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RECORDS OF BIG GAME

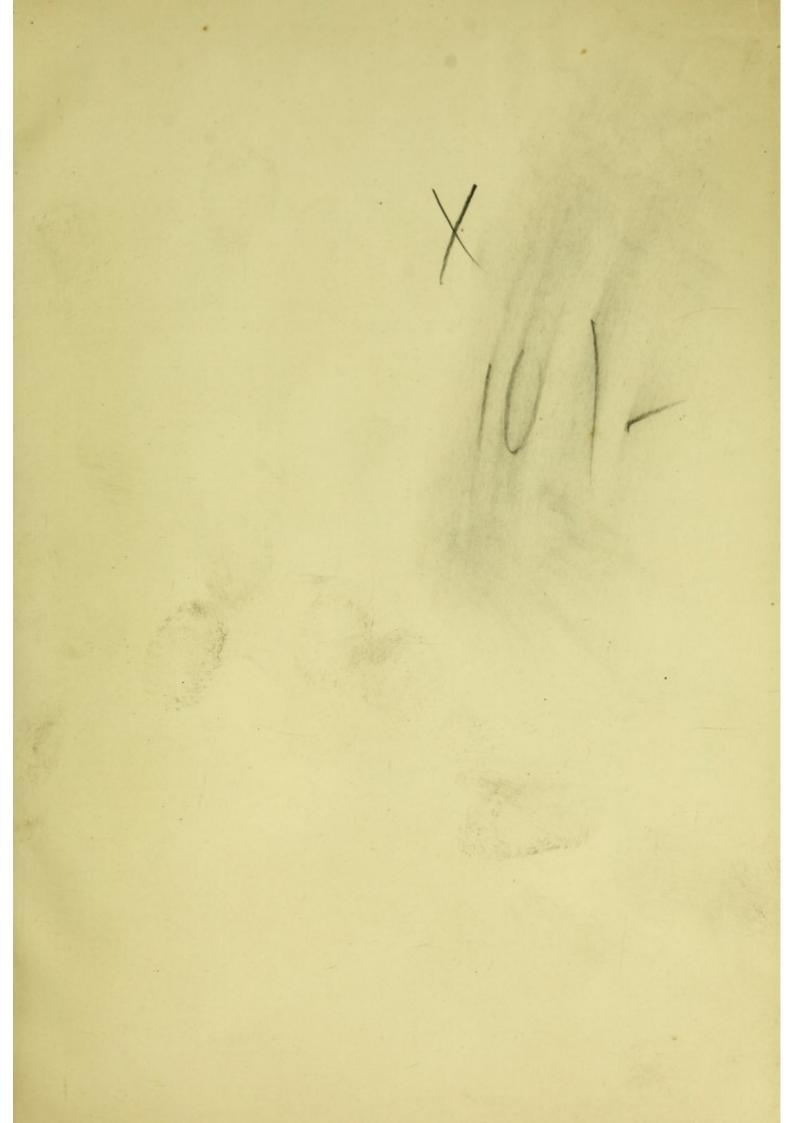
FOURTH EDITION

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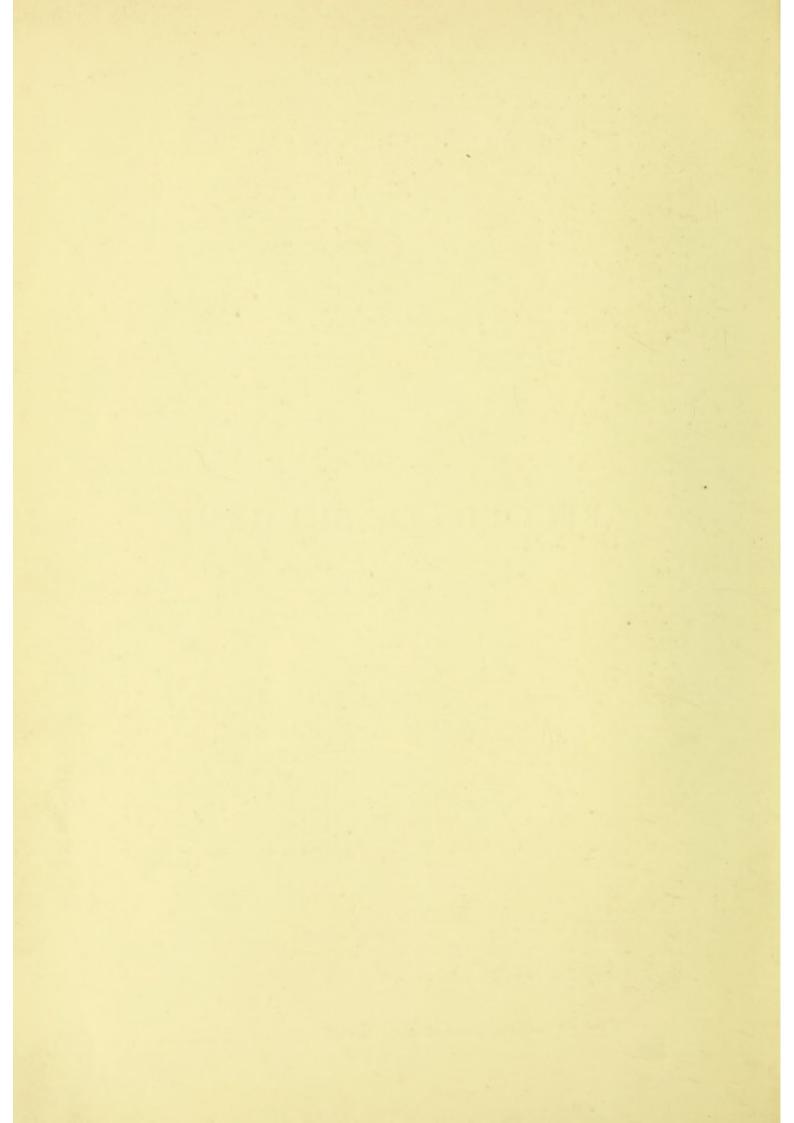
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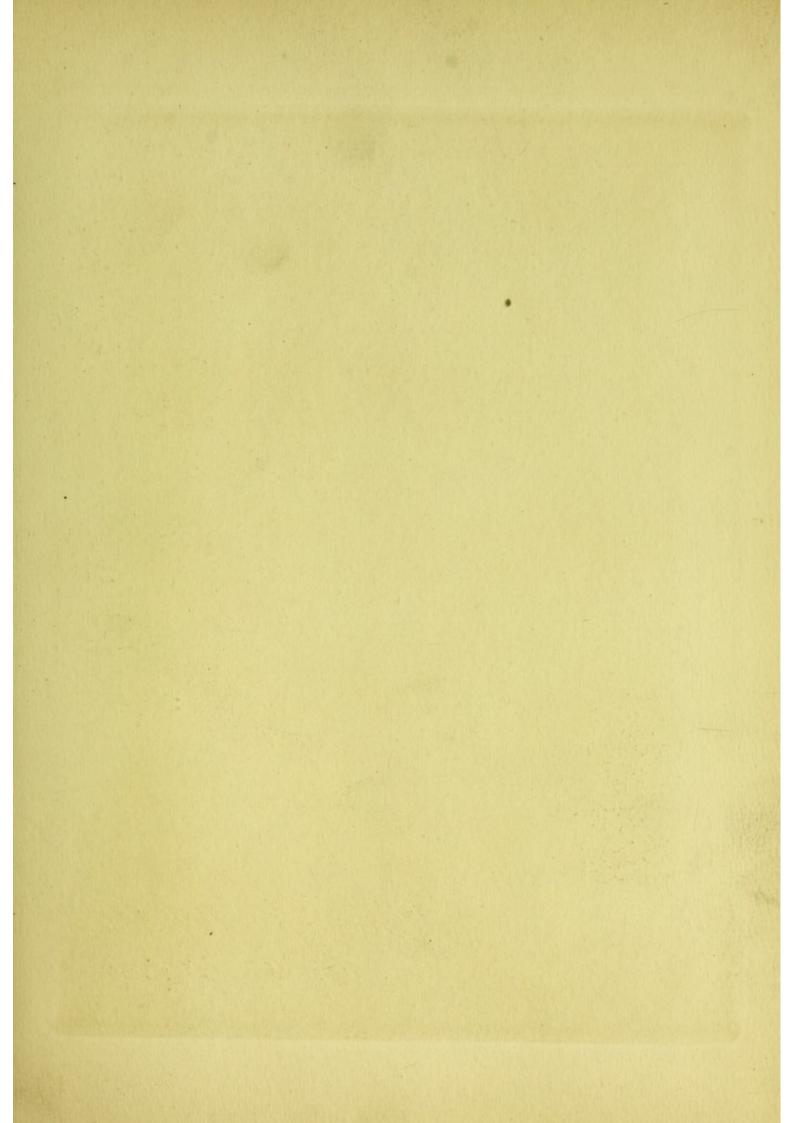




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RECORDS OF BIG GAME







yours faithfully Romandward

RECORDS OF BIG GAME

WITH

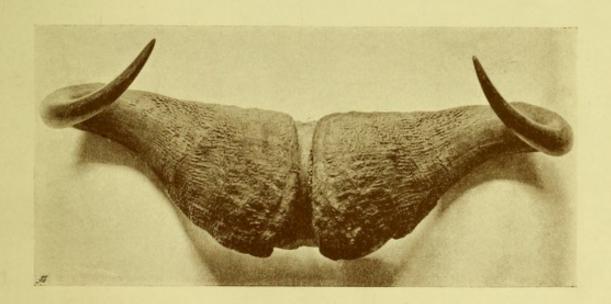
THE DISTRIBUTION, CHARACTERISTICS, DIMENSIONS, WEIGHTS, AND

HORN & TUSK MEASUREMENTS

OF THE DIFFERENT SPECIES

FOURTH EDITION

BY ROWLAND WARD, F.Z.S.



LONDON
ROWLAND WARD, LIMITED
"THE JUNGLE," 166 PICCADILLY, W.
1903

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TO THE

SPORTSMEN OF THE WORLD

WITHOUT WHOSE ENTERPRISE THESE RECORDS

COULD NOT HAVE BEEN COMPILED

THIS BOOK IS DEDICATED



PREFACE TO FOURTH EDITION

In this edition the finest known specimens of antlers, horns, tusks, and skins are, so far as possible, recorded. It has been found impracticable in some instances to verify the measurements of trophies in distant parts of the world; and such records must accordingly be taken on the responsibility of their respective owners or those who have been good enough to measure them. It is to be regretted that one pair of hands and a steel-tape are not responsible for the measurements of all the actual "records." One of the many difficulties in connection with compilation of this nature is due to the circumstance that different measurements of the same specimen are often sent; this arising sometimes from the use of a common tape or string, instead of a steel-measure. With the horns of freshly killed hollow-horned ruminants an allowance for shrinkage should be made when comparing with older trophies. An average specimen of an Ovis ammon horn, for instance, will frequently shrink half an inch in length and proportionately in girth after it has left the field.

With the Cervidæ many difficulties have arisen as to comparison; and I may point out that although length of

antlers is invariably put at the top of the list, other particulars such as number of tines, general symmetry, spread, and weight of antler, are in many instances the making of a good trophy. In this edition the measurements of smaller specimens have been omitted.

I have to thank many sportsmen and naturalists all over the world for the help they have afforded, especially Prince Henry of Liechtenstein for the particulars of Continental Red Deer.

In the present volume great care has been taken with regard to the accuracy of the dimensions; and, considering the number of measurements, it will be readily understood the task attempted has been one of no ordinary difficulty.

ROWLAND WARD.

August 1903.

ABBREVIATIONS AND SIGNS

- Owner's measurements and particulars or other known authority.

& Male.

& Female. ... Unrecorded.

R, Right horn or antler. L, Left horn or antler.

Measurements are on the outside of the longest horn from base to tip; with Deer from the bottom edge of burr, or coronet, to the highest tip-point, except when notified to the contrary.

Circumference is at the base; with Deer above brow-tine; in the Red Deer and Wapiti group between bez and trez tines.

Length is expressed in inches, when not otherwise stated.

Weights taken in the field should be accepted as approximate, and, unless mentioned, are of adult males.

Heights are in most cases taken at the shoulder of adult males (see p. 488).



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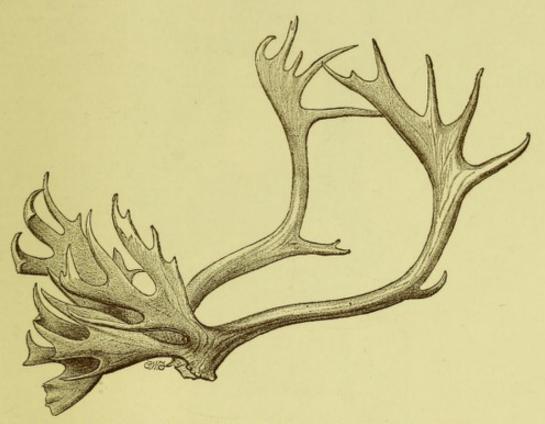
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RECORDS OF BIG GAME



Antlers of Male Woodland Reindeer. From a specimen in the British Museum.

REINDEER or CARIBOU (Rangifer tarandus).

DISTINGUISHED from all other deer by the presence of antlers in both sexes; those of males being complex, with the brow-tines palmated and often unsymmetrical, and the bez, or second tine, also generally expanded. The muzzle is entirely covered with hair, the ears and tail are short, the throat has a fringe of long hair, and the coat is very thick and of a nearly uniform clove-brown colour, with some white in the region of the tail, and on the under parts and legs. The false or lateral hoofs are unusually large and spreading; and there is a patch

of long white hair covering a gland on the hock, but none on the hind cannon-bone. Height at shoulder reaching to 4 feet 10 inches (Newfoundland).

Reindeer inhabit the circumpolar regions of both hemispheres, in Europe including Scandinavia, Lapland, and Northern Russia; their

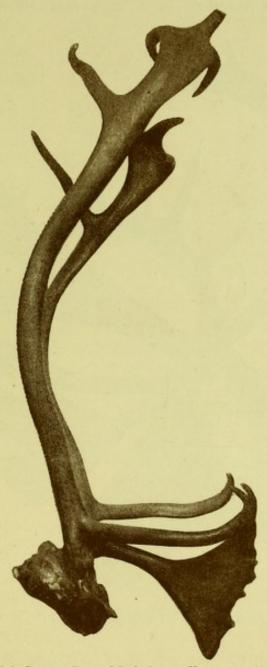


Antlers of Male Woodland Reindeer from Nova Scotia. From a specimen in the British Museum.

southern limit varies from 52° to 54° N. latitude, while they extend to between 80° and 81° northwards.

Several varieties, or local races, of reindeer are recognised. The more important are: (1) the Scandinavian reindeer (R. tarandus typicus) of Northern Europe and Asia, which is a rather small animal with moderately expanded antlers; (2) the Spitzbergen reindeer (R. tarandus spetzbergensis), characterised by the peculiar form of the nasal bones of the skull; (3) the woodland reindeer (R. tarandus

caribou) of the forest districts of Arctic America, distinguished by its large bodily size and the short, much-palmated antlers; (4) the Newfoundland reindeer (R. tarandus terræ-novæ), which is closely allied to



Side view of Antlers of Male Barren-Ground Reindeer. From a specimen in the British Museum.

the last, but with even more complex antlers and some differences in coloration; (5) the Greenland reindeer (R. tarandus grænlandicus), which is apparently very similar to the sixth variety; and (6) the barren-ground reindeer (R. tarandus arcticus), from the open country north of the forests in America, a very distinct animal, characterised

by its small bodily size, and the great length and simple form of the antlers, in which, except on the brow-tine, there is scarcely any palmation. Certain other local forms have been named by American naturalists; and the reindeer of Siberia and Nevada Zemlia have



Head of Male Newfoundland Reindeer. From Dr. J. A. Allen.

respectively received names, viz. R. t. sibiricus and R. t. pearsoni. Reindeer heads are probably some of the most difficult to measure, owing to the different curves the top points frequently present. Females have smaller and lighter antlers than males.

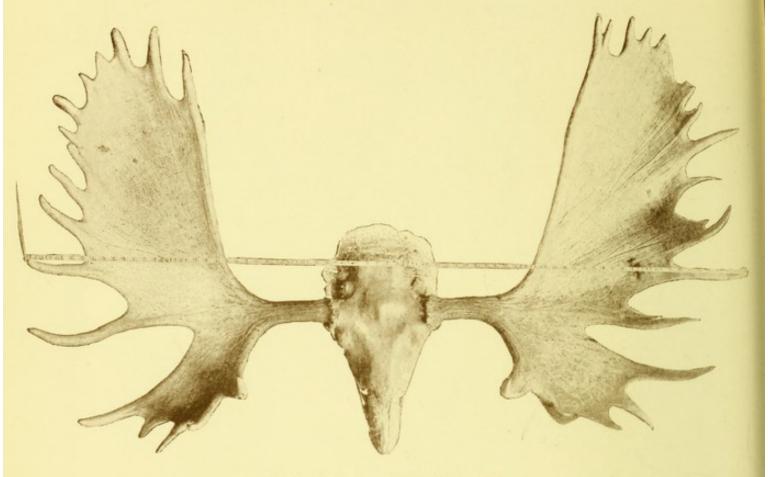
Mr. Abel Chapman, in the *Field*, states that two or three-year-old bucks run between 224 and 280 lbs.; but one big stag was made (perhaps erroneously) to scale over 420 lbs., clean.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
62	5½	40	50½	21+17	Canada	Sir Edmund G. Loder, Bart.
578	51	138		13+7	Arctic Regions .	British Museum.
571	51	33½	44½ (outside)	20+16	Do	Sylvester Browne.
-541/2	6	42	50‡	22+18	Head of Tanana River, Alaska	W. F. Sheard.
	61/2		53	41	Do.	Do.
548	48	201		11+13	N. America	British Museum (Sir John
-54	6^{3}_{4}	211	32 ⁸ 4	12+11	?	Franklin). Paris Museum.
54	61/2	29	37	22+11	Alaska	Hon. J. C. Lister.
54	443	48	52	21+14	Canada	D. F. Mackenzie.
53	41/2	484	54	12+11	Labrador	Hon. Walter Rothschild.
521/2	51	15	261	17+12	N. Canada	J. Talbot Clifton.
-52	61	35	39 ³	20+30	?	Imperial Museum, Vienna.
52	48	281	38	7+7	N. Canada	David T. Hanbury.
518	48	40%	48g	17+14	Hudson Bay	Sir Edmund G. Loder, Bart.
50	5‡	27	38	12+11	Barren Ground .	A. Barclay Walker.
49	4 1 /8	245	328	7+9	N. America	Hon. Walter Rothschild.
48	61/2	117	251/2	17+15	Newfoundland .	Sir Edmund G. Loder, Bart.
47½	61/2	404	383	15+14	Itcha Mts., B.C	W. Neilson.
461	61/2	162	28	32	British Columbia .	J. Turner-Turner.
46	41/2	241	311	15+15	Newfoundland .	Capt. H. L. Cottingham.
46	51	263	35	15+12	Do	H. Charrington.
45½	51/2	314	33½	13+12	Do	F. C. Williamson.
451	41	194	31	15+13	N. Canada	David T. Hanbury.
441/2	54	201	261	10+12	Newfoundland .	W. R. Greene.
448	51	34	37		Do	C. H. Akroyd.
44	68	231/2	34	18+17	Itcha Mts., B.C	W. Neilson.
44	51/2	18‡	30	18+13	Newfoundland .	Admiral SirWilliam Kennedy.
44	5 8	19	26½	17+14	Do	Lieut. A. G. Allgood, R.N.
43 ⁸	58	40	418	16+11	Do	St. George Littledale.
43	51/2	2112	$29\frac{1}{2}$	10+8	Do	Capt. R. H. Morgan.

Length on out- side curve.	Circum- ference.	Tip to	Widest inside.	Points.	Locality.	Owner.
$-42\frac{1}{2}$	7‡	33‡	381	22+18	Newfoundland .	R. Gordon Smith.
$-42\frac{1}{2}$		***	49 ¹ / ₈ (outside)	24	Do	General R. L. Dashwood.
42	$6\frac{1}{2}$		181	33	Alaska	Earl of Lonsdale,
42	51/2	36½	391	20+12	Newfoundland .	Q. C. Colmore.
42	58	38	4112	10+10	Do	E. C. Russell.
41	51/2	$20\frac{1}{2}$	28	15+9	Do	LieutCol. Hon. W. Coke.
41	6	35	33	20	British Columbia .	LieutCol. C. C. Ellis,
41	5	$28\frac{1}{2}$	32	14+17	Newfoundland .	S. H. Whitbread.
403	65	$32\frac{1}{2}$	37	20+17	Do	H.R.H. Prince of Wales.
40	54	193	26	12+11	Do	P. B. Vander-Byl.
40	$7\frac{1}{2}$	31	38	18+19	Do	F. C. Selous.
40	6	311	$35\frac{1}{2}$	19+14	Do	Admiral Sir William Kennedy.
39	58		23‡	17+14	Do	Sir Victor Brooke's Collection.
39	6	31	301	15+10	Do	Captain C. E. Stracey.
39	7	28	18	20+19	Do	Admiral Sir William Kennedy.
39	8^{a}_{4}	18	27	15+12	Do	Capt. G. R. Poole.
39	51	$24\frac{3}{4}$	32	26+20	Do	W. J. Chapman.
39	7	29	311	18+16	?	Duke of Westminster.
39	53			11+11	?	Sir Peter Walker, Bart.
39	$4\frac{3}{4}$	26	$26\frac{3}{4}$	15+15	Newfoundland .	D. F. Moir, R.N.
-39	78	33	317	29+22	Do	Lord Thurlow.
383	54	281		18+11	Do	Lord Elphinstone.
$38\frac{1}{2}$	$5\frac{1}{2}$	313	334	18+11	Do	F. C. Selous.
$38\frac{1}{2}$	$5\frac{1}{2}$	22	$28\frac{3}{4}$	15+11	?	W. O. Bell-Irving.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
¹ 60	58	385	41 1 8	22+15	?	Sir V. Brooke's Collection.
$-59\frac{1}{2}$	7	38	.44	15+16	Norway	J. Whitaker.
-59	$4\frac{1}{2}$	$42\frac{1}{2}$	46 (outside)	7+5	Do	H. J. Elwes.
-58	6	302	37	33	Jotunheim, Norway.	S. Ratcliff.
-55 ¹ ₈	$6\frac{1}{2}$	38	431	18+8	Sundal Fjelds, Nor- way	Capt. Gerard Ferrand.
541	4 7	33‡	$40\frac{3}{4}$	15+13	Norway	J. H. Thomas.
54	5	22	$41\frac{3}{4}$	16+11	Do	Kenneth M'Douall.
$-52\frac{1}{8}$	5	27	36½	26	Norway	Abel Chapman.
-51	610				Rundane, Norway .	Capt. John Marriott.
503	48	24	29 (outside)	16+13	?	H.R.H. the Duke of Saxe- Coburg and Gotha.
49	41	25	361/2	18+15	Do	T. H. Barnard.
47½	4½	17	27	18+14	Do	A. C. Gathorne Hardy.
47	48	23	29	17+9	Do	Kenneth M'Douall.
$46\frac{1}{2}$	6	2112	$26\frac{1}{2}$	37	Do	Hon. Walter Rothschild.
-46	5	29	38	42	Jotunheim, Norway.	S. Ratcliff.
451	41	261	30%	12+10	Norway	Duke of Bedford.
441	48	34	$39\frac{1}{2}$	11+10	Do	Rhys Williams.
44	41	20.‡	$32\frac{1}{2}$	12+9	Do	Col. C. B. Harvey.
41 1	44		$24\frac{1}{2}$	12+9	Spitzbergen	W. D. James.
41	$4\frac{1}{2}$	26½	304	12+12	Do	Sir W. Martin Conway.
40	34	3112	$34\frac{1}{2}$	12+9	Norway	B. C. L. Burrows.
384	4	251		7+5	Do	British Museum.
38	51/2	$2I\frac{1}{2}$		15+13	Do	Do.
37	41	18	201	15+11	E. Spitzbergen .	Arnold Pike.
-36	6½	34	331/2	23+20	Lapland	Dublin Museum.

¹ Perished antlers.



Skull and Antlers of Male Alaskan Elk.

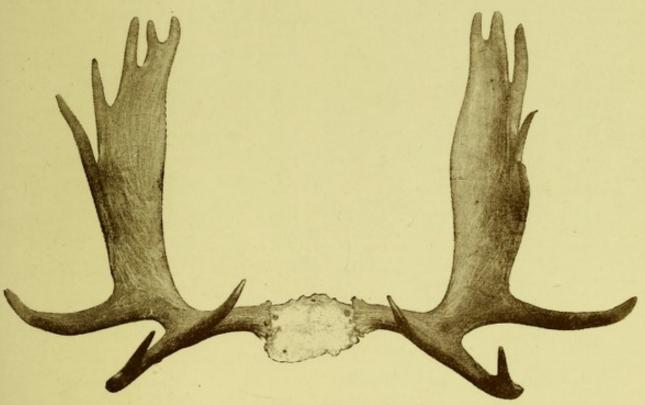
From an Alaskan specimen in the possession of the Duke of Westminster.

ELK or MOOSE (Alces machlis).

Elk are the largest members of the deer tribe, and distinguished by their ungainly form, long limbs, broad, produced, and flabby muzzle (all of which, except a small triangular patch below the nostrils, is covered with hair), the presence of a pendulous hairy organ (the so-called "bell") on the throat of the males, and the form and position of the antlers in that sex. These latter are set on the skull with their bases at right angles to the middle line of the face, and have neither brow- nor beztines. In the common species they expand after a short distance into a broad palmation, carrying a number of snags on the outer border. In young elk each antler is divided in a fork-like manner into a small front and a larger hind portion. The main hoofs are long and pointed, and the lateral pair large: there is a gland and tuft of hair both on the hock and hind cannon-bone, the latter being situated high up.

The tail is very short. From birth to old age elk are uniformly coloured; the general tint of the hair, which is long, coarse, and somewhat brittle, varying from yellowish gray to deep blackish brown, and being usually darker in American than in European examples. The height varies from 5 feet 9 inches at the shoulder in Scandinavian examples to as much as 6 feet 6 inches or, it is said, even 8 feet in American specimens; the weight from 900 to 1400 lbs., that of the antlers being about 60 lbs.

The elk inhabits the forests and marshy districts of Scandinavia,



Antlers of Common Elk.

Eastern and Northern Russia, and the Altai, and in America (where it is invariably known as moose) at the present time is found in Alaska, Montana, Nova Scotia, and New Brunswick. The European and American elk are so similar that they do not seem worthy of being regarded as more than local races; a third race inhabits Alaska. Scandinavian elk not unfrequently show little or no palmation of the antlers, and thus approximate to the East Siberian form.

An elk killed at Meswiez, Lithuania, by Count Scheibler, had the following dimensions:—

Length tip of nose to	root of	tail		Feet.	Inches.
Height at withers .				5	9
" " quarters .				6	$5\frac{1}{2}$
Round neck near the	ears			4	9
Estimat	ed weig	ht 15	oo lbs.		

A .- American and Alaskan Races.

Greatest width,	Length to longest tine,	Circum- ference above burr.	Tip to Tip.	Breadth of Palm.	Points.	Loca	lity.		Owner.
$-78\frac{1}{2}$	49			18	40	Yukon			W. F. Sheard.
-76	43				26+21	Alaska			A. S. Reid.
-74	***					Do.			American Museum of
-731				23	24 + 14	Do.			Natural History. C. F. Periolot.
72	47‡	9‡	$37\frac{1}{2}$	16‡	20+17	Do.			Duke of Westminster.
$-71\frac{1}{2}$	49	8_{16}	***	16	20+20	Do.			Sir Edmund G. Loder,
1-70‡	55½	7 ½	***	29 ?		Do.			Bart. W. W. Hart.
-69	55	11?	37	21	21	Do.			F. B. Tolhurst.
2-69	48	10	***	15	32	Do.			Dall De Weese.
-67					23	Do.			J. H. Whitehouse.
66	$44\frac{1}{2}$	101	49½	14	17+14	Kenai M	Its.		Viscount Powerscourt.
-66	$38\frac{1}{2}$	91/2	44	14	28	New Bru	inswi	ck	S. Decatur.
-65	41	***		24	14+13	Manitob	a.		Otho Shaw.
-641	47 ½	87	45‡	15‡	31	?			Grahamstown Museum.
64	47	8^{3}_{4}	40	13	16+16	Alaska			W. H. Welsh.
631/2	45	9	41	15	15+13	Do.			David Davies.
-62 ³			***	18	20+12	New Br	unsw	ick	N. T. de Pauw.
621	***					Alaska			C. G. Cowan.
$-61\frac{1}{2}$	44				***	Canada			General R. L. Dashwood.
-61	38	113	50	14	26	New Bru	answi	ck	J. Bodkin.
60	40	8	38	13	11+10	Canada			Viscount Powerscourt.
59‡	38	61/2		94	11+11	?			H.R.H. the Duke of Saxe- Coburg and Gotha.

 $^{^1\,}$ Height at shoulder, 8 ft. 2 in.?; skull horns, 68 lbs.; estimated weight, 2600 lbs. $^2\,$ Height at shoulder stated to be 7 ft. 8 in.?

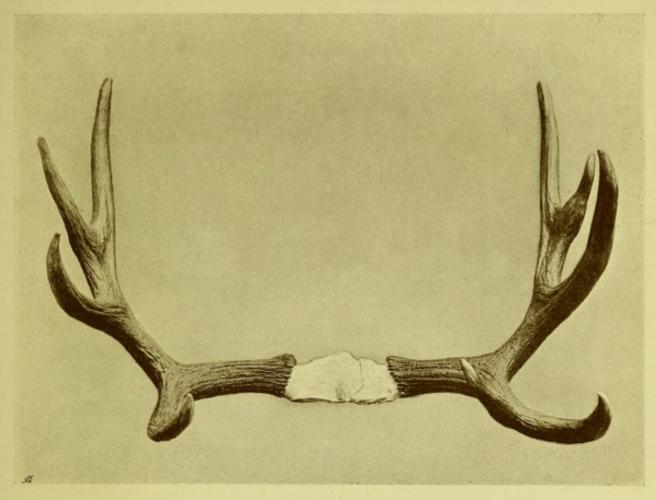
Greatest width.	Length to longest tine.	Circum- ference above burr.	Tip to	Breadth of Palm.	Points.	Locality.	Owner.
59‡	43‡	$8\frac{1}{2}$	40	14½	14+13	Manitoba	G. H. M. Banks.
581	38	81/2	39	11	12+11	?	W. Moat.
574	374	8	358	$11\frac{1}{2}$	11+13	Canada	Thomas Bate.
57½	38	8	$21\frac{1}{2}$	14	18+15	Do	C. H. Akroyd.
57 ¹ / ₈	401	8	35	131	12+11	Maine	J. S. Braithwaite.
57	45	84	38	131	10+9	Alaska	Hon, J. C. Lister.
57	39	81	381	$12\frac{1}{2}$	15+12	N. America .	Sir Edmund G. Loder, Bt.
56½	$39\frac{1}{2}$	7#	37	$13\frac{1}{2}$	14+11	Do	Sir Peter Walker, Bart.
-56	424	10	354	134	12+11	Do	T. W. Wood, Jun.
541	$39\frac{1}{2}$	7	38	16	13+12	Canada	Sylvester Browne.
$-54\frac{1}{2}$	41				12+11	Do	General R. L. Dashwood.
54½	401	$7\frac{1}{2}$	35	13	9+9	New Brunswick	A. C. Bell.
54	36½	8	43½	71	9+9	Manitoba	T. P. Kempson.
54	36½	61/2	41	$5\frac{1}{2}$	7+6	Wyoming? .	Capt. The Hon. A. Stourton.
53½	41	9	$28\frac{1}{2}$	134	15+14	Canada	H.R.H. Prince of Wales.
53	37	$7\frac{1}{2}$	33	12	16+15	Montana	T. P. Kempson.
527	381	7		107	11+10	N. America .	British Museum
1-504	39	8.1	35	19‡	18+14	?	Imperial Museum, Vienna.

¹ Inside.

B.—European Race.

Greatest width.	Length to longest tine.	Circum- ference above burr.		Breadth of Palm.	Points.	Locality.	Owner.
-52	32	7		9	9+9	Norway	H. J. Elwes.
-51 ³ / ₄	33	81	364	154	10+10	Do	Capt. Gerard Ferrand.
48	32	84	$37\frac{1}{2}$	$11\tfrac{1}{2}$	10+9	Nr. St. Peters-	Prince E. Demidoff.
47	28	61	32	9	8+8	burg Norway	Sir H. Pottinger, Bart.
-46	321/2	$7\frac{1}{2}$	33	1112	10+10	Sweden	Capt. Gerard Ferrand.
1 46	304	61/2	43	101	15	Norway	Abel Chapman.
-45	31	7	28		17	Do	S. Ratcliff.
441	301	7 ¹ / ₈	291	10	9+8	Do	Sir Victor Brooke's
441	304		40	83	17	Do	Collection. Thomas Bate.
431/2	29	$7\frac{1}{2}$	***	102	24	Do	Sir Peter Walker, Bart.
431/2	27	61	40		8+7	Do	J. H. Barnard.
438	32	6	***	9½	7+8	Russia	British Museum (Sir
-43‡	281/2	6	331	11	12+10	Lithuania .	Edward Caley). Prince Radziwill.
$42\frac{1}{2}$	29	6	301	$7\frac{1}{2}$	11+9	Norway	Sir H. Pottinger, Bart.
$42\frac{1}{2}$	26	6	271	7	7+6	Do	Lord Delamere.
42	281	$7\frac{1}{2}$	248	$9\frac{1}{2}$	10+9	Do	Sir H. Pottinger, Bart.
-42					16	Do	Sir H. Seton-Karr.

¹ Estimated weight, 1260 lbs.



Antlers of East Siberian Elk. From the Hon. Walter Rothschild's specimen.

EAST SIBERIAN ELK (Alces bedfordiæ).

A species, or race, distinguished from the typical form of the Scandinavian elk by the absence of palmation in the antlers, which usually have five large tines on each side. Some antlers from East Siberia show a slight tendency to palmation, but no specimens from that area have hitherto been received showing the full palmation characteristic of so many European, and apparently all American, examples. This elk would appear to be the ancestral form of the group. If it be regarded as a race, rather than a specimen, it should be called A. machlis bedfordiæ.

Greatest Width.	Length to longest tine.	Circum- ference above burr.	Tip to Tip.	Points.	Loca	lity.	Owner.
$42\frac{1}{2}$	301	$7\frac{1}{2}$	28	6+5	Siberia		Hon. Walter Rothschild.
39½	261/2	8	37	4+3	Do.		British Museum.
371/2	313	8	32	5+4	Do.		Hon. Walter Rothschild.



Antlers of Eastern Red Deer. From a Hungarian specimen in the collection of Viscount Powerscourt. Counting from the skull upwards, the first tine is the brow, the second the bez, and the third the trez, above which come the surroyals, or crown. The main shaft is termed the beam.

RED DEER (Cervus elaphus).

The red deer of Western Europe is the typical representative of the genus *Cervus*, in which the antlers of the males are set on the skull at an oblique angle to the middle line of the forehead, and always have a brow-tine, while they are generally more or less nearly cylindrical, although sometimes palmated. There is always a large bare portion on the muzzle, the face is long, the ears are generally large, and the tail is comparatively short, often extremely so. Although there is almost always a gland and tuft on the hind cannon-bone, usually situated high up, there is none on the hock itself. The coat may be spotted.

In the red deer the antlers are subcylindrical and complex, generally with a bez-tine, and always with a trez, the number of points exceeding five, and the crown frequently forming a cup. The tail is relatively long and pointed, and there is a distinct light-coloured patch on the buttocks, which includes the tail, although in the summer coat the tail itself is dark-coloured. The general colour of the adult

summer coat is reddish brown, and that of the winter dress grayish brown, while the young are profusely spotted.

Red deer, in the widest sense of the term, are inhabitants of Europe, North Africa, Asia Minor, and Northern Persia. In the typical red deer (*C. elaphus typicus*) of Western, Northern, and Central Europe, the antlers attain their maximum degree of complexity, sometimes having twenty or even more points, although in many Scotch examples the bez tine is wanting. In a red deer killed at Spetchley Park the weight was 419 lbs. gross, and 216 when cleaned; while in one shot at Knowsley many years ago the clean weight was no less than 424 lbs. The height at the shoulder now reaches about 4 feet. H.R.H. the Duke of Braganza saw a continental stag shot which scaled 584 lbs., and shot a 10-pointer with a spread of 55 inches.

The Corsican red deer (*C. elaphus corsicanus*), of Corsica and Sardinia, is a very small race, with the bez-tine of the antlers wanting, and the general colour of the upper-parts dark brown in summer and blackish in winter. Nearly allied is the North African red deer (*C. elaphus barbarus*), which is of rather larger dimensions, with a grayish-brown streak down the middle of the back, and small irregular whitish spots on the flanks and sometimes on the back; traces of such spots being occasionally observable in the summer coat of hinds of the typical race. The bez-tine seems to be very generally wanting.

The Eastern red deer (C. elaphus maral) is a large race, described on page 39.

Lord Tweedmouth furnished the following dimensions of a fine Scotch stag, shot, October 9, 1880:—

Widest span over all, 39\frac{1}{4} inches; span inside below cups, 34 inches; span outside below cups, 37 inches.

Right antler.—Length, 39 inches; length of brow, $10\frac{1}{4}$ inches; of bez, 10 inches; of trez, 13 inches. Length of tines in cup, 10, 7, $4\frac{1}{4}$ inches. Circumference at coronet, $8\frac{1}{2}$ inches; between bez and trez, $7\frac{1}{4}$ inches; above trez, 6 inches.

Left antler.—Length, 38 inches; of brow, 10 inches; of bez, 8 inches; of trez, 11 inches. Length of tines in cup, 8, 6, and 4 inches. Circumference at coronet, 9 inches; between bez and trez, $7\frac{1}{2}$ inches; above tray, $6\frac{1}{4}$ inches.

Weight, 303 lbs., clean; but stag was much run.



From a Photograph by Whyte.

Antlers of Red Deer killed by Lord Burton, with fully developed cups.

a.—Scotch Specimens.

Length on out- side curve.	ference between bez and trez.	Tip to Tip.	Widest inside.	Spread.	Points.	Weight.	Locality.	Owner.
-41	7	$22\frac{1}{2}$	35	***	7+7	lbs.	Inverness	Col. W. H. Walker.
1-40	6		30		10	203	(1794) Glentilt .	Duke of Atholl.
-39	7‡		34	39‡	6+6	303	Guisachan .	Lord Tweedmouth.
-375		203	26 <u>1</u>		7+7		?	Sir Humphrey de Trafford,
37 8	5 %	$14\frac{3}{4}$	26½		6+7	***	?	Bart. H. R. H. the Duke of Saxe-
1-361	***		35	12	***		Glenmoriston	Col. W. Gordon-Cumming.
36½	5	34	39½ -	41	5+6		Glenstrath-	Viscount Powerscourt (shot by the late Roualeyn Gordon-Cumming).
361	61/2	311	$32\frac{1}{2}$		6+6		?	Sir Humphrey de Trafford, Bart.
364	7	$22\frac{3}{4}$	28		7+7		?	Do.
36	$5\frac{1}{2}$	164	28	36	7+7	***	?	Duke of Portland.
				1	Recorde	ed by J. C	G. Millais.	

Length on outside curve.	Circum- ference between bez and trez.	Tip to Tip.	Widest inside.	Outside spread.	Points.	Weight.	Locality.	Owner.
36	41	$2I\frac{1}{2}$	27		6+6	lbs.	Caenlochan .	Mrs. Henry Tate.
351	51/2		251/2		6+6	244	Sutherland .	Abel Chapman.
351/2	6			29	12	19	Auchnashel- lach	The late Lord Alexander Paget.
35‡	$4\frac{1}{2}$	172	30		5+6	244	Glenisla, For- farshire	Viscount Powerscourt.
$-35\frac{1}{2}$	7		261/2		20		Glenquoich .	Lord Burton. (See illustration.)
351/2	44	27½	34	36 8	4+3		Caenlochan .	The late Henry Tate.
-35‡	48	317	30		6+6		Deanich, Ross- shire	G. Percy V. Aylmer.
35	$4\frac{3}{4}$	22	28		7+6			E. Weller-Poley.
-35				34	10	225	N. Morar .	Major T. W. Gill.
-35			29	414	7+6		?	Sir Arthur Grant, Bart.
1-35	54	26	331/2	37½	12		Guisachan .	Lord Tweedmouth.
² -35	$4\frac{1}{2}$			$27\frac{1}{2}$	8		Cairn Thomais Gaick	John Hargreaves.
$-34\frac{3}{4}$				311/2	3+2	236	Cluanie .	Hon. T. A. Brassey.
341	51/2	18	261	34	6+5		?	W. Brodrick Cloete.
341/2	5‡	37½	341/2		12		Braemore .	Sir John Fowler, Bart.
$34\frac{1}{2}$	41/4	181	27		6+5		N. Morar .	J. R. Hutchison.
2-34½	5			$34\frac{1}{2}$	12	231 (clean)	Glentilt .	Duke of Atholl.
341	6	174	25	314	5+4	222	Caenlochan .	Mrs. Henry Tate.
341	41/8	161	248		5+5	***	Auchnasheen	F. Devas.
341	48	22	281	318	6+4	204	Cluanie .	St. George Littledale.
34	41/8	174	264	29	5+4		Caenlochan .	W. A. L. Fletcher.
34			30		11	240	N. Morar .	Capt. T. W. Gill.
34	4	281	304		5+4		Glenmuick .	Capt. J. Ponsonby.
34	44	12	231/2		5+4		3	C. A. Grenfell.
34	4	163			5+4		Blair-Atholl	Major A. W. E. Count Gleichen.
-34	48	19	28		6+5		Rothiemurchus, Inverness	A. Basil Brooke.
² -34					11		Braemar .	Col. Gordon-Cumming.
2-34	44			36½	12		Glenbruar, Perthshire	Sir W. Ogilvie Dalgleish.
2-34	48			30	10		Morar	W. Stirling.
² 34	7			26	14		Glenartney .	
			Abo	ve trez.		C R	ecorded by J. G. M	mais.

Length on outside curve.	Circum- ference between bez and trez.	Tip to Tip.	Widest inside.	Outside spread.	Points.	Weight.	Locality.		Owner.
33 ⁸	51/2	192	251		5+5	Ibs.	?		H. S. O'Brien.
-33½	5		341/2		5+5	280	Dalness		J. G. Millais.
$33\frac{1}{2}$	4	162	25	29	5+5		Caenlochan		H. C. Pilkington.
331	4	231	28	301	4+4		Glencarron		H. R. Pape.
$33\frac{1}{2}$	45	201	28	***	***	***	Glenmuick		Hon, A. Borthwick.
$33\frac{1}{2}$	$4\frac{1}{2}$		27	1444	12	***	Kintail.		Sir Edmund G. Loder, Bart.
$-33\frac{1}{2}$	4 ³ / ₄		36	***	10	280	Jura .		Lord George Campbell.
33	$4\frac{1}{8}$	81	203	244	4+4		Ben Alder		Julius Wernher.
33	44	24 ⁸ 4	28½	331/2	5+4	222	Do.		F. C. Selous.
33	43	$2\mathrm{I}_{2}^{1}$	283	33	4+4		Kintail.		R. P. Page.
33	41	21	29 ³	355	5+5	***	?		W. S. Flack.
33	4	12	235	28	4+3	444	Kildonan		Sir William Pearce, Bart.
-32 ⁸	5	254	291	***	6+6		Ardverikie		Col. W. H. Walker.
321/2	41	17	$25\frac{1}{4}$	27	4+3	231	Glencarron		G. Cornwallis-West.
1 32	$4\frac{1}{2}$	31	292	40	7+9		Rhidorroch		Viscount Powerscourt.
-32				34	10		Kintail.		Sir Edmund G. Loder, Bart.
32	4	17	$27\frac{3}{4}$	30	5+5	***	Deanish		J. G. Clarke.
32	$4\frac{1}{2}$	18	26 ³	291	7+4	***	Glenartney		Waldorf Astor.
32	4	20	234	27½	6+6		Glenfeshie		Hon. H. C. Gibbs.
314	$4\frac{1}{8}$	$14\frac{1}{2}$	21	27	6+6	***	Kildermorie		F. Shoolbred.
314	3#		26½	***	4+4	***	Rhidorroch		Captain F. Cookson.
314	4 ³	18	241		6+5	196	Inchgrundle		Countess of Dudley.
311	$4\frac{1}{2}$	16	21	$23\frac{1}{2}$	6+5	***	Corriemulzie		R. K. Micklethwait.
3112	44	22	284	314	3+3		Caenlochan		E. L. Fletcher.
3112	4	121	$2I\frac{1}{2}$	25‡	6+4		Do.		W. W. Gossage.
311	5		26½		12	238	Auchnasheen	1	J. F. Laycock.
311	4	22	$26\frac{1}{4}$	$32\frac{1}{2}$	7+6	***	Kintail.		R. P. Page.
3112	4	$24\frac{1}{2}$	29		5+4		Braulen		J. Talbot Clifton.
3112	41	21	25½		4+4	213	Invermark		W. S. M. Burns.
3112	48	201	25%		3+3			h	Hon. T. A. Brassey.
					1	Above tre	Z.		

Length on outside curve.	Circum- ference between bez and trez.	Tip to Tip.	Widest inside.	Outside spread.	Points.	Weight.	Locality.	Owner.
3112	4	124	241	291	6+6		?	J. B. Taylor.
318	48	8§	24		5+5		Glenmuick .	C. Lawrence.
-314	$5\frac{1}{2}$	$25\frac{1}{2}$	29		Switch		Achdalien .	M. K. North.
314	41/8	16	24 ¹ / ₈		7+5		Rhidorroch .	Capt. F. Cookson.
314	48	24 ⁷ / ₈	32		5+3		Ross-shire .	E. Lort-Phillips.
314	4		404		6+6	***	?	Dr. Fancourt Barnes.
314	4	15	25		5+4		Auchnashel- lach	W. Maxwell Lyte.
31	44	24	25		5+5		Morar	J. R. Hutchison.
-31	51/2	$32\frac{1}{2}$		38	5+4		Inverlochy .	Mrs. J. E. Platt.
31	44	19‡	231	334	8+6		S. Harris .	Earl of Dunmore.
31	48	241/2	281		5+4		Caenlochan .	F. W. Robinson.
-31	$4\frac{1}{2}$	20	15		8+7		?	J. Benett-Stanford.
31	41/2	161	$23\frac{1}{2}$	29	6+5		Inversanda .	J. Hamilton Leigh.
30g	48	25%	28½		5+6		Rhidorroch .	W. R. Cookson.
304	5	19½	24		6+5		Arisaig .	J. R. Hutchison.
304	41	13	231		5+4	196	Invergarry .	Guy Stephenson.
301/2	37	244	31	33‡	3+3		Inversanda .	J. Hamilton Leigh.
301	41/8	131	$23\frac{1}{2}$	***	6+6		Letterewe .	Gordon Wood.
301	41	17‡	24 ³ / ₄		7+6		Rhidorroch .	J. Talbot Clifton.
301	4½	181	24		4+3	196	Glen Tana .	Major Hon. A. H. Henni- ker.
301	4	$25\frac{1}{2}$	284		4+3		Auchnashel- lach	Capt. H. Reynolds, R.N.
301/2	41	22‡	29	31	3+3		?	L. Breitmeyer.
301/2	44	234	26	30%	7 ÷ 5		Glencarron .	J. R. Aspinall.
301	41/8	20	251/2		6+5	***	?	H.R.H. le Duc d'Orléans.
-30	48		251/2	***	5+5	210	Blackmount .	J. G. Millais.

The spread of the six widest heads in the Duke of Fife's collection are as follows:—

40 38 37 35 35

The six longest antlers of this celebrated collection are respectively-

 $37 36 35\frac{1}{2} 35\frac{1}{2} 35$

The antlers of one of the red deer in Mr. C. Lucas's park at Warnham Court, Sussex, in 1889, had 34 points; 1890, 34 points; 1891, 37 points; 1891, 47 points and weighed 17 lbs.; 1893, 45 points, $16\frac{1}{2}$ lbs.

b .- Irish Specimens.

Length on outside curve.	Circum- ference between bez and trez.	Tip to Tip.	Widest inside.	Points.	Weight.	Locality	y.		Owner.
1-421			***	12	315	Colebrooke			Sir Douglas Brooke, Bart.
-41	6	$17\frac{1}{2}$	23	10+9	325	Do.			Do.
-40	51/2	28	29½	8+8	355	Do.			Do.
398	51	$14\frac{1}{2}$	26 ³ 8	7+7	375	Do.		+	Do.
38	58	20	308	10+8	350 (clean)	Do.			Do.
38	58	93	238	8+8		Roscommor	1		Earl of Kingston.
² 35	5	22	301	6+5	343	Do.			Do.
35	$4\frac{3}{4}$	***	30	9		Ireland			Hon. A. Charteris.
35	5 ¹ / ₈	198	26∄	6+5	282	Powerscour	t Par	k	Viscount Powerscourt.
35	5‡	211	29	5+5	336 as he fell 252 clean	Do.			Do.
34½	5	121/2	22½	5+5	336 as he fell 252 clean	Do.			Do.
34	$4\frac{1}{2}$	25½	281/2	6+6	364 as he fell 280 clean	Do.			Do.
34	5	$20\frac{1}{2}$	26	6+6	280 clean	Do.			Do.
34	$4\frac{3}{4}$		3112	6+5	372	Muckross			Ralph Sneyd.
34	$4\frac{1}{8}$	131	25	5+5		Colebrooke			Major J. M. Rogers.
334	5		26	5+5	308	Muckross			Hon. Mrs. Bourke.
31	43	11	204	7+7		Do.			Ralph Sneyd,
-31	$4\frac{3}{4}$	$18\frac{1}{2}$	22	5+7		?			Dublin Museum.
301	4		26 <u>1</u>	5+5	276	Muckross			Geoffrey Carr-Glyn.
	1 S	ee Millai	s's <i>Britis</i>	h Deer an	d their Horn	5.		2 5	Spread, 36% inches.

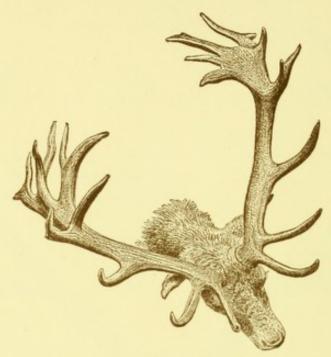


Antlers of Exmoor Stag.

c.—West of England Specimens.

Length on out- side curve.	Circum- ference between bez and trez.	Tip to	Widest inside.	Outside spread.	Points.	Locality.		Owner.
¹ 4I	51	211	321		5+5	Exmoor		Sir John Heathcoat-Amory, Bart.
40	57	10	28	38	7+6	Do.		Do.
	5#	154	281		6+6	Do.		R. A. Sanders.
39 381	54 55 54 54 55 51 51 51	178	311		6+6	Quantock H	lills	Viscount Ebrington; killed in 1885.
371	5	221	301		7+7	Exmoor		C. Nelder; killed in 1803.
37₺	51	271	358	48	6+5	Do.		Sir John Heathcoat-Amory, Bart.
37	51	15	271	321	6+6	Quantock		E. A. V. Stanley.
364	6	211	287		6+7	Exmoor		Sir A. Acland - Hood, Bart.;
								killed in 1893.
361	58	12	238	301	7+6	Stoodleigh		Ian H. Amory.
36	44	10	248	301	9+7	Exmoor		R. A. Sanders.
36 36 36	51	121	23	291	6+5	Do.		Capt. H. H. Amory.
36	58	142	26	341	7+6	Do.		Morland Greig.
351	5	20%	271		6+6	Do.		Earl Fortescue; killed in 1812.
35	5	15%	27		6+5	Do.		Com. G. F. Inglefield, R.N.
35	54 58 5 5 44	251	324		5+6	Do.		Sir C. T. D. Acland, Bart.;
								killed in 1893.
345	55	231	314		6+6	Do.		Viscount Ebrington; killed in 1881.

¹ Weight 333 lbs., clean. Length of brow-tine, 17 inches.



Head of Stoke Park Red Deer.

d.—English Park Specimens.

Length on outside curve.	Circum- ference between bez and trez.	Tin to	Widest inside.	Spread.	Points.	Weight (clean) lbs.	Locality.	Owner.
$-42\frac{1}{2}$	64	***		40	12		Melbury, Dorset	Earl of Ilchester.
411	5	1 223	32		7+6		Langley Park	J. G. Millais.
40%	$5\frac{1}{2}$	183	31	41	5+5		?	R. V. Berkeley.
39₺	1 5 1 1 5 1 1 5 1 1 1 1 1 1 1 1 1 1 1 1	231	264	354			Woburn .	Duke of Bedford.
371	51/2	22	291	411	5+5 8+7		Stowe	H.R.H. le Duc
	14021							d'Orléans.
$-37\frac{1}{2}$	7½	292	271	361	10+9		Welbeck .	Duke of Portland.
-37	73	***	***	37	23	434	Warnham .	T. Lucas.
-36	61	24	30		6+6		Vaynol, North	G. W. D. Assheton-
							Wales	Smith.
36	1 51	19	281	***	9+11	***	Woburn .	Duke of Bedford.
351	5	72	20	25	6+6		?	H. S. O'Brien.
341	, 7.	33	263		20+20	***	Warnham .	W. H. Lucas.
341	1 5 1	181	26		8+8	***	Woburn .	Duke of Bedford.
34	41/2		23	***	6+6	***	Stowe	H.R.H. la Comtesse de Paris.
34	58	213	281	***	7+7		Dorset	Earl of Ilchester.
34	61			48	45		Warnham .	C. T. Lucas.
	10.70			(about)				
33½	48	***	33		6+6	***	Stowe	H.R.H. le Duc d'Orléans.
331	51	211	281		9+9		Woburn .	Duke of Bedford.
33	7			451	44		Warnham .	C. T. Lucas.
	above trez							

Some of the above measurements are recorded by J. G. Millais in British Deer and their Horns.

¹ White Stag.



Skull and Antlers of Old English Red Deer. (Found in cutting the Manchester Ship Canal.)

e.—Ancient British and Irish Specimens.

Length on outside curve.	Circum- ference between bez and trez.	Tip to Tip.	Widest inside.	Spread.	Points.	Where dug up.		Owner.
$-47\frac{1}{2}$	8	35			5+8	Manchester Sh Canal excavation	nip	Sir R. M. Brooke, Bart.
40	71/2	221	28½	431	12+9	Combermere		Duke of Westminster.
381	5	18	30	391	8+6	Ireland .		Viscount Powerscourt.
36½	5	24	25	$35\frac{1}{2}$	8+8	Do		Do.
36	5½	23	27	$37\frac{1}{2}$	10+9	Kerry, Ireland		Do.
1_36	5 7			$42\frac{1}{2}$	23	South Ireland		Sir Douglas Brooke, Bart.
351/2	5‡	26½	32 3	$42\frac{1}{2}$	13+11	Do.		Sir Victor Brooke's Col- lection.
35‡	51/8	314	27 ³		12+10	Ireland .		Viscount Powerscourt.
-35	7		21	24	9+11	England .		C. G. Burrow.
$34\frac{1}{2}$	5	22	30		10+10	Ireland .		Viscount Powerscourt.
33	4 ³	27	28‡	351	9+8	Do		Do.

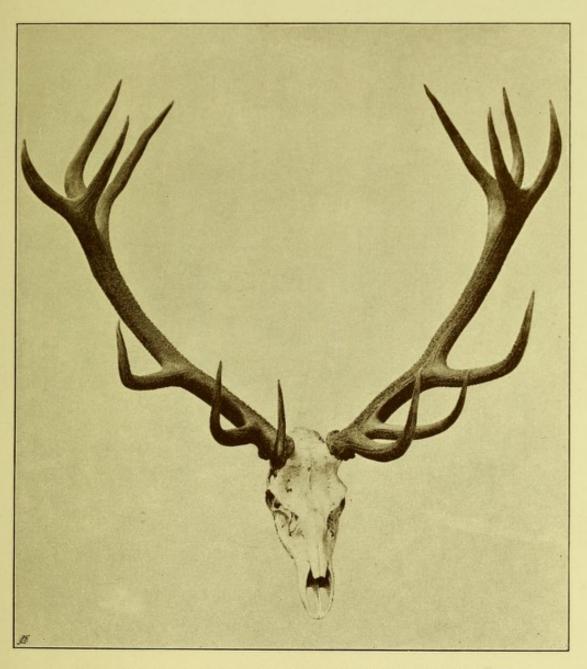
¹ Recorded by J. G. Millais.

f.—Norwegian Specimens.

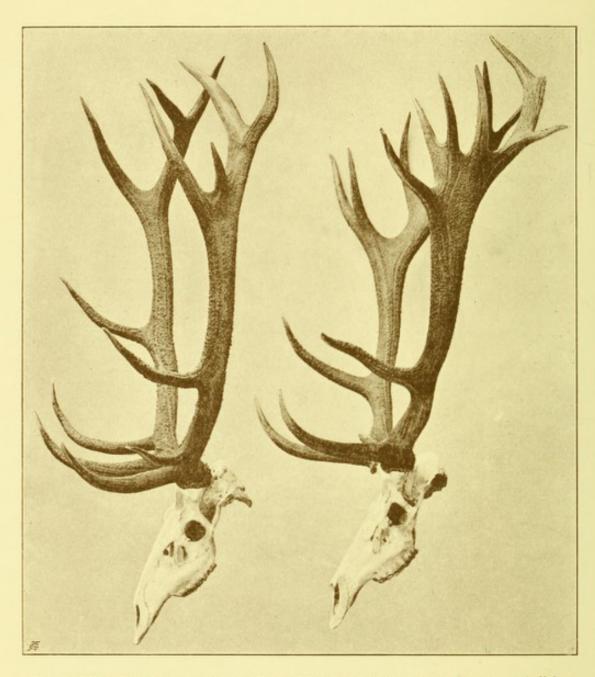
				1.—	-1vora	vegran .	Specimen	15.		
Length on outside curve.	Circum- ference between bez and trez.	Tip to Tip.	Widest inside.	Spread.	Points.	Weight.	Loca	lity.		Owner.
-34					7	***	Norway			J. H. Thomas.
314	41		251		6+5	***	Do.	*		A. Brassey.
311/2	$4\frac{1}{2}$		$24\frac{1}{2}$		5+5		Do.	**		Sir H. Seton-Karr.
311	44		28		4±3		Do.			E. M. Denny.
31	41	23	25	29½	6+6		Do.			J. H. Thomas.
30	5		29		12	280	Do.			E. M. Denny.
-30	41		28	33	5+4		Do.			Sir H. Seton-Karr.
30	41	291	304		5+4		Do.			Do.
29‡	48	26	301	***	6+5	***	Do.			G. L. Denman.
				g	—Spa	nish Sp	becimens.			
1-40	***	***	361		17	Sierra	Morena,	Abel Chapman.		

1-40		***	361		17	Sierra Morena, Spain	Abel Chapman.
$-37\frac{1}{2}$			$34\frac{1}{2}$		15	Sierra Morena .	Do.
341	51		Single cast antler	***	8	Do	Do.
$-32\frac{1}{2}$					13	Plains of Andalucia.	W. J. Buck.
-31	48	28			15	Coto Doñana	P. Garvey.
-29	54		25		12	Andalucia	Abel Chapman.
$-28\frac{1}{2}$	51		261		13	Do	Do.
$-28\frac{1}{2}$	41	21	174		10	Coto Doñana	Do.
23	45	291	$22\frac{1}{2}$		12	Do	J. C. Chapman.
221	41/8	211	19		12	Do	B. F. Buck.

A mountain head. There are two races in Spain. By far the largest are those of the "sierras" (or mountains), where good heads run from 30 to 40 inches. The stags of the "cotos" (or wooded plains) seldom reach, and rarely exceed, 30 inches in horn, and the heaviest we have weighed scaled 205 lbs. clean.



Red Deer shot by Prince Henry of Liechtenstein at Tartarow, Galicia, 1895. Length, 46 inches. Weight, 20 lbs. 14 ozs.



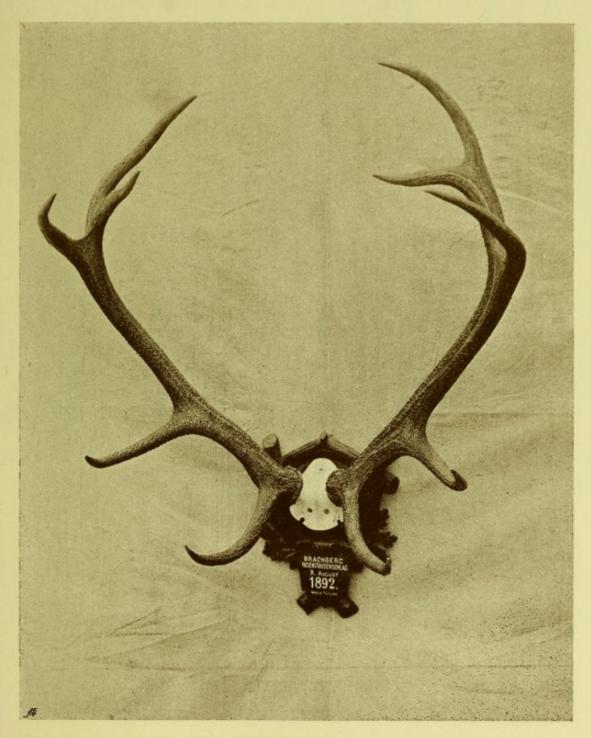
Two Red Deer killed on the estate of Prince Henry of Liechtenstein at Tartarow, Galicia.

h.—Other Continental Specimens.

Some of the specimens in this list from Eastern Europe probably belong to the Maral, or Eastern race.

Owner.	Count Gèza Andrassy.	H.R.H. D. Miguel, Duke of	E. N. Buxton.	Count Belà Szechenyi.	Count Gèza Andrassy.	Viscount Powerscourt.	Do.	Count Gèza Andrassy.	Archduke Frederick.	J. I. S. Whitaker,	Duke of Ratibor.	Rudolph Pick.	Prince Lulu Rohan.	Count Joseph Hoyos.	Count Rudolf Erdödy.	Prince Philip of Saxe-Coburg	Prince Henry of Liechten-	Prince Hugo Windischgraetz.	
Locality.	Zemplen,	Galicia .	Galicia .	Unghvar .	Zemplen	Hungary .	Do	Do	Do	La Mandria	Pilis Moun-	Galicia .	Radauc .	Hungary .	Do	Do	Galicia .	S.W. Hun-	gary .
Weight of Stag. Ibs.	526	453	504	:	615	:	:	:	418	:	:	:	:	354	433	:	:	:	
Spread.	:	4	45	:	47	45.25	50	:	:	. :	6-55	48	/!	483	:	;	43	:	
Widest inside.	:	:	32-75	:	38	42.5	39.5	:	:	40	:	:	398	:	43-11	:	:	:	
Tip to Tip.	:	:		:	27	38.5	23.5	:	-:	42	30	:	:	:	55.4	:	:	:	nb.
Circum- ference between Bez and Trez.	:	Io	7.25	:	7.20	5-5	7.25	:	:	9	:	7.2	:	:	8.9	:	:	:	1 Dug up.
Circumfer- ence below Crown.	78	15½	:	\$18	6	1	:	:	19	:	1	:	:	98	4.6		. :	:	
Circumfer- ence above Middle Point.	73	:	:	819	7	:	:	:	7,16	:	:	:	:	618	7-11	:	:	:	
Circum- ference above Burr.	200	IO	:	\$	84	:	:	:	94	:	80-9	:	:	91.6	9.3) ::	:	:	
Circum- ference of Burr.	86	111	:	Iog	111	:	:	111,16	11 116	:	:	:	:	lo!	10-8	IOI	:	:	
Length along Curve.	538	5316	52	5116	51	51	51	501'ē	90	50	50-4	50	493	493	9-64	49	49	48.8	
Weight Avoirdupois. Ibs. ozs.	23 64	over 20 lbs.	20 5	1 61	23 0	:	1	:	20 8	:	21 3	:	31 and an		20 0	21 0	:	25 3	
Number of Points.	91	- 18	- 18	18	- 14	11	114	91 -	14	- 14	- 21	18	- 14	- 18	91 -	- 12	91-	- 20	

Owner.	LieutCol. L. Marshall.	Prince John of Liechten-	H.R.H. the Duke of Saxe-	Coburg and Gotha. Viscount Powerscourt.	Do.	H.R.H. D. Miguel, Duke of	Braganza. Prince Philip of Saxe-Coburg	and Gotha. Viscount Powerscourt.	Count Ferdinand Trautt-	mansdorff. A. von André.	Viscount Powerscourt.	Count László Májláth.	Head-keeper Ganovszky.	Count Francis Nádasdy.	Count László Májláth.	Prince Victor Ratibor.	Count Max Hoyos.	Count Belà Szechenyi.	Count Jenö Zichy.	Count Mittrovszky.	Prince Henry of Liechten- stein.
Locality.	Carpathians	Moravia .	Gotha .	Germany .	Hungary .	Galicia .	Hungary .	Hungary .	Do.	Galicia .	Germany .	S.W. Hum-	gary N.E. Hun-	gary Do.	S.W. Hun-	gary Hungary .	Do	Do	0-	Hungary .	Galicia .
Weight of Stag.	1	1	:	:		519	455	÷	532	:	:	523	:	583	590	1	479	508	523	1	
Spread.	$37\frac{1}{2}$:	48	513	58	32	:	50	29162	:	:	:	:	:	:	:	42g	:	-	:	i.
Widest inside.	30	:	27	411	43	25	:	40	25‡	312	381	:	1	:	:	:	394	1	1		36
Тір to Тір.	34	:	:	334	38	13	:	30	354	124	23	:	:	:		:	528	:	:	:	:
Circum- ference between Bez and Trez.	<u>t</u> 9	:	:	64	7	7.2	:	54	:	† 9	5 9	:	:	;	:	:	:	:	. :	:	:
Circumfer- ence below Crown.	:	:	:	:	:	12	714	:	82	:	1	73	:	7113	19	68.9	813	816	‡ 9	7.28	:
Circumfer- ence above Middle Point.	:	:	:	;	:	7.1	711	:	73	:	:	19	:	716	611	8.07	<u>‡</u> 9	613	:	68-9	:
Circum- ference above Burr.	:	S 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	6	:	:	94	94	:	811	:	:	98	:	7113	83	9-45	94	916	SO SO	9-25	ŧ
Circum- ference of Burr,	:	:	:	:	:	01	Π_{16}^{1}	:	$\tilde{\Gamma}$ I I \tilde{J}	1	1.	1.1	128	98	95	11.02	816	108	915	18-11	1
Length along Curve.	483	48	48	48	48	48	478	$47\frac{1}{2}$	474	47	47	463	463	464	463	46.46	46}	463	468	46-06	46
Weight Avoirdupois. Ibs. ozs.	:		:	:	į	23 0	20 9½	:	:	:	:	19 13	22 141	20 13	9 61	20-68	:	22 9	17 113	16-61	1
Number of Points.	14	- 19	61 -	20	118	- 14	91 -	15	91 -	-13	00	- 18	91 -	- 20	91 -	91 -	- 22	- 20	- 14	91 -	- 14



The record Mountain Antlers of His Majesty the Emperor and King of Austria-Hungary.

Owner.	Count Tassilo Festetics.	Count Belà Szechenyi.	Archduke Frederick.	Sary N. Hungary 1 Prince Philip of Saxe-Coburg	Count Michael Esterhazy.	Jeno Kund.	Viscount Powerscourt.	Count Rudolph Erdödy.	F. Pausinger.	Count Tassilo Festetics.	A. von André.	Count Tassilo Festetics.	Count B. Keglevich.	Count László Májláth.	Count Henry Fünfkirchen.	G. Jankovich.	Archduke Frederick.	Prince E. Demidoff.	Count Szechenyi.	Count Rudolf Erdödy.	Count Bombelles.
Locality.	S.W. Hun-	N. Hungary	S.W. Hun-	N. Hungary	Carpathians	Do.	Germany .	Hungary .	Do	Do.	Galicia .	Hungary .	Do	Do	Do.	. Do	Do	Galicia .	Do	Hungary .	Szilvás .
Weight of Stag.	:	1	352	:	:	:	:	:	1	i	1	:	484	446	265	:	363		:	458	:
Spread.	:	1	:	:		i	55‡	1	Ē	1	36	:	:	:	368	:	:	502	:	:	:
Widest inside,	:	:	:	:	:	. :	394	:	:	25.12	29 }	:	:		294	:		431	:	39.1	:
Tip to Tip.	:	:	:	:	:	:	31	:	:	36-06	15	:	:	1	471°G	:	:	38	:	9:19	:
Circum- ference between Bez and Trez.	:	:	:	:	:	1	74	1	1	7.64	19	:	:	:	:	1	:	9	:	00	:
Circumfer- ence below Crown.	12.21	8-07	63	73	89.4	68.9	:	6.64	7.28	12.23	5.4	8.27	73	:	98	60.4	73	:	:	11	1
Circumfer- ence above Middle Point.	9.05	6.49†	7.8	219	7.68+	7.28	:	1.00-1	1.001	:	19	7.28	711	73	716	69-9	7.3	:	:	8.1	:
Circum- ference above Burr.	7-87	9-45	98	91,6	9.84	10.24	:	8.46	8.27	8.03	:	8-07	1010	Fo1	S18	8.27	912	:	8.5	8.9	8.5
Circum- ference of Burr.	9-05	10-63	113	108	11-41	11-41	:	10.04	10.43	10.02	11	10.04	91,6	124	16	6.84	goi	:	1.6	10-4	:
Length along Curve.	44.49	44.49	443	448	44.00	44.00	44	43.7	43.7	43.6	43½	43.31	4218	4215	4216	42-91	42½	42½	42.3	42.8	42.7
Weight Avoirdupois. Ibs. ozs.	15-73	16-17	18 3	18 45	17.38	18.37	:	19-14	20.24	0 81	:	9-21	20 II	22 ol	:	90-91	20 13	:	:	20.5	1 61
Number of Points.	. 20	- I4	12	22	8 -	- 14	17	- 18	- 14	- 20	12	- 20	- 14	- 16	- 20	- 16	- 20	11	- 20	- 18	- 18

					7																		
Count Fery Nádasdy.	Count Jose Hoyos.	J. Hamilton Leigh.	E. N. Buxton.	Sir Clement Hill.	Count Henry Coudenhove.	British Museum.	Archduke Frederick.	Do.	Do.	Count Fery Nádasdy.	H.R.H. le Duc d'Orléans.	Prince Philip of Saxe-Coburg	and Gotina. Do.	Prince Nicolas Ghika,	Count Michael Esterhazy.	Head-keeper Ganovszky.	H.R.H. the Duke of Saxe-	Count Tassilo Festetics.	Archduke Joseph Augustus.	H.R.H. the Duke of Saxe-	G. D. Whatman,	A. von André.	Prince Philip of Saxe-Coburg and Gotha,
Carpathians	Munkacs .	Germany .	Galicia .	Styria .	~	Germany .	Hungary .	. Do	Do	Do	Do.	Do	Do	Roumania.	Hungary .	Do	Tyrol .	Agarév, S.W.	Hungary .	Gotha .	Moravia .	Hungary .	Do.
583		1	1		:		391	429	330	:			552	:	:		***		455		1		433
		42	40						:	-	1			4	:	:			:	49	45‡	37 2	1
		35	352	30	;	254	:	:	:	;	32	318		312	1	:	278		:	28	33½	304	
:	:	56	:	:	42	:	:	:	:	:	22 2		:	288			204	1	:	:	282	214	
-	:	63	:	5-3	:	54	1	:	1	;	54	3	***	:	1		5	:	:	:	69	73	ŧ
																							8 te
1.00+																							
10.24	916	1		:	-:	;	18	91g	216	9-25		‡oı	10-63	:	8118	9,16	:	8.10(?)	216	:	1	\$6	ţoı
19:11		:	:		S 555	1	‡o₁	10‡	‡o1	10.24	1	1	12.21	:	104	1011	:	:	to.	10	1	IO	12 3
42.13	42.1	42	42	42,	42	413	414	412	412	41-73	413	14	40-04	408	401º	2104	404	40-10	401 ¹ 6	40	40	394	38‡
9 41	18 8	1	. :		0 81		18 3	22 11	19 24	18.26	*	20 0	21.01	:	18 3	26 0		18.50	20 41	1	-		22 Og
91-	- 20	91	12		17	12	1.8	1.8	1.8	- 18	12	- I4	- 12	-111	26	17	- 13	- 20	20	- 18	10	15	- 14

Owner.	S.W. Hun- Count Tassilo Festetics.	H. J. Elwes.	Prince Philip of Saxe-Coburg and Gotha.	H.R.H. le Duc d'Orléans.	H.I.M. the German Emperor.	
Locality.	S.W. Hun-	Macedonia	Hungary .	Tenuta la Mandria	Rominten, I N.E. Ger-	many.
Weight of Stag. Ibs.	i	-		1	342 (clean)	
Spread.		**			444	
Widest inside.	Til.	30	125	181	1	
ference Tip to Tip. Widest between Bez and Trez.	1	$21\frac{1}{2}$.,	12	:	
ference between Bez and Trez.	.:	5.‡		4-1	i	
Circumfer- ence below Crown.	1000	1	73	1	1	
58		:	1	:	1	
Circum- ference above Burr.	916	:	7,2	-		
Circum- ference of Burr.	9,111	:	10801	:	1	
Length along Curve.	381	37	368	$31\frac{1}{2}$	30	
Number of Weight Points, Avoirdupois.	lbs. ozs. 21 13		1	1	19 04	
Number of Points.	- 22	- 14	- 20	10	- 44	

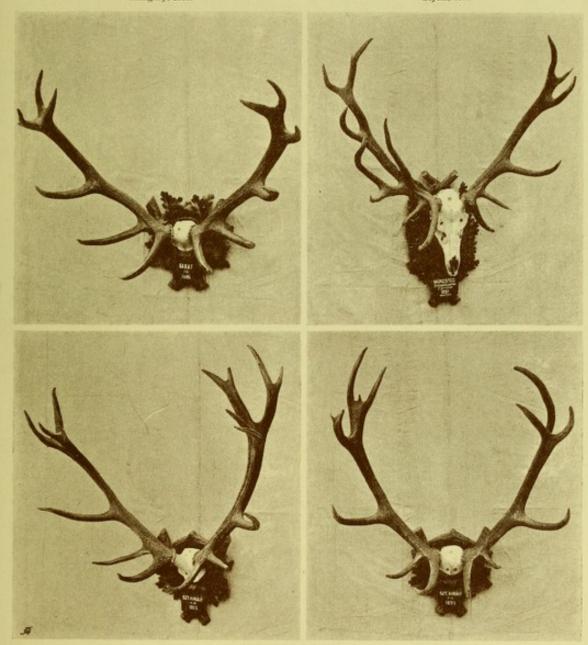
NOTES AND EXPLANATIONS.

- Many specimens marked thus are uneven pointers.

FOUR GERMAN RED DEER IN THE COLLECTION OF VISCOUNT POWERSCOURT.

No. 4.	202	20%	12	11	00 -101	
No. 3.	12	13	14	11	72	
No. 2	20	222	П	IO	104	
No. 1.	14	14	7	111	7 2	
		i				
	Length of trez-tine (right)	Do. do. (left)	Number of points (right).	Do. do. (left) .	Circumference	
No. 4.	43	454	73	7.2	Sal	6
No. 3.	47.4	421	154	1.5	101	12
No. 2.	48.	523	171	181	121	134
No. 1.	ms. 40½	423	131	12	161	91
				-		
			e (right)	(left)	(right)	(left)
	Greatest width	Length of antlers	Length of brow-tine (right)	Do. do. (left)	Length of bez-tine (right)	Do, do, (left)

Viscount Powerscourt informs me that the 18 stag heads in the entrance hall at Powerscourt, mounted on papier-mache heads, were bought at Munich in 1863, by the advice of the late Count Arco-Zinneberg, the owner of the famous collection in the Wittelsbacher Platz at Munich. The hall where Count Arco-Zinneberg's collection hangs contains upwards of 2500 heads of German Red-deer and Roe-deer of extraordinary weight and size, forming, with the one exception of the King of Saxony's collection at Moritzburg, near Dresden, perhaps the finest in the world. Count Arco became so well known as a collector that every fine specimen was brought to him for purchase. Count Erbach's collection at Erbach in the Odenwald is also one of the finest in Germany.



Hungary, 1873.

Hungary, 1873.

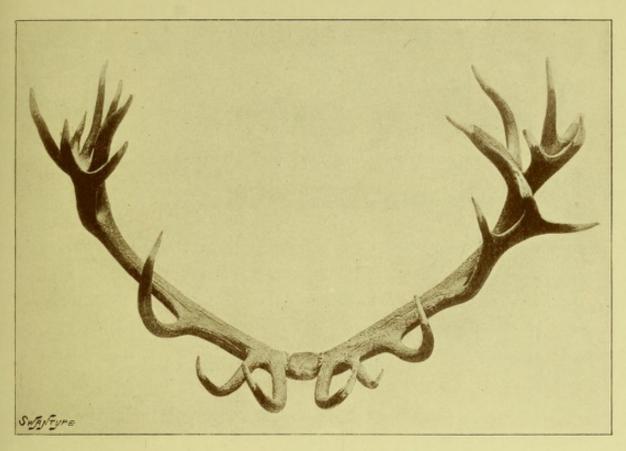
The Trophies of His Majesty the Emperor and King of Austria-Hungary.

Some of the Prophies of His Majesty the Emperor and King of Austria-Hungary.

Hungarian Specimens.

	Locality.	Szent Kiraly.	Do.	Babat,	Szent Kiraly.	Do.	Do.		Brachberg (Upper Austria).	Graben, Styria.	Taschi do.	Mürzsteg do.	Grasleiten do.	Graben.
Circumference	of Burr.	÷		6	Sg				00	1		1		
Circum	of Antler.	7.‡	54	89	5.4	₹9	9		7	4.7	9	7.5	89	9
est	Outside.	318	32	421	33½	35#	41		23%	1	28	403	÷	254
Widest	Inside.	33	282	353	32E	27	314	Alpine Specimens.	278	324	314	318	27	233
	Tip to Tip.	$21\frac{1}{8}$	15‡	35½	293	217	258	Alpine S	123	18	24 24 xcs	27.‡	144	1. 4. 500
Length.	Outside Burr to Curve. Highest Point.	358	34	36	354	36	34		33	28	314	304	314	33
Le	Outside Curve.	415	40g	404	393	391	374		1418	413	374	363	36	348
	Tips.	6+7	9+9	2+9	7+10	9+8	2+8		5+5	4+4	5+4	10+7	9+9	7+8
	Date.	24th September 1874	28th ,, ,,	6th October 1868	., ,, 1873	7th ,			8th August 1892	1st October 1885	30th September 1885	2nd October 1881	3rd ,, 1884	5th ,, 1889

¹ This is the finest head of Alpine Red Deer known.



Antlers of Red Deer. From a specimen in the Castle at Moritzburg. After Dr. A. B. Meyer.

i.—Ancient Continental Specimens.

Length (straight).	Circum- ference.	Tip to Tip.	Spread.	Points.	Locality.	Owner.
	***		***	33+29	?	H.M. the King of Saxony, Moritzburg.
1-48	14 of burr	***	6 ft. 310	12+11	. ?	Do.
***		***	144	25+12	3	Do.
	***	7444	***	28	?	H.R.H. the Duke of Saxe-Coburg and Gotha.
-46½	8g above trez	5 ft. 21	144	22	Alpine Stag?	Count Erbach-Erbach.
	98		***	28	Do.	Do.
(on curve)	***			22	Switzerland	Do.
394	54	16	22½ inside	9+9	3	Viscount Powerscourt.
$39\frac{1}{2}$	$6\frac{1}{2}$	22	31½ 39 outside	6+6	Germany .	Do.
			-	1 Weight	t, 41% lbs.	

j.—New Zealand Specimens (introduced).

Length on out- side curve.	Circum- ference between bez and trez.	Tip to Tip.	Widest inside.	Spread.	Points.	Weight.	Locality.		Owner.
42	5½	248	33 ¹ / ₂	371	6+5		?		A. D. Whatman.
-42	5½			371	9+7		Otago .		W. Allen.
$-41\frac{1}{2}$	6	16		$28\frac{1}{2}$	6+5		Do		Do.
-41	61			311	6+5		Do	*	J. S. Handyside.
-41	51	444		37	7+6		Do		C. R. Westmacott.
-39	5≟			31	6+6		Do		H. McLean.
-38	5			33	6+6		Do		E. C. Studholm.
$-38\frac{1}{2}$	6	32	25		17		Wairarapa	,	J. Strang.
37 ±	51	19‡	281		6+6	400 lb. esti- mated	Otago .		C. R. Westmacott.
37	54	181	$24\frac{1}{2}$	334	7+6		Do		E. L. Fletcher.
-37	5			34	6+5		Do		W. Telford.
-361	6_{8}^{3}		321		9+9		Wairarapa		J. S. Handyside.
-36	48			331	5+5		Otago .		W. Telford.
$-35\frac{1}{2}$	$9\frac{1}{2}$	27	$23\frac{1}{2}$		22		Wairarapa		N. Grace.
-35‡	$7\frac{1}{2}$	401	33		6+7		Do		T. E. Donne.
-34½	$6\frac{1}{2}$	39	311		9+9		Do		Do.
31½	54	102	18		6+7		North Island		Rupert Wilkin

Length of outside curve.

Circum-ference between bez and trez.

Circum-ference between bez and trez.

Widest Spread. Points. Weight. Locality. Owner.



Skull and Antlers of Eastern Red Deer shot in the Western Caucasus by Mr. St. George Littledale.

EASTERN RED DEER or MARAL (Cervus elaphus maral).

In this race of the red deer, which probably intergrades with the typical race in the western Carpathians, the height at the shoulder reaches to about $4\frac{1}{2}$ feet, and the build is stouter, the neck thicker, and the head longer and more pointed than in the true red deer. The reddish summer coat of immature animals is very generally marked with numerous yellowish spots; and the colour of the winter coat is dark slaty gray on the back, with the tail-patch of a very bright

yellow, and a large amount of black on the shoulders, thighs, and underparts. The large and massive antlers are generally less complex than those of the typical race, the number of points being seldom more than eight on a side, and frequently only six; while the bez-tine, which may be wanting, is often shorter than the long and upwardly-curved browtine, and the fourth tine is generally more distinct from the crown. The average weight is given as about 560 lbs.

The typical locality of this race of red deer is the Caspian provinces of Northern Persia, whence it extends into the Crimea, and probably Asia Minor, and so on into Transcaucasia, the Caucasus, probably Circassia, and the Galician Carpathians. The exact limits between the range of this and the typical race are not yet determined; and it is noteworthy that specimens from the Caucasus have shorter faces than those from Northern Persia, and thus approximate to the true red deer. Sportsmen prefer to call this race the Hungarian red deer; this, however, is scarcely legitimate, as Hungary is not the typical locality, and the deer from that country are not precisely similar to the true Persian maral. Some naturalists might even be disposed to give them a separate scientific name.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Spread.	Points.	Esti- mated Weight.	Locality.	Owner.
481/2	6	30	$41\frac{1}{2}$		5+6		Ichater Dagh, Crimea	H.R.H. the Duke of Saxe- Coburg and Gotha.
481	74	(single	antler)		12	***	Asia Minor .	British Museum (Lord A.
48	7‡						Caucasus .	Hay). St. George Littledale.
475	51/2	38			6+5		Do	Do.
47‡	71	$33\frac{1}{2}$	43‡	54#	10+9		Do	Do.
46ª	58	18	33	***	8+8		Do	British Museum.
-46 ³	6§		39		8+6		Asia Minor .	F. E. Whittall.
45½	53	424	49	52	6+6		Caucasus .	S. H. Whitbread.
-45½	81	651			14		Do	Grand Duke Mikhael.
451	71	324	401	46	8+8		Do	Prince E. Demidoff.
458	5#	42	358		6+7		Ak Dagh,	The Maclaine of Lochbuie.
45½	$7\frac{3}{4}$				9+6		Asia Minor .	Sir Edmund G. Loder,
-45	8	36	42	***	11+10	746	Caucasus .	Bart. Prince E. Demidoff.
45	61	301/2	381	44 ½	7+6	 E	Asia Minor .	H. O. Whittall.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Spread.	Points.	Esti- mated Weight.	Locality.		Owner.
441	71	191	26	361	7+6	***	Asia Minor		F. W. Baker.
44‡	67	(single	antler)		9	***	Do.		British Museum (C. G. Danford).
$43\frac{1}{2} \\ 43\frac{1}{2} \\ -42\frac{1}{2} \\ 42\frac{1}{2}$	6	***	40		8+6	***	Do.		M. Le C. Findlay.
431	53	16	28		6+6		Crimea.		Earl of Dunmore.
$-42\frac{1}{2}$	54 61	25		34	10+11		Crimea (?)		H. J. Elwes.
421	7	27	311	341	8+7		Caucasus	+	Prince E. Demidoff.
42	61	28	331	441	9+8		3		R. A. Cooper.
42 42	6	261	341	42	7+6		Ak Dagh		T. Bowen Rees.
411	51	24	32	361	8+7	***	3		Duke of Bedford.
418	54	151	$28\frac{1}{2}$	***	6+5	***	Caucasus		H.R.H. le Duc d'Orléans.



Antlers of Eastern Red Deer, from the Carpathians, in the Powerscourt Collection.

N. AFRICAN RED DEER (Cervus elaphus barbarus).

For characters, see Cervus elaphus.

Length on out- side curve.	Circum- ference between bez and trez.	Tip to Tip.	Widest inside.	Spread.	Points.	Locality.	Owner.
387	58				6+5	North Africa	Sir Edmund G. Loder, Bart.
361	48	225	284		4+4	Do.	British Museum.
368	41/2	172	258		4+4	Do.	Do.
301/2	3 3				4+3	?	Duke of Bedford.



Head of Hangul.

HANGUL or KASHMIR STAG (Cervus cashmirianus).

In this very distinct species the first or brow-tine arises at a considerable distance above the burr, or coronet, of the antlers, instead of close to it, as in the red deer; the bez-tine is usually longer than the brow; the total number of points is generally only five aside, although a third tine may occasionally be added to the normal terminal pair, thus forming an imperfect cup; and the beam of each antler is much curved in towards the middle line of the head. The terminal fork is placed obliquely. The tail is short, and not included in the light patch on the buttocks, which is very small; and the tuft on the hind cannon-bone is situated lower down than in the red deer,

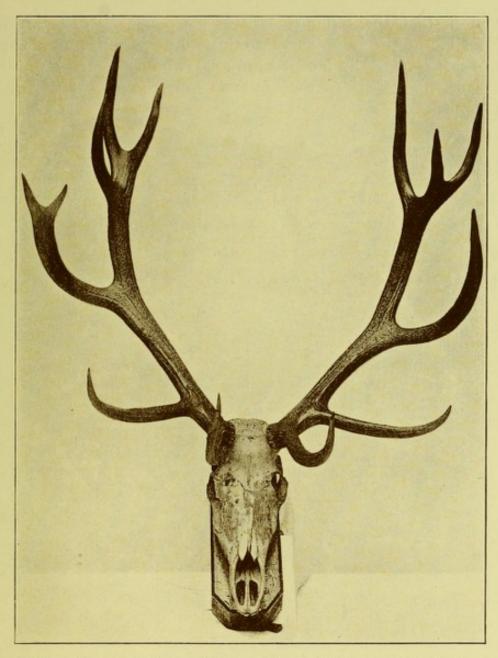
In winter the general colour of the coat is brown, brownish ash, or liver-colour, with the hairs speckled; the light area on the inner side of the buttocks being dirty white, with a blackish line on the inner sides of the thighs, the upper side of the tail black, and the lips, chin, and inner surface of the ears white or whitish. In the fawns the spotting is stated to remain much longer than in the red deer. In the pairing season the old stags squeal like a wapiti, instead of roaring in the red-deer fashion.

The hangul inhabits the forest districts of the north side of the vale of Kashmir and some of the neighbouring valleys, at elevations ranging from 9000 to 12,000 feet in summer, but descending to about 5000 feet in winter. The height at the shoulder varies from about 4 feet to 4 feet 4 inches; the average weight being about 450 lbs.

The finest pair of antlers of which Mr. A. O. Hume has any record were given by Raja Gulab Sing to Colonel King, then commanding the 14th Dragoons. On his death they passed to Captain Prettyjohn of the same regiment. What became of these antlers Mr. Hume was never able to ascertain, but he measured them at Meerut in 1852 or 1853, and the record stands, R. 52, L. 53½, measured along the curve inside. Girth 10 inches at burr, and 7 half-way between bez and trez tines. They were a very wide-branching, symmetrical pair.

Length on out- side curve.	Circum- ference between bez and trez.	Tip to Tip.	Widest inside.	Points.	Locality.			Owner.
$-48\frac{1}{8}$	$7\frac{1}{2}$	14	33	7+5	Sidar Valley			K. S. Laurie.
-48					Kashmir			The late Dr. Leith Adams.
-47	75	21	36	7+5	Do.			Bombay Natural History Society.
47	6 <u>a</u>	211	363	5+5	Do.	*		Sir Edmund G. Loder, Bart.
47	61	30	351/2	8+8	Do.			Duke of Wellington.
-47					?			Lieut,-Col. A. E. Ward.
45 ⁷ / ₈	8	35	41	6+6	Kashmir .			(British Museum) Hume Collec-
45 8	6	254	36	8+8	Do.			tion. Sir Victor Brooke's Collection.
45	64	19	34	6+6	Do.			Major-Gen. Sir R. Pole-Carew,
-44 ⁸	6	20	43	5+5	Lidar Valley			K.C.B. Queen's Own Corps of Guides.
-445	61/2	311/2	444	5+5	Kishenganga	Val	ley	Do.
$44\frac{1}{2}$	6	274	384	4+4	Sind Valley			J. V. Phelps.
44	74	304	407	5+5	Do			P. H. G. Powell-Cotton.

Length on out- side curve.	Circum- ference between bez and trez.	Tip to Tip.	Widest inside.	Points.	Locality.		Owner.
44	63	231	$36\frac{1}{2}$	5+5	Sind Valley		Naval and Military Club.
44	6	27	36	5+5	Kashmir .		Hon. Walter Rothschild.
-44		32	45		Do		R. Wahrmann.
43\$	$5\frac{7}{8}$	158	32	5 + 5	Do		Hon. Charles Ellis.
434	58	181	29	5+5	Do		C. H. Smith.
438	61/2	$25\frac{3}{8}$	361	***	Do		Hon. Charles Ellis.
43	6	20	35	6+5	Sind Valley		A. O. Hume.
43	$5\frac{7}{8}$	26½	$37\frac{7}{8}$	6+5	Kashmir.	4	Martyn Kennard.
43	5‡	194	$34\frac{1}{2}$	6+6	?		Captain F. W. H. Walshe.
$-42\frac{1}{4}$	6	38	$37\frac{1}{2}$	6+8	Kashmir.		Dr. Albert von Stephani.
42	$4\frac{1}{2}$	131	291	5+5	?		Duke of Bedford.
42	54	$13\frac{1}{2}$	261	5+5	Kashmir.	,	E. L. Phelps.
$41\frac{3}{4}$	54	$23\frac{1}{2}$	35	5+5	Do		Major Kingsley Foster.
$41\frac{1}{2}$	58	$7\frac{1}{2}$	28	7+5	?		Captain G. P. Campbell.
418	54	234	33	5+5	Kashmir		(British Museum) R. Lydekker.
411	6	158	29	7+6	Tral Valley .		P. W. Cobbold,
-41	***			13	Tral Preserve		H.H. The Maharaja of Travan-
-41			***	12	Do.		core.
-41	6	23	$37\frac{1}{2}$		Kashmir .		The late Major W. D. B. Fenton.
401	58	3112	$39\frac{1}{2}$	6+5	Do		Capt. F. W. H. Walshe.
401	$6\frac{1}{2}$	$15\frac{1}{2}$	28	5+5	Do	9	Sir Robert Harvey, Bart.
401	78	$24\frac{1}{2}$	3	5+5	Do		Capt. H. W. Codrington.
40	5 7	324	391	5+5	?		E. J. Mardon.
40	5 1 8	163	30	5+5	?		A. Ezra.



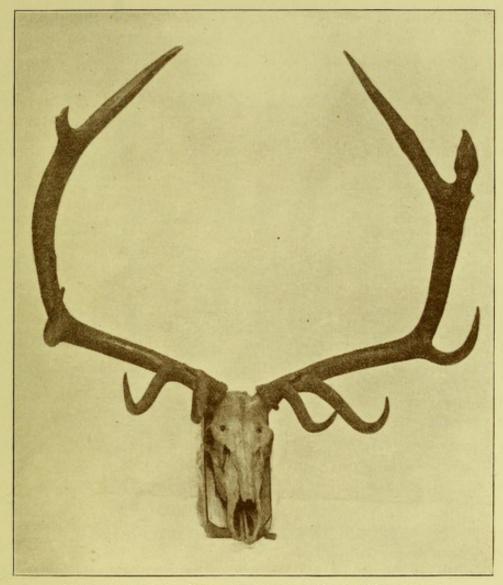
Skull and Antlers of Yarkand Stag. From Mr. A. O. Hume's specimen.

YARKAND STAG (Cervus yarcandensis).

This stag, which inhabits the Tarim Valley and Maralbashi in Eastern Turkestan, apparently differs from the hangul by the large and well-defined light rump-patch, which includes the tail; the general colour (probably in summer) being light fawn. The antlers are usually 5-tined, but by the development of a third snag to the crown may become (as in the figure) 6-tined. They differ from those of the

hangul in that the terminal fork is placed at right angles to the middle line of the head so as to look directly forwards. The fifth tine, which is generally inclined inwards, is larger than the fourth, and the whole upper part of the antler is often bent forwards in a shoulike manner.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Spread.	Points.	Locality.		Owner.	
404	5½	234	314		5+5	Near Maralb	ashi	A. O. Hume. (See illustration.)	
40	5 ⅓	25	31		6+5	Maralbashi	4	E. L. Phelps.	
39½	6	$24\frac{1}{2}$	25		7+6	Do.		A. O. Hume.	
391	54	161	284		6+6	Do.		David T. Hanbury.	



Skull and Antlers of Shou. From Mr. A. O. Hume's specimen.

SHOU (Cervus affinis).

A very large stag with antlers of the general type of those of the hangul, but larger, and with the beam bent suddenly forwards at the trez-tine, so that the upper half overhangs the face, the number of points being usually five; the brow-tine is less constantly longer than the bez. The fifth tine is large and inclined inwards, and the terminal fork looks directly forwards. General colour probably rufous brown, with a light rump-patch in winter.

The habitat of this imperfectly known deer appears to be the districts immediately north of Bhutan, and probably the valley eastwards of Chumbi, which drains northwards into the Sangpo.

Length on out- side curve.	Circum- ference,	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
554	$6\frac{1}{2}$	174	40g	7+6	?	A. O. Hume. (See illustration.)
54 ⁸	65	215	374	5+5	3	British Museum (Dr. Campbell).
554	$6\frac{7}{8}$	26½	44	5+5	3	British Museum (B. H. Hodg- son).
531	$6\frac{7}{8}$	30	454	4+5	2,	British Museum (Hume Collection).
-53	9		40	5+5	3	The late Col. H. C. B. Tanner.
52	8				3	Hon, Walter Rothschild.
49½	7½	38	451/2	5+5	3	Col. J. Biddulph.
$48\frac{7}{8}$	$6\frac{1}{2}$	198	38½	7+5	?	Sir Edmund G. Loder, Bart.
-48	6	30	421	5+5	Chumbi Valley	Lord Curzon.
-48	63	30#	1 39	5+5	Tibetan Frontier	H. J. Elwes.
48	$6\frac{3}{8}$	17	34½	6+5	?	H.R.H. le Duc d'Orléans.
47 š	5 Å	308	401	5+5	3	British Museum.
-43					Chumbi Valley	Indian Museum.
41	6.1			6+4	3	Duke of Bedford.
$39^{\frac{3}{4}}$	58	20	314	5+5	3	E. P. Tennant.
					1 Spread.	

THOROLD'S DEER (Cervus albirostris).

Thorold's deer is of the same approximate dimensions as the hangul, from which it is readily distinguished by the more flattened antlers, which have no bez-tine, and do not curve inwards, but are suddenly bent backwards at the point of origin of the trez; the total number of points being either five or four. Equally distinctive is the pure white muzzle and chin, the white inner surface of the ears, the reversal of the hair on the middle of the back, so as to form a kind of hump on the withers with the points of the hairs directed towards the neck, the low position and large size of the gland-tuft on the hind cannon-bone, and the shortness of the tail, which is included in the very large straw-coloured area of the buttocks. The general colour of the coat is uniformly dark brown, with the hairs, which are remarkable for their coarse and brittle nature, minutely speckled.

The Tibetan plateau, with perhaps some of the neighbouring parts of Central Asia, is the home of this fine species of deer, which was

originally described by the late Colonel Przewalski under the name given above. Subsequently two examples were obtained by Dr. W. G. Thorold, to the north-east of Lhasa, at an elevation of between 13,000 and 14,000 feet, which, under the impression that they indicated a new species, were named *C. thoroldi* by Mr. W. T. Blanford.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
381	45	37	27	5+4	Central Tibet .	Hon. Walter Rothschild.
38	5‡			5+5	Do	British Museum.
-36	$4\frac{1}{2}$	32	32	5+5	? 1	Indian Museum.

¹ Bought at Darjiling, thither brought by Tibetans.

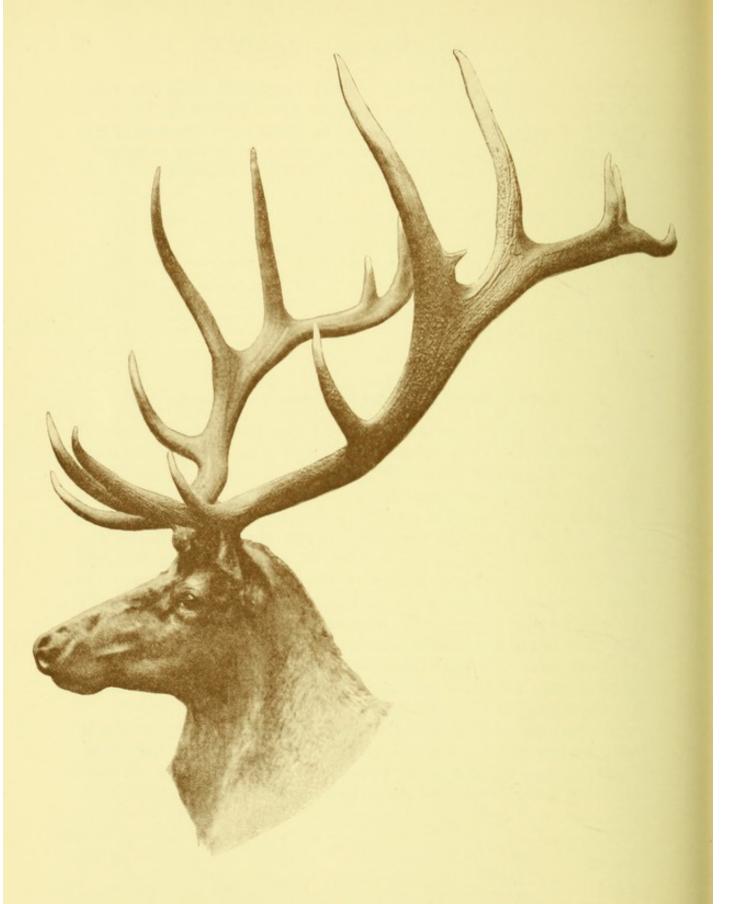
ROCKY MOUNTAIN WAPITI (Cervus canadensis).

Wapiti are very large deer of the red deer group, easy of recognition by the form of their antlers, which are of great size, carrying, when fully developed, more than five tines, curving backwards, and being much flattened in the upper half. They always have the bez-tine developed, but their most characteristic feature is the great size of the fourth tine, which is larger than either of the others, and with the fifth, which is also long, forms a nearly regular fork; the fourth, fifth, and sixth tines being situated almost in the plane of the portion of the beam immediately below them, so that they more or less completely hide one another when viewed from the front aspect. The brow-tine rises close to the burr, and is nearly as long as the bez. The tail is extremely short; the light rump-patch is very large and includes the tail; the neck and under-parts are blackish; and the general colour of the summer coat is yellowish brown on the upper-parts.

Wapiti (known in America as Elk) range from North America to North-Eastern and Central Asia; the typical form being the Rocky Mountain wapiti (*C. canadensis typicus*). The height at the shoulder is about 5 feet 4 inches, and the weight from 700 to 1000 lbs.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Widest outside.	Points.	Locality.	Owner.
1-701	 I4 ¹ / ₈ above burr.			68	6+6	Olympic Mts., Washington	W. F. Sheard.
-66	 above burr.			60	6+6	Wyoming .	J. Darley.

¹ Other antler, 70 in. Photograph and owner's measurements of this particular trophy can be seen at Piccadilly.



Head of Rocky Mountain Wapiti. Shot by Mr. W. Moncreiffe. For measurements see next page.

Length on outside curve.	hetween	Circum- ference of burr.	Tip to Tip.		Widest outside,	Points.	Locality.	Owner.
-65	75				40	7+7	Laramie Plains, Wyoming	Schoverling, Daly, and Gales.
-64 ³		93	$41\frac{1}{2}$	49		6+7	Wyoming .	J. J. Harrison.
642	8		311	45	52	7+6	3	Viscount Powers- court.
-641	8			48	***	7+7	N. W. Wyoming	A. Rogers.
-63 ³	81		494	$48\frac{1}{2}$		7+9	North Prong .	Frank Cooper.
631/2	8		39	451	52	7+7	Wyoming .	H. A. C. Darley.
62	78		334	508		7+7	Snake River, Colorado	Ernest Farquhar.
611/2	71/2			45		6+6	Bighorn Mts., Wyoming	Do.
-61	8			52		6+6	Do	Sir H. Seton-Karr.
61	8		361/2	461	55	8 × 8	?	Viscount Powers- court.
601	81			55		7+6	Wyoming .	E. Grant.
-60½	81/2	14			52	9+8	White River .	Dall de Weese.
60g	74		43	461		6+6	Wyoming .	Major C. C. Ellis.
60	81		36	37½	45	6+6	Do	W. Winans.
60	63		311/2	411	44	9+7	?	Viscount Powers- court,
59½	7		38	$48\frac{1}{2}$	52	8+7	Wyoming .	L. E. Sackville West.
591	81/2	3	371	47		8+8	S.E. Wyoming.	His Majesty the King.
591	$7\frac{1}{2}$			¹ 45		6+6	?	Sir H. Seton-Karr.
59	74		39	46	53	9+7	Wyoming .	Sutton Timmis.
581	83		39 ³ / ₄	$43\frac{1}{2}$	53½	7+6	?	Viscount Powers- court.
581		9 between brow and bez.		$46\frac{1}{2}$	50½	10+7	Wyoming .	Hon. T. A. Brassey.
-581	81			441		6+6	Do	J. D. Cobbold.
-581	81	***	48		50	6+6	?	F. B. Tolhurst.
58	910	***	42	471		7+6	Wyoming .	A. H. Straker.
58	78		431/2	49		9+8	Do	W. Moncreiffe. (See illustration.)
58	7		46	49	511/2	6+6	?	Viscount Powers- court.
57 ³ / ₄	7		36	$43\frac{1}{2}$	47	6+6	?	R. Fleming Crooks.
57½	67		$24\frac{1}{4}$	35₺		6+6	Montana	Capt. Abdy.
578	7		47	48§		6+6	Wyoming .	Hon. Charles Ellis.

¹ Measured by American Exhibition Committee.

Length on outside curve.	Circum- ference between bez and trez.	Circum- ference of burr.	Tip to Tip.		Widest outside.	Points.	Locality.	Owner.
571		98	32	421	***	7 + 7	Wyoming .	Sir Humphrey de
57	81	***	351/2	34	43	6+6	Do	Trafford, Bart. Viscount Powers-
-57	71	***	***		***	7+7	Do	Count F. Trautt-
57	7 1 8		53	49½	61	8+9	Colorado	mansdorff. Sir Edmund G. Loder, Bart.
57	7 ±		35½	4118		6+6	Yellowstone Park	British Museum.
-561	67				468	6+6	Two Ocean Pass	President Roose- velt.
56½	$7\frac{1}{4}$		37	$39\frac{1}{2}$	431/2	7+6	?	Duke of Bedford.
-56	$7\frac{1}{2}$	113	324	434	46½	7+6	?	W. F. Gordon Cumming.
56	7	***	31	39	$42\frac{1}{2}$	6+7	Wyoming .	J. V. Colby.
555	78		431	$48\frac{1}{8}$		7+7	Do	Hon. Charles Ellis.
558	7		431/2	475	***	6+5	Do	Major G. Dalrymple White.
551	7‡		40	461	50	6+6	Do	P. B. Vander-Byl.
551	7		$29\frac{1}{2}$	401	451	6+6	Do	T. P. Kempson.
551/2	61/2		44	451		6+6	?	A. H. Pollen.
558	7 1 8		464	***		7+6	?	St. George Little- dale.
55	8‡		***	411		6+6	Wyoming .	Major Maitland Kirwan,
55	8	***		451		7+6	Do	Do.
55	$7\frac{1}{8}$	***	***	47½	***	6+5	Do	E. N. Buxton.
-55	$8\frac{1}{2}$		53	541/2	***	17	?	The late Sir H. B. Meux, Bart.
-55	818			414		6+6	3	A. PendarvesVivian.
55	$7\frac{1}{2}$		38	47	521	7+7	Wyoming .	Viscount Powers- court.
1 55	65					14	America	Duke of Bedford.
544	61/2		50½	51	60	6+6	?	E. S. Crasten.
-54 ⁸	63		398	431	***	6+6	Montana	Count Scheibler.
-54₺		10%			451	8+6	Wyoming .	Capt. M. M'Neill.
542				***	***	14	Colorado	Sir Peter Walker, Bart.
54½	8		341	$45\frac{1}{2}$	***	6+5	Wyoming .	LieutCol. Hon. W. Coke.
541/2	9			palm	ated	11+7	Montana (?) .	G. Wrey.
541/2	$6\frac{3}{4}$		28	37	46	6+6	?	F. I. Mitchell.

¹ Shed antlers weighed 20 lbs.

Length on outside curve.	Circum- ference between bez and trez,	Circum- ference of burr.	Tip to Tip.		Widest outside.	Points.	Locality.	Owner.
548	$6\frac{1}{2}$		388	441		7+6	Wyoming .	E. N. Buxton.
-541	8			431	***	10+10	Montana	W. A. Tulloch.
541	78		498			9+7	Wyoming .	Hon. Walter Roths- child.
-54	81			***		13	Teton Mountains	H. Lennard.
1 54	71			48		8+7	Wyoming .	Moreton Frewen.
54	61/2		431	441	471	7+7	Do	H. H. Dutton.
54	78		43	42	45	8+7	Do	P. Niedieck.
54	74			48		7+8	Do	Moreton Frewen.
54	7		29½	351	44	7+6	Do	Sir H. Seton-Karr.
54	73		48	44		12	?	M. P. Grace.
-53½	8		43	441/2	***	8+7	Wyoming .	Count E. Hoyos.
-53½	61/2		39	42		6+6	Do	Major G. Dalrymple
53 ¹ / ₈	78		47	494		8+7	Do	White. Ford G. Barclay.
53	7 s	13	37½	4112	51	palmated 7+7	?	Hon. Walter Roths-
-501	71/2			561	581	7+6	Wyoming .	child. Hugh Peel.

¹ Shot by Sir G. Gore, Bart.

WEST AMERICAN WAPITI (Cervus canadensis occidentalis).

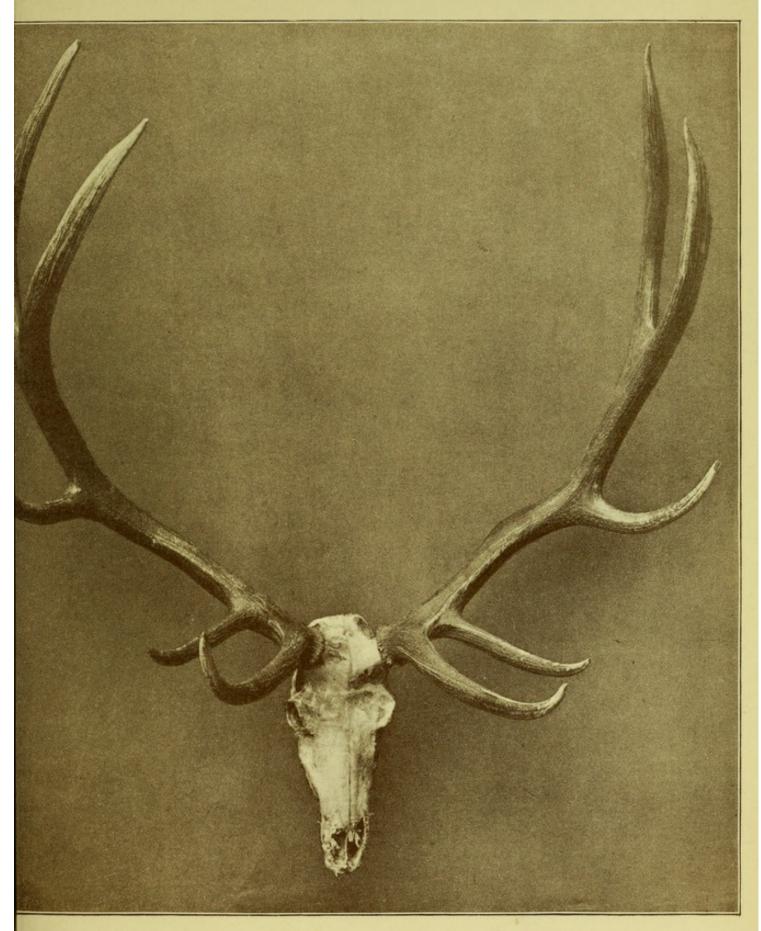
Apparently very closely allied to the typical Rocky Mountain race, but with the head, neck, and limbs blacker in the winter dress. The antlers show considerable tendency to cupping and palmation, and in some cases the portion above the fifth tine is aborted. The range of this form extends from British Columbia and Vancouver to Oregon, and, it is said, Northern California.

I.ength on outside curve.	Circum- ference between bez and trez.	Circum- ference of burr.	Tip to Tip.	Widest inside.	Widest outside.	Points.	Locality.		Owner.
52	81/2		37	40		6+6	Vancouver		Barclay Bonthron.
-491	61/2		38	461		10+7	Do	•	A. E. Leatham.
-45	74		37	37		7+8	Do		Clive Phillipps- Wolley.

THIAN-SHAN WAPITI (Cervus canadensis songaricus).

From the typical wapiti this well-marked local race differs by its inferior size, longer body and shorter limbs, and relatively larger antlers; the general colour of the coat being brownish gray in winter. This wapiti inhabits the forest-clad portions of the Southern Altai and Thian-Shan ranges; it was first described by Dr. Severtzoff under the name of *C. maral*, var. *songarica*, and subsequently by Mr. Blanford, on the evidence of detached antlers obtained by the Second Yarkand Mission, as *C. eustephanus*.

Length								
on	Circum- ference.	Tip to Tip.	Widest inside.	Spread.	Points.	Locality.		Owner,
1-55	8			***	6+7	Bought at Kashgar		Earl of Northbrook.
54	74	49	46^{3}_{4}	50½	7+6	Thian Shan .		P. Church.
$53\frac{1}{2}$	71				7+7	Do		Do.
53	6^{3}_{4}	301	39	46	6+6	Do		J. V. Phelps.
53	$6\frac{7}{8}$	46	41	49	8+8	?		Duke of Bedford.
-51	1010					?		W. T. Blanford.
51	$6\frac{1}{2}$	394	404	50 ¹ / ₈	6+5	Thian Shan .		A. Ezra.
51	64	431	441/2	46^{3}_{4}	7+6	Do		St. George Littledale.
504	6	$29\frac{1}{2}$	381	***	8+7	Altai		Duke of Bedford.
501	9				10+9	Thian Shan .		P. Church.
50	6	394	43	461	7+6	Do		J. Hamilton Leigh.
50	71				7+7	Do		J. V. Phelps.
-498	8	41	421		7+7	East Thian Shan		Paris Museum.
-49				***	6+6	China		Capt. P. Hambro.
$48\frac{1}{2}$	61	36	33	***	6+6	Altai		Duke of Bedford.
48	$6\frac{1}{2}$	45	41	551	8+8	Kuldja		Do.
$46\frac{1}{2}$	6	36	$40\frac{1}{2}$	43	6+6	?		S. W. Carpenter.
451	61	341	39½	47	5+5	Altai	v	H. J. Elwes.
451	7	274	354	401	7+7	Thian Shan .		P. B. Vander-Byl.
451	51	$42\frac{1}{2}$	$41\frac{3}{4}$	44½	6+6	Do		R. Hayne.
44	6‡	254	311/2	46½	7+6	C. Asia		Hon. Walter Rothschild.
$43\frac{1}{2}$	5 =	341	38	40	6+6	Thian Shan .		Lord Elphinstone.
			1 She	d antlers	bought b	y the late Sir Douglas I	ors	yth.



Skull and Antlers of Thian-Shan Wapiti. Shot by Mr. P. Church at Tarbagatai.

SIBERIAN WAPITI (Cervus canadensis asiaticus).

Imperfectly known, but said to differ from the last by the form of the antlers (which have frequently more tines), as well as by its inferior stature and lighter winter coat. It inhabits the Northern Altai and Siberia.

MANCHURIAN WAPITI (Cervus canadensis xanthopygus).

Antlers of a shorter and stouter type than in the Thian-Shan wapiti, with the fourth tine relatively smaller in immature specimens, and the portion above it less developed at all ages. In the 5-tined antlers of sub-adult stags the tips of the fourth and fifth tines curve towards one another like crabs' claws. General colour in winter brownish gray, in summer reddish brown, with the dark winter mane and under-parts of other wapiti.

Distribution.—Northern Manchuria and Amurland.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Spread.	Points.	Locality.	Owner.
331	5%	· 18½	$21\frac{1}{2}$	***	6+6	?	H. J. Elwes.
321	51	26g	268	29%	7+6	?	Do.
314	6	17	254	29	8+7	?	Duke of Bedford.
311	5	231	24	26	6+6	?	Do.
31	41	261	254	301	6+5	3	Do.

BACTRIAN WAPITI (Cervus canadensis bactrianus).

Named on the evidence of a specimen recently living in the Zoological Gardens at Moscow, which was at first regarded as related to the shou, although its wapiti affinities were subsequently revealed by specimens from Tchenkend, the head of one of which is now mounted in the British Museum.

Distribution.—Tchenkend and adjacent districts. The antlers of the British Museum specimen are somewhat malformed, and have therefore not been measured.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Spread.	Points.	Local	ity.	Owner.
40	6	261	444	***	6+4	Turkestan		Duke of Bedford.



Antlers of Japanese Sika.

From a specimen presented to the British Museum by Viscount Powerscourt.

JAPANESE SIKA (Cervus sica).

The common sika is the typical representative of a small group of deer in which the antlers are shorter and simpler than is usually the case in the red deer group, and have generally four tines, including a trez, but lacking a bez. The coat is spotted, at least in summer, and there is a black-bordered white area in the region of the tail, which is relatively long. In the common sika the tail is white at the tip, but black above for at least some part of its length; and the gland on the hind cannon-bone is covered with white hairs. The coat is chestnut red with numerous white spots in summer, and browner, with no, or only indistinct traces of, spots in winter. These deer are distributed over Northern China, Manchuria, and Japan, and are represented by two closely allied races differing chiefly in size. In the Japanese sika (C. sica typicus), which inhabits Japan and Northern China, the height at the shoulder varies from about 2 feet 8 inches to 2 feet 10 inches, whereas in the Manchurian sika (C. sica manchuricus) it reaches

3 feet 3 inches. Both races have been acclimatised in English and Irish parks.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Points.	Locality.			Owner.
251	5	$17\frac{3}{8}$	4+4	Japan			Sir Douglas Brooke, Bart.
258	$4\frac{1}{8}$	201	4+4	Do			Sir Edmund G. Loder, Bart.
22	4	16_{4}^{3}	5+4	Bred in Ireland .			Sir Victor Brooke's Collection.
218	38	161	10+6	Island of Yezo .			Do.
$21\frac{1}{2}$	38	134	4+4	?			Hon. Walter Rothschild.
181	34		9	Bred in Ireland .	-		Sir Victor Brooke.
17‡	3	164	4+4	?			Duke of Bedford.
$16\frac{3}{4}$	31/8		4+3	Japan	-	1	British Museum.
168	3	98	4+3	Bred in Ireland.			Hon. John Ward.
151	$2\frac{3}{4}$	9^{3}_{4}	4+4	Bred in England			Duke of Bedford.
1 151	$2\frac{3}{4}$	141	4+4	Bred in Ireland .	1		Marquis of Hamilton.
2 -15 $\frac{1}{2}$			6+5	Do			Viscount Powerscourt.
154	38	$12\frac{1}{4}$	4+4	Do			Hon. R. A. Ward.

¹ Weight 143 lbs, as it fell.

MANCHURIAN SIKA (Cervus sica manchuricus).

Length on out- side curve.	Circum- ference.	Tip to	Points.		Locality		Owner.
-26	41	138	4+4	Manchuria			Paris Museum.
23	$3\frac{1}{2}$	$18\frac{1}{4}$	4+4		3		Duke of Bedford.
151	3		4+4		?		Do.

The following specimens are from hybrids between Japanese and Red Deer.

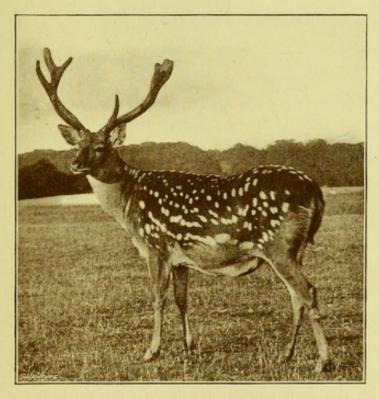
Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Weight.	Locality.	Owner.
29‡	$4\frac{1}{2}$	174	21	5+4	14 st.	?	Viscount Powerscourt.
284	$4\frac{1}{4}$	141	18	5+4	14 st.	?	Do.
261/2	4	$2I\frac{1}{2}$	21	4+4	clean	?	Do.

² This stag when killed was estimated to be fifteen or sixteen years old, and had no teeth left.

FORMOSAN SIKA (Cervus taëvanus).

Nearly allied to the common sika, but distinctly spotted in winter, when the coat retains more or less of the rufous summer-tinge. The dark line down the middle of the back is very strongly marked, there is a more distinct black bar above the white tail-patch, and the limbs are shorter, and the body proportionately longer. The height at the shoulder is about 2 feet 11 inches. This species is confined to the mountains of the island of Formosa.

Length.	Circum- ference.	Tip to	Widest inside.	Points.	Locality		Owner.
194	38	13	16 <u>3</u>	4+4	Formosa		British Museum.
19	31			4+4	Do		Duke of Bedford.



Peking Sika Stag in summer coat, with the antlers in velvet.

Photographed by the Duchess of Bedford.



Head of Peking Sika, from a specimen at Woburn Abbey.

PEKING SIKA (Cervus hortulorum).

In addition to its larger size (between 3 feet 7 inches and 4 feet at the shoulder), this species is distinguished from the Manchurian sika by the hairs covering the gland on the hind cannon-bone being of the same colour as the rest of the coat in summer and only slightly grizzled in winter, and by the tip of the tail being apparently white. The head and neck are bluish gray, and in immature animals spots persist in the winter coat, although these disappear completely at this season in fully adult bucks, whose coats become very long and shaggy, especially on the throat and neck. Hinds are more brightly coloured in winter than the stags, and retain distinct spotting. This deer was first named by the late Consul Swinhoe from an immature buck and doe taken at the sack of the Summer Palace, Peking, and was afterwards

obtained in the wild state in the Ussuri district of North-Eastern Manchuria, when it received the name of *C. dybowskii*. In the typical Manchurian race (*C. hortulorum typicus*) there is no dark line down the back; but this is present in the smaller southern race (*C. hortulorum kopschi*) of the Yang-tse valley.

Length on out- side curve.	Circum- ference.	Tip to Tip,	Widest inside.	Points.	Locality.	Owner.
321	$4\frac{1}{2}$	161	231/2	4+4	(Shed horns)	Duke of Bedford.
32	$4\frac{1}{4}$	27	248	4+4	(See illustration)	Do.
3112	5‡	27 18	$26\frac{3}{4}$	4+4	3	Sir Edmund G. Loder, Bart.
298	48	274	21	5+5	?	W. Banks.
27½	48	161	19‡	4+4	?	A. Hardcastle.
27	$4\frac{1}{8}$	$23\frac{1}{2}$	20	4+4	Manchuria	Hon. Walter Rothschild.
26	34	18	$15\frac{1}{2}$	4+4	Do	E. P. Tennant.
24	4	$22\frac{1}{2}$	19	4+4	Do	Hon. Walter Rothschild.
231/2	$3\frac{1}{2}$	181	161/2	4+4	Do	Duke of Bedford.
158	3	20		4+4	Ussuri, Manchuria .	British Museum.



Head of Fallow Deer Buck, from a specimen belonging to Mr. J. Whitaker of Rainworth.

FALLOW DEER (Cervus dama).

Antlers normally without a bez, but with a trez-tine, above which the beam is palmated, with numerous snags on the hinder edge. Coat spotted with white in summer (except in the black breed), with a black-bordered white area in the neighbourhood of the long tail. Height at shoulder about 3 feet; weight about 140 lbs. clean. The original distribution includes Greece, Spain, Portugal, Anatolia, Rhodes, Sardinia, Asia Minor, Northern Palestine, and North-Western Africa, but the species has been introduced into Great Britain and some other countries. In Asia Minor wild fallow deer are found along the south coast as far as Adana, and at one spot in the interior.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Spread inside.	Points.	Width of Palm.	Locality.	Owner.
32	41/8	18	28	12+10	51	Woburn	Duke of Bedford.
1-31	5			30	7	?	Sir Victor Brooke's Collec-
2-30	44	23½	261/2	10+9	4½	Drummond Castle, Perth	

Recorded by J. G. Millais (British Deer and their Horns).
 Weight of antlers, 8 lbs. 1 oz. on skull, no lower jaw (Millais, op. cit.).

Y							
Length on out- side curve.	Circum- ference.		Spread inside.	Points.	Width of Palm.	Locality.	Owner.
30	4	19‡	24	11+11	6	?	D. M'Douall.
-30	41/2	22	37 outside	16+10	7	Drummond Castle, Perth	J. G. Millais.
$-29\frac{1}{2}$	5	17	281/2	14+13	7‡	Petworth Park .	Do.
291	41/8			14+11	8	Woburn	Duke of Bedford.
$-28\frac{1}{2}$	4	151	23	9+8	54	Essex	W. H. Wilson.
281	41/8	18	244	8+6	4	New Forest	E. Festus Kelly.
1-281	4	142	26	10+11	6	Woburn Park .	Duke of Bedford.
2 28 1	4	(Span	n 34) side	19	6	Colebrooke	Sir Victor Brooke's Collec- tion.
3 28	4	(26)		18	5	Do	Do.
4-273	5	201	$21\frac{1}{2}$	13+7	54	Do	A. Basil Brooke.
274	41	321/2	25	11+10		Woburn Park .	Duke of Bedford.
271	4	23		10+8		England	J. Carr Saunders.
-27						Nr. Blair Castle .	Dowager Duchess of Atholl.
26g	34	12	17½	10+7		?	British Museum.
$-26\frac{1}{2}$	41/4	231/2	201/2	9+7	5 7	Perthshire	A. Basil Brooke.
-26	5	$20\frac{3}{4}$	234	10+10	$4\frac{1}{2}$	Tasmania	T. W. H. Clarke.
-26	5‡	20	$22\frac{1}{2}$	11+13	7	Ashton Park .	J. Whitaker.
5 251	34	174	241	10+10	6	Surrenden Park .	W. Winans.

¹ Weight dressed, 165 lbs.

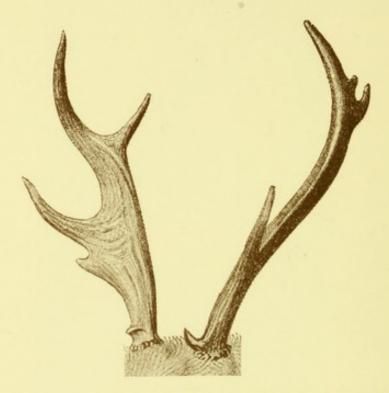
Veight dressed, 165 lbs.

2 Seven years old, as he fell 237½ lbs., 198 lbs. cleaned.

3 Seven years old, as he fell 224 lbs. (Millais, British Deer).

4 Seven years old.

⁵ Weight 222 lbs.



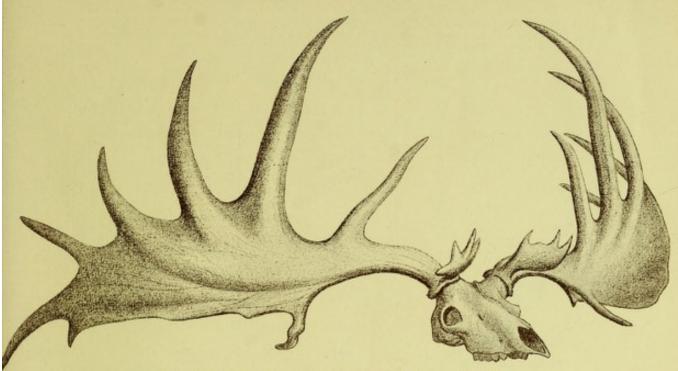
Antlers of Mesopotamian Fallow Deer, from a specimen in the British Museum.

MESOPOTAMIAN FALLOW DEER (Cervus mesopotamicus).

Larger and brighter coloured than the common fallow deer, with the spots near the middle of the back tending to form longitudinal stripes, and the tail wholly white. Antlers of a totally different type, being somewhat expanded at the origin of the trez-tine (which is large, and situated some distance above the short brow-tine), but at the summit only moderately flattened, and breaking up on the hinder border into several snags. Weight about 24 stone, clean (H. E. Whittall).

Distribution.—The mountains of Luristan in Mesopotamian Persia.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Spread inside.	Points.	Width of Palm.	Locality.	Owner.
-361/2	44	163		12+15	58	Karabogha, Asia Minor	F. E. Whittall.
-29	$4\frac{1}{8}$	301/2	$24\frac{1}{8}$	10+11	5½	Asia Minor	Do.
$-21\frac{1}{4}$	38	$14\frac{1}{2}$	***	9+7	***	Do	Paris Museum (Abbé David).
201	5	14	144	6 + 5	***	Luristan Mountains	Sir Edmund G. Loder, Bart.



Skull and Antlers of extinct Giant Irish Deer (Irish Elk).

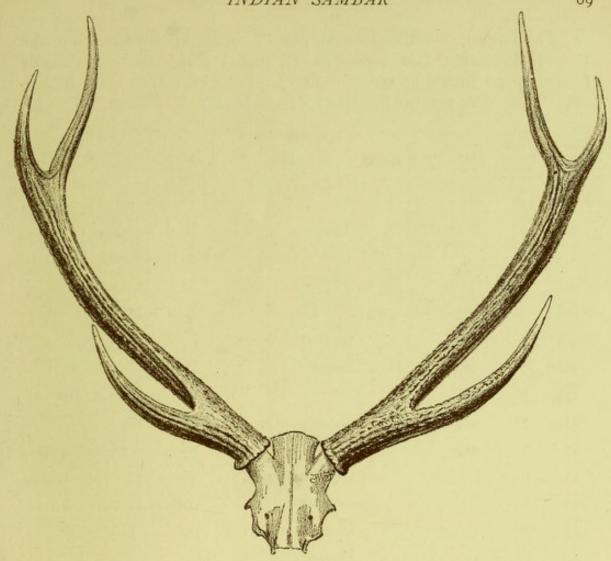
GIANT IRISH DEER (Cervus giganteus).

(Commonly called "Irish Elk.")

A huge deer, probably standing at least 6 feet at the shoulder, with the antlers enormously expanded, and carrying several large tines on the front border, of which the one above the trez is the longest; the brow-tine being often flattened and forked. In its typical form this magnificent deer occurs in the prehistoric deposits of Ireland, England, and probably some of the western districts of the Continent.

Sprea to 7	d Tip	Length insid antl			tlers	Circum- ference bove burr.	Width of Palm.	Points.	Owner,
ft.	in.	ft.	in.	ft.	in.				
-11	6					***	20	****	Marquis of Londonderry.
-11	5	6	3			9^{3}_{4}	17	11+11	Dublin Museum,
-11	3	7	$5\frac{1}{2}$			124	19‡	17	Mrs. Donaldson-Hudson.
-11	$1\tfrac{1}{2}$	6	$9\frac{1}{2}$			9‡	$16\frac{1}{2}$	23	Sir Peter Walker, Bart.
-10	$4\frac{1}{2}$	6	9	13	10	12	20		Earl of Bessborough.
10	2	5	81/2			$9\frac{7}{8}$	194	19	British Museum.
-10	2								Thomas Bate.
9	8						20	12+11	Hon. Walter Rothschild.

	ad Tip ^{Le} Tip.	insic ant		both :	th of intlers skull.	Circum- ference above burr.	Width of Palm.	Points.	- Owner.
ft 9	in. 5	ft. 6	in. 2	ft. I 2	in. 5	11	214	11+11	Viscount Powerscourt.
9	5	6	0	12	10	131/2	$21\frac{1}{8}$	15+13	Sir Edmund G. Loder, Bart.
9	3	6	2	13	5	10	24	12+10	Duke of Westminster.
9	2			13	6	***	151	***	Mrs. Graham Lloyd.
-9	2			11	10	101	$22\frac{1}{4}$	9+9	Dublin Museum.
-9	2							20	Thomas Bate.
8	114	6	18			8#	174	10+13	Hon. Charles Ellis.
8	11	5	10			111	17	9+9	Viscount Powerscourt.
8	10	5	9	II	92	91	17	12+11	Duke of Westminster.
-8	10			12	10	***	131	***	Mrs. Graham Lloyd.
-8	9	١		**		***	184	9+8	H. J. Elwes.
8	7	5	91			10	20	12+12	Viscount Powerscourt.
7	6	5	31/2			8 8		10+11	Sir Victor Brooke's Collection.



Antlers of Indian Sambar. From a specimen in the British Museum.

INDIAN SAMBAR (Cervus unicolor).

The typical representative of the Rusine group of deer, in which the antlers are rounded and three-tined, both the bez and trez being wanting, and the summit of the beam simply forked. Height reaching to 5 feet 4 inches at the shoulder. Antlers large and rough, with the brow-tine given off at an acute angle to the beam, and the two terminal tines of nearly equal length. Hair coarse and shaggy, uniformly dark umber-brown, with some chestnut on the buttocks, at all ages. Face-glands very large, and capable of being turned inside out. Ears large, and the tail relatively long and bushy. Young uniformly coloured. Weight about 600 lbs., when cleaned about 410 lbs. The wooded hilly districts of India and Ceylon form the habitat of the true sambar, which probably extends into Assam.

The largest, or rather longest, pair of antlers known were from the Central Provinces, and measured 48 inches along the curve inside (=nearly 50 inches on outside curve). Both brow-tines were broken off. They were sent to Mr. A. O. Hume by Mr. R. Blewitt.

Length on outside curve.	Circum- ference above brow-tine.	Tip to V	Widest inside.	Points.	Locality.			Owner.
1-501	98	24	***	3+3	Bhopal .			The late Sultan Dulah Nawab Ahmedali Khan.
48	7	Single		3	Khandesh .	*:		R. H. Madan.
-47%	***	specir	28½	***	Cent. Provinces			A. P. Perceval.
$-46\frac{7}{8}$	***	49	***	3+3	Do.	4.		R. Wordsworth.
461	68	$24\frac{1}{8}$	30%	3+3	Do.			A. O. Hume,
-46½	***	45			Garhwal .	27		R. M. Nash.
-45‡	74	38	421/2	3+3	Sangor, C.P.			LieutColonel R. W. Mapleton.
45 ¹ / ₈	6§	$17\frac{3}{4}$	$32\frac{1}{8}$	3+3	?			British Museum (Dr. H. Falconer).
45	78	$22\tfrac{1}{2}$	334	3+3	Mayoghur, Cen	it. Pi	ro-	Sir John Morris.
45	71	$44\frac{7}{8}$	***	3+3	Western Ghats			Major-Gen. Sir Arthur Ellis, K.C.V.O.
² -45		***	***		Cent. Provinces			Bombay Natural History Society.
-45	9	***			Orissa .			H.H. The Maharaja of Tra- vancore.
-45	8	Picked G.	Jones		Cent. Provinces	(?)		Heighway Jones.
44 ¹ / ₈	7 8	448	45%	3+3	Rangeer, Do.			Col. W. J. Morris.
-44		34		3+3	Cent. Provinces			J. D. Inverarity.
³ -44	9		***	***	Rewa .	10		LieutCol. A. E. Ward.
44	6	9‡	248	3+3	Do	*		Major C. F. Pinney.
44	6%	191	314	3+3	Do			H. E. M. Davies.
438	58	Single l	horn	3+3	Do			British Museum (Hume Collection).
431	51	17	28	3+3	Do			Sir E. P. Bates.
431/2	64	251	34	3+3	Cent. Provinces	123	4	Viscount Powerscourt.
438	61	20g	$29\frac{1}{8}$	3+3	Do.			Sir Robert Harvey, Bart.
-431				3+3	Do.			Capt. C. Hutton Dowson.

Recorded in Asian by Major L. Impey.

3 Height at shoulder, 351 inches.

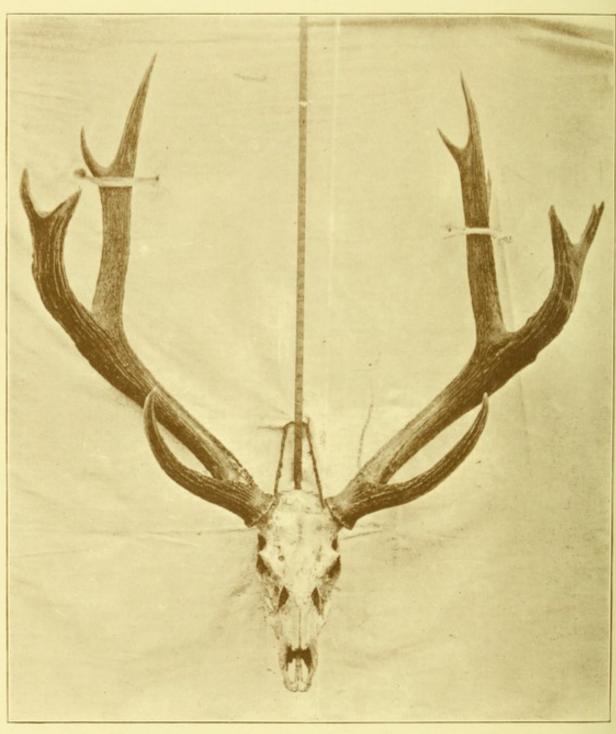
² This is the measurement of only a portion of a Sambar antler, and was recorded in the *Journal of the Bombay Natural History Society*, iii. p. 228. The animal was shot by Mr. R. Gilbert in the Central Provinces, but got away minus this piece of his antler.

Length on outside curve.	Circum- ference above brow-tine.	Tip to Tip.	Widest inside.	Points.	Locality.		Owner.
43	6	$24\frac{1}{2}$	30	3+3	Khandesh		A. Cumine.
-43	91/2	26	23	3+3	Cent. Provinces .		Capt. J. H. Gwynne.
$-42\frac{3}{4}$	81	20	***	7+5	Do		Bertram-Carey.
424	58	26	324	3+3	Do		A. H. Pollen.
$42\frac{1}{2}$	$6\frac{1}{4}$	15	274	4+4	Ghats of Simrol .		British Museum (Col. J. Evans).
-42	61	Single	antler		?		Sir Edmund G. Loder, Bart.
417	61	33 ¹ / ₈	351	3+3	Western Ghats .		Major-Gen. Sir Arthur Ellis.
414	7	281	344	3+3	?		Hon. Walter Rothschild.
411	$7\frac{1}{2}$	271		3+3	Cent. Provinces		Lord Charles Bentinck.
4112	$6\frac{1}{4}$	301	361	4+4	Do.		P. Jay.
41	68	181	29	3+3	Do		Duke of Bedford.
1-41	81/2			3+3	N. Gujerat		S. C. Law.

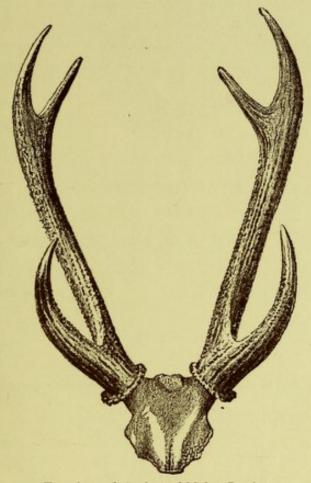
Ceylon Specimens.

Length on outside curve.	Circum- ference above brow-tine,	Tip to Tip.	Widest inside.	Points.	Owner.
321/2	64	24	264	3+3	A. R. Hay.
$31\frac{1}{2}$	5	20	17	4+3	Major G. E. Hale.
-30	8?	$21\frac{1}{2}$	19§	3+3	J. Ryan.
29	41/2	25	224	3+3	Earl Cairns.
274	41	163	20	3+3	A. M. Naylor.

¹ Height at shoulder, 52 inches.



Skull and Horns of Indian Sambar with abnormal Antlers. From a specimen in the possession of Mr. Bertram-Carey.



Frontlet and Antlers of Malay Sambar.

Drawn from a Burmese specimen in the British Museum.

MALAY SAMBAR (Cervus unicolor equinus).

This local race is nearly as large as the Indian sambar, but the antlers are generally shorter and thicker, with the hinder or inner tine of the terminal fork much shorter than the front one, and arising as a spur from the inner hind margin of the beam, of which the front tine forms the direct continuation; the brow-tine is also generally longer. General colour of coat of adult darker, usually a light ring round the eyes, the ears smaller, often with a white margin, and the tail very bushy. Young spotted. The distributional area extends from Assam and Cachar through Burma and the Malay Peninsula to Siam, Hainan, Borneo, and perhaps Sumatra.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside,	Points.	Locality.		Owner.
$-32\frac{1}{2}$	$7\frac{1}{2}$	$24\frac{7}{8}$	271	3+2	Burma		LieutCol. O. E. P. Lloyd.
-32		10	***	***	Do ,		Major W. Anstruther Thom-
-311	6	244	26	3+3	Do		B. Lentaigne.
31	68	$14\frac{1}{4}$	18‡	3+3	?		G. Monteath.
30%	61	17‡	198	7+7	Borneo	74	Sir Edmund G. Loder, Bart.
-301	51/8	$27\frac{3}{4}$	1 30	3+3	Burma		Capt. G. H. Evans.
-301		25	21	3+3	Mogong, Burma		H. A. Kelso.
301	48	20%	214	3+3	Burma		British Museum.
-298	63	18		4+3	Manipur .		Capt. A. Wilson.
271	$4\frac{1}{2}$	$24\frac{1}{2}$	201	3+3	Burma		A. E. English.
25	5 1/2	148	161	3+3	Do		Hon. Walter Rothschild.
244	51/2	14	15	3+3	Outside.		Duke of Bedford.

FORMOSAN SAMBAR (Cervus unicolor swinhoei).

This race is very closely related to the preceding, from which it is distinguished by its shorter head, concave profile, longer limbs, and certain differences in colour; the lower part of the legs being brownish or whitish yellow, and the bushy tail black all round. It is confined to the island of Formosa.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Points.	Owner.
194		9	3+3	British Museum.
17	41		5	Duke of Bedford.
161	38	16	3+3	British Museum.
135	48	131	4+4	· Do.

LUZON SAMBAR (Cervus unicolor philippinus).

Nearly allied to the two last, the height at the shoulder being probably from 33 to 35 inches, the build stout and massive, with the hind-quarters specially elevated, and the form that of a small Malay sambar. On the head is a blackish streak starting from over each eye

to form a line down the middle of the face separated by a band of pale fawn from a moustache-like dark mark in the muzzle.

Distribution.—The island of Luzon, in the Philippines; introduced into the Marianne islands, specimens from which have been described as a separate species under the name of *C. mariannus*.

Length on outside curve.	Circum- ference.	Tip to Tip.	Points.	Loc	ality.	Owner.
21	44	51/2	3+3	Luzon		Sir Edmund G. Loder, Bart.
195	51	$7\frac{1}{2}$	4+4	Do.	1.	British Museum.
187	51	94	3+5	Do.		Do.
18g	51/8	144	4+3	Do.		Do.
18	49	13	4+4	Do.		Do.
16	4	102	3+3	Do.		Sir Edmund G. Loder, Bart.
151	51	111	3+3	Do.		British Museum.

BASILAN SAMBAR (Cervus unicolor nigricans).

Smaller than the last, the height at the shoulder in a mounted specimen in the British Museum being 27 inches. Detached antlers indicate, however, larger animals.

Length on outside curve.	Circum- ference.	Tip to Tip.	Points.	Local	ity.		Owner.
13½	48	121	3+3	Basilan Island			British Museum (A. H. Everett).
131	$4\frac{1}{2}$	115	3+3	Do.			Do.

SZECHUAN SAMBAR (Cervus unicolor dejeani).

A large race from Northern China, with very massive antlers, which show a tendency to develop small supplemental snags.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
31	6	22	$24\frac{1}{2}$	3+3	N.W. China	Hon. Walter Rothschild.
308	51/2	158	181	3+3	Ta-tsien-lou Szechuan	Paris Museum (type specimen).



Skull and Antlers of Javan Rusa. From a specimen in the British Museum.

JAVAN RUSA (Cervus hippelaphus).

General form, coat, and colour sambar-like; but the ears smaller, the tail thin, the hairs on the back banded with coloured rings, and the under-parts, chin, and inner sides of buttocks whitish. Antlers comparatively slender and only moderately rough, with the brow-tine medium or short, and making a large acute angle with the beam; the hinder or inner tine of the terminal fork much longer than the front or outer one, and forming the continuation of the beam, from the

front or front outer surface of which the front tine arises as an offshoot; the two antlers enclosing a lyrate space. Young, uniformly coloured. There are two races of this species—one the Javan rusa (C. hippelaphus typicus) of the approximate size of a red deer, and the other the Moluccan rusa (C. hippelaphus moluccensis), from Celebes and the Moluccas, said to be smaller, and without a distinct mane on the neck or tuft to the tail.

Length on outside curve.	Circum- ference.		Widest inside.	Points.	Locality.				Owner.
$37\frac{1}{2}$	58	16	$17\frac{3}{4}$	3+3	Java				H.R.H. Prince of Wales.
-36	***	1112		3+3	Mauri	tius (in	trodu	ced)	Admiral Sir William Kennedy.
$35\frac{1}{2}$	48	224		3+3	Java	,		•	Sir Victor Brooke's Collection.
351	$4\frac{1}{2}$	172	17	3+3	Do.		*		Hon. Walter Rothschild.
341	48	171	221	3+3	Do.				Capt. C. Keppel, R.N.
1 34					Rodrig	uez (int	trodu	ced)	Admiral Sir William Kennedy.
33	41/2	25½		3+3	Java				Duke of Bedford.
-301	42	172				?			Major W. Anstruther Thomson.
281	41/2	1112	$12\frac{1}{2}$	3+3	Do.				Sir Edmund G. Loder, Bart.
	1 Weight 269 lbs.								

MOLUCCAN RUSA (Cervus hippelaphus moluccensis). (See above).

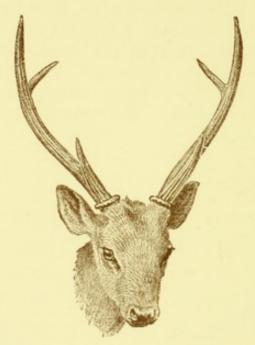
Length on outside curve.	Circum- ference.	Tip to Tip.	Points.	Locality.	Owner.
36½ 27½	4 ⁵ 4 ⁸ 4 ⁸	$18\frac{1}{2}$ $14\frac{1}{2}$	3+3	?	Sir Edmund G. Loder, Bart. Duke of Bedford.
14 ⁸ / ₄ 8 ⁸ / ₄ 6 ¹ / ₄	3 ¹ 4 3 ⁸	51 58	3+3	Batchian ?	British Museum (A. R. Wallace). British Museum.

BAVIAN DEER (Cervus kuhli).

A small deer allied to the Javan rusa (*C. hippelaphus*), standing about 27 inches at the shoulder, of light build, and of a uniform brown colour, without a dark stripe down the back.

Distribution.—The Bavian Islands, between Borneo and Java.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Owner.
93	2 7	10%	107	3+3	British Museum.



Head of Male Hog-Deer.

HOG-DEER or PARA (Cervus porcinus).

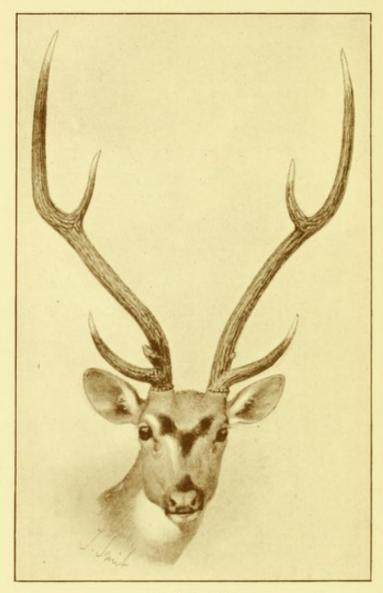
Allied to the Bavian deer, but the antlers larger, the build longer and lower, and the summer coat of the adult, as well as that of the young, spotted with yellowish white. General colour in winter rufous or yellowish brown, somewhat speckled above, and much darker beneath; in summer, upper-parts paler and more or less spotted. Antlers on long pedicles, with the hinder tine of the terminal fork the shorter. Height at shoulder from about 25 to 29 inches. Weight about 90 to 100 lbs. The largest pair of antlers known belonged to a specimen shot by Mr. A. O. Hume in the Ganges Khadir, near Meerut. They measured 20 along the beam inside, and had a mid-beam girth of 3.5. The specimen was destroyed in the Mutiny, the house in which it was hung having been burnt.

Distribution.—India, throughout the Indo-Gangetic plain from Sind and the Punjab to Assam, thence through Sylhet to Burma and Tenasserim.

Length on outside curve.	Circum- ference above brow-tine.	Tip to Tip.		L	ocality		Owner.
$-23\frac{1}{4}$	3 78	127	Burma				Capt. G. H. Evans.
-21 ³	31/2	7‡	Do.				Do.
$-21\frac{1}{4}$	34	$22\frac{1}{2}$?		Sir Edmund G. Loder, Bart.

Length on outside curve.	Circum- ference above brow tine.	Tip to Tip.	Locality.	Owner.
-21	$3\frac{1}{2}$	183	Burma	Capt. G. H. Evans.
-21	31	15‡	Pegu	Major-Gen. E. M. Norie.
208	3½	221/2	?	Major W. Anstruther Thomson.
-201	3‡	121/2	Burma	Capt. G. II. Evans.
-203	31/8		Nepal	Bombay Natural History Society.
-204	41/2	171	?	J. Whitaker.
-20 1	3	9½	N.W. Provinces .	J. Nugent.
-20	***		Burma	Indian Museum (Capt. R. C.
-198	31/8	16	Meerut, N.W.P	Beavan). Capt. W. Q. Winwood.
192	31/8	135	Dudla Swamp,	Capt. W. E. Stobart.
-192	38		N.W. Provinces Nepal	Bombay Natural History Society.
-193			Ganges Khadir .	Major H. S. King.
19‡	31/8	9½	Do	A. O. Hume.
198	31	161	Burma	Sir Victor Brooke's Collection.
198	38	184	?	H. C. V. Hunter.
-19	41	5 rts	Upper Burma .	C. W. A. Bruce.
-18§	470	15	Do	Do.
1-18	61/2	19	Ganges Khadir .	Gen. Sir R. Pole-Carew.
-18	3		?	W. Gillman.
174	3	148	?	L. J. Mountford.
17%	23	$9\frac{1}{2}$	Burma	A. E. English.
17%	31/2	91	Nepal	British Museum, the late B. H.
$-17\frac{1}{2}$			Ganges Khadir .	Hodgson. Major F. D. V. Wing.
171/2	31/8	101	?	Guy G. Wilson.
174	31/2	11	Cooch Behar .	Sir Henry D. Tichborne, Bart.
1718		91	?	J. Carr Saunders.
-17	31/8		Naini Tal Terai .	Major-General Alexander A. A. Kinloch.
			A 1000	

¹ Ten points.

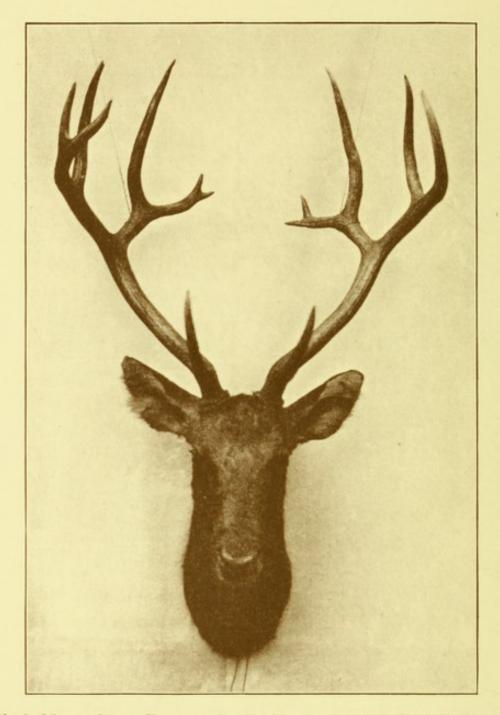


Head of Chital.

CHITAL or AXIS (Cervus axis).

This beautiful species is distinguished from all the other members of the Rusine group, except the Philippine spotted deer (*C. alfredi*), by the body being profusely spotted with white at all seasons and all ages; the general colour of the upper-parts being light rufous fawn, with a dark stripe from the nape to the tip of the tail and a black band on the muzzle. Height at shoulder from 36 to 38 inches; live-weight estimated at about 250 lbs. Antlers supported on short pedicles, long, slender, and moderately rough; the brow-tine making nearly a right angle with the beam, and the front tine of the terminal fork, which forms the continuation of the beam, much the longer. *Distribution*.—India and Ceylon.

Length on outside curve.	Circumfer- ence above the first point.	Tip to Tip.	Points.	Locality.	Owner.
-384	44	191	3+3	Asirgarh Jungle, Central Provinces	LieutCol. M. Cust.
38	44	18	3+3	East Berar	BrigGen. F. H. Whitby
38	41/2	22	4+4	?	Col. A. Pollock.
37½	3 ³ 4	19	3+3	Siwalik Hills	Capt. B. R. M. Glossop.
37½	41/2	24	5+4	?	F. Pope.
37½	41	248	4+4	Bassim, C.P	A. O. Hume.
371	41	167	4+5	?	Sir Victor Brooke's Collection.
361/2	41/2	25	4+3	Berar	C. H. Seely.
-36½	41/2	155	4+3	Nepal	A. E. Leatham.
-361/2	54	194	3+3	Central Provinces .	Capt. M. McNeill.
$-36\frac{1}{2}$		164	4+4	Do	Major J. H. Gwynne.
36	41	25‡	3+4	?	British Museum.
-36	5	15	4+3	Mysore	Capt. G. H. Evans.
36	45	21	4+3	?	Major James Grant.
-36	44	26	4+4	Sangor, C. P	LieutCol. R. W. Mapleton.
354	4	194	3+3	Central Provinces .	Major G. T. M. Bridges.
351/2	41	181	4+4	?	Sir Edmund G. Loder, Bart.
$35\frac{1}{2}$	4	$12\frac{1}{4}$	5+5	?	G. W. Hatch.
35‡	41/8	228	3+3	Western Ghats .	Major-Gen. Sir Arthur Ellis.
-35‡	4	21	4+4	?	James J. Harrison.
-35	$4\frac{1}{2}$			N. Kanara	Bombay Natural History Society.
35	41/2	204	4+3	Kota, Rajputana .	Major H. C. Morland.
-35		161/2		Mandla, Central Provinces	Capt. B. H. Boucher.
35	4	24‡	3+3	Nepal	Major G. Roos Keppel.
-34 ⁸	5#	12_{8}^{3}	4+4	N.W. Provinces .	Major E. M'K. Williams.
$-34\frac{1}{2}$		$22\frac{1}{2}$	3+3	Tapti Valley	J. D. Inverarity.
-34‡	3 \$			North Kanara .	LieutCol. L. L. Fenton.
$-31\frac{1}{2}$	34	17½	3+3	Ceylon	Count Scheibler.
3112	3	102	3+3	Do	A. R. Hay.
301/2	31/2	104	3+3	Do	Capt. F. H. Pym.



Head of Swamp-Deer. From a specimen in the possession of Mr. H. C. V. Hunter.

SWAMP-DEER (Cervus duvauceli).

This species belongs to the Rucervine group, in which the antlers resemble those of the Rusine section in the absence of the bez and trez tines, but have the beam regularly forked, and each branch again dividing, so that there are at least four tines. There is no gland

on the hind-leg, or only a vestige thereof. In the swamp-deer the antlers are smooth and flattened, with a long brow-tine rising almost at right angles to the beam, which is undivided for about half the total length of the antler, and then splits into a fork, each branch of which is usually simply forked, but sometimes divided in a more complicated manner. General colour bright rufous brown, often speckled near the back. Height at shoulder from 3 feet 8 inches to 3 feet 10 inches; weight about 717 lbs.

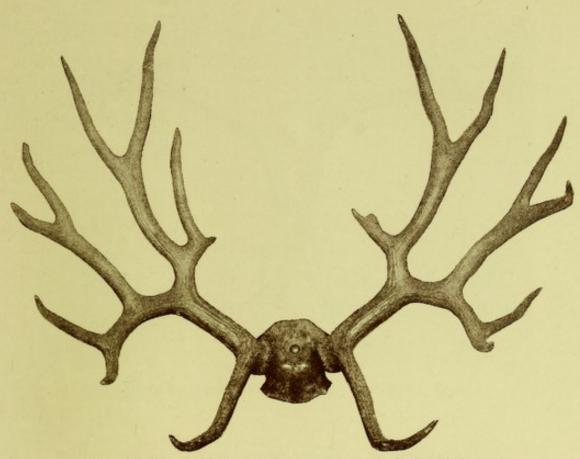
Distribution.—India, exclusive of Ceylon.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.		Owner.
41	61	351/2	38	8+5	Central Provinces .		Capt. W. W. Hancock.
41	543	32	374	8+7	Do		Major C. B. Wood.
41	51/2	(one a	ntler)	6+6	Do		Major C. S. Cumberland.
394	5	351	37½	5+6	Do		Do.
38‡	51/2	(shed	antlers)	6+5	Do		C. F. Egerton.
-38		43		6+6	Do		J. D. Inverarity.
-38				6+6	Do		Capt. B. H. Boucher.
$-37\frac{1}{2}$	***			6+6	Do		Major H. G. C. Swayne.
378	5‡	235	$28\frac{1}{2}$	7+6	?		Sir Edmund G. Loder, Bart.
361/2	5		20 (outside)	23	Mavella District .		Measured by Lieut, -Col. A. E.
36	5	294	338	6+5	Nepal		Ward, British Museum (B. H.
36	$4\frac{1}{2}$	47	47	6+6	Central Provinces .		Hodgson). Major C. B. Wood.
-36		29		6+6	Nepal		J. D. Inverarity.
-36	54	321/2		7+7	?		Major W. Anstruther Thom-
$-35\frac{1}{2}$					Chutia Nagpur .		son. Indian Museum.
-35½				7+6	Kheri District .		A. Wilson.
358	48	27	29 ³ / ₄	***	?		Sir Victor Brooke's Collection.
351	543	$22\frac{1}{4}$		7+6	Nepal		H. C. V. Hunter.
35	44	27½	301/2	5+5	Terai		Capt. E. B. Cook.
-344		33		12+8	Mymensing		F. B. Simson.
$-34\frac{1}{2}$	51/2	248	$28\frac{7}{8}$	6+5	Nepal		A. E. Leatham.
$34\frac{1}{2}$	45	103	28	9+6	Mandla, Cent. Provi	inces	Major A. G. W. Malet.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.		Owner.
$33\frac{1}{2}$	48	$28\frac{1}{2}$	321	5+5	N.W. Provinces		Major Chambers Didham.
327	5‡	$22\frac{3}{8}$	26g	6+5	Assam	4	A. O. Hume.
325	5	331	35	6 + 6	Nepal		Sir Robert Harvey, Bart.
324	5	$27\frac{1}{2}$		7+6	Cooch Behar .		LieutCol. Henry Streatfeild.
321	41	32	$33\frac{1}{2}$	5+5	Central Provinces		Major E. D. White.
321	51/8	195	$24\frac{1}{2}$	7 + 7	Nepal		H.R.H. the Duke of Saxe-Coburg and Gotha.
32	4	29	19	4+4	. ?		Sir H. D. Tichborne, Bart.
304	51/2	19	$24\tfrac{1}{2}$	8 + 8	?		J. Carr Saunders.



Head of Swamp-Deer Stag with antlers of an abnormal type. From the *Proceedings of the Zoological Society* for 1899.



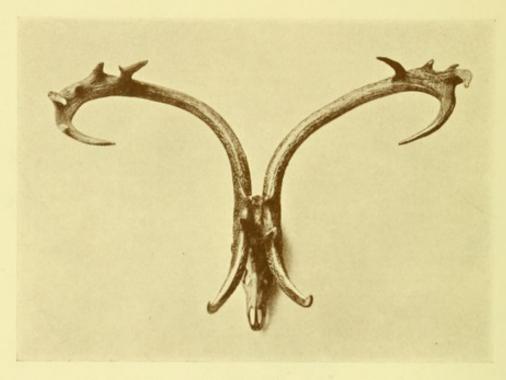
Antlers of Schomburgk's Deer. From a specimen in the British Museum.

SCHOMBURGK'S DEER (Cervus schomburgki).

Allied to the preceding, but the antlers smooth, rounded, and more complex; the brow-tine very long, frequently forked, and arising nearly at right angles to the beam, which is very short, compressed, and regularly forked, with each of the main branches about equally developed and again forking in a similar manner to terminate in long cylindrical tines. General colour uniform dark brown. Height at shoulder about 3 feet 5 inches.

Distribution.-The northern districts of Siam.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Owner.
-32½	51/8			12+11	Sir Edmund G. Loder, Bart.
301 291	5	155 288	33	10+10	British Museum.
294	4 ³	288	319	10+11	Do.
291	6	191	27	6+7	J. Carr Saunders.
29½ 28½	51	11	298	11+9	Sir Victor Brooke's Collection.
-28.5	5.25	9.5	28.5	10+9	Indian Museum.
201	4	171	20	6+6	Hon. Walter Rothschild.



Skull and Horns of Thamin. From a Burmese specimen.

THAMIN or ELD'S DEER (Cervus eldi).

Although belonging to the same group as the two preceding species, this deer is readily distinguished by the peculiar form of the antlers. These are rounded and rough, with a long curved brow-tine, forming a continuation of the curve of the beam, which is set at right angles to the pedicle; the beam unbranched for some distance, much curved, and finally forked, with the outer prong more subdivided than the inner. Height at shoulder about 4 feet 3 inches; weight from 210 lbs. to 245 lbs. There are three races of this species. First, the Burmese thamin (C. eldi typicus), ranging from near Manipur through Burma to the Malay Peninsula, in which the antlers are rounded throughout, and the coat is uniformly umber-brown. Secondly, the Manipur thamin (C. eldi cornipes), in which the under-surface of the fetlock is horny instead of hairy. Thirdly, the Siamese thamin (C. eldi platyceros), from Siam and Hainan, in which the tips of the antlers are flattened with a number of small snags, and the coat is redder, with vellowish spots. Swamp-deer from the Central Provinces show a remarkable approximation in the form of their antlers to the present species.

Length on outside curve, not including brow-tine.			Widest inside.	Points.	Length of brow- tine.	Locality.	Owner.
42	5	29	24	3+2		Burma	A. H. Collins.
-41	54	30	36	5+7		Do	Capt. G. H. Evans.
41	51/2	278	36	5+5		Upper Burma .	LieutCol. O. E. P. Lloyd.
401	5	301	364	6+5		7	C. B. Smales.
1 398	5	318	36§	20	15#	Siam	Sir Edmund G. Loder, Bart.
-391/2		$21\frac{1}{2}$	33	nall poin		Burma	LieutCol. H. de H. Haig-
-39	$7\frac{1}{2}$	$22\frac{1}{2}$	29	10+10	111	Manipur	Capt. H. S. Wood.
-39	5	41		5+5		Lower Burma .	W. O. Hannyngton.
$38\frac{7}{8}$	61	251/2	308	16+19		?	British Museum.
-381						Lower Burma .	R. C. E. Underwood.
381	61	24	304	6+5		Manipur	A. O. Hume.
38	48	291	36 ³	5+5		Pegu	G. R. Radmore.
38	$4\frac{1}{2}$	201	32	5+4		Burma	H. F. Hall.
-37 ³			***			Lower Burma .	C. W. A. Bruce.
$-37\frac{1}{2}$	5	154	26	5+5		Burma	H. A. Kelso.
37	5	234	311/2	4+4		Do	Major C. S. Cumberland.
36 8	44	16	27	4+4		Upper Burma .	L. E. Hopkins.
-36½	5‡	421/2		5+5		Pegu	B. Lentaigne.
- 361	51/2	221/2	28½	4+4		Sanaing	O. F. Wheeler-Cuffe.
36	$4\frac{1}{2}$	23	31	10+9	* ***	Burma	Capt. H. W. Marsden.
36	5	***		4+4		?	Duke of Bedford.
36	6	185	24½	8+8		Burma	Dr. Knocker.
35#	48	194	264	4+3		Do	Viscount Powerscourt.
35⅓	$4\frac{1}{2}$	$22\frac{1}{4}$	314	6+6		Kyaikto, Lower Burma	J. W. Clough.
-34½	5½	19	25½	5+5		Upper Burma .	Capt. W. K. Legge.
34½	$4\frac{1}{2}$	34	351	4+4		Do	R. Gordon Smith.
34 ¹ / ₈	5	24	321	6+6		Burma	Hon. Walter Rothschild.
34	58	231/2	29 ³	10+10		Do	J. Carr Saunders.
-34	51	20				Do	Major W. Anstruther Thomson.

 $^{^1}$ Measured on front of antler from highest tip to tip of frontal tine $56\frac{1}{2}$ inches.

THAMIN or ELD'S DEER (Cervus eldi)—continued.

Extreme length of right antler round the out- side curve, high- est point, to tip of brow tine.	Circum- ference.	Tip to Tip.	Widest span.	Number of points.	Loc	ality.		Owner.
-564	58	28	37	13	Burma	4		W. F. Loftus-Tottenham.
-55‡	$4\frac{1}{2}$	$34\frac{1}{2}$	421	12	Do.			Do.
-55	7	$28\frac{1}{2}$	$38\frac{1}{2}$	12	Do.			Capt. G. H. Evans.
-55	5#	30	37	15	Do.			Do.
-55	5		42	13	Do.	*		Do.
$-53\frac{1}{2}$	5½	***	38	16	Do.			W. F. Loftus-Tottenham.
-523	$4\frac{1}{2}$	248	364	12	Do.		+	Do.
-51½	5	***	331	7	Do.	*		Do.
-51	51/2	27	$37\frac{1}{2}$	10	Do.	٠,		Capt. G. H. Evans.
-50½	71	36	$39\frac{1}{2}$	14	Do.			Do.



Frontlet and Antlers of Indian Muntjac.

INDIAN MUNTJAC or BARKING DEER (Cervulus muntjac).

This species is the typical representative of a genus of small Oriental deer differing widely from all those included in Cervus. antlers, which do not usually exceed half the length of the head, have a short brow-tine and an unbranched beam, and are supported on long skin-covered pedicles, continued downwards as convergent ridges on the forehead, whence the name of rib-faced deer. Tufts of bristly hair occupy the position of the antlers in the females. The muzzle has a large naked portion, and although there is generally a pair of glands on the face, there are none either on the hock or the cannon-bone. The young are spotted, but the adults uniformly coloured. In the Indian muntjac, which is one of the reddish-coloured species, and whose range extends from Ceylon and India through Burma to China, the Malay Peninsula. Sumatra, and Java, the height at the shoulder varies from 20 to 22 inches. The Chinese muntjac (C. reevesi), from Southern China and Formosa, is a much smaller species, also reddish in colour; but in the rare Tenasserim muntjac (C. fea), and the larger but equally scarce hairy-fronted muntjac (C. crinifrons) of Eastern China, the general hue of the body is dark purplish sepia-brown, with white on the buttocks and under surface of the tail. The average height of the Indian species at the shoulder is about 26 inches, and weight about 28 lbs.; a female stands about 23 inches and weighs about 32 lbs.

Length on outside curve of antler from burr to tip.	Circumference above burr.	Tip to Tip.	Locality.	Owner.
-108	***	***	Java	H. Van Son.
$^{1}-9\frac{1}{2}$	41/2	5	Singapore	Sir Edmund G. Loder, Bart.
-85	34	61	Java	Dr. Albert von Stephani.
-88	4‡	45	India	W. H. Wilson.
1 7 5	$4\frac{1}{2}$	31/2	Lombok	Hon. Walter Rothschild.
$^{2}-7\frac{1}{2}$			Near Mussuri	LieutCol. A. E. Ward.
174	3‡	378	Lombok	Hon. Walter Rothschild.
-67	318	$2\frac{3}{4}$	Lushhi	Capt. A. Wilson.
-6^{3}_{4}	24	$2\frac{1}{2}$	Perak	Perak Museum,
63	$2\frac{1}{4}$	3	Ranikhet	Major B. W. C. Deeble.
65	21/4	3 1 8	Java	J. C. Van Son.
$-6\frac{1}{2}$			Do	H. Van Son.
61	25	3½	Nepal	British Museum (B. H. Hodgson).
$6\frac{1}{2}$	3	38	?	A. O. Hume.
$-6\frac{1}{2}$	$2\frac{1}{2}$	31/8	Namba Forest, Assam	Capt. H. S. Wood.
$-6\frac{1}{2}$	24	***	North of Mussuri .	Capt. Harry V. Brooke.
-6	28	44	Taroy, Burma	Capt. G. H. Evans.
54	3	4	?	R. S. Routh.
$-5\frac{1}{2}$?	Indian Museum.
51/2	31/2	2 ½	Assam	A. H. Straker.
	1	Determination p	provisional. 2 Wei	ght 37 lbs.

TIBETAN MUNTJAC (Cervulus lachrymans).

Nearly allied to the last, but smaller.

Length on out- side curve of longest antler.	Circumference.	Tip to Tip.	L	ocality.		Owner.		
$2\frac{1}{2}$	I 5	3	Ningpo				British Museum (R. Swinhoe).	
$-2\frac{1}{2}$	I ½	31/4	Do.				Dublin Museum.	



Head of Hairy-fronted Muntjac.

HAIRY-FRONTED MUNTJAC (Cervulus crinifrons).

Length on out- side curve of longest antler.	Circumference.	Tip to Tip.		Locality.		Owner.		
$I^{\frac{1}{2}}$		$4\frac{1}{2}$	Ningpo				British Museum.	

TENASSERIM MUNTJAC (Cervulus feæ).

Antlers about two inches long.

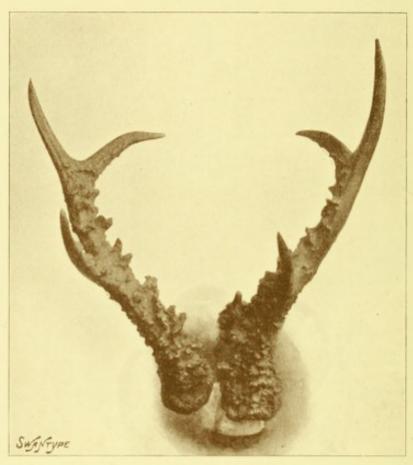
EUROPEAN ROE (Capreolus vulgaris).

Roe may be recognised by the rudimentary tail, and the medium-sized antlers rising close together and almost vertically from the head, without a brow-tine, and regularly forking at a point about two-thirds the total length, with the posterior prong again subdividing, so that the number of points is usually three. There is no gland and tuft on the hock, but one on the upper part of the outer side of the hind cannon-bone. In the European roe the height at the shoulder is about 26 inches. In winter the coat is dark speckly brown with a large white rump-patch, but in summer foxy red, with little or no white behind. The range embraces the greater part of Europe as far as the Caucasus, and probably Asia Minor.

Length on outside curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.
13	4	$14\frac{1}{2}$	Germany .			Viscount Powerscourt.
13	4	$14\frac{1}{2}$	Do.			Do.
13	$3\frac{1}{2}$	104	Do	.9		Do.
-13	61/2	$8\frac{1}{2}$	Do	+		H.R.H. the Duke of Saxe-Coburg and Gotha.
-13	7	10	Do			Do.
-13	$6\frac{1}{2}$	8	Do			Do.
124	3	$8\frac{1}{2}$	Do			Viscount Powerscourt.
121	4	$9\frac{1}{2}$	Do			Do.
121	44	9	Servia			Do.
$-12\frac{1}{8}$	34	$4\frac{1}{2}$	Austria		18	Capt. John Marriott.
1 -12 $\frac{1}{8}$			Perthshire .			R. Moncrieff.
-12-11	6-12	5.4	Hungary .			Count Wenkheim.
115	***	6	Monymusk, N.B.			Sir Arthur Grant, Bart.
$^211\frac{1}{2}$	4.1		Orton, Speyside		4	Sir G. Macpherson Grant, Bart.
111	3	83	Germany .			Viscount Powerscourt.
$-11\frac{1}{4}$	6	6	Perth			J. G. Millais.
111	$4\frac{1}{2}$	81	Servia			Viscount Powerscourt.
$-11\frac{1}{8}$	43	***	Scotland			Duke of Bedford.
$-11\frac{1}{8}$	$4\frac{1}{2}$		(Single antler du	g up)		J. G. Millais.
11	74	447	Ross-shire .		4	H. M. Warrand.
-11		74	Aberdeenshire	10		Col. Gordon Cumming.
11	516	$7\frac{1}{2}$	Ross-shire .			H. M. Warrand.
11	38	84	Germany .			Viscount Powerscourt.
11	7 1 8	67	Sligo, Ireland.			Sir Henry Gore Booth, Bart.
11	31/2	6½	Ballindalloch .			G. B. Macpherson Grant.
$-10\frac{1}{2}$	$3\frac{1}{2}$	$3\frac{1}{2}$	Bohemia .			H.S.H. Prince Alexander of Thurn and Taxis.
102	***		Beaufort, Ross-sh	ire		
102	$6\frac{1}{2}$	6	Ballindalloch .	40		Sir G. Macpherson Grant, Bart.
101	$3\frac{1}{2}$	54	Inverness .	4		C. Macpherson Grant.

¹ and 2 Recorded by J. G. Millais (British Deer and their Horns). 3 Abnormal (Peraque).

Length on outside curve.	Circum- ference.	Tip to Tip.	Locality		Owner.	
102	4	61	Austria			H.R.H. le Duc d'Orléans.
91	5	5	Dorset			J. E. Harting.
93	81		Sligo, Ireland			Sir Henry Gore Booth.
-93	31/4	5	Spain			Abel Chapman.
-84	3	6^{3}_{4}	Do			Do.
81/2	3	$4\frac{1}{2}$	France	19	-	British Museum.



Antlers of Siberian Roe. From a photo. lent by Mr. Carl Hagenbeck.

SIBERIAN ROE (Capreolus pygargus).

Larger than the last, the height at the shoulder varying from 28 to 34 inches; the ears shorter and more hairy, the white rump-patch larger, and the antlers longer and more rugose with numerous nodose snags.

Mr. St. George Littledale says the specimens he observed barked like a "barking deer."

Distribution.—From the Altai and mountains of Turkestan to Eastern Siberia, and probably the Caspian provinces of Persia.

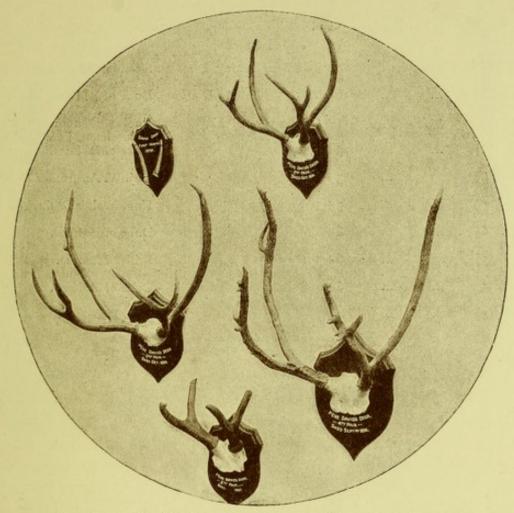
Length on outside curve.	Circum- ference.	Tip to Tip.	Locality.	Owner,
-18^{-9}_{16}	163	***	?	Carl Hagenbeck.
16	$4\frac{1}{2}$	12	?	Viscount Powerscourt.
154	41/3	131	Thian Shan	J. V. Phelps.

¹ Circumference of burr.

Bart.
L
homson.
sfeld.
ns.



Skull and Antlers of Siberian Roe shot by Mr. St. George Littledale.



Antlers of Père David's Milou Deer. From specimens at Woburn Abbey.

PÈRE DAVID'S MILOU DEER (Elaphurus davidianus).

This remarkable deer differs from all the preceding, except the elk and roes, by the absence of a brow-tine to the antlers, which are large and branching, the beam forking at a comparatively short distance above the burr, and the front prong of the fork again dividing, while the hind prong is long and straight. The bushy tail is longer than in any other deer, and the neck of the male is maned. There is a gland on the outer side of the upper half of the hind cannon-bone, but none on the hock. In the adult the colour is uniformly tawny, but spotted in the young. Height at shoulder about 3 feet 9 inches. In captivity, at any rate, the antlers are shed twice a year.

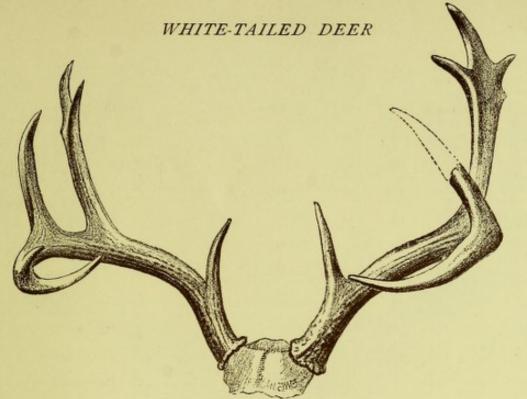
Distribution.—Northern China or (?) Kashgaria; unknown in the wild state, and apparently now represented only by specimens in Europe, of which the great majority are at Woburn Abbey.

	Circum- ference.		Widest inside.	Points.	Locality.	Owner.
$32\frac{7}{8}$	68	13§	181	8+8	Near Peking .	Sir Edmund G. Loder, Bart.
1 32	$7\frac{1}{2}$			10+8	?	Duke of Bedford.
-304	5	3516	3516	11+10	Imperial Park, Peking	Paris Museum (Type Specimen, Père David).
$29\frac{1}{2}$	54	***		5+5	?	Duke of Bedford.
-291	68	29		3+2	?	Maj. W. Anstruther Thomson.
$28\frac{1}{4}$	58	26½	***	3 ± 3	?	Hon. Walter Rothschild.
281	$6\frac{1}{2}$	***	***	8+8	?	Duke of Bedford.
27	5 =	204		6+5	?	British Museum.
² 25	5		***	6+4	Bred in England	Duke of Bedford.
22	48			4+3	Do	Do.

 $^{^{1}}$ Back tine of this head measures $_{3}z_{2}^{1}$ inches. 2 Back point of this head measured 28 inches from beam of antler.



Head of Mexican White-tailed Deer in the Collection of Major W. Anstruther Thomson.



Antlers of Virginian White-tailed Deer. From a specimen in the British Museum.

WHITE-TAILED DEER (Mazama americana).

With the exception of the wapiti, all the deer of America are distinguished from those of the Old World, save the elk, roe, and milou deer, by the absence of a brow-tine to the antlers, which are either regularly forked or spike-like, and quite different from those of either the roe or milou deer. In the white-tailed deer they are large and complex, with a long sub-basal snag, and the front prong of the main fork developed at the expense of the hinder, and carrying a number of snags on its upper surface. Tail long. A gland-tuft on the hock, and a small cylindrical white one with a black centre near the lower end of the hind cannon-bone. Colour of upper parts chestnut in summer and bluish gray in winter, with the under surface of the tail and the buttocks pure Typically from Eastern North America, where the height at the shoulder reaches to 3 feet 1 inch, but represented by numerous races in other parts of the continent, which gradually decrease in size and complexity of antlers towards the south, where they extend to Peru, Bolivia, and Guiana. Weight of a specimen of the typical race shot by Mr. Selous, 12 st. 7 lbs.

Mazama, it may be observed, is the oldest name for the American deer, and must be employed if they are all included in one genus. If they are split up, Mazama is the title for the brockets, while the white tail and its allies should be called Dorcelaphus—the name Odocoilus, used by American writers, having several things against it.

Length on outside curve.		Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
27 \$	58	Single antler		16	N. America	British Museum.
27 1	48	141	19	6+6	Do	Do.
263	43	91	20	20	Do	Major James Grant.
26‡	$5\frac{1}{2}$	$4\frac{3}{4}$	17‡	13+13	Ontario	W. S. Browne.
254	$4\frac{1}{2}$	9	19	11	Maine	H. S. Wellcome.
258	48	108	19	15+13	Texas	Capt. F. Cookson.
25‡	44	127	178	11+9	N. America	British Museum.
25	5	67	19	6+5	E. Kootenay, B.C.	Col. A. Charlesworth.
$24\frac{1}{2}$	$4\frac{1}{2}$	128	$18\frac{1}{2}$	6+6	?	J. Carr Saunders.
$24\frac{1}{2}$	41	1118	191	6+6	?	British Museum.
-24	49	1 192		18	Nebraska	G. B. Grinnell.
$-23\frac{3}{4}$	6	12	164	5+4	Wyoming	James J. Harrison.
$-23\frac{1}{2}$	48	$4\frac{7}{8}$	141	7+10	Nebraska	Dr. Albert von Stephani.
23	5	5	16	6+6	B. Columbia	J. Turner-Turner.
$-22\frac{1}{2}$	4	1 $15\frac{3}{4}$		12	Medora, N.D	President Roosevelt.
$21\frac{1}{2}$	34	3‡	131	4+4	New York State	Sir Edmund G. Loder, Bart.
21	4	12	17	4+4	Wyoming	F. C. Selous.
192	$3\frac{1}{2}$	121/2	151	5+5	B. Columbia	T. P. Kempson.
173	$4\frac{3}{4}$			27 + 25	Do	Moreton Frewen.
1 ♀ 12‡	4	8		3+3	Do	J. Turner-Turner.
					¹ Spread.	

MEXICAN WHITE-TAIL (Mazama americana mexicana).

One of the smaller races of the preceding, the height at the shoulder being about 2 feet 9 inches, and the antlers smaller and simpler.

Distribution.—South Mexico.

Length on out- side curve.	Circum- ference.	Tip to	Widest inside.	Points.	D	ocali	ty.		Owner.
-14	$3\frac{1}{2}$	9	444	414	Mexico		-		Major W. Anstruther Thomson.
135	38	6%	11_4^3	3+3	Do.			4	British Museum.
81	$3\frac{1}{2}$	6	$6\frac{1}{2}$	3+3	Do.				Sir Edmund G. Loder, Bart.
81	21/8	44	6§	3+4	Do.				Sir Victor Brooke's Collection.



Head of Mule-Deer. From a specimen in the possession of Mr. E. S. Cameron.

MULE-DEER (Mazama hemionus).

Antlers with a much shorter sub-basal snag than in the white-tailed deer, beyond which the beam is directed outwards for a short distance, and then curves upwards to form a regular fork, both prongs of which are usually equal, and generally subdivide so as to form five points on each side. Ears very large and heavy; tail short and small, with a black tip. Gland-tufts on hock and cannon-bone coloured like the leg; the latter of these elongated and situated in the upper half of the cannon-bone. General colour of upper-parts reddish tawny in summer, brownish or rufous speckled gray in winter, with a brown

horse-shoe mark on the forehead. Height at the shoulder, 3 feet 3 or 4 inches in the typical form. Weight (exceptional), 17 stone 2 lbs. (F. C. Selous).

Distribution.—The greater part of North America westward of the Missouri, extending from British Columbia to California. There are several local races, among which the South Californian (M. hemionus peninsulæ) is one of the smallest.

	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.		Owner,
-32	6	26		21+19	Wyoming .		C. R. F. Lutwidge.
308	543	18^{3}_{4}	$24\frac{1}{2}$	5+5	?		W. Moat.
30	54	***	41	17	White River, Colorado		H. A. James.
-29	6½	29⅓	***	8+6	Montana .		E. S. Cameron. (See illustration.)
28§	41/2	13‡	174	5+5	Wyoming .		Ford G. Barclay.
281	5	183	21	6+4	British Columbia		J. McI. M'Iver Campbell,
$28\frac{1}{2}$			241/2		White River .		Major Maitland Kirwan.
28	41	221	244	6+6	Wyoming .		H. A. C. Darley.
27	54	19½	215	6+5	North America		Sir Edmund G. Loder, Bart.
27	51	19½	224	5+5	British Columbia		D. H. Crake,
$-26\frac{7}{8}$	5	***	***	28	North Dakota .		President Roosevelt.
$-26\frac{3}{4}$	41	***	444	5+5	Wyoming .		Capt. M. M'Neill.
263	47	19§	20½	5+5	Wyoming .		Ernest Farquhar.
261	5	151	181	6+5	British Columbia		T. P. Kempson.
261	54		$17\frac{1}{2}$	12	Wyoming .		Hon. F. Thellusson.
26½	$4\frac{1}{8}$	15%	$22\frac{7}{8}$	6+6	Do		Capt. F. Cookson.
26	$4\frac{1}{2}$	20	214	7+5	Do		The Maclaine of Lochbuie.
26	5	15‡	191	4+4	British Columbia		J. V. Colby.
251/2	5½		$21\frac{1}{2}$	8	Do.		Sir Peter Walker, Bart.
$25\frac{1}{2}$	41	27	29	5+5	Wyoming .		Capt, G. J. Fitzgerald.
258	41/8	19	20	5+5	Do	4	A. H. Pollen.
25	5‡	278	278	16+13	Montana .		Moreton Frewen.
25	5	204	24	5+5	Wyoming .		J. L. Scarlett.
25	5	10	163	5+4	Do		F. C. Selous.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality		Owner.
-24 ⁷ / ₈	5	201		6+6	Wyoming		Dr. Albert von Stephani.
$24\frac{1}{2}$	51/2		25	10	Do.		T. W. H. Clarke.
$24\frac{1}{2}$	5	134		3+3	British Colun	nbia	H. S. Beall.
24	41	224	24	10	?		T. P. A. Holford,
24	51/2	$24\frac{1}{2}$	$24\frac{1}{2}$	5+5	British Colun	nbia	W. Neilson.
24	41	191	$25\frac{1}{2}$	5+5	Wyoming		Capt. J. M'Call Maxwell.
-24	$4\frac{1}{2}$	154	$19\frac{1}{2}$	5+5	Do.		Count E. Hoyos,
22	$4\frac{1}{2}$	181	24	5+4	NW. Nevada		J. Turner-Turner.



Abnormal head of Mule-Deer from British Columbia, in the possession of Mr. J. Turner-Turner.

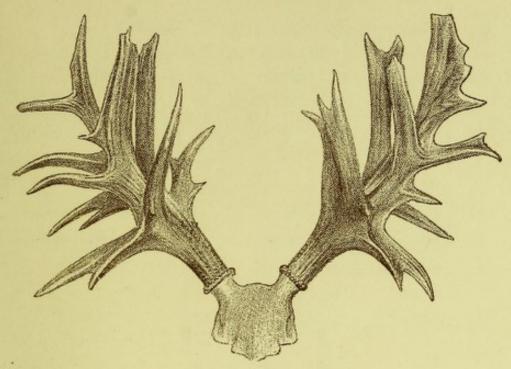
BLACK-TAILED DEER (Mazama columbiana).

Nearly allied to the mule-deer, but of inferior size, with relatively smaller ears and finer hair; but specially characterised by the shorter gland and tuft on the hind cannon-bone, and the larger and longer tail, of which the upper surface is black and the lower white.

Distribution.—Western North America, from Fort George, British Columbia, to California.

	Circum- ference.		Widest inside.	Points.	Locality.	Owner.
27 ³	6	154	19‡	9+6	British Columbia	G. Wrey.
-22	4‡		1 22		Vancouver .	Clive Phillipps-Wolley.
-21	5	151	15	5+5	N.E. California	H. C. Nelson.
$-20\frac{1}{4}$	5	17	17	5+7	Do.	A. E. Leatham.
-192	5#		21	5+5	?	Sir W. Gordon Cumming,
191	41/4	14	161	3+3	S. California .	Bart. Sir Victor Brooke's Collection.

¹ Outside.



Abnormal Marsh-Deer Antlers.

MARSH-DEER (Mazama dichotoma).

Antlers without a sub-basal snag, forking regularly, with both prongs again dividing, and the upper one usually more complex than the lower. Ears large, with white hair internally. Hair long and coarse, reversed on the withers for a short distance. General colour of upper-parts bright rufous chestnut in summer, browner in winter; legs black from the knees and hocks downward. No gland on hind cannon-bone. Size, approximately that of a red deer. Although ten is the usual number of points, sports are common.

Distribution.—From Brazil to the inner wooded districts of Argentina.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality	y.	Owner.
-25 ¹ / ₈	5	221		6+7	Paraguay		Dr. Albert von Stephani.
25	5½	183	211	5+4	Do.		Hon. Walter Rothschild.
$24\frac{1}{2}$	5	16	18	5+5	Chaco of Par	raguay	Admiral Sir William Kennedy.
$23\frac{1}{2}$	67	26	25	5+5	?		Sir Edmund G. Loder, Bart.
238	- 5 1	154	164	5+4	S. America		British Museum.
234	6		192	12	Do.		G. R. Stuart.
22 ⁵ ₈	6‡	20	$20\frac{1}{2}$	5+5	Brazil .		Sir Victor Brooke's Collection.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Localit	у.		Owner.		
$-22\frac{1}{2}$	$7\frac{1}{2}$		15‡	6+6	Argentina			Kenyon Slaney.		
228	$5\frac{1}{2}$	25		28	Do.			A. Vans-Agnew.		
$21\frac{1}{2}$	5½	22	161	6+6	Paraguay		4	S. Pulley.		
$21\tfrac{1}{2}$	5	123	16	5+5	Do			Admiral Sir William Kennedy.		
$-21\frac{1}{8}$		194		6+5	Entre Rios			T. Taylor.		
20	$5\frac{1}{2}$	20		4+4	Paraguay			Count Henry Coudenhove.		
-20	68	19‡	184	4+4	Uruguay.			Staff-Surgeon J. Dowson, R.N.		
198	6	201	20	3+3	Paraguay	-		R. A. Cooper.		



Side view of Antlers of Marsh-Deer. From a specimen in the British Museum.

PAMPAS DEER (Mazama bezoartica).

A small deer nearly allied to the last, but with the front prong of the antlers simple, and the hinder one divided. A whorl in the hair on the middle of the back and another at the base of the neck, so that the fur of the withers is directed forwards for a considerable distance. Colour of upper-parts light reddish brown, under-parts and lower surface of tail white; upper surface of latter black. Height at shoulder, 2 ft. 6 in.

Distribution.—Brazil to Northern Patagonia, in open districts.

Length on outside curve.	Circum- ference.	Tip to Tip.	Points.	Locality.	Owner.
149	28	131	3+3	Argentina	British Museum.
142	3	- 103	3+3	Do	E. M. Crosfield.
144	3	11	3+3	?	Sir Edmund G. Loder, Bart.
14	44	$11\frac{1}{4}$	3+3	Paraguay .	Admiral Sir William Kennedy.
131	44	8	3+3	Do	R. A. Cooper.
13	21/2	128	3+3	?	W. Livingstone Learmonth.
-13	2 4	11	3+3	?	J. Whitaker.
$-12\frac{1}{2}$	31/2	7	12+11	Uruguay .	J. Burnett.
121	21/8	81	3+3	? .	Sir Victor Brooke's Collection.
1118	3 7 8	134	3+3	?	British Museum (Charles Darwin).
10%	3	818	3+3	Patagonia	Dr. Albert von Stephani.
10	21	1218	3+3	Argentina	Count Henry Coudenhove.
71/2	24	51/2	3+3	?	Duke of Bedford.

PERUVIAN GUEMAL (Mazama antisiensis).

Together with the closely allied Chilian guemal (*M. bisulca*), this species constitutes a group characterised by the antlers forming a single fork. There is no gland-tuft on the hind cannon-bone, the short tail is rather bushy, and the hair coarse and brittle.

Distribution.—The high Andes, from Peru to Northern Chili.

Length on outside curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
10	35	8	Ecuador	Hon. Walter Rothschild.
91/2	75	45	Tinta, South Peru	British Museum (H. Whitely).
98	2½	81	Ceuchepate, Peru (11,000 ft.)	Do.

WOOD-BROCKET (Mazama nemorivaga).

The brockets are some of the smallest deer included in the genus *Mazama*, of which they are the typical representatives.¹ They are recognisable by their simple spike-like antlers, the tufted crown of the head, and the radiation of the hair of the face from two whorls, which causes that on the nose to be directed downwards. The present species is distinguished by its small size (height at shoulder about 19 inches), its pale pepper-and-salt brownish or gray colour, the streak on the forehead, and the absence of a gland and tuft on the hock.

Distribution.—Guiana, Colombia, Bolivia, Brazil, and Trinidad.

Length on front of horn.	Girth.	Tip to Tip.		Locality.				Owner.
$-4\frac{5}{8}$	3 3	4	Trinidad					Dr. Percy Rendall.
-3	21	2	Do.					Dr. Albert von Stephani.

MUSK-DEER (Moschus moschiferus).

From all living deer except the Chinese water-deer this species is distinguished by the absence of antlers, whose function as weapons is discharged in the male by long upper tusks. The tail is rudimentary, the fur coarse and brittle, and the lateral hoofs are very large. The males have a glandular pouch which secretes the musk from which the species takes its name. Height at shoulder about 20 inches, at rump 22 inches.

Distribution.—The forest districts of the Himalaya as far west as Gilgit, at elevations of 8000 feet or more in summer, to Tibet, Siberia, Western China, and Amurland.

Length of Tusk on outside curve.		Local	ity.		Owner.					
$-3\frac{1}{2}$	Himalaya					Major W. Anstruther Thomson.				
- 3	Gurhwal			4		A. O. Hume.				
3	Amurland					British Museum.				
2 4	Himalaya					Rowland Ward.				
$2\frac{11}{16}$	Do.				-	Dr. Percy Rendall.				
21/4	Kashmir					Sir Edmund G. Loder, Bart.				
21/8	Do.					Major A. Nugent.				

Many naturalists include only the brockets in this genus; taking the name Odocoilus, or Dorcelaphus for the white-tail and its allies (see p. 99).



Skull of Northern Blotched Giraffe. From De Winton, Proc. Zool. Soc. 1897.

BLOTCHED GIRAFFE (Giraffa camelopardalis).

Ihuhla of the Swazis.
Indhlulamiti of the Zulus.
Tuthla of the Basutos.
Luomba ningo of the Chilala.

Ngabe of the Masawaras. Giri or Halgiri of the Somalis. Kameel of the Boers. Nyama marakiti of the Asenga.

The long limbs and neck, the peculiarly-formed head, and the dappled or netted hide, render giraffes distinguishable at a glance from all other living ruminants; with none of which, except the okapi, they have any very close affinity, although their nearest relatives are the deer. So great is their distinctness that, with the okapi, they constitute a family by themselves—the Giraffidæ. One of the most marked peculiarities of the giraffes is to be found in the horns. The largest pair arise from the head between the ears, and are covered during life with skin. They are never shed; and in the adult are immovably united to the bones of the skull, although separate in young animals. In addition to these, there is a more or less distinct third horn, or boss, situated on the forehead between the eyes, as well as a rudimentary pair at the back of the head, or occiput. Giraffes have a long, extensile tongue, hairy lips, and broad, low-crowned cheek teeth. There are no tusks in the upper jaw; and the lateral hoofs are wanting.

There are at least two races of the species. In the northern race (G. camelopardalis typica) the front horn is well developed, measuring from three to five inches in height in old bulls.

In the southern giraffe (G. camelopardalis capensis) the front horn, even in old bulls, is so reduced in size as scarcely to merit that name at all. Within the last half century this race ranged from the Orange to the Zambesi rivers. Northward of this latter river on the eastern half of the continent, at least, no giraffe is found for about 12 degrees; but north of the Rufizi river they again appear and continue through German East Africa, reaching westward to Lake Tanganyika, and occurring east of the Mau escarpment and south of the Tana river in British East Africa. The giraffes of Nyasaland and Kilimanjaro have received separate names and may indicate distinct races.



Head of Northern Blotched Giraffe obtained in the Uganda Protectorate by Sir H. Johnston, and now in the British Museum. The development of the hindmost horns is very marked.

Northern Race.

Total height.		At shoulder.	Locality.		Owner.		
ft. -17	ins.	ft. ins.	British East Africa				P. H. G. Powell-Cotton.
-16	0		Central East Africa				A. H. Neumann.
9-13	10	8 9½	British East Africa				British Museum (P. H. G. Powell-Cotton).

Southern Race.

Total height.	At shoulder.	Locality.	Owner.
ft. ins. -18 7	ft. ins.	South-East Africa .	F. Vaughan Kirby.
18 4		Angola	Hon. Walter Rothschild.
-18 o	12 0	South Africa	The late Sir W. Cornwallis Harris.
-17 6	Average height	South-East Africa .	F. Vaughan Kirby.
ð 17 O		W. Matabililand .	F. C. Selous.
8 16 6		N. Kalahari	Do.
-915 6 to 16 0	Average height	South-East Africa .	F. Vaughan Kirby.

THE SOMALI GIRAFFE (Giraffa reticulata).

The Somali giraffe (for which the name netted giraffe would be appropriate, were it not that it has a double signification) may be described as a dull, red-coloured animal with a coarse network of narrow white lines dividing the ground-colour into a number of large, irregularly quadrangular and sharply defined patches. The head and upper part of the neck are, however, spotted, while the ears and the legs from the knees and hocks downwards are white. In old bulls the five horns are well developed, although the hinder pair are somewhat less conspicuous than in the northern race of the blotched species.

Apparently this type of coloration is specially adapted for rendering the animal inconspicuous when in covert.



Head of Male Prong-horn.

PRONG-HORN (Antilocapra americana).

Although commonly termed an antelope, this animal differs from all the members of the *Bovidæ* by the forking of the horns. These are annually shed from their bony sheaths and replaced by a new pair, which commence to grow up beneath the old ones before they are cast off. In consequence of this difference the species represents a family (*Antilocapridæ*) by itself. Horns generally absent in the female. Ears long and pointed, tail short, and neck maned. General colour chestnut, with a white rump-patch, and white bars on the throat. Height at shoulder, 36 inches; weight, 70 to 80 lbs. clean.

Distribution.—Western United States, from British Columbia to Mexico.

Length on outside curve.	Circum- ference.			I	ocalit	y-		Owner.
$-17\frac{1}{4}$	61/2		9	N.W. Canada				J. Whitaker.
-17			20 outside		?			Otho Shaw.
-16	$6\frac{1}{2}$	***	outside	N. Dakota				President Roosevelt.
154	64	5%	***	Wyoming .				St. George Littledale.

Length on outside curve.	Circum- ference.		Widest inside.	Locality.	Owner.
154	6‡	83		Wyoming	P. B. Vander-Byl.
-I5 ³	51/8		20 outside	?	Otho Shaw.
-I5§	6	278	···	Teton Mountains	H. Lennard.
152	4 ¹ / ₂	$9\frac{1}{2}$		Wyoming	W. R. Cookson.
-151	5#	61		Do	Count E. Hoyos.
1518	$6\frac{1}{4}$	75		?	Col. Ralph Vivian.
15	6			Wyoming	H.R.H. le Duc D'Orléans.
15	55	5₹	101	Do	St. George Littledale.
15	58	74		Do	Isaac Bell.
148	5	51		New Mexico	Capt. F. Cookson.
142	53	12		?	C. F. Bengough.
142			$12\frac{1}{2}$	Wyoming	T. W. H. Clarke.
$14\frac{1}{2}$	6	***	$9\frac{1}{2}$	Laramie Plains, Wyoming.	F. G. Barclay.
142	65	54		Wyoming	LieutCol. Hon. W. Coke.
141	6	6		Alberta	F. I. Mitchell.
$-14\frac{1}{2}$	54	158		Colorado	Rev. Dr. R. J. Nevin.
144	58	64	10	Wyoming	Count Scheibler.
14‡	6	2§		?	Sir Victor Brooke's Collection.
141	7	44		?	J. McI. M'Iver Campbell.
141	51	54		Wyoming	Capt. A. J. Carstairs.



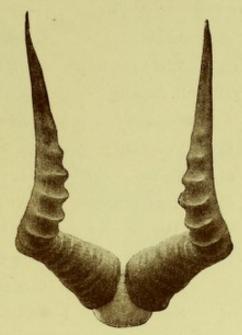
Horns of Bubal Hartebeest. From Mr. Julius Jeppe's specimen.

BUBAL HARTEBEEST (Bubalis boselaphus).

This species brings us to the great family of hollow-horned ruminants, or *Bovidæ*, in which the horns are in the form of unbranched hollow sheaths, which are not shed in the adult, and are supported on bony cores. The hartebeests are large antelopes with naked muzzles, abnormally long faces, doubly curved horns, small face-glands, large valvular nostrils (of which the lower lids are covered with short hairs), long, tufted tails, and large lateral hoofs. Both sexes are horned. The present species is the smallest of the group, standing only 43 inches at the shoulder. It has a short pedicle supporting the horns, which are in the form of the letter U, and the colour is uniform tawny, with the tail-tuft black.

Distribution.—Northern Africa (interior of Morocco, Algeria, and Tunisia) and Arabia.

Length on front curve.	Circum- ference,	Tip to Tip.	Locality.					Owner.
141	8 <u>§</u>	98	North Africa		,			British Museum.
148	63	$9^{\frac{3}{4}}$		2				Col. Ralph Vivian.
134	94	91	Tunisia .					Julius Jeppe.
131	7	5‡	North Africa	. "				British Museum.



Horns of West African Hartebeest. Shot by Major J. W. Carroll.

WEST AFRICAN HARTEBEEST (Bubalis major).

Kanki of the Hausas.

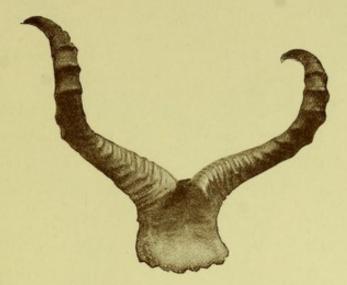
Apparently related to the preceding species, but larger, with more massive horns, which are more bent near the middle, and have long, smooth tips. Body said to be of a uniform grayish brown, face deep brown, the fore-legs streaked with dark brown or blackish from the knees downwards, and the tail-tuft black.

Distribution.—Gambia, Lower Nigeria, and the interior of the Cameroons.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
25½	113	121/2	Nigeria	Capt. P. A. Clive.
258	124	111	Yauri, Hausa States	Major J. W. Carroll. (See illustra-
25‡	123	138	Near Borgu	Capt. N. C. Welch.
25	113	10‡	Benue River	Julius Jeppe.
241	114	16	Nigeria	Do.
24	1112	131	Do	S. B. B. Dyer.
24	121	81/2	Do	G. F. Lobb.
24	11	103	Do	Capt. W. D. Wright.
231/2	12	9	Do	LieutCol. P. S. Wilkinson.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
$23\frac{1}{2}$	12	41/4	Ashanti	C. Beddington.
231/2	12	132	N. of Benue River .	W. H. Broun.
234	$12\frac{1}{4}$	14	N. Nigeria	Capt. D. F. MacCarthy Morrogh.
-23.5	12.5	6	Togoland	Berlin Museum.
23	$12\frac{1}{4}$	94	Niger Sudan	Hon. Walter Rothschild.
23	$II\frac{1}{2}$	9‡	Nigeria	A. A. Smith.
23	12	9½	Do	Capt. H. A. Porter.
23	12	7	Do	N. F. Bayne.
22 ⁸ ₄	13	7	Do	Major R. H. Beddoes.
221	121	6	Jebba, Nigeria .	Capt. G. H. F. Abadie.
221	13	144	Nigeria	Capt. J. F. Loder-Symonds.
-22	12	918	Do	P. C. Keytel.
22	11	19‡ malformed	Ibi, Nigeria	Major A. H. Festing.
217	12	12½	Jebba, Nigeria .	Major H. M. Cowper.
$^{1}21\frac{1}{2}$	$12\frac{1}{4}$		Lokoja	Capt. C. A. Wilding.
2112	91/2	81	Nigeria	Capt. Hon. C. J. Coventry.
2114	12	124	Gambia	H. L. Stephen.
$-21\frac{1}{4}$	11	918	Do	Paris Museum.
ŷ 20	95	6	Lokoja	The late Capt. A. W. M. Brodie.
₹ 194	9	61/2	Do	F. H. Barber.
194	112	63	Gambia	H. C. Goddard.
₹ 194	81/2	4	Jebba, Nigeria .	Capt. G. H. F. Abadie.
♀ 19½	9	$4\frac{1}{2}$	Lokoja	LieutCol. P. S. Wilkinson.
9 19⅓	81/2	114	Nigeria	A. G. Williams.

¹ Height at shoulder, 54 inches.



Frontlet and Horns of Tora Hartebeest. Shot by Lieut.-Col. Hon. W. Coke.

TORA HARTEBEEST (Bubalis tora).

Native name, Worobo.

Horn-pedicle of medium length, the horns themselves in the form of an inverted bracket (——). Height at shoulder about 48 inches. Colour uniformly pale tawny fulvous, with the exception of the tail-tuft and chin, which are black. Although of the same uniform colour, this species is easily distinguished from B. boselaphus by its superior size, higher gait, and differently shaped horns. Weight about 400 lbs.

Distribution.—Abyssinia and south portion of Blue Nile.

Length on front curve.	Circum- ference.	Tip to Tip.		Locality.			Owner.		
$22\frac{1}{2}$	9	228	Sudan				Carl Hagenbeck.		
21	9	191	Do.				LieutCol. Hon. W. Coke. (See illustration.)		
20 ⁷ / ₈	91	$14\frac{1}{2}$	Do.				Hon. Walter Rothschild.		
207	$9\frac{1}{2}$	134	Do.				Sir Edmund G. Loder, Bart.		
201	104	17	Do.			¥	Julius Jeppe.		
20	$10\frac{3}{4}$	163	Do.				Capt. H. H. S. Morant.		
20	98	155	Do.				British Museum.		
20	$9\frac{1}{2}$	143	Lake Z	uay,	Abys	ssinia	Prince de Lucinge.		
193	9	161	Dombe	las,	Abyss	sinia	British Museum.		

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
19§	108	125	Abyssinia .		P. H. G. Powell Cotton.
19½	98	115	Do		Do.
194	9	134	Do.		Sir Victor Brooke's Collection.
19	94	113	Abyssinian Sudan		Prince Colloredo Mannsfeld.
-184	10	17½	Sudan		Sir W. Gordon Cumming, Bart
181	83	151	Do		Col. Ralph Vivian.
18½	***	1616	Upper Basalam Abyssinia	River,	J. Menges.
17	$9\frac{1}{2}$	131/2	Settite River .		W. D. James.
♀ 158	78	$7\frac{3}{4}$	Abyssinia .		P. H. G. Powell Cotton.
9 14½	6 2	58	Sudan		Hon. Walter Rothschild.
- 9 14 1	64	18	Nubia		Julius Jeppe.



Head of Swayne's Hartebeest. Shot by Major H. G. C. Swayne.

SIG or SWAYNE'S HARTEBEEST (Bubalis swaynei).

Sig of the Somalis.

Korkei of the Gallas.

Horn-pedicle and horns of the same general type as in the tora. Height at shoulder about 47 inches; weight about 300 lbs. General colour pale chocolate-brown, with white tips to the hairs; face black, except the muzzle and a line between the eyes; shoulders and upper part of fore-legs, as well as a patch on upper part of hind-legs, also black.

Distribution.—Interior of Northern Somaliland and Shoa; in Somaliland it is found on the dry plateau known as the haud.

Length on front curve. Circumference.		Tip to Tip.	Locality.	Owner.		
201	87	264	Somaliland	Major H. G. C. Swayne.		
191	$9\frac{1}{2}$	221/2	Do.	G. H. Cheetham.		
-191		241	N. Somaliland	J. Menges.		
-19	91	184	Do.	Capt. M. M'Neill.		

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
184	9	$21\frac{1}{4}$	N. Somaliland .	Major R. P. Cobbold.
184	9‡	16	Do	F. G. Barclay.
181	9‡	19‡	Do	Capt. T. W. Greenfield.
183	83	18	Do	Major H. G. C. Swayne.
181	9	17‡	Do	Norman B. Smith.
-18	83	103	Do	Count J. Potocki.
18	$9\frac{1}{2}$	20	Do	W. F. Whitehouse.
18	9	22	Do	Capt. B. R. M. Glossop.
173	11	17	Galla Country .	Viscount Edmond de Poncins.
173	83	21	Somaliland .	Count J. de Bylands.
174	10	211	Do	E. Lee Townshend.
174	10	20	Do	Digby Davies.
171/2	81	19½	Do	T. W. H. Clarke.
172	9‡	19	Do	Sir Edmund G. Loder, Bart.
171	9	213	Do	J. J. Richardson.
172	10	214	Do	Major J. M'Call Maxwell.
172	10	234	Do	A. E. Butter.
171/2	10	18	Galla Country .	Lord Hindlip.
9 15½	63	19	Somaliland .	Count J. de Bylands.
♀ 15½	7	111	Galla Country .	Viscount Edmond de Poncins.
- 9 158		***	N. Somaliland .	J. Menges.



KONGONI or COKE'S HARTEBEEST (Bubalis cokei).

Horn-pedicle moderate, horns bracket-shaped, very short and thick. Height at shoulder about 45 inches. Weight about 250 lbs. General colour uniform bright fawn, with the lower lip somewhat browner, and the lower part of the rump paler; tail long, with the black tuft ascending some way up the hinder surface.

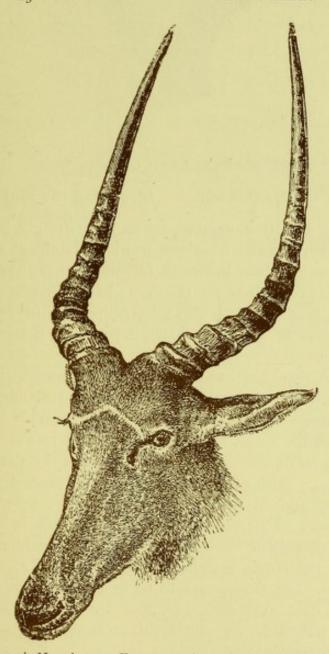
Distribution.—Eastern Africa, from Usagara northwards to Kilimanjaro and Masailand.

Mr. F. J. Jackson says: "This hartebeest ranges as far north as L. Naivasha, south into German territory and east to within a few miles of the coast at the back of the Shimba hills." A bull shot by Capt. R. A. J. Montgomerie, C.B., R.N., in Masailand weighed 312 lbs.

Length on front curve.	Circum- ference.	Tip to		Loc	ality.	Owner.	
-203			East Africa				Julius Jeppe.
194	$10\frac{1}{2}$	13	Do.		**		R. Meinertzhagen.
19‡	10	184	Do.				J. Gardiner Muir.
194	10	16	Do.				R. Wahrmann.
-194	94	13	Do.			*	P. C. Keytel.
19‡	98	16	Do.				Major E. G. Harrison.
19	98	16	Do.				Sir Robert Harvey, Bart.
-19	104	14	Lake Manja	ra	к		O. Neumann.

Length on front curve.	Circum- ference.	Tip to Tip.	Loca	lity.			Owner.
-19	103	14	East Africa				Berlin Museum.
19	9	154	Do.				F. W. Belt.
18§	87	161	Do.				F. J. Jackson.
$-18\frac{1}{2}$	$10\frac{1}{2}$	18	West of Mon	nbasa			C. W. Hobley.
$18\frac{1}{2}$	10	125	East Africa				T. P. A. Holford.
181	10	161	Makindo, Ea	st Af	rica		Rhys Williams.
181	$9\frac{1}{2}$	$18\frac{3}{4}$	East Africa	**			E. N. Buxton.
184	91/2	135	Do.				H. C. V. Hunter.
$18\frac{1}{4}$	91	141	Do.				Douglas M'Douall.
$18\frac{1}{4}$	101	$18\frac{3}{4}$	Do.				Norman B. Smith.
18	105	$14\frac{1}{2}$	Do.				Julius Jeppe.
18	10	113	Do.	v			LieutCol. W. A. W. Lawson.
-18	$7\frac{1}{2}$	$12\tfrac{1}{2}$	Masailand				Count Scheibler.
18	10	134	East Africa				Major C. P. Foley.
$-17\frac{3}{4}$	10	14	Do.				Capt. W. Jardine.
174	10	183	Do.		+		R. H. Fawkes.
17½	83	11	Do.				Lieut. F. C. Grover, R.N.
$17\frac{1}{2}$	98	17	Do.			-	Lord Basil Blackwood.
$17\frac{1}{2}$	10	14	Do.		+		F. C. Cobb.
178	$9\frac{1}{2}$	11	Do.				J. Carr Saunders.
-17§	10	$14\frac{1}{8}$	Rift Valley,	East	Afric	a.	C. Steuart Betton.
171	9‡	13	East Africa				C. C. Bowring.
174	$9\frac{1}{4}$	$12\frac{3}{4}$	Do.				Lieut. G. P. Leith, R.N.
$-17\frac{1}{4}$	$9\frac{3}{4}$	$16\frac{3}{4}$	Do.				Lieut, A. A. Ellison, R.N.
$-17\frac{1}{4}$	***	***	Do.	.,		1	Sir Edmund G. Loder, Bart.
17	91	12	Do.			-	Lord Delamere.
17	98	131	Machakos				Brig,-Gen. Sir F. J. D. Lugard.
17	83	144	East Africa				S. L. Hinde.
17	9	124	Do.	(12)			A. Bayley Worthington.
. 17	10	$10\frac{3}{4}$	Do.				Count Geza Széchényi.
17	10	$1\frac{3}{4}$	Do.	,			Major E. J. Tickell.

Length on front curve.	Circum- ference,	Tip to Tip.	Loc	ality.	Owner.		
17	9‡	15	East Africa				P. Niedieck.
- 9 151	71/2	173	Do.				P. C. Keytel.
♀ 15‡	71	121	East Africa				S. L. Hinde,
♀ 14%	78	II	Do.				O. Neumann.
-914	71/2	151	Do.				Julius Jeppe.
-914	7	132	Do.				J. B. Wheelwright.
-9134	74	$14\frac{1}{2}$	Ndara Teita	, Eas	st Afr	ica	C. Steuart Betton.
Q 13½	71/2	113		?			T. P. A. Holford.
913	61	13		?			Lord Delamere.



Head of Hunter's Hartebeest. From a specimen shot by Mr. H. C. V. Hunter.



Horns of Male Cape Hartebeest. Mr. F. H. Barber's specimen.

CAPE HARTEBEEST (Bubalis cama).

Kama of the Bechuanas. Ingama of the Makalakas.

Horn-pedicle greatly elongated, horns very sharply bent, and forming a letter V when viewed from the front. Height at shoulder about 48 inches. General colour brownish fulvous, darker than in any of the preceding; face (except between the eyes), back of neck, chin, shoulders, thighs, and tail, black or blackish; lower portion of buttocks with a conspicuous whitish or yellowish blaze, forming a marked contrast to the other colours.

Distribution.— Africa southwards of the Limpopo, but extending farther northwards along the confines of the Kalahari desert. This fleet and handsome species (the roi hartebeest) is now nearly exterminated in the Cape, although still found in the Transvaal. A few still linger in the old Bushman country in the north-west of Cape Colony. Although practically exterminated in the Orange River Colony and in most of the Transvaal (except to the north-west), numbers of hartebeest are to be found in the plains and open forest of British Bechuanaland and the Bechuanaland Protectorate. In the North Kalahari and the desert regions about the Botletli River big troops are to be met with. This hartebeest is remarkably fleet and enduring, and by no means easy to bag. Its flesh is palatable, and its brilliant coat much sought after by the native tribes.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-25%	12	4	Orange Colony	Julius Jeppe.
-25	114	101	?	Capt. W. Jardine.
-25			Orange Colony	F. H. Barber. (See illustration.)
25	11	10	?	C. Rube.
-24 ⁷ / ₈	11	7	Nata River .	H. M. Barber.
244	101	95	?	R. T. Coryndon.
241/2	12	11	Near Boshof, O.R.C	Hon. Walter Rothschild.
241/2	12	9½	South Africa .	C. D. Rudd.
-248	104	918	Damaraland .	Th. Rehbock.
-248	11	179	?	P. C. Keytel.
-24‡	11	7 ⁷ 8	South Africa .	Julius Jeppe.
-24			Do	W. J. Corder.
234	10	88	Do	British Museum (Sir Andrew Smith).
231/2	II ¹ / ₂	101/2	Kamaland .	F. C. Selous.
231/2	12	6^{3}_{4}	?	J. S. Dawson.
-231/2	13	5 7 8	?	Sir Edmund G. Loder, Bart.
23	1112	81/2	?	F. D. Pirie.
23	12	5½	South Africa .	G. Richards.
23	II	11	Do	A. H. Harrison.
$-22\frac{1}{2}$	11	81/2	Do	A. Ohlsson.
-22½	101	121/2	Do	Abel Chapman.
-9218	81	13½	Do	Julius Jeppe.
- º 2 I	7½	151	Do	P. C. Keytel.
-♀20			Orange Colony	South African Museum.
₹ 19₹	711	1111	Damaraland .	Th. Rehbock.
₹ 19½	88	81	South Africa .	G. Richards.
9 19	81/2	$6\frac{1}{2}$	Kalahari	H. A. Bryden.
- 9 18 <u>1</u>	81	$6\frac{1}{2}$?	P. C. Keytel.
9 18	7≩	9	South-West Africa	A. N. Henderson.



Skull and Head of Jackson's Hartebeest.

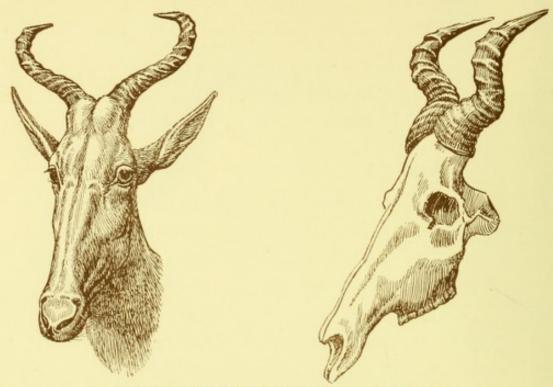
HEUGLIN'S HARTEBEEST (Bubalis lelwel).

Generally similar to the preceding, but with the horns less abruptly bent backwards from above. In the closely allied or identical Jackson's Hartebeest there is no black blaze on the face, and the colour is uniformly foxy red. Weight about 300 lbs.

Distribution.—Typically from the Bahr-el-Ghazal, Upper Nubia, and Kordofan; represented in the interior of British Central Africa, and north of Lake Baringo, Uganda, by the so-called B. jacksoni, to which the under-mentioned specimens belong.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
25	124	$11\frac{1}{2}$	Uganda		Douglas M'Douall.
244	II ½	$13\frac{3}{4}$	Do		Dr. A. Paget.
244	11½	134	Kordofan		C. E. Lyall.
$24\frac{1}{2}$	102	111	East Central Africa		F. J. Jackson.
241	111	113	Kordofan		C. E. Lyall.
231	12	12	3		Major A. E. Smith.
$23\frac{1}{2}$	102	81	Sudan		Col. B. T. Mahon.
231	117	81	Uganda	-	C. Craig.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality. Owner	
231/2	12	9	E. C. Africa E. Gedge.	
231/2	1112	61/2	North end of Lake Albert Col. Trevor Ternan.	
231	12	101	East Africa A. Bayley-Worthington.	
234	1112	91/2	Do LieutCol. E. G. T. Bainbridge	
23	113	41	Do W. Cooper.	
23	$11\frac{3}{4}$	81	E. C. Africa Sir Edmund G. Loder, Bart.	
-23		81	? Major W. Anstruther Thomson	
23	128	81	E. C. Africa LieutCol. W. A. W. Lawson.	
-22 ⁷ 8	101	113	E. of Victoria Nyanza . Paris Museum.	
$-22\frac{3}{4}$			Uganda Capt. C. A. Sykes.	
$22\frac{1}{2}$	$II\frac{1}{2}$	53	Do P. B. Vander-Byl.	
$22\frac{1}{2}$	103	103	E. C. Africa Capt. E. J. Tickell.	
221	12	6	? Major C. N. Price.	
$22\frac{1}{2}$	11	12	Molo River Rhys Williams.	
$22\frac{1}{2}$	$II\frac{1}{2}$	61/2	Uganda Capt. M. F. Gage.	
$22\frac{1}{2}$	II	54	Do Sir Henry D. Tichborne, Bart.	
228	103	II	Do Capt. F. D. Lugard.	
228	12	84	White Nile Capt. C. J. Hawker.	
221	12	11	East Africa F. C. Selous.	
22	104	$12\frac{1}{4}$	White Nile P. Niedieck.	
22	11	$9\frac{1}{2}$	E. C. Africa R. Meinertzhagen.	
21	102	91/2	Do Julius Jeppe.	
-21	1112	65	Gelo River O. Neumann.	
♀21	104	1114	White Nile Dr. A. Paget.	
9 204	91/8	10	Do P. Niedieck.	
9 18½	8	103	E. C. Africa . E. J. L. Berkeley.	
9 184	8	5 7	Uganda Col. Trevor Ternan.	
9 18	8§	43	N. Uganda Major R. M. Sanders.	
♀ 18	9	78	? Capt. J. Ponsonby.	
9 18	8	$7\frac{1}{2}$	Nile Valley Major M. L. Carleton.	



Head of Female and Skull of Male Neumann's Hartebeest.

NEUMANN'S HARTEBEEST (Bubalis neumanni).

Nearly allied to *B. lelwel*, but distinguished by the more widely separated horns, which at first extend outwards, almost at right angles, and then curve inwards. They are also shorter and more slender, with the terminal rings nearer the tips. Mr. Walter Rothschild gives the following particulars:—

Colour of hair fulvous fawn, much richer on the back, where there are also some darker spots, which may be stains or natural; below very much paler. Chin blackish, tip of tail black. The male is brighter and darker in colour than the female. There are also on the back some patches with longer, thicker, almost whitish-buff hair, perhaps remains of the winter fur.

Description.—East Africa, in the neighbourhood of Lake Rudolf.

Length on outside curve.	Circum- ference.	Tip to Tip.		Localit	ty.		Owner.
-21	98	1112	East Africa				Lieut,-Col. W. A. W. Lawson.
-20g	$11\frac{3}{4}$	1114	El donyo eb	Urru,	Rift	Valley	C. Steuart Betton.
20	1114	$11\frac{1}{4}$	East Africa				F. C. Selous.
193	11	98	Do.				W. Cooper.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality. Owner.
-194			East Africa Sir Edmund G. Loder, Bart.
192	104	9‡	Lake Nakaru Capt. J. Ponsonby.
194	94	81	Do P. B. Vander-Byl.
19	11	9^{3}_{4}	? F. J. Jackson.
19	1114	9‡	East Africa H. T. Barclay.
-19	108	$14\frac{1}{2}$	Lake Stefanie O. Neumann.
$18\frac{7}{8}$	10	9	Mau Plateau Major C. H. Villiers.
181	114	94	? A. Brocklehurst.
181	113	6	? T. P. A. Holford.
181	10	9	Near Achmed Agha Capt. J. H. Rivers.
181	101	9	Mau Plateau Hon. Walter Rothschild.
17%	10	71	Lake Baringo Do.
171/2	11	124	Pouglas M'Douall.
171/2	10	$9\frac{1}{2}$? C. Craig.
17‡	114	9 3	Kinangop Flat Lord Delamere.
174	91/2	9½	W. of Eldomo Ravine . G. E. Smith.
161	$10\frac{3}{4}$	81	N.E. of Lake Rudolf A. H. Neumann.
♀ 161	81	94	Lake Nakaru Rhys Williams.
♀ 16	81/2	94	? C. Craig.
♀ 15 3	81/2	81/2	E. Africa Sir Henry D. Tichborne, Bart.
♀ 15½	8	54	Do F. C. Selous.
♀ 158	81	83	F. J. Jackson.
♀ 151	7‡	81	Achmed Agha Major R. M. Sanders.
♀ 151	71/2	7	Near Lake Elmeteita . T. P. A. Holford.
♀ 14½	78	81	Kero, E. of Bahr-el-Jebel . Capt. R. M. Sanders.
♀ 13½	7‡	94	E. shore of Lake Rudolf . A. H. Neumann.
♀ 13 ⁸	71/2	10	? Lord Delamere.
9 13	71	81/2	Achmed Agha Major R. M. Sanders.



Head of Lichtenstein's Hartebeest.

LICHTENSTEIN'S HARTEBEEST (Bubalis lichtensteini).

Horn-pedicle very short and broad, and the horns themselves much curved inwards towards one another below the terminal backward inclination. Height at shoulder about 50 inches, weight about 300 lbs. General colour tawny fulvous, becoming more rufous along the back, with the chin, tail-tuft, and front of cannon-bones black.

Distribution.—East Africa north of the Sabi River, throughout Nyasaland and Mozambique to Usagara.

Inkulando of the Mashonas. Kokotombwi in Barotsiland.

Konze in the Chilala and Chibisa countries.

Konshe in the Chinyanja.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-244		***	?	J. Rosen.
-22 ⁷ / ₈	11	7 7 8	?	Mr. Justice Hopley.
$-22\frac{3}{4}$	***		Nyasaland	F. Watkinson.
$2I_{\frac{1}{2}}^{1}$	124	9	E. of Tanganyika	O. L. Berringer.
$2I\frac{1}{2}$	121	9	Batoka Plateau, Northern Rhodesia	F. Smitheman.
$21\frac{1}{2}$	131	104	Do.	T. G. Davey.
$-21\frac{1}{2}$			Do.	R. T. Coryndon.
$21\frac{1}{4}$	121/2	54	?	L. A. Wallace.
21	124	83	Barotsiland	H. Timmins.
-21			,	O. R. Dunell.
-21	121	8	Angoniland	Capt. J. Brander Dunbar.
-203	128	78	Portuguese East Africa .	F. Vaughan Kirby.
-20%			?	Julius Jeppe.
205	13	6	Fort Johnstone, B.C.A	C. C. Bowring.
201	$12\frac{1}{2}$	83	?	George Grey.
$-20\frac{1}{2}$		9‡	Batoka Plateau	E. Folley.
201	11	103	?	P. C. Keytel.
-20 ₁₆	$11\frac{15}{16}$	715	British Central Africa	A. S. Hamilton,
201	124	104	Congo Free State	Julius Jeppe.
-20½	128	54	German E. Africa	O. Neumann.
20	121	$6\frac{1}{2}$	British Central Africa	R. Berridge.
20	13	-6	N.W. Rhodesia	Col. C. Harding.
-20	12	51	Nyasaland	W. H. Wilson.
20	1218	8	Wami River, East Africa .	Sir J. Kirk.
20	134	8	Fort Hill, B.C.A	John Yule.
194	128	$4\frac{1}{2}$	Tanganyika Plateau	E. Wilson.
-194	124	44	S.E. Africa	H.R.H. Prince Pedro d'Orleans et de Braganza.
194	$12\frac{1}{2}$	9½	British Central Africa	Capt. R. S. Chichester.
19½	11½	12	Do	Sir Edmund G. Loder, Bart.
192	$II_{\frac{1}{2}}^{1}$	818	S.E. Africa	Hon. Walter Rothschild.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
19½	121	51/2	Tanganyika	A. Mathews.
194	13	34	?	Dudley West.
19	12	8	British Central Africa .	J. H. Hayes.
19	II	81	Do.	Capt. J. S. Brogden.
19	12	41	Liwondes, B.C.A	C. C. Bowring.
19	1112	$4\frac{7}{8}$	East Africa	British Museum.
187	131	5½	B.C.A	R. H. Storey.
- 9 17½		***	Pungwe	F. Lean.
9 15	87	$4\frac{7}{8}$	River Sabi, Mashonaland	British Museum (F. C. Selous).
- 9 15	78	58	Portuguese East Africa	F. Vaughan Kirby.

HUNTER'S HARTEBEEST (Damaliscus hunteri).

Somali name, Arôle.

Gala name, Blanketta.

With this species we come to a group of antelopes closely allied to the true hartebeests, but in which the frontal region is not elevated into a horn-pedicle, while the horns themselves form in most cases a lyrate or simple curve, and the face is of medium length. In the present species the slender horns are indeed doubly curved, although without the sudden angulation of the true hartebeests. They slant upwards and outwards, and then bend downwards, after which the long points are directed upwards. Colour uniform rufous, with a white chevron on the face, the inner surface of the ears and the tail-tuft white. Height at shoulders about 4 feet, and the build light and graceful.

Distribution. - Southern Somaliland to north bank of Tana River.

Length.		Circum-	Tip to	Locality.	Owner,	
On front curve.	Straight.	ference.	Tip.	Locality.		
$-26\frac{1}{2}$	$22\frac{1}{2}$	81	121/2	Jubaland	Major E. G. Harrison.	
261	22	81	121	Tana Valley, East Africa	Sir Robert Harvey, Bart.	
$24\frac{7}{8}$		818	151/2	Do.	H. C. V. Hunter.	
245	$2I\frac{1}{4}$	88	94	Do.	Sir Robert Harvey, Bart.	
9-214	192	58	11	Jubaland	Major E. G. Harrison.	
♀21	***	54	7	Tana River	F. H. Barber.	
20½		59	87	Do.	Hon. Walter Rothschild.	



Head of Korrigum.

KORRIGUM or SENEGAL HARTEBEEST (Damaliscus corrigum).

Derri of the Hausas.

Horns with a single slightly lyrate curve. Size medium. General colour reddish, with patches on the face, shoulders, upper part of forelegs, hips, and thighs, and the tail-tuft black; no dark markings on back and feet.

Distribution.—Senegambia and the interior of West Africa.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-26 3	98	15 ¹ / ₈	Senegambia	Imperial Museum, Vienna.
234	10	8	Lake Chad	S. B. B. Dyer.
238	102	10 ,	Bornu, Lake Chad .	Capt. J. K. Cochrane.
23 ⁴ / ₂ 23 ⁶ / ₂ 22 ¹ / ₂	84	113	Gambia	Julius Jeppe.
-215	98	158	Do	Paris Museum.
-21 ³ / ₈	91/8	158 114 84	Do	British Museum (Dr. P. Rendall).
205	91	83	Benue River	Major J. A. Burdon.
♀ 195	9‡ 6‡	5 ³ / ₈	Lake Chad	S. B. B. Dyer.
♀ 19‡	64	8	Between Benue and Lake Chad	Hon. Walter Rothschild.
♀ 185	78	61	Benue River	Major J. A. Burdon.

TIANG (Damaliscus corrigum tiang).

Apparently only a local race of the korrigum, from which it is distinguished by its slightly inferior dimensions, and certain differences in the black markings on the face and limbs.

Distribution.—Sennar, Kordofan, and Bahr-el-Ghazal.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.
$24\frac{1}{2}$	91/2	9	White Nile .			H. Cookson.
23	$9\frac{1}{2}$	81/2	Do			E. C. Crispin.
22 ⁷ / ₈	83	51	Do.			Lord St. Oswald.
224	83	9	Do.			British Museum (R. M'D. Hawker).
$22\frac{3}{8}$	$9\frac{3}{4}$	14	Do			Col. B. T. Mahon.
$22\frac{1}{4}$	81	61	Do.			Capt. H. N. Dunn.
22	8‡	7‡	Do.			J. H. Whitehouse.
213	9	71	Do.			P. Niedieck.
9 21 3 4	7	7	Do .			Col. B. T. Mahon.
21 5	71	3‡	Do			Capt. C. J. Hawker.
21½	81	7½	Do.			Major Hon. W. Guinness.
$21\frac{1}{4}$	9	61/2	Do.			R. M'D. Hawker.
21	83	$7\frac{1}{2}$	Abyssinian Suc	dan		Prince Colloredo Mannsfeld.
20%	81	64	White Nile		4	H. F. Buxton.
-203	8§	51/2	Akobo River			O. Neumann.
203	71/2	7	White Nile		Se.	C. Adeane.
20½	83	9	Do.			LieutCol. A. Colville.
201	84	6	Do.			Major F. J. L. Howard.
201	8	61	Do.			C. Liddell.
9-20₺	61/2	3	Near Fashoda			Hon. F. E. Guest.
♀ 20‡	6^{3}_{4}	67	Bahr-el-Ghaza	1		British Museum (Consul Petherick).
20	81	54	White Nile			Count E. Hoyos.
20	81	7½	Do.			E. N. Buxton.
20	8	54	Do.			G. H. Cheetham.
-19_{4}^{3}	$7\frac{1}{2}$	61	Bahr-el-Ghaza	1		Sir W. Garstin.
194	7 ½	$4\frac{1}{2}$?			Capt. J. F. Wolseley.
19½	81	8	White Nile		(4)	Capt. J. G. A. Massy.
-191	8	61/2	Do.	+1		Major W. Anstruther Thomson.
19	7½	74	Do.			Col. St. G. C. Henry.
♀19	61	61/2	Do.			P. Niedieck.
\$ 19	7	$9\frac{1}{2}$	Do.	20	100	E. C. Crispin.
9 183	67	8	Do-			W. D. James.
9 183	61/2	63	Do.			Lieut. W. B. Drury, R.N.
\$ 181	63	7½	Sudan .			Prince Henry of Liechtenstein.

TOPI 135



Head of Topi. From a specimen shot by Mr. A. H. Neumann.

TOPI (Damaliscus corrigum jimela).

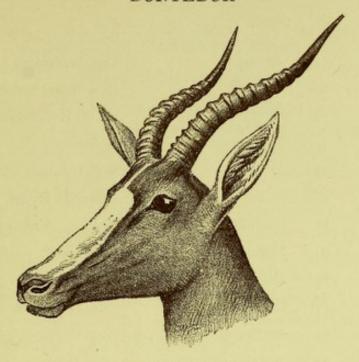
Korké of the Gallas.

The southern representation of the last, distinguished by its still smaller size (height at shoulder, 43-44 inches), shorter and more slender horns, and the somewhat brindled appearance of the coat, due to patches of longer hairs on the otherwise short fur. General colour a peculiar purple-brown, with the dark markings less defined and less black than in *D. corrigum typicus*. Weight about 250 lbs.

Distribution.—British East Africa from the Juba to the Sabuki River, and thence to Uganda and Uniamwezi.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
21	8	$6\frac{1}{2}$	North end of Lake Rudolf.		The late H. Andrew.
19‡	6§	38	East Africa		H. C. V. Hunter.
191	814	8	S. Albert Edward Nyanza.		E. S. Grogan.
19	78	8	Lake Rudolf	1	A. E. Butter.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
19	64	81	East Africa		A. Louw.
183	84	6‡	North end of Lake Rude	olf.	A. H. Neumann. ¹
$-18\frac{1}{2}$	7 1/2	6	Jubaland		Major E. G. Harrison.
182	$7\frac{3}{4}$	5#	Tana River		Major H. de Preé.
$18\frac{1}{2}$	$8\frac{3}{4}$	$8\frac{1}{2}$	East Africa		Sir Edmund G. Loder, Bart.
182	88	54	Do		J. Carr Saunders.
181	78	6	North end of Lake Rude	olf.	Julius Jeppe.
183	$7\frac{1}{2}$	144	Tana River		Capt. C. Hankey.
18‡	8.1	$6\frac{3}{4}$	S. Albert Edward Nyan	za .	A. H. Sharp.
$18\frac{1}{8}$	63	5%	East Africa		Sir Robert Harvey, Bart.
18	81/8	58	Do		F. J. Jackson.
18	81	9	W. of Victoria Nyanza		Major G. S. M'Loughlin.
18	84	$6\frac{1}{2}$	East Africa		C. Craig.
174	8	6	Do		E. Wynstone Waters.
$17\frac{3}{4}$			Do		L. L. Jenner.
174	8	83	Do		F. C. Selous.
♀ 178	$7\frac{1}{2}$	61/2	Do		C. Craig.
² 165	$6\frac{7}{8}$	6‡	N. end of Lake Rudolf		British Museum (A. E. Butter).
		1 Dete	rmination provisional.	2 A	Albino specimen.



Head of Bontebok.

BONTEBOK (Damaliscus pygargus).

Distinguished from the preceding species of the genus by the white blaze on the face, which is continuous from the horns to the nose. Height at shoulder about 40 inches. Weight about 200 lbs. Colour of fore part of back rufous fawn darkening into blackish near the rump, flanks, shoulders, front of limbs, and tail-tuft; rump, upper half of tail, under-parts, and much of hinder surface of limbs white.

The horns very nearly resemble those of the blesbok in shape, but their colour is much darker.

Distribution.—Cape Colony, south of the Vaal River; now nearly exterminated. Although formerly occurring in tens of thousands on the Karoos of Cape Colony and the plains of the Orange River Colony, bontebok are reduced to a single herd preserved on some flats on the estate of Mr. Vander-Byl, near Swellendam, in the south of Cape Colony.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.		
163	6^{8}_{4}	91/8	?			British Museum.		
164	6§	83	Bredasdorp .	•		A. C. Campbell.		
1 15%	67	8	Do			British Museum (F. C. Selous).		

¹ Weight, 200 lbs.; height, 41 at shoulder.

Length on front curve.	Circum- ference.	Tip to Tip.	Local	lity.			Owner.
-15 3	$6\frac{1}{2}$	7 1 c	Bredasdorp		1		Capt. W. Jardine.
152	$6\frac{1}{2}$	81/2	Do				Hon. Walter Rothschild.
-151	61/2	81	Do				Dr. W. P. Y. Bainbrigge.
$-15\frac{1}{2}$	$6\frac{1}{2}$	5	Do				A. Ohlsson.
151/2	$6\frac{1}{2}$	98	Do				A. C. Humbert.
$-15\frac{1}{2}$	68	94	Do	*	+		Mr. Justice Hopley.
158	$6\frac{1}{8}$	818	Cape Colony				Sir Victor Brooke's Collection.
-151	$6\frac{1}{8}$	9	Bredasdorp	¥.			P. C. Keytel.
15	63	81	Cape Colony				F. C. Selous.
15	63	78	Do.	2	127	4	Capt. F. Cookson.
15	64	6^{3}_{4}	Bredasdorp				W. S. Curtis.
-15	64	78	Do				Julius Jeppe.
-15	6	918	Do				Dr. Albert von Stephani.
15	61	10	Do				A. W. Guthrie.
$-14\frac{1}{2}$		***	Do				S. African Museum.
9 14∄	58	7∄	Do				Julius Jeppe.
-14	5‡	8	Do		-		Major W. Anstruther Thomson.
1 Q 13½	5‡	7½	Do			-	British Museum (F. C. Selous).
9-13	5	618	Do				Abel Chapman.

¹ Height at shoulder, 36%.

BLESBOK (Damaliscus albifrons).

Nunni of the Bechuanas.

Closely allied to the last (of which it may be only a local race), but with less black on the body and limbs, the blaze divided by a white line between the eyes, and the rings on the horns yellowish.

Formerly to be numbered by hundreds of thousands, the beautiful blesbok has in the last thirty years grown very scarce indeed, being only met with in small numbers on a few Boer farms in the Transvaal and the Orange River Colony. Fifty years ago blesboks often literally darkened the face of the land with their innumerable legions. The north of the Cape Colony, Griqualand West, the Orange River Colony, and the plains of the Western and Southern Transvaal were the true home of this beautiful antelope. Gordon Cumming wrote of a sight he beheld in the blesbok country in 1848. "The plains," he says, "exhibited one purple mass of graceful blesboks, which extended without a break as far as my eyes could strain; the depth of their vast legions covered a breadth of about six hundred yards."

Distribution.—Northern plains of Cape Colony, Orange River Colony, Transvaal, and Bechuanaland; now nearly exterminated.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
18‡	53	121	South Africa		Sir Edmund G. Loder, Bart.
-18	61/2	108	Orange River Colony		F. R. N. Findlay.
-18			?		J. Rosen.
-171	61/2	83	Transvaal		J. B. Wheelwright.
171	63	7	Do		Abe Bailey.
-174	61	101	Orange River Colony		Capt. W. Jardine.
17‡	7‡	61/2	?		B. J. Fitzherbert.
-17		81/2	?		Major W. Anstruther Thomson.
17	$6\frac{3}{4}$	7	?		F. V. Worthington.
17	7	10	?		J. L. Drège.
-167	7	71/2	Orange River Colony		Count E. Hoyos.
163	63	7	?		T. Stephenson.
163	61/2	98	Orange River Colony		LieutCol. W. H. Sitwell.
-165	65	$9\frac{1}{2}$	Orange River Colony		Julius Jeppe.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
9 −16½	61	84	Orange River Colony		Julius Jeppe.
161	7	8	Do		Capt. H. D. Livingstone.
162	$6\frac{1}{2}$	$9\frac{1}{2}$	Do	(*)	Capt. Sandilands.
162	63	6	Do		Major C. F. Pinney.
-16½	65	· 9½	Do		P. C. Keytel.
-16½			Do		O. R. Dunell.
168	7	6^{B}_4	Do		A. E. Croker.
16‡	68	71	Do		Lieut,-Col. F. Fitzherbert.
164	68	71	Do		Capt. G. F. Henry.
16	63	83	Do		Major Lord Douglas Compton.
-16			Do		South African Museum.
-15 ⁷ / ₈	61/2	51/2	Do		Mr. Justice Hopley.
15%	65	7%	Do		LieutCol. H. R. Kelham.
15%	6‡	8	Near Steynsburg .		E. H. E. Abadie.
154	7	$7\frac{1}{2}$	Orange River Colony		Major C. W. Gartside-Spaight.
151	$6\frac{7}{8}$	81	Do	٠	Capt. F. H. Lehmann.
$15\frac{1}{2}$	518	$7\frac{1}{2}$	Do		C. H. Akroyd.
152	6	8	Orange River Colony		LieutCol. J. F. M. Fawcett.
151	6§	61/2	?		Col. R. H. Milne-Redhead.
154	61/2	1 10	61.1	ver	British Museum (F. C. Selous).
154	618	54	South Africa		Hon. Walter Rothschild.
151	61/8	61/2	Zululand		Major-Gen. Sir Arthur Ellis.
9 15	51		Orange River Colony		Capt. H. D. Livingstone.
15	63	8	Do		Capt. R. H. Mangles.
-15	5	54	Do		Abel Chapman.
15	64	75	Do		Capt. C. R. Staveley.
9-14₹	44	81	Do		P. C. Keytel.
14½	5	58	Do		A. E. Croker.
9 14	44	6 <u>5</u>	Orange River Colony	*	Hon. R. A. Ward.
914	54	51/2	?		T. Stephenson.
		1 1	Weight 180 lbs. Height at sl	hould	ler, 39½ inches.



Head of Sassaby. From a specimen shot in Mashonaland by Mr. F. C. Selous.

SASSABY or BASTARD HARTEBEEST (Damaliscus lunatus).

Incolomo of the Matabili. Ingalowana of the Basutos. Inkweko of the Masubias. Inyundo of the Makalakas. Kaboli in Barotsiland and Lake Mzanzi of all Zulu tribes Ngami country.

Luchu of the Masaras. M'tengo in the Chilala and Chibisa countries. Mzanci of the Swazis. Unchuru of the Makubas.

Horns starting obliquely outwards, with a single upward and backward lunate curve. Height at shoulder nearly 4 feet. General colour dark chestnut-rufous, with the face, shoulders, hips, upper portions of limbs, and tail-tuft black, and the region of the groin and margin of the ears white.

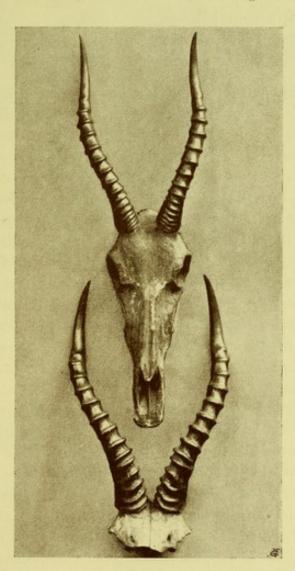
The sassaby has the reputation—in the opinion of all hunters who have tested its speed-of being the fleetest and most enduring animal in South Africa. Were it not that this handsome antelope, in common with its near relative the Cape hartebeest, happens to be lacking in presence of mind, it would very seldom fall to the sportsman's rifle. A troop of sassaby may be often turned from their course, or

brought to a halt, by firing over the heads of the fleeing animals. Or if the leader of the troop be wounded and turned out, the rest of the herd become confused and now and again offer easy shots.

Distribution.—South-East Africa, from north of the Orange River to the Zambesi, westward to Lake Ngami, and northwards to British Central Africa.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
$-16\frac{1}{2}$	8	11	?		J. L. Drège.
16	74	1114	?		A. Hugh Bainbridge.
16	78	$12\frac{3}{4}$	Chinama, B.C.A		Hon. Walter Rothschild.
-16			?		J. Rosen.
154	$7\frac{1}{2}$	152	Mashonaland		Sir John Willoughby, Bart.
158	$7\frac{1}{2}$	113	?		Sir Edmund G. Loder, Bart.
-154	$7\frac{1}{8}$	91	S.E. Africa		Julius Jeppe.
-151	$7\frac{1}{2}$	134	?		P. C. Keytel.
-154	$7\frac{1}{8}$	108	Pungwe		Capt. W. Jardine.
154	8	$12\frac{1}{4}$	S.E. Africa	4.	British Museum (Sir Andrew Smith).
15%	71/8	12	Do		Sir Victor Brooke's Collection.
15	71/2	11	?		R. H. Venables Kyrke.
15	83	115	S.E. Africa		G. Richards.
15	7	11	Do	.7	A. Moseley.
148	8	10	Lebombo Mountains		F. Vaughan Kirby.
144	$7\frac{1}{2}$	124	?		A. Gerald Biden.
$-14\frac{3}{4}$		***	Transvaal		Abel Chapman.
14%	$7\frac{1}{2}$	12	North of Delagoa Bay		A. Cameron.
141	74	94	Pungwe	12	Capt. Sir K. Fraser, Bart.
142	88	131/2	?		F. D. Pirie.
142	74	10	Mashonaland		Col. W. A. Peake.
142	74	122	Barotsiland		F. V. Worthington.
$-14\frac{1}{2}$	8	151	Matabililand		J. Brander Dunbar.
$-14\frac{1}{2}$	8	15	S.E. Africa		James J. Harrison.
142	7₿	11	Mashonaland		British Museum (F. C. Selous).

Length on front curve.	Circum- ference.	Tip to	Locality.			Owner.
141/2	7	10	Pungwe		**	Capt. G. F. Henry.
- 9 14½	6	9	Matabililand .		*:	Dr. W. P. Y. Bainbrigge.
141/2	78	13	Do		*	W. Van Ness.
$-14\frac{1}{2}$	81	11	Pungwe .			Count E. Hoyos.
♀ 13₹	65	1112	Mashonaland.			British Museum (F. C. Selous).
9 13½	64	101	?			F. D. Pirie.
♀ 13½	6	94	?			P. C. Keytel.
♀ 12¾	54	91/2	S.E. Africa .			H.R.H. Prince Pedro d'Orleans et de Braganza.



Horns of Male and Female Blesbok.



Horns of Bull Brindled Gnu. From Mr. Julius Jeppe's specimen.

BRINDLED GNU (Connochætes taurinus).

Ee-vumba of the Makalakas.

Ikokoni of the Basutos.

Inkone-kone of the Amandebili.

Inkongone of the Swazis and Zulus.

Kokong of the Barotse and Batoka natives.

Minyumbwe of the Batongas.

Numbo of the Masubias.

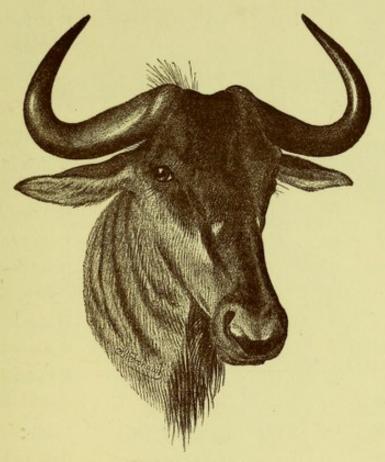
Nyamba of the Chilala and Chisenga.

Unzozo of the Makubas.

From their near relatives the hartebeests the gnus, or wildebeests, are distinguishable at a glance by their grotesque shape and smooth horns, as they also are by their habits. The short, broad, and massive head has a blunt and bristly muzzle, and tufts of coarse hair on the forehead and chin; the chin-tuft also extending on to the throat. The horns, which are placed on the crown of the head, are approximated at their bases, especially in old bulls, and are nearly smooth, more or less flattened at the bases, but almost cylindrical at the tips; the curvature being at first outwards, or outwards and downwards, and then bending upwards at the tips. An abundant mane of stiff, upright hair clothes the back of the neck; and the tail is covered with longer and softer hairs, reaching considerably below the hocks. It is from the equine form of the tail that these animals were long popularly known by the name of "horned horse." The hoofs are characterised by their narrow form.

The blue wildebeest, as this species is called at the Cape, is a large animal, standing about 4 feet 3 inches at the shoulder. Its most characteristic features are the outward direction of the horns, which are but little expanded at the base, and not unlike those of a buffalo, the uniformly black tail, and the absence of long hair on the under-parts. The general colour varies from grizzled roan to blackish slaty brown, with more or less distinct vertical dark stripes on the sides of the neck and fore-quarters; these stripes being most conspicuous in the lighter-coloured specimens. Typically, the fringe of hair on the throat, like the mane and tuft on the forehead, is black.

Distribution.—Formerly ranging from the north of the Orange River for a long distance up East Africa, the brindled gnu is now practically exterminated in the Orange River Colony and the adjacent districts south of the Limpopo. It is, however, still to be met with in parts of Griqualand West and of the Kalahari, as well as in British Bechuanaland; while in Khama's country and Rhodesia, and thence northwards through Central and East Africa, it is



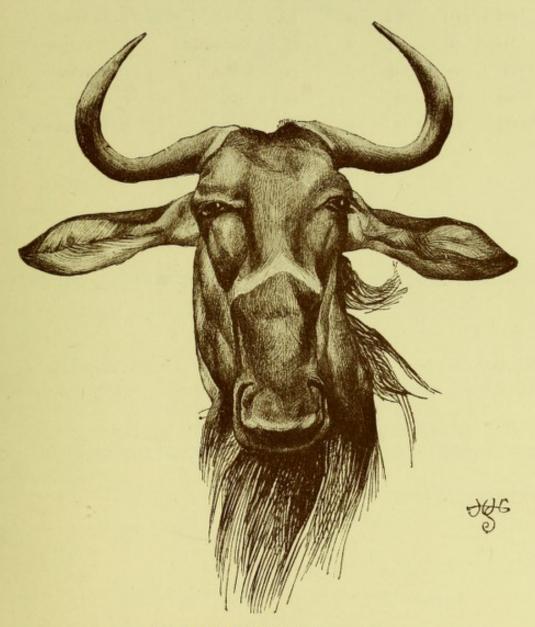
Head of Brindled Gnu.

comparatively abundant, and it also occurs in Mozambique. In spite of its clumsy and ungainly appearance, the brindled gnu is a rapid mover; and even when severely wounded will not unfrequently succeed in making good its escape from the mounted hunter.

It is generally distributed in South-East Central Africa, and north of the Zambesi is represented by the Nyasaland race (C. taurinus johnstoni). Another race is noticed below.

Widest outside.	Widest inside.	Length on front curve.	Breadth of palm.	Tip to Tip.	Locality.		Owner.
	29	31	1 13 ¹ / ₄	151	Sabi Flats		Dr. R. P. Mitchell
$-33\frac{1}{2}$	28 3		$6\frac{1}{2}$	24	Do.		B. Secretan.
321/2	29	20	4	$26\frac{1}{2}$	P. E. Africa		F. Vaughan Kirby.
	281	215	51/4	178	Matabililand		G. H. M. Banks.
	281	20 ³	5	16	Pungwe .		C. C. Gouldsmith.
30%	26 ³ / ₄	21	$4\frac{1}{4}$	$21\frac{1}{2}$	S.E. Africa		F. H. Barber.
-30 3	-27	***	4	$20\frac{3}{4}$	Do.		H. M. von Archer.
309	268	$23\frac{1}{2}$	5 ¹ / ₈	163	2		Julius Jeppe.
301/2	26½	$23\frac{1}{2}$	$6\frac{1}{2}$	184	Do.		F. C. Selous.
***	-27	21	$4\frac{1}{2}$	201	?		Mr. Justice Hopley.
301	26	221	$4\frac{1}{2}$	181	P. E. Africa		LieutCol. A. Colville.
	261/2	$21\frac{1}{4}$	48	201	Matabililand		Major R. Hayes-Sadler.
	$-26\frac{1}{2}$	311		17	Delagoa Bay		H. T. and A. H. Glynn.
30	254	$21\frac{1}{2}$	44	194	Beira .		Dr. S. Martin.
30	261	$2\mathrm{I}{\textstyle\frac{1}{2}}$	$4\frac{1}{2}$	184	Do		Hon. Walter Rothschild.
30	26	21	$4\frac{1}{2}$	19.	Pungwe .		Count R. Coudenhove,
-30	26	***	***	164	Pungwe .		F. Lean.
	25½	22	414	17	S. Africa .		G. Richards.
Ŷ	25	$22\frac{1}{4}$	$4\frac{1}{2}$	10	P. E. Africa		F. Vaughan Kirby.
-29§	25\frac{7}{8}	241	41	181	Do.	2	Capt. M. M'Neill.
291	251	201	5	20	Zululand .		LieutCol. D. Bruce.
-29‡	26	***		183	Pungwe .		C. B. Addison.
29	25½	***	3 ⁸	19	Do		H.R.H Prince Pedro
29	$24\frac{3}{4}$	201	$4\frac{1}{4}$	$16\frac{3}{4}$?		d'Orleans et de Braganza. A. Hugh Bainbridge.
29	251	21	$4\frac{1}{2}$	183	Zululand .	-	LieutCol. Hon. W. Coke.
285	241	22	$5\frac{1}{2}$	194	S. Africa .		Sir Edmund G. Loder, Bart.
28‡	25		¹ II	13	?		F. J. Newnham.
	24½	$20\frac{1}{2}$	5	174	Matabililand		Rev. Dr. R. J. Nevin.
	$24\frac{1}{2}$	20	4	175	Pungwe .		P. B. Vander-Byl.
	241	21	$4\frac{1}{2}$	151/2	Do		Marquis of Hamilton.
				1 Circur	mference.		

Widest outside.	Widest inside.	Length on front curve.	Breadth of Palm.	Tip to Tip.	Locality.		Owner.	
281	25	201	4 ¹ / ₈	191	Pungwe		Capt. T. W. Greenfield.	
281	231/2	201	48	181	Do.		P. C. Keytel.	



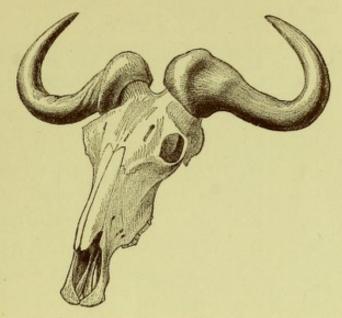
Head of Bull Nyasaland Brindled Gnu. From Sir H. H. Johnston's British Central Africa.

1 28	24	183	44	181	British Central	C. B. C. Storey.
$27\frac{1}{2}$	234	204	4	174	Pungwe	P. Niedieck.
1 26	214	131	44	174	British Central Africa	Alfred Sharpe.

¹ C. taurinus johnstoni.

Widest outside.	Widest inside.	Length on front curve.	Breadth of Palm.	Tip to Tip.	Locality.	Owner.
26	$21\frac{3}{4}$	184	$4\frac{1}{2}$	174	Angola	C. W. Sharp.
♀ 25%	$2I_{8}^{1}$	187	4	$12\frac{3}{8}$	Mashonaland .	J. ff Darling.
1 $25\frac{3}{4}$	$2I\frac{1}{2}$	18^{3}_{4}	$4\frac{1}{2}$	131	B.C.A	R. H. Storey.
1 251	215	171	4	15	Barotseland .	R. T. Coryndon.
1-23	20	$22\frac{1}{2}$		14	B.C.A	C. Godfrey.
1 $-22\frac{1}{2}$	194	23		14	Do	P. Barclay.
1 ♀ 171	134	12	24	91	Batoka	R. T. Coryndon.

¹ C. taurinus johnstoni.



Skull and Horns of a male White-Bearded Gnu.

WHITE-BEARDED BRINDLED GNU (Connochetes taurinus albojubatus).

Swahili name, Nyumbu. Somali name, Lavagadli. Masai name, Engat.

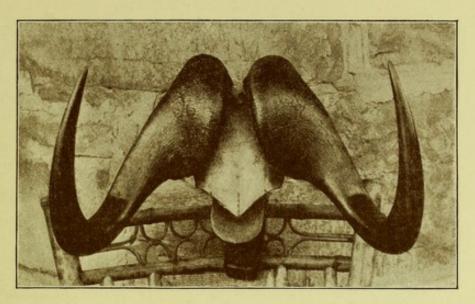
A local race of the brindled gnu distinguished by its slightly paler coloration, and the yellowish white throat-fringe, a few whitish hairs being also mingled with the mane.

The widest part of the front of the horns is somewhat different from the corresponding portion of the typical race. Weight, clean, about 340 lbs.

Distribution.—East Africa, Athi plains, Ukambani, north of Kilimanjaro.

Widest outside.	Widest inside.	Length on front curve.	Breadth of Palm.	Tip to Tip.	Locality.	Owner.
291	251	24	5‡	165	East Africa	Sir Edmund G. Loder, Bart.
284	241	21	48	171	Do	R. Wahrmann.
27 ³	234	21	5	16	Do	Prince P. Demidoff.
271	234	211	44	154	Do	C. Craig.
271/2	234	20	43	174	Do	R. Meinertzhagen.
271/2		22	6	152	Do	Lord Delamere.
274	234	184	48	19	Do	Lord Alex. Thynne.
-27 ¹ / ₈	235	201		15%	Do	O. Neumann.

Widest outside.	Widest inside.	Length on front curve.	Breadth of Palm.	Tip to Tip.	Locality.		Owner.	
27	23	19½	4	$17\frac{3}{4}$	East Africa		Lieut. G. P. Leith, R.N.	
-26 ⁷ / ₈	238	2016		II_{16}^{15}	Do		Capt. M. M'Neill.	
263	23	161	5	203	Do		A. Bayley-Worthington.	
26½	231	173	4	$18\frac{3}{4}$	Do		F. W. Belt.	
$26\frac{1}{2}$	$22\frac{3}{4}$	191	$4\frac{1}{2}$	20	Do		F. J. Jackson.	
26½	225	151	$4\frac{1}{2}$	20	Do		Capt. D. H. Macdonell.	
26 ³ 8	221	$20\frac{1}{4}$	5	13	Do		R. H. Fawkes.	
26‡	$22\frac{3}{4}$	20	$4\frac{3}{4}$	184	Do		Lieut. F. C. Grover, R.N.	
261	228			$18\frac{3}{4}$	Do		H. C. V. Hunter.	
26	$21\frac{3}{4}$	183	$4\frac{1}{2}$	165	Do		Capt. C. P. Foley.	
26	225	194	$4\frac{7}{8}$	181	Do		Julius Jeppe.	
$25\frac{3}{4}$	$22\frac{1}{2}$	201	$4\frac{3}{4}$	15	Do		E. Wynstone Waters.	
25§	$21\frac{3}{4}$	20	5	$14\frac{1}{2}$	Do		C. C. Bowring.	
25‡	$21\frac{1}{2}$	19	$4\frac{1}{2}$	161	Do		Major C. U. Price.	
25	214	171	41	16%	Do	**	Hon. Walter Rothschild.	
25	211	201	$4\frac{1}{2}$	151	Do		F. C. Cobb.	
24 ³ / ₄	21	181	5	14	Do		Major E. J. Tickell.	
$24\frac{3}{4}$	211	194	$4\frac{1}{2}$	15	Do	2	Lord Basil Blackwood.	
$24\frac{3}{4}$	21	19	$4\frac{1}{2}$	13	Do		E. N. Buxton.	
$24\frac{3}{4}$	$21\frac{1}{4}$	18	$4\frac{3}{4}$	17	Do		Norman B. Smith.	
244	21	181	$4\frac{1}{2}$	123	Do		LieutCol. W. A. W. Lawson.	
♀ 22 ³ / ₄	192	$16\frac{1}{2}$	31	123	Do		R. E. Wemyss.	
♀ 22	183	113	$3\frac{1}{2}$	17	Do	40	Norman B. Smith.	
9 21⅓	19½	16	3	154	Do		Lord Basil Blackwood.	



Horns of White-Tailed Gnu. From Mr. F. H. Barber's specimen.

WHITE-TAILED GNU (Connochætes gnu).

This southern species is the true gnu, being formerly known to the Hottentots by that name, while, by the colonists, it is termed the black wildebeest. Its inferior size (height at shoulder about 3 ft. 10 ins.), the downward curvature of the horns at starting and their great expansion at the base, the pure white tail, and the abundant fringe of long hair on the chest and under-parts, serve at once to distinguish it from the brindled gnu. The general colour is uniform deep umber-brown, passing into black. Females are much smaller than males; and have the horns more slender and less expanded at the base.

Distribution.—The northern range of this species was approximately limited by the Vaal, or northern branch of the Orange River. Before the Boer war it was represented only by herds of a few hundred head preserved in Orange River Colony. On the plains of the latter country, as well as on the Karoos of Cape Colony, it was formerly found in vast herds, generally in company with quaggas. Fierce and treacherous in disposition, it was especially characterised by its habit of indulging in grotesque capers and frolics on the approach of strangers.

Length on front curve.	Breadth of Palm.	Tip to Tip.	Locality.	Owner.
-30%	1 221	14	Kalahari	Dr. F. H. H. Guillemard.
-30	101	1718	?	Mr. Justice Hopley.
$-29\frac{1}{2}$	$6\frac{3}{4}$	7	Orange River Colony	Julius Jeppe.
-28			Colesburg	F. H. Barber. (See illustration.)
-27%	7	11	Orange River Colony	Count E. Hoyos.
$-27\frac{1}{2}$	***	***	Wynburg	F. H. Barber. (See illustration.)
$-27\frac{1}{2}$		***	Victoria W., Cape	South African Museum.
-264	7	14	Victoria W., Cape Colony	Major W. Anstruther Thomson.
261/2	8	$14\frac{1}{2}$	South Africa	Sir Edmund G. Loder, Bart.
-261	81	15	Cape Colony	Grahamstown Museum.
-26½		11	Orange River Colony	Abel Chapman.
-26	118	161	Orange River Colony	The Maclaine of Lochbuie.
$-25\frac{1}{2}$	1112	17	Do	J. L. Drège.
25	63	154	Do	A. Payne-Gallwey.
241	7‡	18	Orange River Colony	Capt. C. Staveley.
24	81/2	15	Do.	Hon. Walter Rothschild.
24	81	13‡	Do.	C. D. Rudd.
23	74	171	Do.	A. H. Neumann.
23	$7\frac{1}{2}$	15	Do.	Bloemfontein Museum.
23	8	121	Do.	R. T. Coryndon.
23	74	144	Do.	B. J. Fitzherbert.
$22\frac{3}{4}$	71	15	Do.	F. C. Selous.
221/2	6	14	Do.	LieutCol. F. Fitzherbert.
$22\frac{1}{2}$	$7\frac{1}{2}$	19	Do.	Abel Chapman.
22	7	154	Do.	G. L. Buxton.
22	9	171	Do.	Hon, Walter Rothschild.
22	7‡	1112	Do.	F. V. Worthington.
♀ 193	1 132	103	Do.	Dr. W. P. Y. Bainbrigge.
₽ 16	44	1112	Do.	Bloemfontein Museum.
♀ 16	5	163	Do.	Major C. W. Gartside-Spaight.
♀ 15¾	5	151	Do.	LieutCol. F. Fitzherbert.
- ♀ 15½	5	143	Do.	Julius Jeppe.

¹ Circumference.



Horns of Common Duiker. From a specimen shot by Mr. F. C. Selous.

COMMON DUIKER (Cephalophus grimmi).

Puti of the Bechuanas. Impunsi of the Matabele. Gwapi of the Chinyanjas. Impungi of the Swazis and Zulus. Imputi of the Basutos. Gudda of the Hausas.

The common duiker, or "diver," is the southern representative of an extensive group of small or medium-sized antelopes, mostly confined to Africa, but also containing one genus and species from India. In all of these the muzzle is naked; face-glands of a more or less elongated form are present, as are lateral hoofs; the tail is of medium length, the knees have no tufts of long hair, and the females are provided with four teats. The horns, which are short and straight, are generally present in both sexes, but are smoother and more slender in the does than in the bucks; and the upper cheek-teeth have low crowns, with square grinding surfaces. The African duikers have a single pair of horns, generally present in both sexes, and more or less hidden by a tuft of long hairs growing from the crown of the head; and the face-glands are arranged to form a bare line of pores on each side of the muzzle. The present species—the true duikerbok—is the largest member of a group of three duikers, characterised by the horns (usually absent in the females) inclining upwards at a sharp angle above the plane of the profile of the nose. Other features of the subgroup are the long and pointed ears, the general yellowish or grayish colour, devoid of dark markings, save for a brown nose-spot. Although essentially a southern form, the common duiker, which measures about 23 inches at the shoulder, ranges on the west coast as far north as Angola, and on the eastern side of the continent to British East Africa and Somaliland. Weight about 30 lbs. Throughout its habitat the timid duiker is to be met with wherever sufficient covert exists; and its furtive, squatting, dodging habits are most aptly indicated by its name. Met with either singly or in pairs, it is never found far

away from covert, strictly avoiding both open plains and steep, rocky mountains. Absence of water is, however, no bar to its existence, as it thrives in the heart of the Kalahari. It is occasionally hunted with foxhounds; its flesh is but moderately good.

Length on	Circum-	Tip to Tip.	Locality.	Owner.
front61/2	ference.		Angola	E. P. Cooper.
-6	25	31	South Africa	James J. Harrison.
-5 ^a			Do	W. J. Corder.
-58	21/2	21/2	Do	Julius Jeppe.
51/2	2 ¹ / ₈	2 1	Selinya, Khama's	F. C. Selous.
5½	21/4	28	country Cape Colony	Mr. Justice Hopley.
-5½			British Central Africa.	M. L. M. Vaudin.
-5½	21/4	21	Cape Colony	J. B. Wheelwright.
51	21	11/2	Zululand	Major L. O. Williams.
-51			?	O. R. Dunell.
-5‡	21/2	13	?	P. C. Keytel.
-54	2 l	2	Inyamonga, P. E. Africa	
-5½	21/8	178	Bredasdorp, C. Colony	
5½	2	28	Transvaal	H. T. and A. H. Glynn.
51/8	2 3	2 1	Cape Flats	Capt. W. Jardine.
5	21	21	South Africa	G. Richards.
5	21/4	21/2	Do	F. C. Selous.
5	21	21	Angola	C. H. Pemberton.
5	21	21	?	C. C. Bowring.
5	21/2	31	Northern Rhodesia .	F. Smitheman,
-43			Transvaal	Abel Chapman.
-94 ⁸	28	23	?	P. C. Keytel.
49	21/4	13	South Africa	Lieut, the Hon, R. O. B. Bridge-
41/2		27	Algoa Bay	man, R.N. British Museum (F. C. Selous)
41/2	2 ¹ / ₈	21/2	South Africa	R. A. Cooper.
-41/2	21/4	21/2	Mashonaland	A. Ohlsson.
$4\frac{1}{2}$	2	13	South Africa	Capt. L. Rawstorne.

Length on front.	Circum- ference.	Tip to Tip-	Locality.	Owner.
$-4\frac{1}{2}$?	South African Museum.
-48	***	18	?	W. Anstruther Thomson.
41	178	2 ⁸ / ₄	East Africa	Sir Robert Harvey, Bart.
44	21/4	2	Do	F. W. Belt.
48	178	2	Lake Mivern	Hon. Walter Rothschild.
4	21	2	East Africa	R. J. Church.
4	2	178	Do	F. J. Jackson.
94	18	114	North of Great Nama- qualand	Th. Rehbock.
-34			Upper Nile	Capt. C. A. Sykes.
31/2	13	13	Sudan	Col. B. T. Mahon.
오 3를	1 1/2	18	Transvaal	Julius Jeppe.

ABYSSINIAN DUIKER (Cephalophus abyssinicus).

Abyssinian name, Midaku.

Belonging to the same sub-group as the common duiker, and agreeing with the crowned duiker (*C. coronatus*) in size, this species differs from the latter by the general colour of the fur being grayish brown, instead of bright yellow. It was discovered by the traveller Rüppell, and its habits have been well described by Mr. W. T. Blanford in his *Geology and Zoology of Abyssinia*.

Distribution.—The highlands of Abyssinia.

Length on front.	Circum- ference.	Tip to Tip.	Locality.		Owner.		
41	21	13	Abyssinia .		W. F. Whitehouse.		
41/8	2	2	Galla Country		Lord Hindlip.		
41/8	2 1/8	17	Abyssinia .		P. H. G. Powell-Cotton.		
-316	2,3	2 1	Do		Prince A. de Lucinge.		
$-3\frac{1}{2}$	17	13	Do		Sir Victor Brooke's Collection.		
-3x8e	2	$1\frac{15}{16}$	Galla country		Viscount Edmond de Poncins.		
24	17	11	Abyssinia .		British Museum.		



Head of Blue Duiker.

BLUE DUIKER (Cephalophus monticola).

Ipiti of all the Zulu tribes.

In the great majority of the duikers, that is to say all except the three included in the group mentioned above, the horns, which are generally present in both sexes, slope backwards either in or just below the line of the profile of the nose. The present species is included in a sub-group characterised by the smoky-brown or blackish coloration, and is especially distinguished by the rufous legs and uniformly coloured rump, the height at the shoulder being 13 inches. Weight about 8 lbs. clean. Distribution.—Southern Africa, from the wooded districts of Cape Colony northwards to Benguela on the west, and Nyasaland on the east.

Length on front.	Circum- ference.	Tip to Tip.	Locality.	Owner,
$-2\frac{1}{2}$		11/2	Cape Colony	F. Vaughan Kirby.
$2\frac{1}{2}$	143	11/2	Tushila Plain, B.C.A.	Hon. Walter Rothschild.
$-2\frac{1}{4}$			Knysna, Cape Colony	South African Museum.
$-2\frac{1}{8}$	15	13	Do	J. L. Drège.
$-2\frac{1}{8}$	112	15	Do	Mr. Justice Hopley.
2		13	Natal	F. C. Selous.
2	ığ	13	Benguela	G. W. Penrice.
-2	11/2	11	?	P. C. Keytel.
-2		***	?	O. R. Dunell.
-178			?	W. J. Corder.
13	ış	1 3	Benguela	Hon. Walter Rothschild.
$-1\frac{3}{4}$	14	13	?	A. Ohlsson.
$-1\frac{3}{4}$	1 1 6	$1\frac{1}{2}$	Knysna	Lieut. Hon. R. O. B. Bridgeman, R.N.
-15	1 5	178	3	Julius Jeppe.
♀ I 15	1 3	1 1/8	Knysna	Lieut. Hon. R. O. B. Bridgeman, R. N.

MAXWELL'S DUIKER (Cephalophus maxwelli).

This species belongs to the sub-group characterised by the smoky-brown or blackish colour. In size it is small (height at shoulder about 14 inches). The face is coloured like the back; the limbs, like the body, are grayish brown; and the rump is not parti-coloured. It was first brought to England by Col. C. Maxwell, and described by Major Hamilton Smith in 1827.

Distribution.-West Africa, from Gambia to the Gold Coast.

Length on front.	Circum- ference.	Tip to Tip.	Locality.		Owner.				
15	21	2	Fanti					Hon.	Walter Rothschild.

RED or NATAL DUIKER (Cephalophus natalensis).

Rooi-Bosch-bokje of the Boers. Msumbi of the Swazis and Malonga.

Mkumbi of the Zulus. Izikupu of the Basutos.

Chisimbi of the Lower Zambesi natives.

This duiker is classed in another sub-group of small or mediumsized species characterised by the fulvous, rufous, or chestnut groundcolour; and is specially distinguished by its small size (height at shoulder, 17 inches) and completely uniform coloration, having no dark markings on either the face or body.

Distribution.—Natal, Transvaal, and Mashonaland (including all the forest and bush country of the East Coast), also seen by F. Vaughan Kirby and James J. Harrison near the Lualwa River, Mozambique Province.

Length on front.	Circum- ference.	Tip to Tip.	Locality.	Owner.		
$-3\frac{7}{8}$	243	2	?		Julius Jeppe.	
-3%	27/8	21/4	Shupanga Forest .		F. Vaughan Kirby.	
38	2½	21/8	Sabi Flats		James J. Harrison.	
-34	$2\frac{1}{2}$	2	?		P. C. Keytel.	
-31/4	3	2	Foothills of Kahlamba		F. Vaughan Kirby.	
-31	2 1/8	28	?		Julius Jeppe.	
-31	25	21	Spitzkop		H. T. and A. H. Glynn.	

Length on front.	Circum- ference.	Tip to Tip.	Locality.	Owner,		
- ♀ 2 ³ / ₄	178	I	Foothills of Kahlamba	F. Vaughan Kirby.		
- ♀ 1¾	13	2	?	P. C. Keytel.		
9 15		1	Near Durban	F. C. Selous.		
9 15	178	2	?	Hon. Walter Rothschild.		

BAY DUIKER (Cephalophus dorsalis).

From the last species the bay duiker, together with some allied West African forms, differs by the presence of a black stripe running along the back and continued to the tail. As a species, its special characters are the dark colour of the hams, and the evenly haired tail, which shows no sign of a tuft, and is parti-coloured.

Distribution.—West Africa, from Sierra Leone to the Cameroons; there being a northern and a southern race.

Length on front.	Girth.	Tip to Tip.	Locality.	Owner.
311	21/8	2	West Africa	Hon. Walter Rothschild.

BANDED DUIKER (Cephalophus doriæ).

The tiger-like transverse black bands on the orange ground of the back suffice to distinguish at a glance this pretty little duiker from all its kindred.

Distribution.—The interior of the West Coast of Africa from Liberia to Sierra Leone, where it is commonly known as the mountain deer.

Length on front.	Circum- ference.	Tip to Tip.	L	ocality	y.		Owner.
$-1\frac{7}{8}$		1	Liberia			- 4	British Museum (Dr. J. Büttikofer).
15	11	11	Do.				Hon. Walter Rothschild.

YELLOW-BACKED DUIKER (Cephalophus sylvicultor).

This species is distinguished from all the other members of the genus by its large size, coupled with its blackish coloration, and the presence of a yellowish crest and similarly coloured longitudinal patch on the rump. Height at shoulder, 34 inches.

Distribution.—The West Coast of Africa from Liberia to Angola

Length on front.	Circum- ference.	Tip to Tip.	Locality.			Owner.
7	31/2		Sierra Leone			Capt. C. E. Palmer.
63		$4\frac{1}{2}$	Fanti .			British Museum.
6§	3 ³	35	Luapulu River, Rhodesia	N.1	E.	G. M. E. Leyer.
61	31/2		Ashanti .			C. Beddington.
5½	38	41/8	Gaboon :			Sir Edmund G. Loder, Bart.
-5½	318	31/2	Do			Major W. Anstruther Thomson.
5	3 3	41	Angola .			Hon. Walter Rothschild.
5	34	41/8	Do.			G. W. Penrice.
44	31		Johnston's Falls			J. Yule,

HARVEY'S DUIKER (Cephalophus harveyi).

Length on front.	Circum- ference.	Tip to Tip.	Locality.			Owner.			
31/2	2 ³ / ₄	28	East Africa				Capt. R. A. J. Montgomerie, R.N.		
25	3 1 6	13	Do.				E. N. Buxton.		
2	2		Kilimanjaro				F. W. Belt.		

RED-FLANKED DUIKER (Cephalophus rufilatus).

The following measurements of a male red-flanked duiker were taken by Lieut.-Col. P. S. Wilkinson.

	Shoulder to heel						. 14½ ins.	
	Len	gth of fac	е.				. 61 "	
	Tail	to head				,	$23\frac{3}{4}$,,	
	Tail						$5\frac{1}{2}$ "	
Length on front.	Circum- ference.	Tip to Tip.		Locality.			Owner.	
310	27	25	Gamba	ga, Gold	l Coa	st	British Museum (Capt. W Giffard).	
31/8	$2\frac{1}{2}$	2	Nigeria	١.			Capt. P. A. Clive.	
3	27 -	$I\frac{1}{2}$	Okutu,	S. Borg	u.		Capt. B. R. M. Glossop.	
27/8	$2\frac{1}{2}$	2	Borgu,	Nigeria	¢		Capt. G. H. F. Abadie.	
25	21	13	Lokoja	, Nigeria	ι.		LieutCol. P. S. Wilkinson.	
2 7 6	21/2	11	Lagos				C. Vyvyan.	
21/4	210	1 %	Togola	nd .			Hon. Walter Rothschild.	

WEST AFRICAN DUIKER (Cephalophus coronatus).

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
4 1/2	21/4	27	Nigeria	Major J. A. Burdon.
4½	21/2	1 1	Do	Capt. G. H. F. Abadie.
41 ³ 6	21/2	18	Okuta, S. Borgu .	Capt. B. R. M. Glossop.
41/8	21/4	2	Nigeria	N. F. Bayne.
41/8	$2\frac{1}{4}$	21/4	Do	Capt. W. D. Wright.
41/8	2 1 G	2 1	Near Borgu, West	Capt. N. C. Welch.
4	13	1	T -1 - C1 - 1	Hon. Walter Rothschild.
310	2	178	Lake Chad Lokoja, Niger .	LieutCol. P. S. Wilkinson.



Horns of Male Four-horned Antelope.

FOUR-HORNED ANTELOPE or CHOUSINGHA (Tetraceros quadricornis).

This antelope is the Oriental representative of the African duikers, from which it is distinguished by the following features. Typically there are two pairs of horns, and the face-glands form deep slits on the sides of the face instead of a long naked line; the females being hornless. Height at shoulder about 25 inches, and weight about 40 lbs. General colour dull rufous brown, becoming whitish beneath, with the muzzle, the outer surface of the ears, and a line down the front of each leg blackish brown, and some white on the outer side of the pasterns. The front horns are not unfrequently mere knobs, and may even be wanting, as in most of the Madras and Kathiawar specimens.

Distribution.—Peninsular India south of the Himalayas.

Length on fi	of horns ront.	Circum	ference.	Tip to	Tip.	Locality.		Owner.	
Rear.	Fore.	Rear.	Fore.	Rear.	Fore.	23,4411			
-5						Jhalawar		H.H. Maharaj Rana Bahadur of Jhalawar.	
-4½	2½	$2\frac{1}{4}$	17	2 1 8	I	Lulitpur .		General Walker.	
$4\frac{1}{2}$	21/4	28	$2\frac{1}{4}$	3		?		Capt. J. C. B. Statham.	
48	$2\frac{1}{2}$	21/4	2 ³ / ₈	15	278	India .		Sir Edmund G. Loder, Bart.	

	of horns ront.	Circum	ference.	Tip to	Tip.	Locality.	Owner.	
Rear.	Fore.	Rear.	Fore.	Rear.	Fore.			
-4 ¹ ₈	$1\frac{1}{2}$		***			. India	J. D. Inverarity.	
4	$2\frac{1}{2}$	$I\frac{7}{8}$	$1\frac{7}{8}$	3	I 1/8	Indore	British Museum (Col. J. Evans).	
4	2	3	18	13	$2\frac{1}{2}$	Karkote Jungle, near Mhow	LieutCol.G.D.F. Sulivan.	
-4	2	21/4	$2\frac{1}{2}$	$2\frac{3}{4}$?	Major L. Impey.	
$-3\frac{3}{4}$?	Indian Museum.	
$-3\frac{3}{4}$	$1\frac{3}{4}$	13	$1\frac{3}{4}$	28		Central Provinces .	LtCol. R. W. Mapleton.	



Head of Male Four-horned Antelope.



Head of Salt's Dik-dik.

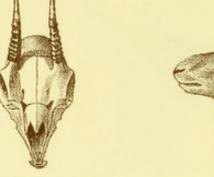
SALT'S DIK-DIK (Madoqua saltiana).

This species, the Beni Israel of the Arabs, is the typical representative of a group of tiny, slenderly-built antelopes characterised by the elongated, trunk-like nose, of which the tip is almost entirely hairy, the tuft of hair on the crown of the head, the short and almost rudimentary tail, and the minute size of the lateral hoofs. In the present species the last tooth in the lower jaw lacks the third lobe found in almost all ruminants, the muzzle is but moderately developed, and the general colour fulvous or rufous fawn, scarcely more rufous on the sides than on the back. Height at the shoulder, 14 or 15 inches.

Distribution.—The Coast Range of Eastern Abyssinia, and adjacent districts of Somaliland.

Length on front.	Circum- ference.	Tip to Tip.	Locality.			Owner.
3‡	11/2	18	Abyssinia			V. Bell.
3	I	I	Do.			Sir Edmund G. Loder, Bart.
23		13	Do.			P. H. G. Powell Cotton.
-2 ⁵ / ₈	$I^{\frac{1}{2}}$	I	Do.			J. B. Wheelwright.
2 ⁵ / ₈		134	Do.			Sir Victor Brooke's Collection.
$2\frac{1}{2}$	$I_{\frac{1}{2}}^{1}$		North Kass	ala		Col. Ralph Vivian.
$2\frac{1}{2}$	1	14		?		P. C. Keytel.
28		15		?		British Museum.





Skull of Phillips's Dik-dik.

Head of Swayne's Dik-dik.

Somaliland.

SOMALI DIK-DIKS (Madoqua swaynei, M. phillipsi, and M. guentheri). General native name, Sakáro.

Different districts of Somaliland are inhabited by the three species of dik-diks above named. The first of these is allied to Salt's dik-dik, but is of smaller size; it inhabits the northern half of Somaliland. Phillips's dik-dik, which also occurs in Northern Somaliland, is intermediate in size between Salt's and Swayne's dik-dik, from both of which it is distinguished by having the back gray and the sides and shoulders rich rufous or cinnamon. On the other hand, Günther's dik-dik is widely different from both, being nearly allied to the under-mentioned Kirk's dik-dik, from which it is distinguished by the form of the nasal bones in the skull.

> Height at shoulder about 14 inches. Weight, & 6 lbs.; 9 5 lbs. (T. W. H. Clarke).

Sakáro Guyu (Madoqua swaynei).	Distribution	.—Berbera District.
Sakáro Gol-Ass (Madoqua phillipsi).	. "	Northern Somali- land.
Sakáro Gussuli (Madoqua guentheri).	,,	Plateau of Central

Length on front.	Girth.	Tip to Tip.	Owner.
1 35	15	2	Col. H. D. Olivier.
$3\frac{1}{2}$	I 1/4	15	J. Kenneth Foster.
3‡	14	13	W. W. Ashley.
1-34		14	C. V. A. Peel.
3 ¹ / ₈	$I_{\frac{1}{4}}$	I ½	Major C. F. Blane.
			2002

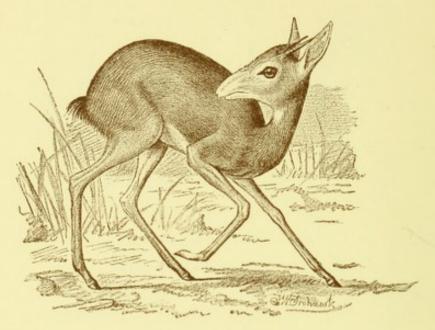
¹ M. guentheri.

Length on front.	Girth.	Tip to Tip.	Owner.
1 31		13	Julius Jeppe.
1-31	11/2	13	A. E. Pease.
-3 ¹ / ₈			J. Brander Dunbar.
3		1	Sir Edmund G. Loder, Bart.
-3		13	Viscount Edmond de Poncins.
$-2\frac{15}{16}$	11/2	118	Do.
$2\frac{13}{16}$	11/2	7 8	Major E. G. Harrison.
-2 7	11	118	J. Johnston-Stewart.
27/8	13	I§	Lord Delamere.
27/8	112	13	Lord Hindlip.
23	I	I	T. W. H. Clarke.
23/4	11/2	I 1/8	A. E. Butter.
24	I ½		C. Liddell.
1 23		I_{16}^{-1}	Major W. Anstruther Thomson.
$^{1}-2\frac{1}{8}$	1 18	13	Julius Jeppe.

¹ M. phillipsi.

The following are the dimensions of a specimen of M. guentheri:--

Length, $23\frac{1}{4}$. Height, $15\frac{1}{4}$. Horns, $2\frac{1}{2}$. Weight, $8\frac{1}{4}$ lbs. Shot at Njemps, 26:9:96, by F. J. Jackson.



Kirk's Dik-dik.

KIRK'S DIK-DIK (Madoqua kirki).

This dik-dik belongs to a small group of species differing from the one containing M. saltiana by the presence of three lobes to the last tooth of the lower jaw, and likewise by the more decidedly trunk-like character of the muzzle. Of the other members of the group, M. damarensis differs by its superior size, and M. guentheri by the still greater development of the trunk. Weight about 7 lbs.

Distribution.—East Africa, from Southern Somaliland to Ugogo, most numerous on the coast.

Length on front.	Circum- ference.	Tip to Tip.	Locality.	Owner.	
-35	18	I 1/8	Rift Valley	C. Steuart Betton.	
35	18		East Africa	Prince P. Demidoff.	
3.7	18	15	Do	J. B. Wheelwright.	
138		17	Do	F. C. Selous.	
3½ 3,76 13% 34	11	11	Do	Hon, Walter Rothschild.	
3	11/2	19	E. of Lake Chomo .	Lord Hindlip.	
3	- 2	17	East Africa	F. J. Jackson.	
1 215	13	10	>	F. J. Jackson, C.B.	
27	15	18	Tana River	Capt. C. Hankey.	
2 g 2 g 2 g		1.5	East Africa	British Museum.	
24		13	Lake Elmeteita .	Rhys Williams.	
1 2 3		18	Lake Baringo	Do.	

¹ M. cavendishi.

DAMARA DIK-DIK (Madoqua damarensis).

Characteristics mentioned under heading of the preceding species. Distribution.—Damaraland.

Length on front.	Circum- ference.	Tip to Tip.	Locality.				Owner.		
-3 1 -3	I ½	1½ 	- 7				P. C. Keytel. Capt. M. Jurich.		
-3 -25 -25 -25	15 15	15 17	Omararu Do.		-		J. B. Wheelwright. Capt. W. Jardine.		
-28 -21/2			Damaraland			1	Cape Town Museum		
-21/2	11/2	11/2	Do.				(type specimen). A. Ohlsson.		
2		118	Angola .				South African Museum.		

HEMPRICH'S DIK-DIK (Madoqua hemprichiana).

Further information is desirable as to the right of this form to specific distinction.

Length on front.	Circum- ference.	Tip to Tip	Locality.			Owner.
38 25	18 18	$I_{\frac{1}{16}}^{\frac{1}{2}}$	Basa Land Abyssinia			Hon. Walter Rothschild, Do.



Head of Male Oribi from Pungwe, South-East Africa.

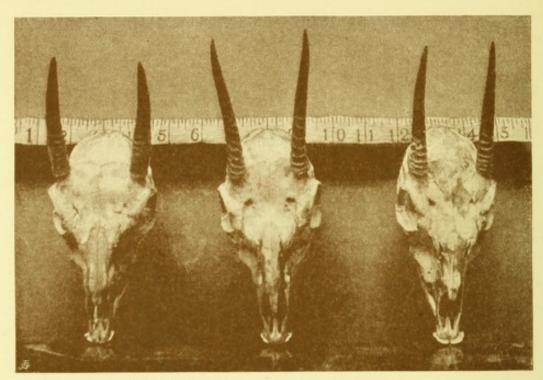
CAPE ORIBI (Oribia scoparia).

Inla of the Swazis and Zulus. Pulukudukamani of the Basutos. Kamunda of the Barotse and Batoka natives.

The oribis, grysbuck, klipspringer, and their allies constitute a group of comparatively small African antelopes presenting the following characters in common. The muzzle has a naked tip, the head is devoid of a tuft of hair, large face-glands open beneath the eyes by a small aperture on each side, the tail is short or moderate, and lateral hoofs may or may not be retained. Horns are present only in the bucks, and are short, almost, or quite, straight, with smoothed tips and ridged bases. The upper cheek-teeth have tall and narrow crowns. The dik-diks are nearly allied, but differ by their tufted heads, and elongated hairy muzzles. The oribis, which are the largest members of the group, have normal hoofs and hair, and are specially distinguished by the presence of a bare glandular spot beneath each ear, and of a large opening in the skull beneath each eye-socket. In the Cape species the horns of the bucks are comparatively smooth and slender, with only their basal two inches slightly ridged; the tail being tufted and moderately bushy, with its terminal two-thirds black. Height at shoulders, 24 inches. Distribution.—Typically, Africa south of the Zambesi. On grassy plains

this graceful little antelope is still plentiful in many districts.

Length on front.	Circum- ference.	Tip to Tip.	Locality.	Owner
-7½	2 ³ / ₄	25	Zomba, B.C.A	D. MacAlpine.
710	2 3 1 6	21/4	Angola	G. W. Penrice.
61/2		27	Near Ladysmith	LieutCol. P. J. R. Crampton.
-6½		14	Batoka Plateau	E. Folley.
-61/2		3#	?	J. L. Drège.
61	21/4		E. Griqualand	British Museum (Jff. Darling)
6	2 1	21/4	Spitzkop	H. T. and A. H. Glynn.
-6			Natal	South African Museum.
6	2	28	Angola	C. H. Pemberton.
6		28	Do	Do.
-6		25	Do	E. P. Cooper.
-6			British Central Africa .	J. Rosen.
-5 ¹⁵ / ₁₀	2	$2\frac{1}{2}$?	Mr. Justice Hopley.
54	28	28	British Central Africa .	J. H. Hayes.
5 ³	2	3‡	Barotsiland	H. Timmins.
58	2	24	Bangueolo	F. Smitheman.
55	21/8	17/8	Transvaal	F. R. N. Findlay.
51/2	2	25	Barotsiland	Capt. J. Carden.
-51/2	17/8	31/4	?	Julius Jeppe.
-51/2	2	21/2	Gorongoza, P. E. Africa .	F. Vaughan Kirby.
-51/2	17/8	31/2	?	A. Ohlsson.
51/2	2	2 ^S	M'peta Island, Upper Zam- besi	R. T. Coryndon.
5‡	2	21/4	Barotsiland	F. V. Worthington.
-54			?	O. R. Dunell.
51	21/2	$2\frac{1}{2}$	Pungwe	Surgeon H. E. Fryer, R.N.
518	2	178	?	George Grey.
-6		3	Batoka Plateau	E. Folley.



Skulls of Abyssinian Oribi. Shot by P. H. G. Powell Cotton.

ABYSSINIAN ORIBI (Oribia montana).

Făckō of the Abyssinians.

Mori of the Dinkas.

Very similar in most characters to the Cape species, but with a shorter and less bushy tail, the tip of which has only a few sparse black hairs. Height at shoulder, $22\frac{1}{2}$ inches. These antelopes are shy and rarely seen in the open, preferring the thick bush and long grass. If disturbed they go at a great pace with their heads quite close to the ground. The flesh is good.

Viscount Edmond de Poncins states that a fine male weighed 30 lbs. 13 oz., and stood $19\frac{1}{2}$ inches at the shoulder.

Distribution.—Abyssinia and Bogosland.

Length on front.	Circum- ference.	Tip to Tip.	Locality.	Owner.
58	2	2 5	Abyssinia	Julius Jeppe.
5	21/2	21	Galla Country .	Lord Hindlip,
5		$2\frac{1}{2}$	Abyssinia	Sir Edmund G. Loder, Bart.
$4\frac{3}{4}$	2 ³ / ₈	21/4	White Nile	Capt. C. J. Hawker.
$-4\frac{7}{8}$	28	2	Hawash, Abyssinia	Prince A. de Lucinge.
48 -	22		Sudan	Prince Colloredo Mannsfeld.
4 ¹ / ₂	13	21/8	White Nile	C. Cookson.

Length on front.	Circum- ference.	Tip to Tip.	Local	lity.		Owner.
41/2	21	$2\frac{1}{4}$	White Nile			Capt. the Hon. M. P. Macnaghten.
41/2	I ½	21/2	Do.			H. Cookson.
-4½	21	$2\frac{1}{2}$	Jubaland			Major E. G. Harrison.
$-4\frac{1}{2}$	2	2	Hawash, A	byssi	inia	Viscount Edmond de Poncins.
48	2	25	Abyssinia			P. H. G. Powell Cotton.
-41/2		17	Do.			Major W. Anstruther Thomson.
48	21/2	13	White Nile			Major R. M. Sanders.
48	13	$2\frac{1}{2}$	Dombelas,	Abys	ssinia	British Museum.
41/4	21/4	21/4	Abyssinia			W. F. Whitehouse.
41/8	21	13	Sudan			Count J. Potocki.
4.12	2.2	2.3	Do.	10		Prince Henry of Liechtenstein.

WEST AFRICAN ORIBI (Oribia nigricaudata).

The present species is very close to the Abyssinian oribi, but of smaller size, grayer, and with a distinct black tip to the tail, as in the Cape species. Height at shoulder, 20 inches.

Distribution.—The open country of Senegal and Gambia,

Length on front.	Circum- ference.	Tip to Tip.	Lo	Locality.			Owner.		
4 ³	21/2	$2\frac{1}{4}$	Lake Chae	d	1		S. B. B. Dyer.		
418	17	2	Nigeria		18		F. Dwyer.		
4	13	2	Do.				Capt. H. A. Porter.		
4		$2\frac{3}{4}$	Do.				Major J. A. Burdon.		
37	15	21/4	Do.			-	F. P. Crozier.		
318	178	13	Do.				Major A. H. Festing.		
34	13	13	Borgu				Capt. G. H. F. Abadie.		
35	15	$2\frac{1}{4}$	Nigeria				LieutCol. P. S. Wilkinson.		

HAGGARD'S ORIBI (Oribia haggardi).

Swahili name, Taya.

Still imperfectly known, but distinguished from all the other oribis by the stouter horns, which are strongly ridged for rather more than the basal half of their length. Height at shoulder about 24 inches. Distribution.—The coast districts of East Africa in the neighbourhood of Lamu. Discovered in 1887 by Mr. J. G. Haggard.

Length on front	Circum- ference.	Tip to Tip.	Lo	cality	y.		Owner.
5 7 8	$2\frac{1}{2}$	$2\frac{1}{4}$	East Africa				R. Wahrmann.
-54	2_{4}^{3}	25	Tana River				Major E. G. Harrison.
55	$2\frac{1}{4}$	$2\frac{1}{4}$	East Africa	3			C. Craig.
5≟		$2\frac{7}{8}$	Do.				C. C. Bowring.
$-5\frac{1}{2}$	28	$2\frac{1}{2}$	Do.	*			Julius Jeppe,
58	***	28	Do.				Dr. A. Paget.
¹ 5 ¹ / ₈	$2\frac{1}{4}$	2	East Central	Afri	ca		Hon. Walter Rothschild.
1,51	I_{16}^{13}	28	North end of	Lak	e All	ert	Col. Trevor Ternan.
5	2	$2\frac{1}{4}$	East Africa				E. Wynstone Waters.
5	$1\frac{7}{8}$	$2\frac{1}{2}$	Do.		2		F. C. Selous.
48	$2\frac{1}{8}$	25	Do.				Capt. H. de Pree.
$4\frac{7}{8}$		$2\frac{1}{2}$	Do.				Capt. J. Ponsonby.

Determination provisional.

ZANZIBAR SUNI (Nesotragus moschatus).

The two elegant little antelopes included in the genus. Nesotragus are near relatives of the oribis, from which they are distinguished by the absence of a naked glandular patch below the ear and the want of lateral hoofs. They are further characterised by the horns being directed backwards nearly or quite in the plane of the face, and extending at least as far as the back of the head, as also by the large size of the empty spaces in the skull below the sockets of the eyes, and by the nasal bones. In the present species the horns are short and slender, and the colour, inclusive of the tail-tip, fawn gray. Height at shoulder about 13 inches.

Distribution.—Islets near Zanzibar and adjacent coast from Kilimanjaro to Mozambique.

Length on front.	Circum- ference.	Tip to Tip.	Loca	lity.		Owner.
31/4	$1\frac{1}{2}$	2	Islands, Zanz	ibar		Sir John Kirk.
31	13	\mathbf{I}_{2}^{1}	Do.			British Museum (Capt. Speke).
31	14	$1\frac{1}{2}$	Do.			British Museum (Sir John Kirk).
-3 ¹ / ₈	***	$1\frac{1}{8}$	Zanzibar			Major E. G. Harrison.
210	18	15	Kikuyu .			F. J. Jackson.
2§	11	13	Zanzibar			Sir Victor Brooke's Collection.



Skull and Horns of Livingstone's Suni.

LIVINGSTONE'S SUNI (Nesotragus livingstonianus).

Lumswi of the Shupanga. Intilengana of the Amatonga.

Distinguished from the preceding species by its slightly superior dimensions (height at shoulder, 15 inches), the longer and thicker horns, more rufous coloration, and the blackish upper surface of the tail.

Two specimens killed by F. Vaughan Kirby measured-

					Male.	Female.
Extreme length over all, ti	p of no	se to	end	of tail	$27\frac{1}{8}$ ins.	$25\frac{3}{4}$ ins.
Length of tail					$3\frac{1}{2}$ "	3 "
Perpendicular shoulder-heig	ght				$14\frac{1}{4}$,,	$13\frac{1}{8}$ "
" height at cro	oup				$14\frac{3}{4}$,	144 ,,
Girth of neck					$6\frac{1}{2}$,,	6 "
" behind the shoulder					$14\frac{1}{8}$ "	$13\frac{5}{8}$,,
Distribution Court Foot	A C	C	34 -		- 4- 7-1-1	land the

Distribution.—South-East Africa, from Mozambique to Zululand; the form from Zululand being distinguished as N. livingstonianus zuluensis.

Length on front.	Circum- ference.	Tip to Tip.	Locality.	Owner.		
-48	2	21	?	Julius Jeppe.		
$4\frac{1}{2}$	13	13	Shupanga Forest .	F. Vaughan Kirby.		
-4½		13	?	F. J. Newnham.		
438	218		Gungunyana's country	British Museum (H. T. Glynn).		

Length on front.	Circum- ference.	Tip to Tip.	Locality.		Owner,
-4 3			Delagoa Bay .		F. H. Barber.
-44		***	?		O. R. Dunell.
-41		13	?		P. C. Keytel.
-4 s		I	Delagoa Bay .		F. C. Selous.
-4½	***	2	?		J. B. Wheelwright.
-4		***	?		W. J. Corder.
-4	444	***	Shupanga Forest		M. L. M. Vaudin.
34	13	2	?		C. D. Rudd.
-34	11/2	13	Zambesi		Sir Edmund G. Loder, Bart.
-34	***		Delagoa Bay .		Capt. W. Jardine.
311	13	$2\frac{5}{16}$	Do	*	Hon. Walter Rothschild.



Head of Grysbuck, from a specimen shot by Mr. F. C. Selous.

GRYSBUCK (Rhaphiceros melanotis).

Isikupi of the Basutos.

From the other members of the oribi group the grysbuck and its cousin the steinbuck are readily distinguished by the horns rising nearly vertically from the skull, in which the open spaces below the eyesockets are unusually small. Curiously enough, the grysbuck retains the lateral hoofs, which have disappeared in the steinbuck. In addition to this feature, the former is distinguished by the fur showing a large admixture of white, instead of being uniformly coloured. Height at shoulder, 22 inches. Weight, 24 lbs.

Distribution.—South Africa, extending as far north as the Zambesi and Mozambique.

Length on front.	Circum- ference.	Tip to Tip.	Locality.			Owner.
48	$I^{\frac{1}{2}}$	17/8	?			R. A. Cooper.
-45		13	?			P. C. Keytel.
41/2	13	2	?			Lieut,-Col. H. J. G. Lloyd.
-4			Caledon, C.C.	4.0	1	South-African Museum.
-4			?			J. Rosen.
38	13	$2\frac{1}{4}$	Knysna, C.C.			Lieut, the Hon. R. O. B. Bridgeman, R.N.
316	134	13	Cape Colony .			F. C. Selous. (See illustration.)
-31	$I\frac{1}{2}$	28	Knysna, C.C.			Mr. Justice Hopley.
3‡	$1\frac{1}{2}$	13	?			Sir H. J. Goold-Adams.



Head of Steinbuck.

STEINBUCK (Rhaphiceros campestris).

Ishah of the Swahilis.

Impulupudi of the Basutos. Ingaina of the Swazis. Phuduhudu of the Bechuanas.

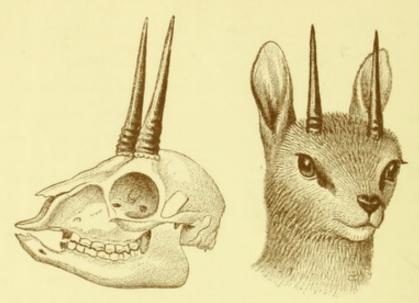
Timba of the Barotse and Batoka natives. Umgwena of the Matabili.

As mentioned above, this species is at once distinguished from the grysbuck by the absence of the lateral hoofs and the uniform colour of the fur. The general tint of the latter is bright sandy rufous, becoming richer on the head, and frequently with the tip of the muzzle and a horseshoe-mark on the crown brown. Height at withers about 19\frac{1}{2} inches. Weight about 25 lbs.

Distribution.—Africa south of the Zambesi on the east, and the Cuneni on the west; northwards of the Tana to Nyasaland represented by Neumann's steinbok (R. campestris neumanni), distinguished by the absence of dark markings on the head. Probably owing to its small size, the steinbuck has managed to escape the fate that has befallen so many of the South African antelopes. Wherever the traveller journeys on the veldt, he is almost certain to meet this species, which may be regarded as the most familiar game animal of the plains. Like many of its kindred, it is independent of water, and can thus exist in the heart of the Kalahari, where water may not occur for a distance of fully fifty miles.

Length on front.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-6 7			Graffreinett	F. H. Barber.
-5 7			Kikumbulin	W. Russell Bowker.
-5 7	17	3	?	Mr. Justice Hopley.
518		25	Near Middleburg .	E. H. E. Abadie.
-53	13	178	?	J. Whitaker.
-55	2	11	?	Julius Jeppe.
1 5 1 2		1 9	Kimberley	F. C. Selous.
$-5\frac{1}{2}$?	O. R. Dunell.
$-5\frac{1}{2}$		13	East Africa	C. Steuart Betton.
$-5\frac{1}{2}$		3 ¹ / ₈	Do	Capt. M. M'Neill.
57	· · ·	25	Cape Colony	British Museum.
58	2	14	East Africa	E. Gedge.
-58			?	J. Rosen.
51		$1\frac{1}{2}$	South Africa	J. B. Neilson.
5‡	178	2 ³ / ₈	Do	Lord R. Wellesley.
-5‡			?	South African Museum.
-51	13	27	Cape Colony	F. R. N. Findlay.
-51			?	P. C. Keytel.
51/8	13	178	East Africa	F. C. Selous.
48	13	3	Gilgil, E. Africa .	Rhys Williams.
48	11/2	23	Portuguese E. Africa	F. Vaughan Kirby.
45	114	$2\frac{1}{2}$	South Africa	G. Richards.
$4\frac{1}{2}$	$I_{\frac{1}{2}}^{1}$	21/8	?	Sir H. J. Goold-Adams.
41/2	134	15	South Africa	 H. and C. Beddington.
41/2	15	25	Do	F. C. Selous.
-41/2			Masailand	Major E. G. Harrison.
$4\frac{1}{2}$	178	2	South Africa	Major C. F. Minchin.
48	15	28	Tana Valley	Sir Robert Harvey, Bart.

¹ Killed with hounds.



Skull and Head of Male Klipspringer, from specimens shot in Somaliland by Major H. G. C. Swayne.

KLIPSPRINGER (Oreotragus saltator).

Alakud of the Somalis.

Chipomco of the Chilalas.

Chinkomo of the Chinyanjas.

Ingululu of the Makalakas.

Ikumi of the Basutos.

Klipbok of the Boers.

Ligoka of the Zulus and Swazis.

Njerere in the Batoka country.

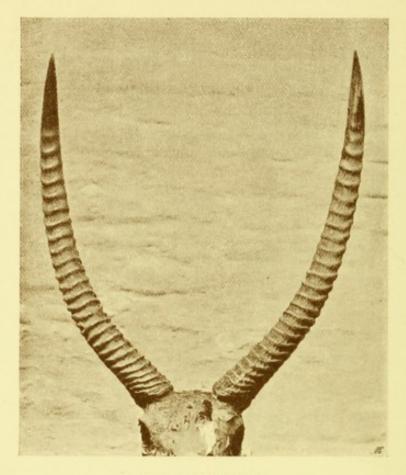
Sassa of the Abyssinians.

Not only from the other members of the oribi group, but from antelopes of all kinds, the agile little klipspringer, or "rock-jumper," is distinguished by the peculiar conformation of its hoofs and the structure of its hair. The former are large, cylindrical, blunt, and so situated in regard to the rest of the limb, that the animal walks on what corresponds to their tips in other antelopes, the whole hoof thus rising vertically from the ground. As regards the hair, this may best be compared with that of the musk-deer, having the same brittle, pithy structure. Lateral hoofs are retained; the tail is reduced to a mere rudimentary stump; and the horns of the bucks rise nearly vertically from the head, with a slight forward curvature, and are ringed for their basal third. The speckly olive-gray hue of the fur is too well known to need description. Height at shoulder from about 20 to 22 inches.

Distribution.—Mountainous and rocky districts in South and East Africa, from the Cape northwards to Abyssinia. Klipspringer-shooting is the best mountain sport to be obtained in Africa; and a pair of these active little animals bounding, as if made of indiarubber,

from rock to rock is a sight never to be forgotten. To bag these exceedingly active and shy little antelopes, the sportsman, especially in the steep mountain ranges of Cape Colony, must, however, be prepared for a long and difficult stalk under a blazing sun. Except when they require its hair for stuffing saddles, the Boers leave the klipspringer alone; which is doubtless one reason that it is still comparatively abundant. Its venison is of excellent quality.

Length on front.	Circum- ference.	Tip to Tip.	Locality.	Owner.
58	218	27/8	Mashonaland	The late H. H. Eyre.
5 ¹ 8	21/8	25	Transvaal	F. Vaughan Kirby.
-48	21/4	$2\frac{1}{2}$	Do	Julius Jeppe.
41/2	218	$2\frac{11}{16}$	Wittberg, Cape Colony	H. A. Bryden.
4½	2	31	East Africa	E. Gedge.
-4½	,		?	J. L. Drège.
$-4\frac{1}{2}$?	J. W. Corder.
48	13	21/4	Matabililand	Hon. R. A. Ward.
48	2	31/4	S.E. Africa	F. C. Selous.
41	2	35	Near Lake Rudolf .	H. S. H. Cavendish.
-41	21/2	3	Somaliland	C. V. A. Peel.
-4±	318	21/2	South Africa	A. Ohlsson.
-41	15	2 7 8	Do	Mr. Justice Hopley.
41	2	21/2	Somaliland	Sir Edmund G. Loder, Bart.
418	21/2	13	North Nyasaland .	James Yule.
4	11/2	2	East Africa	Lord Delamere.
4	178	21/8	?	Mr. Justice Hopley.
4	21/8	114	Matabililand	W. W. Ashley.
4	$2\frac{1}{2}$	178	South Africa	H. and C. Beddington.
378	178	21	Abyssinia	P. H. G. Powell Cotton.
34	2	21	East Africa	J. Gardiner Muir.
34	13	28	Somaliland	Prince Boris Czetwertynski.
33	2	2	Do	T. W. H. Clarke.
34		178	Abyssinia	British Museum.
34	28	31	South Africa	Dr. W. P. Y. Bainbrigge.



Horns of Waterbuck.

COMMON WATERBUCK (Cobus ellipsiprymnus).

countries. Kring-gaat of the Dutch. Li Tumogha of the Matabili.

Chuzu in the Chilala and Chizenga M'dongoma or Matutwi in the Barotse country. Swahili name Kuru, Tumoga of the Bechuanas.

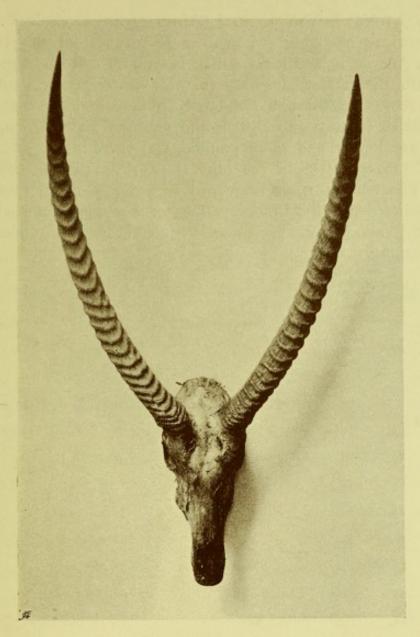
The waterbucks and their smaller allies the kobs, together with the reedbucks and vaal rhebok, constitute a well-defined group of large or medium-sized African antelopes presenting the following characteristics. They have the muzzle naked, no face-glands, a moderately long tail, well-developed lateral hoofs, and the horns confined to the bucks. In shape and size the horns are variable, being either long or medium, but never spirally twisted, and always with smooth tips, below which they are ridged; usually they are at first inclined somewhat backwards, after which they are curved upwards and more or less forwards, although they may have a sinuous curvature, and in the vaal rhebok are straight. The upper cheek-teeth are tall and narrow. In the

waterbucks and kobs, which include the largest representatives of the group, there are no naked patches on the head below the ears, the tail is comparatively long, with a slight terminal tuft, and the lateral hoofs are large. A characteristic feature of the skull is the presence of a deep hollow in the forehead. From its allies the true or common waterbuck is recognisable at a glance by the elliptical white ring on the buttocks, which extends downwards to the thighs. Height at shoulder from 48 to 53 inches. Weight about 360 lbs. clean.

Distribution.—Africa north of the Limpopo along the eastern coast region as far as the Shebeyli River in Somaliland; thus including Nyasaland and British and German East Africa. Never, apparently, very abundant, this handsome antelope, whose head and horns form one of the chief prizes of the South African hunter, has had its range much curtailed of late years. Its present strongholds are the unhealthy districts between the Sabi and Zambesi, the affluents of the latter river, and the Chobi, Okavango, and other rivers above Lake Ngami.

Length on front.	Circum- ference.	Tip to	Locality.	Owner.
36‡	84	201	Delagoa Bay	F. H. Barber. (See illustration.)
-361			South Africa	O. R. Dunell.
-351	9	14	?	Mr. Justice Hopley.
-341/2			Limpopo Valley, S.E.	H. T. and A. H. Glynn.
-33 ⁷ / ₈			Do.	J. da Gama Cruz.
-331/2	108	218	Do.	F. Vaughan Kirby.
33½	91	211/2	Do.	Hon. Walter Rothschild.
33	98	1112	Mashonaland	British Museum (F. C. Selous).
33	83	24	Do	J. G. Millais.
-33	83	174	Do	A. Ohlsson.
-33			Lake Ngami	South-African Museum.
324	94	218	South Africa	Sir Victor Brooke's Collection.
321/2	91/2	29½	Barotsiland	R. T. Coryndon.
314	9‡	24	Zululand	Major L. O. Williams.
-314	81	217	North of Pungwe	Count E. Hoyos.
-3112	9	17	?	Julius Jeppe.
-3112		163	Batoka Plateau	S. M. L. O'Keefe.

Length on front.	Circum- ference.	Tip to Tip.	Locality.			Owner.
314	101	135	Pungwe, .			Earl of Dunmore.
311	9§	194	?			Sir Edmund G. Loder, Bart.
31	$9\frac{1}{2}$	22	Zululand .			R. D. Talbot.
-31			Transvaal .			Abel Chapman.
31	$9\frac{1}{2}$	22	Mashonaland .			F. C. Selous.
-31	9^{3}_{4}	17	E. C. Africa .			James J. Harrison.
304	8	231	Pungwe			Major Lord Douglas Compton.
301/2	83	25	B. C. Africa .			S. Robins.
-301/2	9	26	Do			Julius Jeppe.
308	91/8	$23\frac{1}{2}$	Zululand .			A. J. Brandon.
-30 ¹ / ₈			Macloutsie .			Major G. F. T. Leather.
30 ¹ 8	81/2	137	Mashonaland.			F. C. Selous.
-30 1	$9\frac{1}{2}$	$\Pi_{\frac{1}{4}}^{\frac{1}{4}}$	Komati River, S. A	frica		Count E. Hoyos.
-30	81	$27\frac{1}{2}$	P. E. Africa .			Capt. M. M'Neill.
298	9 ¹ ₈	$12\frac{7}{8}$	Zululand .			Hon. Charles Ellis.
-29^{3}_{4}			Somaliland .			Dr. Donaldson Smith.
$-29\frac{9}{10}$	916	1911	Danakil .			Prince A. de Lucinge.
$-29\frac{1}{2}$	$9\frac{1}{2}$	14	East Africa .			Lieut. A. A. Ellison, R.N.
29	81/2	$32\frac{3}{4}$	Do.		4	Rhys Williams.
29	103	16	Sabi River .			Sir Thomas Fowler, Bart.
29	91/2	26	East Africa .			E. Gedge.
29	$9\frac{1}{2}$	161	Do			Major W. H. Williams.
$28\frac{3}{4}$	81/2	23	Lake Baringo			H. Hyde-Baker.
$28\frac{3}{4}$	8	27	Shiré Valley .			LieutCol. H. H. Williams.
$27\frac{3}{4}$	8	18	Somaliland .		,	A. E. Butter.
261	83	21	Do			H. Z. Darrah.



Skull of Male Sing-sing Waterbuck, from a Semliki.

SING-SING WATERBUCK (Cobus defassa).

Gurumes of the Gallas. Tambiir of the Dinkas.

Distinguished from the common waterbuck (C. ellipsiprymnus) by the presence of a large white patch on the lower part of the buttocks, instead of a white elliptical ring extending higher up. Four more or less distinct local races of this species may be recognised. First, the West African sing-sing (C. defassa unctuosus), of Senegal and Gambia, characterised by its rufous colour and the small amount of white in the region of the eye. Second, Crawshay's sing-sing (C. defassa

crawshayi), from British Central Africa, with a dusky coloration. Third, Penrice's sing-sing (C. defassa penricei), from the interior of Benguela, Angola, in which the colour is so dark as to be almost black. And, fourth, the defassa sing-sing (C. defassa typicus), extending from Western Abyssinia through Sennar, Kordofan, and the valley of the White Nile to Uganda and British and German East Africa, in which the ears are longer and more pointed, and there is more white in the region of the eye than in the other races; the general colour being rufous. The four races are frequently regarded as distinct species, but they are so evidently local modifications of a single somewhat variable form that it appears far preferable to include them all under a single specific heading.

Length on front.	Circum- ference.	Tip to Tip.	Locality.		Owner.
1 $-35\frac{1}{2}$			Near Toru .		Major C. G. H. Sitwell.
3112	8‡	26	White Nile .		Col. B. T. Mahon.
318	8	201	Do		S. H. Whitbread.
318	9	21	Semliki Valley .		Capt. R. A. Markham.
301/2	81	192	White Nile .		Major R. M. Sanders.
30	81	18	Do		R. M'D. Hawker.
291	88	185	Do		Capt. the Hon, M. P. Macnaghten.
-298	85	298	Do		Count T. Palffy.
291	8	17½	?		Douglas M'Douall.
-291	85	17	Lake Abaya .		O. Neumann.
$-29\frac{1}{8}$	91	$22\frac{1}{4}$	Semliki Valley .	*	Sir W. Garstin.
29	81/2	15%	White Nile .		G. H. Cheetham.
29	82	$21\frac{1}{2}$	British East Africa		Major E. J. Tickell.
29	8	168	Abyssinia		P. H. G. Powell Cotton.
-29	8	61/2	?		Julius Jeppe.
2 29	9	22	Lake Mweru .		Hon. Walter Rothschild.
29	S_{2}^{1}	20%	Abyssinian Sudan		Prince Colloredo Mannsfeld.
284	81	171	White Nile .		Count E. Hoyos.
281/2	9	19	Uganda		P. B. Vander C. Byl.
$28\frac{1}{2}$	8	224	White Nile .	*	Major C. E. Wilson.

¹ Mr. F. R. Hicks favours me with this measurement.

² Cobus crawshayi.

Length on front.	Circum- ference.	Tip to Tip.	Locality.	Owner.
281	83	20	White Nile	Capt. C. J. Hawker.
-281		284	Do	Sir W. Gordon Cumming, Bart.
281	91	17‡	?	A. E. Butter.
-281		19	Bahr-el-Zaraf	Sir W. Garstin.
28	7 3	15	White Nile	LieutCol. W. H. Sitwell.
28	74	181	Do	C. Adeane.
28	83	91	Do	W. D. James.
28	81	124	Wadelai	Major M. L. Carleton.
-27 ⁷ / ₈	81	98	Sudan	Count T. Palffy.
27 ³ / ₄	81	154	East Africa	C. Craig.
27 ⁸	, 8 ₈	131	?	British Museum.
$27\frac{1}{2}$	87	192	East Africa	J. K. Baas.
$27\frac{1}{2}$			Do	R. J. Church.
$27\frac{1}{2}$	9	17	Sudan	Capt. H. H. S. Morant.
-271	9	12	East Africa	Lord Delamere.
274	83	23	Sudan	Lieut,-Col. A. Colville.
27	8	15‡	Kavalli, Lake Albert.	Col. Trevor Ternan.
27	81	20	S.E. Victoria Nyanza	O. L. Beringer.
27	8§	131	East Africa	W. F. Whitehouse.
27	82	17	White Nile	Lord St. Oswald.
27	81/2	94	Sudan	H. F. Buxton.
-27	91/2	203	Do	Prince Henry of Liechtenstein.
-27			Upper Nile	Capt. C. A. Sykes.

CRAWSHAY'S SING-SING (Cobus defassa crawshayi).

$24\frac{1}{2}$	88	13	NW. Rhodesia		R. T. Coryndon.
234	81/2	13	Do.		F. W. Worthington.
231	8	133	Do.		Julius Jeppe.
$22\frac{3}{4}$	8	171	Do.		James Yule.

WEST-AFRICAN SING-SING (Cobus defassa unctuosus).

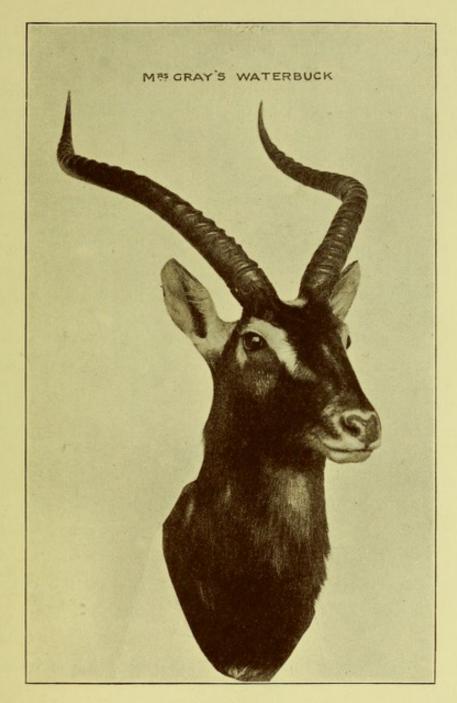
Gumbasa of the Hausas.

Height at shoulder, 47 to 48 ins.

Length on front.	Circum- ference.	Tip to Tip.		Loca	ality.		Owner.
29⅓	71	23	Nigeria		-		LieutCol. P. S. Wilkinson.
$29\frac{1}{2}$	81	172	Do.	-			R. Marmon.
274	8	15	Gambia				H. North.
26	71/2	20	Nigeria				J. C. Parker.
259	6§	18	Gambia				H. L. Stephen.
251	7 ³	134	Nigeria			-	Capt. H. A. Porter.
251/2	7	181	Do.	1	1		Capt. J. F. Loder-Symonds.
-25	***	15	Gambia				Sir Edmund G. Loder, Bart.
244	81/2	134	Do.				Julius Jeppe.
$24\frac{1}{2}$	81	19	Do.				H. C. Goddard.

PENRICE'S SING-SING (Cobus defassa penricei).

Length on front.	Circum- ference.	Tip to Tip.		1	Localit	y.		Owner.
29	83	181	Benguela		23			G. W. Penrice.
$-28\frac{1}{2}$	83	20	Do.	4	20			E. P. Cooper.
$-28\frac{1}{4}$	81	II ½	Do.		-			A. Ohlsson.
28	8	$22\frac{1}{2}$	Do.					G. W. Penrice.
$24\frac{1}{2}$	8	98	Do.					Hon, Walter Rothschild.
201	67	124	Do.					Julius Jeppe.



Head of Mrs. Gray's Kob.

MRS. GRAY'S KOB (Cobus maria).

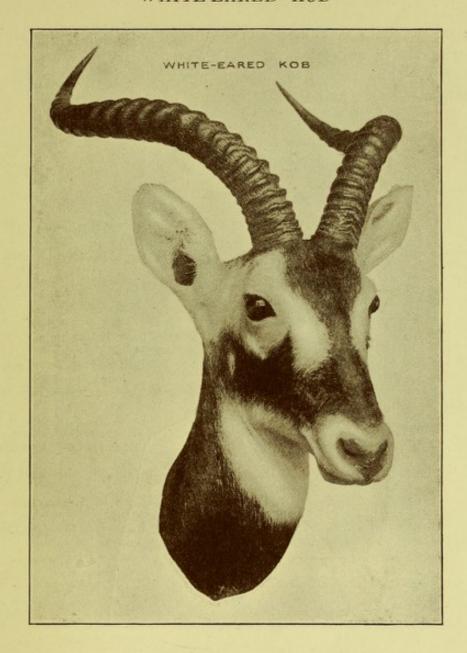
With this species we come to the smaller waterbucks, or kobs; the present animal being distinguished by the long slender darkly curved horns, which are ridged nearly to the tips, and the blackish brown body-colour of the old bucks. This dark colour is relieved by a whitish patch in front of the withers, the yellowish ears, a yellowish

white patch in front of and behind each eye, and the yellowish muzzle, chin, and throat. The limbs and much of the under-parts are wholly dark coloured. Height at shoulder about 38 inches.

Distribution.—The swamps bordering the White Nile and its tributaries.

It is only of late years that this handsome species has been well represented in collections.

Length on front.	Circum- ference.	Tip to Tip.	Locality.	Owner.
32	6 7		Near Junction of Bahr- el-Gebel and White Nile	Capt, H. N. Dunn.
-301/2	$6\frac{1}{2}$	17	?	Berlin Museum.
-29 ⁷ / ₈	68	$9\frac{1}{2}$?	Imperial Museum, Vienna.
29 ³	64	12	?	Hon. Walter Rothschild.
294	6‡	184	Near Junction of Bahr- el-Gebel and White Nile	Capt. H. N. Dunn.
29	74	124	?	LieutCol. E. G. T. Bainbridge.
29	7	16	Tonga Island, White	Capt. W. Hayes-Sadler.
-29	61/2	17	Bahr-el-Ghazal	Sir W. Garstin.
28	63	144	?	E. C. Crispin.
27 ³	63	$21\frac{1}{2}$	Bahr-el-Ghazal	Major R. M. Sanders.
271	7	174	7	Major C. E. Wilson.
27	73	17½	Bahr-el-Ghazal	Hon. Walter Rothschild.
267	67/8	134	Arwan, Bahr-el-Ghazal	British Museum (Consul J.
26½	61/2	12	White Nile.	Petherick). LieutCol. Hon. W. Coke.
261	7	14	Bahr-el-Ghazal	J. H. Whitehouse.
261	$6\frac{1}{2}$	13	Peebo River	The late Capt. H. G. Majendie.
24 ³ / ₄		***	Near Junction of Bahr- el-Gebel and White Nile	British Museum (Capt. H. N. Dunn).



WHITE-EARED KOB (Cobus leucotis).

Hamaraia dyl of the natives.

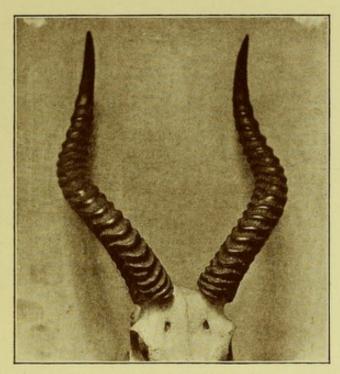
Teel of the Dinkas.

The old bucks of this smaller species are of the same blackish brown colour as those of *C. maria*, but have no light patch in front of the withers, and are further distinguished by the ears, a large patch extending from the same to surround each eye, the muzzle, chin, upper portion of the throat, the under-parts, and portions of the inner and front surfaces of the limbs being pure white. Moreover, the direction of the hair is reversed from the loins instead of from the

middle of the back. Young bucks and females are red. Height at shoulder about 34 or 35 inches.

Distribution.—The region of the Upper Nile, including the Sobat, Bahr-el-Ghazal, and their tributaries.

Length on front.	Circum- ference.	Tip to Tip.	Locality.		Owner.
21 ³ / ₄	61/2	93	White Nile		E. C. Crispin.
-215	$7\frac{7}{8}$	I 3 ¹³ / ₁₆	Do.		Paris Museum.
$2I\frac{1}{2}$	$6\frac{3}{4}$	12	Do.		R. M'D. Hawker.
$21\frac{1}{4}$	678	11	Do.		Capt. W. Hayes-Sadler.
$21\frac{1}{4}$	64	8	Do.		Major R. M. Sanders.
-21	7 ½	$10\frac{1}{4}$	Do.		E. N. Buxton.
204	6	8‡	Do.		Capt. H. N. Dunn.
203	6	94	Do.		British Museum (Capt. H. N.
201	5%	91	Sobat River		Dunn). The late Capt. H. G. Majendie.
201	7	12	White Nile		Lieut. W. B. Drury, R.N.
-201/2	7	11-15	Do.		Prince Henry of Liechtenstein.
$-20\frac{1}{4}$		8§	Do.		Major W. Anstruther Thomson.
20	64	81	Do.		Capt. R. A. Markham.
20	$6\frac{1}{2}$	134	Do.		LieutCol. E. G. T. Bainbridge.
20	61	101	Do.		Count. E. Hoyos,
20	$6\frac{1}{2}$	121	Do.		P. Niedieck.
20	$6\frac{1}{2}$	101	Do.		Hon. N. Charles Rothschild.
-20	7	$7\frac{1}{2}$	Do.		Berlin Museum.
19‡	53	14	Do.		G. H. Cheetham.
-198	61	13	Do.		Sir W. Garstin.
-19	65	78	Do.		Julius Jeppe.
183	53	103	Do.		J. Carr Saunders.
181	$6\frac{1}{2}$	61/2	Do.		Major Hon. W. Guinness.
18	6	9	Do.	2	Count E. Hoyos.
18	$6\frac{1}{2}$	104	Do.		Hon, Walter Rothschild.



Frontlet and Horns of Buffon's Kob.

BUFFON'S KOB (Cobus cob).

Maria of the Hausas.

In common with the Uganda kob and puku kob, this species has the back of the ears rufous like the body; and it agrees with the former of these in having the horns less than twice the length of the head, the hair short, and the front of the fore-legs black; its peculiar distinctive features being the presence of a white line over each eye and its comparatively small size, the approximate height at the shoulder being from 32 to 33 inches.

Distribution.-West Africa, from the Gambia to Nigeria.

Length on front.	Circum- ference.	Tip to Tip.	Localit	y.		Owner.		
-20		12	Benue .			Capt. W. de L. Williams.		
194	78	9	Lake Chad			Col. T. L. N. Morland.		
193	67	7‡	Nigeria .			Major A. H. Festing.		
19‡	63	13	Lake Chad			J. C. Parker.		
19	61/2	11	Do.		,	S. B. B. Dyer.		
183	51/2	71/2	Nigeria :		14-	Captain J. S. Brogden.		

Length on front.	Circum- ference.	Tip to Tip.	Locality			Owner.
18½	61/2	11	Niger .			Major R. H. Beddoes.
182	6	81/2	Benue River	1		Major J. A. Burdon.
18	68	9‡	Cameruns			Sir Edmund G. Loder, Bart.
18	6	83	Nigeria .		+	R. S. M'Clintock.
174	6	12	Do			Capt. J. F. Loder Symonds.
174	$6\frac{3}{4}$	84	Do			Dr. F. W. Chesnaye.
-17 ⁵	78	6	Do	4		Capt. J. K. Cochrane.
17 1/2	6‡	88	Cameruns			Hon. Walter Rothschild.
17½	54	9‡	Lake Chad			Capt. D. F. MacCarthy Morrogh.
178	54	64	Do.			Hon. Walter Rothschild.
174	64	9	?			P. C. Keytel.
17	6‡	74	Nigeria .			Julius Jeppe.
164	61	11	Do			Capt. H. A. Porter.
$16\frac{3}{4}$	51/2	8	Ibi District			Carl Jeppe.



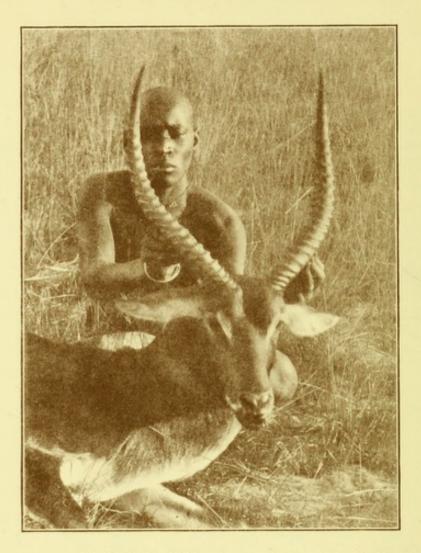
Skull of Uganda Kob.

UGANDA KOB (Cobus thomasi).

The East African representative of Buffon's kob, from which it is distinguished mainly by its superior size, and the presence of a complete white ring round each eye, instead of having only a white line above the same. General colour rich fulvous, with the muzzle, lips, chin, under-parts, and inner surfaces of upper portion of fore-legs and thighs white; front of fore-legs with a black line, and hind-legs with a similar line, which does not, however, ascend within some distance of the hocks. Height at shoulder about 35½ inches.

Distribution.—East Africa, from Kavirondo to Uganda.
Native name, Sunu or N'Sunu.

Length on front.	Circum- ference.	Tip to Tip.	Local	ity.		Owner.
-241	71/8	12	Wadelai .			Capt. G. A. S. Cape.
231/2	71	67	Mruli			Capt. J. Ponsonby.
224	7 8	1112	Uganda			Capt. C. A. Sykes.
22	7	73	Do			P. B. Vander-Byl.
214	7 ³	9	Do			Capt. R. A. Markham.
211	8	93	Do	1		Douglas M'Douall.
211	75	9	Do			Capt. R. A. Markham.
-2114		127	Do			C. Steuart Betton.
211	74	74	Wadelai			Major M. L. Carleton.
21	7	121	Uganda			Sir H. D. Tichborne, Bart.
203	63	104	Nile Valley			Julius Jeppe.
201	63	11	Do	1.		Major W. Anstruther Thomson.
20 lg	7	94	North end of I	ake Alb	ert	Col. Trevor Ternan.
20	63	11	Semaliki .			Sir W. Garstin.
194	61/2	12	Uganda .			Capt. C. J. Hawker.



Head and Fore-quarters of Lechi (Cobus lichi). From a photograph by Mr. Poulett-Weatherly.

LICHI or LECHWE (Cobus lichi).

In this handsome antelope the horns are longer than in its allies, considerably exceeding twice the length of the head, while the front of the fore-legs is black, and the hair long. Height at shoulder, 40 or 41 inches.

Like the puku, this kob was discovered by Livingstone and his companions Oswell and Murray during their journey to Lake Ngami in 1849. In point of size it approximates to the true waterbucks, from which, however, in addition to the features already mentioned, it may always be distinguished by its lighter and more graceful build. The general colour is fulvous, of a lighter tint than in the Uganda kob.

Seldom found very far from water, this antelope is most abundant

in the lagoons and swamps created by the annual rising of the Upper Zambesi, the Botletli, Chobi, Tamulakan, and other rivers of the interior, in localities where the surrounding flats are inundated for some part of The lichi seldom ventures into the deep rivers from fear of the crocodiles, but among the reed-beds, the shallow lagoons, and flooded flats it is a familiar figure. It is often to be found, in the less accessible regions, in vast herds. An excellent swimmer, it can progress by a succession of splashing bounds at great speed through the lagoons It is extremely tenacious of life. and shallows.

Distribution.—Zambesia and Barotsiland.

Lechwi in the Barotsi and Lake Leché, Lee-gwee of the Makololo. Ngami countries.

Mumembé (male), Ngia (female) in the Chilala and Chibisa countries.

183

213

61

Inva of the Masubias. Oonya of the Makubas. Bainanja of the Mushu Kulumbwe.

Do.

Length on Circum-Tip to Tip. Locality. Owner. ference. ? F. H. Barber. $-34\frac{1}{2}$ J. Rosen. -34Poulett-Weatherley. Lake Bangweolo $-33\frac{1}{2}$ 263 7 N.W. Rhodesia . Col. C. Harding. 18 311 7 Kafue River 301 8 17 C. Fendelow. Sir Edmund G. Loder, Bart. 30% 81 191 81 201 British Central Africa. J. H. Hayes. 30 16 Barotsiland Capt. J. Carden. 281 81 N.W. Rhodesia . 28 83 161 George Grey. -28 W. V. Corder. ... 28 83 161 George Grey. 183 Barotsiland South-African Museum. 274 71/2 8 Sir H. J. Goold-Adams. Okavango Valley 274 14 274 ? P. C. Keytel. 131 Chobi Valley British Museum (F. C. Selous). 271 103 191 201 Barotsiland Dudley West. 271 71 8 Chobi Valley F. C. Selous. 271 142 81 Barotsiland F. V. Worthington. 27 141 261 9 201 Julius Jeppe. Major W. Anstruther Thomson. $-26\frac{1}{2}$ $7\frac{1}{2}$ 144 Barotsiland SMITHEMAN'S LICHI (Cobus smithemani). Near Lake Mweru Hon. Walter Rothschild. 231 58 117

Do.



Skull and Horns of Puku.

PUKU KOB (Cobus vardoni).

Impuku of the Masubias.

Muntinya in Barotsiland.

Puku in Ngamiland.

Seūla in the Chilala and Chibisa countries.

From the other small kobs with the back of the ears rufous, the puku is distinguishable at once by the uniformly foxy colour of the fore-legs, as well as by the greater length of the hair, especially in the region of the back and loins, where it has a tendency to curl. General colour reddish yellow. Height at shoulder about 39 or 40 inches. Weight about 190 lbs.

Distribution.—Chobi and Zambesi valleys and Rhodesia. Everywhere rare, and found only in small herds.

Sir Edmund G. Loder, Bart.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
201	812	121	Luswesi Valley, Lake	F. Smitheman.
-19½		123	Bangweolo	J. Rosen.
191	63	81/2	. ?	J. Carr Saunders.
19‡	71/2	91	?	T. G. Davey.
19	73	54	Barotsiland	Capt. J. Carden.
183	68	81/2	Do	R. T. Coryndon.
183	7	61/2	?	J. L. Drège.
-185			Njoko Valley	Major A. St. H. Gibbons.
18	7	111	N.W. Rhodesia	Col. C. Harding.
18	78	6	?	George Grey.
173	7‡	8	Ulanga River	R. Berridge.
-171		101	Zambesi	Capt. W. Jardine.
-171		113	Batoka Plateau	E. Folley.
178	7	61/2	British Central Africa .	Hon. Walter Rothschild.
178	61	18	Kabampo Valley .	Sir H. J. Goold-Adams.
171	61	(malformed)	Barotsiland	F. V. Worthington.
17	7	$4\frac{1}{2}$	Ulanga River	A. Mathews.
17	7	10	Barotsiland	Dudley West.
17	63	8	Do	Rowland Ward.
17	6	81	Lake Mweru	James Yule.
-17	67	91/2	Chobi River	Imperial Museum, Vienna.
		(Cobus vardoni loderi.	



Head of Male Vaal Rhebok.

GRAY or VAAL RHEBOK (Pelea capreolus).

Iliza of the Swazis.

Pshiatla of the Basutos.

Peeli of the Bechuanas.

The short, upright, straight, and slender horns, together with the somewhat woolly nature of the hair, serve to differentiate the Vaal rhebok from the antelopes of the kindred genera. The tail, like that of the reedbucks, is moderately long and bushy; the ears are tall and narrow; the build is slight and graceful; and the general colour is uniformly pale gray, tending somewhat to fawn on the head and limbs. Height at shoulder about 29 or 30 inches. The chief essential distinctions between this antelope and the reedbucks are the form of the horns and the absence of the bare patches below the eyes.

Distribution.—The open hilly districts of Africa south of the Zambesi. In the mountain ranges of the eastern and northern districts of Cape Colony, and thence onwards to the Zambesi, the Vaal rhebok affords good and exciting sport; and although its somewhat stiff

and stilty appearance is not at first suggestive of unusual activity, yet the pace and regularity with which a party of these antelopes will race up the steep flank of a mountain is wonderful. The most peculiar feature of the vaal rhebok is the soft and woolly nature of the gray coat; the horns afford but insignificant trophies, and the flesh is of poor quality for the table.

Length on front.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-1112			Spitzkop	F. H. Barber.
-1112			Cape Colony .	South-African Museum.
1116	21/8	6ª	?	Surgeon H. E. Fryer, R.N.
-11			?	M. E. Bowker.
103	2	21/2	Basutoland	Julius Jeppe.
-10g		6	Cape Colony .	E. T. Murray.
-102	21/8	48	Transvaal	H. T. and A. H. Glynn.
-101		34	?	P. C. Keytel.
1016	2	37	Near Middleburg.	E. H. E. Abadie.
-91/2		31	?	Major W. Anstruther Thomson.
-98	2	41	Basutoland	Lord Milner.
9‡	21/2	2 ³ 4	?	Dr. Oakeshott.
-94	21/4	$2\frac{1}{2}$	Near Cape Town.	Capt. W. Jardine.
9	25	29	?	Mr. Justice Hopley.
-83	25	. 39	5	A. Ohlsson.
85	21/2	23	Cape Colony .	R. H. Venables-Kyrke.
85	21/2	2§	South Africa .	British Museum (Dr. Burchell).
81/2	21/2	2	3.	G. Richards.
88	2	3‡		Sir Edmund G. Loder, Bart.
81	2	2 ⁷ 8	?	F. C. Selous.
-81	21/8	34	?	Dr. W. P. Y. Bainbrigge.
-8	2	3	Mauchberg	F. Vaughan Kirby.
73	21/2	34	. ?	Hon. Walter Rothschild.
74	$2\frac{3}{4}$	27/8	?	R. T. Coryndon.



Head of Male Common Reedbuck.

COMMON REEDBUCK (Cervicapra arundinum).

Bemba of the Masaras.
Inzeegee of the Amandebili.
Im-vwee of the Masubias.
Um-vwee of the Makubas.
Inhlango of the Swazis.
Iklabu of the Basutos.
Impoyo of the Lower Zambesi tribes.

Mziki of the Zulus and Matabili.Natafwi in the Mashukulumbwi country.Mutobo in Barotsiland.

Sibughat in Ngamiland.

Mpoyo in the Chilala and Chibisa countries.

The reedbucks, none of which are so large as the waterbucks, differ from the latter and the kobs by lighter build, and the presence

of a completely bare or very short-haired patch on each side of the head immediately beneath the ear. The tail, too, is more bushy and shorter, the lateral hoofs are relatively smaller, and the horns, which are of medium length and stoutness, curve regularly upwards, and in some cases also forwards. Till very late in life the basal portion of the horns is of a pasty consistence. The present species, the true reitbok of the Boers, is the largest of the genus, standing about 36 or 37 inches at the shoulder; and has the ear-patch completely bare, and the horns inclining markedly forwards. They are generally met with in small family parties, and when excited or alarmed utter a characteristic shrill whistle. As their flesh is of fair quality, and their shooting by no means difficult, they are much sought after by sportsmen.

Distribution.—South Africa, extending as far north as Angola on the west, and to Mozambique on the east coast. Although formerly numerous in the eastern districts of Cape Colony and Natal, reedbuck have now become scarce in South Africa, and it is not till Khama's country is reached that they are met with in any numbers. As their name implies, reedbuck frequent the reed-brakes fringing so many African rivers; and some of the rivers where they are still fairly abundant are the Lotsani in Bamangwato and those of Ngamiland and the country between Mashonaland and the east coast.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
1-18	***		South Africa	F. Vaughan Kirby.
$-17\frac{1}{2}$	$6\frac{1}{2}$	$17\frac{1}{2}$	Barotsiland	Percy C. Reid.
-161		·	British Central Africa	G. Le H. K. B. Ritchie.
-168	63	192	Mpimbi, B.C.A.	Major F. Trollope.
16‡	6	163	Matabililand	R. C. Batley.
-164	61/2	10	?	Julius Jeppe.
-16	51/2	$II\frac{1}{2}$	South Africa	A. Ohlsson.
16	$7\frac{1}{2}$	$9\frac{1}{2}$	Barotsiland	Col. C. Harding.
15%	61	102	?	C. D. Rudd.
15%	61	141	?	British Museum.
-157	67	108	Zululand	F. R. N. Findlay.

¹ This was seen and measured by Mr. Kirby. It had one horn only; the other was shot off.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
1 153	618	132	Transvaal	Julius Jeppe.
15%	6	19	Tanganyika	Hon. Walter Rothschild.
$-15\frac{1}{2}$			Nyoko Valley, B.C.A	Major A. St. H. Gibbons.
$-15\frac{1}{2}$	65	$15\frac{1}{2}$	Transvaal	F. Vaughan Kirby.
$-15\frac{1}{2}$	48	$12\frac{1}{4}$?	Capt. W. Jardine.
$-15\frac{1}{2}$	***	***	Damaraland	South-African Museum.
$-15\frac{1}{2}$	***	12	Baloka Plateau	S. M. L. O'Keiffe.
$-15\frac{3}{8}$	***	***	Transvaal	Abel Chapman.
151	6‡	138	Barotsiland	F. V. Worthington.
15‡	6	134	Rhodesia	George Grey.
-151	6	15	?	P. C. Keytel.
-151		***	?	F. H. Barber.
151	65	114	Manica Plateau, N. of Zambesi	F. C. Selous.
15	61/2	94	Mashonaland	Sir John Willoughby, Bart.
-15	***	***	. Do	F. Lean.
-15	***		?	H. T. and A. H. Glynn.
-15		***	?	O. R. Dunell.
144	6	144	B.C.A	S. Robins.
14%	6	151	Zomba, B.C.A	C. C. Bowring.
143	51/2	9½	British Central Africa .	Capt. J. S. Brogden.
148	78	91/8	?	Hon. Walter Rothschild.
141	6§	75	?	Sir Edmund G. Loder, Bart.
$14\frac{1}{2}$	51	14½	Mashonaland	Capt. H. B. Dalgety.
$14\frac{1}{2}$	6‡	12 ³	Do	A. Eyre.
$-14\frac{1}{4}$	6	10	Angola	C. H. Pemberton.
-13		***	Do	E. P. Cooper.

¹ Abnormal head.



Head of Mountain Reedbuck.

MOUNTAIN REEDBUCK or ROOI RHEBOK (Cervicapra fulvorufula).

Inhlang-amatshe of the Swazis and Zulus.

This reedbuck, which measures about 28 inches at the shoulder, is distinguished by the absence of a distinct forward hook to the tips of the horns, and the general grayish fawn colour of the hair, which has, however, in some cases a more or less distinctly rufous tinge.

Distribution.—Eastern Africa to the south of the Zambesi, particularly Natal, Zululand, and Bechuanaland; represented farther north by the under-mentioned race. Rooi (red) rhebok differ from the typical representative of the genus in being inhabitants of the basal slopes of mountains, at a lower level than the tract frequented by the vaal rhebok. They are generally found in small troops of a dozen head or less; and from their active habits and the difficult nature of the ground they frequent, afford excellent stalking. In the neighbourhood of the tributaries of the Limpopo, on the Mabubi,

Tamulikan, Machabi, Sunta, and Chobi rivers, as well as the tributaries of the Zambesi east of the Victoria Falls, and throughout Mashonaland and Matabililand, rooi rhebok are still abundant. Those from the Manica plateau, north of the Zambesi may be the East African race.

The reedbuck discovered by Mr. Vaughan Kirby in the Lydenburg range of the Transvaal departs from the ordinary type of the mountain reedbuck in exhibiting a tendency to partial albinism. Whether this peculiarity entitles it to be regarded as a distinct race (*Cervicapra fulvorufula subalpina*) must, for the present, remain a moot point.

A reedbuck from East Africa, described by Mr. Walter Rothschild from a single skin as a distinct species, appears to be, at most, nothing more than a local race of the rooi rhebok (*Cervicapra fulvorufula chanleri*). In the type specimen the nose shows a dark streak like the one often seen in the rooi rhebok and common reedbuck.

Length on front curve,	Circum- ference.	Tip to Tip.	Locality.	Owner.
-8 7	48	44	Humansdorp	F. Vaughan Kirby.
-8,5	51/8	5	?	P. C. Keytel.
-8‡	34	$4\frac{1}{4}$	Transvaal	F. R. N. Findlay.
7 ³ / ₄	43	44	?	Hon. Walter Rothschild. (Shot
-7 3		$2\frac{1}{2}$	Transvaal	by F. C. Selous.) J. L. Drège.
-7½	4	3½	Lebombo Range, S.A.	Count E. Hoyos.
-7½	***		?	H. T. and A. H. Glynn.
7 3	41	3	Zululand	A. H. Neumann.
-74			?	O. R. Dunell.
-7‡	41/8	21/2	?	Mr. Justice Hopley.
-7 1 8	41	52	?	Julius Jeppe.
7	3 ¹ / ₂	41	Zululand	A. Cameron.
63	43	4 ³	?	Bloemfontein Museum.
63	41	3%	Near Ladysmith	LieutCol. P. J. R. Crampton.
-6§	34	38	?	Mr. Justice Hopley.
61/2	4	31	Zululand	LieutCol. Hon. W. Coke.
61/2	41/4	41	Orange River Colony .	LieutCol. H. R. Kelham.
-61/2	4	3	?	Major W. Anstruther Thomson.

The following specimens belong to the East African form :-

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
6 1	31/2	3	E. of Lake Margerhita	. Lord Hindlip.
-6	35	2 ³ / ₄	Rift Valley	. C. Steuart Betton.
-6	44	5 17 6	?	Capt. M. M'Neill.
55	48	4	N.E. of Lake Chomo .	. British Museum (Lord
59	4	4	?	Hindlip). Lord Delamere.
58	3½	48	?	Major A. E. Smith.
51/2	4	35	Mau Escarpment .	. Rhys Williams.
51/2	***	31/2	East Africa	. Major E. G. Harrison.
51/2	4	23	Do	. A. Bayley Worthington.
58	151	21	?	F. J. Jackson.
58	41/2	41/2	. ?	J. H. Penruddock.
51	31/2	3 7	Zombènè Range.	W. Astor Chanler.
5‡	4	4½	East Africa	. G. Chetwynd.
48	38	3	Baringo	. Hon. Walter Rothschild.
41/2	3 ¹ / ₂	$2\frac{1}{2}$	Do	. R. Wahrmann.
41/2	3‡	3‡	Do	. Lieut. Col. W. A. W. Lawson.



Ward's Bohor Reedbuck.

BOHOR REEDBUCK (Cervicapra redunca).

Distinguished from the mountain reedbuck (with which it agrees approximately in size) by the distinct forward curvature of the tips of the horns, so as to form a hook. General colour uniformly bright fawn, usually somewhat darker markings on the face and part of forelimbs; tail only slightly bushy, fawn-coloured above and white beneath. The height of the East African race is about 28 inches.

Distribution.-West, East, and North-east Africa.



Front View of Horns of Abyssinian Bohor Reedbuck.

The following five races are recognised:-

Cervicapra redunca typica.—West Africa, north of forest region. Horns short and stout, very thick at base, curved in front, points turned inwards.

Cervicapra redunca cottoni.—Kordofan, White Nile, and Isle of Meroe. Horns long and thin, much curved outwards and backwards, with the points curled straight over or directly outwards.

Cervicapra redunca bohor.—Central Abyssinia. Horns longer, stouter, and not so curved as in cottoni.

Cervicapra redunca donaldsoni,—East of Lado and Western Somaliland. Horns long, slender, curved outwards, and points much turned inwards.

Cervicapra redunca wardi.—Uganda and East Coast of Africa. Horns short, stout, curved outwards, and the points much turned inwards.

A. The following specimens belong to the typical race:-

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
11	- 5	7	N. Nigeria	. L. Donisthorpe.
103	51	61	Do	. Capt. H. A. Porter.

Length on front curve	Circum- ference.	Tip to Tip.	Locality.		Owner
108	61/2	$2\frac{7}{8}$	Lake Chad		S. B. B. Dyer.
10	54	54	N. Nigeria		J. C. Parker.
$9\frac{3}{4}$	54	5	Do		A. A. Smith.
91/2	5	31/8	Ganda, Nigeria .		Major J. W. Carroll.
98	54	6‡	Do		Major W. Anstruther Thomson.
8^{3}_{4}	6	4	Nigeria		Capt. G. W. Denison.
83	54	4§	Gambia		Lieut. A. A. Ellison, R.N.
8	5‡	31/2	Ibi, Benue River, West Africa		Julius Jeppe.
8	6	73	West Africa .		Hon. Walter Rothschild.
8	5	58	Gambia	. 2	Guy H. Sangster.

B. The following belong to Cervicapra redunca bohor:-

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
1112	51	8	Abyssinian Sudan	Count J. Potocki.
103	54	113	West of Lake Tana	P. H. G. Powell Cotton.
94	54	5	Lake Zuay	Lord Hindlip.
94	6	8	Zuguala Mt.	A. E. Butter.

C. The undermentioned specimens are referable to Cervicapra redunca cottoni:—

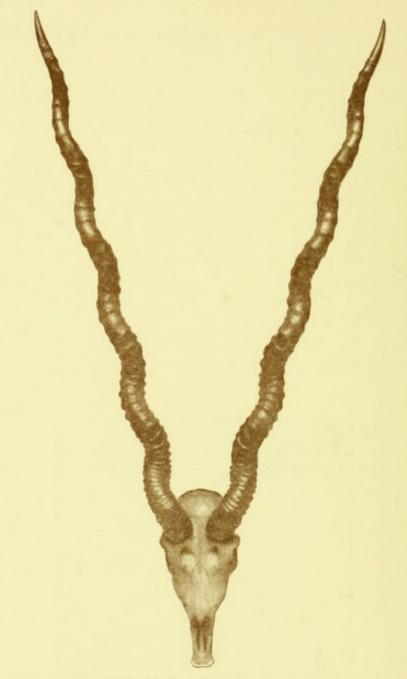
Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.		
148	51/2	13	Sudan .			Prince Colloredo Mannsfeld.	
124	5‡	81	Near Kassala	+		Carl Hagenbeck.	
12	54	74	White Nile	-		Capt. the Hon. M. P. Macnagton.	
114	51	1118	Do.			H. Cookson.	
113	5	9₹	Near Kassala			Hon. Walter Rothschild.	
II 1 2	5	81	White Nile	*		R. M'D. Hawker.	
111	51	14%	Do			Capt. H. N. Dunn.	
11	5‡	108	Do			Major R. M. Sanders.	
-11	44	134	Sudan .			Prince Henry of Liechtenstein.	

D. The following specimens are referable to various races of the species:—

Length on front curve.	Circum- ference.	Tip to Tip.	Loc	ality	y.	Owner.
134	51/8	81	East Africa		1.	British Museum.
131/2	51/2	41/2	Do.			Col. J. R. Macdonald.
122	58	58	Do.			British Museum (Sir John Kirk).
105	$4\frac{1}{2}$	51/2	Do.			Sir Robert Harvey, Bart.
-101			Do.			Capt. C. A. Sykes.
108	41	7	Do.			Dr. A. Paget. *
10	51/2	61	Mau Downs			F. J. Jackson.
10	71	48	East Africa			C. Craig.
-97	47	38	Galla country			Viscount Edmond de Poncins.
94	51/2	51/2	East Africa			E. J. L. Berkeley.
91/2	51/2	61/2	Do.			Major M. L. Carleton.
-91/2		48	Do.			Major E. G. Harrison.
98	5	51/2	Do.			Capt. J. Ponsonby.



Side View of Horns of Abyssinian Bohor Reedbuck. Shot by P. H. G. Powell-Cotton.



Skull and Horns of Blackbuck. From Mr. A. O. Hume's specimen.

BLACKBUCK or INDIAN ANTELOPE (Antilope cervicapra).

Although in former days nearly all the then known species of antelope were included in the genus *Antilope*, the extent of the latter has been gradually whittled down until it now comprises the Indian blackbuck alone. In addition to being the sole representative of the genus, this species is also the type of a sub-family or group of antelopes, embracing among others the saiga, the gazelles, the pala,

and springbuck. All these are small or medium-sized antelopes, with hairy muzzles, generally short tails, and tall, narrow-crowned cheekteeth, like those of sheep. With the exception of the springbuck and the majority of the gazelles, horns are confined to the males. From all the other members of this assemblage the blackbuck is distinguished by the beautiful spiral formed by its horns. It has large face-glands, a short and compressed tail, and well-developed lateral hoofs. Height at shoulder about 32 inches; average weight, 85 lbs. It is only in adult males that the characteristic dark tint from which the species takes its name is developed, young males being uniformly brownish fawn above like the does.

Distribution.—India, from the foot of the Himalaya to Cape Comorin, and from the Punjab to Lower Assam; unknown in Ceylon and the countries to the eastward of the Bay of Bengal.

Length straight.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-301			?	Capt. J. MacRae-Gilstrap.
1-28 3			Jeypore	LieutGen. Sir B. Blood, K.C.B.
281	5	174	Near Delhi	A. O. Hume. (See illustration.)
-28		20	Do	Lieut-Col. P. Dunell Pank.
-28	5	15	Near Ahmedabad .	T. Le Mesurier.
-278			Jeypore	LieutGen. Sir B. Blood, K.C.B.
-27	5	19½	Bikanir	Capt. Harry V. Brooke.
26 7	44	26	Ulwar	Major L. Impey.
263	48	251	Bhurtpore, N.W.P.	Major-Gen. Sir E. T. H. Hutton.
-26 3	434		Bikanir	Major-Gen. A. A. A. Kinloch.
26½	51	274	N.W.P	Capt. C. B. Oldfield.
26 3	5	17 7	Sirsa, Punjab	A. O. Hume.
-26,5	51	22	Bikanir	LieutCol. G. D. F. Sulivan.
261	5	23 1 8	Oudh	E. St. J. Lawson.
26	5	217	Bikanir	Capt. H. W. Codrington.
-255	$4\frac{1}{2}$	16	?	F. L. Crawford.
254	44	19	Jeypore	Hon. A. Holland-Hibbert.
251	4 7	18	Punjab	LieutCol. R. H. Rattray.

¹ Measured and recorded by Mr. A. O. Hume, but not now in the possession of General Sir B. Blood, K.C.B.

Length straight.	Circum- ference.	Tip to Tip.	Locality.		Owner.
258	5½	141/2	Sirsa, Punjab .		British Museum (Hume Collection).
-25 ³	5	19	?		Count E. Hoyos.
251	44	19	Jeypore		A. B. Graves.
25 ¹ / ₈	5½	15	Kathiawar .		LieutCol. L. L. Fenton.
251	48	221/4	Bikanir		H.H. the Maharajah of Bikanir.
-25	5‡	13½	?		Bombay Natural History Society.
-25	***		?		Lucknow Museum.
24 3	5	20	Jeypore	*	Major J. B. Buchanan.
24%	$4\frac{1}{2}$	171	Dholpur		A. J. Coppinger.
$-24\frac{3}{4}$	***		Sangar .		LieutCol. H. G. Mainwaring.
$-24\frac{1}{2}$	5	184	C. India		LieutCol. R. W. Mapleton.
241/2	58	201	Bikanir		H.H. the Maharaja of Bikanir.
248	48	184	Do		LieutCol. G. D. F. Sulivan.
241	48	192	?		A. Leslie Renton.
241	5	181	?		Marquis of Ailsa.



Head of Blackbuck.

Length straight.

Circum-ference.

Tip to Tip.

Locality.

Owner.



Skull and Horns of Male Pala, from a specimen shot by Mr. A. H. Neumann.

PALA or IMPALA (Æpyceros melampus).

Inzero of the Masubias. Swalah of the Swahilis.

Luondo and Mpala in Barotsiland, Ngamiland, Chilala, and Chibisa.

The graceful pala differs from all the members of the gazelle group by the absence of the lateral hoofs; its specific name (black-footed) being taken from the pair of tufts of black hair on each hind-foot. The horns of the bucks, which are of considerable length in proportion to the size of the animal, show a characteristic and graceful double curvature; and the bright foxy red hue of the shining hair of the upper-parts is very characteristic. Height at shoulder about 33 inches. The Boer name of rooibok (red buck) is happily chosen. Weight about 110 lbs.

Distribution.—Southern and South-Eastern Africa, extending as far north as Lower Kordofan. In Angola replaced by a form (Æ. petersi), usually regarded as a distinct species, but which is perhaps only a local race (Æ. melampus petersi), distinguished by the presence of a purplish black streak down the middle of the face and another

through each eye. In the days of their abundance pala were found in big troops, such as are still to be met with on the Upper Zambesi, in East Mashonaland, and parts of British East and Central Africa. Half a century ago, or even less, they were to be found in similar numbers among the covert on the banks of every river in the Transvaal and Bechuanaland; but now it is not till the northern border of the former country that they are to be met with, and then only in small parties. Pala are some of the fleetest of all antelopes, and are in the habit of leaping high in the air; their presence always implies the neighbourhood of water.

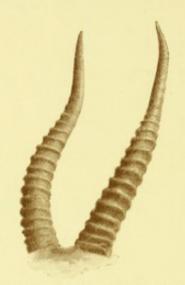
The second	100					
On front curve.	gth. Straight.	Circum- ference.	Tip to Tip.	Locality		Owner.
30	24	61	172	East Africa		Lord Delamere.
$29\frac{1}{2}$	25	6	24	Do.		H. Hyde-Baker.
294	241	6	191/2	Do.		Count E. Hoyos.
29	$22\frac{1}{2}$	6	98	Do.		Dr. A. Paget.
$28\frac{3}{4}$	231/2	61	19	Do.		Sir Edmund G. Loder, Bart.
-288	24	6	165	Do.		C. Steuart Betton.
-281		61/2	108	Do.		Capt. M. M'Neill.
28	23	54	22 ³ / ₄	Do.		A. H. Neumann. (See illustration.)
_ 28	$22\frac{1}{2}$	6	12	Do.		F. J. Jackson.
28	21	57	124	Do.		G. E. Smith.
28		6	20	Do.		Major W. Anstruther Thomson.
274	21	6	9½	Do.		LieutCol. W. A. W. Lawson.
274	231	6	131/2	Do.		Capt. H. F. T. Fisher.
271/2	234	54	124	Do.		Rhys Williams.
271/2	$22\frac{1}{4}$	6	113	Do.	14	F. C. Selous.
27½	21	58	141	South Africa		British Museum (Dr. Burchell).
27 1/2	$23\frac{1}{4}$	5%	151/2	East Africa		Julius Jeppe.
27½	227	61	$10\frac{1}{2}$	Do.		Capt. C. U. Price.
27½	231	6	184	Do.		A. Bayley-Worthington.
27	221	- 6	16	Do.		Hon. Walter Rothschild.
27	$22\frac{1}{4}$	6	10^{3}_{4}	Do.		Major A. E. Smith.
27	211	6	164	Do.		F. H. Barber.

Len	gth.		200				
On front curve.	Straight.	Circum- ference.	Tip to Tip.	Locality.			Owner.
$26\frac{3}{4}$	$22\frac{1}{2}$	6	131	East Africa			P. B. Vander-Byl.
$26\frac{3}{4}$	22	5 3	$12\tfrac{1}{2}$	Do.		15.	R. Meinertzhagen.
$-26\frac{1}{2}$			***	Do.		٠.	Capt. C. A. Sykes.
$-26\frac{1}{2}$	$20\frac{3}{4}$			South Africa			Grahamstown Museum.
268	$2I\frac{1}{2}$	6	12	East Africa	2		Capt. N. E. Playfair.
261	23	61	183	Do.			T. P. A. Holford.
261	$19\frac{3}{4}$	54	$22\frac{1}{4}$	Do.	-		C. W. Hobley.
26	21	6‡	13	Do.			Major E. J. Tickell.
26	20 5	6	$16\frac{1}{2}$	Do.			Norman B. Smith.
26	211	6	192	Do.			G. Chetwynd.
26	215	54	17	Do.			R. Wahrmann.
254	201	6	73	Do.			Douglas M'Douall.
$25\frac{1}{2}$	$21\frac{1}{4}$	61	$12\frac{7}{8}$	Do.			G. E. Smith.
$-25\frac{1}{2}$	20	6	14	Matamiri Bush	h		F. Vaughan Kirby.
$25\frac{1}{2}$	20	6	134	East Africa			Henry Charrington.
-25.13	20	5.12	15.7	Do.			Prince Henry of Liechtenstein.
25	201	5 78	14	Do.			E. Wynstone Waters.
248	$19\frac{3}{4}$	5 78	115	Do.			Sir Edmund G. Loder, Bart.
24 ³ / ₄	$19\frac{1}{2}$	54	144	Do.			C. G. Schillings.
244	21	6	171	Do.			R. J. Church.
24 ³ / ₄	20	6	111	Do.			Capt. C. P. Foley.
$24\frac{1}{2}$	192	6‡	11	Do.			Sir H. D. Tichborne, Bart.
$24\frac{1}{2}$	192	51/2	$6\frac{1}{2}$	Do.			A. Mathews.
$24\frac{1}{2}$	$20\frac{1}{2}$	6	11 <u>3</u>	Do.	*		Capt. R. E. Wemyss.
$24\frac{1}{2}$	191	58	128	South Africa			British Museum.
24	20	51/2	12	Chobe Valley			F. C. Selous.

The following specimens belong to the Angolan race:-

Ler	igth.		m.			
On front curve.	Straight.	Circum- ference.	Tip to Tip.	Locality	у.	Owner.
234	193	6	148	Angola .		C. W. Sharp.
231		51/2	15	Do		A. H. Harrison.
231	183	6	124	Kaokoland		Capt. F. Cookson.
211	18	51	194	S.W. Africa		A. N. Henderson.
-211	18	$6\frac{1}{2}$	11	Angola .		E. P. Cooper.
21	178	57	113	Do		Hon, Walter Rothschild.
-21	17%	6	93	?		Rowland Ward.





Horns of Male Saiga, from the Hon. Walter Rothschild's specimen.

SAIGA (Saiga tatarica).

One of the most remarkable of all antelopes is the Central Asian saiga, which differs from most of its kindred by the inflated and puffy nose. This forms a kind of trunk, comparable to that of the dik-diks, with the nostrils directed downwards. The tail is short, and lateral hoofs are present. In summer the colour is dull yellowish above and whitish beneath, but in winter the whole coat is uniformly whitish. The short and blunt ears are thickly covered with hair, and the horns of the males pale amber-colour. Height at shoulder about 30 inches.

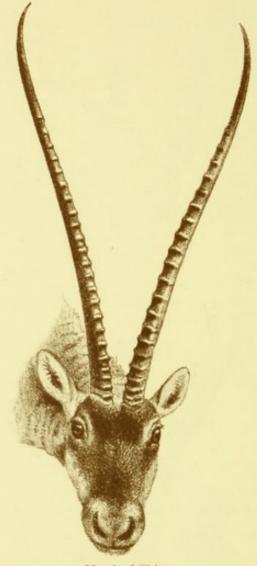
Distribution.—The steppes of Southern Russia and South-Eastern Siberia. Formerly the range extended to the confines of Poland, but the species is now restricted to the Kalmuk Steppes between the rivers Don and Volga.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
148	51	$3\frac{1}{2}$	Siberia		Hon. Walter Rothschild. (See illustration.)
134	5	***	Volga Steppe		Sir Edmund G. Loder, Bart.
134	48	31/2	?		Sir Victor Brooke's Collection.
138	5	51/2	Sarepta, South Russia		British Museum.
124	5	2	?		Imperial Museum, Vienna.
$-12\frac{1}{2}$	5	41	Siberia		Dublin Museum.
$12\frac{1}{4}$	5	5 7 8	Do		Duke of Bedford.

Length on front curve.	Circum- ference.	Tip to Tip.		Lo	cality.		Owner.
121	5	4½	Siberia		*8		Rowland Ward.
81		5‡	Do.	,			Major W. Anstruther Thomson.



Head of Male Saiga.



Head of Chiru.

CHIRU or TIBETAN ANTELOPE (Pantholops hodgsoni).

Among several animals peculiar to the Tibetan plateau none is more interesting than the chiru, whose beautiful horns form some of the most cherished trophies of the sportsman. Although very unlike in general appearance, the chiru is a near ally of the saiga, having the nose even more swollen at the sides, at least in the male, but less bent downwards at the tip. The long black horns of the bucks, which are somewhat compressed, rise almost vertically from the head, and are slightly divergent, nearly straight below, but evenly curving forwards above, and ridged in front. General colour of hair, which is very dense and short, pale fawn above, with a pinkish suffusion, but the face and

part of the limbs of the males black or dark brown. Height at shoulder about 31 or 32 inches; weight from 90 to 120 lbs.

Distribution.—The plateau of Tibet, at elevations of from 13,000 to 16,000 feet, or even more; the animal associates in pairs or small parties.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
274	61/8	131	North of Beansi Pass .	A. O. Hume.
275	51/2	114	Tibet	Sir Robert Harvey, Bart.
27 1 8	5 7 8	151	North of Beansi Pass .	A. O. Hume.
27	6	142	?	Hon. Walter Rothschild.
-27		12	3 '	J. D. Inverarity.
-263	6	134	Tibet	Dr. Albert von Stephani.
263	59	$12\frac{1}{2}$?	Sir Edmund G. Loder, Bart.
$-26\frac{1}{2}$			Chang-chenmo	LieutCol. A. E. Ward.
26g	57	13§	Ladak	Hon. Charles Ellis.
-26	54	11	Tibet	J. Ff. Darling.
26	47	127	Do	Capt. G. Campbell.
255	51/2	123	?	Arnold Pike.
251/2	54	1112	Tibet	Major C. B. Vandeleur.
$-25\frac{1}{2}$	54	134	. ?	W. H. Wilson.
258	5 %	121/2	North of Leh	British Museum (Hume Collection).
25	54	1112	Chang-chenmo	H. Z. Darrah. (See illustration.)
-251	5	103	Tibet	P. H. G. Powell Cotton.
244	5	11	?	E. L. Phelps.
244	5 ¹ / ₂	151/2	Chinese Tibet	Capt. J. A. Stewart-Balmain.
248	55	113	Tibet	Sir Robert Harvey, Bart.
$-24\frac{1}{2}$	44		Do	Major-General A. A. A. Kinloch.
241/2	5	124	Do	Capt. H. H. P. Deasy.
241	44	181	?	D. L. R. Lorimer.
-241	51/8	134	Tibet	B. H. Shaw Stewart.
-24	51/8	161	?	Capt. H. W. Codrington.
-24			Changchingris	Otho Shaw.
24	5 1 2	15	?	Capt. L. Oldfield.
-24			Chang-chenmo	Major H. Trevor.
-24			?	Indian Museum.
-24		***	?	H.H. the Maharaja of Travan-core.



Horns of Male Springbuck, from Mr. F. H. Barber's specimen.

SPRINGBUCK (Antidorcas euchore).

Although nearly allied to the gazelles, both in bodily form, coloration, and the shape of the horns, the springbuck presents a peculiarity entitling it to be regarded as the representative of a genus by itself. This peculiarity is the presence of a fold, or narrow pouch, running down the middle of the hinder part of the back, and lined with long pure white hairs. In periods of excitement this pouch is capable of being turned partially inside-out, when the long white hairs are erected, and give a totally different appearance to this region of the animal. Owing to the dark nose-streak stopping short at the level of the eyes, the springbuck has more white on the face than is the case with the majority of gazelles; and the white on the rump, which includes the tail and joins that of the middle of the back, also occupies a larger area. Height at shoulder, 30 inches.

Distribution.—The plains of Southern Africa, extending in the central districts of the continent to about latitude 20° S., where its limits are defined by the forests to the south of the Mabebi River; in the west ranging as far north as Mossamedes and Benguela in Southern Angola, and in the east at least up to the Limpopo. Although now never found in the countless thousands which formerly swarmed over the plains of the Transvaal and Bechuanaland, springbuck are still

abundant in many districts. Protected to a certain degree by law, they are to be met with in parts of Cape Colony and the Orange River Colony; while on the plains bordering the Botletli and the neighbouring salt-pans, as well as in Great Namaqualand, Damaraland, and the Ovampo Flats, they occur in large numbers. Spring-buck-stalking on the open veldt affords excellent rifle-practice; zest being added to the sport from the fact that the venison is most excellent for the table.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
1 19	5	201	Kalahari	The late W. F. Webb.
-183		121	?	P. C. Keytel.
-17			Middleburg Flats	F. H. Barber. (See illustration.)
-161			Bechuanaland	Vryburg Club.
-16		61/2	Griqualand West	Capt. G. S. Leslie.
152	61/2	7±	?	Hon. T. Thynne.
151/2	61	5	?	Julius Jeppe.
-151/2	61/2		?	Dr. Maloney.
152	61/8	$3\frac{1}{2}$	Cape Colony	C. D. Rudd.
-151	6	23	S. of Great Namaqualand	Th. Rehbock.
151		***	?	J. Rosen.
-15‡	5½	41/8	?	Dr. W. P. Y. Bainbrigge.
151	51/2	7	?	Major W. Anstruther Thomson.
151	61	578	Ovampo Flats	Capt. F. Cookson.
15	. 54	7	?	George Grey.
15	51/2	81	?	Capt. E. J. Lugard.
-15	6	6‡	?	A. Ohlsson.
-15			Langberg, Kimberley .	South-African Museum.
-15		10	?	Major James Grant.
$-14\frac{1}{2}$			}	Alfred Ebden.
141	54	$4\frac{1}{2}$?	C. L. Blundell.
141	64	5	?	C. Ansell.
141	6	243	?	C. Challis.

¹ A malformed specimen.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
14	54	41	?		British Museum.
14	6	3	?		Hon. J. C. Lyttelton.
14	51/2	5	?		F. E. Potter.
137	6	58	Griqualand .		F. C. Selous.
134	6	54	?		Earl of Kingston.
135	51	58	Benguela .		G. W. Penrice.
135	5 1/2	41	Angola		C. W. Sharp.
13½	5½	5	Do		A. H. Harrison.
9 13½	4	64	?		Julius Jeppe.
9 13	***		Middleburg Flats		F. H. Barber.
-913		***	South Africa .		Alfred Ebden.
9 11½	3	64	Angola		C. W. Sharp.



GOA or TIBETAN GAZELLE (Gazella picticaudata).

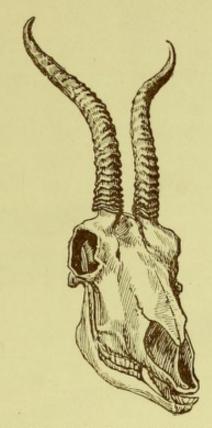
The true gazelles form a large group of delicately built antelopes. They are of medium or rather small size, with the muzzle of ordinary shape, the neck not unduly elongated, and no fold containing a crest of long erectile hairs down the middle of the back. To suit the nature of their haunts, their coloration is generally of a sandy hue, with the underparts white, and the face in most cases marked with parallel dark and light longitudinal streaks; dark bands being also frequently present on the rump and on the flanks to separate the tawny of the back from the white beneath. The knees are very generally furnished with brush-like tufts of long, stiff hairs; and the tail is either short or of medium length. With the exception of four species, horns are present in both sexes; those of the males being stout, distinctly ridged, and generally of about the same length as the head, although occasionally much longer. Except at the tips, they curve backwards, so as to present an anteriorly convex lower portion, above which they are generally more or less curved forwards and upwards. Gazelles have a wider geographical distribution than any other genus of antelopes, and are, for the most part, inhabitants of more or less desert regions, or their confines.

The Tibetan goa belongs to a small and aberrant group of the genus in which the tail is very short, the usual dark and light streaks on the face are wanting, and the females are hornless. As a species, it is distinguished by its comparatively small size, and the strongly

marked backward curvature of the horns, which are not hooked at the tips, as well as by the white rump and the absence of face-glands. Height at shoulder about 24 or 25 inches. Weight about 45 lbs. Distribution.—The plateau of Tibet and some of the adjacent

parts of Central Asia.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
148	38	2	Hanle, Spiti	Hon. Walter Rothschild.
134	34	3	Ladak	Major G. F. Mockler.
$-13\frac{1}{2}$?	LieutCol. T. Greenaway.
13½	38	5‡	Hills N. of Sikhim .	British Museum (Hume Collection).
-131	4	*	Tibet	Major-General A. A. A. Kinloch.
-131	31/2	3	Ladak	Capt. H. W. Codrington.
131	$4\frac{3}{4}$	34	Do	Capt. Neill Malcolm.
131	4	39	Tibet	H. C. V. Hunter.
-13 1	38	61	S.E. of Hanle .	P. H. G. Powell-Cotton.
-13	34	54	Tibet	Bombay Natural History Society.
13	41/8	$4\frac{1}{2}$	East Ladak	Col. J. Biddulph.
13	34	1 1/2	?	Major C. B. Vandeleur.
-13	***		?	Indian Museum.
13	34	58	N. Sikhim	Major A. Pearse.
-13	38	3 %	Near Hanle	Capt. H. W. Codrington.
12%	$3\frac{7}{8}$	43	Hills N. of Kumaon	A. O. Hume.
12%	38	48	3	British Museum (B. H. Hodgson).
123	4	6‡	Ladak	Baroda State Museum.
$12\frac{3}{4}$	4	44	?	Lord Stavordale.
128	44	51/8	Near Hanle	H. Z. Darrah.
$12\frac{3}{8}$	$3\frac{1}{2}$	$5\frac{1}{2}$	South of Hanle .	Col. F. C. Lister-Kay.
121	31/2	61	Ladak	David T. Hanbury.
$-12\frac{1}{4}$	31/2	318	Tibet	Paris Museum (Prince Henri
1218	$3\frac{1}{2}$	61/2	Do	d'Orléans). Sir Edmund G. Loder, Bart.
121	38	5	Ladak	Capt. F. E. S. Adair.



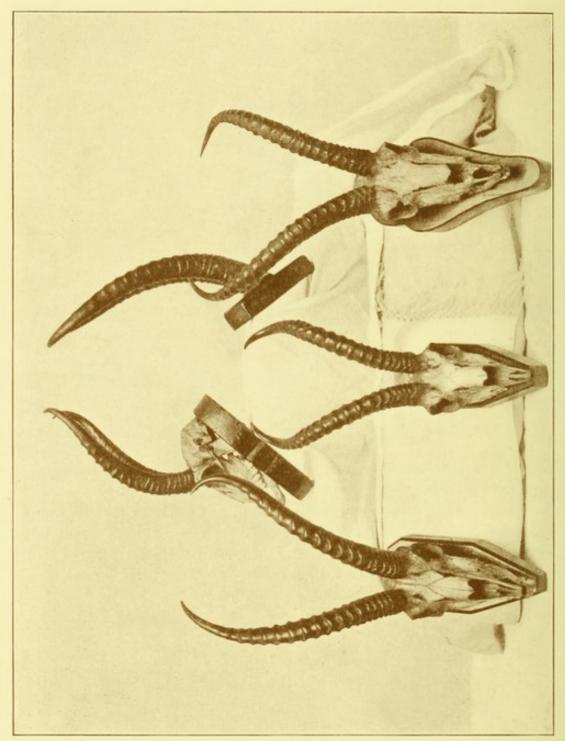
Skull and Horns of Przewalski's Gazelle, from a specimen shot by Prince Demidoff.

PRZEWALSKI'S GAZELLE (Gazella przewalskii).

Nearly allied to the goa, from which it differs by its rather larger size, and the distinct hooks formed by the tips of the horns of the bucks. General colour in summer, deep fawn; in winter, pale finely grizzled fawn; white of buttocks running up in an angle on each side of the tail, which is very short, and almost concealed by the fur. Front of limbs more or less brown; no tufts of hair on the knees.

Distribution.—Mongolia.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	, Owner.
101	48	$2\frac{3}{4}$?	British Museum.
10	4	49	?	H.R.H. Henri de Bourbon, Comte de Bardi.
94	41/8	48	North of Pekin	British Museum (R. Swinhoe).
-811	34	48 .	North China .	Paris Museum (Père A. David).



Skulls and Horns of Yarkand and Persian Races of the Goitred Gazelle. The specimens in the right top corner and lower central figure alone belong to the Persian. All three are in the Collection of Mr. A. O. Hume.

MONGOLIAN GAZELLE (Gazella gutturosa).

Jaeisw or Sava-keek in Turkestan. Hwang-yang in Mongolia.

Belonging to the same group of the genus as the goa, this larger species takes its scientific title from the peculiar swollen condition of the throat of the male during the pairing season. In addition to its size (height at shoulder about 30 inches), the species is characterised by the comparatively slight backward curvature of the horns, which are not hooked at the tips; the general colour being pale fawn, with the rump, flanks, and the whole of the limbs white.

Distribution.—Northern and Eastern Mongolia and the southern borders of Russian Transbaikalia. This gazelle was discovered by the Russian traveller Pallas, who described it as long ago as the year 1777.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
154	5	6.34	Lob Nor	A. O. Hume.
-15½	41	7‡	Dscheran	Dr. Albert von Stephani.
144	48	3	Chinese Turkestan .	Major C. S. Cumberland.
-145	318	43	Lob Nor	Paris Museum (Prince Henri d'Orléans).
134	48	$4\frac{1}{2}$	Chinese Turkestan .	E. L. Phelps.
134	5	4	Do	J. V. Phelps.
134	41/2	6	Saissan, West Siberia.	British Museum (Dr. O. Finsch).

GOITRED GAZELLE (Gazella subgutturosa).

A near relation of the Mongolian species, but distinguished by the much longer tail, of which the upper surface is crested with black, and the presence of dark and light markings on the face. These face-markings differ, however, from those of all other species save the Marica gazelle (G. marica) of Arabia, in that the upper portion of the face, in adult individuals of the typical race, is pure white, so that the central dark band is interrupted on the forehead. From the Marica the Goitred gazelle may be distinguished by its superior size (height at shoulder from 26 to 27 inches), and the absence of horns in the female. The larynx is swollen, forming a peculiar prominence on the front of the upper part of the throat.

There are three distinct local races of this gazelle, the ordinary Caspian and Persian G. subgutturosa typica, the Yarkand G. s. yarcandensis, distinguished by its superior dimensions and darker face-markings, and the Altai G. s. sairensis, in which the bodily size is large, but the horns are relatively small.

Distribution.—Western Asia from Asia Minor and Caucasia in the west to Turkestan, Yarkand, and Mongolia in the east.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.				Owner.	
142	- 4	41/2	Baluchistan				Capt. T. W. Greenfield.	
-144	51	6	Near Tiflis .				Clive Phillipps-Wolley.	
141	41	3	Wana istan	Plain,	Wa	zir-	A. J. Grant.	
135	48	5	Persia			4	Imperial Museum, Vienna.	
131	41	4	Khelat				A. O. Hume.	
13	44	41	Persia				E. Rennie.	
$-12\frac{7}{8}$	34	7	Syria .				Dr. Albert von Stephani.	
121	4	51	Do				Hon. Walter Rothschild.	

A. The following specimens belong to the Altai race :-

113	$4\frac{1}{2}$	6	Altai .			Sir Edmund G. Loder, Bart.
II	48	48	Do			St. George Littledale.
11	$4\frac{1}{2}$	61	Do			A. Louw.
108	4	6§	Do			P. B. Vander-Byl.
102	4	51/8	Do			Hon. Walter Rothschild.
10	41°5	6	Do	-		Prince E. Demidoff.
94	48	61	Do			Lord Elphinstone.

B. The undermentioned specimens belong to either the Yarkand or Altai races:—

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.		
165	41/2	63	Kuldja				Sir Edmund G. Loder, Bart.	
16	5	31/4	Yarkand				A. O. Hume.	
157	5	31	Do.				Do.	
14	44	5.75	Do.				Do.	
14	5	54	Eastern T	urke	stan		Col. J. Biddulph.	
131/2	44	65	Maralbash	i .			David T. Hanbury.	
-138	516	7 1 8	Altai .	*			Paris Museum (Prince Henri d'Orléans).	
13	48	71	Maralbash	i			P. Church.	
124	48	38	Altai .				St. George Littledale.	
-12		2	Maralbash	i			H. Lennard.	



Skull and Horns of Male Yarkand Goitred Gazelle from Kuldja, in the possession of Sir Edmund G. Loder, Bart.



Head of Dorcas Gazelle.

DORCAS GAZELLE (Gazella dorcas).

This well-known species brings us to the more typical group of gazelles, in the members of which the central dark face-band is continued uninterruptedly up the forehead, and horns are developed in both sexes. Among the special characteristics of the present species may be noted the circumstance that the white area of the rump does not invade the fawn of the back, the indistinctness of the dark lateral band dividing the fawn of the upper-parts from the white beneath, and the perfectly lyrate form of the horns, which are of medium length, with the middle portion twisted outwardly, and the tips converging towards one another. Height at shoulder, 21 to 22 inches; total length about 42 inches. General colour pale fawn, of rather variable tint, with the face-markings distinct.

Distribution.—Morocco, Algeria, and thence eastwards through Egypt into Palestine and Syria. By the Arabs of Algeria this gazelle is known as rhozal or hemar.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
131	41	$2\frac{1}{2}$	Algeria	. Sir Edmund G. Loder, Bart,
13	4	31/2	El Obeid, Kordofan .	. Capt. J. G. A. Massy.
123	$3\frac{7}{8}$	4	Algiers	. A. Louw.
125	38	48	Sudan	. Col. B. T. Mahon.
$-12\frac{1}{2}$	35	51	Algeria	. Viscount Edmond de Poncins.
$12\frac{1}{2}$	35	34	Southern Sahara .	. J. I. S. Whitaker.
123	38		Do	. British Museum.
-124	$3\frac{1}{2}$	34	Do	. A. E. Pease.
$12\frac{1}{8}$	41	$3\frac{1}{2}$	Kordofan	. Capt. J. H. Rivers.
12	4	34	Southern Sahara .	. J. H. Thomas.
117g	38	$4\frac{1}{2}$	Do	. Sir Victor Brooke's Collection.
-113	34	51	Do	. Julius Jeppe.
115	4	$2\frac{1}{2}$	Sudan	. Capt. G. S. Nickerson.
114	$3\frac{1}{2}$	37	Algeria	. E. N. Buxton.
118	34	4	Do	. A. Ohlsson.
9 111 €	216	5 3	Kordofan	. Capt. J. H. Rivers.
103	41/4	$2\frac{1}{4}$	Lake Chad	. Capt. J. K. Cochrane.
- ♀ 9₹			Algeria	. A. E. Pease.

EDMI or ATLAS GAZELLE (Gazella cuvieri).

From the dorcas the present species may be readily distinguished by its superior size, the imperfectly lyrate form of the horns, which diverge more or less regularly upwards, the presence of a black spot on the tip of the muzzle, and the rough character of the hair. General colour dull fawn, with a very indistinct lateral band, well-defined face-markings, the lower portion of the tail crested with black, and the under-parts, buttocks, and inner surfaces of fore-legs pure white. Height at shoulder from 26 to 27 inches.

Distribution.—The mountains of Morocco, Algeria, and Tunisia, where it is known by the name of edmi or admi.

Length on front curve.	Circum- ference.	Tip to Tip.	Lo	ocality.		Owner.
148	5	35	Algeria .			Sir Edmund G. Loder, Bart.
148	4 ³	41	N. Tunis		4	J. I. S. Whitaker.
$-14\frac{1}{2}$	38	$3\frac{1}{2}$	Algeria .			A. E. Pease.
144	34	51	Southern S	ahara		J. I. S. Whitaker.
144	38	5½	Algeria .	4.		A. Louw.
141	4	31	Do			F. H. Barber.
♀ 13₹	31/2	7 ¹ / ₈	Do			E. N. Buxton.
-135	4‡	51/2	Do			Viscount Edmond de Poncins.
138	$4\frac{1}{2}$	7 1 /8	Do			Hon. G. Gordon.
124	48	38	Do			E. N. Buxton.
$-12\frac{3}{4}$			Do	-		Capt. J. Marriott.
$-12\frac{3}{4}$		41	Do			Major W. Anstruther Thomson.
121	3 ³ 4	43	Do		ů.	A. Ohlsson.
11 9	$2\frac{1}{2}$	5%	Do.	40		J. I. S. Whitaker.

ARABIAN GAZELLE (Gazella arabica).

Belonging to the same sub-group of the genus as the edmi, this elegant gazelle may be differentiated from that species by its smaller size, smoother hair, and darker coloration, the general tint of the upperparts being dark smoky fawn, with the central face-band rufous fawn, and a black spot on the tip of the muzzle. Height at shoulder, 24 or 25 inches.

Distribution.—Western Arabia, where it is known as ghasal, its Syrian title being ariel or aiel. In spite of its being one of the commonest of the gazelles, and also one which can easily be obtained in captivity, very little authentic information is forthcoming as to its habits, and even its range is not yet fully determined.

Length on front curve.	Circum- ference.	Tip to Tip.	. Locality.	Owner.
81	4	2	Mocha, South Arabia	British Museum (W. T. Blanford).
- 9 7½	2	48	?	Dr. Percy Rendall.
48	31/8	35	South Arabia	Sir Victor Brooke's Collection.
9 4½	13	$2\frac{1}{2}$?	Major H. G. C. Swayne.



Head of Male Indian Gazelle.

INDIAN GAZELLE (Gazella bennetti).

Closely allied to the Arabian species, this gazelle (the chinkara of the natives and the ravine-deer of many Anglo-Indian sportsmen) is of smaller dimensions and much lighter colour; the height at the shoulder varying from 23 to 24 inches, and the general colour of the upperparts being dull fawn.

Distribution.—Peninsular India, thence extending westward through Baluchistan to the shores of the Persian Gulf. In the Book of Antelopes Messrs. Sclater and Thomas remark that, like the lion and the hunting-leopard, this gazelle belongs to an African type, and appears to have been originally a migrant from the west into India, whence it has spread over the greater part of the peninsula. It should, however, be remembered that extinct gazelles and hunting-leopards occur in the north of India.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality	y.	Owner.
-15	5		Rajputana .		H.H. Maharaj Rana Bahadur of Ihalawar.
142	$4\frac{1}{2}$	85	Dholpur .		L. M. le Champion. (See illustration.)
$-14\frac{1}{4}$	***		Ferozepore Di	strict	Captain Harry V. Brooke.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-141		67	Dholpur	Mrs. W. W. Baillie.
-141			Sirsa District, Punjab	Major H. Trevor.
-I4 ¹ / ₈		4	?	Major W. Anstruther Thomson.
14	48	54	Ferozepore District	Capt. Harry V. Brooke.
-14			Near Lahore .	Measured by General Kinloch.
-137	41	61/2	Do	C. P. Down.
134	41/2	7	?	Sir Victor Brooke's Collection.
134	48	81	Sind	L. Napier.
135	48	7½	Bikanir	Capt. C. F. Vander-Byl.
131	41	68	Muttra, N.W.P.	Major G. F. Mockler.
13‡	4	41	?	Sir Edmund G. Loder, Bart.
13‡	4	64	?	Major O. A. Chambers.
-131	41		Delhi	Major-General A. A. A. Kinloch.
-13 1 8	41/2	4	Hissar	Major P. J. Gordon.
13	31/2	6	Bikanir	Major H. C. Morland.
-13	315	315	Gwalior	Viscount Edmond de Poncins.
-13	41	5	?	Major Colvin Stewart.
13	34	6	?	LieutCol. R. H. Rattray.
124	41	5	Goorgaon, Punjab	A. O. Hume.
123	48	71/2	?	H. C. V. Hunter.
123	41	57	North Punjab .	Col. J. Biddulph.
123	41	7	?	Capt, L. I. B. Hulke.
-124	41/8	6 <u>1</u>	Bikanir	Sir Philip Grey Egerton, Bart.
-124	44	6^{3}_{4}	Do	Capt. H. W. Codrington.
-12 ³	4	6	Jodhpore	H.H. the Maharajah of Bikanir.
121/2	41	51	Bikanir	LieutCol. G. D. F. Sulivan.
$-12\frac{1}{2}$?	H.H. the Maharaja of Travan-
128	4	51/2	Simrol, Bengal .	core. British Museum (Colonel Evans).
128	41/8	6	Do	P. B. Vander-Byl.
♀ 7₺	ę	21/4	?	Sir Victor Brooke's Collection.

Length on front curve, Circumference. Tip to Tip. Locality. Owner.



Head of Male Speke's Gazelle.

SPEKE'S GAZELLE (Gazella spekei).

Dhero of the Somalis.

From the edmi and its allies, with which it agrees in its leading characteristics, this very peculiar gazelle is readily distinguished by the development of a flabby corrugated elevation on the skin of the nose; the general colour of the upper-parts being pale brownish fawn, with the lateral band darker than in the other members of the sub-group. Height at shoulder from 23 to 24 inches.

The protuberance on the nose is probably connected with the sexual function; in dead specimens it exhibits a slight cavity beneath the skin which can be inflated by blowing air into the nostrils, and it is therefore probably capable of distension during life.

Distribution.—The plateau in the interior of Somaliland,

Length on front curve.	Circum- ference.	Tip to Tip.	Owner.
$-12\frac{1}{2}$		31/2	P. C. Keytel.
-12	34	5‡	Viscount Edmond de Poncins.
-12			J. Menges.

RECORDS OF BIG GAME

Length on front curve.	Circum- ference.	Tip to Tip.	Owner.
113	34	48	Major H. G. C. Swayne.
115	34	21/2	Major-Gen. A. Paget.
11½	48	2 ⁸ ₄	T. W. H. Clarke.
111	4	41	LieutCol. H. D. Olivier.
111	4	4	W. H. Cobb.
1118	4	5‡	C. Liddell.
11	4	$4\frac{1}{2}$	J. H. Whitehouse.
τı	4	4	A. H. Straker.
11	$3\frac{7}{8}$	5	Major H. C. Morland.
11	4 1 1	35	Lord Delamere.
10%	3‡	34	Sir Edmund G. Loder, Bart.
103	49	5‡	Capt. B. R. M. Glossop.
103	4	4	R. M'D. Hawker.
103	3 ⁷ / ₈	3	C. N. Welsh.
$10\frac{3}{4}$	34	34	E. Lort-Phillips.
104	4	34	Capt. B. Vincent.
103	4	44	A. Louw.
105	31	4‡	Major G. F. T. Leather.
- ♀ 9₹	***	***	J. Menges.
9 9 ½	27/8	31	T. W. H. Clarke.



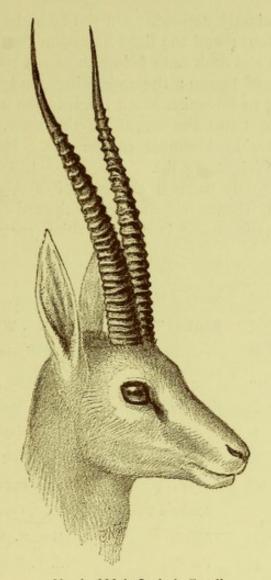
Head of Male Pelzeln's Gazelle.

PELZELN'S GAZELLE (Gazella pelzelni).

This species, the lowland gazelle of Somaliland, is nearly related to the last, from which it differs by the absence both of the corrugated elevation on the nose and of the black spot on the muzzle. It is also slightly larger than Speke's gazelle, the height at the shoulder being about 25 inches; and its colour is somewhat more rufous, the light lateral band being distinct, and the dark band rufous brown only slightly darker than the back, without any tendency to blackness. The dark and light bands on the cheeks are relatively short and indistinct.

Distribution.—The plains of Northern Somaliland, bordering the sea. Within fifty miles of the shore this gazelle is exceedingly numerous, and may often be seen in large herds. It is termed by the natives dhero, in common with Speke's gazelle.

Length on front curve.	Circum- ference.	Tip to Tip.	Owner.
-13 ₁₆	***	***	J. Menges.
-13 1	$4\frac{1}{2}$	$3\frac{1}{2}$	P. C. Keytel.
$-13\frac{1}{8}$	***	***	J. Rosen.
121	34	414	Major H. G. C. Swayne.
124	4 ¹ / ₈	5½	Lord Delamere.
$-12\frac{3}{16}$	3 =	4	Capt. M. M'Neill.
121	35	41	The late W. Babington.
-12	3 1	44	Count E. Hoyos.
-12			Sir E. Lechmere, Bart.
12	34	4 ¹ / ₈	Capt. G. Campbell.
12	34	5‡	Viscount Edmond de Poncins.
1112	$3\frac{1}{2}$	51/2	T. W. H. Clarke.
1112	$3\frac{1}{2}$	41	Major H. C. Morland.
I I ½	$3\frac{1}{2}$	5	Capt. W. H. Williamson.
1112	34	48	W. F. Whitehouse.
111	4 1 .	5½	A. H. Straker.
111	38	48	Rowland Ward.
111	4	31/2	Sir Edmund G. Loder, Bart.
I I ½	38	41	Major G. F. T. Leather.
1118	34	3 ³	Major-Gen. A. Paget.
1118	$3\frac{1}{2}$	41/4	Hon. Walter Rothschild.
11	31/2	$4\frac{1}{4}$	Capt. Neill Malcolm.
11	34	4 ¹ / ₈	A. S. Trevor.
11	34	3₽	R. M'D. Hawker.
104	34	4	A. Bayley-Worthington.
10}	334	41	F. G. Gunnis.
9 8§		1000	J. Menges.
8‡	2 ½	31/2	W. F. Whitehouse.
♀8	178	34	Julius Jeppe.



Head of Male Loder's Gazelle.

LODER'S GAZELLE (Gazella leptoceros).

Arab name, Rhim.

Although originally described so long ago as the year 1842, very little was known of this gazelle till specimens were procured by Sir E. G. Loder, and described as a new species under the name of G. loderi. Further investigation proved them to be inseparable from the species named by F. Cuvier. Agreeing with the preceding members of the group in the white of the rump not invading the haunches, the species is easily recognisable by the long and slender form of the horns, and the very pale tone of the coloration of the upper-parts, which may be described as pale sandy fawn, with the characteristic gazelline

markings only indistinctly defined. On the face the dark streaks are sandy instead of rufous; and the light bands on the flanks are almost imperceptible, while the dark ones below them are pale sandy with the very slightest tinge of brown; the tail being sandy at the base and gradually darkening to brownish black towards the tip. In the male the horns are about twice the length of the head, very slender, and closely and heavily ridged almost to the tips. Height at shoulder about 28 inches. Weight, 34 lbs.

Distribution.—The sandy tracts of the interior of Algeria, Tunisia, and Western Egypt, thence extending southwards into Nubia and Sennar. The native name is rhem or rhim (reem).

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
15%	31/2	6.1	South of Biskra .	. Dr. Dawtrey Drewitt.
15%	4	41	Southern Tunisia .	. J. I. S. Whitaker.
154	34	81/2	Do	. Sir Edmund G. Loder, Bart.
-15			. ?	J. Rosen.
141	31/2	5 ½	South of Biskra .	. F. H. Barber.
$-14\frac{1}{2}$	31/2	3	?	P. C. Keytel.
1476	38	41	Algeria	. Julius Jeppe.
141	31/2	101	Do	. Sir Edmund G. Loder, Bart.
-14			Southern Tunisia	. W. J. Corder.
14	38	3	Algeria	. Hon. R. A. Ward.
-14	38	5‡	Tue Erg	. A. E. Pease.
14	34	4%	Algeria	. Mr. Justice Hopley.
135	35	51/2	Do	W. E. Pease.
131/2	34	83	Southern Tunisia	. Sir Edmund G. Loder, Bart.
-131	34	34	Sahara	. Viscount Edmond de Poncins.
131	31/2	33	Do	. A. Louw.
131	31/2	5≩	Southern Tunisia	. J. I. S. Whitaker.
134	44	51/8	Fayoum, Egypt .	. Capt. S. S. Flower.
9 113	2	38	3	Julius Jeppe.
9-115			Southern Tunisia	. J. Menges.

ISABELLA GAZELLE (Gazella isabella).

Gannai of the natives.

In all the foregoing gazelles with horns in both sexes, the horns themselves have their tips slightly curved either inwards or upwards, and never bent back so as to form a right angle with the basal portion. On the other hand, the present species and the Muscat gazelle (G. muscatensis), while resembling the foregoing in the shape of the white rump-patch and the comparatively light tint of the flank-band, differ by the tips of the horns being hooked inwards or upwards so as to form nearly or completely a right angle. From its ally the present species differs by the pale fawn-colour of the upper-parts; the lateral bands and other markings being also fawn, instead of blackish. Height at shoulder about 25 inches.

Distribution.—The Red Sea littoral from Suakin to Massowa, and through the interior to Bogosland, Barca, and Taka.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
$10\frac{3}{4}$	378	45	Sudan	Major C. Levita.
103	41	3 8	El Obeid	Capt. J. G. A. Massy.
101	34	4	White Nile	Hon. F. E. Guest.
101	37	61	Sudan	P. C. Lord.
101	34	24	Anseba River,	Sir Victor Brooke's Collection.
101	34	47	Abyssinia Near Suakin	Major W. Anstruther Thomson.
108	34	4	Komayli, Abyssinia.	(British Museum) W. T. Blanford.
10	34	4	Eastern Sudan .	A. W. Haig.
-9.14	4	3	Between Suakin and Kassala	Prince Henry of Liechtenstein.
97	2	3	Do.	Sir Victor Brooke's Collection.
87	17	238	Kordofan	British Museum.

HEUGLIN'S GAZELLE (Gazella tilonura).

This well-marked species brings us to a small sub-group in which the dark band on the flanks is very strongly defined, and black in colour; the present species being distinguished from its allies by the abrupt inward hooking of the tips of the horns. The general colour is deep sandy, with the central face-band but little darker than the back, no black nose-spot, and the tail sandy at the base but black elsewhere. Height at shoulder about 27 inches.

Distribution.—Bogosland, in North-Eastern Africa. Very little is known of this rare species.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
$11\frac{1}{4}$	4	21/2	Eastern Sudan	LieutCol. Hon. W. Coke.
103	34	$4\frac{1}{2}$?	E. Lort-Phillips.
10^{3}_{4}	4	2 1/8	Bogosland .	British Museum.
101/2	48	3	Near Kassala .	Prince Colloredo Mannsfeld.
104	4 ¹ / ₈	41	Basaland .	Hon. Walter Rothschild.
101	41/8	278	?	Col. Ralph Vivian.
97	48	17	Bogosland .	Sir Victor Brooke's Collection.
94	41	1 7 /8	Bahr-el-Ghazel	F. H. Barber.
94	41/2	3 ⁸ 4	?	Capt. H. H. S. Morant.
9 −61/2	444		Eastern Sudan	J. Menges.
♀ 5₺	13	13	Abyssinia .	Sir Victor Brooke's Collection.



Shot by the late Capt. H. J. Majendie.

SENEGAL or RED-FRONTED GAZELLE (Gazella rufifrons).

El Hamra of the Dinkas.

This medium-sized and rather stoutly built species agrees with Heuglin's gazelle in the black flank-stripe, but differs by the absence of a distinct inward hooking of the tips of the horns; the general colour being deep sandy rufous, brightening into rich rufous on the forehead and muzzle, without a black nose-spot. The knee-tufts so generally present in gazelles are wanting; and the tail, with the exception of the sandy upper surface of the basal portion, is black. Horns relatively small, regularly divergent, curving at first slightly backwards and then forwards, heavily ridged till the terminal two or three inches.

Distribution.—Senegal and Gambia.

Length on front curve.	-	Circum- ference.	Tip to Tip.	Locali	ty.	Owner.
123		5‡	5	White Nile		Capt. L. Rawstorne.
125		43	4	Do.		P. Niedieck.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
128	48	7	White Nile .		R. M'D. Hawker.
125	45	6§	Do		H. Cookson.
123	5	44	Do		C. Cookson.
121	416	58	Do		Col. B. T. Mahon.
121	$4\frac{3}{4}$	53	Do	40	Col. H. W. Guinness.
12	48	58	Do	2	Capt. J. F. Wolseley.
12	41	6	Do		Lieut. W. B. Drury, R.N.
II 7 8	5	$4\frac{1}{4}$	Reahat, Sudan .		Prince Colloredo Mannsfeld.
117	41	$6\frac{3}{4}$	El Obeid		Capt. J. G. A. Massy.
113	$4\frac{1}{2}$	41	Do	-	H. F. Buxton.
113	5	51	Do		W. D. James.
115	$4\frac{1}{2}$	43	Do		Lord St. Oswald.
115	$4\frac{3}{4}$	5	Do		C. Liddell.
118	7 g	5 ¹ / ₂	Do		Capt. J. H. Rivers.
$11\frac{1}{2}$	41	48	White Nile.	400	Capt. R. A. Markham.
113	45	31	Sudan		Capt, H. H. S. Morant.
11	43	6	Blue Nile		Hon, Walter Rothschild.
11	$4\frac{1}{2}$	$3\frac{1}{2}$	Northern Nigeria		Capt. D. F. MacCarthy Morrogh.
10%	48	3	White Nile		Julius Jeppe.
105	48	$4\frac{1}{2}$	Lake Chad .	*	Capt. J. K. Cochrane.
105	41	48	Sudan		Capt. G. S. Nickerson.
101/2	48	6g	Senegal		Sir Victor Brooke's Collection.
104	$4\frac{1}{4}$	4	Blue Nile		Count J. Potocki.
10	43	$3\frac{1}{2}$	Northern Nigeria		Col. T. L. N. Morland.
998	25	$2\frac{3}{4}$	Sudan		LieutCol. W. H. Sitwell.
♀ 95	$2\frac{1}{2}$	27/8	Reahat, Sudan .		Prince Colloredo Mannsfeld.
₹9	2 ³ / ₄	$3\frac{7}{8}$	El Obeid		Capt. J. G. A. Massy.
98	21/4	4	White Nile .	1	P. Niedieck.
7 ³	4	318	Bida Niger, Sudan	*	Capt. G. H. F. Abadie.
♀7	13	31/2	Do.		Do.



Head of Male of Thomson's Gazelle.

THOMSON'S GAZELLE (Gazella thomsoni).

Swahili name, Swallah. Masai name, Engoli.

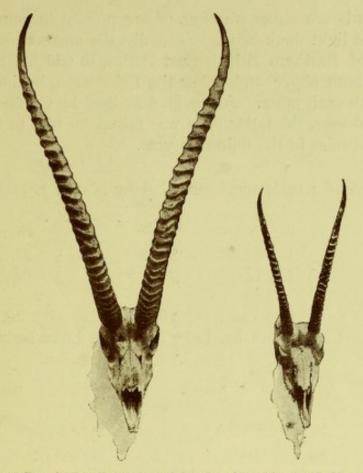
The distinct black nose-patch and the great width of the black flank-band serve at once to distinguish this handsome species from G. rufifrons, with which it agrees in the general form of the horns. The general colour of the upper-parts is deep sandy rufous, with all the markings well developed and sharply defined; the central face-streak being a deeper rufous, and the light lateral band present, although only slightly paler than the back. There is also a narrow black band bordering the white on the sides of the rump; and knee-tufts are developed. The horns are long, and rather like those of the Indian gazelle on an enlarged scale. Height at shoulder about 25 inches.

Distribution.—The interior districts of British and German East Africa, from Lake Rudolf southwards to Irangi.

Measurements of 4 males and 1 female shot by Mr. F. J. Jackson.

	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.
Length	3	10	4	I	3	$11\frac{1}{2}$	4	4	3	81
Height	2	I	2	3	2	$1\frac{1}{2}$	2	2	I	111
Weight	52	lbs.	54	lbs.	56	lbs.	62	lbs.	32	lbs.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.		
$15\frac{1}{2}$	5	3 7 8	Masailand .			F. W. Belt.	
152	4 ³	34	Do			F. J. Jackson.	
151/2	$4\frac{1}{2}$	81	Do			E. Gedge.	
154	4 ³	48	Do		÷	British Museum (F. J. Jackson)	
154	$4\frac{1}{2}$	4 1 8	East Africa		,	Major A. E. Smith.	
15%	48	5 7	Do.			Lord Basil Blackwood.	
15%	$4\frac{3}{4}$	41	Do.			R. Wahrmann.	
15	$4\frac{1}{2}$	51	Do.			Major C. U. Price.	
148	$4\frac{1}{2}$	38	Do.		4	R. J. Church.	
-145	$3\frac{7}{8}$	34	Do.			Julius Jeppe.	
147	$4\frac{1}{2}$	$4\frac{1}{2}$	Do.			Col. Trevor Ternan.	
144	43	$4\frac{1}{2}$	Do.			Lord Delamere.	
144	5	4	Do.			Douglas M'Douall.	
143	$4\frac{1}{2}$	31/2	Do.			R. Meinertzhagen.	
145	48	31	Do.			Count E. Hoyos.	
$14\frac{1}{2}$	$4\frac{1}{2}$	3	Do.			C. C. Bowring.	
141	4	31	Do.			Sir Edmund G. Loder, Bart.	
$-14\frac{1}{2}$	$4\frac{1}{2}$	$2\frac{1}{2}$	Do.	-		Count Scheibler.	
$-14\frac{1}{2}$	44	54	Do.			Capt. C. A. Sykes.	
$-14\frac{1}{2}$	***	100	Masailand .			J. Rosen.	
148	41	31/8	East Africa		*	Sir Robert Harvey, Bart.	
141	5	$4\frac{1}{2}$	Do.			F. C. Cobb.	
141	41	5 7 8	Masailand .			British Museum (H. C. V. Hunter).	
141	51	4	East Africa			Major E. J. Tickell.	
14	$4\frac{1}{2}$	43	Do.			Henry Charrington.	
14	$4\frac{1}{2}$	58	Do.			F. C. Selous.	
14	44	3	Do.			S. L. Hinde.	
- ♀ 6½		$2\frac{1}{2}$	Do.			C. Steuart Belton.	
♀ 5½	15	31/8	Lake Naivasha			F. J. Jackson.	



Skulls and Horns of Grant's Gazelle (male and female), from Mr. A. H. Neumann's specimens.

GRANT'S GAZELLE (Gazella granti).

With this handsome species we reach the last group of the genus Gazella, which includes species, for the most part of large size, characterised by the fawn-colour of the back being invaded to a greater or less degree by the white of the rump. In the present animal the fawn of the back is cut off from the tail, which is included in the white rump-patch, and there is a dark streak on the hinder border of each side of this patch. On the neck and back the hair has a peculiar wavy appearance recalling that of watered silk. Height at shoulder about 38 inches; weight of male from 150 to 170 lbs., when cleaned about 115 lbs.

Distribution.—East Africa, throughout Masailand, and round Kilimanjaro, north of Baringo, and around Mount Elgon and the Suk country; generally on open grass-lands. Two well-defined local races of this species may be recognised. First, the typical race (G. granti typica), of the interior of East Africa, in which the dark

flank-bands are either wanting, or are present in young specimens below the light flank-band. Secondly, the northern race (G. granti notata), of Northern British East Africa, in which dark bands are present both above and below the light band, behind which they unite with each other. Although described by O. Thomas in 1897 as a local race, the latter form was raised by him to the rank of a distinct species in the following year.

Measurements of 4 male specimens shot by Mr. F. J. Jackson.

			ft. in.	ft. in.	ft.	in.	ft. in.
Length			5 8	5 7	5	7	5 3
Height			$3 1\frac{1}{2}$	3 2	3	$6\frac{1}{2}$	2 11
Horns			281	27		24	20
Weight	,		158 lbs.	167 ll	os. 16	6 lbs.	135 lbs.
Locality		Lake	Naivasha.	Lake Naiv	asha. Lake	Naivasha.	Njemp.

Length on front curve,	Circum- ference.	Tip to Tip.	Loc	cality.			Owner.
29	7	14	East Africa				R. O. Preston.
29	6½	204	Do.			*	Sheffield Neave.
$-28\frac{3}{8}$	7	141	Rift Valley			21	C. Steuart Betton.
281	6§	151		?			F. J. Jackson.
-28^{3}_{16}	74	$16\frac{15}{16}$	Lake Nakur	u .			Capt. M. M'Neill.
28	$7\frac{1}{2}$	16	East Africa				Douglas M'Douall.
28	$6\frac{3}{4}$	24 ⁵ / ₈	Do.				Capt. N. E. Playfair.
$27\frac{7}{8}$	6§	188	Do.			*	H. C. V. Hunter.
-27%	$6\frac{7}{8}$	158	Do.	-			Dr. Albert von Stephani.
$27\frac{1}{2}$	61/2	16	Do.	-			F. J. Jackson.
27 1/2	7	17	Do.				Capt. D. H. Macdonell.
$27\frac{1}{2}$	71	13	Naivasha .	-	4		Major G. S. M'Loughlin.
$27\frac{1}{4}$	$6\frac{1}{2}$	18_{8}^{7}		?			Sir Robert Harvey, Bart.
27		16		?			Sir John Willoughby, Bart.
27	7	121	East Africa				H. T. Barclay.
-27				?			W. J. Corder.
$-26\frac{7}{8}$	$6\frac{1}{8}$	208	N.W. Masaila	and .			O. Neumann,

Length on front curve.	Circum- ference.	Tip to Tip.	Loca	lity.			Owner.
264	71/8		East Africa				F. C. Selous.
263	61/2	131/2	Shores of Lake	e Na	ivasha		A. H. Neumann.
26 <u>a</u>	7	$14\frac{1}{2}$	East Africa				A. Bayley Worthington.
263	7	15	Do.				F. W. Belt.
26½	71	31	Do.				Lord Delamere.
26½	7	123	Do.				E. Wynstone Waters.
261	7‡	18	Do.	4			Major A. E. Smith.
26‡	63	163	Do.				Sir Victor Brooke's Collection.
261	7	$14\frac{1}{2}$	Do.				T. P. A. Holford.
261	7	$14\frac{1}{2}$	Do.				Major E. J. Tickell.
261	61/2	144	Lake Zuay				V. Bell.
26	$6\frac{3}{4}$	$16\frac{3}{4}$?				G. Chetwynd.
26	$6\frac{1}{2}$	144	?				P. B. Vander-Byl.
26	71	158	N.E. of Lake	Rude	olf.		LtCol. W. A. W. Lawson.
26	7	125	East Africa				F. C. Selous.
-26	71	19½	Do.		10.1		Dublin Museum.
254	7	134	Do.		1.		T. N. Howard.
254	63	117	Do.				Norman B. Smith.
-254	71	13	Do.				J. ff. Darling.
24	7	174	Lake Rudolf				A. E. Butter.
23	6‡	85	Lake Zuay				Lord Hindlip.
♀ 17½	34	9	East Africa		11.		H. C. V. Hunter.
₽ 17		6	Lake Jipé .				Sir John Willoughby, Bart.
♀ 16½	$3\frac{1}{2}$	45	East Africa				Lord Delamere.
9 15	4	6^{3}_{4}	Do.			-	E. Gedge.



Skulls and Horns of Peters's Gazelle (male and female), from Mr. A. H. Neumann's specimens.

PETERS'S GAZELLE (Gazella petersi).

Hĭdi of the Gallas.

This species belongs to the same group as Grant's gazelle and the aoul, showing the same extension of the white of the rump on to the back. It has a dark band separating the white of the rump from the fawn of the back, and differs from the other species showing the same feature by the fawn colour of the back being continued in the middle line on to the base of the tail, which is otherwise black. Height at shoulder about 26 to 32 inches.

Distribution.—Coast districts of East Africa.

Length on front curve.	Circum- ference.	Tip to Tip.	Localit	y.		Owner.
$\begin{array}{c} 22\frac{1}{8} \\ 20\frac{1}{2} \\ 20\frac{1}{2} \\ 20\frac{1}{2} \\ -20\frac{1}{2} \\ 20\frac{1}{4} \\ -19\frac{1}{16} \\ -19\frac{1}{2} \\ 19 \\ 17\frac{3}{4} \end{array}$	638 544 554 648 648 649 654	55 105 105 105 105 105 105 105 105 105 1	Shererini . Tana River Do. Ndara Teita Jubaland . Taru Desert Near Pica Pica		 	British Museum (F. J. Jackson). C. Hankey. Major H. de Preé. J. B. Wheelwright. C. Steuart Betton. Major E. G. Harrison. Capt. M. M'Neill. Lieut. G. H. Welch, R.N. A. H. Neumann.
\$ 10g	3	41	Do.			Do.



Head of Scemmerring's Gazelle, from a male specimen shot by Mr. G. H. Cheetham.

AOUL or SEMMERRING'S GAZELLE (Gazella sœmmerringi).

Somali name, Aoul. Abyssinian (Danakil) name, Soudanese name, Ora. Maédedo.

Abyssinian name, Meidafihel.

In addition to the forward extent of the white rump-patch, the leading characteristics of this handsome species are to be found in the absence of a black streak dividing the sides of the rump-patch from the fawn of the body, the black-tipped tail, and the very distinct inward hooking of the horns. The ears are long and bordered with black externally, and the face-markings well-defined and nearly black. Height at shoulder about 30 to 36 inches. Weight clean about 90 lbs.

Distribution.—The Abyssinian coast of the Red Sea, Berber, East Sennar, Danakil, and Somaliland; in the latter country occurring all over the Haud and Ogaden. The North Somali Gazella sæmmerringi berberana of Dr. Matschie is larger, darker, and with differently curved horns.

a. Gazella sœmmerringi berberana.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.
$20\frac{3}{4}$	$6\frac{3}{4}$		Somaliland			W. N. McMillan.
$20\frac{9}{4}$	53	38	Do.			G. H. Cheetham.
201	6	45	Do.	-		Norman B. Smith.
20	51	59	Do.			Hon, Walter Rothschild.
20	54	4	Do.			LieutCol. J. W. H. Flanagan.
20	6	71	Do.			A. Louw.
20	5‡	5½	Danakil .			Viscount Edmond de Poncins.
♀-20		$5\frac{3}{4}$	Somaliland			A. E. Pease.
-20		3	Do.		4	Sir E. Lechmere, Bart.
-20	5 7 8	$6\frac{1}{2}$	Do.			Capt. M. M'Neill.
193	55	5‡	Do.			Count J. de Bylands.
-193	5 1 8	58	The Haud.			P. H. G. Powell-Cotton.
194	5‡	6^{3}_{\pm}	N. Somaliland	¥.		Julius Jeppe.
$-19\frac{11}{16}$	***	444	Do.			J. Menges.
191	5½	59	Somaliland			T. W. H. Clarke.
$19\frac{1}{2}$	510	2	Do.			Sir Edmund G. Loder, Bart.
$19\frac{1}{2}$	51/2	$4\frac{3}{4}$	Do.		-	Capt. J. J. Richardson.
$-19\frac{1}{2}$	6‡	3	Do.			S. Payne-Gallwey.
19½	$5\frac{1}{2}$	45	Do.			Count J. Potocki.
19½	51	151	Do.			R. McD. Hawker.
19‡	51/2	$6\frac{1}{2}$	Do.			T. W. H. Clarke.
19‡	5‡	$4\frac{1}{2}$	Do.			Capt. B. L. Carew.
19 _	5½	31/2	Do.			A. E. Butter.
19	5	4	Do.	37		Major-Gen. A. Paget.
19	51	43	Do.	12		J. Benett-Stanford.

Length on front curve.	Circum- ference.	Tip to Tip.	Locali	ity.			Owner.
19	5	71/2	Somaliland				Capt. B. R. M. Glossop.
19	51/2	51/2	Do.				F. G. Barclay.
19	6	$2\frac{3}{4}$	Do.				W. Macmillan.
19	4	31	Do.				Prince Nicolas Ghika.
183	51/2	4 ³	Danakil .				Lord Hindlip.
184	5 ¹ / ₂	6	Somaliland				F. H. Barber.
9 18‡		-6	Do.				T. W. H. Clarke.
-181	58	63	Do.				O. Neumann.
9 18 ₁₆	$3\frac{1}{2}$	81	Do.				Sir Edmund G. Loder, Bart.
		b. Ga	zella sæmme	err	ingi	ty	pica.
17	5	5	Sudan .				Count J. Potocki.
161/2	5#	$3\frac{1}{2}$	Do				Prince Colloredo Mannsfeld.
16	5‡	5	Do				Lieut. A. H. Home, R.N.
-16			Do				Capt. N. E. Playfair.
154	51/2	54	Do				Capt. H. H. S. Morant.
151	5‡	34	Do				P. C. Lord.
151	58	5	Do				Col. Ralph Vivian.
151/2	51	31/2	Do				Capt. L. Rawstorne.
9 15‡	278	78	Do				LieutCol. Hon. W. Coke.
144	51/2	41	Near Suakin				B. Cotton.
$-14\frac{3}{4}$	51/2	$3\frac{1}{2}$?				Major W. Anstruther Thomson.
145	55	3 ³ 4	Blue Nile .				Hon. F. E. Guest.
145	$5\frac{1}{2}$	61	Sudan .				Julius Jeppe.
♀ 13‡	3	61/2	Do				Count J. Potocki.
138	34	54	East Suakin				A. W. Haig.



Head of Addra Gazelle, shot by Prince Henry of Liechtenstein.

RED-NECKED or ADDRA GAZELLE (Gazella ruficollis).

Riël of the Dinkas.

The last three representatives of the genus Gazella are not only the largest of the tribe, but are distinguished from all their relatives by the white of the rump extending on to the tail (which is either wholly white or merely tipped with fawn) coupled with the complete absence of a black band between the white of the rump-patch and the fawn of the body; the horns being hooked upwards and forwards, and not distinctly inwards. In the present species, which measures about 36 inches at the shoulder, the neck and front portion of the back alone display a distinctly rufous tint, the lines of division between the fawn of the upper-parts and the white beneath being obscure.

Distribution.—Kordofan and Sennar.

Length on front curve.	Circum- ference.	Tip to Tip.		Locality.		Owner.
$-13\frac{1}{2}$	$4\frac{1}{8}$	85	Nubia			Imperial Museum, Vienna.
-13 ¹ / ₈	51/8	7 ±		?		Major W. Anstruther Thomson.

Length on front curve.	Circum- ference.	Tip to Tip.		Loca	ality.		Owner.
13	58	51/2	Kordofan				Col. B. T. Mahon.
121	4	5₿	Sennar				British Museum.
12	51/2	34	Kordofan				LieutCol. E. B. Wilkinson.
115	55	41	Do.			3	British Museum (Capt. H. N. Dunn).
9115	$3\frac{1}{2}$	5½	Do.				Col. B. T. Mahon.
-102	41	31	Lake Cha	d			Dublin Museum.
♀10	31/2	31	Do.				Capt. T. K. Cochrane.

DAMA GAZELLE (Gazella dama).

Together with its northern representative the mhorr of Morocco, the dama differs from the addra by the rufous tint extending completely over the body and flanks, and being well defined from the white of the under-parts. In the present form, which is from Senegal, the sides of the thighs are white, so that the rufous of the body is cut off from that of the hind-legs. The height is at least 35 inches.

Distribution. - Senegambia and adjacent districts.

Length on front curve.	Circum- ference.	Tip to Tip.	Lo	cality		Owner.
134	54	34	Lake Chad			Capt. D. F. MacCarthy Morrogh.
-12 ⁵	51/8	51/2		?		Paris Museum.
121/2	51/2	6		?		Mr. Justice Hopley.
-121	518	316	Senegambia			Paris Museum.
81/2	31/2	58		?		Hon. Walter Rothschild.

MHORR or SWIFT GAZELLE (Gazella dama mhorr).

Although commonly regarded as a distinct species, this fine but somewhat leggy gazelle seems to be only a northern race of the dama gazelle of Senegal, which is the largest member of the genus. The mhorr, as it is called by the Arabs, differs from the dama by the sides of the thighs and legs being of the same rufous hue as the body, instead of white. Height at shoulder at least $34\frac{1}{2}$ inches.

Distribution.—The desert districts of South-West Morocco.

Length on Circum- front curve. ference.		Tip to Tip.	Locality.	Owner.		
114	6	34	Wednoon, Mogador	British Museum (W. Willshire).		
-4 1 3	311	21/2	Morocco	Dr. Percy Rendall.		



Skull and Horns of Male Dibatag, from a specimen shot by Mr. T. W. H. Clarke in Somaliland.

DIBATAG (Ammodorcas clarkei).

Although resembling the true gazelles in the face-markings, the dibatag, as it is called by the Somalis, is so different from these animals as to be entitled to constitute a genus by itself; being in many respects intermediate between the former and the gerenuk. The horns, which are present only in the males, are rather short, and have a regular upward and forward curvature, somewhat like those of a reedbuck; they are ridged on the front for a considerable portion of their length. The neck is considerably elongated, and the tail long and thin. The general colour of the upper-parts is a deep cinnamon. Height at shoulder about 33 inches; weight from 65 to 70 lbs. When running, the long neck is thrown back towards the tail, which is elevated, so that the two look as though they would touch. Discovered by Mr. T. W. H. Clarke.

Distribution.—Central Somaliland, in the eastern districts of the Haud.

Length on front curve.	Circum- ference.	Tip to Tip.	Owner.
-13			J. D. Inverarity.
-13			J. Menges.
125	51	48	Hon. Walter Rothschild.
113	48	35	Major-Gen. A. Paget.
113	44	35	T. W. H. Clarke.
-114	41	5 .	Capt, J. Brander Dunbar.
114	41	6	R. McD. Hawker.
114	41/2	434	Major J. E. Gough.
-II ¹ / ₈	$4\frac{1}{2}$	518	Capt. M. M'Neill.
11	5½	21/4	Capt. B. R. M. Glossop.
11	5	5½	S. Payne-Gallwey.
-107	41	5	P. C. Keytel.
103	41	44	Mr. Justice Hopley.
103	51/2	4	Sir Edmund G. Loder, Bart.
-101/2	41/2	41/2	A. E. Pease.
108	44	31	W. Macmillan.
$-10\frac{1}{4}$	44	38	Major W. Anstruther Thomson.
108	48	4½	P. H. G. Powell-Cotton.
94	41/2	51/8	British Museum (T. W. H. Clarke).



Head of Male Gerenuk.



Record Head of Male Gerenuk, from a specimen shot by H. R. H. le Duc d'Orléans.

GERENUK (Lithocranius walleri).

Somali name, Gerenuk. Danakil name, Gudan Godu. Galla name, Gŭgŭfto.

Even more aberrant than the last is the gerenuk, in which the elongation of the neck attains its supreme development, while the slender legs are lengthened in proportion. Horns are wanting in the females, and those of the males curve forwards at the tips, where the ridges stop, in a peculiarly characteristic manner. The general colour of the upper-parts is a deep rufous fawn, but down the middle of the back runs a broad dark-brown band, nearly eight inches in width. The skull is characterised by its dense and solid structure, as well as by its straightness, the shortness of the facial portion, and the very

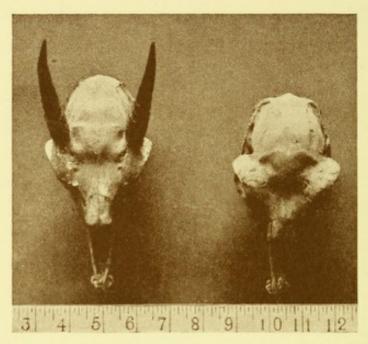
small size of the cheek-teeth. Height at shoulder, 41 inches; weight 115 lbs.

This antelope, first described by the late Sir V. Brooke on the evidence of a flat skin, is in the habit of raising itself on its hind-legs when browsing, and is thus enabled to reach boughs at a very considerable distance above the ground.

Herr Oscar Neumann pointed out in 1899 that the Somali and Abyssinian gerenuk (*Lithocranius walleri sclateri*) is somewhat different from the East African or typical gerenuk. The northern form is larger, with finer horns, a longer neck, a less rufous colour, and lacks the black knee-tufts, while the white markings of the tail are also different. Sclater's gerenuk is treated as a distinct species by Messrs. Sclater and Thomas, but is better regarded as a local race or subspecies.

Length on front curve.	Circum- ference.	Tip to Tip.	Loc	ality.			Owner.
17	5‡	34	Somaliland				H.R.H. le Duc d'Orléans. (See illustration.)
$-16\frac{3}{4}$	***	***	Do.				LieutCol. H. G. Mainwaring.
$-16\frac{1}{2}$	54	38	Do.				E. L. Cappel.
16½	5≟	15	Do.				Mr. Justice Hopley.
-164	$5\frac{1}{2}$	27/8	Do.				The late J. Rose.
$-16\frac{1}{8}$			Do.				J. Menges.
16	54	6	Do.		-		Sir Edmund G. Loder, Bart.
15₹	6	48	Do.				Rowland Ward.
-154	6	23	Do.				A. E. Pease.
151/2	5½	3	Do.				J. Kenneth Foster.
$-15\frac{1}{2}$	57	$4\frac{7}{8}$	Do.	٠.			F. H. Barber.
158	58	4	Do.				Major H. G. C. Swayne.
158	58	4 ¹ / ₈	Do.				C. Liddell.
158	58	44	Do.				Lord Wolverton.
151	51	44	Do.			1	Julius Jeppe.
15	58	68	Do.			-	F. G. Gunnis.
15	5	44	Do.	,			Capt. J. M'Call Maxwell.
-15	6		Do.				LieutCol. J. W. H. Flanagan.
$-14\frac{15}{16}$	5½	7‡	Do.				Paris Museum (H.R.H. le Duc d'Orléans).
147	54	2	Do.				H. Z. Darrah.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.				Owner.
-147		51/8	Somaliland				Capt. M. M'Neill.
14%	51	44	Do.				Lord Delamere.
142	5‡	34	Do.				Capt. J. J. Richardson.
144	51/2	5	Do.				Lieut,-Col. H. D. Olivier.
141/2	5	6	Do.				A. E. Butter.
$-14\frac{1}{2}$	51	7 ts	Do.				Count Scheibler.
-141/2	41	4	Do.				Count E. Hoyos.
$-14\frac{1}{2}$			Do.				J. Rosen.
148	51/2	21/2	Do.				W. F. Whitehouse.
-148		58	Do.				P. C. Keytel.
14‡	41/2	2	East Africa				Major H. de Preé.
14		3	Do.				Sir John Willoughby, Bart.
13%	45	51/8	Do.				H. C. V. Hunter.
134	48	41/8	Do.				E. Lort-Phillips.



Skulls of Male and Female Beira. Shot by P. H. G. Powell-Cotton.

BEIRA (Dorcotragus melanotis).

In spite of its presenting a certain superficial resemblance to the members of the oribi group and its allies, this peculiar little antelope is considered to be best placed in the neighbourhood of the gazelles. From all the members of the group in which the latter are included, the beira is at once distinguished by the short and spike-like horns of the bucks. Perhaps its most striking peculiarity is the great size of its ears, which led its discoverer, Herr Menges, to describe it as a species of klipspringer. Another noticeable feature is the large size of the rounded hoofs. In colour, the upper parts and legs are pinkish fawn; a darker band defining the fawn from the white of the under parts, which (the white) is continued down the inner surfaces of the limbs as far as the knees and hocks. The head, from the ears to the nose, is bright rufous. Height at shoulder about 23 inches.

Viscount Edmond de Poncins writes that "they are good hillclimbers, and keep on rocky ground. The general shape is slender, legs are long, the head is kept erect, the ears are very big and broad, shaped like the dik-dik's, eyes big and dark, nostrils black.

"Colour a sort of grayish blue, a bit like what we call in French gorge de pigeon, and exactly matching the colour of the ground, so, unless they are on the move, it is difficult to distinguish them. Unlike a gazelle, its tail is generally kept down. Horns resemble those of the klipspringer,

BEIRA 267

but curve forward slightly more." From nose to root of tail 32½, height at shoulder 21 inches, horns 4 inches; weight about 20 lbs. Distribution.—The interior of Somaliland and the upper part of the Blue Nile. The species appears to be rare and local, going about either singly or in pairs, and inhabiting the open desert. It was first made known to science in 1894.

Length on front.	Circum- ference.	Tip to Tip.	Locality.	Owner.
4161	178		?	Lord Delamere.
4 3			Northern Somaliland	J. Menges.
48	2	27	Abyssinia	P. H. G. Powell-Cotton.
$-4\frac{1}{2}$		I 15	Northern Somaliland	Capt. M. M'Neill.
41	2	$2\frac{1}{2}$	Abyssinia	W. F. Whitehouse.
4	2	216	French Somaliland	Viscount Edmond de Poncins.
4	21/8	24	Somaliland	Sir Edmund G. Loder, Bart.
3 2	134	31	?	Lord Delamere.
3 ³	15		French Somaliland	Viscount Edmond de Poncins.
31/2		17	Somaliland	A. E. Butter.
$-3\frac{1}{2}$		17	Do	J. B. Wheelwright.

Length straight 324 inches, along curves 354 inches; height at shoulder, 254 inches; girth, 194 inches; weight, 23 lbs. as he fell.



Skull of Beira, from specimen shot by P. H. G. Powell-Cotton.



Skull and Horns of Sable Antelope, from Mr. R. T. Coryndon's specimen.

SABLE ANTELOPE (Hippotragus niger).

Impengo of the Masubias. Impalampala of the Swazis and Qualata inchu of the Bamangwatos Zulus.

Ookwa of the Makubas.

Potoguane of the Southern Utjiele of the Amandebili. Bechuanas.

Pala-hala of the Swahilis.

Pala-pala of the Makalakas.

and Makololos.

Solupe of the Masaras.

Kwalata n'tso in Barotsiland.

Qualata Tshumu in Ngamiland.

Mperembe in the Chilala and Chibisa countries.

The group of antelopes which includes the present species, the roan antelope, the gemsbuck, addax, etc., differs very markedly from all those before mentioned. Among the leading features are the scimetar-shaped conical or spiral horns, which are placed just over the eyes, and are present in both sexes, the hairy muzzle, the absence of face-glands, and the long, tufted tail. Even more remarkable are the upper molar teeth, which have square grinding-surfaces and tall crowns, like those of oxen.

From the other members of the group the beautiful sable antelope

and its near ally the roan antelope are well distinguished by the scimetar-shaped horns, which arise at an angle with the plane of the face, as well as by the maned neck, the tufts of long hair below the eyes, and the large size of the ears. By far the handsomer of the two is the present species, whose sable coat and great length of horn render the buck the most striking of its tribe. Other distinctive features are the continuance of the white eye-stripe to the muzzle, the length of the mane, and the relatively moderate size of the ears. Height at shoulder about $4\frac{1}{2}$ feet. A single horn in the Florence Museum measured by Mr. F. C. Selous is 61 inches on the front curve.

Distribution.—From about the centre of the Transvaal northwards to Nyasaland and the adjacent districts of South-East and East Africa. Still abundant in parts of Eastern Mashonaland, and thence towards the coast, as well as on the Batoka plateau to the north of the Zambesi. Scarcer in Central East Africa and Mozambique. The sable antelope when wounded is a dangerous antagonist, to be approached with extreme caution; it runs with considerable speed, and possesses much staying power.

Length on front curve.	Circum- ference.	Tip to Tip.	Lo	cality.			Owner.
50 ⁷ / ₈	$9\frac{1}{2}$	181	Barotsiland				Hon, Walter Rothschild.
-50½		***	- Do.		1.		R. A. Luck.
-50			Do.				L. Defries.
-50			Do.				J. Rosen.
484	10	231	Do.		12		J. H. Hayes.
$-48\frac{1}{4}$		10g		?			P. C. Keytel.
48	101	154	Matabililand				Capt. J. P. Grenfell.
-48			Tanganyika				E. S. Grogan.
-48		154	Transvaal .				Major R. B. Fell.
-47 š			Rhodesia .			*	R. C. Fielding.
478	$9\frac{3}{4}$	II		?			Capt. E. de L. Hayes.
471	$9\frac{1}{2}$	$26\frac{1}{2}$?			R. T. Coryndon. (See illustration.)
471	98	$23\frac{1}{2}$	N.W. Rhode	sia .			Col. C. Harding.
$46\frac{1}{2}$	$9\frac{1}{2}$	14	Do.				Sir Arthur Lawley.
-46		17	Barotsiland				C. R. Swanson.
46	10	1114	Do.				T. G. Davey.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-46		***	Eastern Transvaal	W. Russell Bowker.
46	94	161	British Central Africa .	Capt. R. S. Chichester.
45 ³ / ₄	103	$12\tfrac{1}{2}$	Do	Sir Edmund G. Loder, Bart.
451	9‡	151/2	Mashonaland	Major G. A. L. Carew.
451	102		Rhodesia	H. B. Marshall.
458	10	144	Lebombo Mountains	F. Vaughan Kirby.
45‡	$9\frac{1}{2}$	121	S.E. Mashonaland	J. G. Millais.
-45‡	$9\frac{1}{2}$	$20\frac{1}{2}$?	Mr. Justice Hopley.
-45	102	***	South Africa	Earl of Dartmouth.
44 ⁸	108	131	Barotsiland	H. Timmins.
444	94	141	British East Africa	Herbert Ward.
$44\frac{1}{2}$	9	17	Transvaal	Sir J. P. Fitzpatrick.
$-44\frac{1}{2}$?	H. T. and A. H. Glynn.
$-44\frac{1}{2}$	(single	horn)	Batokaland	F. V. Worthington.
448	$9\frac{1}{2}$	14	Eastern Transvaal	F. Vaughan Kirby.
44 ¹ / ₈	9½	81	Eastern Mashonaland .	F. C. Selous.
$-44\frac{1}{8}$	9½	$14\frac{1}{2}$	Transvaal	Abel Chapman.
44	9	161 -	Lydenburg	F. H. Barber.
-44	98	98	Zambesi	Imperial Museum, Vienna.
-44	10	$32\frac{1}{2}$?	Berlin Museum.
44	101	158	Mashonaland	J. H. Thomas.
-44	10	16	Matabililand	F. Lean.
♀ 39₺	61	6§	Mashonaland	F. C. Selous.
9 37∰		68	?	P. C. Keytel.
♀ 36§	61/2		Mashonaland	J. ff. Darling.
31	9	9	British East Africa	F. J. Jackson, C.B.
· 9 24½	6	$7\frac{3}{4}$	Do	Major E. G. Harrison.



Head of Male Sable Antelope.

Length on front curve.

Circumference. Tip to Tip.

Locality.

Owner.

Length on front curve. Circumference.

Tip to Locality.

Owner.



Head of Roan Antelope, from a specimen shot by Mr. F. C. Selous.

ROAN ANTELOPE (Hippotragus equinus).

Abu ŏruff of the Dinkas and Arabs. Ee-taka of the Amandebili.

Ee-pala-pala chena of the Makalakas.

Gwenki of the Hausas.

Impengo eetuba of the Masubias.

Kwar of the Masaras.

Klabakila of the Basuto.

Ipewa in the Chilala and Chibisa countries.

Mtagaisi of the Swazis and Zulus. Oo-ka-mooh-we of the Makubas. Qualata of the Northern Bechuanas.

Kwalata and Etsetla in Ngamiland. Qualata and Tseu in Barotsiland. Tai-hait-sa of the Southern Bechuanas.

Wunderbee of the Abyssinians.

In spite of its larger size (height at shoulder about 4 feet 9 inches), the shorter horns and mane, the larger ears and eye-tufts, and, above all, the grizzled roan coat, render the present species a much less striking animal than its sable cousin. A marked character of the face of the roan antelope is the cutting-off of the white eye-stripe from the muzzle by a transverse dark bar connecting the dark nose-streak with the brown of the cheeks; while the dark nose-streak itself likewise stops short of the muzzle, which is thus wholly white. Weight about 625 lbs. Distribution.—From north of the Vaal and Orange Rivers through East and East Central Africa to the Sudan and Abyssinia, and westward to Angola, Nigeria, Gambia, and Senegambia. The name H. equinus rufopallidus has been applied to the East African race, while the Abyssinian form is known as H. e. bakeri, and the West African as

H. e. gambianus. Gordon Cumming shot the roan antelope just north of the Orange River in Griqualand West, where it has for many years been exterminated. Nowhere abundant, the species is most plentiful in Mashonaland and neighbouring districts; in the Transvaal it is only sparsely distributed. South of the Orange River this group of antelopes was formerly represented by the much smaller blaauwbok, or blue antelope (H. leucophæus), long since exterminated.

Length on	Circum-	Tip to Tip.	Locality.		Owner.
front curve.	ference.				
37‡	10	7‡	White Nile .		P. Niedieck.
-35	9½	81	South Africa .		A. Ohlsson.
$34\frac{1}{4}$	9	7	Okavango Valley		Sir H. J. Goold-Adams.
33	83	10	White Nile .		S. H. Whitbread.
33		***	Northern Matabilil	land	A. C. Fountaine.
323	88	$9\frac{1}{2}$	Mashonaland .		Julius Jeppe.
$32\frac{1}{2}$	9	***	White Nile .		R. McD. Hawker.
321	10	83	Do		G. H. Cheetham.
$-32\frac{1}{4}$	97	138	Do		British Museum (Sir W. Garstin).
-324	83	6‡	?		P. C. Keytel.
32	98	543	White Nile .		C. Adeane.
32	$9\frac{1}{2}$	12	Hanyani Valley .		F. C. Selous.
-32		141	?		E. N. Buxton.
-32	10	138	Mashonaland .		Major A. St. H. Gibbons.
314	$9\frac{1}{2}$	5½	South Africa .		Sir Edmund G. Loder, Bart.
3112	$9\frac{1}{2}$	117	Mashonaland .		F. C. Selous.
$-31\frac{1}{2}$	81/2	$12\frac{1}{2}$	Nyasaland		Major P. W. Forbes.
$-31\frac{1}{2}$	101	1114	Angola		E. P. Cooper.
31	$9\frac{1}{2}$	101/2	White Nile .		Major Hon. W. Guinness.
31	83	13	Mashonaland .		J. A. Jameson.
-31	10	63	?		Mr. Justice Hopley.
-303	10	148	Sudan		Count T. Palffy.
♀ 30½	7	7 ³ 8	Mashonaland .		F. C. Selous.
301	$9\frac{1}{2}$	17	Sudan		Col. B. T. Mahon.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-30½	91	20	Sudan	Prince Henry of Liechtenstein.
301	9	131	South Africa	G. Richards.
-301	10	$11\frac{1}{2}$	Portuguese East Africa	F. Vaughan Kirby.
-301/2	87	9	Matabililand	Count E. Hoyos.
-30½			?	O. R. Dunell.
301	91	13	British Central Africa .	J. E. S. Old.
₽ 30	7	174	White Nile	W. D. James.
30	9	103	Niger	BrigGen. Sir James Willcocks.
-30	9§	10	Matabililand	Capt. W. Jardine.
298	108	145	Do	W. Van Ness.
298	98	111	Mashonaland	Hon. Walter Rothschild.
294	91	12	Do	Dudley West.
291/2	10	103	White Nile	Major R. M. Sanders.
291	$9\frac{1}{2}$	174	Sudan	LieutCol. A. Colville.
♀ 29½	7	61	B.C.A	R. H. Storey.
291/2	91	4	Bahr-el-Salam, Sudan.	LieutCol. Hon. W. Coke.
291	10	51	Barotsiland	F. V. Worthington.
291	91	151	White Nile	H. F. Buxton.
29	83	131/2	Sudan	Count J. Potocki.
29	8‡	10	N.W. Rhodesia	Col. C. Harding.
29	93	121/2	White Nile	H. Cookson.
-28 3	85	121	Gambia	Dr. Percy Rendall.
♀ 28‡	67	2 ³ / ₄	Niger	Capt. G. H. F. Abadie.
281	9‡	$9\frac{1}{2}$	Do	Capt. J. K. Cochrane.
281	81/2	14	White Nile	Count C. Hoyos.
28	83	93	Niger	Dr. F. W. Chesnaye.
274	9‡	15	Abyssinian Sudan .	Prince Colloredo Mannsfeld.
274	9	144	Niger	Capt. H. A. Porter.
26§	918	61	Abyssinia	P. H. G. Powell-Cotton.
♀ 261	61/2	101	B.C.A	Capt. F. D. Markham.
♀ 25₹	6§	144	Sudan	Col. B. T. Mahon.
- ♀ 21½	6g	98	German East Africa .	O. Neumann.
18	81	10	N. of Machakos, B.E.A.	E. G. Mardon.



Skull and Horns of Gemsbuck, from Mr. F. H. Barber's specimen.

GEMSBUCK ORYX (Oryx gazella).

The long, straight, spear-like horns, of which even the lion fights shy, render the gemsbuck and its more immediate allies an easily recognised sub-group. And even when, as in the white oryx, the horns are scimetar-shaped, they differ from those of the sable antelope by starting in the plane of the face. It is also a noteworthy fact that in

the present species the horns of the females are longer and finer, and therefore more prized, than those of the bulls. An adult gemsbuck stands about 3 feet 9 inches at the shoulder. In addition to the length of its horns, the species is sufficiently characterised by the presence of a tuft of hair on the throat, and the cutting-off of the white eye-stripe from the muzzle by the union of the dark central nose-streak with the black of the cheeks.

Distribution.—The desert regions of South-Western Africa, from the northern Karoos of Cape Colony through the Kalahari and Damaraland to Southern Angola, in Mossamedes, and perhaps Benguela. North of the Chobi and eastwards of Khama's country the species appears to be unknown. So late as 1846 Gordon Cumming found gemsbuck abundant on the northern Karoos of Cape Colony; and even now a few linger on the plains to the south of the lower reaches of the Orange River. In the northern Kalahari, where they exist for months without water, they are still abundant. The splendid horns of the gemsbuck are always regarded as prime trophies of the hunter's skill; the finding, riding-down, and shooting of one of these wary and enduring desert-bred antelopes being a feat of which any man, however well mounted, may be deservedly proud.

Length on front.	Circum- ference.	Tip to Tip.	Local	ity.		Owner.
47½	$6\frac{3}{4}$	172	South Africa			The late J. S. Jameson.
- ♀ 45½			Bechuanaland			F. H. Barber. (See illustration.)
♀ 45‡	6‡	334	Ngamiland			Sir H. J. Goold-Adams.
45	81	$18\frac{1}{2}$	Do.			Hon. Walter Rothschild.
45	7	26	Do.			R. H. Venables Kyrke.
-4418			South Africa			Dr. A. Schopf.
-441/2	6 1	25	?			P. C. Keytel.
-44	61/2	17	?			A. Ohlsson.
-43 ⁸	7	21	?			Dr. W. P. Y. Bainbrigge.
438	68	181	Nata River			F. C. Selous.
431	6§	20 ⁷ / ₈	?			Sir Victor Brooke's Collection.
-431	8	16	?			James J. Harrison.
43 ¹ / ₈	6 7	22	Botletli River			F. C. Selous.
-43			South Africa			J. Rosen.

RECORDS OF BIG GAME

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-43	71/2		?	Earl of Dartmouth.
43	$6\frac{1}{2}$	22	?	W. Y. Campbell.
$-42\frac{3}{4}$		$22\frac{1}{4}$?	J. L. Drège.
$42\frac{1}{2}$	7	201	Bechuanaland	A. Neilson.
- 9 42½	***		. 3	W. J. Corder.
42 8	$6\frac{1}{4}$	192	Bechuanaland	Capt. F. H. Lehmann.
42	$7\frac{1}{2}$	16	?	Capt. the Hon. A. Stourton.
-42	65	22	?	Julius Jeppe.
42	61/8	$20\frac{3}{4}$?	A. Ryley.
$41\frac{1}{2}$	7	211	?	Dr. S. Martin.
$4I_{\frac{1}{2}}^{\frac{1}{2}}$	$7\frac{1}{2}$	181	?	R. T. Coryndon.
$-41\frac{7}{16}$	8	158	Great Namaqualand .	Th. Rehbock.
9 414	$6\frac{1}{2}$	22 ³ / ₄	?	Mr. Justice Hopley.
9 41 ½	$5\frac{15}{10}$	298	Great Namaqualand .	Th. Rehbock.
9 41	7	19	?	Major R. Hayes-Sadler.



Head of Beisa Oryx.

BEISA ORYX (Oryx beisa).

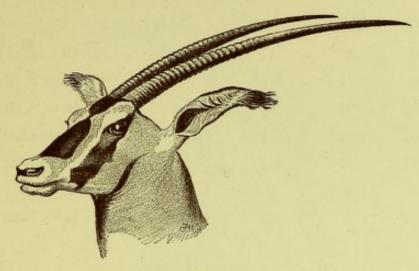
Beida of the Somalis. Sala of the Abyssinians of Danakil.

The beisa may be regarded as the north-eastern representative of the gemsbuck, from which it may be distinguished at a glance not only by the absence of a tuft of hair on the throat, but also by the separation of the black nose-stripe from the eye-stripes. There is also no black on the haunches or thighs, and the horns are considerably shorter and less divergent. Height at shoulder reaching to about 4 feet. Weight 458 lbs.

Distribution.—North-East Africa, from Suakin through Abyssinia to Berbera in Somaliland, and south to Tana River.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
40			?	Measured by A. O. Hume, at
♀ 39	51/2	8	Hargeisa, Somaliland.	E. P. Hare.
- ♀ 37½		9	?	P. C. Keytel.
371	7	1114	Somaliland	G. D. E. Chapman.
364	7‡	121	Lake Rudolf	A. E. Butter.
- ♀ 36½			Northern Somaliland .	J. Menges.
36½	6	10	East Africa	Rhys Williams.

Length on front.	Circum- ference.	Tip to Tip.	Locality.	Owner,
♀ 364	61	9	Somaliland	H. Z. Darrah.
36	7	61	Do	G. D. E. Chapman.
36	64	74	East of Lake Rudolf .	A. H. Neumann.
36	61/2	101/2	Somaliland	Capt. J. T. Brinkley.
36	6	$8\frac{1}{2}$	Do	Count J. Potocki.
- ♀ 36			Do	Dr. Donaldson Smith.
354	63	98	Do	Lord Delamere.
♀ 35♣	54	8	Do	R. Wahrmann.
♀ 35½	6	11	East Africa	W. F. Whitehouse.
$35\frac{1}{2}$	61/2	83	Somaliland	Prince Nicolas Ghika.
- ♀ 35½	5 ½	9 1 8	East Afrea	Rhys Williams.
♀ 35‡	6	101	East of Lake Rudolf .	A. H. Neumann.
351	61/2	5½	Do	H. Z. Darrah.
35	6	74	?	W. N. M'Millan.
35	6	9	Somaliland	Major-Gen. A. Paget.
♀ 35	51/2	74	Danakil	Viscount Edmond de Poncins.
35	54	75	Somaliland	A. S. Trevor.
♀ 34월	41	13½	Abyssinia	P. H. G. Powell-Cotton.
♀ 34₽	51/2	81/2	Somaliland	G. M. Norrie.
344	$6\frac{1}{2}$	8	Tana River	Capt. C. Hankey.
♀ 34½	6	101	Somaliland	Major J. M'Call Maxwell.
$34\frac{1}{2}$	63	83	Do	Alex. R. Alston.
$34\frac{1}{2}$	7	6	Do	F. G. Barclay.
♀ 34½	54	83	Do	R. McD. Hawker.
♀ 34½	51/8	13	Do	T. W. H. Clarke.
34½	6^{3}_{4}	81/2	Do	E. Lee Townshend.
$34\frac{1}{2}$	51/4	8	Do	Sir H. D. Tichborne, Bart.
-348	6	104	Do	Count Scheibler.
$-34\frac{1}{4}$	$7\frac{1}{2}$	102	S.E. Somaliland .	S. Payne-Gallwey.



Head of Fringe-eared Beisa.

FRINGE-EARED BEISA (Oryx beisa callotis).

Distinguished from the ordinary beisa by the fringe of long hairs surmounting the ears, by the extension of the eye-stripe to the lower jaw, along which it runs to join the throat-stripe, by the absence of any black on the front of the legs below the knees, and by the rich fawn of the ground-colour of the upper part of the face. Height at shoulder, 48 inches.

Distribution.—East Africa, south of Tana River. Although generally considered a distinct species, it seems better to regard this animal as a well-marked local race of the ordinary beisa. It is generally found in bush-covered country, either singly or in small herds, and is of a remarkably shy disposition. The Swahili name is cheroa.

Length on front.	Circum- ference.	Tip to Tip.	Locality.			Owner.
331/2	7	13	Athi River .			R. B. P. Cator.
-311		12	Makindu .			Capt. M. M'Neill.
31	6	10	Do			W. M. Greiss.
301	54	101/2	East Africa			F. J. Jackson, C.B.
301		6	Sabaki River Dis	strict		Capt. T. W. Greenfield.
-30		10	East Africa			Sir John Willoughby, Bart.
-29 ⁵	67	8	Do			Major W. Anstruther Thomson.
291/2	58	78	Do			Sir Robert Harvey, Bart.
29	6	61/2	Masailand . U			LieutCol. Hon. W. Coke.

Length on front.	Circum- ference.	Tip to Tip.	Locality.				Owner.		
29	5‡	$\operatorname{I}\operatorname{I}\tfrac{1}{2}$	Masailand				Sir Edmund G. Loder, Bart.		
-29		123		?			Major E. G. Harrison.		
283	5 %	6	Masailand				H. C. V. Hunter.		
♀ 285	$4\frac{3}{4}$	124	Do.				Henry Charrington.		
271	$6\frac{7}{8}$	101/2	Do.				C. Craig.		
27	6	9	Do.			*	E. Gedge.		
263	6	132	Do.			+0	F. W. Belt.		

BEATRIX ORYX (Oryx beatrix).

This oryx is a much smaller animal than the beisa, measuring about 2 feet 8 inches at the shoulder, and is of a whitish colour, with a dark spot on the face, and a large dark patch on each cheek, which meets its fellow beneath the throat; the knees and the front of the lower portion of the legs being blackish brown, and the tail-tuft black.

Distribution.—The interior of Arabia, especially the Nejd district and the confines of the great desert east of Oman.

Length on front.	Circum- ference.	Tip to Tip.	1	Locality.		Owner,
$-26\frac{1}{1}\frac{5}{6}$	$4\frac{B}{4}$	101	Arabia			Paris Museum.
234	5	9‡	Do.	*		Sir Edmund G. Loder, Bart.
\$ 15	38	41/2	Head of	Persian	Gulf	British Museum (B. T. Ffinch).



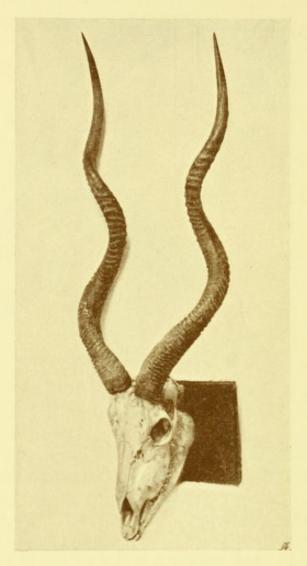
Head of White Oryx.

WHITE ORYX (Oryx leucoryx).

A very distinct species of the genus, agreeing approximately in size with the beisa, but with long recurving scimitar-shaped horns and a generally whitish coloration, showing a more or less distinct chestnut tinge. The chestnut shows itself chiefly on the neck, shoulders, under-parts, and upper portions of the limbs; but in addition to this there are six brownish patches or streaks on the face, two of which are situated in the middle line, while two form eye-stripes, the other pair being between the horns and the eyes.

Distribution.—North-Western Central Africa, from Sennar and Kordofan to parts of Nubia, the Sudan, and Palestine. Rare in collections and menageries.

Length on front.	Circum- ference.	Tip to Tip.	Locality.			Owner.
1 42	5		Nigeria			Capt. W. D. Wright.
1417	61	***	Lake Chad .			E. B. Macnaughten.
393	51/2	144	N.W. Kordofan			Prince Henry of Leichtenstein.
394	61	41/2	Do.			British Museum (Capt. H. N. Dunn).
391	58	113	Do.			Col. B. T. Mahon.
1.39	51		N. of Sokoto.			LieutCol. P. S. Wilkinson.
384	51	11	El Obeid .			Capt. J. G. A. Massy.
37	51	94	Kordofan .			Capt. R. A. Markham.
			1 Sin	igle ho	orn.	



Skull and Horns of Addax presented to the British Museum by Mr. J. I. S. Whitaker.

ADDAX (Addax nasomaculatus).

This antelope is another member of the oryx group, but is referred to a genus apart, of which it is the sole representative. Its most distinctive features are the spirally twisted and closely ringed horns (which recall those of the Indian blackbuck), and the heavy mass of long hair clothing the neck and shoulders and forming a forelock on the forehead. The general colour is yellowish white in summer and grayish in winter, but the head, neck, and mane are brown, although a streak across the face below the eyes, the lips, and a spot on the outer surface of each ear are white. Hoofs very wide and shallow, almost like those of the reindeer. Height at shoulder about 3 feet 6 inches.

Distribution.-North Africa and Arabia.

ADDAX

Len On front curve.	gth. Straight line.	Circum- ference.	Tip to Tip.	Locality.	Owner.
3916	$34\frac{1}{2}$	5 %	183	?	Sir Edmund G. Loder, Bart.
39	33	6	201	?	Carl Hagenbeck.
381	301	$6\frac{1}{2}$	$12\frac{1}{2}$	South Tunisia.	British Museum (J. I. S. Whitaker). (See illustration.)
37 ³	313	54	$23\frac{1}{2}$	Sahara	W. Barry.
$36\frac{1}{2}$	3112	6	194	South Tunisia.	F. H. Barber.
354	28	6 3	135	North Africa .	Hon. Walter Rothschild.
35	29	61/2	14	Do	W. Barry.
♀ 34♣	28	44	$7\frac{1}{2}$	Sahara	Hon. Walter Rothschild.
-34‡	273	$6\frac{1}{2}$	17	South Tunisia .	A. E. Pease.
34	$29\frac{1}{2}$	53	144	Do	Mr. Justice Hopley.
34	29	68	104	Do	Julius Jeppe.
$33\frac{1}{2}$	26	$5\frac{1}{2}$	124	Do	Hon. R. A. Ward.
$-32\frac{1}{2}$			194	Do	P. C. Keytel.
-32		6	$15\frac{1}{2}$	Do	Major W. Anstruther Thomson.
♀ 32월	28	43	141	Do	Mr. Justice Hopley.
₹ 32	$26\frac{1}{2}$	5	$12\frac{3}{4}$	Do	Julius Jeppe.
31	$25\frac{1}{2}$	51	13	Do	J. H. Thomas.
♀ 304	27‡	44	174	South Algeria	Hon. Walter Rothschild.
- ♀ 30½	27½			South Tunisia	Sir H. H. Johnston.
♀ 29	251/2	41	13	South Algeria	F. H. Barber.



Head of Male_Nilgai.

NILGAI (Boselaphus tragocamelus).

This somewhat ungainly and decidedly small-horned antelope is the single Oriental representative of an important group whose other members are African. Most are large, and, with the exception of the elands and bongo, lack horns in the females. In the males the horns are angulated in front and generally spirally twisted, but in no case ridged. There are small face-glands, the muzzle is naked, and the tail is long and tufted. Except in the nilgai, the upper cheek-teeth have short and broad crowns.

From the other members of the group the nilgai is readily distinguished by its short, upright horns, which, although angulated in front, show no distinct spiral twist. With a long and pointed head, this antelope has the fore-legs considerably longer than the hind pair; and it is chiefly to this peculiarity that its ungainly appearance is due. Both sexes have a mane on the neck, but the bulls alone possess a tuft of long hair on the middle of the throat. The general colour of the adult bull is dark gray, tinged with blue or brown; but the mane and tufts of long hair are black, and streaks and patches on the face, ears, and throat, as well as the under-parts, the lower surface

NILGAI

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of the tail, a streak down the buttocks, and a ring above and below each fetlock, are white. Height at shoulder from 4 feet 4 inches to 4 feet 8 inches. Mr. A. O. Hume shot a specimen in the Aligurh district in 1855 whose horns measured 11\frac{3}{4} along the front curve, and had a circumference of 9.5. They were unfortunately destroyed in the Mutiny.

Distribution.—The peninsula of India, from the foot of the Himalaya to the south of Mysore; common in parts of the Eastern Punjab, the North-West Provinces, Guzerat, and the Central Provinces.

*				
Length on front.	Circum- ference.	Tip to Tip.	Locality.	Owner.
9 7 8	74	51/2	?	Sir Edmund G. Loder, Bart.
91/2	61/2	6	?	Major G. F. Mockler.
91	71/2	61	?	J. Whitaker.
-9½	81		Bhurtpur .	Capt. E. R. Gordon.
91	63	48	?	British Museum.
9	65	31/2	?	A. O. Hume.
87	61	5‡	Central Provinces	C. D. Twopeny.
83	6‡	54	Bhurtpur .	LieutCol. J. M. Fawcett.
-84			Jumna Valley .	Indian Museum.
81	71/2	43	Central Provinces	Capt. E. H. R. Hibbert.
81	5½	41	Do	The late Marquis of Dufferin and
-81	61/2	6	Do	Ava. Dublin Museum.
-81	6	5½	Do	Count J. Potocki.
81	718	7 ⁸	North India .	Sir Victor Brooke's Collection.
-8.25	7-80	6-70	Ulwar	Viscount Edmond de Poncins.
81			Kathiawar .	LieutCol. L. L. Fenton.
-81			Kota	H.H. the Maharaja of Bikanir.
81	618	. 5	?	British Museum (Hume Collec-
8	64	61	Nimar, Cent. Prov.	tion). LieutCol. H. Wade-Dalton.
8	61/2	74	?	P. Niedieck.
8	61/2	5	Terai	Capt. E. B. Cook.



Head of Lesser Bushbuck shot by Mr. A. M. Naylor.

LESSER BUSHBUCK (Tragelaphus scriptus).

Assali, Danakil name.

Chiwalawala in the Chilala and Chibisa countries.

Boschbok of the Dutch.

Ibawara of the Lower Zambesi natives.

Imbabala of the Swazis and Matonga.

Inkonka (male), Imbabala (female) of the Zulus.

M'babala in Barotsiland.

M'babala and Serolo buchuhu in Ngamiland.

Mbawara of the Swahilis.

Mazo and Bŭlŭmgito of the Hausas. Scrolobutuku of the Bamangwatos. Ungurungu of the Makubas.

The bushbucks, or harnessed antelopes, form an extensive group of species nearly allied to the kudus, but usually displaying great sexual differences in the colour of the coat, and generally having a simpler spiral to the horns. The females are nearly always striped with white on a chestnut ground, but the bucks may be darker and more uniformly coloured. As in the kudus, the females are hornless. The lesser bushbuck is the smallest and at the same time the most widely spread member of the group, having several local races. The height at the shoulder ranges from $2\frac{1}{2}$ to 3 feet, and the weight from 100 lbs. to

170 lbs. In the Abyssinian race (*T. scriptus decula*), which ranges into the dense forests bordering the Webbe River in Somaliland, and is locally known as *dol*, the build is low and stout, and the general colour yellowish, the light stripes being nearly obsolete. In the West African race (*T. scriptus typicus*), from West, Central, and South-Central Africa, the ground-colour is bright rufous, and the spots and stripes are very conspicuous. On the other hand, in the East African race (*T. scriptus roualeyni*) the bucks are dark brown, with only faint indications of white markings. Finally, in the Cape form (*T. scriptus sylvaticus*) the colour is dark brown without transverse white stripes, and the spots reduced to a few indistinct ones on the haunches.

In the southern districts of Cape Colony bushbuck are still to be found in abundance, even in the neighbourhood of large towns like Port Elizabeth. Recourse is, however, had to preserving for the greater part of the year, by which means the well-known Easter Hunts, when driving is practised and large bags are made, are still kept up. In more inland districts either the does or both sexes are periodically protected. A wounded bushbuck will often make a desperate and dangerous charge.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-1976	54	11	Lower Zambesia .	. Surgeon W. H. S. Stalkartt, R.N.
19	55	34	B.C.A	. J. E. S. Old.
-18	61/2	7‡	West Africa	. P. C. Keytel.
181	6	85	Pungwe	. P. H. Illingworth.
-181			British Central Africa	. G. Le H. K. Bainbridge-Ritchie.
181	51/2	81/2	East Africa	. Julius Jeppe.
178	61	57	Do	. Sir John Kirk.
174	5½	44	Zululand	. Julius Jeppe.
$-17\frac{1}{2}$	$6\frac{1}{2}$	7 5	Mount Zomba, B.C.A.	. D. MacAlpine.
-17½	61	5‡	East Africa	. P. C. Keytel.
-17½	$5\frac{1}{2}$	$10\frac{3}{4}$	Limpopo River	. Grahamstown Museum.
$-17\frac{1}{2}$	54	108	?	Major W. Anstruther Thomson.
174	6	51	N.E. Gazaland	. A. M. Naylor. (See illustration.)
174	7	78	Near Port Shepstone .	. E. H. E. Abadie.
-17‡			?	A. Griffiths.
-17 1 8		103	Mashonaland	. J. ff. Darling.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
17	$5\frac{1}{2}$	81	Mount Zomba, B.C.A	C. C. Bowring.
$-16\frac{3}{4}$?	W. J. Corder.
$-16\frac{3}{4}$	***	***	East Africa	Capt, M. M'Neill.
16§	5 7	61	Manda Island, B.E.A	British Museum.
161/2	54	7홍	B.C.A	R. H. Storey.
161	54	(one horn)	Pungwe	Col. G. A. Percy.
161/2	6	7	?	Sir Edmund G. Loder, Bart.
16½	7	7	East Africa	Sheffield Neave.
161	6	74	Do	F. W. Belt.
-16½	61/2	$7\frac{1}{2}$	Natal	General A. W. Drayson.
161	61	8	?	Capt. H. B. Dalgety.
$-16\frac{1}{2}$	***	***	?	O. R. Dunell.
161	6	7	S. of Albert Edward Nyanza	A. H. Sharp.
16‡	58	74	Pungwe	Major G. T. M. Bridges.
16	6	31/2	East Africa	T. P. A. Holford,
16	61/4	74	Pungwe	Capt. Sir K. Fraser, Bart.
-16	$6\frac{1}{2}$		Kalamba Hills	F. Vaughan Kirby.
154	6	58	Okavango River	Sir H. J. Goold-Adams.
15%	6	85	Zululand	A. H. Neumann.
154	.5	34	Do	Major L. O. Williams.
-154		***	South Africa	F. H. Barber.
158	51/2	3	British East Africa	G. E. Smith.
158	5‡	5	Pungwe	Hon. T. Thynne.
151	5½	38	Transvaal	C. F. Eustace.
151	58	$4\frac{1}{2}$	South Africa	F. C. Selous.
$-15\frac{1}{2}$		***	Do.*	H. T. and A. H. Glynn.
151	54	8	Do	R. C. Batley.
158	6g	7½	Do	Major-General Sir Arthur Ellis, K.C.V.O.
158	51/2	7 ¹ 8	Zululand	II ClI EII!-
154	6	63	Pungwe	H. R. Holden.
-154	71	$6\frac{1}{2}$	Nyasaland	Alex. R. Alston.

Length on front curve.	Circum- ference.	Tip to Tip.	Local	lity.		Owner.
151	51/2	81/2	3			Mr. Justice Hopley.
15	5 ¹ / ₂	41	East Africa			J. H. Whitehouse.
14	$5\frac{1}{2}$	71	Wadelai .			Major M. L. Carleton.
13	$5\frac{1}{2}$	7	Benguela .			G. W. Penrice.
124	$5\frac{1}{2}$	31	White Nile			E. C. Crispin.
121	5	5‡	S. of Abukutu			Major R. M. Sanders.
121/2	$5\frac{1}{2}$	28	Sudan .			Prince Colloredo Mannsfeld.
121	5	5	Nigeria .			Major J. A. Burdon.
121	48	5	White Nile			LieutCol. E. G. T. Bainbridge.
114	5	4 ³ / ₄	Nigeria .			N. F. Baynes.
103	$4\frac{1}{2}$	5	Do.			LieutCol. A. J. Arnold.
-101		4	Near Lado		11.	Sir W. Garstin.
101	$4\frac{1}{2}$	21/4	Gambia .			British Museum (late Earl of Derby).
101	5	54	Nigeria .			Capt. G. H. F. Abadie.
9½	44	41	Ďo.			Capt. B. R. M. Glossop.



Head of Abyssinian race of Lesser Bushbuck shot in the Webbe Shebayle District, Somaliland, by Major H. G. C. Swayne.

Dol of the Somalis. Dūcūlar of the Abyssinians.

The following specimens belong to the Abyssinian race (T. scriptus decula); the body measurements being those of one shot by Viscount Edmond de Poncins on the Hawash River, 1898 :-

From nose to root of tail . $48\frac{3}{8}$ ins. Height at withers . . $26\frac{3}{4}$ "

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
-17			Somaliland		Major H. G. C. Swayne.
$-16\frac{1}{2}$	61	5	Do		A. H. Straker.
-13 ³	51/2	51	Harar, Abyssinia .		Prince de Lucinge.
$-12\frac{7}{8}$	5‡	31	Near Hawash River, Aby	s-	Viscount Edmond de Poncins.
125	5	54	Abyssinia		W. D. James.
12	51	51/8	Do		British Museum.
113	6	51/2	Do		A. E. Butter.
11	51/8	5	Settite River, Abyssinia		Col. Ralph Vivian.
11	48	2§	Northern Abyssinia .		British Museum.



Horns of Nyala, from a specimen in the possession of Mr. F. H. Barber.

NYALA (Tragelaphus angasi).

This representative of the harnessed antelopes is a large but delicately built species, standing about 3 feet 6 inches at the shoulder. Weight about 250 lbs. to 300 lbs. In both sexes the hair is very long and coarse, but in the male the colour is dark grayish brown with a small number of indistinct white stripes, while in the female it is bright reddish chestnut with clearly defined stripes. The males have a fringe of long hair on the neck and the under-parts of the body, their horns being much rougher than those of the bongo. As in the latter, the hoofs are short.

Distribution.—South-East Africa, including Zululand, Delagoa Bay, and Nyasaland; on the West Coast it has been reported from Angola, although this form may indicate a distinct local race.

Lei	ngth.				
On front curve.	Straight.	Circum- ference.	Tip to Tip.	Locality.	Owner.
311	$24\frac{1}{2}$	81	$3\frac{1}{2}$	Shiré River, B.C.A.	Fergus Maclagan.
-293	24		$II\frac{1}{2}$?	F. J. Newnham.

Len On front	gth. Straight.	Circum-	Tip to	Locality.	Owner.		
curve.		ference.	Tip.				
298	25	7 g	141	Zululand	LieutCol. D. Bruce.		
-294				Delagoa Bay	F. H. Barber. (See illustration.)		
-298				?	O. R. Dunell.		
281/2	234	8	124	Zululand	Hon. Walter Rothschild.		
$-28\frac{1}{2}$				7	W. Russell Bowker.		
281	214	74	94	Delagoa Bay	R. T. Coryndon.		
$-28\frac{1}{4}$			61	Do	P. C. Keytel.		
28	24	8	15	Katanga, B.C.A	John Yule.		
28	23	71	131	Near Chiromo, B.C.A.	Staff-Surgeon J. Dowson, R.N.		
28		81	101	South Africa	British Museum.		
28	231	71	83	Delagoa Bay	Dudley West.		
-28				?	Major W. Anstruther Thomson.		
-28	23#	8	11	?	Dr. W. P. Y. Bainbrigge.		
27 8	$22\frac{1}{2}$	7 7 8	$9\frac{1}{2}$	South Africa	Sir Victor Brooke's Collection.		
278	23	7 7	81	Do	Earl of Dunmore.		
$-27\frac{1}{2}$	23	81/2	13	Do	-E. D. Scott.		
271/2	221	78	81	? .	C. D. Rudd.		
271/2	$23\frac{1}{2}$	71/2	158	Delagoa Bay	Sir H. J. Goold-Adams,		
278		818	101	South Africa	Sir Edmund G. Loder, Bart.		
-271	$22\frac{3}{4}$	71	108	?	Julius Jeppe.		
-27 ¹ / ₈	$23\frac{1}{2}$	÷	14	Delagoa Bay	H. T. and A. H. Glynn.		
27		8	91	Shiré River, B.C.A.	F. Vaughan Kirby.		
27	225	74	111	?	J. R. Buckler.		
-27				?	W. J. Corder.		
26 ³	221	$7\frac{1}{2}$	11	?	F. E. Potter.		
264	228	7	$11\frac{3}{4}$	Amatongaland .	H. A. Bryden.		
-26g		7	10	Delagoa Bay	Capt. W. Jardine.		
261	22	67	Hå	Do	F. C. Selous.		
26		78	87	Zululand	Hon. Charles Ellis.		
26			10	Sabi Valley	T. R. G. Owen.		



Horns of West African Bushbuck, from the Gambia.

WEST AFRICAN BUSHBUCK (Tragelaphus gratus).

Together with its near ally the situtunga, this species differs from the other members of the group by the extreme elongation of the hoofs, which are thus adapted for supporting the weight of the body on the spongy soil of the marshes in which these antelopes dwell. The lateral hoofs, too, are much more developed than in other harnessed antelopes. The general coloration of the West African species is very similar to that of the nyala, the ground-colour of the coat of the male being olive, and that of the female bright rufous, marked in both sexes with white stripes on the body and spots on the face. There is, however, no fringe of long hair on the throat. Height

at shoulder about 3 feet 7 inches. Both in this species and the situtunga the horns of the males are longer and more twisted than in the other members of the genus, and thus come very close to those of the kudus. In the situtunga the coloration of the adult is uniform grayish brown. The West African species ranges from the Congo to the Gaboon and Cameroon districts. It has but seldom been collected by sportsmen, so that very little is known of its habits in the wild state. Several specimens have been bred in captivity at the Zoological Gardens, Amsterdam.

Len	gth.	Circum-	Tip to						
On front curve.	Straight line.	ference.	Tip.	L	Locality.		Owner.		
344	$28\frac{1}{2}$	8	21	Gambia			H. C. Goddard.		
324	274	91/8	16 <u>1</u>	Gaboon			Sir Edmund G. Loder, Bart.		
30	26‡	74	14%		?		Julius Jeppe.		
291	241/2	81/8	14	Gaboon			Sir Edmund G. Loder, Bart.		
281	23	8	8	Gambia			A. Ohlsson. (See illustration.)		
254	214	63	124	Do.			Guy H. Sangster.		
$25\frac{1}{2}$	22	8		French C	ongo		Hon. Walter Rothschild.		
	19			Gaboon			British Museum.		
23½	18	7 ⁷ 8	113	Do.			Sir Victor Brooke's Collection.		
224	192	7	108	Nigeria			Major J. A. Burdon.		
-21.5		7.8			?		Berlin Museum.		
-197		68	10		?		Major W. Anstruther Thom-		
-17	1418	68		Ogooné			Paris Museum.		



Frontlet and Horns of Situtunga Bushbuck, from Mr. John Yule's specimen.

SITUTUNGA BUSHBUCK (Tragelaphus spekei).

Situtunga in Barotsiland. Zowè in the Chilala and Chibisa countries.

Ngami.

Situtunga, Puvula, Unzuzu of the tribes on the Chobi and Central Zambesi.

Nakong of the Batauwani at Lake N'zoé of the natives of Lakanga River north of the Zambesi.

This species, also known as the nakong, has the same habits and make as the West African bushbuck, from which it differs by its uniformly grayish-brown colour; the young alone being faintly barred and spotted. Another peculiarity is to be found in the length and silkiness of the hair. The horns, which are nearly smooth and strongly keeled, form nearly two complete turns, and thus approximate to those of the kudu.

Distribution.—The situtunga is an inhabitant of the dense reed-swamps bordering the rivers of Central, South-Central, and East Africa. The form inhabiting the Zambesi and Chobi valleys has been separated as T. selousi, on account of the female being coloured like the male. These antelopes are semi-aquatic in habits, frequently burying themselves up to the eyes in the water. Consequently they are some of the most difficult of all antelopes to kill; and have even baffled the energy of Mr. Selous. firing the reed-beds in the dry season, the natives are able to spear the situtunga as they cross open water. At night these antelopes leave the reed-brakes for the islands in the rivers, but before dawn return to their impenetrable covert. Mr. A. B. Phipps, in a letter dated October 1895, states that they have become very rare in the swamps bordering the Okavango River, owing to that river having changed its course and ceased to flow into the Botletli. Consequently they go down to the latter for water, and are shot. A few are found on a bush-clad rocky island far out in the Victoria Nyanza; in which neighbourhood the species was first discovered by the late Captain Speke. Some writers separate the members of the long-hooped group as Limnotragus.

Len	gth.				
On front curve.	Straight line.	Circum- ference.	Tip to Tip.	Locality.	Owner.
35%	28 5	8	151	Lake Mweru	Hon. Walter Rothschild.
35 -	28	71/2	$15\frac{1}{2}$	South end of Lake	John Yule. (See illustration.)
-33½	275	7 7 8	19	Tanganyika	Julius Jeppe.
334	$26\frac{1}{4}$	8	165	Okavango Valley .	Sir H. J. Goold-Adams.
-33				?	Alfred Ebden.
$32\frac{3}{4}$	278	78	26§	Chinde	Hon. Walter Rothschild.
328	27	$7\frac{1}{2}$	168	Chobi Valley	F. C. Selous.
-328		71/2	187	?	P. C. Keytel.
318	254	81	171	Near Linyanti	F. C. Selous.
311	24 ³ / ₈	7	161	Chobi Valley	British Museum (F. C. Selous.)
3112	253	$7\frac{1}{2}$	131	Bangweolo	F. Smitheman.
-31 ¹ / ₈	2518	7 %	148	Congoland	Paris Museum (S. de Brazza).

Len	gth.				
On front curve.	Straight line.	Circum- ference.	Tip to Tip.	Locality.	Owner.
31	$23\frac{3}{4}$	8	9½	?	G. Richards.
304	26	8	20	?	A. G. Biden.
302				?	O. R. Dunell.
301	241	81	144	Barotsiland	Sir Edmund G. Loder, Bart.
302	25½	$7\frac{1}{4}$	164	Do	Capt. J. Carden.
301	$24\frac{1}{2}$	$7\frac{1}{4}$	121	B.C.A	Grahamstown Museum.
30	24	7	183	?	Rowland Ward.
-30	25	$7\frac{7}{8}$	18	?	Mr. Justice Hopley.
294	25	83	17	?	R. A. Cooper.
$-29\frac{1}{2}$	26	74	16	?	A. Ohlsson.
298	24	$7\frac{1}{2}$	174	?	A. H. Bainbridge.
-29			***	?	W. J. Corder.
-28		71	13	1	Capt. W. Jardine.
28	231/2	8	17	Lake Mweru	R. H. Venables Kyrke.
203	18‡	61	10	Benguela	G. W. Penrice.
-171		51	7	Victoria Nyanza	E. Gedge.
158	148	58	83	Do	Hon. Walter Rothschild.



Head of Male Kudu.

GREATER KUDU (Strepsiceros capensis).

Agarzin of the Abyssinians.

Eebala-bala of the Amandebele.

Ee-zilarwa of the Makalakas.

Dwar of the Masaras.

Godir of the Somalis.

Itolo of the Basutos.

Itshongonons of the Swazis.

Muzeeloua of the Batongas.
Ngoma in the Chilala and Chibisa countries.
Noro of the Mashonas.
Tolo of the Bechuanas.
Tolo in Barotsiland and Ngamiland.
Unza of the Mazubias.

Unzwa of the Makubas.

Although rather less brilliantly coloured than some of the harnessed antelopes, the kudus are among the handsomest of all antelopes, their spiral horns, striped coat, and noble carriage rendering them really magnificent creatures. Their chief difference from the bushbucks is to be found in the fuller spiral formed by the horns and their larger ears: both sexes being nearly similar in colour. The special characteristics of the greater or true kudu are the large size (height at shoulder reaching to 4 feet 10 inches or 5 feet), the presence of a thick fringe of long hair on the throat, and the open spiral of the horns of the bull. The colour is too well known to require description.

Distribution.—The kudu, in suitable localities, ranges over the greater part of Africa south of the Sahara, extending from Abyssinia and Somaliland through East and Central Africa to the Cape, and westward across the continent to Angola, where the Congo apparently forms its northern limits. In spite of its bulk, it is an adept at concealment; and this trait, coupled with its general wariness and acute sense of smell and hearing, has largely contributed to its survival in districts where it is much hunted. Except in the Uitenhage jungles, where it is preserved by English farmers, the kudu has been exterminated from Cape Colony. In Eastern Mashonaland it is still abundant, as it is in the highlands of Somaliland, in which country it is rarely met with on the plains.

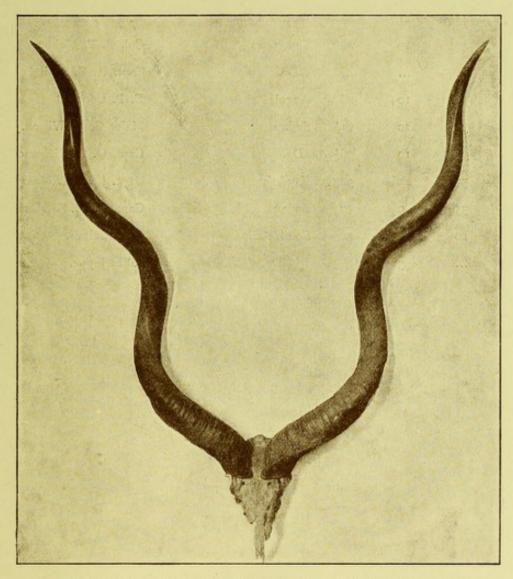
Although unrivalled at getting across rocky hills, the kudu is by no means a good performer on the flat (where it seldom allows itself to be surprised), and can be ridden down without much difficulty by a fairly well-mounted hunter.

Horned females occur rarely.

Len	gth.	C'	mt.			
On outside curve.	Straight line.	Circum- ference.	Tip to Tip.	Locality.		Owner,
	487			Ngamiland		F. H. Barber. (See illus tration.)
64	41	11	23	Mashonaland .		F. C. Selous.
63	481	122	49	Macloutsie River .		E. W. Tompson.
-63	$44\frac{1}{2}$		424	Near Tete, Zambesia		Major P. W. Forbes.
-63	39	101	12	?		Mr. Justice Hopley.
	45½			Delagoa Bay		F. H. Barber.
-61½	451	104	34	3		A. Griffiths.
611/2	-45‡			South Africa		O. R. Dunell.
60 ⁸	441/2	12	29	Do		Frank Harris.
60§	458	117	33	Macloutsie River .	,	F. C. Selous.
-605	44		31	South Africa		H. T. and A. H. Glynn.
-60½	47	$10\frac{1}{2}$	444	Do		A. Ohlsson.
60	39	10	78	Lebombo Mountains		F. Vaughan Kirby.
-594	4516		398	Pungwe Valley .		Major A. St. H. Gibbons.
594	421	115	19	?		G. Richards.
-591		101/2	464	?		P. C. Keytel.
-584	46½	1112	414	Transvaal		F. Van Zeller.
-581	45		46	?		O. R. Dunell.
-581	45	1112	444	?		Mr. Justice Hopley.
-582	43	121	35	?		J. L. Drège.
-584	46	10	39 ⁸	South Africa		Julius Jeppe
58	46	115	39	S.E. Mashonaland.		J G. Millais.
58	43	10	40	Somaliland		G. Chetwynd.
-58	46			Zomba, B.C.A.		D. MacAlpine.
58	43½	104	$32\frac{1}{2}$	Okavango River .		Sir H. J. Goold-Adams.
-58	41			South Africa		South-African Museum.
57½	41	1118	$21\frac{1}{2}$	N.E. Transvaal .		A. M. Naylor.
57½	41½	10	27	Do		Capt. D. J. Marker.
57½	41	101	25	British Central Africa		J. H. Hayes.
57½	44	114	31	Transvaal		Capt. A. C. H. Kennard.
-57 ⁸	39	95	32	Somaliland		$The late J.\ Johnston-Stewart.$

Len	gth.	Circum-	Tip to	Y V	2
On outside curve.	Straight line.	ference.	Tip.	Locality.	Owner.
571	458	103	35	British Central Africa	H. C. Macdonald.
57‡	42	111	41	Baringo	H. Hyde-Baker.
571	44 8	114	348	South Africa	Sir Edmund G. Loder, Bart.
57 ¹ 8	43	115	344	Mashonaland	H. and C. Beddington.
57	43	14	32	South Africa	A. Moseley.
57	421	11	31	Do	Capt. M. D. Graham.
57	$39\frac{1}{2}$	9∄	361	Somaliland	H.R.H. le Duc d'Orléans.
56½	$43\frac{1}{2}$	$II\frac{1}{2}$	$26\frac{1}{2}$	Matabililand	W. Van Ness.
56½	42§	108	$38\frac{3}{4}$?	Sir Victor Brooke's Collec- tion.
56½	$41\frac{1}{2}$	101	234	Matabililand	Hon. C. Greville.
56½	384	$9\frac{1}{2}$	284	Somaliland	J. Benett-Stanford.
-56½	35	101	30	Do	Sir Edmund G. Loder, Bart.
56‡	441	118	331	South Africa	Hon. Walter Rothschild.
56	44	$10\frac{3}{4}$	39	Do	F. B. Dunsford.
554	$41\frac{3}{4}$	***	35	Mazoe River	R. C. Batley.
55%	41	104	36	Do	F. Struben.
55⅓	39½	$10\frac{3}{4}$	$26\frac{1}{2}$	Mashonaland	A. Neilson.
$55\frac{1}{2}$	$42\frac{1}{2}$	$\Pi \frac{1}{2}$	37	Matabililand	Lord Brackley.
55½	$42\frac{1}{2}$	102	38	Do	Major James Grant.
-55‡		108	43	Limpopo	Imperial Museum, Vienna.
-55‡			301	Matabililand	Capt. W. Jardine.
55	$41\frac{1}{4}$	113	28	Do	Major R. Hayes-Sadler.
55	40½	121	$32\frac{1}{2}$	Zululand	C. D. Rudd.
-55	41	10	41	?	The Maclaine of Lochbuie.
55	40	11	36	?	A. H. Bainbridge.
541	394	$10\frac{1}{2}$	$27\frac{1}{2}$	Upper Shiré, B.C.A	C. C. Bowring.
$54\frac{1}{2}$	40½	11	$21\frac{1}{2}$	Mashonaland	S. Chillingworth.
$-54\frac{1}{2}$	39	11	$27\frac{1}{2}$	South Africa	Dublin Museum.
$-54\frac{1}{2}$	384	11	26	Do	Durban Museum.
$-54\frac{1}{2}$				Do	Abel Chapman.

Length.		Cimmun	m.				
On outside curve.	Straight line.	Circum- ference.	Tip to Tip.	Locality.		Owner.	
541	$40\frac{3}{4}$	101	39½	Zululand			C. H. Akroyd.
-54 ¹ / ₈	38%	104	225	Somaliland			P. H. G. Powell-Cotton.
54	41	11	$37\frac{3}{4}$?			Sir Edmund G. Loder, Bart.



Frontlet and Horns of Greater Kudu, from Mr. F. H. Barber's specimen.

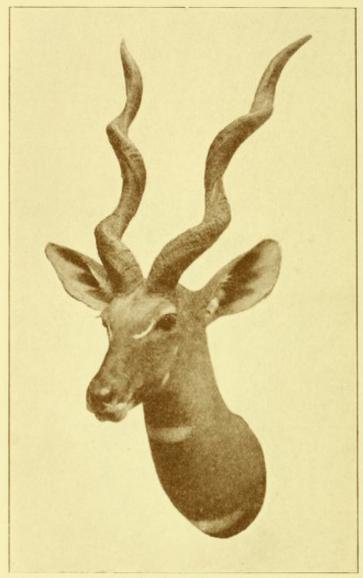
54	42	104	35‡	Zululand .	-	A. Cameron.
54	42	$\Pi_{\frac{3}{4}}^3$	394	Mashonaland		Earl of Dunmore.
-54	402	101	314	South Africa .		Dr. W. P. Y. Bainbrigge,
54	40	1114	24	Do		LieutCol. W. Sitwell.
-54	39	101	32	Somaliland .		Norman B. Smith.

RECORDS OF BIG GAME

Length.		0'	m:					
On outside curve.	Straight line.	Circum- ference.	Tip to Tip.	Locali	ty.			Owner.
54	394	11	251	River Ruaha .				A. Mathews.
-53 ³	414	101	$32\frac{1}{2}$	S.W. Somalila	and			C. V. A. Peel.
***	40.7	8.8	30.9	Bahr Setit .				Prince Henry of Liechten- stein.
53	$41\frac{1}{2}$	113	47‡	Lake Rudolf .				A. E. Butter.
511	40	10	42	Sudan				Col. B. T. Mahon.
-50				Do			4	Capt. R. V. Savile.
-50	39½	10	28	Angola				E. P. Cooper.
49	35‡	10	$21\frac{1}{2}$	Sudan				Major C. E. Wilson.
49	36	10	364	Do				Capt. G. S. Nickerson.
48	354	101	32	Kordofan .				Capt. J. G. A. Massy.
474	354	9½	20	Sudan				Capt. H. H. S. Morant.
♀ 37	10			South Africa .				F. C. Selous.
오 27분	***	38	88	Do.				Julius Jeppe.



Malformed Horns of Kudu from South-west Africa, in the Collection of Mr. O. Volkmann.



Head of Male Lesser Kudu, from a specimen shot by Mr. Norman B. Smith.

LESSER KUDU (Strepsiceros imberbis).

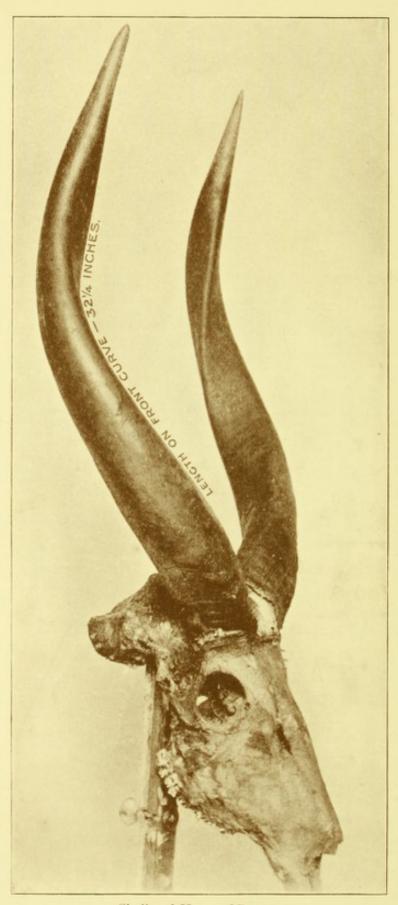
Godir of the Somalis. Gadams of the Gallas.

Sara of the Abyssinians of Danakil. Kungu of the Swahilis.

Except for its brighter colour, the closer spiral and smaller divergence of the horns, and the absence of a fringe of long hair on the throat (whence the name *imberbis*), this beautiful little antelope might almost pass for a miniature of its larger relation. Height at shoulder about 3 feet 5 inches. Weight about 230 lbs.

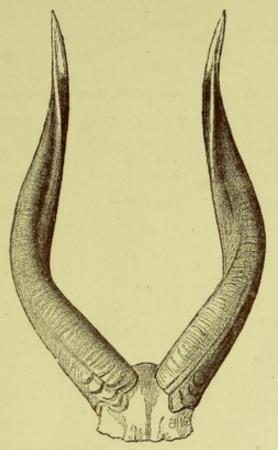
Distribution.—North-East Africa, from Somaliland to German and British East Africa. This antelope generally goes in pairs or threes, and is partial to the cover of thick bush from which it seldom emerges except for the purpose of feeding.

Leng	th.	C:	Tri			
On outside curve.	Straight line.	Circum- ference.	Tip to Tip.	Locality.		Owner.
35‡	26½	58	173	N. Somaliland		G. Chetwynd.
351	261	71/2	161	Do.		Norman B. Smith. (See illustra-
341	26	61/2	11	Do		tion.) Hon. Walter Rothschild.
34	261		***	Do.		Major H. G. C. Swayne.
34	26	64	144	Do		W. W. Ashley.
34	27	64	11	Do		British Museum (R. McD. Hawker).
33	254	$6\frac{7}{8}$	14	East Africa .		A. H. Neumann.
321	25 ¹ / ₈	7	8	Somaliland .		LieutCol. T. R. Harkness.
324	254	7	17	Do		Sir Edmund G. Loder, Bart.
-32	26	61/2	102	Hawash, Abyssin	nia .	Prince de Lucinge.
32	241	7	142	N. Somaliland		W. F. Whitehouse.
314	241	64	141/2	Do		Lord Delamere.
31½	251	68	115	Do		Sir John Kirk.
-311	24	61	12	Do. ,		T. W. H. Clarke.
311	24	63		Do		Col. C. C. Ellis.
314	25	7	10	Do		Major G. F. T. Leather.
31	25	74	91/2	Do		W. H. Cobb.
31	24	6^{3}_{4}	9½	Do		G. H. Cheetham.
-304	25	61/2	94	Do		Viscount Edmond de Poncins.
304	248	66	117	Do		W. D. James.
-304	251	7 ¹ 8	131	Do		O. Neumann.
305	251	63	1118	- Do		A. H. Straker.
-30g			1118	Somaliland .		P. C. Keytel.
-30g	234	6	$11\frac{1}{2}$?		J. ff. Darling.
301	235	6	91	Tana River .		C. Hankey.
304 .	24	65	117	Somaliland .		H.R.H. le Duc d'Orléans.
30	241	68	13	Do		T. P. A. Holford.
30	231/2	7	74	Abyssinia .	34	A. E. Butter.
30	231/2	6‡	134	Somaliland .	1	W. N. McMillan.



Skull and Horns of Bongo.

BONGO 311



Horns of Male Bongo, from the type specimen in the British Museum.

BONGO (Boöcercus euryceros).

This magnificent antelope, which comes next in point of size to the eland and kudu, was long considered a member of the bushbuck group, with which it agrees in the general type of coloration. It differs, however, in that the tail is tufted (like that of an eland), and also by the presence of horns in both sexes, at least in the East African race (B. euryceros isaaci). The coat is bright chestnut-red, marked with a number of narrow vertical white stripes, a white crescent on the breast, and a pair of white spots below the eyes. There is no throat-fringe, and the hair is short. The worn tips of the horns are yellow. Height about 4 feet.

Distribution.—West Africa, from Liberia, through Fanti to the Ashkankolu Mountains and the Gaboon, and thence through the forest district to Uganda.

Len	gth.	Cinaum				
On front curve.	Straight.	ference.	Tip to Tip.	. Locality.		Owner.
324	26§	101/2	124	Togoland .		Claude Beddington. (See illustration, p. 310).
314	261	93	128	West Africa		Sir Victor Brooke's Collection.

RECORDS OF BIG GAME

Len	gth.						
On front curve.	Straight.	Circum- ference.	Tip to Tip.	Local	ity.		Owner.
30‡	$24\frac{1}{2}$	9½	91	West Africa		100	Julius Jeppe.
30	$24\frac{1}{8}$	9§	114	Ashkankolu	Mounta	ains	British Museum.
29½	25 🖁	94	101	Gaboon .			British Museum (P. Du Chaillu).
29	$24\frac{1}{2}$	104	***	Mau Forest			R. J. Church.
281	24	91	10	Togoland .			Hon. Walter Rothschild.
271	24	108	$12\frac{1}{4}$	Mau Forest			Do.
$27\frac{1}{2}$	23 ¹ / ₂	98	$12\frac{1}{4}$?			Mr. Justice Hopley.



Horns of Bull Eland.

COMMON ELAND (Taurotragus oryx).

Doo of the Masaras. *Ee-pofo* of the Makalakas. Eland of the Dutch and English. Impofo of the Amandebele. Insefo of the Masubias and Pofo of the Bechuanas. Batongas. Mofo of the Mashonas. Moju of the Gallas.

Mpofu of Swahili. Mpofu in Barotsiland. Mpofu in Ngamiland. Oo-schefo of the Macubas. Msongo in the Chilala and Chibisa countries.

Eland, which are the largest of all antelopes, resemble the bongo in the presence of horns in both sexes; these forming a close spiral like a screw, with an upward and outward direction. Female horns are more slender than those of the bulls. They likewise resemble the bongo in possessing a long, tufted, ox-like tail, but have a distinct dewlap.

Bulls of the common eland stand from 5 feet 9 inches to as much as $6\frac{1}{2}$ feet at the shoulder. They have a large tuft of brown hair on the forehead, and the horns are of moderate length and stoutness. The typical race (T. oryx typicus), which formerly extended from the Cape nearly to the Zambesi, has a uniformly tawny skin, without transverse white stripes or a dark brown band above the knees; and appears to be the largest form. Apparently somewhere in Rhodesia a dark brown band is assumed by immature bulls. And as we go northward towards the Zambesi, and thence north and east into the heart of the continent, the bulls have not only this dark leg-band, but the body in both sexes is marked by fine vertical white lines. As this striped variety was discovered by Livingstone and his companions, it has been appropriately named T. oryx livingstonianus. Westward the species ranges into Angola.

Throughout Southern Africa, largely owing to the skin-hunters, eland are now becoming exceedingly scarce; and they have already more or less completely disappeared from Cape Colony, Natal, the Orange River Colony, Griqualand West, and the Transvaal. In the northern Kalahari, where they subsist for a great part of the year without water, large herds are still to be met with. No species of large game is more easily approached than eland, and, as a rule, none succumbs more speedily to the bullet. Occasionally female eland develop horns in which the spiral is almost obsolete and the length exaggerated; these have been supposed to indicate a distinct species (Antilope triangularis).



Malformed Horns of Cow Eland in the Collection of Major W. Anstruther Thomson.

Length straight line.	Circum- ference.	Tip to Tip.	Locality.	Owner.
1 391	7	263	?	Major W. Anstruther Thomson.
2 394	13	***	Nr. Lado, White Nile	Major-Gen. Sir F. R. Wingate.
2 384	13	381	Bahr-el-Ghazal	Hon. Walter Rothschild.
- 9 36	$7\frac{1}{2}$	211	?	P. C. Keytel.
1 ♀ 358	71/2	15	Angola	C. W. Sharp.
- ♀ 35 18	8,9	$20\frac{1}{16}$	Zomba Plain, B.C.A	Dr. Percy Rendall.
- ♀ 33½			?	F. H. Barber.
♀ 321	63		Chobi Valley	M. C. Greaves-Bagshawe.
♀ 32‡	64	53	South Africa	Julius Jeppe.
-321			?	Carl Hagenbeck.
2 324	$9\frac{1}{2}$	20	White Nile	Major R. M. Sanders.
♀ 32½	7 1 8	84	?	Mr. Justice Hopley.
♀ 32	$9\frac{1}{2}$	$20\frac{1}{2}$	Mashonaland	F. C. Selous.
9 32	8	20	British Central Africa.	Capt. J. S. Brogden.
- ♀ 32	***	221	?	C. R. Swanson.
314	121	$22\frac{3}{4}$?	Hon. Walter Rothschild.
9 31 €	74	17	Matabililand	Major R. Hayes-Sadler.
9 31 ₹	71/2	151	?	F. Struben.
9 313	81	281	Barotsiland	R. T. Coryndon.
9 31∄	7½	$18\frac{1}{2}$	Mashonaland	S. Chillingworth.
9 31∄	8	***	Barotsiland	Col. C. Harding.
315	101	25½	East Africa	F. J. Jackson.
3112	$12\frac{3}{4}$	$12\tfrac{1}{2}$	Near where Salisbury now stands	British Museum (F. C. Selous).
♀ 31½	81	203	Mashonaland	Do.
31	16	14	Mashonaland	F. C. Selous.
-31	$9\frac{1}{2}$	21	Nyasaland	F. Vaughan Kirby.
- 9 3I	9	12	British Central Africa.	Capt. J. Brander Dunbar.
31	13	15%	Matabililand	Capt. J. P. Grenfell.
-303	$11\frac{1}{2}$	28^{3}_{4}	Nyasaland	Major P. W. Forbes.
304	81	25	?	R. A. Cooper.
	1 Trian	gularis.	2 Tai	urotragus oryx gigas.

Length straight line.	Circum- ference.	Tip to Tip.	Locality.	Owner.
- ♀ 30 ³	81	10	Pungwe	Capt. W. Jardine.
♀ 305	7½	213	Ngamiland	Sir H. J. Goold-Adams.
301	1112	20½	British Central Africa.	Capt. F. D. Markham.
-30½			?	O. R. Dunell.
-30½	13	20 ³ / ₄	British Central Africa.	F. D. Markham.
-301/2	113	171	P. E. Africa	M. L. M. Vaudin.
-30½		171/2	Batoka Plateau	R. T. Coryndon.
♀ 301	81	41/2	P. E. Africa	LieutCol. A. J. Arnold.
-304	114	18‡	Do	H. M. von Archer.
♀ 30₺	71	18	British Central Africa.	H. N. Tate.
♀ 30	71	201	Hanyani Valley	Capt. M. D. Graham.
-30	12	154	Do	J. B. Wheelwright.
-30		1112	Barotsiland	F. V. Worthington.
-293	91/2	9	British Central Africa.	H. C. Macdonald.
294	128	19‡	Do	H. N. Tate.
-29 ¹ / ₂	12	278	Do	W. H. Wilson.
29½	8	22	Do	Commander A. T. Hunt, R.N.
291/2	13	203	Do	H. N. Tate.
-291	15½	123	South Africa	A. Ohlsson.
- ♀ 29 1	81/2	17	Do	Mr. Justice Hopley.
29	10	17	Near Ngamiland .	Sir H. J. Goold-Adams.
9 29	7 8	181	Matabililand	Hon. C. Greville.
29	121/2	14	Do	Abe Bailey.
29	81	134	Benguela	G. W. Penrice.
-29		*	Pungwe	Count E. Hoyos.
29	12	21	British Central Africa.	Capt. J. S. Brogden.
29	11	151	?	J. S. Dawson.
-29	13	201	Mazoe River	R. C. Batley.
27½	10	154	Tana River	Major H. De Prée.
26½	12	9‡	N. of Machakos	E. J. Mardon.



Frontlet and Horns of Bull Senegambian Eland, from the Gambia.

SENEGAMBIAN ELAND (Taurotragus derbianus).

Although living specimens appear formerly to have been in the collection at Knowsley, this magnificent species is chiefly known in England by the horns. These are longer and stouter than those of the common species, and thus confirm the statements as to the larger size of the western animal. The bulls are reported to have no dark fore-lock, but a dark-brown mane. The colour of the hair is rufous, instead of fawn.

Distribution.—The open districts of the interior of Senegambia and Gambia.

Length straight line.	Circum- ference.	Tip to Tip.	Locality	7.		Owner.
-40	131	Single horn	?			Berlin Museum.
-398			. ?			Paris Museum.
341	141	22 ³	Gambia .			Sir Edmund G. Loder, Bart.
-34	$13\frac{1}{2}$?			F. Coburn.
34	124		?			J. Carr Saunders.
-34	1112	17	Gambia .			Dublin Museum.
33	134	26	Do			C. Sharland.
$32\frac{1}{2}$	$12\frac{1}{2}$	298	Do			British Museum (Earl of Derby).
321/2	91	124	?			Sir Edmund G. Loder, Bart.
324	13	231	Gambia .			H.R.H. le Duc d'Orléans.
32	13	241	?			Hon. Walter Rothschild.
3178	115	28 5	Gambia .		. "	British Museum (Earl of Derby).
31‡	$12\frac{1}{2}$	151	Do			H. C. Goddard.
3118	12	185	?			Sir Victor Brooke's Collection.
-31	$11\frac{1}{2}$		Gambia .			Sir R. B. Llewelyn.
30 ⁷ 8	103	264	?			British Museum (F. W. Reade).
-2719	138	235	Senegambia			Paris Museum.
♀ 25	9	103	Gambia .			H. C. Goddard.
♀ 241	9	6‡	Do			British Museum (F. W. Reade).



Head of Chamois shot by Mr. R. K. Cross.

CHAMOIS (Rupicapra tragus).

With the chamois we take leave of the antelopes properly so-called, and come to a group connecting the former to a considerable extent with the true goats, one member of the group being indeed commonly designated the Rocky Mountain goat. Most of these ruminants are more or less goat-like in general appearance, having narrow goat-like teeth and short or moderately long tails. Their horns, which are black in colour, are, however, quite distinct from those of the goats, being for the most part cylindrical in section, and curving backwards. From the other members of the group the chamois is at once distinguished by the sharp hook formed by the backward curvature of the horns, which rise almost vertically from the head. The coloration is too well known to need description, although attention may be directed to the dark streak running from the eye to the side of the muzzle. Height at shoulder reaching 32 inches; weight of male

generally about 65 lbs. (although 125 lbs. has been recorded in one case), that of female from 45 to 50 lbs.

Distribution.—The mountains of Central and Southern Europe, from the Pyrenees to the Apennines and Caucasus. Probably four distinct races may be recognised, namely, the comparatively small izard of the Pyrenees, the true chamois, or gems, of the Alps, a third form in the Apennines, and a fourth in the Caucasus.

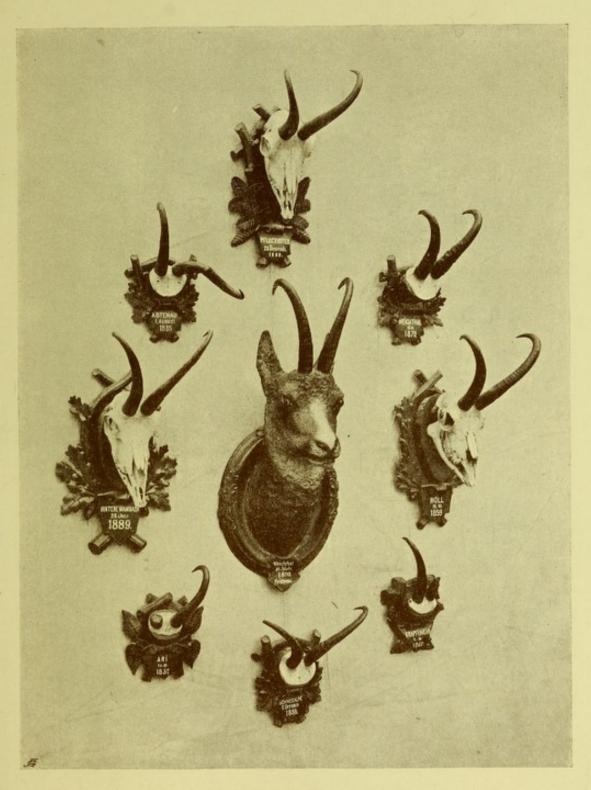
Length on front curve.	Circum- ference.	Tip to Tip.	Spread.	Locality.	Owner.
-123				Hungary	Baron Donald Schönberg.
1-121	41/3		$7\frac{1}{2}$	Retyezat, Carpathians	Count Arpad Teleki. (See illustration.)
1218	31/2	58	618	Carpathians	C. G. Danford.
-12	4			Hinter Riss	H.R.H. the Duke of Saxe-Coburg and Gotha.
-12				Tyrol (?).	Count Arco.
-12				Carpathians	Count Zdenko Kinsky.
-II ¹ / ₂		***		Retyezat	Count Erbach.
-1112	38	67		Albreis Morteratch, Engadine	A. E. Pease.
113	38	79		S. Austria	J. Hamilton Leigh.
118	35/8	51 ⁷ c		Do	R. K. Cross.
111	31/2	61/2	***	?	Col. Howard.
- 9 114		415		Retzezah, Transyl- vania	Baron A. Nopesa.
$-II\frac{1}{16}$	1			Retyezat	G. Kendeffy.
11	31/2	416		Transylvania	F. C. Selous.
-11	34	51/2		?	Count John of Meran.
-107	34	67/8		Bulgaria	Dr. Albert von Stephani.
104	31/2	410		Tyrol	Sir Edmund G. Loder, Bart.
-103		51/2		Hinter Riss	Sir Clement Hill.
$-10\frac{3}{4}$	3 3	7½		Herzegovina	Eberhard Hollinek.
♀ 105	3	5‡		Austria	Hon. Walter Rothschild.
- ♀ 10 ³		54		Mestacan	C. G. Danford.
- ♀ 10g			7	S. Austria	R. K. Cross.
-101	31/2	58		Austria	H.R.H. the Duke of Braganza.

^{1 1231} lbs. not clean.

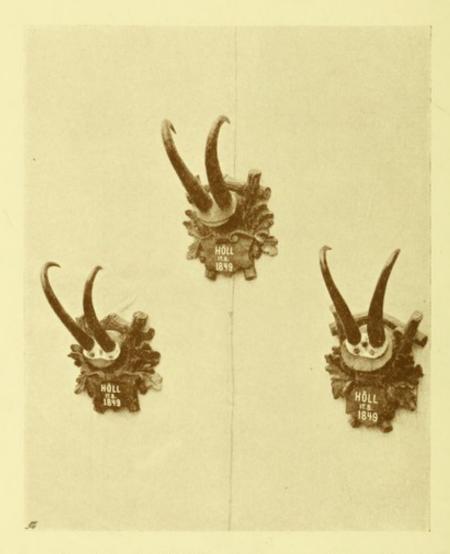
Length on front curve.	Circum- ference.	Tip to Tip.	Spread.	Locality.			Owner.
-101	$2\frac{3}{4}$	5		?			Count John of Meran.
$10\frac{1}{2}$	31°0			Austria .	2		L. R. Rate.
♀ 10½	34	6^{3}_{4}		S. Austria			J. Hamilton Leigh.
$-10\frac{5}{16}$			***	Retyezat			Baron P. Inkey.
101	$3\frac{1}{2}$	51	***	?			E. N. Buxton.
101	$4\frac{1}{8}$	$3\frac{7}{8}$		Tyrol .		-	Sir Edmund G. Loder, Bart.
-101	3	58		?			Count Palffy.
101	3‡	51	***	Austria .	60		Sir Robert Harvey, Bart.
- 9 101		***		Grindelwald			F. A. Labouchere.
9^{3}_{4}	34	3		W. Caucasus			St. George Littledale.
9	3	51	***	Pyrenees			Sir Victor Brooke's Collection.
83	3	3		Caucasus			Prince E. Demidoff.
$-8\frac{1}{2}$	3	34		N. Spain			Abel Chapman.
-6	2	$4\frac{1}{8}$		France .			Dr. Albert von Stephani.

Some of the trophies of His Majesty the Emperor and King of Austria-Hungary. Between 1849 and 1902 His Majesty has shot 1991 chamois.

Length on front curve.	Circum- ference,	Tip to Tip.	Locality.		Owner.			
♀1114	38	6§	Salzkammergut			July 26, 1889.		
11	38	54	Do.			December 10, 1859.		
103	34	478	Do.			,, 28, 1868.		
107	38	47/8	Do.			July 31, 1885.		
108	38	51	Do.	-	*	November 10, 1870.		
108	37/8	48	Do.	14		July 31, 1885.		
9 9 €	$2\frac{3}{4}$	$7\frac{1}{2}$	Do.			,, 10, 1886.		
8§	31	81	Do.			August 1, 1885.		



The best Chamois shot by His Majesty the Emperor and King of Austria-Hungary.



The first three Chamois shot by His Majesty the Emperor and King of Austria-Hungary.



Head of Himalayan Goral. From a Nepalese specimen in the British Museum.

HIMALAYAN GORAL (Urotragus goral).

Goral of the W. Himalaya. Pj, Pjar, Rai, Rom of Kashmir. Sáhare, Sarr of the Sutlej valley.

The gorals are near relatives of the serows, from which they may be distinguished by their generally smaller size, shorter horns, and absence of face-glands, as well as by certain differences in the conformation of the skull. The horns curve regularly backwards, are conical in form, and marked by small irregular ridges for the greater part of their length. The hair is somewhat rough and shaggy, and the tail considerably longer than in the chamois. In general colour the Himalayan goral is brown, tending more or less to rufous or grayish, with the face paler and rufescent, a black line from the nape down the back to the tail (which is also black), and a dark stripe down the front of each leg. Height at shoulder from 26 to 28 inches; weight from 58 to 63 lbs.

By English sportsmen the goral is commonly termed the Himalayan chamois, its habits being very similar to those of the true chamois.

Distribution.—The Himalaya, from Bhutan and Sikhim to Kashmir, at elevations from 3000 to 6000 feet.

Length on front curve.	Girth.	Tip to Tip.	Locality	у.		Owner.
$-9\frac{1}{8}$	34	$4\frac{5}{16}$	Near Musuri			H. Simons.
-81		***	Bissahir .		-	LieutCol. A. E. Ward.
- ♀ S½	0.55	***	Dalhousie .			The late J. Johnston-Stewart.
81	$3\frac{7}{8}$	13	Garhwal .			D. L. R. Lorimer.
$-8\frac{1}{8}$	$3\frac{1}{2}$?			Col. J. Biddulph.
-8	***		Chamba .		+	Major C. B. Vandeleur.
8	343	31/8	Do.		40	Major Cecil Levita.
$-7\frac{7}{8}$	4	28	Do			Capt. J. T. C. Murray.
78	34	31/2	3			British Museum (Hume Collection).
$7\frac{1}{2}$	3	24	Near Musuri			A. O. Hume.
-7½	***	***	Near Dalhous	ie .		Capt. F. E. S. Adair.
710	$3\frac{1}{2}$	$2\frac{3}{4}$	Chamba .			A. H. Ogilvy Spence.
74	3	3	Do			Capt. F. W. H. Walshe.
71	31	$2\frac{1}{2}$	Do			Sir Edmund G. Loder, Bart.
-7½	34	35	Jhelam Valle	y, Ka	ish-	P. H. G. Powell-Cotton.
7	28	34				Major J. A. Orr-Ewing.
-7	34	31	. ?			Capt. H. W. Codrington.
-7		***	Near Almora,	N.W	. P.	Capt. B. H. Boucher.
-7			?			Indian Museum.
-7			Punjab .			Capt. A. Hicks-Beach.
7	34	34	?			Duke of Bedford.
7	34	***	?			Major G. S. Rodon.
7	38	4	Chamba .			LieutCol. H. D. Olivier.
7	38	21/8	Kashmir .		-	Sir Robert Harvey, Bart.
7	38	2§	Do			J. H. Phelps.
♀7	2 ³ / ₄	2	. ?			Capt, F. W. H. Walshe.

OTHER GORALS.

5	Species.	Collected by	Length on front curve.	Girth.	Tip to Tip.	Loc	ality.		Owner.
Urotragu	is edwardsi .	Père A. David	$\begin{array}{c} 8_{16}^{11} \\ 8_{16}^{5} \end{array}$	7½ 7å	4 2	Moupi	n, Ti	bet	Paris Museum.
,,	argyrochœtus	Do.	91/2	71/8	4	Ta - tsi Szec	en - le		Do.
,,	caudatus .	Do.	$\begin{array}{c} 6_{1\overline{6}} \\ 6_{4}^{1} \end{array}$	316 4	$\frac{3\frac{1}{8}}{3\frac{1}{2}}$	North			Do. British Museum.
,,	cinereus .	Do.	71/2	31	315	Tibet			Paris Museum.
,,	griseus .	Do.	44	318	28	Do.			Do.

JAPANESE SEROW (Nemorhædus crispus).

A small species serving in some degree to connect the gorals with the serows, since it agrees approximately in size with the former, but in other characters with the latter.

Distribution.—The southern islands of Japan; an allied species (N. swinhoei) inhabiting the island of Formosa.

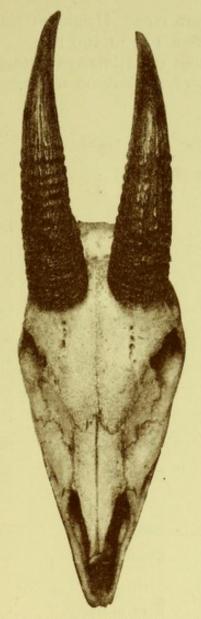
Length on front curve.	Circum- ference.	Tip to Tip.	Locali	ty.		Owner.
-61	31/4	38	Japan			Imperial Museum, Vienna.
54	31/8	31/8	Do.			British Museum.
44	3	3‡	?		-	E. L. Fletcher.

BURMESE SEROW (Nemorhædus sumatrensis).

A large and clumsily built ruminant, with the ears long, the hair coarse, rather thin, and elongated into a crest from the nape to the withers; the under-fur found in the gorals being absent. The general colour of the upper-parts is black or dark gray, with a grizzled appearance, owing to the whitish bases of the hairs; the under-parts, shoulders, and thighs being rusty red. Although by no means large, the shining black, somewhat rugose horns form decidedly handsome trophies. Height at shoulder about $34\frac{1}{2}$ inches.

Distribution.—From the Eastern Himalaya, Moupin in Tibet, and Yunnan, to Sumatra, occurring throughout the Assam Hills, Burma, Siam, and the elevated tracts of the Malay Peninsula.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.
IO15	5	178	Burma .			O. F. Wheeler-Cuffe.
10	5 ¹ / ₈	37	Do	-		Do.
$-9\frac{1}{2}$	5	5-5	Arakan Hills			A. O. Hume.
91	5	2.75	Garo Hills			Do.
9	5	2	Sumatra .			British Museum (Hume Collection).
-9	5	5	Burma .	1		Capt. G. H. Evans.
-9	***	144	Do	-		C. Toussaint.
-9		×4	Arakan Hills			Indian Museum.
-9		***	Do.			H. A. Kelso.
-9			Mogôk .			H. S. Fournier.
$-8\frac{9}{10}$	5½	41	Manipur .			Capt. H. S. Wood.
84	5-5	$4\frac{3}{4}$	Muleyit .			A. O. Hume.
-8^{3}_{4}	48	21/8	Perak .			Perak Museum.
-85			Burma .			R. C. E. Underwood.
8‡	5	31/2	Upper Burma	10 K		Hon. Walter Rothschild.
-8 <u>1</u>	5 1/8	5‡	Perak .			Perak Museum.
-97		***	Arakan Hills			W. Thom.



Skull and Horns of Male Himalayan Serow (Mr. A. O. Hume's record specimen).

HIMALAYAN SEROW (Nemorhædus sumatrensis bubalinus).

Serow, serowa of Gurhwal and many parts of the Himalaya.

Ramu-Halj, Sálábhir.

Yamu, Kulu.

Aimu, Kumaon.

Goa, Chamba.

Although commonly regarded as a distinct species, there can be little hesitation in classing this animal as a local race of the last, more especially as intermediate forms appear to occur in the neighbourhood of Darjiling. The chief distinction is the less decidedly rufous tint of the hair of the western race. Height at shoulder from 33 to 37 or 38 inches; weight from 120 to 190 lbs.

Distribution.—Throughout the Himalaya from Kashmir to the Mishmi Hills, at elevations of from 6000 to 12,000 feet; also recorded from Yunnan.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.
-12.25	6.5	2.75	Gurhwal .		35	A. O. Hume. (See Illustration
-12			Himalaya .			on page 329.) LieutCol. A. E. Ward.
-11			?			LieutCol. R. H. Rattray.
101	58	31/2	?			Hon. Charles Ellis.
-101	58	3½	Gurhwal .			A. P. Davis.
-10½			North of Musu	ri .		Capt. Harry V. Brooke.
-10	54	5½	Mishmi Hills			A. O. Hume.
98	58	$4\frac{1}{2}$?			Sir Victor Brooke's Collection.
94	51/8	6	Pir Panjal .	*		British Museum (R. Lydekker).
98	5‡	3	?			Col. C. M. Haggard.
$9\frac{1}{2}$	58	44	Kashmir .			St. George Littledale.
$9\frac{1}{2}$	48	31	Nepal .			British Museum (B. H. Hodgson).
$9\frac{1}{2}$	5§	34	. 3			Sir Edmund G. Loder, Bart.
- 9 9 8	5 1 8	4	Sind Valley			P. H. G. Powell-Cotton.
98	51 ⁸ 6	38	Chamba .			Capt. C. W. Tribe.
99‡	4 3	31/2	Do			Do.
9	$4\frac{1}{2}$	$2\frac{1}{2}$	North of Musu	ri.		Capt. B. R. M. Glossop.

Length on front curve.

Circum-ference.

Tip to Tip. Locality.

Owner.



Skull and Horns of Male Takin. From Col. J. Biddulph's specimen.

TAKIN (Budorcas taxicolor).

Although recently suggested to be related to the musk-ox, this strange ruminant is more generally regarded as an aberrant relative of the serows. It is heavily built, with stout limbs, large lateral hoofs, a short tail, a convex profile, and an almost completely hairy muzzle. But its most remarkable feature is to be found in the horns, which are large, massive, and bent somewhat after the fashion of those of a gnu, curving at first outwards and somewhat downwards, and then bending abruptly upwards about the middle of their length. Height at shoulder about $3\frac{1}{2}$ feet. Horns are present in both sexes, as in the serows and gorals, those of the female being somewhat smaller than those of the males.

Distribution.—Typically the Mishmi Hills on the northern frontier of Assam, but represented by one local race in Tibet, and perhaps another in China. Although living within sight of Indian territory, it does not appear that takin have ever been killed by English sportsmen, and specimens are very rare in collections.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality		Owner.
-25	13	1112	Mishmi Hills		F. J. Needham.
-241			Do.		Col. J. Biddulph. (See illustration.)
-241	124	124	Do.		Indian Museum.
228	10g	144	Assam .		British Museum.
228	11	12	Mishmi Hills		Duke of Bedford.
-22	123	121	Do.		Bombay Natural History Society.
214	12	10	Do.		Rowland Ward.
21	12	131/2	Do.		A. J. Walter.
20%	113	1178	Assam .		British Museum (Hume Collection).
203	1178	121/2	Mishmi Hills		A. O. Hume.
203	10	121	Do.	1	Hon. Walter Rothschild.
201	10%	123	?		British Museum (B. H. Hodgson).
194	11	111/2	Mishmi Hills		Col. J. Biddulph.
198	11	15	?		Sir Edmund G. Loder, Bart.
19‡	12	14½	. ?		W. J. Reid.



Frontlet and Horns of Young Male Takin. From Mr. A. O. Hume's specimen.

TIBETAN TAKIN (Budorcas taxicolor tibetanus).

Length on front curve.	Circum- ference.	Tip to Tip.	p. Locality.			Owner.			
-19g	11½	138	Tibet .				Paris Museum (Père A. David).		
	T/ A	MOII TAI	ZIM /D.	doron	a +a:	rico	lor sinonsis)		

KANSU TAKIN (Budorcas taxicolor sinensis).

 $20\frac{1}{2}$ $11\frac{1}{2}$ $11\frac{3}{4}$ Kansu, China . . Hon. Walter Rothschild.

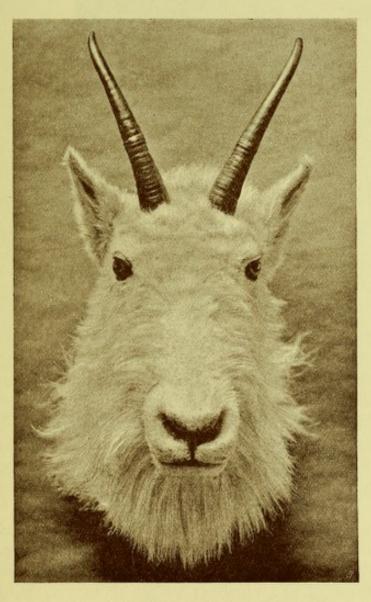
ROCKY MOUNTAIN GOAT (Oreamnus montanus).

This is one of the very few mammals that are permanently white or whitish at all seasons; and although commonly termed a goat, it really belongs to the same group as the serows, which it closely resembles in the form and colour of the horns. In winter the hair is very long and pure white in colour; along the back it is erect, and much elongated on the withers and haunches, so as to give to the animal the appearance of possessing a pair of humps. The summer coat is comparatively short, and has a yellowish tinge. Height at shoulder just short of 3 feet; weight about 300 lbs.

Distribution.—North America; throughout the Rocky Mountains, from about lat. 36° in California at least as far north as lat. 60°.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
$-11\frac{1}{2}$			British Columbia	Clive Phillipps-Wolley.
-11			Kutenay, B.C	John T. Fannin (measured by).
$-10\frac{1}{2}$	54	+60	Montana	Walter James.
101	51	51/2	British Columbia	R. Rankin.
-108	61	***	Similkameen River, British Columbia	Arthur Pearse.
108	5	61	?	E. N. Buxton.
101	54	7½	British Columbia	M. Egerton.
- 9 IO8	44		Do	Capt. A. Egerton.
10	58	68	Do	J. V. Colby.
-94	5		Montana	President Roosevelt.
94	51/2	64	N.W. Territories	S. Ratcliff.
93	5‡	6	Do	H.R.H. le Duc d'Orleans.
98	51	61/8	Do	Sir Edmund G. Loder, Bart.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
91/2	51/2	61	Alaska	St. George Littledale.
91/2	41/2		North America .	J. D. Cobbold.
₹91	41	5½	British Columbia	P. B. Vander-Byl.
91/2	5‡	6g	East Kutenay, B.C.	A. E. Butter.
91/2	6	5	British Columbia	W. Neilson.



Head of Male Rocky Mountain Goat.



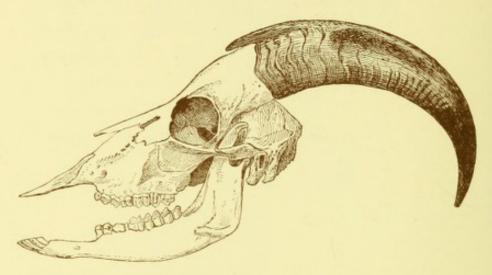
Head of Male Himalayan Tahr.

HIMALAYAN TAHR (Hemitragus jemlaicus).

The three species of tahr are the first representatives of that great group of ruminants which also includes the true goats and sheep. In all these animals horns are, as a rule, present in both sexes, and are generally more or less distinctly angulated; while the cheek-teeth have tall and narrow crowns like those of the serows, which the tahr serve to connect with the true goats. From the latter tahr are readily distinguished by the small size of their horns, which exceed but little in length the head, as well as by the absence of a beard on the chin of the males. The Himalayan tahr is easily recognised by the great length of the hair of the body, which, although in museum specimens generally combed straight, is very shaggy in nature; and likewise by the form of the horns, which have a knotted sharp keel in front. Height at shoulder from 36 to 40 inches; weight about 200 lbs. Mr. Wilson, "Mountaineer," had a pair of horns with a length of $16\frac{1}{2}$ and girth $10\frac{1}{2}$ inches, as measured by Mr. A. O. Hume.

Distribution.—The Himalaya, from Bhutan to Kashmir.

Length on front curve.	Circum- ference.	Tip to Tip.		Loca	ality.		Owner.
15	9 ³	543	Chamba				Col. C. M. Haggard.
$-14\frac{15}{16}$	83	5	Do.				Capt. J. T. C. Murray.
$-14\frac{3}{4}$			Do.				A. H. Ogilvy Spence.
-14 ⁵					?		H. Vansittart.
1416	83		Chamba				J. S. Rivett-Carnac.
141	9	413	Kishtwar				Capt. W. F. Corbett.
-141			Chamba				Mrs. W. W. Baillie.
141	87	48			?		A. Cadell.
1418	87	6ğ	Kumaon				A. O. Hume.
-141/8					?		A. B. Lindsay.
14					?		Capt. R. L. Tottenham.
-14					?		LieutCol. A. E. Ward.
137	9	88	Chamba				Hugo de Burgh.
138			Do.				Col. R. J. Heber-Percy.
134	9	1114			?		British Museum (Hume Collection).
134	81	74			?		I. Morse.
13½	81/2	7 ½	Kashmir				J. H. Phelps.
$13\frac{1}{2}$	81/2	71	Chamba				Lieut,-Col. H. D. Olivier.
$-13\frac{1}{2}$		***	Do.				Capt. F. W. H. Walshe.
$-13\frac{1}{2}$	10			. 1	2		Major C. F. Blane.
138	9	87	Chamba				A. W. Robertson, Glasgow.
138	98	54		1	?		Hon. Walter Rothschild.
131	87	54			?		Sir Victor Brooke's Collection.
131	81	67	Nepal (?)			`.	Sir Edmund G. Loder, Bart.
131	81/2			-	?		E. L. Phelps.
-134	9	5			?		P. H. G. Powell-Cotton.
-13	9	***			?		Indian Museum.
-13	94		Chamba				Capt. A. Hicks-Beach.
-13	9‡		Himalaya				Major-General A. A. A. Kinloch.
13	9	63			?		Capt. J. Carden.
13	88	63			?		P. Church.



Skull and Horns of Male Arabian Tahr. (From Thomas, P.Z.S. 1894.)

ARABIAN TAHR (Hemitragus jayakeri).

A much smaller and rather shorter-haired species than the last, of a generally tawny brown colour, with relatively longer and more slender horns, which are less boldly knotted on the front edge. Height at shoulder about $24\frac{1}{2}$ inches.

This species, of which the type specimen is in the British Museum, was first obtained by Col. A. S. G. Jayaker, in honour of whom it was named by Mr. O. Thomas in 1894.

Distribution.—Jebel Taw, and probably some of the other ranges of Oman, South-East Arabia.

Length on front curve.	Locality.		Owner.
-115	Oman Mountains		Col. A. S. G. Jayaker.



Head of Male Nilgiri Tahr.

NILGIRI TAHR (Hemitragus hylocrius).

Although commonly designated by British sportsmen the "Nilgiri ibex," this species (the warriattu of the native shikaris) is really a member of the same genus as the Himalayan tahr. From that species it is at once distinguished by its short hair and the form of the horns; the latter having the outer surface convex instead of flat, and lacking the knotted front keel. The general colour is dark blackish-brown, old males developing a light saddle-like patch on the back. Height at shoulder from 39 to 42 inches in the males, and up to 35 inches in the females.

Distribution.—The hill-ranges of Southern India, including the Nilgiris, Anamalais, and the Western Ghats nearly to Cape Comorin; usually at elevations of from 4000 to 6000 feet, but occasionally descending to lower levels. This species has been greatly reduced in numbers by constant persecution, but as the herds have now been placed under Government protection, and a special permit is necessary for shooting, there is hope that it may increase.

RECORDS OF BIG GAME

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.
$-17\frac{1}{2}$	9_{8}^{7}	6	Nilgiris			Rhodes Morgan.
-17	$9\frac{3}{4}$		Do			Measured by Gen. MacMaster, 1869.
163	87	58	- ?			A. O. Hume.
$-16\frac{1}{2}$	***		Nilgiris			St. George Littledale.
16½	81	6	Do			S. G. Bird.
-16	9.5	5	Do		7	Rhodes Morgan.
15%	7 ²	58	Do			J. H. Whitehouse.
151	88	$7\frac{7}{8}$	Do			Sir Edmund G. Loder, Bart.
158	8^{3}_{4}	$6\frac{3}{4}$	Do	,		Martyn Kennard.
158	81	6	Do			St. George Littledale.
1518	85	$4\frac{3}{8}$	Do			Do.
-15	81	51/8	Do			Sir H. D. Tichborne, Bart.
-15	81/2	5	Do			Sir W. Gordon-Cumming, Bart.
$14\frac{3}{4}$	84	58	Do		v	Capt. C. S. Timins.
144	81	7‡	Anamalai Hills		-	M. Loam.
141	S_{4}^{3}	61	Nilgiris		2	British Museum.
$14\frac{1}{2}$	85	51/8	Do			Sir Victor Brooke's Collection.
148	8	48	Anamalai Hills			Capt. T. W. Greenfield.
♀128	51/2	28	Do.		*	M. Loam.
♀11 <u>3</u>	54	4 1 8	Do.			Hon. Walter Rothschild.
9 11.25	5.25	4	Do.			A. O. Hume.



Horns of Pir Panjal Markhor. Shot by the late Major J. C. Shirres, in the Kajnag, April 22, 1884.

ASTOR and PIR PANJAL MARKHOR

(Capra falconeri typica, and C. falconeri cashmiriensis).

The markhor, of which there are several local races, probably passing more or less completely into one another, introduces us to the true goats (Capra). The males differ from the tahr by their much larger horns, whose length greatly exceeds that of the head, and likewise by the presence of a more or less distinct beard on the chin. In most races of the markhor the beard is extended so as to form a fringe on the throat and chest; the hair on the body being also elongated. Moreover, the horns form a spiral, quite unlike the scimetar-shape characteristic of the ibex and common goat. In the Astor (C. falconeri typica) and Pir Panjal (C. falconeri cashmiriensis) races of the markhor the horns take the form of an open corkscrew-like spiral, with comparatively few turns, recalling those of the kudu; the spiral being most open, the spread widest, and the turns fewest in the Astor form. Height at shoulder of a Gilgit specimen, $38\frac{1}{2}$ inches; of Kashmir specimens, from 38 to 41 inches; weight from

about 200 to 240 lbs. The Astor race is found in Astor and Baltistan, while the Pir Panjal form inhabits the Pir Panjal and Kajnag ranges of Kashmir, and extends to the north-west into Hazara and Gilgit, where it probably intergrades with the former.



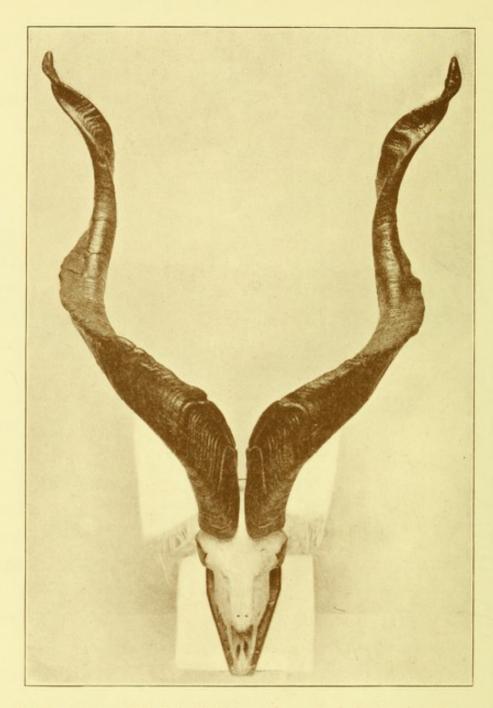
Horns of Astor Markhor. From Mr. A. O. Hume's specimen.

Length.		Circum-					
On outside curve.	Straight line.	ference.	Tip to Tip.	Locality.		Owner.	
-63				Pir Panjal .		Major - General A. A. A. Kinloch.	
-60	***	***		Astor		Lucknow Museum.	
-59		12	36	Kajnag		The late Major J. C. Shirres.	
-59				Pir Panjal .	:	(See illustration on p. 341.) Lucknow Museum.	
$-58\frac{1}{2}$	40½	10	381	Gilgit		Marquis of Lansdowne.	
57½	40		47½	Drosh		B. C. Graham.	
-561	38 -	11	38	Kashmir		J. Benett-Stanford.	
-56	244	***		Astor		Major H. Trevor.	
-56	36§	13%	348	Do		Viscount Edmond de Pon- cins.	

¹ Picked up either on the Pir Panjal or Kajnag Ranges by the late Col. Cuppage, and measured by General Kinloch.

Leng On outside curve.	gth. Straight line.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-56	511/2			Near Bunji	Capt. T. S. Johnson.
-55½		9‡	314	Chilas	Queen's Own Corps of Guides.
55	441	11	47	?	East India Club.
-55				Astor	Otho Shaw.
541	***	101/2	26½	?	A. O. Hume.
54		108	334	Astor	Martyn Kennard.
534	38‡	124	40½	Do	Major J. Manners Smith.
531	$42\frac{1}{2}$	1112	52 about	Do	Sir Victor Brooke's Collec- tion. ¹
-53		91/8	26	7	LieutCol. A. E. Ward.
53	384	93	35½	Gilgit	Hon. Walter Rothschild.
53	35#	114 -	34½	Pir Panjal	Capt. F. W. H. Walshe.
523	394	1218	334	Astor	Martyn Kennard.
52	35	$9\frac{1}{2}$	42½	Gilgit	Major F. H. Taylor.
518	3718	10	. 33	Pir Panjal	Sir Edmund G. Loder, Bart.
-514			36	Chitral	Major G. A. Leslie.
5118		113	49 8	Astor	Martyn Kennard.
-5118	***	12	441	Haramosh	P. H. G. Powell-Cotton.
501	354	102	45½	Do	B. H. Shaw Stewart.
50	38	113	36	Astor	Sir Edmund G. Loder, Bart.
50	36	10	33	Chitral	R. H. Macdonald.
50	361/2	12	36	Chilas	Capt. W. Hayes-Sadler.
-50	29	1112	31	Haramosh	E. L. Phelps.
-49 ³			38	Chilas	Capt, P. Hambro.
-49 ³		$II\frac{1}{2}$	40	Astor	H. Lennard.
$-49\frac{1}{2}$	321	101	43	Gilgit	Col. J. Biddulph.
491	36	111	32	Chilas	Capt. L. W. S. Oldham.
-49	391	1118		Chitral	C. R. Johnson.
-49		11	35	Haramosh	Queen's Own Corps of Guides.
49	35	14	44	? .	A. O. Hume, C.B. (See illustration on page 342.)

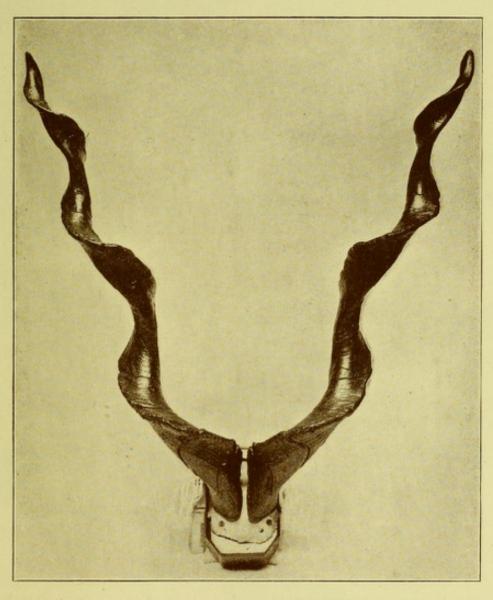
¹ Shot by Capt. Harry V. Brooke.



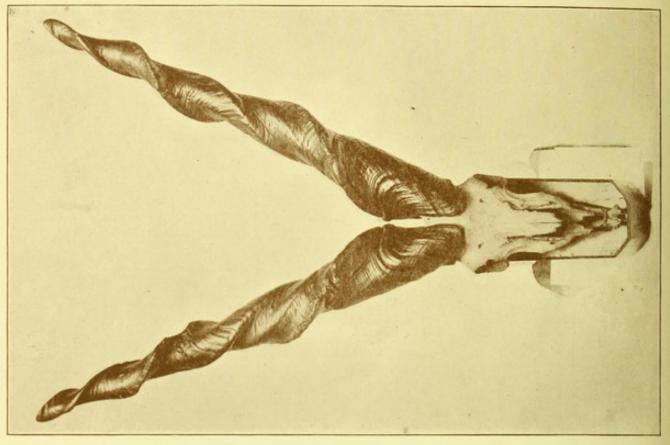
Skull and Horns of Pir Panjal Markhor. From Mr. A. O. Hume's specimen.

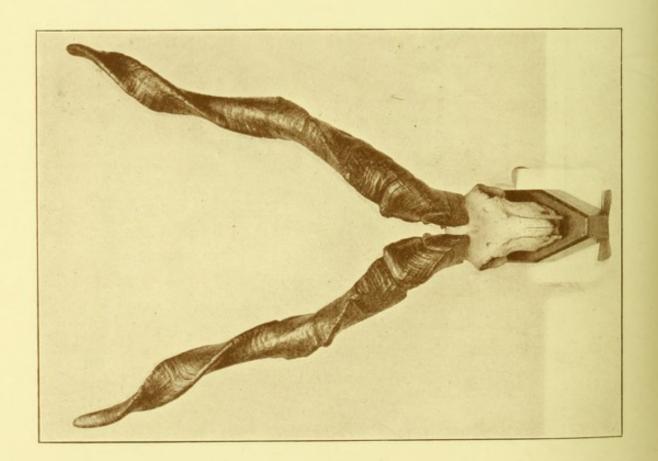
Len	gth.	C:						
On outside curve.	Straight line,	Circum- ference.	Tip to Tip.	Locality.			Owner.	
48½		$\Pi_{\frac{1}{2}}$	45	Astor .			Capt. M. Murphy.	
481	3112	$11\frac{3}{4}$	$26\frac{1}{2}$	Baltistan		2	H. Z. Darrah.	
48	374	124	29	Pir Panjal			A. O. Hume. (See above illustration.)	
-48	311	12	38	Haramosh			J. V. Phelps.	

Length.		Circum-						
On outside curve.	Straight line.	ference.	Tip to Tip.	Locality.		Owner.		
-47½		11		Kashmir	*	Major-Gen. A. A. A. Kinloch.		
471	37	I 2 ½	38	Chilas		Capt. L. W. S. Oldham.		
471	34	101	39	Chitral		H. Gough.		



Horns of Western Markhor. From a specimen in the Collection of Mr. A. O. Hume.





Skull and Horns of (1) Cabul, and (2) Suleman Markhor. From Mr. A. O. Hume's specimens.



Head of Male Suleman Markhor. From Mr. A. J. Grant's Waziristan specimen.

CABUL and SULEMAN MARKHOR

(Capra falconeri megaceros and C. falconeri jerdoni).

In the Cabul race of the markhor (C. falconeri megaceros), from the trans-Indus districts near Cabul, the horns are nearly straight, but show a slightly open spiral, being intermediate between those of the Pir Panjal and Suleman races. On the other hand, in the latter (C. falconeri jerdoni) the relatively small horns form a perfectly straight cone, upon which the spiral ridges run like the "worm" of a screw. The distributional area of the latter race includes the trans-Indus hill-ranges on the frontier of the Punjab, Afghanistan, and Baluchistan,

extending in the Suleman range as far as Mithankot, and also to the Quetta district.

Length in straight line.	Circum- ference.	Tip to Tip.	Locality.	Owner.
48½	74	Odd horn Suleman	?	British Museum.
398	101	race 241	Afghanistan	British Museum (Col. Grant).
391	121	38	Range 25 miles N.W.	A. J. Grant. (See illustration,
381	102	23%	Afghanistan	page 347.) H.R.H. the Duke of Saxe-Coburg and Gotha.
37	10	32	Kurram Valley	Major G. Roos Keppel.
354	9%	15	3	Capt. E. Kirkpatrick.
-35			Afghanistan	LieutCol. A. E. Ward.
344	108	28	Baluchistan	The late Capt. E. W. Codrington.
33	91	$19\frac{3}{4}$	Afghanistan	Sir Edmund G. Loder, Bart.
321/2	10	22½	Buner	Queen's Own Corps of Guides.
321	94	28	3	A. O. Hume.
32	10	27½	Cabul	A. O. Hume. (See illustration on page 346.)
3112	9½	27	Suleman Range	Hon. Walter Rothschild.
304	10	25	Baluchistan	Col. J. Biddulph.
304	84	$21\frac{1}{2}$?.	Sir Victor Brooke's Collection.
294	81	234	Baluchistan	LieutCol. R. H. Rattray.
291	10	19	Khyber Pass	Capt. A. L. Bickford.
-28	***		?	Otho Shaw.
27	9	18	Sheik Budin	Col. J. Biddulph.
$26\frac{3}{4}$	1114	$22\frac{1}{16}$	Suleman Range	A. O. Hume. (See illustration
26‡		18	Buner	on page 346.) Capt. H. W. Codrington.
26	84	18½	Sheik Budin	Gen. Sir H. Collett.
251/2	10	21	Quetta	B. H. Shaw-Stewart.

ASIATIC IBEX (Capra sibirica).

The first of the true ibexes, in all of which the long scimitar-shaped horns carry bold transverse knots on the front surface. In the present species the horns are characterised by their large size and well-developed front surface; the second distinctive feature being the long beard of the males. Height at shoulder from 40 to 42 inches; weight about 206 lbs., when cleaned from 128 to 153 lbs.

Distribution.—The mountains of Central Asia, from the Altai to the Himalaya (exclusive of the Pir Panjal), and from the neighbourhood of Herat to Kumaon. Several local races of this species are recognised; namely, the Thian Shan ibex (C. sibirica typica), from Siberia, the Thian Shan, Altai, etc., the Irtish ibex (C. s. lydekkeri), the Baltistan ibex (C. s. wardi), and the Himalayan ibex (C. s. sacin), from the mountains to the northward of Kashmir and adjacent districts as far east as the source of the Ganges.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality			Owner.
564	1112	361	Thian Shan			Lord Elphinstone.
-56			Tagdumbash		i	LieutCol. A. E. Ward.
544	111	29	Thian Shan			P. B. Vander-Byl.
-548	101	25	Gilgit	1.		Queen's Own Corps of Guides.1
54 ²	103	45	Thian Shan			H.M. the King.
54	118	27	Do			Lord Elphinstone.
-53 ³ 4	14		China .			Capt. P. Hambro.
531	1112 -	42	Thian Shan			R. Hayne.
53‡	101	201	Gilgit			Col. J. Biddulph.
53	12	351/2	Thian Shan			St. George Littledale.
521	121	26	Do			P. Church.
-52	10		Baltistan .			H.H. the Maharaja of Travan- core.
-51½			Kashmir .			Martyn Kennard.
514	9½	34½	?			Major J. Manners Smith.
51	918	$28\frac{1}{2}$?			Sir Victor Brooke's Collection.
503	117	34½	Thian Shan			P. B. Vander-Byl.
50§	111	35½	Do			British Museum (St. George Littledale).

¹ Picked up by Lieut.-Col. R. E. Hutchinson.

² Shot by St. George Littledale.

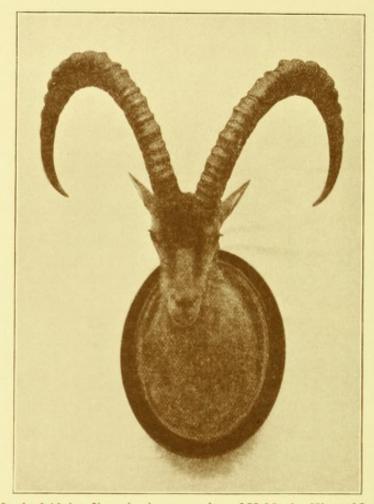
Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
50	11	301	?	Marquis of Lansdowne.
-50	101	21	?	Capt. H. Newton.
50	12	193	Thian Shan	J. V. Phelps.
-50			?	Major H. Trevor.
-50			?	7th Hussars.



Head of Thian Shan Ibex. From Lord Elphinstone's record specimen.

494	103	251		?		Sir Edmund G. Loder, Bart.
494	10	$2\mathrm{I}{\textstyle\frac{1}{2}}$	Chitral			British Museum (Capt. B. E. M. Gurdon).
-49 ¹ / ₂	114	271/2	Baltistan			Major James Grant.
49	101	$9\frac{1}{2}$	Skardo			Major George Douglas.
$-48\frac{1}{2}$	94	34≟	Gilgit.	,		Queen's Own Corps of Guides.
481	98	301/2	Nubra, no	orth of	Leh	A. O. Hume.
-48	***	***	Skardo			J. L. Wood.

Length on front curve.	Circum- ference.	Tip to Tip.	Lo	cality.			Owner.
48	101	241/2	Tilel Valle	ey, K	ashm	ir	J. Campbell of Kilberry.
-471			Thian Sha	in			F. A. Labouchere.
47	113			?			Carl Hagenbeck.
-47			Baltistan				Major E. Guinness.
47	10			?			Major J. Manners Smith.
-47			Baltistan				A. R. Oldfield.
46½	11	244	Kashmir				Hon. Charles Ellis.
46½	12	201	Altai .				Hon. Walter Rothschild.
461	10	25½	Kashmir				G. A. Lloyd.
-46 <u>1</u>		`		?			Indian Museum.
46	- 93	25		?			Sir Victor Brooke's Collection.
-46	114	27	Sind Valle	y			A. O. Hume.
-46			Kashmir				Capt. Hon. J. G. Beresford.
451/2	94	19½		?			Capt. R. L. Kennion.
45½	93	191	Baltistan				T. R. Ubsdell.
45½	10	181		?			A. Courage.
-451	98	244	Baltistan	. 1			Queen's Own Corps of Guides.
45	101	29	Ladak				P. H. G. Powell-Cotton.
-45	10	201	Gilgit.				Col. J. Biddulph.
-45			Kashmir			1.	Major R. L. Walter.
45	101	231/2		?			LieutCol. G. D. F. Sulivan.
45	9	121	Baltistan				Major C. B. Vandeleur.
45	103	27		?			J. V. Phelps.



Head of Alpine Ibex, in the possession of H.M. the King of Italy.

ALPINE IBEX (Capra ibex).

This species, which only survives in a protected state, differs from the Asiatic ibex by the much smaller size of the beard of the male, as well as by a slight variation in the horns; the height at the shoulder reaching to about 40 inches. Weight from 85 to 106 lbs., clean. Formerly distributed throughout the higher Alps of Switzerland, Savoy, and the Tyrol, but now surviving only in a few valleys on the Italian side of Monte Rosa. Most of the few specimens now obtainable are comparatively small, and good horns are very scarce in English collections.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
-448	101	1	Valley of Aosta .		H.M. the King of Italy.
-394	108	401	?		Imperial Museum, Vienna.
			1 Height at shoulder, 33	å; weight,	170 lbs.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
-38§		***	Valley of Aosta .		H.M. the King of Italy.
-374			Do		Do.
358	9	$26\frac{3}{4}$	Do		Do.
$34\frac{1}{2}$	94		Styria	40	Sir Edmund G. Loder, Bart.
-341	9	26	Valley of Aosta .		H.M. the King of Italy.
-33 1 8	9	398	Do		Shot by H.M. the late Victor Emmanuel.
-314	91/8	183	Alps of Savoy .		Sir Edmund G. Loder, Bart.
-30	9	21	?		Dublin Museum.
-281	98	18	Valley of Aosta .		C. H. Wilczek.
28	91	171	Do.		Hon. Walter Rothschild.
$26\frac{3}{4}$	88	22 ¹ / ₈	Do.		British Museum.
$23\frac{1}{2}$	83	172	?		Do.

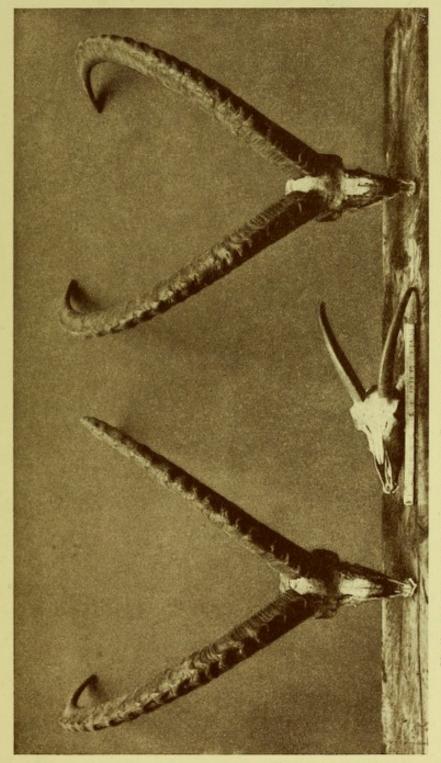
ABYSSINIAN IBEX (Capra vali).

This ibex, the wala of the natives of Simien, differs from the Nubian ibex by its stouter build, shorter beard, and larger and more massive horns, on which the knots are but slightly prominent. The forehead of the skull has a conspicuous bony prominence. Although described by Rüppell in 1835, this ibex was practically unknown till 1901, when a fine series of specimens was brought home by Capt. Powell-Cotton. Height at shoulder about 40 inches. Weight about 260 lbs.

Distribution.—The mountains of Simien, Abyssinia.

Length on ront curve.	Circum- ference.	Tip to Tip.	1	Joca	lity.		Owner.
¹ 43	101	23	Abyssinia				Lady Meux.
1421	101	184	Do.				H.M. The Queen.
41%	- 11	$16\frac{3}{4}$	Do.				P. H. G. Powell-Cotton.
41	11	184	Do.				Do.
40g	11	***	Do.				Hon. Walter Rothschild.
381	11	188	Do.				P. H. G. Powell-Cotton.
1384	98	111	Do.				Mrs. Rennell Rodd,
$25\frac{1}{2}$	7‡	13	Do.				Hon, Walter Rothschild.
9 134	4 7	8§	Do.				P. H. G. Powell-Cotton.

¹ Presented by Ras Makunnan, 1902.



Skulls and Horns of Male and Female Abyssinian Ibex. Shot by Mr. P. H. G. Powell-Cotton.



Head of the Sinaitic Race of Nubian Ibex.

NUBIAN IBEX (Capra nubiana).

This species may be easily distinguished from both the Asiatic and the Alpine species by the form of the horns, which are very long, rather slender, and with the outer front angle much bevelled off, so that the proper front surface is very narrow, and its transverse knots proportionately short. These races are recognised, namely, the typical Nubian form, the S. Arabian C. n. mengesi, and the Sinaitic C. n. sinaitica. In the form of its horns the latter approximates to the wild goat.

Distribution.—The mountains of Southern Arabia, Palestine, the Sinaitic Peninsula, Upper Egypt, and probably also those of Morocco and the interior of Senegambia. Arabian name, beden. Comparatively few European sportsmen have killed this handsome ibex.

The following specimens belong to the typical African form :-

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.				Owner.		
-51	8§	39½	Upper Egypt				Prince Henry of Liechtenstein.		
46 1 /8	8		North Africa				British Museum.		
42	71/2	20	Near Suakin				Hon. Walter Rothschild.		
414	75	178	North Africa				Major W. H. Besant.		
404	71	13‡	Do.				Julius Jeppe.		
401	7½	24	Do.				A. Fowler.		
387	$7\frac{1}{2}$	121/2	Upper Egypt				Sir Edmund G. Loder, Bart.		
-38^{3}_{4}		21	North Africa			.,	J. ff. Darling.		
38‡	8	21	Suakin .				Major A. King		
$37\frac{1}{2}$	71/8	91	North Africa				Prince Colloredo Mannsfeld.		
37	7	174	Do.				Capt. N. M. Smyth.		
-35 ⁷ / ₈	67	164	Egypt .				Dr. Albert von Stephani.		
35±	7 1	12	Suakin .				W. P. Gore-Graham.		
301	8	171	Do				Commander A. T. Hunt, R.N.		

The following specimens are Asiatic:—

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
50	9		Southern Arabia .	Capt. J. T. Brinkley.
42	74	·	Arabia	East India Club.
4112	8	161	Do	Sir Edmund G. Loder, Bart.
$-41\frac{1}{20}$;	Hadramut, S.E. Arabia	J. Menges.
394	97		Markat	Do.
39½	87	192	South-East Arabia .	Hon. Walter Rothschild.
35½	61	12	Sinaitic Peninsula .	W. E. Pease.
35‡	7	158	Do	J. D. Cobbold.
-32 ⁷ / ₈	61/2	7	Do	Captain John Marriott.
321	7	181	Do	E. H. Pease.
318	61/2	131	Do	W. Moncreiffe.
311	63	7	Do	W. E. Pease.

RECORDS OF BIG GAME

Length on front curve.	Circum- ference.	Tip to Tip.	Loc	ality.	Owner.		
304	$6\frac{1}{8}$	135	Sinaitic Peni	nsula		- 1	A. W. Haig.
29		13	Do.				Hon. Walter Rothschild.
$28\frac{1}{2}$	7 ½	6	Do.		2		E. N. Buxton.
251	6	12	Do.	4	10		British Museum.
9 10g	31	$2\frac{1}{2}$	Do.			-	W. E. Pease.
♀8⅓	31/8	54	Do.				W. Moncreiffe.



Skull and Horns of Sind Wild Goat. From Mr. A. O. Hume's specimen.

WILD GOAT (Capra hircus).

The horns of the Persian wild goat (C. hircus ægagrus), which appears to be the ancestral form of the domesticated goat of Europe and Asia (C. hircus), differ from those of the various species of ibex by having no distinct front surface, but merely a sharp notched keel, representing the inner front angle of the ibex horn. In old males the beard is very long. The general colour of the upper parts is brownish gray in winter and reddish brown in summer, with the under parts white, and blackish brown and white markings on the face and limbs. Height at shoulder reaching to 37 inches.

The so-called Sind ibex (*C. hircus blythi*) appears to be a second local race of the species, inhabiting Sind and parts of Baluchistan, where it probably passes imperceptibly into the Persian race. It is distinguished mainly by a slight difference in the form of the horns. A second race (*C. h. raddi*) inhabits the Caucasus. Other races inhabit the islands of the Ægean Archipelago, where they appear to have been more or less crossed with domesticated breeds.

Distribution.—The islands of South-Eastern Europe, and the mountains of South-Eastern Europe and South-Western Asia from the Caucasus through Persia to the confines of Baluchistan and Sind. Native Persian name, pasang (rock-footed).

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
551/2	"	24	Persia	Carl Hagenbeck.
-53	10	46	Asia Minor .	B. Hodder.
528	7 ½	83	Sind	A. O. Hume. (Shot by Col. F.
511	9	7	Russian Turkestan	Marston.) See illustration. Prince P. Demidoff.
481	83	137	Caucasus	British Museum.
-48	8	201	Sind	J. D. Inverarity.
-47½	91		Cilician Taurus .	C. G. Danford.
463	78	14	Sind	Sir Edmund G. Loder, Bart.
46½	87	187	Asia Minor .	F. C. Selous.
46	79	11	Sind	Major C. S. Cumberland.
-45 ⁸	82	93	Daghestan	E. N. Buxton.
451	82	5	Do	R. Graham.
-451	91	21	Damascus	Dr. Albert von Stephani.
45‡	- 8	113	Sind	Col. J Biddulph.
441/2	87	218	Caucasus	British Museum.
441/2	8§	11	?	British Museum (Hume Collection)
-431	74	151	?	Major W. Anstruther Thomson.
43	9	154	Taurus Range .	Sir Edmund G. Loder, Bart.
43	81	228	?	J. Carr Saunders.
421/2	9	10	Russian Turkestan	St. George Littledale.
42	8	6ª	Baluchistan .	Sir Robert Harvey, Bart.
-42	7	12	Sind	J. D. Inverarity.
-41½			Do	Major E. C. Tidswell.
418	83	91	Russian Turkestan	Prince E. Demidoff.
-40½	9 1 8		Asia Minor .	Imperial Museum, Vienna.
39½	74	141	Baluchistan .	Capt. T. W. Greenfield.
-38	108	15	Asia Minor .	Capt. John Marriott.
-38	***		3	H.H. Maharaja of Travancore.
36	81	63	Baluchistan .	Hon. Walter Rothschild.

DOMESTICATED GOAT.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.
521/2	101	40g	Daghestan			Sir Edmund G. Loder, Bart.
441	6	294	Angora .			Do.
401/2	98		Daghestan .			Do.
37₺	71	324	Scotland .			Col. W. H. Walker.
-37	71/2	35	Meoble, N.B.			Walter Jones.
354	74	38‡	?			B. de Bertodano.
344	71	381	Scotland .			Duke of Bedford.
34	81/2	321/2	Do	*		F. C. Selous.
33½	8	261	Meoble, N.B.	4		Hon. O. C. Molyneux.



Head of Spanish Tur. Mr. Abel Chapman's specimen.

SPANISH TUR (Capra pyrenaica).

Although commonly designated an ibex, the Spanish wild goat has horns more like those of one of the Caucasian tur, and is therefore better designated as a species of that group. The horns, which have a sharp inner edge, are twisted in a very open semi-spiral, with the tips generally turned outwards, and are quite unlike those of the true ibex. In having dark and light markings on the limbs the species is, however, much more like the Persian wild goat than either of the Caucasian tur. The beard of the males varies greatly in size according to age and season. Height at shoulder from about 27 to 32 inches; weight, when clean, about 10 stone.

Distribution.—The Pyrenees and the high ranges of Central Spain, Andalusia, and Portugal. The typical form of the species inhabits the Pyrenees; those inhabiting the more southern parts may be distinguished as a separate race (C. pyrenaica hispanica).

Length on outside curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.
31	83		Pyrenees .		2	Sir Victor Brooke's Collection.
-301	9½	231/2	Central Spain			Abel Chapman and W. J. Buck.
-29 3	81	23‡	Almeira .			H. Brinsley Brooke.
291	9½	231	Sierra Nevada			Abel Chapman.
-283	101	20g	?			Imperial Museum, Vienna.
28	91	238	Spain .			British Museum.
27 ³	9	25	Do			Sir Edmund G. Loder, Bart.
271/2	108	192	Pyrenees .	,	•	British Museum.
258	81/2	16§	Spain .			Hon. Walter Rothschild.
$-25\frac{1}{2}$	9½	13	Do			W. J. Buck.
241/2	10	14	Val d'Arras	. 1		E. N. Buxton.
238	8	16	Southern Spain			Pablo Larios.
$22\frac{3}{4}$	9½	183	Val d'Arras			E. N. Buxton.
22	7월	14	Spain .			Pablo Larios.
$-21\frac{1}{2}$	71		Do			Prince E. Demidoff.
20	81	15	Sierra Blanca			A. Larios.
16	71/2	11	Spain .	. /		Col. R. J. Heber-Percy.
- ♀ 10∄	58	71/2	Val d'Arras			A. E. Leatham.
♀ 9⅓	58	6‡	Do			E. N. Buxton.



Skull and Horns of West Caucasian Tur. Shot by Mr. St. George Littledale.

WEST CAUCASIAN TUR (Capra caucasica).

Of the two peculiar kinds of wild goats inhabiting the Caucasus, and locally known as tur, the present species is easily recognised by the approximation in the form of its horns (especially in immature individuals) to those of true ibex, and the uniform bright chestnut-brown colour of the hair of the adult male in the summer coat; the chin, beard, and lower parts of the legs being alone black. Although the horns present a considerable resemblance to those of ibex, they are decidedly thicker, have a different curvature, and show distinct knobs, or knots only in their upper half. In young males the knots extend the whole length of the front of the horns, and the long winter coat is a pale drab colour. Height at shoulder about $37\frac{1}{2}$ inches.

Distribution.—The western half of the main chain of the Caucasus. Certain peculiarly-shaped horns appear to indicate the existence of a hybrid race between this species and the East Caucasian tur in the Central Caucasus.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.		
40½	125	15‡	Caucasus				St. George Littledale.	
36 1	115	275	Do.				Do.	
344	115	227	Do.				Do.	
$34\frac{1}{2}$	12	22	Kouban, Ca	aucas	us .		Prince E. Demidoff.	
33‡	105	26 3	Do.				St. George Littledale.	
321/2	$11\frac{3}{4}$	25½	Do.				Do.	
321	$\Pi \frac{1}{2}$	251	Do.				Prince E. Demidoff.	
$31\frac{1}{2}$	121/2	$24\frac{1}{2}$	Do.				Do.	
305	113	163	Do.				Sir Edmund G. Loder, Bart.	
30	1112	192	Do.				Hon. Walter Rothschild.	
$^{1}22_{4}^{3}$	108	221	Do.				St. George Littledale.	

¹ Presumed hybrid between C. caucasica and C. cylindricornis,



Head of Male East Caucasian Tur.

EAST CAUCASIAN TUR (Capra cylindricornis).

A very different-looking creature from the last is the wild goat commonly designated by sportsmen the "Caucasian bharal"; this name being derived from the resemblance of its horns to those of the true Himalayan bharal. In spite of this point of resemblance, its affinities are, however, evidently with the goats, although it not improbably indicates a step from the more typical members of that group in the direction of the sheep. In addition to the peculiar form of its horns, this tur is characterised by the extreme shortness of the beard, which merely forms a curling fringe on each side of the chin, instead of the long central tuft observable at certain seasons in the West Caucasian species. The general colour of the fur is uniform dull brown, except on the chin, the tip of the tail, and portions of the legs, where it is blackish brown. Height at shoulder about 3 feet.

Distribution.—The Eastern Caucasus, from Kasbek to Daghestan.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.		
42	132	14	Caucasus		Prince E. Demidoff.		
38‡	$12\frac{1}{2}$		Eastern Caucasus .		Hon. Walter Rothschild.		
36	13		Daghestan		J. D. Cobbold.		
$34\frac{1}{2}$	107	131	Caucasus		Major Talbot.		
334	13	174	Do		Sir Edmund G. Loder, Bart.		
338	12	193	Do		British Museum.		
32	13	19	Do		Berthold Smith.		
312	12	7 ³ 4	Do		F. G. Barclay.		
31	11	28	Northern Caucasus	2	Capt. H. H. P. Deasy.		
30	12	17	Daghestan		F. G. Barclay.		



Head of Male Bharal.

BHARAL (Ovis nahura).

Having horns not unlike those of the East Caucasian tur, the bharal, or blue sheep of Tibet, differs from the goats by the absence of a beard and a strong odour in the males, and on account of these and other points of difference from the goats is placed among the sheep, of which group it forms a very aberrant member. The most distinctive external features are the comparatively smooth and olive-coloured horns, which curve at first outwards and then backwards from the sides of the head, and the bluish gray colour of the thick fur of the back and sides, the flanks, under parts, and legs being handsomely marked with black and white. Height at shoulder about 36 inches; weight about 130 lbs. In the complete absence of glands on the face the bharal differs from the more typical sheep and resembles the goats.

Distribution.—Tibet, from Hunza and Shigar, in Baltistan, and near Sanju, south-east of Yarkand, to Moupin in Eastern Tibet, and from the main axis of the Himalaya, or locally some distance south of the same, to the Kuenlun and Altyn Tag; in summer usually met with at elevations between 14,000 and 16,000 feet, and apparently never found below about 10,000 feet.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
$-32\frac{1}{2}$		12	Milam Pass .		Capt. W. de L. Williams.
-32	***		?		The late B. H. Hodgson, P.Z.S.
311/2	131	221/2	Ladak		J. Campbell of Kilberry.
30 8	121	217	Gurhwal		A. O. Hume.
-301	11	15½	Ladak		P. H. G. Powell-Cotton.
30	11	24	Hanle, Spiti .		Capt. B. L. Carew.
-30			Baba Pass		Major R. W. Johnston.
293	121/2	$22\frac{1}{2}$	Gurhwal		A. O. Hume.
292	115	$25\frac{1}{2}$?		H.R.H. the Duke of Saxe- Coburg and Gotha.
291/2	12	26½	Northern Sikhim	,	SurgMajor A. Pearse.
-29	12		?		LieutCol. A. E. Ward.
-29	***	in-	?		Lucknow Museum.
283	121	22	Chang-chenmo .		B. H. Shaw-Stewart.
-28½			?		Major H. Trevor.
281	121	$26\frac{1}{2}$	Hanle		Capt. F. W. H. Walshe.
-281	101		3		Indian Museum.
28	11	201	?		British Museum (Hume Collection).
28	11	16	Hanle		Arnold Pike.
274	101	10	Ladak		Capt. G. Campbell.
271	11	$21\frac{1}{2}$	Do		St. George Littledale.
-27			Do		Otho Shaw.
27	1112	28	Tibet	÷.	Major C. S. Cumberland.
264	1112	23	Ladak		Col. F. C. Lister-Kay.
261/2	101	20	Kumaon		A. S. Crum.
261/2	12	15‡	?		Lord Stavordale.
26 1	117	23	?		Sir Victor Brooke's Collection.
261	103	22	?		Sir Edmund G. Loder, Bart.
26	103	25½	?		R. Johnstone.
26	101	201	?		Capt. W. H. Williamson.
25%	121/2	3112	East of Padam, Zans	skar	Capt. M. S. Wellby.
25%	111	181	?		Major C. B. Vandeleur.

Length on front curve.	Circum- ference.	Tip to Tip.		Locality.			Owner.
254	10	13	Ladak				Capt. J. A. Stewart Balmain.
$-25\frac{1}{2}$	II 1 2	***	Do.		*	-	Major-General A. A. A. Kinloch.
258	111	251	Do.		53	-	St. George Littledale.
-251	11½	241/3	Do.				Capt. H. W. Codrington.
25	10	251		?			Major H. C. Morland.
25	122	28		?			Capt. E. Harrison.



Head of Male Arui.

ARUI or UDAD (Ovis lervia).

The only wild sheep found throughout the continent of Africa is the arui, or fechstal of the Arabs, the udad or Barbary sheep of naturalists; a species with horns not very unlike those of the bharal, and also lacking glands on the face, but readily distinguished by its uniformly tawny colour, the fringe of long hair depending from the throat, chest, and the upper portion of the fore-legs, and the unusual length of the tail, which exceeds that of all other wild sheep. In the length of this appendage the arui approaches domesticated sheep, of which, however, it is not likely to be the ancestor. Height at shoulder about 3 feet 3 inches.

Distribution.—The mountains of Northern Africa, from Egypt to Morocco.

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Length on outside curve.	Circum- ference.	Tip to Tip.	Lo	cality	y.		Owner.
331	134	124	Algeria				Julius Jeppe.
29 1 8	121	19	Do.	(4)			V. Cholmondeley.
284	12	$14\frac{3}{4}$	Do.				R. A. Cooper.
$28\frac{1}{2}$	$11\frac{1}{2}$	18	Do.				British Museum (Hon. John Ward).
281	115	181	Do.				Sir Edmund G. Loder, Bart.
-28	$11\tfrac{1}{2}$	161	S. Tunisia				J. I. S. Whitaker.
-274	111	1416	Algeria				Viscount Edmond de Poncins.
$-27\frac{1}{2}$	125	131		?			Imperial Museum, Vienna.
251/2	$11\frac{1}{2}$	171/2	Algeria				Hon. John Ward.
251/2	$11\frac{1}{2}$	17	Do.				F. de Murietta.
251/2	108	16	Do.				LieutCol. G. J. Cuthbert.
-251/2	121	201	Do.		4		Capt. John Marriott.
$-25\frac{1}{2}$	11	18	Tunisia				A. E. Pease.
231/2	11	144	Do.				P. B. Vander-Byl.
231	10	178	S. Moroco	co			F. G. Aflalo.
- ♀ 20‡	10	16	Algeria				A. E. Pease.
- ♀ 19	7	17	Tunisia		,	*	Capt. John Marriott.
9 16.8	7.6	14.2	Egypt			+.	Prince Henry of Liechtenstein.



Head of Rocky Mountain Bighorn, from Mr. W. F. Sheard's specimen.

ROCKY MOUNTAIN BIGHORN (Ovis canadensis).

The bighorn of the American continent, inclusive of its local races (frequently regarded as distinct species), is a large sheep, distinguished from the Asiatic argalis, among other features, by the comparative smoothness of the horns, in which the outer front angle is prominent and the inner one rounded off, and also by the smaller size of the faceglands. There is a well-marked whitish patch on the rump, but the amount of white on the under parts and legs shows considerable local variation. In the typical Rocky Mountain race (O. canadensis typica) the ears are long and pointed, with short hair, and the horns, which are very heavy, diverge but little outwards, and generally have the tips broken. The Californian O. canadensis nelsoni is a paler southern race. On the other hand, in O. canadensis stonei of the North-West Territories the colour of the back is very dark, and the white on the belly and legs sharply defined. Both in this race and the white O. canadensis dalli of Alaska the horns are lighter, more divergent, and more sharply pointed, while the ears tend to become shorter, blunter, and more hairy. Height at shoulder about 3 feet 2 inches. Weight about 350 lbs.

The horns of the ewes are very small in comparison with those of the rams, seldom measuring more than 15 inches on the curve from base to tip. Large male horns are now difficult to obtain, and of late years it is seldom that those of fresh-killed specimens are seen exceeding 38 inches on the curve from tip to tip. American sportsmen are keen to obtain horns of large basal girth; but they rarely exceed 16 inches.

The Maclaine of Lochbuie possesses a specimen whose girth, according to his own measurement, is 19 inches.

Distribution.—The range of the American representatives of the Bighorn extends from the Rocky Mountains southwards to Sonora, Northern Mexico, and California, and northwards to Alaska and the shores of Bering Sea. All the American races except the Alaskan are included in the list below.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
$-52\frac{1}{2}$	181		Selkirk Range, B.C. (?).	W. F. Sheard. (See illustra-
-45			?	W. Grant Mackay.
$-42\frac{1}{2}$	161	254	Lower California	George H. Gould.
42	16	***	Wyoming	T. W. H. Clarke.
	17‡		Do	Do.
$-41\frac{1}{2}$	15		Kootenay, B.C	Provincial Museum, B.C.
-404	161/2		Yellowstone	British Museum.
401	15‡	201	?	Sir Edmund G. Loder, Bart.
-40	151		Rocky Mountains	Otho Shaw.
40	15	$21\frac{1}{2}$	British Columbia	J. W. R. Young.
398	158		Colorado	St. George Littledale.
391/2	$16\frac{1}{2}$	243	Montana	British Museum.
391/2	151/2	19	?	Sir Edmund G. Loder, Bart.
388	$15\frac{1}{2}$	22	?	Gerald Buxton.
381	163	***	Bighorn Mountains .	Sir H. Seton-Karr.
381	151	191	Montana	Edmund Littledale.
38‡	16	19	N.W. Territories	S. Ratcliff.
38	17	***	Alberta, N.W.T	Arnold Pike.
38	15		British Columbia	Capt. F. Cookson.
-38	161		Do	Col. C. C. Ellis.
37%	15%	238	Mexico	J. A. H. Drought.
-37 ³	164	221/2	British Columbia	J. O. Shields.
37½	16	15	Do	Col. A. Charlesworth.
371	152	16	Do	J. Turner-Turner.
-37	16	31	Wyoming	T. W. H. Clarke.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
37	161		Montana .		Major Maitland Kirwan.
37	16§	16	British Columbia		R. H. Venables Kyrke.
37	151	191	Wyoming .		Capt. H. A. C. Darley.
37	151/2	181	Do		Lord Rodney.
363	19	15	British Columbia		C. H. Kennard.
363	151	$22\frac{1}{2}$	Wyoming .	É	Moreton Frewen.
364	141/2	$22\frac{1}{2}$	Do		A. Willis.
361/2	161		Do		Thomas Bate.
361/2	. 14		. ?		J. D. Cobbold.
36	15	9	Wyoming .		J. L. Scarlett.
36	143	161	Montana .		R. H. Sawyer.
36	144	16	Wyoming .		Major G. Dalrymple White.
-35 2	143	17½	Do	-	Count E. Hoyos.
35≩	133	17½	British Columbia		Hon. S. Tollemache.
35½	16	21	Do.		T. P. Kempson.
351	121	16	California .		Sir Victor Brooke's Collection.
35₺	151	181	British Columbia		Sir Peter Walker, Bart.
35	14	182	Do.		Admiral Sir Michael Culme- Seymour, Bart.
-35	15	193	Wyoming .		Count Scheibler.
35	14	16	Do		Gerald Hardy.
341/2	143	19	S.E. Montana		J. A. Jameson.
$34\frac{1}{2}$	141/2		California .		G. P. Fitzgerald.
-34½	17	1	N. Chehuahua		C. Sheldon.
-34	16	17	N.W. Wyoming		A. Rogers.

ALASKAN BIGHORN (Ovis canadensis dalli).

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.				Owner.		
-43₺	151	26	Alaska				F. Foster.		
39 ^a	13	221/2	Do.				Hon. Walter Rothschild.		
38	131	18	Do.				A. E. Butter.		
37	134	201	Do.			4	Hon. J. C. Lister.		
36	$14\frac{1}{2}$	174	Do.		4		C. G. Cowan.		
34	134	21	Do.		4		Rowland Ward.		
34	125	181	Do.				J. Carr Saunders.		
324	131	21	Do.				W. H. King.		
321/2	131	201	Do.	*			British Museum (J. T. Studley).		
\$ 108	$4\frac{1}{2}$	54	Do.	£			Rowland Ward.		
♀9₺	48	8	Do.				British Museum.		

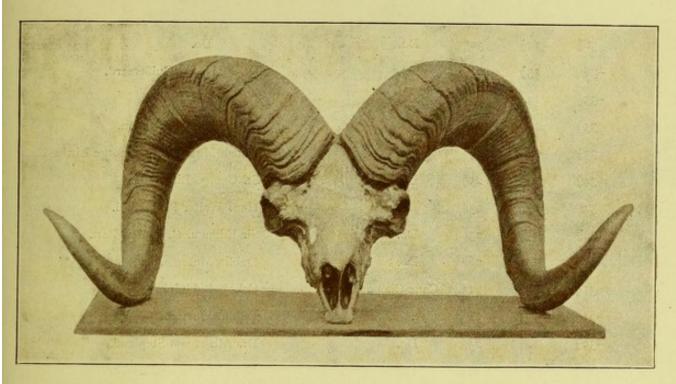
FANNIN'S BIGHORN (Ovis canadensis fannini).

A provisional race characterised by the gray colour of the back.

-40½ 13 20 Near Dawson City . Provincial Museum, B.C.

NORTH-WESTERN BIGHORN (Ovis canadensis stonei).

32½ 14½ 28¾ N. British Columbia American Museum of Natural History.



Skull and Horns of Male Kamchatkan Bighorn. Shot by Prince E. Demidoff.

KAMCHATKAN BIGHORN (Ovis canadensis nivicola).

Although the Kamchatkan wild sheep is readily distinguished from the Rocky Mountain bighorn (O. canadensis typica) by the slenderness of the horns at the points, and their wider tip-to-tip measurement, as well as by the shorter, blunter, and more thickly haired ears, the shorter face, the longer hair of the body, and the inferior size of the white patch on the rump, yet the Alaskan and the N.W. bighorn, in which the horns are of the Kamchatkan type, and the ears are shorter than in the Rocky Mountain race, tend to bridge over these points of difference. These transitions indicate that all the bighorns are essentially local modifications of the same animal; the Asiatic forms being, as might be expected, the most aberrant. Height at shoulder about 37 or 38 inches; weight about 250 lbs.

Distribution.—Kamchatka.

Length on front curve.	Circum- ference,	Tip to Tip.	Lo	cality.	Owner.		Owner.
$39\frac{1}{4}$	$14\frac{1}{2}$	$28\frac{1}{4}$	Kamchatka				Prince E. Demidoff.
384	$14\frac{1}{2}$	305	Do.		-		Do.
-38	$13\frac{1}{2}$	26	Do.				Dr. F. H. H. Guillemard.
$-35\frac{1}{2}$	14	26½	Do.				Do.
$35\frac{1}{2}$	$14\frac{1}{2}$	24 ³ / ₄	Do.			4	St. Petersburg Museum.
351	141	241/2	Do.				British Museum (St. George Little-dale).
344	$14\frac{1}{2}$	251	Do.				St. George Littledale.
34	131	235	Do.		. * .		Hon. Walter Rothschild.
324	132	23	Do.				Sir Edmund G. Loder, Bart.
$-31\frac{1}{2}$	14	26	Do.				Dublin Museum.
$31\frac{1}{2}$	138	21	Cape Chepu	nske			Col. J. Biddulph.
$-31\frac{1}{2}$	134	24	Kamchatka	14	- 2		Dublin Museum.
-303	148	254	Do.	4			Dr. Albert von Stephani.
9 10∄	5	$14\frac{1}{2}$	Do.			-	Hon. Walter Rothschild.
♀ 83	51	94	Do.	,			British Museum.

CLIFTON'S BIGHORN (Ovis canadensis borealis).

An East Siberian race closely allied to the last, but of a generally lighter colour, with a much larger and less well-defined white rump-patch, much white on the face, a darker tail, and larger ears.

Distribution.—The Stanovoi Mountains, the range between the valleys of the Yana and Lena, and other parts of Eastern Siberia. The only known examples in England were shot by Mr. J. Talbot Clifton, by whom a complete male specimen was presented to the British Museum in 1902.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
37 ½	11	221	Yana Valley	J. Talbot Clifton.
33	13	$22\frac{1}{2}$?	British Museum (J. Talbot Clifton).
$32\frac{3}{4}$	$11\tfrac{1}{2}$	$24\frac{1}{2}$?	J. Talbot Clifton.
26½	11	20 ³ / ₄	?	Do.
9 5½	38	$5\frac{1}{2}$?	Do.



Head of Male Marco Polo's Sheep. From Mr. David T. Hanbury's specimen.

MARCO POLO'S SHEEP (Ovis poli).

In common with the following members of the genus Ovis, this splendid sheep has the transverse wrinklings of the horns well developed, and small glands present on the face. The horns of the adult male are characterised by their comparative slenderness and great length, forming a spiral of more than one complete circle, with the front angles typically well developed. The hind-quarters show a large amount of white, extending over the greater part of the thighs; and in winter the throat is furnished with a voluminous ruff of long white hairs, which disappears in summer. Height at shoulder about 4 feet, or perhaps rather less; weight of adult male about 22 stone.

Distribution.—Typically the plateau of the Pamirs in Central Asia, but represented by a closely allied race (O. poli karelini) in the Thian Shan range of Turkestan, in which the horns are generally somewhat shorter, and may have the front outer angle rounded off. This sheep was first definitely made known in England by

specimens obtained during the Second Yarkand Mission under the late Sir D. Forsyth; since which date it has been killed by Mr. St. George Littledale, Major C. S. Cumberland, Capt. H. Bower, Viscount de Poncins, and other sportsmen.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-75	16	54½	Pamir	Field-Marshal Earl Roberts.
73	15	48	Little Pamir	The late Col. H. C. B. Tanner.
-7 I	151	534	Great Pamir	Viscount Edmond de Poncins.
70	141/2	45	Do	H.M. The King.
70	17	52	Do	H.H. the Maharajah of Cooch
69½	151	56	?	Behar. Marquis of Lansdowne.
69₺	141/2	39	Tagdumbash	Sir Edmund G. Loder, Bart.
-681	151	45%	Do	Queen's Own Corps of Guides.
681	15	35%	?	Lewis Flower.
68	17	43	Pamir	Major-Gen. Sir R. Pole Carew.
-68	16	52	?	Indian Museum.
-67 ⁸	16	534	?	Indian Museum (Col. J. Biddulph).
-67	16		Thian Shan	H.H. the Maharaja of Travancore.
67	151	421	?	Duke of Westminster.
66 <u>7</u>	155	46	?	Sir Edmund G. Loder, Bart.
663	138	461	Valley between Little and	A. O. Hume,
66	151	44	Great Pamir Do.	British Museum (Hume Collection).
66	154	42	? .	A. Leslie Renton.
651	16	53	Great Pamir (16,000 feet) .	British Museum (Col. T. E. Gordon).
-65	16	41	?	Dublin Museum.
65	161	491	?	Major C. F. Blane.
-65		***	?	The Empress of Russia.
641	165	46	Pamir	Col. C. C. Ellis.
641	161	41	Do	W. Lawrence.
641	15‡	39	Do	H. C. V. Hunter.
64	151	50	Little Pamir	Major R. P. Cobbold.
64	15	39	Do	A. Ezra.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
64	15	49	?		Duke of Portland, K.G.
63§	16½	$42\frac{1}{2}$	Pamir		Hon. Walter Rothschild.
638	158	461	Tagdumbash .		Earl of Dunmore.
63	16	$49\frac{1}{2}$	Little Pamir .		Bachelors' Club (Major R. P. Cobbold).
623	16‡	51	Tagdumbash .		Capt. T. W. Greenfield.
621/2	15	57	?		Sir Edmund G. Loder, Bart.
62	151	40	?		Hon. Charles Ellis.
611/2	151/2	461	Tagdumbash .		E. L. Phelps.
60 ³	154	467	Pamir		St. George Littledale.
60	153	464	Tagdumbash .		Capt. T. W. Greenfield.
60	151/2	46	Do		P. Church.
-60			Do		LieutCol. H. Bower.
-60	17		Do		H. Dauvergne.
-60	16	52	Do		H. Lennard.
60	154	43	Do		R. Hardcastle.
59‡	16	46	5		Capt. H. H. P. Deasy.
59	151/2	40	Tagdumbash .		Lord Curzon.
59	161	47	3		Viscount Powerscourt.
59	154	41	?		Martyn Kennard.
59	14	424	Tagdumbash .		David T. Hanbury.
574	15	463	Do		Major-General Sir Arthur Ellis, K.C.V.O.
574	144	50	Do		Reginald Beech.
57	151	42	Do		Hon. R. A. Ward.
56%	15%	$35\frac{1}{2}$	Do		St. George Littledale.
56	15	44	Do		E. P. Tennant.
56	14	45 ³	3		Major J. Manners Smith.
56	14½	43	?		W. O. Bell-Irving.
55%	154	43	3		J. Carr Saunders.
532	144	384	N. Pamir		R. Hayne.
49	151/2	38	Thian Shan		J. V. Phelps.

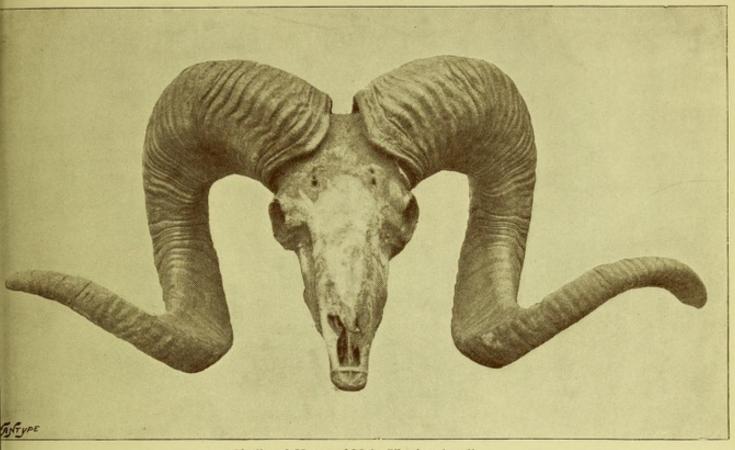
Length on front curve.	Circum- ference.	Tip to Tip.	. Loca	Locality.		Owner.		
558	161	43	Pamir .				Major C. S. Cumberland.	
55	16	44	?				H.R.H. le Duc d'Orléans.	
-914.7	5.90	15.75	Great Pamir				Viscount Edmond de Poncins.	
♀ 10½	51/2	$13\frac{1}{2}$	Tagdumbash				David T. Hanbury.	

LITTLEDALE'S SHEEP (Ovis saiarensis).

This sheep, of which there are two races, the typical smaller one, and the larger O. s. littledalei of the Ili Valley and part of Siberia, is in some respects intermediate between poli and ammon. It differs from both in having the face brown above and white on the muzzle. The horns are less finely ridged than those of ammon and form a longer spiral. In the larger Ili race the horns are much less "nipped in" below the eyes, and also farther away from the ears.

Distribution.—Typically from the Saiar Mountains, Altai; the larger race from the Ili Valley, Thian Shan, and the Semipalatinsk Altai.

Length on front curve,	Circum- ference.	Tip to Tip.	Locality.			Owner.	
621	194	381	Altai .				St. George Littledale.
611	191	391	Do.		,		British Museum (St. George
59 ¹ / ₈	191	38‡	Do.			+0	Littledale). St. George Littledale.
$49\frac{1}{2}$	161	251		?			Sir Edmund G. Loder, Bart.
461	141	27	Irtisch I	District			Hon. Walter Rothschild.
46	. 131	28		?			Rowland Ward.
40	148	291	Near Sai	iram N	or La	ake	Lord Elphinstone.



Skull and Horns of Male Siberian Argali. From a specimen shot by Mr. St. George Littledale in the Altai.

SIBERIAN ARGALI (Ovis ammon).

Closely allied to Marco Polo's sheep, but distinguished by the thicker and less expanded horns, which often have the outer front angle much rounded off, and the wrinklings very fine. A more or less distinct white patch on the rump, not extending on to the thigh, which is dark-coloured like the back; no ruff on the throat, even in the long winter coat. In summer the coat of old males, which is very short, tends to become more or less light-coloured all over. Height at shoulder from about 45 inches to 4 feet; weight from about 250 to 350 lbs.

As in the Tibetan race, considerable individual variation may be noticed in the horns, some having the outer front angle much more developed than usual; it does not appear that these differences can be accounted for by age.

Distribution.—In former times apparently extending from the Baikal Mountains in the south of Eastern Siberia through Northern Mongolia to the Altai; now chiefly restricted to the two latter localities.

Length on front curve.	Circum- ference.	Tip to Tip.	1	Locality.			Owner.
62	19	389	Altai .				H. J. Elwes.
60	20	41	Do.				Lord Elphinstone.
591	20	411	Do.		2	12.5	Hon. Walter Rothschild.
59	19	371	Do.	4			Ford G. Barclay.
561	181	33½	Do.				Major C. S. Cumberland.
55	18	39	Do.				Prince E. Demidoff.
54%	183	30	Do.				Major C. S. Cumberland.
541	193	33 ³ 4	Do.				Do.
53‡	213	331	Do.				Duke of Bedford, K.G.
531	19	22	Do.				St. George Littledale.
53	18	39	Do.				W. E. Pease.
521	193	33	Do.				Prince E. Demidoff.
52	21	301/2	Do.	-	4		P. B. Vander-Byl.
51	194	33	Do.				St. George Littledale.
50	19‡	271	Do.				Sir Edmund G. Loder, Bart.
-50	19‡	36	Do.				Dr. Albert von Stephani.
491	201	25	Do.				St. George Littledale.
47‡	183	31	Do.				R. Hayne.
451	20	271	Do.				Prince E. Demidoff.
40	16	33	Do.			+	Princess Demidoff.
♀ 26	71	234	Do.				Hon. Walter Rothschild.



Head of Male Tibetan Argali.

TIBETAN ARGALI (Ovis ammon hodgsoni).

Chiefly distinguished from the Siberian argali by the development of a distinct white ruff on the throat of the males, at least in the winter coat, and also by the less degree of lateral expansion of the horns, which do not form more than a single complete circle, and are generally broken at the tips. The wrinkles on the horns are perhaps somewhat less prominent, and the outer front angle is frequently well developed.

The height at the shoulder is perhaps rather less than in the typical argali, of which this sheep is best regarded as a local race. A specimen measured by Lieut.-Col. Greenaway was 76 inches from the nose to the tip of the tail, and the weight about 212 lbs. In another male, whose age was estimated at 10 years, the height at the shoulder was 43 inches, the girth 50 inches, and the weight 205 lbs. (P. H. G. Powell-Cotton).

Distribution.—The plateau of Tibet, from Northern Ladak to the districts north of Sikhim, and northwards to the Kuenlun; eastern limits unknown.

Length on front curve.	Circum- ference.	Tip to Tip.	Lo	cality.			Owner.
57	183	29	Tibet.				Arnold Pike.
50½	18‡	. 19	Pangong	Lake		10	Sir Edmund G. Loder, Bart.
-50	17	***	Tibet .				W. H. Lane.
$-48\frac{1}{2}$	19		Do				E. Howard Brooke.
-48	181		Do				Major T. K. E. Johnston.
48	16	23	Rudok				Major G. A. L. Carew.
48	181	20	Ladak				Major H. C. Morland.
48	18	31	Do.				LieutCol. Hon. A. Dalzell.
-47	17		Do.	4			Otho Shaw.
$46\frac{1}{2}$	193	20	Do.				A. O. Hume.
$-46\frac{1}{2}$	16½	21	Do.			* 1	P. H. G. Powell-Cotton.
461/2	163	***	Do.				Major H. M. Biddulph.
-46	19	***		?			Major C. S. Cumberland.
46	16	17		?			Hon. R. A. Ward.
45½	16‡	17		3			Duke of Teck.
45	17	16	Ladak				J. V. Phelps.
-45		***		3			Lucknow Museum.
$-44\frac{1}{2}$	17	$21\frac{7}{8}$	Ladak				A. E. Leatham.
44	16	172	Do.		+		Duke of Bedford.
44	16	17½	Do.				W. R. Lawrence.
-44	18		Do.				H.H. the Maharaja of Travan- core.
43	17	19	Do.		¥		Comte de Jancourt.
421/2	161	19		?			A. O. Hume.
421/2	17			?			LieutCol. T. Greenaway.
-42½	16	15	Ladak				Major H. M. Biddulph.
421/2	16	18	Do.				Brit. Museum (Hume Collection.)
$42\frac{1}{2}$	151	***		3			J. Carr Saunders.
428	16‡	20	Tibet .				H.R.H. the Duke of Saxe-Coburg and Gotha.

MONGOLIAN ARGALI (Ovis ammon jubata).

Nearly allied to the Tibetan race, having a distinct yellowish-white throat ruff and generally similar horns, but, in some cases at least, the outer front angles of the latter much rounded off. The white on the buttocks and hinder surface more abundant and purer in colour.

Distribution.—Eastern Mongolia to the north of Pekin.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.				
444	161	23	Manchuria .			Henri e de Bar		Bourbon,	



Head of Male Shapu.

SHAPU or URIAL (Ovis vignei).

A much smaller sheep than either of the Asiatic argalis, with comparatively slender and well-wrinkled horns of considerable length, which when fully developed curve forwards along the sides of the face; the males with a more or less strongly developed whitish ruff on the throat. General colour varying from rufous brown to gray in summer, with the chest, under-parts, and portions of the legs white, and sometimes blackish "points." Females with small horns. Height at shoulder about 32 inches; weight about 120 lbs.

Distribution.—From Ladak and Zanskar to Russian Turkestan, Afghanistan, part of the Caucasus, Baluchistan, Southern Persia, the North-West Frontier of India, and the Punjab Salt-Range. Several local races, two of which probably intergrade in the Indus valley, are recognised. First, the typical urin of Astor, the sha or shapu of Ladak (O. vignei typica); secondly, the smaller urial (O. vignei cycloceros) of the Punjab, Afghanistan, and Baluchistan, in which the colour is redder, the ruff more developed, and the front angles of the horns often show a knotted keel; and thirdly, the Kopet Dagh Urial (O. v. arkal). It is possible the Persian form, in which the ruff is said to be but little developed, may form a fourth race.

(a) SHAPU (Ovis vignei typica).

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.		
39	114	15½		?			Col. Sir H. S. Rawlinson, Bart.	
38§	121	111		?			J. Carr Saunders.	
381	111	81/2	Near Leh				E. L. Phelps.	
364	11½	41	Do.				A. O. Hume, C.B.	
-361	113	***	Do.				LieutCol. A. E. Ward.	
361	10%	115	Baltistan				Major T. A. Salt.	
348	11	***		?			East India Club.	
-334	121	13	Ladak .				P. H. G. Powell-Cotton.	
33‡	12	12	Do.				Arnold Pike.	
-33 ¹ / ₈	1112	105	Do.				Sir Edmund G. Loder, Bart.	
33	101/2	15	Do.				Capt. F. W. H. Walshe.	
$32\frac{1}{4}$	10	11	Do.				D. L. R. Lorimer.	
321	101/2	113	Do.				Sir Victor Brooke's Collection.	
-32	11	93	Do.				Col. J. Biddulph.	
-32			Do.				Capt. T. S. Johnson.	
314	101	7	Do.				Col. F. C. Lister-Kay.	
311/2	101	132	Do.				B. H. Shaw-Stewart.	
-31	11		Do.	-		1	J. D. Cobbold.	
301	81	19	Do.				Capt. K. Dingwall.	
30	113	16		?			Hon. Walter Rothschild.	
-30		***	Ladak .	1			Otho Shaw.	
-30	11			?			H.H. the Maharaja of Travancore.	
-30				?			Lucknow Museum.	
298	108			3			H. C. V. Hunter.	
29½	103	13	Ladak .				J. V. Phelps.	
29	$11\frac{1}{8}$?			Sir Robert Harvey, Bart.	
29	11	94	Ladak, W.	Indus			A. Leslie Renton.	
28‡	108	20		?			P. Church.	
_28	103	13		?			B. Vincent.	

RECORDS OF	BIG	GAME
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Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
$27\frac{1}{2}$	11½	18‡	?	Martyn Kennard.
$-27\frac{1}{2}$	10		West Ladak	. Capt. F. E. S. Adair.

390

(b) PUNJAB URIAL (Ovis vignei cycloceros).

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
39₺	121	141	Russian Turkestan .	Prince E. Demidoff.
$39\frac{1}{2}$	103	181	Punjab	Major F. H. Taylor. (See illus-
384	9.75	9.5	Chita Oapar Range, near Attock	tration.) Royal Artillery Mess, Woolwich (LieutCol. C. F. Massey).
$-38\frac{1}{2}$	***	***	Jouaki Land	Royal Artillery Mess at Attock.
-37	9	***	?	The late Major J. C. Shirres.
364	9	9	Hills north-west of Peshawur	Mess of 60th Rifles (Lord Walter Fitzgerald).
36	101	15	Persia	Hon. Walter Rothschild.
$35\frac{1}{2}$	101	16	Gulran, Afghanistan .	British Museum (Dr. J. Aitchison).
351/2	101	178	Russian Turkestan .	Prince E. Demidoff.
$-35\frac{1}{2}$	101	203	?	Mess, 21st Punjab Infantry.
35 1	102	$9\frac{1}{2}$	Punjab	Major F. H. Taylor.
-35	11	14	Near Cabul	Major J. W. M. Cotton.
$34\frac{1}{2}$	11	12	Russian Turkestan .	St. George Littledale.
33½	91	$12\frac{1}{2}$	Salt-Range	A. O. Hume.
$33\frac{1}{2}$	98	84	?	Capt. R. L. Tottenham.
33½	11	83	Russian Turkestan .	Prince P. Demidoff.
321/2	10	$II\frac{1}{3}$?	Sir Victor Brooke's Collection.
328	7 3	12	Punjab	G. Blois Johnson.
321	10	$_{\rm II\frac{1}{2}}$?	British Museum (Hume Collection).
314	9	161	Near Daghestan	R. Graham.
$31\frac{1}{2}$	$9\frac{1}{2}$	16 <u>3</u>	Salt-Range	Capt. H. W. Codrington.
312	12	101	?	Major J. Manners Smith.
-31	101		Punjab	Major-General A. A. A. Kinloch.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.
31	98	142	Punjab .			LieutCol. R. H. Rattray.
30g	97	201	Salt-Range			Sir Victor Brooke's Collection.
304	113	1114	Do			Col. J. Biddulph.
-30	81/2	61/2	?			Dublin Museum.



Head of Male Punjab Urial. Major F. H. Taylor's specimen.

The following specimens belong to the so-called O. blanfordi.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality		Owner.
37½	10}	11	Haji Khan, 3000 ft.	Kelat,	A. O. Hume.
34½	8‡	16	Sind		L. Napier.
318	98	134	Do		Brit. Museum (Hume Collection).
281/2	9	10	Baluchistan		Col. J. Biddulph.
$-25\frac{1}{2}$	91	104	Do.		LieutCol. L. L. Fenton.

ARMENIAN MUFLON (Ovis orientalis).

The Asiatic muflon, of which this is the typical form, differs from all the preceding species by the absence of horns in the females; the horns of the males being not unlike those of the urial, but curving backwards, so that their points are situated behind the neck instead of beneath the eyes. General colour of upper-parts some shade of yellow or foxy red; the under-parts and lower portions of the legs white. Height at shoulder about 2 feet 9 inches.

Distribution.—The mountains of Armenia, Eastern Persia, and Asia Minor.

Length on outside curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
401	102	. 51	?	British Museum (W. Burchart Barker).
361	103	54	?	British Museum.
301/2	105	18	?	Sir Victor Brooke's Collection.
-29 ³	94	9½	Axylon	E. N. Buxton.
$-26\frac{1}{10}$	81	121	Cilician Taurus	C. G. Danford.
$24\frac{1}{2}$	91	1112	Persian Frontier	Prince E. Demidoff.
241/2	9	168	W. Asia Minor	C. G. R. Lee.
24	98	17	Asia Minor	Col. J. Biddulph.
231	$9\frac{1}{2}$	132	Persian Frontier	Prince E. Demidoff.
21	9	148	Asia Minor	H. O. Whittall.



Head of Male Cyprian Muflon. (From Biddulph, Proc. Zool. Soc. 1884.)

CYPRIAN MUFLON (Ovis orientalis ophion).

A small local race of the preceding distinguished by certain differences in coloration, and the complete rounding-off of the front outer angle of the horns of the male. This is the smallest of the wild sheep, standing only about 28 inches at the shoulder. The horns closely resemble those of the Armenian race in general characters, but are less massive, and curve gradually from the base, instead of diverging nearly straight outwards, as is generally the case in the latter. Weight about 70 lbs.

Distribution.—The Troödos Mountains of Cyprus.

Length on front curve.	Circum- ference.	Tip to Tip.	Owner.
27	7½	84	Hon. Walter Rothschild.
25	8	15%	H. Williamson.
23½	8-15	12.20	Col. J. Biddulph.
23	7	54	British Museum.
227	7‡	6	British Museum (Gen. Sir R.
$-22\frac{1}{2}$		5½	Biddulph). Sir Edmund G. Loder, Bart.
$22\frac{1}{4}$	8	123	Sir Victor Brooke's Collection.
$-17\frac{1}{2}$	8	I 1/2	Dublin Museum.
16	71	161/2	Cambridge Museum.
		2 D	



Head of Male European Muflon. From a specimen in the British Museum, shot by Mr. F. G. Barclay.

EUROPEAN MUFLON (Ovis musimon).

The large light-coloured saddle on the otherwise dark summer coat of the rams and the form of the horns are so distinctive of the species that nothing in the way of description need be attempted in this place. The horns of the rams curve forwards so as to have their tips below the eyes, and are comparatively massive, with the wrinkles of a type somewhat different from that obtaining in the Armenian sheep. Two races appear recognisable, in one of which the ewes are hornless, while in the other they have short horns. Height at shoulder about 27 inches.

Distribution.—At the present day the islands of Sardinia and Corsica.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.				Owner.	
381	8	111	Sardinia			-	>	Duke of Bedford,
341	83	163	Do.					W. Moncreiffe.
331/2	9	9	Do.					M. Egerton.

ngth on at curve.	Circum- ference.	Tip to Tip.	Locali	ty.	Owner.
324	9	9	Sardinia .		C. Sloane Stanley.
31	81	10	Do. · .		C. G. R. Lee.
301	8 <u>5</u>	14	Do		Rhys Williams.
294	8	121/2	Do		C. Sloane Stanley.
294	8		Do		J. D. Cobbold.
298	83	11	Do		Hon. R. A. Ward.
287	81/8	21	Do		E. N. Buxton.
284	9	10	Do		F. G. Barclay.
281	98	98	Do		Edinburgh Museum.
27 8	83	51	Do		W. E. Pease.
278	83	9	Do		Prince E. Demidoff.
27	91/2	102	Do, .		Sir Edmund G. Loder, Bart.
27	81/2	10	Do.		British Museum.

DOMESTICATED SHEEP (Ovis aries).

The history and ancestry of the various breeds of domesticated sheep are lost in the mists of antiquity, and naturalists are unable to point to the wild stock from which any or all of them are derived. This is the more to be regretted, seeing that the Swedish breed is the type of the genus Ovis. Most domesticated breeds differ from wild sheep by the woolly nature of their coat; but since hairy tame sheep are met with in several uncivilised countries, this point of difference is of comparatively little importance. More weight has been attached to the great length of the tail, which is much longer than even that of the arui; and, as mentioned above, that species is almost certainly not the father of the domesticated sheep. There is, however, some degree of probability that the long tails of the domesticated breeds are due to a kind of degeneration. And if this be really the case, their ancestry might be looked for among the muflons or urial or some allied extinct form, since the horns of most breeds approximate to the muflon type. In many breeds, Dorsetshire, for example, the females are horned; and four, or even five, horns occur in the males of certain breeds. Some eastern sheep, like the Wallachian, have departed from the muflon type by the development of upright corkscrew-horns comparable with those of the markhor or kudu.

Length on outside curve.	Circum- ference.	Tip to Tip.	Loc	ality	7-	Owner,
451	9	15	Scotland			J. A. H. Drought.
39½	83	21		?		H. E. Surtees,
37	81	20	Loch Awe	, N.	В.	H. Murray.
35½	8	16%		?		Sir Victor Brooke's Collection.
35½	81/2	24	Dorset	+		Hon. Walter Rothschild.
33	11	221	Yarkand	2		British Museum (Hume Collection).
28_{4}^{3}	8	$21\frac{1}{2}$	Scotland		٠	Rowland Ward.
225	$9\frac{1}{2}$	201	Yarkand			British Museum (Hume Collection).
228	91	$22\frac{1}{2}$	Do.			Do.
18	83	16‡	Fezzan			British Museum.
102	6	9	Faroe Islan	nds	4	R. J. Cuninghame.

Many-horned Breeds.

Length on outside curves.	Circum- ference.	Tip to Tip.	Number of Horns.	Owner.
20116	648	$15\frac{1}{2}$	Four	The late Sir H. B. Meux, Bart.
19314	$6\frac{1}{2}4\frac{1}{2}$	2116	Do.	P. C. Millbank.
$19\frac{1}{2}14\frac{1}{4}$	85‡	27 91	Do.	British Museum.
1914	$7\frac{3}{4} \cdots 5\frac{1}{2}$	24 51		R. J. Cuninghame.
$17\frac{7}{8}14\frac{1}{8}$	7844	$4\frac{1}{2}$ $6\frac{3}{4}$	Four	British Museum (Hume Collection).
1711 ⁸	635	6 81/2	Do.	British Museum.

The following belong to the Wallachian breed:-

Length on the curve.	Length in a straight line.	Girth.	Tip to Tip.	Owner.
33	171/2	$7\frac{1}{2}$	19½	H.R.H. le Duc d'Orléans.
32	24	71	38	Do.
29½	231	8	40§	British Museum.
♀ 125	101	41	171	Do.



Head of Bull Musk-Ox.

MUSK - OX (Ovibos moschatus).

In spite of its name, this Arctic ruminant has no near affinity with the members of the ox tribe, the cheek-teeth being more like those of the sheep and goats, the muzzle, except for a small strip between the nostrils, hairy, and the tail reduced to a mere stump concealed among the long hair of the hind-quarters. On the other hand, the resemblance to the sheep is not very close, the horns, which in old males nearly meet in the middle line of the forehead, being of a totally different form and structure, and the skull likewise very distinct. In the males the horns are much flattened and expanded at the bases, after which they are bent suddenly down behind the eyes, to curve upwards again at the tips. In the females they are much smaller, less expanded, and not approximated at their bases. In both sexes their texture is coarse and fibrous, and their colour yellow. The long coat of dark brown hair depending from the back and sides like a mantle affords an adequate protection against the rigors of an Arctic winter; and the broad spreading hoofs, with hair on their under-surface, give a firm

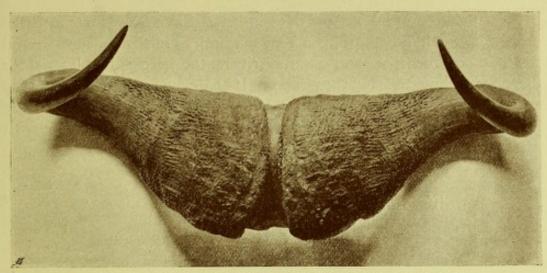
foothold on snow and ice. Two races are known—the typical Canadian and the Greenland (O. moschatus wardi). The latter is characterised by the presence of a certain amount of white on the forehead and the smaller expansion of the horns. Height at shoulder about 4 feet. Weight of one weighed in parts, 579 lbs. (D. T. Hanbury).

Distribution.—Arctic America, approximately north and east of a line drawn from the mouth of the Mackenzie River to Fort Churchill on Hudson Bay, Greenland, and Grinnell-land, in lat. 32° 27'; approximate southern limit lat. 40° N.

Length on outside curve.	Breadth of Palm.	Tip to Tip.	Locality.	Owner.
-304	134	301	?	W. W. Hart.
274	10	$27\frac{1}{2}$	Barren Grounds of	David T. Hanbury.
$-27\frac{1}{2}$	$11\frac{3}{4}$	23	Northern Canada Do.	Caspar Whitney.
271	121/2	27	Do.	Earl of Lonsdale.
-27‡	10g	27½	Do.	Imperial Museum, Vienna.
26%	11	27	Do.	Warburton Pike.
264	128		North America .	British Museum (J. Rae).
261	131 -	27 8	Do	British Museum.
-25 5	10	25	Do	Dr. Albert von Stephani.
244	11	251/2	Barren Grounds .	Warburton Pike.
241	$7\frac{1}{2}$	19	Do.	J. Talbot Clifton.
241	101	26	Do.	Hon. Walter Rothschild.
24	94	231	North America .	Sir Edmund G. Loder, Bart.
-24	***	25	?	Major W. Anstruther Thomson.
231	6	$22\frac{3}{4}$?	A. Barclay Walker.
$-21\frac{1}{2}$	9	27	?.	Dublin Museum.
- 9 21½	44	20§	?	Imperial Museum, Vienna.
♀ 185	41	***	North America .	British Museum (A. G. Dallas)
♀ 17	48	98	Do	Dr. Albert von Stephani.

Ovibos moschatus wardi.

244	81	$22\frac{1}{2}$	Greenland		Rowland Ward.
241/2	71	27	Do.		Do.



Horns of Male Cape Buffalo (Mr. F. H. Barber's specimen).

CAPE BUFFALO (Bos caffer).

Gădărs of the Gallas. Invati of the Swazis and Zulus. Mboa and Nyati in the Chilala and Chibisa countries.

Mbogo and Nyati of the Swahilis. Nadi in Barotsiland and Ngamiland.

Nari of the Basutos.

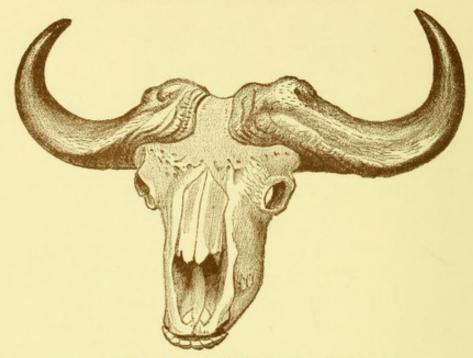
Among the distinctive features of this fine species may be noted the enormous helmet-like mass formed by the closely approximated bases of the horns in old bulls, the backward inclination and comparatively slight angulation of the horns themselves, the shortness of the face, and the great width and size of the heavily fringed and flapping ears. In colour both the skin and the sparse hairs with which it is clothed are for the most part jetty black; the hairs themselves being directed uniformly backwards from the nape to the rump. Height at shoulder about five feet.

Distribution.—Southern Africa from the Cape to the southern bank of the Congo on the west side, and approximately to the neighbourhood of the Victoria Nyanza on the east side of the continent. Northwards of this it not improbably gradually passes into the Abyssinian buffalo. Except on the Zambesi, Chobi, and some neighbouring rivers, buffaloes have now become very scarce in South Africa; but between Umtali and the east coast at Beira, and also from the latter station to the mouth of the Zambesi, they are to be met with in vast herds, and a few years ago existed in countless numbers. Here they are much protected by the unhealthy nature of the country, which is deadly to Europeans, except

between the end of May and November. Save for a few protected herds in the Addo bush, the Knysna and Zitzikamma forests, and thickets of the Fish and Sunday rivers, the species has long since been exterminated in the Cape. It is even rare and local in British East Africa, where, as in other districts on the eastern side of the continent, the rinderpest some years ago played havoc with the herds.

Greatest Outside.	Width. Inside.	Tip to Tip.	Width of Palm measured on face of horn.	Locality.		Owner.
49	441	401	111	Limpopo		Sir Richard Glyn, Bart.
$-48\frac{7}{8}$	$44\frac{1}{2}$	36	10	Chiromo, B.C.	.A	H. C. Macdonald.
481	43	301	111	Sabi River		F. H. Barber. (See illustration.)
-48	43			Pungwe .		F. Lean.
-47 ⁷ / ₈	43%	39#	13	?		P. C. Keytel.
-47½		***	***	?		C. H. Townsend.
47	40%	***	121	East Africa		F. J. Jackson.
	40½	26		Do.		Prince Boris Czetwertynski.
461/2	441	$37\frac{1}{2}$	6½	Pungwe .		C. M. Swire.
45%	41	$27\frac{3}{4}$	8	Do		Julius Jeppe.
45%	411	37 ½		South Africa		British Museum,
45%	40	284	12	Nyasaland		F. Vaughan Kirby.
451	40	274	11	East Africa		Capt. D. H. Macdonell.
451/2		***	1112	Kilimanjaro		H. C. V. Hunter.
451	40%	$32\frac{3}{4}$	9	Tana River		Major H. de Preé.
-45	394	361	14	East Africa		Count Scheibler.
-45				Nyasaland		S. Pulley.
441	398	$27\frac{1}{2}$	111	East Africa		Sir Robert Harvey, Bart.
441/2	391	29	12	Pungwe .		F. S. Staples.
441/2	391	29	15	Chobe River	4	F. C. Selous.
441/2		$37\frac{1}{2}$	12	East Africa		F. Charrington,
441	39	314	10	South Africa		J. B. Taylor.
44	401	37 ⁸	12	East Africa		Capt. R. A. J. Montgomerie.
-44	40		1112	South Africa		J. Lamont.
-44	40	301/2	II ½	Angola .		E. P. Cooper.
-44	$37\frac{1}{2}$	14		Chiringoma, P	P.E.A.	F. Vaughan Kirby.
43	37 ² 4	261	$12\frac{3}{4}$	East Africa	5. 3	Hon. Walter Rothschild.

Greatest Outside.	Width. Inside.	Tip to	Width of Palm measured on face of horn.	Locality.		Owner.
43½	381/2	251/2	9	Pungwe		H. R. Holden.
431	381	$24\frac{1}{2}$	131	South Africa .		Sir John Willoughby, Bart.
43	381	36	11	N.W. Rhodesia		Col. C. Harding.
43	37 5	294	14	South Africa .		C. D. Rudd.
43	38	302	11	Lake Ngami .		Capt. J. P. Grenfell.
423	38	338	93	East Africa .		E. J. L. Berkeley.
421/2	394	40	81/2	Do		Prince P. Demidoff.
421	39½	40½	113	Do		B. Eastwood.
-42½	$36\frac{1}{2}$	29	141/2	E.C. Africa .		James J. Harrison.
428	363	$29\frac{1}{2}$	121/2	?		Sir Victor Brooke's Collec-
42	38	35‡	9	East Africa .		Lord Delamere.
42	37 ⁸	261	11	Pungwe		Capt. F. H. Lehmann.
42	37	301	101	Barotsiland .		E. D. Scott.
-42	36	19	16	?		Mr. Justice Hopley.
-42	41		$9\frac{1}{2}$	East Africa .		Major E. G. Harrison.
411	37 ³ / ₄	$34\frac{1}{2}$	10	Pungwe		R. H. Venables-Kyrke.
411/2	36%	28		South Africa .	•	British Museum.
41	35½	$24\frac{3}{4}$	161	Do		F. C. Selous.
41	36 8	37	11	Zambesia .		Comdr. A. T. Hunt, R.N.
41	36½	26½	$9\frac{1}{2}$	Pungwe		Major Lord Douglas Compton.
-40§	35	198	131	Do		Count E. Hoyos.
40½	364	$25\frac{1}{2}$	9½	Do		Marquis of Hamilton.
-40½	36	35	15	South Africa .		A. Ohlsson.
9 40	351	26½	7	Do	*	F. C. Selous.
40	35	211	10	Matabililand .		Major James Grant.
40	34 ⁸	21 ³ / ₄	8	Pungwe		C. C. Gouldsmith.
394	34½	$9\frac{1}{2}$	14	Do		Capt. G. L. Bonham.
39½	354	29	9	Do		F. W. Belt.
39.12	37	36.11	12	British East Africa		Prince Henry of Liechtenstein.
- ♀ 38 <u>‡</u>	334	27	61	?		P. C. Keytel.



Skull and Horns of Male Abyssinian Buffalo.

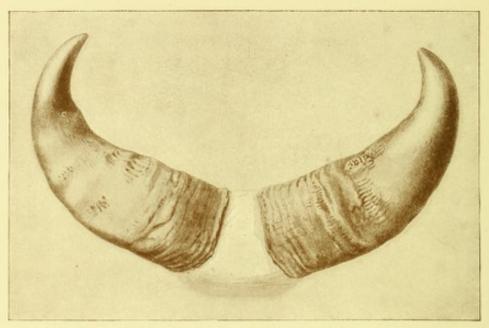
ABYSSINIAN BUFFALO (Bos caffer æquinoctialis).

A smaller animal than the last (height at shoulder about 4 feet), with the general colour blackish or tawny brown, tinged locally with rufous, and tending to grayish on the legs. Horns smaller, much more flattened at the bases, where they are more widely separated, and in some, although not all, cases retreating less markedly behind the plane of the eyes. The fact that in East African specimens of the Cape buffalo the horns are usually less rugged than in more southern examples, tends to confirm the view that the present animal should be regarded as a variety rather than as a species.

Distribution.—From Abyssinia and southern Somaliland through the Egyptian Sudan for a considerable distance up the White Nile; but the southern limits, if definable, not yet determined.

Greatest Outside.	Width. Inside.	Tip to Tip.	Width of Palm.	Locality	y.		Owner.
44	$42\frac{1}{2}$	43	81/2	White Nile		٠.	P. Niedieck.
40	37	32	117	Abyssinia			E. Lort-Phillips.
38‡	348	321	83	White Nile			R. McD. Hawker.
38	341	284	74	Do.			G. H. Cheetham.
-37 ² / ₈	344	341	834	Upper Baséla	nd		J. Menges.
361	311	241	81	White Nile			Count E. Hoyos.

Greatest Outside	Width. Inside.	Tip to Tip.	Width of Palm.	Locality.		Owner.
36½	33	301/2	91/2	Sudan		LieutCol. A. Colville.
364	32	22 ⁵ / ₈	81/2	White Nile .		H. E. Allen.
-36	321	27	81	Sudan		Prince Henry of Liechtenstein.
36	29	24		Mount Elgon, Africa	East	E. Gedge.
$35\frac{1}{2}$	314	281	81 .	White Nile .		E. N. Buxton.
35½	$32\frac{1}{2}$	314	7₹	Do		S. H. Whitbread.
-35	31	29	10	Sudan		Sir W. Gordon Cumming, Bart.
$-34\frac{3}{4}$	301	26g	9 3	Do		Prince Henry of Liechtenstein.
341/2	$29\frac{1}{2}$	235	$7\frac{1}{2}$	White Nile		C. Liddell.
33	284	$23\frac{1}{2}$	81	Do		Count C. Hoyos.
33	271/2	18g	9½	Do		H. F. Buxton.
324	291	261	81/2	Do		C. Adeane.
9 32½	298	$24\frac{1}{2}$	51/4	Do		H. Cookson.
314	281	258	81/2	Settite River .		Col. Ralph Vivian.
311/2	261/2	211	91	Bogosland .		G. P. V. Aylmer and W. D. James.
3112	264	27	81/2	Sudan		Prince Colloredo Mannsfeld.
318	26 7	248		Bogosland .		British Museum.
31	281	$21\frac{3}{4}$	11	Abyssinia .		Sir Edmund G. Loder, Bart.
31	261/2	183	8	Sudan		Col. St. G. C. Henry.
-303	26g	201	101	Settite River .		Count T. Palffy.
301	23	201	81/2	Sudan		LieutCol. Hon. W. Coke.
	23		131	Somaliland .		A. E. Butter.



Horns of old Male Senegambian Buffalo, from the type specimen in the British Museum.

SMALLER AFRICAN BUFFALOES.

Bona of the Hausas.

Lake Tchad Buffalo (Bos caffer brachyceros).

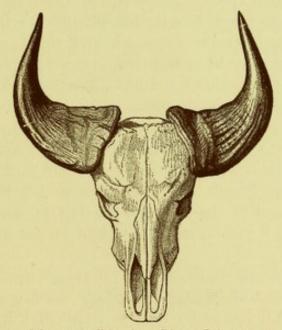
Senegambian Buffalo (Bos caffer planiceros).

Dwarf Congo Buffalo (Bos caffer nanus).

Despite the enormous differences, alike in size, colour, and the form of the horns, between the little red buffalo of the Congo and its gigantic black cousin of the Cape, such a gradual and apparently complete transition can be traced from the one type to the other, that both seem local modifications of one very variable animal. In the dwarf buffalo of the Congo the colour of the hair is red or yellow, the ears are fringed with very long hair, and the horns are much flattened at the base, with long smooth tips directed upwards. This type may be traced, with some modifications, to the Gaboon and Gambia; but in the interior of Senegambia it apparently passes into the larger brown buffalo, with more laterally expanded and recurved horns, known as B. caffer planiceros. And this latter is, in its turn, very close to the Abyssinian buffalo (B. caffer æquinoctialis) of East Central Africa, which is nearly allied to the typical Cape form. Another type is indicated by the Lake Tchad buffalo (B. caffer brachyceros), first discovered by Denham and Clapperton. In height the Congo dwarf buffalo only reaches some 42 inches at the shoulder.

Length on outside curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
231	15	10	Gold Coast		Major G. S. C. Jenkinson.
23	161	81	Nigeria .		Julius Jeppe.
223	161	12	Ashanti .		C. Beddington.
-21 g	154	4	Nigeria .		Capt. C. A. Wilding.
211	124	21/4	West Africa		British Museum.
21	15	91	Nigeria .		A. Ohlsson.
21	172	161	Do		Capt, J. F. Loder-Symonds.
201	161	10	Do		Capt. D. F. MacCarthy Morrogh.
19	10		Lake Chad		Hon. Walter Rothschild.
184	$11\frac{1}{2}$	31/2	Nigeria .		W. H. Broun.
181	12	63	Gambia .	. / .	H. C. Goddard.
184	104	51/2	Central Africa		British Museum (Capt. Denham and Col. Clapperton).
-181	15	111	?		P. C. Keytel.
18	161/2	17½	Victoria Island, Niger	Lower	Capt. R. H. Monck-Mason.
171	10	41/2	Gambia .		Sir Edmund G. Loder, Bart.
17	12	141/2	Nigeria .		Capt. P. A. Clive.
163	101	61	Jebba, Nigeria		Major A. H. Festing.
$16\frac{1}{2}$	132	15	Niger .		Capt. H. A. Porter.
153	II	91	Nigeria .		Sir Edmund G. Loder, Bart.
151/2	II 1 2	11	Do		Capt. J. K. Cochrane.
15	611	14	Do.		LieutCol. A. J. Arnold.
913	102	102	Do		Julius Jeppe.
ð 11 ²	9½		Lokoja .		British Museum (LieutCol. A. J. Arnold).
\$ 11	81	10	West Africa		Sir Edmund G. Loder, Bart.
♀ 9½	74	81/2	Do		Hon. Walter Rothschild.

1 Width of palm.



Skull and Horns of Congo Buffalo, from Lieut.-Col. A. J. Arnold's specimen.



Head of Male Indian Buffalo. Shot by the Maharajah of Cooch Behar.

INDIAN BUFFALO or ARNA (Bos bubalis).

No one is the least likely to confuse this animal with the Cape species. Both belong, indeed, to the same group of the genus Bos, and have the same rounded upper portion of the head and angulated horns. In the Indian species, however, the head is much longer, the ears are narrower and less heavily haired, and the horns of the male are widely separated on the forehead, and totally different in form. Two types of horns may be recognised, one very massive, and curving regularly up from each side of the head in a subcircular manner; the other much slenderer, though often quite as long, directed for the greater part of their length almost straight out from the head, and always with a wider spread. Height at shoulder about 6 feet 2 inches; girth behind shoulder, 10 feet 8 inches. In a bull shot by the Maharajah of Cooch Behar the length from the nose to the tip of the tail was 14 feet 2 inches, and to the base of the tail 11 feet; the maximum girth being 10 feet 8 inches, and the weight of the head, when cut off, 158 lbs.

Distribution.—Typically India, where the range includes the plains of the Bramaputra and Ganges from the eastern end of Assam to Tirhut, and the Terai as far west as Rohilcund, the plains near the coast in Midnapore and Orissa, and also the plains in the Eastern Central Provinces as far south as the Godaveri and Pranhita rivers. A fawn-coloured race occurs in Northern Assam, and smaller varieties in Ceylon and some of the Malayan islands. In a domesticated state, South Europe, Egypt, etc. Native name of male, arna; of female, arni.

Oi	ICIIIa	10, 111	100.	r					
Length on outside curve.		Tip to	Widest inside.	Widest outside.	L	ocality.			Owner.
77 ³	178		***			?			British Museum.
-71	2112	344	60		Assam				Measured by A. O. Hume; shot by A. Forbes.
- 9 70½	18	***	64	78	Do.		*		The late Sir A. Campbell-Orde.
70	181	60	674	72	Do.	**			J. H. Whitehouse.
65%	201				Do.				British Museum (Col. J. Mathie).
- 9 64½	18	$42\frac{1}{2}$	60	96 .	Do.				J. Campbell of Kilberry.
-63	18			60	Do.				Sir A. Campbell-Orde.
62	17	101			Do.				Hon. Walter Rothschild.
961₹	154	221/5	451		Cooch Be	har			H.H. the Maharajah of Cooch Behar.
9 613	16	22	48	1	Assam				Hon. Walter Rothschild.
60	22	***	64	72	Central P	rovino	ces		Capt. B. Vincent.
60	20	40	52			?			Sir Edmund G. Loder, Bart.
585	128		***	***		?			British Museum.
581	124					?			Do.
-57	18				Central P	rovino	es		J. D. Inverarity.
57	181	411	60		Do.				LieutCol. G. D. F. Sulivan.
-57	15	49	52		Assam				A. H. Straker.
- 9 57	141	53	61	***		?			Sir Edmund G. Loder, Bart.
561	211/2	40	52 ³ / ₄		Assam				A. O. Hume.
-56	18	291/2		57½		?			J. Whitaker.
♀ 56	191	33 4	504		Cooch Be	ehar			H.H. the Maharajah of Cooch Behar.
- 56	17½	62	611	641	Bengal				G. Monteath.
551/2	181	29	44	***		?			J. Carr Saunders.
- ♀ 55	131/2	**			Bhutan D	Duars			Major-Gen. A. A. A. Kinloch.
55	22	55½	62	66	Central P	rovin	ces		L. T. Harris.
541	181	38‡	48 7			?			British Museum (Hume Collection).

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Widest outside.	Locality.		Owner.
♀ 54₺	123	694	70		Assam		A. O. Hume.
542	19	50	59	64	?		Viscount Powerscourt.
54	20	40	47	55	?		Do.
-54	23	39		$59\frac{1}{2}$	Burma		Pegu Club, Rangoon.
534	1218	231	408		?		British Museum (Hume Collec-
531	$12\frac{1}{2}$				Nepal	74	tion). British Museum (B. H. Hodg-
1 531	23	30	42½		Cooch Behar .		son). H. H. the Maharajah of Cooch
-531	(6 ft. 2½ 12½	31			Java		Behar. Dr. Albert von Stephani.
53	19	361	483	56	?		LieutCol. H. Lysons.
-53	***				?		Lucknow Museum.
-512	131	711		***	?		Imperial Museum, Vienna.
513	181	22	381	***	Assam		Sir Peter Walker, Bart.
-518	198	458	50		Central Provinces		P. H. G. Powell-Cotton.
503	183	54½	604	65	Patna		BrigGen. F. H. Whitby.
♀ 50½	143	401	59		Central Provinces		Col. M. M. Bowie.
-50½	20	64			Do		Major H. de Prée.
50	181	481	60	***	Do.		Major C. F. Pinney.
50	131	33	381	***	Assam		Noel Fenwick.
50	17	314	50		Do		LieutCol. D. M. Lumsden.
-49 ³	171	161	37		Cooch Behar .		Count Scheibler.
-491	$18\frac{1}{2}$	451	49½	***	Central Provinces	- 4	A. P. Percival.
49	$22\frac{3}{4}$	23	351	45	Assam		E. W. Dixon.
49	19	49‡	521	59	Central Provinces		Major G. T. M. Bridges.
-49	18	354	$42\frac{3}{4}$		Assam		F. J. Needham.
48½	181	33	51		Central Provinces		Col. F. C. Lister-Kay.
481	19	27	47		Assam		Major E. T. Paul.
$-48\frac{1}{2}$	134	48 ^a	57		Central Provinces		P. H. G. Powell-Cotton.

¹ Measured round outside curves across skull, 9 ft. 11% in. Another pair, 10 ft. 5 ins., circumference of horn at bone 21 inches.

The following specimens are mostly from Ceylon:-

Length on outside curve.	Circum- ference.	Tip to Tip.		Widest outside.	L	ocalit	у.	Owner.
♀ 35	91/2	314	37‡		Ceylon			R. Wahrmann.
341	151	258	35		Do.			Earl Cairns.
♀ 331	9	$31\frac{1}{2}$	37		Do.			Do.
331	13	321	38	43	Do.			Capt. F. H. N. Pym.
314	16	28		381	Do.			Marquis Camden.
311/2	151	27	34	38	Do.			P. Niedieck.
311	16		471		South A			H. L. Heber Percy.
- ♀ 28	94	184	26	3112	(intro			H.M. Von Archer.
- ♀ 27¼	91/2	15	25	291	Do.			H.R.H. Prince Pedro d'Orleans et Braganza.



Head of Bull Anoa, from life.

ANOA (Bos depressicornis).

The smallest wild member of the ox tribe, characterised by its straight, upright horns, and the frequent presence of white spots on the sides of the head or elsewhere. Although so different in the form of the head and horns from the adult Indian buffalo, the anoa is in these respects much more like the young of the latter; and the two are connected to a considerable extent by the tamarau, or Philippine buffalo (Bos mindorensis) of the island of Mindoro. As in all the Oriental buffaloes, the hair of the fore part of the back is directed forwards in the anoa. Height at shoulder about 3 feet 3 inches.

Distribution.—The island of Celebes.

Length on front curve.	Circum- ference.	Tip to Tip.	Owner.
-158	7 1 8	71/2	Paris Museum.
$-13\frac{1}{2}$	91	5	Jesuit College, Manila.
128	6	61/2	British Museum.
101	61	7	Carl Hagenbeck.
10	57	58	Sir Victor Brooke's Collection.
-91	81/2	81/2	Dublin Museum.
83	48	43	Sir Edmund G. Loder, Bart.

¹ Measured by Capt. R. A. J. Montgomerie.



Skull and Horns of Bull and Cow Bison, shot by Mr. St. George Littledale.

EUROPEAN BISON (Bos bonasus).

The great elevation of the fore-quarters, the mass of long hair clothing the head, shoulders, and fore-part of the body, together with the peculiar form of the head and horns, the latter of which are cylindrical, serve at once to distinguish the bison from the other members of the ox tribe. There is also a difference in the number of ribs between the bison and the more typical oxen, the number in the former varying from 14 to 15 pairs. In the European species the mass of hair on the fore-quarters is not so long as in its American cousin, the form of the skull is different, and the hind-quarters do not fall away nearly to the same extent. Some difference may be noted between Caucasian and Lithuanian specimens, but it is doubtful whether these are sufficient to indicate a racial distinction. Height at shoulder 6 feet 1 or 2 inches. In a bull killed by Mr. St. George Littledale, the length from the nose to the root of the tail measured 10 feet 1 inch, the height at the shoulder 5 feet II inches, and the approximate girth of the body 8 feet 4 inches.

Distribution.—At the present day restricted to the Caucasus and the forest of Bielowitzka in Lithuania; the herds in the latter district existing in a protected state. The name aurochs, so commonly applied to the bison, belongs to the extinct wild ox of Europe.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Locality.			Owner.		
181	1218	134	194	Lithuania .			British Museum (Czar of Russia).		
-18.2	10.8	17.5	20.14	Bielowitzka		12	Prince Henry of Liechten- stein.		
-18	1218	16	20	Caucasus .	174	12	St. George Littledale.		
$17\frac{1}{2}$	10	$18\frac{1}{2}$		Bielowitzka			Major Algernon Heber-Percy.		
17.4	13.3	13.4	20, 10	Do.			Prince Henry of Liechten- stein.		
163	$12\frac{1}{4}$	$21\frac{7}{8}$	241	?			Sir Edmund G. Loder, Bart.		
8 19	81	12		3			Science and Art Museum, Edinburgh.		
-15 ³	125	211	***	Lithuania .			Imperial Museum, Vienna.		
♀ 15‡	8	6		?			Major Algernon Heber-Percy.		
913	81	94	14	Caucasus .			St. George Littledale.		



Skull and Horns of American Bison.

AMERICAN BISON (Bos bison).

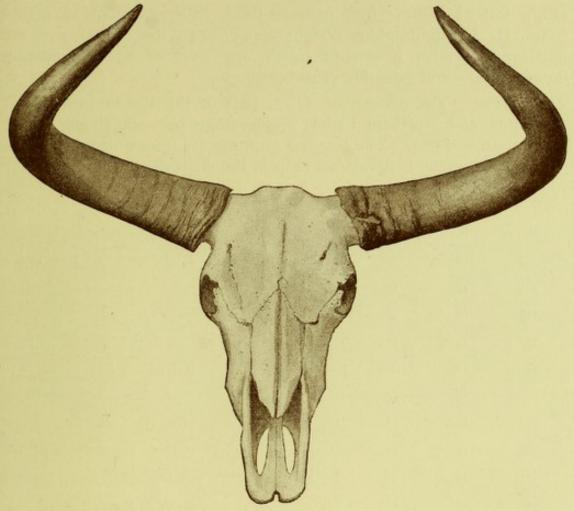
Some of the points distinguishing this species from the European bison have been mentioned under the head of the latter, but it may be added that in the typical race of the former the horns are shorter, thicker, blunter, and more sharply curved. In the skull of the American animal the sockets of the eyes have a more tubular form. Height at shoulder about 6 feet; weight from 15 to 20 cwt.; an adult bull weighed by W. T. Hornaday scaled 1727 lbs.

Distribution.—The greater portion of Western North America, ascending to the Great Slave Lake, and descending to New Mexico and Texas; now nearly exterminated. American writers recognise two races (or species), the prairie bison (B. bison typicus) and the larger wood-bison (B. bison athabascæ) of the forest highlands of the North-West.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside spread.	Locality.	Owner.
$-21\frac{1}{2}$	15‡		35 outside	Northern Montana	W. F. Sheard.
207	15		301	Wyoming	Hon. F. Thellusson.
-201	16½	$33\frac{1}{2}$		5	W. H. Root.
-19	121/2			W. Montana .	P. Liebinger.
$-18\frac{1}{2}$	15	25		Wyoming	P. N. Graham.
-18	14			Montana	F. Sauter.
172	128	15%		,	H.R.H. the Duke of Saxe- Coburg and Gotha.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Locality.	Owner.
$-17\frac{1}{2}$	$12\frac{1}{2}$	441	***	S.W. Montana	President Roosevelt.
172	12	***	$25\frac{1}{2}$	Wyoming	H.R.H. le Duc d'Orléans.
17½	13½	21	***	?	Viscount Powerscourt.
178	118	108	171	?	British Museum.
-17	14	17½		Yellowstone, Montana	Count E. Hoyos.
-16%	13	192	***	Nebraska	Imperial Museum, Vienna.
16§	$14\frac{1}{4}$	24		Bighorn Mts., Wyoming	Moreton Frewen.
161	$12\frac{1}{2}$	198		Colorado	Sir Edmund G. Loder, Bart.
161	131	141	***	?	Duke of Portland.
161	15%	254		Colorado	Sir Edmund G. Loder, Bart.
153	14	27 ³ / ₄	***	N.W. Territory	E. G. Jenkins.
152	148	***	194	Wyoming	St. George Littledale.
-15.8	12.14	15		Indian Territory near Texas	Prince Henry of Liechten- stein.

YAK 415



Skull and Horns of Male Yak. From a specimen in the British Museum, presented by Mr. A. O. Hume, C.B.

YAK (Bos grunniens).

The plateau of Tibet is remarkable for the number of its peculiar mammals, among which is the yak. Apparently its nearest relatives are the bisons, but the yak has not the great elevation of the withers in comparison with the hind-quarters so distinctive of the latter, and the long hair forms a fringe on each side of the flanks, shoulders, and thighs, as well as a tuft on the chest, while the tail is clothed with a huge mass of similar long hair, forming, when cut off and mounted, the well-known "chowries." Yak-horns are much larger than those of living bison, and have a totally different curvature; while there are also important differences in the skull. Height at shoulder from about 4 feet 10 inches to at least $5\frac{1}{2}$ feet; girth behind shoulder, 9 feet $1\frac{1}{2}$ inches; length from between horns to base of tail, 8 feet $\frac{1}{2}$ inch;

tail, 3 feet $2\frac{1}{2}$ inches; from between horns to nose, I foot $3\frac{1}{2}$ inches (Capt. H. M. Biddulph). Weight about II40 lbs. Wild yak are uniformly blackish brown in colour, any trace of white indicating domestication, and probably cross-breeding.

Distribution.—The plateau of Tibet, part of the Kansu province of China, and Northern Ladak, at elevations between about 14,000 and 20,000 feet. The peculiar grunting cry from which the animal takes its name is developed only in the domestic breed.

Length on outside curve.	Circum- ference.	Tip to Tip.	Locality.		Owner-
			?		Lucknow Museum.
-39	***	***			
$-38\frac{a}{4}$	181	261	Kuenluen Mts		A. O. Hume, C.B. (shot by late A. Dalgleish).
38‡	17	19	Do		Brit. Museum (Hume Collection).
351/2	15	16	?		E. L. Phelps.
351	$14\frac{1}{2}$	17	Tibet		St. George Littledale.
34	12	301	Ladak		Hon. Walter Rothschild.
$-32\frac{7}{8}$	$13\frac{1}{2}$	19	Tibet	7	B. H. Shaw-Stewart.
$-32\frac{3}{4}$	16‡	183	Do		Major H. M. Biddulph.
$-32\frac{3}{4}$	14	1718	Do		P. H. G. Powell-Cotton.
$32\frac{1}{2}$	16	25	Do		Sir Edmund G. Loder, Bart.
32	135	151	Do		H. C. V. Hunter.
32	$14\frac{1}{2}$	9	Do		I. Morse,
32	16	17	Do		P. Church.
32	$15\frac{3}{4}$	$21\frac{3}{4}$	Do	*5	D. L. R. Lorimer.
-31%	141	181	Chang Chenmo .	**	P. H. G. Powell-Cotton.
311/2	$15\frac{1}{2}$	171	Chinese Tibet .	4	Capt. J. A. Stewart Balmain.
311	15½	13	Do.	2	Capt. H. W. Codrington.
31	14		Do		Col. F. C. Lister-Kay.
31	$13\frac{1}{2}$	14	Ladak		Arnold Pike.
304	13½	102	Do		Sir Robert Harvey, Bart.
9 304	13	20	Do		Capt. L. Oldfield.
♀ 30	111	451	Tibet		Duke of Bedford,
30	141	194	?		Major W. R. Codrington.
30	13	151	Chang Chenmo .		H. Z. Darrah.

GAUR

Length on outside curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
29½	131	11	Chang Chenmo .	. Lieut-Col. G. D. F. Sulivan.
29	15	9	Do. ' .	. Sir Edmund G. Loder, Bart.
29	15	131	Ladak	. Capt. H. H. P. Deasy.



Skull and Horns of Gaur shot by H.H. The Maharajah of Cooch-Behar.



Skull and Horns of Cow Gaur, from Mr. A. O. Hume's specimen.

GAUR (Bos gaurus).

This splendid wild ox, the miscalled bison of Anglo-Indian sportsmen, is the typical representative of a group of oriental species nearly related to the domesticated ox, but presenting certain well-marked points of difference. Among these may be noted the shorter head and tail, the frequently elliptical section of the horns, and, above all, the presence of a more or less distinct ridge running from the withers to the middle of the back, where it terminates in a sudden step. In the gaur this ridge is very strongly developed, but the most distinctive feature of the animal is the great arch on the crown of the head between the horns, which bends forward to communicate a concave profile to the forehead. With the exception of the white "stockings"

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common to all the members of the group, the colour of the gaur is uniform; but the much flattened horns are of a peculiar yellowish green tint at the base. The height of adult bulls at the shoulder varies from about 6 feet to 6 feet 4 inches, though specimens of not more than 5 feet 5 or 6 inches are killed.

Distribution.—The forest hill-tracts of Peninsular India, Assam, Burma, and the Malay Peninsula, as well as the forests along the outer Himalaya as far west as Nepal. South of the Ganges, where it has not been exterminated, the gaur inhabits suitable districts in Chutia Nagpur, Orissa, the Northern Circars, Central Provinces, Hyderabad territories, and all the Western Ghats.

Widest outside.	Circum- ference at base.	Tip to Tip.	Widest inside.	Length on outside curve of longest horn.	Locality.	Owner.
-46	201	33	40		Malay States .	H. Da. Prah.
$-43\frac{1}{2}$	173	284			Travancore .	H.H. Maharajah of Travan- core.
43	20	31	38	32	Cooch Behar .	Maharajah of Cooch-Behar.
-43	201	$18\frac{3}{4}$		394	Salwin, Burma	Bombay Natural History Society's Museum.
43	17	$32\frac{1}{2}$		$29\frac{1}{2}$	Coimbatore, S. India	P. Church.
43	193	341/2		28	Upper Burma .	C. W. A. Bruce.
$42\frac{1}{2}$	181/2	25	33‡	331/2	Travancore .	Capt. T. W. Greenfield.
$-42\frac{1}{2}$				344	E. Annamulis .	Col. A. Pollock.
421/2	192	31	354	314	Madras	Major T. J. R. Lucas.
$4I\frac{1}{2}$	16	30		29	Assam	A. J. Walter.
411	20	$32\frac{1}{2}$	36‡	. 30	?	J. F. Bryant.
41	18	24	***	334	Madura District	Bethnal Green Museum (J. D. Goldingham).
-41	16		38	30	Central Provinces	LieutCol. J. W. H. Flana-
41	194	37		274	Kalkerry, S. India	Capt. W. E. Fairholme.
40½	20	25	***	344	Vardi Mullay .	Baron von Massow.
40½	19	29	36	32	Madras	Rowland Ward.
-40	201	23		34	Madras Presi- dency	Lieut Col. C. Heyworth- Savage.
40	194	26	341/2	32	Burma	A. E. English.
40	17	31‡	34	$27\frac{1}{2}$	E. Madras .	W. O. Horne.
40	15	331		26	Central Provinces	C. F. Egerton.

Widest outside.	Circum- ference at base.	Tip to Tip.	Widest inside.	Length on outside curve of longest horn.	Locality.	Owner.
$39\frac{3}{4}$	181	$34\frac{1}{4}$	351	261	?	R. McD. Hawker.
39½	20	251	$33\frac{1}{2}$	31	Annamulis .	C. W. Wood.
$-39\frac{1}{2}$	18	$31\frac{1}{2}$	334	29	Asirgarh Jungle, C.I.	LieutCol. M. Cust.
$-38\frac{3}{4}$	21		$32\frac{1}{2}$	33½	Mysore	Surgeon-Capt. C. W. H. Whitestone.
384	17½	254	$32\frac{3}{4}$	30	?	A. H. Sharp.
-385	$18\frac{1}{2}$	28 1 / ₈		281	Raipur, C.P	Capt. M. M'Neill.
-38%	18	34		24	?	J. D. Inverarity.
384	174	281	33½	274	Cooch-Behar .	H. R. Beaumont.
38	18	$22\frac{1}{2}$	33	314	Madras	S. Cox.
-38	19	18	31	$34\frac{1}{2}$?	Sir Edmund G. Loder, Bart.
37½	191	241	304	31	Mysore	Viscount Powerscourt.
37½	18	19	321	31	?	Colonel Baillie.
37‡	20	25	314	29	Chota Nagpur	Major J. W. Yardley.
36½	$2I\frac{1}{2}$	221	294	28	District Straits Settle-	Mrs. Pauling.
$-36\frac{1}{2}$	171	17		28	ments Mysore	Capt. G. H. Evans.
$-36\frac{1}{2}$	201	261		$27\frac{1}{2}$?	Major-General W. Rice.
361	181	$26\frac{3}{4}$		26 <u>1</u>	?	Major R. H. Fraser.
36	171	231	291	28	S. India	Capt. C. S. Timins.
36	192	151	29	34	?	Major F. J. Evelegh.
351	16	18	31	$25\frac{1}{2}$?	E. R. Collins.
351	$17\frac{1}{2}$	$2I\frac{1}{2}$	29 8	$29\frac{1}{2}$	C. Provinces .	W. J. Considine.
35	191	16	***	301	Travancore .	Major Lord Douglas
-35	17½			29	North Kanara .	Compton. LieutCol. L. L. Fenton.
35	$18\frac{1}{2}$	191	29	$29\frac{1}{2}$?	Major H. Patton-Bethune.
35	174	19	$29\frac{1}{2}$	29	?	Major G. F. Mockler.
35	18	19	291	28	Bastar, C.P.	Lord Charles Bentinck.
35	19	23	28^{3}_{4}	26	Cooch-Behar .	Sir Henry D. Tichborne,
-34	$18\frac{1}{2}$	19	28	34	Mysore	Bart. Lord Curzon.
-34	174	24		***	Malay States .	T. R. Hubback.
♀ 27	131	13	22	24	N. Travancore Hills	A. O. Hume.

Widest inside.1	Circum- ference at base.	Tip to Tip.	Length on outside curve of longest horn.	Locality.	Owner.
39	17%	281	291/2	Siam	A. Waley.
36	17	$26\frac{1}{4}$	271/2	Assam	L. Truninger.
36	15	261	26	Central Provinces	Capt. John Fuller.
36	174	27	26	Do.	Col. M. M. Bowie
371	181	22	30‡	Travancore .	A. T. Mackenzie.
35	174	201	27½	Tezpore, Assam	A. Y. Thomson.
35	18	23	26	Burma	Capt. S. L. Robinson.
344	18	$22\frac{1}{2}$	28	Assam	Hon. S. Tollemache.
341/2	18	231/2	33 ¹ / ₈	Cooch-Behar .	Maharajah of Cooch-Behar.
34	181	$20\frac{1}{4}$	27½	Travancore .	Capt. Hon. E. Baring.
34	171	181	25	Central Provinces	Dr. W. P. Y. Bainbridge.
34	152	248	241/2	?	Capt. H. De Prée.
34	19	27	24	Burma	W. F. Loftus-Tottenham.
33 ⁸ / ₄	18	234	25	Kanara	Capt. G. J. Fitzgerald.
33½	18	154	281	Travancore .	Capt. H. L. Cottingham.
331	15	22	23	Assam	Major E. T. Paul.
$32\frac{3}{4}$	1718	321	278	Central Provinces	Major C. S. Cumberland.
324	181	238	26	Do.	G. de H. Smith.
321/2	19	161	26	Do.	Capt. C. F. Pinney.
$32\frac{1}{2}$	178	$21\frac{3}{8}$	314	Travancore .	A. O. Hume.
324	17½	201	33	. ?	Major P. Z. Cox.
32	194	184	39	N. Travancore.	A. W. Turner.
32	16	32	30	Do.	J. D. Rees.
♀ 22	101/2	148	22	?	Major H. de Prée.
٧	101	12	20½	Madras	Major J. W. M. Cotton.
♀	1112		19½	N. Kanara .	LieutCol. L. L. Fenton.
♀ 15½	12	21/4	231/2	Mysore	Capt. H. S. Wood.

¹ Please note these measurements are inside.

GAUR (Bos gaurus).

	REMARKS.	Record headshot Cooch-	Denat.				Record bull as regards bulk and height.		Record cow's head, very big cow—looked like a bull a little way off.		
	Girth just behind Shoulder.	ins. 118	120	120	112	115	124	:	8	:	-
ch-Behar.	Length of Body between Sticks.	ft. in. 9 5	9 44	9 5½	†1 6	9 3	9 6	:			
Measurements kindly furnished by H.H. The Maharajah of Cooch-Behar.	Total length of Animal between Sticks.	ft. in. 12 3	12 34	12 2	12 2	12 14	12 34		1	:	****
H.H. The M.	Height at the Hump.	hds. in. 19 3	20 3	19 3½	18 34	1 61	20 o‡	19 of	17 3	:	
furnished by	Height at Shoulder.	hds. in. 18 2½	18 3½	18 3	17 34	18 o4	18 34	18 34	17 13	:	****
ents kindly	Widest Splay.	43	404	39	1	394	39	393	1	:	***
Measurem	Between Tips.	314	$23\frac{1}{2}$	231	-	244	264	30%	:	:	:
	Base of Horn.	21	184	193	183	81	20½	184	1		:
	Tip to Tip,	84	818	$78\frac{1}{2}$	77	F94	762	‡69	734	712	70
	One horn round Outer Curves.	1	$32\frac{1}{8}$	308		308	301	263		:	
	SEX.	Bull	2			:	:	:	Cow		12

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Skull and Horns of Bull Gayal, from Mr. A. O. Hume's specimen.

GAYAL (Bos frontalis).

Chiefly, if not entirely, known in a half-domesticated condition, the gayal is a rather smaller animal than the gaur, of a blacker colour, with a large dewlap, and with a straight line between the bases of the massive horns, which are more divergent, less curved upwards, more nearly cylindrical in section, and of a darker colour. The head, too, is much shorter, with the forehead very broad and flat. It may be only a domesticated race of the gaur, as there are indications of a transition in the form of the skull between the two.

Distribution.—Reported from the Tenasserim district in a wild state, and kept in a semi-domesticated condition by many of the hill-tribes of Assam and Chittagong.

Length on outside curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.	
15	1112	26 3	?	British Museum.	
141	131/2	28	Tenasserim Hills	A. O. Hume.	(See illustra-
-14	14		?	Indian Museum.	
125	131	274	?	British Museum.	



Head of Bull Burmese Banting, or Tsaing. From a specimen shot by Mr. R. McD. Hawker.

BANTING (Bos sondaicus).

The third and last member of the gaur group departs less widely from the type of the common ox than do the two others, the ridge on the withers being less developed, and the horns almost cylindrical. The cows, too, are always reddish coloured, although the bulls may be black, and in the latter sex at least there is always a large white patch on the rump. Very distinctive of the species is the presence of a horny shield on the crown of the head between the bases of the horns. Height at shoulder about 5 feet 9 inches.

Distribution.—Burma, the Malay Peninsula, Borneo, Java, Bali, and perhaps Sumatra. At least two distinct races of the banting are distinguishable. First, the true banting, or Java ox (Bos sondaicus typicus), from Java, and perhaps some of the other Malay islands and the Peninsula. In this race the old bulls become of a deep blackish brown colour. The same tint is characteristic of the old male banting in Borneo, but the horns are directed more uprightly.

The second well-defined race (B. sondaicus birmanicus) inhabits Burma, and may extend northwards to Manipur. Old bulls retain the reddish tint of the cows throughout life, showing more or less of gray on the head.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Locality.	Owner.
-331/2	17	26 ⁷ / ₈	35	Upper Burma	Major H. S. Wood.
30	161	241	32	Do	H. W. Marsden.
-30	17			Java	Indian Museum.
29	16	28	344	Burma	H. L. P. Walsh.
$-28\frac{1}{2}$	171/2	301	36	Do	Capt. G. H. Evans.
281	174	281/2	34	Do	W. O. Hannyngton.
-281	15	26½	364	Java	H. Van Son.
-27½	141/2	275	$34\frac{7}{8}$	Burma	Col. O. E. Lloyd.
27	142	201	281	Upper Burma	British Museum (R. McD.
27	174	244	324	Do	Hawker). J. McF. Petters.
26½	161	$2I_{\frac{1}{2}}^{1}$	28	Java	Sir Edmund G. Loder, Bart.
-26	18	171	27	Burma	C. W. A. Bruce.
254	16§	20g	263	Siam	H. C. V. Hunter.
25₹	178	13	24	Burma	Major C. S. Cumberland.
$-25\frac{1}{2}$	131	29	32	Do	W. H. Prendergast.
251	19½	$24\frac{1}{2}$	30	Do	C. W. A. Bruce.
248	124	154	241	Java	British Museum.
23	163	30	29 ⁸	Do	C. W. A. Buma.
♀ 23	$12\frac{1}{2}$	164	25	Upper Burma	R. McD. Hawker.
♀ 22½	13½	151	23	Java	C. W. A. Buma.
218	121	138	191	Borneo	British Museum (H. B. Low).
20	16	22 ³ / ₄	241/2	Kudah, B. N. Borneo	H. Ll. Davies.
♀ 20	12	211/2	28	Upper Burma	C. W. A. Bruce.
-19‡	111	17	20	Borneo	Sir Edmund G. Loder, Bart.
♀ 15½	71/2	71/2	161	Tammu, Burma .	Major H. S. Wood.

DOMESTICATED OXEN (Bos taurus and B. indicus).

The domesticated cattle of Europe are the descendants of the primitive wild ox, or aurochs (a name frequently misapplied to the bison) of Europe and North Africa (Bos taurus primigenius), now completely extinct in the wild state, although it survived on the continent till the Middle Ages. On the other hand, the humped oxen (zebu) of India and the Galla cattle of Africa appear to trace their origin to a totally distinct species (Bos indicus), also extinct in the wild state.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Locality.	Owner.
814	181	1031	***	Ngamiland .	The late W. C. Oswell.
-?	17	100	124	Do	A. Ohlsson.
57	192	82		Bechuanaland	Sir Edmund G. Loder, Bart.
56½	17½	761		South Africa.	R. A. Cooper.
47	158	2118		Abyssinia	British Museum (Sir H. Salt).
44	$12\frac{7}{8}$	701		(Galla Ox)	British Museum.
42½	235	(about) 22½	***	Central Africa	Brit. Museum (Col. Denham).
413	14	523		Madagascar .	Bethnal Green Museum.
401	121	607	***	Vienna (Polish	British Museum.
-385	125	538	***	Bull) Hungary .	Dr. Albert von Stephani.
381	101	543	444	Italy	Bethnal Green Museum.
374	12	60		Cape of Good	British Museum.
3112	101	234		Hope Galla	A. E. Butter.
30½	128	35		Spain	British Museum.
298	1118	287	***	Gambia .	British Museum (Earl of
171	103	301	***	Buenos Aires	Derby). British Museum (G. Claraz).
171	103	25‡	***	(Niati Cattle) India	British Museum.
121	8	16½		Angola .	Sir Victor Brooke's Collection.
1112	$7\frac{1}{2}$	single horn	***	Nepal	British Museum (B. H. Hodgson).

The following specimens belong to British white park-cattle, which, although now half-wild, are the descendants of at least partially domesticated breeds.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest Inside.	Locality.	Owner.		
181	9½	361		Chartley Park	Hon. Walter Rothschild.		
181	7	344		Do.	Major James Grant.		
181	10g	20	$21\frac{1}{8}$	Chillingham Park	British Museum (Earl of Tankerville).		
9 18‡	7	1018	158	Do.	Do.		
15‡	98	178	18½	Northumber- land	British Museum (Duke of Hamilton).		
15	71/2	203		Chartley Park	Capt. G. W. Hill, R.N.		

HIPPOPOTAMUS (Hippopotamus amphibius).

Somali, Jir. Chilala, Mourvu. Boer, Zee-koe.
Swahili, Kiboko. Hausa, Dorina. Swazi, Imvubu.
Danakil, Dul. Masai, Macow. Basuto, Ikubu.

Galla, Robi. Abyssinian, Gumare.

Such a familiar animal as the uncouth and unwieldy hippopotamus—the largest member of the swine group—requires but little in the way of description here. It is widely distinguished from the pigs and warthogs by the broad and rounded muzzle—so unlike the disc-shaped snout of the latter—and consequently typifies a family by itself. The tusks and molars are likewise of a totally different and distinctive type; while the feet have four sub-equal toes with symmetrical, rounded nails. In all its organisation the hippopotamus is beautifully adapted for a semi-aquatic life; the eyes and nostrils forming the highest points of the head, and thus allowing it to come up and breathe with the least possible exposure of its body. The weight of a full-grown bull hippo is at least three tons.

Distribution.—Formerly this animal frequented most of the rivers of Africa south of the Sahara, but it has long since been exterminated from the lower reaches of the Nile, and is daily becoming scarcer in the South African rivers. In the Zambesi, where it is less easily attacked than in the smaller rivers of Mashonaland, it is still abundant, as it also is in the Chobi and neighbouring rivers, as well as in Lake Ngami; and even in the lower reaches of the Orange River a few are still to be met with. North of the Zambesi these animals occur in great numbers. Hippos are chiefly hunted for the sake of their hides, which are manufactured into sjamboks, or raw-hide whips. Their tusks have also a certain commercial value, although not so great as formerly, when they were employed for artificial teeth.

In Liberia and some other parts of the West Coast there occurs the much smaller pigmy hippopotamus (*H. liberiensis*), an animal measuring only some six feet in length, and possessing more the habits of a pig. It also differs from the common species by having, as a rule, only one, instead of two, pairs of incisor teeth between the tusks.

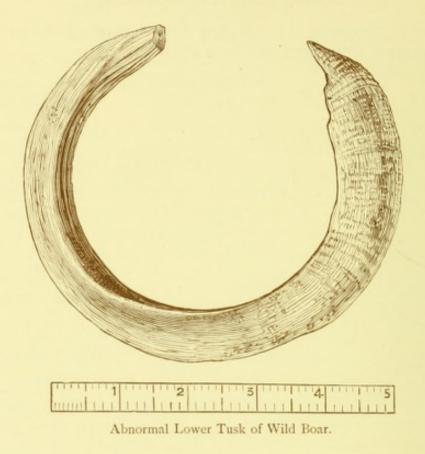
A hippopotamus, shot on the Shiré River, British Central Africa, by Mr. F. Vaughan Kirby, measured as follows:

	ft.	in.		ft.	in.
Total length, nose to tail	14	2	Length of tusks .	2	5
Tail	I	8	Circumference of tusks		81
Vertical standing height	3	$10\frac{1}{2}$	Weight per pair "	$14\frac{1}{2}$	lbs.

The tusks measured 31 and $30\frac{1}{4}$ inches, with circumference $8\frac{3}{4}$ inches, after they were extracted from the skull.

Tusks.

		Tusks.	
Length round out- side curve.	Circumference.	Locality.	Owner.
1-51	9 (malformed)	S.E. Africa	J. Lamont.
141	8 Do.	Tana River, East Africa	J. Benett Stanford.
1-38 protruding from jaw		Nyasaland	Major P. W. Forbes.
1 37 1/2	81	Shiré River	Comdr. A. T. Hunt, R.N.
32	9½	Lualaba, Central Africa	S. L. Hinde.
314	108	?	Sir Clement Hill.
315	91/8	?	Sir Edmund G. Loder, Bart
311	9	?	E. L. Fletcher.
² 31 ½		S.E. Africa	F. Vaughan Kirby.
31	10	N.E. Rhodesia	G. M. E. Leyer.
301	91	St. Lucia Bay	Hon. Charles Ellis.
-30½	8	Lower Zambesi	H. M. von Archer.
30	9 (weight 15 lbs.	St. Lucia Bay	Hon. Charles Ellis.
30	pair)	Shiré River	Surgeon J. Dowson, R.N.
-30	87	British Central Africa.	A. le H. K. B. Ritchie.
30	9	Zambesia	E. W. Tompson.
30	9	British Central Africa.	R. M. Irwin.
-30	(weight 11 lbs.)	Katungas, Shiré River	E. B. Vertue.
293	83	Do.	F. C. Selous.
291	8	Do.	Dr. W. P. Y. Bainbrigge.
29	81	Shiré River	F. Vaughan Kirby.
28	81/2	British Central Africa.	L. G. Ibach.
2718	***	Atbara River, North- East Africa	W. D. James.
27	8		E. Gedge.
26	72	Niger	Major J. A. Burdon.
		Straight Tusks.	
-20 18½	 6½		H. M. von Archer. Major J. A. Burdon.
	¹ Malformed,	² Straight tusk 1	



WILD BOAR (Sus scrofa and S. cristatus).

Most of the European and Asiatic species of wild swine, forming the typical group of the genus Sus, are so like each other, that it is often a matter of difficulty to discriminate between them, and naturalists are not yet in accord as to the number of species which should be recognised. The European wild boar is a large coarsely-haired species, with an under-coat of woolly fur, no warts on the face, and standing about 33 inches at the shoulder. It lacks the crest or mane of long black bristles running from the nape down the back in its Indian cousin; and the last tooth in the lower jaw is of a rather less complex structure than in the latter (S. cristatus).

A Spanish boar killed by H.R.H. le Duc d'Orléans weighed 302 lbs. Distribution.—Europe, Asia Minor, North-East Africa, and India.

Tusks.

Length on outside curve. Right. Left. Length of tusk out of gum.		Locality.					Owner-	
12		***	Albania					Lord Carnegie.
$-11\frac{1}{2}$	***	***	Caucasus					Col. Veernhof.

Lengtl outside Right.		Length of tusk out of gum.		Loc	cality.			Owner.
-II14	***		Caucasus					Capt. Robert Finnie.
94			Asia Mino	r				Admiral Sir Michael Culme Seymour, Bart.
195		***	Caucasus					Prince E. Demidoff.
$9^{\frac{1}{2}}$			Do.					Do.
9			Albania					Sir Reginald Cathcart, Bart.
-85			Algeria					Sir Edmund G. Loder, Bart.
2-81	81	3	Near Bon	a,	Algeria			Viscount Edmond de Poncins.
-8 1			Algeria					Capt. John Marriott.
8	$2\frac{1}{2}$		Russia		*			Count J. Potocki.
		1 Weig	tht 372 lbs.			-	2 Weigh	ht 275 lbs. clean.

The following specimens belong to the Indian species:-

Length on outside curve.	Locality.		Owner.
-14 ³ (malformed)	Purneah, Lower Bengal		H. R. P. Carter, recorded in Field, 19th January 1895. (See illustration, p. 422.)
-14 8	Hills above Jamu .		Col. Sir Neville Chamberlain.
-105	North Kanara		Bombay Natural History Society.
-IO2	Burma		Mrs. O. F. Wheeler-Cuffe.
-101	?		Meerut Tent Club
-10	India	. '	The late Sir Samuel Baker.
-9 ³	?		Meerut Tent Club.
94	3		Dr. Travers.
9½	Burma		Langford Whitehouse.
98	North Kanara		LieutCol. L. L. Fenton.
98	Central Provinces		LieutCol. J. S. Ashby.
918	Ceylon		Capt. F. H. N. Pym.
91	Central Provinces .		The late J. Moray-Brown.
81/2	Jumna Valley	10	The late Capt. F. C. Quicke.
81/2	Bengal		SurgCapt. J. M'Kie.
-8.30	Assam		Viscount Edmond de Poncins.
-81	Bikanir	9.0	H.H. the Maharajah of Bikanir.
-7.85	Assam		Viscount Edmond de Poncins.

Length on outside curve.		L	ocality			Owner.
8			?			Capt. P. A. Bainbridge.
7‡	Mhou .				4	H. Dibble.
71			?			H.H. the Maharajah of Bikanir.



Head of Wild Boar.

CAPE BUSH-PIG (Sus [Potamochærus] chæropotamus).

Bosch-vark of the Boers. Ingulubi of the Swazis and Zulus.

The bush-pigs, or river-hogs, of Africa and Madagascar form a peculiar group of swine characterised by having only 42, in place of 44, teeth, small tusks, and a large ridge-like prominence on each side of the face, due to the presence of a ridge of bone on the sheath of the tusk. The ears may be surmounted with tufts of long hair. various species are best distinguished by the character of their skulls, colour forming a very uncertain guide. The Cape bush-pig, or boschvark, is very generally gray, but the late Sir Andrew Smith stated that "scarcely any two specimens of this species exhibit the same colours; some are a brownish black variegated with white, and others are almost entirely of a light reddish brown or rufous tint, without any white markings; indeed, such are the varieties that it is scarcely possible to say what are the prevailing colours." In British Central Africa, where they have been wrongly identified with the West African species, they are invariably reddish. Height at shoulder about 31 inches; weight, 35 lbs. Lower tusks average 6 to 7 inches long, and a good specimen shot by Mr. F. Vaughan Kirby had tusks protruding out of jaw 43 inches.

Distribution.-South and South-East Africa.

WEST AFRICAN BUSH-PIG or RED RIVER-HOG

(Sus [Potamochærus] porcus).

In this species the colour is always some shade of rufous, either shining brownish red with a tinge of yellow, or dark reddish yellow with black on the forehead, ears, and limbs, the mane of the back, part of the margins of the ears, tips of the long tufts of hairs with which they are surmounted, and streaks above and below the eyes white.

Distribution.—West Africa, from Angola to Senegambia, and eastwards to Monbuttu.

Height at Weight.		Locality.	Owner.	
-231	35 lbs.	Shiré River, British Central Africa	Dr. Percy Rendall.	

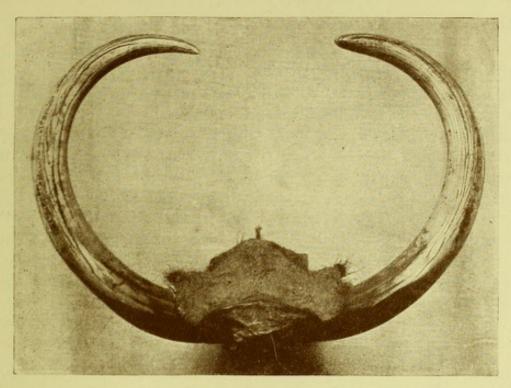
BABIRUSA (Babirusa alfurus).

The pig-deer (to translate its Malay name) is not the least notable of several remarkable animals restricted to Celebes; the peculiar form and position of the upper tusks of the boars rendering them almost comparable to horns. Unlike other pigs, in which they curve upwards from the sides of the lips, the tusks grow from the centre of the muzzle, piercing through the skin, and as they are not worn by the lower pair, attain extraordinary dimensions. Both pairs are quite devoid of enamel; the lower ones growing from the sides of the jaw in the ordinary manner. The cheek-teeth are somewhat less numerous than in ordinary pigs. In other parts of its organisation the babirusa is, however, very like the latter, although its nearly naked skin is remarkable for its coarse and rugged nature, being almost comparable to the bark of a tree. The height at the middle of the back, the highest point of the animal, is about 42 inches. Unlike the rest of its tribe, the female babirusa produces only a pair of young at a birth, which are of the same uniformly slaty hue as their parent. Babirusa are confined to the island of Celebes, where they afford good sport to the natives, who drive them into nets and then spear them.

Dr. F. H. H. Guillemard recorded in the Cruise of the "Marchesa":

Weight, male, 128 lbs.; female, 85 lbs. Height at shoulder, 27½ in.; female, 25½ in.

Leng	gth.					
Upper tusks.	Lower tusks.	Owner.				
-17	***	H. Van Son.				
164	13½	Rowland Ward.				
$-14\frac{1}{2}$		Dr. F. H. H. Guillemard.				
-131	15	Imperial Museum, Vienna.				



Tusks of Male Wart-Hog, Mr. F. H. Barber's specimen.

WART-HOG (Phacocherus æthiopicus).

Bango or Nguruwe of the Swahilis.
Ikulubi of the Basutos.
Indaigazana of the Swazis and
Zulus.
Karkary of the Somalis.

Ngolobwi in Barotsiland.

Ngolobwi in Ngamiland.
Injiri in the Chilala and Chibisa countries.
Vlak-vark of the Boers.
Darungu of the Hausas.

For downright ugliness the African wart-hog is hard to beat, and as it is well armed and possesses a bad temper, it is in all respects an undesirable acquaintance. The name is derived from the presence of three pairs of wart-like protuberances on the sides of the face between the eyes and the tusks; the head itself being characterised by the disproportionate length and flatness of the face. Unlike the true pigs, the stout upper tusks are longer than the lower pair; the inferior surfaces of their basal halves being worn to smooth facets by the points of the latter. Another peculiarity of the upper tusks is that they have no enamel, except at the extreme tips, which are soon worn off by use. But a further peculiarity is presented by the last molar teeth of each jaw, which, together with the tusks, are often the only teeth remaining in very old animals. They are both long and tall, consisting of a number of closely-packed cylindrical columns of enamel,

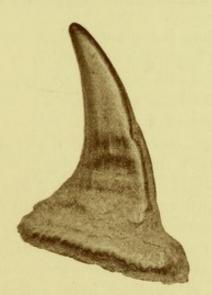
which, when worn, present a characteristic pattern. Except along the neck and back, where it carries a mane of bristly hair, the skin is nearly naked; and the young differ from those of ordinary pigs in being neither striped nor spotted. Height at shoulder, 30 inches.

Distribution.—The wart-hog is typically an inhabitant of South and South-East Africa. Animals of the same genus extend, however, right through East and Central Africa to Abyssinia; those from the latter country having been described as a distinct species, under the name of *P. africanus*. Not improbably, however, the northern animal is only a local race of the southern form. Warthogs, possibly from their habit of going to ground when pursued, are but seldom hunted with the spear; "pig-sticking" being, in fact, a sport practically unknown in Africa. The lower tushes seldom exceed 6 inches on the front curve.

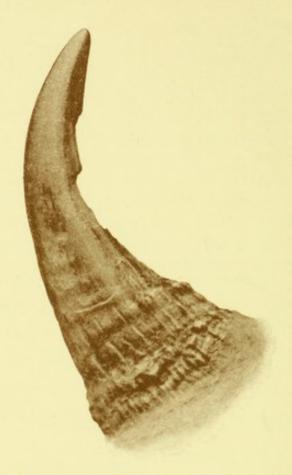
Upper Tusks.

Length on outside curve.	Length exposed from gum.	Locality.	Owner.
-27 26 }		Annesley Bay .	Capt. Ralph Berners, R.N.
20	173	South Africa	F. H. Barber.
-161	132	?	J. Whitaker.
$-15\frac{1}{2}$	13½	Matanari Bush .	F. Vaughan Kirby.
15	131	British Central Africa	R. H. Storey.
-15	***	South-East Africa .	W. Russell Bowker.
$14\frac{3}{4}$	***	British Central Africa	John Yule.
	134	Zambesia	R. J. Cuninghame.
1316	*	Somaliland	Capt. B. R. M. Glossop.
	13	South-East Africa .	F. C. Selous.
-121	101	?	P. C. Keytel.
	113	Somaliland	Viscount Edmond de Poncins.
-12	***	East Africa	C. Steuart Betton.
-12	***	South-East Africa .	 James Meldrum.
	1112	East Africa	Capt. M. M'Neill.
	-1112	South-East Africa .	Julius Jeppe.
$-11\frac{1}{2}$		Do	James J. Harrison.

Length on outside curve.	Length exposed from gum.	Locality.	Owner.		
	11	Rhodesia	George Grey.		
	104	Mashonaland	S. Chillingworth.		
-11		East Africa	Count Scheibler.		
11		British Central Africa .	Major R. Skeffington Smyth.		
	104	Barotsiland	Col. C. Harding.		
	101	East Africa	Douglas M'Douall.		
2	101	Do	H. Hyde Baker.		
**	104	Near Ruo River, South-	C. C. Bowring.		
101/2		east Africa Somaliland	W. R. Bindloss.		
	98		W. W. Ashley.		
744	9	Pungwe	Count E. Hoyos.		
***	9	Somaliland	Prince Boris Czetwertynski.		
	9	Do	A. E. Butter.		
***	9	Sudan	Prince Colloredo Mansfeld.		
		Lower Tusks.			
-91/2	1	Somaliland	J. D. Inverarity.		
-9½		Do	Viscount Edmond de Poncins.		



Horn of Indian Rhinoceros.



Record Horn of Indian Rhinoceros. Shot by Lord Curzon.

INDIAN RHINOCEROS (Rhinoceros unicornis).

In addition to being the giant among its Asiatic kindred and possessing but a single horn, this huge rhino is specially characterised by the form of the folds in its hide, and the large tubercles on the foreand hind-quarters, which look as though the skin had been fastened to the body by means of rivets. A fold before and behind the shoulder marks off one large triangular shield on each side, while another fold before each thigh separates a large rump-shield; the saddle-shaped body-shield being defined by the fold behind the shoulder and the one in front of the thigh, both of which extend across the back. Very characteristic, too, are the great folds which form heavy rings of skin round the neck. Although the tubercles are largest on the fore- and hind-quarters, they also occur on other parts of the body. Height at shoulder from 5 feet 8 inches to at least 6 feet; girth, 105 inches. The late Dr. T. C. Jerdon mentions 24 inches as the length of a fine horn.

MAHARAJAH OF COOCH BEHAR'S SPECIMENS

Height at shoulder	6 ft. 4 ¹ / ₄ ins.	6 ft. 1 in.	6 ft. ½ in.
Total length	14 ft. 1 in.	13 ft. 2 ins.	13 ft. 10 ins.
Body	II ft. II ins.	I I ft. 2 ins.	II ft. 8 ins.
Girth behind shoulder .	119 ins.	1 1 2 ins.	
Biggest girth	144 ins.	142 ins.	
Round neck nearest body	90 ins.	84 ins.	
" " head	74 ins.	75 ins.	
Horn	$16\frac{1}{4}$ ins.	$13\frac{7}{8}$ ins.	

Distribution.—Chiefly the Assam plain at the present day. At one time this animal was found over the greater part of the Indian peninsula, as attested by fossil remains, but now it is restricted to Assam; its place farther south in the Sanderbans, Chittagong, and Burma being taken by the smaller R. sondaicus.

Length on front curve.	Circum- ference.	Weight.	Locality.		Owner.
$-21\frac{1}{2}$	244		Nepal		Lord Curzon.
191	228		India		British Museum.
9 18	16		Assam		M. H. Logan.
163			Belsire, Assam .		W. C. Sherwill.
♀ 161			Cooch Behar .		H. H. the Maharajah of Cooch Behar.
9 16	***	3½ lbs.	Nowgong, Assam		L. Fabre Tonnerre.
141	21	***	Assam		Dr. W. P. Y. Bainbrigge.
9 14	227	4½ lbs.	Nowgong		L. Fabre Tonnerre.
-137		***	Cooch Behar .		Maharajah of Cooch Behar.
1 13			Do		Do.
13	201		Assam		G. A. Dolby
123	23		Do		H. B. Firman.
121	215		Do		H. C. Holland.
$-12\frac{1}{2}$	151	***	Cooch Behar .		James J. Harrison.
121	21		?		J. W. Grieve.
12	$2I\frac{1}{2}$		Cooch Behar .		A. Ezra.
11	20		Do		Capt. Hon. W. Lambton.
11	174		3		R. S. Hamilton.
-104	213	***	Foot of Garo Hills		A. O. Hume.
101	17	***	3		Earl of Dunmore.
10			Cooch Behar .	-	Duke of Portland.
9	161		Do		P. B. Vander-Byl.
- ♀83	8		Do		Countess Scheibler.

¹ Height at shoulder, 6 ft. 6 ins.

JAVAN RHINOCEROS (Rhinoceros sondaicus).

A less gigantic and smaller-headed species than the last, with the skin divided up into a kind of mosaic pattern, and the fold in front of the shoulder continued right across the body like the two hinder folds. The neck also lacks the large ring-like masses of folded skin. Horn never very large, and generally almost or completely wanting in the female. A female has been measured which stood $5\frac{1}{2}$ feet at the shoulder, and it is probable that the male stands not very much less than the Indian species, although it is of lighter build.

Distribution.—The Sanderbans and other parts of Eastern Bengal, to the Terai, Sikhim, Assam, and thence through Burma and the Malay Peninsula to Sumatra, Java, and Borneo.

Length on front curve.	Circumference.	Locality.			Owner.	
108	195	Java				British Museum.
105	191	Do.				H. Van Son.
81	20	Do.	4			A. S. Campbell.

SUMATRAN RHINOCEROS (Rhinoceros sumatrensis).

The smallest of the Asiatic rhinos, and the only one with two horns; differing, however, from the African members of the genus by the folds in the skin and the presence of teeth in the front of the jaws. Only the fold behind the shoulders is continued across the back, and the brown or black skin is rough, granular, and more or less hairy. Height at shoulder from about 4 feet to $4\frac{1}{2}$ feet; weight about 2000 lbs. Distribution.—From Assam (where the species is very rare) to Siam, the Malay Peninsula, Sumatra, and Borneo. The Assam form is a distinct local race (R. sumatrensis lasiotis).

Length on front curve.	Circumference.	Owner.	
32½	178	British Museum.	
271	177	Do.	



Horns of Common African Rhinoceros, from Mr. S. L. Hinde's specimens.

COMMON AFRICAN RHINOCEROS (Rhinoceros bicornis).

Aurarisse of the Abyssinians. natives. Chipémbere of the Chilalas. Favu of the Swahilis. Gurhu of the Danakil tribes. Muin of the Masais.

Sipejana of the Swazis and Matonga. Chipamberi of the Lower Zambesi Upejana of the Matabili and Zulus. Upelepe of the Basutos. Wărtses of the Gallas. Weel of the Somalis. Zwart Rhinoster of the Boers.

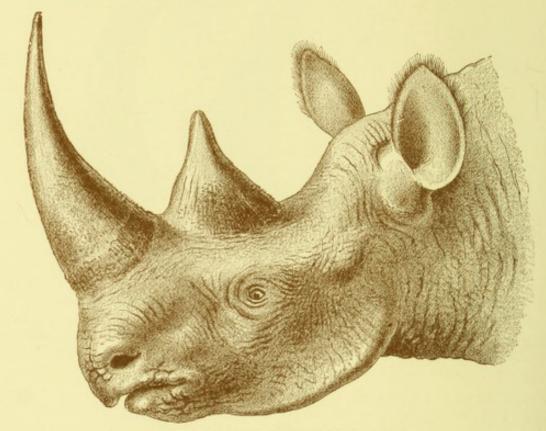
The African rhinoceroses are two-horned animals, readily distinguished from their Asiatic relatives by the absence of the folds of skin on the body which form such a characteristic feature of the latter; as they also are by the lack of front teeth in both the upper and lower jaws. The hide, too, is almost completely naked, although there are some bristly hairs on the margins of the ears and the tip of the tail.

Perhaps the most distinctive external feature of the black rhinoceros, as the present species is commonly called, is to be found in the prehensile tip to the upper lip, which is rounded and not very wide in front. Other points of distinction are, however, shown by the form of the horns and ears and the position of the eyes; while in bodily size

this animal is also considerably inferior to the next. The black rhinoceros is also well characterised by the comparative shortness of its skull, and the form and structure of the molar teeth, which are adapted for a diet of twigs and leaves. Average height at shoulder, 5 feet.

Major Edgar G. Harrison, writing in the Field, December 25, 1897, records the measurements of a five-horned Rhinoceros shot by

him in East Africa as follows:-



Head of Common African Rhinoceros.

First Horn.—Counting from snout, measurement $14\frac{3}{4}$ in.; is a normal front horn curving backwards.

Second Horn.—15¹/₄ in., curving forwards instead of backwards or being straight, as is usual, and leaning considerably over to the off-side.

Third Horn.—II $\frac{1}{4}$ in. long and $5\frac{1}{2}$ in. wide half-way between base and apex; is flat and perpendicular, and, though a distinct horn, grows out of the off-side of the base of No. 2.

Fourth Horn.—Is a stumpy, abortive horn, 9 in. long, growing partly from the base of No. 3, but quite separate and inclining slightly backwards.

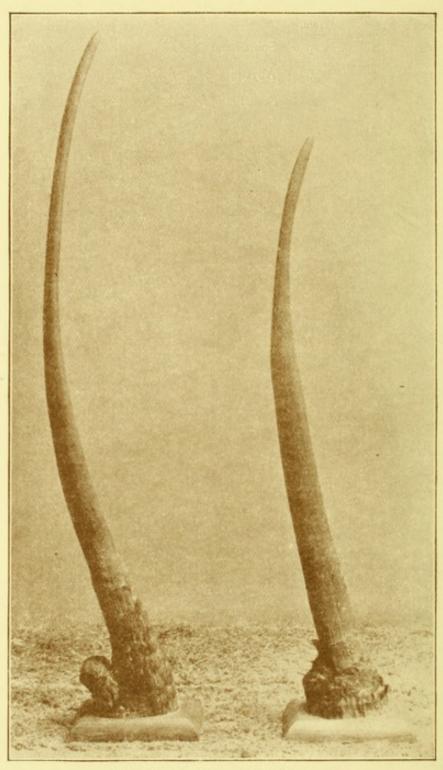
Fifth Horn.—A distinct horn, $9\frac{3}{4}$ in. long, with its own base separated about 3 in. from No. 4.

Distribution.—From Abyssinia and Somaliland through East and Central Africa, in suitable localities, to the Cape. Now rare to the south of the Zambesi, and probably more abundant in the districts between the interior of Somaliland and Lake Rudolf than anywhere else. Although more alert and active than Burchell's rhinoceros, and thus a more dangerous animal, this species is by no means difficult to kill with modern weapons; and in the old days hunters frequently shot half-a-dozen in a single evening as they came to drink at a pool. In spite of its wide distribution, it has not been found possible to split up the species into local races; although this may perhaps be due to the want of sufficient specimens for comparison. The so-called Rhinoceros holmwoodi is a variety of this species.

				*			
Length on outside curve.		Circumference.		Localit		Owner.	
Front Horn.	Rear Horn.	Front Horn.	Rear Horn.	Locant	у.	Owner.	
53½		18‡		East Africa		Dr. C. H. Orman.	
47	221	22	20	Do.		S. L. Hinde.	
$-44\frac{1}{2}$?		Imperial Museum, Vienna.	
44				?		The late F. Holmwood.	
43	***	$2I_{\frac{1}{2}}^{\frac{1}{2}}$?		A. Beit.	
$41\frac{1}{2}$	10	201	161	Zululand .	., .	LieutCol. Hon. W. Coke.	
-41 ¹ / ₄		$22\frac{1}{2}$		Orange River		Major-Gen. Sir William Crossman.	
-4 I				?		Carl Hagenbeck.	
41				East Africa		The late F. Holmwood.	
-40		22		Do.		Berlin Museum.	
40	143	181	201	Mt. Kenia, Eas	st Central	A. H. Neumann.	
-39 ¹ / ₈		211/2		South Africa		J. Lamont.	
38#	***	21	***	?		Hon. Walter Rothschild.	
381		19		Masailand .		Sir John Kirk.	
-38	11	24	$21\frac{3}{4}$	South Africa		Earl of Dartmouth.	
-36				East Africa		Sir Bartle Frere, Bart.	
-35½		18		?		H. Murray.	
♀ 33½		172		Matabililand		W. Van Ness.	
-32½	21	19	15%	Portuguese No Zambesia	orthern	F. Vaughan Kirby.	

Length on outside curve.		Circumf	ference.			
Front Horn.	Rear Horn.	Front Horn.	Rear Horn.	Locality.		Owner
-32	113	197	191	Athi Plains, Ea	ast Africa	Count Scheibler,
31		18		East Africa		R. P. Carroll.
31	192	16	$16\frac{1}{8}$	Do.		H. C. V. Hunter.
-30g	83	181	16§	German East A	Africa .	O. Neumann.
30		201	***	East Africa.		R. Meinertzhagen.
291		183		Somaliland		Julius Jeppe.
$-29\frac{1}{2}$	141		***	Do.		A. H. Straker.
281	***	18	***	South Africa		C. D. Rudd.
281	***	231	444	East Africa	4 4	C. Fendelow.
281	83	181		South Africa		F. C. Selous.
271	17%	21	18	East Africa		H. Hyde Baker.
271	10	21	17	Masailand .		Capt. R. A. J. Montgomerie,
27		201		East Africa		R.N. E. Gedge.
27	161	175	171	Do.		Sir Robert Harvey, Bart.
27	12	***		Do.		Sir John Willoughby, Bart.
$26\frac{3}{4}$	131	22		?		Sir Edmund G. Loder, Bart.
261	101	191	15	East Africa		Henry Charrington.
26	13	201	231	Do.		C. Craig.
26	9	18	17	Do.		Major M. Tighe.
26	10	201	19	Do.		F. W. Belt.
9 25€	17	16	15		f Lake	A. H. Neumann.
251/2	81	$21\frac{1}{2}$	19	Rudolf East Africa		Sir Clement Hill.
258	$9\frac{1}{8}$	178		Do.		F. J. Jackson.
♀ 24½	12	16	17½	Masailand .		Capt. R. A. J. Montgomerie,
231/2	10	203	174	East Africa		R.N. A. E. Butter.
231		21	***	Do.		Hon. Walter Rothschild.
23	21	18	19	Do.		Count E. Hoyos
$22\frac{1}{2}$	141/2	17	161	Somaliland.	14 12	Julius Jeppe.
$22\frac{1}{4}$	10	224	19	Do		Sir H. D. Tichborne, Bart.
22	63	17‡	16	Do		LieutCol. H. D. Olivier.

Length on outside curve.		Circumference.					
Front Horn.	Rear Horn.	Front Horn.	Rear Horn.	Locality.			Owner.
214	118	19	19	Somaliland			J. Kenneth Foster.
218	17	14	16	Abyssinia .			British Museum.
-20½	91	213	195	Somaliland.			Count E. Hoyos.
20	1112	$2I\frac{1}{2}$	18	Do			J. Byng Paget.
20	$6\frac{3}{4}$	$20\frac{1}{2}$	191	Do			Major H. G. C. Swayne.
-20	814	$23\frac{1}{2}$	217	Do			Count E. Hoyos.
13	63	171	161	Abyssinia .			O. Neumann.



Front Horns of Burchell's Rhinoceros.

From specimens in the collection of the late Roualeyn Gordon Cumming, in the possession of Col. W. Gordon Cumming.

BURCHELL'S RHINOCEROS (Rhinoceros simus).

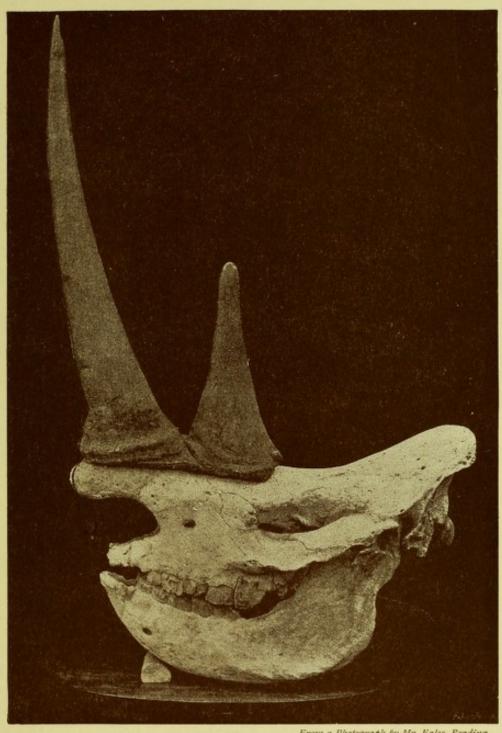
Next to the Indian elephant this is the largest mammal that has trodden the earth in modern times. Its huge bulk, bluntly truncate muzzle, which has no prehensile tip, the great length of the skull, and the enormous front horn, with its expanded base, form the most striking external characteristics of this species. The cheek-teeth are of quite a different type of structure from those of the preceding species, being, in fact, adapted for chewing grass. In walking, the animal carried its head low, so that in examples in which the front horn bends forward, its tip became worn by being pushed along the ground. It is difficult to surmise the reason for the application of the name "white rhinoceros" to this species.

Distribution.—South and South-East Africa, in suitable localities, as far north as the Zambesi; and again in Central Africa at Lado, on the equator. Exterminated early in the last century to the south of the Orange River; and now represented in South Africa at the most by a few survivors in North-East Mashonaland, and possibly by others in the reedy swamps at the junction of the Black and White Umvolosy rivers. Between the Zambesi and Orange rivers the species was abundant less than half a century ago; Andersson alone having killed sixty in the course of a few months. When it was supposed to be all but exterminated, its existence in the neighbourhood of Lado was made known by Major Gibbons. This northern form may prove to be a distinct race.

Length on outside curve.		Circumference.						
Front Horn.	Rear Horn.	Front Horn.	Rear Horn.	Locality.			Owner.	
-62½		221		South Africa			Col. W. Gordon Cumming.	
561/2		23½ about		Do.			British Museum.	
-521/2		211		Do.			Col. W. Gordon Cumming.	
44		20		?			British Museum.	
434		234		South Africa			A. Beit.	
$42\frac{3}{4}$			255	Limpopo			The late W. C. Oswell.	
-41				South Africa			J. W. Fitzherbert.	
404		294	***	Do.			Sir Edmund G. Loder, Bart.	
401		203		?			Hon. Walter Rothschild.	
-40½		$22\frac{1}{2}$		South Africa			Sir Edmund G. Loder, Bart.	

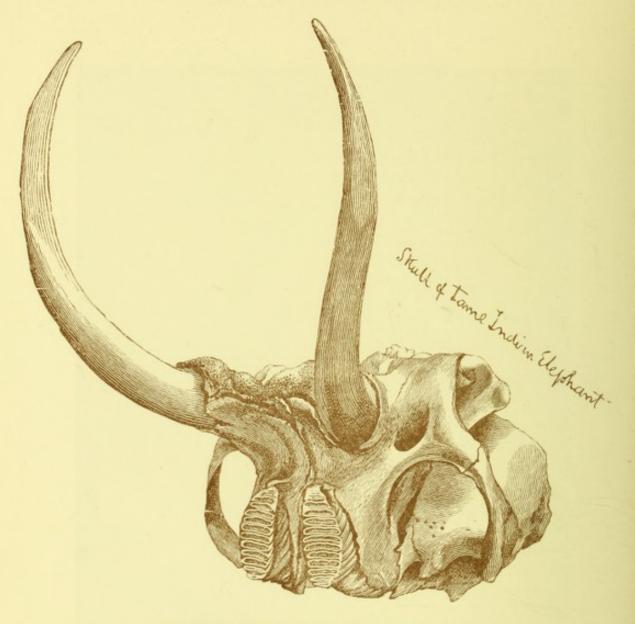
Lengt		Circumfe	erence.		
Front Horn.	Rear Horn.	Front Horn.	Rear Horn.	Locality.	Owner.
40		154		South Africa .	. British Museum.
391	***	23		?	Lord Delamere.
-39					A. Ohlsson,
♀ 38§		$24\frac{1}{2}$?	The late W. C. Oswell.
38‡	·	221		?	J. B. Taylor.
378	178	27 18		Mashonaland .	F. C. Selous.
37 🖁	***		***	?	C. Fendelow.
371	***	24		South Africa .	. British Museum.
-363		201		?	Berlin Museum.
36		281		Mashonaland .	. C. D. Rudd.
36		25 lbs.		?	Rev. V. R. Carter.
1 35⅓	78	26	21	Mount Domo, Ma	
35		28		shonaland ?	Cecil Rhodes). C. Fendelow.
-331	***	23		?	Julius Jeppe.
33	138	231	222	Mashonaland .	. F. C. Selous.
32	13	271	251	Near Lado .	. Capt. the Hon. M. P.
3118	***	191	***	?	Macnaghten. Mr. Justice Hopley.
31		24		Zululand	. Lieut,-Col, Hon, W. Coke.
31		22		Mashonaland .	J. G. Griffiths.
304		254		White Nile .	. Capt. C. J. Hawker.
-303		251		South Africa .	. Col. H. B. H. Blundell.
1 ♀ 29¾	51/2	23	201	Zululand .	. Pretoria Museum (Julius Jeppe).
1 29	10	25	23	White Nile .	. Major R. M. Sanders.
275	12	224	181	Zululand .	. Julius Jeppe.
27	113	308	25	Do.	. Sir Edmund G. Loder, Bart.
$26\frac{1}{2}$		215	***	White Nile .	. MajGen. Sir F. R. Wingate.
1 22 1	$7\frac{1}{2}$	26‡		Mashonaland .	. Hon. Walter Rothschild.
2114		183		Sudan	. Capt. J. G. A. Massy.
1 20%	7	284	-01		British Museum.
1 20	6	25½	181	Zululand .	. H.R.H. le Duc d'Orléans.

¹ Mounted specimens.



From a Photograph by Mr. Eales, Reading.

Skull and Horns of Burchell's Rhinoceros. Shot by F. C. Selous in Mashonaland, 1880.



INDIAN ELEPHANT (Elephas maximus).

In general a decidedly smaller animal, the Indian elephant differs from its African relative not only in external form, but also in the structure of its molar teeth, which are composed of a greater number of much thinner vertical plates. The females, as a rule, have only very small tusks, not projecting beyond the jaw; and in some cases those of the males are equally poorly developed. Five nails are usually present on the fore-feet, and four on the hinder ones. Externally, the most characteristic distinction is the comparatively small size of the ears; next to which comes the presence of a finger-like process on the front edge only of the tip of the trunk; the African species having one in front and a second behind. The skin is nearly smooth; and the

bristles on the tail are confined to the front and back edges for some distance above the tip. Other noticeable points are the comparative flatness of the forehead, and the regular convex form of the back, as well as the perfect flexibility of the trunk, which may be compared in structure to an india-rubber tube. Although males do not generally exceed 9, and females 8 feet in height, specimens have been killed measuring 9 feet 10 inches, 10 feet 1 inch, and 10 feet $7\frac{1}{2}$ inches, while one is stated to have reached 11 feet, and there is evidence of still larger individuals, perhaps of 12 feet.

Distribution.—The forest districts of India, Ceylon, Assam, Burma, Malay Peninsula, Siam, Cochin China, Sumatra, and Borneo. The Sumatran elephant may possibly form a peculiar local race.

Height.

At Shoulder.			I	.ocali	ty.		Owner.	
ft. -11	in.	Mysore						Viscount Powerscourt.
-10	6	Burma						H. Shaw Dunn.
-10	4	Gurhwal,	N.W	.P.				Col. J. E. Campbell.
-10	1	Ceylon		*				James J. Harrison.
-10	1			?				Major-General A. A. A. Kinloch.
-9	8	Southern	India					F. Gompertz.
-9	7.	Mysore	,					The late G. P. Sanderson.

Tusks.

side	th out- curve.	Greatest cir- cumference. ins.	Weight.	L	ocality	7-	Owner.							
-8	9 R	174	81	Assam			٠	The late Lord Lytton.						
-8	9			Burma				Government House, Rangoon.						
-8	6			Do.				Do.						
-8	2 L		80-2	Assam				The late Lord Lytton.						
8	0	167	90	S. India				Sir Victor Brooke's Collection.						
17	38	17½	102	Burma				Marquis of Waterford.						
. 7	31	178	971	Do.				Do.						
6	6	15\frac{1}{2}\\ 15\frac{1}{2}\\ \]	106	Do.				R. Gordon Smith.						
6	10	171	65§	India				Bethnal Green Museum (J. D. Goldingham).						

¹ The tusks of the sacred white elephant from King Thebaw's Palace, Mandalay.

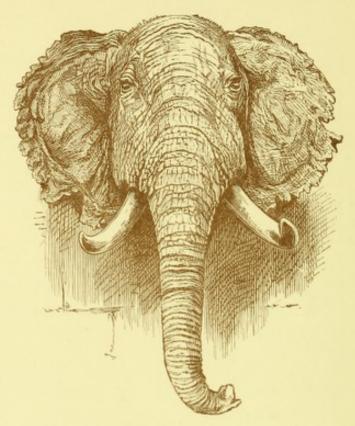
Length out- side curve.	Greatest cir- cumference.	Weight.	Locality.	Owner.
ft. ins.	ins.	lbs.		
-6 8	184	84	Burma	H. Shaw Dunn.
-6 8		77‡	Madura District, S. India	Col. G. M. Payne.
6 7½	148	521	Mysore	Viscount Powerscourt.
-6 7	121/2	46½	Yala, S. Provinces, Ceylon	Major R. J. Marker.
6 5	183	83	Burma	H. Shaw Dunn.
-6 4			Assam	G. H. Moore.
$-6 3\frac{1}{2}$	144	731	Madura District .	British Museum (Col. G. M. Payne).
6 o½ 5 8		109	S. India	F. Gompertz.
6 0		50	Madras	J. Fortune.
-6 0		100	?	The late Charles Redde, P.Z.S.,
-5 10	***		Borneo	1886, p. 184. C. M. D. Stewart.
5 81	152	$42\frac{1}{2}$	Dacca	Dalrymple Clark.
5 8	214	***	Burma	H. A. Kelso.
5 7			Do	Do.
5 6	$15\frac{1}{2}$	$42\frac{1}{2}$	Dacca	Dalrymple Clark.
-5 3	15	42	Ceylon	W. S. Murray.
-5 $1\frac{1}{2}$	15	35	Travancore	Hon. E. Stonor.
5 0½ 4 10	***	35 32½	Do	Capt. G. H. Evans.
-5 o			Burma	T. Mumford.
-5 o			Do	Capt. Cosens.
4 10	151	321/2	Travancore	
4.10			Burma	H. Wood.
4 10	14		Durma	11. 11000.
$\begin{pmatrix} 4 & 6\frac{1}{2} \\ 4 & 5 \end{pmatrix}$			Assam	Capt. F. B. Stapleton-Bretherton.
-4 7	13		Travancore	J. D. Rees.
4 6	15		Do	Lord Wenlock.
4 41/2	15	***	Do	Do.
13 113	121	294	Yala	Major R. J. Marker.

¹ Broken end, pair to 6 ft. 7 ins.

Feet.

Circumference at base.	Width at bottom, back to front.	Locality.		Owner.
-67½		From living ele	phan	at, by Major-Gen. G. W. Hanson.
621	***	South Arcot District		J. Fortune.
61	20	Travancore .		LieutCol. D. M. Lumsden.
-60½		India		Major-Gen. A. A. A. Kinloch.
60	18	Mysore		Viscount Powerscourt.
-60		Gurhwal		B. B. Osmaston.
-591/2		Do		Do.
581	18	Travancore .		Capt. H. L. Cottingham.
58	19	Assam		Capt, F. B. Stapleton-Bretherton.
-58	***	S. India		F. Gompertz.
58	18	Travancore .		Hon, E. Stonor.
57%	19	Assam		H. C. Holland.
1-57½	17	Ceylon		R. Gordon Smith.
571	181	Assam		D. D. F. Hosack.
-56		Ceylon		E. J. Brooke.
56	17	Do		G. M. Norrie.
-56	18	Do		Sir Peter Walker, Bart
-56	17½	Do		T. H. Mann.
55⅓	181	Travancore .		Lord Wenlock.
² 55	17	Gurhwal		B. B. Osmaston.
55	17	N.W. Provinces .		Capt. G. O. Bigge.
54 ³	18	Pyinmana		H. Partridge.
541		Burma		R. Gordon Smith.
54½	17½	Ceylon		H. Storey.
544	17	Burma		Capt. R. A. Gray.
541	161	Kakhenkote .		Capt. H. B. Wilkinson.
533	184	Ceylon		Col. W. H. Walker.
-53	181	Burma		Capt. G. Evans.

Measurements 54 ins. × 17 ins. when dried.
Measurements 59½ when shot.



Head of African Elephant.

AFRICAN ELEPHANT (Elephas africanus).

Arb of the Gallas. Dakana of the Abyssinians (Dan- Thlo in Ngamiland. akil). Marodi of the Somalis.

Tlo in Barotsiland. Zahon of the Abyssinians. Temba of the Swahilis.

Njovu in the Chilala and Chibisa countries.

The African elephant, although still abundant in many regions of Central Africa, in the southern part of the Continent is rapidly approaching extinction. A very remarkable exception to this melancholy process of extermination is, however, to be found in the south and east of Cape Colony, where, since the year 1830, wild elephants have been systematically preserved by Government. Strong troops of these protected elephants still roam the dense and impenetrable jungles of the Addo Bush and the Knysna and Zitzikamma forests. Farther inland the ivory-hunters have for a generation past been so actively employed, that, despite the vast numbers of these great mammals which forty or fifty years ago thronged the interior from the Orange

River northwards, but few troops are now left south of the Zambesi. In all Khama's country of Bamangwato, for instance, where Gordon Cumming, Oswell, and others shot most of their elephants, only one solitary herd remains!

	lder	Total length (trunk to end of tail).	Girth of fore-foot.	Local	lity.		Owner.
	in. 81	ft. in.	ft. in.	Abyssinia .			H. Weld-Blundell.
-11	og					*	
-11	6	***	4 10	Near Wadelai			E. S. Grogan and G. A. S. Cape.
-11	I	17 3	4 11	Mozambique			James J. Harrison,
-11	I		5 4	Toro, E.C.A.			E. S. Grogan.
-11	0			British Central	Afric	a	G. Le H. K. B. Ritchie.
-10	10			White Nile			Major R. M. Sanders.
-10	9	1 12 8	5 0	Lake Rudolf			A. H. Neumann.
-10	8		5 0	Mozambique			F. Vaughan Kirby.
-10	8		4 10	Tana River			Major H. De Prée.
10	7	'Jumbo'	***	?			Barnum and Bailey.
-10	$6\frac{1}{2}$	16 9	4 10	Mozambique			F. Vaughan Kirby.
-10	6		4 8	Tana River			Capt. C. Hankey.
-10	6			S.E. Africa			F. C. Selous.
-10	3	21 0	5 1	Nyasaland			Capt. Sir John Kirk.
-10	0	23 5		South Africa			H.R.H. the Duke of Saxe- Coburg and Gotha.
-9	71		4 6 ^a / ₈ (dried)	Somaliland			Viscount Edmond de Poncins.
9	5			Abyssinia .			A. E. Butter.

¹ Length from root of tail to eye, in straight line.

TUSKS.



From a photograph by Mr. J. R. W. Pigott.

The Big Tusk (8 ft. 7½ in., 165 lbs.) presented by the Officers serving in British East Africa to H.R.H. the Prince of Wales on the Occasion of his Marriage.

Length out- Greatest cirside curve. cumference.

Weight.

Locality.

Owner.

Tusks.

	ngth curve).	Greatest circumference.	Weight.	Locality.			Owner.
ft.	in.	in.	lbs.	Part ACC			DOLL M
10	21/2	241	2261	East Africa .			British Museum.
9	10	19‡	247	Do			Charles Pulley.
9	5)	19					
9	51/2	183	120	Tana River .			Major H. De Prée.
9	0)	184	117	Do.			Do.
9	5	22 ¹ / ₂	184	?			Sir Edmund G. Loder, Bart.
9	4	201/2	160	E. Africa .			Sir John Kirk.
(tip bi	4	18	110	Do.			Duke of Westminster.
-9	4		151	Elgayu, E. Afr	ica		F. J. Jackson.
9	31	183	***	Tana River			Sir Robert Harvey, Bart.
-9	3		129	?			F. J. Jackson.
9	2 ⁸ 4	20		Tana River			Sir Robert Harvey, Bart.
19	0)	213	161	Do.			H.R.H. the Prince of Wales.
18	11	22 ¹ / ₂	167	Do.			Do.
9	0	181	116	N. of Lake Ruc	dolf		A. H. Neumann.
9	0	21	150	Africa .			Sir Edmund G. Loder, Bart.
9	0	181	116	N. of Lake Ru	dolf		A. H. Neumann.
-8	11	188		Gallaland			Measured by Viscount Edmond de Poncins.
8	11	171	90	?			Bethnal Green Museum (H.M. the late Queen Victoria).
-8	11	181	110	Mt. Elgon, E.	Afri	ca	Major J. D. Ferguson.
-8	9 5	181	108	Do.			Do.
8	10	18	105	East Africa			Lord Delamere.
-8	91/2		102	Tana River			Major H. De Prée and Capt. C. Hankey.
-8	0		91	Do.			Do.
8	71/2	224	165	East Africa			H.R.H. the Prince of Wales, K.G.
8	6	181	100	Do.			Lord Delamere.
8	5	234	175	Uganda			Graham Pownall.
8	5	194	1392	Bahr-el-Gebel			Major R. M. Sanders.

¹ Presented by H.H. Aga Khan.

	ngth le curve).	Greatest circumference.	Weight.	Locality.		Owner.
ft.	in.	in.	lbs.			
8	14	193	137	Bahr-el-Gebel .		Major R. M. Sanders.
8	4	***	76	M'bogo .	*	E. S. Grogan.
-8	31/2	***	125	E. C. Africa		Major M. L. Hornby.
-8	0)	441	1272	Do		Do.
8	3	184	811/2	East Africa .		Capt. T. W. Greenfield.
8	2	$18\frac{3}{4}$	80	Do		Do.
-8	1	23	137 ½	Toro		E. S. Grogan.
8	1	20]	114	N. of Lake Rudo	olf .	A. H. Neumann.
8	0	22	***	East Africa .		Major M. Tighe.
7	113	211	138	E. C. Africa .		A. H. Sharp and E. S. Grogan.
7	11	17§	90	White Nile .		Capt. E. R. Whishaw.
7	0	17	80	Do		Do.
7	103	171	82	Tana River .		Capt. C. Hankey.
7	2	171	79	Do		Do.
7	101	20	113	Upper Nile .		Douglas M'Douall.
- 7	151	20½	108	Do		Do.
7	10	195	107	East Africa .	-	A. H. Neumann.
-7	9			M'bogo		E. S. Grogan.
7	81	231	160	Africa		Chalmers, Guthrie, and Co.
-7	8)	***	108	Gallaland .		Dr. Donaldson Smith.
7	6		100	Do	21	Do.
7	6	17		?		Duke of Westminster.
7	31	19½	102	East Africa .		BrigGen. Sir F. J. D. Lugard.
-7	3)	183	80	Tana River .		Capt. C. Hankey.
7	11/2	181	75	Do		Do.
7	01/8	17 %	60 (about)	Kilimanjaro .		F. J. Jackson, C.B.
7	0)	21	(about)	Wadelai .		Major M. L. Carleton.
6	3 5	16½	60	Do		Do.
7	0	18 (about)	***	South Africa .	*	Lord Chelmsford.

Length (outside curve).		Greatest circumference.	Weight.	Locality.	Owner.					
ft. 7	in.	in. 20½	lbs.	Upper Nile	Capt. M. F. Gage.					
6	9 }	20	III	Do	Do.					
-6	10)		106	Sudan	Capt. C. J. Hawker.					
-6	2		96	Do	Do.					
6	10)	19‡	80	Upper Nile	Lieut. W. B. Drury, R.N.					
6	91	191	80	Do	Do.					
6	9	181	81	Uganda	C. Craig.					
6	9	171		Kilimanjaro	F. J. Jackson.					
6	8	17	74	?	Julius Jeppe.					
6	7	16½		South-East Africa .	F. C. Selous.					
6	6)									
6	4	151/2		B. C. Africa	R. H. Storey.					
96	51/2	121/2		N. of Lake Rudolf .	A. H. Neumann.					
6	41/2	171		East Central Africa.	H. S. H. Cavendish.					
6	$4\frac{1}{2}$	191		Upper Nile	P. B. Vander-Byl.					
5	11]	201		Do	Do.					
-6	4	19	65	Lake Mweru	Poulett Weatherley.					
6	3½	18	60	East Africa	C. Steuart Betton.					
6	I	7½		Masailand	Sir John Kirk.					
(spira	1 tusk) 5½	184		Near Wadelai	Capt. R. A. Markham.					
5	21	19		Do	Do.					
5	0)	144	49	Abyssinia	A. E. Butter.					
4	8 5	144	47	Do	Do.					
4	11	15	26	Somaliland	A. H. Straker.					
4	91/2	148	33½	Do	Capt. E. W. S. Brooke.					
4	81	131/2		Do	Sir Edmund G. Loder, Bart.					
4	5	121/2		Somaliland	Lord Delamere.					
4	4	134	26	Do	Major J. M'Call Maxwell.					

Feet (see also page 453).

Circumference at base.	Width at bottom, back to front.	Locality	y.		Owner.
64	201	Toro			E. S. Grogan.
62	20	East Africa			C. Craig.
-60 ³		Somaliland	4		Capt. M. S. Wellby.
60	19	Wadelai .	7.7		Major M. L. Carleton.
583	19	East Africa	,		Capt, Neill Malcolm.
581	19	E. C. Africa			H. S. H. Cavendish.
-58	21	Tana River		-	Major H. De Prée.
$-57\frac{1}{2}$	21	Lake Mweru		*:	Poulett-Weatherley.
56½	181	B. C. Africa	*	*	C. B. C. Storey,
-56		Upper Nile		4.1	Capt. C. A. Sykes.
54	111	Kilimanjaro			F. J. Jackson.
-54	17	Somaliland.			Count E. Hoyos.
53	17	Do	,		Capt. J. M'Call Maxwell.
-51		Gallaland .	*	**	Viscount Edmond de Poncins.
50	17	South Africa		*	F. C. Selous.
491	17‡	Do.	*	*	Do.
$49\frac{1}{2}$		Abyssinia .			A. E. Butter.

MAMMOTH or SIBERIAN ELEPHANT (Elephas primigenius).

Nearly allied to the Indian elephant, but the plates of the teeth still narrower and more numerous, the tusks spirally twisted, and the skin clothed in woolly fur with long bristles intermixed.

Remains of this species occur in the superficial deposits of Europe and Northern Asia. In the frozen soil of Siberia the skin, flesh, and hair are frequently preserved, and the ivory is often suitable for the purposes of the turner.

Length (out- side curve).	Greatest Circum- ference.	Weight.	Locality.	Owner.
ft. in. 12	in. 19	lbs.	?	Hon. Walter Rothschild.
11 5	173		?	Do.
11	20%	173	Siberia	. Sir Edmund G. Loder, Bart.

LION (Felis leo).

Ambassa of the Abyssinians.

Asced of the Arabs.

Imbubi of the Swazis and Zulus.

Lendjandnēk of the Gallas.

Libbah of the Somalis.

Libbaka of the Abyssinians (Danakil).

Mkango or Nkalamo in the Chilala and Chibisa countries.

Simba of the Swahilis.

Tau of the Basutos.

Tauw in Barotsiland.

Tauw in Ngamiland.

Zaki of the Hausas.

Any description of such a familiar animal as the lion (the only cat in which the male is furnished with a mane on the head and shoulders, and a tuft of long hair to the tip of the tail) would obviously be superfluous here. One of the great points of interest attaching to the species is its wide geographical distribution. Several local races are now recognised. Somali lions, for instance, are smaller and greyer than those from either the Cape or Algeria, although their manes are often very fine. Heights of 3 feet $4\frac{1}{2}$ and 3 feet 8 inches at the shoulder have been recorded in African specimens (the larger measurement by F. C. Selous), and 3 feet 6 inches in an Indian example (by Gen. W. Rice). General Paget estimated the weight of a Somali lion at about 550 lbs. Wild lions never develop the enormous manes frequently seen in menagerie examples.

A lion skull may be easily recognised when placed beside that of a tiger by observing that in the lion all the terminations of the sutures of the skull on the frontal are almost level; in a tiger the nasal bones extend much further back—besides this a lion skull will stand much flatter on a table than that of a tiger.

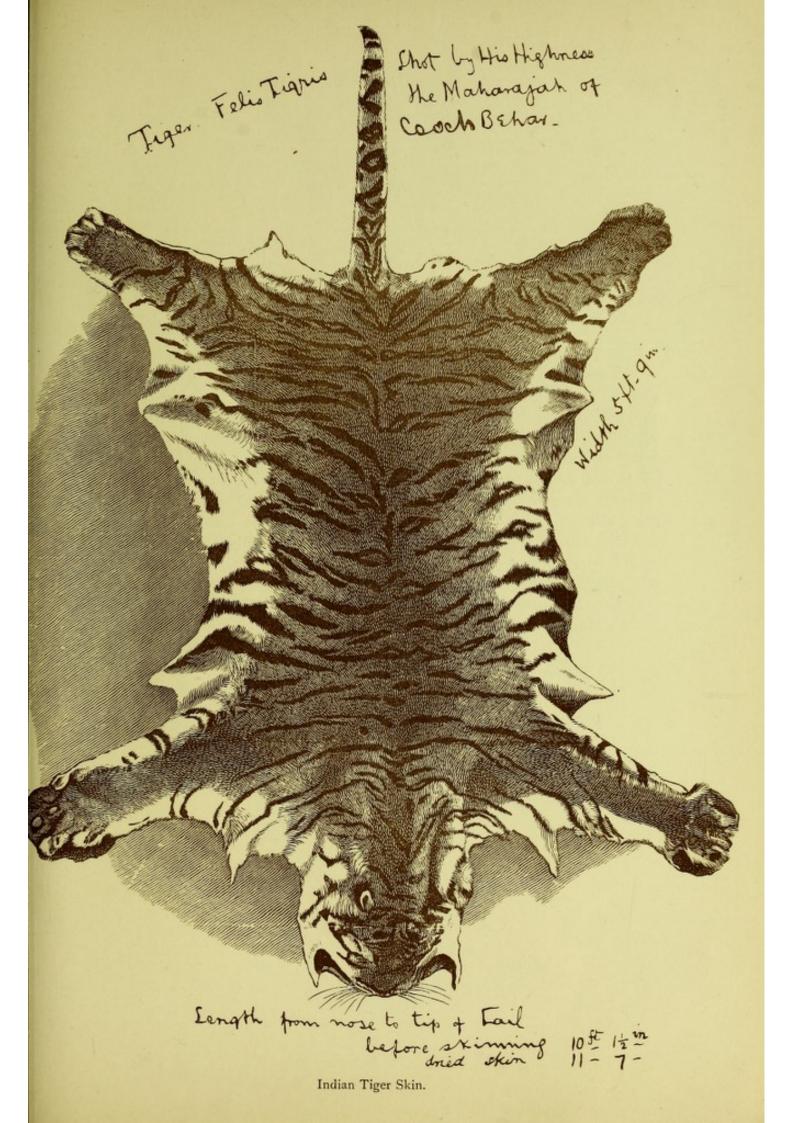
Distribution.—In modern times Africa from Algeria to the Cape, Mesopotamia on the west flanks of the Zagros range, Persia south of Shiraz, and India in the districts of Kathiawar, Sind, the Central Provinces, and Bundelcund. Now very rare in India, where it appears to be confined to Kathiawar.

General Measurements.

Owner.	F. Vaughan Kirby.	Do.	Count T. Zamoyski.	W. Yellowby.	F. C. Selous.	Norman B. Smith.	Capt. R. A. J. Montgomerie,	Sir John Willoughby, Bart.	Major A. St. H. Gibbons.	The late Capt. J. Johnston	A. E. Leatham.	R. G. Beswick.	Prince Henry of Liechten-	stem. James J. Harrison.	LieutCol. J. H. Patterson.	Capt. M. M'Neill.	Lord Harris,	Prince Henry of Liechten-	S. Robins.	LieutCol. L. L. Fenton.
Locality.	S. E. Africa .	۸.	Somaliland .	Edmund's	Hartley Hills,	British East Africa	Do.	Mashonaland .	Mushukulumbwe	Somaliland .	Do.	Zomba	East Africa .	Oliphant River .	British East Africa	P. E. Africa .	Kathiawar .	East Africa .	B. C. Africa .	Kathiawar .
Description.	Full black mane			Fine mane .	Do.	Do	Do.	Fair mane .	Full black mane	Yellow and black	Do.	Full yellow mane	:	Yellow mane .	None	Fine mane .	Do.	1	1	Fine lioness .
Weight.	: B	:	:	434	410	:	516	:	1	:	:		-	:	I	:	1	1	:	:
Girth behind shoulder.	.d :		1.	57	:	:	512	:	49 [§]	1	:	:	:	:	1	45		:	49	:
Girth of forearm.	.d :	20	:	22 (upper arm)	:	164	191	:	-	:	:	154	:	:	1	$21\frac{1}{2}$		1	19	:
Height at shoulder.	ft. in.	-	:	3 6	3 8	3 7	3 6	:	3 7	:	1	3 41/2	1	:	3 9	:	:	:	:	:
Skin measure- ment from tip of nose to tip of tail.	ft. in. IO IOI (raw)	4 11	1	:	(max)	11 54	Io 8 (dressed)		12 14 (raw)	10 10	9 11	::	:	:	:	:	:		:	1
Length from nose to root of tail.	. in .	7 2	1	01 9	:	:	8 9		:	7 04	:	§ 64	01 9	1		1	:	£8 9	10 5	9 9
Total length before skinning.	in. 5 (A)	4	4	0	-9 11 (c)	11	(a) FOI 6-	10	(н) от 6-	01	-9 IO(K)	00	8.13	00	00	7	7 (L)	7	9	5
Total before si	-IO -	-10	-10	-10	6-	11	6-	-9 10	6-	-9 10	6-	6-	6-	6-	6-	6-	6-	6-	6	9

Skulls.

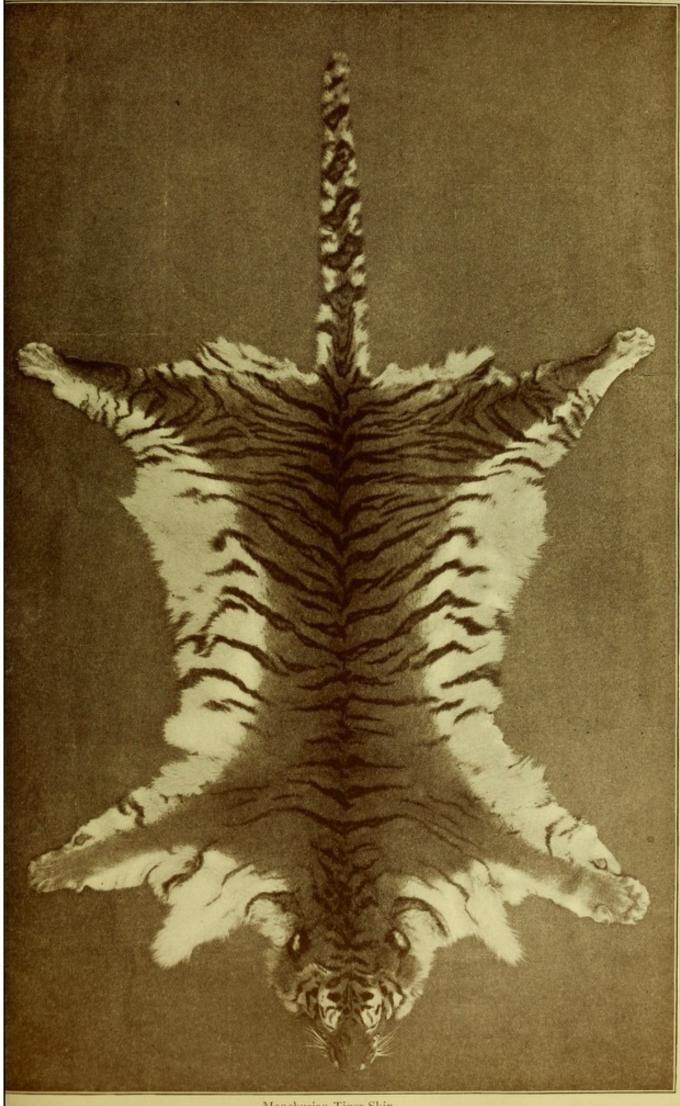
Basal length from back to front.	Width across the zygomatic arches.	Weight cleaned.	Locality.	Owner.
16½ (A)	10		South-East Africa	F. Vaughan Kirby.
16	101	5 lbs.	East Africa	E. Gedge.
(end broken) -16	101		?	P. C. Keytel.
-15%	94	6 lbs.	South Africa .	J. Lamont.
15½ (D)	100	5 lbs. 3 oz.	East Africa	Capt. R. A. J. Montgomerie,
15½	94		Pungwe	R.N. Hon. T. Thynne.
-151	91		East Africa	S. L. Hinde.
-15‡ (H)	94		Mushukulumbwe .	Major A. St. H. Gibbons.
15	10		Mashonaland .	Basil H. Woodd.
-15	10		Somaliland	J. D. Inverarity.
15	10		Benguela	G. W. Penrice.
15	9½		Beira	H. T. and A. H. Glynn.
15	9½		?	H.R.H. le Duc d'Orléans.
15	10		Somaliland	Major-Gen. Arthur Paget.
15 (C)	10	5½ lbs.	South-East Africa	F. C. Selous.
$-14\frac{18}{16}$	916		Portuguese East	Capt. M. M'Neill.
$14\frac{3}{4}$	101		Africa East Africa	Lord Delamere.
14%	9	***	South-East Africa	H. M. von Archer.
148	9		Matabililand .	Capt. Sir K. Fraser, Bart.
145		***	Nigeria	N. J. Dodd.
141/2	93	4 lbs.	South Africa .	Sir Edmund G. Loder, Bart.
141/2	91/2		Do	Julius Jeppe.
$-14\frac{1}{2}$	10		East Africa	Norman B. Smith.
1415	91		Matabililand .	Capt. Sir K. Fraser, Bart.
14‡ (G)	94	***	Somaliland	Capt. G. Campbell.
$-14\frac{1}{4}$	98	***	East Africa	E. Wynstone Waters.
141	97		Somaliland	LieutCol. J. W. H. Flanagan.
-14½ (K)	$9\frac{1}{4}$		Do	A. E. Leatham.
9 14₺	83		South-East Africa	F. Vaughan Kirby.



TIGER (Felis tigris).

A much less noisy animal than the lion, the great striped cat of Asia is also a more variable species, of which at least three local races may be recognised. First, we have the typical Bengal tiger, a large, long-limbed, lithe, and short-haired creature. A much smaller and rougher-haired race (F. tigris virgata) inhabits the Caspian provinces of Persia, and it is probably this form that extends into the Caucasus. Thirdly, we have the Manchurian tiger (F. tigris longipilis), characterised by its large size, heavy build, short limbs, and the great length and thickness of the fur, which is often much less fully striped than in Indian specimens.

Distribution.—From the Caucasus through Northern Persia, India, Assam, Burma, the Malay Peninsula, Sumatra, Java, and China, to Manchuria and Amurland. In India ranging from an elevation of some 7000 feet in the Himalaya to Cape Comorin, but unknown in Ceylon.



Manchurian Tiger Skin.

General Measurements.

Owner.	Col. Evans Gordon.	H.I.M. the Sultan of Turkey.	A. Wilson,	His Majesty the King.	A. M. Markham.	W. Holland.	Capt. S. H. Pollen,	H.H. the Maharajah of Cooch-Behar.	A. M. Markham.	Lord Curzon.	H. H. the Maharajah of Cooch-Behar.	Sir E. L. Durand, Bart, C.B.	H.H. the Maharajah of Bikanir.	Otho Shaw.	H.H. the Maharajah of Cooch-Behar.	Do.	Miss Pole.	Capt. Hugh Fraser.	James J. Harrison.	LieutGen. Sir G. Luck.
Locality.	Ramshai Hâb,	Assam Frontier .	Nepal:	Cooch-Behar .	Bijnor, N.W.P.	Kanara, B.P.	Duars	Cooch-Behar .	Patli Dun, N.W.P.	Nepal	Cooch-Behar .	Nepal Terai .	Central Provinces	~	Cooch-Behar .	Do	Terai	Cooch-Behar .	Central Provinces	Terai
Weight.	lbs. 491	1	;	504		:	:	487	:	:	530	-	:	:	462	009	1	:	:	:
Height at shoulder.	ft. in.	:	:	3 5	3 6	:	- 1	3 4½	3 4	:	3 3½	:	:	:	3 48	3 88		:	:	
Head.	36	;	:	36	39	:	:	364	324	:	384	:	:	:	38	403				
Girth. Fore-	ft. 19½	:	1	184	21	:	:	194	194	i	20	:	:	:	134	21	:	:	:	***************************************
Upper	ft. 25	1	:	56	:	;	:	29	-	:	263	:	1	1	282	29	:	:		:
Girth of body.	inches. 56½	1	52	51	52	:	:	52	46	1	484	:	0	:	513	54		1	:	777
Length dressed.	ft. in. 12 I	8 11	1	12 10	$12 2\frac{1}{2}$:	:	12 1	12 2	:	i	1	1	1	12 4	11 7	10 5	01 11	:	
Length of body.	ft. in. 7	1	1	11 9	7 13	1		7 13	1 1	:	0 4	i.	1	:	01 9	7 12	:	1	:	
Length before skinned.	ft. in. -10 7(A)	9 01-	-10 5½	-10 5	-10 4	-10 4(D)	10 4(F)	-10 3	-10 3(c)	-10 3	$-10 2\frac{1}{2}$	$-10 2\frac{1}{2}$	-10 2	-10 2	-10 14	-10 11	-10 1½	-10 I	-10 1	-10 1

H. Bliss.	E. R. Henry.	H.H. the Maharajah of Cooch-Behar,	R. Nolan.	J. Reed.	Sir Edmund G. Loder, Bart.	Count E. Hoyos.	Do.	A. E. Leatham.	A. Ezra.	Capt. S. H. Pollen.	Capt. Hon. R. H. Marsham and	Lieut, Sutton. Major B. B. Russell.	A. M. Rotheram.	Prince A. Taxis.	James J. Harrison.	Major F. C. Pearson.	Capt. C. E. G. Norton and Capt.	Sir K. Fraser, Bart. LieutCol. R. W. Mapleton.	Count E. Hoyos.	LieutCol. B. D. Möller.	Major J. H. Gwynne.	Lieut-Col. L. L. Fenton.
Rewa, C.P	۸.	Cooch-Behar .	Terai Forests,	Central Provinces	Nilgiri Hills .	Cooch-Behar .	Rewa, C.P	Nepal	Cooch-Behar .	Do	Hyderabad	Nepal Terai .	Hyderabad, Deccan	Central Provinces	Do.	Do.	Hyderabad, Deccan	Central Provinces	Cooch-Behar	Terai	Philipil	North Kanara
	:	540		:	:	:	:	:	508	200	. :	:	:	:	:	:	. :	:	:	1	:	:
***		3 4	:	:	:	3 34	:		3 4	:	3 9	:	:		1	-	3 34	:		:	:	:
	;	36	:	:	:	37	:	:	$39\frac{1}{2}$:	:	1		:	:		344	:	:	:	_:	1
****	:	21	:	1	:	204	1	:	194	:	:	1	:	:	:	1	17	:	:	:	:	:
	. :	56	-:	:	;	284	:	:	29	:				:	:	:	242	:	:	:	:	:
99	:	52	:	:	:	\$of	54	:	54	:	:	:		1	1	:	48	:	:	45	:	:
12 6	11 111	:	12 2	:		:	11 2	II II		12 10		*!	8 11	:		12 11	:	6 01		:	:	:
	:	11 9	1	:	:	6 9	9 9	:	11 9	₹01 9	:	9 9	:	1	:	1	:	1	8 9	:		8 (B)
F0	O. 2		(3	0		1	-	I			0	0	0	0	6	6	82	100	00	00	8	8 (B
-10 of	-10 Ol	-10	-IO(E)	10 0	-10	1 6-	11 6-	11 6-	1 6-	1 6-	01 6-	01 6-	-9 10	01 6	6 68	6	-9 84	6	6-	6-	6-	6
-	1	-	-		-										1							

Owner.		BrigGen. F. H. Whitby.	Count E. Hoyos.	Hyderabad, Deccan Major G. A. L. Carew and Lieut.	Col. G. L. Holdsworth. Major Frank Lee.	Lord Villiers.	W. J. R. Wingfield.	Count Scheibler.
Locality.		~	Rewa, C.P	Hyderabad, Deccan	Deccan	Cooch-Behar .	Deccan	Cooch-Behar .
Weight.	lbs.	:	1	1	:	:	:	420
Height at Weight.	ft. in.	:	:	:	:	:	:	3 25
Head.	ft.	:	:	:	:	35	43	321
Fore.	n.	:	:	:	:	15	17	18
Upper arm.	ft.	:	:		:	20	:	26
Girth of body.	inches.	:	:	:	:	42	:	49
Length dressed.	ft. in.	:	:	:	9 01	:	:	10 4½
Length of body.	ft. in.	:	6 3	1	:	-99 5½ 6 2½	9 5½ (G)	-9 5 6 4 10 4½
gth sed.	ft. in.	00	9 6-	9	9	5 2	5.2	2
Length before skinned.	j.	6-	6-	6-	9 6-	68-	6	6-

Skulls.

	Y 1.1		Dituits.		
Basal length from back to front.	Breadth across the zygomatic arches.	Weight cleaned.	Locality.		Owner.
-15 4		lbs. oz.	Cooch-Behar .		H. H. the Maharajah of Cooch-Behar.
-15%	II	***	?		Col. A. Pollock.
-151	107		N.E. Bengal .		A. M. Murdoch.
15%	101		Cooch-Behar .		Lord Stavordale.
-15 (A)	103		Bengal		Col. Evans Gordon.
15	104		?		Rowland Ward.
14 ⁷ / ₈ (F)	10		Duars		Major S. H. Pollen.
141	94	4 10	Do		Sir Edmund G. Loder, Bart.
14½ (G)	108		Deccan		W. J. R. Wingfield.
$-14\frac{1}{2}$	10		Terai		Bombay Natural History Society.
141	1018		Central Provinces		Capt. W. H. Hunter.
-14½ (C)	101		Bijnor District, N.W	7.P.	. A. M. Markham.
141	108		Central Provinces		Capt. E. A. D'Arcy Thomas.
14½ (D)	91/2		Kanara Jungles		W. Holland.
141 (E)	9½		Terai		R. Nolan.
-14	10		. ?		J. D. Inverarity.
-14	1016		Bijnor District		A. M. Markham.
137	9 ⁸		?		Capt. S. H. Pollen.
134	9‡	***	Indhaorèe, Nimar		LieutCol. H. Wade-Dalton.
134	94		?		Philip Wood.
134	91/2		Madras		Col. J. Hinde.
-13 ⁸ (B)	91		North Kanara		LieutCol. L. L. Fenton.
13.70	9	***	Duars		Mrs. Lawrie-Johnstone.

Skins.

Length of skin dressed.			1	Loca	lity.		Owner.	
	ft. 13	in. 6	Mongolia					A. Bignold.
	11	31/2	Do.					Col. W. H. Walker.
	12	0	Do.					H.R.H. le Duc d'Orléans.

A, B, C, D, E, F, G. For skins see p. 468 and 469.

LEOPARD (Felis pardus).

The leopard has an even larger range than the lion, and is probably the most widely distributed of all the cats. Sportsmen in India recognise a larger "panther" and a smaller "leopard," although naturalists fail to distinguish them as separate forms. The typical representative of the species is the larger Indian leopard. The African leopard, which has the spots on the body of smaller size, and many of them without light centres, like those on the head, is known as F. pardus leopardus, the pale East African leopard being the type of this race. West African leopards are darker. In Persia, Baluchistan, and the mountains of Sind is found a race of the leopard (F. pardus panthera) characterised by its pale colour, long fur, and thick tail; it is to some extent intermediate between the typical race and the ounce. Lastly, there is the Manchurian leopard (F. pardus fontanieri), a very distinct animal, of heavy build, with a pale ground-colour to the fur, which is very long and thick, and the spots in the form of large complete rings, without any smaller spots in the centre. In the moist forest districts of Asia black leopards are by no means uncommon; and there is a tendency to darkening of a different type in some South-African specimens. Height at shoulder from about 2 feet (India) to 2 feet 4 inches (Africa). A large leopard killed by Lieut.-Col. L. L. Fenton in the Gir forest, Kathiawar, measured 7 feet $8\frac{1}{2}$ inches in length; the length of the tail being $35\frac{1}{2}$ inches, the girth of the neck 211 inches, of the forearm 111 inches, and of the body behind the shoulder $35\frac{1}{2}$ inches; weight, 160 lbs.

Distribution.—Africa, the Caucasus, Asia Minor, and Asia generally, with the exception of Northern Siberia, the Tibetan plateau, and perhaps Japan.

General Measurements-Indian Specimens.

bef	ore ned.	Total length dressed.	Weight.	Locality			Owner.
ft. -8	in. 4	ft. in.	lbs.	Cooch-Behar	*		H.H. The Maharajah of Cooch- Behar.
-8	$2\frac{1}{3}$			Do.			Do.
-8	$1\tfrac{1}{2}$	***	++4	Do.	1	*	Do,
-8	0	***	154	Do.			Do.
-8	0	8 81		India			Count J. Potocki.

bef	gth ore ned.	Total length dressed.	Weight.	Locality.	Owner.
ft. -7	in. 10	ft. in. 8 44	lbs.	Ganges Kadir .	See below. ¹
-7	91/2	8 6		Central Provinces	James J. Harrison.
-7	9			Nepal	C. H. H. B. Caldwell.
-7	9			Oude	Mrs. Innes.
7	8			Hyderabad, Deccan	Capt. C. E. G. Norton and Capt.
-7	8			Ganges Kadir .	Sir K. Fraser, Bart. Muttra Tent Club. ²
-7	7	8 7½		Siwaliks	E. H. E. Green.
		7 10	***	? *	Col. W. Gordon Cumming.
-7	6			Chaubattia	Major R. B. Fell.
-7	41/2			Gujerat	Capt. H. J. Morphy.
- 97	4	8 I	145	Bijnor District .	Major E. McK. Williams.
-7	4			Kathiawar	LieutCol. L. L. Fenton.
7	$3\frac{1}{2}$	8 2		Central Provinces	LieutCol. R. W. Mapleton.
-7	31			Do.	H. B. Learoyd.
-7	3			?	BrigGen. F. H. Whitby.
-7	I	7 107		Rewa, C.P.	Count E. Hoyos.
-7	1	7 1112	***	Kotah	H.H. the Maharajah of Bikanir.
-7	I			Hyderabad, Deccan	Major G. A. L. Carew and
-7	01	8 31/2	-	?	LieutCol. G. L. Holdsworth. H.H. the Maharajah of Bikanir.
7	0			?	LieutCol. A. E. Ward.

The following are the dimensions of two specimens shot in Ceylon by Count Scheibler:-

								M	ale	Fer	nale
								ft.	in.	ft.	in.
Length from tip	of nose	to	end	of tail			***	7	0	6	4
"	,,	r	oot	of tail				4	$3\frac{1}{2}$	3	7
Height at should	ler .				•>			2	$2\frac{1}{2}$	1	9
Girth								2	7	2	I
Circumference of	f upper	arm	1 .					0	13	0	10
,,	forearn	1		1				0	103	0	81

Speared by Capt. H. Hoare (5th D.G.), Major J. G. Rotton (R.A.), and Capt. W. Gillman (R.H.A.).
 Major A. C. King and some officers of the 5th Lancers, when out with the Muttra Tent Club.

General Measurements—African Specimens.

skinned. Weight. Locality. Owner. ft. in. lbs. ? Count J. Potocki. -7 3 Wadelai, E. C. Africa Col. W. P. Pulteney. -7 2 Somaliland Count Scheibler. -7 2 South-East Africa F. Vaughan Kirby. -7 1½ ? C. V. A. Peel.	
-7 3 Wadelai, E. C. Africa . Col. W. P. Pulteney7 2 Somaliland Count Scheibler7 2 South-East Africa . F. Vaughan Kirby.	
-7 2 Somaliland Count Scheibler7 2 South-East Africa F. Vaughan Kirby.	
-7 2 South-East Africa . F. Vaughan Kirby.	
-7 1½ ? C. V. A. Peel.	
-7 o Somaliland The late Capt. J. Johnston-Ste	wart.
-6 II E. C. Africa James J. Harrison.	
-6 10 Somaliland Count Scheibler.	
-6 10 140 Nyasaland A. White.	
-6 3 Somaliland Norman B. Smith.	
¹ -6 2 Jebba, Nigeria The late Capt. H. W. Baker.	
-6 o Somaliland Count E. Hoyos.	
- 9 6 o Do, ' C. V. A. Peel.	
2-5 7 Nigeria Col. T. D. Pilcher. 1 Height at shoulder, 2 ft. 1 in. 2 Height at shoulder, 22 in.; girth, 21 in.	i.

The following specimens were shot and measured by Mr. F. Vaughan Kirby; the first being from the Nguanetsi River, and the second from the Matamiri Bush, S.E.A.:—

Length tip in a	straight	Lengover a sports measure	all— man's'		ilder ght.	Girth of neck.	Girth behind shoulder.	Girth of forearm.	Length of skull.	Zygomatic width.	Clea	
ft.	in.	ft.	in.	ft.	in.	in.	in.	in.	in.	in.	lbs.	oz.
6	11	7	2	2	7	22	35½	122	98	618	1	8
6	9	7	2	2	7	20	33 ¹ / ₈	111	9	5‡	-	

Skulls.

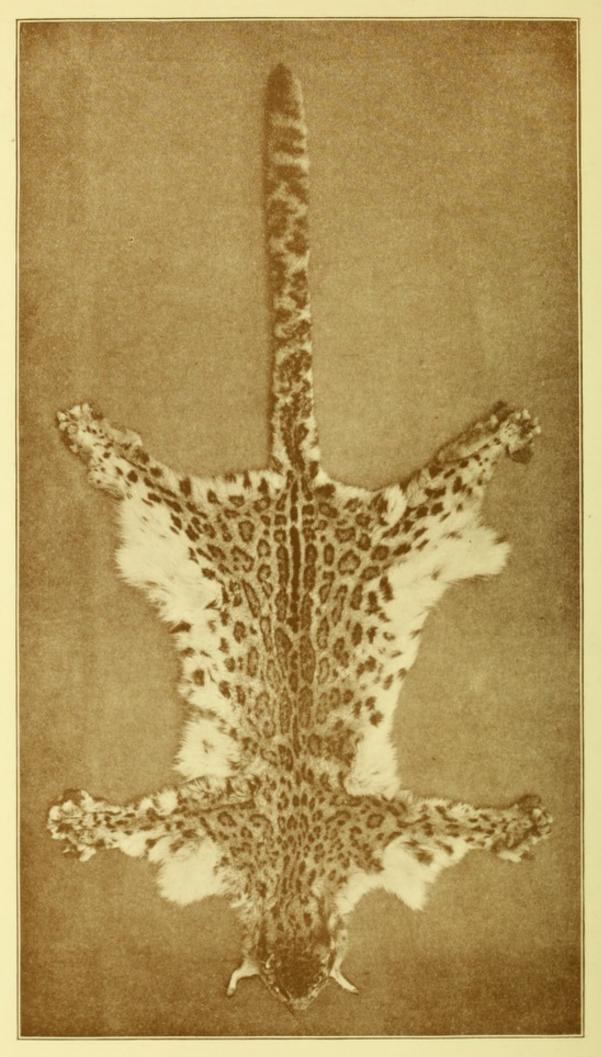
Total length.	Width.	Weight.	Locality.	Owner.
in. -101	in. 6§	lbs. oz.	Bijnor District, N.W.P.	A. M. Markham.
-1018	6‡		Gir Forest, Kathiawar	LieutCol. L. L. Fenton.
-913	***	1 5	Nyasaland	Dr. Percy Rendall.
-93	6	clean	?	Julius Jeppe.
$-9\frac{1}{2}$?	Do.
-9	51	14.7	S. E. Africa	F. Vaughan Kirby.
-67	5	44	India	W. T. Blanford.

SNOW-LEOPARD or OUNCE (Felis uncia).

Although the Persian leopard is in some degree intermediate in respect to colour and the length of the coat, the ounce differs from the leopard by the ground-colour of the long and dense fur being dirty white, with the spots on the back, sides, and tail, in the form of large, irregular, ill-defined, and interrupted rings, and by the great thickness of the tail, which scarcely tapers, and is about three-quarters the length of the head and body. Height at shoulder about 2 feet 4 inches. Skull about 6 inches long.

Distribution.—The high ranges of Central Asia, including Gilgit, Hunza, Turkestan, Trans-Baikalia, Ladak, Tibet, Amurland and Western China, extending in the north-west to the Altai, and in the west, it is said, to Persia. In Prince Demidoff's Hunting Trips in the Caucasus a snow-leopard is figured as coming from that range, but the animal found there is F. pardus panthera. The snow-leopard generally dwells at elevations of over 8000 feet, but descends in Gilgit during winter to 6000 feet.

Length d	ressed.	Weight.	· Locality	y.	Owner.
ft. 8	in. 8		Central Asia		A. Ezra.
8	7		Tibet .		Rowland Ward.
8	6		?		B. C. Graham.
8	6	Skull, $7\frac{3}{4} + 5\frac{1}{4}$	Baltistan		R. Rankin.
8	21/2		Do		E. Langworthy.
-7	10	***	Near Leh		LieutCol. S. Frewen.
-7	54		Pamir .		Viscount Edmond de Poncins.
7	5		?		Major F. J. Harden.
-7	4	(24 inch	es at shoulder)	The late R. A. Sterndale.
-7	3		?		LieutCol. A. E. Ward.



Skin of Snow-Leopard.

CLOUDED LEOPARD (Felis nebulosa).

The arimau dahan, as this species is called by the Malays, is the size of a small leopard, with a very long and thickly furred tail, and large upper tusks. The ground-colour of the fur varies from grayish brown to fulvous, upon which are large dark blotches, frequently bordered in part with black. In old specimens the blotches often disappear, leaving only the black borders.

Distribution.—From the Sikhim and Bhutan Himalaya, through Assam, Burma, Siam, and the Malay Peninsula, to Sumatra, Java, and Borneo. Represented by a smaller variety (F. nebulosa brachyurus) in Formosa.

				Ski	ns.	
Length dressed.		Weight.	Weight, Locality.			Owner.
ft. -6 -6 5 5	in. 6 4 9 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	1bs 44½	Assam Assam Do.	?		The late B. H. Hodgson. The late R. A. Sterndale. Capt. B. R. M. Glossop. The late B. H. Hodgson. P. Russel.
Basal leng	gth from front.	Breadth.		Local	ills.	Owner.
6.2	ın.	4.75	Assam			The late B. H. Hodgson.

JAGUAR (Felis onca).

This cat may be regarded as the American representative of the leopard, which it fully equals, even if it does not exceed, in size. The colour and markings are generally similar to those of the latter, but the dark rings are larger and arranged more definitely in groups, each ring usually enclosing one or more dark central spots, and the enclosed light area being of the same tint as the general ground-colour of the fur, which is typically of a rich tan. Usually seven or eight more or less distinct longitudinal rows of rosettes may be noticed on each side of the body.

Distribution.—America, from Louisiana, Texas, and Northern Mexico to about the Rio Negro, on the northern confines of Patagonia in lat. 40° S.

	before ning.		ngth ssed.	Lo	cality.		Owner.
ft. -9	in. 3	ft. 9	in. 3	Brazil			Count Henry Coudenhove.
-8 -6	3 ³ / ₄	7	9	Do. Paraguay			Do. James J. Harrison.
		7	7	British Gu			Sir A. W. L. Hemming.

PUMA (Felis concolor).

With the exception of the much smaller and longer-tailed yaguarondi, the puma (pronounced pooma) is the only uniformly coloured cat found in America, where its range extends from British Columbia and Maine in the north to the Strait of Magellan in the south. The size is inferior to that of the jaguar, the height at the shoulder being about 2 feet, and the weight 150 lbs. The general colour of the fur is tawny, tending, like that of the Virginian deer, to reddish in summer, and to grayish in winter, with the middle of the back darker, and a whitish patch on the back of the otherwise black ears. But with such an enormous geographical range, it is inevitable there should be much local variation; and a number of races are now recognised, most of which are distinguished by size or the redder or grayer tint of the fur. A Patagonian race has pale ears.

Leng	th in field.	Weight.	Locality.	Owner.
ft. -8	in. 6	lbs. about 150		A. Pendarves Vivian.
-7	65		Brazil	Count Henry Coudenhove.
-7	5	***	Gallegos River, Patagonia .	W. Moncreiffe.
-7	3	***	Fraser River, British Columbia	J. Fannin.
-7	0	***	Wyoming	J. L. Scarlett.

LYNXES (Felis lynx, etc.).

The lynxes form a well-marked group connected with the more typical members of the cat tribe by the jungle-cat (F. chaus), and distinguished by the tuft of long hairs at the summit of the ears, and the absence of the first upper cheek-tooth. From the others the caracal (F. caracal), of Africa and India, is broadly distinguished by its long tail and uniform rufous colour. The short-tailed lynxes are, however, a group in which it is very difficult to determine whether the variations indicate distinct species or local races. In the typical European lynx (F. lynx) the tail is very short, the throat has a ruff of long hair, and the coat is spotted with dark brown; the Tibet lynx (F. lynx isabellina) is a pale variety, and the Canadian lynx (F. lynx canadensis), which ranges as far south as California, is another race. The red lynx (F. rufa), which is also widely extended in America, and has numerous local races, is a second species. From differences in the form of the skull, the Spanish lynx (F. pardina), which is a fully spotted animal, is also classed as a distinct species. It ranges over a large portion of Southern Europe, including Turkey, Greece, Sicily, Sardinia, and

Spain and Portugal. The ordinary lynx stands from 16 to 18 inches at the shoulder.

(a.) EUROPEAN LYNX.

Length on the field, nose to root of tail.	Height at shoulder.	Locality.	Owner.	
-49‡ in.	***	Andalucia	Abel Chapman.	
-42.9 ,,	***	Eastern Carpathians	Prince Henry of Liechtenstein.	
42 ,,	23	Do.	Count Henry Coudenhove.	

(b.) TIBET LYNX.

Height at shoulder, 16 or 18 inches.

(c.) CANADIAN and RED LYNX.

Length on the field, nose to root of tail.	Height at shoulder.	Weight.	Locality	Owner.			
1-38 in.	25	60 lbs. (about)	Wyoming .			Major G. Dalrymple White.	
33 ,,	17		Wyoming .			Capt. M. M'Neill.	
2-32 ,,	22	40 lbs. (about)	Nova Scotia			Major G. Dalrymple White.	
	¹ Canadian Lynx.				² Bay Lynx.		

(d.) CARACAL.

Flat skin.	Locality.	Owner.
46½ in.	Nr. Grahamstown, S. Africa	Dr. H. Smith.

HUNTING-LEOPARD or CHITA (Cynælurus jubatus).

Although this animal is commonly called chita (cheetah) by Anglo-Indian sportsmen, that name is at least as often applied in India to the leopard. From all the true cats and lynxes the hunting-leopard differs by the claws being capable of only partial withdrawal into their sheaths, so that their tips are always exposed. The body also is more slender, and the limbs are proportionately longer. The black spots on the skin are small and without light centres, like those on the head of the leopard. Length 7 feet or less, height at shoulder 30 to 39 inches. A specimen speared by Lieut.-Col. L. L. Fenton in Kathiawar measured 6 feet $\frac{1}{4}$ inch in length, the tail being 2 feet $2\frac{1}{4}$ inches.

The animal is the "Ihlose" of the Zulus and Swazis, and is distributed sparsely throughout S.E. Africa. Hunting-leopards usually hunt in couples, and fairly stalk their game, securing it with a swift rush at the last. Mr. F. Vaughan Kirby says: "I have seen a party of six hunting together and another of eight. Though I have often tried, I have never yet succeeded in running into one on horseback; they are incredibly swift of foot. They invariably kill their prey by strangulation."

Distribution.—Africa and South-Western Asia, extending from Persia to Western Turkestan and the countries east of the Caspian, and eastwards into India; unknown in the latter country on the Malabar coast and to the north of the Ganges, as it also is in Ceylon.

Len	gth.	Length of tail.	Height at shoulder.	Locality.	Owner.
ft.	in.	ft. in.			
-7	0	111	144	India	The late R. A. Sterndale.
-6	01	2 21	***	Near Rajkot, Kathiawar	LieutCol. L. L. Fenton
-6	41	2 31/2	281	N.E. Transvaal	Dr. Percy Rendall.
-6	4		***	Somaliland	The late Capt. J. Johnston- Stewart.

The following are the dimensions of a specimen shot in the Eastern Transvaal by Mr. F. Vaughan Kirby.

Total length in straight line. Do. over all.

6 ft. 8 in.

7 ft. 7 in.

2 ft. 9 in.

Vertical height. Girth of forearm. Do. shoulders.

2 ft. 11½ in.

8¼ in.

31 in.

SPOTTED HYÆNA (Hyæna crocuta).

Somali *Uaraba*, Danakil *Yangula*, Abyssinian *Jib*. Setongwani in Barotsiland.

Piri in Ngamiland.

Chimbwi in the Chilala and Chibisa countries.

The hyænas form a small family of Carnivora allied in some respects to the cats, but distinguished by the form of the skull, the more numerous teeth (which are, however, to a considerable extent cat-like), and the four-toed feet, with non-retractile claws. The spotted hyæna is the largest of the three species, and takes its name from the large dark blotches on its tawny coat. Its carnassial teeth are more cat-like than those of the other species.

Distribution.—Africa, south of the Sahara.

Nose to root of tail in a straight line, 4 feet $9\frac{1}{2}$ inches. Length of tail, 1 foot 1 inch.

Extreme length over all, 6 feet 3 inches. Vertical standing height, 3 feet. Girth behind shoulders, $39\frac{1}{2}$ inches.

Skulls.

Length.	Width.	Weight.	Locality.	Owner.
in12\frac{1}{4} -12\frac{1}{4} -11 -11 -10\frac{5}{8}	in. 74 78 78 71 667 667	lbs. oz. 2 8 2 12 2 3	Zomba, B.C.A. Somaliland .	 F. Vaughan Kirby. D. MacAlpine. Viscount Edmond de Poncins. F. Vaughan Kirby. Capt. R. A. J. Montgomerie, R.N.

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Brown Bear.

BEARS (Ursidæ).

Bears are so unlike other animals and so like one another that no one has the slightest difficulty in recognising a member of the group when he sees it. They constitute a family of Carnivora—the *Ursidæ*—and are spread over the greater part of the globe, with the exception of Africa to the south of the Sahara desert, and the Australasian islands. As some of their leading characteristics may be mentioned their large bodily size, clumsy build, shaggy fur, uniform coloration, the very short tail, and the application of the whole sole of the foot to the ground in walking. The skull and teeth are likewise very peculiar and

distinctive, although these need not be taken into consideration in this place.

In consequence of the marked similarity to one another of most members of the group, it is a matter of extreme difficulty to come to a definite conclusion as to the number of species of bears-not that this is a matter of very much importance one way or another. The typical member of the group is the familiar brown bear (Ursus arctus) of Europe, whose colour is generally a darker or lighter shade of brown, but occasionally tends to grayish. The Syrian bear (U. arctus syriacus), in which this grayish tinge predominates, may be regarded as a local variety, and the same is the case with the snow-bear of Kashmir (U. arctus isabellinus), in which the colour is generally a light creamy brown. European specimens probably seldom exceed eight feet, but the huge Kamchatkan bear (U. arctus collaris) grows to nine feet. Even more gigantic is the Kadiak bear (U. arctus middendorfi) of Kadiak Island, Alaska; while the Yezo bear (U. arctus vesoensis) of Japan is another large form, with much the external appearance of a grizzly. The Alaskan bear (U. arctus dalli), from the mainland of Alaska, is also a huge animal, slightly smaller than the one from Kadiak Island, with more resemblance to an ordinary brown bear than to a grizzly. The typical grizzly of the Rocky Mountains is a smaller animal, with longer and straighter claws, but scarcely entitled to rank as more than another local race (U. arctus horribilis), next to which comes the Barren Ground bear (U. arctus richardsoni). Finally, the last animal which can be included in this group of the genus is the African bear (U. arctus crowtheri), of North-Western Africa, still imperfectly known. The extinct cave-bear (U. spelæus) is a large species allied to the brown bear.

The little blue bear (*U. pruinosus*) of Tibet, with more or less of white on the head and shoulders, seems to form a distinct species. The same is the case with the American black bear (*U. americanus*), which is generally black, and exhibits distinctive features in the skull and teeth. Not improbably the Himalayan black bear (*U. torquatus*) is a relative of the last-named species; it may be recognised by the conspicuous white gorget on the breast. In Japan it is represented by the Japanese black bear (*U. japonicus*). The smallest species of the genus are the very distinct Malayan bear (*U. malayanus*), and the allied spectacled bear (*U. ornatus*) of the Peruvian and Bolivian Andes, the latter distinguished by the light-coloured rings generally surrounding the eyes, from which it derives its name.

The most distinct of all the species included in the genus Ursus is

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the Polar bear (*U. maritimus*), so distinct, indeed, that many naturalists think it ought to form a group by itself. Externally its chief characteristics are its white coat, and the presence of a certain amount of hair on the soles of the feet; both these peculiarities being evidently adaptations to the Arctic habitat of the animal. It has been recently stated that very old Polar bears exhibit a tendency to the development of a brownish tinge in the fur. Last of all comes the Indian sloth-bear (*Melursus ursinus*), which is so different from the other kinds as to form a genus by itself. It is too well known an animal to need description, some of its characteristics being the long and bare snout, the ragged, wiry hair, extensile tongue, small cheek-teeth, and the diminished number of front teeth.

(a.) Skulls.

			(4.)	DEUIIS.	
	idth across the zygo- atic arches.	Weight cleaned.	Race, or Species.	Locality.	Owner.
in. 184	in. II§	lbs. oz. 12 O	Cave bear	Europe	Sir Edmund G. Loder, Bart.
. 18	11	10 0	Kamchat- kan	Siberia	Hon. Walter Rothschild.
-174	108			Alaska	Rev. Dr. R. J. Nevin.
-161				Do	H. W. Seton-Karr.
16	97	5 8	Polar .	Nova Zembla.	J. Lamont.
15%	101	5 13	Do	Polar Seas .	Sir Edmund G. Loder, Bart.
15½ (D)	9½	5 10	Grizzly .	Brit. Columbia	Sir Peter Walker, Bart.
158	91	4 10		Kamchatka .	Comdr. R. E. R. Benson, R.N.
1411	9	***	kan Brown .	Kamchatka .	St. George Littledale.
142	81	4 8	Grizzly .	Brit. Columbia	S. B. Bennett.
148 (C)	81	5 0	Do	New Mexico .	Montague Stevens.
135	_ 8 ^a ₄		Red .	Kashmir .	B. H. Shaw-Stewart.
$-12\frac{7}{8}$	7		Sloth .	Mysore	Capt. M. M'Neill.
121/2	78		Do	Cent. Prov	C. F. Egerton.
121/2	7		Grizzly .	Wyoming .	J. L. Scarlett.
12½ (B)	63		Sloth .	Cent. Prov	Surgeon-Major M. O'C. Drury.
128	75		Snow .	Kashmir .	A. Ezra.
128	71/2		Red .	Do	Major C. B. Wood.
1218	78		Grizzly .	Wyoming .	J. L. Scarlett.
12	7 ¹ 8		Sloth .	Cent. Prov	C. F. Egerton.
II 1/2 (A)	63	***	Brown .	W. Caucasus .	St. George Littledale.
-8.5	8.3	***	Malayan .	Borneo	W. T. Blanford.

(b.) Skins.

nose	th from to tip tail.	Height at shoulder.	Girth.	Weight.	Race, or Species.	Locality.	Owner.
ft.	in.	ft. in.	ft. in.	lbs.			
-13	61			1656	Kadiak	Kadiak Island,	J. C. Tolman.
-11	611	10 2 ² (from one front paw	***	1536	?	Alaska Nevada, 1881	W. F. Sheard.
-11	61	to other)			?	Alaska	American Museum of Natural History.
9	101				Alaskan	Do	Rowland Ward.
9	81				Do.	Do	South-African Museum.
9	5 1				Do.	Do	Dublin Museum.
9	5	4 6			Polar .	Baffin Bay .	W. Livingstone Lear- month.
9	51				Alaskan	Alaska	Hon, Walter Rothschild.
8	101	4 O (mounted)			Do.	Do	British Museum.
-8	7	***		1600	Polar .	Arctic Seas .	Captain Lyon.
-8	7	***			Grizzly .	Wyoming .	T. P. Kempson.
-8	7	+++			Polar .	Spitzbergen .	A. Barclay Walker.
-8	6				Grizzly .	Wyoming .	T. P. Kempson.
-8	6				Polar .	Franz Josef	Dr. S. H. T. Armitage.
-8	5				Black .	Land Kashmir .	Capt. W. Westropp White.
-8	4				Do	?	SurgMajor W. White.
-8	3				Kam- chatkan	Kamchatka .	Dr. F. H. H. Guillemard.
-8	3				?	Alaska	C. G. Cowan.
-8	01/2		***		Grizzly .	Wyoming .	T. W. H. Clarke.
-8	0				Polar .	Spitzbergen .	A. Barclay Walker.
-8	O(D)	3 11			Grizzly .	Brit, Columbia	Sir Peter Walker, Bart.
-8	o (c)	*++	444	735	Do	New Mexico	Montague Stevens.
-7	11			800 (about)	Brown .	Norway .	Capt. Gerard Ferrand.
-7	9			(1100111)	Snow .	Kashmir .	Major C. F. Blane.
-7	4	***	***		Red .	Do	B. H. Shaw Stewart.
-7	51/2		+**		Black .	Wyoming .	T. W. H. Clarke.

Skin measurement.
² Measurement of head in the flesh from tip of nose to base of skull, 29 inches; between ears, 16 inches.

nose	h from to tip tail.	Height at shoulder.	Girth.	Weight.	Species.	Locality.	Owner.		
ft. -7	in. 034	ft. in.	ft. in.	lbs. 680 (about)	Brown .	Lithuania .	Prince Radziwill.		
-7	0	3 2	117	(40041)	Do	India	LieutCol. A. E. Ward.		
-6	11				Black .	Wyoming .	James J. Harrison.		
-6	10	3 0	4 $4\frac{1}{2}$ forearm	423	Sloth .	Cooch Behar	H.H. the Maharajah of		
-6	9½		25		Snow .	Kashmir .	Cooch Behar. S. V. Occleston.		
-6	8 (B)				Do	Do	A. Ezra.		
-6	6				Grizzly .	Wyoming .	Count E. Hoyos.		
-6	5			***	Do	Do	J. L. Scarlett.		
-6	41/2				Snow .	?	Major H. M. Biddulph.		
-6	3	***		***	Grizzly .	Wyoming .	J. L. Scarlett.		
-6	$2\frac{1}{2}$		***	***	Black .	Brit. Columbia	Count E. Hoyos.		
-6	$I\frac{1}{2}$				Sloth .	Mandla, Cent.	Capt. B. H. Boucher.		
-6	1				Cinnamon	Provinces Wyoming .	James J. Harrison.		
-6	$0\frac{1}{2}$				Sloth .	Hyderabad .	Count E. Hoyos.		
-6	0	4 6			Black .	?	Col. H. G. Mainwaring.		
-6	0	3 0		280	Do	3	The late G. P. Sanderson.		
-5	101/2	3 0	3 4		Red .	?	Major H. M. Biddulph.		
-5	5	2 5 4	2 103	250	Black .	Brit.Columbia	Count Scheibler.		
- 9 5	$2\frac{1}{2}$	2 111	4 4	about 600 about	Grizzly .	Do.	Do.		
-5	2 (A)	***	about	Brown .	W. Caucasus	St. George Littledale.		
-4	7		***		?	Asia Minor .	H. O. Whittall.		

N.B.—Some of the specimens entered as "Grizzly" may be the Barren Ground bear.

WALRUS (Odobænus rosmarus and O. obesus).

The unwieldy seal-like animals commonly known by a corruption of the Scandinavian name valross (whale-horse) form in some respects a connecting link between the true seals and the eared seals, although differing from both in the huge upper tusks which depend from the muzzle of males and females alike, as also by the thick yellow bristles covering the muzzle itself. Like the true seals, walruses have lost all traces of external ears, but, unlike the former, and like the eared seals, their huge hind-flippers are turned forwards beneath the body when on land. The molar teeth, which are adapted for crushing the shells on which these monsters feed, have simple flattened crowns, quite unlike those of seals. Although young and adolescent walruses have fairly thick coats of yellowish fur, in old individuals the tough hide becomes almost bare, except for the aforesaid bristles. Walruses are estimated to attain a weight of from 2250 to 3000 lbs.

Walruses are exclusively confined to the Arctic seas, where they spend much of their time on the ice. There are two kinds, now generally regarded as separate species; the one confined to the North Atlantic, and the other to the North Pacific. The distribution of these animals is by no means of circumpolar extent, the Atlantic walrus (O. rosmarus) apparently not ranging on the Asiatic coast east of the mouth of the river Lena; while in America they do not appear to inhabit the vast extent of coast lying between the western shore of Hudson Bay and Alaska. The Pacific walrus, which is the larger animal of the two, with considerably the longer tusks, always had a restricted range, and is now becoming very scarce. In European museums it appears to be represented only by skulls and tusks, and even these are rare. Formerly the Atlantic walrus occurred in countless thousands, but in accessible situations its numbers have been greatly reduced, owing to incessant persecution for the sake of its valuable oil and ivory. Between 1870 and 1880 at least 100,000 of these animals are estimated to have been slain.

The largest walrus ever shot by Mr. W. Livingstone Learmonth measured 12 feet 8 inches in length, and the tusks when extracted measured $25\frac{1}{2}$ inches in length and $8\frac{1}{2}$ in circumference at the largest part, but, as is the case with nearly all old bull walrus, the tusks were much broken at the points.

Tusks.

Total length of tusk.	Weight.	Girth.	Locality.	Owner.
36	lbs. oz.		?	Sir Thos. Hesketh, Bart.
-331 1	7 10½	81/2	Kamchatka .	G. E. H. Barrett-Hamilton.
328		8g	. ?	Bethnal Green Museum.
-32	9 9		Pacific	Norwich Museum.
-31	6 1			F. Gordon George.
30g		9 1 8	Kamchatka .	Lieut. H. A. Gillett, R.N.
29	***	9‡	Arctic America	C. C. Branch.
284	***	94	Do.	Do.
$-25\frac{1}{2}$	Length from gum.	81/2	Baffin Bay .	W. Livingstone Learmonth.
***	22½	73	Spitzbergen	Sir Edmund G. Loder, Bart.
	203	$7\frac{1}{2}$	Do	Sir Victor Brooke's Collection.
***	181	$7\frac{1}{2}$	Do	Arnold Pike.
			1 25½ from gum.	*

NARWHAL (Monodon monoceros).

The Arctic narwhal is the only Cetacean furnished with tusks. These are present only in the male, and generally the left one alone is developed. Occasionally, however, both grow, as exemplified in a specimen in the British, and a second in the Cambridge Museum. A model of the animal is exhibited in the British Museum.

Distribution.—Arctic Seas.

Tusks.

Ler	igth.	Circumference.	Weight.	Owner.				
ft. 9	in. 4½	71/2	lbs.	Major H. A. Steward.				
8	81	85		Bethnal Green Museum.				
8	$7\frac{1}{2}$	81	14	Rowland Ward.				
8	7	84	15	Sir Edmund G. Loder, Bart.				
8	3‡	78		Bethnal Green Museum.				
8	31	77		Hon. Charles Ellis.				
8	0	72		A. Barclay Walker.				
7	11			J. H. Whitehouse.				

HINTS FOR RECORDING THE LENGTH OF ANIMALS IN THE FIELD.

As the body lies on the ground, and where circumstances permit, proceed as follows:—

Length. Pull the nose and the tail so as to get them as nearly as possible in a straight line. Fix four pegs in, one at the end of nose, one at end of tail, one at root of tail, and the fourth at the nape of neck behind ears.

Height at shoulder. Put the leg or paw in a standing position and place a peg at top of withers and measure carefully standing height (a) with extended paw, (b) with spread paw, as well as length of fore and hind legs from pegs at the stomach-line.

The entries in the game-book should be as follows:-

A to F. Straight length from nose to tip of tail.

A to E. Length along curve to root of tail.

E to F. Length of tail.

A to B. Length of head to nape of neck.

N. Girth, upper arm.

M. ,, fore-arm.

O. ,, of body.

P. Girth of head.

D to G. Height at hind-quarters.

C to I., ,, shoulder.

K to L. Length of fore-leg.

H to G. " hind-leg.

Weight, cleaned.

" not cleaned.

Cleaned skull (length, breadth, height, weight).

In addition to the above measurements, the sex, estimated age, date and locality, condition of the animal, with any other features of interest, such as colour of the eyes and skin, length of the hoofs, condition of teeth, should be mentioned.



Tiger shot by Major H. G. C. Swayne in the Central Provinces.

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