

CENTRAL AFRICAN GAME
AND
ITS SPOOR

By **Cap^t C.H. Stigand, F.R.G.S., F.Z.S.**
AND
D.D. Lyell.



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BY
CAPT. C. H. STIGAND, F.R.G.S., F.Z.S.,
AND
D. D. LYELL.

PROFUSELY ILLUSTRATED WITH PHOTOGRAPHS OF GAME
AND
DRAWINGS BY D. D. LYELL.

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PREFACE.

THIS handbook is intended as a help or guide to the young or inexperienced sportsman who intends making a hunting trip to Central Africa.

Spoor cannot be put on paper to exactly resemble the real thing. In drawing these spoor the outlines have been well defined, and it must be noted that they are taken from picked specimens (distinct impressions in the soil).

As may be surmised the finding and sketching of these spoor and dung has cost not a little time and trouble, and in the case of the lesser known or scarcer animals much questioning of native hunters before the information has been deemed reliable enough to be put on paper.

It will take months, and perhaps years, of hard experience to tell at a glance to what animal a footprint belongs, and the authors themselves have often felt the want of some fairly reliable handbook while in the field, especially on going to a new country and meeting with species they have not seen before.

Before one can question a native a certain knowledge of the language is necessary, and this in itself takes much study. The authors, therefore, have given the native names of the different game.

Many of the ideas and conclusions put forward by the authors may not meet with the approval of perhaps older and more experienced sportsmen, but at the same time they are the result of experience, and differences of opinion concerning the habits of animals arise between most sportsmen, no two holding exactly the same views. It will be noticed that the words "generally," "often," or "usually" are of frequent occurrence in describing the habits of animals.

We think it the greatest mistake to say that any animal *will* do this or that, as the behaviour of no two animals is any more alike than that of two human beings. Moreover the same animal may have totally different habits in different localities.

We do not wish to dogmatise on a subject which has been so little studied as

spoor—we quite realise that there are many more able and experienced hunters who would be better qualified than we are to write on this subject ; but as none of them have done so (with the exception of one German book on the spoor of European wild animals) we have taken the trouble to collect the various data and bring forward this book, until such time as a better hunter, with more information at his disposal, will be able to improve on it.

Probably many people will censure the book on the score that small bore high velocity weapons have been recommended in preference to large bores. In reply we would say that if a sportsman prefers to use a double .500 cordite for all game, let him do so ; but the authors have been very successful with the .256 Mannlicher and the .303, and therefore recommend them for all-round work and for first shots.

We deem accuracy and handiness more valuable than weight, and we certainly think that no bore greater than the .360 cordite is necessary for the largest of African game ; but if wished a heavy bore might come in useful for following wounded dangerous beasts into thick cover. In this book we have not dealt with hunting experiences or adventures, as such will be found in many sporting works on the game of Africa.

Big game shooting would possess little fascination for the majority of sportsmen if a certain amount of risk was altogether absent, but we are inclined to think it is perhaps not so dangerous, taking ordinary precautions, as it is often made out to be.

Charges do not take place every day, but at the same time it must be understood that all wounded beasts when closely approached are liable to charge ; even the humble tom cat will sometimes scratch after being peppered with No. 5.

So if the hunter follows wounded lion into thick grass, or rhino into dense thorn bush, he will run as much risk as the most ardent fire-eater can desire.

There is no excitement on earth to be compared to approaching big and dangerous game, and the excitement increases when one is trying to get up to a wounded animal. Also there is no joy on earth compared to standing over a dead bull elephant that has been followed through all his windings for perhaps a whole day.

The free, open-air life, the solitude, and the lovely camp scenes are fascinating beyond description.

To get away from a petty civilisation, to do without collar and tie, and wear only a hat, shirt, cut-short pants, and boots, gives one a sense of unlimited freedom which has only to be experienced to be appreciated.

Our thanks are due to Mr. G. Garden and Mr. T. A. Barns for permission to publish their photographs of game, and also to our publisher, Mr. Horace Cox, for the excellent way this book has been turned out.

THE AUTHORS.

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INTRODUCTION.

AT the present day it is quite possible, for any man who has the means and the leisure, to undertake a trip to some part of the interior of Africa, and there shoot a great deal of big game, without having time, even if the inclination should be present, to learn anything of hunting lore.

Steamers and railways will carry a sportsman to-day into the very heart of the best shooting grounds of Africa in the course of a few short weeks, and a professional Somali hunter can be engaged by anyone with a long purse, who will place his services and life-long experience amongst African game at his master's commands, and be to him all that the skilled stalker is to the inexperienced stag hunter in the Highlands of Scotland.

But putting aside the short-trip sportsman, who usually with all the will in the world has not sufficient time to become a proficient hunter, there are great numbers of young Englishmen—officers in various native levies, district magistrates, etc.—who go to Africa intending to spend some years of their lives in one or other of our great African Protectorates. Many, if not most, of these young men will be fond of sport and will be anxious to study the habits of the various animals of the countries in which they happen to be living, in order that they may become hunters in the true sense of the term, in contradistinction to mere shooters.

To all such would-be African hunters the following pages by my friends Capt. Stigand and Mr. D. D. Lyell will prove a veritable mine of information.

These two young authors have already spent several years of their lives in the wilds of Africa, and have had a large experience of big game hunting in that country.

They might have told many a stirring tale of personal adventure—Capt. Stigand has been severely bitten by a wounded lion, and been tossed in the air, and had his chest ripped open by a rhinoceros, whilst Mr. Lyell has had many interesting experiences with elephants, rhinoceroses, and lions—but they have preferred to write a book dealing purely with the habits and natural history of the animals they have

hunted, the best rifles to use in their pursuit, and all the many details of forest lore, an observance of which is necessary to the success of an African hunter. In particular they have dwelt upon the importance of the study of the tracks and droppings of game, and have given excellent illustrations made from careful drawings of the tracks of all the animals they met with in the British Central African Protectorates. A glance at these will show how much the hunter has to learn, for, although amongst the larger African antelopes the rounded toes of the hoof mark of a Koodoo may be easily distinguished from the long-pointed tracks of a Hartebeest, it will not be so easy for a novice to tell the difference between the spoor of the latter and that of a female Sable or Roan Antelope, for instance.

In hard ground, where the tracks of animals are not very well defined, even an experienced hunter may mistake the spoor of an Eland Bull for that of a Buffalo, but when he sees the droppings he will know at once which animal he is following.

All such matters are fully gone into in our authors' pages, almost every one of which has called up some reminiscence in my own long experience of African hunting, and I am sure that the book will prove not only interesting, but of great practical use to any young man who intends to reside in Africa and would fit himself to become a big game hunter.

F. C. SELOUS.

Worplesdon, Surrey.

June 22nd, 1906.

B.—Remarks in first ten lines referring to position of spoors are misleading, as some of those spoors have been placed in different order to fit in with photographs, but similar sized spoors will be found in close proximity.

THE AUTHORS.

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PART I.

CHAPTER I.

BIG GAME SHOOTING.

THE term "sport" is purely relative, depending solely on the place or country one happens to be in and the extent of one's opportunities. The sportsman who has been fortunate enough to come across and kill elephant should be the last to decry the enthusiasm of his brother sportsman who has shown every bit as much ability in obtaining trophies of humbler game.

As much sport is doubtless obtained by the keen angler who catches a 10lb. trout, as by the hunter who kills a good bull elephant.

In both cases the sport does not lie in the mere slaying, but in the patience and skill necessary to pick out and bring to bag a good specimen of its kind. The angler who secures a 2lb. fish in some small stream has as much reason to be satisfied with his success as he who secures a ten-pounder in more favoured waters.

Nevertheless, while being in sympathy with all forms of sport, we cannot but think that big game ranks first.

In later years we have experienced the same feelings in securing a good kudu or pair of tusks as we did in knocking over our first blackbird with a catapult, or bagging our neighbour's cherished cat with our new rook rifle.

We have sometimes heard the remark that there is more sport in the use of the shot-gun than the rifle, but, as the qualities required to be successful with the former often begin and end with being a good shot, we fail to see how it will bear comparison to sport with the rifle.

While admitting that a right and left at strong driven grouse or rocketing

pheasants is not to be despised, it is often the case that the woodcraft which brings the birds to bag is the work of the keeper, and the gun if asked to do it would generally fail. Of course, even in big game shooting, there are many who think that their only duty is to pull the trigger, and that the rest of the work should be done by the native trackers, but this does not affect the argument, as such an one could hardly pose as a true hunter.

Our definition of a true hunter would be the man who is not only a good shot but who knows the spoor, habits, and haunts of his game, and who has also the patience and endurance to follow and outwit them.

Again, can there be any comparison between the trophies to be obtained with these two weapons? Of course, in the first instance, it is necessary for a man to depend almost solely on his native trackers, but even then he can take an intelligent interest in the work of tracking and stalking, and, if he has any quickness of perception, the vast fields of observation open to him will soon be apparent.

It should be his ambition to dispense with their services more and more, as without the necessary practice he can never become self-reliant.

We do not mean to suggest that he will soon render himself more efficient than the native who has spent his whole life in the bush, for, however good he becomes, it will be very long before he can afford to disregard their advice. The true sportsman will value a head the more in proportion to the amount of individual work he has performed in getting it, and the woodcraft he has shown in shooting a *good head*, for he will never kill wantonly, but only for trophies.

How incomparably greater is the value of a head, perhaps good only for the country it is shot in, than the most magnificent trophy obtained by purchase! Contrast the associations connected with the one shot and that knocked down in an auction room.

The lessons of woodcraft and tracking are often learnt young, for many of us can remember our quiet walks with the keeper on his trapping rounds, and how many hints we picked up from the old man.

Love of a country life is ingrained in many of us, and in later years this develops into a keen longing to visit foreign countries, and to experience the exhilaration of nobler sports than we can find at home.

We think the building up of the British Empire largely due to this love of travel and adventure, for in most cases the traveller has been drawn to a country because it is the home of wild game.

How many of us would ever have wished to visit Africa if it did not hold the best game shooting in the world? Few, we imagine!

Hunters have been the pioneers in many parts of this continent; if the game had

been absent, would men like Harris, Gordon-Cumming, Oswell, and Baldwin have cared to push into the interior?

The men who used to kill elephants as a business have often been termed butchers, but we must remember if they had not killed them someone else would; and besides, without the money raised on the ivory, they would have been unable in many cases to have carried on their expeditions.

Take Selous, for example. He hunted elephants in Mashonaland when there were very few white men in that country, but nowadays no one can deny that he was a temperate hunter.

It would certainly be strange that if a man found himself in a new country, without game laws, he should abstain from killing elephants for profit when they were the only means of paying the expenses of his expedition.

The game suffers more at the hands of the native than of the white man, for he is always at it, and the animals get no rest in or out of season, and the native would just as soon shoot a female or young animal as a full-grown male.

Many of the elephant and hippo one shoots have been the recipients of native iron bullets, for one seldom kills the former without being able to find a few of their missiles in various parts of the beast's anatomy.

Of course, in British territory the native is not allowed to kill game, but he does it all the same. In Portuguese territory the natives kill most of the game, for the Portuguese official is seldom a man who cares a scrap about shooting; in fact, he seldom moves a mile from his station except in a machilla (hammock on poles).

They serve out guns and powder to their natives, and buy the tusks and horns for a few yards of calico.

The natives, not possessing strong cordite rifles, but only antiquated Brown Bess muzzle-loaders, wound considerably more than they kill, and their only idea is to get meat, the trophy being of no value to them. We have heard of the Britisher, too, who has given the native a gun to shoot meat or get heads for him. Such a man could never claim to be a sportsman.

Poison is also sometimes used to kill carnivorous animals, but we think this a shameful practice, for if the animal cannot be shot by fair means, it should be left alone. The man who poisons a lion or a leopard we put on a par with the man that would throw poison into a trout stream at home.

The laying of set guns and traps can hardly be termed sport, but is, perhaps, legitimate for obtaining some of the smaller animals (mostly nocturnal), which it would be almost impossible to obtain in the ordinary way, and which, in the interests of science, one might wish to secure; also in the case of a lion or leopard causing destruction

amongst livestock when there is no moon to sit up by, it might be necessary to set a gun for the animal, but we have never done so, and we do not think it a thing that sportsmen would care much about.

Big game shooting is like a perpetual fever—once it has been enjoyed, one always goes back to it with the same zest as before ; it is not only the hunting and killing, but the free, untrammelled, open-air life that seems to enthral one.

I suppose we inherit it from our ancestors, who lived in caves and under the stars.

To be rid of stiff collars and starched shirts and all the tiresome formalities of life in a civilised country is a pleasure in itself.

The holiday-maker feels it in a small way at home, when he leaves town for the river or country, and, in a greater degree, the man who leaves his office for the grouse moor or the deer forest, and life would indeed be irksome without these contrasts and changes.

The first thing a boy does when he gets home for his holidays is to rush off to his own den to see if his fishing-rod, gun, butterflies, or stuffed birds are all right ; then off he goes to the kennel to see his spaniel and ferrets. His first question will be whether there are lots of rabbits and trout about, and whether any rats have come back to the hayloft since he left home. That boy in his spare time will pore over books of sport and travel, and it will be his dearest wish to visit the countries he has read so much about, when he is a man. At nights his dreams will be about shooting elephants and lions, or getting to a country where no white man has been.

He will not give a thought to towns in foreign countries, but only of the mountains, forests, and plains where the big game exists. When he goes into the library he will make for the *Field* and *Country Life*, and, whenever the opportunity comes, he will be off to obtain trophies of his own shooting.

The young as well as the old sportsman ought to adhere to the rules of sport, and to treat his brother sportsmen with consideration and fairness.

He will be taught this in the partridge fields at home ; but there are certain rules in connection with big game shooting that he ought to know.

To draw first blood will generally give a man first claim on an animal, which in some cases seems rather hard, for the first shot might be a simple graze, which would cause the beast little harm, but with dangerous game might make it more dangerous to tackle than before. The man who then kills it would certainly deserve to keep the trophy. In a case like this the former would be acting in a magnanimous manner if he gave up all claim to it. Let us mention another case. A hunter might wound an animal and be unable to find it. Another man might come on it a few days after

and kill it ; in this case we think the beast would certainly belong to him unless it had been so badly wounded in the first instance as to be unable to move away.

When two men sit up over a kill for lion or leopard there should be some arrangement as to the division of the trophies, such as one man to take the skull and the other the skin, that is to say, if both fire together.

Perhaps a better way is for them to toss up for first shot. If two men were sitting up and had made no such arrangement and happened to be using similar rifles, the same bore and grooving, there might be unpleasantness if both fired together.

Two sportsmen should never hunt together, though they might camp together, otherwise, sooner or later, there is bound to be some misunderstanding, probably over some trivial matter. A much better plan is for them to make their camps, say, quite twenty miles apart, and meet occasionally to talk over their sport.

A man should never encroach on a country that another man is in. We should think twenty-five miles would not be too great a margin to allow him, and even that is rather close. In Kashmir, if a sportsman has occupied a nullah, a person coming after would pass on, and the same rule should apply to Africa, though it is not always done. There is plenty of room and game in Africa, so there is not much trouble or inconvenience in searching out a good game locality for oneself. Camp should be changed at least every week, for in that time one can hunt all the likely ground within a day's walk.

" Knowledge of country " is essential to bushcraft, and will be gone into later. Before passing on to spoor and tracking, we would impress on the reader that he must not expect to find, except under most favourable circumstances, spoor quite as we have drawn.

Those shown are, as near as can be obtained, perfect representations of an animal, usually walking.

But generally only a small part of the spoor is visible.

An animal moving quickly makes a very different spoor, for the mud is thrown back and to the sides, and the fore part or toe of the hoof is the only part that shows, especially when the ground is at all hard.

The hoofs of most buck are much spread out when running, and the longer and more split the hoofs are, the more is this apparent (*e.g.*, Situtunga and Lechwe). The spread of the two halves of the hoof, and their distance apart, gives the same animal's spoor a very different aspect and is no guide as to the animal, except, perhaps, in an animal like sable, which habitually spreads more than others.

The droppings also vary considerably. Those of water buck during the rains

are soft from feeding on green, wet grass, but in the dry season often become firm and well defined in shape, as in our sketch.

Also the colour is no guide, as this varies considerably, except in the case of the hyæna, which is generally white.

The shape and method of deposit is what one must judge by, and the size in some animals gives an indication as to whether it is from a male or female, as with the elephant.

Of course, spoor often helps in deciding the droppings adjacent, and *vice versa*.

The spoor of young animals of the larger antelope might sometimes be mistaken for adults of a smaller species, but again the spoor of young will seldom or ever be found alone, and the footprints of the parents will furnish a clue to their identity. We have done our utmost to avoid laying down the habits of animals in too dogmatic a way, as we are convinced that those of individuals of the same species differ greatly.

Under given conditions, animals of the same species may usually do the same thing, but there are always sure to be many exceptions, and, moreover, one would never meet two animals under exactly the same conditions.

Then, again, habits differ tremendously according to locality, owing to the influence of climate, water, grazing, and on account of the natives who inhabit those localities.

Remarks about the actions of animals that live in a country which has for generations been inhabited by hunting tribes, do not necessarily hold good about the same animals when living near pastoral tribes.

So before proceeding any further, we would ask our readers to allow more individuality to animals than they are usually given credit for.

CHAPTER II.

HOW TO LOOK FOR SPOOR.

IN the last chapter we have suggested that the true hunter will endeavour to learn as much as possible of woodcraft, and should have the ability to do his own tracking when need be.

We will now endeavour to show how he should begin to do this. It is as impossible for him to learn how to track from a book as it is to read a book on cricket and be able to play immediately. For both he needs years of practical experience, but we will attempt to put before him the chief points he should notice, and the lines on which his observations should be based.

He should learn as much as he can of the languages of his native hunters, so that he may profit by their knowledge and experience. The first words he should learn are the names of all the animals likely to be met with, and those for such common things as spoor, blood, male, female, wound, bullet, tree, near, far, stand, gallop, &c. These will take him some way.

When he sees a track he should ask to what animal it belongs, and every time the natives see a track which he does not, he should make them point it out to him. Just at first many tracks will look the same, while others of the same animal will look different. He will soon, however, distinguish the different forms of tracks that various animals leave, independently of their size. He should try as soon as possible to form an idea of the size and shape of the track of a full-grown bull of each species. The spoor of the young animals are generally more confusing, as they do not seem to assume their characteristic shape till full grown; but this is the less important inasmuch as it is presumably the full-grown bull that it is his ambition to shoot; and, moreover, where there are young there are almost certain to be one or more adult animals. As an example of the difference between the character of the tracks of the young and the full-grown animal of the same species, compare those shown of a young eland with that of the bull. In other buck the spoor of the young has an unformed appearance, which shows it to be that of a young animal, and not a full-grown one of a smaller species. A collection of the spoor of full-grown animals of different species has been made in the hopes that they may be useful to the beginner; but we regret to say that, although they have been drawn to scale from carefully-chosen

impressions, they do not show the resemblance we should have wished. The reason for this, we are inclined to think, is that the spoor when committed to paper is too clear and well defined, and that the only way to convey a true impression would be by making a plaster cast.

The reader must also bear in mind that, though the spoor is the actual size, as he will discover for himself if he troubles to compare their measurements with the mean of those of two or three dozen full-grown animals, they look bigger than the original.

The spoor we have drawn is as nearly perfect as we could find, a place where an animal has crossed a bare patch or pathway being generally chosen. Such a spoor is, perhaps, not seen more than once or twice during a whole day spent in following an animal, it generally being necessary to decide what the animal is from an imperfect representation, but it is necessary to learn the appearance of the whole thoroughly before one can hope to recognise it from the part.

When one has the general appearance of the spoor vividly ingrained in one's mind, the imagination instinctively fills in the parts missing from an imperfect impression, and this often leads the eye to catch some faint lines in other parts it would otherwise have missed.

It is not merely necessary to be able to recognise the spoor, by far the most difficult part is to see it at all. In walking in the bush one should always go very slowly, as there are four important things to be done at the same time.

Firstly, to keep a continual look out in every direction, to see any game the moment it becomes visible and before it has seen you, in itself no mean feat in thick country; secondly, to watch the ground in front and on either side of you for spoor; thirdly, to walk noiselessly; and, fourthly, to listen for any sounds which might betray the presence of game, not to mention looking out for antbear holes, game pits, stumps, buffalo bean, and other impediments.

The main difficulty in seeing spoor is to recognise it in every guise it assumes in ground of varying hardness and different types of country, and at the different speeds an animal is moving.

Till one begins to see them unconsciously it is best to be continually thinking how a spoor would look if it were in a special patch of ground you are looking at.

Putting aside tracks in muddy ground, and the galloping buck on hard bare soil, which is obviously apparent, we will try and describe some different aspects they assume.

There is a very shallow, faint impress which an animal often makes in a thin layer of gritty sand in hard ground. This is absolutely invisible looking straight down

upon it with the sun overhead, as there is no shadow or relief to catch the eye, but it may be seen obliquely several yards away. Such a spoor is often seen on native pathways where the hard path has a thin layer of gritty substance on the top of it.

In such a case it will almost always be noticed that, whereas it is nearly or entirely indistinct, when looked at from one side of the path, it is quite visible from the other, according to the position of the sun.

On recognising such a soil, one should scan it from a distance rather than looking down on it as it is passed over.

Then there is the hard, bare soil in which the galloping tracks could not be missed, but where an animal walking slowly leaves only a sharp, inverted V-like cut of the fore part of the hoof, and sometimes only the very tip. This looks like two sharp cuts made on the ground with a knife.

On rocky ground one would be unlikely to notice any track, and if one did would be unable to tell to what animal it belonged, and close observation of such ground would not repay the time and labour involved. If it was necessary to follow a track over country of this kind, such indications as a small stone, perhaps only the size of a pea, being dislodged and showing the place on which it had rested, or lying with its earthy side up and weather-beaten surface turned over, or lichen rubbed off the rock, or some small blade of grass in a crack bent down or bruised, are to be looked for.

There is another form of spoor occurring on hard, dry soil, sometimes made by buck, but usually by lion, rhino, and the softer-footed animals, and that is a slight brushing of the ground with the pad, dislodging a little dust and giving the soil a faintly lighter colour than that surrounding it.

The reader who has not followed rhino may be somewhat amused at the thought of looking for any trace so faint of such a large and heavy animal, but we assure him that, though easy enough to follow in most country, such a faint mark is often the only indication that the ponderous beast has passed.

In addition there is soft, dry sand which falls in all round the track, leaving no clear impress or characteristic shape. Spoor, as described above, occurs generally in bare red soil, interspersed with trees, bushes, and clumps of tall grass.

Before leaving this type of country we will mention that it is generally the habitat of the white ant, and that the animal passing over it often treads on an earth-covered twig or little pyramid built by these insects, where the broken earth is easily seen.

Now let us turn to the more overgrown parts. There is first of all perhaps

the easiest of all country, the fresh, short, green grass which is trampled down or bruised, showing where the animal has passed.

In such a place it is not necessary in the first instance to look for the spoor, but the line of drooping heads pointing whichever way the animal has gone. On seeing this, a closer inspection of the soil underneath should be made to see by the spoor what the nature of the animal is.

When the grass grows longer and thicker, though still green, the trampled line is there, but the grass must be carefully parted to see where the animal's foot has gone through and left its impress on the soil below.

Where the grass is very thick, it needs a little practice to select the exact spot where the foot has been put down.

In tall, dry grass, growing in clumps, often 12ft. high, generally on red soil, the spoor is much like that described before, but the view is limited.

Here it is necessary to push the grass right and left between two clumps to see beyond them.

There is generally no trampled grass to be seen, as the animal has pushed his way between the tufts, and there will be so much grass bent down by wind and other animals as to cause confusion. Often a bunch of dead grass has to be carefully lifted up where it is thought that an animal has trodden the grass into the soil.

Perhaps the most difficult country through which to follow game, for one would never go there by preference or to look for spoor, is the real elephant grass, tangled and matted, such as one finds near the banks of a river, or in low-lying spots where the ground has held the moisture of the rains well into the year.

Here it is either so thick that the noise made crushing through would scare any game away long before you got near—the view being limited to the distance, you push the grass and reeds aside—or else it is trodden down in well-defined runs by elephant, rhino, or buffalo. Along the well-trampled dead grass of these paths it is almost impossible to tell whether anything has passed recently or not.

The grass in these localities is generally tall and dry, as it does not burn until late in the season.

The larger game have continually to be followed through this ground, and it will be found that if they enter the untrampled portions the track can easily be seen, but when they enter an elephant run the only thing to do is to follow up the run, and every time another path branches off to patiently search both for any sign.

Often under the thick layers of dead grass in the pathway there are little blades of green grass shooting up, and by lifting the dead grass it can be seen if the tender shoots underneath are bruised or not.

Sometimes the grass is too thick for this, and one has to follow up one of the two turnings on chance, and after going a short way the smell of the animal may be perceived in a place where he has stood for a few moments, his droppings may be found, or he may have helped himself to some branch in passing.

This leads us to consider tracking by browsing, which the hunter must not neglect while looking for spoor on the ground.

Along a path just described in thick tangled country the spoor of elephant may cross that of rhino or *vice versa*, and the hunter keen on getting the one and not wishing the other might be led off on the wrong spoor.

In this case a branch torn from a thorn tree or a bit of chewed thorn dropped on the ground would show that he was in the wake of a rhino, while a long strip of bark torn from the top of a tree would denote the elephant. The elephant is in the habit of gathering young shoots springing out of the ground with his trunk as he walks along, and, after eating the leaves off, throwing neat little bunches of stalks right and left. The destructive way eland pull whole branches from trees and strip off the bark is very noticeable. The trees and plants every animal feeds on should be learnt, and the manner in which they pluck them. In dealing with this subject, knowing little about botany, we have been obliged to use native names in describing each animal's food.

Although more tracking is done by spooring, the browsing often helps us when we are stuck, and should be carefully observed and studied, in that it affords a much surer indication of the time since the game passed. Wherever an animal feeds on leaves he is sure to drop a few on the ground, and the extent that these have dried will give the required information, as will also the moisture on the branch it was bitten from. The dryness or otherwise of the leaf naturally depends largely on the heat of the day, whether it is lying in the sun or not, and the nature of the tree it has come from, so it would be hard to indicate any general rules for the same, but with the necessary practice the approximate time is soon learned. It is obviously a matter of the highest importance, on finding a track, to be able to determine its age, and whether it is fresh enough to be well worth following. With the grass feeder, the grass he has been browsing from should be picked and examined closely. With the kudu the ends of shoots growing under trees should be looked at whenever the spoor passes near them.

On finding a spoor the first thing to do is to determine its age. This can be roughly seen from the spoor itself, with regard to how keen cut the edges are, and by examining the earth closely.

If it is thought to be fresh it should be followed up, and it will not be long before the animal is found to have broken some stalk or trampled down some grass. The

sap at the break, or the bruise on the grass, will furnish the more accurate knowledge required. When a buck has rubbed its horns against a tree, as kudu and sable often do, the bark will be found rubbed and bruised.

The most certain means of any in judging the age of spoor is the condition of the droppings, if they can be found.

Very little practice will enable the hunter to tell whether they have been deposited within the last five minutes or within the last hour ; in a word, whether he is close on the animal, or how much chance there is of getting up to him.

There is more to be learnt from droppings than from any other department in spooring, and we have deemed it of sufficient importance to collect and endeavour to portray those of most animals.

It is as useful to be able to recognise those of different animals as to be able to differentiate their tracks.

Whenever this form of spoor is met with, the hunter will mechanically put his foot on it to ascertain whether it is soft and fresh, and whether it is steamy inside.

The foods of various animals are denoted in this way ; we have seen promising young pumpkins sprouting from an elephant's ordure, showing that he has eaten ripe fruit from a native garden, the seeds passing unhurt through the animal and, deposited in such favourable surroundings, quickly taking root.

We have noticed the bristly hair of the klipspringer in the dung of leopards, bones of fish in otters', fur of mice in that of wild cats and leopards, showing that the latter is not above mousing like any other cat, when he has nothing better to do.

The jackal also will fill his empty stomach with berries, and the duiker will occasionally eat seeds.

The small buck, duiker and oribi, return to the same neighbourhood to make their droppings, and little heaps of different ages can be seen close together, while the little Sharpes' steinbuck makes only one big pile, returning to the same spot while remaining in that locality.

With buffalo, maggots are seen in the dung on the second day, which is always a certain sign of whether the spoor is fresh or not. If found at a reasonable hour on the first day, they are generally worth following, as they walk slowly and lie down much, except when on trek changing their country. When they are trekking from their watering-place to distant grazing grounds, or moving off to a new country, it can be seen by the spoor, as they and also zebra move on a narrow front, and elephant usually go in file, seldom diverging, while all these animals open out when going slowly ; and when grazing each animal takes its own line.

Dung naturally differs according to the food, but generally retains the same form ;

the waterbuck, however, varies materially. When feeding on moist, green grass, it is more like that of cattle, while at other times it somewhat resembles that of eland.

To return to the tracks of animals, it can be taken as a general rule that those of the hind foot of such animals as hyæna, jackal, and cats are narrower than those of the fore foot, but often longer; while with buck and elephant the hind track is usually smaller than the fore, but more oblong in shape.

Sometimes, as in the case of eland, this is very marked, and the spoor of the hind foot might pass as that of a different animal.

It must be remembered that in the usual walk of a buck, jackal, &c., the spoor of the hindfoot is generally in front of that of the fore, while at a jog it is on the top or slightly behind.

In the walk of a cat or genet, that of the hind is usually exactly over the fore, and it is for this reason that the hind foot has been shown in the illustrations, as it is the one more generally seen.

The lengths of stride of the different animals at their different paces have also to be learnt.

Knowing this enables spoor to be seen and followed much quicker, as one knows how far to look in front for the next step.

Some native hunters pace in the stride of the animal when following up its tracks, placing their feet immediately behind each spoor, and observing every step of the animal. When the spoor is lost, only the ground close in front of the foot has to be searched for it.

The hoofs of galloping buck always spread out, while at a walk the two halves often touch; this is notably the case with sable.

The two halves of the foot sometimes only spread in front, while behind it looks in the spoor as if they were joined. (See spoor of eland or bushbuck in Part II., both of which may at times assume the shape of that given for buffalo and kudu respectively, but smaller.)

With lion, leopard, hyæna, jackal, and cats it will be noticed that the pad of the inside claw is the shortest and thickest, and that of the outside claw has a concave curve opposite it in the large rear pad.

The rear pad is bigger and extends more on the outside than the inside. (For illustration see spoor of *F. serval* in Part II.)

With baboon, the mark of the ball of the counterpoised digit can be seen.

We now come to the most difficult part of the recognition of tracks, and that is, to tell apart two animals of the same size and species. If the reader can do this easily he will be beyond the need of taking any hints that these elementary pages can

offer him. We will mention in passing, however, that this is almost wholly done by observing the splittings of the hoof, or in elephant and rhino from the protuberances formed by the peeling of the hard horny skin of the pads.

A zebra's hoof is often excessively split and broken, the sketch of which may show what is meant.

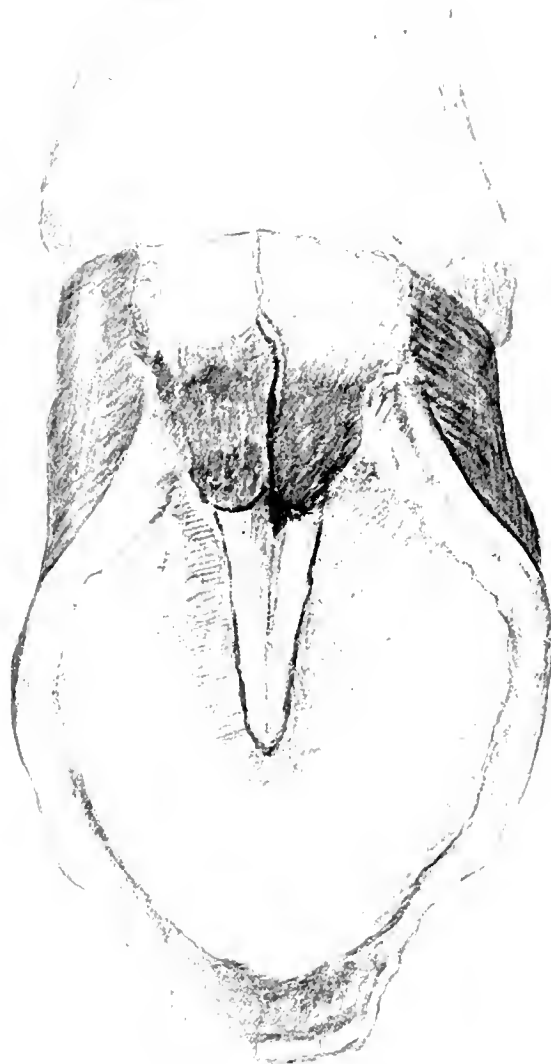
In following game, each spoor will look somewhat different according to the ground and the way in which pressure has been brought to bear on it, but soon an approximate idea is gained of the irregularities and their relative positions noted.

With regard to elephant's and rhino's feet, we might mention before closing that, owing to the gentle way they put them down, often the impress of these protuberances is easier to see than that of the whole foot.

At other times the mark of a blade of grass, pressed into the earth and sprung up again when the animal released it, catches the eye before the whole spoor does.

With reference to the tracks of cats and other small animals which can hardly be referred to as big game, we have included these as the beginner who is at all observant is sure to notice them, especially on the paths, and may wish to know to what they belong.

If he takes an interest in all animal life which surrounds him, he can learn by this means much of the habits of many nocturnal animals, animals he would seldom, if ever, see, and of whose very existence he would be unaware if it were not for their tracks.



ZEBRA'S HOOF
(Showing Broken Surface)

CHAPTER III.

HOW TO FIND GAME.

AN early start from camp is advisable, and if the grazing grounds are far it may be necessary to start before dawn. For sable, roan, eland, hartebeest, waterbuck, warthog, &c., the dambos should be skirted before the game has left for the thick bush.

A dambo is an open stretch of ground with bush on either side. They take the drainage of the forest land, and during the rains are practically marshes, while during the dry weather they are, till fired, covered with tall, rank, thick grass.

Where the old grass has been burnt and the fresh green grass is springing up is a favourite place for game, and it comes here also to lick the salt from the burnt ashes.

On cloudy, cool mornings, game will probably remain longer than on a bright day

If no decent head is seen one should try to get on the spoor of an animal that has been feeding there during the night or early morning.

If found fairly early it ought to be overtaken when lying up at midday.

Should no animals or spoor have been seen when the sun has got well up, it will be best to try the bush.

For kudu, bushbuck, impala, &c., the denser places should be searched, as they seldom leave thick country.

When there is a river or water in the vicinity of camp, their neighbourhood should be observed for spoor of animals that have drunk during the night.

Later in the day it would be of little use, as game would probably be some distance off.

Many animals travel great distances to drink, notably elephant, rhino, lion, and zebra, while others are seldom found far from water, for example, waterbuck, reedbuck, impala, puku, lechwe, and situtunga. The last two practically live most of the day in water or marsh.

When camping in a native village it is always worth while having a look at the cultivated patches on the way out to shoot, as elephant, hippo, eland, and roan often come to feed on maize during the night, sometimes right up to the huts, and the elephants even pull down the basketwork stores to help themselves to the harvested maize cobs; while kudu invade the patches of castor-oil plants.

The spoor of many nocturnal animals, such as lion, leopard, hyæna, jackal, porcupine, and the lesser cats are seen on the native pathways early in the morning before they have been trodden on.

The favourite ground of kudu are wooded slopes, as they, with sable, zebra, bushbuck, and duiker are often to be found in very rough and broken country, and at high altitudes.

We have shot sable considerably over 6,000 feet above sea level.

On most of the rocky summits are to be found klipspringer, who seem to be able to live without water.

These are very rarely to be seen in the low country, and perhaps then only on their way from one range to another.

Elephant, rhino, and buffalo inhabit, as a rule, much wilder country, and following them involves the hardest work.

Elephant drink nightly, and their spoor can be picked up going to and coming from water.

It is necessary to be on their spoor very early, owing to the immense distances they travel. They generally stand in the shade at midday. Rhino live in thorn tree country, and like thick grass, through which they make well trodden and winding runs.

Buffalo are seldom far from water, or go any distance during the day unless travelling from one place to another, as they drink in the daytime as well as at night.

Lion and leopard, being nocturnal, are very seldom seen, and, if they are, they are generally come on by chance; but on a cool morning they may remain near their kill till after the sun has risen.

When put up, they bound away grunting, leaving an easy spoor to follow for the first few hundred yards, but soon settle down to walk "carefully," as the natives say, leaving hardly a trace to be seen.

There is no systematic way in which to hunt lion in Central Africa, as in desert countries like Somaliland.

They may be come on by accident or got by sitting up at night. If fresh khubber of a kill can be obtained, and there is a good moon, the chances might be favourable, but "tying up" is very disheartening work and generally results in a blank night. A lion is very suspicious, but when he has killed or is very hungry seems to lose all his natural caution.

He generally eats little of his kill the first night, and returns for a gorge the next; for this reason there is a better chance of obtaining a shot by this method.

After leaving his kill he will always go to water before lying up.

When he gets into a goat kraal he seems to delight in killing as many animals as possible and more than he can eat.

They do not take to man-eating in the same way as the tiger does in India, but pass from game to man as the opportunity occurs.

A great number of human beings are annually killed by them in Central Africa, more especially during the rains, when the grass is long, and presumably they meet with the same difficulty in stalking game as does the hunter.

If he should drag his kill, as he often does with a man, there is little difficulty in following him.

Hippo come on shore during the night to feed, and often wander some distance from the water, returning before daylight. They generally go in small herds. They are not only found in the large lakes and rivers, but also in smaller streams if the pools are deep. When found in these they are very fond of papyrus swamps, in the midst of which they are difficult to find; entering and leaving these they make deep muddy runs.

In the dry weather, when the swamps are shallow, it is sometimes possible to reach the pools where they are lying by wading through the mud.

The hyæna is seldom seen in the daytime, though occasionally he may be noticed making for thick cover after a late night out

Jackals are often seen about dusk, when they begin to move. The claws of both these animals may be seen in the spoor, whereas those of lion and leopard are shot out only when they are preparing to spring, in which case the ground is seen to be torn up.

We mentioned before that one should listen carefully when after game for the sounds which betray their presence. Galloping game can be heard at a great distance, and if a herd of zebras are disturbed their thundering hoofs will give the alarm to any game near.

Roan, sable, hartebeest, and animals in large herds, as a rule, do not go far before stopping.

If having seen or winded you they are heard galloping off, they would be worth while following up.

Many buck bark when they see you, *e.g.*, kudu and impala, while reedbuck and oribi give a shrill whistle, roan snort, and hartebeest make a guttural sound.

Lion, leopard, and pig grunt when they are put up; wounded elephant, besides trumpeting, make a very shrill scream; but what is of more use to the hunter are the sounds not caused by their having seen you, and which enable you to locate them.

Such sounds are the stomachic rumblings of elephant and the flapping of their

ears, the bellowing of buffalo, the tapping of roan, sable, and kudu's horns against trees, the blowing of hippo. The latter is heard upwards of a mile, and from that distance sounds like a deep-drawn sigh close at hand.

Just as a woman's voice differs from that of a man, so does that of a female animal from a male's.

The bark of the male baboon is gruffer, the roar of the lion is more powerful, and, when roaring at night, it can be distinguished if there are a couple, or only a lion by himself.

Many animals emit a strong smell, which can be recognised after a little practice.

When following up an elephant through thick grass, his smell is noticed at places where he has stood, but is especially useful when following a wounded animal.

In the winding grass runs he walks so noiselessly that he might only be a few yards ahead of you round a corner without your being aware of it if it were not for the smell.

Rhino also have a strong smell, differing a little from elephant.

Waterbuck have a musky smell quite peculiar to themselves. Of other animals, buffalo and warthog have distinctive smells.

We have touched on sporing by tracks, browsing, sound, and smell, and also on the most likely places in which to find different game, and will now endeavour to show the best ways of spotting them.

Needless to say, the most important thing is to prevent them getting your wind, so in arranging the day's shoot, work out your direction so that in traversing the places in which you most expect to see game you will have the wind right.

Naturally, you will not adhere rigidly to this direction in places where the spoor is difficult to see, but, while keeping your general bearing, will zig-zag so as to pass over likely ground, and parts where spoor is easy to be seen.

Any changes of wind should be noticed and conformed to.

On a cloudy day in thick country it is difficult to keep one's bearings.

For this reason the direction of prevailing winds should always be noticed, as the grass bent down by them is a sure index.

Also the ways streams flow should be noted from maps, as a guide to where you are.

It should always be known when the last rain fell, as a guide to the age of spoor.

It will well repay trouble to climb every anthill on your way, in order to have a look round for game.

In very thick country, especially when after elephant, it will often be necessary to climb trees for this purpose.

The sportsman should invariably carry his rifle himself, or he will miss many opportunities, and he will only have himself to thank if he loses valuable game by not doing so, as it is a native peculiarity never to be at hand when wanted.

He should not walk out on to a dambo at once, but inspect it before reaching it through the trees from a distance, and at any time that a new vista is opened up should approach cautiously and very slowly.

When he has satisfied himself that there is no game near him, he should keep up the edge of the dambo in the shade of the trees, and frequently inspect all likely places and objects, which might be game, through his glasses.

He should always go slowly, as in so doing there is less chance of being seen or heard.

If men are taken out to carry in any game shot, they should be made to walk at least half a mile in the rear in open country, and not come up close, as they always try to do.

If they see anything they should pass up word by whistling or signal.

One should at all times walk noiselessly, even when one thinks that game is not close, and avoid treading on sticks and dead leaves.

The habit of pointing which natives are fond of indulging in should be discouraged, as any quick movement attracts the attention of game.

Your native hunter will often see things first, and should be taught to indicate the direction with his hand below the waist and close to the side.

The two great maxims to observe in looking for game are, to go quietly and to keep the wind right.

The first is by no means easy, as in the dry season the ground will be covered with dry grass, reeds, brittle sticks, and leaves, not to mention thorn bushes, overhanging boughs, holes in the ground, stones, and fallen timber; and in the wet season the green grass will make a swishing sound. Therefore, to go quietly one must go slowly.

Care should be taken to pitch camp at least a quarter of a mile from any water where game may be expected to drink during the night, so that it should not be disturbed by the noise and smell of the camp.

This especially applies to the larger game, such as elephant, rhino, and buffalo.

Of course, this is not so important on the banks of a big river, where the game may drink anywhere, and where two trackers may be sent to look for spoor up and down stream, on both banks, at early dawn.

At a small pool which game frequent, by neglecting such precautions, it may be driven off, thereby necessitating it to drink elsewhere, and perhaps the next pool may be a day's march away.

CHAPTER IV.

STALKING AND SHOOTING.

IT is most important, in order to get close to game, that the sportsman be suitably dressed himself, and see that his men do not wear white, red, or other unsuitable colours, as they love to do.

As to what colours are suitable we can learn much from animals. Often what would at first sight appear startling is in reality adapted to its surroundings. For instance, zebra's stripes for thickly-grassed country, lion a good all-round colour, especially adapted to deserts and dry country, perhaps the reason that he is more successful at killing game when the grass has withered.

Elephant and buffalo, resembling rocks, and a sable, when standing still, is hard to see in a place where there is much shade and dark stumps.

The more blotchy clothes, however, seem to blend more with varying country.

The coat or shirt should be a neutral tint, either mottled or stained with age. The gloss on new clothes catches the sun, and if of one uniform colour shows up as a whole. For instance, a white or black horse is much more distinct than a piebald in many surroundings, and especially at dusk.

So also the leopard is difficult to see, more especially in shade. Because a colour is startling close at hand it does not follow that it will look so at a distance. We think that the skin of a hyæna, spotted or striped, would be both a good pattern to take for a coat, the former for bush country and the latter for grass. If one finds one's shirts are too light in colour, boiling in red earth and water, coffee, or certain kinds of bark will improve them.

Rough and woolly clothes should not be worn, as they pick up grass seeds, burrs, &c., of which there are an immense variety, besides getting torn with thorns.

Hats should also be neutral coloured.

In stalking, remember to keep in the shade as much as possible, and move very quietly and slowly. Any men with you should be left behind and told not to move till called.

Your best hunter should accompany you, however, just behind, as his knowledge of country and the habits of game is probably better than your own; he may notice something you have missed, and will help you to spot the bull.

He is also handy to hold your cartridge bag, and the glasses if they are in your way. You should try to locate the position of every animal in the herd, and look repeatedly through your glasses so as not to miss the best bull; but be careful not to let the sun shine on the lens.

It is very difficult to be certain which is the best bull without considerable experience.

Most males are more bulky than females and thicker in the neck.

An old bull eland has an enormous dewlap and is much heavier than a female; he is often nearly hairless, and then looks slaty blue in colour.

The stallion zebra arches his neck more than the mare. The bull hippo is blacker than the cow, and broader across the forehead.

The bull elephant's tusks are much larger and more curved than the cow's. The females of kudu, situtunga, bushbuck, waterbuck, lechwe, puku, reedbuck, impala, duiker, oribi, and klipspringer are hornless.

The wart sow has not such a big mane and has smaller tusks than the hog.

In a herd the biggest bull is generally found bringing up the rear.

With roan and sable grazing in a dambo, the bull is often found feeding apart from the herd.

The females of all buck are the wariest, while the males lie down more often, leaving them to look out.

It is always worth while making a long *détour* to get really good cover and wind.

If it is necessary to cross above wind of an animal, half-a-mile at least should be allowed, and when exactly to windward the crossing should be made as quickly as possible.

When it is necessary to stalk close to the wind with a strong breeze it would be safe to cut across the wind to within fifty yards, but if it was puffy this could not be done.

When stalking like this it is a good plan to carry flour in a little bag to shake for observing wind, and when the wind is changeable, and a stalk is made to within twenty yards of an elephant, is invaluable, as one cannot be continually stooping to pick up sand. If you are considerably above an animal on the side of a hill your wind may carry over him with a strong breeze.

If possible, when you approach for your shot, the sun should be behind you and shining in the animal's eyes.

In a stalk, sometimes people imagine, like the proverbial ostrich, that when their head is hidden they cannot be seen.

If game seen in the open is not easy to get near, it is often best to sit down

and wait till they have grazed on into cover, but when followed be sure that no sentinel has been left behind.

While stalking, one should never go fast, or doubled up more than can be helped, as it puts you out of breath, causing bad shooting.

Having got to a good position it is best to wait a little to get steady.

Animals generally, though not always, feed up wind and almost always bolt in that direction when alarmed by hearing you, but, if they smell you, will bolt down wind. Most animals, after smelling you, will after a bit go up wind again, but buffalo generally keep on down wind until they are quite certain they have shaken you off. It is, of course, useless to follow spoor down wind except only as far as the tracks are galloping (*i.e.*, you know the animals are probably far enough ahead not to get your wind).

It can be taken as a general rule that if an animal gets your wind he will bolt at once, but if he only sees you he will wait to have a look just long enough to enable you to get in a shot.

All buck are very curious, more especially the smaller ones.

In a case like this if aware that you had been noticed it would be best to stand perfectly still, as you may puzzle him, and while he is looking to see what was moving you can bring up your rifle very slowly and take a shot.

Jerking the rifle up would send him off at once.

Of course, one will always take one's shot sitting in preference to standing, and if the grass is too thick, try and get a rest against a tree.

Animals when grazing continually lift their heads to look round, and sometimes stare at any object that may arouse their suspicions for a considerable time. If they continue to graze again, they have not seen you.

In certain lights it is very hard to tell in what direction an animal is looking, and sometimes he seems to be gazing at you, when in reality he is looking in the opposite direction.

With roan and sable the white vertical blaze on each side of the face shows which way the animal is looking.

In the shade it is sometimes very difficult to tell which way he is facing, as, when motionless, the horns look like branches. In this case the twitching of his tail may be looked for. Even when standing quite still, animals continually move their tails to keep off flies.

The white circle on a waterbuck's rump can be seen some distance.

When looking from behind cover of any kind raise your head very slowly and sink it again.

Always shoot from the right of cover rather than over it, as less of your body will

be visible. Looking over it you might be outlined against the sky. With bushes and grass you would always fire through them if possible.

Be careful that the bullet does not touch a twig or reed, as it might be deflected.

Carefully think out the range before shooting, and the exact spot on the animal you wish to hit with regard to the angle he is standing at.

As it is of great importance to be able to judge distance accurately, it is worth while practising as you are walking along a road or path, pacing supposed distances to see if they are correct.

The common error in Central Africa is to overjudge distance, unlike countries with rarefied air such as Somaliland and South Africa, where distances look less than they really are.

Shooting at long ranges should be avoided, as the head cannot be properly seen, and you wound more than you kill. Many so-called sportsmen who would miss a 1-ft. bull's-eye at 300 yards, with all the advantages of time and position on a range, would think nothing of taking a running shot when out of breath at a galloping buck at that distance. At an unwounded buck we think 200 yards ought to be the limit when the animal is standing, but it is most unfair to shoot him moving at that distance.

If a buck has been badly wounded, it is perhaps permissible to fire at longer ranges, as a lucky shot might kill the animal, saving it from much suffering and probably being worried to death by hyæna and jackal. After your shot do not let your hunter run forward as he will always try to do if the animal falls, but stand still and reload at once, listening for the sound of your hit. There is a very different sound between hitting flesh and bone, as in a hippo's head, and striking earth or trees.

If the animal, after your shot, crumples up and collapses, he has probably been shot dead, whereas if he falls over he almost invariably recovers himself, and is able to move off.

If he lies struggling on the ground one should shoot again, for if he once gets up he will probably get away.

If he draws himself together and starts off at full speed he is presumably hit vitally, and will be found dead a few hundred yards on.

Should game go on after being hit, don't show yourself, but wait until it is out of sight, and on following it will probably be found lying up in the nearest thick cover.

In following after a wounded animal, top all rises carefully, for it may be standing on the other side.

Blood spoor will sometimes not be seen for several hundred yards, and with small bores sometimes not at all.

If the blood is frothy it is a sure indication of a lung shot. A wounded beast generally leaves the herd, so if it goes off with it, on following, look carefully to see if an animal has branched off. It also often doubles on its tracks, so whenever an isolated patch of cover is come to, and you think it is lying up there, if there is any possibility of its getting your wind it would be best to make a *détour* and come in from the other side, noticing if the spoor leaves it, in which case little time would be wasted, and one would follow up at once. One can't take too much pains about coming up to a wounded animal for the first time, as it often does not go far to lie down, but when disturbed, after the first time it will be more wary, and often travels enormous distances before lying down again. Buffalo especially are fond of lying to leeward of their tracks so as to wind anything coming, and it is sometimes best to walk round to the other side, telling your men to try and give the animal their wind, and you may get a shot as he breaks away.

Wounded buffalo drink often and roll in the mud. In coming to a pool, if the mud is stirred up you can tell fairly exactly how recently he has drunk. After leaving the muddy ground very often specks of mud are seen hanging to the grass or dropped on the ground, and this would be especially valuable on rocky ground.

In the same way sand gets into the cracks of the hoofs or sticks on when wet, and is rubbed off on the grass. In the early morning, when the dew is lying in beads on the grass, it will be noticed that the beads of dew have been shaken off, and sometimes in a difficult place, where there are many tracks in the grass, this is the only sign. Sand, when kicked up over the grass, often sticks on, even after the sun has dried up the dew.

The position of the wound can be fairly well located from the blood spoor where branches and grass have been in the way or rubbed against the animal's flanks. Pools of blood are sometimes seen where the animal has stood, and if he has lain down frequently it shows he is badly hit.

It is quicker to follow the blood spoor than the tracks, but the latter should be kept sight of as much as possible, as the blood spoor has a way of suddenly stopping. It is when this happens, and the animal again rejoins the herd, that being able to recognise the spoor of an individual animal is of such use.

Blood spoor is shown on twigs crossing the track long after that on the ground has ceased, so in following the tracks every twig, especially the stiff ones, which cross the track about the height of the wound should be carefully examined so as to verify the tracks.

If hit in the shoulder or hip the animal will probably go short on that side and tread lighter with the foot.

Having once wounded an animal it should never be left as long as there is any possible chance of finding it.

If obliged to leave the spoor at night, the beast may stiffen in the night and be found next day, if it has not been killed by hyæna or jackal.

When vultures are seen they should be watched, as they may be hovering over the wounded or dead animal, marking its position.

If they are seen early in the morning, it is always worth while approaching up wind carefully, as a lion might be seen on a kill.

Wounded buck, especially sable and roan, should be approached warily.

Sometimes when following spoor of elephant, a spot of mucous dropped will show the spoor is fresh. With the head wound at elephant with small bores, meaning '303 to '256, blood is not seen on the spoor.

An elephant, either from the way he holds his head or the insignificance of the hunter, seems blind to his approach, but he has acute hearing and powers of smell. When after bigger game reedbuck should be avoided, as they give the alarm, as also do certain birds.

Native names for the leader of a herd may be of use, and so we append them :

Chinyanja—Mpongo.

Chiyao—Mbangwe.

Swahili—Ndumi.

They are generally used to denote the finest male in a herd, but are also used to denote any exceptionally fine male among animals and sometimes birds. Thus a fine male pigeon is called Mpongo.

CHAPTER V.

VITAL SHOTS.

THE question of vital shots is a most important one, for, after the game is sighted, it is necessary that the sportsman should know exactly where to hit it, so as to kill it quickly, saving the animal perhaps many days of suffering, and the hunter the time and trouble of following it up.

Nothing is more distressing to the man with humane sporting instincts than to feel that he has sent an animal off with a painful wound to die slowly, tormented by flies, maggots, and the nightly terror it will suffer from lions, hyænas, jackals, or hunting dogs.

It would be well, then, to shoot coolly, and not to aim at an animal's whole body, but at the exact spot you wish to hit.

Never jerk the rifle off, but press the trigger gently, and, when possible, sit down.

When this is impossible, if a tree is handy, rest the rifle against it, taking care to have the arm or hand between the barrel and tree to prevent jump.

It would, perhaps, be better to take the animals in order of size and the difficulty in killing them.

ELEPHANT.

A few years ago a head shot was seldom tried at these animals, as big bore black powder rifles and guns often lacked the necessary penetration to pierce the heavy bone in an elephant's head, but since the introduction of cordite and other high velocity rifles the task is easy.

To hit an elephant's brain is not so easy as it seems, for it is very small in proportion to the amount of bone surrounding it. One must know exactly where the brain lies and endeavour to cut an imaginary line passing through the centre of it, for no two shots can ever be obtained at precisely the same angle.

The brain lies fairly low and back, and the ear orifice is a good index to its position.

In a broadside shot an inch or two forward of the earhole in a line with the eye, but low if anything, would be the place to aim, remembering that you are generally at the time of firing lower than the animal, and must therefore aim a little lower than the centre of the brain, as your line of fire slants upwards.

A direct frontal shot is very difficult, and in the case of an animal standing in this position it would be advisable to wait for a better opportunity.

In a quarter facing shot a bullet up the orifice of the eye would be deadly, and likewise a bullet at the back of the ear if the animal's head was turned away from the sportsman.

If the brain is missed the animal often falls from the shock, but in a case like this it will generally stagger and fall on its side and not collapse, as is usual when the brain is punctured.

Death is so instantaneous with a good brain shot that the animal has no time to stagger, but its legs give way underneath it, and it falls in a kneeling position.

When there is any doubt as to whether the animal is dead or not, it is better to put in another shot at once before the animal begins to move off.

When an elephant is down on its side, but still living, run behind and shoot at the back of the head where the spine meets it, of course in the direction of the brain. Be careful, however, to approach from behind and keep out of reach of the trunk, as we have known of a hunter being killed in this way.

If the animal is endeavouring to rise with the forelegs bent under it, a shot at the earhole would be the thing. Body shots at elephant are not nearly as deadly as head ones, for even when struck through the heart the animal may run for some distance.

The heart lies more on the right side of the body than the left, and is fairly high up behind the shoulder.

If a body shot is to be tried it would be better to approach on the right, but of course this depends on the direction of the wind.

Perhaps the deadliest body shot is a raking one, with a bullet placed at the base of the neck.

We have known a single .303 solid bullet bring an elephant down when placed here. The animal, after receiving the bullet, fell, and was quite unable to rise, though it had to be finished off.

The lung shot cannot be recommended with small bores, for unless both lungs are pierced the beast is likely to be lost, but with a large bore rifle this is a deadly shot if both lungs are penetrated.

A bullet placed in the centre of the spinal ridge from behind would paralyse it, and a bullet in the joint of the hind leg would also lead to its being brought to bag; but we hardly consider these sporting shots. Elephant at times seem to be almost blind, and to overlook one as long as there is no movement, but catch quick movements. They are very keen in the smell, and the great thing is to keep the

wind right. When an elephant charges it is difficult to say what is the best thing to do, for circumstances may vary.

In most cases we think the hunter should keep quite still, seeing, of course, that there is a cartridge in the chamber.

This he should fire at close quarters and at the chest, as the trunk will generally be curled, and the head thrown up, masking the brain shot, to try and drop or turn it.

If, after delivering this shot, the animal still comes on, a bolt would be advisable, but make for the spot whence the beast has come, trying to load up quickly. To run directly away from an animal is a fatal thing to do. All large animals are quicker and more agile than one supposes, and the speed with which an irate elephant or rhino can cover the ground is an eye-opener.

RHINO.

Many of our remarks on the elephant, as regards vital shots, are applicable to this animal, with the addition, perhaps, of a shot in the centre of the neck; but this is a difficult shot, and we don't recommend it being tried at first. The brain of a rhino is very small and far back in the skull, and, if broadside on, a bullet about the earhole should reach it.

So many of these beasts have been killed with modern small-bore rifles that we think they are the best weapons to use for this animal.

Neumann, in his book, "Elephant Hunting in East Equatorial Africa," mentions how deadly he found the .303 for these animals, and we know of many being killed in Central Africa with the same bore, as well as with the Mannlicher and Mauser.

They are much easier to kill than elephant or buffalo.

It is advisable to watch game being cut up, so as to exactly locate the positions of the vital organs.

A little ocular demonstration is better than pages of advice, though, until the animal has been brought to bag, a hint or two may be better than nothing.

In following a wounded rhino he will almost invariably be found head on, waiting with the head held high. In a case like this one would aim for a raking shot through the shoulder.

Rhino, when they charge, often do not turn, but hold straight on, and so may be dodged, though they have been known to turn and follow when they really meant business.

They inhabit very thick country, so shots at close quarters are the rule, but if the hunter is cool this is an advantage, for it enables him to shoot more accurately.

HIPPO.

As this animal is generally found in water, shots at the head are almost the invariable rule. A hippo's brain is very small, and we have endeavoured to show a plain sketch of the skull showing its formation.

We think the most certain shot can be obtained when the animal is looking away, exposing the back of its head. The bullet should then be placed below an imaginary line drawn across the bases of the ears, low if anything, unless one is on a high bank and well above the animal.

If the bullet strikes the centre the spine will also probably be cut as well and splinters of bone driven into the brain cavity.

The next best shot when the animal is quarter facing would be the orifice of the eye, the bullet raking backwards. Brain shots all depend on the angle, and one must always have the position of the brain in mind, and endeavour to aim at an imaginary line which will pass through the middle of it.

Hippo are sometimes found standing on sandbanks, with part or all of their bodies visible, but this will seldom be noticed in the daytime, unless they are in a very secluded part; then it would be possible to take the body or neck shot, but none of these would be as satisfactory as the head one.

The direct facing shot is very difficult, for it would be no easy matter placing the bullet right in the nasal orifice so as to travel up it without touching the mass of bone surrounding it; but in the shots we have described the wall of the brain is the first bone encountered by the bullet. Of course, with modern rifles the penetration is so great that if one gets the true direction it matters less where one strikes; but, even with a .303 rifle, the bullet might possibly glance off the skull, though it is not so likely to do so as a lead bullet fired from a black powder rifle.

If a hippo sinks quietly after receiving the shot, he is almost always dead; whereas, if he splashes, he is only wounded, and will in all probability not be brought to bag unless by a subsequent shot.

It is sometimes very difficult picking out the best male, but it will be noticed that they are broader about the head and darker than the cows and young. The shape of the head differs much as does a boar from a sow, the latter being narrower and not so broad across the forehead.

Once a herd has been located, never be in a hurry to fire, for there is plenty of time to decide which is the bull; but it is certainly sometimes difficult to see the teeth, for they are not still for long, and don't always expose enough of their heads to make one sure.

Once they have been fired at, they are rather shy, and do not stay up for long, and unless they are in a detached pool will probably make tracks for a safer neighbourhood.

The sportsman should try and wound as few as possible, for they are harmless beasts if unwounded.

There is no doubt that a wounded hippo will attack a passing canoe, but when unmolested they will invariably make way, and are good-natured animals.

Solid bullets should always be used for these animals, and there are no better weapons than the '303, '275, or '256.

BUFFALO.

This animal has always been painted blacker than it is as regards its usual behaviour, but when once wounded there is hardly a more dangerous beast, especially if it has to be followed up in thick cover.

Care should be taken, therefore, to put a deadly shot in at first, and there is no better place to shoot than the point of the shoulder if the beast is broadside on.

If facing, and its head is up, shoot at the base of the neck for a raking body shot.

If quarter facing, aim at the side of the neck so that the bullet will get to the opposite shoulder.

The best type of bullet for buffalo would be the dum-dum, that is a bullet with the lead just exposed at the point.

For close quarters, in following a wounded animal, a big bore might be useful, for there is no doubt that once a wounded buffalo has made up its mind to charge, it means business, so it is better to have something in one's hand that will knock it down or knock all the charge out of it, though on ordinary occasions they can be killed easily enough with '303 and '256 rifles.

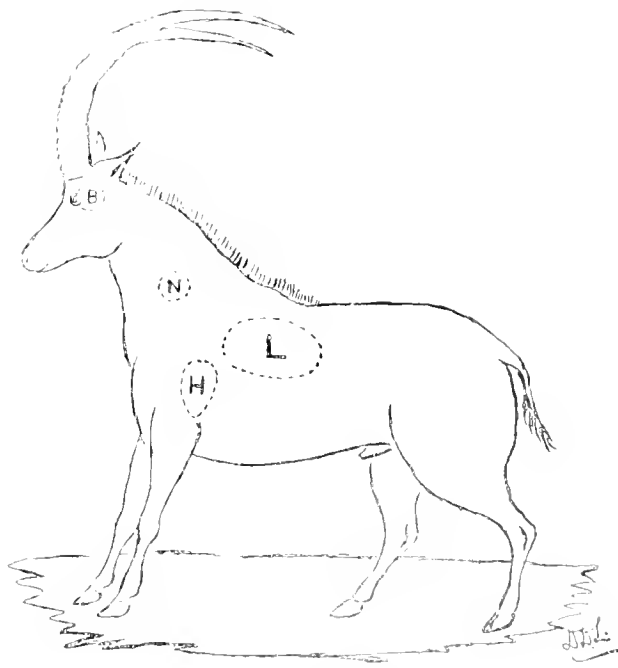
Solids are also good for buffalo, but we think a bullet with lead just showing the best.

If using a single-loading rifle, load up quickly after each shot, and if a magazine is used be sure there are cartridges in the magazine as a reserve.

If charged it would be easy to escape if a tree was handy, or an ant-hill. In the open, of course, it would not be necessary to go closer than 100 yards, at which distance there would be no difficulty in killing the animal. Wounded animals, however, will seldom be found in the open if there is cover about, unless they are so badly wounded that they are unable to reach it.



HIPPO'S SKULL



OUTLINE OF SABLE ANTELOPE
 (Showing position of Heart, Lung, Neck, and Brain)

ELAND.

For this animal we would recommend the same type of bullet as the former. It is a harmless, inoffensive animal, but very tough to kill if the first shot is not a vital one.

LION.

This animal is by far the most dangerous in Africa, for in proportion to the number that have been shot there have been more fatal accidents with them than with any other animal.

The sportsman should, therefore, make a point of never firing at a lion until he is sure of his shot, for the first shot is the all-important one with all animals, and more especially with a lion, for it is very difficult to find when wounded, owing to its capability in taking cover, and because its colour harmonises so well with the surrounding country. If broadside on, shoot at the point of the shoulder, and if facing, at the base of the neck for a raking shot.

The head is a very uncertain mark unless the beast is close, and should not be tried. The same applies to the neck till one is fairly experienced.

Small-bore rifles, such as the .256 Mannlicher or .303, are quite efficient for lion, used with proper expanding bullets such as described in Chap. VIII.

It is a fact that lion are more easily killed than many of the small buck of this country, and die more quickly when hit well forward. If a lion charges it is best to keep a shot up one's sleeve until he is quite close, and there is little probability of missing him.

At the last moment a jump aside might save one, but it would be a toss up.

When following a wounded lion, a big-bore or shot-gun with S.S.G.'s should be taken.

If it goes into thick grass it should be burnt out, and if this is not possible one should wait till the next day.

Most of the fatal accidents which have occurred have been in following a wounded lion into grass, where the chances are greatly in favour of the animal.

BUCK.

It is very difficult in a chapter like this to avoid repetition, as all animals are built much alike as far as their interior anatomy goes.

Buck will be generally shot in the body unless occasionally in the case of

the larger species such as roan, sable, waterbuck; or kudu, but even these ought to be shot in the body, for the neck is a very unsatisfactory mark to aim at, and we advise the young sportsman to take the body shot when it offers.

The best spot to aim at is the shoulder, for if the heart is not struck the lungs may be, or the shoulders broken and the buck unable to run off, or the big arteries round the heart may be damaged.

A facing shot is more difficult; the base of the neck should be aimed at, so that the bullet will rake the vital organs from front to rear.

When this has been thoroughly mastered, the neck shot may be attempted in a shot which often offers itself, when the animal faces you, having just been disturbed in thick grass, which may be hiding his body all but the head and neck.

Shots over 200 yards should seldom be tried, for if the sportsman cannot get to within this distance he should leave the animal alone until a better opportunity offers.

Sometimes in flat, coverless dambos one is tempted to fire long shots, but even in these places 200 yards should be the limit.

Occasionally when following a wounded animal it gets up and rushes off, then one should fire a raking shot at its stern, high up, as the bullet will have fallen a little before reaching the lungs and heart.

Some of the buck are most difficult to kill, such as waterbuck, puku, hartebeest, and sassaby, and it is extraordinary what wounds some of the smaller kind can carry off, for we have known a duiker trying to get away with half its entrails out.

The first is the all-important shot, and an animal is much more easily killed by it than any subsequent shot.

If this is not delivered in a vital place, once the animal has recovered from its shock it will generally take several more shots to finish it.

An animal hit vitally will, as a rule, either collapse instantly or gather itself together as if for a buck jump, dash off in a wild gallop for 50 to 200 yards and then fall dead.

If, on firing, an animal falls over it is generally not hit vitally, and if it lies on the ground it should be instantly finished with another shot, for if it is given time to rise again you may not get another chance at it.

On following a wounded animal if it is found lying on its side, it is probably dead or dying, but if sitting up it will probably get up or attempt to do so on being approached.

Care should therefore be taken with dangerous game not to approach too closely if they are seen to be sitting up.



HEART OF IMPALA RAM.
(Exact size).

The shot at an animal sitting is often a very difficult one, especially where there is any grass, and we are inclined to advise the neck shot under these circumstances, if it is at all feasible.

A wounded animal would still live and, perhaps, charge with a few shots put in the neighbourhood of the heart, but a good neck shot would kill it instantly.

We have tried to describe how to make most certain of a deadly shot, but a good deal depends on uncertainties, such as the way the bullet sets up (no two bullets ever expanding in exactly the same manner); the direction the bullet may take after it strikes (bullets often take the most extraordinary and unaccountable directions after striking, instance the many remarkable wounds received in the Boer war), and the condition of the vital organs at the moment they are hit.

The heart is always dilating and contracting, and the exact state it is in often accounts for the different behaviour of two animals hit with a bullet of the same calibre in the same place.

In expansion the heart offers a bigger target, but when hit in this condition the contraction which immediately follows closes up the hole, so that no blood escapes until the next expansion.

On the other hand, in contraction the heart offers a smaller target; but if hit in this condition, the bullet-hole is extended in the subsequent expansion, and a large flow of blood ensues.

There is little left to add, except that it ought to be the young sportsman's endeavour to try and kill quickly, and not to wound; but if he does wound an animal he should spare no pains or exertion in following it and trying to bring it to bag, so remember that a well-placed first shot is better than three or four badly placed afterwards.

CHAPTER VI.

NATIVE HUNTERS.

THE native is a keen hunter, but we are inclined to think that his hunting instinct is derived more from a love of meat and a lust of killing than from any sporting feeling.

Some people think that the native is ill-used in not being allowed a free hand to shoot in his own country. If he were it would only be for a few years that he would enjoy the privilege, as with the weapons of precision the traders would at once bring him, if they were allowed, and the indiscriminate slaughter of young and females he would indulge in, he would soon denude the country of game; moreover, to allow natives the possession of rifles is not conducive to the peace of Africa, as history has taught us.

If the native was encouraged to farm cattle to a greater extent, he would be able to indulge his passion for meat and his lust of killing, with the additional advantage (to him) of not having to exert himself.

Tribes like the Zulus and Masai, who go in extensively for cattle, are generally poor hunters.

However, when a native does turn his attention to hunting, he becomes more proficient than the ordinary white man can hope to become.

The advantage is all on the side of the native, as he has probably descended from a race or family of hunters; he has begun to observe spoor and imbibe bushcraft from the time he could walk, he knows the country and the animals, he can move quietly and stealthily with his bare feet, he lives in the bush, and hunting is his profession; he has nothing else to think of, nothing else to do, his mind is an absolute blank with regard to everything else, his receptive perception drinks in every lesson he learns with nothing to distract his thoughts, and he has the wonderful powers of observation of the savage bred in him. Even with all these advantages on his side, there have been white men to rival good native hunters, and in cases where consecutive thought is required the native will often be found at fault.

In knowledge of country and ordinary bushcraft he will, as a rule, be far ahead of the white man, but the latter is more cosmopolitan, and, if of average

ability, may find that he can beat the hillsman in the flat, wooded country, and the inhabitant of this latter country when in the hills.

In introspective reasoning the native is often weak, where such reasoning does not immediately concern the capture or death of the animal. For instance, "because he is fierce" is, to the native mind, a conclusively satisfactory reason for the rhino breaking up his dung, and the latter fact is also considered as a certain proof of the former statement.

"That's what makes him mad" is a sufficient reason for the presence of hundreds of maggots in the same animal's intestines.

With the wealth of information which must be stored in his mind about animals and their ways, it is with the utmost difficulty that any of it can be elicited. If asked a question, he is so occupied with trying to give you the answer you want, trying not to give himself away as a liar, and various other considerations, that it rarely occurs to him to give a direct answer, and he will generally try to compromise.

The way to obtain information is to observe him, and in talking to him give him leads, but never leading questions, and listen to what he has to say, especially when talking to another hunter.

You will then get a mixture of sense, founded on minute observation and myth, based on superstition, which you can separate out for yourself.

For instance, he will point out all the trees elephant feed on, and the next moment will tell you that crocs, pythons, and water-lizards all hatch indiscriminately out of crocs' eggs.

He is nearly always incapable of explaining his reasons for any given course of conduct, and gives one the idea of acting on instinct.

The only firearms native hunters are able to obtain are, as a rule, muzzle-loaders, such as Tower muskets and flintlocks.

As the powder also is generally of indifferent quality, he has to get up very close before firing, and then he will generally try for the neck shot, especially with game, like buffalo, as the ball would not carry into the heart or brain.

The bullets are often made of iron, some being spherical, and others cylindrical (*vide* illustration). In the case of dangerous game, he would always choose the young for preference, as being easier to approach and kill, the trophy being of no account to him, except in the case of elephant, of which he would sell the ivory.

The powder horn is usually that of a young buffalo and worn by some at the side (as by the Ruga Ruga), and others in front of the waist (as by the Achikunda).

Before setting out for an expedition a favourable omen is sought either by casting lots or by dreams, to which latter he attaches great importance, and would

never start out after such an unfavourable portent as a dream of people dressed in dark blue calico.

A dance called "chipalu" is often held before starting, and again on the return from a successful hunt.

In some parts poisoned arrows are used to kill buffalo and eland, and are aimed at the animal's flanks and rump.

There are two kinds of poison used, one animal, and the other vegetable, which are said to kill very rapidly.

Other game is run to a standstill with dogs, and then shot with non-poisoned arrows.

This is done by most tribes, the klipspringer being a favourite animal, as it takes to a high peak or rock, and is there surrounded by dogs, and can be approached close, to shoot with arrows.

The wood of the bow, which is about 4ft. long, is made from a tree called "tenza," and the string of the spinal tendons of certain animals, eland and kudu being the best.

The arrows are made of a reed called "bango," and are about 2ft. long, with about 6in of soft iron for the point. The point of entry of the iron is bound, to prevent splitting, and it is also bound round the notch.

Most tribes do not feather their arrows, but the Achikunda use vultures' wing feathers for this purpose.

The string ("nsinga") passes through a hole bored at either end of the bow, and is then wound about twenty times round before being made fast on itself.

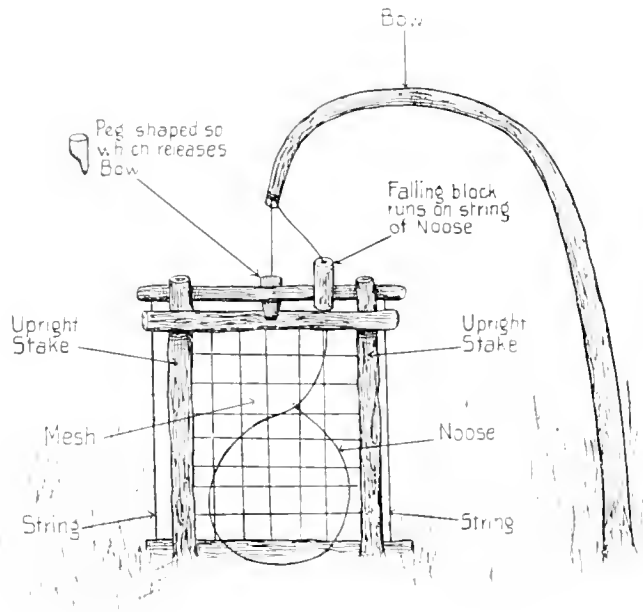
To tighten the bow, the two ends are bent towards each other, and the slack of the string taken in by pulling through the holes, and then twisting all the turns round till it is taken up.

The arrow is fired from the left side of the bow, the forefinger of the left hand keeping it in position.

They are carried by some tribes in a hide quiver, with their butts projecting over the left shoulder.

Another method of hunting is to fasten a large net across a dambo or open space, and with a number of men drive small game, such as puku, oribi, and reedback, into it, and stab them with spears and shoot arrows into them when they are entangled.

The nets are made of various fibres worked up by hand into rope, fibre from the bast of the baobab being often used. Where game is very abundant enormous game fences are erected, inclosing all the village and plantations, to keep the game, especially elephant, eland, and pig, from the fields.



Path
 NATIVE TRAP
 (Used for Catching Small Mammals).



SEINE NET

An opening is often left in these fences in which a game pit is dug and covered over with grass.

These pits vary in size, according to the animal they are intended for, and are from 10 ft. to 18 ft. in depth.

None of the tribes referred to here put sharpened stakes at the bottom.

Often an nsampa trap is placed in this opening, and this kind of trap (*vide* illustration) is largely used in pathways to catch lesser cats and other animals whose skins are prized for ornament, or to make bags for tobacco, &c.

To catch quail, fieldmice, &c., this trap on a much smaller scale is used, set in their runs, and for the two uprights a bit of wood, warped in the fire to the shape of a croquet hoop, is substituted. A stone-falling trap, "diwa," is arranged much the same as that used by boys in England.

Nooses of aloe fibre ("konje") are laid for birds, generally near a pool, where they come to drink.

A branch or creeper is laid down near the water's edge, and the nooses attached.

Where it bridges over a depression or a spoor mark of some large animal on the water's edge is a favourite place, as a bird going to drink would put his head under the bridge, and the noose is set accordingly.

Natives, whose villages are on a big river or lake, live almost entirely on fish.

The smaller streams and dambos, which dry up in the dry weather, they stake across at intervals, to prevent the fish from escaping, and when only a small pool is left, as the dry weather progresses, they spear the fish, using long, unbarbed spears.

The general method is for a number of natives to go into the pool, stirring up the mud, and they spear at random in all directions, the fish they spear floating to the surface. Needless to say, a quantity of fish, too small to be of service, are killed also. In the larger rivers and lakes fish are caught with nets made of string from the bwazi tree or of aloe fibre.

These nets are used either cast as a seine or floated with bits of reed, instead of cork. Traps of reeds are made for fish, like large lobster pots or safety inkpots, and fastened in apertures in the staking across streams for the fish to enter as the water recedes.

A shrub called katupi* (Chiwisa, wuwa) is cultivated, which bears a pod the seeds of which, pounded and thrown into the water, poison fish.

Of other ways of hunting, large rings of fire are made during the burning of the bush, great numbers of natives collecting with spears and bows. As the ring

* Also ntezezi (Chiyao, mtutu).

contracts, any animal inside breaking through is stabbed. The jungle cat is often killed in this way, as it inhabits the grass and open country.

A row of game pits are often dug in a place where game, such as zebra, are constantly going to or from water.

Hippos used to be hunted and killed on Lake Nyasa with large barbed harpoons. These were attached to ropes and poisoned. They were thrown at the animals from canoes. The natives attribute their being able to approach close enough to throw these harpoons to the "hunting medicine," a tattoo marking on the right arm at the shoulder and on the back of the right hand. Poisoned spears are also arranged poised in the animals' run, with a trap to drop them on their backs as they pass.

When out hunting, far from a village, the hunter either builds himself a rough shelter in the fork of a tree or a grass shelter on the ground, with a quantity of poles all round, some yards thick, leaning against it, as a protection against lion.

He lives luxuriously on the meat he kills and the honey he finds, sometimes bringing a little flour with him from the village. In a sandy bed of water he digs a hole in the sand to get the cooler water which percolates, and where there is nothing but a mud hole to drink from he improvises a filter by laying a quantity of grass on the top of the mud, and, pressing it down, drinks the water which oozes through, and sometimes sucks it up through a straw.

He is even more full of superstition than the average native.

He will generally have medicine charms and tattoo marks. Some have medicine against snake bite, which is made by making a row of cuts behind the knuckles of each hand, and rubbing in a powder of certain earth and ashes; and they will then handle puff adders and other venomous snakes so fearlessly that one is constrained to believe in the efficacy of the medicine.

There are different curious rites connected with various animals.

The oldest hunter present carries off an elephant's tusks out of sight, to remove the mass of nerves inside, and none of the others go near the spot afterwards.

Should a young hunter perform the ceremony, or see it performed, they say he will lose his eyesight.

Lion, crocodile, and elephant are the animals most superstition is attached to, and every native secretly thinks that at least the two former have extraordinary and supernatural powers connected with witchcraft, about which it is not wise to know too much.

A knot is always tied in the hairs of the tail of a buffalo when it is killed. Should this not be done, eating the meat will cause diarrhœa.

The knot having once been tied, it does not matter if the tail is cut off the next moment.

There is a large snake, called "songo," which is said to be very deadly and to kill many people, and possesses a crest or comb like a cock. This snake is said to live on trees on the top of certain hills, up which natives will seldom venture.

To encompass the death of this snake, hot usanji porridge is made and placed in a pot on the head, and the snake, who lives in branches, thinking it to be the man's head, strikes and goes into the hot gruel, which covers his mouth and eyes.

Certain families and tribes will not eat certain animals, as the spirits of their ancestors are supposed to dwell in them.

People who cannot eat elephant among the Angoni are called mzunga, whereas the crocodile contains the spirit of the Awemba big chiefs.

In choosing a hunter care must be taken that he is a hunter, as any native will pose as one, and that he comes from some trustworthy tribe (*i.e.*, not a slave tribe).

If both these requirements are satisfied it will be found that there are few natives who can equal the Central African for a cheerful, good-natured, attentive, and faithful servant, and his bushcraft, endurance, and pluck are beyond all praise.

CHAPTER VII.

PRESERVATION OF TROPHIES.

THIS chapter is not meant to be an exhaustive treatise on the way to preserve skins and trophies, to learn about which we would refer the reader to Rowland Ward's little book on this subject.*

A few practical hints, however, noted down in the field, might not be out of place here. If headskins are to be kept, take care, directly the animal is shot, to see that the throat is cut low down the neck, and not from ear to ear, as the native will do it if not prevented. In separating the headskin from the body it should be cut far back round the shoulders, especially in the case of a sable or a long-necked gazelle, to which a taxidermist could not give the proper arch of the neck if cut too short.

In removing the skin from the head, if it is left to a raw native to do, he will invariably leave half an inch or more of skin round the base of the horns, which, of course, spoils it for setting up.

Particular care should be taken to keep the skull and headskin separate, otherwise the Bacon Beetle (*Dermestes lardratus*) is certain to find its way into the skin.

Never is one so forcibly reminded of the old adage, "If you want a thing done well do it yourself," as in dealing with skins, for the native of Central Africa knows nothing about the curing or preparation of them, and does not intend to learn, if he can help it.

In skinning an animal he will make every mistake you could imagine, and a good few that you could not.

Thus, in removing the body skin he will almost invariably skin the legs by cutting down the outside instead of the inside, that is to say, supposing the animal to be a lion or leopard and he has been prevailed upon to leave the paws on, when the skin is stretched out, the pads will be seen uppermost with two toes each side of them.

An ordinary trade knife, at about a shilling, is sufficient to skin any animal from a duiker to an elephant, and about half a dozen of these should be taken.

* "The Sportsman's Handbook."

A small penknife is also very useful, to sharpen which a small oilstone can be taken. This can be used to divide the skin carefully from the base of the horns and from eyes, lips, and nose, as well as for birds and smaller mammals.

For pegging out skins 6-in. French nails are handy, or even 4-in., but, of course, wooden pegs can be improvised.

The preservatives taken should be alum, turpentine, salt, camphor, and Keating's powder, and should be used unsparingly.

The skin, having been pegged out, should be scraped as clean as possible, and plenty of alum should then be rubbed in to dry it. Castor oil is made by the natives and can be purchased from them or obtained locally, and, rubbed on the back of the skin when dry (but not on the hair side), keeps away the bacon beetle, and should be used liberally.

The skin for packing should be rolled, not folded; the hair side drenched with turpentine, and a copious sprinkling of Keating's and camphor packed with them.

In spite of all these precautions, if the package is long on the journey the obnoxious Bacon Beetle will be found in profusion on unpacking at its destination.

Headskins should be turned inside out, so that after the rest has dried, parts, such as the ears, can be continually rubbed with alum until all the flesh and fatty matter has dried up, and also in this position turpentine, oil, &c., can be poured into these parts and the folds, which are always the first to be attacked by insects.

In theory, skins should be packed in air-tight, tin-lined boxes, soldered down, but, of course, this is seldom feasible in the field.

For small headskins and small mammals an ordinary flour tin, with lid which is prized up with a knife or coin, is excellent, and this can be further rendered air-tight by pouring melted sealing wax round the lid.

Skulls should not be packed in the same box as skins, as there is almost certain to be a grub left inside the brain cavity or elsewhere, which will transform into the beetle on the way.

The lower jaw of a head meant to be set up should be attached with wire to the upper, to prevent being lost or mislaid.

As regards heads, the horns, if possible, should be drawn off the cores. They should not be left too long in the sun while drying. Several days in a hot sun will cause a kind of fermentation in the flesh and nerves at the base of the horn, which may permanently discolour a part of it.

They should be dried a little in the sun, but mostly in the shade, until the horns can be drawn off.

Putting them for long in water, or burying them, softens the thin base of the

horn, when it may be attacked by insects or break off, and the water very often causes the horn to warp.

Once off the core they can be cleaned separately and castor oil poured down them, and the rest of the head can then be buried to allow the ants to clean it, but care must be taken that the teeth are not lost.

A tube of Seccotine will be found useful for sticking in teeth that have dropped out, especially in the case of lion or leopard. Before the horns are replaced the cores may be sawn off, leaving only enough to replace the horns on.

This, when the horns are packed separately, allows the head to be packed in a smaller compass, gives less opportunity to insects, and enables them to be drawn off and replaced with greater ease.

Horns, headskins, and skulls should have labels attached with reference numbers to avoid confusion, otherwise on arrival home they might be fixed on the wrong skulls.

The greatest care must be used to prevent a certain borer from getting into the horns, causing a growth of fungoid appearance, which, when removed, will show them to be riddled with holes, and, when once started, difficult to stop.

Castor oil is the best thing to use, with the additional advantage, as mentioned before, of it being locally obtainable.

The horns should be rubbed both inside and out with it about once a month, and those which do not come off the core should be reversed, and the oil poured down between horn and core and emptied out again after having been given an opportunity to soak.

Turpentine is effectual in keeping out the borer if used frequently, but dries quickly, and is apt to make the horn crack.

Paraffin also is too volatile, and an application does not last half the time that the castor oil does.

In packing horns off the core, grass or straw covers of bottles may be shoved down, and, partly projecting, will save the thin ends from getting chipped.

While on trek and the heads are done up in bundles for portage, any good or delicate horn may have a wisp of grass tied round it. At the base of a reed buck's horns there are knobs of a soft half-horn, half-hardened skin, which are particularly subject to the attacks of insects, and should be carefully preserved from being nibbled off by rats, as this may make as much difference as an inch in their length.

They should not be put in water to soften, and the horns should always be drawn off very carefully, even after the head is dried and cleaned.

With regard to elephant and hippo tusks particular care should be exercised

when cutting away the base of the tusk from the surrounding bone, as the thin part is most liable to get chipped and broken during this process.

Native axes can be used with advantage for most of the chopping out, but for this last part a billhook or machette will be found best, and will also be very useful in camp for other purposes.

For transport the hollow at the end should be stuffed with grass, and the end of the base bound round with string or bark.

Vaseline or oil should be constantly applied to all ivory at first, or it may crack quickly.

Other trophies worth keeping are elephants' feet, which may be made into footstools or, if cut high up the leg, umbrella stands.

Rhino and hippo feet for inkpots, flowerpots, lamp stands, &c.

Rhino and hippo hide for table tops and sticks, zebra and gnu tails for fly flippers, hoofs for a variety of purposes, and elephants' molars for paper weights.

CHAPTER VIII.

RIFLES, &c.

THIS subject has been much written about, for anyone who constantly peruses the *Field* or the latest books on sport in foreign countries must have noticed the many articles and chapters that have appeared in print on the subject.

However, as it is, perhaps, the most important part of a hunter's outfit and so much really useless information has been published on the subject, there may still be room for a short chapter on it.

In the days of Harris, Gordon-Cumming, Oswell, and Baldwin, the usual weapon for ponderous or dangerous game was a heavy bore muzzle-loader, sometimes smooth, sometimes rifled. Oswell's favourite weapon was a 10-bore smooth double-barrelled Purdey with a rifle backsight. With it he killed many elephant, rhino, and lion. Gordon-Cumming also used a 10-bore rifle by Dickson, Edinburgh, and, like Oswell, he did good execution with it, but it is only necessary to read his book, "Five Years' Adventures in South Africa," to see that it was by no means infallible, for he mentions putting fifty-seven bullets into an elephant, taking from 11.30 a.m. until sundown to kill it. Baldwin and Harris also used muzzle-loaders. In later days Sir Samuel Baker and F. C. Selous, who began their sporting careers with the old muzzle-loaders, lived to see and use more modern weapons, such as the black powder Expresses, and in Selous' case the still more modern cordite and other high velocity rifles. Baker's favourite weapon was a double .577 Express, and he was a great believer in the solid bullet as opposed to the exaggerated form of hollowed-out projectile. He considered that a soft lead bullet, driven by a large charge of black powder, quite powerful enough for soft-skinned dangerous animals, such as lion, tiger, bear, and leopard, and so it was, but almost unnecessarily powerful. Using a solid hardened bullet he killed elephant, buffalo, rhino, &c. Even this he did not consider powerful enough for the largest beasts, for he strongly recommends the use of 4, 8, and 10 bores for such animals.

Selous, starting off with the old 4-bore smooth guns the Dutch called "Roers," killed elephant, rhino, and buffalo, but he has mentioned in his book, "A Hunter's

Wanderings in Africa," how much his nerves were shaken with these heavy, hard-kicking weapons, for the powder was simply thrown in by hand, and in one case his native gun-carrier loaded a gun twice, as the cap had only snapped the first time.

On trying the gun a second time it went off, and Selous mentions "that he went off too." Later on Selous took to the .461 Gibbs-Metford, and did good work with it, using a cartridge loaded with 100 grains powder and 360 grains bullet for all buck, lion, leopard, &c. This bullet had only a small hollow, not more than a third of the length, which is the reason it was so efficient.

For elephant, rhino, buffalo, and hippo he used a cartridge loaded with 90 grains powder and a bullet weighing 570 grains. Lately he has taken to the .303 and .256 Mannlicher, and has written a considerable amount in praise of these small weapons. F. Vaughan Kirby is still a believer in the .461 Gibbs-Metford and heavier bores for the largest animals. Neumann, a sportsman of great experience and who wrote a book called "Elephant Hunting in East Equatorial Africa," used a .577 and .461 until he tried the new .303. He mentions how efficient he found this weapon against elephant and rhino, and says that he would never go back to the old black powder rifles with their smoke, noise, and fouling. It is a noticeable fact that most of the men who have had the greatest experience have been the first to appreciate the benefits of the modern rifles. The people who are the most averse to them are men who have shot their game with the old black powder weapons, and, without having properly tested the powers of the new weapons, at once condemn them. The advantages of the new rifles are as follows :

1. Flatter trajectory (due to greater velocity).
2. Absence of smoke and noise.
3. Slight recoil.
4. Lightness of rifle and ammunition.
5. Greater accuracy (especially at unknown ranges).

A great deal of the success to be found in the use of these weapons depends almost solely on the use of a proper form of bullet. If one uses an expanding bullet on an elephant's head, one naturally would not expect to kill it, or a solid bullet placed in a buck would likely lead to it getting away. There will always be a great difference of opinion amongst sportsmen as to the best bore and the best type of weapon. Even when the bore has been decided on, there is some difficulty in choosing, for rifles can be made double, in magazine form, or as single loaders. Most men who carry a rifle throughout a hard day's shooting prefer magazine or single loaders in preference to doubles, for the former are much lighter to carry and, unless

the double is made by a really first-class maker, are more accurate, for there is great difficulty in making a double rifle shoot the same with both barrels. We would certainly advise the sportsman to use magazine or single loaders, for, as we have said, they are handier and cost much less, for the best magazine or single loader can be purchased for less than £25, whereas a really good double would cost from £40 to £60. Cordite rifles can be made in all bores from .256 to .600. The .600's, .577's, .500's, and .450's are made solely for ponderous game such as elephant, rhino, and buffalo. The .400's, .375's, .360's, and .350's are intended for use against all game, but most makers would never think of recommending a man to start away on a trip with only a .303, .275 Mauser, or .256 Mannlicher, but it is a fact that not only buck and lion, but animals such as elephant, rhino, and buffalo, can easily be killed with them, provided a suitable projectile is used, and they are struck in a vital part. The larger bores are certainly safer, especially to a nervous man or a bad shot, but it does not make much difference to the elephant whether his brain has been punctured by a .577 or .256 bullet. When a man has a weapon like a .500 bore cordite in his hand he is apt to think that he has only got to hit the beast to bring it to bag; but this is not always the case, though there would certainly be more likelihood of his finding it, if only wounded. There is undoubtedly one advantage which the larger bores possess, and that is, the quantity of the blood spoor; but in our opinion this is a minor advantage when the handiness and other benefits of the smaller bores are taken into account. Of course, we are aware it is possible for a person to change his opinion on a subject after a given circumstance, and if a man went through the experience of a bad mauling while using a small bore he might be so shaken that afterwards he would only use the strongest weapon procurable; but this hardly affects the argument, for men have also been mauled while using the heaviest bores. It certainly seems more sportsmanlike to use a small bore, for then one takes more pains to obtain a deadly shot, and if an animal should only be wounded there is much more chance of its recovery. The ammunition for the larger bores is much more costly and more bulky to carry. At present the .303 cannot be taken into India without special permission, though an officer can pass it as part of his kit; but this rule does not apply to Africa, and .303 cartridges can be bought in a number of stores in that country. There are a great number of fanciful bullets (expanding type) made by gunmakers for the .303; in fact, every prominent maker has his own bullet, but we do not think more than two types need be taken, viz., expanding and solid.

The best .303 expanding bullet we know is the Mark V., with a hollow $\frac{3}{8}$ in. deep in the nose, the hole having a slight taper and left open.



250 MANNLICHER SOLID BULLET (UNUSED)



577 SOLID BULLET (UNUSED)



303 SOLID BULLET (UNUSED)



LEAD CORE OF MARK V BULLET FROM LION'S BODY



303 SOLID FROM HIPPO'S HEAD



303 SOLID FROM ELEPHANT'S HEAD



NICKEL COVER OF MARK V BULLET FROM LION



303 MARK V BULLET FROM REDBUCK



303 SOLID FROM ELEPHANT'S SHOULDER.



250 SOLID MANNLICHER BULLET FROM HIPPO'S HEAD

250 SOLID MANNLICHER BULLET FROM ELEPHANT'S HEAD



NATIVE OBLONG IRON BULLET CUT FROM ELEPHANT.



NATIVE ROUND IRON BULLET CUT FROM ELEPHANT



250 EXPANDING MANNLICHER BULLET FROM BUFFALO'S BODY.

BULLETS SHOWING MODE OF EXPANSION IN GAME

This bullet is ample for all the buck and for lion, leopard, wart-hog, &c.

The solid is used for elephant, rhino, hippo, and for raking shots at buffalo and eland.

The best shot for an elephant is the head one, and if the animal is broadside on, a few inches forward of the earhole in a line with the eye, low if anything. If the bullet strikes here it will reach the brain. (See Chap. V.)

Before passing on, let us compare the relative advantages of small and large bore cordite rifles :

FOR SMALL BORES.

(Meaning '256's, '275's, and '303's.)

1. Reduced recoil.
2. General handiness.
3. Lightness of cartridges.
4. Greater nicety of shooting and clean killing.
5. Cheapness of rifle and ammunition.

FOR LARGE BORES.

(Meaning from '400's to '600's.)

1. Greater striking power.
2. Increased blood spoor.
3. Greater margin for indifferent shot.

It will be plainly seen from the above that the balance is much in favour of the small bores. As mentioned before, care must be taken to use a proper form of bullet, as the killing power of the rifle so much depends on this.

For the '256 Mannlicher and '275 Mauser the best form of expanding bullet is one with lead just exposed at the point with a small drilled hole in the nose.

The lead ought not to project, but be cut flush off. If there is a projection of lead and it becomes dented, as often happens in carriage, they will sometimes jam in the breech shoulder of a magazine form of rifle, though this would not be applicable to a double-barrel or single loader where the cartridges are inserted by hand into the chamber, but even in these would be more difficult to put in and might also affect the shooting. For elephant, rhino, and hippo the solid bullet is the best, and the authors have found little difficulty in killing ponderous game with the '256 and '303 bores using these projectiles.

A plate is given showing sketches of the bullets before and after use, and also two native-made iron bullets cut from elephant. A sketch of a '577 bullet is also given as a comparison with the '303 and '256 bullets.

Very much depends on the man behind the rifle, his faith in the rifle he uses, his nerve, the spot the projectile hits, the angle the animal is turned at, and the state of the heart or other vital organs when they are hit.

We think people are often too much inclined to praise or condemn a rifle on a few single instances, whereas no two animals or bullets behave in exactly the same way. To quote two instances : we have dropped a charging elephant on his knees

at ten yards with one shot from a Mannlicher, and with the same weapon failed to stop a charging lion at two yards.

The inference to be drawn from the first instance is that the Mannlicher is all that is desirable for the most ponderous game, and from the second that the same rifle is utterly useless, even for comparatively small game, neither of which inferences are of the least value unless compared with hundreds of other cases.

In the first case, had we had a heavy bore we think that we may not have been able to have got in such a deadly shot, whereas, in the second case, with a heavy bore or even a shot-gun, the shock of impact would in all probability have turned the animal.

We have touched on the disadvantages of double barrels, especially big bore, but we have omitted to mention its greatest advantage, and that is, the rapidity with which a second shot can be got in, which is a very serious consideration in a tight place.

The first shot is the all-important one, and if this only wounds, the animal must be stopped by sheer weight of lead and blow of impact.

For the first shot we wish to use all the accuracy at our disposal, and something that we can always have in our hand through a long and tiring day, hence we advocate a small bore.

If after firing this we had an automaton to hand us our big bore, it might be useful to have one in reserve to meet a possible charge, but gunbearers are only human, and rather than run the risk of having to look for it up a tree or some yards in rear, perhaps it is as well to depend on your magazine and accurate shooting and save yourself sixty guineas by not having a rifle which may be in the way when you don't want it, and very possibly not available when you want it mighty badly.

However, this is for the sportsman to decide for himself, and if he has a big bore he should certainly get hold of it before following wounded lion or buffalo.

As regards sights there are various kinds, some people prefer Lyman's, others the ordinary V sight.

Lyman sights are certainly very accurate owing to the increased distance between fore and back sight. In wet weather, however, the peep-sight gets a bead of water in it which has to be blown out before shooting.

As to V sights, some prefer a broad and others a narrower V. A broad one is, perhaps, quicker for a running shot.

The backsight should have a silver line down the centre. The foresight should be tipped with ivory, enamel, silver, or platinum. Ivory is the best for bush country, as it shows up well against a dark background. Lyman peep-sights are useful for standing shots, but should be made to fold down, so that the ordinary sights can be

used if desired. There is really no necessity to have sights on a sporting rifle beyond 300 yards for this country. Most game is shot within 200 yards, and with the foresight taken a little full, the standard 100 yards sight is sufficient for that. Young sportsmen should remember that for one bullet that goes under the game ten go over its back, the cause of oversighting. A new rifle should be tried at a target before using it on game, in order to find out its accuracy at different sporting ranges. It does not follow that a good target shot will be successful at game, for it is quite a different thing shooting at an inanimate bull's-eye to shooting at a beast that is probably looking at you and may be off at any moment. If game had a small envelope pinned on the middle of their shoulders they would be killed oftener. In thick cover, especially with trees throwing a lot of shade, it is often very difficult to locate the right spot on the beast's body, but care should be taken not to shoot at the whole animal; one should always try to get the sights on its shoulder or just behind it. A small buck, such as a duiker, if any distance off, will require very accurate shooting to kill it.

Sit down if possible, or, if the grass is too long, a rest against a tree helps the accuracy of the shooting, but the hand ought to come between the rifle barrel and tree, to prevent the jump of the rifle throwing the bullet wide. Both the back and fore sights of a rifle should be screwed in so as to prevent them shifting, and a sight-protector kept over the foresight except when one is hunting. On no account have a sight-protector that covers the bore at the muzzle, one that an aim can be taken through is the best. As a sling often comes in useful, especially on hilly ground, loops ought to be brazed on the rifle barrel and screwed into the stock. An automatic safety bolt on a rifle is a great mistake; it should always be non-automatic, meaning that after reloading the weapon is at once ready to fire without having to push forward the catch. A sportsman should clean his own rifle, for a native is very clumsy-handed, and will be likely to scratch the weapon or knock off the bead on foresight.

A spare foresight should always be taken, as it can be fitted at once if the one on the rifle gets broken. A spare mainspring, striker, and other important parts ought also to be carried, for if any of these get broken, having them at hand would save the trouble and expense of sending the weapon home, besides the annoyance of a long wait, perhaps in the best time of the shooting season. For cleaning rifles nothing is better than pure Rangoon oil or vaseline. The former is very good for the stocks of rifles, as rain will run off a stock which has been well rubbed with it, instead of soaking into the wood.

A few lessons from the gunmaker as to the method of taking the rifle to pieces

and putting it together again (the more difficult process) are very useful. Strong cases for rifles will be required. The best for keeping out water are Silver's patent watertight cases, built on the same pattern as their travelling boxes, but, if these are not taken, black glazed or green rotproof canvas will do. Rifle covers are generally made of leather or canvas; if strongly made and bound with leather the latter are strong enough to stand lots of hard wear and tear. A bandolier should be bought for cartridges in clips, such as Mannlicher or Mauser, and one for the .303 would be handy, but this the native hunter would carry, and the sportsman would put a couple of clips in his pocket for immediate use. For .303 cartridges a pair of loops to hold six cartridges, each side sewn on the coat, would be the best, or a strap to hold twelve to slip on the belt if one shoots in shirtsleeves. Sometimes the sportsman may sit up at night for a lion or leopard. In that case he should have night sights for his rifle; the best, we think, are three silver balls, one to slip on in front of the foresight, and the pair behind the backsight. It is best to have the strongest light from the back, so that the sights will show up well; so be careful to pick a position where the moon is likely to show behind at the time the animal is expected to come to the kill, or animal tied up for him. A shot-gun is not such a useful weapon in Central Africa as a rifle, and the big game hunter will not bother much about the smaller feathered game, but a gun might be useful to shoot guinea-fowl, duck, or partridges for the pot. Anything from 12 to 20 bore would do, with S.S.G., No. 3, and No. 6 shot. The S.S.G. is a useful charge for a lion or leopard at close quarters, and also for killing small buck, such as duiker, but we think all four-legged game (barring rabbits and hares) should be killed with the rifle, as it is more sportsmanlike. Cartridges, especially those for the rifle, should be soldered up in tins, in lots of fifty cartridges, to preserve them from the damp, and it is not a bad thing to distribute them in different boxes, for if they were all in one box, which by some mischance was lost or went astray, the hunter would be left in a fix. "Pegamoid," being the best damp-resisting paper cases, would be the best type of cartridge for the shot-gun. A couple of strongly made cartridge bags, one for cartridges, and the other for carrying odds and ends such as tape-measure, notebook and pencil, compass, string, &c., should be taken out shooting. One soon learns by experience what to take and what to leave behind. A hunting knife must be carried for finishing off and bleeding a buck. We have found a kind known as the "Bushman's Friend" (which is a better class of butcher's knife) the best, for the temper of the steel is not too high, and it can be easily sharpened.

The ordinary thick-bladed hunting knife usually sold by stores and cutlers

is almost useless, for it is tempered too highly, and the blade is so thick that after it has got blunt it cannot be sharpened properly without the aid of a grindstone. Never buy a knife with a folding handle, for after a little wear the spring weakens, and it is apt to close on one's hand, and besides, if the knife was wanted in an emergency it would be useless, for it takes two hands to open it. A few common butcher's skinning knives should be included to give the natives for skinning game. These can be bought for about 1s. For skinning small birds nothing is better than a small penknife; it can be hung on the belt swivel, and should be provided with a shackle for this purpose. If a man is going in for collecting birds he should bring out a small .410 "collector's" gun, with cartridges loaded with No. 10 shot, and a few No. 6 for the larger specimens. If a rook rifle is taken a .220 or .250 bore is large enough, for it will mainly be used for killing birds for the pot, and small mammalia such as cats, &c.

The cartridges for the rook rifle should be loaded with smokeless powder in preference to black, as it makes less noise, and some of the bullets should have hollow points, which increase their killing power. When one is on a trip after big game it is not advisable to fire off shot-guns in the vicinity, for this would be likely to scare away the game, whereas the report of a small rook rifle would not be heard at a great distance. It is also useful for practice on off days and helps to keep one's eye in. A pair of good field glasses is a necessity, and doubtless the latest form of prism glasses will be chosen. A magnifying power of eight diameters is strong enough for all purposes. The native hunter could carry the cartridge bag and glasses, so as to have them handy when needed, but when the game is sighted and the sportsman starts to stalk it, he should have the glasses himself.

CHAPTER IX.

KNOWLEDGE OF COUNTRY.

A KNOWLEDGE of country is indispensable in bushcraft, and so one should continually exercise oneself in it.

There are two operations which might well be compared to strategy and tactics respectively.

The former is to be able to find one's way about the theatre of operations, back to camp or to a previous camp; and the latter is, on having sighted the game you wish to stalk, to so mark down his position and take in the best method of approach that you may come up with him or near where he was standing, sometimes after a long *détour* and perhaps without ever getting a second view of him to guide your course.

In the former operation one is guided in hilly country mostly by landmarks, and in flat bush country by the sun, direction of prevailing winds, the belts and clumps of trees of different kinds met with, outcrops of rock or changes in the nature of the soil, the roll and trend of the country, dry river beds, &c., and at night by the stars.

To know the time taken in marching between two points is infinitely more useful in flat than hilly country. For instance, you may be returning to a spot by a route you have not traversed before, having marched two sides of a triangle. You know the approximate distance, and may be going to fix your position by a belt of acacia you have passed going out. If you come to a belt several hours too soon, it will help you to decide that this is not the right one.

In the operations we have likened to tactics, one is guided by the shape and kind of individual trees, the conformation of the ground, and the direction of the wind then blowing (if constant).

It will be seen that for both these operations a knowledge of the different kinds of trees met with is essential.

It will be simpler to learn these under their native names, for which reason we have always referred to them by those names most widely understood by the natives of these parts. (See introduction to Part II.)

The trees which are found in different parts of the country, at different altitudes, and those which grow on different kinds of soil, should be noted, those which only grow near big rivers and lakes being especially useful.

Thus Mtondo and Masuku are found on red, dry soils in the uplands, and the grass under them is sparse; Mtawndo and Mbungutwa near big rivers and lakes, and Mpani and Msekechi on their banks; and further from the river, often bordering these latter, come various thorns.

Any peculiarities in the shapes of tall and conspicuous trees should be noticed, and those near a camp, especially in flat country, should, if the spot is to be revisited, be sketched or noted.

In hill country a rough sketch of the appearance of different hills is useful, and a note of perched blocks, bosses, needles, and clumps of trees on hilltops and the number of trees they contain should be made.

When an animal is seen, and before firing, the spot on which it is standing should be carefully marked down, and after firing, if it or the herd move off, the direction they take and a particular spot passed should be noticed, so as to lose no time in getting on the spoor.

In a flat bush country, if the sun goes in, direction has to be maintained by compass bearing, or in the absence of a compass by the signs of the prevailing winds, and by the wind then blowing if it be steady.

The prevailing wind during the whole of the dry weather blows very constantly from the south-east.

In the latter part of this season, except where local causes interfere, when the grass is burning, the half-burnt stalks may be seen uniformly pointing north-west.

Other signs are the sides on which trees and rocks are weatherbeaten, the sides of trees and mounds on which sand is heaped up, ridges of sand which have a steeper descent to leeward, and the marks of the wash of waves on pools and lakes.

During the rainy season the wind changes constantly, but it is usually the north wind which brings down the rain. At the end of the rains, the wet weather passes to the north, and thus a south wind at this time results in a fine day.

The seasons are :—

Rainy.—November to April.

Harvest.—April to July.

Cold.—May to August.

Shooting season.—July to January.

To march by the sun we should know whether it is north, south, or vertically overhead. During the course of the year the earth presents itself at different angles to the sun, which causes the noonday sun to appear vertically above certain latitudes at certain times.

The limits of the latitudes in which the sun appears overhead are $23\frac{1}{2}^{\circ}$ N. and $23\frac{1}{2}^{\circ}$ S. Within these regions (the tropics) the sun is sometimes north, sometimes south, and twice in the year passes vertically overhead. Outside the tropics the sun is always south in the northern hemisphere and north in the southern.

Thus, in England the sun always travels across the south of the heavens.

An approximate table of the declination of the sun is given here to the nearest degree. For more accurate information the Nautical Almanac can be referred to, but these figures are quite sufficient for the purpose of the hunter.

They show what latitude the sun will be vertically above at noon on the given date.

ROUGH TABLE OF DECLINATION OF SUN.

January 1st	S. 23°	July 1st	N. 23°
February 1st	S. 17°	August 1st	N. 18°
March 1st	S. 8°	September 1st	N. 8°
April 1st	N. 4°	October 1st	S. 3°
May 1st	N. 15°	November 1st	S. 14°
June 1st	N. 22°	December 1st	S. 22°

Example.—Take our latitude to be 16° S. In January the sun will be to the south of us. At the beginning of February the sun will pass vertically over our latitude, and then further and further to the north until about the end of June, when it will return slowly, passing again overhead the beginning of November, and then to the south again.

Now to get our compass bearings from the sun.

If it is north of you your shadow will point due south at noon, or the shadow of a stick or anything set upright.

If the sun is south of you your shadow at noon will in like manner point due north. If the sun is vertically over your latitude there will be no shadow at noon.

Now for the diurnal movement of the sun.

The sun rises east and sets west the whole world over at the equinoxes.

These are when the sun is vertically over the equator, that is to say, when the declination is 0° , and are about March 21st and September 23rd.

At other times of the year the sun rises north or south of true east, and sets north or south of true west.

The amount it rises and sets north and south of these points varies, both for declination and for latitude. At the equator it exactly corresponds in degrees to the amount of the declination. Thus on January 1st the sun would rise and set 23° S. of east and west if the observer is on the equator.

The amount of this departure grows greater as one recedes from the equator, but is still always in proportion to the declination. Thus in latitude 60° N. or S. it is more than double the declination.

For the tropics, however, the departure is so nearly the amount of the declination that for all practical purposes the amount of the latter may be taken. In latitude 10° , when the declination is at its greatest, viz. $23\frac{1}{2}^{\circ}$, the sun rises 24° from east.

At the same time, in latitude 20° and 30° it rises 25° and 27° from east respectively.

From the above we get the position and bearing of the sun rising, setting, and at midday, and from this it will be easy enough to judge its position at other times.

Example.—In lat. 10° N. you wish to know the positions of the sun at different hours during the day on June 1st.

Referring to the table of declinations you see that on June 1st it is 22° N. Therefore the sun at noon will be further north than your latitude, so your shadow will then point S.

It will rise 22° N. of east or E.N.E. and set N.W.W., so your shadow will point S.W.W. at sunrise and E.S.E. at sunset.

If sunrise is at 6 o'clock we have shadows and pointing:—6 a.m., S.W.W. 8 a.m., S.W. 10 a.m. S.S.W. 12 noon, S. 2 p.m., S.S.E. 4 p.m., S.E. 6 p.m., E.S.E.

Thus, if you know the declination and your latitude, you can easily work out the position of the sun or bearing of your shadow for any time of day.

In practice, however, you do not trouble to work out the smaller angles, but with experience learn the swing of your shadow and how much to bear away from it or towards it as the day advances. The sun is not your only guide, as you have wind, landmarks, and the signs of the prevailing winds to correct yourself by.

Whenever an opportunity occurs you can select landmarks ahead on which to march, looking carefully at your signs and shadows while choosing them.

Whenever there is a view backwards one should take note of the appearance of the country passed through. Try to recognise camp, or any place passed on the march, and note landmarks and general direction, so as to be able to return.

A hunter should always have the position of the wind very clearly in mind, both to direct himself by, or, in case he should come suddenly on game, so as to know at once without hesitation in which way to go.

Now for night marching.

The heavens revolve on two fixed points called the North and South Poles of the heavens.

If he can locate these points they give him north and south respectively.

South is found by means of the Southern Cross.

When the cross is standing upright its longer diagonal can be taken as south. At other times, if this longer diagonal is produced three and a half times its own length a spot near the South Pole is reached.

That is to say, from the top star γ draw a line through the bottom star α , and produce it another three and a half times the length of $\gamma \alpha$.

The pole star gives north, but will generally be invisible from the countries we deal with. When the two pointers of the Great Bear are vertically above one another they can be taken as north, while at other times the position of north can be judged from the direction in which they are pointing.

A few other stars which may be useful are here mentioned with their declinations. The declination of a star, unlike that of the sun, remains constant.

In the tropics their declinations will so nearly correspond with their places of rising and setting that they may be taken as such.

It will be found that, even if one is provided with a good night compass, it will be simpler and quicker to march by the stars.

Capella	}	...	...	...	45° N.	Sirius...	...	...	...	17° S.
Algol		...	...	...		β Scorpii	...	...	...	20° S.
The Pleiades		...	...	...	24° N.	Antares	...	...	...	26° S.
Acturus		...	...	...	20° N.	Canopus	...	...	...	53° S.
δ , ϵ , and ζ Orionis		...	...	...	0°					

We have given those bright stars which are as near as possible to points of the compass. For the positions of other less important stars the Nautical Almanac may be resorted to.

If one generally marches by sun or stars the true bearings of landmarks and places should be remembered, and when a compass is used must be corrected for variation.

In a country where watches so often go wrong and there is no means of having them repaired, it is useful to be able to judge time by the sun, moon, and stars.

As a general rule, it may be taken that the sun rises and sets at six o'clock in the tropics.

In the southern hemisphere the longest day is December 22nd, and the shortest June 22nd. In the northern the exact reverse holds.

The times of the rising and setting of the sun vary with the latitude and with the declination.

When the declination is its farthest south, it is the longest day in the southern

hemisphere and the shortest in the northern, and when it is its farthest north it is just the opposite.

The time of the rising of the sun on the shortest day is in latitude 10° , 6.18, in latitude 20° , 6.36, and in latitude 30° , 6.58.

These times are also those of setting for the longest day.

At the equinox the sun rises and sets at 6 o'clock. For other times of the year they can be worked out from the declination as they vary in proportion.

If we take 6 o'clock for sunrise in the tropics we shall not be far out.

So we have, with the sun vertically over our latitude: 6 o'clock, sunrise.

7, o'clock when the sun is a little more than the breadth of the palm of the hand above the horizon, the arm stretched out to full extent, with the back of the palm towards one.

8 o'clock, twice this distance above the horizon.

9 o'clock, when the length of one's shadow is exactly equal to one's height, this can be observed better by setting up a stick.

10 o'clock, when the shadow is a little longer than half one's height.

11 o'clock, shadow shorter than half one's height.

12 o'clock, no shadow at all.

Reverse this process for the afternoon.

When the sun is not vertically overhead the shadow is longer the further the sun is north or south.

A little practice will soon enable one to judge, and if one knows the declination of the sun, a diagram can always be made that will give the length of shadow at a given time. If you have a compass, the reverse of the directions given above to find your bearing by the sun holds good.

When the sun is a certain bearing, the corresponding time can be worked out.

To judge the time at night is still simpler.

If we have a star moving from east to west it is nearly twelve hours from the time of rising to the time of setting, and the half-circle it performs can be split up into fractions of this time.

A much more accurate method of observing time at night is to watch the revolution of the Southern Cross. It will be nearly twenty-four hours from one time that it is upright till it again assumes this position, so it will revolve through 90° in six hours.

That is to say, that, if it was standing upright at sunset, it would be lying on its side at midnight, and the portions of this angle can be split up into hours.

If the position of the cross is carefully noticed at sunset, the time can be told with approximate accuracy by observing the amount it has revolved since.

In the same way the amount the pointers of the Great Bear have revolved can be noticed, and time ascertained by their means.

When shooting in a strange country, by the time you wish to return to camp, you have almost invariably made a long détour, and have to make your way back through country not traversed before.

The approximate direction and distance of camp is known. Presuming that we are in closed country without landmarks, it is then necessary, after making a good allowance for error, to steer wide of camp, so as to cut your outgoing tracks. Once you have met these you are in country you have passed over before and, presumably, know and can recognise.

If you were to steer straight for where you thought camp was you might pass a mile wide of it on either side, which would not be a great error in a long day.

If this error was on the side of your outgoing tracks you would be all right, but if it was on the other side you would not know when you were passing the vicinity of camp, as you would be in wholly unknown country.

Natives who inhabit flat country are generally wonderfully accurate in pointing out the direction of a place they know, and will give an almost exact compass bearing by pointing with a spear or stick.

At night, however, they are quite unreliable, so at sunset the guide who knows the country should be made to point out the direction carefully, which should be noted by a compass bearing, or by the stars.

When night sets in the sportsman should march on this bearing, and will find it safer not to allow any native who says he knows the way to change the course till he is convinced that he is near the spot and that they have recognised some landmark.

Natives who inhabit hilly country cannot point out bearings in this way, and, as a rule, have no conception of direction, as they go by landmarks; so, in eliciting information from them you should try to understand what marks they are referring to and the position of the place with regard to them, which will need much tact and patience.

CHAPTER X.

GENERAL HINTS.

THE hunter should provide himself amply with bales of white calico, with which to pay his carriers and to buy food with on the road. These can be obtained at the local stores.

The price of fowls is usually about one yard of calico, or five to six small ones for four yards.

When he stops at a village the chief will generally make him a present of a few fowls. The women of the village will sweep the ground to place his tent, and provide him with firewood and water. On leaving the village the chief should be made a present of about four yards of calico, in addition to the value of the present he has made.

The amount depends on the distance from civilisation, but in most parts this would be considered a munificent present.

The price of a pot of native beer (Moa) is about sixpence.

Making some long marches in the Loangwa valley the carriers were much exhausted with the heat (107° in shade), and on coming to a village we sent a man to buy all the beer he could get in the village. Only two pots could be obtained, at a shilling, but these were much appreciated, and on continuing the march the carriers, who had been hitherto silent, burst into song: "The white man is owner of moneys, lord of riches, master of wealth," &c., &c.

If long marches are made it always pays to provide beer every now and then, as it is very nourishing, especially that made of maize.

Salt is also very useful to purchase things with, and cannot be obtained easily up country, so a supply of common salt in bags should be taken. A handful will purchase a basket of eggs, and some should be given to the carriers to mix with their rice or flour when they are not getting meat.

The raw natives seldom steal, but if one's boys pilfer sugar, which they are very fond of, they do it in a very whole-hearted way, and in a few days several months' supply may be consumed.

It is better to put the sugar in small tins holding about enough to last a week, and sealed. This will put the temptation to dip their fingers in, out of their

reach. The seals should be on the top so that they will not get broken by knocking against other things.

A number of tins, of which the lids prize up with a coin or knife, should be provided, as they fit down close, and when a tin of jam is opened the contents should be transferred to one of these tins, otherwise while on the march it will get full of sand and insects.

The tins of tea and cocoa should be of the same kind on a larger scale. If, after opening a bale of calico, there is reason to suppose that any is being stolen, one can put one's initials in pencil in the corner of the remaining piece every time any is torn off for use, and see if they are still there next time one goes to the bale; but natives will seldom take anything of this sort.

A few coloured cloths should be taken to present on special occasions, such as to a chief who brings news of a lion or elephant, or to one's native tracker, after killing some special animal which he has been instrumental in following up.

Some beads should also be taken, only the fashion in vogue should be carefully inquired into before purchasing them, as they differ at different times and with different tribes.

When pitching one's tent during the rains, slightly sloping ground should be chosen, and a little trench dug close up to the tent on three sides, the door side being the fourth, which should be down hill.

If this is the side from which the rain is blowing, of course one would have the tent sideways, and the side trench would have to pass the door.

If camping near a village, a convenient place outside should be chosen, the further away the better, as there are always rats in a village.

When an animal is killed, especially hippo or eland, the fat should be taken and boiled down and kept in tins for cooking purposes. Lion and hippo fat is very useful for cleaning rifles.

Instead of having to stoop down to one's basin on the ground or on a box to wash, it is better to cut three sticks such as bamboo, and making a tripod of them, tie them about the middle with a piece of bark and stick the ends in the ground, resting the basin in the fork.

For the spare rifle a long leather bucket is useful, with only the butt protruding. It can be easily pulled out, and when carried by a native the leather protects the barrel, &c., from his sweaty hand and shoulder.

The clothes should not be woolly, or they will collect and get covered with burrs, grass seeds, &c.

The breeches or shorts should be khaki, canvas, or gabardine.

There should be shoulder pads to protect the shoulder from the wear of the rifle, and a button or knob on the point of the shoulder is useful when the rifle is slung to prevent the strap slipping off.

There should be plenty of pockets, large and small. The latter for watch, compass, &c.

A notebook may be carried in a hip-pocket of the breeches, if hunting in shirt-sleeves, and there should be breast pockets to the shirt with flaps. Waterproof pockets are recommended.

A little pouch is useful on the belt, and may contain a little potassium permanganate (in an empty small cartridge case), a burning glass, and the compass, if one is in shirt-sleeves.

The potassium permanganate mixed with water will make an antiseptic, or, in the case of snake-bite, a crystal should be put into the wound.

It would be better to bleed the wound instantly, and then rub in the crystals.

In the hot weather, especially in the low country, one should get as much of the march done by moonlight as possible.

This also gives one the greater part of the day to wander round camp to try to pick up any game or birds.

One should not start more than an hour before moonrise, unless the road is exceptionally good, as sooner than this in pitch darkness is very trying.

If one arranges to rise an hour before the moon, by the time all the loads are done up and a start has been made the moon should be just about due.

After all the loads are off one should have a look round camp with a lamp to see if anything has been left behind.

If one can take an oil lamp about, it will be very useful. One should have a tin with a screw top in which to keep the oil. This should be square, as it packs better. At night the lamp should be turned down low and placed near the bed; it will keep in all night with a good wick, and can be turned up if there is an alarm. A box of matches should be under the pillow or handy.

The coat should have a collar that turns up and buttons well across the throat with a strap, as it is very cold in the early mornings.

Khaki-coloured silk scarves will be useful to wear round the neck.

When after elephant or large game one should have a strong and intelligent man selected to follow, carrying a spare shirt wrapped in a thin, waterproof cape, a canteen, and the water-bottle. If it is necessary to sleep on the spoor these will come in useful, as the shirt may be wet through, either with rain or perspiration.

The military infantry canteen is as good as any, and should contain what

may be necessary. We would suggest salt, pepper, cocoa, saccharine, biscuits, one cigar, a little barley, and a spare box of matches (the other being in the pocket).

Your native tracker should carry an axe.

For a bivouac, several sticks should be stuck in the ground, leaning to leeward, and grass or branches tied on them with bits of bark.

Some more grass may be put down under the leeward side of this to lie on and the fire made a little further away.

A pile of firewood should be placed within reach, and a couple of long poles with their ends in the fire within reach of the couch, so that they may be pushed further into the fire during the night as their ends are burnt, without having to get up.

If it is cold the putties may be taken off and one wrapped round the stomach and one round the neck.

If any meat has been killed it may be roasted by splitting a cleft in a pliable stick and wedging a piece of meat in. The other end of the stick can be sharpened and stuck in the ground near the fire, being turned at intervals.

If there is plenty of water soup is the best thing to make, with the meat cut small, the barley, and plenty of pepper.

The best way of cooking a bird is roasting it "spatched cock" in a cleft stick.

Water in the bush, however unpalatable it may taste or however unwholesome it may look, is generally quite healthy to drink, and we have drunk all kinds of evil-looking water without suffering any harm. It is only when defiled by human beings that it appears to give typhoid, enteric, &c. The water-bottle should be of aluminium, with a felt cover, and should take an ordinary-sized cork attached by a chain and so fastened that when it rots another can be substituted.

Natives generally make signs at any cross paths to show those who are coming behind which way they have gone.

A scratch across a path, or throwing some leaves, twigs, or grass freshly broken off down on the path is called "closing the path," and denotes that that path is not to be taken.

The hunter will generally march in front of the caravan in case he may meet any game on the way, and that he may see any fresh spoor. He should be careful to see that the side tracks are closed in this way, so that stragglers may find their way to camp easily, as natives are habitually careless about each other's comfort.

He should also change the loads occasionally and see to their fair distribution, or else the strongest men will always, by virtue of their strength, get hold of the lightest loads.

With a magazine rifle, when expecting elephant or rhino, and yet not wishing to miss a chance at buck, it will be found useful to have the magazine full of solids, and an expanding bullet in the chamber to fire at any buck.

If a second shot is wanted the cut-off can be closed and the rifle loaded by hand. This applies mainly to the '303, as the Mannlicher and Mauser do not have cut-offs.

If an elephant or rhino is met with it will only be necessary to draw the bolt back, and press it home again to be ready for him.

The presence of waterbuck, impala, puku, reedbuck, and doves denote the neighbourhood of water.

When it is intended to camp for several days in one place it will be advisable to get your men to erect a grass roof on upright poles outside your tent to feed under. This may be closed on the windward side, but in the hot weather it will be found that one wants it as open as possible, and the roof is all that is necessary, so as to get its shade.

When out in the bush, all holes in trees or anthills may be observed for bees' nests. If honey can be got it affords a pleasant change of diet.

Honey Uchi. Bee Njuchi.

In the harvest season vegetables can be obtained from villages. They are :—

- Maize Chimanga. Pleasant eating when green.
- Cucumber Chipweti. The best eating.
- „ Chinkalowi. Rather hard.
- „ Mankhaka.
- Pumpkin Dzungu. Cooked or made into jam.
- Ground Nut Ntedza. Roasted.
- Tomato Timati.
- Sweet Potato Mbatata. Roasted in embers.
- Beans Nyemba.
- „ Kayera.

Maize flour made into dough (nsima) will be found to be a substitute for bread when flour gives out, and it is very sustaining.

The cucumbers can be cooked, and are then like vegetable marrow.

The tomatoes are generally called by the plural, Matimati.

At the beginning of the rains, December to January, numerous mushrooms and fungi spring up. They have no separate names, but are known as Boa (Zulu—Ngowani).

The English mushroom is often found in great profusion, and is excellent eating, especially when cooked in milk.

The natives will not touch the mushroom, and imagine that they are poison, but eat different kinds of fungi.

One kind which grows to the size of a plate and is brown above is good eating, tasting like fried fish. Roast elephant trunk is excellent eating. A bit is cut off like a round of beef; the gravy and glutinous matter should be served up with it.

To cook marrow, put the bone in the embers until hot and then break open.

Biltong is made in this way:—

Make brine by boiling rocksalt in water, skim the scum off, cut the meat into thin strips, tie a bit of string on to the ends and dip them into the boiling brine for a few seconds, pepper well, and hang up in a shady place for two days.

If troubled with sore feet, soak them in salt and water, or potassium permanganate and water (weak solution) twice a day before starting for a trek.

For fever, the only thing is to try and sweat it out by piling on blankets and drinking hot drinks, or, in certain cases, taking 5 grains phenacetin.

After a profuse perspiration be careful to keep warm. When the temperature goes down a little one will feel inclined for a little food, as the fever is weakening.

When feeling hungry, even if the temperature is still above normal, one should have some light food or soup.

We have found a bottle of beer at this juncture useful (if obtainable), as it induces sleep. Quinine should only be taken before and after fever, not while it is on.

Most doctors would disagree with us, but we can only say we have always found this treatment efficacious, and, with a sound sleep after, have shaken off the fever.

Veld sores are most troublesome, and often refuse to heal for a long time. They should be carefully washed with antiseptic once or twice a day, and all matter removed with cotton wool soaked in antiseptic, leaving not the slightest particle of yellow matter.

Dead skin round the edges should be cut away, and then they should be dressed.

If one kind of dressing is not effective another should be tried.

We have found a mixture of boracic acid and Homocea to be the best.

If this has no effect after a few days, Cuticura may be tried, and then return again to Homocea.

If liable to veld sores, all scratches and small wounds should be washed in antiseptic as soon as possible, which may prevent them coming.

The rubbing of the top of the boot may make sores. This may be minimised by wearing alternately boots of different shape.

After being on trek for some time the feet get very hard, but if liable to sore

feet one should use great care at the beginning of the trek for the first week or so, soaking the feet in solution as above after the march, and soaping or greasing the feet and socks before starting out.

Plenty of Epsom salts or some strong aperient should be taken for the natives, as stomachic troubles are the cause of most of their ills.

If a case cannot be diagnosed, a dose of salt or some harmless medicine will almost invariably cure the native, through sheer faith in the efficiency of the white man's medicine.

One should also have plenty of dressings for them, as they cut their feet about a good deal on stones and stumps, especially during night marches.



PART II.

GAME, THEIR SPOOR AND HABITS.

WE have tried to group the animals together more by the size and similitude of spoor than by scientific classification, so that, on looking up any animal, the spoor likely to be confused with it can be seen immediately preceding and following the animal in question.

Thus, if the puku were the animal in question, on turning it up the impala and bushbuck would be found preceding it, both of the same-sized spoor; and then the lechwe, a very different type.

After the puku we would find the reedbuck more or less the same size and type; and then the oribi, a much smaller spoor, with which it could not be confused, and so it would be unnecessary to look further.

The names of trees and plants are usually given in the Chinyanja language (that adopted by the Governments of British Central Africa and partly by that of North-Eastern Rhodesia).

In some cases the names are Chiyao, as the Manganja borrow from the Ayao names for trees for which they have no names of their own.

When the name is given in any other language but these two, the name of the language is given in brackets.

The Chikunda referred to is the language of the Achikunda living south-east of Fort Jameson in Portuguese territory, and not the Chikunda of the Akunda or Vakunda of the Loangwa, unless specially mentioned as being such.

The Swahili is that of Lake Nyasa.

The names of animals in Chichewa are usually the same as in Chinyanja when not stated. Where they differ, the word is given.

ELEPHANT (*Elephas africanus*).

CHARACTERISTICS.

The African has a more sloping and not so square a forehead as the Indian elephant. The tusks grow to a greater size. He has only four toe-nails on the forefoot, whereas the Indian has five.

NATIVE NAMES.

Chinyanja	Njobvu.	Swahili	Tembo. Ndovu.
Chiyao	Ndembo.	Chisenga	Njovu.
Zulu (Ngoni).	Nkhlovu.	Chibisa	Nzovu.
Chikunda	Mzou.	Chiwemba	Zofu.

FOOD.

Msatsi (castor oil shrub).

Chimanga (maize) and Maungu (pumpkins) from native plantations.

Leaves of Kokamoli, Changu Ruma, and Mtondo (the small hill Mtondo, not the big riverside tree of that name).

Shoots of Ntsungwi (bamboo).

Fruit of Matonga (Kaffir orange) and Masuku.

Leaves of Namalenga, the only thorn tree we have noticed them eat the leaves of. They pick the leaves off, but do not bite the twigs.

Bast of Jombo, Mseza, and Mkuhoo. The latter is a thorny tree, but they strip the bark off the base where there are no thorns.

Pods of Msekese and Chitimbi.

Shoots of Sasama (a spiky plant growing in dambos).

SPOOR.

Considerably bigger than rhino or hippo and, unlike these, hardly show any toe-marks except faintly the two front ones.

When stampeding, these two toes show a deeper impression, especially in the forefeet, and the dung gets broken and splashed in falling.

The dung is very much bigger than rhino and hippo and cannot be mistaken for either; it often contains seeds from the pods they have eaten, and undigested bark.

When just dropped it is wet all over, and dries round the edges first, leaving the top until last.

After lying about two hours in the sun it will have dried all but a little moist patch at the point.

When deposited during the night it is excessively hard to tell the age, as it is kept moist by the dew.

Natives will press it with their feet to see how recent it is by any warmth remaining in it.

In strong wind and exposed places it, of course, dries and cools very much quicker.

The dung of a baby elephant living on milk is more like that of buffalo. A wounded elephant often gets diarrhœa, which will distinguish it if there is any doubt in following the spoor.

The front foot is very much bigger and rounder than the hind.

The bottom of the foot is covered with hard lumps of peeling skin; the whole track would only be seen in muddy or sandy places, otherwise the impression of these lumps must be looked for.

Grass or twigs trodden under foot leave their impress on the soil, and even if they spring up again after the animal has passed, their fresh impress on the ground will still be seen.

If the grass is thick it should be parted or pushed aside to look for this impress, or, if you place your foot in the place where he is thought to have trodden it can be seen if the grass, when pushed down again, conforms to the shape of his foot.

In a sandy place, especially where there is wind, an impression will soon fill up and lose its fresh appearance. The bruising of green grass should also be looked for.

In the elephant there appears to be a distinct relation between the size of the foot and that of the tusk, a big tusker generally leaving a large track, unlike buck, whose feet are generally in inverse ratio to the size of horn, but, as with everything connected with game, no fixed rule can be laid down.

The spoor of females is very much smaller than that of males, and if the hunter is careful not to follow any spoor measuring less than 15in. across, it may save him many a hard day's walk for nothing.

The droppings of females are also considerably smaller than those of males. The spoor of female is more oval than that of male.

HABITAT.

Bush and wooded country, generally flat but often climbs hills, especially where certain trees are to be found, as a patch of Misekezi on a hillside, to which they will return to strip off the bark.

Sometimes pass over high ranges of hills in travelling from one locality to another. Generally found in the neighbourhood of some big river or stream, to which they come at night to drink and bathe, and along whose banks they make well trodden pathways.

HABITS.

Elephant, when not on trek, will after drinking walk in extended order, picking off branches and eating as they go along.

Short shoots growing out of the ground are gathered up, and, after biting the leaves off, the stalks are deposited right and left of the track in neat little bundles.

The sap at their base gives the age of the spoor.

When they come to anything especially interesting, as a tree with berries, they will break it down and gather round. An elephant country is always obvious from the number of trees broken down. We have seen patches of three or four acres of timber without a tree left standing.

When they come to their grazing ground they frequently stop under trees where there is anything special, and about 10 o'clock or so will generally make their mid-day halt in shade; when the sun begins to decline they usually choose a different tree to get the afternoon shade, and about 2 or 3 o'clock will move off again.

Most of the night is spent in eating, and before sunrise they will have drunk and moved off again to their grazing grounds.

When on trek, either changing localities or when the feeding ground is far from water, they will line up one behind the other, making a beaten track, and seldom stop for anything till they have finished their journey.

During the rains they move about less than in the dry weather, probably because they have a shorter distance to go for water and food.

The females, young, and small males up to 20-lb. to 30-lb. tuskers move about together in large herds, while the larger males, in smaller numbers, are usually found separately and sometimes in quite different parts of the country.

The tusks of females are very much thinner than those of the males, and often slightly flattened.

It would be unlikely to find a good male in a herd containing female and young.

Tuskless males are usually found alone and appear to be generally bad tempered, and sometimes on getting wind of, or hearing man, they will bear down on him with a shrill scream and the trunk curled.

If they miss their objective they will usually go straight ahead without turning.

In such a case the best thing to do is to move sideways out of his path if there is a tree handy.

If this is impossible a shot in the chest will probably turn him, the head shot being in this case difficult as his trunk will be in the way.

Some elephant appear to be naturally tuskless, while in others the tusks have decayed and broken off owing to a wound in their base, generally from a native iron bullet.

Old males frequently have sores from which a kind of mucous exudes, and a clot of this on the spoor may help in tracking.

The African elephant is supposed to be worse tempered than the Indian. They are only kept in captivity when young, and on growing up become intractable and have to be shot.

Jumbo was an African elephant and an exception, but even he was at times very unruly.

The name Jumbo is perhaps a corruption of the Swahili Tembo.

Elephant, either from the position in which they hold their heads or the insignificance of man, appear to absolutely ignore the approach of a hunter, provided the wind is in his favour and he walks silently, but they have a very keen sense of smell, and on winding him almost always stampede in the opposite direction.

With a favourable wind they can smell man at least 600 yards away, and probably much more.

This, of course, is difficult of proof, as on coming across their stampeding spoor it is impossible to tell at exactly what moment they detected your presence, but it is usually so far off that you have been unable to hear a herd of perhaps forty animals stampede. It is certain, however, that they can smell water or mud at quite this distance.

An elephant wanting water will not follow the intricate winds of a dry water-course where there may be some hole, but will walk parallel to it perhaps a quarter of a mile down wind.

He stops at intervals, raising his trunk and flapping his ears, the latter perhaps focussing or fanning the smell to him, and when he smells what he wants he will turn sharply off and walk straight to the hole. He does not, however, seem to be able to distinguish between water and mud, and it is probably the latter he chiefly smells, as we have seen in such a case an elephant turn off and make for a hole where there was no water but only fresh mud.

We are told that the elephant at the Zoo are able to tell whilst coming through the tunnel if there is fresh grass put down for them in their house, and if so will break into a run.

He himself has a very strong smell which is particularly noticeable in passing any tree or place where he has stood long, and in following him in a winding path in long grass where it is impossible to see more than a few yards ahead his smell is the first indication that you are close to him.

In thick country his position can also be located by his stomachic rumblings and the flapping of his huge ears, both unmistakable sounds when once heard.

A trumpeting usually indicates that the herd have winded you and are stampeding.

During the harvest season they come into the fields at night to eat the maize, and then appear to ignore both the presence and the smell of man, as they sometimes will walk right into a village and help themselves to the harvested grain out of the basket-work stores.

In walking they go wonderfully silently, and even when stampeding after the first go off, when a few saplings and bushes may be broken down. Like many other animals they are passionately fond of salt, and will break up and demolish whole ant-hills to eat the salt earth of which they are sometimes composed, digging away and breaking off the earth with their tusks.

It is probably while doing this that they swallow by mistake the stones that are found in the stomach. Sometimes, when such a place is met with, it is possible to judge the size and girth of the tusk by the impress left on the broken side of the ant-hill.

They are sometimes found dusting themselves with sand, and will also smear mud on a wound to heal it. A wounded animal is sometimes helped up by the remainder of the herd, who, putting him in their midst, help him to get away.

Places are frequently found where they have stamped up sand and earth by swinging the foot, and natives say that this is to test the direction of the wind by seeing which way the sand blows.

We have not been able to satisfy ourselves that this either is or is not the correct reason, but we have many times met with these marks on a still day, immediately followed by a change of direction up wind.

To shoot an elephant one should approach carefully up wind, testing it repeatedly.

For this purpose a small bag of flour to shake out is useful.

One should endeavour to get up as silently as possible to within twenty-five yards.

It does not matter in the least showing oneself, but if there are a good many elephant about it is best, if possible, to fire from behind a stoutish tree, as directly you fire they will all stampede and may go any way.

The brain shot is distinctly the best. If the animal does not collapse into a

kneeling position, but falls on its side, even though he may appear to be dead, it is best to make certain of him by a second shot, as if you leave him you may return to find him gone.

This second shot while he is lying on the ground should be directed at the junction of the head and spinal column raking forwards.

MISCELLANEOUS.—TUSKLESS MALE.

Chinyanja.	Nyungwa.	Zulu (Ngoni)	Kamgwara.
Chikunda	Mowi.	Chiyao.	Nachuula.
Chiwemba.	Tondo.*	Chibisa	Nachuula.

CHIKUNDA NAMES FOR ELEPHANT.

Golongwa—males found with herd of females, about 20-lb. tusks.

Batwa—bull whose tusks each make a man's load, 30-lb. to 60-lb.

Pinga—bull whose tusks each make two men's load.

Hurukazi—all cows and their tusks.

Ntende—elephant's tail.

A very big bull, as pinga, is called:—

Swahili	Ndumi.	Chibisa	Nkunguru.
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Roast elephant trunk is most excellent eating.

NOTES.

* Tondo is the elephant-nosed shrew, hence used for a tuskless elephant.

NOTES—(*continued*).

RHINO (*Rhinoceros bicornis*).

CHARACTERISTICS.

Pointed prehensile lip in distinction to the square lip of Burchell's rhinoceros (a grass feeder).

Have not the massive folds of skin which the Asiatic types have.

NATIVE NAMES.

Chinyanja	Chipembere.	Swahili	Kifaru.
Chiyao	Mbera.	Chisenga	Pembere.
Chikunda	Ntema.	Chibisa	Ntema.
Chitonga	Chipembere.	Chilala	Kiweri.
Zulu (Ngoni)	Mkhombo.		

FOOD.

Chiefly thorny trees such as Ntete (a kind of acacia), Mkuhoo and others. Very fond of the stiff thorn generally known as "Wait a bit." Leaves and twigs of Jombo and Chimpakasa.

We have not noticed elephant eating the leaves of these trees, and are inclined to think that they do not, as they are very bitter, but elephant will eat the bark of the former.

A special kind of grass called Mande, spiky stalk of Sasama (elephant also eat the latter).

SPOOR.

Much the same size as that of hippo, but if the spoor can be seen at all clearly, easily distinguished from the latter as it has but three toes, all of which are very broad, and more resemble a section of a hoof than a toe. From the smaller size and the impress of the toes it can easily be distinguished from elephant spoor, even if only a small part can be seen, except in the grass runs to be alluded to. The dung is much the same size as hippo's, but the rhino frequently returns to the same place to deposit it, a large pile often being seen in his beaten tracks; he also generally breaks it up and sometimes scratches up earth over it, in the same cursory manner that a dog often does. It is not, however, an invariable rule that the dung is broken, as we have seen some unbroken, old and dry enough to be eaten by white ants.

HABITAT.

Bush and tree country where there are sufficient thorn trees. Also found in hilly country and often found in places where there are rocks coming through the soil, for which they are easily mistaken. It is not so partial to the neighbourhood of a big river as the elephant, and frequently only drinks from holes.

HABITS.

Even more given to making beaten tracks or runs than elephant, especially to and from water, and these are used the more, as he appears to wander in a much more confined area than the latter. These pathways are often made through the dambos, where the grass would rise up in a wall 12ft. high on either side, and the floor would be a layer of dead and trampled grass, usually all lying one way, like the feathers of a bird.

On this floor of dead grass it is not easy to find a track or the sign of anything having recently passed. When a fresh track is followed into one of these runs, as often happens, it will be as well to first look carefully at the opposite side to see if it has only crossed the path.

If the animal has not left it again he will usually follow the path in the direction in which the grass is lying. If he has not, the grass will be seen ruffled up instead of pressed down. Having once decided which way he has gone, it is easy enough to follow the path, watching either side carefully to see if anything has left it. Every track breaking away should be examined carefully until it has been determined which is the right one. This may be done by parting the grass and looking for the impress of the toe, or seeing if any green grass sprouting underneath the dead is bruised.

Sometimes both paths have to be examined for some distance, when an acacia recently nibbled, a leaf or froth dropped from the animal's mouth, his smell where he has stood, his dung, or some other indication may be noticed. In such a case it is valuable to know which trees he feeds off and which are peculiar to the elephant. Any thorns nibbled will be a rhino, whereas the bark only torn off a Mkuhoo will be an elephant.

Places will often be found where he has scratched up the earth with his feet. The fore foot is larger than the hind, but the difference is not so marked as in the elephant. Moreover, in mud or a place where the whole foot can be seen it will be found that they are both fairly round in shape, but generally only the impress of the toes will be visible. Although the rhino is as obtuse as the elephant in hearing and seeing, he is perhaps more respected by the native than any other animal, the

reason being that though his occasional charge is usually a blind rush straightforward, he has been known to chase round his enemy, turning with great quickness; moreover, on winding man he does not always make off in the opposite direction as does the elephant.

It would seem as if on lying up he had mapped out his line of retreat, and whatever occurs afterwards, whether the wind changes or whatever direction he is threatened from, if disturbed he will go off puffing and snorting at an incredible pace, taking the line he had originally intended. If this is the case, we think it would explain why rhino charge through caravans in East Africa and why he so frequently passes at close quarters to a hunter or between him and his followers.

To say, however, that he never charges with malice is erroneous, as cases have come under our notice, and in one instance without other provocation than that the hunter intruded in what he might consider his private domains.

As regards approaching him, we think it no exaggeration to say that under favourable circumstances he can be approached within a few yards without his becoming aware of it.

This is only when unaccompanied by birds, as when they are with him their movements would generally lead him to suspect that something was wrong.

The broadside shot at the ear is the best, but the neck and shoulder are also good spots to aim at.

For his mid-day halt he will often lie up in some thick patch of thorn jungle, in which it is excessively difficult for the sportsman to move at all, and necessitates the breaking back of numerous branches and continual unhooking of person and clothes. In such a place if the rhino is disturbed it is exceedingly difficult to turn quickly in the right direction to shoot if he passes near, and it would be very unfortunate for the hunter if the rhino selected the same path as that in which he is struggling. The horns of females are often extremely long and thin, while those of the males are much thicker, especially at the base.

The former are sometimes found to have been broken off. Maggots, about $1\frac{1}{2}$ in. long with pink heads, often amounting to thousands, are found in the intestines of an animal on being cut up.

NOTES.

NOTES—(*continued*).

HIPPO (*Hippopotamus amphibius*).

NATIVE NAMES.

Chinyanja . . .	Mvuu.*	Swahili . .	Chiboko (Kiboko or Boko).
Chiyao	Ndamondo.	Chibisa	Mfuvu.
Zulu (Ngoni) . .	Imvu.	Chilala	Mufubu.
Chikunda	Mvu.	Chiwemba	Mfubu.
Chitonga	Gwere (or Chigwere).		

FOOD.

Grass, maize, or other crops.

SPOOR.

Four toes, pointed, and with nails.

The spoor when seen in long grass is sometimes rather difficult to distinguish from rhino at first sight, as the toe-marks may not be seen, but in mud is unmistakable.

They trample deep muddy runs into the water or swamps in which they are living.

By following along the bank of a stream or marsh it can be seen by these where there are hippo.

Natives call places where hippo habitually go ashore "hippo villages."

HABITAT.

Open rivers where they are not too much shot at, big lakes where they can go out into deep water and keep out of range of anyone in a canoe, and papyrus swamps.

In these latter they are fairly safe from the sportsman when they remain there. They come out at night to graze, and may be seen wading ashore, sometimes before dark or leaving in the early morning for the water.

HABITS.

Very curious, and if they hear talking on the banks of a river will often come up to see what is going on.

Where undisturbed they can be seen standing on sandbanks during the middle of the day with their backs out of water, but if disturbed they immediately return to deeper water.

* Not Mvu, as most Europeans pronounce it.

When unmolested they raise the whole head out of water and, where they have not been shot at, will often come and look at one quite close. The mother may also be seen coming up to the surface with the young one on her back.

After being shot at they come up to breathe less often and show less of the head.

As regards the occasional upsetting of a canoe by these animals, we fully agree with what Mr. Vaughan Kirby says about the irritation caused to these otherwise good-natured animals by the continued sniping at long ranges of male, female, and young alike by the so-called sportsman, who has not the least intention of trying to bring the animal to bag, and only seems actuated by a desire to cause needless pain and suffering.

As regards shooting them, there is always plenty of time, and it never pays to hurry one's shot, as a really good chance is required to make anything like certain of a vital shot, and also it requires a good deal of discernment to distinguish male from female and to pick out an old bull.

The brain cell is very small, and to make certain it is necessary that the wall of the brain should be the first bone encountered by the bullet, as otherwise it may be deflected.

To do this, a shot through the eye when the animal is turned half towards you, an exact broadside shot, or one at the back of the head is required.

We would not recommend the frontal shot.

If shot dead, the animal sinks without splashing, whereas if it splashes it is hardly ever brought to bag unless by a subsequent shot.

If a cow waits long near the place at which the male sank it is an indication that he is dead, and a cow will often wait in this way long after the hunter and his followers have discovered themselves. The body rises to the surface in from two to six hours, according to the temperature of the water.

A wounded hippo will almost always go to land, perhaps to rub the wounds with earth, but may return to the water to die.

In distinguishing male from female, the male will be found to be very much darker in colour, and an old bull approaching black.

The male is also broader across the forehead. If watched for a short time it will be noticed that the females and young are together, and the male generally a little apart.

The blowing of a hippo can be heard upwards of a mile, especially at night, and at this distance sounds like a long-drawn sigh. After sunset they begin grunting, and if disturbed at night will grunt in chorus, a number together.

NOTES.

GIRAFFE (*Giraffa camelopardalis*).

Probably the southern form.

NATIVE NAMES.

Chibisa Njomia. Swahili Twiga.

FOOD.

Browses on trees.

SPOOR.

Considerably bigger and longer than buffalo.

HABITAT.

Only one herd known to exist in the countries we are dealing with. This is in the Loangwa valley, and, we are glad to say, on the protected list.

NOTES.

CAPE BUFFALO (*Bos caffer*).

CHARACTERISTICS.

Larger and more massive horns than the other African buffaloes.

NATIVE NAMES.

Chinyanja	Njati.	Chitonga	Njati.
Chiyao	Njati.	Swahili (Nyasa) . .	Nyati.
Zulu (Ngoni).	Nyati.	Chibisa	Mboo.
Kiruga ruga	Mbogo.	Chisenga	Njati.
Chikunda	Nyati.	Chiwemba	Mbo.

FOOD.

Leaves of Bango (reed or spear grass).

Grass.

Leaves of Ugugu (or Nsenjere), another kind of reed.

SPOOR.

Like that of cattle but much larger.

That of a full-grown bull eland may be confused with that of rather a small buffalo, but a full-grown one is bigger than the eland. With a herd there should be no difficulty in distinguishing which is which, as the spoor of the younger eland is much more pointed and only assumes the buffalo shape in an old bull.

Buffalo also have a cleaner cut spoor than eland and walk flatter footed; moreover, the droppings are quite different, resembling those of cattle on a larger scale. The maggot of the Mputsi (or Unyamputsi) fly appears in the dung on the second day, which is a sure indication as to its age.

It would be very hard without this guide to tell the difference between dung deposited, say, the afternoon before in a moist shady spot, and that deposited after sunrise next morning.

Directly it is dropped, if it is still daylight, the Mputsi fly lays her eggs in it, and these hatch out on the second day, when they may be seen on breaking the dung open, as also the little holes they make in it.

This fly lays its eggs in no other dung except that of cattle.

HABITAT.

Almost always found in elephant country; that is to say, where there are buffalo there will always be found traces of elephant, either fresh or old.

The reverse does not follow, as elephant go where buffalo do not.

Buffalo, with rhino and gnu, are among the only animals that truly love wild country, and are practically never found in proximity to human habitation. As a rule there is a belt of absolutely uninhabited country round British territory over the border from which the natives have trekked to come within the British sphere, and in such a belt, often two to three days' journey across, these animals like to roam. Such is their dislike to mankind that, on smelling a human being or seeing camp fires at night, they will generally at once trek off to another part of the country.

They like large, grassy dambos to graze in and shrubby or thick bushy country to lie up in.

They are also very fond of the thick spear-grass thickets which are found on the banks of streams and rivers.

They are sometimes found at considerable altitudes, should there be suitable grassy dambos on the hills.

HABITS.

Drink often, almost always once during the day as well as at night.

They generally prefer to drink at night from a river or stream, and will be found to drink at mud holes during the day time.

A wounded animal will drink frequently, and will generally go off to a place where there is mud to roll in. They do not travel far during the day, unless trekking from one place to another, and they lie down frequently. For this reason, if spoor of the same day (*i.e.*, dung without maggots) is found at any reasonable time, say before 1 p.m., it should be worth while following.

When stampeding, they open out and continue on a broad front for some time, each animal taking his own course. At other times, when not actually grazing, they move on a narrow front.

In tracking, one should stop repeatedly to listen for their bellowing.

When they have once winded the hunter they will stampede down wind, generally maintaining that direction, and usually the only way of coming up with them then is to make a wide half circle, and if the spoor is not crossed on arrival opposite (or a little beyond, to allow for slight change of their direction) the point the spoor is left at, the hunter must cut back up wind in the hope of finding them.

The lie of the country, open spaces, cover, and the likelihood of their having drawn up soon will have to be considered in deciding whether to go directly back up wind or at what angle.

In regard to shooting, it is excessively hard to select and shoot a good head (unless one has the fortune to meet them in an open dambo with convenient approaches), as they are perhaps the most cunning of all game. Usually they will be tracked up into thick cover, where they will have made a *détour* before lying up, so as to leave their tracks up wind of where they are lying, and thus will have stampeded before anyone following on their tracks will have seen them; or if they are overtaken a female will be seen standing sentry, and it will be difficult, or impossible, to locate the others lying and select a good head without her seeing you and giving the alarm.

In thick country it is excessively difficult to tell male from female. The points to be looked for in the male are the more massive horns, thicker neck, and generally darker colour.

In distinguishing an old bull from a cow only the greater size of the neck and forequarters should be noticed, and not the bulk of the body.

Their sense of smell is nearly as good as that of elephant, in addition to which their sight and hearing are wonderfully acute.

As instances of their cunning, we would instance a lone bull who wandered up at night within sight of our camp fires, and when followed next day was found to have crossed a river waist-deep eight times, and in one case wading two hundred yards up stream before landing.

He also brought us to his fresh spoor of the former evening, which he followed for some time before branching off again; at another place he went down to the river as if intending to cross, and after stamping up the ground near the edge doubled back parallel to the bank in the thick reeds.

If the sportsman has the misfortune to be followed by a honey-bird while on their track, its twitterings will give the alarm on approaching the herd, and cause them to stampee.

Buffalo are almost invariably found in herds, generally of from twenty to fifty animals, a lone bull, as mentioned above, being most uncommon. When following into cover where it is thought they are about to lie up, with a hunter's instinct it is occasionally possible to leave the track at the right moment, and, making a *détour*, to come on them up wind to avoid the track they have carefully laid between them and the wind. As to when this can be done we can only say that with experience and a kind of instinct one feels that they are about to lie up, and that they will probably do so this or that side of their original track. Of course, their tracks often show that they have frequently stopped and perhaps tried some place by kneeling down, and it may be gathered that they are about to lie down.

There is a certain time, depending on the heat of the day, their pace, and other

circumstances, after the lapse of which they feel a desire to rest, even if they have been already once disturbed.

If they have not been much molested or disturbed of late they will often lie down without making the *détour* alluded to, but when once disturbed will almost invariably take this precaution.

An intimate knowledge of the country you are hunting in and the condition of the water holes makes all the difference, as then one can guess to what hole or grazing ground or lying-up cover they will be likely to be going to, after having followed them some way, and with contrary winds make *détours* to forestall them.

Natives hunt buffalo largely in Portuguese territory.

They seem to prefer shooting an immature animal, since they are easier to approach and kill, and, moreover, they make their powder horns from these.

MISCELLANEOUS.

The Achikunda call an old bull Lambwe, and a cow Nyang'ombe.

NOTES.

NOTES—(*continued*).

ELAND (*Taurotragus oryx*).

NATIVE NAMES.

Chinyanja	Nchefu.	Chiyao	Mbunju.
Zulu (Ngoni)	Mpofu.	Chikunda	Ntuka.
Chitonga	Sefu.	Swahili	Mpofu.
Chibisa	Nsefu.	Chiwemba	Nsefu.

FOOD.

Leaves of Bwazi, also bite off the ends of the twigs. Leaves and bark of Mtonga (Kaffir orange), but not the fruit.

Chisamkuntu (a plant with a large blue flower growing in wooded country from which natives make salt).

Maize, grass, Msatsi (castor-oil shrub).

Mbelamendi (or Nandoro), a cultivated bean.

Mbwabwa (or Chandimbu), a big tree.

SPOOR.

As before mentioned, the spoor of an old bull resembles in shape that of an old buffalo, but is smaller.

The illustrations of the buffalo and eland we have shown do not at first sight look alike.

This is because the toes of the eland are spreading.

The spread of the hoofs depends on pace, the nature of the ground, &c., and is no guide, though some animals habitually spread more than others.

Spoor has generally to be judged from only a small part which is visible.

Buffalo and eland, especially on hard ground, show only the fore part, and both look something like this:—



Eland walk more forward on the foot than do buffalo, giving a deeper impress in front and do not cut such a clean spoor mark.

As to the smaller eland and cows, they differ very much from the old bull, being much more pointed (*vide* illustration).

The young males take after the cows and do not assume the rounded shape till fully mature.

The difference in size of hind and fore feet is very remarkable, the hind being shorter and very much narrower than the fore, as the following measurements will show :—

Eland bull spoor : right fore, $5\frac{1}{8}$ in., right hind, $3\frac{1}{16}$ in. long ; right fore, $4\frac{1}{4}$ in., right hind, $3\frac{3}{8}$ in. broad.

HABITAT.

Chiefly wooded country, coming out on to the dambos often morning and evening, but never stopping long. Prefer flat country.

HABITS.

Are found in large herds, sometimes numbering over one hundred. They do not mind the neighbourhood of villages, and frequently come into the plantations at night to feed on the maize.

When camping at a village their tracks should be looked for in the fields on leaving in the early morning, and the spoor, if found, may then be got on in good time.

They do not travel far during the day when in herds, but a lone bull will often cover a good distance, and will turn and wind about considerably instead of keeping in one direction.

They are very destructive, and break off from trees large branches and strips of bark, which at first sight might almost look like the handiwork of elephant.

A herd will frequently graze down wind, which other animals seldom do.

The colour varies from yellowish with stripes to, in an old bull, a slaty blue, and nearly hairless.

The bull has an enormous dewlap, which will help to distinguish him from the cow, which has a smaller one.

Lions are very fond of eland, and will be found in the vicinity of a herd almost as much as they are in that of buffalo.

We think that on the whole solid bullets will be found more satisfactory for this animal and buffalo, and, for raking shots, expanding would be most unsuited.

The horns of the female are more slender and often longer than those of the male.

Eland do not stampede in the way other animals do, but generally commence at a trot, and often maintain this pace.

NOTES.

NOTES—(*continued*).

GNU (*Connochoætus taurinus*).

The variety known as the Nyasaland gnu.

NATIVE NAMES.

Chinyanja	Sindi.	Swahili	Sindi.
Chiyao	Zindi.	Chibisa	} Nyumbu.
Zulu (Ngoni)	Nkonkoni.	Chichewa	
Chikunda	Nyumbu.		

FOOD.

Grass.

SPOOR.

Characteristic, but about the size of roan.

HABITAT.

Like rhino and buffalo, prefers uninhabited country and shuns villages.

HABITS.

Extremely local animal. Found in large herds. A solitary bull occasionally found with a herd of hartebeest, and even zebra.

NOTES.

SABLE (*Hippotragus niger*).

NATIVE NAMES.

Chinyanja	Mpala pala.	Chitonga . . .	Mpala pala.
Chiyao	Balapi.	Swahili . . .	Balape.
Chikunda .	Kang'ombe ng'ombe.	Chiwemba . .	Nkanshiria.
Zulu (Ngoni) . . .	Nyambuzi.	Chibisa . . .	Nkwalandi.

FOOD.

Grass.

Bwazi leaves.

SPOOR.

Slightly bigger than that of hartebeest and smaller than roan.

The two halves of the hoof spread very much when galloping, more so, perhaps, than any animal except the water-dwelling situtunga and lechwe, but bear no resemblance to these latter, which spread at the toe more than the back part in a V shape.

The tips of the hoofs are rounder than the hartebeest.

The spoor of waterbuck is more rounded at the back.

HABITAT.

Stony hills, like the kudu, and sometimes found at great altitudes, but comes into the dambos often morning and evening, which the kudu hardly ever does.

Sometimes, especially in a place where they have been at all molested, they will remain up in the hills all day, coming down at night to graze and water on the plains.

These animals, like the kudu, can go at a great pace along the slopes and up steep hills.

HABITS.

Found in herds of ten to forty, or a single lone male which has been turned out of a herd.

In the herd there is, as a rule, only one old bull, who is often found grazing a little apart from the remainder.

The males are blacker than the females, and an old bull looks in the distance entirely black, though when he is killed it may be found that there are short brown hairs under the black.

The knocking of their horns against trees can sometimes be heard at great distances, as also with kudu.

The horns do not run as big in Central Africa as in South Africa and north-western Rhodesia.

Anything over 40 in. is good in the former locality for a male and over 30 in. for a female.

After putting up a herd it is always worth while following, as they will probably be caught up again in from two to four hours. While stampeding they can be followed quickly, but when it is seen by the spoor that they have slowed down to a walk one must proceed slowly again, especially in thick country.

NOTES.

ROAN (*Hippotragus equinus*).

NATIVE NAMES.

Chinyanja	Chilembwe.	Zulu (Ngoni) . . .	Nturakamwa.
Chiyao	Mlembwe.	Chibisa	Mpelembe.
Chikunda	Ntuwakamwa.	Chiwemba	Perembe.

FOOD.

Grass.
Leaves of Mlaka Njobvu.

SPOOR.

Considerably larger than that of sable.

HABITAT.

The roan is the sable of the plains, always found in flat country, and never ascends hills of any height.

HABITS.

Found in herds or lone males. Feeds on the dambos morning and evening, and retires to more shady country from about 9 to 10 a.m., according to the heat of the sun, and it grazes in the open during the night.

The old male of the herd has more bulk and generally a thicker neck than the others, but, as a rule, it is difficult to select him till close, without the aid of glasses.

There are often two males with a herd, in which case one will often walk in front and the other behind.

When they go into cover one of their number is sometimes left behind for a little, so it should be carefully noted if they have all passed out of sight before following them across the open.

All game is very fond of salt, but the roan is particularly so, and the males will stamp and dig up anthills with hoofs and horns to lick the salt earth.

This breaks off the tips of their horns and wears them down blunt, so that no male of any age is found with good horns or as long as those of the younger males.

The females do not seem to use their horns for this purpose so much, and they are generally intact, although occasionally a tip is broken off, perhaps from fighting.

The males fight more than most buck, and the horns of all males are often

broken at the base in front and the ridges worn smooth from this and the rubbing of branches.

Ground is found stamped up with the tracks of two animals where a conflict has taken place.

NOTES.

KUDU (*Strepsiceros kudu*).

NATIVE NAMES.

Chinyanja	Ngoma.	Chisenga	Mpurupuru.
Chiyao	Ndandala.	Chilala	Shambolola.
Chikunda	Nzilowa.	Chibisa	Mpurupuru.
Zulu (Ngoni)	Lichangaroro.	Chiwemba.	Kaloko.
Chitonga	Ng'oma.		

FOOD.

Leaves of Msatsi (castor oil). Tobacco leaves, maize, Mapira. Leaves of Bwazi. Grass.

Certain small shoots growing under trees (no native name).

Also chew Konje (aloes) presumably to get their moisture.

SPOOR.

That of the female shorter and more cobby than that of the male.

The spoor of the animal whose head is shown in the second illustration was without doubt the smallest we have seen of a full-grown male.

We are inclined to think that the largest horns are not generally grown by the biggest buck, and that a small foot generally accompanies a big horn.

HABITAT.

Hilly, steep and stony country, also thick bush. Occasionally come across in dambo country, but this is unusual.

HABITS.

Very shy and difficult to find as they conceal themselves well in the foliage and shade and are possessed of very acute senses.

The females (which are hornless) always scout for the males, and the latter are difficult to approach without being seen by the females, and these give the alarm by barking when they see anyone. It is, moreover, excessively difficult to approach noiselessly in such country as thick bush or over a steep stony scree.

Although this animal is commoner in Central Africa than one would at first suppose, he is seldom shot owing to the difficult country he lives in and his exceeding wariness. Fifty-five inches on curve might be considered a good head.

NOTES.

WATERBUCK (Cobus ellipsiprymnus).

The common waterbuck. White ring on the rump.

NATIVE NAMES.

Chinyanja	Nyakodzwe.	Chiyao	Ndogolo.
Zulu (Ngoni)	Chuzu.	Chikunda	Vilimbo.
Chitonga	Chusu.	Swahili	Koru (different species?).
Chibisa	Chuswe.	Chiwemba	Chuswe.
Chichewa	Chuzu.	Chisenga	Chuzu.

FOOD.

Grass feeder.

SPOOR.

As before mentioned, very rounded behind. Of the two halves of the hoof, the inside one is sometimes shorter than the other.

The dung assumes two rather distinct types. The wet weather dung, when the grass is green and juicy, is soft, green, and slightly resembles that of cattle, but when feeding on dry grass it is hard and something of the eland type, but more flattened.

HABITAT.

Always found near water. Likes grassy dambos and banks of streams.

HABITS.

Found in herds of varying numbers.

Musky smell which is very distinctive.

When wounded takes to very thick, tall grass country, where it can easily hear anyone approaching and cannot be seen till within a few yards.

Heads run small in the countries referred to here, and do not at all favourably compare with those obtained near the Sabi, 26 in. being quite above the average.

The females are hornless.

The waterbuck is very tenacious of life, and unless hit well forward will generally manage to get away.

NOTES.

NOTES—*(continued.)*

LICHTENSTEIN'S HARTEBEEST (*Bubalis lichtensteini*).

NATIVE NAMES.

Chinyanja	Ngondo.	Zulu (Ngoni).	Nkhonse.
Chiyao	Ngose.	Swahili	Kuguni (another species?).
Chikunda	Ngondo.	Chibisa	Nkonse.
Chitonga	Nkhose.	Chiwemba	Nkonshi or Nkonkotela.
Chisenga	Nkonse.		

FOOD.

Grass feeder. Also sometimes eats leaves of Bwazi, a very favourite food with most game.

SPOOR.

Sharp or angular at toe (*i.e.*, not rounded like sable).

Does not spread in galloping so much or in the same way as that of sable, that of the hartebeest spreading mostly from the toe. Very liable to be confused with sable, but hartebeest is more angular, sharper cut, and slightly concave at the side near the toe, whereas sable is more convex.

HABITAT.

Open grass country with enough cover to give shade, but will not be found in hilly country or thick bush.

In country inhabited by hartebeest there are often numbers of little bare patches on the ground where they habitually lie, as is shown by the dung of various ages.

HABITS.

Graze in the open on dambos in small herds, usually consisting of from ten to thirty animals. In the open they seldom go far when disturbed, and will generally only go several hundred yards and stand looking at one, retiring if you advance so as to keep out of range.

The flesh is excellent eating.

It would seem that he is a sociable animal, as gnu and zebra are often found running with them, while a single hartebeest is often seen with a group of reedbuck. A good head should be about 19 in. for a male, and for a female 14 in.

NOTES.

NOTES—(*continued*).

SASSABY (*Damaliscus lunatas**).

(Sometimes called Tsessebe.)

NATIVE NAMES.

Chibisa Mtengo. Chiwemba . . . Mtengo maroli.
 No words in other languages mentioned, not occurring in those countries.

FOOD.

Grass feeder.

SPOOR.

Like hartebeest, but a little smaller.

HABITAT.

Large open flats or dambos. Do not go into cover at all during the heat of the day or even when wounded, but may lie up under the shade of small isolated trees or bushes in the open.

HABITS.

Found in enormous herds, perhaps over a thousand grazing together. They are in reality a number of smaller herds grazing in the same place.

This immense number can be seen grazing and walking in one direction with all their heads pointing the same way on the large open plains they frequent.

There ought never to be any difficulty in bringing a wounded animal to bag unless very slightly wounded or it is late in the evening.

They are as tough to kill as their relatives the hartebeest, but, as they never take to cover, they can be followed at a distance of perhaps a mile and observed with field-glasses till they lie down. They may go about five to ten miles, when perhaps they will make for a solitary tree or bush on the plain, so as to lie down.

After they have been seen through the glasses to lie down, the direction of the animal's head and the place having been carefully marked down, the sportsman should sit down and wait for half-an-hour or more, then, making a détour to get wind right and also to come up as much as possible from behind the animal, he can stalk up quietly and will probably get close enough for a shot. If he is observed and the animal gets up again, it will, of course, necessitate another tedious walk, but the animal if badly wounded will probably not go so far this time.

* N.B.—The kind found in Central Africa is probably a variety.

Moreover, being followed by sight there are no delays, as in tracking.

The sassaby has a most beautiful glossy coat when first killed, which somewhat fades afterwards.

The variety we mention here is infinitely superior in measurement of horn to the South African sassaby, a fair head running to about $16\frac{1}{2}$ in.

The females in a herd look as if they had longer horns than the males, owing to their being thinner.

NOTES.

SITUTUNGA (*Tragelaphus spekei*).

(Also known as Speke's Tragelaph.)

NATIVES NAMES.

Chibisa Nzowe. Chiwemba. Nsowe.

No name for it in the other countries, as it does not occur.

FOOD.

Bango leaves (a kind of reed).

SPOOR.

Very long spreading V-shaped hoofs, slightly longer and thinner than that of the lechwe.

HABITAT.

The swamps of the big lakes and the swampy rivers which flow into them and are blocked with "sud" papyrus and spear grass.

They hardly ever emerge from these swamps except during the night.

HABITS.

Live always in water and swamp, and are very difficult to find, as it is impossible to make any way into the dense mass of reeds and papyrus.

In a few localities where there is open water they may be come on suddenly from a canoe.

They can swim under water for a short time.

The swamp dwellers of Bangweolo, the Ba-nga, used to trap and kill great numbers of them, and in this way the head is not so rare for those that care to buy heads, but the sportsman who wishes to shoot one, unless he has exceptional luck, will find it a very difficult, wet, and feverish amusement.

The hoofs are excessively long and narrow spreading to a great extent, which enables the animal to walk on the papyrus and other roots.

These animals are on the protected list in Uganda, as there they are much more accessible and easy to shoot than in the swamps of Central Africa.

This animal and the kudu both have white tips to their horns. The females are hornless.

NOTES.

NOTES—(*continued*).

LECHWE (*Cobus lichí*, red variety); (*Cobus smithemani*,
black variety).

NATIVE NAMES.

Chibisa Nja. Chiwemba Nja.

Does not occur in the other countries mentioned.

FOOD.

Grass feeder.

SPOOR.

Long and spreading at the toes, not quite so long as the *situtunga*, but coarser and less graceful.

HABITAT.

Much the same as the *situtunga*, but comes out of the water morning, evening, and night to feed, returning to the swamps directly the sun gets at all warm.

HABITS.

Generally one male with one or more females.

On being disturbed they immediately take to the swamps, where it is impossible to follow them.

There is no difficulty in distinguishing the two varieties when they have once been compared, the skin of the red being of uniform red above, something the colour of the *puku*, but darker, while the black variety has chest and legs black, with a black marking between the rest of the back and white of the belly. This varies in thickness and intensity according to age, and in an old animal tinges the side with black right up to the spine.

The horns of the latter variety do not reach the size of the others, and about 22 in. would be a fair head, while a good specimen of the red variety would measure 26 in. The females are hornless.

NOTES.

NOTES—*(continued)*.

NYALA (*Tragelaphus angasi*).

This buck is occasionally found in Central Africa. It is always found near rivers and is very local.

We have never met this animal or his spoor, having been unable to find the time necessary to make a prolonged stay near his haunts.

NOTES.

BUSHBUCK (*Tragelaphus scriptus*).

(The lesser or common bushbuck.)

NATIVE NAMES.

Chinyanja	Balala.	Chitonga	Mbawa.
Chiyao	Mbawala.	Chisenga	Chuwawala.
Zulu (Ngoni)	Mbawala.	Chibisa	Chikwiwa.
Chikunda	Goho.	Chiwemba	Chisongo.

FOOD.

Grass. Bwazi. Kanyemba nyemba (or Chitambitengo), wild bean.

SPOOR.

Differs from the puku or small waterbuck type much as the kudu does from the common waterbuck. Dung often stuck together as in illustration and at other times separate pellets.

HABITAT.

Thick bush and high hills. Often found at considerable altitudes.

HABITS.

Usually one male with one or more females, three being a common number, as also with kudu and reedbuck.

Also, as with the former, the females are seen oftener than the male, and appear to scout for him.

The male is much the darker, and sometimes in the distance appears almost black.

The younger ones are, as is usually the case with buck, lighter coloured than the older animals.

The horns have not white tips like the *sititunga*, which is of the same genus.

The *Tragelaph* family, including kudu and eland, and the bovines, as buffalo and gnu, differ from all other antelope, buck, and gazelle in not having clearly defined ridges to their horns.

NOTES.

NOTES—*(continued)*.

IMPALA (*Æpyceros melampus*).

(Central African variety known as *Johnstoni*.)

NATIVE NAMES.

Chinyanja	Nswala.	Chitonga	Swala.
Chiyao	Swala.	Chibisa	Mpala.
Chikunda	Mpala.	Chiwemba	Mpala.
Zulu (Ngoni)	Nswala.	Chisenga	Mpala.

FOOD.

Pods and leaves of Msekesi or Chitimbi. Grass.

SPOOR.

Much like that of reedbuck, but the impala is generally found in larger numbers and makes beaten paths which could not be mistaken for the spoor of reedbuck.

HABITAT.

Forest land on the banks of large rivers or lakes where the banks are hard, dry, and not swampy.

Although found in a good many places, is rather a local animal, and seldom wanders far from its usual grazing grounds, and will never be found more than a mile or two from a big river or lake.

It prefers what is often referred to as park-like country, with trees not crowded together, and, as a rule, hard red soil with short grass, but is hardly ever found in long grass.

HABITS.

Found in herds numbering about thirty to forty head, in which there may be any number of males. One animal by itself is not often seen.

The Central African variety carries very much smaller horns than those of East Africa, a head over 21 in. being seldom shot.

In many places there are enormous numbers of these animals, but herds never appear to exceed fifty in number, and the different herds, although two or three may be found grazing together, always keep distinct.

Impala bark when they see anything to alarm them.

They are very curious, and if the sportsman, on unwittingly discovering himself,

stands perfectly still, they will not run away, and may even come up closer to have a better look at him, the whole herd keeping up a constant barking

Occasionally in running off they may be noticed making a few leaps like spring-buck, but not such big bounds.

The females are hornless.

NOTES.

PUKU (*Cobus vardoni*).

NATIVE NAMES.

Chinyanja	Seuli.	Chibisa	Seula.
Chiyao	Seula.	Chiwemba	Nseula.
Zulu (Ngoni)	Seuli.	Chisenga	Seula.

FOOD.

Grass feeder.

SPOOR.

Slightly similar to waterbuck, but smaller.

HABITAT.

An exceedingly local animal, always found close to a river, from which it never wanders far. Likes alternate wooded country and grassy dambos.

HABITS.

Found in herds of about twenty to thirty with one or more males, but never the proportion of males that are seen in a herd of impala; and, moreover, a male is often met by himself, which is seldom the case with the latter.

Generally very tame—even more so than impala, and when frightened never run off more than a few hundred yards, even if they had been fired at. A wounded animal never goes far, and if wounded in the open can often be watched till it lies down in the grass, when, after waiting a certain time, he may be approached quietly. However, a wounded animal may occasionally take to thick country, such as a clump of spear-grass, especially if put up again after once lying down wounded.

In such a place he will hear one crashing through the reeds, and will be able to move away again in ample time. Moreover, after the blood spoor had stopped, tracking would be slow and difficult.

However, he will seldom move on far, even if put up several times.

As far as hunting is concerned, these animals and impala offer not the least sport in shooting where they have not been shot at much, or where they are very thick, as they are often as easy to approach as a flock of sheep.

The females are hornless.

NOTES.

NOTES—(*continued*).

REEDBUCK (*Cervicapra arundinum*).

(The common reed buck.)

NATIVE NAMES.

Chinyanja	Mpoyo.	Chitonga	Mpoyo.
Chiyao	Ndope.	Chibisa	Mvwe.
Chikunda	Mpoyo.	Chiwemba	Mfwe.
Zulu (Ngoni). . . .	Nshlangu.		

FOOD.

Grass feeder.

SPOOR.

Generally found in dambos and open places, and do not go in large herds, so unlikely to be confused with puku or impala.

HABITAT.

Open dambos, never far from water, and practically never seen in thick bush.

HABITS.

Usually a male is accompanied by one or more females, but sometimes seen in small herds numbering up to about seven, the remainder being probably the young of the old male.

The females make a shrill squeak on seeing anyone, bounding away a few yards then stopping to look back again, and bounding off again, squeaking incessantly.

As they sometimes precede the sportsman in this way, it is often excessively annoying to him when after bigger game, as the noise gives the alarm to the whole neighbourhood.

The male is generally careful to keep a further distance away than the females and leads the way in a retirement, as do the males of most game.

The horns in Central Africa appear to be inferior to those of South Africa, 15 in. being quite an exceptional measurement.

The females are hornless.

NOTES.

NOTES—*(continued)*.

ORIBI (*Oribia scoparia*).

(The Cape oribi.)

NATIVE NAMES.

Chinyanja	Gwapi* (same as duiker).	Zulu (Ngoni) . . .	Chozimbi.
Chiyao	Chikosimbi.	Chisenga	Chowzimbi.
Chikunda	Dambalachepa.	Chibisa	Kakonje.
		Chiwemba	Nsele.

FOOD.

Grass.

SPOOR.

Larger and more cobby than that of duiker, and much resembles a miniature hartebeest, so cannot be mistaken easily for that of duiker.

Spoor of hind foot, as in most game, narrower than that of fore, and it is also more sharply pointed.

HABITAT.

Open dambos which it seldom leaves. Found in greater numbers in flat country, and but few in the dambos among hills.

HABITS.

Generally a male with one, two, or three females, three being rather the exception.

Owing to their small size it is often difficult to distinguish the male from the hornless female unless the background is a good colour, such as dry, light-coloured grass.

The male, however, almost always leads, and can be told in this way. Like most small buck, after running away for a short distance they will frequently stop for another look at the intruder before finally making off.

NOTES.

* The Manganja appear to have no distinctive names for small buck, but call them all indiscriminately gwapi.

NOTES—*(continued)*.

DUIKER (*Cephalophus grimmi*).

(The common duiker.)

NATIVE NAMES.

Chinyanja	Gwapi.	Swahili	Dondoro (another species?).
Chiyao	Isia.		
Chikunda	Nyassa.	Chibisa	Insha.
Zulu (Ngoni)	Phunzi.	Chiwemba . . .	Pombo.
Chitonga	Tungwa.	Chisenga . . .	Nisha.

FOOD.

Grass. Nibble the pods of Chitimbi, sometimes eating the seeds.

Chew konje (aloe) to get moisture.

Bwazi. Wild bean (Kanyemba Nyemba).

SPOOR.

Smaller and neater than that of oribi.

Frequently return to make their droppings in the same place, though generally in a different pile. Many small piles of varying age will be seen close together.

HABITAT.

Wooded country and occasionally on the tops of high hills.

Seldom leave cover, but in the early morning will sometimes be found in clearings and on the edge of dambos.

HABITS.

Graze morning and evening, lying up for the greater part of the day.

When put up, the male generally goes off at once, perhaps waiting for a look first, and the female loiters behind. It is very difficult to tell male and female apart, as generally one has to fire in a hurry, and the female has a tuft of black hair on the top of its head which can easily be mistaken for the horns of a male.

Thus the female, being the more curious, gets shot more often than the male.

If the sportsman wishes to shoot them with a shot gun, he will find the time that they are lying up best, as they often lie very close, getting up almost under one's feet, whereas when grazing he would seldom be able to approach near enough for a shot gun shot; but it is more sporting to use a rifle.

RED DUIKER.

Dung in piles, same as common duiker. Stands much higher on the legs

and is altogether a bigger animal than common duiker. Neck is longer and it is a much more graceful animal, but can hardly be termed "red," though the hair may change colour at different times of the year, or, like the bushbuck, the colour of various animals may differ slightly.

Chisenga name is nisha, but they also use the same name for the common duiker.

NOTES.

KLIPSPRINGER (*Oreotragus saltator*).

NATIVE NAMES.

Chinyanja . . .	Gwapi (same as duiker and other small buck).	Zulu (Ngoni).	Ligogogo.
Chiyao	Chivalama.	Chisenga . . .	Mbalali.
Chikunda	Mbalawi.	Chichewa . . .	Chinkomo.
		Chiwemba . . .	Chibusu Mabwe.

FOOD.

Grass.

Chew aloes for moisture.

SPOOR.

Like miniature pigs and absolutely different in shape to that of any other buck.

HABITAT.

Rocky hills and kopjes, very seldom met with elsewhere, and perhaps only then when crossing from one range to another.

HABITS.

Generally found on the leeward side of a ridge or hill if a strong wind is blowing. Usually male and female together, although sometimes three or four may be seen.

They are said never to drink, and in many of the places they live in it would be impossible for them to obtain water during the dry weather.

It is a very widely distributed little animal, ranging the whole length of the continent from Somaliland to the Cape.

NOTES.

SHARPE'S STEINBUCK.

NATIVE NAMES.

Chinyanja	Kasenye.	Chisenga	Kafundu.
Chikunda	Kambangu.	Chibisa	Katili.
Zulu (Ngoni)	Nsumpe.	Chiwemba	Katiri.

FOOD.

Grass, and leaves of bushes.

SPOOR.

Much smaller than duiker.

Both male and female leave their droppings in one pile, to which they return as long as they are in the neighbourhood, and they can thus be easily distinguished from those of the other small buck.

HABITAT.

Sometimes live in the dambos till the grass is burnt, when they go into the bush for cover, but more usually found in wooded country, and often in scrub at the base of rocky hills.

HABITS.

Lie very close, and when put up bolt off like rabbits, without even pausing for another look, like other small buck.

When seen out grazing it may be fired at and missed without it taking the slightest notice, appearing to be quite deaf to the sound of the rifle—as are the other small buck, duiker and oribi, but in a lesser degree.

Where this animal is common it is frequently the case that the duiker is nearly or entirely absent, although the country may appear eminently suited to it.

The females are hornless.

NOTES.

ZEBRA (*Equus burchelli*).

NATIVE NAMES.

Chinyanja	Mbidzi.	Chitonga	Boli.
Chikunda	Mbidzi.	Swahili	Punda Milia.
Chiyao	Mbunda.	Chibisa	Chimbweti.
Zulu (Ngoni)	Liduwu.	Chisenga	Bizi.

FOOD.

Grass, bamboo leaves.

SPOOR.

Like that of an unshod horse, but smaller. Dung also very similar to horse.

Hoof often cracks excessively, and a large chip from the front may give it a cloven appearance on first sight, like that of a small eland.

HABITAT.

Very fond of hills.

Prefer a country with stony hills broken with nullahs and with clumps of bamboo and occasional luscious grassy dambos. In such a country they will live in the hills most of the day, coming down to feed night, morning, and evening.

HABITS.

Found in herds of from two to three animals up to, in some places, as many as forty or more together.

Where they have not been shot at they are wonderfully tame, and will watch one passing from a distance of a hundred yards without troubling to move off further.

It is very difficult to distinguish the stallion from the mare without considerable practice.

Graze with their heads all pointing in one direction, unlike most animals.

NOTES.

WARTHOG (*Phacochærus æthiopicus*).

NATIVE NAMES.

Chinyanja	Njiri.	Chichewa	Kapulika.
Chiyao	Mbango.	Chiwisa	Kachia.
Chikunda	Njiri.	Chiwemba	Njiri.
Zulu (Ngoni)	Nncagu.	Gomani's Angoni	Lipango.
Chisenga	Njiri.		

FOOD.

Roots of Luba and Ntupsa, two kinds of grass found in bush country growing among trees.

Roots of other grasses (Maudzu) growing in dambos.

SPOOR.

Rounded both back and front. Could not be mistaken for that of anything else except a bushpig's.

HABITAT.

Seems to adapt itself to any kind of country, but seen less often in hilly country than flat.

Found in both dambo and bush country.

HABITS.

To be found morning and evening in the dambos, and also in bush. Likes clumps of grass.

When digging up roots they kneel on the forelegs, pushing with the hindlegs, which are held straight out behind to throw the weight of the body on to the snout.

At night they sleep in holes and also during rain, seldom being seen in the wet weather. Hog and sow are found together with the young if there are any, a family party consisting sometimes of about ten.

When the young grow up they leave the parents.

When disturbed they trot off in single file, the largest leading, and tailing down to the smallest, all their tails stuck straight up in the air.

The tushes of the hog are very much larger than those of the sow.

He also has a longer mane, is heavier in the fore-quarters, and has a broader and not so pointed a head.

They do not dig their own holes, as is sometimes supposed, but enlarge those of antbears.

NOTES—(*continued*).

BUSHPIG (*Potamochoærus chæropotamus*).

The Cape bushpig.

NATIVE NAMES.

Chinyanja	Nguruwe.	Chikunda	Nkhumba.
Chiyao	Liguluwe.	Chibisa	} Kapole.
Zulu (Ngoni)	Ndudu.	Chiwemba.	

FOOD.

Much more varied diet than the warthog.

Leaves of bamboo, roots of Mlapa which grows on hills, Mpama (a kind of wild yam), roots of Manyanya in low country, maize, ground nuts, potatoes from native plantations, and also various berries found in the bush.

SPOOR.

Very like that of warthog.

HABITAT.

Much the same as warthog, but often lives on hills, which the warthog does not do.

HABITS.

Found in small parties as the warthog.

The bushpig is a reddish colour, whereas the warthog is dark and looks almost black at a little distance.

The bushpig, as its name would imply, frequents bush country, which it seems to prefer.

It is come across grazing on dambos, too, but not as frequently as it is seen in bush.

It has much smaller tushes than the warthog, being hardly worth keeping as trophies.

Unlike the latter, it does most of its feeding at night, and causes so much destruction to the natives' crops that they surround them with rough zerebas of branches to keep them out.

Owing to its nocturnal habits it is less often seen than the warthog.

When the rains are very heavy it will lie up in holes, but in ordinary wet weather will not stop underground.

The Achikunda call the hog "nkhumba kapado" and the sow "nkhumba yekazi," nkhumba being their word for the ordinary domestic pig, which it almost exactly resembles.

Like the warthog, this animal makes use of antbear holes, enlarging them to meet with its requirements.

NOTES.

LION (*Felis leo*).

NATIVE NAMES.

Chinyanja	Mkango.	Chibisa	} Nkalamu.
Chiyao	Lisimba.	Chilala	
Chikunda	Mpondoro.	Chisenga	
Zulu (Ngoni) . . .	Ngwenyama.	Chikunda (of Loangwa).	Pondola.
Chitonga	Khalamu.	Chiwemba	Nkalamu.
Swahili	Simba.		

FOOD.

Especially fond of buffalo, zebra, and eland, but not above killing any of the smaller game, and partial to pig and warthog. They break into kraals to kill cattle, goats, and pigs. They will also eat porcupine, in fact anything when really hungry.

In districts thickly populated (where there is little game) and at seasons during which they find game difficult to stalk and kill, they will often take to man killing.

An old woman going down to draw water towards evening is very often a victim, or even hoeing in the fields during the daytime.

They will occasionally take dogs, and are said, like most carnivorous animals, to eat locusts when a swarm settles. Especially fond of donkeys, so these ought to be enclosed at nights if taken.

SPOOR.

Much larger than that of leopard. The spoor of the lion is considerably larger than that of the lioness. The forefoot is rounder, and as a rule better defined than the hind, as he is much heavier in the forequarters.

Claw marks do not show unless the animal is about to spring, and then they cut deeply into the ground tearing up earth and grass.

If he was suddenly frightened he might shoot out his claws, and they would show in the spoor.

Note that in the lion and all cat-like animals the spoor of the forefoot is rounder, and that of the hind narrower though often longer.

HABITAT.

Wander about in search of game, frequently following a herd of buffalo or eland, and where these animals are found there will generally be a few lions in the vicinity.

They travel long distances at night in search of game.

They do not care for thorny country much if better can be found near.

They stalk game in the dambos at night, but for lying up during the day prefer cool, damp bush, although occasionally put up in grass country. They do not seem to care for rocky country during the day as the heat of the rocks burn their pads.

HABITS.

A lion with one or two lionesses most commonly met with, more rarely in small troops, but as many as fifteen have been recorded as seen together, although doubtless a number of these were young or immature animals.

They usually stalk the larger game, but when there are two or three lion hunting together after smaller buck, such as impala and puku, one will round up and drive the game by going round in a semi-circle and roaring, while the others will lie down quietly to catch any game which may be driven to them.

After a blank drive the latter will roar, to tell the one that is driving, and the two parties will move parallel to each other to a new spot and commence operations again.

In stalking, of course, they are perfectly silent, and when one is heard roaring it usually means that he has already fed.

A lion will often pull down wounded game if it crosses his path, or if he gets on the scent ; he will feed on a carcase that has been left out at night.

In killing game he stalks up wind as close as possible and then makes a swift rush, seizing his prey at the top of the neck where it joins the shoulders, and all the time using his claws on the head, neck, and body, which, combined with his weight, soon brings the animal to the ground.

Sometimes game manages to escape him, and we have seen a roan with a stump tail and old scars on the buttocks.

Many beasts, such as buffalo and zebra, have had similar escapes.

An old bull buffalo will give a lion a lively time, and in following a herd a lion generally picks out a calf or immature animal.

Having killed his beast he will generally begin on the bowels and back quarters, but on the first night of his kill he hardly touches any meat, but will drink the blood. While hunting they often make a grunting sound which can be heard a great distance, and when put up during the day will go off making this sound.

On a still night a lion's roar can be heard many miles, and if there are both lion and lioness, the difference in the volume of sound and the key can be heard, and is very distinctive. At the season of year when the Masuku berries are ripe and fall it is stated by the natives that lion will feed on them, and we think it is quite possible, for though we have not proved it, we know that many other carnivorous animals change their diet in this way.

When a lion has killed a number of people at a village the natives combine to hunt it down, and generally succeed in killing it or frightening it away; but till the lion has made a number of depredations it does not seem to occur to them to hunt it, or perhaps because of their superstitious veneration for this animal they think it is best left alone as long as possible.

For this reason, too, it is very difficult to get reliable khabar of lion from natives.

If they were certain that you would kill it they would not mind so much, but if it gets away or is wounded they seem to think it may take revenge on whoever gave it away.

A lion does not seem to know how to tackle a man properly unless he is an old professional man-eater, and numbers of cases have occurred where lions have tried to carry off men by the arm or shoulder without first killing them, and to this reason and their natural fear of man do we attribute so many men escaping after having been seized.

Livingstone was seized by a lion and carried off by the shoulder, and there are numberless similar cases.

Young sportsmen are cautioned not to go into the bush at night when there may be lions about, and if it is necessary to do so, to take a lamp and rifle.

If there are cubs they appear to be left behind when a raid is made on a village or kraal.

As with most other animals, the female does most of the scouting work, and very often leads in the attack.

If met with during the day they are frightened of man, but seem to be almost fearless of him during the night, and may wander through ten or twenty villages during the course of one night; but they are always exceedingly cautious, and will at once detect anything new or strange and give it a wide berth.

After a "kill," however, they often become quite reckless, and therefore sitting over a kill is the surest way of bagging him, provided great care is taken to leave things as they are, to sit up high enough in the air so that your wind may pass over him, and not to trample about too much round the kill.

Such a circumstance as finding a live animal tied up for him where he had killed would be certain to arouse his suspicions; he would suspect a trap and not come near the place.

Sitting up over an animal is most disappointing work, and, as we have already said, he is most wary before killing, and, unless driven by extreme hunger, would generally detect something suspicious about it.

A man-eater entering a village will often break open a hut with a blow or two

from his powerful paws, or will jump on the top of a hut and force a way through the thatching.

He will, as a rule, endeavour to carry off his prey to the bush to devour, and the blood trail can be easily followed next day if one gets the khabar soon enough. If he leaves the body in the hut he will almost invariably return the next night, and so the sportsman should take up a position in a neighbouring hut.

A man-eating lion does not seem to go in for man eating exclusively, like a man-eating tiger, but may vary between game and man as occasion offers. When disturbed whilst returning to a kill he will usually go away and return the following night.

Sitting up for a lion one should be certain to take a lantern with one, in case the animal is shot, or, as sometimes happens, he drags himself away badly wounded to die; but it would be as well to make certain that he is dead before going near.

In thick country like Central Africa it is practically impossible to track a lion any distance unless he is leaving blood spoor, and the best of trackers would take about an hour to work out a mile, and as he goes such immense distances in pursuit of game, water, or lying up place, the chances of finding him are infinitesimal.

If put up by day he will bound off grunting like a pig, and for the first few hundred yards the spoor will be easy enough to follow, as the ground will be broken up wherever he lands, but directly he is well out of sight he will settle down to walk daintily, leaving hardly a trace.

Perhaps a bit of grit smaller than a pea being disturbed and showing its earthy side, or the place it has been lying in, will be the only visible sign for ten or twenty yards.

This is a very different matter to tracking a lion in a sandy desert country like Somaliland where if fairly fresh khabar can be obtained he may be followed on horseback and rounded up in a little clump or patch of grass from which he may be driven or burnt out.

To get a lion in Central Africa largely depends on luck, as one may stumble on one during a day's shoot and perhaps put him up in a dambo from a tuft of grass apparently not big enough to conceal a duiker, or one might shoot for several years and never put one up, as they lie so close.

That the sportsman should not miss such a fleeting opportunity, we would impress upon him the importance of always carrying his rifle himself; if he does not do so it will be his own fault if he lets this or other valuable game escape him.

Although a lion will seldom be put up in the daytime, they are often heard at night in good game country.

The most general way they are got is by sitting up, either where they have killed man or stock in a village, if the news can be obtained in time, or if a fresh kill is found while out in the bush. If there is a convenient tree close by (within ten or fifteen yards) a "machan" should be made in it. If there is not a convenient tree as near as this, rather than risk a long shot at night, a "machan" should be made in a tree in the vicinity, and the kill should be dragged to it.

The lion will generally follow up on the scent, evidently thinking that some other animal has dragged it off, but care should be taken not to touch the kill, but to drag it with a rope.

In making the "machan," a certain height above the ground is necessary, as one's wind seems to escape him more when in the air.

Everything in the neighbourhood should be left as intact as possible, and the wood and grass for building should be brought from a little distance off.

We would, while talking about the "machan," mention that even if the lion detected the presence of man he would never locate him above him, even when he heard his shots.

Climbing animals, like the leopard and cat, are quick at spotting anything above them, but other animals seldom think of looking upwards.

The instance of a dog being whistled for by its master while up a ladder or out of a window and looking in every direction but upwards must be familiar to everyone.

We have been heard turning round to get into a firing position by a lion directly underneath us, and the animal, springing out, evidently startled, has looked and listened in every direction except upwards.

On a cool morning a lion may occasionally be found stopping late over a kill, and we have heard one out as late as 8.30 a.m., but this is quite exceptional, and, as a rule, he will have drunk and be back to thick cover long before this time.

Anyhow, if vultures are seen hovering in the morning it would be worth while approaching the spot upwind and with caution, as there might be lion, leopard, or hyæna about.

If it has been seen by spoor that lion have been lurking round a kraal or following on the tracks of a herd of cattle, it might be worth while to leave a "tie" one night in the tracks of the herd as they are driven home from grazing, and to sit over it, but every precaution is necessary to prevent this very wary animal from suspecting that anything is wrong.

A lion will practically never attack a man during the daytime unless he is wounded, and then he is most dangerous.

He always sits very tight, more especially when wounded, so to follow a wounded lion into thick grass is most dangerous. The chances are tremendously in favour of the beast, as he will lie undetected till the hunter is within springing distance, and then be on top of him before he is aware.

A well-directed shot from a .303 or Mannlicher will easily kill him, but if the first shot only wounds, something very heavy is required to stop him, such as a .500 or 12-bore shot-gun loaded with S.S.G.'s fired at close quarters.

NOTES.

LEOPARD (*Felis pardus*).

NATIVE NAMES.

Chinyanja	Nyalugwe.	Swahili	Chui.
Chiyao	Chisuwe.	Chisenga	Kankanongo.
Chikunda	Kaingwi.	Chibisa	Ingo.
Chiwemba	Mbwili.	Zulu (Ngoni) . . .	Ingnewi.
Chitonga	Chikoko.		

FOOD.

The smaller buck, such as impala, klipspringer, and duiker, but occasionally tackles the larger, as hartebeest, and also zebra.

Smaller mammals, such as hare, mice, &c.

Man seldom.

Cattle and goats; often the latter, more seldom the former.

Guinea-fowl.

Also jackal, civet, and dogs, being especially fond of the latter.

Locusts.

SPOOR.

Like that of lion, but considerably smaller. The same size as that of a large hyæna; but the latter shows claw-marks, has a smaller pad, and the outer toes on either side are further back.

The leopard, like the lion, has retractile claws, which only appear in the spoor when about to spring.

Its dung is frequently seen on the native paths where it has been hunting mice, as can be seen by the undigested fur. Klipspringers' hair is also often found in the dung.

HABITAT.

Particularly fond of mountainous country, with steep nullahs and ravines, where it lurks in the daytime, coming down on to the plains at night.

HABITS.

More usually seen in pairs.

May be put up or come upon accidentally by day as a lion, and like the latter lie very close.

Both lion and leopard usually growl as they are springing on their prey.

The leopard frequents paths by night, where it steals silently along or lies in wait for various kinds of fieldmice, of which it is very fond.

It is far more agile than a lion, and can scale a small stockade to get into a kraal and get back again carrying a goat in its teeth.

When it takes to man-eating it often lies on branches over a path and drops on people as they pass ; but, as with the lion, prefers a solitary individual, and would seldom attack anyone of a party.

NOTES.

CHEETAH.

We have seen a spoor which we are inclined to think that of the cheetah, being about the size and shape of the leopard, but differing at the back of the rear pad.



LEOPARD.



CHEETAH.

Instead of being concave as the leopard, it was convex. This difference was very marked, and was apparent in all four feet.

NOTES.

OTTER, Large Clawless (*Lutra capensis*).

NATIVE NAMES.

Chichewa	Mbao.	Zulu (Ngoni)	Ntini.*
Chikunda	Katumbu.*	Chiwemba	Mumpanda.

FOOD.

Fish and crabs.

SPOOR.

Like that of leopard. Slightly smaller, with longer and more spread toes in proportion. No claw-marks are seen, being clawless, but sometimes tips of toes show, which may look like claws. Dung black, with remains of fish bones and crabs' claws in it.

HABITAT.

Streams, rivers, and lakes, but found in greater numbers where there is a large expanse of marsh.

HABITS.

Its grunting cry can be easily recognised when once heard, or by anyone who has heard the English otter.

Nocturnal.

Lighter coloured than the smaller kind.

NOTES.

* Have but one name for both kind of otters.

OTTER, Small (*Lutra maculicollis*).

NATIVE NAMES.

Chinyanja . . .	Katumbu.	Zulu (Ngoni) . . .	Ntini.
Chikunda . . .	Katumbu.	Chiwisa	} Mzingo or Mshingo.
Chiyao	Kauzi.	Chiwemba	

FOOD.

Fish, crabs, and locusts.

SPOOR.

Like that of the larger kind, but a good deal smaller, and claw-marks show. Dung black coloured.

HABITAT.

The same as the other kind.

HABITS.

Darker coloured than the larger. Makes a similar cry. Skin can always be recognised by the spots on the neck.

NOTES.

SPOTTED HYÆNA (*Hyæna crocuta*).

NATIVE NAMES.

Chinyanja	Fisi.	Chitonga	Pundu.
Chiyao	Lituni.	Swahili	Fisi.
Chikunda	Kuzumba.	Chibisa	Chimbwe.
Zulu (Ngoni)	Impisi.	Chiwemba	Chimbwe.

FOOD.

Bones and flesh of any kind of dead animal, but seldom known to seize anything alive.

Nothing in the way of offal, skin, or bone appears to come amiss to it or to be too indigestible. It will not, however, eat an animal's horns, but such dainties as an animal's or even elephant's skin dried hard as wood would be eaten greedily.

We have noticed a thigh bone of an elephant gnawed in two by these animals, and cases have been known of them attacking a sleeping native at night.

SPOOR.

As we have already said, a large hyæna is much the same size as that of a leopard, but distinguishable from it by the claw-marks and also the position of the four toe pads, especially the two outer ones, which come further back than those of leopard.

The dung is nearly always white and easily distinguished from that of leopard.

HABITAT.

May occur anywhere. Generally where there are lions, as they finish up the kill when the lion has left, and sometimes follow him about from place to place.

HABITS.

Lie up during the day in cover, or in a warthog or antbear hole, coming out at night.

Sometimes may be seen at dusk just after leaving cover.

In Central Africa they generally lie up in holes, and are thus seldom put up or seen at all during the day, but in a desert country where there are no holes to rest in they have to lie in clumps of grass or in bush.

They are often heard at night, but never occur in the large numbers that are heard in Northern Africa or Somaliland.

The striped or laughing hyæna does not occur, as far as we are aware, as we have never heard him in Central Africa.

The sound made by a spotted hyæna in something like that of the steam siren of a steamer, and when once heard is always recognisable, and in no way resembles that of the striped.

They are adepts in the art of taking cover, and when slinking round camp on a bright moonlight night keep to the shadows, depressions and dark patches of ground so that they are seldom seen.

Cases occasionally occur when they attack a sleeping man or carry off a small child, but these are uncommon.

In Somaliland, where there are great numbers, we have known a case of four hyæna attacking and killing a camel, and it is a common occurrence when horses have been out grazing at night for a hyæna to take a bite at the rump, tearing out a piece of flesh.

Their jaws are immensely powerful, being possessed of as much or more strength than the lion.

When tortoise die, their shells are broken open by hyæna to get the flesh, and a shell about 3 ft. long broken into in this way affords ample proof of their power. Tortoise are often killed in the annual grass fires.

We are inclined to think that this animal is possessed of more pluck than he is generally given credit for.

It evidently would not serve his purpose to be brave as a rule, but he can be plucky enough on occasions. We have had a wounded one turn on us when approached with a spear.

NOTES.

BROWN HYÆNA (*Hyæna brunnea*),

NATIVE NAMES.

Chikunda Kadsumba. Zulu (Ngoni) Lisanyanga.
 Chiyao Kamburumburu.

FOOD.

Hunt and catch small game.

Will bring down large game, even buffalo, when badly wounded, but would not attack them otherwise.

SPOOR.

Like that of the spotted hyæna, but generally bigger.

HABITAT.

Very rare.

HABITS.

Hunt singly and not in packs.

NOTES.

HUNTING DOG (*Lycæon pictus*).

NATIVE NAMES.

Chinyanja . . .	Mbulu or Mmbulu.*	Chikunda	Mbinzi.
Chiyao	Lisogo.	Zulu (Ngoni)	Ndacha.

FOOD.

Carnivorous, eating game that it has killed itself.

SPOOR.

Not so large as that of hyæna, with longer toe-marks in proportion. If there is any doubt, the number of spoor-marks will be a guide, as this animal goes in packs.

HABITAT.

A pack will appear in a district and hunt for a time, moving off to another place as soon as the game gets scared.

HABITS.

Very seldom seen, but if met with are exceedingly bold. Instead of stampeding as do most wild animals at the sight of man, they move off slowly, constantly stopping to look round and grunting.

A pack will soon clear a neighbourhood of game.

If animals suddenly desert a place where there is usually a quantity of game, the reason will probably be that a pack of dogs have arrived in the neighbourhood.

If vultures should then be noticed hovering round, their kill may be located.

They hunt hartebeest, waterbuck, puku, impala, reedbuck, and the smaller game also female or young of kudu, but seldom attack game such as buffalo, eland, or zebra.

NOTES.

* The second "m" occurs in the plural mimbulu.

CIVET CAT (*Viverra civetta*).

NATIVE NAMES.

Chinyanja	Fungo.	Zulu (Ngoni) . .	Sindawajosi.
Chiyao	Ungo.	Swahili	Ngawa, Fungo.
Chikunda	Chombwe.	Chichewa	Fungwe.

FOOD.

Chiefly berries and fruits, such as those of the Mpimpia (or Mpindimbi), Maola (or Mpembo), Masuku, and Msoro; also catches mice, but does not eat meat as does the jackal.

SPOOR.

Almost exactly like spoor of a village dog.

Returns to the same spot to deposit its droppings, which spot may be the middle of an open plain.

The berries are seen in its dung like that of jackal, but by the size of the pile it may be recognised from the latter, also from the fact that it is almost entirely a vegetable feeder, not eating offal as does the jackal. The fur of mice may also be noticed among the berries.

HABITAT.

Lies up in caves, in the bush, in thick grass, or a reed brake is a favourite place.

HABITS.

Nocturnal. Is not a gregarious animal.

NOTES.

JACKALS.

1. Side striped (*Canis adustus*). 2. Black backed (*Canis mesomelas*).

NATIVE NAMES.

Chinyanja	Nkhandwe.	Chitonga	Kambwe.
Chiyao	Likule.	Swahili	Jibwe.
Chikunda	Nkhandwe.	Chibisa	Mumbwe.
Zulu (Ngoni) . .	Likanga.	Chiwemba	Mumbwe.

FOOD.

Maola, Msimpsa, Masuku, and other berries. Meat and offal. Chickens from villages. Locusts.

SPOOR.

Not unlike that of the jungle cat in general shape, but bigger, and shows claw-marks. Its dung, containing berries, is deposited in little heaps, thus differing from the large heaps of several days' droppings of the last named animal. Also we have never noticed the fur of mice in it, and, feeding as it does on offal, the dung is generally darker and not so entirely made up of berries.

HABITAT.

Found almost anywhere.

HABITS.

Nocturnal, but often seen about dusk, when it appears extremely impudent. Its cry of bwe! bwe! (from which the Abisa name mumbwe comes) is constantly heard at night.

It has been said that this animal follows the leopard as the hyæna does the lion, but we have seen nothing to verify this statement, and would think it unlikely, in view of the fact that the leopard is rather partial to jackal flesh, if it can seize one.

We have come across both kinds of jackal, the side striped being the larger of the two kinds.

NOTES.

HONEY BADGER (*Mellivora ratel*).

NATIVE NAMES.

Chinyanja	Chuuli.	Zulu (Ngoni)	Chuuli.
Chiyao	Kasapitinye.	Chiwemba	Kibuli or Kibao.
Chikunda	Chinzenzenzi.		

FOOD.

Honey. Termites and ants. Rats and fieldmice.

HABITAT.

Prefers rather wild country.

HABITS.

Generally nocturnal, but appears in the day or evening in an uninhabited country.

Lives often in antbear holes.

Burrows to get at honey and after rats, &c., to get at their nests.

NOTES.

SERVAL (*Felis serval*).

NATIVE NAMES.

Chinyanja	Ndusi.	Chisenga	} Mbale.
Chiyao	Njusi.	Chibisa	
Chikunda	Nzunza.	Chiwemba	
Zulu (Ngoni)	Njosi.	Chitonga . . . . .		Likote.

FOOD.

Kills small animals, such as mice of different sorts ; guinea-fowl.

Breaks into poultry houses and steals chickens from villages.

Locusts.

SPOOR.

Like that of a miniature leopard. Retractable claws and much the same arrangement of toe-pads as the leopard, so could not be mistaken for jackal or spoor of the same size which follow the hyæna type.

The spoor of hind feet do not fall on that of fore feet, in ordinary pace, as do the cats following.

HABITAT.

Lives in holes in rocks, in the bush, and in hollow trees during the daytime. Not usually found in high hills, but only in low, where it will lie up, coming down at night.

HABITS.

Nocturnal. Spoor often met with on pathways as, like most nocturnal animals, it uses them considerably.

Distinguished from a young leopard by the long legs and short tail.

The spots on the skin are single or run into stripes, but not grouped like the finger-marking of a leopard.

Natives trap this animal for the skin—which is prized as an ornament of dress—and also on account of its depredations among their chickens.

NOTES.

WILD CAT (*Felis caffra*).

(Wild or jungle cat.)

NATIVE NAMES.

Chinyanja	Vumbwe.	Swahili	Paka Mitu.
Chiyao	Chiulu.	Chibisa	Fumbwe.
Zulu (Ngoni) . .	Ligora.	Chiwemba . . .	Mpaka.
Chikunda	Vumbwe.		

FOOD.

Mice, birds, such as guinea-fowl and partridge. Breaks into pigeon-houses and hen-houses. Locusts.

SPOOR.

Much the size of a small jackal, but without claw-marks.
In walking the spoor of the hind foot covers that of the fore.

HABITAT.

Bush country, lying up in long grass or occasionally entering antbear holes.

HABITS.

Spoor frequently seen on paths. When it gets into a poultry or pigeon house it kills wantonly more than it can eat or take away, in the same way as does a lion in a goat kraal.

It is often caught by the natives by burning the long grass in which it lives.

The male often covers a female domestic cat from a village, which gives birth to young coloured like the wild cat. Not wholly nocturnal, like the genet, but occasionally goes abroad in the daytime, when it stalks guinea-fowl, partridge, &c.

NOTES.

RUSTY SPOTTED GENET (*Genetta rubiginosa*).

NATIVE NAMES.

Chinyanja	Mwiri.	Zulu (Ngoni)	Simba.
Chiyao	Mbendo.	Chibisa	Simba.
Chikunda	Kanyongo.	Chiwemba	Luwawa.

FOOD.

Eats mice.

SPOOR.

Much smaller than that of the jungle cat and more like a miniature leopard or serval than the latter. Claws semi-retractile, do not show in spoor.

Dung and spoor often met with on pathways, as they use them extensively at night. The dung usually has mice's fur in it.

HABITAT.

Lives in the daytime in caves and holes in rocks and trees, but not in the bush.

HABITS.

Much sought after by the natives as an ornament and skinned in the form of a bag, used for snuff hung at the waist. The Angoni use the tail for dressing the tops of their shields.

It is caught in a trap, as shown in illustration (facing page 37), set on a pathway. In walking the spoor of the hind foot is usually on the top of that of the fore.

NOTES.

SLENDER MONGOOSE (*Herpestes gracilis*).

NATIVE NAMES.

Chinyanja	Nyenga.	Chibisa	Chipuru Nyenga.
Chikunda	Msangala.	Chiwemba	Lipuru.
Zulu (Ngoni)	Nshlangana.		

FOOD.

Birds such as partridge and chickens; locusts, eggs.

SPOOR.

The two lesser pads at side and not back of foot.

HABITS.

Catches birds by day, and takes chickens from villages by night. Lives in ant-bear holes.

NOTES.

MARSH MONGOOSE (*Herpestes galera*).

NATIVE NAMES.

Chinyanja	Kakaka.	Chitonga	Kali (?).
Chiyao	Likakaka.	Chichewa	Tawnfa.
Zulu (Ngoni) . .	Chikanda Matika.	Chiwemba	Poto.
Chikunda	Kakaka.		

FOOD.

Crabs and fish.

SPOOR.

Very pointed claws. Dung black like otters, but smaller. Contains fish bones and crabs' claws, so does not resemble that of the next animal, though the spoor is almost identical.

HABITS.

Lives by water, but not in it like the otter.

NOTES.

RED KAKAKA.

NATIVE NAMES.

Chinyanja Kakaka.* Chikunda Kakaka.
 Zulu (Ngoni) Gerenyenzi.

FOOD.

Mice. Locusts.

SPOOR.

Like that of the former animal, but would not be seen in the same locality, the former occurring on the banks of rivers and swamps, and the latter in bush and hill country; moreover, the dung is different.

HABITS.

Lives in the bush and on hills.

We have been unable to obtain a skin to identify this animal.

NOTES.

* Same name as that of preceding animal.

BANDED MONGOOSE (*Cross-archus fasciatus*).

NATIVE NAMES.

Chinyanja	Msulu.	Zulu (Ngoni). . . .	Luhara.
Chiyao	Lisulu.	Chikunda.	Msulu.

FOOD.

Eats snakes, mice, ants, and locusts.

SPOOR.

Something similar to, but smaller than, slender mongoose.

HABITS.

Live together in large families in ant hills.

Will tackle a python and kill it when gorged with food, many of them going for it at once and biting it behind the head.

They pick the bones clean, and generally carry off the head to their holes.

Nocturnal, but occasionally seen out in the daytime.

NOTES.

MSUKUNYA (Probably Mellor's Mongoose).

NATIVE NAMES.

Chinyanja . . . Msukunya. Chikunda . . . Msukunya.

FOOD.

Snakes, mice, ants, and locusts.

HABITS.

A smaller animal than the last.

They live in families in ant hills in the same way.

Sometimes seen out during the day.

NOTES.

ZORILLE (*Ictidonyx zorilla*).

NATIVE NAMES.

Chinyanja . . .	Kanyimbi.	Chikunda . . .	Kanyimbi.
Chiyao	Chinyelyu.	Zulu (Ngoni). .	Nshoni.

FOOD.

Termites, ants, mice, and rats.

HABITS.

Lives in holes of antbear. Burrows after white ants. Has a very powerful smell which will drive mice from their holes, enabling it then to catch them. Chiefly nocturnal.

NOTES.

LIKONGWE (Stoat or Weasel).

NATIVE NAMES.

Chinyanja	Likongwe.	Zulu (Ngoni) .	Ndendi or Ckakida.
Chiyao	Chindindi.	Chiwemba . .	Koti.
Chikunda	Likongwe.		

FOOD.

Fowls, birds such as partridge, guinea-fowl, eggs, locusts, mice.

HABITS.

Live in holes. Sometimes break into a hen-house, taking eggs or chickens at night.

NOTES.

GIANT RAT.

NATIVE NAMES.

Chinyanja	Nchenzi.	Zulu (Ngoni)	Livondo.
Chiyao	Ngungusi.	Swahili	Buku?
Chikunda	Nsenzi.	Chibisa	Mbewa.

FOOD.

Stems of reeds (Bango and Senyere). Roots of Ntokwe. Inside of papyrus (Gumbwa).

SPOOR.

Seen on the muddy edges of swamps. Something like that of a mongoose in size.

HABITS.

Lives in or near water and swamps. Natives very fond of the flesh. Sometimes lie up in antbear holes.

NOTES.

PORCUPINE (*Hystrix afræ-australis*),

NATIVE NAMES.

Chinyanja	Nungu.	Chichewa	Chinungu.
Chiyao	Ndinu.	Chiwemba	Kinungi.
Chikunda	Nungu.		

FOOD.

Pumpkins and cucumbers from native gardens, a kind of wild potato, and other roots.

SPOOR.

Dung often seen on paths and very distinctive, being like a lot of date-stones stuck together. That shown in our illustration is rather a large specimen. There are almost always a number stuck together and seldom dropped separately.

HABITS.

Lives in holes in rocks by day and feeds at night. Digs for roots. Their quills are often seen in the bush where they have been dropped.

NOTES.

BABOON.

NATIVE NAMES.

Chinyanja	Nyani.	Chichewa	Nkhwere.
Chiyao	Lijani.	Chisenga	Korwe.
Chikunda	Kawlo.	Chiwisa	Koma.
Zulu (Ngoni)	Chiro chentowa.	Chiwemba	Kolwe.
Swahili	Nyani.		

SPOOR.

Ball of the contrapoised digit can be easily seen, showing whether it is right or left foot.

FOOD.

Fruit of Mlambe (baobab), Matonga, Mtondo.

Maize and pumpkins from native gardens.

Insects and centipedes.

HABITS.

Live in troops generally in rocky and high hills, coming down at night and at early mornings to feed, sometimes are seen at this time on an open dambo grubbing up roots and insects.

If there are any baboons in the neighbourhood, the fruit lying on the ground fallen from the baobab will be seen to be bitten open at the side, and the inside extracted.

The voice of the male is much deeper and gruffer than that of the female.

Achikunda call a male mvindo.

NOTES.

MONKEY : 1. (*Cercopithecus pygerythrus*).

NATIVE NAMES.

Chinyanja	Pusi.	Zulu (Ngoni)	Cheta.
Chiyao.	Litumbili.	Swahili	Pusi.
Chikunda	Pusi.	Chibisa	Cheta.

FOOD.

Fruit of trees, maize, and centipedes.

HABITS.

Live in troops. Can be seen in the open sometimes grubbing up insects, etc.

NOTES.

MONKEY: 2. (*Cercopithecus*).

NATIVE NAMES.

Chinyanja	Mchima.	Zulu (Ngoni)	Simangu.
Chiyao	Lichilu.	Swahili	Mbega.
Chikunda	Mchima.		

FOOD.

Fruit of Mpira, Mkawbe, and Mtawndo.

HABITS.

Live in tall trees near water, also in hills. Found in troops.
Do not come down on to the ground to feed as do the former.

NOTES.

GALAGO (*Galago crassicaudata*).

NATIVE NAMES.

Chinyanja	Changa.	Zulu (Ngoni)	Chingwe.
Chiyao	Likomba.	Chibisa	Changa.
Chikunda	Changa.		

FOOD.

Leaves and gum, or resin exuding from trees.

HABITS.

Lives in trees and caves, sleeps during the day and feeds at night, when its cry may be heard, Oung ! Oung ! much louder than the bush baby.

Galago do not live in families like the latter.

NOTES.

BUSH BABY.

NATIVE NAMES.

Chinyanja	Kamundi.	Zulu (Ngoni)	Wanjanyea.
Chiyao	Tupimbi.	Chiwemba	Tu-undi (pl).
Chikunda	Kamundi.		

FOOD.

Leaves, and the gum and resin which exude from trees.

HABITS.

Feeds at night. Its cry is like a very small kitten. Lives in holes in trees, in families.

NOTES.

ANTBEAR OR AARD VARK (*Orycteropus afer*).

NATIVE NAMES.

Chinyanja . . .	Nkumba Khumba.	Zulu (Ngoni) . . .	Chambani.
Chiyao	Mbawe.	Chiwisa	Nengo.
Chikunda . . .	Zimba.	Chisenga	Gwenugwenu.

FOOD.

Termites and ants.

SPOOR.

Often seen on pathways in the early morning.

HABITS.

Burrows in ant-hills and makes holes, which are used by many other animals to live in. Comes out at night, and so its spoor is often met with, but the animal itself is never seen out in the daytime.

NOTES.

SCALY MANIS (Manis temmincki).

NATIVE NAMES.

Chinyanja Nkaka. Chikunda Nkaka.

FOOD.

Ants.

HABITAT.

Lives on the ground.

NOTES.

HYRAX 1.

NATIVE NAMES.

Chikunda Kafumbwi. Zulu (Ngoni) Nterecha.
Chiyao Katundugulu.

HABITS.

Lives on the top of hills, but does not lie in holes ; may, however, enter an antbear hole if pursued by dogs.

Usually lies in a "form" like that made by a hare.

Tailless.

NOTES.

HYRAX 2.

NATIVE NAMES.

Chinyanja	Mbira.	Chiwisa	}	Pimpi.
Chiyao	Nchechere.	Chiwemba		
Chikunda	Mbira.			

HABITS.

Lives on hills in holes in the rocks.

A pile of buds of small flower shoots may be seen on the top of a stone or rock, where it has brought them to eat the leaves.

NOTES.

HARE.

NATIVE NAMES.

Chinyanja	Kalulu.	Chitonga	Kalulu.
Chiyao	Sungula.	Zulu (Ngoni)	Mvunya.
Chikunda	Kalulu.	Swahili	Sungura.

HABITS.

Not found on hills.

NOTES.

SQUIRRELS.

1.—Kandenda.

2.—Gorogoro.

The former is more reddish in colour.

NOTES.

GAME BIRDS.

Guinea Fowl Nkanga.

HABITS.

In the dry weather they scratch under aloes to get moisture. Their presence can also be detected by seeing their feathers, scratchings, and droppings about, and hearing their clank! clank! at sunset.

Partridge, common . . . Nkwale.

Partridge, red Pembera.

HABITS.

Make the usual partridge calls morning and evening.

NOTES.

OTHER BIRDS.

Crested crane	Mangalu.	Eagle.	Chipungu.
Plover	Kwiri kwiri.	Kite	Kabayi.
Wagtail	Tye Tye.	Red sand martin .	Fulagombe.
Red bell bird	Mwiyo.	Honey-bird	Nsadze.
Vulture	Mwimba.		

NOTES

ELEPHANT-NOSED SHREW.

Chikunda Sagwe. Chiwemba Tondo.
Chiyao. Litawara.

NOTES.

MOLE.

Chinyanja Mfuko. Chiyao Uko.

NOTES.

FIELD MOUSE.

Mende or Malende.

NOTES.

CROCODILE.

NATIVE NAMES.

Chinyanja	Ng'ona.	Zulu (Ngoni) . . .	Ngwenya.
Chiyao	Ngwena.	Chitonga	Ng'ona.
Chikunda	Nyakoko.	Swahili	Mamba.

SPOOR.

Trail of tail shows.

The impress of the scales can be seen where one has been lying.

If these places are prodded with a stick the eggs are sometimes found.

HABITS.

Lie in sheltered spots on the bank, but often quite in the open on sandbanks.

When they hear anyone approaching they take to the water, generally splashing till they get into deep water.

Their course may be followed by the swell, and if the rifle is brought to the shoulder one will generally get a shot, as they almost always put their heads up when getting into mid-stream to look at what has frightened them.

They kill a number of natives annually on the big rivers, and so we would generally take a long shot at one of these animals, even if there is no chance of getting the body.

The Awisa eat the flesh, but the Awemba, who are very like them in language and habits, do not.

Some of the river people of the Shire and the Zambesi are also fond of the meat.

NOTES.

LIZARDS.

Monitor	Gondwa.	Water Monitor . .	Mwanzi.
Monitor	Buruzi.	Hill Monitor . . .	Kwawi, leaves piles of neatly chopped grass on stones.
Large turtle	Kasi.	Tortoise	Kamba.
Small turtle	Kamba lisudzi.		

NOTES.

SNAKES.

	<u>Chinyanja.</u>	<u>Chiyao.</u>	In other languages.
Python	Satu.	Sato.	Nsatu. Chatu, &c.
Brown cobra*	Mamba.	Luwiye.	
Puff adder	Piri.	Lipiri.	
Green tree snake . . .	Namasamba.		
Dark green, poisonous	Chisagula.		
Other snakes	Kasambwe.		
	Kaleleya.		
	Nalukukuti.		
	Mlalu.		
	Songo.		

NOTES.

* Has a small hood and can spit to the distance of about 3 yds. If it is held down with a stick it will endeavour to spit in its tormentor's eyes, which will cause immense irritation for several days.

TSETSE FLY.

NATIVE NAMES.

Chichewa Kamzembe. Zulu (Ngoni) Mbawani.
 Chikunda Mpepse.

NOTES.

BOTT FLY.

NATIVE NAMES.

Chinyanja Kalira. Zulu (Ngoni) Zimpukani.
 Chiyao Chiwembe.* Chikunda Kaliralira.

NOTES.

* Also used for bluebottle.

HIPPO FLY.

NATIVE NAMES.

Chinyanja Chimbu. Chiyao Liguó.

NOTES.

BLUEBOTTLE.

Nyamimbi.

NOTES.

HOUSE FLY.

Mwembe.

NOTES.

ANT LION.

Chiyao Likungulu.

NOTES.

APPENDIX.

OUTFIT FOR SHOOTING TRIP.

RIFLES AND SPORTING EQUIPMENT.

Two rifles with cases or leather covers.
One shot gun in case (not necessary).
Ammunition for rifles in proportion of 20 per cent. solid, to 80 per cent. expanding.*
Ammunition for gun in proportion of 10 per cent. S.S.G., 30 per cent. No. 2, 60 per cent. No. 5.
Rook rifle with plentiful supply of ammunition.
Collector's gun and ammunition.†
Spare parts for rifles ‡
Cleaning materials—oil, flannelette, pull throughs, oil bottle, cleaning rod with rag extractor.
Bandolier.
Field glasses (Prism for preference).
Waterbottle—aluminium with felt cover.
Two strong small cartridge bags.
Hunting knife in scabbard.
Strong belt with rings, shackles, and pouch containing compass, burning glass and watch.
One set night sights.
Camera.
Measuring tape, self rolling.

CAMP KIT.

Green rot-proof tent, double fly.
Ground sheet for tent with eyelets.§

* If elephant the main object a greater proportion of solid should be taken.

† If a speciality is to be made of small birds, etc.

‡ To suit rifle. If for '303: striker, striker spring, cee-spring of magazine, extractor spring, magazine platform, spare foresight and sight protector, a few of the most important screws, file (known as flat smooth), two small screwdrivers, bolt key and turn screw to tighten stock recommended.

These will probably never be used but take very little room whereas omission might spoil the whole trip.

§ On a small expedition, travelling light, this can be taken instead of tent.

Spare guy rope.
Folding X bed with mosquito net and attachment.
Folding X chair.
Folding X table.
Folding bath and washstand.
Tent pole strap with hooks.
Folding lamp with talc sides and spare talc.
Two canvas waterbags.
One pillow, wire springs.
Four blankets.
One billhook.
One pair pliers and wirecutters.
Small American axe.
One native axe (bought in the country).
Gins for small mammalia.
Wire for snares. } If collecting.
Cotton wool. }
One pair scissors.
Six butcher's knives, for natives to skin with.
Penknife with ring to fasten to belt.
Oil stone.
Preserving materials, turpentine, salt, alum, Keating's.
List of the records of game likely to be met with.
Maps

COOKING UTENSILS.

Double canteen containing knives forks, frying pan, etc., etc., in bucket.
Two aluminium saucepans.
One big kettle.
Pocket mincing machine.
Two mugs.
Cooking knife and two cooking spoons.
One tin opener.
One corkscrew.

GENERAL STORES.

Toilet soap.

Common soap, for washing clothes.
Tobacco.
Candles.
Tooth powder.
Spools for camera.
Matches.
String.
Seccotine, for sticking in animal's teeth.

CLOTHES, ETC.

Two strong flannel shirts (large to allow for shrinkage).
Two khaki-coloured shirts (shoulder pads if worn without coat).
Two white tennis shirts.
Four thin merino vests.
Two shooting coats—shoulder pads, big pockets, and cartridge loops.
One double Terai hat—drab, not light coloured.
Two pairs thick khaki or gaberdine cut shorts, side and hip pockets.
One pair trousers.
Two pair putties or thin gaiters.
Four pairs canvas shoes, thick rubber soles for hill work.
Three pairs boots with aluminium nails.
One pair slippers for camp.
Four khaki-coloured silk scarves.
Two dozen pairs socks.
One great coat.
One waterproof cape.
Two pairs pyjamas.
Three towels.
One dozen handkerchiefs.
One sponge.
Two tooth brushes.
One nail scissors.
Housewife.
Blotting book, ink pot, stationery, notebooks, pencils.
Hair brush and metal comb.
Metal soap dish.

MEDICINES.

One small chest containing :
Quinine, five grains each tabloid.
Phenacetin, five grains each tabloid.
Iodoform.

One small chest containing—*contd.* :
Boracic acid.
Chlorodyne.
Eau-de-Suez, for toothache.
Carter's little liver pills.
Corrosive sublimate tabloids.
Potassium permanganate.
Opium pills.
Scissors.
Forceps.
Four safety pins.
One bandage.
Lint.
Boracic wool.
Oil silk.
Clinical thermometer.
Stick of caustic.
Plaster, self adhesive.
Plaster, court.
Gut and needles.
Hypodermic syringe.
Morphine and atrophine.
One field dressing.
One tin cuticura ointment.
Two spare bottles quinine (sugar coated).
One bottle brandy (best).

FOOD STORES.

It is cheaper to bring these from home, but, if it is a case of leaving them behind to follow after him, the sportsman will save several months' delay by buying them locally before leaving the last station he touches at.

He will know best himself what he will require, but it is quite possible to get along on native produce with a few additions such as:—Sugar, tea, coffee, cocoa, salt, sauce, and condiments.

The above list would be quite sufficient for a year's trip. We have only mentioned actual necessities, as it is generally more convenient to travel light.

Superfluous stores of ammunition, food, and clothes can be left at some station to be sent for as required.

This saves the cost of unnecessary carriage, and also the trouble of looking after things not urgently needed.

ILLUSTRATIONS.

N.B.—The spoor shown are those of animals walking, unless otherwise stated.

♂ means male.

♀ means female.

Off means right.

Near means left.

Dung means only part of amount evacuated at one time by the animal in question.



Photo by T. A. Barns.

PYTHON



Photo by T. A. Barnes.

MONITOR.

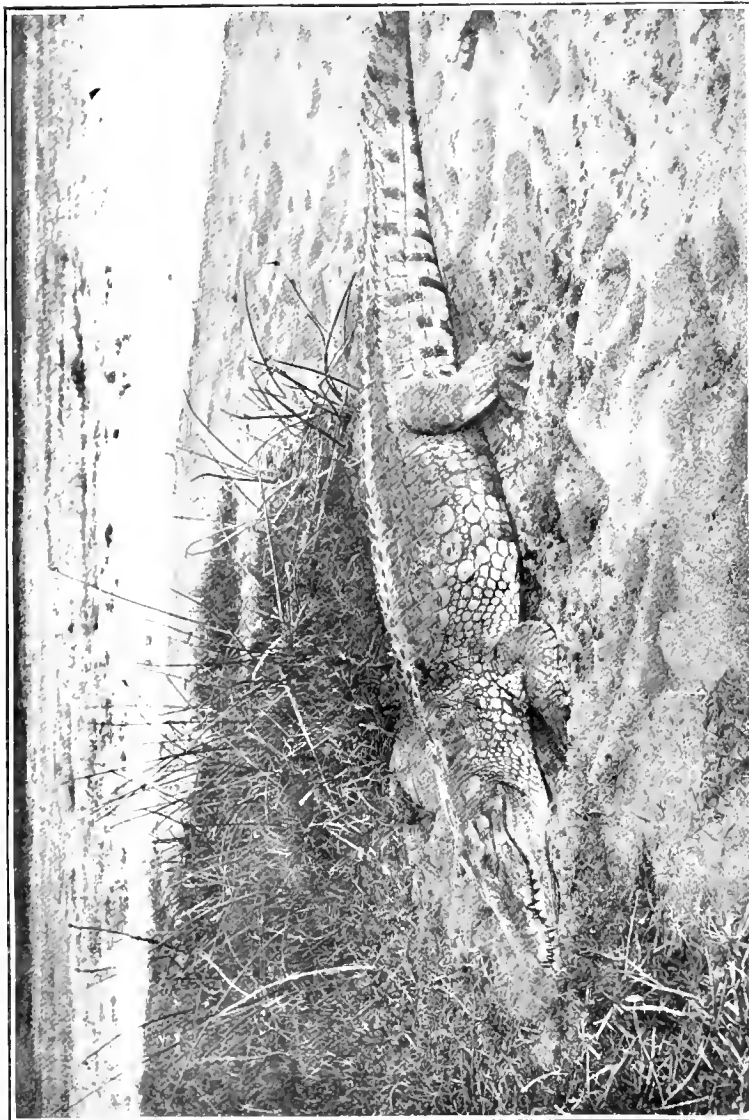


Photo by T. A. Barnes.

CROCODILE.

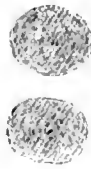


CROCODILE -NEAR HIND FOOT
(In Soft Wet Sand).

N B -The crocodile has five toes on fore foot and four on hind. The outer toe is much shorter than the others, and does not show so much in the spoor. This toe is still shorter in the big lizards, and in some species seems to be becoming rudimentary.



HYRAX DUNG.



HARE DUNG.

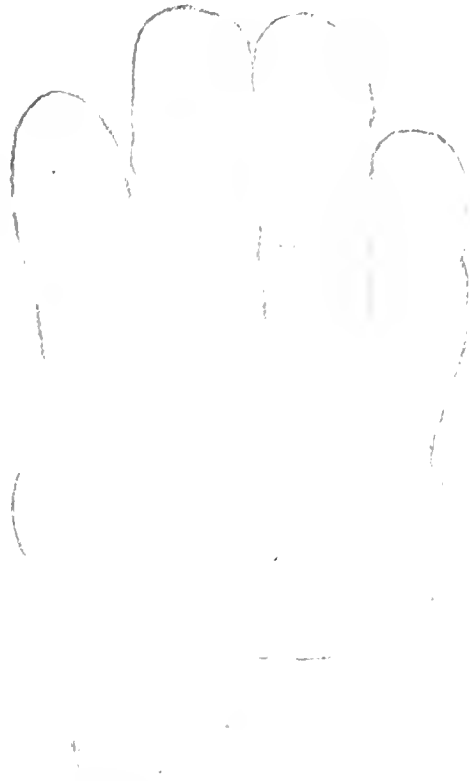


BANDED MONGOOSE DUNG.

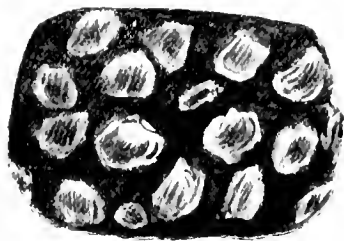


ANIBEAR (Oft Forefoot).

N.B.—The autbear has four toes on each foot, but the outer toe is much shorter than the others and seldom shows in the spoor.



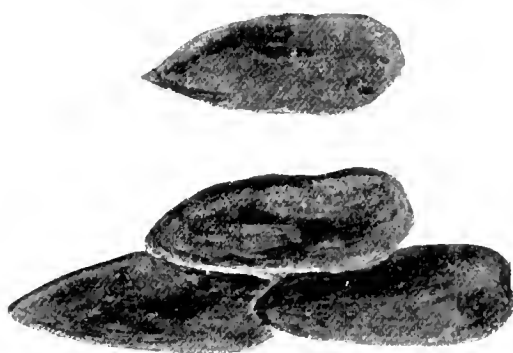
BABOON.



MONKEY DUNG.
(Showing Seeds of Fruits).



PORCUPINE (In Sandy Soil).



PORCUPINE DUNG.



KARAKA
(In Wet Sand).

SLENDER MONGOOSE
(Near Fore Foot, in Sand).



Photo by G. Gardner.

NANDIMA GERRARDI,
Native name, Ngohigulu—Chinyanja.



GENET (Hind Foot).

KAFFIR CAT (Off Hind Foot)



SERVAL (Off Fore Foot).



SERVAL (Near Hind Foot).



SERVAL DUNG
(Wild Cat Similar).

N.B. — These serval spoor are illustrative of the general difference between spoor of the hind and fore feet and between off and near feet of all dog and cat-like animals. See Chapter II.
The left toe of the hind foot in this case is an individual difference, and does not follow the general rule, perhaps owing to some old sore or bruise. The fore foot follows our general rules.

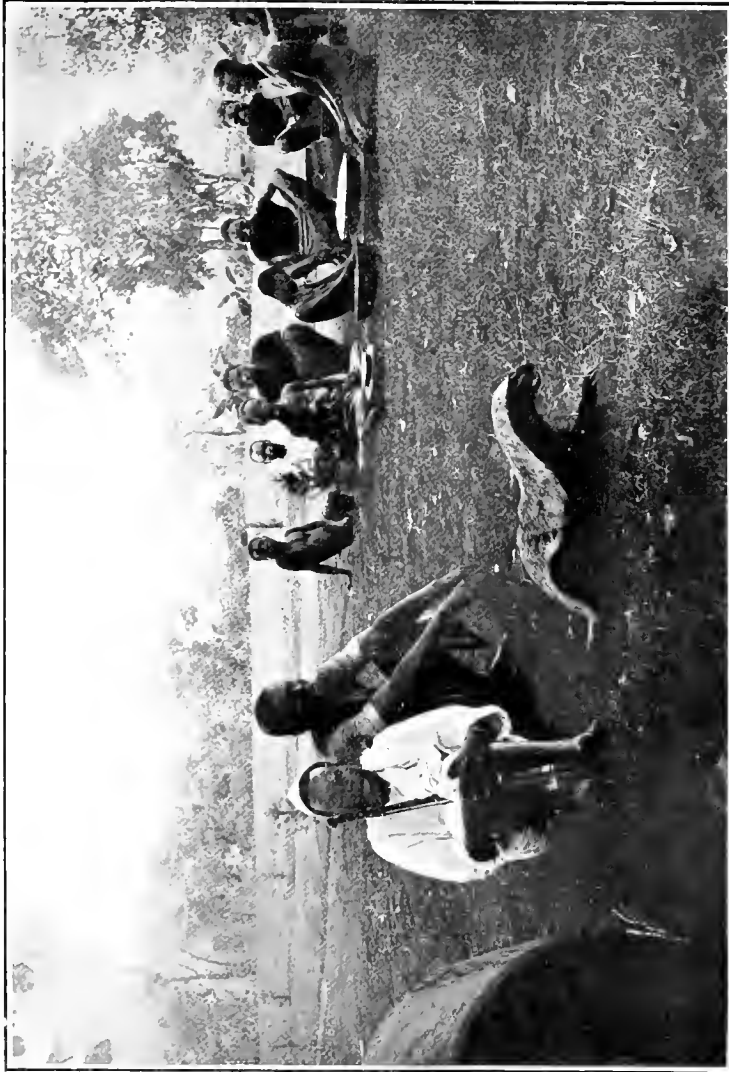


Photo by G. Garden.

HONEY BADGER.

A. B.

1

2

3

JACKAL
(In Thin Sand).

CIVET
On Hind Foot (In Damp Sand).

OTTER
(In Soft Mud)



HUNTING DOG ♂.



HUNTING DOG
Probably Hind Foot (In Hard Sand)



HYENA (Probably ♀)
Near Hind Foot (In Soft Sand).

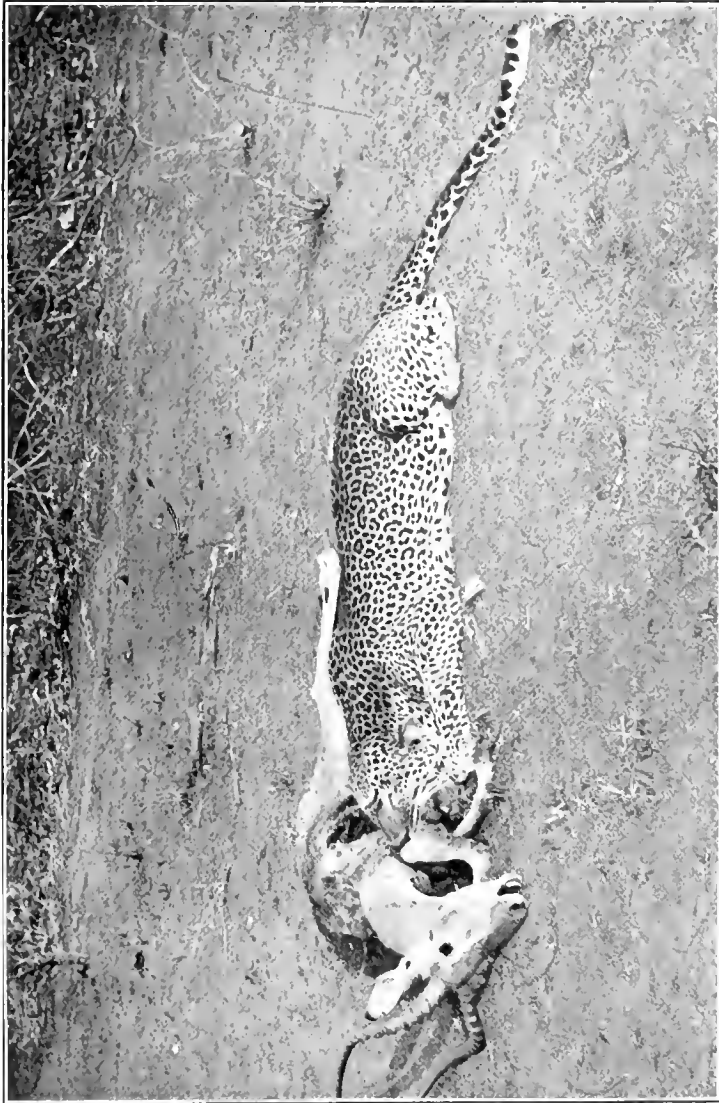
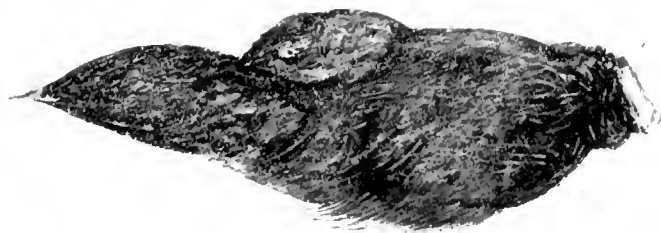


Photo by T. A. Barns

LEOPARD



LEOPARD ?
Off Hind Foot (In Soft Sand).



LEOPARD DUNG.



LION.
Shot by Comte J de Bylandt.



FIG. 3.
Off Fore Foot (In Soft Sand).



LION DUNG.



LIONESS
(In Soft Sand)



Photo by G. Gardem.

WARTHOG 4



WARTHOG.
Forefoot (In Soft Mud).



WARTHOG DUNG.
(Bush Pig Similar.)

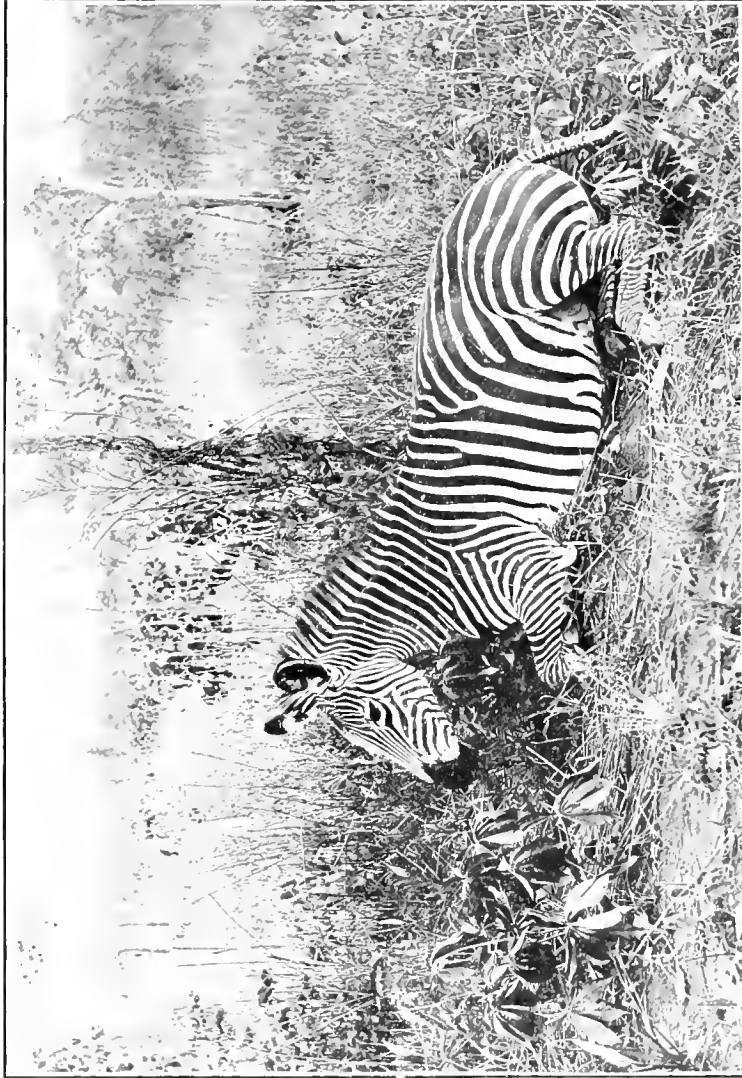


Photo by G. Garden.

ZEBRA ♂
Probably *Equus burchelli*.



ZEBRA ♂
Fore Foot (In Soft Sandy Soil)



ZEBRA DUNG



Photo by G. Garden.

KLIPSPRINGER ♂



KLIPSPRINGER ♂



KASENYE
(In Soft Sand).



KASENYE (Running)
(In Hard Sand).



KASENYE DUNG



KIIPSPRINGER (Hard Ground).



KIIPSPRINGER DUNG



RED DUKER ♂



ORIBE ♂

DUKER ♂
In Soft Sand



DUKER DUNG

RED DUKER
In Hard Sand



RED DUKER DUNG

♀



ORIP ♂
Off Foot-oot (Soft Sand)



Photo by G. Garden.

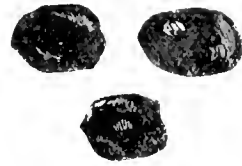
REEDBUCK ♂



REEDBUCK ♂

The country of the lower photograph is more typical of reedbuck country than the one above.

REEDBUCK ♂
(In Soft Mud)



REEDBUCK DUNG



PURU ♂
In Damp Sand



PURU DUNG



KUDU ♂
(Horns 17 in. on Front Curve)

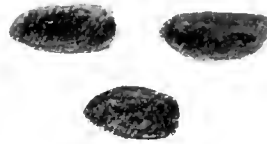


IMPALA ♂

Photo by E. A. Barns



IMPALA ♂
Fore Foot (In Soft Sand).



IMPALA DUNG.



BUSHBUCK ♂.
Near Fore Foot (In Wet
Sand).



BUSHBUCK DUNG.

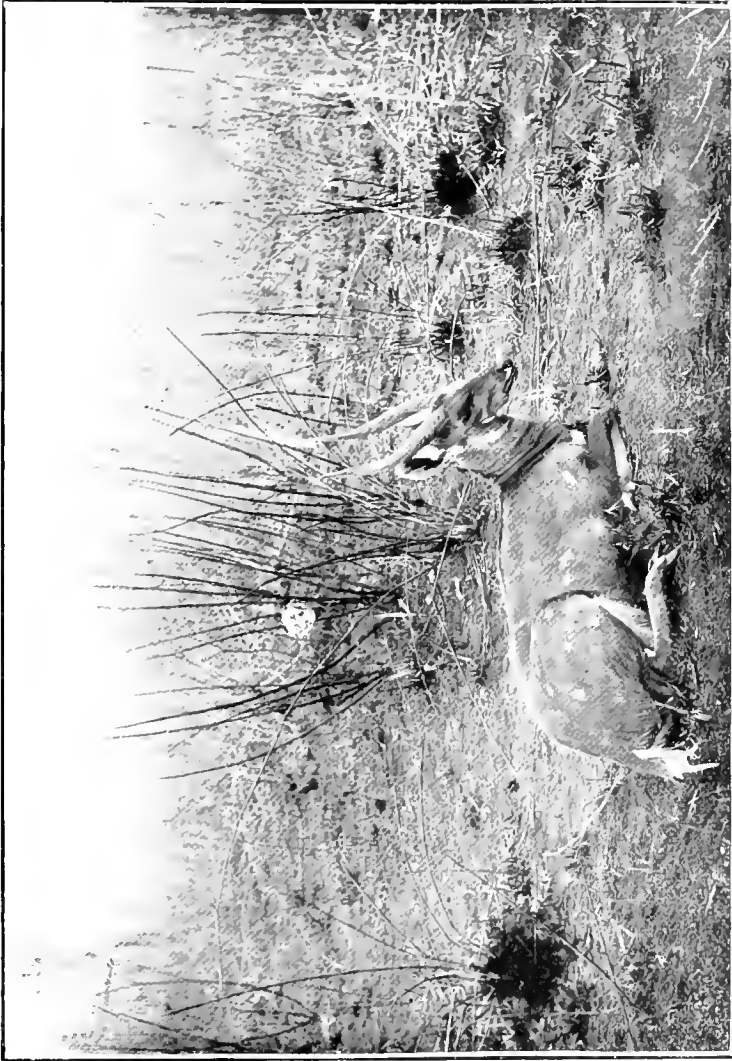
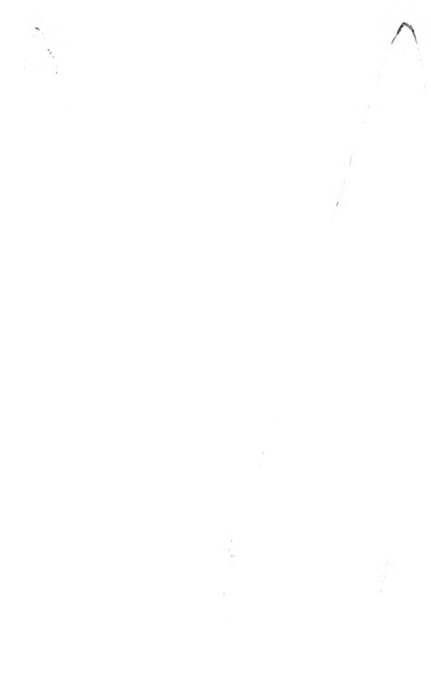


Photo by G. Gorden.

BUSHBUCK ♂



SITUTUNGA ♂
(Near Fore Foot).



SASSABY HEAD
(Horns $17\frac{1}{2}$ in. on Curve)



SASSABY ♂
(Off Fore Foot).



SASSABY DE NG.

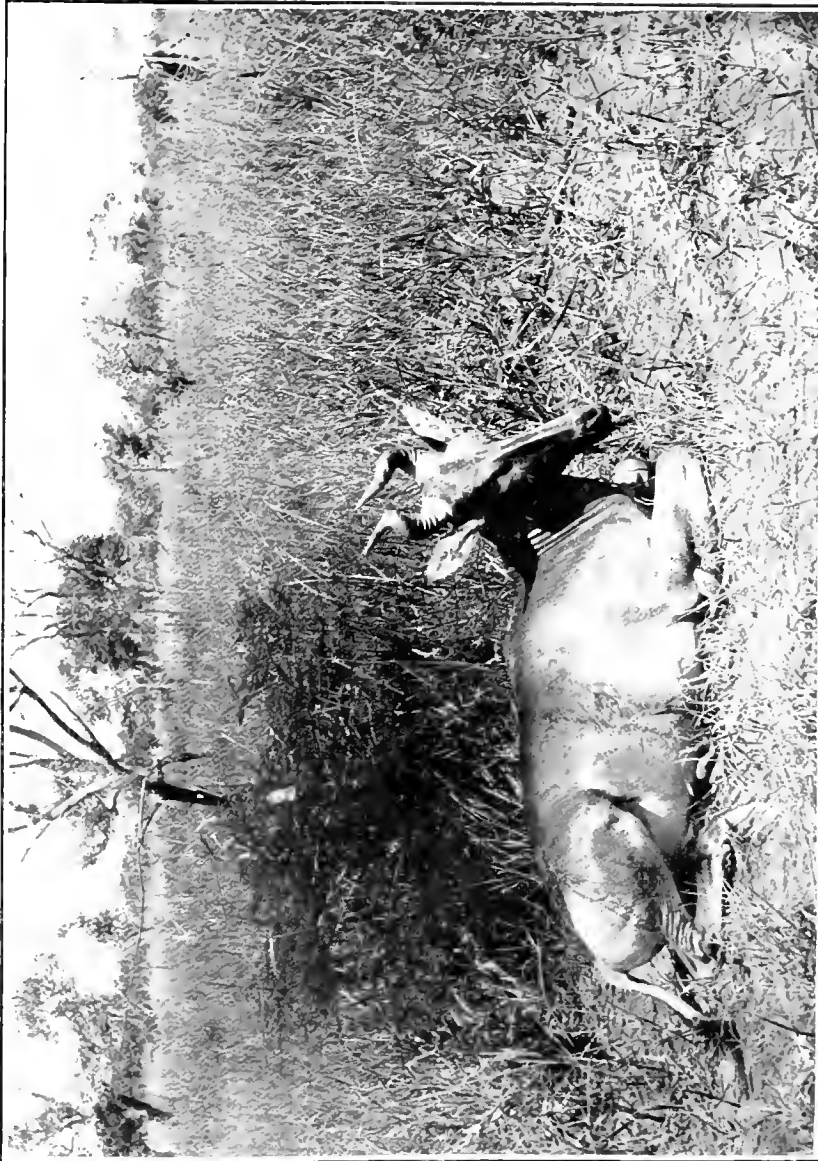


Photo by G. Garden.

HARTEBEEST ♂ (Lichtenstein's).

(The horns of above animal have hardly attained their full size.)



HARTEBEEST ♂ (Lichtenstein's)
(Fore Foot in Sandy Soil.)



HARTEBEEST DUNG

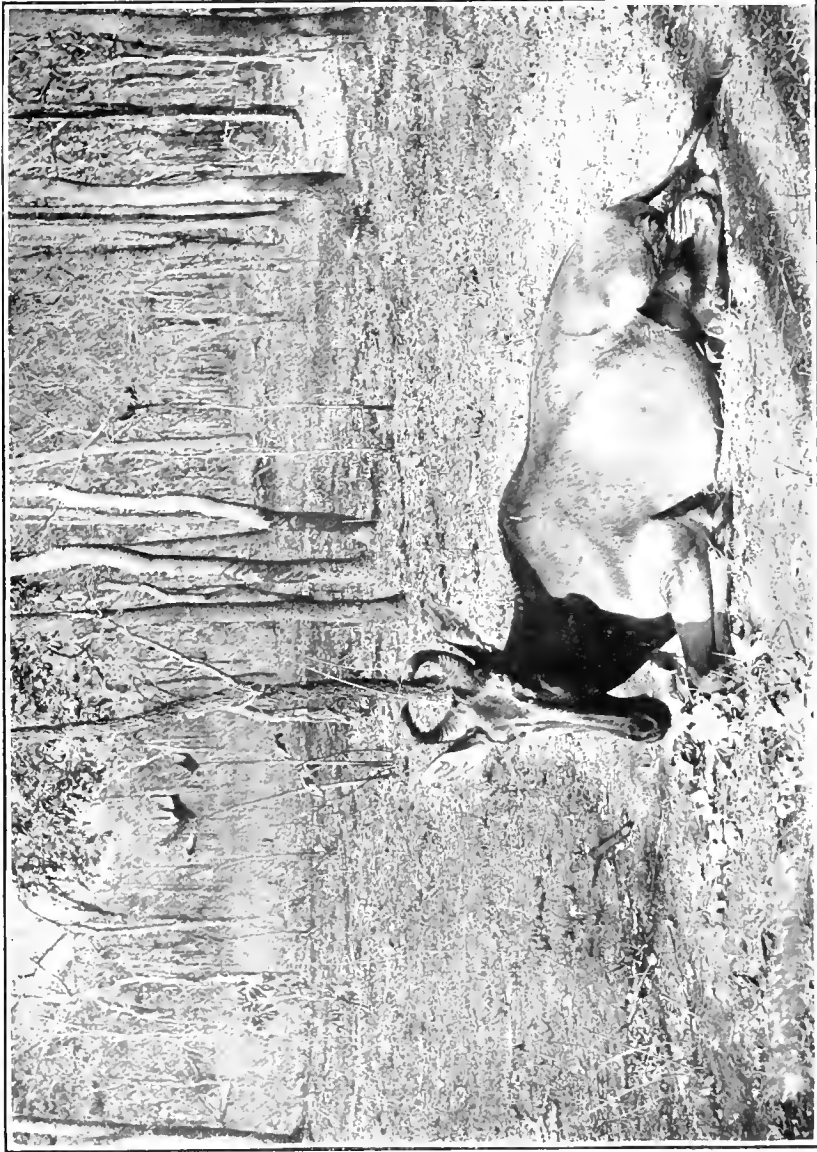


Photo by G. Gordon

HARTBEEST - Lichtenstein's



Photo by G. Gorden

WATERBUCK 7



WATERBUCK ♂.
Fore Foot (In Soft Mud)



WATERBUCK DUNG
Dry Weather Type



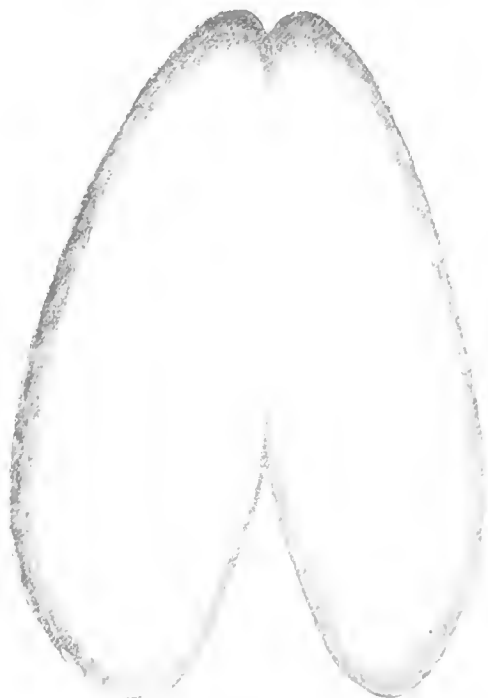
Photo by G. Gorden.

KUDU ♂

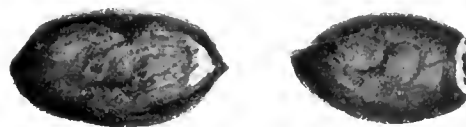


KUDU ♂.

Left horn measures $63\frac{5}{8}$ in. on curve; the biggest shot in Central Africa, but the spoor was the smallest we have seen of an adult male. The spoor below is that of another animal.



KUDU SPOOR
(In Damp Soil).



KUDU DUNG.



Photo by T. A. Barnes

ROAN ♂



ROAN ♂
(In Firm, Muddy Soil)
Probably Near Fore Foot



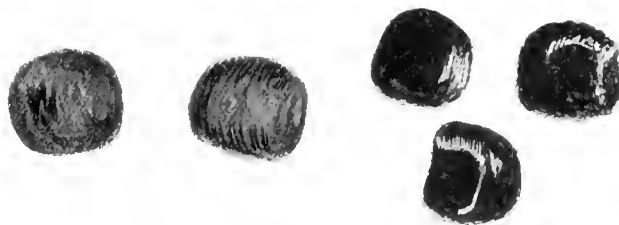
Photo by G. Garden.

SABLE ♂.

(The horns of above animal are hardly full grown. In old bull sable the base of horns form a bulge with indistinct rings, and usually have a greater curve than those of this animal.)



SABLE ♂
(In Hard Mud)



SABLE DUNG
Roan Similar, but Larger

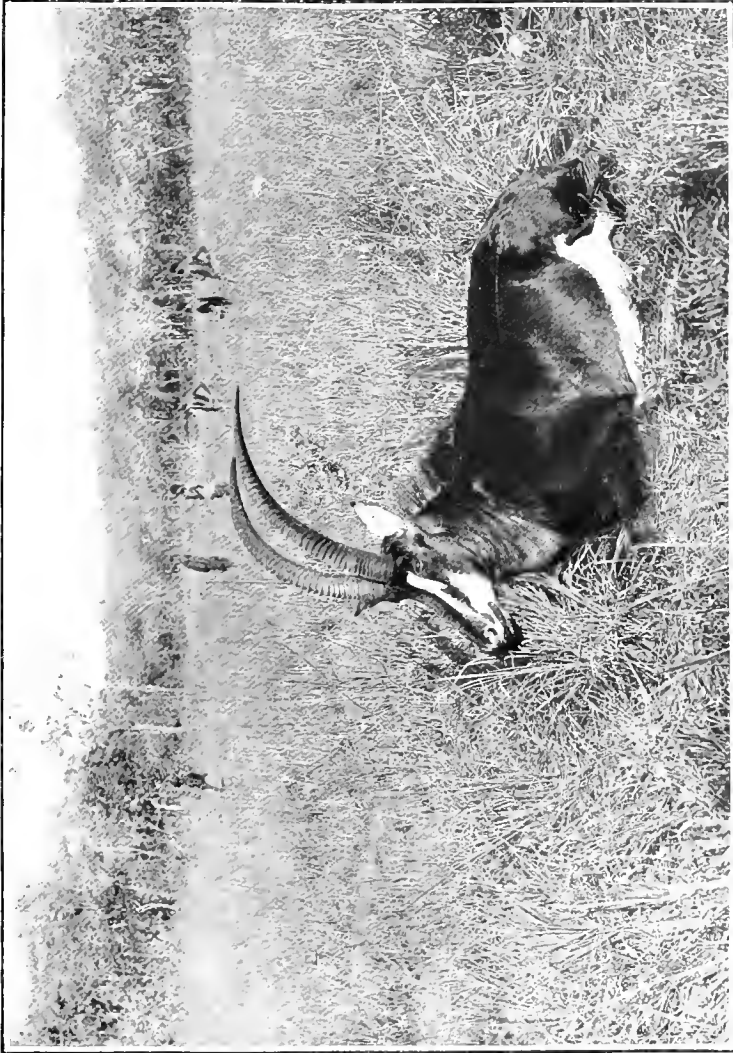


Photo by G. Garder.

SABLE ♂

(Notice difference in colour from hide of male.)



Photo by G. Gardin.

NYASALAND GNU ♂



BLUE WILDEFEST ♂ (Gim).
Off Fore Foot.



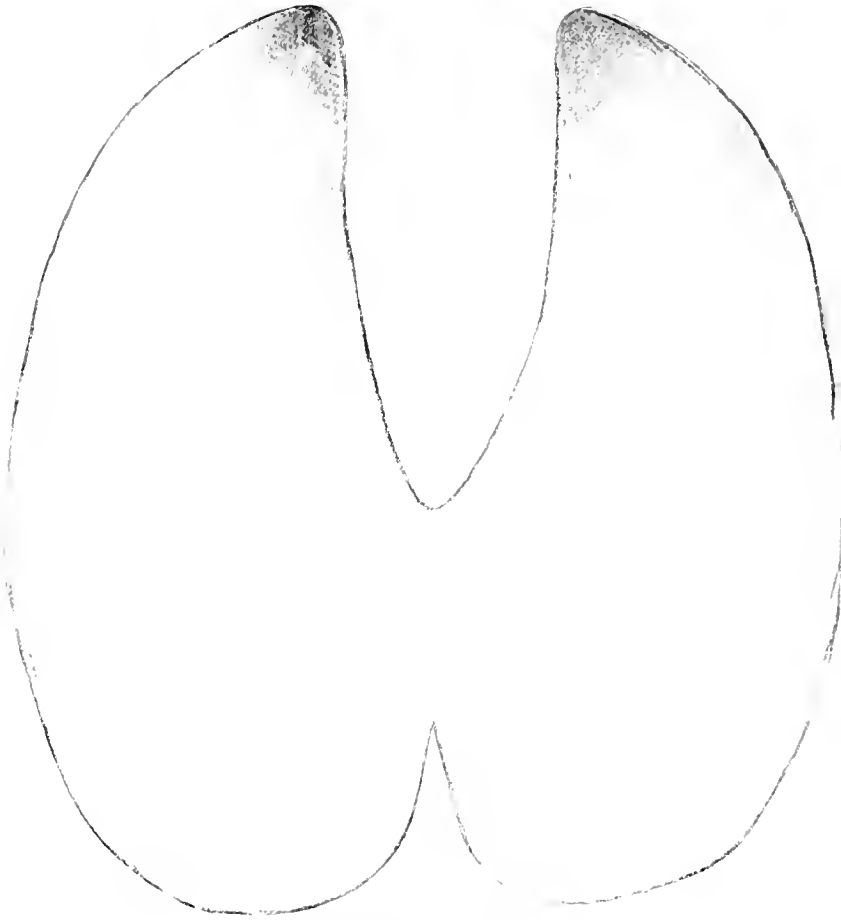
Photo by G. Gardem.

NYASALAND GNU ?.



Photo by G. Gardien.

ELAND ♂.



ELAND ♂ (In Muddy Soil).



SPOOK OF YOUNG ELAND.
(See Page 7, Chapter II, Part I.)



Photo by G. Garden.

ELAND ♀.



ELAND ♀
(In Soft Mud).



ELAND DUNG.

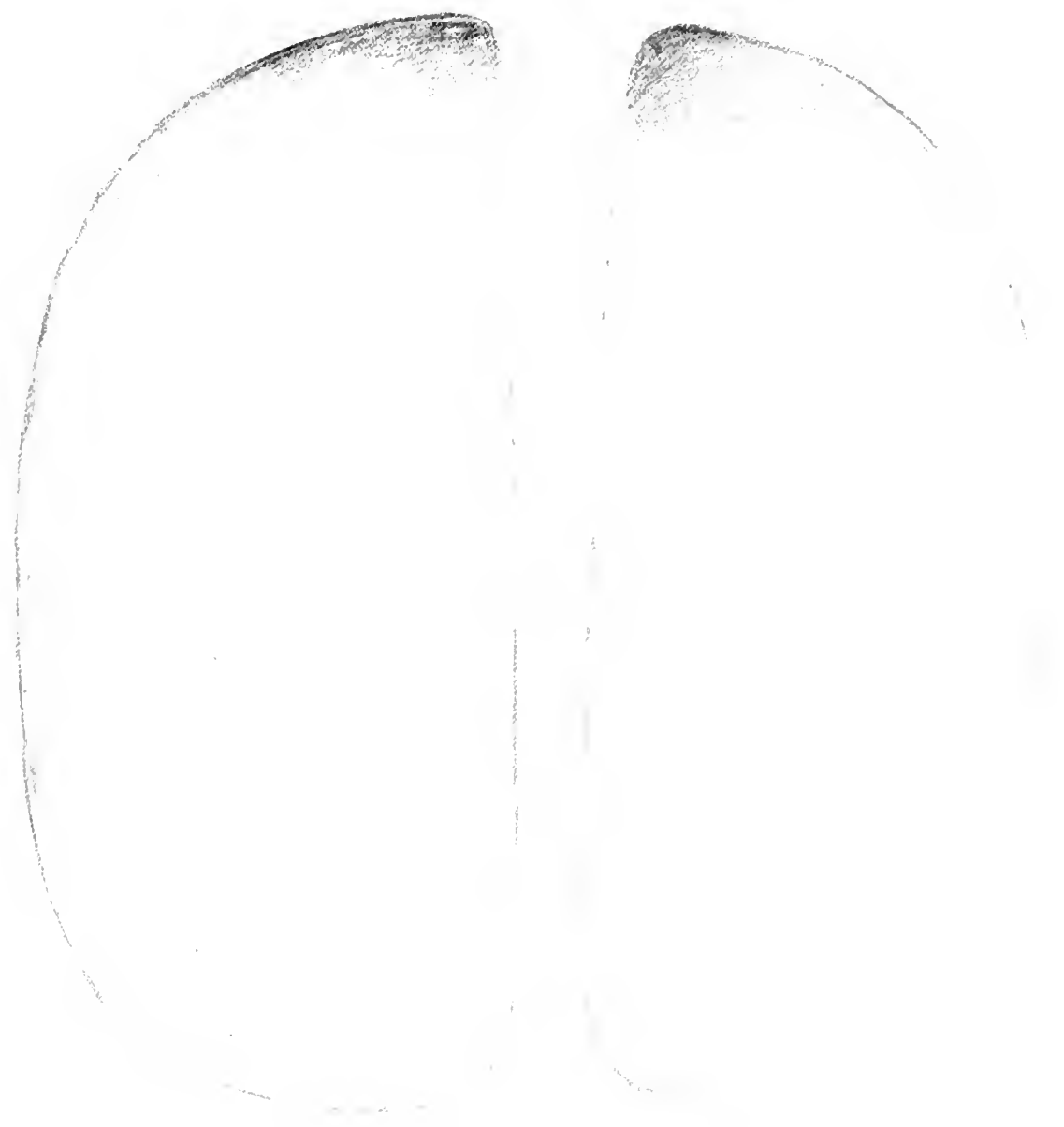


BUFFALO

Photo by G. Garden.



BUFFALO 2.



BUFFALO ♂
(In Dry Season.)

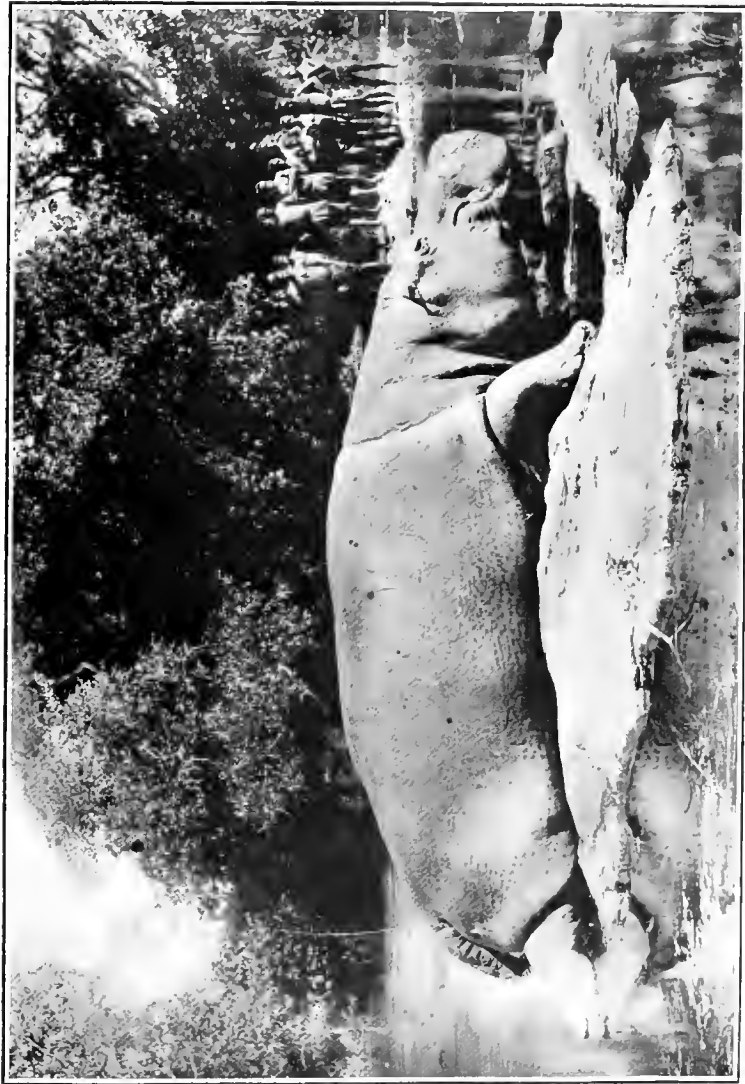


Photo by G. Garden.

HIPPO.



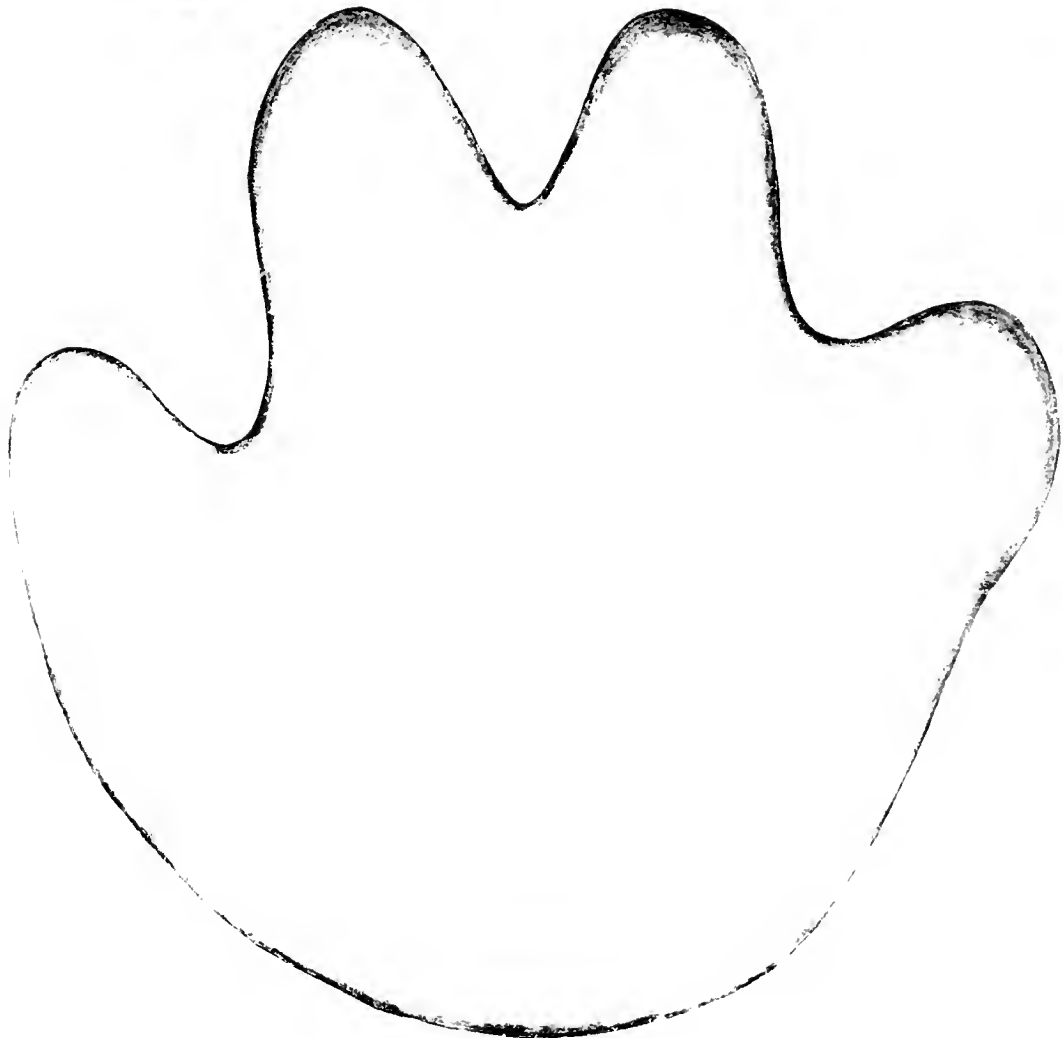


FIGURE 7
On Hard Sand



Photo by G. Garden.

RHINO ♂.



RHINO ♀.

RUINO ♂
(In Hard Sand).



Photo by T. A. Barns.

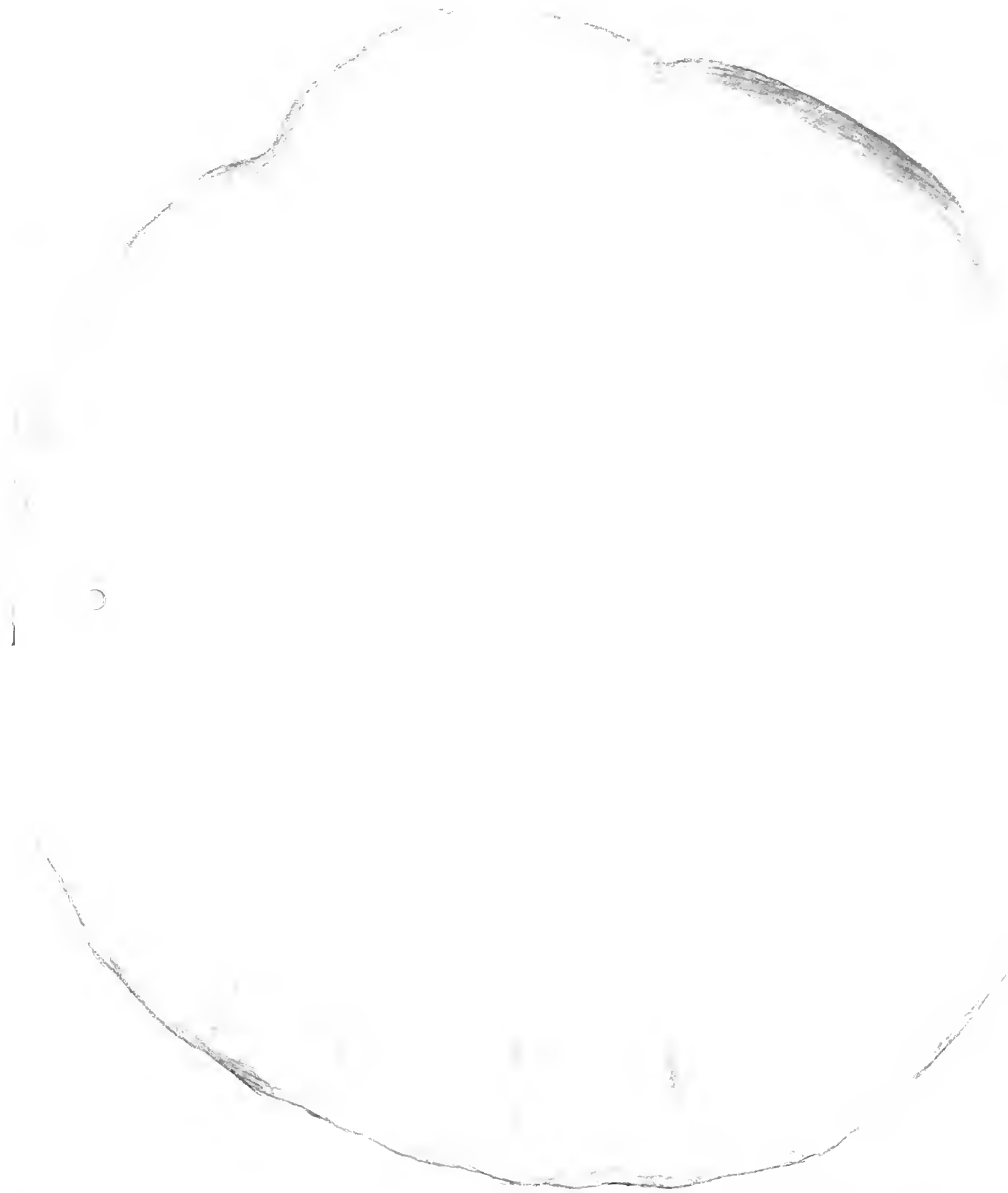
ELEPHANT ♂.

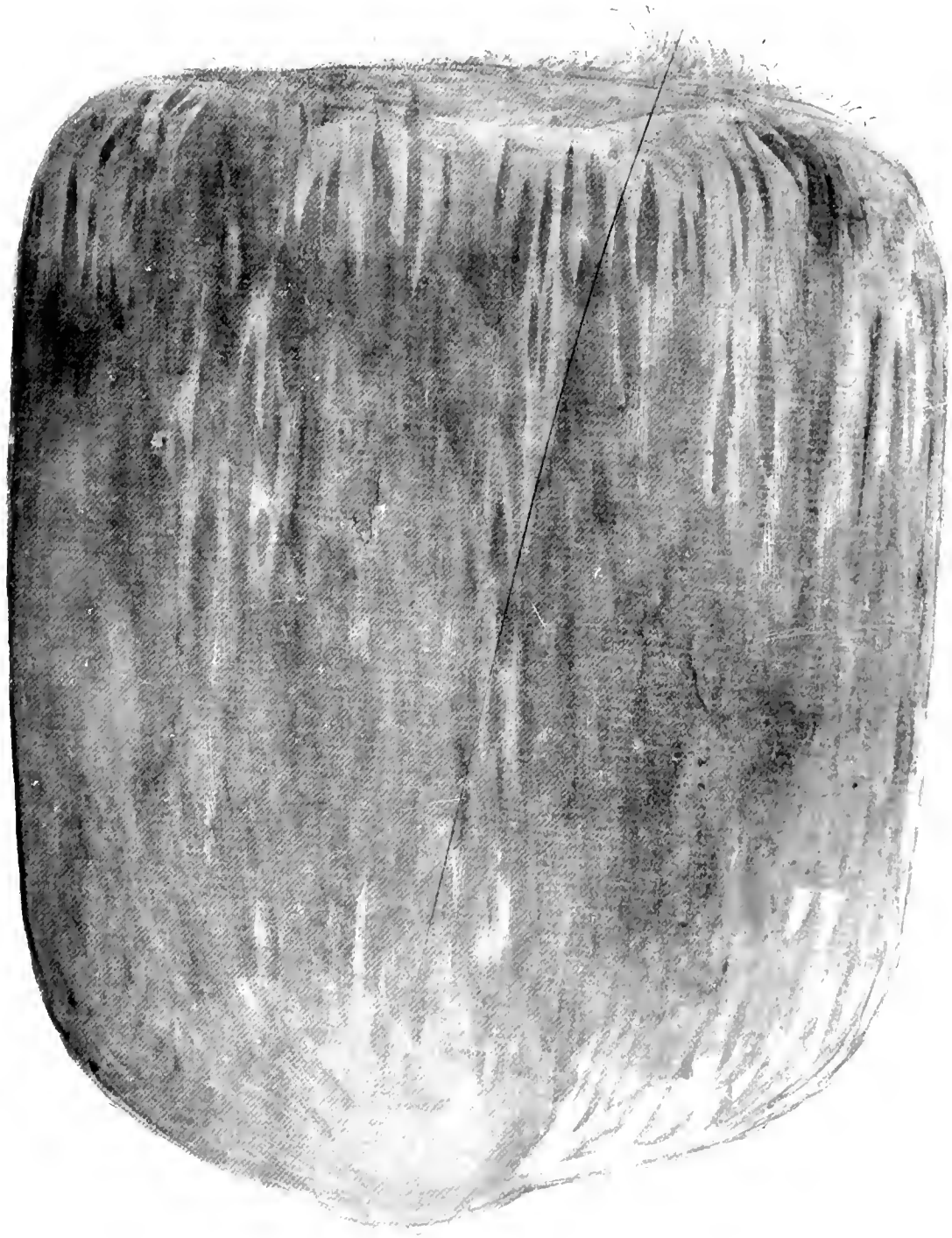
Note the cracked surface of the feet, the marks of which are to be looked for in the spoor.



ELEPHANT ♀.







2. 9001. 1. 1000. 1. 1000.



ELEPHANT ♂.



CUTTING OUT ELEPHANT TUSKS.



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