottery when you sell mated pairs whether they will be happy in their new quarters and willing to raise a family. But this the pigeon raiser cannot make the buyer believe or understand, and if his mated pairs do not set to work nest-building he immediately accuses the seller of rank deception. Whereas, the fault may lie entirely with his own management and treatment of his purchase, or the birds may be afflicted with incurable homesickness for their friends and surroundings. This is the reason I invariably advise the purchase

of youngsters in order that they may be allowed to grow up together and become attached to their surroundings. The results are surer and more satisfactory, even if one does get a few odd ones; for, as it is difficult to recognize the old ones apart, it is impossible to distinguish between the male and female when they are young.

I have shipped pigeons to British Columbia and Honolulu with the greatest success and failed utterly in those I have sold within a few miles. In my own experience I have had the greatest success in buying outside stock, but, although my houses were not up-to-date, the plant was large and sunny and the inhabitants so numerous and happy that newcomers did not feel like moping.

A lady, one day, selected a beautiful pair of silver runts to be sent to her home in Victoria, B. C. She asked me not to ship them for ten days as she wished to return and make ready for them. It was decided that I should start them on their journey on the morning of April 17th. It was in the year 1906.

I put them in a strong, roomy box, well sanded with white sand, and I nailed on the inside a feed box, salted grit box, and water cup with an attached funnel for refilling, and se-

curely tied a strong muslin sack of assorted grain to the slats on top. The birds and their equipment were the admiration of all that saw them. But the expressman, after asserting that it would take but three days to reach their destination, laughingly said I had supplied them with enough grain for a three weeks' journey.

The next morning at five o'clock came the terrible earthquake of April 18th, 1906. Later in the day, after I had summed up my comparatively few losses, I congratulated myself on having gotten the silver runts off early the previous day, believing they were then well on their journey. Three weeks later I received a letter from the lady saying the birds had just arrived but in excellent condition. They had been detained in Oakland over the night of the 17th, and for much longer after the 18th, and, finally, were shipped by sea. It was most fortunate that they had gotten out of San Francisco, otherwise, they must have perished in the fire that immediately followed the earthquake.

DISEASE AND FEEDING

CHAPTER VII

DISEASE AND FEEDING

WITH ordinary humane attention the pigeon in captivity is a remarkably healthy bird. I gave my birds good, pure running water and the best of feed and, although I left the nests alone, merely cleaning the floors, I never had that much dreaded disease, canker, after I once got my flock well regulated as to breeding. This disease, I believe, comes from inbreeding and, likely, from improper food and water, but never from exterior contact with the manure, which is too strong with ammonia to be uncleanly or unhealthy.

Some pigeon raisers think canker comes from close confinement and lack of exercise, but that cannot be as some of my fly-pens were extremely small. Pigeons are natural athletes and, in close confinement, regularly go through a sort of physical culture exercise. It is a beautiful sight to see them, many times resembling graceful ballet dancers in the butterfly dance.

I have seen a hundred or more practicing these exercises at the same time.

Another beautiful sight is to see them in a first shower. Five or six hundred of my birds at a time would lie first on one side and then on the other on the ground, or roof, with first one wing and then the other raised high to catch the first drops of a storm. It is indeed a sight worth witnessing.

As they are almost amphibious, storms do not prevent them from taking their regular exercise. Many times I have marketed fine, healthy squabs from wet, soggy nests because of their parents' love of nesting on the floor where storms from the south could reach them.

The only other disease I have had experience with is "going light." The pigeon loses all flesh and becomes as light in weight as his own feathers. The preventive of this is simple. Of course, a plentiful supply of good feed and water is understood. Besides, keep grit, shells, and salty water constantly before them. The free pigeon searches until he finds them; the imprisoned pigeon is dependent on his caretaker for his supply of these chief essentials to his diet. Without them, he loses all appetite and goes into a decline.

Fill a small dish half full with rock-salt and

fill it up with water, stirring it well. They will drink the water and keep well. I usually simplified matters by pouring a strong solution of rock-salt over the grit. Undissolved salt, salt in grain, is not good for them, they eat too much and I have known them to die almost immediately.

Broken oyster shells and grit, the latter with a strong solution of salt poured over it, should be kept in dishes convenient for them. I kept mine in the yard near the feeders. If the contents of these dishes become soiled with manure, wash them off and pour fresh salty water over the grit. I kept rock-salt in solution constantly on hand, adding more as it dissolved.

Pigeons never over-eat themselves, and I should as soon stint the food supply of a nursing mother as a breeding pigeon. If you do not give them good and varied food, they have their revenge by giving you empty nests. Pigeons also never eat unclean food. If swill or scraps are thrown into a pigeon yard the pigeons will look at it in wonder but never touch it. They are even chary of taking up with a new variety of grain, but they will never touch filth of any kind, while the highest bred chicken will greedily devour the foulest kind of filth from both animals and humans.

A squab never has anything but the cleanest of food which makes him far better food for an invalid or aged person. For this reason doctors and nurses appreciate them as valuable rejuvenators for building up weak invalids.

Keep the cheapest feed constantly before them in feeders and feed the more expensive twice a day, in the morning when the female comes off her long night's vigil, and in the afternoon after the male comes off. Be regular and prompt and they will know what to expect; then the bird on the nest will not fly off for a change of diet thus chilling babies or eggs, or one parent will not have all the dainties while the other has cheap feed.

At the time of my experience (from 1903 to 1908) I found chevalier barley the cheapest. I also found it the most beneficial. Bearded barley is not so good and is quite as expensive in the end, as the heads are not so full and perfect and you are paying for a lot of weight in beards; besides, pigeons do not care for it.

Barley keeps them lively and well without making them too fat. It is an all-around-the-year feed, and if the pigeon breeder has a place to store it, it is a good plan to buy in a year's supply when the crop first comes in.

Egyptian corn is the next safe and staple pigeon grain for all the year round, but is more expensive. Through the summer months I fed it twice daily, one day with Canadian peas and next day with red wheat. In the winter I fed it every other day with peas, and the other days I fed red wheat with whole Indian corn, which is too heating for summer. There is a frightful waste in cracked corn. Give pigeons plenty of grit and salty water and they can easily digest the large kernels.

I always kept hemp and millet seeds to feed one or twice a week to the youngsters I was raising for breeders. They are the most expensive grains, but a sack of each lasts for a long time with careful feeding.

An alfalfa patch materially cuts down the grain bill by being a beneficial food and it is likewise useful for nesting material. I had a patch forty-six by thirty-five feet, with two faucets and a drain pipe from the main pigeon pen for irrigation. With a sickle I cut two sacks full, that is, two sacks laid on the ground and piled up as high as I could carry them without spilling, every morning all the year round, when it was not raining. By the time I had reached the lower end of the patch, the upper end was ready to cut. I scattered it on the

ground in different pens and the pigeons greedily ate off the leaves and tender part, leaving the stalks to dry for nesting material.

When raising pigeons wholesale, grain must be bought wholesale; that is, buy direct from wholesale grain dealers and they will buy back the sacks at highest figures; for instance, when junkmen and retail merchants offer two and a half or three cents a piece, the wholesale grain dealers will give five cents straight. My grain sacks always paid for the grit, shells, and rock-salt I used. I have dealt with both retail and wholesale dealers so I know the difference in prices for I have bought tons and tons of grain.

I made out a list of the grains I required through the year, and went to the wholesale grain dealers and selected the one that gave me the best terms, was willing to secure the kinds of grain I needed, and would deliver it at my place. I had the same dealer for over four years. He sent long distances for red wheat and peas for me, always gave me the best quality at the lowest figures he could, and was ever ready and willing to take back any grain that was not up to the required standard. In return for this square dealing I recommended him to people far and near.

An easy way to test the quality of a sack

of grain without opening it is to run a long pencil in the meshes of the sack in several places. Loose kernels will flow out from the center of the sack and thus the inner contents can be closely examined.

There is a great deal written by Eastern pigeon men about the sale of the manure paying the grain bills. I tried in every direction and for every purpose to sell the tons of manure that were scraped from my houses and yards, but was never able to sell a penny's worth. It was only through influence and scientific demonstration that I was enabled to give it away to a hospital farm as a fertilizer.

From my observation of the orchards in the surrounding country and my own experiments with two trees. I believe fruit trees require as much and as careful feeding as breeding pigeons. It seems cruel to cull crop after crop from trees and vineyard without once renewing the soil. This has been done continually with the result that in a few years the orchards have become exhausted. Would it not be more profitable to spread the ground with manure as soon as each crop is gathered and let the rains gradually wash the nourishment into the soil? Trees thus treated do not require irrigation and respond gratefully with abundant and never failing crops.

**MARKETING, KILLING, AND
CURING FEATHERS**

CHAPTER VIII

MARKETING, KILLING, AND CURING FEATHERS

FOR the sure and steady financial returns the pigeon raiser looks to his market stock. Here he does not have to deal with persons of whims and fancies, and his square dealing is understood and appreciated by the buyers.

My experience in this kind of selling has been entirely with the Western market. When I was first looking into pigeon raising I wrote to many places in San Francisco and out of the replies I received I selected two large and well established markets whose proprietors wrote me kind and courteous letters, saying they would take all the squabs I could send them, whether a large or small shipment, and would give me the highest market prices. They added that they preferred receiving them by Friday of each week, but would take them whenever it was most convenient for me to send them and either alive or dead.

I shipped to these same men exclusively during the entire time I was in the pigeon business and always found them kind and considerate—prompt in payment and in the return of the shipping baskets. I reciprocated by being equally prompt in shipping by the same train on the same day of each week and as nearly as possible the same number of squabs, so that they could count on my supply. And, as my squabs were first-class in every way, they gave me good prices all the year round.

I had eight or ten strong, roomy, well-ventilated baskets made at a basket weaver's for \$2.25 a piece. There was a partition across the center to prevent crowding into one corner and causing smothering, and as my squabs were large, I rarely put more than eighteen in a basket—nine on a side.

I cannot remember the exact dimensions of these baskets, but think they were thirty inches long by fifteen wide and nine inches high. Two of these nine inches, at the top, were open slats. The remainder of the basket was closely woven. The opening part of the lid was five or six inches wide, running the full length of the basket. At first I used padlocks, giving the marketmen duplicate keys, but after the keys were destroyed in the fire I simply tied the

lids down with stout string and the squabs were shipped in perfect safety.

As the marketmen could make better rates, they paid the expressage and deducted the amount from the returns. This included the return of the shipping baskets. The expressage was light—something like four baskets for forty-five cents.

It is best not to ship exclusively to one market for fear of lowering the price.

If the market the breeder selects demands dressed squabs, or if the breeder wishes to take advantage of an added revenue by curing the feathers, of course it is to his advantage to do this part of the marketing as neatly and with as much dispatch as possible. The squabs should be gathered the day before they are to be killed and confined in baskets or coops of some sort where they may keep each other warm, if the weather is cold; but not too many in one compartment for fear some will be smothered. The reason for gathering them up so early is that the crop and intestines may become entirely emptied of all undigested and digested food, as in this state they will keep for a much longer time after being killed. Twenty-four hours is the length of time usually allowed. A squab is ready to kill when it is plump and

well feathered, usually between three and four weeks old. They need not be feathered under the wings, but all top feathers should be out.

There are two ways of killing a squab, one with a killing knife, which comes especially for the purpose, and the other by tweaking the neck. In the latter method hold the hands close together on the neck next the head and break it by a sudden pull forward and then push back quickly. Too much strength must not be used or the head will come off, which must not occur as all markets require the heads left on. I have shipped three ways; dressed, killed and unplucked, and alive.

Whether plucked or unplucked, the birds must hang suspended by the feet until the blood runs out of the body or they will bruise in packing. The simplest way to do this is to suspend from the ceiling by a wire at each end a piece of studding eight or ten feet long with two nine-penny wire finish nails driven close enough together to admit of squeezing between them the feet of a squab; set these four inches apart and above each place a number on the studding. If the nails are numbered the squabs will not have to be counted.

As each squab is killed it is hung by its feet being caught between the two nails in the studding. If they are to be shipped unplucked

they are allowed to hang over night to cool thoroughly and so the blood may drain out of the body into the head before shipping, when they can be graded; tie the best ones in bunches and the smaller ones together, and send thus properly ticketed with the address of the market and that of the shipper and number of birds in the bunch; or the bunches tied in a sack and ticketed. There is less likelihood of any of the bunches being lost by following the latter plan.

No matter how the squab breeder ships he must grade his birds, putting the largest together and the smaller ones by themselves; it is also best to send the same grade to the same market each time, so the markets will know what to expect. There is danger of lowering the price and injuring the reputation of the pigeon plant by mixing grades.

When I had my squabs plucked I employed two men and paid them by the squab—one cent and a half. They could kill, pluck, plunge into water, and hang up to dry from twenty-four to thirty squabs in an hour.

While one man was getting some vessels of water ready, the other started in to kill and hang up; then the other followed closely with rough picking, beginning at the neck and leaving about three-quarters of an inch next the

head unpicked. Care must be used not to break the skin. If the bird is well fattened the skin is not easily torn. The process of tweaking the neck also stretches the neck so it is not easily torn. If killed with the killing knife it is best to attach a weighted wire in the mouth. These wires are six inches long, hooked and pointed at the upper end, and weighted at the lower end with a piece of lead the size of a small walnut.

As soon as the first man finishes killing he starts in to pluck out the pinfeathers from those "rough picked"; in this operation a small knife is useful. As he finishes each bird he washes out the mouth and the feet then plunges it into a tub of clean cold water to remove the animal heat and to make the flesh firm and plump.

As soon as the second man has finished "rough picking" he turns in to help the other man do the pinfeathering. Together they take the birds from the water and hang them up for five minutes to drain. By the time the last is hung up the first are ready to pack. In this way two men have handled ten dozen birds in from four to five hours.

No matter how the birds are shipped it is a distinct advantage that the market stock should

be clean limbed, as a booted bird makes that much more work in plucking.

If they are to be shipped some distance and the weather is warm it is best to pack them with ice in boxes or kegs, placing a layer of cracked ice at the bottom, and alternating with birds and ice, finishing with a generous topping of ice. Place a secure covering over this and mark full directions to whom shipped, as well as the address of the shipper and the number of birds. The boxes should not be larger than two feet square and one foot high.

For short distances I have merely used layers of lettuce leaves so that the birds would not press on one another. Never ship in anything made of pine as it affects the flavor. The box or keg should under any circumstances be lined with cheap white paper so that the birds are not in direct contact with the wood.

Pigeon raisers should be cautious how they antagonize marketmen by working up private trade. The marketmen can at any time undersell him and throw him out of business, and still his grain bills go on.

The marketman keenly appreciates a producer that upholds him in his business and he reciprocates whenever he can by giving good prices, paid in prompt checks, and the quick

return of the baskets. The marketman does not charge a commission.

If squabs are shipped alive they should be sent away with their crops full; they arrive in much better shape and the marketman need not feel compelled to kill them right away. If feed is kept constantly in the pigeon houses or pens, the breeder can feel sure the squabs are fed, even though he commences gathering them before seven.

The markets will not pay for a squab that has been smothered or in any other way killed in the shipping.

CURING FEATHERS

If the squabs are hung up immediately after killing there is not much trouble about the feathers becoming bloody, but if they should, it is an easy matter to clean them. In placing the squabs in their coops awaiting the killing, it is a good plan to put all the light squabs in together and all the dark ones together, so that when they are hung up for picking the light feathers will be separated from the dark. Take all the small feathers and put them into cheese cloth bags; then put them in a sink and let the water run over and through them until it runs

clear, tossing the feathers about in the bag and rubbing them against each other. Gently squeeze out the surplus water and, if it is a mild climate, hang the bags on the clothesline in the open air. If a cold, freezing climate, hang in the furnace room or some place where it is warm and dry, but put them in the open air whenever the weather will admit, until they plump up and smell clean and fresh.

THE END

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9. THE HORSE—Its Breeding, Care and Use, by David Buffum. Mr. Buffum takes up the common, every-day problems of the ordinary horse-users, such as feeding, shoeing, simple home remedies, breaking and the cure for various equine vices. An important chapter is that tracing the influx of Arabian blood into the English and American horses and its value and limitations. A distinctly sensible book for the sensible man who wishes to know how he can improve his horses and his horsemanship at the same time.

10. **THE MOTOR BOAT**—Its Selection, Care and Use, by H. W. Slauson. The intending purchaser is advised as to the type of motor boat best suited to his particular needs and how to keep it in running condition after purchased.

11. **OUTDOOR SIGNALLING**, by Elbert Wells. Mr. Wells has perfected a method of signalling by means of wigwag, light, smoke, or whistle which is as simple as it is effective. The fundamental principle can be learned in ten minutes and its application is far easier than that of any other code now in use.

12. **TRACKS AND TRACKING**, by Josef Brunner. After twenty years of patient study and practical experience, Mr. Brunner can, from his intimate knowledge, speak with authority on this subject. "Tracks and Tracking" shows how to follow intelligently even the most intricate animal or bird tracks; how to interpret tracks of wild game and decipher the many tell-tale signs of the chase that would otherwise pass unnoticed; to tell from the footprints the name, sex, speed, direction, whether and how wounded, and many other things about wild animals and birds.

13. **WING AND TRAP-SHOOTING**, by Charles Askins. Contains a full discussion of the various methods, such as snap-shooting, swing and half-swing, discusses the flight of birds with reference to the gunner's problem of lead and range and makes special application of the various points to the different birds commonly shot in this country. A chapter is included on trap shooting and the book closes with a forceful and common-sense presentation of the etiquette of the field.

14. **PROFITABLE BREEDS OF POULTRY**, by Arthur S. Wheeler. Mr. Wheeler discusses from personal experience the best-known general purpose breeds. Advice is given from the standpoint of the man who desires results in eggs and stock rather than in specimens for exhibition. In addition to a careful analysis of stock—good and bad—and some conclusions regarding housing and management, the author writes in detail regarding Plymouth Rocks, Wyandottes, Orpingtons, Rhode Island Reds, etc.

15. RIFLES AND RIFLE SHOOTING, by Charles Askins. A practical manual describing various makes and mechanisms, in addition to discussing in detail the range and limitations in the use of the rifle. Treats on the every style and make of rifle as well as their use. Every type of rifle is discussed so that the book is complete in every detail.

16. SPORTING FIREARMS, by Horace Kephart. This book is the result of painstaking tests and experiments. Practically nothing is taken for granted. Part I deals with the rifle, and Part II with the shotgun. The man seeking guidance in the selection and use of small firearms, as well as the advanced student of the subject, will receive an unusual amount of assistance from this work.

17. THE YACHTSMAN'S HANDBOOK, by Herbert L. Stone. The author and compiler of this work is the editor of "Yachting." He treats in simple language of the many problems confronting the amateur sailor and motor boatman. Handling ground tackle, handling lines, taking soundings, the use of the lead line, care and use of sails, yachting etiquette, are all given careful attention. Some light is thrown upon the operation of the gasoline motor, and suggestions are made for the avoidance of engine troubles.

18. SCOTTISH AND IRISH TERRIERS, by Williams Haynes. This is a companion book to "The Airedale," and deals with the history and development of both breeds. For the owner of the dog, valuable information is given as to the use of the terriers, their treatment in health, their treatment when sick, the principles of dog breeding, and dog shows and rules.

19. NAVIGATION FOR THE AMATEUR, by Capt. E. T. Morton. A short treatise on the simpler methods of finding position at sea by the observation of the sun's altitude and the use of the sextant and chronometer. It is arranged especially for yachtsmen and amateurs who wish to know the simpler formulæ for the necessary navigation involved in taking a boat anywhere off shore. Illustrated.

20. OUTDOOR PHOTOGRAPHY, by Julian A. Dimock. A solution of all the problems in camera work out-of-doors. The various subjects dealt with are: The Camera—Lens and Plates—Light and Exposure—Development—Prints and Printing, etc.

21. PACKING AND PORTAGING, by Dillon Wallace. Mr. Wallace has brought together in one volume all the valuable information on the different ways of making and carrying the different kinds of packs. The ground covered ranges from man-packing to horse-packing, from the use of the tump line to throwing the diamond hitch.

22. THE BULL TERRIER, by Williams Haynes. This is a companion book to "The Airedale" and "Scottish and Irish Terriers" by the same author. Its greatest usefulness is as a guide to the dog owner who wishes to be his own kennel manager. A full account of the development of the breed is given with a description of best types and standards. Recommendations for the care of the dog in health or sickness are included.

23. THE FOX TERRIER, by Williams Haynes. As in his other books on the terrier, Mr. Haynes takes up the origin and history of the breed, its types and standards, and the more exclusive representatives down to the present time. Training the Fox Terrier—His Care and Kenneling in Sickness and Health—and the Various Uses to Which He Can Be Put—are among the phases handled.

24. SUBURBAN GARDENS, by Grace Tabor. Illustrated with diagrams. The author regards the house and grounds as a complete unit and shows how the best results may be obtained by carrying the reader in detail through the various phases of designing the garden, with the levels and contours necessary, laying out the walks and paths, planning and placing the arbors, summer houses, seats, etc., and selecting and placing trees, shrubs, vines and flowers. Ideal plans for plots of various sizes are appended, as well as suggestions for correcting mistakes that have been made through "starting wrong."

25. FISHING WITH FLOATING FLIES, by Samuel G. Camp. This is an art that is comparatively new in this country although English anglers have used the dry fly for generations. Mr. Camp has given the matter special study and is one of the few American anglers who really understands the matter from the selection of the outfit to the landing of the fish.

26. THE GASOLINE MOTOR, by Harold Whiting Slauson. Deals with the practical problems of motor operation. The standpoint is that of the man who wishes to know how and why gasoline generates power and something about the various types. Describes in detail the different parts of motors and the faults to which they are liable. Also gives full directions as to repair and upkeep.

27. ICE BOATING, by H. L. Stone. Illustrated with diagrams. Here have been brought together all the available information on the organization and history of ice-boating, the building of the various types of ice yachts, from the small 15 footer to the 600-foot racer, together with detailed plans and specifications. Full information is also given to meet the needs of those who wish to be able to build and sail their own boats but are handicapped by the lack of proper knowledge as to just the points described in this volume.

28. MODERN GOLF, by Harold H. Hilton. Mr. Hilton is the only man who has ever held the amateur championship of Great Britain and the United States in the same year. This book gives the reader sound advice, not so much on the mere swinging of the clubs as in the actual playing of the game, with all the factors that enter into it. He discusses the use of wooden clubs, the choice of clubs, the art of approaching, and kindred subjects.

29. INTENSIVE FARMING, by L. C. Corbett. A discussion of the meaning, method and value of intensive methods in agriculture. This book is designed for the convenience of practical farmers who find themselves under the necessity of making a living out of high-priced land.

30. PRACTICAL DOG BREEDING, by Williams Haynes. This is a companion volume to **PRACTICAL DOG KEEPING**, described below. It goes at length into the fundamental questions of breeding, such as selection of types on both sides, the perpetuation of desirable, and the elimination of undesirable qualities, the value of prepotency in building up a desired breed, etc.

31. PRACTICAL DOG KEEPING, by Williams Haynes. Mr. Haynes is well known to the readers of the **OUTING HANDBOOKS** as the author of books on the terriers. His new book is somewhat more ambitious in that it carries him into the general field of selection of breeds, the buying and selling of dogs, the care of dogs in kennels, handling in bench shows and field trials, and at considerable length into such subjects as food and feeding, exercise and grooming, disease, etc.

32. THE VEGETABLE GARDEN, by R. L. Watts. This book is designed for the small grower with a limited plot of ground. The reader is told what types of vegetables to select, the manner of planting and cultivation, and the returns that may be expected.

33. AMATEUR RODMAKING, by Perry D. Frazer. Illustrated. A practical manual for all those who want to make their own rod and fittings. It contains a review of fishing rod history, a discussion of materials, a list of the tools needed, description of the method to be followed in making all kinds of rods, including fly-casting, bait-fishing, salmon, etc., with full instructions for winding, varnishing, etc.

34. PISTOL AND REVOLVER SHOOTING, by A. L. A. Himmelwright. A new and revised edition of a work that has already achieved prominence as an accepted authority on the use of the hand gun. Full instructions are given in the use of both revolver and target pistol, including shooting position, grip, position of arm, etc. The book is thoroughly illustrated with diagrams and photographs and includes the rules of the United States Revolver Association and a list of the records made both here and abroad.

35. PIGEON RAISING, by Alice MacLeod. This is a book for both fancier and market breeder. Full descriptions are given of the construction of houses, the care of the birds, preparation for market, and shipment, of the various breeds with their markings and characteristics.

36. FISHING TACKLE, by Perry D. Frazer. Illustrated. It tells all the fisherman needs to know about making and overhauling his tackle during the closed season and gives full instructions for tournament casting and fly-casting.

37. AUTOMOBILE OPERATION, by A. L. Brennan, Jr. Illustrated. Tells the plain truth about the little things that every motorist wants to know about his own car. Do you want to cure ignition troubles? Overhaul and adjust your carbureter? Keep your transmission in order? Get the maximum wear out of your tires? Do any other of the hundred and one things that are necessary for the greatest use and enjoyment of your car? Then you will find this book useful.

38. THE FOX HOUND, by Roger D. Williams. Author of "Horse and Hound." Illustrated. The author is the foremost authority on fox hunting and foxhounds in America. For years he has kept the foxhound studbook, and is the final source of information on all disputed points relating to this breed. His book discusses types, methods of training, kenneling, diseases and all the other practical points relating to the use and care of the hound, etc.

39. SALT WATER GAME FISHING, by Charles F. Holder. Mr. Holder covers the whole field of his subject devoting a chapter each to such fish as the tuna, the tarpon, amberjack, the sail fish, the yellow-tail, the king fish, the barracuda, the sea bass and the small game fishes of Florida, Porto Rico, the Pacific Coast, Hawaii, and the Philippines. The habits and habitats of the fish are described, together with the methods and tackle for taking them. Illustrated.

40. WINTER CAMPING, by Warwick S. Carpenter. A book that meets the increasing interest in outdoor life in the cold weather. Mr. Carpenter discusses such subjects as shelter equipment, clothing, food, snowshoeing, skiing, and winter hunting, wild life in winter woods, care of frost bite, etc. Illustrated.

41. *WOODCRAFT FOR WOMEN, by Mrs. Kathrene Gedney Pinkerton. The author has spent several years in the Canadian woods and is thoroughly familiar with the subject from both the masculine and feminine point of view. She gives sound tips on clothing, camping outfit, food supplies, and methods, by which the woman may adjust herself to the outdoor environment.

42. *SMALL BOAT BUILDING, by H. W. Patterson. Illustrated with diagrams and plans. A working manual for the man who wants to be his own designer and builder. Detail descriptions and drawings are given showing the various stages in the building, and chapters are included on proper materials and details.

43. READING THE WEATHER, by T. Morris Longstreth. The author gives in detail the various recognized signs for different kinds of weather based primarily on the material worked out by the Government Weather Bureau, gives rules by which the character and duration of storms may be estimated, and gives instructions for sensible use of the barometer. He also gives useful information as to various weather averages for different parts of the country, at different times of the year, and furnishes sound advice for the camper, sportsman, and others who wish to know what they may expect in the weather line.

44. BOXING, by D. C. Hutchison. Practical instruction for men who wish to learn the first steps in the manly art. Mr. Hutchison writes from long personal experience as an amateur boxer and as a trainer of other amateurs. His instructions are accompanied with full diagrams showing the approved blows and guards. He also gives full directions for training for condition without danger of going stale from overtraining. It is essentially a book for the amateur.

45. **TENNIS TACTICS**, by Raymond D. Little. Out of his store of experience as a successful tennis player, Mr. Little has written this practical guide for those who wish to know how real tennis is played. He tells the reader when and how to take the net, discusses the relative merits of the back-court and volleying game and how their proper balance may be achieved; analyzes and appraises the twist service, shows the fundamental necessities of successful doubles play.

46. **HOW TO PLAY TENNIS**, by James Burns. This book gives simple, direct instruction from the professional standpoint on the fundamentals of the game. It tells the reader how to hold his racket, how to swing it for the various strokes, how to stand and how to cover the court. These points are illustrated with photographs and diagrams. The author also illustrates the course of the ball in the progress of play and points out the positions of greatest safety and greatest danger.

47. **TAXIDERMISTRY**, by Leon L. Pray. Illustrated with diagrams. Being a practical taxidermist, the author at once goes into the question of selection of tools and materials for the various stages of skinning, stuffing and mounting. The subjects whose handling is described are, for the most part, the every-day ones, such as ordinary birds, small mammals, etc., although adequate instructions are included for mounting big game specimens, as well as the preliminary care of skins in hot climates. Full diagrams accompany the text.

48. **THE CANOE—ITS SELECTION, CARE AND USE**, by Robert E. Pinkerton. Illustrated with photographs. With proper use the canoe is one of the safest crafts that floats. Mr. Pinkerton tells how that state of safety may be obtained. He gives full instructions for the selection of the right canoe for each particular purpose or set of conditions. Then he tells how it should be used in order to secure the maximum of safety, comfort and usefulness. His own lesson was learned among the Indians of Canada, where paddling is a high art, and the use of the canoe almost as much a matter of course as the wearing of moccasins.

49. **HORSE PACKING**, by Charles J. Post. Illustrated with diagrams. This is a complete description of the hitches, knots, and apparatus used in making and carrying loads of various kinds on horseback. Its basis is the methods followed in the West and in the American Army. The diagrams are full and detailed, giving the various hitches and knots at each of the important stages so that even the novice can follow and use them. It is the only book ever published on this subject of which this could be said. Full description is given of the ideal pack animal, as well as a catalogue of the diseases and injuries to which such animals are subject.

50. ***LEARNING TO SWIM**, by L. de B. Handley. Illustrated. Constructed especially for the beginner who has no knowledge of the first steps. Explains the formation of the strokes, how to acquire confidence in the water and gives full details as to the various methods, including those used by experts and racing swimmers.

51. ***SMALL BOAT NAVIGATION**, by Lieut. Com. F. W. Sterling, U. S. N. Retired. Illustrated with diagrams. A complete description of the instruments and methods necessary in navigating small boats in pilot waters, on soundings, and off shore. Describes the taking of sights for position, the running of courses, taking soundings, using the chart, plotting compass courses, etc. Several chapters are given over to the seamanship side of navigation, explaining the handling of small boats under various conditions.

52. ***TOURING AFOOT**, by Dr. C. P. Fordyce. Illustrated. This book is designed to meet the growing interest in walking trips and covers the whole field of outfit and method for trips of varying length. Various standard camping devices are described and outfits are prescribed for all conditions. It is based on the assumption that the reader will want to carry on his own back everything that he requires for the trip.

53. **THE MARINE MOTOR**, by Lieut. Com. F. W. Sterling, U. S. N. (Ret.). Illustrated with diagrams. This book is the product of a wide experience on the engineering staff of the United States Navy. It gives careful descriptions of the various parts of the marine motor, their relation to the whole and their method of operation; it also describes the commoner troubles and suggests remedies. The principal types of engines are described in detail with diagrams. The object is primarily to give the novice a good working knowledge of his engine, its operation and care.

54. ***THE BEGINNER'S BEE BOOK**, by Frank C. Pellett. Illustrated. This book is designed primarily for the small scale bee farmer. It discusses the different varieties of bees and their adaptability to different conditions, the construction of hives, care and feeding at various times of the year, handling of bees, and the types of locations and feed most suitable for bee culture.

55. ***THE POINTER**, by Williams Haynes. Contains chapters on the history and development of the breed, selection of dog, breeding, kenneling, and training. Also contains information on common sense remedies for ordinary diseases.

56. ***THE SETTER**, by Williams Haynes. The author takes up the origin and history of the breed, its development, breeding, kenneling, and training. He also discusses the various diseases to which they are subject and treatment therefor.

57. ***PRACTICAL BAIT CASTING**, by Larry St. John. Illustrated. This book deals with tackle and methods used in catching black bass. It is based upon a wide and varied experience in the middle West, where more bass fishing is done than in any other part of the country.

