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ROWLAND WARD'S  
SPORTSMAN'S HANDBOOK

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ROWLAND WARD'S  
SPORTSMAN'S HANDBOOK

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# ROWLAND WARD'S SPORTSMAN'S HANDBOOK

TO  
COLLECTING AND PRESERVING  
TROPHIES & SPECIMENS

EDITED BY  
J. B. BURLACE, F.R.G.S., F.Z.S.



*ELEVENTH EDITION*  
*WITH NUMEROUS ILLUSTRATIONS*

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1923

## PREFACE

### TO THE ELEVENTH EDITION

OVER forty years have elapsed since the publication of the first edition of *The Sportsman's Handbook*. During this period great changes have taken place, and many new hunting grounds have been opened up. Much irrelevant and superfluous matter has been omitted from the present edition, which aims at giving the collector the best practical information for preserving his trophies from the moment they are killed. Many trophies arrive at the taxidermist's for mounting in a condition which renders them quite useless for such a purpose. The chief reason for this is that the sportsman, having killed a beast, considers his obligations at an end. He hands over the object of many hours of thought and travel, apart from great expense, to natives, who only too frequently are quite unfitted for the duties entrusted to them. If the owner of a trophy will take a little time and trouble, he will, by following the hints contained in the following pages, ensure his specimens arriving in good condition, and himself a great deal of pleasure in the future.

J. B. BURLACE.

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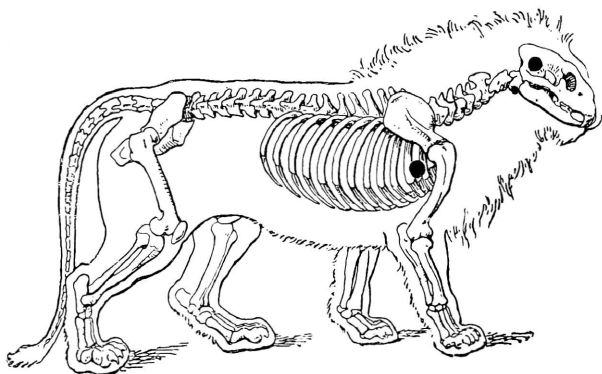
# ROWLAND WARD'S SPORTSMAN'S HANDBOOK

## INTRODUCTORY

WHEN starting from England or any other country on an expedition for collecting that is likely or certain to separate him from the means and conveniences that he can command for money in settled and civilised communities, it is all-important for the explorer or the sportsman to provide himself carefully with everything he is likely to want. But it is more important still that in doing so he should be able to define what are his real wants, and that these should be limited to the smallest possible proportions. He should therefore carefully consider at starting what he should take with him. In regard to most of the apparatus, simplicity is essential to real usefulness.

**Vital Shots.**—The sooner the sportsman realises that his operations with great game cannot be reduced to the regularity of a game of chess, the better will he be able to guard his own safety and succeed in whatever field he may be engaged in. Nothing, indeed, in the way of arms can be of more value to him in such circumstances than quick apprehension, strong, cool courage,

and perfect skill in the use of his weapon. But beneath all this should lie a knowledge of what experience and investigation have shown to be the best way of attaining the desired end ; and one important detail is to know *how and where it is best to strike the game in a vital part*, or in such a way that the animal may be disabled. And here it must be remarked that no amount of book-instruction will equal a small amount of experience ;



SKELETON AND OUTLINE OF A LION, SHOWING VITAL SHOTS.

therefore it is well, when the game is *killed and comes to be cut up*, always to make a careful investigation as to the course of the bullet in regard to its effect on the vital parts. In order to make clear the position of these points, a few diagrams of representative species of animals are given, on which the points are indicated. Speaking generally, it may be said that the brain and the heart are the most vital organs ; but to these must be added the spinal column. Now, with different species of animals, in diverse circumstances, the con-

ditions under which these parts can be reached vary considerably. We may divide big-game animals into two classes: namely, those that are dangerous, and, secondly, those that are not seriously dangerous. These may again be divided into such as are in their natural condition unsuspicious, or quiescent; and those which are furious, aggressive, and apt to charge. To speak first of the members of the cat tribe, or *Felidae*, the place to hit a lion, if you are quite sure of your aim, as you may be if he is quiescent, is undoubtedly the brain. In a lion, and similarly in a tiger, the brain is about

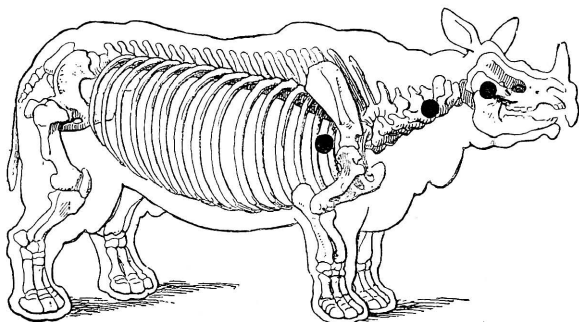


A CROUCHING LIONESS, SHOWING THE HEART-SHOT.

the size of an apple, and small in comparison to the size of the skull, the brain-pan being situated about three or four inches to the rear of the eye (*vide* diagram). The heart is also indicated, and when the animal is broadside-on it can be pierced by a shot behind the shoulder. When he is charging direct towards you, the best shot to deliver is a little to the right or left of the head, straight through the shoulder, for by this you may perhaps pierce the heart, or possibly fracture the spinal cord, while the bullet may traverse the body lengthwise with paralysing effect, or it will—which is most important—shatter the shoulder-bone, and prevent the deadly spring. Rhinoceroses, on the other hand, are best killed by piercing the brain, by fracturing



the spinal column in the region of the neck, or, less satisfactorily, by reaching the heart. For the brain the sportsman should aim behind the ear. The sportsman's position in regard to the animal will determine the possibility of his reaching the spinal column. The hide of the great Indian rhinoceros (*Rhinoceros unicornis*) is different from that of the African species, but in the living beast is easily permeable; still, where there is



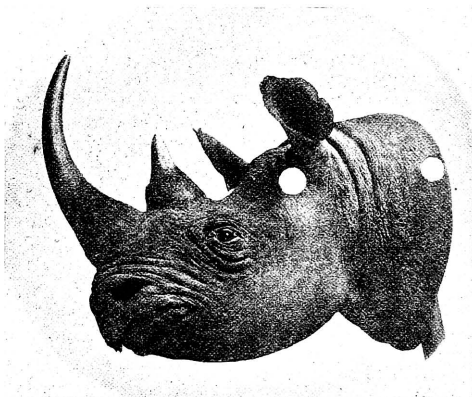
SKELETON AND OUTLINE OF THE GREAT INDIAN RHINOCEROS,  
SHOWING THREE VITAL SPOTS.

room for choice, it is best to shoot between the folds of the neck. -

In regard to African rhinoceroses (*R. bicornis* and *R. simus*) the most fatal shot is the brain-shot, and the aim should be directed to the base of the ear (where the white mark is placed in the figure) when the animal's head is *en profile*. The body-shot and the neck-shot are the same as in the Indian species. When the animal is standing rather sideways and facing the shooter, the correct spot at which to aim is the space between the eye and the base of the ear; but when the

head is in direct profile, the base of the external ear is the brain-shot.

In certain circumstances the charge of an African buffalo or an Indian gaur is among the most dangerous experiences of the sportsman. The same general observations apply ; but the neck and shoulder-shots are to be preferred.

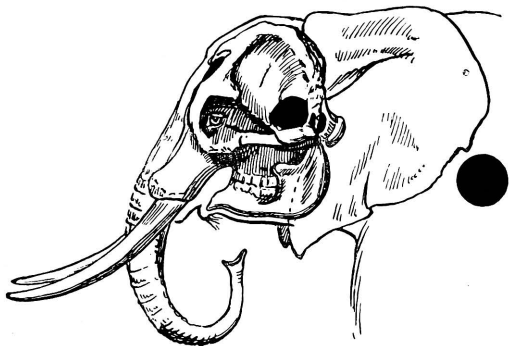


HEAD OF BLACK AFRICAN RHINOCEROS, SHOWING THE HEAD  
AND THE NECK SHOTS.

In regard to the elephants, there is a great difference between the African (*Elephas africanus*) and the Indian (*E. maximus*). The skull of the first is convex in frontal form, while that of the latter is concave. The brain is wonderfully small in comparison to the mass of honeycombed bone with which it is surrounded. The average weight of an elephant's brain is about nine pounds, which is but a minute fraction of the weight of the skull. The Asiatic elephant may easily

be shot dead while charging if pierced in the forehead ; but a similar shot would not be efficacious in the case of the African species. The brain of these creatures is protected by a mass of cellular bone, which cannot well be pierced by a bullet unless it be directed through the orifice of the ear. If the animal be charging towards you, the best shot is in the chest.

In connection with the African species, when the

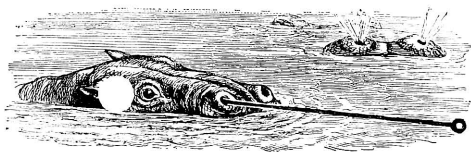


HEAD OF AFRICAN ELEPHANT, SHOWING HEAD-  
AND NECK-SHOTS.

sportsman is manœuvring to obtain a fatal shot, by far the most certain is the orifice of the ear, *if the shooter can obtain a square "profile" shot*. The external auditory orifice, some 9 inches in length, shows up as a black line, offering a definite mark, and the bullet should be placed about the centre or a trifle higher. The body-shot for the heart is not so certain for the novice, since the ears of the different races of the elephant differ markedly in size and shape ; but as the heart forms so much larger a target than the brain, the general direction of

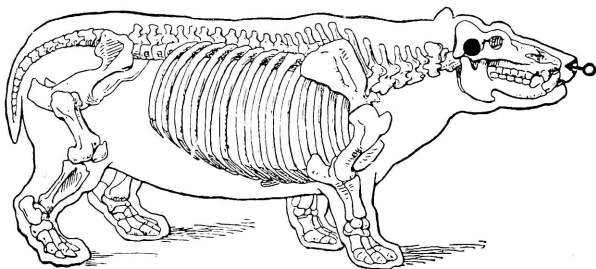
“Aim at the central portion of the outer edge” is a concise indication.

An elephant having received, say, a .450 solid bullet in the heart will frequently charge blindly in any direc-



SWIMMING HIPPOPOTAMUS, SHOWING HEAD-SHOTS.

tion, falling dead in from two to three hundred yards ; and it often happens that when the sportsman is trying to secure the big bull of a herd, a good head- or body-shot is prevented, either by the proximity of its com-



SKELETON AND OUTLINE OF HIPPOPOTAMUS,  
SHOWING HEAD-SHOTS.

panions or by the natural surroundings. In such a case a shot placed in the spine at the root of the tail brings him down at once, after which a brain- or body-shot can be secured.

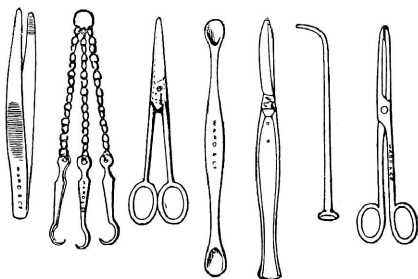
It is almost impossible to kill either an elephant or a buffalo with a shot in the front of the head when charging, owing to the position in which the head is then held, though both may be easily killed by a shot in the front of the head when standing at rest.

Turning to hippopotamus, it may be observed that if these animals are fired at just as they rise to the surface of the water, they should receive the bullet up the nostril, as being the surest road to the brain. When stricken, a hippopotamus sinks, and it may be an hour or two before his body rises ; the time depending greatly on the temperature of the water. If shot on the shore, the heart should be aimed at behind the shoulder, half-way up the body in the line of the leg being the general rule.

Seals should always be shot in the head, the sportsman taking care to aim far back in the head, behind the eye, where the brain is situated. The peculiar conditions under which seals are collected make extreme accuracy of aim important, for unless the brain is penetrated at first, the chances are that the creature plunges instantly from the ledge of ice or other vantage-place on which it most probably has been resting, and, however severely it may have been wounded, is usually lost. Too frequently numbers of these creatures are thus wasted by unskilful hunting.

## APPARATUS FOR SKINNING AND PREPARATION

THE apparatus necessary for the skinning of animals is really very simple, and should be kept to the lowest proportions, as it is the skill with which it is wielded that is more important than the quality of the knife.

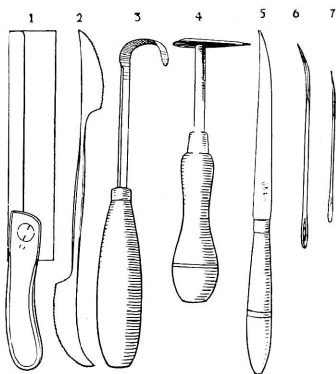


SKINNING APPARATUS.

- |                      |                 |
|----------------------|-----------------|
| 1. Forceps.          | 4. Brain-scoop. |
| 2. Chain-hooks.      | 5. Scalpel.     |
| 3. Scissors.         | 6. Blowpipe.    |
| 7. Scissors forceps. |                 |

A knife, a small saw, a pair of pliers, and perhaps a pair of cutting pincers, are all that are required for operating on the most important game. Some small implements for the lesser specimens being added, this is all the kit that need be carried.

The knives or other implements should be as few and simple as is consistent with real efficiency ; a tiger, for instance, can be perfectly well skinned by a skilful hand with an ordinary knife, costing only a few shillings. Before all things, it must be borne in mind that the value of any object secured and preserved depends on the completeness with which all its natural features



SOME USEFUL TOOLS.

- |                               |                |
|-------------------------------|----------------|
| 1. Bone-saw.                  | 5. Knife.      |
| 2, 3, 4. Example of scrapers. | 6, 7. Needles. |

are preserved, as well as the condition in which the specimens are kept. This is true in degree for whatever purpose the object be designed, but it is essential in regard to specimens for the illustration of natural history. Moreover, at the present day, when many species are split up into a number of local races, the exact locality in which each specimen is obtained is a matter of the utmost moment.

## GENERAL HINTS FOR THE COLLECTOR

DIRECTLY a specimen is secured, inspect the eye and nose, and make a concise memorandum of its colour and any peculiarity of its appearance. A note should also be taken of the colour on the bills, legs, etc., of birds (the brilliancy of which may fade), and particular mention should be recorded of the eyelids and, if they have any, their colour. The same may be said with regard to wattles and other areas of naked skin, because, when these parts dry, the colours not only fade, but absolutely change, so that the taxidermist at home may be led to a wrong conclusion. Never omit and never defer the making of these memoranda.

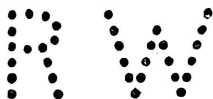
It is better that specimens of all warm-blooded creatures should be cold before operations are commenced.

A useful part of the sportsman's kit is a photographic camera. An animal may be photographed with its surroundings, just as it fell, and the picture may be made a nucleus of interesting and instructive memoranda, of obvious value, as such details are too often forgotten, or the impression made by them effaced.

Nowadays, however, so many freshly killed animals have been photographed as they lay on the ground that such pictures are very common; and in place of this, photographs should be taken of the head, ears, or the whole body in a position that will be of use to the



taxidermist when the trophy arrives in England. The outline of the head is very useful, but a photo of a dead animal with stomach inflated with gas is useless. There have been some wonderful photographs taken recently of animals in their wild state that are very useful in setting up skins; and, in fact, the taxidermist could never have reached his present advanced stage without the aid of instantaneous photography.



MARKING SKINS AND HORNS.

**Marking Skins and Horns.**—Metal labels corresponding to those on the skins, etc., should be attached securely to skulls, horns, bones, etc., so that exact identification may be easy and certain. But, in addition to such labels, skins can always be marked for absolute identification (ownership) in the following manner. With a proper pricker or awl puncture the

owner's initials from the inside of the skin to the hair, as in the diagram. Do this near the root of the tail on the hind-quarters, etc., and pierce right through the skin, unless the specimen is too short-haired. The mark is indestructible, even if it seem to close up, and always becomes visible on cleaning the pelt. When a head is saved, make them on the scalp or neck, but always in one position; and for all future time you have, if need be, an indestructible means of recognition. This is a method of marking usual in the Rowland Ward Studios, and it may well be more widely applied.

For similar reasons, the horns of animals should also be labelled, with zinc labels wired on. Particular attention is directed to this, not only on account of the obvious scientific value, but because much confusion of ownership often occurs when a party shoot together. The distinctive marks or dimensions of individual specimens are mostly so slight, yet so important as to value, that the best endeavours to adjust matters at the end of a campaign often end unsatisfactorily, for in such cases memory is treacherous.

Be as careful as possible in all operations, and especially that no blood or grease, or juices from the offal, injure the feathers or fur. In packing skins and heads of antelopes and deer, it is advisable, so far as practicable, to keep skins apart from skulls and horns.

It is generally far better to attend to the preserving of your own specimens than to trust to native agents or servants; if you are compelled to trust to them at all, never sanction the use of lime in the materials they employ, even as a small constituent. Some natural substances (berries, etc.) used by natives, more especially in India, will change the colour of specimens; the yellow ground of a leopard-skin may, for instance, be thus changed to reddish-brown.

In the case of hollow-horned ruminants, such as antelopes, buffaloes, sheep, etc., turpentine or paraffin should be poured into the horns after the horn bearers or bony cores are dry. If paraffin be used, it should not be allowed to get on the skin, as, on account of its greasy nature, it will do harm.

Saw off the top portions of the horn bearers, as only sufficient to safely carry the horn need be kept.

In the case of unusually large specimens or rare animals it is advisable to take a few measurements, for

although these may not be of much direct importance to the sportsman himself, they are of great assistance to the taxidermist, and may be of real scientific value. With a steel tape record the length from the tip of the nose to the root of the tail, following the curves of the neck and back, and holding the tail at right angles to the backbone. Next measure from the root to the tip of the tail, excluding the terminal hairs. Lastly, measure the ear, taped from the bottom of the V-shaped notch at the base to the tip, excluding the terminal hairs.

A beast having been killed, or a specimen secured, we have to remove the skin, preserving the external natural features as completely as possible. After the skin has been removed, with as few incisions as possible, the question of its preservation has to be taken into consideration. It is essential, in order to secure the best results, no matter what process of preservation is employed, to have the skin thoroughly clean and freed from all flesh, fat, and adhering tissues. In all mammals there is a thin layer of muscle, termed the *paniculus carnosus*, which adheres very tenaciously to the skin, and great care should be taken that this is completely removed; this being most easily accomplished by devoting extra time and care to the process of flaying the carcase.

Decay must be averted by the application of preservatives, and when this has been done, and the skin, etc., properly packed, the trophy may be sent home. The preservative and precautions suitable to an Indian or African climate may, however, have to be modified in North or South America, while those adapted to highlands will fail in lowlands, and forms of preservation which will serve in damp forests may be quite unsuitable to open, dry steppes. There is, in fact, no preservative, or book-recipe, or report of other persons'

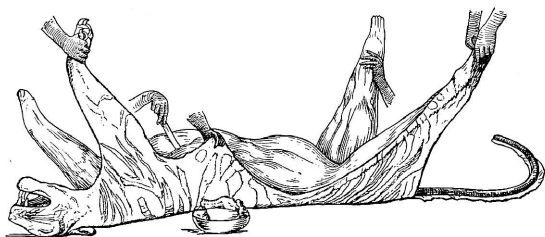
experience that can compare in value to quick, true judgement and cultivated common sense.

The skinning and preparation of one representative of each animal is later described ; and the reader must trust himself to adapt the procedure, by the light of his own judgement, to the specimens, large or small, with which he may have to deal, when he will find that practice soon makes perfect.

**Large Game.**—Should it be desired to preserve the entire skin of a large animal, it must without delay first be turned on its back, and a cut can then be made down the centre of the underside of the body from the chest to the tip of the tail. Large thick-skinned animals, however, should be cut from the lip to the tail, as well as cross-cuts commencing at the back of the hoofs, and running up the centre lines of the backs of the limbs to the hocks and knees, and from there to meeting-points on the hinder part of the belly near the scrotum and at the centre of the chest. The skin should be taken off cleanly without any flesh or fat adhering to it, because flesh or fat in a hot climate soon goes bad and taints the skin, and then the hair on the spot falls out. It should be removed from the whole carcase after a cut has been made from behind the horns, down the back of the neck, through which to pass the skull, and then spread out to dry. In a dry climate in the case of small antelopes, such as Duikers or Dik Diks, it is not necessary to make cross-cuts down the limbs or on the underside of the neck. One cut from the centre of the chest to the tail, together with a smaller one at the back of the head to remove the skull, is sufficient, the skin of the limbs and the neck being turned inside out and afterwards dried with a little

stuffing of tow or dry grass. Once the skin has been removed from the head and neck or the whole carcase of an animal, all flesh adhering must be at once removed. It requires a little practice to do this neatly round the eyes and nostrils, and it is sometimes a very long and tedious process to remove the gristly mass of flesh from the nose of some animals. Thick parts of heavy skins should be pared down in order to take preservative.

With tigers, lions, leopards, etc., the ears, lips, paws, and nose need special care. The ears should be



SKINNING A TIGER.

skinned as close to the skull as possible, as the cartilage of the ears is required if the head is afterwards mounted. The ears should be carefully skinned, so that they form bags, and the fingers can be inserted inside as far as the tips of the ears. This admits of air getting to the ears and drying them quickly before there is any chance of putrefaction setting in. The lips should also be skinned so that they can be turned inside out, but care must be taken that all the black portion of the lip remains on the skin, otherwise there will be difficulty afterwards when the head is mounted in providing proper lips. Having skinned the lips so that they can be turned

inside out, be careful to remove all flesh from inside where the whiskers have their roots, and make a few cuts with knife between the rows of whiskers to put the preservative in. If any flesh is left here it is certain to go bad before the skin dries, and the hair will then slip, *i.e.* fall away. The spongy fatty substance inside the pads of the feet should be cut away, for this also takes long to dry, and in a hot climate decomposition sets in before it can dry.

After having freed them from all meat and gristle, rub a mixture of equal parts of salt and powdered alum over all parts of the skin, especially round the eyes and nostrils, lower lip, and both the inside and outside of the ears; then put the skins out to dry in the shade—keeping the face part open at first with sticks—so as to allow air to circulate through them, gradually drying them quite flat by putting stones on them at night.

It must be borne in mind that no matter how cleanly the skin is removed, unless the lips, ears, nose, and paws are treated as just explained, they will take a considerable time in drying, and in a hot climate these parts will go putrid.

Before putting skins away for any length of time, carefully examine the hair side, ears, hoofs, etc., and along the folds of the skin, as it is in these folds that the destructive bacon-beetles (*Dermestes lardarius*) may always be expected to attack a skin (see page 67).

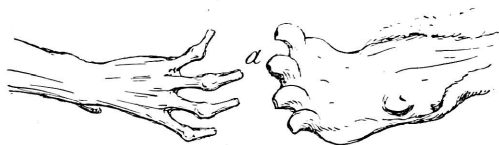
During the rainy season skins should be opened and examined every few days, and before being packed up for transport to England should be well sprinkled with turpentine or naphthalene, and folded with the hair side inside. It is necessary with large and heavy skins to safeguard them against rubbing with old blankets or sacking.

Skins for mounting should not be pegged out, but simply spread flat on dry ground, and allowed to shrink as they dry. Never dry them in the sun.

Should a lion be shot in hot, steamy, wet weather, the best chance of saving the skin would be to stretch it out within a framework of four poles, small holes being cut round the skin, by which it can be tied to the poles with string or bark. This framework can then be stood on



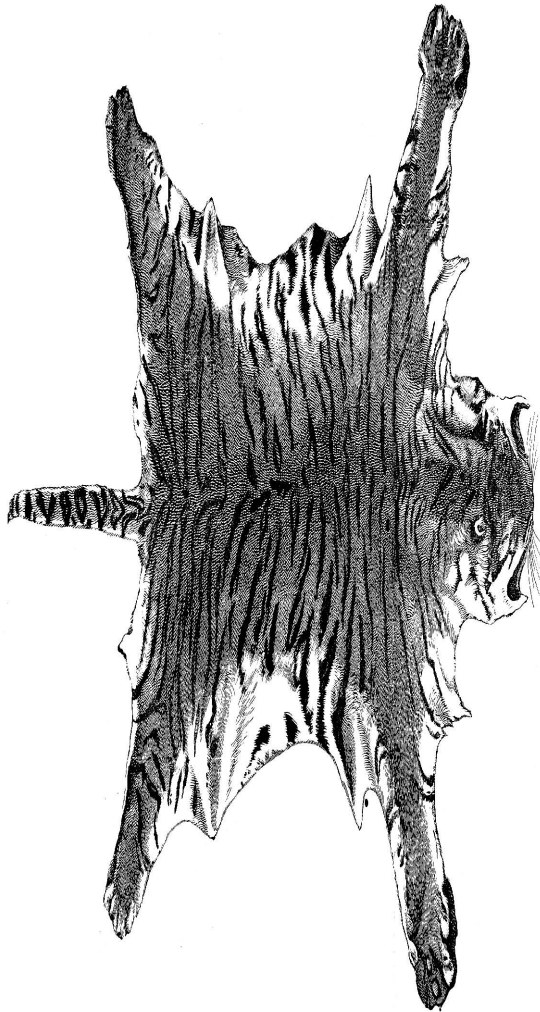
PAW SKINNED FIT TO STUFF.



SKINNING PAWS OF A TIGER, LION, ETC.

end in the shade of a large tree, so that the air can get at the skin from all sides.

The last toe-bones may be left in the skin, whether with the smaller specimens of the cat tribe or antelopes and deer; but in big animals, such as an elephant or rhinoceros, it is better to remove them altogether. Exercise particular care in separating the ears and the eyes from the skull, and in working round the lips and eyelids. The lip must be treated by passing the knife between the mucous lining and the outer skin all round the mouth, so as to allow the preservative completely



SHOT BY H.H. THE MAHARAJA OF GOUGH BEMAR.  
(Length before skinning, 10 ft. 1½ in.; dried, 11 ft. 7 in.)  
Indicating the correct shape of a raw skin. See Lips, Pads, etc.

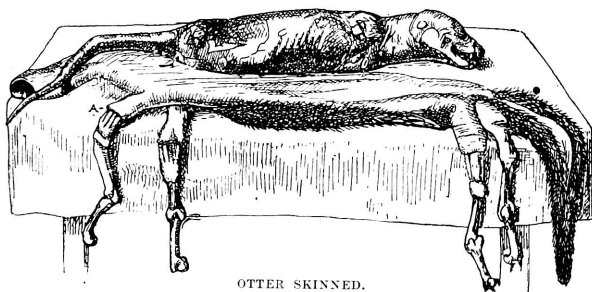


to penetrate this thick portion of the specimen. The eyelids must each be treated in a similar manner for the same reason. The lips must be cut off close to the gums and split (see p. 16, etc.). The ears should now be severed from the skull close to the bone. The cartilaginous portion of the ear must be turned through to within about a quarter of an inch, or even less, of the ears—an operation entailing time and patience. Finally, great care must be taken that the claws or hoofs are well kept, this being specially necessary in the case of tigers, whose claws (and whiskers) are valued by the natives.

In preparing skins the skull and the bones of the legs are to be left in the skin. The animal being placed on its back, make an incision from the *sternum* (breast-bone) to the root of the tail; separate the skin from the carcase, so far as can be conveniently reached, and sever the limbs from the body at the shoulders and thighs. Each limb can then be drawn out—as a glove might be turned inside out—but the bone must not be separated at its junction with the toe, nor the skin of the foot or leg be in any way injured. Next remove the muscles from the bone, which can best be done by cutting the tendons near the toes and carefully drawing the whole mass away at one operation, so that it will come in one piece. The bone will now be clean. Next cleanse the skin of the limb, and at the same time the other parts of the skin, of all superfluous flesh and fatty matter. Dress the inside with Taxidermine, and apply some kind of preservative powder, or even wood-ash, particularly to the fleshy parts, such as the eyes, nose, lips, and feet. Then replace the bones in the limbs—having previously, if possible, bound them with tow, or similar material, but not wool—so as to represent the muscle that

has been removed. Place a portion of stuffing in the skin of the head and trunk, and suspend the specimen to dry. Alum being a most powerful astringent is liable to dry up the skin too much for mounting, but small quantities are useful on some occasions to set hair.

The tail may be treated in two ways. With an otter, for instance, as shown in the illustration below, it should be cut underneath to the tip, and the bone removed; but in the case of a fox, and most other small mammals, it should be treated thus:—Sever the



vertebrae from the trunk close up to the body, leaving the tail in its sheath. Then turn back the skin until enough of the tail protrudes to fasten securely with a string that can be attached to a hook, or tree, or other firm holding. Next, with a cleft stick, or the handle of your pliers, pull the skin-sheath down toward the tip, and the vertebrae will come away whole, wrinkling the skin to the end. Finally, dust Taxidermine or other preservative powder into the cavity.

**Small Mammals.**—Small mammals can also be preserved for dissection and preparation, when necessary, in

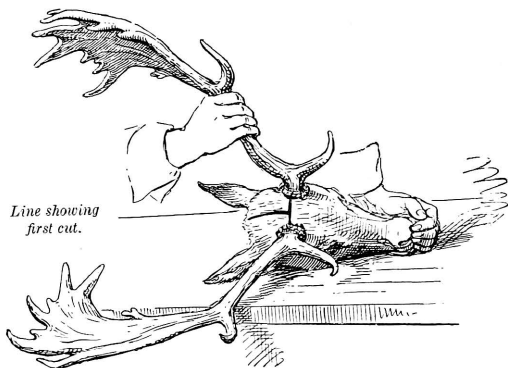
spirit, or, as described in the cases of large skins, in liquor. When they are thus treated, an incision must be carefully made in the trunk, and the intestines, with as much blood, mucus, etc., as possible, removed; the liquid will then penetrate, and the carcass should be soaked in spirit or liquor for some time, in order that the fluids out of the body may be drawn out, after which the specimen should be removed into fresh spirit, strong enough to light with a match, and so packed. The receptacle should be completely filled.

**Heads of Animals.**—Special attention may now be directed to the heads of animals, as it frequently happens that it is desired to save these for preservation as trophies, while the rest of the skin is either abandoned or reserved for rugs. Heads with antlers or horns are prepared for preservation either on the naked bone, or for setting up to imitate living nature. First make a cut at the back of and between the horns, and from the centre of this incision make another cut all down the back of the neck to just in front of the shoulders, and from this point cut down on both sides of the neck to the centre of the chest, so as to secure a full length of neck skin for mounting. It is well to remember that although it is impossible to add to the length of a neck skin cut too short, it is an easy matter to shorten one.

The necessary cuts having been made down the back and round the base of the neck of the dead animal, turn it on its back, and after lifting the head fix the points of the horns in the ground, and holding the carcass by the chin pull forwards. Then commence to skin from the chest, always pulling the skin forwards, until the back of the lower jaw and the bases of the ears have been reached. Then cut straight through

the throat to the point where the vertebrae join the base of the skull, from which it will be found, if the carcase is held in the way suggested, that the latter can easily be separated, even in the case of such large animals as buffaloes, with an ordinary skinning knife.

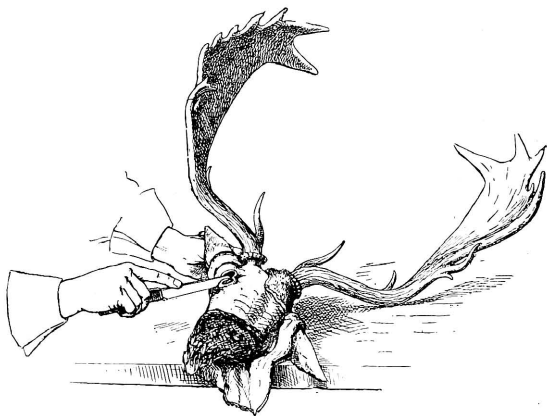
When the head has been severed from the body of an animal, the first thing to be done is to make cuts all round the bases of the horns. In separating



FALLOW-DEER HEAD.

the skin from the burr or base, the knife should be used neatly, with a plunging action of the point, so that not a particle of hair or skin is sacrificed at this part. Then the cartilages of the ears must be cut off close to the skull, from which the skin can then be removed, care being taken in skinning round the eyes not to cut the eyelids and nostrils. In clearing the scalp be very careful not to let the knife injure the skin, and more especially the eyelids, nostrils, and ears. The delicate skin round the eye is nearly hairless, and

must not on any account be torn or jagged. In a head the eyes and nose are the most prominent parts, first claiming attention. In treating the nostrils and upper lip, operate from inside the mouth ; sever the lip neatly high up the gum, over the teeth, and in like manner detach the lip below. The skin presents in these portions a remarkable thickness, into which, from the



SEVERING THE EAR FROM THE SKULL.

inside, a neat midway incision should be carried all along, so that the preservative may penetrate and be carefully rubbed into the cut in order that these parts may be saved properly. The wood-ash or salt-alum process is perhaps the best ; but if more convenient the skins may be preserved in pickle (see p. 63). Clean the skin of all fat and flesh ; rub in the preservative, except on the outside of the nose, and hang up the skin to dry. If there should appear any likelihood of the

short hair round the eyes and nostrils slipping, apply the preservative carefully. When the head is that of a wapiti, and is to be set up with the skin on, it may be a matter of great convenience in packing the horns to saw the skull in two, longitudinally, by which much space will be gained. If, however, the trophy is to be



REMOVING SCALP FROM CORNER OF THE EYE.

mounted with the skull alone, this is inadmissible; and it should in no case be adopted with smaller heads, which are, in fact, quite destroyed by cutting, the skull being much weakened, and at the end of the journey often broken to pieces, a state of things necessitating much extra labour and expense. For preservation in the bone, the flesh may be roughly taken off and the skull cleaned by boiling, by maceration in a stream,

or by burying for a sufficient period in an ant-hill, or in sand, on every occasion. But be sure to keep the specimen from dogs or other animals. In regard to



SEVERING THE LIPS FROM THE SKULL.

the ears, when the skin is removed, and the cartilage separated close to the bone, trim it neatly with the scissors so as to remove all not wanted inside, but do

not take too much, or an unsightly hole may appear when the head comes to be mounted. Next insert the thumb and finger from the inside so as to separate the inner from the outer skin, forming, as it were, a flat bag; but do not carry this separation too near the edges. Into the line of division preservative must be carefully put. Hollow horns (as of sheep, antelope, etc.) have bony cores, from which they may be detached and packed separately; and in such animals the skull should be kept, and so much of the tips of the cores as seems superfluous removed.<sup>1</sup> The horns of buffalo, antelopes, goats, sheep, and gazelles should, when possible, be taken off and the grease and blood removed. If the bearers of the horns, as well as the inner sides of the horns themselves, be well dressed with paraffin or turpentine, it will save all risk of damage by insects.

When time and circumstances permit, there is a method of cleaning large skulls which may be useful. Tie a rope round the horns or antlers to secure them to the edge, and cast the skull into a stream or tank. In the case of the hollow-horned ruminants, the horns will become loose, and may then be removed from their bony cores and cleaned, the skull being left in the water until the flesh decomposes and can easily be scraped away. Ordinarily, however, it will be found that numberless small fish will be at work on the skull night and day, and will clear it of all extraneous matter if time enough is allowed.

Another method is to bury the skull or bones, after the flesh has been removed, in wet sea-sand; care being taken that only the bones or skull, and not the horns or antlers, are buried.

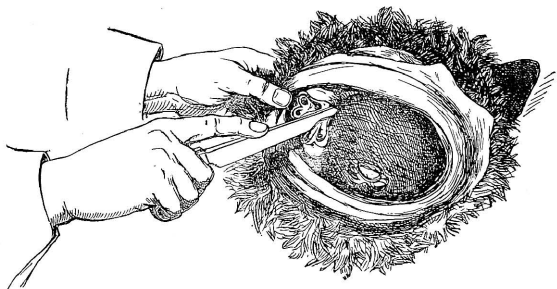
The skulls of *felidae* should be cleaned and the teeth

<sup>1</sup> See special instructions for packing, p. 66.



coated with a layer of grease and then tied up in a calico-bag and placed in a separate compartment of the packing-case. Stuffing should, moreover, be put into each compartment to prevent the specimen from being injured. The wash for teeth mentioned above may be made of wax. As the tooth dries, in hot climates, it often splits, both in the ivory and in the enamel; wax or grease tends to prevent this action.

In regard to preservative applications, it may be mentioned that since the publication of the first edition

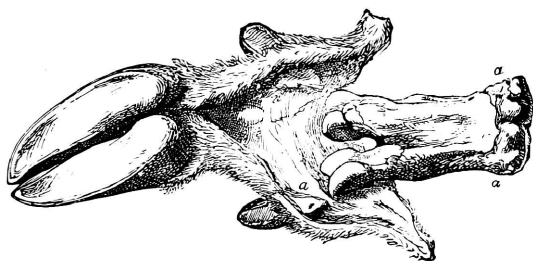


TURNING BACK SKIN OF FOX'S EAR.

of this book a strong reaction has arisen against the use of preservatives containing arsenic, which are highly poisonous. For all trophies it has long been our practice to use a non-injurious compound of our own invention, so that the danger inseparable from the use of poison might be avoided. As its superiority in all cases has now been completely proved, all trophies, great and small, in our studios are treated with this preparation; and having ceased to employ or supply arsenical paste, the needless risk incurred by the use of poisonous preparations is to be deprecated. There

are, indeed, conditions under which both means fail in the hands of those who are doubtful as to their value; but no preservative is preventive of the effects of neglect, or efficacious when there is incompetence in its application.

All mounted specimens require periodical attention for their permanent preservation; and if an owner has a collection of mounted heads, skins, birds, etc., and leaves them without any attention, he must not be surprised to find the ordinary agencies of decay working ruin on his specimens. His housekeeper does

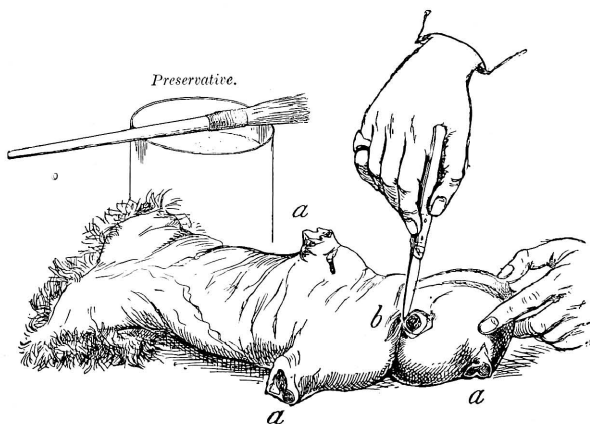


ANTELOPE-SLOT PRESERVED.

not so treat her blankets or curtains, but by timely attention keeps them safely so long as they will resist ordinary wear. In like manner the brushing-out, and re-dressing with "insect-death" or petrol, of natural history specimens retards or prevents their decay.

A great deal of the above description applies to the skinning of a fox's mask, which is illustrated because it is an operation which frequently exercises the amateur, and it well serves to exemplify the proper treatment of most hornless animals. The illustration on p. 27 shows the process of turning back the skin so that the cartilage of the ear may be operated on;

while the cut below is designed to explain the delicate operation of treating the eyelid—a part of the work over which the greatest care must be taken. The removal of the lip at its juncture with the gums, and the cutting of the nostrils, are treated in the illustration on p. 25. To preserve the feet or slots of the *corvidae* or smaller mammals properly, the skin should be slit

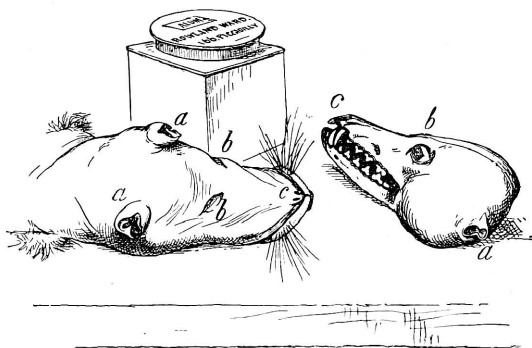


SKINNING FOX HEAD.

longitudinally at the back, but not detached from its juncture with the horny substance. In the case of large animals, it is advisable to extract the toe-bones from the hoof; but if this cannot be done, the knife should be passed all round them so as to ensure their complete severance from the surrounding tissues. All flesh, muscle, and sinew should be removed, as well as all bone not required. Finally, scrape the skin, after which preservative should be applied. In the

illustration the bone is depicted as it comes away from the hoof.

A common source of trouble to the sportsman in Africa, India, Ceylon, etc., is the proper treatment of an elephant's foot. This part, as well as the head, is a recognised trophy, since it affords a gauge of the height of the animal, and also because in ordinary circumstances the skin of this mighty beast is so difficult of transport; and although it can be converted into



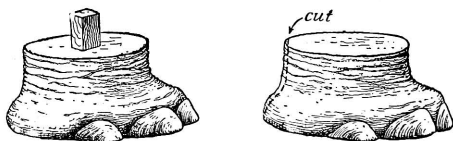
FOX-MASK SKINNED.

innumerable articles of domestic utility, its value is by no means always appreciated. In the case of the foot there are, however, no such difficulties, and it is particularly suitable for conversion into useful articles, without impairing its natural form and structure.

The fore-foot should be severed either at the so-called knee (that is, wrist) or at least 12 inches from the ground, and a cut can be made, if necessary, down the back side; after which the skin must be separated from the flesh. Remove every particle of flesh, because

if any is left it is liable to get tainted, when it will be impossible to get rid of the odour. If possible, wash the inside of the skin with carbolic water, or apply powdered preservative both inside and outside. Then place the foot to dry in the shade, taking care that the skin does not fold and is in all parts accessible to the air. Although not absolutely necessary, it is desirable that the skin should dry in the natural shape. It is a good plan to insert a big bottle or a block of wood in the centre, round which dry sand may be rammed, so as to distend the skin as nearly as possible

*Block of wood.*



PRESERVING AN ELEPHANT'S FOOT.

to the natural shape. The sand may be changed as required for the drying.

Another way, after severing at the knee, is to cut along the back right down to the sole, and also across the latter in the form of a cross, and then skin. By this method it is much easier to extract the flesh, although more difficult to get the skin back to its original shape. Take great care not to damage the outer skin or epidermis whilst skinning; even with ordinary care this is very apt to happen, as during the process this is on the inside. It becomes, however, the side that is visible when the trophy is completed, and many specimens are rendered useless through neglect of attention to this detail.

Yet another way, if there is no time to carry out the former methods, is to proceed as above, but, after cutting along the back of the foot to the sole, to run the knife right round the latter, just behind the toes, and remove the central piece of skin. By this process it is quite easy to get all the flesh out, but it means that the foot is brought home in two or more pieces, so that care must be taken not to lose any portion. The central piece of the sole that is taken out may be made into a handsome tray.

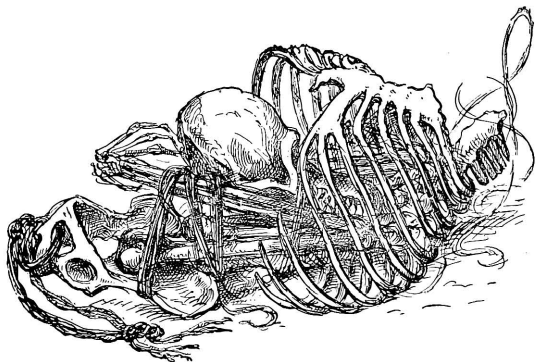
Rhinoceros and hippopotamus feet may be treated in the same manner as those of elephants, but should not be cut down at the back.

It is, of course, important that the foot should be protected from insects, and to this end, when the specimen is quite dry, saturate it as thoroughly as possible with turpentine.

The purposes to which portions of trophies of this nature may be put are varied, and, indeed, almost endless; and many a sportsman when he has arrived home has wished he had been aware of this while in the field. Portions of the hides of elephant, rhinoceros, hippopotamus, crocodile, etc., may likewise be treated for a variety of useful purposes.

The shields or plates of a rhinoceros—the thick portions of the hides between the folds—should be brought away entire, and can be made into table-tops, trays, boxes, inkstands, sticks, whips, etc., which, if kept dry and free from undue heat and damp, will retain their shape. In the Rowland Ward Studios a beautiful surface-effect can be obtained under an exquisite polish. The skin may be cut into strips of about 27 inches square. It must be remarked, however, that sticks thus made, although

beautiful, are not well adapted to all purposes ; because, if bent or exposed to damp, much of their beauty—they look like semi-transparent amber—is deteriorated by an opacity that clouds their lustre. They are indeed more ornamental than useful ; but for paper knives, trays, boxes, bowls, inkstands, tables, etc., the material is admirably suited.



SKELETON OF AN ORANG-UTAN READY TO PACK.

**Skeletons.**—When it is desired to save the skeleton of an animal, the procedure should be as follows : Having removed the skin, cut the fleshy parts away, and let the bones dry, as intact as possible, leaving sufficient flesh, etc., to hold the skeleton, as illustrated above ; this need not be done too closely, neither is it necessary or desirable in the operation to separate the joints. In hot climates the teeth, especially of the felidae, should be encased in wax or grease of any sort to prevent cracking.

**Birds.**—In dealing with birds care should be taken, directly they are shot, that the plumage be not broken or injured by putting many of them together in a bag and that the blood from one fresh specimen should not injure another. Instantly plug up with cotton-wool the throat, nostrils, and all shot-holes. Rare examples can be isolated in cones of paper, or otherwise, as soon as secured. It is often advisable to save at least the *sternum*, or breast-bone, with the *coracoids*, the *furcula* (merry-thought), and *scapulae* of birds, and also the skull, when the skin is not preserved.

Pay particular and unvarying attention to the labelling of specimens.

Labels of convenient, durable material should be provided. Note thereon: Date; a number; where killed; native name; scientific name; sex; locality; habits observed; colour of the eye, etc.; and any other peculiarities of colour. To sex a bird, examine the reproductive organs in the inner regions of the loins, and if male mark it ♂, and if female ♀.

This question of ticketing, and the preparation of the label, is all-important. There is little if any doubt that the brilliant colours of a fresh, healthy specimen at the moment it falls always deteriorate, and are sometimes totally altered under treatment by any preservative. Therefore, when the "colours" are noted, the collector should, if possible, always put on his label a blot of water-colour pigment to reproduce, as near as possible, the brightness and quality of the tint. Although this may need some ingenuity, it will not be found difficult; a few cakes of water-colour and a brush take little space, and the gain by this record will be great.

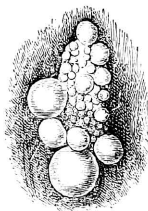
The sex of a bird can frequently be ascertained only



by dissection: as, for instance, in nestling birds, or in adults where both sexes are coloured alike, *e.g.* the common snipe. In such cases, after the body is removed, slit up the right side and push the intestines aside with the handle of the scalpel. Then look carefully for the sexual glands, which will be found on the back, at the top of the kidneys. In the male a pair of oval, yellowish, or in some cases black, bodies will be found, varying in size with the season of the year. In the breeding season there can never be any difficulty



MALE.



FEMALE.

## THE SEXUAL CHARACTERISTICS OF BIRDS.

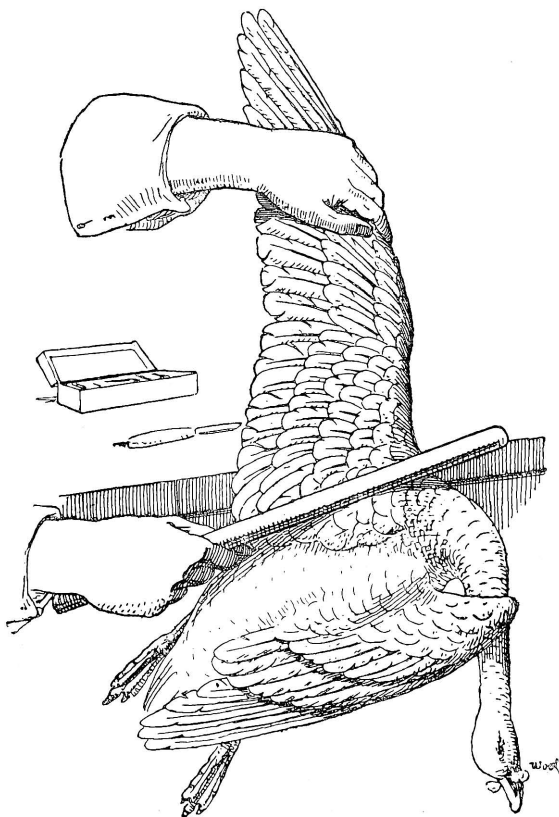
in finding them, as they are very large; but at other times it is not so easy. With nestlings, or birds which have been shot through the back, it is often impossible to detect sexual glands at all. In such cases a careful search should be made for the oviduct. This takes the form of a long, sinuously curled tube running along the kidneys, on the left side. In the breeding season it is easily found; not so easily at other times. But there need never be any doubt. It is attached at one end to the hinder end of the gut; at the other, by a long, slender strand, or thread, to the rib lying immediately above the kidney. The attachment to the rib is

always traceable, but in birds which have been skinned the hinder attachment to the gut is always severed. In the case of very small birds and nestlings it is often, helpful to cut off the breast-bone, remove the intestines, and place the body in a shallow dish full of salt water. The oviduct then floats, and will be found to be attached to the roof of the body cavity by a delicate sheet of membrane. Often there may be uncertainty as to the presence of eggs, but the oviduct is always present. Hence, where no testes can be seen, a search should be made for the oviduct. If this is not found, then the bird is a male.

There is one pitfall to be avoided. In young birds a pair of glands known as the suprarenal capsules will be found also at the top of the kidneys, but a little higher and nearer to one another than the testes should be, which they otherwise resemble, and for which they are commonly mistaken. Hence, in *all* cases the oviduct should be looked for rather than the testes. If these are so large as to admit of no mistake, well and good—no further trouble need be taken; but whenever they are small the sex should be established rather by the presence or absence of the oviduct than the presence or absence of testes. For, as we have remarked, while there may be mistakes about the latter, there can be none in regard to the oviduct, the tube down which the egg passes from the ovary, and in which on its passage it receives its shell.

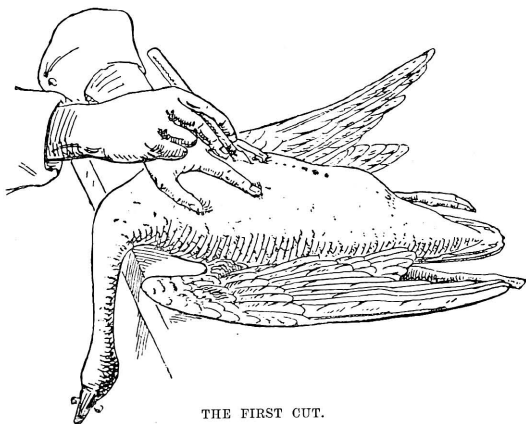
In preparing the skins of birds, the first operation, after having seen that the cotton plugging of the throat, nostrils, and the shot-holes is safe, is to break the upper wing-bone (*humerus*) of each side close to the body. In the case of a large specimen, the most convenient and effectual way to do this is to hold the bird pendent

by its wing against the edge of a table or board, so that the bone may be fractured by the sharp blow of a stick, with as little rough treatment as possible.



BREAKING THE WING-BONE.

But the skilful accomplishment of this is the gist of the whole work; and the wing must be held by the upper feathers, pressed flat by all the fingers against the palm, so that the manipulation does not crush or even seriously disturb the lay of the plumes. The blow with the stick must be a firm, quick stroke of sufficient strength to accomplish the fracture of the limb and not simply to bruise the flesh, or so rough as,

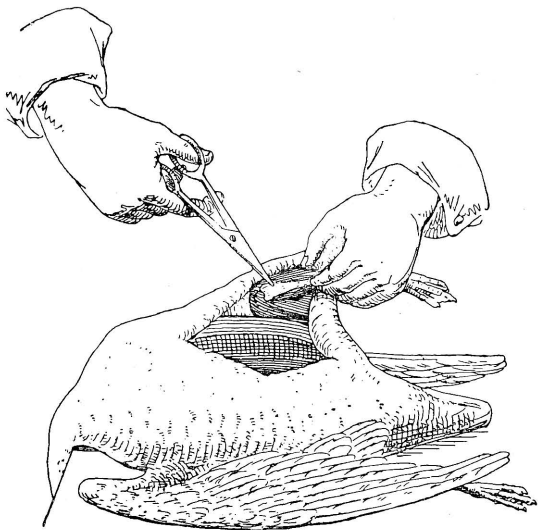


THE FIRST CUT.

in breaking the bone, unduly to mangle the whole structure. The firmness of the board or table-edge is a great element in the neatness of this operation. The action of the hand will best be seen from the illustration on p. 37.

This is the method for treating large birds. In the case of small specimens—that is, anything less in size than a blackbird—the wing-bone may be broken by the thumb and finger, or at<sup>o</sup>most by the forceps.

The wing-bone being thus broken, place the bird on its back, with the head towards you, in order that your knife may, what is technically called, "go with the grain of the feather." By this is meant that the point of the knife should be deftly inserted under the

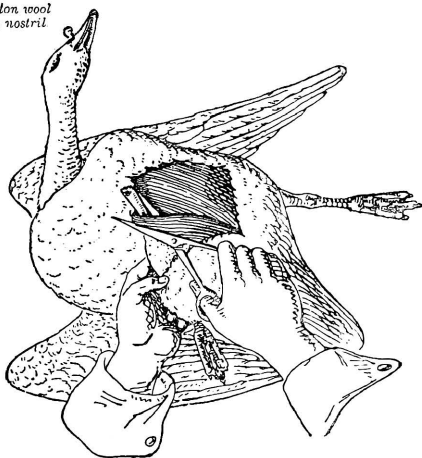


SEVERING THE LEG-BONE.

skin, just at the end of the breast-bone ; after which the skin should be raised till it bags, when the knife must be pressed forward in one clean, continuous incision as far as the vent, so that the skin may be separately severed and the flesh remain uninjured. Amateurs are constantly inclined to make their first incision from too high or too low a point ; and they

are also prone to injure the stomach in some part. The opening thus formed in the skin should be no larger than is necessary for the withdrawal of the body, since it is for this purpose alone that it is made. Indeed, with birds that have breasts of specially beautiful plumage and short feathers, as well as with diving and swimming species, it is often desirable to

*Cotton wool  
in nostril.*

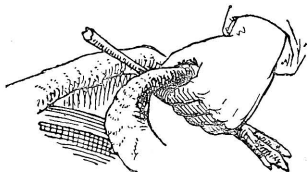


CUTTING THE TENDONS NEXT THE TARSUS.

make the incision under the wing instead of along the breast; the object being to get the body out of the skin in the cleanest possible fashion, so that no grease or fluid may soil the plumage. The advantage of a neat operation, in which the body remains practically unbroken, will be at once apparent. Sometimes it may be desirable to take the body out through the back, when the incision is made in the same manner as it

would be on the breast. In fact, the features to be especially preserved will rule the operator's choice in this respect; but it is presumed that the cut will be made from the breast-bone, as seen in the illustration on p. 38.

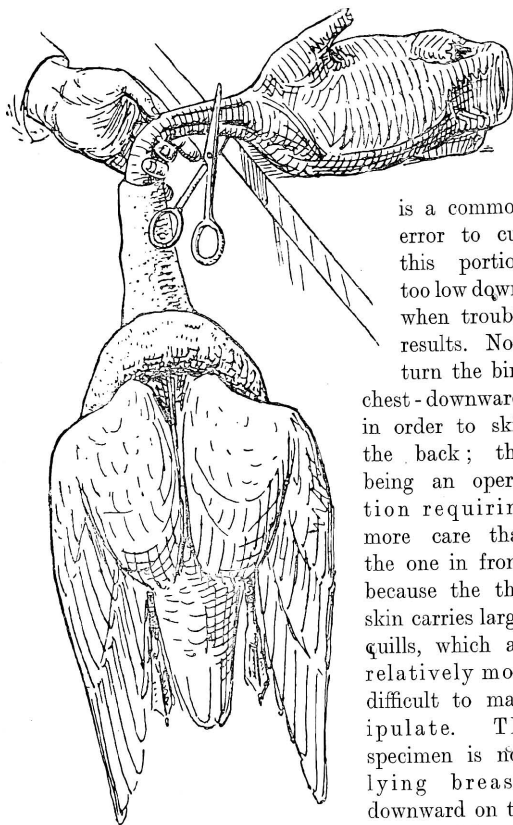
Now put down the knife and insert the fingers, which are the best instruments, under the skin of one side, and clear the skin from the flesh in all accessible parts. Then insert below the skin a sufficient quantity of dry plaster of Paris, or such other suitable material that may be at hand, to absorb any blood or other moisture. Treat the opposite side in like manner. Next proceed to force out the leg, to do which hold it firmly above the joint, and force the thigh through the aperture,



The bone when thus freed should appear as above.

at the same time carefully drawing off the skin; insert the point of the scissors below the flesh next the bone, and move them skilfully up between the bone and the muscles, until, by raising the right hand a little, the scissors can be made to nip the bone transversely just against the joint. Cut the bone through and thrust it out from the flesh, and with the scissors cut the tendons next the ankle, or *tarsus*, and the whole muscle of the thigh will come away in one piece, leaving the bone clean. The bone must now be cut near the knee-joint, leaving the head of the thigh-bone, or *femur*, which is useless, with the flesh attached to the thigh and body. Having thus treated both legs, skin up to the root of the tail, but in severing the vertebrae

leave the whole triangular projection in which the feathers are imbedded for subsequent treatment. It



FREEING THE BODY.

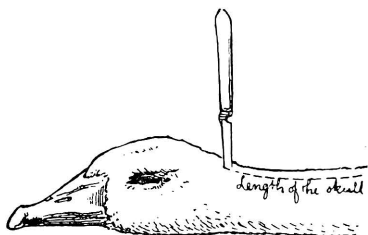
is a common error to cut this portion too low down, when trouble results. Now turn the bird chest-downward, in order to skin the back; this being an operation requiring more care than the one in front, because the thin skin carries larger quills, which are relatively more difficult to manipulate. The specimen is now lying breast-downward on the table, with the



head towards you; and the whole skin of the tail should be drawn over the back, where it may be cleared by the blunt side of the scalpel, and the body will then be freed down to the wings. Next free the body by cutting the flesh through with the scissors at the point of fracture of the *humerus*, and separate it from the skin until only the neck remains to be severed, as shown in illustration.

The next step, which requires judgement and dexterity, is to get the head away. With ducks, geese, and similar birds the head is too large to come through the neck-skin; and in such cases an opening must be made neatly

from the back of the head, about two inches down the neck, of sufficient size to admit of the skull being removed for cleaning. Through this orifice force



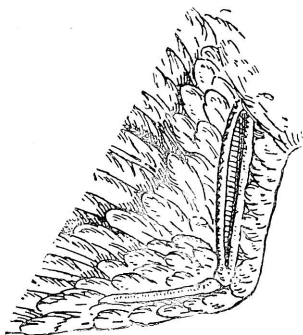
THE NECK INCISION.

the skull, skinning it carefully until past the eyes, and in doing this pay particular attention not to inflict any injury on the edges of the eyes or the ears, which should not be touched rudely by the knife. Cut away the back part of the skull, with the neck, tongue, and palate, and remove the brain and eyes. The whole skin being now in a condition to be cleaned and prepared, the next thing is to take away all fat and flesh, and make the skin as clean as you can; then dress the inside with Taxidermine. Bind some tow or wood-wool round the leg-bones where the muscle was, so as to restore them to their proper

position. Put plugs of cotton-wool in place of the eyes, and, having forced Taxidermine into the skull, return the latter to its place. In the case of large birds—the specimen figured is a goose—the wing must be treated by opening the skin from the outside along the bones as shown below, removing the muscle, without disturbing the quills which here join the bone. It is important to bear this in mind, for if a serious error be made

here the wing will be shapeless. Small birds may be treated from the inside.

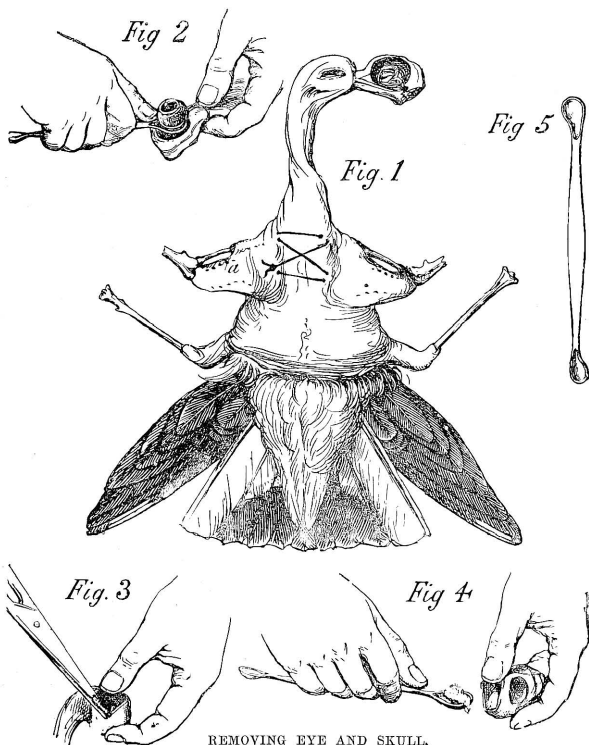
The operations necessary in preparing a peewit are shown on the cut on p. 45; the specimen having the skin reversed, and showing how the flesh can easily be removed from the inside without undue disturbance of



TREATING THE WING.

the wing-feathers from the bone. The stitching necessary to take up the loose skin of the back is shown between the wings. A particular feature of this operation concerns the head. Carefully note that the skull in the case of the peewit and birds of similar structure is sufficiently small to pass through the skin of the neck entire and without injury. The skull of many birds will not, however, allow of this method of procedure; but a nice discrimination will guide the operator to success in this delicate operation. Fig. 2 shows the method of removing the eye—a “gouging” operation

in which the instrument represented in Fig. 5 is employed. Fig. 3 demonstrates how the skull should



REMOVING EYE AND SKULL.

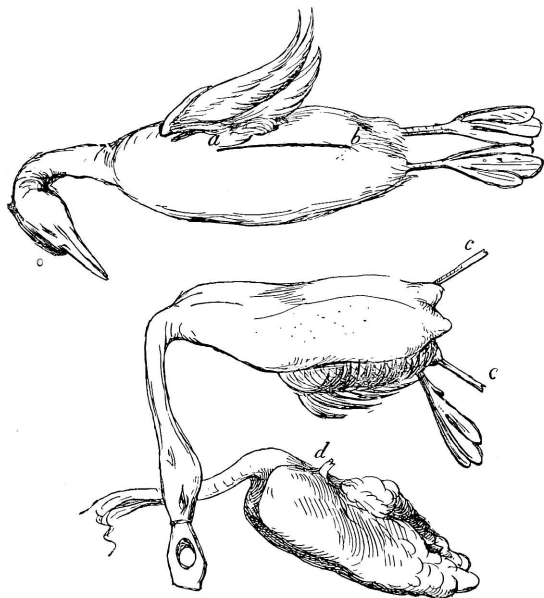
be cut for removal of the brain, the scissors being employed. Fig. 4 illustrates the removal of the brain with the aforesaid instrument (Fig. 5) after the skull has been properly severed.

In the case of such a bird as a grebe, the feathering of the breast—its principal ornament—is so exceptionally delicate that particular care is required in its treatment. It is better not to touch it with the knife, but the incision of the skin should be made laterally out of sight, under the wing. The illustration on p. 47 shows, *a b*, where the cut should be begun and ended; the central figure presenting the skin reversed as taken from the body, *d*, the leg-bones (*c c*) and wing-bones protruding.

It is not desirable to apply powdered alum to bird-skins, as it tends to make them brittle. The specimen should be filled out by stuffing to the natural size, and a band of paper placed round it in order to keep the wings and other parts in proper position till dry. During the whole operation very fine wood-dust, dry fine sand, or (if the bird is not black) dry plaster of Paris, or other dry powder, should be freely employed to absorb blood and grease, so that the plumage may be kept clean.

When the skin of a bird has been taken off in the manner set forth above, there is a proceeding which it is important to observe, technically called "making the skin." This is in reality a part of the operation of skinning; indeed, that part of it which consists in finishing the work in an artistic manner. While the skin is fresh and supple it should be so disposed that as it dries it will take proper form, free from distortion; much subsequent trouble being thus saved. The skin, as it is inside-out, must be cleaned—this is indispensable—and Taxidermine properly applied. It will be noticed that the skin between the wings, when raised from the bony structure, exhibits among the quills certain bare places, which would be most unsightly if they appeared prominently in the finished

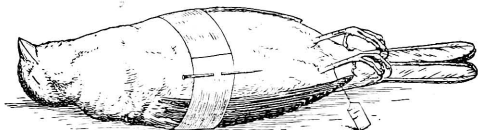
specimen. The tendency of the hollow skin, at this part especially, is to be too large, and it is better for subsequent operations that it should be contracted rather than expanded to anything approaching loose-



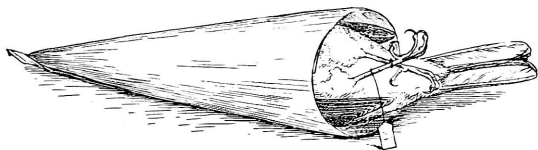
SKINNING A GREBE.

ness. In setting-up a bird, it is far easier to stretch the skin, if required, than to contract it; and now is the time to catch up and stow away any seemingly superfluous folds. These are most conspicuous on the back; and to get rid of them, tie the wing-bones inside with a thread across the back, and draw the

wings together in such a manner as in your judgement may best represent the position in life. This will enable the feathers to cover up naked skin, which would otherwise appear, and will give solidity, so to speak, to the plumage at this part. This gives little trouble during preparation, but is the saving of infinite labour in the future, and is of great consequence to the beauty of the specimen. Having done



No. 1.



No. 2.

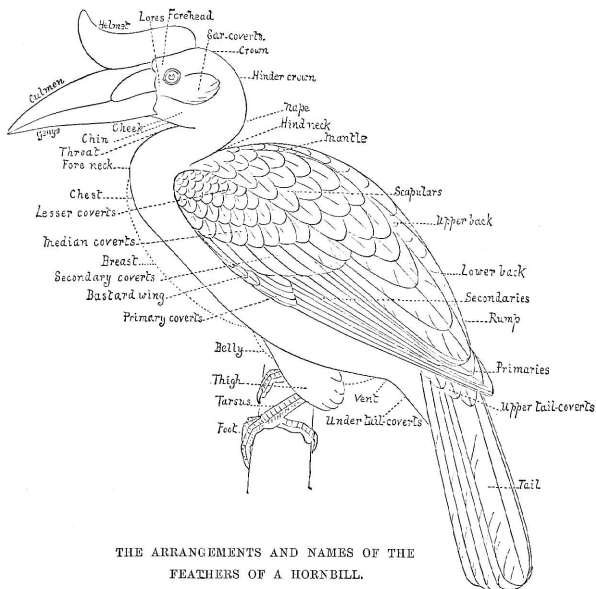
## FINISHED BIRD-SKINS.

this, turn the plumage out, but be careful in doing so not to fracture the skin of the neck. Use the scissor-forceps to fill in the neck with cut tow ; fill in the body, smooth the feathers into proper position, and put the whole bird into proper shape. Finally, place a paper band round the wings, so that they may set in good position. Small birds may, however, be conveniently slipped into cones of paper, as shown in the illustration.

**Temporary Preservation of Birds.** — Birds may be kept in spirit, this mode being particularly useful for the preservation of nestlings in the down, very

small specimens, etc. Make a cut under wings and open mouths, etc.

It may fall to the lot of the traveller by sea to secure an albatross, when he may not know what best to do with his unwieldy but by no means rare specimen.



THE ARRANGEMENTS AND NAMES OF THE  
FEATHERS OF A HORNBILL.

If he does not care to preserve it whole, he may be reminded that there are parts which may be advantageously saved. The long tubular wing-bones, for instance, are prized as pipe-stems, for which they are well adapted. For these purposes the wing-bones must be carefully cleaned, a good way being to open

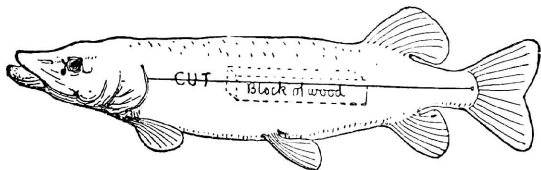
the orifice at each end, and boil them ; or they may be macerated in water. The utilisation of parts of birds and animals in this way is, of course, mainly a question of inventiveness and ingenuity ; and many natural objects may be adapted to useful and ornamental purposes, while at the same time retaining the character of trophies. The teeth of animals can be used ornamentally in many ways ; the claws of a tiger, the hoofs of an antelope, the tusks of a boar, or the antlers of a deer may be employed for adornment or use ; and there is this advantage, that these may in many cases be easily saved when the rest of the trophy has to be abandoned.

**Fish.**—As a general rule, large specimens are skinned and preserved in similar manner to birds, although with reptiles alum may be used, especially on the thicker portions of the skin. It must rest with the traveller himself to determine which course is best for saving the particular example he has secured. When a fish is skinned whole, it must be laid out carefully on a board and the incision made, not down the belly, but along the centre of the least important side, from gill to tail. The object is to remove the body from the skin with the least possible disturbance of the scales, etc. The skin can be manipulated neatly from each side of the incision. When in this operation you come to the base of fins, cut the obstruction inside the skin with the scissors, but so as not to sever them too closely, so that their attachments may not be disturbed. Cut in like manner the vertebrae next the base of the head and the extremity of the tail ; then, if need be, cut also those in the middle so that the flesh may be taken away in two pieces ;





the, however, is a matter of convenience, and must be made to subserve the all-important point of not disturbing, bending, or otherwise injuring the skin, as the scales, which constitute the characteristic beauty to be preserved, are very fragile and easily detached, and to break or detach them is fatal to the value of the specimen. Clean the head as well as you can, and then paint the whole interior surface of the skin with Taxidermine, and apply the same preservative to the head, into the cavities of which cotton-wool may be pushed.



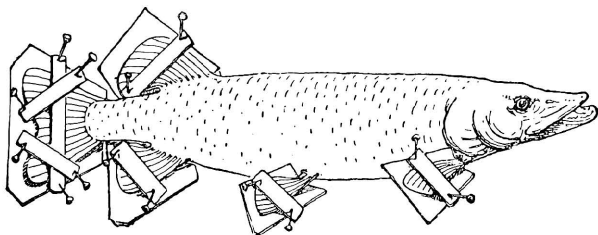
INCISIONS IN A PIKE.

The body should be filled with dry sawdust or sand, so as to restore its natural shape; after which the edges of the orifice should be drawn together with neat stitches. The fins and tail, while wet and pliant, should be set out in natural form on pieces of card, so that they may not get damaged in transit. The specimen may now be put on one side to dry, and the sand or sawdust removed when it is dry enough.

This process, however, rather presupposes the opportunity for quiet treatment at home; and when the naturalist is in the field, a shorter method may be used, the skin being removed and dressed with Taxidermine, and left to dry in convenient form. All the skins can then be packed together; and it will be found

advisable to pack with them some light stiff material like thin wood or dried rushes, disposed longitudinally so as to prevent the possibility of the brittle skins being accidentally bent.

A tracing of any big fish is most useful when mounting. Care should be taken with the fins, as they are apt to get very brittle and want protecting. For this purpose it is a good plan to gum or stick thin paper, or even linen, on to the scales; wet rushes must not, however, be used, as they will leave a mark on the fish that will remain permanently.



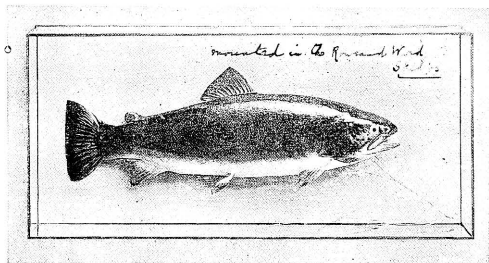
PROTECTING FINS OF A PIKE.

Tarpon, or other large fish, may be saved in the same way, although a lot of work is required to remove the grease from the skin. Even in professional hands in London, to remove the grease is a difficult and expensive operation, and specimens which have not been properly cared for are useless as trophies. For convenience of packing and cheapness in transport, the specimen should be left hollow, care being taken that the fins are protected when packed. A common practice in Florida is to save only half the fish; but there is no difficulty in preserving the entire fish, as illustrated above.

Many years ago a collector from Iceland sent home a brace of trout and a char which had been simply skinned and put in brine, after which they were salted and brought home. They turned out first-class specimens, and were mounted into glass cases.

Frequently trout are received from New Zealand which have been in a refrigerator for months, and these mount without any special difficulty.

The proper preservation of fish is undoubtedly a matter of considerable difficulty; and sportsmen are perhaps not generally aware how few examples of



foreign fish reach this country in a condition that admits of effective treatment, or how special a branch of the art it is to set them up effectively and well. The common processes are: (1) to plunge small specimens and bottle them in spirits; but the effect of this on the evanescent colouring, as well as on the natural contour of the specimens, is disastrous; (2) when they are skinned (see p. 50), to apply Taxidermine preservative to the flesh side of the skin when the flesh has been removed, so that it will dry, and to apply Taxidermine on the inside, for preservation of the skin.

Fishes, together with snakes and other reptiles, may also be skinned and put into brine, then salted and sent home, as mentioned; this process doing no harm to the appearance of the specimens when mounted.

**Reptiles.**—The skins of crocodiles, alligators, and other large reptiles having been removed (see p. 50), may be manipulated as follows. Clean them of all flesh as completely as possible; but as this cannot be done properly about the head or the feet of a large

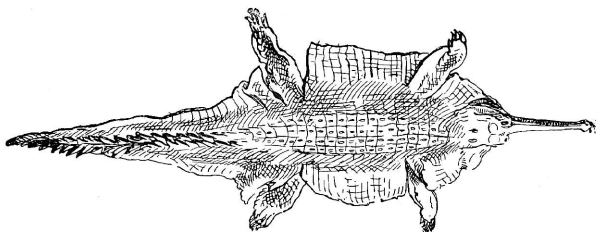


SNAKE SKIN.

example, Taxidermine, or even alum powder, must be applied copiously to these parts, in order to dry up the flesh as much as possible. In the case of smaller specimens which can be skinned over the skull to the lips, a similar application must be made where it seems necessary. To the inner part of the skins Taxidermine or wood-ashes may be applied; but such preservatives are not nearly so essential as in the case of mammals. Indeed, turpentine to preserve them from insects will afford nearly all the protection they need. The skin may be rolled or folded for transmission. Small specimens of any species will go in spirits; and

carbolic will be found a useful agent in cleansing reptiles.

As regards large snakes, after the body has been removed and the skin properly treated with preservative, it may be conveniently rolled from the tail like a ribbon, the belly-side inwards, in order to prevent injury to the scales, until it forms a small portable bale of similar form to that represented in the illustration on p. 54. With snakes, the skin, dried flat, should be rolled from the tail like a ribbon, the belly-side



GHARIAL SKIN FIT TO MOUNT.

inwards, in order to prevent injury to the scales (see p. 54).

The smaller fish and reptiles, when preserved in spirit, should be saved as unaltered as possible in form, special attention being directed to preserve the natural appearance of the creature. It is important that a label should be attached to the specimen itself, or to the receptacle wherein it is placed, on which should be noted a sufficient description made while the specimen is still fresh, especially as regards colours and features which may disappear or be altered by the spirit, unless the species be well known and such details are unnecessary.

The skull of a crocodile or gharial should not be removed from the skin, although the flesh should be cut away from the lower portion. Every atom of flesh should be removed, and the skin dried with Taxidermine, alum, salt, or anything to ensure complete drying-up of the moisture and grease. For removing the latter, one of the scrapers shown on p. 10 may be employed, but great care must be exercised in the handling. Generally speaking, the belly portion of crocodile is alone suitable for mounting into articles such as cigar and cigarette boxes, trays, inkstands, etc.

**Forwarding Flesh Specimens.**—When sending a fresh-killed mammal specimen by rail, post, or carrier, it should be gutted and filled with straw or wood wool; or if a flesh skin, the flesh side should be rubbed with salt, or salt and alum, and some packing placed between the folds to prevent heating. If this is done, the skin will be safe for a few days.

In forwarding a fish to be preserved, the specimen should be kept perfectly straight, wrapped in white tissue-paper, and packed in *dry* grass or straw.

## METHODS OF PRESERVATION

IN regard to the preservation of skins in the field, there are many recipes that might be mentioned here, but it will suffice to include only such as are of a simple nature, and which are known from personal experience as being efficient. If the instructions here given are carefully followed, there is no reason why any one should not be able to preserve any specimens which he may have procured. But, as mentioned in an earlier chapter, some sportsmen are apt to overlook the importance of devoting personal supervision to the preservation of their trophies; and after having incurred considerable expense, journeyed<sup>e</sup> enormous distances, and made endless preparations months in advance to ensure the success of their hunting-trip, are content to leave the skinning and preservation of their game to the sole care—or rather want of care—of native followers.

There are two principal methods of preserving animals or their skins on the spot where they are collected till they can be transmitted for definite treatment by skilled taxidermists at home. Firstly, by means of preservative applications, so that natural decay and the ravages of insects, etc., may be prevented; secondly, by immersion and packing of specimens, on proper principles, in spirit, pickle, etc.

Convenience and desirability must regulate the adoption of the one or the other plan, and its application to particular specimens. Animals taken whole can be dissected; and examples of supposed new species, or specimens of rare occurrence, may, at discretion, be transmitted with advantage in this manner. Generally, pickle or brine preserves the natural colours of specimens better than spirit or other preservative fluid.

**Preservatives in the Field.**—Before referring in detail to the various methods and preparations, it may be mentioned that skins of all mammals may be effectually preserved for transmission home by using either of the undermentioned processes, but those of birds and small mammals should be treated with Taxidermine. These resources, simple as they are, will be found sufficient, and have the distinct advantage that, in the ultimate treatment of the specimen for permanent keeping, there are fewer difficulties to be surmounted by the skilled naturalist or the curer of skins. When, for instance, salt is used indiscriminately, or we have to do with the lime of native Indian dressers (the most destructive in the world), or the vegetable-curing of Australian skins, there is often more trouble to extract from the pelt the deleterious substance, in order that the process of decay may be stopped, than the specimen is worth. Skins of birds must on no account be treated with alum, or they become fatally brittle; but when dressed with Taxidermine a contrary effect is produced, and they become softened. In all cases it is essential to protect from the ravages of insects; and for this the simplest means is the copious and judicious application of spirit of turpentine or naphtha-



lene ; but spirit must not be applied to birds, because it dissolves the grease that is found more or less in every bird-skin, so that the metallic colours of plumage become permanently robbed of their brilliancy, and the plumage of white birds is soiled by a yellowish stain. Where, however, there are no metallic colours to be preserved, the advantage of spirit may be utilised, if it be applied lightly and with skill to the surface of the feathers, and not poured over the skin, as might be done in the case of the skin of a mammal. The best way is to apply it with a saturated pad of cotton-wool.

Specimens from Africa and India, etc., may be packed with naphthalene crystals as a protection against damage by insects during transit.

In this connection the powder called "Insect-death," which is supplied at 167 Piccadilly, may be mentioned, as its usefulness to the naturalist-traveller cannot be overrated. It is an inodorous powder, not destructive of anything but insect-life, and can be shaken from a specimen in a moment. Bird-skins, when properly saved, may be amply dusted with this on the feathers with every confidence ; a special recommendation being that it does not emit an unpleasant odour. If white birds are thus treated, care must be taken that the specimens are kept from damp (as, indeed, all skins ought to be), or there may be liability to stain. "Insect-death" is very valuable to the naturalist who stores specimens for keeping or transport, and is a pleasant and cleanly protection for fur and feathers, and to that end should be kept and judiciously applied. It should keep any specimen free from insects, being particularly efficacious against moth.

**Taxidermine.**—"Taxidermine," which is a non-poisonous preparation invented and used in the Rowland Ward Studios, is a perfectly efficacious preservative and is now largely used by big-game hunters and sportsmen generally. Taxidermine No. 1 is suitable for preserving even the most tender skins of small mammals and birds. Of the two kinds, No. 2 is suitable for mammals and large birds, and No. 1 for birds and small mammals. It is easy of application, not dangerous to the operator in any way, and is perfectly effective. *Instructions* : Apply to pelt side of flesh and see the pelt is moist before using the powder. If hair or feathers are slipping, use on both sides. When preserved, examine from time to time and sprinkle with Rowland Ward's Insect-death powder or naphthalene.

The state of the weather is a consideration in this work ; but under no circumstances should the skin be exposed to the direct rays of the sun. During the rains in India and Africa the air is charged with moisture, and it is thus difficult to dry anything by simple exposure. At such seasons, in any country, a skin would probably be spoilt, and the hair slip ; and it may be accordingly advisable to use " pickle " or salt, according to the methods described in the sequel. In hot weather preservation is fairly simple. As the act of drying induces shrinkage, the skin should be so arranged that as it shrinks it cannot wrinkle into folds, for in those, if anywhere, the ravages of insects, especially the bacon-beetle, will lie. In cold climates, perhaps, pegging and stretching may be avoided altogether. The skin having been spread out flat with the pelt uppermost, proceed to rub in the Taxidermine. This should be done carefully with the hand so as to cover every portion, and the supply of preservative should

not be stinted. It must be particularly applied to the lips, ears, feet, and other fleshy parts that have to be prepared in skinning to receive it (see p. 43). The whole pelt having been thus treated by hand, rub it with the powder till it is regularly and well covered; and turn it over about every four hours, but always in the shade, and examine daily. The skin should be left in this state until quite dry; the astringent that has been applied causing it to dry with rapidity. During this time it is, however, most necessary to watch it well, so that if there appear a tendency in any part of it to "taint," which would cause the hair to "slip," or come off, the preservative should be instantly applied on the hair-side, as well as on the pelt itself, wherever requisite.

All skins should be well looked after at night, as during the darkness animals of various kinds, including half-starved village dogs, frequently lurk about a camp, and nothing comes amiss to their hungry maws.

**Wood - Ash.**—If nothing better, large skins may be dressed on the inside with wood-ashes, taken cold from the camp-fire, and applied as previously explained. The virtue of wood-ashes really consists in their detergent properties; for, containing as they do a large proportion of potash, the fat in the skin is thereby converted into soap, and sometimes in this condition is immediately brought away by the hand, or the scraper (see p. 10). And as a preservative, excepting under difficult conditions, the effect is cleanly and good. There is, however, a great difference in the quality of ashes, dependent on the kind of wood employed. Oak is one of the best; and the harder the timber burnt, the better is the ash

produced; and as hard wood presumably contains a high proportion of carbon, this acts as an excellent absorbent for the fluid matter in the hide. Ash has but little astringent properties, and the main factor in the preservation of ash-cured skins appears to be plenty of dry air.

**Salt.**—Finally, reference may be made to a process whereby skins are treated with salt and subsequently air-dried. After the skin has been thoroughly cleaned and prepared, salt should be applied for forty-eight hours. After this the skin is to be freed of all salt by vigorously shaking it and spreading it out on stones, logs of wood, or branches, to dry in the shade. Raising the skins on branches, etc., allows the circulation of air underneath. On no account must the skin be dried in the sun, unless in high northern latitudes where the rays are comparatively weak. According to the degree of rapidity of the evaporation of the moisture, the skin should be folded or rolled into the shape it is required to assume before its pliability has departed. The time of complete desiccation varies according to climatic conditions, but the skins require watching for at least a week under the most favourable circumstances; and this process is not to be recommended in moist climates, or during the rainy season in tropical regions, as the skins dry fitfully, and show a decided tendency to “sweat,” so that it is then extremely difficult to succeed in drying them perfectly. The skins of short-haired, soft-skinned animals are best suited for this process, since dense and shaggy-coated skins require much care in drying and in preventing the “sweating” condition from becoming almost chronic.

Although notes are given on the salt process, it is important to mention that it is one which requires the most careful attention, and, when used, should be attended to personally by the sportsman. If the salt is not put on uniformly, the hair will be sure to "give" and the skin become useless. The hides of animals with very thick skins, such as elephant, rhinoceros, hippopotamus, walrus, etc., can be preserved with equal parts of salt and alum preservative put on both sides of the skin. It may also be mentioned that in modelling specimens preserved with salt it is often very difficult to cleanse them, as the removal of all the salt by fresh-water baths is necessary; and if the completed trophy is to be kept in a hot, damp climate where there are heavy rains or much moisture in other forms, the skin is apt to "give" afterwards. Trophies modelled in the Rowland Ward Studios are despatched to every country in the world, and for each country particular methods of treatment are sometimes necessary.

**Pickle.**—Another process that is frequently most convenient on shipboard or in certain other circumstances is that of "pickling"; and it may be mentioned that large numbers of skins of sea-elephants, seals, Polar bears, elephants, rhinoceroses, etc., have been preserved by this method, and have turned out excellently, although of course all the salt has to be removed before modelling. In this process, the skin, having been removed from the carcase and cleaned, instead of being laid out for drying should be thickly covered over the flesh-side with salt, the lips, eyelids, feet, etc., being particularly treated; then it should be folded in a convenient form, and immersed in a barrel of brine,

or what is technically called "liquor"—in fact, a mixture of alum and salt dissolved in water, in the proportion of 6 lb. of alum and 3 lb. of salt—sea-salt if possible. Dissolve both in a small quantity of hot water sufficient to make a gallon, and let the liquid cool before the specimen is immersed. The skin must be sweet and fresh at the time of placing it in pickle, or the operation will not succeed; and the vessel must be kept closed. A number of skins may be placed in the same barrel, which, when quite filled and closed, is ready for storing or transit. If it be more convenient to make the package lighter for travelling, the skins, when they have been thoroughly pickled for a few days, may be taken out, spread open, dried, and then repacked. This, however, is an operation obviously requiring great judgement, as if it be imperfectly carried out the consequence may be ruinous.

**Formalin.**—Specimens preserved with formalin in bottles may be useful in museums, but this process is useless as a preliminary to mounting sporting trophies. For preserving molluscs and specimens which do not require mounting, formalin is economical and useful. As a preservative for marine animals, its great bactericidal qualities prove it to be a powerful antiseptic. A solution of from 3 to 5 per cent is a very useful one, but specimens preserved in this manner are of little, if any, use for mounting.

It may be added here that a number of other mineral and vegetable astringents, besides Taxidermine, powdered alum, carbolic, or salt, can be used, in case of need, as preservatives; among these being saltpetre, powdered green vitriol (sulphate of iron), ordinary borax, and boracic acid.

**Carbolic Acid.**—Calvert's No. 5, diluted with 65 parts of water to 1 part carbolic, is a very useful preservative for big game. Fresh-skinned specimens may be kept in this way for several months, and it is used very largely in our studios. It is advisable constantly to test the strength of the solution, as each specimen immersed weakens its preservative properties.

When carbolic is employed, the solution should be used in either lead, wood, earthenware, or glass vessels, but not zinc or glazed earthenware. The best way to mix the solutions is to put the amount of carbolic required into a quart of *warm* water and well stir it; and while the solution is being stirred the amount of water necessary to reduce the solution to the required percentage should be added. In this way the carbolic will be thoroughly incorporated; otherwise, if any acid should remain on the top of the water, it may get into the hairs and burn or curl them to such an extent that they can never be made to resume their proper shape.

The specimen should be plunged in the carbolic as quickly as possible, as this will at once prevent any risk of the hair slipping, which in hot countries may occur within a few hours after death, when the specimen will be rendered useless.

A little powdered alum may be put into the warm carbolic solution if desired, which will hasten the action of the preservative.

If any raw carbolic acid should fall on the skin, it must be promptly wiped off with a dry cloth, and the affected part rubbed with oil or glycerine; water must not be used. A cloth moistened with alcohol is also efficacious for removing the carbolic acid before using the oil or glycerine.

When collecting in the field it may be found con-

Sometimes trophies when unpacked are found to have the hair entirely removed from the pelt by the ravages of the *Dermestes*; and in like manner skulls are received in London that have been imperfectly cleaned of flesh, which contain hundreds of fattened lively specimens. Not only skins, but all skulls and horns should be saturated with turpentine before they are shipped to England; the flesh being removed from the skulls. Sometimes the insects will recover activity after the milder influence of benzine.

**Immersion in Spirit.**—A few words must be devoted to this mode of preservation, for there is absolute necessity that it should be properly carried out. Either fishes or reptiles, or even birds, that may be sent home in spirit should be treated in the following manner: First provide a tub, or other convenient vessel, full of the spirit, wherein the specimens can be put as a preliminary measure, so that the mucus, water, etc., may be drawn out of them. Before placing them in this, a moderate incision should be made, with as little disturbance as possible, in the belly, so that the spirit may permeate all parts. Keep the specimens in this spirit from a week to ten days, then transfer them to fresh spirit, and let them remain there for about two weeks more, before final removal to the vessel or vessels of spirit in which they are to be packed for the remainder of the journey. Reptiles, being less watery than fish, generally require only one change. The first tub of spirit may be used for more than one set of specimens, but will of course decrease in strength by the addition of the water drawn from them; the second spirit should be stronger; the third quite strong enough to be readily inflammable. The specimens will then be safe for more



than six months. For small mammals, proof-spirit, diluted about one-half with water, is perhaps the best to use, but rum or gin serves well. The specimens may be packed for transmission in great numbers in the following manner: Wrap each fish or reptile in a piece of linen or cotton rag, and arrange them so as to rest closely in a suitable vessel that can be filled completely with spirit. A wooden packing-case, well lined with tin, which can be hermetically soldered up when quite full of the liquid, serves well. Among insects, beetles can be transmitted in spirit. The native spirit "daru," called by Europeans "native liquor," and sold in all the bazars in India, will do well instead of rum, etc., for preserving reptiles. It is very cheap. Besides the above, or when they are not attainable, benzoline may be used, but requires judgment.

A convenient method for carrying small mammals, deers' feet, birds, snakes, etc., in spirit is to procure some zinc boxes about  $12 \times 6 \times 18$  inches high, and fitted with a round opening at the top about 4 inches across, which should be closed with a screw-cover furnished with a ring of rubber or leather fastened round the margin so as to fit tightly. Each box should be placed in a closely fitting wooden case with a lid secured by hinges and a bolt and furnished on two sides with handles of leather or rope. From two to four of these boxes should be carried. The spirit should be kept fairly strong, and must be occasionally renewed, as each specimen put in absorbs some of the spirit. Ordinary empty tins will do, so long as the covering is air-tight. The specimens should be put first in the box containing the weaker solution (not less than 10 under proof), and after a day or two put in the stronger solution, of not less than 10 over

proof, where they can remain until sent home in air-tight receptacles, the spirit in which should be at least 20 over proof.

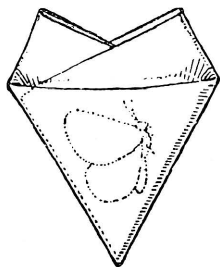
Specimens which show distinct signs of putrefaction must be thrown away, as they endanger the whole contents of the box. If slightly decomposing, a solution of common salt (a tablespoonful to one pint of water) should be poured into the mouth or injected into the interior of the specimen.

**Collection and Preservation of Insects.**—The ingenuity displayed by the collector in capturing and storing insects is often a personal quality, and the methods that may be adopted are almost infinite. The general methods most approved are all that can be referred to here. Butterflies, moths, and certain other insects, whose beauty is in their colouring, and which are very fragile to the touch, must be treated for storage and preservation in a different way from beetles and insects of similar durability. In fact, all excepting butterflies may be preserved in spirit so soon as captured for after-treatment, and need not be injured by the process. For permanent display in the cabinet, all insects must be properly set out—Lepidoptera with distended wings, and Coleoptera in suitable position. They should be killed the instant they are captured, to prevent injury resulting from efforts to escape. A gauze-net is generally used. When a butterfly has been netted, the collector watches his opportunity while the insect is still in the gauze, and so soon as it closes its wings he lightly but sufficiently pinches its *thorax* between his thumb and forefinger, as shown in the illustration on p. 72. The butterfly falls from the net dead and uninjured. The specimen

must not be handled except to pick it up by the legs, while holding which the wings may be slightly blown apart and a proper pin pushed through the body, so that the specimen with closed wings may at once be stored in the collecting-box, or, if the insect be not quite dead, the pin can be inserted on the under part of the cork in the cyanide-bottle, and the specimen kept there till dead.

When in the field, economy of space in the collecting-box may be attained by impaling several butterflies on one pin; the pin going through the side of the under part of the thorax, so that the insects lie flat over one another on the pin (Fig. 13, p. 72).

When the collector reaches camp, he can store the contents of his pocket-box, by putting each specimen in a small triangular envelope of paper, outside which a note of locality, etc., may be made.

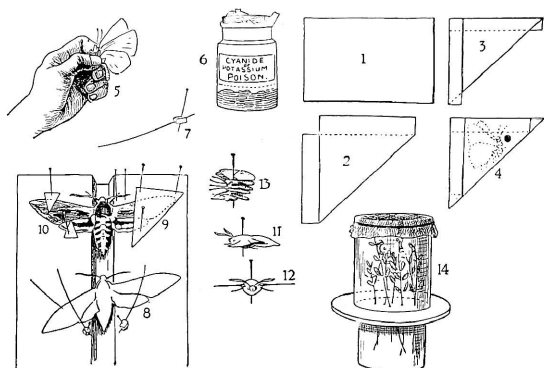


BUTTERFLY IN ENVELOPE.

Hundreds can thus be stored in small space. A very simple envelope for storing Lepidoptera may be made by folding the paper after the manner shown in Figs. 1-4 of the aforesaid illustration. Butterflies should be stored thus with folded wings in a tin box, until they are required to be set out for the cabinet. Moths, on account of their greater rotundity, must not be treated in exactly the same manner by pinching. Cyanide of potassium is necessary to kill them. The bottle should be of the shape shown in Fig. 6 of the illustration. Put a piece of wash-leather round the cork to prevent evaporation. The cyanide is placed in a layer at the bottom, and a

layer of plaster of Paris mixed with water put on top. This of course hardens, but the fumes of the poison will nevertheless permeate into the upper portion of the bottle.

Moths are conveniently taken home in separate pill-boxes. Beetles, etc., may, as a rule, be preserved in spirit, which kills them forthwith; or they can be killed in the cyanide-bottle. When the time arrives



MATERIALS FOR BUTTERFLY SETTING.

for arranging insects for the cabinet, the butterflies can be relaxed by placing them for a time on wetted sand, or exposing them to steam.

The most satisfactory way of setting butterflies and moths is to procure some stiff bristles, stick them through small pieces of cork, and insert pins through the corks to attach them to the setting board, as in Fig. 3 of the illustration on p. 73. These bristles hold the wings flat on the setting-board, and the wings themselves are carefully slid into position with a very

Fig. 8



Fig. 4



Fig. 1

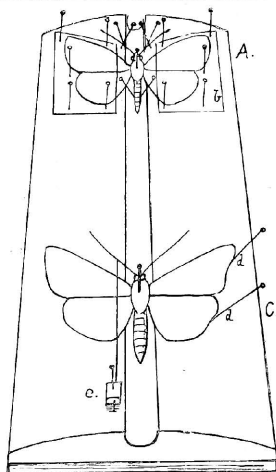


Fig. 3

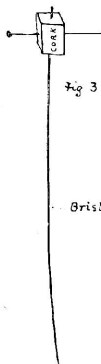


Fig. 2

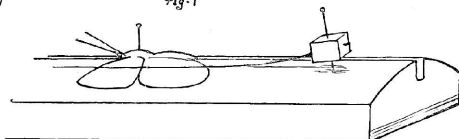


Fig. 5

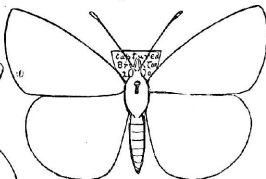


Fig. 6

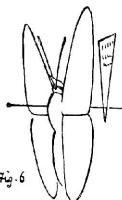


Fig. 7

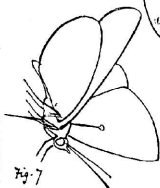


Fig. 9



W.G.

# Setting Lepidoptera

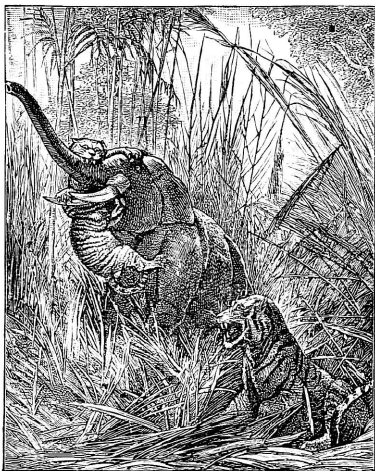
fine needle. Pin pieces of paper or thin cardboard over the wings to keep them in position until the object is dry and stiff. Two methods of paper-bracing are exhibited in the illustration on p. 72, Fig. 2 showing a single paper covering both wings, and Fig. 10 small pieces of paper for each wing. The former is the better, as it prevents the tips of the wings from curling up in drying. The antennae and legs are to be pinned out; the position of the pin through the thorax is shown in Figs. 11, 12 (p. 72).

Beetles, etc., should be set while they are wet when taken from the spirit.

**Preservation of Insects.**—The majority of insects, having been properly stored as directed, require little more than a supply of camphor, naphthalene, or cyanide of potassium to protect them from decay. If mites appear in them, the best means for destroying the intruders is benzoline or best motor-spirit. Some very large moths, butterflies, and beetles require a different treatment. In such cases the body must be opened by a longitudinal slit on the side not intended to be displayed, and as much matter removed as can be got away without impairing the specimen. The cavity thus created should be completely dusted with taxidermine, and the incision neatly and skilfully closed over it; a small but sufficient piece of cotton-wool being introduced to preserve the shape.

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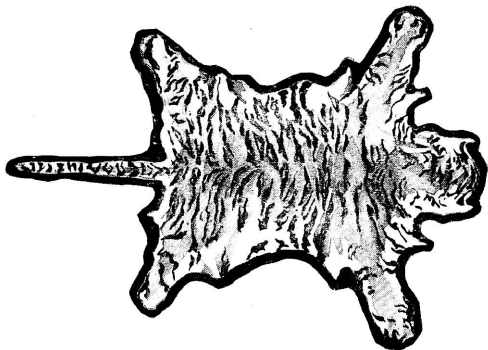
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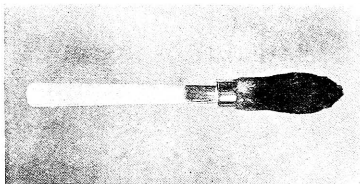
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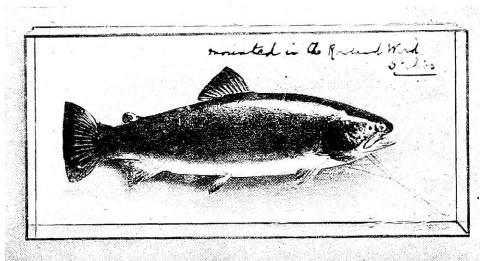
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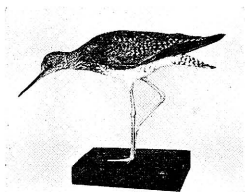
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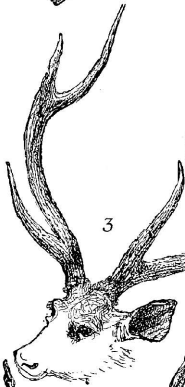
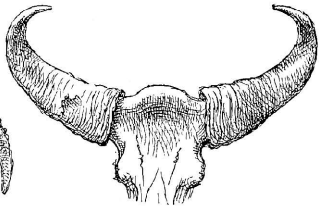
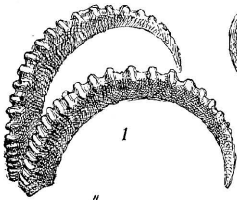
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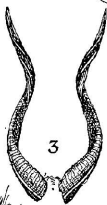
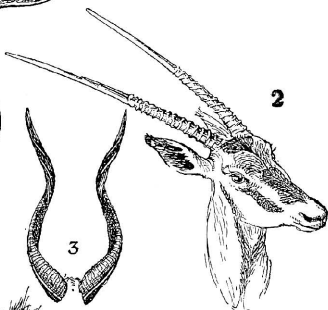




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4. Sable Antelope (*Hippotragus niger*) and scalp.
5. Roan Antelope (*Hippotragus equinus*).
6. Eland (*Taurotragus oryx*).

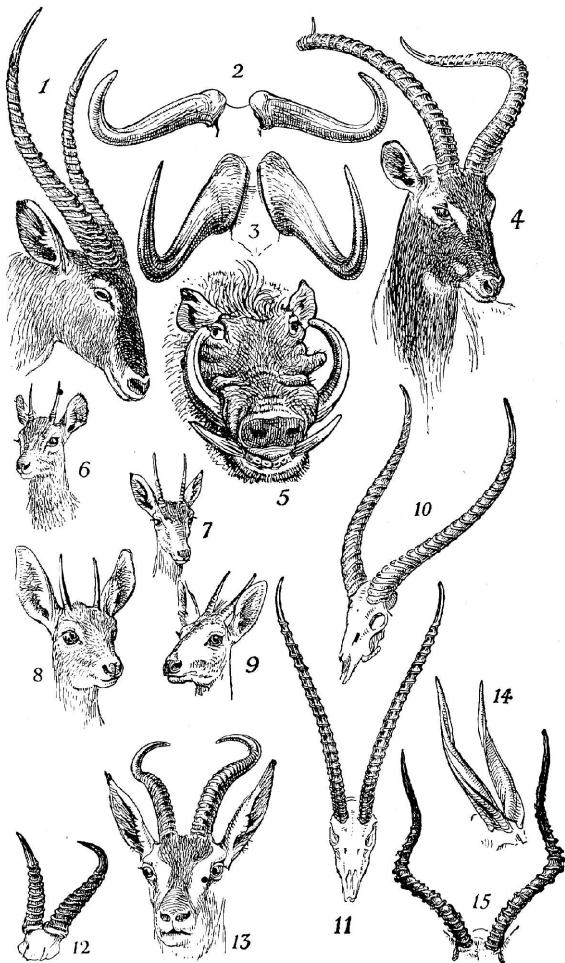
For Measurements of Horns, Weights of Big Game, and other Statistical Information, see Rowland Ward's *Records of Big Game*.



## AFRICA

1. Waterbuck (*Kobus ellipsiprymnus*).
2. Brindled Gnu (*Gorgon taurinus*).
3. Gnu (*Connochætes gnu*).
4. Nile Lechwe (*Onotragus megaceros*).
5. Wart Hog (*Phacochærus æthiopicus*).
6. Klipspringer (*Oreotragus oreotragus*).
7. Oribi (*Ourebia ourebi*).
8. Steinbok (*Raphicerus campestris*).
9. Duikerbok (*Sylvicapra grimmii*).
10. Lechwe (*Onotragus leche*).
11. Grant's Gazelle (*Gazella granti*).
12. Ward's Reedbuck (*Redunca wardi*).
13. Soemmerring's Gazelle (*Gazella soemmerringi*).
14. Bushbuck (*Tragelaphus scriptus*).
15. Pala (*Æpyceros melampus*).

For Measurements of Horns, Weights of Big Game, and other Statistical Information, see Rowland Ward's *Records of Big Game*.



## AFRICA

1. Cape Hartebeest (*Alcelaphus caama*).
2. Cape Buffalo (*Syncerus caffer*).
3. Lichenstein's Hartebeest (*Alcelaphus lichtensteini*).
4. Black Rhinoceros (*Rhinoceros bicornis*).
5. White Rhinoceros (*Rhinoceros simus*).
6. Tsessbe (*Damaliscus lunatus*).
7. Western Hartebeest (*Alcelaphus major*).
8. Springbuck (*Antidorcas marsupialis*).
9. Coke's Hartebeest (*Alcelaphus cokei*).

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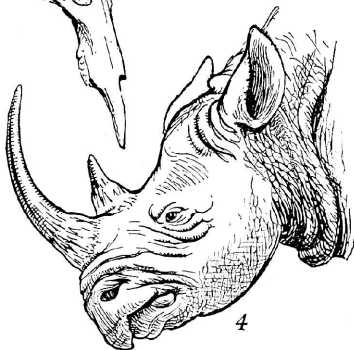
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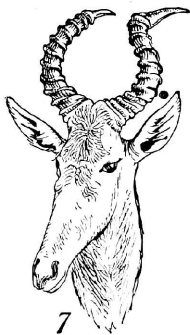
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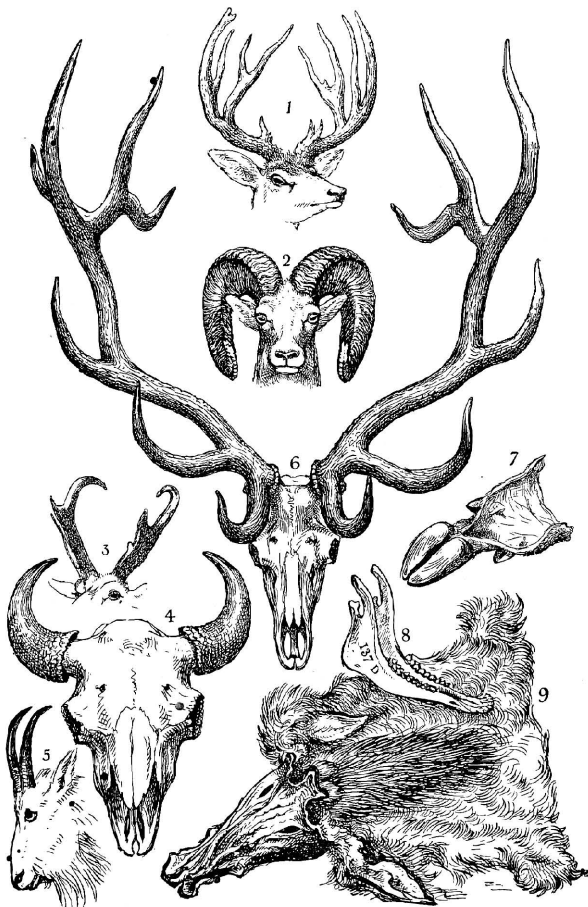
9

## NORTH AMERICA

1. Black-tailed Deer (*Odocoileus columbianus*).
2. Big-horn (*Ovis canadensis*).
3. Prongbuck (*Antilocapra americana*).
4. American Bison (*Bison bison*).
5. Rocky Mountain Goat (*Oreamnus americanus*).
6. Wapiti (*Cervus canadensis*).
7. Deer Slot—to show skinning.
8. Wapiti—lower jaw.
9. Wapiti—scalp, as prepared on the field.

For Measurements of Horns, Weights of Big Game, and other Statistical Information, see Rowland Ward's *Records of Big Game*.

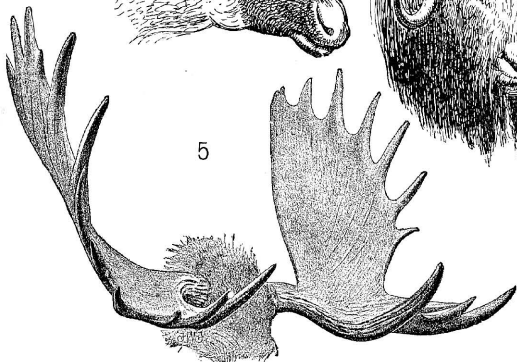
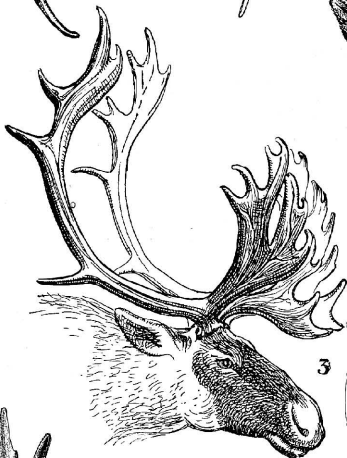
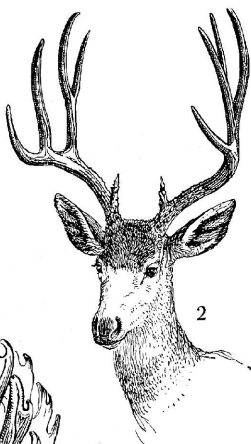




## NORTHERN AMERICA, GREENLAND, ETC.

1. Virginian White-tailed Deer (*Odocoileus virginianus*).
2. Mule Deer (*Odocoileus hemionus*).
3. Caribou (*Rangifer tarandus*).
4. Greenland Musk Ox (*Ovibos moschatus wardi*).
5. Moose (*Alces alces*).

For Measurements of Horns, Weights of Big Game, and other Statistical Information, see Rowland Ward's *Records of Big Game*.





## SUGGESTIONS FOR SPORTSMEN

Take care with the preservation of your Trophies on the Field.



Entrust them only to those who will take equal care in packing for transport. If they have been properly preserved on the Field, avoid the native "professional's" service, especially in Asia.



It is essential to take these precautions if you value your Trophies.



Remember also that a well-mounted Trophy is a joy to possess, and will last a lifetime with ordinary care. Imperfect and badly mounted Trophies are of no value, scientific or otherwise.



ROWLAND WARD, LIMITED,

Naturalists to H. M. The King,

"THE JUNGLE,"

167 PICCADILLY, LONDON, W.1.

