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BOARD OF FISH AND GAME COMMISSIONERS

STATE OF CALIFORNIA, U. S. A.

BULLETIN No. 1

Pheasant Raising

Arranged by

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PHEASANT RAISING.

INTRODUCTION.

The State Fish and Game Commissioners, realizing that there is a strong and unsatisfied demand by hotels, restaurants, and by private citizens who do not hunt for wild game, and with a constantly increasing population, which renders it necessary to place greater restrictions (such as longer closed seasons and lessened bag limits) upon the amount of game that can be taken, believe that the situation could best be met through the establishment of a game farm, where pheasants and other game birds could be raised and distributed throughout the State, to people who would agree to give them proper protection and attention, and would take up the work of propagation seriously. The raising of pheasants in captivity has been carried on for years in European countries, and with considerable success in Eastern States.

It is the intention of the Fish and Game Commissioners to recommend at the forthcoming session of the legislature that pheasants raised in captivity can be sold in the markets. It would mean a new industry and would serve a double purpose. It would reduce the drain on wild game in the field, and give the profit that formerly went to market hunters to citizens and taxpayers who engage in a legitimate business.

At practically every session of the legislature for the past ten years some variety of game bird or animal has been added to the nonsale list, leaving wild ducks, wild geese and rabbits the only game that can be sold in the markets. It is only a matter of a very short time until wild ducks are added to the nonsale list.

The establishment of the game farm has been rendered possible by the hunting license law, which provides yearly a large revenue. Such a farm has been established near Hayward, Alameda County, at a cost of approximately \$10,000, which includes its equipment, houses, barn, water tank, pumping plant, pens, horse and wagon, necessary tools, and the original stock of birds. Our first year's work was performed under serious disadvantages. We raised, however, 1,200 pheasants. We expect to have 3,000 for liberation this year. All expenses in connection with this game farm are paid out of the hunting license fund, without taxing the general fund of the State one cent.

As an aid to those who are desirous of embarking in such an enterprise, we offer the following brief account of methods that have been proven successful by this Commission and other experienced breeders.

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We have quoted largely from Farmers' Bulletin No. 390 on "Pheasant Raising in the United States," issued April, 1910, by the United States Department of Agriculture, and prepared by Henry Oldys, Assistant United States Biological Survey.

PENS.

The location of the pens is a most important factor. Well drained, sandy or gravelly land facing the south should be selected if possible, and the pens arranged to get all the sunshine possible during the wet months, as sunshine is one of the very best preventives of bird diseases. In hot locations the pen can be shaded when necessary.

A good sized pen or run for one cock and four hens would be about ten feet wide by sixteen feet long and six feet high. The sides and top should be covered with one-inch mesh poultry netting, carefully fastened and sunk into the ground *at least a foot*, to keep out burrowing animals. It is well to have an entrance at both ends of the pen for convenience in gathering eggs. A shed should be built in the north end of the run, with the side facing the sun, open. This shed should be at least four feet wide by six feet long and as high as the sides of the pen. A roost should be provided, the length of the shed and a foot and a half above the ground. *The front of the shed must be left open* or the birds will not enter; the roof, rear and ends should be tight. When possible, it is well to enclose in the run small trees or shrubs for the birds to use as perches and for roosting; they will, besides, provide a shade during the hot summer months. Pheasants usually refuse to roost under cover, consequently, roosts of some sort must be provided in the open. Where more than one pen is used, they should communicate with each other, either directly or through a covered alleyway. This greatly facilitates the moving of birds from pen to pen.

It is absolutely essential that the pen be kept clean and free from lice at all times. The pheasant is a wild bird with greater vitality than domestic poultry, yet conditions and diseases that affect poultry but slightly are fatal to the hardier bird. It is, perhaps, safe to say that most failures in pheasant rearing are due to filth and lice. We can not emphasize this fact too strongly; keep your pheasants in clean quarters and free from lice or you will lose them.

Before the beginning of the mating season it is advisable to move the adult birds to a fresh, clean pen. The ground in the old pen should then be spread with unslaked lime, allowed to stand two or three weeks, and then spaded up and planted to some grain or vegetable crop. All woodwork about pens and sheds should be sprayed or washed several times during the year with a good wash made with unslaked lime and water, to which has been added carbolic acid in the proportion of six

ounces of acid to the gallon of wash. No whitewashing should be done during the laying season, as the hens are so affected by the odor as to stop laying.

HANDLING NEW BIRDS.

When a shipment of pheasants is received, first of all consider that they will feel strange and timid; therefore, must be quietly handled. Place the crate in the pen, with food and water near by. After arranging it so that the birds can come out when they get ready, leave them and keep away from the pen, except when necessary to feed and water, as pheasants are easily scared when changed to new quarters. After a few days they will become accustomed to their new home and can be cared for without trouble. The same person should attend to the birds all the time if possible, and should always wear the same clothing when among them, as they are sensitive to any change of appearance and become frightened very easily. Strangers always bother the birds, and dogs and cats should never be allowed near the runs. Handle the birds only when actually necessary and then only by grasping them *over* the wings and around the body. Never grasp them by the wings or legs as is commonly done with poultry.

FEED FOR ADULT BIRDS.

Those foods that contain the elements and properties of their natural food supply, and to which they have become accustomed through centuries of feeding in the wild state, are naturally best suited to the pheasant in captivity. Do not overfeed, as it is sure to induce disease. The pheasant is a small feeder, needing only about half as much food as the chicken.

Variety in food is very important, as the pheasant in his wild state eats practically every edible substance he finds. Adult birds require feeding morning and evening, no more food being given them than will be cleaned up. We have found the best food to be a mixture made after the following formula:

Broken wheat (not screenings).....	20 pounds
Fine (granulated) cracked corn.....	15 pounds
Oat groats	15 pounds
Coarse beef scrap	10 pounds
Millet seed	10 pounds
Canary seed	10 pounds
Rape seed	5 pounds
Hemp seed	5 pounds
Fine chicken grit.....	5 pounds
Fine granulated charcoal.....	5 pounds
	100 pounds

We should say at this point that none of the various poultry foods that we have tested has proven suitable for pheasants. The birds must

have plenty of green ground bone at all times and be given an abundance of green feed, such as cabbage, lettuce, swiss chard, fine cut lawn clippings, clover or alfalfa. They like lettuce best. Pheasants get unthrifty at once if deprived of the green stuff they need. Fresh water in abundance *must* always be handy. Scald all watering dishes *every* day, and keep drinking water in the shade or change it often; warm water favors the development of bacteria that cause disease.

MATING SEASON.

The mating season will of course vary with the locality, but, generally speaking, it begins in April and extends into August. In captivity the pheasant hen lays from forty to seventy-five eggs. Nests are useless, as the hens will seldom use them, but drop their eggs on the ground anywhere in the pen.

The eggs should be gathered as soon as laid, or at least twice a day; otherwise the birds (particularly the males) will eat them. A sure cure for the egg-eating habit is to blow some eggs and fill them with melted soap and place in the pens. Eggs should be set as soon as possible; after they are fourteen days old they are unfit for hatching.

After hens have stopped laying for the season they can often be encouraged to resume by moving them and the male to a new, clean pen. The "lay" in the new pen sometimes exceeds that in the old one, and of course more than pays for the expense of extra pens.

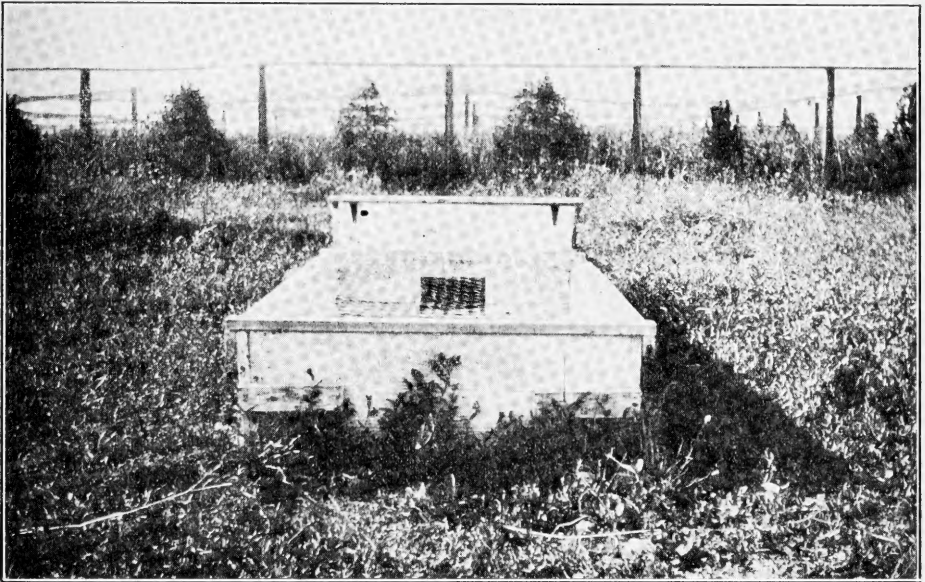
HATCHING.

The pheasant hen in captivity is a poor mother; besides, it is more profitable to keep her laying. Wyandottes and Rhode Island reds make the best "mothers" for pheasant eggs and chicks, although any domestic hen will do, so long as she is a good "setter." Turkey hens are splendid mothers, as they are very quiet on the nest and careful with young birds. They seldom step on the chicks and are not so given to roaming as hen chickens are. The eggs must be set so that they will receive the benefit of ground moisture in a nest made after this plan:

Dig a hole *in the ground* in a shady place and shape a nest in it with excelsior; a handful of onion skins is a valuable addition, as they help to keep lice away. The nest should be enclosed with a box without a top and about twelve inches high to prevent the young birds from escaping as soon as they hatch. Before placing the hen on the eggs be sure that she is free from lice and disease, as lice are certain death to young birds and are the cause of most failures in raising pheasants. One insect feeding on top of a chick's head will kill the bird if not destroyed or removed. Dust the setting hen with some good lice powder at least three times during the hatching period (but not within three days of

hatching), and if at any time the young birds show evidence of being infested with lice, such as drooping and refusing to eat, dust them with lice powder and grease under their necks and on top of their heads with lard or olive oil.

From fifteen to seventeen eggs make a good setting for a chicken hen, while a turkey hen will cover from twenty to twenty-five. The period of incubation varies from twenty-one to twenty-eight days, although well fertilized eggs usually hatch on the twenty-third day, and all about the same time. The hen should be undisturbed during the hatching time



and the young birds left in the nest until the youngest is a day old, as they need the "mother's" warmth for drying and strength-giving.

A coop for the mother and her chicks should be ready as soon as they are taken from the hatching nest. A cut and description of a very satisfactory coop is given herewith.

This coop (as shown) is three feet wide by six feet long and is twelve inches high, except in the hen's compartment, which is raised to twenty inches at the inner end. A space two feet long should be partitioned off at one end for the hen and an eight-inch opening left. This opening should be covered with slats spaced so that the chicks have just enough room to pass from one compartment to the other. The hen's compartment should be made with a hinged cover—to facilitate feeding and handling—while the runway should be covered with one-inch mesh netting, set in a sliding frame. It is a good plan to set the coop on a

freshly cut grass plot and move it daily. The tender shoots of new grass form a wholesome part of the chicks' food, and they are very fond of it, besides which, there is daily provided a supply of insect life.

After the chicks are four days old and know the call of their foster mother, they may be allowed to leave the coop after the morning dew has disappeared, and forage for themselves. Many breeders even allow the hen and her brood their freedom until the young birds show a disposition to fly out of the enclosure, when they transfer them to covered pens. Young birds cared for in this manner will be hardier and freer from lice and disease than those confined in coops.

THE FEEDING OF PHEASANT CHICKS.

It is important that the hen and her brood be fed separately. The young birds should not be fed at all until they are twenty-four hours old, as they come from the shell sufficiently well nourished to maintain their strength for that length of time, but they should have clean sand or fine gravel to pick at from the first. By the second day they will begin to get hungry and need feeding every two hours. After they are five days old, let the feedings be gradually reduced, until, at the expiration of three weeks, the birds are being fed but three times a day.

As soon as the young birds are ready to eat, they should be fed on a milk curd made as follows: Heat one quart of sweet milk to the boiling point, stir in ten eggs (well beaten) and then cook until the curd is well done. Strain off the watery fluid and you have a crumbly food that contains nearly all the elements essential to young pheasant life. A mixture of milk, eggs, and oat or corn meal in proportions to make a dry crumbly mixture is also a fine food. Boiled potatoes, mashed and mixed with finely chopped hard boiled eggs, corn meal, and bran—with or without finely chopped scraps of meat—provides a food that the young birds like. Still another suitable food is a mash of corn grits, wheat middlings, bone meal, beef scraps, and milk, made rather dry. In making curd, make only enough to last one day, as it spoils quickly and sour food is death to the birds.

Maggots are the very best animal food for young pheasants. They are easily procured and the chicks may eat as many as they desire with perfect safety. But maggots should not be given to the birds until they have lain in bran long enough to clean themselves. Maggots when taken direct from meat seem to be poisonous and are a dangerous food. Maggots may be procured in various ways, but we will describe but two plans, both of which have been used by us. Take crushed green bone and finely chopped meat and place out doors until the mixture is well covered with fly eggs. Then fill a box or pan half full of bran, over which spread thin scraps of liver or meat for food for the maggots, and

spread the flyblown green bone and meat on top. Another good method is to hang a beef or sheep head until the maggots get big enough to drop out. Then place a box of bran underneath and allow the maggots to lay in the bran a day or so before giving them to the birds.

Lettuce is a splendid food for young birds, and they should have it all the time. Fasten a head to the ground with a sharp stick and the birds will pick it off as they want it. Leave no remnants of food around the pens to become stale, and keep everything as clean and dry as possible. Dampness causes colds and gapes. Have plenty of fine grit and sand in reach at all times, and it is well to keep a pan with such food as is fed to the adult birds in the coop so that the youngsters may learn to eat it.

For watering the young birds, it is best to use the fountain jars that can be bought of any poultry supply house. The quart size is the best. Their drinking water *must always be fresh* and the fountain jars (and food pans) should be cleaned and scalded every day.

Usually the birds can be moved to the large runs by the time they are two or three weeks old. *Don't* put them with old birds. By the time they are five weeks old they may be fed anything they would find in the wild state. Young birds (as well as old) must always have dust or ashes to "dust" themselves in. This is their way of taking a bath and freeing themselves from insects.

DISEASES OF PHEASANTS.

By GEORGE BYRON MORSE, M.D., V.S.

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DISEASES AFFECTING YOUNG PHEASANTS.

Pasting.—Pasting occurs usually during the first week of life. The chick loses its vivacity, sits with eyes closed and its downy coat fluffed until it appears like a ball. Examination reveals the vent plugged or covered by a whitish, chalky, or pasty substance. This stoppage of the vent frequently leads to death in a day or two as the result of the absorption of putrefactive poisons due to retention of the feces. Treatment consists in the immediate gentle removal of this chalky plug and the application of a few drops of sweet oil or a bit of petrolatum.

Diarrhœa.—Whitish diarrhœa may be caused in very young chicks by cold, by overheating, by overfeeding, or by too little or too much water. The observant fancier will come to recognize these conditions almost instinctively, and will relieve them by at once altering the régime. This should be all that is necessary. If more is required it is evidence that

either the case has been permitted to run so long that the chick is too weak to recuperate or infection is operating.

White diarrhea of chicks, so dreaded by the poultryman, is an affection of pheasant chicks as well. The diarrhea is merely a symptom of a severe infection of the intestines, especially of the blind pouches or ceca, by a low form of animal life, known as *Coccidium tenellum*, and we therefore speak of the disease as an intestinal coccidiosis. The white coloration of the fecal discharge, as in the two previous diseases, is due to excretions from the kidneys. In certain virulent forms of the disease the minute blood vessels on the inner portion of the intestinal wall burst, and the bleeding gives rise to a dark brown or even blackish coloration, which obscures the white effect of the uric acid.

Treatment should begin with the administration of Epsom salts, mixing them in a mash and estimating from eight to fifteen chicks to one teaspoonful of the salts, according to age, size, and previous thriftiness. The drinking water should contain sulphate of iron (copperas) in the proportion of ten grains of the copperas to one gallon of water or enough permanganate of potash may be added to the drinking water to give the water a claret-red color. The coops, feeding utensils, drinking vessels, and runs should be disinfected. As a preventive measure, incubators and brooders should be cleansed and disinfected, and, prior to incubation, whether natural or artificial, the eggs should be dipped in ninety-five per cent alcohol or in a four per cent solution of some good coal-tar disinfectant.

DISEASES AFFECTING MAINLY ADULT PHEASANTS.

Roup.—Certain affections known as contagious catarrh, diphtheria, and roup, if, indeed, they be distinct diseases, generally group themselves in the fancier's mind under the one name, roup. The term diphtheria should not be used, because it belongs properly to that disease in the human family which is caused by a special bacillus which does not cause disease in birds. The other two names may represent two different stages of the same disease, a contagious inflammation of the mucous membranes of the eyes, nose, mouth, throat, gullet, or windpipe, which may express itself by a watery, sticky, bad-smelling secretion, or by the development of yellowish patches.

In the treatment of these affections the first thing is to recognize the contagiousness and to isolate the sick birds. Disinfect the houses and grounds. Make a mixture of peroxide of hydrogen and boiled water, equal parts; into this plunge the head of the affected bird. By means of a slender wire covered with a little absorbent cotton and dipped in this mixture clean out of the eye or scrape off the tongue and sides of the mouth all yellowish matter and apply a four per cent solution of borax or boracic acid or the peroxide solution named above. Give all

birds, sick and well, a dose of Epsom salts. Keep iron sulphate or permanganate of potash in the drinking water.

Enteritis.—Enteritis, as used in bird medicine, means inflammation of the intestines. While it may originate from cold, improper feeding, and the like, it is usually an infectious disease and calls for prompt cleansing of the digestive tract, which is best accomplished by Epsom salts or a teaspoonful of castor oil containing about fifteen drops of turpentine. Add iron sulphate or permanganate of potash to the water; isolate the affected birds. Disinfect thoroughly the houses, utensils, and grounds, and sprinkle lime everywhere. The causes may be coccidia, such as we find in white diarrhea of chicks; flagellates, as in the canker of pigeons; or bacteria, as in Klein's infectious enteritis.

Cholera.—Cholera would really come under the third class just mentioned. The organism causing it is frequently so virulent that death comes within a few hours, even before the diarrhea symptoms have had time to manifest themselves. The treatment would be practically that outlined under enteritis, although treatment is usually of no avail. Kill the very sick and treat only the apparently healthy, thus anticipating and preventing the disease. Necessary in all the other diseases, it is of supreme importance in cholera to burn quickly all dead birds, after saturating them with coal oil. Burying deep and covering with lime may have to do, but it is not so good a method. In killing the sick birds do not use the ax, and thus spatter everything with the infective blood.

Scurfy legs.—The affection known as scurfy legs, scaly legs, scabies, or mange of the legs and feet is caused by a parasitic mite, *Sarcoptes mutans*, which burrows under the scales and by its presence sets up an irritation which causes a rapid increase in production of cells, together with a secretion resulting in a gradual thickening and elevation of the scales. Being a parasitic disease, scaly legs is transmissible from one bird to another and from infested houses, perches, nests, etc. Treatment must begin with isolation of the patient and the thorough application to the coops and fixtures of boiling soapy water, then kerosene, and finally a coat of five per cent carbolic acid, to which has been added enough lime to make a whitewash. The affected bird should have its legs soaked in warm soapsuds, this part of the treatment being completed by a good scrubbing with a small hand scrub. This alone has cured the disease. However, it is best to follow this with a good rubbing of sulphur ointment (one part flowers of sulphur to nine parts of lard, sweet oil, or vaseline).

GENERAL REMARKS.

Pheasants can be hatched in incubators and raised in brooders, but unless one has had much experience along those lines, it is best to resort to the domestic hen.

There are numerous other methods of raising pheasants, but from the success had with this one, we recommend it as particularly satisfactory.

The best plan is to always follow nature as closely as possible and *beware of filth and lice*. For any information that you may desire which is not contained in this booklet, write to the "Superintendent of the State Game Farm, Hayward, Cal.," and he will give you such suggestions as you may need to make a success of raising pheasants. Any one going into the business extensively should have special instructions and must provide a different equipment.

IMPORTANT.

HOW TO LIBERATE GAME BIRDS.

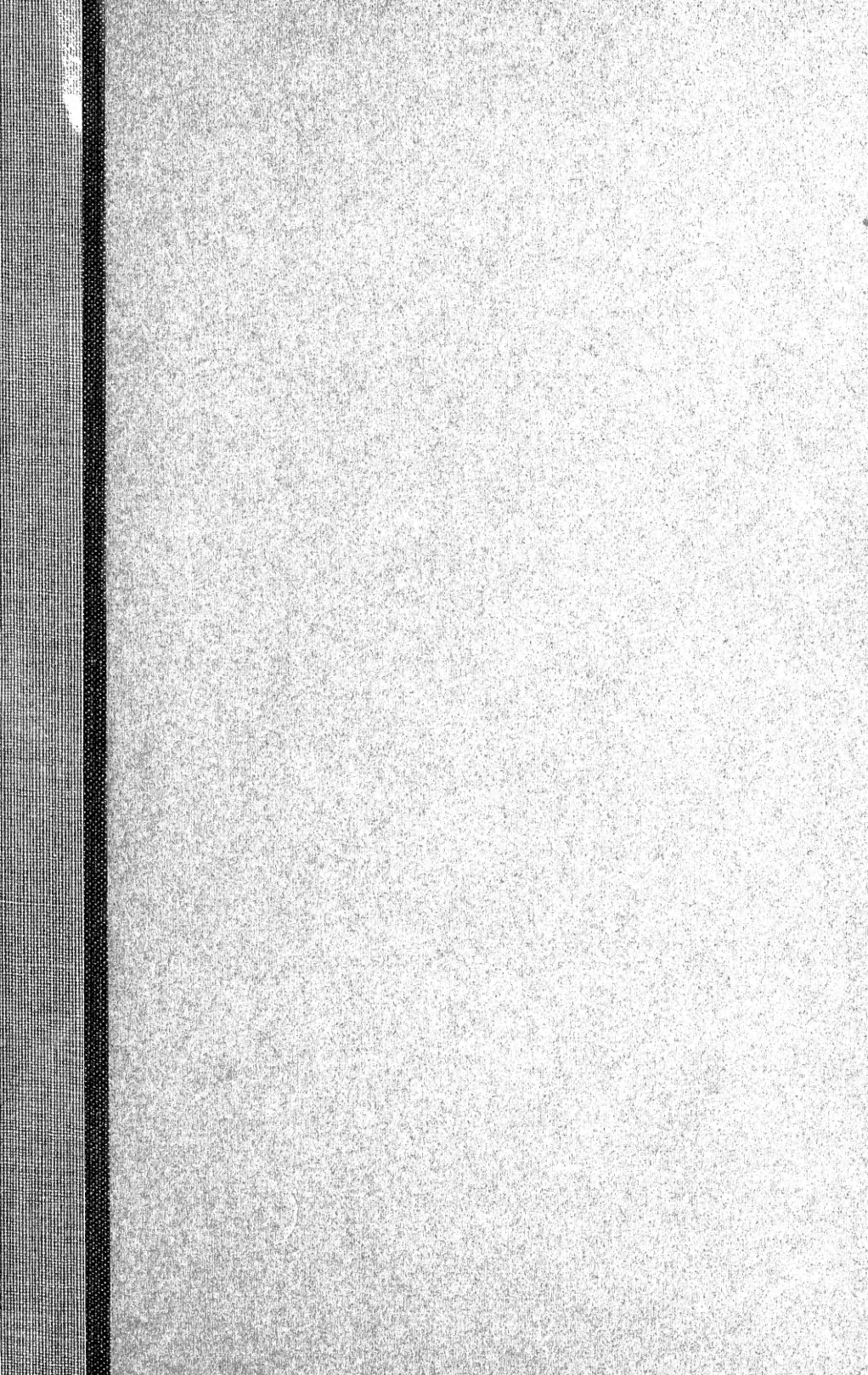
If game birds are taken from the crates and left to fly, in their fright and desire to get away as far as possible from the crate, they will continue until exhausted. Such a flight will land them outside the lands they are intended for and will scatter them so badly that the pairs may never be reunited. If this is not the case, the exhausted birds will fall easy prey to predatory birds and animals.

To prevent this it is best to take the crate to some suitable location—in or near thick brush and with water at hand—and scatter plenty of feed about. Now quietly open the doors and go away from the crate, allowing the birds to leave in their own way—undisturbed by any one. If liberated in this manner, the game almost invariably will make its home close to the spot where it found its first food.

Birds should be liberated during the daytime so that they may get together, if scattered, and select a safe roosting place before night comes on. Where it is possible to do so, splendid results will be obtained by opening the crates in some old barn or ranch building and keeping the birds penned up for several days before allowing them their full liberty.

If the birds are fed and watered and left to themselves, they will recover from the effects of close confinement and traveling, and be in such condition that predatory hawks and "varmints" will do them no harm. When ready to liberate them, open a door and allow the birds to come out in their own way and time.

Game birds should not be liberated where their natural enemies are numerous. By trapping, poisoning, and other means, endeavor to kill off all predatory animals and such birds of prey as the great horned owl, sharp-shinned hawk, Cooper's hawk, duck hawk, butcher bird, and blue jay, before turning out any birds.



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