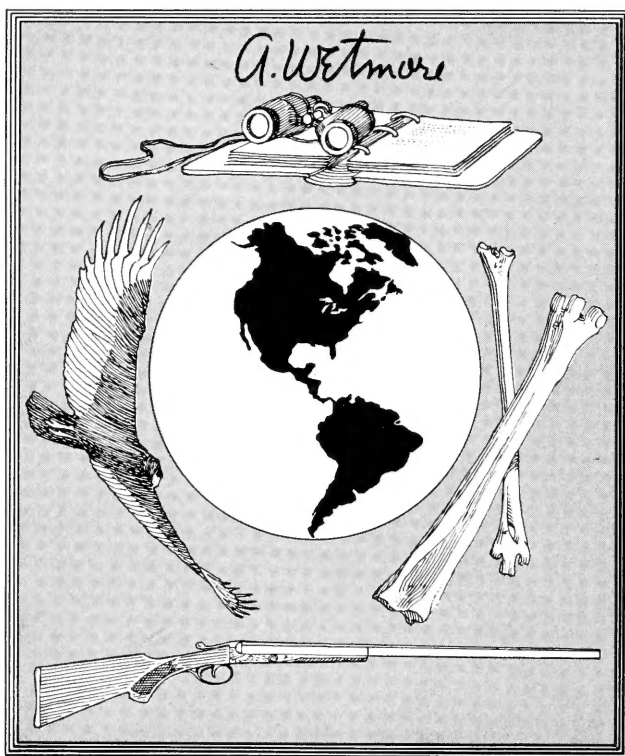
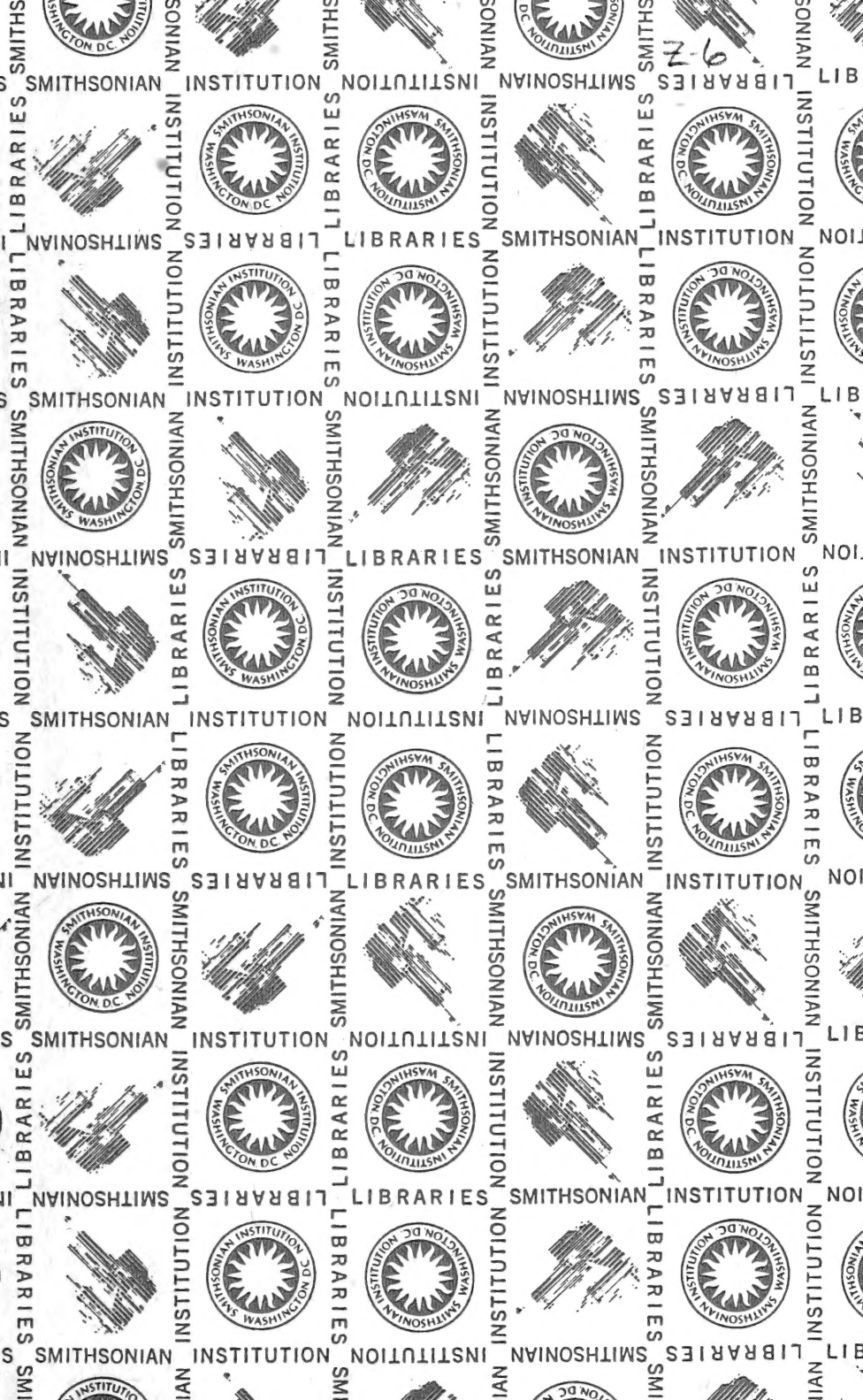


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Alexander Wetmore
1946 *Sixth Secretary* 1953



British Museum (Natural History).

Instructions for Collectors:

No. 2.—BIRDS AND THEIR EGGS.



SEVENTH EDITION.

LONDON:

1921.

PRICE SIXPENCE.

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Instructions for Collectors.

No. 2.

Birds and their Eggs.

I.—Instructions for the Preservation of the Skins of Birds.

GENERAL REMARKS.

A LITTLE patience and a little practice are all that is required to make a good skin of a bird. Also it should be remembered that no more time is wanted to make a *good* skin than a *bad* one. Thus it should be the aim of every naturalist to attain perfection in the art of preparing specimens; and, after all, this is very easy.

Tools.—The skinning of a bird demands but few tools. Many collectors require a penknife only; but the tyro should be provided at least with a sharp knife or scalpel, a pair of stout nail-scissors, as well as some arsenical soap, bleached wool, tow, and a sharp-pointed awl or darning-needle.

The knife is needed for making the first incision, and it is useful for scraping off fat from the skin. The nail-scissors are wanted for cutting through the flesh, and severing the tendons and the bones at their joints. The awl or darning-needle is useful for re-arranging disordered plumage.

Preservatives, etc.—Arsenical soap is the best preservative for general use, as skins dressed with it retain much of their natural elasticity, and can at any time be mounted. Powdered arsenic is largely used, especially by American naturalists, and is useful in a damp climate, as it dries the skins quickly. The disadvantages of employing it are, firstly, the danger in carrying it about, and secondly, that specimens so preserved become shrunken and brittle, and are never so easy to mount. Alum and pepper do not keep off the attacks of moths and beetles, and for various reasons are not to be recommended. Carbolyzed specimens are all but worthless,

as they fall to pieces after some time. Corrosive sublimate is frequently recommended as a preservative, but skins so prepared become exceedingly brittle, and after a lapse of years scarcely bear handling, ultimately falling to pieces. Arsenical soap is undoubtedly the best preservative for bird-skins.

Fine bleached cotton-wool is necessary for the filling in of the eye-sockets of the specimens. Nothing conduces more to the neat appearance of a properly prepared skin of a bird than the aspect of the head and eyes. For small birds there is nothing better than cotton-wool for the filling out of the skin. Ordinary cotton-wadding is also useful for wrapping round the skins after they have been made up. It helps to keep the skin in good shape and to dry it quickly.

Tow is useful for filling out skins of larger birds; and, if possible, the neck should always be made of tow, instead of wool, for, if the specimen should ever be required for mounting, the wires of the taxidermist can easily be worked through a neck made of tow, whereas wool is impervious.

Fine white sawdust should always be handy for sprinkling on the body of the bird while it is being skinned, and some plaster of Paris is an almost indispensable adjunct in skinning wading and swimming birds, which are often covered with fat. As, however, these materials cannot always be procured in the tropics, dry sand may be used as a substitute, and, in an emergency, tobacco-ash, or even dry earth, can be made available. Care must be taken to prevent the edges of the feathers becoming soiled by contact with the body of the bird as it is being taken out. Little wisps of cotton-wool should be at hand, to interpose along the base of the feathers while the skin is removed, as they serve to keep the feathers back and to prevent them touching the flesh of the body. With a little practice the collector will find that he knows instinctively what feathers will be affected by his action as he removes the skin from the different parts of the body, and his fingers will naturally intervene between the feathers and the flesh.

COMMENCEMENT OF OPERATIONS.

The subjoined directions refer specially to the preparation of skins of birds not larger than a Thrush.

The collector should begin operations by seeing that all his necessary appliances are at hand—fine white sawdust, or dry sand, tow, wool, nail-scissors, and knife. Some taxidermists begin by plugging the nostrils. This should be avoided, if possible, as the shape of the nostrils and their adjacent parts should be left undisturbed. Many genera of birds are characterized by the shape of the nostrils and their bristles, and every care should be

taken to keep these exactly as they are in life. If, as is often the case, there is a discharge of mucus from the nostrils, it should be carefully soaked up with wool before the skinning begins; but no more than a tiny wisp of wool should be inserted, care being taken not to disturb the actual shape of the aperture. A far better way of preventing any discharge during the preparation of the bird's skin is to open the bill and, while plugging the mouth, insert a tiny piece of wool into the cleft in its roof.

The mouth must *always* be carefully filled with cotton-wool before commencing to skin.

Any shot-wounds should be either dusted with sand or lightly plugged with wool; but it should be remembered that bloodstains are more easily removed by taxidermists in England than by the collector in the field, and that it is therefore better not to try to clean skins on the spot. Any discharge from the nostrils must, however, be looked after carefully, as it spoils the skin when the head is being turned back, and the stain of mucus cannot be eradicated. If the eyes have been damaged, it is well to sprinkle them with plaster of Paris or dry sand, and to plug them under the eyelids with a tiny wisp of cotton-wool before commencing.

REMOVAL AND PREPARATION OF THE SKIN.

The next objects are to remove the skin from the body and to restore it to its natural appearance. Through the incision now to be made, the whole of the bird's body has to be drawn out, and this should be done as neatly and expeditiously as possible. Many taxidermists make the incision down the side of the body under one wing. This has the advantage of preserving the feathers of the breast and abdomen intact, but there is also a risk of making the skin lop-sided. If the incision be made under the left wing, the joints should be cut through in the following order:—left shoulder, neck, right shoulder, left thigh, right thigh, tail; or left thigh, tail, right thigh. An excellent way, especially with Game-birds, is to make an incision from the vent on either side to the upper edge of the thigh. By this means a triangular flap is made of the abdominal skin, which falls back into place after the body has been taken out, and the feathers of the breast are not disturbed at all. Many taxidermists prefer the plan indicated in fig. 1, and explained beneath the figure. Others cut the bird open along the keel of the breast-bone to the top of the abdomen. This cut should not be carried far beyond the front end of the keel, or the skin will tear across the sides of the neck while it is being removed, and the damage will be irreparable. The skin is next pushed back till the left shoulder is exposed: this must be divided at the *shoulder-joint*,

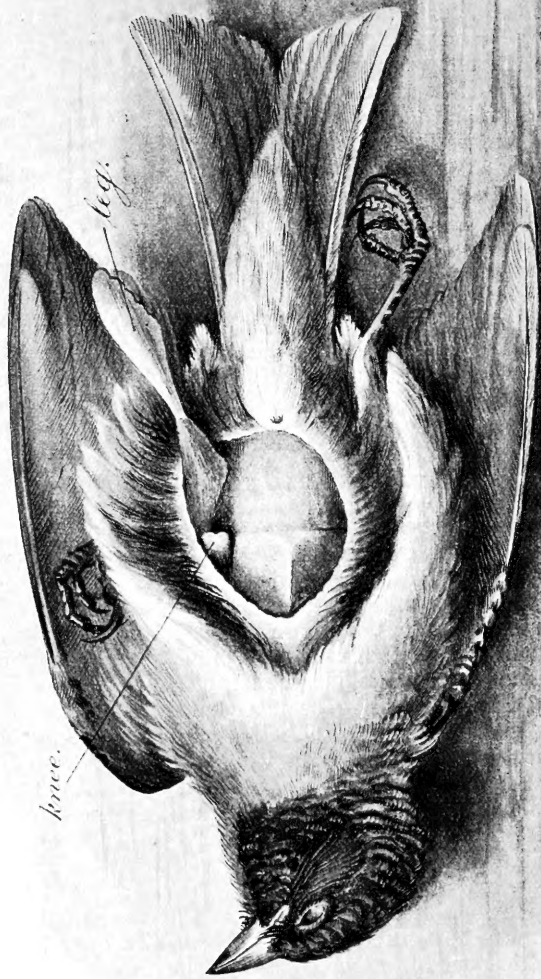


FIG. 1.—In the method here indicated, an incision is made from the lower half of the keel of the breast-bone to the vent. The skin is then gently pushed from the body-wall till the knee-joint is exposed. This is severed, and the leg is pulled back within the skin. After the two legs have been thus treated, the tail-bone is cut through and the skin is separated from the body, working towards the head. The wings are detached as soon as they are reached, and the neck is severed at the base of the skull. The method of cleaning the skin is described in the following pages.

the humeral bone being *always* left with the wing (see fig. 2). Then the skin must be carefully pushed back by the fingers and thumb-nails till the neck is exposed. This must be cut through with the nail-scissors, care being taken not to make a hole with their sharp points in the skin below the neck; the right wing must then be attacked, and also severed at the shoulder. All this time, with each motion of the fingers, the feathers of the breast will be exposed to the risk of being soiled by the moist surface of the body. It is, therefore, necessary to have some sawdust or sand handy to sprinkle over the raw flesh as it becomes exposed; and if this be not available, a wisp of wool laid along the base of the feathers will keep them back in a most unexpected way; but, as already stated, after a few attempts at skinning a bird, the fingers will be found to interpose by instinct, and to prevent the feathers from becoming soiled by contact with the flesh.

The two wing-joints and the neck being severed from the trunk, the skin can easily be pushed off the back of the bird till by degrees the thigh-bones are approached. In many birds—such as Thrushes, for instance—the skin is very firmly attached to the lower back, and any attempt to hurry will end in splitting the skin right across. Although an accident of this sort may not ultimately destroy the appearance of the skin, it is difficult to restore the natural set of the feathers of the upper surface. As the skin is pushed off the lower back and thighs, the latter come prominently into view, and they should be severed at the knee-joint (see fig. 1). The tibial bone itself, when not broken by a shot, should always be kept in the skin, as it becomes a support for the legs when the skin is made up. By the severance of first one thigh and then the other, nothing is left to cut but the tail; and when the skin has been pulled down sufficiently to expose the oil-gland, it may be detached by a sharp cut above the latter. It should be noted that a good deal of flesh can be left on the root of the tail without damage to the skin, provided that it be thoroughly *well dressed with arsenical soap*. It is a maxim in the preservation of mammals and birds that all fat should be removed from the skin as far as possible; but this requires great care, and the arsenical soap will account for any small fragments of fat which have to be left.

It now remains to remove the flesh from the legs and wings, and to turn the head and neck inside out. By pushing the leg up from the outside, the flesh is soon exposed along the shaft of the leg-bone, and is easily removed with the tendons. A wisp of cotton or tow is wrapped round the bone, as a substitute for the flesh, and the legs are then drawn back to their natural position. The wings are then dealt with: the flesh is removed from the humerus, and by a certain amount of pressure the skin which conceals the flesh of the other wing-bones can be pushed back, when the flesh which lies between them must be cut out as far as possible. In the case of large birds

it will be found best to make an incision along the wing-coverts from *the under side of the wing*. The flesh can thus easily be removed, and the cut is not noticed when the skin is made up and the wings folded close to the body. The wing-bones and the skin of the wing should be *thoroughly* dressed with arsenical soap, as any flesh remaining is apt to decay, and then the wing-coverts and the quills fall out. In small birds there is not so much risk of this misfortune, but large birds are often spoilt through inattention to these details.

The preparation of the head is usually considered by beginners to be very difficult, but in reality it is quite easy. Special care should be taken not to stretch the neck, as a skin in this state is always ugly; and the neck, when once unduly stretched, can never be got back to its proper length. By gently forcing the skin of the head back from the outside, the skull is gradually exposed; and, except in the case of very small birds, it is necessary to skin down to the base of the bill. When the skin has been pushed back as far as the eyeballs, it will be found to be connected firmly with the ear (see fig. 2). This must be detached, on each side, by placing the point of the knife *under* the tightly stretched skin and carefully lifting it out of the tube (the aperture of the ear) to which it is attached. The next difficulty is the eyelid. Still stretching the skin towards the bill, make a light cross-cut behind the point of attachment above the eyeball, taking care not to cut into the latter. This cut will partially separate the eyelid from the eye, and a second upward cut from in front backwards completes the operation. It is very important to preserve the eyelid intact, as nothing spoils the appearance of a skin so much as a torn or damaged eyelid. Each eyeball should be removed from its orbit by slipping the knife under it and severing the optic nerve and muscles by which it is kept in place, holding it meanwhile between the knife and the thumb. The brain may next be scooped out through an opening made by cutting a triangular hole through the back of the skull and extending it forwards along part of its floor. A portion of the head and the tongue are removed during this operation, and pieces of flesh covering any parts of the skull which are left in the skin should also be scraped away. The skull and the skin of the body should then be carefully dressed everywhere with arsenical soap, and the head turned back by means of a little gentle manipulation. Great care must be taken not to stretch the skin of the neck in pulling the head back into position; and the head and neck should always be drawn *back towards* the body before the skin is made up. The skin may now be made up in the following way:—Opening the bill, small tufts of pure white bleached wool, which fill out the contour of each eye in turn, are put into the eye-sockets, through the hole cut in the palate. This method has the advantage of filling out the *eyelid*, and bringing into relief any eyebrow which may be a



FIG. 2.—Partially skinned bird, showing the appearance of the skin, now turned inside out. The body has been cut off at the base of the neck. Note the skin still attached to the aperture of the ear, and the position of the eye. *hum.* = humerus, or arm-bone.



FIG. 3.—A completed "skin." This is to show the appearance which a bird should have after the removal of the body and the substitution of stuffing materials. Note the position of the beak and legs, and the method of folding the wings.

specific feature of the bird—certainly a great advantage, and conducing to the neat appearance of the skin when finished. A small stick, one end of which is sharply pointed, is now selected, and its length adjusted to reach from the skull of the bird to a point an inch to two inches beyond the tail-bone, the part destined to form the neck being wrapped round with tow and then well covered with arsenical soap. Holding the skin by the beak, the artificial neck is then coaxed up the skin of the neck, and the sharp point firmly imbedded in the skull of the bird, while the other end of the stick, without any tow on it, projects beyond the tail-bone. This is an excellent plan for making skins which have to be packed and transported for a long distance, as the stick serves as a support and renders the head and neck less liable to be broken in transit.

Another method of filling the eyes and the neck is to put bleached wool into the sockets as soon as the head is ready for turning bleached ; and a neck of tow is made (a little larger than the natural one), and rammed *tightly* into the skull. Then the skin is pulled back over the artificial neck of tow, which has been well anointed with arsenical soap. By pulling the tow neck back towards the body, the head and neck can be well drawn in. Our own experience is that the method of filling out the eyes with wool from the palate has the best results, and disturbs the set of the eyelid less than that just described ; but the collector will soon find out in which way he can produce the best results. In no case should the eye-socket be filled in from the *outside* after the skin of the head has been restored to its proper place, as the eyelid is sure to be destroyed or forced inwards, and the appearance of the skin will suffer.

Before filling in the body of the bird, it is very important that the set of the wings should be attended to, so that the skin may not become lop-sided. Running parallel to the two humeri (the bones of the upper arms), as the skin lies on its back, will be found two broad rough patches on the back of the bird, marking feather-tracts. If the two humeri are laid along these patches, and kept in position by a little wool placed upon them, it will be found that the wings will fall naturally into their place, and will not move. Another excellent method is to tie the wing-bones together at the elbows, leaving the natural space between them. It is also well to take a fine needle, and gently to lift the skin of the crown and sides of the head, so that the ear-coverts fall into their natural position. Then the body of the bird can be filled in with wool or tow to its natural size, and finally wrapped round with a thin layer of cotton-wadding, and left to dry.

The two mandibles of the bill should be restored to their exact position as in life, and either tied together with cotton (*not* through the nostrils) or fastened by means of a tiny piece of cobbler's wax placed in the tip of the upper mandible.

It is advisable to unwrap all the skins the next day, to see that the feathers are smooth and the wings in position, before they are finally laid in their tin case for transmission to the Museum. To each specimen should be attached a small label with the locality, date, altitude, and sex clearly marked on one side, and, on the other, the colour of the bill, feet, and iris. The plan adopted by some collectors of attaching a number to the specimen and keeping a corresponding entry in a book is not to be recommended, as, if the number or the book gets lost, the history of the specimen is lost also.

PREPARATION OF THE SKINS OF LARGE BIRDS.

Large birds should be treated in exactly the same manner as described above, but greater care is necessary to remove all flesh and fat from the bones and skin, which should be carefully and thoroughly dressed with arsenical soap. As already stated, an incision should be made along the wing-coverts on the under side of the wings, and after the bones of the fore-arm (radius and ulna) have been cleaned and dressed, arsenical soap or powdered alum may, with advantage, be inserted along the incision. An incision should also be made down the tarsi and along the under surface of each toe, the sinews removed, and the bones thoroughly treated with the preservative arsenical soap.

In preparing very large birds, such as Ostriches, if not required for mounting, it is an excellent plan to inject a 5 per cent. solution of formalin by means of a syringe into the tarsi and feet. This rapidly dries them up and leaves them perfectly preserved. The labour of removing the sinews is then avoided and much time is saved.

In making up skins of birds with long necks, such as Bustards, Flamingoes, Herons, and Geese, etc., the neck should be strengthened by inserting a fairly stout wire, and bent back along the breast towards the tail. Skins made in this way are much more easily packed, and the risk of breaking their necks is avoided.

SPECIAL TREATMENT REQUIRED FOR CERTAIN BIRDS WITH LARGE HEADS.

The heads of some birds (for instance, Ducks and Woodpeckers) are too large to allow the skin of the neck to be drawn over them. In such cases the neck should be severed from the body as soon as it becomes clear that no further progress can be made without running the risk of bursting the skin. The cleaning of the head must then be left till the skin is turned back, when an incision should be made along the middle of the crown, running backwards to the nape. Through this the head may be turned out and cleaned in the usual way. As soon as it is replaced, the cut edges of the incision should be drawn together with a needle and thread, an operation which leaves no obvious trace if performed with care.

II.—How to Determine the Sex of a Bird.

The body having been removed from the skin, make a long incision down the left side with a pair of scissors, and gently force the cut edges apart; then with the handle of a scalpel displace the intestines so as to expose the wall, or rather the roof, of the cavity in which they rest. If there is much blood, wash it away with a little water, to which, if possible, should be added a little salt. All this must be done very gently: the water should be poured in, and then soaked up by a piece of sponge; or if this is not to be had in the field, drain off the water by overturning the body. Never use the sponge to rub with. As soon as the roof of the body-cavity is thoroughly exposed, the sexual organs may be sought for; but, except in the breeding-season, the search must be conducted with much care.

Attention must first be directed to an examination of the organs lying at the upper end of the kidneys, the latter being the dark red masses forming the roof of the cavity.

In the *male* will be found two egg-shaped, white, or sometimes black, bodies, the testes (fig. 4, *t.*), lying side by side, just over the arch formed by the convergence of two large blood-vessels, which can be seen running up from the tail-end of the kidneys. In the breeding-season there can never be any doubt about these; but in young birds, and in old ones also after the breeding-season, the testes can often hardly be made out. In such cases the greatest care must be taken lest two other small yellowish bodies, known as the "adrenals" or "suprarenals" (fig. 4, *s.r.*), lying a little higher up—at the extreme edge of the front border of the kidney—be mistaken for the testes.

In the *female*, in the breeding-season, on the left side of the body, in a position corresponding with that of the testes of the male, there will be found a large yellowish mass, made up of eggs of various sizes, from tiny granules to a full-sized yolk (fig. 5, *ovy.*). Earlier in the year the mass is granular only, and of course much smaller, sometimes extremely small. If the ovary has been destroyed by shot, or is, as often happens, but slightly developed, look carefully on the left side of the body for a long and more or less coiled tube (the oviduct), one end of which—that towards the head—is free, the other joined on to the intestine, quite close to where it leaves the body (fig. 5, *ov.d.*). A vestige of a similar small tube may be found in the corresponding position on the opposite side, but this is very short. As it is of the greatest importance to determine the sex, and there may still be some uncertainty even after the above directions have been followed, place the body in a dish of salt and water—salt is advisable, but not *absolutely* necessary—and hold it down on one

side. On looking into the cavity through the cut, the oviduct will probably float up quite separate from the intestines, but it will be found to be attached by a delicate, transparent strand or sheet of tissue, to the rib which lies immediately below the hinder border of the lung. The removal of the intestines will greatly facilitate this examination, but it must be done with care.

In the male there can generally be traced, from the testes back-



FIG. 4.—A portion of the body-cavity of a male bird exposed to show the position of the sexual organs:—*s.r.* suprarenal or adrenal; *lg.* lung; *t.* testis; *k.* kidney; *vd.* vas deferens, or sperm-duct; *int.* intestine.



FIG. 5.—A portion of the body-cavity of a female bird exposed to show the position of the sexual organs:—*s.r.* suprarenal; *lg.* lung; *k.* kidney; *ovy.* ovary; *o.v.d.* oviduct; *int.* intestine.

wards to the end of the gut, a pair of neatly and closely coiled tubes on either side of the body, of a glistening white colour (fig. 4, *vd.*). These, in the absence of distinct testes, will serve to identify the sex as certainly as the presence of an oviduct in the female.

Unless the sexual organs can be recognised without any doubt, it is better not to mark the sex on the label. If, however, it has been certainly determined, write it down at once. ♂ is the sign for male, and ♀ for female.

III.—Directions for Collecting Eggs.

No egg should ever be taken till the species has been fully determined, either by careful observation of the parent birds with a good pair of glasses or, if absolutely necessary, by shooting one of them. If the birds are not seen and positively identified, it is mere useless cruelty to take eggs, as in most cases they cannot be named with certainty and are of no scientific interest. The eggs of some few species, such as the Great Auk, are of course unmistakable, but generally speaking, in ninety-nine cases out of a hundred, unidentified eggs are best destroyed.

Eggs should always be collected in clutches—that is to say, the whole number of eggs in the nest should be taken, and they should therefore be left undisturbed, if possible, till the full complement has been laid. With Ducks' eggs it is most important that samples of the down forming the lining of the nest should be carefully collected, together with all feathers found in the nest. These should be placed in a small box or envelope, named, and dated. In blowing eggs, the plainest side should be selected, and a single hole bored in the middle of the shell with a drill specially made for that purpose. After the hole has been drilled, the lining membrane covering the aperture should be removed, in large eggs with a fine-pointed knife, in small eggs with the point of a toothpick. When the skin covering the hole has been removed, the egg can be blown much more easily, and when washed out it will drain much better.

The egg should be held hole downwards over a lump of cotton or soft flannel, and the point of the blowpipe, also specially made for the purpose, placed in juxtaposition to the hole. By blowing gently or strongly, in proportion to the size of the egg, the contents of the shell can then be readily driven out. Having emptied the shell entirely of white and yolk, and rinsed it out once or twice with water, it should be washed out with a weak solution of carbolic acid, and placed on fine sawdust, or, if that is not available, on blotting-paper, hole downwards, to drain.

When eggs are too hard set to admit of their being blown in the ordinary way, other means of extracting the chick must be resorted to. With large eggs in which incubation is not very far advanced, a fairly large hole should be drilled, and as much as possible of the contents of the shell removed by blowing. The remainder of the

chick can be got out with the help of a hook, scissors, blowpipe, and plenty of water; but the operation takes time. In cases of emergency, and when time is of importance, a neat oval piece of shell can be cut out with a sharp pair of curved dissecting scissors; the chick can then be cut up in the shell and extracted without trouble. When the shell has been thoroughly cleaned inside, the oval piece can be neatly replaced and fixed with collodion or fine glue.

If it is very important not to damage the shell, other and more tedious means have to be resorted to. A fairly large hole is bored, and when as much of the contents of the egg as possible have been blown out—that is, all yolk and albumen—a drop or two of saturated solution of Caustic Potash should be introduced with the aid of a glass suction-pipe. It is *most important* that all yolk and albumen be removed before using the solution, as the Potash turns the former into an indiarubber-like mass which cannot afterwards be removed, and the latter into a hard glass-like substance. The solution should be left in the egg for about twenty minutes, and when washed out, a portion of the embryo will come with it in a softened state. This operation may have to be repeated several times. The Potash should not be left in the egg longer than is absolutely necessary, or it will destroy the shell. Caustic Potash should be used with great care, and kept carefully from the fingers and mouth, and the bottle in which it is kept should be very strong and securely stoppered. With very delicate eggs in an incubated condition, it is sometimes safest to fill the shell with water and let the chick gradually rot; but this is a slow and disagreeable process, and not always possible to carry out when one is collecting in the field. The delicate inner lining of the egg-shell enveloping the embryo, known as the Allantois, must be removed, or the shell will decay. This can usually be done by sucking up water into the mouth and blowing it into the shell through the blowpipe; but if the membrane cannot be extracted in this way, a piece of string or cotton according to the size of the egg should be inserted and twisted about. The lining membrane usually sticks to the cotton and can then be withdrawn.

When neither drill nor blowpipe is available, eggs can easily be blown through two holes, bored one near each end by some sharp instrument such as a pin or sharp thorn, the latter being often quite a useful substitute for a drill.

Egg-drills and blowpipes of various sizes can be obtained at almost any naturalist's shop.

When the egg is blown and dry, the name of the species, locality where taken, and date of taking should be written on the shell above and below the hole, also the number of eggs in the clutch should be indicated, and each clutch distinguished by a letter (fig. 6). If the eggs are too small and delicate to be written on with safety, they should be numbered, and full data written on a paper packed with them and bearing a corresponding number. The name, or at least the initials, of the collector should also be added.

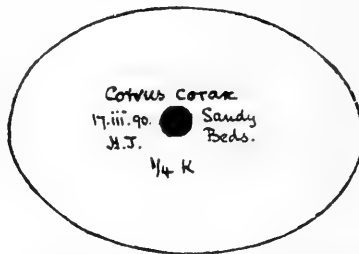


FIG. 6.—Showing the method of labelling an egg. $\frac{1}{4}$ k indicates that the egg is one of a clutch of four distinguished by the letter k

BRITISH MUSEUM (NATURAL HISTORY),
 CROMWELL ROAD,
 LONDON, S.W. 7.

February, 1921.



INSTRUCTIONS FOR COLLECTORS.

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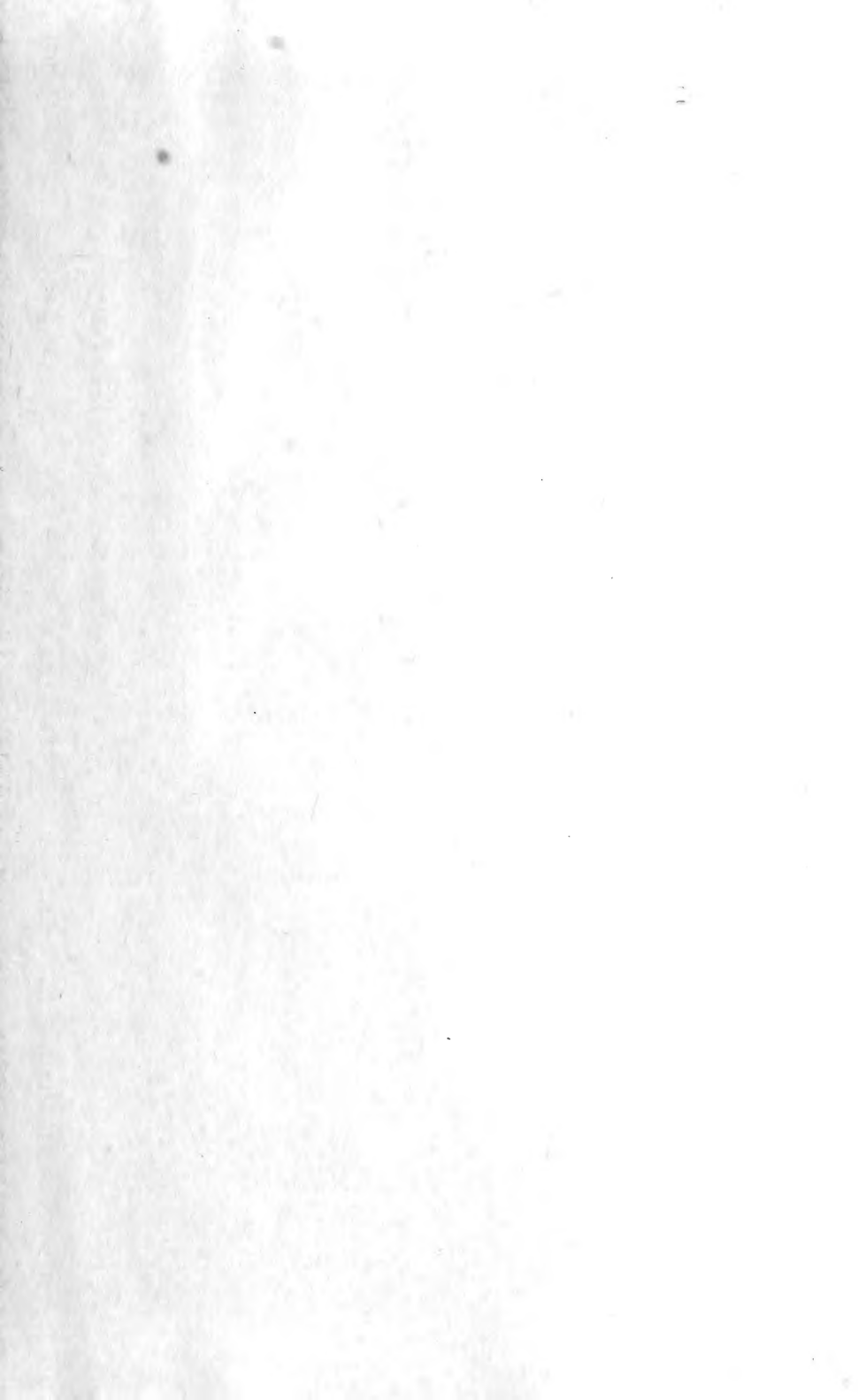
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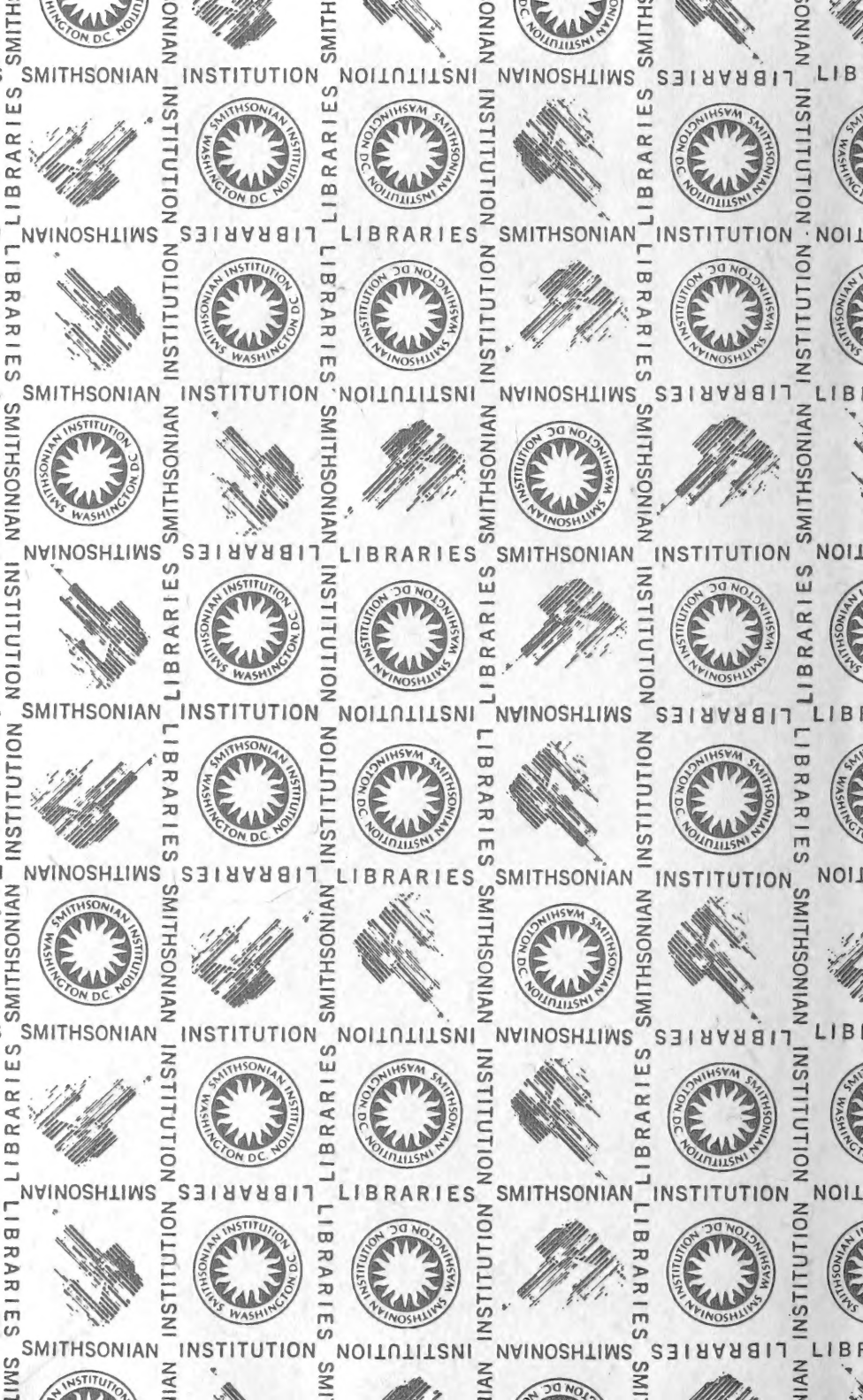
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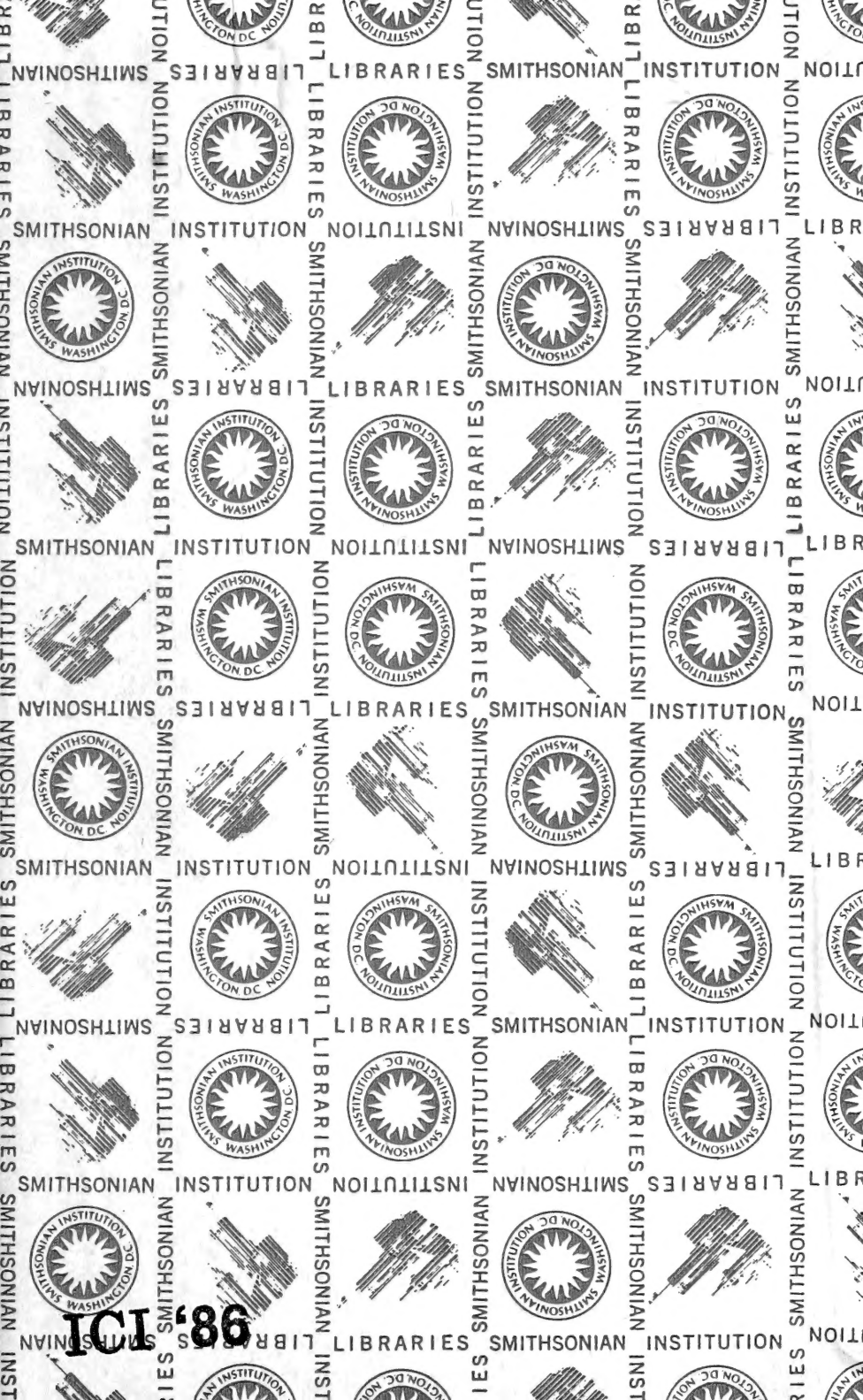
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