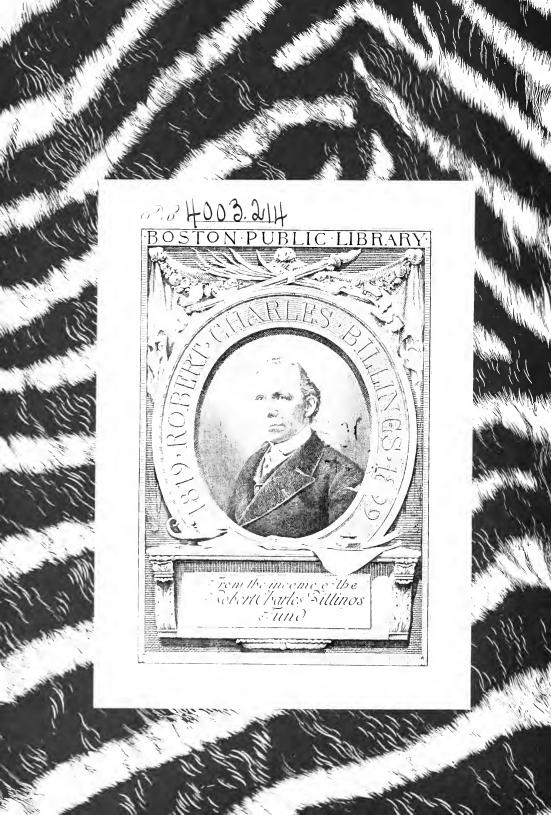
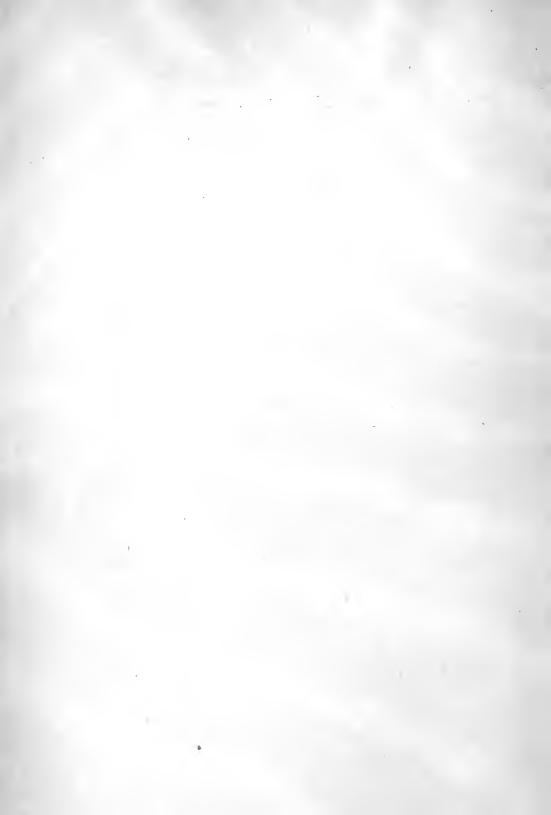
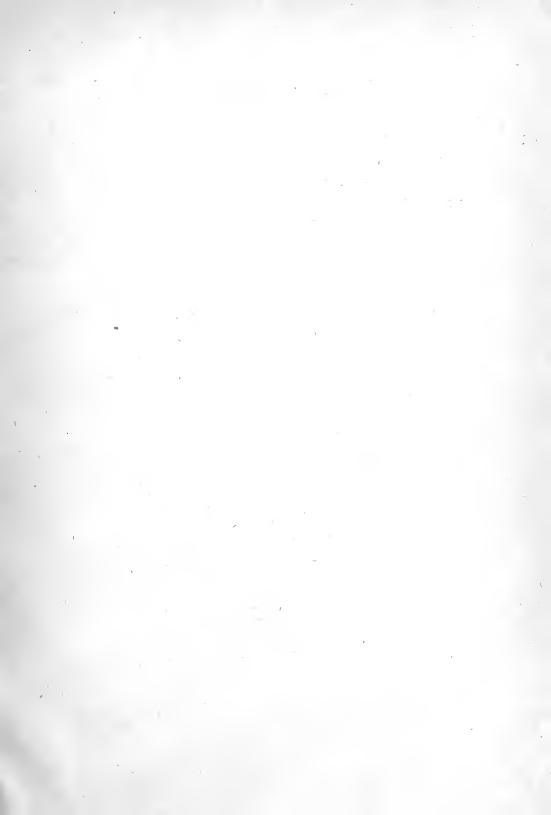
# ROWLAND WARD'S RECORDS OF BIG GAME











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## ROWLAND WARD'S RECORDS OF BIG GAME

Second	,,	,,	1896.
Third	,,	.,	1899.
Fourth			1903.
Fifth	,,	.,	1907.
Sixth	,,	.,	1910.
Seventh		,,	1914.

## ROWLAND WARD'S RECORDS OF BIG GAME

WITH

THEIR DISTRIBUTION, CHARACTERISTICS, DIMENSIONS, WEIGHTS, AND

## HORN & TUSK MEASUREMENTS

#### SEVENTH EDITION

EDITED BY

R. LYDEKKER, F.R.S.

AND

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



#### LONDON

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> 1914 C/

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Other ed.

PUBLIC LARARY DE THE CITYOPEOSTON

#### TO THE

#### SPORTSMEN OF THE WORLD

## WITHOUT WHOSE ENTERPRISE THESE RECORDS COULD NOT HAVE BEEN COMPILED THIS BOOK IS DEDICATED



### PREFACE TO THE SEVENTH EDITION

THERE are three main points the great-game sportsman generally wants to ascertain :—1st, the name of his quarry; 2nd, how it compares in point of size with other specimens of the same species; and, 3rd, what is the extent of its geographical range. All these he will be able to ascertain from the present work.

As in former editions, the finest known specimens of antlers, horns, tusks, and skins are, so far as possible, recorded. 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." But it has been found impracticable in some instances to verify the measurements of trophies, especially 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. One of the many difficulties in connection with compilations of this nature is due to the circumstance that different measurements of the same specimen are sometimes received, this often arising from the use of a tape or string instead of a steel-measure.

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

In the case of 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. Ivory tusks also deteriorate in weight.

Among the deer tribe many difficulties have arisen as to comparison; and it may be pointed 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 antlers*, go in many instances to the making of a good trophy.

A notebook for use on the field will be found in a pocket at the end of this volume.

Acknowledgments are due to a number of sportsmen (especially to Sir Edmund G. Loder) and naturalists all over the world for the help they have afforded.

As in the three previous editions, Mr. Lydekker is responsible for the technical nomenclature and descriptions. Since the text was printed off he has ascertained that *Sika* is the proper subgeneric name of the deer of the Sika group, and *nippon* the earliest specific designation of the type species. The amended names of the various members of this group will consequently stand as follows :—

1. Cervus (Sika) nippon, p. 49.

(a) C. nippon typicus, p. 50.

(b) C. nippon manchuricus, p. 50.

2. Cervus (Sika) taëvanus, p. 51.

3. Cervus (Sika) hortulorum, p. 52.

#### , THE EDITORS.

May 1914.

#### 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.
 G.S. Greatest spread.

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

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

*Length* is expressed in inches, when not otherwise stated, and the tape should be laid on the centre of the front curve of antelope horns such as Reedbuck, etc.

*Weights* taken in the field should be accepted as approximate, and, unless the contrary is stated, are those of adult males.

Heights are in most cases taken at the shoulder of adult males (see p. 517).

N.B.—Unless the contrary is stated, the specimens and illustrations are those of males.



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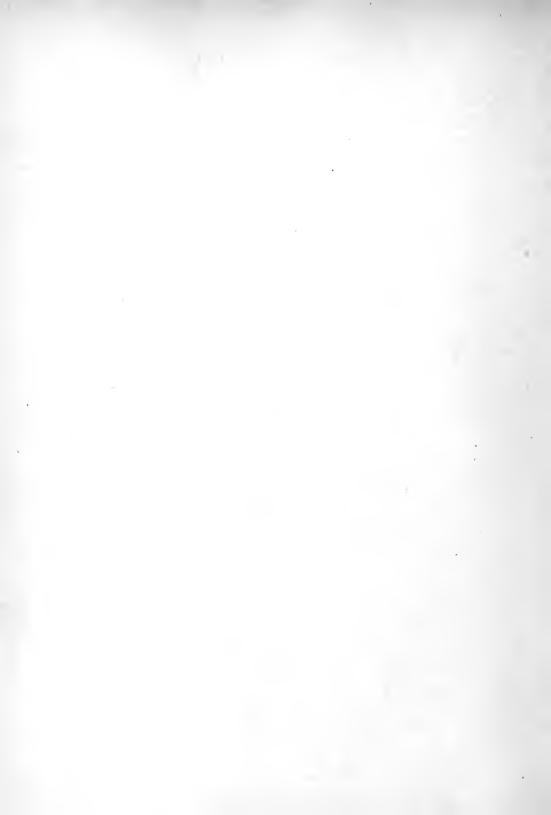
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Shot by Mr. Walter Jones.

#### The RED DEER (Cervus elaphus).

THE red deer of Western Europe is the typical representative of the genus *Cervus*, in which the antlers of the stags are set on the skull at an oblique angle to the middle line of the forehead, and have a true brow-tine, while they are generally more or less nearly cylindrical. 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

в

itself. The coat may be spotted in the adult, and is almost invariably so in the young.

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 an orange-coloured patch on the buttocks, which includes or surrounds the tail. The general colour of the adult summer coat is reddish brown, and that of the winter dress greyish brown, often with a dark dorsal stripe ; stags frequently showing a throat-fringe. The young, in which the ground-colour is of a richer tint, are profusely spotted with white.

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 Sweden, and its representatives in 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. The Swedish red deer is the typical Cervus elaphus of Linnæus, in other words, Cervus elaphus typicus. From this race the Norwegian red deer differs by its inferior size, the lighter colour of the summer coat, and the presence of a distinct dark border to the rump-patch. The general colour of the Swedish race is dark reddish brown, almost chestnut, with the legs sooty or blackish brown; while in the Norwegian animal the colour is yellowish brown tinged with grey, the legs being paler and of a brownish slaty grey. The rump-patch is also lighter in the Norwegian race, being reddish yellow with a blackish border, while that of the Swedish red deer is less distinct, sometimes scarcely differing in colour from the flanks. There are also differences in the skulls of the two races, especially noticeable in the case of hinds. The Norwegian red deer has been named Cervus elaphus atlanticus; and the Scotch red deer, C. e. scoticus, is closely allied. Several races of red deer have been named in Germany, but these may be included under one heading as C. e. germanicus. This is a large deer, with a very light, and usually black-bordered, rump-patch. The Spanish race (C. e. hispanicus), which is smaller, with a greyer coat and narrower skull, is said to lack the abundant neck-fringe of Scotch deer.

The red deer (*C. elaphus corsicanus*) of Corsica and Sardinia is a small race, without a bez-tine to the antlers, and the general colour of the upper-parts dark brown in summer, with the upper side of the tail coloured like the rump-patch, and blackish in the winter. Nearly allied is the North African red deer (*C. elaphus barbarus*), which is of rather larger dimensions, with a greyish-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 beztine seems to be very generally wanting.

The Eastern red deer (*C. elaphus maral*) is a large race, described on page 28.

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

Widest span over all, 39<sup>‡</sup> inches; span inside below cups, 34 inches; span outside below cups, 37 inches.

*Right antler.*—Length, 39 inches; length of brow, 10<sup>1</sup>/<sub>4</sub> inches; of bez, 10 inches; of trez, 13 inches. Length of tines in cup, 10, 7, 4<sup>1</sup>/<sub>4</sub> inches. Circumference at coronet, 8<sup>1</sup>/<sub>2</sub> inches; between bez and trez, 7<sup>1</sup>/<sub>4</sub> inches; above trez, 6 inches.

Left ant/er.—Length, 38 inches; of brow, 10 inches; of bez, 8 inches; of trez, 11 inches. Length of times in cup, 8, 6, and 4 inches. Circumference at coronet, 9 inches; between bez and trez,  $7\frac{1}{2}$  inches; above trez,  $6\frac{1}{4}$  inches.—Weight, 303 lbs. clean; but stag was much run.

#### A.-BRITISH AND IRISH RED DEER (C. elaphus scoticus).

#### a.—Scottish Specimens.

Length on out- side curve.	ference between bez and trez.	Tip to Tip.	Widest inside.	Spread.	Points.	Weight.	Locality.	Owner.
$40\frac{1}{2}$	-	22	22		7 + 7	1bs.	Inverness 1704	Col. W. Hall Walker.
402	5	22	33	•••	/ + /		11170111035, 1794	Col. W. Hall Walker.
40‡	61	••••			8+8		Glenartney .	Mrs. Campbell of Dun- staffnage.
<sup>1</sup> -40	6		30		10	203	Glentilt .	Duke of Atholl.
$-39\frac{1}{2}$	5		25		6+6		Ardverikie .	E. J. Wythes.
$-39\frac{1}{2}$	48	26	33	$35\frac{1}{2}$	5+5	266	Kinveachy .	Major J. J. Porteous.
-39	6		34	39 <del>1</del>	6+6	303	Guisachan .	The late Lord Tweed- mouth.
39	6	$27\frac{1}{2}$	34	39흫	6+6		;	Duke of Portland.
-38 <u>1</u>	$4^{3}_{4}$		26		11		Isle of $\operatorname{Rum}$ .	Sir George Bullough.
$38\frac{1}{2}$	6‡	7 <sup>3</sup> ‡	$19\frac{1}{2}$	$30\frac{1}{2}$	9+8		$\operatorname{Glenfidd}\nolimits\operatorname{ich}$ .	Duke of Richmond and Gordon.
$38\frac{1}{2}$	51		31		5+6		Strathvaich .	J. C. Williams.
384	5축	14	27 <del>3</del>	33	6 + 5	246	Meoble .	Walter Jones.
384	6	26	33 <sup>2</sup>	$40\frac{3}{4}$	7+6		?	Duke of Beaufort.
38‡	58			···'	5 + 5		Kinlochewe .	Sir Kenneth Mackenzie, Bart.

- Owner's measurements.

Circum

<sup>1</sup> Recorded by J. G. Millais.

Length on out- side curve.	Circum- ference between bez and trez,	Tip to Tip.	Widest inside.	Spread.	Points.	Weight.	Locality.	Owner.
381	5½		30 <del>3</del>		7 + 7	lbs.	?	The Hon. Mrs. Gordon-
38	41		29½		6+6		Fannich .	Cumming. V. J. Watney.
ر بر	45		28 <u>1</u>	36 <u>3</u>	6+5		Barrisdale .	W. Parrott.
37 <u>1</u>	5		26		6+5		Mar	Mrs. E. Ross.
$37\frac{1}{2}$	$4\frac{1}{2}$		30 <del>]</del>		5 + 5		Wyvis	R. Shoolbred.
$37\frac{1}{2}$	5 <u>1</u>				10		Conaglen .	Lord Morton.
$-37\frac{1}{2}$	$6\frac{1}{8}$	13	$28\frac{1}{2}$		8+8		Glenmoriston	J. M. Grant.
37‡	$4\frac{1}{2}$		$32\frac{1}{2}$		6 + 6		Brodick .	Marquis of Graham.
-37 <sup>1</sup> / <sub>5</sub>	$5\frac{1}{2}$		24	$27\frac{1}{2}$	5 + 5		Forfarshire .	R. L. Scott.
37	$4\frac{3}{4}$		23		6+6	378	Brodick .	Marquis of Graham.
-37	4 <del>3</del>		30		5 ± 4		Lettermorar .	W. A. Dewhurst.
-36 <u>1</u>	$4\frac{3}{4}$		35		6+6		Glenmoriston	The Hon. Mrs. Gordon-
36 <u>1</u>	5	34	37	41	5+6	··•	Glenstrath- farrar	Cumming. W. Radcliffe (shot by the late
-361/2							Auchnasheen .	R. Gordon-Cumming). Sir Edmund G. Loder, Bart.
$-36\frac{1}{2}$	4 <u>3</u>		311		6+6		Rhidorroch .	Countess of Cromartie.
-36 <u>1</u>	5‡		30‡		11	280	Benmore, Mull	Earl of Eglinton.
-361	43		$27\frac{1}{2}$		11		Glomach .	The late Col. Baldock.
-361/2	5	•••	26		6+6		Ben Klibreck	J. W. Baxendale.
-361	$4\frac{1}{2}$		27		10	·	Affaric	S. Dennis.
-36‡	$4\frac{1}{2}$		25½		6+5	235	Cluanie .	A. H. Straker.
36.‡	518		$24\frac{3}{4}$		5 + 5		Gaick	G. Hargreaves.
-36‡	45		24 <sup>3</sup>		6+6		Arran	H.R.H. Prince Arthur of Connaught.
36‡	5		22		6+5		Kintail	S. Loder.
36	58		33‡		5 + 5		Corrour .	Sir J. M. Stirling-Maxwell, Bart.
36	41	83	28	333	7 + 7		Knoydart .	A. S. Bowlby.
-36	5‡		27‡		6+6		Dunrobin .	Duke of Sutherland.
36	4¥		261		6+6		Langwell .	Duke of Portland.
36	41	211	27		6+6		Caenlochan .	Mrs. Henry Tate.
-36	43		32.		5+5		Inchbaie .	F. L. Davis.
36	$4\frac{1}{2}$	Ι7,	28 <u>3</u>	313	5 + 5	225	Meoble	E. M. Crosfield.
353	43	22]	314	34	5 + 5		Strathvaich .	Do,

- Owner's measurements.

4

Length on out- side curve.	Circum- ference between bez and trez.	Tip to Tip.	Widest inside.	Spread.	Points. '		Locality.	Owner.
36	4\$	19 <u>3</u>	$28\frac{3}{4}$	$30\frac{1}{2}$	5+4	lbs.	Ardgour .	Lord H. Vane Tempest.
36	5‡	13 <u>3</u>	<b>2</b> 83	$32\frac{3}{4}$	5 + 5		Glenkingie .	W. M. Christy.
36	41		31		5 + 5	308	N. Uist .	W. Brigstock.
36	$4\frac{5}{8}$		$26\frac{1}{2}$		5+6		Morar	W. A. Dewhurst.
-36	5 <sup>1</sup> 8		30 <u>1</u>		6+7		Glenquoich .	J. E. B. Baillie.
-36	43		27	•••	2+2	276	Glenfinnan .	F. Fenwick.
$-35\frac{3}{4}$	4불		26		6+6		N. Uist .	C. H. Dendy.
$-35\frac{3}{4}$	$4\frac{1}{4}$		$32\frac{1}{2}$		5 + 5		Affaric	L. A. Ballance.
-35 <del>§</del>	4 <del>8</del>	23	28 <u>1</u>	31	4+4	•••	Dalnamein .	C. T. Garland.
35불	$4\frac{1}{2}$		29‡		6+5		Garrygualach	Major H. G. Fenton- Newall.
$-35\frac{1}{2}$	$4\frac{1}{2}$		31	•••	5 + 5		Loch Choire	Duke of Sutherland.
$-35\frac{1}{2}$	$4\frac{3}{4}$		<b>27</b> 3		I 2		Ardnamurchan	R. C. Donaldson-Hudson.
$35\frac{1}{2}$	$5^{\frac{1}{2}}$	•••	$25\frac{1}{2}$		6+6	<b>2</b> 44	Sutherland .	Abel Chapman.
$-35\frac{1}{2}$	4 <sup>3</sup> / <sub>4</sub>		27	•••	5 + 5	•••	Branlen .	Earl of Derby.
35½	$4\frac{1}{2}$	$\mathrm{I}\mathrm{I}\frac{1}{2}$	26 <u>1</u>	30	6+6		Isle of Mull .	W. Mure.
$35\frac{1}{2}$	4 <sup>3</sup> / <sub>4</sub>		26 <u>1</u>		10+10	• •••	Glenquoich .	Dowager Lady Burton.
$35\frac{1}{2}$	4월	•••	<b>2</b> 4‡		6+6		Craiganour .	H. Samuelson.
$35\frac{1}{2}$	$4\frac{3}{4}$		313		5+5	•••	Benula .	Stanley M. Dennis.
$35\frac{1}{2}$	$4\frac{1}{2}$	$24\frac{1}{2}$	<b>2</b> 9‡	$32\frac{1}{2}$	5+5		Ben Alder .	Lord Hythe.
$-35\frac{1}{2}$	6		$38\frac{1}{2}$		5 + 5	•••	Kinlochewe .	Sir Kenneth Mackenzie, Bart.
-35 <sup>8</sup>	$4\frac{1}{2}$		30		4+4		Gaick	J. Hargreaves.
35‡	5	25	30‡	35	6+4		Coignafern .	J. Bradley Firth.
35 <del>1</del>	5		25‡		7+8		Ardverikie .	Sir J. W. Ramsden, Bart.
-35‡			27 <del>3</del>		14	•••	Glenfeshie .	Sir G. A. Cooper, Bart.
35 <del>1</del>	$4\frac{1}{2}$		$29\frac{1}{2}$		6+6	248	Invercauld .	L. Neumann.
-35‡	5	•••	24 <u>3</u>		6+5		Eskadale .	Major A. Robinson.
-35‡	51		27‡	•••	6+6	•••	Blackmount.	Countess of Sefton.
-35 <del>1</del>	4 <del>7</del>	7 <sup>3</sup>	22	27 <del>3</del>	7 + 7		Killiechonate	F. Cooper.
-351	5호		26 <del>1</del>		5 + 5		Glenfinnan .	G. Bainbridge.
-35‡	4 <del>7</del>	31 <del>7</del> 7	30		6+6		Deanich, Ross- shire	G. P. V. Aylmer.

- Owner's measurements.

	Length on out- side curve.	Circum- ference between bez and	Tip to Tip.	Widest inside.	Spread.	Points.	Weight.	Locality.	Owner.
	curve.	trez					lbs.		
	-35‡	5‡	•••	26	•••	7 + 7		Glenartney .	Dowager Countess of Ancaster.
	-35‡	5		$32\frac{1}{2}$		6+6		Ardnamurchan	C. D. Rudd.
	$35\frac{1}{5}$	4‡		33		4+3		Caenlochan .	J. J. de Knoop.
	35	$4\frac{7}{5}$	13 <del>3</del>	$24\frac{1}{2}$	29	5 + 5		Glenkingie .	W. M. Christy.
	35	43	22	28	•••	7+6		Talladh-a-Bhe- ithe, Rannoc	E. Weller-Poley.
	-35				34	10	225	N. Morar .	Major T. W. Gill.
	-35			29	411	7+6		Monymusk .	Sir Arthur Grant, Bart.
	-35	43		38‡		5+4		Invermark .	Earl of Dalhousie.
	35	$4\frac{1}{2}$	12 <u>3</u>	245	27	6+6		Glenbruar .	A. M. Thomas.
	35	43		$29\frac{1}{2}$		6+5		Glenartney .	V. Fleming.
	<sup>1</sup> -35	5 <sup>8</sup> / <sub>4</sub>	26	$33\frac{1}{2}$	$37\frac{1}{2}$	12		Guisachan .	The late Lord Tweed-
	35	4 <sup>1</sup> / <sub>2</sub>	19‡	$26\frac{3}{4}$	$28\frac{1}{2}$	5 + 5		Glenkingie .	mouth. Sir Henry Hoare, Bart.
	-35	$4\frac{3}{4}$		29		4+4		Ledgowan .	L. A. Ballance.
	34쿸	- 4 <del>1</del>	131	26	28 <u>‡</u>	5+5		Dibiedale .	H. Hinton.
	34 <sup>3</sup>	43		$32\frac{1}{4}$		6+6		Glenborrodale	Captain N. Money.
	34 <sup>3</sup>	4 <b>‡</b>	31	36 <del>3</del>	<b>3</b> 8‡	4+3		Ledgowan .	H. B. Moser.
	343	41	$23\frac{1}{2}$	29	31 <u>1</u>	5+4		Kildermorie .	H. Graeme.
	$-34\frac{1}{2}$	47		$33\frac{1}{2}$		5 + 5		Fannich .	V. Watney.
	$-34\frac{1}{2}$	5		$25\frac{1}{2}$		<b>7</b> + S		Cluanie .	A. H. Straker.
	$134\frac{1}{2}$	4‡	<b>2</b> 61/2	31	33‡	5+5		Dalnaspidal .	Mrs. Hall Walker.
	34½	4 <sup>1</sup> / <sub>2</sub>		23		6+6		Glentanar .	Ean Cecil.
	34½	5 <u>1</u>	18	26 <del>]</del>	34	6+5		?	W. Brodrick Cloete.
	34 <sup>1</sup> / <sub>2</sub>	51 51	37½	34 <sup>1</sup> / <sub>2</sub>		12		Braemore .	Sir John Fowler, Bart.
	$34\frac{1}{2}$	41	184	27		6+5		N. Morar .	J. R. Hutchison.
	341	41		33		6+5		Isle of Skye .	W. II. Lindsay.
;	$^{2}-34\frac{1}{2}$	5			$34\frac{1}{2}$	12	231	Glentilt .	Duke of Atholl.
	341	5 4 <sup>2</sup> 4	13	25	27		(clean) 	Glenfeshie .	P. K. Smiley.
	341	48	22	281	31§	6+4	204	Cluanie .	St. George Littledale.
	341	48 43		26 <u>1</u>	318 	6+5		Mamore .	F. Bibby.
	341	43 43		29 29		9+8		Ardverikie .	Viscount Iveagh.
	-341	41		<b>2</b> 6	28‡	4+4		Wyvis	J. F. Wilkin.
	514	0			*			2 D.	and the L.C. Milleia

- Owner's measurements.

1 Above trez.

<sup>2</sup> Recorded by J. G. Millais.

Length on out- side curve.	Circum- ference between bez and trez.	Tip to Tip.	Widest inside.	Spread.	Points.	Weight.	Locality.	Owner.
341	4	21 <sup>3</sup> / <sub>4</sub>	29‡	31 <u>3</u>	6+5	lbs. 	Glenquoich .	Duchess of Bedford.
-34‡	41	8를	2I <sup>3</sup>	29 <del>§</del>	5+5		Glenee	J. Bayly.
-34 <sup>1</sup> / <sub>8</sub>	5		31 <u>1</u>	•••	5 + 5		Knoydart .	Capt. H. V. S. A. Bowlby.
34	4	$28\frac{1}{2}$	30 <u>3</u>		5+4		Glenmuick .	LieutCol. J. Ponsonby.
34	4 <del>3</del>		$27\frac{1}{4}$		6+6		Balmoral .	His Majesty the King.
-34	5		$26\frac{1}{2}$		I 2		Achnacarry .	J. C. Kennedy.
34	$4\frac{3}{4}$	<i>.</i>	36		5+5	308	Jura	Lord George Campbell.
-34	4훕		28		7 + 7		Kildermorie .	L. Wilkin.
-34	4 <del>3</del>		34 <del>1</del>	$36\frac{1}{2}$	6+6		Glenbruar,	Sir W. Ogilvy-Dalgleish,
-34					6+6	268	Perthshire	Bart. S. Loder.
-34	$4\frac{3}{4}$		$27\frac{7}{8}$		6+5	(clean) 		Col. Stephenson R. Clarke.
33 <del>3</del>	$4\frac{1}{4}$	30 <u>1</u>	35	$38\frac{1}{4}$	7+6		Glenkingie .	W. M. Christy.
33 <sup>3</sup>	4		<b>2</b> 4‡		7+8		Ardverikie .	E. J. Wythes.
-331	$4\frac{1}{2}$		<b>2</b> 6		5+6		Ardnamurchan	Mrs. R. Fleming.
$-33\frac{1}{2}$	5		$34\frac{1}{2}$		5+5	280	Dalness .	J. G. Millais.
$33\frac{1}{2}$	41		34		5+5		Gaick	R. Hargreaves.
$33\frac{1}{2}$	4	$16\frac{1}{2}$	25	29	5+5		Caenlochan .	H. C. Pilkington.
$33\frac{1}{2}$	$4\frac{7}{5}$	25 <del>§</del>	$24\frac{1}{2}$	35‡	9+8		$\ensuremath{Glenfiddich}$ .	Duke of Richmond and Gordon.
33 <sup>1</sup> / <sub>2</sub>	$4\frac{1}{2}$	22	28	$30\frac{1}{2}$	6+5		Auchnasheen	A. G. Dickson.
$-33\frac{1}{2}$	55		25 <u>3</u>		6+6		Eskadale .	Hon. L. Hardy.
$33\frac{1}{2}$	$4\frac{1}{2}$		27		12		Kintail.	Sir Edmund G. Loder,
$-33\frac{1}{2}$	5		$24\frac{3}{4}$		11		Forest Lodge	Bart. LieutCol. H. Kays.
$33\frac{1}{2}$	5		30		5+7	•••	Dalness .	Hon. Sir Schomberg
-33 <del>3</del>	$3\frac{7}{8}$	26	31	34 <u>1</u>	6+5		Dundonnell .	M'Donnell. R. B. Loder.
33 <del>1</del>	4	19 <sup>2</sup>	26	32	6+6		Ben Alder .	Sir R. W. Buchanan
$33\frac{1}{4}$	$4\frac{1}{4}$		193		7+7		Glendoe .	Jardine, Bart. Mrs. E. Ross.
33‡	41	17‡	28	$29\frac{1}{2}$	5+5	•···	Ardverikie .	Col. W. Hall Walker.
$33\frac{1}{4}$	$4\frac{5}{8}$		26		5+5	285	Inverailort .	J. Cameron Head.
-33‡	4 <sup>3</sup>		$23\frac{1}{2}$		6+6		Arnisdale .	T. Drake.
33‡	4	12 <u>5</u>	$22\frac{3}{4}$	25	5+4	233	Glencoul .	Lieut Col. A. Weston
	The sp	read	of the	six w	videst	heads	in the late I	Jarvis. Duke of Fife's collec-

The spread of the six widest heads in the late Duke of Fife's collection is as follows: -40 38 37 35 35 35 The six longest measuring -37 36  $35\frac{1}{2}$   $35\frac{1}{2}$  35 35

- Owner's measurements.

The antlers of one of the red deer in Mr. C. Lucas's park at Warnham Court, Sussex, in 1889, had 35 points; 1890, 34 points; 1891, 38 points; 1892, 47 points, and weighed 17 lbs.; 1893, 44 points,  $16\frac{1}{2}$  lbs.

#### b .- Irish Specimens (wild and park).

		Circum-							
	Jul	Circum- ference between	Tip to	Widest	Outside	Points.	Weight.	Locality.	Owner.
	side curve.	bez and trez.	Tip.	mside.	spread.			``	
1	$-42\frac{1}{2}$				•••	12	lbs. 315	Colebrooke	. The late Sir Douglas Brooke, Bart.
	-41	6	17 <u>1</u>	23	•••	10+9	325	Do.	. Do.
	-40	$5\frac{1}{2}$	28	29½		8+8	355	Do.	. Do.
	39 <sup>5</sup>	5‡	$I4\frac{1}{2}$	26 <u>3</u>		7 + 7	375	Do.	. Do.
	38	51	15‡	261	321	7 + 7		Do.	. W. Campbell.
	38	5 <u>5</u>	9 <del>3</del>	23 <del>3</del>		8+8		Roscommon	. Earl of Kingston.
	$37\frac{1}{2}$	5‡	23 <u>3</u>	$28\frac{1}{2}$	$34\frac{1}{2}$	6+5	380	Muckross	. A. Vincent.
	35 <del>1</del>	5킄		35		5+5	<b>2</b> 64	Glenveagh	. W. E. Laurie.
	353	5 <del>3</del>		$20\frac{1}{4}$		7+7		Muckross	. Ralph Sneyd.
	35	5	22	30 <del>1</del>	36 <del>3</del>	6+5	343	Roscommon	. Earl of Kingston.
	35	43		30		9		Ireland	. Hon. A. Charteris.
	-35	43	25‡	30	37 <del>1</del> 8	6+6	260	Glenveagh	. A. Arthur.
	35	51	195	26 <u>3</u>		6+5	282	Powerscourt	. Viscount Powerscourt.
	34‡	5		29		7+6	348	Glenveagh	. G. W. Hartley.
	34	$4\frac{1}{2}$	$25\frac{1}{2}$	28 <u>1</u>		6+6	364 as he fell ; 280 clean	Powerscourt	. Viscount Powerscourt.
	34	43		311		6+5	372	Muckross	. Ralph Sneyd.
	34	41	13 <sup>1</sup> / <sub>8</sub>	25		5 + 5		Colebrooke	. Major J. M. Rogers.
	331	5	24	$29\frac{1}{2}$	341	8+7	360	Muckross	. A. Vincent.
	33	41		24		5 + 5	346	Glenveagh	Col. W. Hall Walker.
	33	5	20	<b>2</b> 8‡		5+5	281	Do.	W. W. Ashley.
	$32\frac{1}{2}$	5‡		24 <sup>3</sup>		7+6	422	Glena .	Earl of Kenmare.
	321	4.1		32.}	•••	5 + 6		Killarney	G. Douglas.
	313	5	253	313	•••	5+6		Donegal .	Col. W. Hall Walker.
	313	43		$21\frac{3}{4}$		7 + 7		Muckross	Lord Mayo.
	313	$4\frac{1}{2}$	15	254	<b>2</b> 9‡	5+4	•••	Do.	F. G. Menzies.
	311	5	143	25%	273	6+5	276	Do.	C. E. Russell.
		- Owr	ner's mea	suremen	ts.		1 See M	Iillais's British	Deer and their Horns.

- Owner's measurements.

1 See Millais's British Deer and their Horns.

#### RED DEER



Head of Exmoor Red Deer. Mr. R. A. Sanders.

#### c.— West of England Specimens.

Length on outside curve.	hotwoon	Tip to Tip.	Widest inside.	Outside spread.	Points.	Locality.		Owner.
<sup>1</sup> 41	5‡	$2Irac{1}{2}$	32 <del>1</del>		5 + 5	Exmoor		Sir John Heathcoat-Amory, Bart.
40	57	10	28	38	7+6	Do.		Do.
39	54	15 <sup>3</sup> / <sub>4</sub>	$28\frac{1}{2}$		6+6	Do.		R. A. Sanders.
39	5용	13 <del>1</del>	271	34 <del>3</del>	4+4	Do.		P. F. Hancock.
$38\frac{1}{2}$	5 <sup>1</sup> / <sub>8</sub>	$17\frac{7}{8}$	$3I\frac{1}{2}$		6+6	Quantock H	Tills	Earl Fortescue; killed in 1885.
$38\frac{1}{2}$	5	$22\frac{1}{4}$	30 <del>1</del>	····	7 + 7	Exmoor		C. Nelder; killed in 1803.
$38\frac{1}{4}$	6	8‡	24	32	6+6	Kiloe		Hon. Mrs. Stanley.
37 <sup>3</sup>	5	7	$29\frac{1}{2}$	34	5 + 5	?		J. James.
$37\frac{1}{2}$	$5\frac{1}{2}$	$27\frac{1}{2}$	35 <del>5</del>	48	6+5	Exmoor		Sir John Heathcoat-Amory, Bart.
371	$4\frac{3}{4}$	20	314	36	6+5	Quantock	•	E. A. V. Stanley.
37	5	23	33 <sup>1</sup> / <sub>2</sub>	39 <del>3</del>	6+7	Bembrid Wood	ge	Capt. H. H. Amory.

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

ou	ngth on itside irve.	ference between bez and trez,	Tip to Tip.		Outside spread.	Points.	Locality.		Owner.
	36 <u>3</u>	6	$21\frac{1}{2}$	28 <del>]</del>		6+7	Exmoor		Lord St. Audries; killed in 1893.
	36 <u>1</u>	5ŝ	12	235	$30\frac{1}{2}$	7+6	Stoodleigh	•	Ian H. Amory.
	$36\frac{1}{2}$	•••	19	$2S_{4}^{3}$	39	6 + 6	Haddon	•	M. Greig.
	36	44	10	$24\frac{3}{8}$	30‡	9+7	Exmoor		R. A. Sanders.
	36	5‡	$12\frac{1}{8}$	23	$29\frac{1}{2}$	6 + 5	Do.		Capt. H. H. Amory.
	36	5 <sup>3</sup>	$14\frac{3}{4}$	26	$34\frac{1}{2}$	7+6	Do.		M. Greig.
	35 <del>3</del>	5	15‡	27	33	6+6	Do.		Hon. G. Bampfylde.
	$35\frac{1}{2}$	5	$20\frac{7}{5}$	$27\frac{1}{2}$		6+6	Do.		Earl Fortescue; killed in 1812.
	35 <u>1</u>	5	144	$27\frac{3}{4}$	34	6+6	Cudden Ho	oyes	Capt. H. H. Amory.
	35	5	15 <del>3</del>	27		6 + 5	Exmoor		Com. G. F. Inglefield, R.N.
	35	$4\frac{7}{8}$	25 <u>1</u>	$32\frac{3}{4}$		5+6	Do.	•	Sir C. T. D. Acland, Bart.; killed in 1893.

#### d.-English and other Park Specimens.

			Linguis		<i></i>	and Specification	•
Circum- ference etween bez and trez.	Tip to Tip.	Widest inside.	Spread.	Points.	Weight (clean).	Locality.	Owner.
7불				11+11		Warnham .	C. J. Lucas.
5꽃	23‡	$33\frac{1}{2}$	511	1 <b>2</b> +9		Woburn .	Duke of Bedford.
51	241	35‡	39	6+6		Windsor .	His Majesty the King.
$6\frac{3}{4}$			40	12		Melbury, Dorset	Earl of Ilchester.
55		27		11+10		Ashridge Park	Earl Brownlow.
51	18 <u>3</u>	28 <u>3</u>	37쿺	9+8		?	Lord Hastings.
5	$22\frac{3}{4}$	32		7+6		Langley Park	J. G. Millais.
51	183	31	41	5+5		?	R. V. Berkeley.
$5\frac{3}{4}$				10+8		Vaynol .	J. Whitaker.
5		$34\frac{3}{4}$		8+7	330	Caithness-shire	T. Pilkington.
		39		32		Warnham .	J. G. Millais.
$4\frac{3}{4}$	25	$33\frac{1}{2}$	40 <sup>1</sup> / <sub>2</sub>	6+7		?	W. Cooper.
53	$23\frac{1}{2}$	26 <u>3</u>	$35\frac{3}{4}$	5+5	••••	Woburn .	Duke of Bedford.
$5\frac{1}{2}$		251		5+6		Ditchley Park	Viscount Dillon.
512		$23\frac{1}{2}$				Bushey Park .	R. Shoolbred.
5.1	181	27 <u>3</u>	33½	6+6		3	W. Cooper.
43	181	28 <u>1</u>	37	8+8		Osmaston .	Sir Peter Walker, Bart.
5	17	27‡	321/2	6 + 6		Whittlebury .	Sir Edmund G. Loder, Bart.
51	22	$29\frac{1}{2}$	41 <sup>1</sup> /2	8+ <b>7</b>		Stowe	H.R.H. le Duc d'Orléans.
	$\begin{array}{c} \begin{array}{c} \text{prez and} \\ \text{trez.} \\ \textbf{7} \\ \textbf{5} \\ $	retween       Ip to $2ez$ and       Tip. $5\frac{1}{2}$ $23\frac{1}{2}$ $5\frac{1}{2}$ $23\frac{1}{2}$ $5\frac{1}{2}$ $24\frac{1}{2}$ $6\frac{3}{4}$ $5\frac{1}{2}$ $24\frac{1}{4}$ $6\frac{3}{4}$ $5\frac{1}{2}$ $18\frac{3}{4}$ $5\frac{1}{2}$ $18\frac{3}{4}$ $5\frac{1}{2}$ $4\frac{1}{4}$ $25$ $5\frac{1}{2}$	retween $10^{\circ}$ Comparison of the	Circum- ference, bez and trez.       Tip to Tip.       Widest inside.       Spread. $7\frac{1}{5}$ $5\frac{2}{4}$ $23\frac{1}{4}$ $33\frac{1}{2}$ $51\frac{1}{4}$ $5\frac{1}{2}$ $24\frac{1}{4}$ $35\frac{1}{4}$ $39$ $6\frac{3}{4}$ $40$ $5\frac{5}{2}$ $24\frac{1}{4}$ $35\frac{1}{4}$ $39$ $6\frac{3}{4}$ $27$ $5\frac{1}{2}$ $18\frac{3}{4}$ $28\frac{3}{4}$ $37\frac{3}{4}$ $5$ $34\frac{3}{4}$ $5\frac{1}{4}$ $25\frac{1}{3}$ $31\frac{1}{4}$ $41$ $5\frac{3}{4}$ $23\frac{1}{2}$ $26\frac{3}{4}$ $35\frac{3}{4}$ $5\frac{1}{4}$ $23\frac{1}{2}$ $26\frac{3}{4}$ $35\frac{3}{4}$ $5\frac{1}{2}$ $23\frac{1}{2}$ $5\frac{1}{2}$ $23\frac{1}{2}$ $5\frac{1}{2}$ $23\frac{1}{2}$ $5\frac{1}{4}$ $18\frac{1}{2}$ $27\frac{3}{4}$ $33\frac{1}{2}$ $5\frac{1}{4}$ $18\frac{1}{2}$ $28\frac{1}{2}$ $37$ $5\frac{1}{4}$	Circum- ference, $Tip. to, tree.       Widest inside. Spread.       Points.         7\frac{1}{5}          II + II         5\frac{2}{4} 23\frac{1}{4} 33\frac{1}{2} 51\frac{1}{4} 12 + 9 5\frac{1}{2} 24\frac{1}{4} 35\frac{1}{4} 39 6+6 6\frac{3}{4} 40 12 5\frac{5}{8} 27 11 + 10 5\frac{1}{2} 18\frac{3}{4} 28\frac{3}{4} 37\frac{3}{4} 9+8 5 22\frac{3}{4} 32 7+6 5\frac{1}{2} 18\frac{3}{4} 31 41 5+5 5\frac{3}{4} 34\frac{3}{4} 8+7 39 32 4\frac{3}{2} 6+7 5\frac{3}{4} 23\frac{1}{2} 26\frac{3}{4} 35\frac{3}{4} 5+5 5\frac{1}{2}  5+6 5\frac{1}{2}  23\frac{1}{2}  5+6 5\frac{1}{2}  5+6 5\frac{1}{2}  23\frac{1}{2}  5+6 5\frac$	Circum- bez and trez.       Tip to Tip.       Widest inside.       Spread.       Points.       Weight (clean). $7\frac{1}{5}$ II + II        Iss.       Iss. $5\frac{2}{4}$ $23\frac{1}{4}$ $33\frac{1}{2}$ $51\frac{1}{4}$ $12 + 9$ $5\frac{1}{2}$ $24\frac{1}{4}$ $35\frac{1}{4}$ $39$ $6+6$ $6\frac{3}{4}$ $40$ $12$ $5\frac{1}{2}$ $18\frac{3}{4}$ $28\frac{3}{4}$ $37\frac{3}{4}$ $9+8$ $5\frac{1}{2}$ $18\frac{3}{4}$ $31$ $41$ $5+5$ $5\frac{1}{4}$ $25$ $33\frac{1}{4}$ $0.12$ $5\frac{1}{4}$ $18\frac{3}{4}$ $31$ $41$ $5+5$ $5\frac{1}{4}$ $0.12$ $0.14$ $0.14$ $5\frac{1}{4}$ $0.13$ $0.16$ $0.16$ $5\frac{1}{4}$ $0.13$ $0.16$ $0.16$ $0.16$ $5\frac{1}{4}$ $0.23\frac{1}{2}$ $0.6\frac{1}{4}$ $0.5\frac{1}{4}$ $0.16$	terver, and Dez and trez.Tip to inside.Writest Spread.Spread.Points.Weight (clean).Locality. $7\frac{1}{8}$ 11 + 11Warnham. $5\frac{3}{4}$ $23\frac{1}{4}$ $33\frac{1}{2}$ $51\frac{1}{4}$ $12 + 9$ Woburn. $5\frac{1}{2}$ $24\frac{1}{4}$ $35\frac{1}{4}$ $39$ $6+6$ Windsor. $6\frac{3}{4}$ $40$ $12$ Melbury,Dorset $5\frac{5}{2}$ $27$ $11 + 10$ Ashridge Park $5\frac{1}{2}$ $18\frac{3}{4}$ $28\frac{3}{4}$ $37\frac{3}{4}$ $9+8$ ? $5$ $22\frac{3}{4}$ $32$ $7+6$ Langley Park $5\frac{1}{2}$ $18\frac{3}{4}$ $31$ $41$ $5+5$ ? $5\frac{3}{4}$ $31$ $41$ $5+5$ ? $5\frac{3}{4}$ $39$ $8+7$ $330$ Caithness-shire $39$ $32$ Warnham. $4\frac{3}{4}$ $25\frac{3}{3}\frac{1}{2}$ $26\frac{3}{4}$ $35\frac{3}{4}$ $5+5$ Woburn. $5\frac{1}{2}$ $25\frac{1}{4}$ $5+6$ Ditchley Park. $5\frac{1}{4}$ $25\frac{3}{4}$ $37\frac{3}{4}$ $6+6$ ?. $5\frac{1}{4}$ $25\frac{1}{4}$ $35\frac{1}{4}$ $35\frac{1}{4}$ $6+7$ Bushey Park $5\frac{1}{4}$ $25\frac{1}{4}$

- Owner's measurements. 1 Shed 3 Killed by King James I. in 1608.

1 Shed antlers.

<sup>2</sup> White Stag. \* Semi-feral.

10

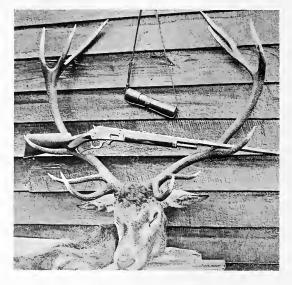
Length on outside curve.	Circum- ference between bez and trez.	Tip to Tip.	Widest inside.	Spread.	Points.	Weight (clean). lbs.	Locality.	Owner.
$*37\frac{1}{2}$	5		$29\frac{1}{2}$	$42\frac{1}{4}$	6+7		Warnham .	C. J. Lucas.
-371	$7\frac{1}{2}$	$29\frac{1}{2}$	$27\frac{1}{2}$	$36\frac{1}{2}$	10+9		Welbeck .	Duke of Portland.
$^{1}37\frac{1}{2}$	5음		33‡		6+7		Ditchley Park	Viscount Dillon.
-37	6 <u>3</u>	$18\frac{1}{2}$	24	43	20+19		Warnham .	C. J. Lucas.
37	6	26	$33\frac{1}{2}$		11+13		Do	Do.
36‡	$4\frac{3}{4}$	19	$29\frac{1}{4}$	$32\frac{1}{2}$	4 ± 4		Wood Norton	H.R.H. le Duc d'Orléans.
351	5	$22\frac{3}{4}$	$28\frac{3}{4}$	33‡	6+6		Do	H.R.H. the Comtesse de Paris.
35 <del>1</del>	5	$7\frac{1}{2}$	20	25	6 + 6		?	H. S. O'Brien.
35	54	$19\frac{1}{2}$	241	$29\frac{1}{2}$	10+9		5	Hon. M. Egerton.
$34\frac{1}{2}$	7	32	$29\frac{1}{2}$	521	11+15		Warnham .	C. J. Lucas.
341	$4\frac{1}{2}$	22	$27\frac{3}{4}$	$34\frac{1}{2}$	6+6		Windsor .	G. L. Harrison.
34	$4\frac{1}{2}$		23		6 + 6		Stowe	H.R.H. the Comtesse de Paris.
34	5흉	$21\frac{3}{4}$	$28\frac{1}{2}$		7 + 7		Dorset	Earl of Ilchester.
34	6	$24\frac{1}{2}$	32	37½	10+10		?	Earl of Warwick.
$233\frac{1}{2}$	5	$20\frac{1}{4}$	241	$31\frac{1}{2}$	5 + 5	•••	Surrenden .	W, Winans.
$33\frac{1}{2}$	$4\frac{7}{8}$	•••	33		6+6		Stowe	H.R.H. le Duc d'Orléans.

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

- Owner's measurements. <sup>1</sup> Killed by King James I. in 1610. <sup>2</sup> White Stag. \* Semi-feral.

#### e.—Ancient British and Irish Specimens.

on on on on on tride	Circum- ference between bez and trez.	Tip to Tip.	Widest inside.	Spread.	Points.	Where found.	Owner.
$-47\frac{1}{2}$	8	35			5+8	Manchester Ship Canal excavations	Sir R. M. Brooke, Bart.
46	512	18 <u>3</u>	311	$37\frac{1}{2}$	9 + 8	Achvarasdal .	T. Pilkington.
40 <del>1</del>	512	$2I\frac{1}{2}$	27	$38\frac{1}{2}$		Forfarshire	Sir Edmund G. Loder, Bart.
40	$7\frac{1}{2}$	22 <del>]</del>	$28\frac{1}{2}$	43 <del>1</del>	12+9	Combermere .	Duke of Westminster.
$38\frac{1}{2}$	5	18	30	39‡	8 + 6	Ireland	Viscount Powerscourt.
$38\frac{1}{2}$	6 <u>‡</u>	30	364	45 <sup>옵</sup>	7 + 5	N. Wales	Sir R. Williams-Bulkeley, Bart. (See illustration.)
-37	$5\frac{1}{2}$	$23\frac{1}{2}$		39‡	13+8	Co. Leitrim	J. Ormsby Lawder.
36 <u>1</u>	5	24	25	$35\frac{1}{2}$	8 + 8	Ireland	Viscount Powerscourt.
36	5½	23	27	$37\frac{1}{2}$	10+9	Kerry, Ireland .	Sir Edmund G. Loder, Bart.
35 <del>1</del>	5‡	$18\frac{1}{2}$	$25\frac{1}{2}$	$32\frac{1}{2}$	7 + 7	Lincolnshire .	C. W. Tindall.
$35\frac{1}{2}$	5‡	26 <u>1</u>	32 <del>3</del>	$42\frac{1}{2}$	13+11	South Ireland .	Sir Victor Brooke's Col- lection.
33	5‡	23	28	4 I	7+6	Cardigan Bay .	H. Marshall.
30 <del>]</del>	5	101/2	20	$24\frac{3}{4}$	9+8 - Owner	? 's measurements.	Duke of Bedford.



Head of New Zealand Red Deer. Shot by Mr. H. E. Hodgkinson,

Length on out- side curve.	Circum- ference between bez and trez.	Tip to Tip <b>.</b>	Widest inside.	Spread.	Points.	Weight.	Locality.	,	Owner.
48	61	71	$32\frac{3}{4}$	40‡	6 + 5	•••	Rakaia.		C. Williams.
47 <sup>1</sup> / <sub>2</sub>	7			371	6 + 6		Do.		G. Garrard.
-46	51		$37\frac{1}{2}$	42	6+6		N. Otago		H. E. Hodgkinson.
-46	5월		31	$38\frac{1}{2}$	6+6		Do.		Melville Gray.
-45	6		273	36	6+6		Do.		H. E. Hodgkinson.
45	5 <sup>3</sup>	16 <u>1</u>	31	$40\frac{3}{4}$	6+7		Do.		P. F. Hadow.
-45	5			34	6+6		Do.		Major Cliff.
-45	5½			37½	13		Do.		J. Forbes.
$44\frac{1}{2}$	5	8‡	30	367	6+6		Do.		H. M. Cliff.
-44‡	5‡		$33\frac{1}{2}$	$37\frac{1}{2}$	7 + 7		Do.		C. D. Hodgkinson.
441	5			39 <sup>3</sup>	7+6		Do.		P. F. Hadow.
-44	$5\frac{1}{2}$			40	15		Do.		A. Cowie.
-44	5 <sup>1</sup> / <sub>2</sub>			38	5+6		Do.		A. E. Leatham.
43 <sup>1</sup> / <sub>2</sub>	58		30	37	7 + 7		Do.		C. E. Lucas.
-43	5章			$38\frac{1}{2}$	6 + 6		Do.		J. Horn.
-43	51			33	7 + 7		Do.		J. Grindells.
423	58	22	324	401	7+7		Do.		W. H. Milburn.
$-42\frac{1}{2}$	51			371	6 + 6		Do.		R. E. Clouston.
42]	5		$29\frac{1}{2}$		6 + 6		Do.		G. N. Horlick.
-42	43		32		6 + 6		Do.		D. Fraser.
-42	53	•••	<b>3</b> 83	50	7 + 7		Do.		J. Faulks.

f.—New Zealand Specimens (introduced).

- Owner's measurements.

Length on out- side curve.	Circum- ference between bez and trez.	Tip to Tip.	Widest inside.	Spread.	Points.	Weight.	Locality.		Owner.
42	51	245	$33\frac{1}{2}$	37‡	6 + 5		5		A. D. Whatman.
$-4I_{4}^{3}$	5‡			38 <u>3</u>	7 + 8		N. Otago	·	H. E. Hodgkinson.
$-4I\frac{1}{2}$	5			$37\frac{1}{2}$	6+7		Do.	·	J. Forbes.
$-4I\frac{1}{2}$	51			36 <u>1</u>	6+6	•••	Do.	•	The late B. Armytage.
-41 ±	51			343	7+6		Do.	•	Melville Gray.
$-4I\frac{1}{2}$	5‡		35		5+4		Do.		H. F. Wallace.
$-41\frac{1}{4}$	51		33 <sup>1</sup> / <sub>2</sub>	$39\frac{1}{2}$	7 + 7		Do.		C. D. Hodgkinson.
-41	5			$39\frac{1}{2}$	6 + 7		Do.		R. M. Morten.
-41	61 61			$36\frac{1}{2}$	6 + 5		Do.		J. S. Handyside.
-41	6			38	5 + 4		Do.		D. Bell.
-4I	58			38	18		Do.		Baron von Kusserov.
-4I	6			37	7+6		Do.		C. R. Westmacott.
$-40\frac{1}{2}$	6			38	5 + 5		Do.		R. Nicholson.
$40\frac{1}{2}$	51	313	$37\frac{1}{2}$	40	6+6		Do.		Capt. I. Macdougall.
$-39\frac{1}{2}$	$5\frac{1}{2}$			$29\frac{1}{2}$	10+10		Do.		J. Faulks.
-39	7		301	$35^{\frac{1}{2}}$	6+6		Wairarapa		C. P. Skenett.
39 38章	, 5幸	15	26	31 <sup>1</sup> / <sub>2</sub>	6+6		Do.		E. N. Senior.
$38\frac{1}{2}$	54 61			33	6+6		Do.		A. Pilkington.
381 381	$6\frac{1}{2}$		28	36	17		Do.		E. W. Bunny.
-38 -38	5			33	6+6		Do.		E. C. Studholm.
	5 5½	 15≩	21‡	26	5+5		Otago .		P. M. Stewart.
$37\frac{3}{4}$		191 181	214 29½	$32\frac{3}{4}$	5+5		Wairarapa		A. Murray.
$36\frac{1}{2}$	5 <sup>1</sup> / <sub>2</sub>	101	292	3-1		moocurem	1		

- Owner's measurements.



Antlers of Ancient British Red Deer, belonging to Sir Richard Williams-Bulkeley, Bart.



Head of Spanish Red Deer, shot by H.R.H. Prince Arthur of Connaught.

#### B.--SPANISH RED DEER (C. elaphus hispanicus).

Length	Circum- ference between bez and trez.	Tip to Tip.	Widest inside.	Spread.	Points.	Locality.		Owner.
43	51	15 <sup>2</sup>	$33\frac{1}{2}$	35	6+6	Sierra Morena	•	J. M. Power.
. 41 <u>3</u>	$4\frac{1}{2}$	18	34	374	6+4	El Pardo .	•	Duke of Arion.
<sup>1</sup> -40			$36\frac{1}{2}$		17	Sierra Morena		Abel Chapman.
38§	43	16 <u>3</u>	28	35	8 + 7	El Pardo .		H.M. The King of
-37 <sup>1</sup> / <sub>2</sub>			$34\frac{1}{2}$		15	Sierra Morena	•	Spain. Abel Chapman.
36	4.1	26	33‡	37 <sup>1</sup> / <sub>2</sub>	7+6	El Pardo		H.R.H. Prince Arthur
-35‡	51	$20_{S}^{7}$	3110	413	7 + 7	Sierra Morena		of Connaught. Duke of Arion.
-345	41 <sup>9</sup> 5	133	26 <u>7</u>	311	$6 \pm 5$	Do.		Do,
33	43	$2I\frac{1}{2}$	30	37	13	?		Prince E. Demidoff.

- Owner's measurements.

<sup>1</sup> 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 antler-length, and the heaviest weighed 205 lbs. clean.

#### RED DEER

Length	Circum- ference between bez and trez.	Tip to Tip.	Widest inside.	Spread.	Points.	Locality.		Owner.
$-32\frac{1}{2}$					13	Plains of Andalucia		W. J. Buck.
$-31\frac{1}{2}$	$4\frac{9}{16}$	${}_{1}8_{\overline{1}\overline{6}}^{5}$	$24\frac{15}{16}$	303	7 + 7	Valle de Viejas .	·	Duke of Arion.
-31	$4\frac{15}{16}$	${}_{\mathbf{I}}S_{16}^{15}$	<b>2</b> 41/2	$34\frac{1}{2}$	9 + 7	Montes de Toledo		Do.
-31	$4\frac{5}{8}$	28			15	Coto Doñana .		P. Garvey.
-29	5‡	•	25		12	Andalucia		Abel Chapman.

#### C.-NORWEGIAN RED DEER (C. elaphus atlanticus).

on b	Circum- ference between bez and trez.	Tip to Tip.	Widest inside.	Spread.	Points.	Weight.	Locali	ty.		Owner,
-341	$6\frac{1}{2}$			34 <u>*</u>		lbs.	Norway			J. S. Brunn.
-34					7		Do.			J. H. Thomas.
317	4 <u>3</u>		$25\frac{1}{2}$		6 + 5		Do.			A. Brassey.
$31\frac{1}{2}$	$4\frac{1}{2}$		$24\frac{1}{2}$		5 + 5		Do.			Sir H. Seton-Karr.
31 <u>1</u>	4 <del>3</del>		28		4+3		Do.		•	E. M. Denny.
31	$5\frac{1}{2}$	$27\frac{1}{4}$	$24\frac{1}{8}$	33=	8+4		Do.			J. H. Thomas.
30	5		29		12	280	Do.		·	E. M. Denny.
30	41	$29\frac{1}{4}$	30 <u>3</u>	33	5+4		Do.			Sir H. Seton-Karr.
<b>2</b> 9‡	48	26	30‡		6+5		Do.	•		G. L. Denman.

- Owner's measurements.

#### D.-GERMAN (C. elaphus germanicus) and CARPATHIAN RED DEER.

The Carpathian red deer, as represented in the Marmoros Forest, appear to be in some degree intermediate between the western and eastern races, having the short face and red-brown summer coat of the former, but tending to blackness on the under-parts as in the latter. West Carpathian deer, at any rate, may however be inseparable from *C. e. germanicus*. In Marmoros there is a second deer, the Polish, or wandering stag, reported to be an immigrant from Galician Poland, which has been regarded as a dwarf form of the maral. In the Bukowina district of the Galician Carpathians there occurs a large grey stag in the plains and a smaller and darker one in the mountains.



Skulls and Antlers of Carpathian Red Deer killed on the estate of the late Prince Henry of Liechtenstein at Tartarow, Galicia.



Skull and Antlers of Carpathian Red Deer shot by the late Prince Henry of Liechtenstein at Tartarow, Galicia, 1895. Length of antler, 46 inches. Weight, 20 lbs. 14 oz.

Owner.	Count Gèza Andrassy.	II. R. H. D. Miguel, Duke of Braganza.	Transylvania Rhys Williams.	E. N. Buxton.	Count Béla Széchényi.	Count Géza Andrassy.	Sir Edmund G. Loder, Bart.	Count Gèza Andrassy	Duke of Ratibor.	Archduke Frederick.	J. I. S. Whitaker.	Rudolph Pick.	Count Béla Széchényi.	Prince Lulu Rohan.	J. G. Millais.	Count Rudolf Erdödy.	Count Joseph Iloyos.	P. B. Vander Byl.	Prince Philip of Saxe-Coburg and Gotha.	Prince Hugo Windischgraetz.	LieutCol. L. Marshall.
<ul> <li>Locality.</li> </ul>	Zemplen, Hungary	Galicia .	Transylvania	Galicia .	Unghvar .	Zemplen Comitat	Ilungary .	Do	Pilis Moun- tains	Ilungary .	La Mandria	Galicia .	Hungary .	Radauc .	Poland .	Hungary .	Do	Carpathians	Hungary .	S.W. Hun- gary	Carpathians
Weight of stag.	11.s. 526	453	:	504	:	519	:	:	:	418	:	:	:	:	:	433	354	:	:	:	:
Spread.	:	:	40	45	÷	47	50	:	55.9	:	:	48	•	:	$47\frac{1}{2}$	:	$48\frac{1}{5}$	425	:	:	372
Widest inside.	÷	:	$34\frac{1}{2}$	32.75	:	38	39	:	÷	:	40	;	:	$39\frac{3}{3}$	37	43.11	:	33	:	:	30
Tip to Tip.	:	:	$14\frac{7}{8}$	:	÷	27	28	:	30	:	42	:	:	:	:	55.4	:	$21\frac{3}{4}$	:	:	34
Circum- ference hetween bez and trez.	÷	10	65	7.25	÷	7.20	7‡	÷	:	÷	9	$7\frac{1}{2}$	÷	:	$6\frac{1}{2}$	6.8	:	•	:	:	$6\frac{3}{4}$
Circumfer- ence below crown.	\$~ -1	152	:	:	S.‡	6	$7\frac{1}{2}$	:	:	<b>†</b> 9	:	:	$6\frac{1}{4}$	:	:	2.6	$9^{\frac{1}{8}}_{\frac{1}{8}}$	:	:	:	:
Circumfer- ence above middle	71	:	:	:	613	7	64	:	:	$7_1^{1}$	:	:	:	÷	:	7.11	$6\frac{1}{1}\frac{5}{6}$	6 <u>3</u>	:	:	• • •
Circum- ference above burr,	son So	10	:		Sţ	$S_{\frac{1}{2}}$	9 <sup>1</sup> / <sub>2</sub>	:	6.0\$	92	:	:	$7\frac{5}{8}$	:	:	9.3	$9\frac{1}{16}$	:	:	:	:
Circum- ference of burr.	93	11.‡	:	:	105	II	ξΠ	$II\frac{1}{16}$	:	1111	:	:	10‡	':	101	10.8	ţoi	:	$10\frac{3}{10}$	:	:
Length along curve.	535	5316	521	52	511 <sup>3</sup>	51	51	5010	50.4	50	50	05	0,00	103	46F	49.6	49 <mark>1</mark>	46	49	48.8	48 <u>3</u>
Weight avoirdupois.	lbs. oz. 23 0 <u>4</u>	over 20 lbs.	:	20 5	1 61	23 0	21 0	:	21 3	20 8	:	:	:	31 and an	oz. or two	20 0		:	21 0	25 3	:
Number of points.	01	-18	II	-18	-18	-14	1 14	-16	12-	-14	-14	-18	-10	71-	51	-16	-18	11	-12	-20	14

ary . Count Mittrovszky. a The late Prince Henry of Liechtenstein.	MIND												
	Galicia	:	:	36	:	:	:	:	:	:	46	:	-14
	Hungary	:	:	:	:	÷	7.28	6.89	9.25	18.11	46.06	19-91	-16
P Count Jenö Zichy.		523	:	:	:	÷	Ŧ9	:	S 85	916	$46\frac{1}{8}$	$17 11\frac{1}{2}$	-14
. Count Béla Széchényi.	Do.	508	:	÷	:	÷	$8_1^{ 5} {}_{6}$	$6\frac{1}{1}\frac{1}{6}$	$9\frac{1}{16}$	108	$46\frac{1}{8}$	22 9	-20
. Count Max Hoyos.	Do.	479	$42\frac{7}{8}$	$39\frac{3}{4}$	$52\frac{7}{8}$	:	$S_{16}^{11}$	$6\frac{3}{4}$	$9\frac{1}{2}$	$9_{16}^{11}$	46}	:	-22
. Prince Victor Ratibor.	Do.	:	:	÷	:	÷	6-89	8.07	9-45	11.02	46-46	20.68	-16
. Count Pal Dégenfeld.	Do.	:	:	:	:	:	$6\frac{1}{4}$	:	$S_{4}^{1}$	$9\frac{5}{8}$	$46\frac{3}{5}$	:	-14
ary . J. G. Millais.	gary Hungary	:	55	42	:	:	$6\frac{3}{3}$	· :	÷	$10\frac{3}{4}$	$46\frac{1}{2}$	:	-16
S.W. Hun- Count László Májláth.		590	:	÷	:	:	$6\frac{1}{4}$	$6\frac{11}{16}$	$\overset{1}{\overset{1}{\scriptstyle 2}}$	$9^{\frac{T}{5}}$	$46\frac{1}{2}$	19 6	-16
. Count Francis Nádasdy.	Do.	583	:	:	:	:	$7^{11}_{16}$	$7\frac{1}{16}$	2112	$9\frac{7}{8}$	$46\frac{1}{2}$	20 13	-20
N.E. Hun- Head-keeper Ganovszky.	N.E.	:	:	:	:	:	:	÷	:	$12\frac{5}{8}$	$46\frac{7}{8}$	$22 14\frac{1}{2}$	-16
Hun- Count László Májláth.		523	÷	:	:	:	$7\frac{1}{2}$	$6\frac{3}{4}$	$9\frac{1}{3}$	II	$46\frac{7}{8}$	19 13	-18
. Count Esterhazy.	Do.	:	:	:	:	:	$6\frac{1}{5}$	:	Io‡	II 8	$46\frac{\pi}{8}$	:	-12
. Antal Réh.	Do.	:	:	:	:	:	$7\frac{1}{2}$	:	$S_{\overline{s}}^{T}$	$9\frac{1}{2}$	$46\frac{\tau}{8}$	:	-16
ary . Duke of Portland.	Hungary	:	$48\frac{1}{2}$	$39\frac{1}{2}$	$31\frac{1}{2}$	$7\frac{1}{2}$	:	:	÷	:	47	÷	15
. A.	Galicia	:	:	$31\frac{1}{2}$	$12\frac{3}{4}$	$\overline{1}$	:	:	÷	÷	47	:	13
Ŭ ·	Do.	532	$29_1^9 $	$25\frac{1}{4}$	$35\frac{3}{4}$	:	$S_2^1$	$7\frac{1}{8}$	$8_{16}^{11}$	$11\frac{1}{2}$	$47\frac{1}{4}$	:	-16
ary . Prince Philip of Saxe-Coburg	Hungary	455	÷	:	:	:	$7\frac{1}{1}\frac{1}{6}$	$7\frac{11}{16}$	$9\frac{1}{8}$	$11\frac{1}{10}$	475	$20  9\frac{1}{2}$	-16
н.	Galicia	519	32	25	13	$7\frac{1}{2}$	12	$7\frac{1}{4}$	$9^{\frac{1}{2}}$	10	48	23 0	-14
ary . Do.	Hungary	:	58	43	38	7	8	$6\frac{1}{4}$	$9\frac{1}{2}$	$10\frac{3}{4}$	48	232	1 IS
uny . Sir Edmund G. Loder, Bart.	Germany	:	$51\frac{3}{4}$	$41\frac{1}{2}$	334	$6\frac{1}{2}$	$7\frac{1}{4}$	€	$S_4^3$	$9\frac{3}{4}$	48	$18\frac{3}{4}$	20
. н	Gotha	:	48	27	:	:	:	÷	6	÷	48	•	-19
ia . The late Prince John of I solutions	Moravia	:	:	:	:	:	:	:	$S_{g}^{T}$	:	48		-19

Owner.	II.R.II. the Duke of Saxe- Column and Cothe	Prince Altenburg.	Count Erbach.	Count Emil Széchényi.	Albert Tuhász.	Count Michael Esterhazy.	Archduke Joseph Augustus.	Head-keeper Ganovszky.	Sir Edmund G. Loder, Bart.	Dr. Albert von Stephani.	Count T. Eltz.	Count Béla Széchényi.	Archduke Joseph Augustus.	Count George Erdödy.	Archduke Joseph Augustus.	Prince Demeter Ghika.	Prince Montenuovo.	W. H. Wilson.	Prince E. Demidoff.	Archduke Frederick.	Hon. Walter Rothschild.	Archduke Frederick.
Locality.	Cotha .	Carpathians	Bukowina .	Hungary .	Do	Do	Do	Do	Do	Do	Do	Do	Do	Do	Do	Rumania .	Hungary .	~	Galicia .	Hungary .	Do	Do
Weight of stag.		:		:	:	:	:	:	÷	:	:	572	640	:	433	:	:	:	÷	:	:	418
Spread.	60	37	542	:	÷	:	:	:	49	32	:	:	:	:	:	:	:	$41\frac{1}{2}$	41	:	39	:
Widest inside.	36	$29_{2}^{1}$	35	÷	÷	÷	:	:	$42\frac{1}{2}$	:	:	÷	:	:	÷	$34\frac{1}{4}$	34‡	$34\frac{1}{2}$	33	:	$29\frac{1}{4}$	:
T'ip to T'ip.	:	÷	:	•	:	÷	÷	:	$41\frac{3}{4}$	15 <sup>2</sup>	:	:	:	:	:	$23\frac{5}{8}$	$29_{16}^{3}$	$1S_4^3$	$21\frac{1}{2}$	:	30‡	:
Circum- ference between bez and trez.	:	7.}	:	•	:	:	÷	:	$7\frac{1}{4}$	:	:	:	:	:	:	:	$S_4^3$	, 9	$5\frac{3}{4}$	:	9	:
Circumfer- ence below crown.	:	:	÷	$6\frac{3}{4}$	$7_{33}^{1}$	713	$8^{\frac{1}{4}}$	$7\frac{3}{3}$	s	$7\frac{3}{8}$	$7\frac{1}{2}$	$7\frac{1}{2}$	<b>†</b> 9	7.48	$6_{1}^{1}\frac{1}{6}$	:	$14\frac{9}{5}$	6	:	54	:	$6_4^4$
Circumfer- ence above middle point.	÷	:	:	:	:	710	715	$6\frac{1}{1}$	7	$6\frac{3}{8}$	$7\frac{1}{2}$	$6_{10}^{11}$	$7\frac{1}{8}$	7-28	$6_{16}^{11}$	:	7	55	:	:	:	$7\frac{1}{16}$
Circum- ference above burr.	6	* * *		$9_{s}^{t}$	835	$9\frac{2}{5}$	$9\frac{1}{2}$	$9_1^7 \overline{\sigma}$	$9\frac{3}{4}$	S§	$S_8^5$	$6_{1^{\overline{6}}}$	$9_{16}^{15}$	S-07	Sas	:	95	7.1	$7\frac{3}{4}$	$9\frac{x}{3}$	:	$10\frac{1}{4}$
Circum- ference of bur.	•		10	$10\frac{3}{4}$	10	111	$10\frac{5}{8}$	11	11	94	105	916	11 <sup>1</sup>	10.04	$\mathrm{IO}_{1}^{\frac{n}{6}}$	$9\frac{1}{3}$	12	6	S.25	‡01	:	$12\frac{3}{1}\frac{3}{6}$
Length along curve.	40	46	·46	+5+	454	4516	4518	4513	$+5\frac{1}{2}$	$+5\frac{3}{5}$	$45_{15}$	$45_{15}$	$45_{16}$	15.27	45‡	45‡	$45\frac{1}{3}$	45	45	445	443	$44\frac{1}{2}$
	lbs. 07.	•		:	:	10 I 01	111 61	19 S	233	:	23 4	20 8	20 6	17.05	19 8	:	28 10	:	:	:	:	20 4 <u>1</u>
Number of points.	81	-13	18	10	-10	IO	14	16	-17	-14	77	12	12	-20	14	15	-22	+1-	I I	14	14	5

S.W. Hun- Count Tassilo Festerics.	Carpathians Sir Edmund G. Loder, Bart. (See illustration, name 24.)	N. Hungary Count Béla Széchényi.	Transylvania S. H. Whitbread.	S.W. Hun- Archduke Frederick.	N. Hungary Prince Philip of Saxe-Coburg	Carpathians Count Michael Esterhazy.	Do. Jeno Kund.	Hungary . Count Fer. Nádasdy.	Sesawski J. Hamilton Leigh. Dobha	Hungary . Count Rudolf Erdödy.	Do. F. Pausinger.	Do. Count Tassilo Festetics.	Galicia . A. von André.	Hungary . Count Tassilo Festetics.	Do. Count B. Keglevich.	Do Count László Májláth.	Do. Count Henry Fünfkirchen.	Do. G. Jankovich.	Do Count Rudolf Erdödy.	Szilvás . Count Bombelles.	Hungary . Archduke Frederick.	Galicia . Prince E. Demidoff.	<sup>2</sup> Brow-points 20 in. long.
:	:	÷	:	352	÷	:	÷	÷	÷	÷	:	:	÷	:	484	446	565	÷	458	÷	363	÷	
÷	44 <u>5</u>	:	÷	:	:	÷	÷	:	$42\frac{1}{2}$	:	:	:	36	:	÷	:	$36\frac{5}{5}$	:	÷	:	:	50 <u>4</u>	pecimen.
:	$28\frac{3}{4}$	:	40	:	:	÷	•	:	$36\frac{1}{4}$	:	:,	21.52	$29\frac{1}{2}$	÷	:	;	$29\frac{3}{4}$	:	1,6£	:	:	$43\frac{1}{4}$	1 " Picked-up " specimen.
:	$14\frac{1}{2}$	÷	:	÷	:	Ę	÷	÷	$25\frac{1}{4}$	:		36.06	15	:	÷	:	$47\frac{5}{16}$	÷	51.6	:	:	38	,, I
:	$7\frac{1}{4}$	:	55 85	. :	÷	:	:	÷	$5\frac{3}{4}$	:	÷	49.2	$6\frac{1}{4}$	÷	÷	÷	÷	÷	8	:	÷	9	
12.21	73	20.8	:	$6\frac{3}{4}$	$7\frac{1}{8}$	89.4	68.9	₹9	÷	9.64	82.4	12.23	543	8.27	$7\frac{1}{8}$	÷	$9\frac{3}{8}$	60.4	II	:	$7\frac{1}{3}$	÷	ointers.
50,6	54	6.49	:	$7\frac{1}{8}$	6 <u>1</u> 1	89.4	82.1	:	÷	60.4	60.4	:	<del>1</del> 9	7.28	$7\frac{11}{16}$	$7_{ m S}^{ m T}$	$7\frac{1}{16}$	69.9	1.8	:	$7\frac{1}{2}$	:	are uneven p
28.2	Io‡	9.45	÷	$9\frac{1}{8}$	$9_1^7 \overline{6}$	9.84	10.24	105	:	8.46	8.27	8.o3	:	20.8	8 <u>5</u> 8	$10\frac{3}{4}$	$8_4^1$	8.27	6.8	s.s	$9_1^1 \overline{e}$	:	specimens
50.6	$11\frac{1}{2}$	10.63	:	115	$\mathbf{IO}_{\underline{8}}^{\underline{5}}$	14.11	14.11	$IO\frac{5}{8}$	÷	40.0I	10.43	20.01	11	10.04	$9\frac{7}{1}\overline{\sigma}$	$12\frac{1}{4}$	$9\frac{1}{4}$	9.84	10.4	:	IO§	:	Many of these specimens are uneven pointers
44.49	44 <u>3</u>	44.49	445	$44\frac{1}{8}$	$44\frac{1}{8}$	44.09	44.09	$44\frac{1}{8}$	44	43.7	43.7	43.6	$43\frac{1}{2}$	43.31	$42\frac{15}{6}$	$42\frac{1.5}{1.6}$	$42\frac{16}{16}$	16.24	42.8	42.7	$42\frac{1}{2}$	$42\frac{1}{2}$	
15.73	$24\frac{1}{2}$	21.91	:	18 3	18 $4\frac{1}{2}$	82.71	18.37	÷	:	41.61	20.24	18 o	:	9.41	$10 I_{\frac{1}{2}}^{\frac{1}{2}}$	$22   0^{\frac{1}{2}}_{\frac{1}{2}}$	:	90.91	20.2	1 61	20 13	:	- Owner's measurements.
-20	20	-14	10	-12	1-22	~~	1'4	-16	<sup>2</sup> 12	-18	-14	-20	12	-20	-14	-16	-20	-16	-18	-18	-20	II	

Owner.	Marquis Pallavicini.	Count Széchényi.	Count Fer. Nádasdy.	Count Jose Hoyos.	Sir Clement IIill.	Archduke Frederick.	Count László Májláth.	E. N. Buxton.	Count Henry Coudenhove.	British Museum.	Archduke Frederick.	Do.	Do.	Count Fer. Nádasdy.	H.R.H. the Duc d'Orléans.	Prince Philip of Saxe-Coburg	Do.	Prince Nicholas Ghika.	Count Michael Esterhazy.	J. D. Cobbold.	II.R.H. the Duke of Saxe- Coburg and Gotha.
Locality.	Rapoli .	Galicia .	Carpathians	Munkacs .	Styria .	Hungary .	Do	Galicia .	4	Germany .	Hungary .	Do	Do	Do	Do	Do	Do	Rumania .	Hungary .	Do	Tyrol .
Weight of stag.	lhs.	÷	5 <sup>8</sup> 3	÷	:	:	:	:	:	:	391	429	330	:	:	:	552	÷	:	:	:
Spread.	:	÷	:	:	$32\frac{1}{4}$	:	÷	40	:	:	:	:	÷	:	:	:	:	:	:	44	÷
Widest inside.		÷	:	:	$30_{\rm S}^1$	÷	:	$35\frac{1}{2}$	÷	254	:	:	:	:	32	$3\mathrm{I}_8^1$	:	$31\frac{1}{2}$	:	$35\frac{1}{2}$	273
Tip to Tip.	÷	:	:	:	111	:	:	:	42	:	:	:	:	:	$22\frac{1}{2}$	÷	:	28 <sup>3</sup> / <sub>8</sub>	:	$29\frac{1}{2}$	203
Circum- ference between bez and trez,	÷	•	÷	:	52	:	÷	÷	:	54	:	÷	:	:	5‡	:	:	` :	:	5 <u>1</u>	Ŋ
Circumfer- ence below crown.	64	÷	89.4	:	:	63	6 <sup>3</sup>	:	÷	:	$7\frac{3}{4}$	$S_4^1$	$6_{1.6}^{1.1}$	20.S	÷	$9_1^{1}\overline{6}$	2.2	$S_{\frac{1}{4}}$	:	÷	÷
Circumfer- ence above middle point.	. :	:	<i>б</i> о. <i>L</i>	:	:	÷		:	:	:	$7\frac{1}{2}$	$7\frac{1}{3}$	$7\frac{1}{3}$	60.4	:	$7\frac{1}{8}$	60.4	:	$6_{\overline{1}\overline{\overline{6}}}$	÷	:
Circum- ference above burr.	S <sup>4</sup>	8.5	t2.0I	913	55	$S_2^{\rm L}$	36	:	:	:	$S_4^{\dagger}$	$9_1^{1_{\tilde{u}}}$	$9\frac{1}{1\delta}$	6.25	:	ţoi	29.01	:	SIL	:	:
Circum- ference of burr.	IOS	1.6	19.11	:	7	54	9 <sup>7</sup> 8	:	85	:	$10\frac{1}{4}$	IO	IOł	12.01	:	:	12.21	:	$10\frac{3}{4}$	:	:
Length along curve.	42	5.24	\$1.24	1.24	42	42 <sup>1</sup>	100	42	c1 51	$+1\frac{7}{5}$	$41\frac{3}{4}$	413	÷11	41.73	$41\frac{1}{2}$	41	40.04	40 <sup>5</sup>	$40\frac{9}{13}$	40 <u>1</u>	40‡
Weight avoirdupois.	lhs, oz. 	*	17 6	18 8	:	:	•	:	1S 0	:	18 3	11 22	19 2 <sup>1</sup> / <sub>2</sub>	92.81	:	20 0	10,17	:	18 3	121	:
Number of points.	-18	02-	-16	-20	-10	-18	1	12	17	12	18	18	18	-1S	12	-14	-12	II-	26	II	-13

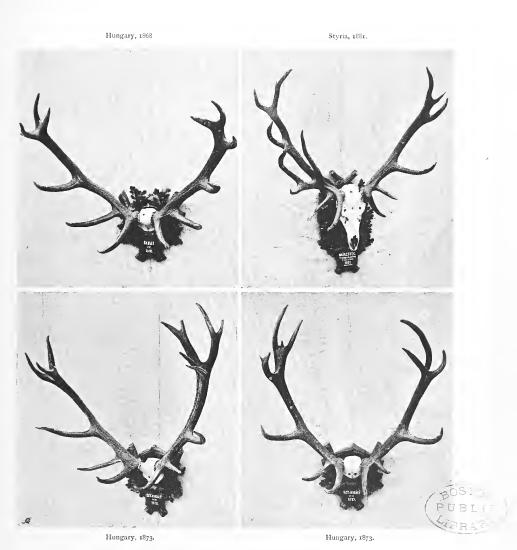
Agarév, S.W. Count Tassilo Festetics.	Hungary . Archduke Joseph Augustus.	Do St. George Littledale.	Gotha . H.R.H. the Duke of Saxe-	Moravia . G. D. Whatman.	Germany . Sir Edmund G. Loder, Bart.	Hungary . A. von André.	Do A. N. Hall.	Do. Prince Philip of Saxe-Coburg	S.W. Hun- Count Tassilo Festerics.	Bury Hungary . The German Emperor.	Russia . H.R.H. Prince Arthur of	Upper J. Hamilton Leigh.	Tenuta. Tenuta la H.R.H. the Duc d'Orléans. Mondrie	Romandars, II.I.M. the German Em- R.N.E.Ger- peror. many.
:	455	:	:	:	÷	:	:	433	÷	÷	:	÷	÷	342 (clean)
:	:	$33\frac{3}{4}$	49	45‡	44½	$37\frac{1}{2}$	$37\frac{1}{2}$	:	÷	$53\frac{1}{2}$	$39\frac{3}{4}$	÷	÷	44 <u>5</u>
:	:	26‡	28	$33\frac{1}{2}$	$36\frac{1}{2}$	$30\frac{1}{2}$	33	:	:	÷	$32\frac{1}{2}$	$21\frac{1}{4}$	$18\frac{1}{2}$	÷
÷	:	$17\frac{3}{4}$	:	$28\frac{1}{2}$	$29\frac{1}{2}$	214	$31\frac{3}{4}$	:	:	÷	$27\frac{3}{4}$	n • •	12	:
:	:	52	<b>:</b> ,	$6_2^1$	53	$7\frac{1}{2}$	64	:	:	:	9	4 <u>1</u>	4}	:
÷	$9\frac{1}{1^{4}}$	:	:	÷	:	$7\frac{1}{2}$	:	$8_{1\overline{d}}^{5}$	85 85	:	÷	8	:	:
:	$7_{1}^{1}\overline{\sigma}$	:	:	÷	÷	$6\frac{1}{2}$	:	855 85	$7\frac{1}{2}$	:	:	÷	÷	÷
8.10 (?)	$9\frac{1}{16}$	:	:	÷	:	<u>6</u> ‡	÷	to‡	$9_{16}^{1}$	÷	:	÷	:	÷
:	to‡	÷	10	:	:	01	:	$12\frac{3}{16}$	$11\frac{1}{16}$	$10\frac{3}{4}$	:	:	:	:
40'10	$40_1^1\overline{6}$	40	40	40	40	$39\frac{1}{2}$	$39\frac{1}{2}$	$38\frac{1}{4}$	$38\frac{1}{4}$	$37\frac{1}{2}$	354	35	$31\frac{1}{2}$	30
18*50	20 4출	:	:	:	:	:	$14\frac{1}{2}$	$22   0\frac{1}{2}$	21 13	:	:	10.7	:	₽0 6I
-20	20	13	-18	IO	13	15	10	-14	-22	-24	12	-12	IO	-44

- Owner's measurements. Many of these specimens are uneven pointers.

The late Viscount Powerscourt informed us that the 18 stag heads in the entrance hall at Powerscourt, mounted on papier-maché 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 in which 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.



Antlers of Carpathian Red Deer in the Collection of Sir Edmund G. Loder, Bart.



Carpathian Red Deer heads belonging to His Imperial Majesty the Emperor of Austria.

Austria.
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Majesty the
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heads in
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Eastern R

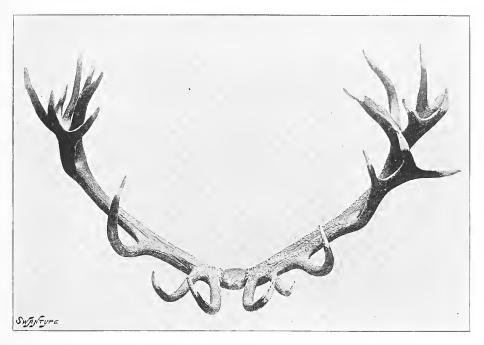
Specimens from the Plains of Hungary.

Date.     Tips.     Outside lighter point.     Tip to Tip.     Inside.     Outside.     of Antler.     of Hurr.       September 1874 $6+7$ $41\frac{1}{2}$ $35\frac{3}{3}$ $21\frac{1}{3}$ $35$ $31\frac{3}{3}$ $7\frac{1}{3}$ September 1874 $6+7$ $41\frac{1}{2}$ $35\frac{3}{3}$ $21\frac{1}{3}$ $33$ $31\frac{3}{3}$ $7\frac{1}{3}$ $6+6$ $40\frac{5}{3}$ $34$ $15\frac{1}{3}$ $28\frac{3}{3}$ $32\frac{3}{3}$ $5\frac{3}{3}$ $5\frac{3}{3}$ $$ October 1868 $6+7$ $40\frac{5}{3}$ $34$ $15\frac{1}{3}$ $28\frac{3}{3}$ $32\frac{3}{3}$ $32\frac{3}{3}$ $5\frac{3}{3}$ $9$ October 1868 $6+7$ $40\frac{1}{3}$ $36$ $35\frac{1}{3}$ $25\frac{3}{3}$ $32\frac{1}{3}$ $5\frac{3}{3}$ $9$ $1873$ $7+10$ $39\frac{1}{3}$ $36^{1}$ $29\frac{1}{3}$ $32\frac{2}{3}$ $33\frac{1}{3}$ $5\frac{1}{3}$ $8^{1}$ $8+6$ $39\frac{1}{3}$ $36$ $21\frac{1}{3}$ $27\frac{1}{3}$ $41$ $6$ $7+8$ $37\frac{1}{3}$ $34$ $25\frac{1}{3}$ $31\frac{1}{3}$ $41$ $6$ $7+8$ $37\frac{1}{3}$	Date.     Tips.       September 1874     6 + 7         6 + 6         6 + 6       October 1868     6 + 7     6 + 7        1873     7 + 10         8 + 6         7 + 8         7 + 8	1.cugur.		WIG	Widest	Circumference	erence		
September 1874 $6+7$ $41\frac{1}{2}$ $35\frac{3}{8}$ $21\frac{1}{3}$ $33$ $31\frac{3}{8}$ $7\frac{1}{8}$ $\dots$ $\dots$ $6+6$ $40\frac{3}{8}$ $34$ $15\frac{1}{3}$ $28\frac{3}{3}$ $32$ $5\frac{3}{4}$ $\dots$ October 1868 $6+7$ $40\frac{1}{3}$ $36$ $35\frac{1}{2}$ $25\frac{3}{3}$ $42\frac{1}{6}$ $6\frac{3}{6}$ $9$ October 1868 $6+7$ $40\frac{1}{3}$ $36$ $35\frac{1}{2}$ $25\frac{3}{3}$ $32\frac{3}{3}$ $42\frac{1}{6}$ $6\frac{3}{6}$ $0$ $\dots$ $8+6$ $39\frac{1}{3}$ $36$ $21\frac{3}{2}$ $23\frac{3}{3}$ $41$ $6$ $\dots$ $\dots$ $7+8$ $37\frac{3}{3}$ $34$ $25\frac{3}{5}$ $31\frac{3}{2}$ $41$ $6$ $\dots$ $\dots$ $7+8$ $37\frac{3}{3}$ $34$ $25\frac{5}{5}$ $31\frac{3}{2}$ $41$ $6$ $\dots$ $\dots$ $7+8$ $37\frac{3}{3}$ $34$ $25\frac{5}{5}$ $31\frac{3}{2}$ $41$ $6$ $\dots$ $\dots$ $7+8$ $37\frac{3}{3}$ $31\frac{3}{2}$ $27\frac{3}{3}$ $27\frac{3}{2}$ $7$ <t< th=""><th>September 1874 6+7 ,, ,, 6+6 October 1868 6+7 ,, 1873 7+10 ,, ,, 8+6 ,, ,, 7+8</th><th>side Burr to ve. highest point.</th><th>Tip to Tip.</th><th>Inside.</th><th>Outside.</th><th>of Antler.</th><th>of Burr.</th><th>Locality.</th><th></th></t<>	September 1874 6+7 ,, ,, 6+6 October 1868 6+7 ,, 1873 7+10 ,, ,, 8+6 ,, ,, 7+8	side Burr to ve. highest point.	Tip to Tip.	Inside.	Outside.	of Antler.	of Burr.	Locality.	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	<ul> <li>, , , , , , , 6+6</li> <li>October 1868 6+7</li> <li>, 1873 7+10</li> <li>, , , , , , , , , , 7+8</li> </ul>		21 <sup>1</sup> 8	33	313	74	:	Szent Kiraly.	
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	October 1565 6 + 7 1873 7 + 10 8 + 6 7 + 8		154	28 <u>3</u>	32	$5\frac{3}{4}$	:	Do.	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	.: 1873 7 + 10 .: .: 8 + 6 .: .: 7 + 8		$35\frac{1}{2}$	35 <u>4</u>	42.‡	$6\frac{7}{3}$	6	Balıat.	
8+6 391 36 211 27 351 61 7+8 371 34 255 311 41 6 <i>Specimens of the Mountain Form.</i> 5+5 <sup>1</sup> 415 33 12 275 237 7 8	8+6 7+8		$29_{8}^{1}$	$32\frac{T}{8}$	$33\frac{1}{2}$	$5^{\mathrm{Z}}_{\mathrm{S}}$	85	Szent Kiraly.	
7+8 373 34 258 313 41 6 Specimens of the Mountain Form. 5+5 <sup>1</sup> 415 33 123 278 233 7 8			$21\frac{3}{4}$	27	$35\frac{1}{3}$	<del>7</del> 9	:	$\mathbf{D}^{0}$ .	
Specimens of the Mountain Form. 5+5 <sup>1</sup> 41 <sup>3</sup> 33 12 <sup>3</sup> 27 <sup>3</sup> 23 <sup>3</sup> 7 8			258	$31\frac{3}{4}$	41	9	÷	Do.	
Specimens of the Mountain Form. 5+5 <sup>1</sup> 413 33 124 278 233 7 8									
$5+5$ $\frac{1}{415}$ 33 $12\frac{1}{2}$ $27\frac{5}{2}$ $23\frac{2}{5}$ 7 8		Spea	imens of the	Mounta	in Form.				
	Sth August 1S92 $5+5$ $^{1}41\frac{3}{2}$	87 33	$12\frac{1}{8}$	275	237	7	~	Brachberg (Upper Austria)	ia)

Sth August 1892	5+5	$^141\frac{7}{8}$	33	$12\frac{1}{8}$	27 <u>8</u>	$23\frac{7}{5}$	7	8	Brachberg (Upper Aus
1st October 1885	4+4	$4I\frac{1}{8}$	28	IS	$32\frac{1}{2}$	:	4.7	:	Graben, Styria.
30th September 1885	5 + 4	$37\frac{3}{4}$	31‡	24 <u>3</u>	$31\frac{3}{4}$	28	9	:	Taschl, do.
2nd October 1881	10+7	$36\frac{3}{4}$	$30\frac{3}{4}$	27‡	$31\frac{7}{8}$	40 <u>1</u>	$7\frac{1}{2}$	:	Mürzsteg, do.
3rd ,, 1884	6 + 6	36	31‡	$14\frac{3}{4}$	27	:	$6\frac{7}{8}$	:	Grasleiten, do.
5th ., 1889	7 + S	345	33	143	234	25 <u>∓</u>	9	:	Graben.

<sup>1</sup> This is the finest head of Alpine Red Deer known.

RED DEER



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

# Ancient Continental Specimens.

Length (on curve)	Circum- ference.	Tip to Tip.	Spread.	Points.	Locality.		Owner.
-474	9		75 <del>홍</del>	14+14	?		H.M. the King of Saxony, Moritzburg.
$-46\frac{1}{2}$	83 above trez	5 ft. 2]		22	?		Count Erbach-Erbach.
			inside	22	Switzerland	•	Do.
39½	$6\frac{1}{2}$	22	$3I\frac{1}{2}$ 39 outside	6+6	Germany .		Viscount Powerscourt.

- Owner's measurements.



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

Length of Antler, 45 in.

## E.-EASTERN RED DEER or MARAL (C. elaphus maral).

In this race of the red deer, which may intergrade with some of the western races by means of the Carpathian form, the height at the shoulder reaches to about  $4\frac{1}{2}$  feet, and the build is stouter, the neck thicker, and the face in the hinds longer and more pointed than in typical red deer. The summer coat of immature animals is very generally marked with numerous yellowish spots, and at all ages is much less red than in the British race, being, in fact, grey in September. The colour of the winter coat is dark slaty grey on the back, with the rump-patch of a very bright yellow, and a large amount of black on the shoulders, thighs, and under-parts; this blackness of the under-parts also characterising the summer coat. The large and massive antlers are generally less complex than those of the western races, 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 brow-tine, and the fourth tine is generally more distinct from the crown. The average weight is given as about 560 lbs.

The typical locality of the maral is the Caspian provinces of Northern Persia, whence this or allied races extend into the Crimea, Asia Minor, and so on into Transcaucasia, the Caucasus, and probably Circassia. It is noteworthy that specimens from the Caucasus have shorter faces than those from Northern Persia, and thus approximate to the western types. Sportsmen call this race the Hungarian red



Antlers of Eastern Red Deer from the Caucasus, in the Collection of Sir Edmund G. Loder, Bart.

deer, but this is scarcely legitimate, as Hungary is not the typical locality. (For other specimens, see p. 18 *et seq.*) The Crimean red deer have very massive, few-tined antlers.

on out- side curve.	Circum- ference.		Widest inside.	Spread.	Points.	Locality.	Owner.
$48\frac{3}{4}$	61	34	<b>3</b> 6	$42\frac{1}{2}$	8+6	Asia Minor .	H. O. Whittall.
$4S_{2}^{1}$	6	30	$4I\frac{1}{2}$		5+6	Ichater Dagh, Crimea	H.R.H. the Duke of Saxe- Coburg and Gotha.
$48\frac{1}{2}$	7‡	(single	antler)	•••	I 2	Asia Minor .	British Museum (Lord A. Hay).
48	7‡	• • •		•••		Caucasus	St. George Littledale (Liverpool Museum).

30

50								
Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Spread.	Points.	Locality.		Owner.
47‡	$7\frac{1}{4}$	$33^{\frac{1}{2}}$	431	$54^{\frac{3}{2}}$	10+9	Persia? .		St. George Littledale.
47 <del>1</del>	$5\frac{3}{4}$	$1S_{2}^{1}$	36‡	411	6 + 5	Caucasus .		Sir Edmund G. Loder, Bart.
$46\frac{3}{4}$	5 <sup>3</sup> /3	ıS	33		S + S	Do		British Museum.
$-46\frac{3}{4}$	65		39		8+6	Asia Minor		F. E. Whittall.
$45\frac{1}{2}$	5 <sup>3</sup> / <sub>4</sub>	$42\frac{3}{4}$	49	52	6+6	Caucasus .	۰.	S. H. Whitbread.
$-45\frac{1}{2}$	81	65‡			14	Do		Grand Duke Mikhael.
$45\frac{1}{2}$	$7\frac{1}{4}$	$32^{3}_{\pm}$	$40\frac{1}{2}$	46	S + S	Do	•	Prince E. Demidoff.
-451	•••	17‡	311	$39\frac{1}{2}$	10+8	Do		J. C. Phillips.
$^{1}45\frac{1}{5}$	$7\frac{3}{4}$				9+6	Asia Minor		Sir Edmund G. Loder, Bart.
<sup>2</sup> -45	8	36	42		11 + 10	Caucasus .		Prince E. Demidoff.
45	6‡	301	$38\frac{1}{2}$	$44\frac{1}{2}$	7+6	Asia Minor	•	H. O. Whittall.
$44\frac{1}{2}$	63	31	39 <u>1</u>	$47\frac{1}{2}$	S + 7	?		Duke of Bedford.
$44\frac{1}{2}$	$7\frac{1}{8}$	19‡	26	36‡	7+6	Asia Minor	•	F. W. Baker.
441	$6\frac{7}{5}$	(single	antler)		9	Do.	•	British Museum (C. G. Danford).
44	5 <sup>3</sup> / <sub>4</sub>	$28\frac{3}{4}$	36	$40\frac{1}{2}$	8+7	Ak <sup>•</sup> Dagh .		J. L. Rees.
$43\frac{1}{2}$	$6\frac{1}{2}$	$26\frac{3}{4}$	$35\frac{3}{4}$	$46\frac{1}{2}$	10+8	Do		D. Forbes.
$43\frac{1}{2}$	6		40	•••	8+6	Asia Minor	•	M. Le C. Findlay.
$43\frac{1}{2}$	$5\frac{3}{4}$	16	28		6+6	Crimea .		Earl of Dunmore.
43	54	38	39 <del>3</del>	49	7 + 7	Ak Dagh .		J. W. Williamson.
43	5‡	22 <u>3</u>	32 <del>3</del>	$37\frac{1}{2}$	7+6	Do		H. Williamson.
421	6	22 <sup>3</sup> / <sub>4</sub>	31	36 <u>3</u>	6+6	Do		H. O. Whittall.
42	61	28	33 <sup>1</sup> / <sub>2</sub>	$44\frac{1}{2}$	9+8	?		R. A. Cooper.
42	6	26 <u>1</u>	$34\frac{1}{2}$	42	7+6	Ak Dagh .	•	T. Bowen Rees.
42	61	24	30	35	7 + 7	Asia Minor	•	Capt. J. B. Jenkinson.
37	53	311/2	34 <sup>3</sup>	$40\frac{1}{2}$	7+6	N. Persia .		Capt. C. T. Daukes.
-37	5‡	$2I\frac{1}{2}$	30		14	Macedonia		H. J. Elwes.
36	$5\frac{3}{4}$	15	25	$37\frac{1}{2}$	7+7	Persia ,		Major P. M. Sykes.

1 Weight, 23 lbs.

- Owner's measurements. eight, 23 lbs. 2 Estimated weight, 746 lbs.



North African Red Deer : Sir Edmund G. Loder's Specimen.

# F.-N. AFRICAN RED DEER (C. elaphus barbarus).

# For characters, see page 2.

Length on out- side curve.	Circum- ference between bez and trez.	Tip to Tip.	Widest inside.	Spread.	Points.	Locality.	Owner.
38 <u>7</u>	5릏	$27\frac{1}{2}$	28	36	6 + 5	North Africa	Sir Edmund G. Loder, Bart.
$36\frac{1}{2}$	4 <u>3</u>	$22\frac{7}{8}$	$28_{\pm}^{3}$		4+4	Do.	British Museum.
301/2	31				4+3	?	Duke of Bedford.
$24\frac{1}{4}$	$3\frac{3}{4}$	$20\frac{3}{4}$	$2\mathrm{I}rac{1}{2}$		4+4	Tunis .	Major R. Rankin.



Skull and Antlers of Hangul or Kashmir Barasingha. Shot by Mr. P. B. Vander Byl.

## The HANGUL or KASHMIR BARASINGHA (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 a-side, 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 rump, 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 wapiti, instead of roaring in 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 pale-coloured *C. macneilli*, of Sze-chuan, and *C. m. kansuensis*, of Kan-su and Yun-nan, are nearly related deer.

The finest pair of antlers appears to be one given by Raja Gulab Singh many years ago to Colonel King, then commanding the 14th Hussars, at whose death they passed to Captain Prettyjohn of the same regiment. What became of these antlers the late Mr. A. O. Hume, who measured them at Meerut in 1852 or 1853, could not ascertain. The record stands, R. 52, L.  $53\frac{1}{2}$ , measured along the curve inside. Girth, 10 inches at burr and 7 half-way between bez and trez tines. They were a wide-branching, symmetrical pair.

Length on out- side curve.	Circum- ference between bez and trez.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
$-53\frac{1}{2}$	7					See above.
48	$6\frac{1}{8}$	<b>I</b> 4	$33\frac{1}{4}$	6 + 5	Lidar Valley, Kashmir	K. S. Laurie.
47½	6	22	39	6+6	Kashmir	P. B. Vander Byl. (See
-47	7§	21	36	7 + 5	Do	illustration, p. 32.) Bombay Natural History
47	6 <u>3</u>	$21\frac{1}{4}$	36 <u>8</u>	5 + 5	Do	Society. Sir Edmund G. Loder, Bart.
47	6‡	30	$35\frac{1}{2}$	8 + 8	Do	Duke of Wellington.
47	6	20	34 <sup>3</sup> / <sub>4</sub>	6 + 5	Do	LieutCol. H. R. Cook.
46	58	13	34 <sup>3</sup>	5 + 5	Do	Capt. W. F. Brayne.
45 <del>3</del>	8	35	41	6+6	Do	British Museum (Hume Col-
458	6	$25\frac{3}{4}$	36	8+8	Do	lection). Sir Victor Brooke's Collec- tion.
$45\frac{1}{2}$	61	$16\frac{1}{2}$	34	6 + 5	Do	BrigGen. E. H. Molesworth.
$45\frac{1}{4}$	5 <sup>§</sup>	171	34	5 + 5	Do	P. Radclyffe.
45	$6\frac{3}{4}$	19	34	6+6	Do	Lieut Gen. Sir R. Pole-
45	$5\frac{1}{4}$	231	36	6+6	Do	Carew. J. V. E. Lees.
45	61	23	40	4+4	Do	Capt. H. F. Bidder.
$44\frac{3}{4}$	$5\frac{1}{2}$	$17\frac{1}{2}$	33	6+6	Do	Col. A. E. Ward.
$-44\frac{3}{4}$	6	20	43	5 + 5	Lidar Valley	Queen's Own Corps of Guides.
-44 <del>5</del>	$6\frac{1}{2}$	$31\frac{1}{2}$	$44\frac{3}{4}$	5 + 5	Kishenganga Valley .	Do.
$44\frac{1}{2}$	6	$27\frac{3}{4}$	$38\frac{3}{4}$	4+4	Sind Valley, Kashmir	J. V. Phelps.
44	7‡	$30\frac{3}{4}$	$40\frac{7}{8}$	5 + 5	Do	Major P. H.G. Powell-Cotton.
44	$6\frac{3}{4}$	231	$36\frac{1}{2}$	5 + 5	Do	Naval and Military Club.

- Owner's measurements.

	Circum-					14	01		~
Length on out- side curve.	ference between bez and trez.	Tip to Tip.	Widest inside.	Points.	I	ocali	ty.		Owner.
44	б	27	36	5 + 5	Kashmir			•	Hon. Walter Rothschild.
44	$6\frac{3}{4}$	$34\frac{1}{2}$	$47\frac{1}{2}$	5+5	Dò.				Major V. Rickard.
44	$5\frac{3}{4}$	18	31	5+5	Do.				C. E. Bryant.
$43\frac{3}{4}$	$6\frac{1}{4}$	$25\frac{3}{4}$	37 <del>3</del>	6+5	Do.	•			Capt. A. E. Cathcart.
$43\frac{3}{4}$	6 <u>1</u>	II	$32\frac{3}{4}$	7+6	Do.				A. Danson.
$43\frac{3}{4}$	$5\frac{7}{8}$	$\mathfrak{1}\mathbb{S}_2^1$	29	5 + 5	Do.				C. H. Smith.
431	$6\frac{1}{2}$	19	31	5 + 5	Do.	·			Sir J. Prestcott Hewett.
$43\frac{1}{2}$	6	$10\frac{3}{4}$	$32\frac{1}{2}$	7+6	Do.				A. Williams.
431	6	31‡	38	5 + 5	Do.				Sir R. Douglas Powell, Bart.
$43\frac{1}{2}$	6	$15\frac{1}{2}$	$29\frac{3}{4}$	7 + 7	Do.				Capt. C. M. Truman.
$43\frac{1}{2}$	53	154	31‡	6+6	Do.				Capt. A. M <sup>c</sup> B. Woodside.
43 <del>1</del>	$7\frac{1}{2}$	$23\frac{1}{2}$	371	5+5	Do.				R.E. Mess, Roorkee.
43	$5\frac{1}{2}$	34	$4I\frac{1}{2}$	5 + 4	Do.				His Majesty the King.
43	5 <del>3</del>	$26\frac{1}{8}$	$37\frac{7}{5}$	6+5	Do.				Martyn Kennard.
43	51	193	$34\frac{1}{2}$	6+6	Do.				Major F. W. H. Walshe.
$42\frac{3}{4}$	$5\frac{1}{2}$	18	33=3	6 + 5	Do.			•	Major R. Baker-Carr.
$42\frac{3}{4}$	$5\frac{1}{2}$	17‡	33#	5 + 6	Do.	•			Major-Gen. H. D'U. Keary.
$42\frac{3}{4}$	6	15	321	5 + 5	Do.	•			Major C. A. Vivian.
$42\frac{1}{2}$	6‡	I I <sup>1</sup> / <sub>2</sub>	$26\frac{3}{4}$	5 + 5	Do.			•	Capt. A. H. Wilson.
42	$5\frac{3}{4}$	$13\frac{1}{2}$	$26\frac{1}{2}$	5 + 5	Do.				E. L. Phelps.
42	$5\frac{1}{2}$	20	$35\frac{1}{2}$	6+5	Do.			•	W. A. Conduitt.
42	6	22	34	5 + 5	Do.				Major W. Furnivall.
4I4	6	23	36‡	6 + 6	Do.				F. V. B. Witts,
4I3	$5\frac{3}{4}$	$23\frac{1}{2}$	35	5 + 5	Do.				Major Kingsley Foster.
414	6	18 <u>1</u>	311	6+5	Do.				H. A. Attenborough.
4I <del>3</del>	$5\frac{1}{2}$	I 2 <u>1</u>	293	5 + 5	Do.				Major R. A. N. Tytler.
$4I\frac{1}{2}$	6	251	$36\frac{1}{2}$	5 + 5	Do,				Col. F. H. Hancock.
$41\frac{1}{2}$	$6\frac{1}{2}$	36	$41\frac{1}{2}$	5 + 5	Do.				C. Arthur.
418	54	23	$33\frac{1}{2}$	6 + 5	Do.				Capt. H. C. H. O'Brien.
4 I <del>1</del>	6	152	29	7+6	Do.				P. W. Cobbold.
41‡	$5\frac{1}{2}$			6+3	Do.				Lady Jenkins.
4 I	54	231/2	35	5 + 5	Do.				Hon. H. G. O. Bridgeman.



Skull and Antlers of Yarkand Stag. From specimen bequeathed by Mr. A. O. Hume to the British Museum.

#### The YARKAND STAG (Cervus yarcandensis).

This stag, which inhabits the Tarim Valley and Maralbashi in Eastern Turkestan, differs markedly from the hangul by the large and well-defined light rump-patch, which includes the tail, and by the general colour being light rufous 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 antlers is often bent forwards in the manner of those of the shou.

Length on outside curve.	Circum- ference.		Widest inside.	Spread.	Points.	Locality.		Owner.
$41\frac{1}{2}$	6	314	31‡	44	6 + 6	Maralbashi .		British Museum.
$40\frac{1}{4}$	$5\frac{1}{2}$	$23\frac{3}{4}$	314		5 + 5	Do		British Museum (Hume Collection).
40	$5\frac{1}{2}$	25	31		6+5	Do	·	E. L. Phelps.
$39\frac{1}{2}$	6	$24\frac{1}{2}$	25		7+6	Do		British Museum (Hume Collection). See illus- tration.
394	$5\frac{3}{4}$	16 <u>1</u>	$2S_{\pm}^{3}$	•••	6+6	Do		The late David T. Hanbury.



Kashmir Barasingha Head.



Skull and Antlers of Sikhim Shou. From a specimen bequeathed by Mr. A. O. Hume to the British Museum.

#### The SHOU (Cervus wallichi).

A very large stag with antlers, at least in the Sikhim race, 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 browtine is less constantly longer than the bez, the fifth tine is large and inclined inwards, and the terminal fork looks almost directly forwards. In the typical race, which inhabits the neighbourhood of the Mansarowar Lake, Tibet, the white rump-patch is large, but it is smaller in the true shou (*C. wallichi affinis*), which inhabits the upper

part of the Chumbi valley and some of the neighbouring valleys in Bhutan. An identical or nearly allied deer is also found in the Tsan-po basin, near Lhasa.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.		Owner.
55 <del>3</del>	$6\frac{1}{2}$	17‡	$40_{3}^{3}$	7 + 6	Tibetan Frontier	•	British Museum (Hume Col- lection). See illustration.
$55\frac{3}{4}$	6 <del>3</del>	$26\frac{1}{8}$	44	5 + 5	Do.		British Museum (B. H. Hodg- son).
54 <sup>§</sup>	6§	215	37‡	5 + 5	Do.		British Museum (Dr. Camp- bell).
54‡	73	10‡	$35\frac{1}{2}$	5 + 5	Do.		His Majesty the King.
53‡	63	30	$45\frac{3}{4}$	4 + 5	Do.		British Museum (Hume Col- lection).
$-52\frac{1}{2}$	7	$18\frac{1}{2}$	38	5 + 5	Do.		Sir Edmund G. Loder, Bart.
52	8				Do.		Hon. Walter Rothschild.
50	61	$21\frac{3}{5}$	35‡	8 + 6	Do.		II. J. Elwes.
49 <u>1</u>	$7\frac{1}{2}$	38	$45\frac{1}{2}$	5 + 5	Do.		Col. J. Biddulph.
$-49\frac{1}{2}$		$39\frac{1}{2}$		5+4	Do.		Bombay Natural History
-48	6	30	421	5 + 5	Chumbi Valley.		Society. Lord Curzon.
-48	6 <u>3</u>	30 <del>3</del>	<sup>1</sup> 39	5 + 5	Tibetan Frontier		H. J. Elwes.
48	6 <u>3</u>	17	34 <u>1</u>	6+5	Do.		H.R.H. the Duc d'Orléans.
47 🖥	58	30 <sup>3</sup> /8	$40\frac{1}{2}$	5 + 5	Do.		British Museum.

- Owner's measurements.

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 are 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 antlers are smooth and white nearly throughout.

The Tibetan plateau, north of Lhasa, is the home of this fine species of deer, which was originally described by the late Colonel Przewalski under the scientific 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 Dr. W. T. Blanford.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
47					N. of Lhasa	British Museum.
$38\frac{1}{2}$	43	37	27	5+4	Central Tibet .	Hon. Walter Rothschild.
38	5‡	28	31	5 + 5	Do	British Museum.
<sup>1</sup> -36	$4\frac{1}{2}$	32	32	5 + 5	5	Indian Museum.

- Owner's measurements.

<sup>1</sup> Bought at Darjiling, thither brought by Tibetans.

#### The WAPITI DEER (Cervus canadensis).

Wapiti are 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 any 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. The height at the shoulder is about 5 feet 4 inches, and the weight from 700 to 1000 lbs.

## A.-ROCKY MOUNTAIN WAPITI (C. canadensis typicus).

# Distribution.-N. America, east of the Rockies, inclusive of that range.

Length on outside curve.	Circum- ference between bez and trez.	Circum- ference of burr.	Tip to Tip.	Widest inside beam of horn.	Widest outside.	Points.	Locality.	Owner.
$64\frac{1}{2}$	S		$31\frac{1}{2}$	45	52	7+6	?	Sir Edmund J. Loder, Bart.
$63\frac{1}{2}$	8		39	$45\frac{1}{2}$	52	7 + 7	Wyoming .	H. A. C. Darley.
$62\frac{1}{2}$	S	131	••••	$46\frac{1}{2}$	$55\frac{1}{2}$	17	Do	J. G. Millais.
62	73		33‡	$50\frac{5}{8}$	•••	7 + 7	Snake River, Colorado	Ernest Farquhar.
бі	S		35‡	$45\frac{1}{2}$	$53\frac{7}{8}$	6+6	Bighorn Mts., Wyoming	Sir H. Seton-Karr.
61	S		$36\frac{1}{2}$	$46\frac{1}{2}$	55	8 + 8	Do	Viscount Powers- court.
бі	S			·••		8 + 7	Do	Prince Nicolas Ghika.
$60\frac{1}{2}$	81			55		7+6	Do	E. Grant.
603	$7\frac{1}{4}$		43	46 <del>1</del>		6+6	Do	Major C. C. Ellis.
60	8‡		36	$37\frac{1}{2}$	45	6+6	Do	W. Winans.
$59\frac{1}{2}$	7		38	$4S_{2}^{1}$	52	8 + 7	Do	L. E. Sackville West.
$59\frac{1}{2}$	$S_{2}^{1}$	13	371	47		8 + 8	S.E. Wyoming.	His Majesty the King.
59 <u>5</u>	$S\frac{1}{2}$	16‡		43	53	7+6	2	J. G. Millais.
59	$6\frac{1}{2}$		$30\frac{1}{2}$	45 <u>1</u>	51‡	6+6	Rocky Mts	T. J. Burrough.
59	$7\frac{3}{4}$		39	46	53	9+7	Wyoming	Sutton Timmis.
$58\frac{1}{2}$		) between ow and bez.	•••	$46\frac{1}{2}$	$50\frac{1}{2}$	10+7	Do	Lord Hythe.
58		91 <sup>1</sup> 5	42	47‡		7+6	Do	A. II. Straker.
58	$7\frac{3}{8}$		$43\frac{1}{2}$	49		9 + 8	Do	W Moncreiffe.
$57\frac{3}{4}$	7		36	$43\frac{1}{2}$	47	6+6	?	R. Fleming Crooks.
$57\frac{1}{2}$	$6\frac{7}{8}$		24‡	355		6 + 6	Montana	Capt. Abdy.
571		9ŝ	32	42.1		7 + 7	Do	Sir Humphrey de
57	6 <u>3</u>	10	$52\frac{1}{2}$	55	$57\frac{1}{2}$	6 + 6	Do	Trafford, Bart. T. D. M. Cardeza.
57	71	•••				7 + 7	Do	Count F. Trautt- mansdorff.
57	$7\frac{1}{8}$	I 5	53	$49\frac{1}{2}$	61	8+9	Montana	Sir Edmund G.
57	7 \$		351	415		6 + 6	Yellowstone Park	Loder, Bart. British Museum.
561	71		37	$39\frac{1}{2}$	$43\frac{1}{2}$	7+6	?	Duke of Bedford.
561	6.3		34	49	•••	6+6	Montana	Andrew Jameson.
56	7		31	39	$42\frac{1}{2}$	6+7	Wyoming	J. V. Colby.



Head of Rocky Mountain Wapiti.

Length on outside curve.	hetween	Circum- ference of burr.		Widest inside.	Widest outside.	Points.	Locality.		Owner.
56	7			50½	51 <u>1</u>	7+6	Wyoming .		Royal Automobile
55 <sup>§</sup>	7		$43\frac{1}{2}$	47훟		6+5	Do		Club. Major G. Dalrymple
55 <sup>1</sup> / <sub>2</sub>	71		40	46 <del>]</del>	50	6+6	Do		White. P. B. Vander Byl.
55½	7		$29\frac{1}{2}$	$40\frac{1}{2}$	$45\frac{1}{2}$	6+6	Do		T. P. Kempson.
55½	$6\frac{1}{2}$		44	45호		6+6	?		A. H. Pollen.
55 <b></b> ₹	$7\frac{1}{8}$		46 <del>]</del>			7+6	5		St. George Little-
55‡	6 <del>§</del>		43 <sup>1</sup> / <sub>2</sub>	47불	501 <u>3</u>	6+6	Wyoming .		dale. G. L. Harrison.
55	8			45호		7+6	Do		Major Maitland
55	7 <del>┇</del>			$47\frac{1}{2}$		6+5	Do		Kirwan. E. N. Buxton.
55	7		52	50	54 <del>1</del>	6+6	Do		W. E. T. Bolitho.
55	$7\frac{1}{2}$		38	47	$52\frac{1}{2}$	7 + 7	Do		Viscount Powers-
<sup>1</sup> 55	65					14	?		court. Duke of Bedford.
54 <del>3</del>	61/2		50 <u>1</u>	51	60	6 + 6	?		E. S. Crasten.
541	73		37	43‡	48	7+6	Montana .		E. L. P. Burke.
$54\frac{1}{2}$						14	Colorado .		Sir Peter Walker,
$54\frac{1}{2}$	9			paln	nated	1 I + 7	Montana (?)	•	Bart. G. Wrey.
$54\frac{1}{2}$	$6\frac{3}{4}$		28	37	46	6+6	?		F. I. Mitchell.
$54\frac{1}{2}$	6 <u>3</u>		43	$43\frac{1}{2}$	47	7 + 7	Wyoming .	•	Duke of Roxburghe.
543	$6\frac{1}{2}$		38 <u>3</u>	44‡		7+6	Do		E. N. Buxton.
54‡	7 <del>§</del>		$49\frac{7}{5}$			9+7	Do		Hon. Walter Roths-
<sup>2</sup> 54	71		•••	48		8+7	Do		child. Earl of Lonsdale.
54	$6\frac{1}{2}$		$43\frac{1}{2}$	444	47 <sup>1</sup> / <sub>2</sub>	7 + 7	Do	•	H. H. Dutton,
54	75		43	42	45	8+7	Do	•	P. Niedieck.
54	7‡			48		7 + 8	Do		Earl of Lonsdale.
54	$6\frac{1}{2}$		25	363	$42\frac{3}{4}$	6+6	Sierra Nevada	•	P. Grace.
54	73		48	44		12	?		M. P. Grace.
537	8		35	42		6 + 6	•••		His Majesty the King.
531	71		$27\frac{1}{2}$	$35\frac{1}{2}$	42.1	7+6	Wyoming .		P. Radclyffe.
53ł	7 <u>1</u>		34	39	$47\frac{3}{4}$	8+7	Do		Rudolph de Gold- schmidt.
53 <sup>1</sup>	73		47	49 <sup>3</sup>		8+7	Do		Ford G. Barclay.
53	6.1		36	40.	45	palmated 7+6	Do	•	Lord Falconer.
	1	Shed antle	rs weigl	ied 20 lb	15.		<sup>2</sup> Shot by Sir G. C	Gor	e, Bart.

# WAPITI

## OWNER'S MEASUREMENTS.

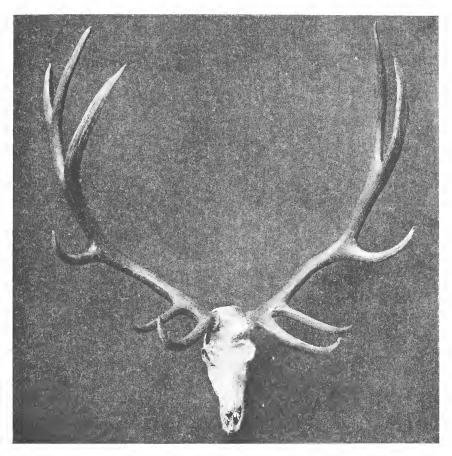
Length on outside curve.	Circum- ference between bez and trez.	Circum- ference of burr.			Widest outside.	Points.	Locality.	Owner.
66					60	6+6	Wyoming .	J. Darley.
65	78				40	7 + 7	Laramie Plains, Wyoming	Schoverling, Daly, and Gales.
$64\frac{3}{4}$		$9\frac{3}{4}$	41 <u>1</u>	49		6+7	Wyoming	O 1 T T TT -
64 <del>1</del>	8			48		7 + 7	N.W. Wyoming	A. Rogers.
633	8 <del>1</del>		49‡	$48\frac{1}{2}$		7+9	North Prong .	Frank Cooper.
631	8 <del>§</del>		$34\frac{1}{2}$	$50\frac{1}{2}$	64	6+6	Wyoming	J. C. Phillips.
$59\frac{1}{2}$		$10\frac{1}{2}$		$37\frac{1}{2}$	59		Bighorn Mts	Sir Savile Crossley, Bart.
$58\frac{1}{2}$	$8\frac{1}{2}$			$44\frac{1}{2}$		6+6	Do	J. D. Cobbold.
58½	8 <del>1</del>		48		50	6 + 6	?	F. B. Tolhurst.
58	•••	IO	41		$49\frac{1}{2}$	7 + 7	Do	American National
58	$10\frac{1}{2}$	12				7+8	?	Collection. P. F. Collier.

#### B.-WEST AMERICAN WAPITI (C. 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.

Length on outside curve.	Circum- ference between bez and trez.	Tip to Tip.	Widest inside.	Widest outside.	Points.	Locality.		Owner.
52	$S\frac{1}{2}$	37	40		6+6	Vancouver .		Barclay Bonthron.
51 <sup>3</sup> /4	$6\frac{3}{4}$	35	36 <u>1</u>	39 <del>1</del>	6+6	Do	·	J. M. Hanbury.
-491	$6\frac{1}{2}$	38	46 <del>1</del>		10+7	Do		A. E. Leatham.
48	71	$32\frac{3}{4}$	36 <u>‡</u>	$34\frac{1}{2}$	6+7	Do		W. R. Thompson.
47	63	37	34	$4I\frac{1}{2}$	8+7	Do		J. M. Hanbury.
-45	7‡	37	37		7+8	Do		Clive Phillipps-Wolley.
-45	$6\frac{3}{4}$	37	39	42	6+4	Do		J. C. Phillips.
$-44\frac{1}{2}$		$33^{\frac{1}{2}}$	28	32	6+6	Do. °.	·	Capt. C. R. E. Rad- clyffe.

Two other forms of wapiti have been described from North America, namely, *C. canadensis merriami*, of the White Mountains, Arizona, and *C. canadensis nannodes*, of the San Joaquin Valley, California. The latter is a small, pale-coloured race, with much white on the ears, a small rump-patch, and the front of the legs and feet golden fulvous.



Skull and Antlers of Tien Shan Wapiti, shot by Mr. P. Church at Tarbagatai.

#### C.--TIEN-SHAN WAPITI (C. canadensis songaricus).

Judging by the mounted specimen in the British Museum and numerous examples of the antlers, this race differs from the typical wapiti by the rump-patch being narrower, more orange in colour, and not including the middle line of the tail, which is coloured like the back. There is more black on the borders of the rump-patch, the thighs, and the flanks, and the general colour is greyer. The antlers are very large and have the fourth tine shorter and stouter. This wapiti inhabits the Tien-Shan range in the neighbourhood of Kulja; it was first described by Dr. Severtzow under the name of *C. maral*, var. *songarica*, and subsequently by Dr. Blanford, on

# the evidence of detached antlers obtained by the Second Yarkand Mission, as *C. custephanus*. Weight (W. Winans), 837 lbs.

Length on outside curve.	Circum- ference.		Widest inside.	Spread.	Points.	Localit	ty.		Owner.
60	$S\frac{1}{2}$	621	$45\frac{1}{2}$	70	10+9	Tien Shan	•	•	Capt. J. N. Price Wood.
$56\frac{1}{2}$	71	371	37 <sup>1</sup> / <sub>2</sub>	$40\frac{1}{2}$	6 + 6	Do.	•		G. L. Harrison.
<sup>1</sup> -55	8	••••			6+7	Bought at K	Lashgar		Earl of Northbrook.
54	71	49	463	$50\frac{1}{2}$	7+6	Tien Shan			P. Church.
-53	9 burr				8 + 6	:	?		American National Collec- tion.
53	6 <u>3</u>	$30\frac{1}{2}$	39	46	6+6	Tien Shan			J. V. Phelps.
53	$6\frac{7}{8}$	46	41	49	8 + 8	Do.			Duke of Bedford.
52	61	$24\frac{1}{2}$	31‡		8 + 7	Do.			Capt. J. F. Turner.
52	6	45‡	40 <del>1</del>	45	6+6	Do.			Capt. the Hon. G. H. Douglas Pennant.
51	$6\frac{1}{2}$	39 <del>3</del>	$40\frac{3}{4}$	50 <del>1</del> 8	6 + 5	Do.			A. Ezra.
51	63	43‡	$44\frac{1}{2}$	$46\frac{3}{4}$	7+6	Do.			St. George Littledale.
51	$6\frac{1}{2}$	$44\frac{1}{2}$	38	49	10+8	Do.			C. C. Tower.
51	8	$44\frac{1}{2}$	51	55	8+7	Do.			Col. H. Appleton.
50 <u>3</u>	61	4I <sup>3</sup>	$42\frac{1}{2}$	45	6+6	Do.	•		C. H. Bury.
50	$6\frac{3}{4}$	39	43	51	6+6	Do.		•	Lord Osborne Beauclerk.
50	$6\frac{1}{2}$	26	35	38	7+6	Do.			A. Bayley-Worthington.
$49\frac{1}{2}$	71	28	33	$4I\frac{1}{2}$	8+7	Do.	•		T. P. Miller.
49‡	6§	$45\frac{3}{4}$	54	55	6 + 6	Do.			Capt. J. N. Price Wood.
-49	•••	42 <u>3</u>		48	6 + 6	Do.			LtCol. H. M. Biddulph.
48‡	$6\frac{1}{2}$	39‡	$42\frac{1}{2}$	$45\frac{1}{2}$	6 + 6	Do.			Major A. D. Greenhill- Gardyne.
47.‡	63	42.1	$44\frac{3}{4}$	$47\frac{1}{2}$	6 + 6	Do.	•		LieutCol. G. E. Pereira.
47	63	244	$32\frac{1}{2}$	4 <b>1</b>	7+6	?			Col. H. G. C. Swayne.
$46\frac{1}{2}$	6	36	$40\frac{1}{2}$	43	6 + 6	?			S. W. Carpenter.
461	7	$37\frac{1}{2}$	39 <sup>3</sup>	44	$8 \pm 7$	Tien Shan			P. F. Hadow.

- Owner's measurements.

<sup>1</sup> Shed antlers bought by the late Sir Douglas Forsyth.

#### D.--BAIKAL WAPITI (C. canadensis sibiricus).

Antlers less massive and lighter coloured than those of the Tien-Shan race, with the fourth tine inclined outwards instead of inwards, and having only a slight bend at the tip, and with the beam at this point curving gradually inwards and backwards, so that the backward inclination is less marked than in the latter. Typically from the Sayansk and Baikal Mountains west of Lake Baikal. Also known as *C. c. asiaticus*.

Length on outside curve.		Tip to Tip.	Widest inside.	Spread.	Points.	Locality.	Owner.
50 <sup>3</sup> / <sub>4</sub>	6	$29\frac{1}{2}$	$38\frac{1}{2}$		8+7	? Altai	Duke of Bedford.
48 <u>1</u>	7출		single	horn	7	2	British Museum.
464	$6\frac{1}{4}$	34	$40\frac{1}{2}$		6+6	Upper Yenisei Valley	J. C. Phillips.
$45\frac{1}{2}$	6‡	34‡	$39\frac{1}{2}$	47	5+5	? Altai	H. J. Elwes.
45	6	$51\frac{1}{2}$		•••	6+6	Upper Yenisei Valley	Sir Edmund C. Loder, Bart.
43 <sup>3</sup> / <sub>4</sub>	61	37	35		6+6	Do.	Dublin Museum.

## E.-BACTRIAN WAPITI (C. canadensis bactrianus).

Named on the evidence of a specimen formerly 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 Chenkend, Turkestan, the head of one of which is now mounted in the British Museum. The colour is very light grey, and the dark markings on the lips differ from those of other wapiti. Has also been named *C. hagenbecki*.

*Distribution.*—Chenkend 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.	Locality.	Owner.	
40	6	26‡			6+4	Turkestan .	Duke of Bedford.	

#### F.---MANCHURIAN WAPITI (C. canadensis xanthopygus).

Antlers of a shorter and stouter type than in the Tien-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 grey, in summer bright reddish brown, with the dark winter mane and under-parts of other wapiti. Also known as *C. bedfordi*.

Distribution.-Northern Manchuria in the Upper Ussuri district.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Spread.	Points.	Locality.	Owner.		
<b>4I</b> <sup>1</sup> / <sub>2</sub>	$6\frac{3}{4}$	23	33		6+6	Upper Yenisei Valley	J. C. Phillips.		
$40\frac{1}{2}$	$6\frac{1}{4}$	23	$32\frac{3}{4}$	35쿡	7+6	Do.	Sir Edmund G. Loder, Bart.		
$-38\frac{1}{2}$	78				6+6	- 2	American National Collection.		
$33\frac{1}{2}$	5	23	$26\frac{3}{4}$	281	6+5.	N.E. Manchuria	A. J. A. Douglas.		
33	5	25	24	$26\frac{1}{2}$	5 + 5	Do.	Capt. H. L. Archer-Houblon.		
334	$5\frac{3}{4}$	$18\frac{1}{2}$	$2I\frac{1}{2}$		6+6	3	H. J. Elwes.		
32.1	51	267	$26\frac{3}{8}$	$29\frac{7}{5}$	7 + 5	?	Do.		
314	6	17	$25\frac{3}{4}$	29	8 + 7	Ş	Duke of Bedford.		
- Owner's measurements.									

Luehdorf's Wapiti (*C. luehdorfi*) appears to have been founded on aged individuals of this race. The type specimens came from Transbaikalia, and were probably brought from the Bureatish Steppe of Northern Manchuria.

The Obi Wapiti (*C. c. biedermanni*) comes from Lake Teletzh at the source of the Obi, and Barnoul, lower down the same valley.



Skull and Antlers of Japanese Sika. From a specimen in the Collection of Sir Edmund G. Loder, Bart.

## The SIKA DEER (Cervus [Pseudaxis] sica).

The Japanese sika deer is the typical representative of a 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. They constitute the subgenus Pseudaxis. In the typical species 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, Japan, and the Liu Kiu Islands, where they are represented by two or three races differing chiefly in size. In the Japanese deer (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 deer (C. sica manchuricus) it reaches 3 feet 3 inches. The Liu Kiu race is not yet named. Both the Japanese and the Manchurian races have been acclimatised in English and Irish

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parks. Weight (W. Winans), 180 lbs.—12 stone clean (Marquis of Waterford).

## A.-JAPANESE SIKA (C. sica typicus).

Length on out- side curve.	Circum- ference.	Tip to Tip.	Points.	Locality.	Owner.	
-28 <sup>3</sup> / <sub>8</sub>	$3\frac{1}{2}$	18 <u>1</u>	4+4	Japan	. J. C. Phillips.	
26 <u>1</u>	$3\frac{3}{4}$	191	4+4	?	British Museum.	
$25\frac{1}{2}$	5	173	4+4	Japan	Sir Victor Brooke's	Collection.
258	$4\frac{1}{5}$	201	4+4	Do	Sir Edmund G. Lo	der, Bart.
$23\frac{1}{2}$	43		4+4	Bred in England	W. Winans.	
$22\frac{1}{2}$	4	16	5+4	Do	. H.R.H. the Duc d	'Orleans.
$^{1}22\frac{1}{4}$	33	$I2\frac{1}{2}$	4+3	Bred in Ireland .	Marquis of Lansdov	wne.
22	4	16 <u>3</u>	5+4	Do	. Sir Victor Brooke's	Collection.
$2I\frac{1}{2}$	33	137	4+4	Do	Hon. Walter Roths	child.
$20\frac{1}{8}$	$3\frac{1}{2}$	$12\frac{3}{4}$	4+4	Bred in England	. H.R.H. the Duc d	'Orleans.
20	$3\frac{1}{2}$	$I2\frac{3}{4}$	4+3	Do	W. Winans.	
19‡	$3\frac{1}{2}$	17 <del>3</del>	4+4	Bred in Ireland .	. V. Brooke.	
17‡	3	16 <del>1</del>	4+4	Woburn	Duke of Bedford.	
16	$3\frac{1}{2}$	13 <u>1</u>	3+3	Bred in Ireland .	. C. E. Russell.	
16§	3	9ŝ	4+3	Do	Hon. John Ward.	
$2^{2}$ I $5^{\frac{1}{2}}$	$2\frac{3}{1}$	14 <u>1</u>	4+4	Do	Marquis of Hamilto	on.
		1	12 stone	clean.	<sup>2</sup> Weight, 143 lbs. as it fell.	

## B.---MANCHURIAN SIKA (C. sica manchuricus).

on out- side curve.	Circum- ference.	Tip to Tip.	Points.	Weight.	Locali	ty.		Owner.
-26	41	133	4+4		Manchuria			Paris Museum.
23	31	181	4 + 4		Do.		•	Duke of Bedford.
23	51	159	3+4	164 lbs.	Do.			W. Winans.
201	31	16	4 + 4	153 lbs.	Do.			Do.

- Owner's measurements.

#### The FORMOSAN SIKA (Cervus [Pseudaxis] taëvanus).

Nearly allied to the typical 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 II inches. This species is confined to the mountains of the island of Formosa.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.		Local	lity.	Owner.
194	$3\frac{3}{5}$	13	16 <u>3</u>	4+4	Formosa			British Museum.
19	3‡			4+4	Do.			Duke of Bedford.



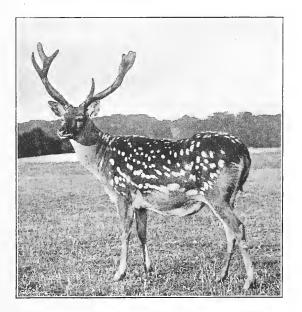
Head of Dybowski's Sika.

#### DYBOWSKI'S SIKA (Cervus [Pseudaxis] 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 grey, and in immature animals whitish spots persist in winter, although these disappear completely at this season in fully adult bucks, in which the coat becomes 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 named C. hortulorum by Consul Swinhoe from an immature buck and doe taken at the sack of the Summer Palace, Pekin, 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 kopschij of the Yang-tsi valley.

## PEKIN SIKA

	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.		Owner.	
34‡	5축	$34\frac{1}{2}$	$25\frac{1}{2}$	5 + 5	Ş		British Museum (Duke of Bedford).	
32 <u>3</u>	$5\frac{1}{2}$	2378	$22\frac{3}{4}$	4+4	N.E. Manchuria		A. J. A. Douglas.	
$31\frac{1}{2}$	5‡	$27\frac{1}{8}$	$26\frac{3}{4}$	4+4	Do		Sir Edmund G. Loder, Bart.	
27	$4\frac{1}{8}$	$23\frac{1}{2}$	20	4+4	Manchuria .		Hon. Walter Rothschild.	
26	$3\frac{3}{4}$	18	$15\frac{1}{2}$	4+4	Do		E. P. Tennant.	
32‡	$4\frac{1}{2}$	$16\frac{1}{2}$	$23\frac{1}{2}$	4+4	$(\mbox{Shed antlers})$ .		Duke of Bedford.	
32	$4\frac{1}{4}$	27	$24\frac{3}{8}$	4+4	Do		Do.	
31 <u>1</u>	$4\frac{1}{2}$	$18\frac{1}{2}$		4+4	N.E. Manchuria		Hon. Walter Rothschild.	
$29\frac{5}{8}$	$4\frac{3}{8}$	$27\frac{3}{4}$	21	5 + 5	Do		W. Banks.	
$27\frac{1}{2}$	4 <del>3</del>	$16\frac{1}{2}$	191	4+4	Do		A. Hardcastle.	
26	$4\frac{1}{2}$			5+4	$\left( \text{Shed antlers} \right)$ .		W. Winans.	



Dybowski's Stag in summer coat, with the antlers in velvet. Photographed by the Duchess of Bedford.



Head of Barasingha.

## The BARASINGHA or SWAMP-DEER (Cervus [Rucervus] duvauceli).

This species belongs to the rucervine group, in which the antlers lack a bez-tine, and apparently also a trez; the beam being regularly forked, and each branch again dividing, so that there are at least four tines. The gland on the hind-leg is absent or represented by a tuft.

#### BARASINGHA

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 being usually simply forked, but sometimes divided in a



Head of Barasingha, from the Central Provinces, with antlers approximating to the Thamin type.

From the Proceedings of the Zoological Society for 1899.

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 400 lbs.

Distribution.---India, exclusive of Ceylon.

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Length on outside curve.	Circum- ference.		Widest inside.	Points.	Locality.		Owner.
41	$6\frac{1}{2}$	$35\frac{1}{2}$	38 .	8 + 5	Central Provinces		Capt. W. W. Hancock.
4 I	5 <sup>3</sup>	32	371	S + 7	Do.		Col. C. B. Wood.
41	$5^{\frac{1}{2}}$	(one a		6+6	Do.		Major C. S. Cumberland.
39 <del>1</del>	5	$35\frac{1}{2}$	ken) 37½	5+6	Do.		Do.
381	$5\frac{1}{2}$	(shed a	ntlers)	6 + 5	Do.		C. F. Egerton.
38	$4\frac{3}{4}$	28§	$33\frac{1}{2}$	6+6	Do.	• .	J. A. McKee.
38	$5\frac{1}{2}$	35‡	$36\frac{1}{2}$	7 + 7	Do.	•	R. J. Purcell.
-38		43		6+6	Do.	•	J. D. Inverarity.
$-37\frac{1}{2}$	$4\frac{3}{4}$	28	31	5 + 5	Do.		Bombay Natural History Society.
37 <del>3</del>	5‡	235	$2S_{2}^{1}$	7 <del>+</del> 6	2		Sir Edmund G. Loder, Bart.
367	6	$27\frac{1}{2}$		8+6	?		Major Lord Charles M. Nairne.
$36\frac{1}{4}$	$4\frac{1}{2}$	32	$20\frac{1}{4}$	5 + 5	?		Mrs. Macan.
36‡	$5^{\frac{1}{2}}$	311	34	8+ <b>7</b>	Kheri		Capt. H. Pelham Burn.
364	51	<b>2</b> 9‡	$26\frac{1}{2}$	7 + 5	?		Capt. H. F. Salt.
-36‡	5	21	25	6+5	Nepal		R.E. Mess, Roorkee.
36	5	26 <del>]</del>	28‡	6+5	?		Major T. M. Ward.
36	5	$29\frac{3}{4}$	33 <sup>3</sup>	6+5	Nepal		British Museum (B. H.
36	$4\frac{1}{2}$	47	47	6 + 6	Central Provinces		Hodgson). Col. C. B. Wood.
-36	•••	29		6+6	Nepal	• .	J. D. Inverarity.
-36	51	$32\frac{1}{2}$	•••	7 + 7	?		Major W. Anstruther Gray.
$35\frac{1}{2}$	5	30 <del>1</del>	$32\frac{3}{4}$	5 + 5	?		LieutCol. R. Gordon.
35 <sup>3</sup>	4 <del>7</del>	27	<b>2</b> 9 <sup>3</sup> / <sub>4</sub>	•••	?		Sir Victor Brooke's Collection.
351	$4\frac{1}{2}$	$29^{1}_{2}$	321	6 + 5	?		Capt. H. J. D. Broughton.
35‡	53	221		7+6	Nepal		H. C. V. Hunter.
35	43	$27\frac{1}{2}$	30 <u>1</u>	5 + 5	Tarai		LieutCol. E. B. Cook.
35	$5\frac{1}{2}$	31 <u>1</u>	34‡	8 + 6	Central Provinces		Major R. Baker-Carr.
35	5	291	$32\frac{1}{2}$	6 + 6	Do.		British Museum.
34‡	43	32		6+5	?		Sir Guy Fleetwood Wilson.
34	$4\frac{1}{2}$	$22\frac{1}{2}$	257	S + 7	;		Capt. S. F. A. Hurt.
331	5	252	30}	8 + 6	?		Duke of Pencrenda.
33	5	30	30%	4+4	?	(	G. P. Cosens.

- Owner's measurements.

## SCHOMBURGK'S DEER



Skull and Antlers of Schomburgk's Deer. From a specimen in the British Museum, presented by the late Mr. Rowland Ward.

#### SCHOMBURGK'S DEER (Cervus [Rucervus] schomburgki).

#### La-ong or La-on, Siamese.

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.*—Siamese territory east and west of the Menam River; also Cambodia west of the Menam River south of Paknampho, and in swamps occasionally on the east; in fact, chiefly the inland districts east of the Menam River in Northern Siam.

Length on outside curve,	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality		Owner.
33	54	171	311	11+9	Siam		British Museum (Rowland Ward).
$-32\frac{1}{8}$	$5\frac{1}{8}$	$27\frac{3}{4}$	29	I 2 + I I	Do		Sir Edmund G. Loder, Bart.
$-31\frac{1}{2}$	6 <u>1</u>	24	$27\frac{1}{2}$	13+10	Do		Bombay Natural History Society.
$-30\frac{1}{2}$				10+12	Do		American National Collection.
30 <del>1</del>	5	155	33	10+10	Do		British Museum.
$29\frac{3}{4}$	$4\frac{3}{4}$	2S§	315	10+11	Do		Do.
29 <u>1</u>	б	191	27	6 + 7	Do		J. Carr Saunders.
$28\frac{1}{2}$	54	II	$29\frac{3}{8}$	11+9	Do		Sir Victor Brooke's Collection.
-28.5	5.525	9.2	28.5	10+9	Do		Indian Museum.
28	$4\frac{1}{2}$	$19\frac{3}{4}$	29§	10+6	Do		Sir Edmund G. Loder, Bart.
27‡	54	20	$27\frac{3}{4}$	10+9	Do		J. W. Ford.
$26\frac{3}{4}$	6‡	18	$30\frac{1}{2}$	10+8	Do		J. C. Phillips.
$26\frac{1}{2}$	51	23	$32\frac{1}{2}$	11+9	Do		G. L. Harrison.
20 <del>]</del>	4	171	20	6+6	Do		Hon. Walter Rothschild.
				- Ow	ner's measuremen	its.	

#### The THAMIN or ELD'S DEER (Cervus [Rucervus] 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 yellowish spots. Swamp-deer from the Central Provinces show a remarkable approximation in the form of their antlers to the present species, as shown in the figure on page 55.

Length on outside curve, not including brow-tine.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
42	5	24	29	3+2	Burma	A. H. Collins.
41	$5\frac{1}{2}$	$27\frac{5}{8}$	36	5 + 5	Upper Burma .	MajGen. O. E. P. Lloyd.
-4 I	5‡	30	36	5 + 7	Do	Col. G. H. Evans.
$40\frac{1}{2}$	5	$25\frac{1}{2}$	$34\frac{1}{2}$	7 + 6	Do	A. B. Roberts.
40 <del>1</del>	5	301	$36\frac{3}{4}$	6 + 5	?	C. B. Smales.
40	5‡	$2I_{4}^{\underline{3}}$	28	5 + 5	Upper Burma .	MajGen. H. D'U. Keary.
40	$5\frac{1}{2}$	21	$32\frac{1}{4}$	6 + 5	Do	Col. H. Appleton.
-39 <sup>8</sup> / <sub>4</sub>	5	$25\frac{1}{2}$	$35\frac{1}{2}$	7+6	Do	S. E. F. Jenkins.
39 <del>§</del>	5	$20\frac{1}{4}$	$30\frac{1}{2}$	6+6	Burma	Col. J. W. A. Morgan.
<sup>1</sup> 39§	5	313	36 <del>§</del> (s	20 mall points)	Siam	Sir Edmund G. Loder, Bart.
$-39\frac{1}{2}$	5	$29\frac{3}{4}$	37	12	Burma	Major E. W. M. Purvis.
$-39\frac{1}{2}$		$2\mathrm{I}rac{1}{2}$	33		Do	LieutCol. H. de H. Haig.
-39	$7\frac{1}{2}$	$22\frac{1}{2}$	29	$\mathbf{IO} + \mathbf{IO}$	Manipur	LieutCol. H. S. Wood.
-39	5	41		5 + 5	Lower Burma .	W. O. Hannyngton.
$38\frac{7}{8}$	6‡	$25\frac{1}{2}$	30 <u>3</u>	16+19	?	British Museum.
$38\frac{1}{4}$	$6\frac{1}{4}$	24	$30\frac{3}{4}$	6+5	Manipur .	British Museum (Hume Collection).
38‡	5	$2$ I $\frac{1}{2}$	<b>2</b> 9‡	7 + 7	Burma	P. Grace.
38	$4\frac{5}{8}$	<b>2</b> 9‡	$36\frac{3}{4}$	5 + 5	Pegu	G. R. Radmore.
38	$4\frac{1}{2}$	$20\frac{1}{2}$	32	5+4	Burma	H. F. Hall.
37	5	$23\frac{3}{4}$	$31\frac{1}{2}$	4+4	Do	Major C. S. Cumberland.
37	6		$37\frac{1}{4}$		Do	Capt. J. A. F. Field.
$36^{3}_{4}$	$4\frac{3}{4}$	16	27	4+4	Do	Major L. E. Hopkins.
$36\frac{3}{4}$	$4\frac{3}{4}$	22	27	7 + 5	Do	Capt. M. E. Lloyd.
$36\frac{1}{2}$	$4\frac{1}{2}$	225	$29\frac{1}{2}$	5+4	Do	H. Twyford.
$36\frac{1}{2}$	$4\frac{1}{2}$	$24\frac{1}{2}$	$28\frac{3}{4}$	5 + 4	Do	W. S. Powell.
36	$4\frac{1}{2}$	23	31	10+9	Do	Capt. H. W. Marsden.
36	$4\frac{3}{4}$	29‡	31‡	4+3	Manipur	Capt. L. P. Haviland.
36	5			4+4	?	Duke of Bedford.
36	412	25	33 <del>1</del>	7 + 5	?	L. G. Nunes.
36	5	314	37	6+4	Burma	Sir Robert Harvey, Bart.
35 <sup>1</sup> / <sub>2</sub>	$4\frac{1}{2}$	$22\frac{1}{4}$	311	6+6	Kyaikto, Lower Burma	J. W. Clough.

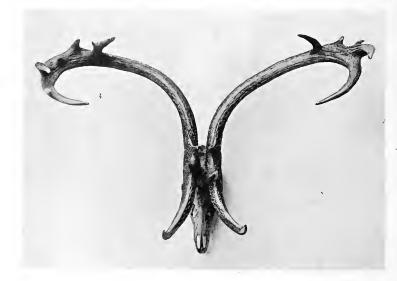
– Owner's measurements.  $^1$  Measured on front of antler from highest tip to tip of frontal time  $_{56\frac{1}{2}}$  inches.

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Length ou outside curve, not including brow-tine.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
$-35\frac{1}{2}$	5	291	32	4+4	Manipur	R.E. Mess, Roorkee.
-35	6	22	27	5 + 5	Burma	Bombay Natural History Society.
35	4호	23	30	5+4	Upper Burma .	W. A. Conduitt.
$34^{\frac{1}{2}}$	5	16‡	24	6+6	Burma	P. B. Vander Byl.
34‡	$4\frac{3}{4}$	31 <u>1</u>	$34\frac{3}{4}$	10+7	Do	W. O. Hannyngton.
$34\frac{1}{8}$	5	24	$32\frac{1}{4}$	6 + 6	Do	Hon. Walter Rothschild.

- Owner's measurements.



Skull and Antlers of Thamin. From a Burmese specimen.

# OWNER'S MEASUREMENTS.

Extreme length of right antler round the out- side curve, high est point, to tip of brow-tine.	Circum. ference.			Number of Points.	Loc	ality.	Owner.
561	55	28	37	13	Burma		W. F. Loftus-Tottenham.
551	$4\frac{1}{2}$	$34\frac{1}{2}$	$42\frac{1}{4}$	12	Do.		Do.
55	7	$2S_{2}^{1}$	381	12	Do.		Col. G. H. Evans.
55	53	30	37	15	Do.		Do.
55	5		42	13	Do.		Do.

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Head of Sambar.

#### The SAMBAR DEER (Cervus [Rusa] unicolor).

The typical representative of the rusine group of deer, in which the antlers are rounded and three-tined, the bez and apparently the trez being wanting, and the summit of the beam forked. The relatively long tail is bushy, the tear-gland and the pit in the skull for its reception are large, and the upper ends of the nasal bones of the skull expanded. In the typical sambar the height reaches to 5 feet 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, in the adult. Face-glands very large, and capable of being turned inside out. Ears large, and the tail relatively long and bushy. Young uniformly coloured or spotted. Distribution.—The wooded districts of India, Ceylon, the Malay countries, the Philippines, Formosa, Bonin Island, and parts of China.

#### A.--INDIAN SAMBAR (C. unicolor typicus).

Size very large, young uniformly coloured ; weight, about 600 lbs., when cleaned 415 lbs.

A pair of antlers, from the Central Provinces, measured 48 inches along the curve inside (= nearly 50 inches on outside curve); they were sent to Mr. A. O. Hume by Mr. R. Blewitt.

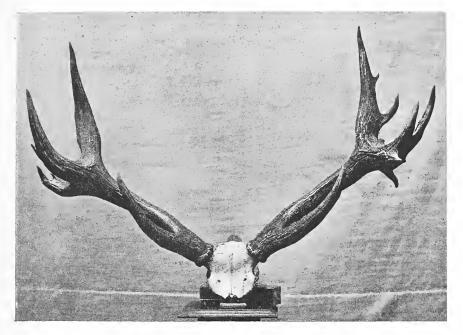
Distribution .--- The wooded districts of India and Ceylon.

on outside	Circum- ference above brow-tine.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
50 <del>1</del>	$7\frac{1}{2}$	24	38 <del>1</del>	3+3	Bhopal	Col. H. H. Shahzada Obeidulla Khan.
4\$	7		e shed	3	Khandesh	R. H. Madan.
$-47\frac{3}{4}$		spec	$28\frac{1}{2}$	•••	Cent. Provinces	A. P. Perceval.
-463		49		3+3	Do	R. Wordsworth.
46 <u>1</u>	61	$36\frac{3}{4}$	411	3+3	Do	Duncan J. A. Campbell.
46 <u>1</u>	$6\frac{1}{2}$	1 S	29	3+3	United Provinces .	A. V. Willcox.
46 <u>1</u>	63	24 <sup>1</sup> / <sub>5</sub>	30 <del>.</del>	3+3	Cent. Provinces	British Museum (Hume
-46 <u>1</u>		45			Garhwal	Collection). R. M. Nash.
46	9				?	C. J. Lucas.
451	7	17‡	$28\frac{1}{2}$	3+3	?	E. R. Loder.
-451	7‡	38	421/2	3+3	Saugor, C.P	LieutCol. R. W. Mapleton.
45 <sup>1</sup> / <sub>5</sub>	6§	173	32 <sup>1</sup> / <sub>8</sub>	3+3	• ?	British Museum (Dr. H.
45	73	$22\frac{1}{2}$	337	3+3	Mayoghur, Cent. Pro-	Falconer). Sir John Morris.
45	73	8		3+3	vinces ?	D. R. Wright.
-45					Cent. Provinces	Bombay Natural History
-45	9				Orissa	Society. H.H. the Maharaja of Tra-
-45	8		ed up by		Cent. Provinces (?) .	vancore. Heighway Jones.
441	6	26	Jones 32½	3+3	?	LieutCol. F. Jollie.
441	51	333	35 <del>1</del>	3+3	?	L. W. Reynolds.
441	77	443	455	3+3	Rangeer	Col. W. J. Morris.
					o 1	

- Owner's measurements.

<sup>1</sup> 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.

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Frontlet and Horns of Sambar, shot by the Hon. J. Best. Spread,  $49\frac{1}{2}$  inches.

Length on outside curve.	Circum- ference above brow-tine.	Tip to Tip.	Widest inside.	Points.	Locality.		Owner.
44	6	9‡	$24\frac{3}{5}$	3+3	Rewa		Major C. F. Pinney.
41	$6\frac{7}{8}$	19‡	31 <u>3</u>	3+3	Do		H. E. M. Davies.
43 <del>5</del>	58	Single	e horn	3+3	Do		British Museum (Hume Collection).
$43\frac{1}{2}$	$5\frac{1}{4}$	17	28	3+3	Do		Sir P. E. Bates.
$43\frac{1}{2}$	6	32	43‡	3+3	Cent. Provinces .		J. H. Beckett.
43 <del>3</del>	$6\frac{1}{4}$	$20\frac{3}{5}$	$29\frac{1}{8}$	3+3	Do		Sir Robert Harvey, Bart.
$43\frac{1}{2}$	6	$26\frac{1}{2}$	34 <sup>8</sup> / <sub>4</sub>	3+3	Do		C. A. Mortimore.
43	6	38	$43\frac{1}{2}$	3+3	?		J. H. Beckett.
43	6	$24\frac{1}{2}$	30	3+3	Khandesh		A. Cumine.
43	$6\frac{1}{2}$	33	35	4+3	Cent. Provinces .		H. W. Seton Karr.
43	$6\frac{3}{4}$	$26\frac{3}{4}$	34	3+3	?		Capt. C. P. Graham.
42 <u>3</u>	5응	26	32‡	3+3	Cent. Provinces .		A. H. Pollen.
42	6 <del>]</del>	23 <u>3</u>	$35^{\frac{1}{2}}$	3+3	?		Capt. A. H. Bailey.
4I <del>3</del>	$5\frac{3}{4}$	$19\frac{1}{2}$	23	3+3	?		Capt. W. F. Reichwald.

Length on outside curve.	Circum- ference above brow-tine.	Tip to Tip.	Widest inside.	Points.	Locality.		Owner.
413	7	2\$ <del>]</del>	$34\frac{3}{4}$	3+3	?		Hon. Walter Rothschild.
$41\frac{1}{2}$	7 <del>1</del>	$27\frac{1}{2}$		3+3	Cent. Provinces		Capt. Lord Charles Bentinck.
$41\frac{1}{2}$	6‡	30 <u>1</u>	$36\frac{1}{2}$	4+4	Do,		P. Jay.
$4I\frac{1}{2}$	51	22	$24\frac{3}{4}$	3+3	Do.		Capt. W. O. Gibbs.
$41\frac{1}{2}$	6	121	23 <sup>3</sup> / <sub>4</sub>	3+3	Do.	•	LieutCol. T. M. Ward.
36 <u>3</u>	6 <del>3</del>	35 <sup>1</sup> / <sub>2</sub>	32 Sprea	8+6 d, 49 <u>1</u> ,	Do.	•	Hon. J. Best. (See illustra- tion.)

# Ceylon Specimens.

on outside curve.	ference above brow-tine.	Tip to Tip.	Widest inside.	Points.	Owner.
$32\frac{1}{2}$	61	24	26 <del>1</del>	3+3	A. R. Hay.
311	5	20	17	4+3	LieutCol. G. E. Hale.
-30	8?	$2I\frac{1}{2}$	19§	3+3	J. Ryan.
29	$4\frac{1}{2}$	25	$22\frac{1}{4}$	3+3	Earl Cairns.
271	4‡	16 <u>3</u>	20	3 + 3	A. M. Naylor.

- Owner's measurements.



Frontlet and Antlers of Malay Sambar. Drawn from a Burmese specimen in the British Museum.

## B.-MALAY SAMBAR (C. unicolor equinus).

This local race is nearly as large as the Indian sambar, but the antlers are generally shorter and thicker, with the hind 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.
33	54	$28^{3}_{4}$	30	3 + 3	Burma		D. H. M. Boyle.
323	5‡	26	27.‡	3 + 3	Cochin China .		
32	5	321	$33\frac{1}{2}$	3+3	Do		pensier. Do.
31	6 <u>3</u>	144	181	3 + 3	?		G. Monteath.
31	53	261	$26\frac{1}{2}$	3 + 3	Burma		E. M. Alexander.
30ई	$6\frac{1}{2}$	17‡	19§	7 + 7	Borneo		Sir Edmund G. Loder, Bart.
305	43	$20^{3}_{4}$	211	3+3	Do		British Museum.
$29\frac{3}{4}$	51	15‡	1.4	3+3	Do		P. Grace.
$2\hat{S}^{\underline{3}}_{\underline{4}}$	$5\frac{1}{2}$	18	20	3+3	Do		J. H. Dauber.
			0\\	VNER'S	MEASUREMEN	TS	).
42	8	28			Upper Burma.		H. Shaw Dunn.
34 <sup>8</sup>	$8^{3}_{4}$	$20\frac{3}{4}$	25 <del>3</del>	3+3	Do		A. L. Bacon.
$32\frac{1}{2}$	$7\frac{1}{2}$	$24\frac{7}{8}$	271	3+2	Burma		Major-Gen. O. E. P. Lloyd.
32	71	$20\frac{3}{4}$	234		Upper Burma .		H. L. P. Walsh.
317	6	$24\frac{3}{4}$	26	3+3	Do		B. Lentaine.
301	55	$27\frac{3}{4}$	1 30	3+3	Burma		Col. G. H. Evans.
					<sup>1</sup> Outside.		

## C.-FORMOSAN SAMBAR (C. 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.
193		9	3+3	British Museum.
17	41		5	Duke of Bedford.
- 17	4	$10\frac{1}{2}$	3+3	Sir Edmund G. Loder, Bart.
16 <u>1</u>	38	16	3+3	British Museum.

- Owner's measurements.

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#### SAMBAR

#### D.--LUZON SAMBAR (C. 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 on 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*.

on outside curve.	Circum- ference.	Tip to Tip.	Points.	Loca	lity.	Owner.
21	$4\frac{3}{4}$	$5\frac{1}{2}$	3+3	Luzon.		Sir Edmund G. Loder, Bart.
19 <u>5</u>	51	7호	4+4	Do		British Museum.
18 <u>8</u>	5불	$14\frac{3}{4}$	4+3	Do		Do.

#### E.-BASILAN SAMBAR (C. 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.

on outside curve.	Circum- ference.	Tip to Tip.	Points.	Locality.		Owner.
$13\frac{1}{2}$	4 <del>3</del>	$12\frac{1}{8}$	3+3	Basilan Island		British Museum (A. H. Everett).
13 <del>1</del>	$4\frac{1}{2}$	II§	3+3	Do.		Do.

#### F.-SZE-CHUAN SAMBAR (C. unicolor dejeani).

A large race from North-western 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.
-30 <sup>3</sup> / <sub>8</sub>	$5^{\frac{1}{2}}$	15 <u>3</u>	$\mathfrak{l} \mathbb{S}_2^1$	3+3	Sze-chuan		Paris Museum (type).
					- Owner's measur	ements.	



Antlers of Javan Rusa. From a specimen in the collection of Sir Edmund G. Loder, Bart.

#### The RUSA DEER (Cervus [Rusa] 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 hind 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 brow-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

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RUSA DEER

the Moluccas, said to be smaller, and without a distinct mane on the neck or tuft to the tail.

## A.-JAVAN RUSA (C. hippelaphus typicus).

	Circum- ference.		Widest inside	Points.	]	Locality			Owner.
$37\frac{1}{2}$	58	16	$17\frac{3}{4}$	3+3	Java				His Majesty the King.
$37\frac{1}{2}$	5	16 <u>3</u>	19§	3 + 3	Do.				British Museum.
-36		II $\frac{1}{2}$	···	3+3	Mauri	tius (int	trodu	ed)	Admiral Sir William Kennedy.
351	$4\frac{3}{8}$	$22\frac{3}{4}$		3+3	Java				Sir Victor Brooke's Collection.
35‡	$4\frac{1}{2}$	$17\frac{1}{2}$	17	3+3	Do.				Hon. Walter Rothschild.
$34\frac{1}{2}$	$4\frac{7}{8}$	17. <del>]</del>	$22\frac{1}{4}$	3+3	Do.	•			Vice-Admiral Sir Colin R. Keppel, R. N.
34	5	14	161	3+3	Do.				J. C. Phillips.
<sup>1</sup> 34			· • •		Rodri	guez (in	ntrodu	ced	Admiral Sir William Kennedy.
$33\frac{1}{2}$	5	I 2		3+3	Java	•			Sir Edmund G. Loder, Bart. (See illustration, p. 68.)
33	$4\frac{1}{2}$	$25\frac{1}{2}$		3+3	Do.				Duke of Bedford.
			Our or 'c r		onto				Weight of the

- Owner's measurements.

<sup>1</sup> Weight, 269 lbs.

## B.-MOLUCCAN RUSA (C. hippelaphus moluccensis).

on outside curve.	Circum- ference.	Tip to Tip.	Points.	Locality.	Owner.
36 <del>1</del>	45	${\rm I} 8{\scriptstyle \frac{1}{2}}$	3+3	?	Sir Edmund G. Loder, Bart.
$27\frac{1}{2}$	4 <sup>3</sup> / <sub>4</sub>	$14\frac{1}{2}$	3+3	?	Duke of Bedford.
83	4	5 <del>1</del> 8		Batchian .	British Museum (A. R. Wallace).



Frontlet and Horns of Chital. Shot by the Hon. J. Best.

## The CHITAL or AXIS DEER (Cervus [Axis] axis).

This beautiful species is distinguished from all the other members of the rusa-like deer, 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 200 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.

The Ceylon chital (*C. axis zeylanicus*) has relatively small and light antlers, and also differs somewhat in coloration from the large typical race of Central India. There is also a small continental form (*C. axis minor*).

#### Distribution .- India and Ceylon.

Length on outside curve.	Circumfer- ence above the first point.	Tip to Tip.	Points.	Locality.	,	Owner,	
39	48	248	4 + 3	United Provinces	•	Lady Eileen Elliot.	
39	41	151	4+5	Jubbulpore .		Capt. F. Pope.	

## CHITAL

Length on outside curve.	Circumfer- ence above the first point.	Tip to Tip.	Points.	Locality. Owner.
38 <u>1</u>	4	25	5 + 5	Mandla Hon, Walter Rothschild.
-38‡	$4\frac{3}{4}$	$19\frac{1}{2}$	3 + 3	Asirgarh Jungle, LieutCol. M. Cust.
38	44	18	3 + 3	Central Provinces East Berar . BrigGen. F. H. Whitby.
38	$4\frac{1}{4}$	20	4+4	Do Major-Gen. H. D'U. Keary.
38	$4\frac{1}{2}$	22	4+4	? Col. A. Pollock.
$37\frac{1}{2}$	34	19	3+3	Siwalik Hills Major B. R. M. Glossop.
$37\frac{1}{2}$	$4\frac{1}{4}$	243	4+4	Bassim, C.P British Museum (Hume Col-
37‡	41	21	4+3	lection). ? Major A. D. Greenhill-Gardyne.
$37\frac{1}{4}$	41	$16\frac{7}{8}$	4 + 5	? Sir Victor Brooke's Collection.
$37\frac{1}{4}$	4‡	17	4 + 4	United Provinces . A. Courthorpe.
-371	$4\frac{1}{2}$	$12\frac{3}{4}$	4 + 4	? J. C. Phillips.
371	4	$2I\frac{1}{2}$	3 + 3	Central Provinces . A. P. Jack.
$36\frac{3}{4}$	4	$20\frac{3}{4}$	4 + 4	Do. J. A. McKee.
36 <u>1</u>	$4\frac{1}{2}$	20	5 + 5	Do Hon. J. Best. (See illustration,
$36\frac{1}{2}$	$4\frac{1}{2}$	25	4+3	p. 70.) Berar C. H. Seely.
35 <del>3</del>	4	193	3+3	Central Provinces . Major G. T. M. Bridges.
$35\frac{1}{2}$	41	18 <del>3</del>	4+4	? Sir Edmund G. Loder, Bart.
$35\frac{1}{2}$	4	I 2 <sup>1</sup> / <sub>4</sub>	5 + 5	? G. W. Hatch.
$35\frac{1}{2}$	4	$32\frac{1}{2}$	3+3	? Capt. R. Tudor Owen.
$35\frac{1}{2}$	34	19	3+3	? Col. H. Denys.
-35	3#	17‡	3+3	Ceylon R. Wilson.
$-34\frac{1}{2}$	45	19‡	3+3	Do F. J. S. Turner.
$-34\frac{1}{4}$			3+3	Do G. A. Burney.
$-33\frac{3}{5}$	$4\frac{5}{16}$	14 <del>15</del>	$3 \div 3$	Do J. P. Ireson.
-33 <sup>1</sup> / <sub>8</sub>	$3\frac{15}{16}$	•••	3+3	Do A. J. Wickwar.
$-32\frac{3}{4}$	$4\frac{1}{2}$	24	3+3	Do E. M. Biggs.
-32	$4\frac{1}{8}$	14 <u>3</u>	3+3	Do J. G. Napier.
32	3‡	1912	3+3	Do W. J. Smith.
313	4	13	3+3	Do M. J. Alderson.
$-31\frac{1}{2}$	$3\frac{3}{4}$	171	3+3	Do Count Scheibler.
311	3	$10\frac{1}{2}$	3+3	Do A. R. Hay.
-311	35	17	3+3	Do G. B. Vernon.
-31‡	3	9	3+3	Do H. Storey.
30½	31/2	$10\frac{1}{4}$	3+3	Do Major F. H. N. Pym.

- Owner's measurements.



Head of Hog-Deer.

## The HOG-DEER or PARA (Cervus [Hyelaphus] porcinus).

In the group typified by the hog-deer the antler-pedicles are long, the bulla of the skull is large, and the pit for the face-gland much less deep than in the sambar group, while the nasal bones are not expanded superiorly, and the tail is shorter. In the Philippines the group (Hyelaphus) is represented by the Philippine hog-deer C. calamienensis, and by the species named C. culionensis. The Indian hog-deer is not dissimilar to the Bavian deer, but the antlers are 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 hind tine of the terminal fork the shorter. Height at shoulder, from about 25 to 29 inches; weight, about 90 to 100 lbs. A pair of antlers belonging to a specimen shot by Mr. A. O. Hume in the Ganges Khadir, near Meerut, measured 20 inches along the beam inside, and had a mid-beam girth of 3.5 inches.

Distribution.—India, throughout the Indo-Gangetic plain from Sind and the Punjab to Assam, thence through Sylhet to Burma, Tenasserim, and Siam. The Siamese race (C. p. hecki) differs from the typical hog-deer by its superior size and the absence of spots. HOG-DEER

Length on outside curve.	Circum- ference above brow-tine.	Tip to Tip.	Locality.	Owner.
$-23\frac{1}{4}$	378	$\mathbf{I}2\frac{7}{8}$	Burma	Col. G. H. Evans.
$-22\frac{1}{2}$	31	20	Do	J. C. Phillips.
2 I <del>5</del>	3‡	65	Do	British Museum.
$-2I\frac{1}{4}$	$3\frac{3}{4}$	$22\frac{1}{2}$	?	Sir Edmund G. Loder, Bart.
-2I	3‡	15‡	Pegu	Major-Gen. E. M. Norie.
20 <sup>3</sup> / <sub>S</sub>	$3\frac{1}{2}$	$22\frac{1}{2}$	?	Major W. Anstruther Gray.
$-20\frac{3}{8}$	318		Nepal	Bombay Natural History Society.
$-20\frac{1}{4}$	$4\frac{1}{2}$	17‡	?	J. Whitaker.
$-20\frac{1}{8}$	3	$9\frac{1}{2}$	United Provinces .	J. Nugent.
-20			Burma	Indian Museum (Capt. R. C. Beavan).
-195	31	16	Meerut	Major W. Q. Winwood.
192	3 <sup>1</sup> / <sub>8</sub>	135	Dudla Swamp, United Provinces	Major W. E. Stobart.
I 9월	3‡	16	?	Col. A. Short.
19 <sup>1</sup> / <sub>8</sub>	31	$16\frac{1}{2}$	Burma	Sir Victor Brooke's Collection.
19 <sup>‡</sup>	38	183	?	H. C. V. Hunter.
19	31	18	Upper Burma .	Sir Edmund G. Loder, Bart.
<sup>1</sup> -18	$6\frac{1}{2}$	19	Ganges Khadir .	LieutGen. Sir R. Pole-Carew.
18	$2\frac{3}{4}$	I 2 <sup>3</sup> / <sub>4</sub>	Burma	D. H. M. Boyle.
	- Own	er's measuremen	its.	1 Ten points.

## The BAVIAN DEER (Cervus [Hyelaphus] kuhli).

A small deer allied to the hog-deer, 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.
$9\frac{3}{4}$	$2\frac{7}{8}$	10 <u>7</u>	105	3+3	British Museum.



Head of Fallow Deer,

#### The FALLOW DEER (Dama vulgaris, or Dama dama).

Antlers normally without a bez, but with a trez-tine, above which the beam is palmated, with numerous snags on the hind edge. Coat spotted with white in summer (except in the black breed), with a blackbordered white area in the neighbourhood of the long tail. Height at shoulder, about 3 feet; weight, about 140 lbs. clean.<sup>1</sup> 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 Spain wild fallow abound in Estremadura, especially in the province of Cáceres; in Asia Minor they are found along the south coast as far as Adana, and at one spot in the interior; whether they still exist in North Africa is doubtful.

<sup>1</sup> Black specimen shot by W. Winans, September 1909, weighed 240 lbs.

FALLOW DEER

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Length on out- side curve.	Circum- ference.	Tip to Tip.	Spread inside.	Points.	Width of Palm.	Locality.	Owner.
32	$4\frac{1}{8}$	18	28	12+10	5‡	Woburn	Duke of Bedford.
$-31\frac{1}{2}$		31	$28\frac{1}{2}$			?	Ernest Ritter von Wisely.
<sup>1</sup> 31	5			30	7	2	Sir Victor Brooke's Collec- tion.
-301	5	$10\frac{1}{2}$	20 <sup>1</sup> / <sub>2</sub>	13+11	5	?	J. C. Phillips.
<sup>2</sup> 30	$4\frac{3}{4}$	$23\frac{1}{2}$	$26\frac{1}{2}$	10+9	$4\frac{1}{2}$	Drummond Castle	J. G. Millais.
30	35		$22\frac{1}{8}$	12+12		Uppark, Sussex .	J. E. Harting.
30	4	19 <sup>1</sup> / <sub>4</sub>	24	11+11	6		Douglas M'Douall.
-30	$4\frac{1}{2}$	22	37	16+10	7	Drummond Castle	J. G. Millais.
29축	$4\frac{1}{2}$	$22\frac{3}{4}$	outside $25\frac{1}{2}$	9+8	5	?	Capt. H. T. Timson.
29 <sup>1</sup> / <sub>2</sub>	5		$28\frac{1}{2}$	13+14	7	Petworth, Sussex	J. G. Millais.
$29\frac{1}{3}$	4 <u>3</u>		$24\frac{3}{8}$	10+15		Drummond Castle	Earl of Ancaster.
$29\frac{1}{4}$	418			14+11	8	Woburn	Duke of Bedford.
$29\frac{1}{4}$	$4\frac{1}{8}$		19 <u>3</u>	16+15		New Forest .	Hon. G. Lascelles.
$-28\frac{3}{4}$	63		$29\frac{1}{2}$	20	$6\frac{3}{4}$	Bohemia	W. Winans.
$-28\frac{1}{2}$	4	15‡	23	9 + 8	<b>5</b> ≩	Essex	W. H. Wilson.
$28\frac{1}{2}$	4호	18	$24\frac{3}{4}$	8+6	4	New Forest	E. Festus Kelly.
<sup>3</sup> -28 <sup>1</sup> / <sub>2</sub>	4	$14\frac{1}{2}$	26	10 + 11	6	Woburn	Duke of Bedford.
$-28\frac{1}{2}$	5		30	22		Otago,NewZealand (Introduced)	Rev. W. C. Oliver.
$428\frac{1}{2}$	4		n 34)	19	6	Colebrooke	Sir Victor Brooke's Collec- tion.
284	4 <sup>3</sup> / <sub>4</sub>	23	tside 	18+15	$6^{1}_{4}$	?	Sir Philip Brocklehurst,
<sup>5</sup> -28	$4\frac{1}{4}$	26	26	23		Surrenden Park .	Bart. W. Winans.
$27\frac{1}{2}$	44	15 <del>3</del>	$20\frac{1}{2}$	8+9	$4\frac{3}{4}$	Windsor	Sir Charles Wakefield.
274	4	23		10+8		England	J. Carr Saunders.
$26\frac{7}{8}$	33	12	$17\frac{1}{2}$	10+7		Ş	British Museum.
$-26\frac{1}{2}$	41	23 <u>1</u>	$20\frac{1}{2}$	9 + 7	$5\frac{7}{8}$	Perthshire	A. Basil Brooke.
26	3=	$8\frac{1}{4}$	$23\frac{1}{2}$	7 + 7	5	?	G. L. Harrison.
-26	5	$20\frac{3}{4}$	$23\frac{3}{4}$	10+10	$4\frac{1}{2}$	Tasmania, (Intro- duced) ?	T. W. H. Clarke.
$25\frac{3}{4}$	3=3	13 <u>1</u>	$23\frac{1}{2}$	13+12	5	?	T. G. A. Moncrieffe.
$^{6}25\frac{1}{2}$	34	174	$24\frac{1}{4}$	10+10	6	Surrenden Park .	W. Winans.
25	$3\frac{3}{4}$		191	8 + 8		Epping Forest .	E. N. Buxton.
25	$3\frac{1}{2}$	$15\frac{1}{2}$		10+10	4	Northamptonshire	H.H. the Maharaja of Bikanir.
-24	$3\frac{1}{2}$	27	$2I\frac{1}{2}$	23		Surrenden Park .	W. Winans.

- Owner's measurements.

Recorded by J. G. Millais (*British Deer and their Horns*).
 <sup>2</sup> Weight of antlers, 8 lbs. 1 oz. on skull; no lower jaw (Millais, *British Deer*).
 <sup>3</sup> Weight dressed, 165 lbs.
 <sup>4</sup> Seven years old : as he fell, 237<sup>1</sup>/<sub>2</sub> lbs.; 198 lbs. cleaned.
 <sup>5</sup> Weight, 218 lbs.
 <sup>6</sup> Weight, 222 lbs.



Head of Mesopotamian Fallow Deer. From a specimen in the British Museum.

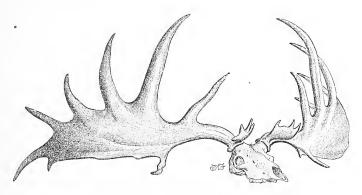
#### The MESOPOTAMIAN FALLOW DEER (Dama mesopotamica).

Larger and brighter coloured than the ordinary 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 hind border into several snags. Weight, about 24 stone, clean.

Distribution.—The mountains of Luristan in Mesopotamian Persia and part of Asia Minor.

Length on out- side curve.	Circum- ference,	Tip to Tip.	Spread inside.	Points;	Width of Palm	Locality.		Owner.
$-36\frac{1}{2}$	44	163		12+15	58	Karabogha, Asi Minor	a	F. E. Whittall.
-29	$4\frac{1}{8}$	$30\frac{1}{2}$	$24\frac{1}{8}$	10+11	$5\frac{1}{2}$	Asia Minor .		Do.
214	38	$14\frac{1}{2}$		9 ± 7		Do, .		Paris Museum (Abbé David).
$20\frac{1}{4}$	5	14		6 + 5	•••	Luristan Mts.	•	Sir Edmund G. Loder, Bart.

- Owner's measurements.



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

## The GIANT IRISH DEER (Dama (?) gigantea).

(Commonly called "Irish Elk.")

An extinct 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. In the skull the vomer is welded to the adjacent bones. The following specimens are Irish:—

Spread to Ti	Tip p.	Length round inside of antler.	Length of both antlers across skull.	Circum- ference above burr.	Width of Palm.	Points.	Owner.
ft. IO	in. 2	ft. in. 5 $8\frac{1}{2}$	ft. in.	$9\frac{7}{8}$	191	19	British Museum.
9	8		•••		20	12+11	Hon. Walter Rothschild.
9	6			10	17	13+10	J. G. Millais.
9	5	62	12 5	II	211	11+11	Viscount Powerscourt.
9	5	6 O	I2 IO	$13\frac{1}{2}$	$21\frac{1}{8}$	15+13	Sir Edmund G. Loder, Bart.
9	3	6 2	13 5	10	24	12+10	Duke of Westminster.
9	2		13 6		-15 <u>1</u>	•••	Mrs. Graham Lloyd.
8	11	5 10		I I <sup>1</sup> / <sub>4</sub>	17	9+9	Viscount Powerscourt.
8	10	59	$11 9\frac{1}{2}$	91	17	12+II	Duke of Westminster.
8	10	5 10	12 5	10	18	10+9	G. C. Whitaker.

Spread to Ti		insi	h round de of tler.	Length of both antlers across skull.	Circum- ference above burr.	Width of Palm.	Points.	Owner.
ft. 11	in. 9	ft. 7	in. IO	ft. in.	9‡	${}_{\mathbf{I}}\mathbf{S}^{1}_{2}$		Public Library, Dublin.
I 1	6					20		Marquis of Londonderry.
11	5	6	3		$9\frac{3}{4}$	17	11+11	Dublin Museum.
II	3	7	$5\frac{1}{2}$		121	19 <del>1</del>	17	Mrs. Donaldson-Hudson.
II	$1\frac{1}{2}$	6	$9\frac{1}{2}$		$9\frac{1}{4}$	$16\frac{1}{2}$	23	Sir Peter Walker, Bart.
10	$4\frac{1}{2}$	6	9	13 10	12	20		Earl of Bessborough.
9	3				$10\frac{3}{4}$	12	7 + 7	Duke of St. Albans.
9	2		.0	11 10	101	$22\frac{1}{4}$	9 + 9	Dublin Museum.

#### OWNER'S MEASUREMENTS.

#### The MILU or PERE DAVID'S DEER (Elaphurus davidianus).

This deer differs from all the preceding groups by the peculiar form of the antlers, which rise in the plane of the forehead, and fork at a comparatively short distance above the burr, 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. The colour is uniformly tawny in the adult, but spotted in the young. Height at shoulder, about 3 feet 9 inches. In captivity the antlers are frequently shed twice a year. In the structure of the bones of the feet the milu resembles the red deer group, to which and the barasingha it is considered by Mr. R. I. Pocock to be allied. Mr. Pocock considers that the front prong of the main fork represents the brow-tine of the red deer groups.

Distribution.—Probably northern China or perhaps Kashgaria; recorded in a fossil state from Japan. Unknown in the wild state, and apparently now represented only by the herd at Woburn Abbey, Bedfordshire.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality	·.	Owner.
341	61	235	$29\frac{1}{2}$	13+7	Woburn .		Smithsonian Institution.
-335	57	252		21+17	3		Mess of 19th Punjabi Infantry.
327	63	13%	$18\frac{1}{2}$	8 + 8	Near Pekin		Sir Edmund G. Loder, Bart.
<sup>1</sup> 32	$7\frac{1}{2}$			10 + 8	Woburn		Duke of Bedford.

- Owner's measurements.

1 Back-tine of this head measures 321 inches.



## Head of Milu Deer.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
-31	6			3+3	?	American National Collection.
31	$6\frac{1}{2}$	$27\frac{1}{4}$		3+3	?	Hon. Walter Rothschild.
31	$4\frac{3}{4}$	23		7+6	?	British Museum (Duke of Bedford).
-30 <sup>3</sup> / <sub>4</sub>	5	$35\frac{1}{16}$	$35\frac{1}{16}$	11+10	Imperial Park, Pekin	Paris Museum (Type specimen).
30	54	$24\frac{3}{4}$		3+2	?	G. L. Harrison.
$29\frac{1}{2}$	5‡			5 + 5	?	Duke of Bedford.
$-29\frac{1}{4}$	68	29	<i></i>	3+2	?	Major W. Anstruther Gray.
28‡	5흫	$26\frac{1}{2}$		3+3	5	Hon. Walter Rothschild.
28 <del>1</del>	$6\frac{1}{2}$			8 + 8		Duke of Bedford.
27	57	$20\frac{1}{4}$		6 + 5	Do	British Museum.
26 <u>1</u>	$5\frac{1}{2}$	16	$\mathbf{I}\mathbf{S}_{2}^{1}$	8+7	Do	Royal Scottish Museum.
<sup>1</sup> 25	5			6+4	Do	Duke of Bedford.
, 22	4 <u>5</u>			4+3	Do	Do.

- Owner's measurements.

1 Back tine measured 28 inches from beam of antler.



Skull and Antlers of Indian Muntjac.

#### The MUNTJAC or BARKING DEER (Cervulus muntjac).

This species is the typical representative of a genus of small Indo-Malay deer differing widely from all the foregoing groups. The 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 cannonbone. The young may be spotted, but the adults are uniformly coloured. The range of the typical muntjac, which is one of the reddishcoloured species, extends from Ceylon and India through Burma to China, the Malay Peninsula, Sumatra, and Java. Reeves' muntjac (C. reevesi), from China and Formosa, a smaller species, is also reddish, as is Sclater's muntjac (C. sclateri) of Central China, and the Sze-chuan C. lachrymans; C. bridgemani, of Central China, is darker; in the Tenasserim muntjac (C. fea) and the larger hairy-fronted muntjac (C. crinifrons) of Eastern China the general hue is dark purplish sepiabrown, with white on the buttocks and under surface of the tail. The average height of the male of the typical species at the shoulder is from 20 to 22 inches, and the weight about 38 lbs.; a female stands about 20 inches and weighs about 32 lbs.

Several local races of the ordinary muntjac doubtless exist. The typical form (*C. muntjac typicus*) is the Javan animal; the Burmese race has been distinguished as *C. muntjac grandicornis*, while the Indian form is known as *C. m. vaginalis*, and the Siamese as *C. m. curvostylis*.

#### MUNTJAC

Length on outside curve of antler from burr to tip.	Circumference above burr.	Tip to Tip.	Locality.		Owner.
$-10\frac{3}{8}$			Java	•	H. Van Son.
$^{1}-9^{\frac{1}{2}}$	$4\frac{1}{2}$	5	Singapore		Sir Edmund G. Loder, Bart.
$8\frac{7}{8}$	3	$2\frac{3}{4}$	Java		M. Maxwell.
$-8\frac{5}{8}$	$3\frac{3}{4}$	61	Do		Dr. Albert von Stephani.
<sup>1</sup> 7 <sup>5</sup>	$4\frac{1}{2}$	$3\frac{1}{2}$	Lombok		Hon. Walter Rothschild.
7흉	3	3	Siwalik Hills .		Major W. E. Stobart.
7 <del>§</del>	$2\frac{1}{4}$	$I\frac{3}{4}$	U. Burma .		L. H. Baker.
<sup>2</sup> 7‡	$3\frac{1}{4}$	$3\frac{7}{8}$	Lombok		Hon. Walter Rothschild.
7	$3\frac{7}{8}$	4‡	Burma		MajGen. H. D'U. Keary.
$-6\frac{3}{4}$	$2\frac{3}{4}$	$2rac{1}{2}$	Perak		Perak Museum.
$6\frac{3}{4}$	$2\frac{1}{4}$	3	Ranikhet	·	Surgeon LieutCol. B. W. C. Deeble.
65	$2\frac{1}{4}$	$3\frac{1}{8}$	Java		J. C. Van Son.
$6\frac{1}{2}$	$2\frac{5}{8}$	$3\frac{1}{2}$	Nepal	•	British Museum (B. H. Hodgson).
$6\frac{1}{2}$	33	25	Buxa Duar .		Capt. A. O. Creagh.
$-6\frac{1}{2}$	$2\frac{1}{2}$	$3\frac{1}{8}$	Namba Forest, Assa	ım	LieutCol. H. S. Wood.
$-6\frac{1}{2}$	$2\frac{7}{8}$	$3\frac{1}{4}$	Ranikhet		Col. E. T. Taylor.
$-6\frac{1}{4}$			Garo Hills .	•	D. H. Allen.

The antlers of the Burmese race are large and massive. The earlier name *Muntiacus* is often used in place of *Cervulus*.

#### CENTRAL CHINESE MUNTJAC (Cervulus lachrymans sclateri).

About equal in size to the last, with the upper part of the head and fore-neck bright yellow and the body browner than in *muntjac*. The lower portion of the front of the fore-legs is blackish brown. In the typical *C. lachrymans*, of Sze-chuan, the head is orange brown, and the limbs are brownish fawn. Weight of male 38 and female 36 lbs.

Length on out- side curve of longest antler.	Circumference.	Tip to Tip.	Locality.		Owner.
$5\frac{1}{8}$	$2\frac{1}{2}$	3용	China	•	Comdr. the Hon. R. O. B.
5	2	3	Anghwei, China		Bridgeman, R.N. British Museum.
3 <sup>3</sup> / <sub>4</sub>	2	$2\frac{3}{4}$	Tungkuan Shan, China	C.	Comdr. the Hon. R. O. B. Bridgeman, R.N.
$2\frac{1}{2}$	I <u>5</u>	3	Ningpo		British Museum (R. Swinhoe).
$-2\frac{1}{2}$	$I\frac{1}{2}$	31	Do		Dublin Museum.
		0	nor's manuscreate		

## Distribution .- Central China.

Owner's measurements.

<sup>1</sup> Determination provisional.

<sup>2</sup> Weight 37 lbs.

81

G



Skull and Antlers of Muntjacs in the collection of Sir Edmund G. Loder, Bart.

## The HAIRY-FRONTED MUNTJAC (Cervulus crinifrons).

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

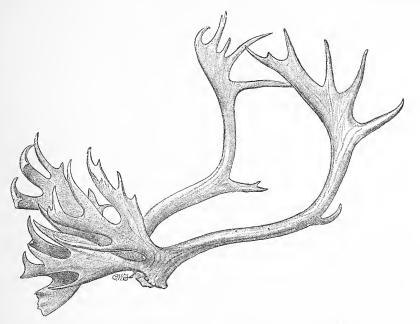
## REEVE'S MUNTJAC (Cervulus reevesi).

Length on out- side curve of longest antler.	Circumference.	Tip to Tip.	Locality.	Owner.	
$4\frac{1}{2}$	$2\frac{3}{4}$	Shed	?	Sir Edmund G. Loder, Bart.	
$3\frac{1}{2}$	$2\frac{3}{4}$	$3\frac{1}{2}$	?	Comdr. the Hon. R. O. B. Bridgeman, R.N.	
$2\frac{1}{2}$	$2\frac{3}{4}$	3‡	Feng Luang Shan	. Do.	

## BRIDGEMAN'S MUNTJAC (Cervulus sinensis = bridgemani).

side curve of longest antler.	Circumference.	Tip to Tip.	Locality.	Owner.
5	2	3	Feng Luang Shan .	Comdr. the Hon. R. O. B. Bridgeman, R.N.
1 38	3	3	China	Capt. H. L. Archer- Houblon.
1 I Z	тĘ	1.3	Nyanking on the Yangtsi	Capt. A. T. Hunt, R.N.
<sup>1</sup> I		38	China	Comdr. C. L. Lambe, R.N.

<sup>1</sup> Determination provisional.



Antlers of Woodland Caribou. From a specimen in the British Museum.

## The 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 hairy, the ears and tail are short, and the throat has a fringe of long hair. The coat is very thick, and typically dark cinnamon-brown in colour above, with the limbs, a flankband, and some of the under-parts darker, the neck lighter, and more or less white in the region of the tail, on the under-parts, and fetlocks. In R. t. montanus the whole neck and lower surface are chocolatebrown, but in most American races there is some white in these regions, and R. t. pearyi, of Ellesmereland, is almost wholly white. 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. Glands between main hoofs. Height at shoulder reaching to 4 feet 10 inches (Newfoundland). Hinds weigh between 224 and 280 lbs.

Reindeer inhabit the circumpolar regions of both hemispheres, in Europe including Scandinavia, Lapland, and Northern Russia; their southern limit varies from  $52^{\circ}$  to  $54^{\circ}$  N. latitude, while they extend to between  $80^{\circ}$  and  $81^{\circ}$  northwards.

Numerous local forms of reindeer are recognised. The more important are: (1) the Scandinavian reindeer (R. tarandus typicus) of Sweden and Norway, which is rather small with moderately expanded antlers; (2) the larger Finnish reindeer (R. t. fennicus), distinguished by the more vaulted nasal bones; (3) the woodland caribou (R. t. caribou) of the forest districts of Arctic America, characterised by its large size and the short,



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

much-palmated antlers, in which the brow-tines form huge "shovels," one generally much larger than the other; and (4) the Barren-Ground reindeer (R. t. arcticus), from the open country north of the forests in America, nearly related to the Scandinavian reindeer, and 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. The reindeer of Siberia and Novaia Zemlia, which approximate to the American types, have been named R. t. sibiricus and R. t. pearsoni. Names have been given to numerous American local forms, some of

which tend to connect the Barren-Ground with the woodland type. The Greenland caribou (R. t. granlandicus) is of the Barren-Ground type, but all the rest are nearer the woodland form. Among these, the Newfoundland R. t. terræ-novæ has antlers of a very complex type; R. t. montanus and R. t. osborni are mountain-races, probably passing towards R. t. stonci and R. t. granti of Southern Alaska, which have somewhat longer antlers, and thus approach the Barren-Ground type, although they are large animals. Reindeer have brow-tined antlers, but otherwise appear to be related to the American deer.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
62	$5\frac{1}{2}$	40	$50\frac{1}{2}$	21 + 17	Hudson's Bay .	Sir Edmund G. Loder, Bart.
59	$6\frac{1}{4}$	$29\frac{1}{2}$	$40\frac{1}{2}$	11+9	Yukon	Hon. M. Egerton.
58	6	$27\frac{1}{4}$	41	11+12	Cassiar	R. Hayne.
58	51	$40\frac{1}{4}$	45	20 + I 4	Labrador	H. Hesketh-Prichard.
<sup>1</sup> 57 <sup>5</sup> /8	5‡	13 <u>§</u>	*	13+7	Arctic America .	British Museum.
57‡	54	29‡	36 <u>3</u>	18+10	Yukon	F. C. Selous.
57	$5\frac{1}{2}$	$16\frac{1}{2}$	$26\frac{1}{2}$	20+9	N. of Davis Strait .	Capt. C. R. E. Radclyffe.
55章	$6\frac{1}{2}$	25	35	23+15	Cassiar	Col. L. Parry.
² 55≩	8		44 (outside)	26+18	Alaska	American National Collection (Reed Collection).
55 <sup>1</sup> ⁄₂	6	28	43	13+10	Stikin River	P. Niedieck.
55	6	43	48	12+14	Cassiar	F. C. Selous.
55	6	21	35	12+10	Do, , , .	W. A. Conduitt.
55	$6\frac{1}{4}$	19	40	19+21	Do	F. H. Bailey.
54 <sup>1</sup> / <sub>2</sub>	$5\frac{3}{4}$	37‡	44 <sup>1</sup> / <sub>4</sub>	16+13	Yukon	Sir A. Armstrong, Bart.
54	6	28	31 <u>3</u>	18+14	Do	S. R. Vereker.
54	54	31	$38^{1}_{\pm}$	13+16	Cassiar	Lord Osborne Beauclerk.
54	$6\frac{1}{2}$	29	37	22 + II	Alaska	Hon. J. C. Lister.
54	$4\frac{3}{4}$	48	52	21+14	Canada	D. F. Mackenzie.
53 <sup>1</sup> / <sub>2</sub>	$5\frac{1}{2}$	37	45 <del>1</del>	24+14	Labrador	K. V. Painter.
53	$4\frac{1}{2}$	$48\frac{3}{4}$	54	12+11	Do	Hon. Walter Rothschild.
$52\frac{1}{2}$	5‡	15	26 <sup>1</sup> / <sub>2</sub>	17+12	N. Canada	J. Talbot Clifton.
			1 R.	t. arcticus.	2 R. t. os	borni.

## A.—AMERICAN SPECIMENS.



Mr. Hesketh-Prichard's 49-Pointer.

Length on out- side curve.	Circum- ference.		Widest inside.	Points.	Locality.		Owner.
52	$5\frac{3}{4}$	28‡	31	15+13	E. Yukon .		J. Todd.
52	5	32‡	37	12+11	Cassiar		Lord Hindlip.
52	$5\frac{1}{2}$	6	29	15+20	N. Canada .	•	E. E. P. Cuncliffe.
51 <u>1</u>	6 <u>1</u>	33	33	12+12	Cassiar		F. C. Stern.
51g	$4\frac{7}{8}$	40 <sup>7</sup> 8	483	17+14	Hudson's Bay		Sir Edmund G. Loder, Bart.
51	51	27	<b>2</b> 9‡	15+15	Yukon		A. D. Pass.
51	$6^{1}_{2}$	$25\frac{1}{2}$	38 <u>‡</u>	20+17	Cassiar		P. N. Graham.
51	6	36	40.‡	16+11	Do, .		H. C. Wilson.
51	$6\frac{1}{2}$	331	$40\frac{1}{2}$	10+8	Do		J. S. Shepherd.
51	6	32	361	15+12	Do		M. W. Ward.
51	57	29‡	$38\frac{1}{2}$	15+12	Do		Capt. the Hon. G. H. Douglas
50 <u>}</u>	4.1	311	384	10+9	Do		Pennant. Col. H. Appleton.

# REINDEER OR CARIBOU

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.		Owner.
50	$6\frac{1}{4}$	24	35	16+13	Cassiar		Viscount Lascelles.
50	51	27	38	12+11	Barren Grounds	•	A. Barclay Walker.
49 <b>‡</b>	5 <sup>3</sup> / <sub>4</sub>	$25\frac{1}{2}$	36 <u>3</u>	13+12	Cassiar		R. Beaumont.
$49\frac{1}{4}$	$5\frac{1}{2}$	38	$42\frac{1}{4}$	15+15	Do		C. H. Young.
49 <b>‡</b>	5	30	_ 32	19+15	Labrador .		H. Hesketh-Prichard.
49‡	6 <u>3</u>	26	43	18+12	Newfoundland		St. George Littledale.
49	$6\frac{1}{2}$	25	$34\frac{3}{4}$	22+18	?		Sir W. Bass, Bart.
49	6	26	$27\frac{1}{2}$	26 + 15	Yukon		H. B. Alexander.
49	$5\frac{1}{4}$	$26\frac{1}{4}$	$31\frac{1}{2}$	19+19	Do		L. Cadbury.
$48\frac{1}{2}$	$6\frac{1}{2}$	29	363	<b>2</b> 0 + <b>I</b> 8	Do		J. Todd.
$48\frac{1}{2}$	$4\frac{3}{4}$	191	$26\frac{1}{2}$	24 + 12	Do		R. H. Milvain.
47 <sup>1</sup> / <sub>2</sub>	$6\frac{1}{2}$	$40\frac{3}{4}$	$38\frac{3}{4}$	15+14	Itcha Mts., B.C.		W. Neilson.
471	$5\frac{3}{4}$	$24\frac{3}{4}$	34	22+18	?		C. H. Wilkinson.
$46\frac{1}{2}$	5章	$32\frac{3}{4}$	35불	18+12	Cassiar		Major J. F. Church.
$46\frac{1}{2}$	$6\frac{1}{2}$	$16\frac{1}{2}$	28	32	British Columbia		J. Turner-Turner.
46 <del>1</del>	$5\frac{1}{2}$	$38\frac{1}{2}$	$39\frac{1}{2}$	13+10	Newfoundland		T. P. Miller.
$46\frac{1}{2}$	$5^{\frac{1}{2}}$	$36\frac{1}{4}$	4 I	20+16	Do.		Major G. H. A. Ing.
46 <u>1</u>	$4\frac{1}{4}$	26	32	11+8	Do.		J. T. Lewis.
46	$4\frac{1}{2}$	$24\frac{1}{2}$	$31\frac{1}{2}$	15+15	Do.		Capt. H. L. Cottingham.
46	$5\frac{1}{4}$	263	35	15+12	Do.		H. Charrington.
46	$5^{\frac{1}{2}}$	$28\frac{3}{4}$	$3I\frac{1}{2}$	10+10	Do.		R. H. Venables Kyrke.
45 <sup>1</sup> / <sub>2</sub>	$5\frac{1}{2}$	31‡	$33\frac{1}{2}$	13+12	Do.		F. C. Williamson.
45	5章	$\mathbf{I8}_{2}^{1}$	$37\frac{1}{2}$	17 + 18	Cassiar		J. M. Hanbury.
44 <sup>3</sup> / <sub>4</sub>	5북		$29\frac{1}{3}$	29+26	Do	•	J. G. Millais.
$44\frac{1}{2}$	$5\frac{1}{2}$	$18\frac{3}{4}$	31	11+8	?		Major J. E. Platt.
$44\frac{1}{2}$	$5\frac{3}{4}$	$20\frac{1}{4}$	261	10+12	Newfoundland		W. R. Greene.
44 <sup>8</sup>	5 <sup>1</sup> / <sub>8</sub>	34	37		Do.		C. H. Akroyd.
44	5‡	$31\frac{1}{2}$	37	16+13	?		Sir Robert Harvey, Bart.
44	$5\frac{3}{4}$	24‡	$32\frac{1}{2}$	17+21	Newfoundland		J. G. Millais.
44	51	184	30	18+13	Do.		Admiral Sir William Kennedy.
44	$5\frac{3}{4}$	19	$26\frac{1}{2}$	17+14	Do.		Capt. A. G. Allgood, R.N.
43 <sup>1</sup> / <sub>2</sub>	5	29‡	31	18+10	Cassiar		Sir Cavendish Boyle.

Leng on or side curv	at- Circum- e ferènce.		Widest inside.	Points.	Locality.		Owner.
43	1 51	$20\frac{1}{2}$	30	22+19	Newfoundland		A. Alexander.
43	51	171	$22\frac{1}{2}$	15+12	Do.		Major C. Hilder.
43	$5\frac{1}{2}$	$21\frac{1}{2}$	$29\frac{1}{2}$	10+8	Cassiar		Major R. H. Morgan.
42	$\frac{1}{2}$ 7 $\frac{1}{4}$	331	38 <u>1</u>	22+18	Do		R. Gordon Smith.
42	$\frac{1}{2}$ $5\frac{1}{2}$	$26\frac{3}{4}$	30 <u>3</u>	23+13	Yukon		A. Benitz.
42	1 61 ±	$2S_{2}^{1}$	$35\frac{1}{2}$	24+15	Newfoundland		Lieut. H. C. Rawson, R.N.
42	6.‡	24	313	17+14	Do.		T. A. Armstrong.
42	$4\frac{1}{2}$	14	$20\frac{1}{2}$	7 + 7	Quebec		Capt. the Hon. G. H.Douglas- Pennant,
42	5½	$36\frac{1}{2}$	$39\frac{1}{2}$	20 + 12	Newfoundland		Q. C. Colmore.
42	5롱	38	$4I\frac{1}{2}$	10+10	Do.		E. C. Russell.
42	61	$20\frac{1}{2}$	$30\frac{1}{2}$	13+12	Do.		G. C. Whitaker.
41	$\frac{1}{4}$ 5 $\frac{3}{4}$	1 5 <del>3</del>	25 <sup>3</sup> / <sub>4</sub>	18+15	Do.		Prince Nicolas Ghika.
41	$\frac{1}{4}$ $5\frac{1}{2}$	27	$30\frac{1}{2}$	16+18	Do.		Capt. F. Blacker.
41	5‡	$25\frac{1}{2}$	$28\frac{1}{2}$	14+13	Do.		Sir Robert Harvey, Bart.
41	6	35	33	20	British Columbia		LieutCol. C. C. Ellis.
4 I	5	$28\frac{1}{2}$	32	14+17	Newfoundland		S. H. Whitbread.
40	3 4 63	$32\frac{1}{2}$	37	20 + I <b>7</b>	Do.		His Majesty the King.
40	$\frac{3}{4}$ $5\frac{1}{2}$	2 I $\frac{3}{4}$	29	13+9	Do.		Major S. Upperton.
40	5	32	$36\frac{1}{2}$	14+9	Do.		Sir Philip Brocklehurst, Bart.
40	$5\frac{3}{4}$	19 <u>3</u>	26	I 2 + I I	Do.		P. B. Vander Byl.
40	6	311	3512	19+14	Do.		Admiral Sir William Kennedy.
40	$5\frac{1}{2}$	26	$34\frac{3}{4}$	12+11	Do.		Dublin Museum.
			C	WNER'S	5 MEASUREMEN	NTS.	

67 §	7		$44\frac{1}{2}$	38	Hudson's Bay	•	J. G. Millais.
162	83		50 (outside)	9 + 1 5	Alaska		American National Collection (Reed Collection).
1.60	7 1		43 <sup>1</sup> / <sub>2</sub> (outside)	20 + I 4	Do	·	Do.
60	6	• • •	50 <u>1</u>	43	Kenai Peninsula		W. H. Case.
<sup>2</sup> 60			34 (outside)		North Labrador		United States National Museum, Washington.
581	81		$39\frac{1}{2}$ (outside)	24+16	Kenai Peninsula		American National Collection.
<sup>2</sup> 58				,	North Labrador	·	United States National Museum, Washington.

<sup>1</sup> R. t. granti.

2 R. t. arcticus.

# REINDEER OR CARIBOU

	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
$57\frac{1}{2}$	5章	36흫	47	21+18	Alaska	J. C. Phillips.
57					Cassiar	J. G. Millais.
$56\frac{1}{2}$					Do	C. Little.
55	71			23+22	Yukon	Wilson Potter.
$54\frac{1}{2}$	5 <sup>늘</sup>	30	$44\frac{1}{2}$	31	Alaska	F. T. Colby.
53‡	$6\frac{11}{15}$	$44\frac{1}{2}$	55	22+23	Yukon	C. T. Summerson.
52	$5\frac{1}{2}$		39 <u>1</u> (outside)	11+10	Cassiar	American National Collection.
52.	7		42	17+14	Do	L. H. Green.
$^{1}50\frac{1}{2}$			45		Do	$\operatorname{American} \operatorname{National} \operatorname{Collection}$ .
50 <del>1</del>	$6\frac{1}{2}$		371	13+18	Do	Wilson Potter.
$49\frac{1}{2}$				36	Do	Count Chas. Hoyos.
<sup>2</sup> 49			39 (outside)	22	W. Coast Greenland	American Museum of Natural
<sup>3</sup> 49			(outside) 34	36	5	History. Do.
$48\frac{1}{2}$	$6\frac{3}{4}$	$26\frac{1}{2}$	34	27	Newfoundland .	F. Gillett.
48			43	19	Cassiar	Lieut. R. C. Dalglish, R.N.
48					Do	Col. Max. C. Fleischmann.
46	$6\frac{1}{2}$	39	43	13+19	Newfoundland .	G. L. Harrison.
<sup>1</sup> 44			38 <u>1</u> (outside)	36	Cassiar	Madison Grant.
$^{4}42\frac{1}{2}$			$29\frac{1}{2}$ (ontside)	25	N.W. Coast of Hud-	American Museum of Natural
<sup>5</sup> 4 I			36	36	son's Bay Newfoundland .	History. Madison Grant.

# B.--SIBERIAN RACE (R. tarandus sibiricus).

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.		Owner.
49 <del>1</del>	$4\frac{1}{2}$	$28\frac{1}{2}$	37	16+11	Upper Yenisei Valley	· .	J. G. Millais.
48	5	26	32 <del>1</del>	16+12	Do.		J. C. Phillips.
47 <u>1</u>	5	$20\frac{3}{4}$	$28\frac{1}{4}$	16+14	Do.		British Museum (Natural History).
46 <u>3</u>	45	$20\frac{1}{4}$	$30\frac{1}{2}$	12+9	Do.		Dublin Museum.
43	$5\frac{1}{2}$	29	$30\frac{3}{4}$	14+11	Do.		Hon. Walter Rothschild.
39	5=	$26\frac{1}{2}$	27	6+11	Bought at Tashkend		Sir Edmund G. Loder, Bart.
	, 1	R. t. ost	borni. 4 R. t. d		R. t. grænlandicus. <sup>5</sup> R. t. ter	ræ-n	<sup>3</sup> R. t. stonei. voræ.

## C.-SCANDINAVIAN RACE.

	Length												
Length on out- side curve.	· Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.							
<sup>1</sup> 60	5§	$38\frac{5}{8}$	418	22+15	?	Sir V. Brooke's Collection.							
58‡	$4\frac{3}{4}$	$24\frac{3}{4}$	35 <sup>8</sup> / <sub>4</sub>	7 + 7	Norway	Sir Robert Harvey, Bart.							
57‡	58	25	$39\frac{1}{2}$	16+19	Do	Do.							
55‡	5‡	32	$37\frac{1}{2}$	17+15	Do	P. B. Vander Byl.							
$55\frac{1}{8}$	$6\frac{1}{2}$	38	43 <sup>1</sup> / <sub>8</sub>	$1\mathbf{S} + \mathbf{S}$	Sundal Fjelds, Nor-	Capt. Gerard Ferrand.							
$54\frac{1}{2}$	4 <del>3</del>	33‡	40 <del>3</del>	15+13	way Norway	J. H. Thomas.							
54 <sup>1</sup> / <sub>2</sub>	$4\frac{3}{4}$	$32\frac{3}{4}$	$41\frac{1}{2}$	18+13	Do	H. Hunt.							
54	$4\frac{3}{8}$	18	32	10+5	Do	G. C. M. Dewhurst.							
54	$4\frac{1}{2}$	$2 \mathbb{S}_2^{\underline{1}}$	35	10+7	Do	R. Persse.							
54	5	22	413	16+11	Do	Kenneth M'Douall.							
53쿡	$4\frac{1}{2}$	26	$35\frac{1}{2}$	12+8	Do	J. M. Hanbury.							
53	5			•••	Do	J. G. Millais.							
53	$4\frac{5}{8}$	$39\frac{1}{2}$	53‡	15+10	Do	A. Alexander.							
53	5	117	351	16+12	Do	H. Hunt.							
53	$4\frac{1}{2}$	$30\frac{3}{4}$	$42\frac{1}{2}$	12+8	Do	R. L. Scott.							
$52\frac{1}{2}$	43	201	50 <del>1</del>	19+13	Do	C. M. Black.							
52 <del>1</del>	$4\frac{3}{4}$	22 <sup>1</sup> / <sub>4</sub>	4 <b>I</b>	10+9	Do	A. D. Pass.							
51 <u>1</u>	43	30	391	16+16	Spitzbergen	G. A. Shenley.							
51	$4\frac{1}{2}$	31	$39\frac{1}{2}$	14+8	Norway	H.R.H. the Duc d'Orléans.							
51	43	311	$40\frac{1}{2}$	12+6	Do	F. C. Selous.							
51	$4\frac{1}{2}$	$IO_2^1$	364	12+9	Do	A. Churchill.							
50ğ	47	24	29 (outside)	16+13	Do	H.R.H. the Duke of Saxe- Coburg and Gotha.							
50	44	$27\frac{1}{2}$	40 <sup>1</sup> / <sub>2</sub>	11+10	Do	Sir H. Seton-Karr.							
50	41	334	40 <u>1</u>	12+9	Do	J. C. Maxwell.							
			C	WNER'S	6 MEASUREMENT	S.							
$59\frac{1}{2}$			413	11+14	Norway	R. L. Scott.							
$59\frac{1}{2}$	7	38	44	15+16	Do	J. Whitaker.							
59	$4\frac{1}{2}$	422	46 (outside)	7 + 5	Do	H. J. Elwes.							
58	6	302	37	33	Do	S. Ratcliff.							

 $52\frac{1}{8}$  5 27  $36\frac{1}{2}$  26 Do. . . . Abel Chapman.

1 Perished antlers.

Extract from a letter of Mr. J. G. Millais, 14th August 1907:-

"For the purpose of comparison with other local races of reindeer I give the measurements of the twelve best specimens of Newfoundland caribou which I have obtained in the island. In all scientific accounts dealing with the measurements of reindeer antlers no notice is taken of the size of the large brow-shovel, a matter of great importance in determining the respective merits of individual heads. Mere length of antler is not everything in judging the qualifications of deer heads, whilst in this species in particular we must consider beam, span, number of points, symmetry, and size of the large brow-tine, a feature which adds so much to the general character.

Length on outer curve.	Circum- ference above bez-tine.	Breadth of brow-tine on anterior margin from base to top front point.	Widest inside.	Points.	Locality.
46	$5\frac{1}{2}$	14	31	45	Tamnapegawi Lake, 1906.
46	6	14	30	35	Upper Gander, 1905.
43	7	16‡	35	36	Shoehill Ridge, 1906.
42	6	$16\frac{1}{2}$	34	44	Upper Gander, 1903.
42	$5\frac{1}{2}$	15	31	31	Resequit Hills, 1906.
40	5	$15\frac{1}{2}$	32	38	Upper Gander, 1905. Picked up.
40	5‡	$I5\frac{1}{2}$	39	25	Do. 1905.
38	$5\frac{1}{2}$	15	28	35	Do. 1903.
38	51/2	18	31	35	Millais's Lake, 1902.
$37\frac{1}{2}$	$6\frac{3}{4}$	$17\frac{1}{2}$	33	32	Migwell's Brook, 1905.
36	· 7	161/2	29	49	Upper Gander, 1903.
36	$6\frac{1}{2}$	$13\frac{1}{2}$	38	32	Resequit Hills, 1906.

"The points of reindeer are difficult to count. No point should be included that does not fulfil the old watchguard or powder-horn test, unless it may be a clean blunt snag at least half an inch from the main horn.

"The Germans count everything as a point upon which a torn piece of paper will rest, but we regard all small excrescences that do not fulfil the old British conditions as of no account. For instance, Captain Cartwright's famous '72 point Labrador head,' which I have recently traced, and on which he counted every prominence, has in reality 53 points."

#### The ROEBUCK (Capreolus caprea).

## (Also known as *Capreolus capreolus*.)

Roebuck may be recognised by the rudimentary tail, and the mediumsized antlers rising close together and almost vertically from the head, without a true brow-tine, and regularly forking at a point about twothirds the total length, with the posterior prong again subdividing, so that the number of points is usually three. There is no gland or 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. As in the Japanese sika, the white hairs of the winter rump-patch expand under the influence of excitement to form a large disc. The range embraces the greater part of Europe as far as the southern Caucasus, Palestine, and perhaps Persia.

In the typical Scandinavian roebuck there is a yellowish tinge in the winter coat, which is wanting in the greyer Spanish *C. c. canus*; the Transylvanian *C. c. transylvanicus* differs from both by the distinct whitish throat and neck patches, while the British *C. c. thotti* is distinguished from all three by the face being darker than the body.

Length on outside curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.
13	4	1412	Germany			Viscount Powerscourt.
$12\frac{1}{2}$		$6\frac{1}{4}$	Forfarshire .			J. G. Millais.
I $2\frac{1}{4}$	4 <del>3</del>	9	Servia			Viscount Powerscourt.
I I <sup>5</sup> / <sub>8</sub>		6	Monymusk, N.B.			Sir Arthur Grant, Bart.
$^1$ I I $\frac{1}{2}$			Orton, Speyside			Sir J. Macpherson Grant, Bart.
II $\frac{1}{16}$	6	6	Perth			J. G. Millais.
I I	7‡		Ross-shire .			H. M. Warrand.
II	3 <del>3</del>	61	Dorset			F. Gordon Scott.
11	510	$7\frac{1}{2}$	Ross-shire .			H. M. Warrand.
III	<sup>2</sup> 8	83	Germany			Viscount Powerscourt.
II	7붛	$6\frac{7}{8}$	Sligo, Ireland .			Sir Josslyn Gore Booth, Bart.
II	$3\frac{1}{2}$	$6\frac{1}{2}$	Ballindalloch .			G. B. Macpherson Grant.
10 <u>7</u>	$2\frac{3}{4}$	$4\frac{1}{2}$	SW. Russia .			Count Bobrinskoy.
105	2 <u>5</u> 8	$IO_2^1$	Austria			J. R. Luchsinger.
$10\frac{1}{2}$	$6\frac{1}{2}$	6	Ballindalloch .			Sir J. Macpherson Grant, Bart.
$IO_2^{\frac{1}{2}}$	31	5 <sup>3</sup> / <sub>4</sub>	Inverness			C. Macpherson Grant.
1 R	ecorded by J.	G. Millais	(British Deer and their	r Hor	ns).	<sup>2</sup> Abnormal (Perauque).

# ROEBUCK

Length on outside curve,	Circum- ference.	Tip to Tip.	Locality.			Owner.
10 <sup>1</sup> / <sub>2</sub>	4	61	Austria			H.R.H. the Duc d'Orléans.
10 <del>3</del>	31 <sup>3</sup> 5	5	Inverness-shire <sup>1</sup>			J. Hamilton Leigh.
ıo‡	31	$6\frac{1}{4}$	Do.			E. G. Fraser-Tytler.
го‡	31	2	Perthshire .			J. G. Millais.
1018	3	$2\frac{1}{4}$	Austria			R. Persse.
10	$2\frac{3}{4}$	43	Russia			H.R.H. Prince Arthur of Con-
10		41	Ross-shire .			naught. J. J. de Knoop.
10	4	4불	Glenmoriston .			J. Hamilton Leigh.
93	5	5	Dorset			J. E. Harting.
9 <sup>7</sup> 8	34	$5\frac{1}{2}$	Spain			A. de Zuleta.
9출	$3\frac{1}{2}$	4	Hampshire .			J. Hamilton Leigh.
9 <sup>3</sup> / <sub>4</sub>	81		Sligo			Sir Josslyn Gore Booth, Bart.
9 <sup>3</sup> / <sub>4</sub>		43	Aberdeenshire .			E. S. Hervey.
9 <sup>3</sup>	3	61	Scotland			A. M. Yule.
9 <sup>5</sup>		7흫	New Forest .			Hon. Gerald Lascelles.
$9\frac{1}{2}$	3	$3\frac{1}{2}$	Scotland			Col. Ralph Vivian.
$9\frac{1}{2}$	3‡	25	Spain			R. de la Huerta.
9‡	3	$\mathbf{I}\frac{1}{4}$	Scotland			G. L. Harrison.
9 <sup>1</sup> / <sub>8</sub>	$2\frac{3}{4}$	3축	Caucasus .			P. H. Thomas.
9 <del>1</del>	$2\frac{1}{2}$	61	Scotland			K. M. Chance,
9	$2\frac{3}{4}$	$2\frac{3}{4}$	Do		•	G. L. Denman.
			OWNER'S MEA	ASUR	EME	ENTS.
13	$6\frac{1}{2}$	$8\frac{1}{2}$	Germany	•		H.R.H. the Duke of Saxe-Coburg
1218	3=	$4\frac{1}{2}$	Austria			and Gotha. LieutCol. J. Marriott.
<sup>2</sup> I2 <sup>1</sup> / <sub>8</sub>			Perthshire .			R. Moncrieff.
12.11	6.12	5.4	Hungary .			Count Wenkheim.
$II\frac{1}{8}$	$4\frac{3}{4}$		Scotland .	· •		Duke of Bedford.
II	•••	43	Austria			Duke of Ratibor.
101/2	$3\frac{1}{2}$	$3\frac{1}{2}$	Bohemia .			H.S.H. Prince Alexander of Thurn
101			Beaufort, Ross-s	shire .		and Taxis. J. G. Millais.
10	$2\frac{1}{4}$	$4\frac{1}{2}$	Ross-shire			Sir Edmund G. Loder, Bart.
10	$2\frac{3}{4}$	5 <sup>3</sup> / <sub>4</sub>	Findrac			E. C. P. Hull.
10	4	35	Spain			Jose de Irruele.
9 <sup>7</sup> 8	$2\frac{1}{2}$	$4\frac{5}{8}$	Bohemia .			H.S.H. Prince Alexander of Thurn and Taxis.
9 <del>3</del>	$3\frac{1}{4}$	5	Spain .			Abel Chapman.
1	Found dea	d.	<sup>2</sup> Recorded by	J. G. M	lillais	(British Deer and their Horns).

## MANCHURIAN ROEBUCK (Capreolus bedfordi).

Rather larger than the European species, with the antlers small and slender, the winter coat less brown, and the cheek-teeth taller.

Distribution.---Manchuria and Shen-si; the Kan-su roe has been separated as C. melanotis.

Length on outside curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.	
13 <del>3</del>	41	$7\frac{3}{4}$	Mongolia .			G. N. Atkinson.
I 2	$3\frac{1}{4}$	7	W. Kan-su .			H. F. Wallace.
$II\frac{3}{4}$	$3\frac{1}{2}$	$6\frac{1}{2}$	Shen-si			K. K. Horn.
103	$3\frac{1}{2}$	5불	W. Kan-su .			G. Fenwick Owen.
$IO_2^1$	3릉	5	Do			II. F. Wallace.
9 <del>1</del>	3	7‡	S. of Minusinsk			Sir Edmund G. Loder, Bart.



Head of Tien Shan Roebuck.

## The ASIATIC ROEBUCK (Capreolus pygargus).

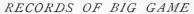
Paler and larger than the typical species, the height at shoulder being 30 to 34 inches; the ears shorter and more hairy, the white rumppatch larger, and the antlers longer and more rugose with numerous knotted snags or "pearls." Distribution.—From the northern Caucasus, the Altai, and mountains of Turkestan to Eastern Siberia. The typical representative is the Altai roebuck. The Tien Shan race (*C. p. tianshanicus*) has antlers somewhat different in form and more branched. In one type of this race the antlers diverge widely, with 4 or 5 tines each, but in a second the divergence and the number of tines are less.

Length on

Length on outside curve.	Circum- ference.	Tip to Tip.	Loc	ality.		Owner.				
*174	4	$\mathbf{I2}_2^1$	Tien Shan				Hon. Walter Rothschild.			
17	43	$I2\frac{3}{8}$	Do.				Col. C. B. Wood.			
$16\frac{1}{2}$	$3\frac{1}{2}$	$8\frac{5}{8}$	Upper Venis	ei Val	lley		J. Hamilton Leigh.			
*16	$4\frac{1}{4}$	16	Tien Shan				R. F. Glyn.			
16	$4\frac{1}{2}$	12		?			Viscount Powerscourt.			
15 <u>3</u>	3흉	$16\frac{1}{2}$	Siberia .			•	Count Bobrinskoy.			
*15≩	$4\frac{1}{2}$	$I_{3\frac{1}{2}}$	Tien Shan				J. V. Phelps.			
*15 <u>≩</u>	$3\frac{3}{4}$	I 2	Do.				Capt. C. M. Threlfall.			
*15≩	5	9 <del>3</del>	Do.				J. H. Miller.			
$*$ I $5\frac{1}{2}$	$4\frac{1}{2}$	$1\mathbf{S}_{2}^{1}$	Do.				E. W. Dixon.			
$*15\frac{1}{2}$	$3\frac{1}{2}$	14	Do.			•	Capt. J. N. Price Wood.			
$*15\frac{1}{2}$	$3\frac{1}{2}$	15	Do.				P. F. Hadow.			
$*15\frac{1}{2}$	4 <del>1</del> 8	16 <u>3</u>	Do.				Capt. the Hon. G. H. Douglas Pennant.			
* 151	5	$11\frac{3}{4}$	Do.				P. B. Vander Byl.			
15 <u>1</u>	$5\frac{1}{2}$	8	Siberia .				Sir Edmund G. Loder, Bart.			
15‡	$3\frac{1}{2}$	II	Do				Major W. Anstruther Gray.			
*151	$4\frac{1}{2}$	II	Tien Shan				Lord Osborne Beauclerk.			
*15‡	4	12	Do.			•	T. P. Miller.			
15	3불	11	Do.			•	C. H. Bury.			
*15	4	$IO_2^1$	Do.		•		Prince Colloredo Mannsfeld.			
15	3흫	15	Altai .	•	·	•	Royal Scottish Museum.			
$14\frac{1}{2}$	33	I 5½	Do				J. Hamilton Leigh.			
$14\frac{1}{2}$	4	15	Do		•	•	Duke of Bedford.			
142	$3\frac{1}{2}$	1258	Tien Shan		•		B. Chew.			
14 <u>1</u>	4	10	Do.			•	Col. A. H. Hussey.			
$14\frac{1}{2}$	$3\frac{1}{2}$	I 5‡	Do.			•	Major A. D. Greenhill Gardyne.			
$*14\frac{1}{2}$	31	$I3\frac{1}{2}$	Do.		·		W. R. Read.			

### OWNER'S MEASUREMENTS.

*18 <u>9</u>	<sup>1</sup> 6 <sup>3</sup> / <sub>4</sub>		?		Carl Hagenbeck.
$15\frac{1}{2}$	$4\frac{1}{2}$	$6\frac{3}{4}$	Tien Shan		J. C. Phillips.
4 15 <del>7</del> 8	$4\frac{7}{8}$	121	Siberia .		T. D. M. Cardeza.
	1 C	ircumferenc	e of burr		* Tien Shan race.





Skull and Antlers of Alaskan Elk. From a specimen in the possession of the Duke of Westminster.

## The 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 socalled "bell") on the throat of the males, and the form and position of the antlers in that sex. The latter are set on the skull with their bases at right angles to the middle line of the face, and have neither brow nor bez tines. Usually the antlers expand after a short distance into a broad palmation or "shovel," 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 grey to deep blackish brown above, with the legs lighter, and being usually darker in the American than in the European race. The height varies from 5 feet

ELK OR MOOSE

9 inches at the shoulder in Scandinavian examples to as much as 6 feet 9 inches in the Alaskan race; the weight from 900 to 1600 lbs., that of the antlers being from about 60 lbs. to 100 lbs. The antlers of American elk are more expanded and carry more points than European specimens.

Elk inhabit the forests and marshy districts of Scandinavia, Eastern and Northern Russia, and the Altai; and in America (where they are invariably known as moose) at the present time are found in Alaska, Montana, Nova Scotia, and New Brunswick. In some localities Scandinavian elk not unfrequently show little or no palmation of the antlers, and thus approximate to the East Siberian form. Elk appear to be nearly related to roebuck.

### A.--AMERICAN and ALASKAN ELK

Greatest width.	Length to longest tine.	Circum- ference above burr.	Tip to Tip,	Breadth of palm.	Points.	Loca	ality.		Owner.
$74\frac{3}{4}$	44	12	45	$13\frac{1}{2}$	15+13	Alaska			Capt. C. R. E. Radclyffe.
72	47‡	$9^{1}_{\pm}$	$37\frac{1}{2}$	161	20+17	Do.			Duke of Westminster.
70	46	9	$42\frac{1}{2}$	15	14+14	Do.			R. F. Glyn.
68	$47\frac{1}{4}$	9	$44\frac{1}{2}$	13	14+14	Do,			Prince Nicolas Ghika.
673	43	11	48	15	15+12	Do.			P. B. Vander Byl.
66	44	10	50	12	12+11	Do.			Capt. C. R. E. Radclyffe.
66	42	9 <sup>3</sup> / <sub>4</sub>	42	$19\frac{1}{2}$	19+17	E. Yuko	n		F. C. Selous.
$65\frac{1}{2}$	42	8	52		20 + 2 I	Alaska			Capt. C. R. E. Radclyffe.
$65\frac{1}{4}$					13+10	New Bru	inswi	ck	F. H. Cook.
64	444	$7\frac{1}{2}$	$39^{\frac{1}{2}}$	14	14+20	Alaska			Prince Nicolas Ghika.
64	47	$8^{3}_{4}$	40	13	16+16	Do.			W. H. Welsh.
$63\frac{1}{2}$	45 <sup>1</sup> / <sub>2</sub>	101	43	22	19+15	Do.			Hon. Walter Rothschild.
$63\frac{1}{2}$	45	9	41	15	15+13	Do.			David Davies.
63		$7\frac{1}{2}$		$16\frac{1}{2}$	16+15	Peace R	iver		J. G. Millais.
$63\frac{1}{2}$	37	73	$39\frac{1}{2}$	15章	12+12	Yukon			F. C. Selous.
$62\frac{3}{4}$	$49\frac{1}{2}$	$8\frac{3}{4}$	47	141	16+8	Alaska			Capt. the Hon. F. E. Guest.
62 <u>1</u>	46	$7\frac{1}{2}$	46	14	14+13	Quebec			Col. J. Caswell.
62	$46\frac{1}{2}$	$9\frac{3}{4}$	35	21	18+16	Alaska			Lord Elphinstone.
59 <del>3</del>	$38\frac{1}{2}$	7	40	13	9+10	Cassiar			P. N. Graham.
59 <del>1</del>	48	7축	$39\frac{1}{2}$	17	14+11	Alaska			W. F. Wailes-Fairbairn.
<b>5</b> 9	45	8	37	$\mathbf{I2}_2^1$	13+12	Do.			Sir H. Lennard, Bart. H

## (A. machlis americanus and A. m. gigas).

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Greatest	Length to	Circum- ference	Tin to	Breadth			
width.	longest tine.	above burr.	Tip.	of palm.	Points.	Locality.	Owner.
58 <del>3</del>	363	$6\frac{1}{2}$	361	9	9+9	Cassiar	Lord Osborne Beauclerk.
$58\frac{1}{2}$	45	$7\frac{1}{2}$	42	I 5½	14+14	New Brunswick	E. C. Russell.
58 <u>1</u>	43 <del>3</del>	$6\frac{3}{4}$	35	$II\frac{1}{2}$	13+11	Do.	LieutCol. W. H. Greenly.
$57\frac{1}{2}$	38	8	$2I\frac{1}{2}$	14	18+15	Canada	C. H. Akroyd.
571	36	$6\frac{3}{4}$	$38\frac{1}{2}$	12	12 + I I	Cassiar	W. A. Conduitt.
57‡	41	8‡	35	11	11+11	Maine	T. D. M. Cardeza.
<b>57</b> ≵	35	$6\frac{1}{2}$	37	II $\frac{1}{2}$	10+10	Yukon	A. D. Pass.
57훕	$40\frac{1}{2}$	8	35	$I3\frac{1}{4}$	12 + 1 I	Maine	J. S. Braithwaite.
57	45	8‡	38	$13\frac{1}{2}$	10+9	Alaska	Hon. J. Cunliffe-Lister.
57	41	8	43 <sup>1</sup> / <sub>2</sub>	12	11+14	Cassiar	Major J. F. Church.
56 <u>1</u>	$39\frac{1}{2}$	7 <sup>3</sup> ‡	37	$13\frac{1}{2}$	14+11	?	Sir Peter Walker, Bart.
$56\frac{1}{4}$	43	$7\frac{1}{2}$	$37\frac{1}{2}$	II	10+12	Cassiar	C. H. Young.
56‡	$38\frac{1}{2}$	$7\frac{1}{2}$	30 <u>3</u>	15	15+11	Manitoba	J. B. M. Thompson.
56	41	8	33	121	16+14	Cassiar	R. L. Fenwick.
56	$42\frac{1}{2}$	81	39	13	14+12	?	Hon. M. Egerton.
55‡	$42\frac{3}{4}$	$8\frac{1}{2}$	36 <u>1</u>	7 <sup>3</sup>	9+7	New Brunswick	Major J. C. B. Statham.
55	39 <del>3</del>	7	$36\frac{1}{2}$	II	10+8	Cassiar	Col. L. Parry.
55	43 <sup>3</sup> / <sub>4</sub>	8	40	$17\frac{1}{4}$	16+14	Alaska	L. Cadbury.
$54\frac{3}{4}$	$36\frac{1}{2}$	6 <u>3</u>	4I1	$9\frac{1}{2}$	12+11	Cassiar	J. S. Shepherd.
$54\frac{1}{2}$	$40\frac{1}{2}$	$7\frac{1}{2}$	35	13	9+9	New Brunswick	A. C. Bell.
$54\frac{1}{2}$	42	7‡	36	11 <del>3</del>	12+11	Alaska	Sir Robert Harvey, Bart.
			C	OWNEF	R'S MEA	ASUREMENTS.	
$^{1}78\frac{1}{2}$						Yukon	Field Museum, Chicago.
$^{2}77^{\frac{1}{2}}$					17+17	Alaska	P. Niedieck.
75	$4I\frac{1}{2}$	101		$21\frac{5}{8}$	23+19	Do	American National Collec-
75 .						Do	tion (Reed Collection). Canadian Pacific Collection.
$74\frac{1}{2}$						Do	Chicago Academy of Science.
74						Do	American Museum of Natural
731	•••		••••	23	24 + 14	Do	History. C. F. Periolot.
$71\frac{1}{2}$	49	813		16	20+20	Do	Sir Edmund G. Loder, Bart.
71‡	48	9 <sup>1</sup> / <sub>2</sub>		17 <sup>3</sup>	18+16	Do	American National Collec- tion.
71 <del>1</del>	48	$9\frac{1}{2}$		174	18+16	Do	Do.
7 I	48	8	50	$10\frac{1}{2}$	21	Do	J. C. Phillips.
<sup>3</sup> 69 <del>1</del>				26		Do	H. C. Thompson.

Skull and antlers weighed 91 lbs.
 <sup>2</sup> Weight of antlers and skull, 77 lbs.; no lower jaw.
 <sup>3</sup> Height at shoulder, 6 ft. 8 in.?; skull and antlers, 68 lbs.; estimated weight, 1700 lbs.

# AMERICAN AND ALASKAN ELKS

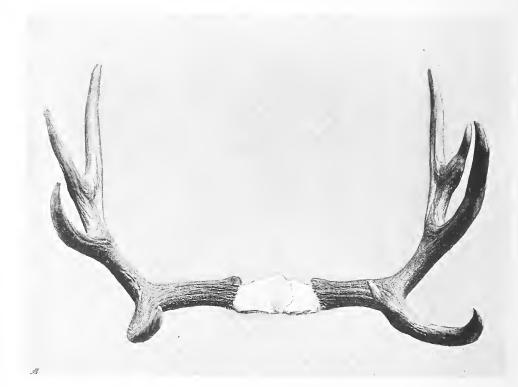
Greatest width.	Length to longest tine.	Circum- ference above burr.		Breadth of palm	Points.	Loca	lity.		Owner.
69	55	11 ?	37	21	2 I	Alaska	•		F. B. Tolhurst.
$68\frac{3}{4}$	49	ΙI	36	$\mathrm{I}5\tfrac{1}{2}$	14+14	Do.			P. Niedieck.
68 <del>1</del>	41 <del>7</del>	•		16	17	New Br	unswi	ick	Dr. Munro.
67	$45\frac{1}{2}$	$8\frac{1}{4}$	$45^{\frac{1}{2}}$	12	18+11	Alaska			F. T. Colby.
6 <b>7</b>					23	Do.			J. H. Whitehouse.
66	$38\frac{1}{2}$	$9\frac{1}{2}$	44	14	28	New Bri	unswi	ick	S. Decatur.
$64\frac{1}{2}$	$47\frac{1}{8}$	$8\frac{7}{8}$	45‡	15‡	31		?		Grahamstown Museum.

# B.-EUROPEAN ELK (A. machlis typicus).

The Ural Elk has been distinguished as A. m. uralensis.

Greatest width.	Length to longest tine.	Circum- ference above burr.	Tip to Tip.	Breadtl of palm	Points.	Loca	lity.		Owner.
$48\frac{3}{4}$	$30\frac{1}{2}$	8	44	5	4+4	Norway	•	•	Capt. W. W. Pitt-Taylor.
48	31	7	$34\frac{3}{4}$	$8\frac{3}{4}$	10+9	Do.			G. J. Van Heek.
48	32	$8^{3}_{4}$	$37\frac{1}{2}$	II $\frac{1}{2}$	10+9	Nr. St. burg	Pe	ters-	Prince E. Demidoff.
47 <u>1</u>	30‡	$6^{3}_{\pm}$	$32\frac{3}{4}$	9	10+10	Norway			D. W. Stobart.
<sup>1</sup> 46	$30^{8}_{4}$	$6\frac{1}{2}$	43	$IO_2^1$	15	Do.			Abel Chapman.
$44\frac{1}{4}$	$30\frac{1}{8}$	7불	$29\frac{1}{2}$	10	9+8	Do.			Sir Victor Brooke's Collec- tion.
<sup>2</sup> 44	317	7‡	35	101	1 I + 8	Stuttberg	g٠		O. Greaves.
$43\frac{1}{2}$	29	$7\frac{1}{2}$		$IO_2^1$	24	Norway	•		Sir Peter Walker, Bart.
43 <sup>3</sup> 8	32	6	··· <b>·</b>	$9^{\frac{1}{2}}$	7+8	Russia		د	British Museum (Sir Edward Caley).
431	$25\frac{1}{2}$	54	35	3	6+6	Norway	•		
			01	WNER	'S MEA	SUREM	EN	ITS.	
52	32	7		9	9+9	Norway	•	÷	H, J. Elwes.
51 <sup>3</sup> / <sub>4</sub>	33	$8\frac{1}{2}$	36‡	154	10+10	Do.			Capt. Gerard Ferrand.
49			35	6	8 + 8	Sweden			J. A. M'Mullen.
46	$32\frac{1}{2}$	7불	33	II $\frac{1}{2}$	10+10	Do.			Capt. Gerard Ferrand.
45	31	7	28		17	Do.			S. Ratcliff.
43 <del>1</del>	$28\frac{1}{2}$	6	33‡	I I	12+10	Lithuania	ı		Prince Radziwill.
	1 Esti	mated we	eight, 1	260 Ibs.		<sup>2</sup> Est	ima	ted we	ight, 973 lbs. clean.

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

## C.-EAST SIBERIAN ELK (A. machlis bedfordiæ).

This race shows a marked tendency to absence of palmation in the antlers, which usually have four or five large tines on each side. Certain antlers from East Siberia are, however, distinctly palmated, but appear to differ somewhat in form from ordinary European specimens.

Greatest width.	Length to longest tine.	ference above burr.	Tip to Tip.	Points.	Loca	lity.	Owner.
$42\frac{1}{2}$	$30\frac{1}{2}$	$7\frac{1}{2}$	28	6+5	Siberia		Hon. Walter Rothschild.
$39\frac{1}{2}$	$26\frac{1}{2}$	8	37	4 + 3	Do.		British Museum.
$37\frac{1}{2}$	313	8	32	5+4	Do.		Hon. Walter Rothschild.

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Head of White-tailed Deer. Shot by Mr. G. Graham-Clarke.

## The WHITE-TAILED DEER (Mazama [Odocoileus] virginiana).

Exclusive of the wapiti, all the deer of America are distinguished from those of the Old World, except elk and roebuck, by the structure of the bones of the feet, as they also are by the form of the antlers, which are either regularly forked or spike-like. In the white-tailed deer the antlers are large and complex, with a long sub-basal snag, and the front prong of the main fork developed at the expense of the hind one, 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-Colour of upper-parts chestnut in summer and bluish grey in bone. winter, with the under surface of the tail and the buttocks pure white. Typically from Eastern North America, where the height at the shoulder reaches to 3 feet I 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 is the oldest name for the American deer, and may be

employed if all are included in one genus. If they are split up, *Mazama* is the title for the brockets, while the white-tail and its allies may be called *Odocoileus*, a name originally based on a fossil tooth of the typical species.

#### A.-NORTHERN RACES (M. virginiana typica, etc.).

This typical race inhabits Virginia, its range including eastern N. America from Ontario and Maine to Florida, and westward to the Missouri. In Canada and New England it is replaced by the larger and greyer M. v. borealis; and there are several other races in the States.

Length on outside curve,	Circum- ference.		Widest inside.	Points.	Loca	lity.			Owner.
27§	5흫	Single		16	N. America	ι.			British Museum.
$27rac{1}{4}$	$5\frac{1}{2}$	antler 9 <sup>1</sup> / <sub>2</sub>	19	8+6	New Bruns	wick			G. Graham - Clarke. (See illustration.)
$27\frac{1}{5}$	$4\frac{3}{4}$	14‡	19	6 + 6	N. America	ι.			British Museum.
$26\frac{3}{4}$	$4\frac{3}{4}$	9 <u></u> 1	20	20	Do.				Major James Grant.
261	$5\frac{1}{2}$	4=	17‡	13+13	Ontario				W. S. Browne.
26	$4\frac{1}{2}$	$5\frac{1}{2}$	18	8 + 7	Maine .				T. D. M. Cardeza.
26	$4\frac{1}{8}$	9	$16\frac{1}{2}$	6 + 6		?			C. A. Kitson.
254	$4\frac{1}{2}$	9	19	11	Maine .				H. S. Wellcome.
25	5	$\mathbf{I2}\frac{1}{8}$		6+10		?			British Museum.
25	5	$6\frac{7}{8}$	19	6+5	E. Kootena	цу, В.С	с.		Col. A. Charlesworth.
$24\frac{1}{2}$	$4\frac{1}{2}$	123	$18\frac{1}{2}$	6+6		?			J. Carr Saunders.
$23\frac{3}{4}$	43	$7\frac{1}{2}$	18 <u>1</u>	4+4	New Bruns	wick			W. H. Lindsay.
231	41	65	17	6 + 5	Do.				Capt. E. C. Hamilton.
23	5	5	16	6+6	British Col	umbia			J. Turner-Turner.
23	$4\frac{1}{2}$	14	$20\frac{1}{2}$	7 + 5	Canada.	•			J. A. Douglas.
				OWNER	'S MEASU	REM	ENT	rs.	
32‡	6	8	$20\frac{1}{4}$	17+15	Michigan				J. C. Phillips.
29	6			18+24	Maine .				American National Col- lection.
27‡		18 <u>1</u>		19+19	Missouri				Berlin Museum.
25	5章	$6\frac{3}{4}$	$23\frac{1}{8}$	10+9	Michigan				Wilson Potter.
24	$6^{1}_{2}$	I 2	16	7+6	Alberta				N. J. Dinnen.
24	$4\frac{5}{8}$	$1_{19\frac{1}{2}}$	•••	18	Nebraska				G. B. Grinnell.
$23\frac{3}{4}$	6	12	16 <u>3</u>	5+4	Wyoming				Col. J. J. Harrison.
					<sup>1</sup> Spread.				



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

## B.-MEXICAN WHITE-TAIL (M. virginiana lichtensteini).

This is one of the smaller races of the species, the height at the shoulder ranging from about 33 to 36 inches, and the antlers being usually smaller and simpler than in the northern race.

Distribution.—Mexico. In Northern Mexico this race is represented by the Texan *M. v. texana*, and in the extreme south by *M. v. tolteca*, which does not turn red. The Central American specimens entered below belong to other races.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
13 <u>5</u>	3 <sup>3</sup>	$6\frac{7}{8}$	I I $\frac{3}{4}$	3+3	Sonora	. British Museum.
13 <del>1</del>	$3\frac{5}{8}$	7	$II\frac{1}{8}$	4+4	Venezuela .	. Hon. Walter Rothschild.
I I $^3_4$	3	$4\frac{1}{2}$	$9^{1}_{4}$	3+3	Costa Rica	Sir Edmund G. Loder, Bart.
8‡	$2\frac{1}{8}$	$4\frac{3}{4}$	63	3+4	Mexico	. Sir Victor Brooke's Collection.
				OWNER	R'S MEASUREME	NTS.
${\bf 18} {\bf \frac{1}{2}}$		$9\frac{1}{2}$		5+4	Sonora	. J. C. Phillips.
16 <del>1</del>	41	•••	$I4\frac{1}{2}$	4+4	Rio-Frio Mts., Mexic	o Pio Noriega.
14	31	9			Sonora	Major W. Anstruther Gray.



Head of Mule-Deer.

#### The MULE-DEER (Mazama [Odocoileus] hemionus).

Antlers with a much shorter sub-basal snag than in the whitetailed 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 large and heavy; tail short and small, naked below basally, with a black tip. Gland-tufts on hock and cannon-bone coloured like the leg; the latter of these elongated and situated on the upper half of the cannon-bone. General colour of upper-parts yellowish tawny in summer, brownish or rufous speckled grey 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.



Head of Mule-Deer from Colorado, in the possession of Mr. H. A. James.

Length on out- side curve.	Circum- ference.		Widest inside.	Points.	Locality.		Owner.
34	5	18	$21\frac{3}{4}$	19+18	Wyoming .		J. G. Millais.
30-5	5 <sup>3</sup> / <sub>4</sub>	$18\frac{3}{4}$	$24\frac{1}{2}$	5+5	?		W. Moat.
30	5출		41	17	White River,		H. A. James.
28ş	$4\frac{1}{2}$	1 3 <del>1</del>	173	5 + 5	Colorado Wyoming .		Ford G. Barclay.
28 <u>1</u>	5	$18\frac{3}{4}$	21	6+4	British Columbia		J. McI. M'Iver Campbell.
$28\frac{1}{2}$			$24\frac{1}{2}$		White River .		Major Maitland Kirwan.
28	5	20	$23\frac{1}{4}$	7+6	Wyoming .	•	J. Hall.
28	4‡	$22\frac{1}{2}$	$24\frac{3}{4}$	6+6	Do		H. A. C. Darley.
$27\frac{3}{4}$	6	15‡	19‡	9+6	British Columbia		G. Wrey.
$27\frac{1}{2}$	5 <sup>3</sup> / <sub>4</sub>	143	$24\frac{1}{2}$	6+5	Do.		Hon. Walter Rothschild.
271	5	$I4\frac{1}{2}$	$24\frac{3}{4}$	6+5	Do.		C. W. Janson.
271	41	ı5≩	$26\frac{1}{4}$	5 + 5	North America		T. L. Fisher.

Length on out- side curve.	Circum- ference.		Widest inside.	Points.	Locality.		Owner.
27	5‡	$19\frac{1}{2}$	21 <sup>5</sup> / <sub>g</sub>	6 + 5	North America		Sir Edmund G. Loder, Bart.
27	5‡	$19\frac{1}{2}$	$22\frac{3}{4}$	5+5	British Columbia		D. H. Crake.
26 <u>3</u>	$4\frac{3}{4}$	19§	$20\frac{1}{8}$	5+5	Wyoming .		Ernest Farquhar.
$26\frac{1}{2}$	5	$15\frac{1}{2}$	$18\frac{1}{2}$	6+5	British Columbia		T. P. Kempson.
$26\frac{1}{2}$	$5\frac{3}{4}$		171	12	Wyoming .		Lord Rendlesham.
$26\frac{1}{4}$	6‡	131	18	5+4	British Columbia		A. H. Goodall.
26	5	15‡	1912	4+4	Do.		J. V. Colby.
25 <u>1</u>	$4\frac{1}{2}$	$I2\frac{3}{4}$	$16\frac{3}{4}$	5 + 5	Sierra Nevada .		P. Grace.
$25\frac{1}{2}$	$5\frac{1}{2}$		$2I\frac{1}{2}$	8	British Columbia	•	Sir Peter Walker, Bart.
$25\frac{1}{2}$	44	27	29	5 + 5	Wyoming .		LieutCol. G. J. Fitzgerald.
25 <sup>3</sup>	4 <sup>1</sup> / <sub>5</sub>	19	20	5 + 5	Do		A. H. Pollen.
$25\frac{1}{4}$	5	$7\frac{1}{2}$	19‡	8+6	?		W. A. Warren.

## OWNER'S MEASUREMENTS.

$32\frac{1}{8}$	6	$26\frac{3}{4}$	$44\frac{1}{8}$	25	B. Columbia	•	H. Whiting.
32	6	26		21+19	Wyoming		C. R. F. Lutwidge.
301	$6\frac{1}{2}$	18‡	30	12+11	Alberta .		N. J. Dinnen.
$29\frac{1}{2}$	5 <sup>⊉</sup>	25	25‡	8+5	Montana .		J. C. Phillips.
29	$6\frac{1}{2}$	$29\frac{1}{2}$		8+6	Do.		E. S. Cameron.

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## The BLACK-TAILED DEER (Mazama [Odocoileus] 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 mostly white.

Distribution.—Western North America, from Alaska, British Columbia, and Vancouver to California. The Alaskan race (M. c. sitkensis)has the upper surface of the base of the tail coloured like the back; in the Californian M. c. scaphiotus the general colour is paler and the ears are larger.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.		Owner.
27	5‡	13	$20\frac{3}{4}$	5 + 5	5		R. H. Venables Kyrke.
19‡	4‡	14	$16\frac{1}{2}$	3+3	S. California .		Sir Victor Brooke's Collection.
				OWNER'S	MEASUREMEN	ITS	
22	4‡		<sup>1</sup> 22		Vancouver .		Clive Phillipps-Wolley.
21	5	I 5‡	15	5 + 5	N.E. California		H. C. Nelson.
$20\frac{1}{4}$	5	17	17	5+7	Do.		A. E. Leatham.
$19\frac{1}{2}$	53		21	5 + 5	?		Sir W. Gordon Cumming, Bart.
16	$3\frac{3}{4}$	$8\frac{1}{2}$	141 141	5+3	British Columbia		W. T. Hornaday.

<sup>1</sup> Outside.



Frontlet and Antlers of Marsh-Deer.

## The MARSH-DEER (Mazama [Blastoceros] 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 cannonbone. Size, approximately that of a red deer. Although ten is the usual number of points, sports are common.

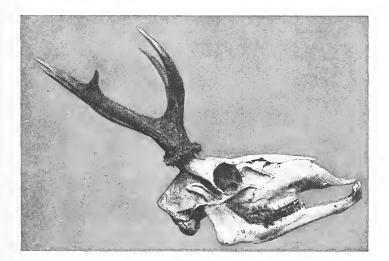
Distribution -- From Brazil to the inner wooded districts of Argentina.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
25	$5\frac{1}{2}$	$18\frac{3}{4}$	211	5+4	Paraguay .	Hon. Walter Rothschild.
$24\frac{1}{2}$	5	16	18	5 + 5	Do	Admiral Sir William Kennedy.
$24\frac{1}{2}$	$6\frac{1}{2}$	21	$20\frac{1}{2}$	6+5	N. Argentina	J. Todd.
23 <del>8</del>	5 <sup>1</sup> / <sub>8</sub>	$15\frac{3}{4}$	161	5+4	Paraguay .	British Museum.
231	6		$19\frac{1}{2}$	I 2	Do	G. R. Stuart.

# MARSH-DEER

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality			Owner.	
$22\frac{3}{4}$	5흫	$17\frac{1}{2}$	${\rm I}8^{\rm S}_{\pm}$	7 + 6	Paraguay	•		Hon. Walter Rothschild.	
22§	6‡	20	$20\frac{1}{2}$	5 + Ś	Brazil .			Sir Victor Brooke's Collection.	
$22\frac{3}{8}$	$5\frac{1}{2}$	25	••	28	Argentina			A. Vans-Agnew.	
$22\frac{1}{4}$	$4\frac{1}{2}$	${}_{1}S_{2}^{1}$	$18\frac{1}{2}$	4+3	Do.			G. L. Harrison.	
$2I\frac{1}{2}$	$5\frac{1}{2}$	22	$16\frac{1}{2}$	6+6	Paraguay			S. Pulley.	
$21\frac{1}{2}$	6	$13\frac{1}{2}$		4+4	Do			H.R.H. the Duc de Montpensier.	
$2I\frac{1}{2}$	5	$I2\frac{3}{4}$	16	5 + 5	Do			Admiral Sir William Kennedy.	
OWNER'S MEASUREMENTS.									

$25\frac{1}{8}$	5	$22\frac{1}{4}$		6+7	Paraguay		•	Dr. Albert von Stephani.
$22\frac{1}{2}$	$7\frac{1}{2}$		I 5‡	6+6	Argentina			Kenyon Slaney.
$22\frac{1}{4}$	$6\frac{7}{8}$	<b>2</b> 6	25	5 + 5	Do.	•		Sir Edward G. Loder, Bart.



Skull and Antlers of Chilian Guemal, shot in Patagonia by Mr. H. Hesketh Prichard.

#### The PAMPAS DEER (Mazama [Blastoceros] bezoartica).

A small deer nearly allied to the last, but with the front prong of the antlers simple, and the hind one divided. A whorl in the hair on the middle of the back and another at the base of the neck, so that the hair 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, 30 inches.

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

L	ength on outside curve.	Circum- ference.	Tip to Tip.	Points.	Locality.	Owner.
	$15\frac{3}{5}$	$3\frac{1}{2}$	5	6+7	Argentina	Col. Heber Percy.
	$14\frac{5}{3}$	$2\frac{5}{8}$	131	3+3	Do.	British Museum.
	$14\frac{1}{2}$	3	$10\frac{3}{4}$	3+3	Do.	E. M. Crosfield.
	14‡	3	II	3+3	?	Sir Edmund G. Loder, Bart.
	14	$4\frac{1}{4}$	$II\frac{1}{4}$	3+3	Paraguay .	Admiral Sir William Kennedy.
	$I3\frac{1}{2}$	$4\frac{3}{4}$	8	3+3	Do	R. A. Cooper.
	13	$2\frac{1}{2}$	$12\frac{3}{8}$	3+3	?	W. Livingstone-Learmonth.

## The PERUVIAN GUEMAL (Mazama [Hippocamelus] antisiensis).

Together with the closely allied Chilian guemal, this species constitutes a group of deer 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 Ecuador to Northern Chili.

Length on outside curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.
I I 🖁	43	6	Bolivia, 13,000 ft.	•		A. Y. Hardy.
10	35	8	Ecuador			Hon. Walter Rothschild.
$9\frac{1}{2}$	7 🗄	45	Tinta, South Peru		•	British Museum (H. Whitely).
$8\frac{1}{2}$	34	5	N. Argentina .	•		W. Buchanan Smith.

### The CHILIAN GUEMAL (Mazama [Hippocamelus] bisulca).

Distinguished from the last by its superior size (shoulder-height  $39\frac{1}{2}$  inches) and more uniform colouring, as well as by several details connected with the latter.

Distribution.—From the Chilian Andes to the plains of Patagonia.

on outside curve.	Circum- ference.	Tip to Tip.		Locali	ty.			Owner.
$11\frac{3}{4}$	37	$9\frac{1}{2}$	Patagonia					H. Hesketh Prichard.
$IO_2^1$	35	$7\frac{1}{2}$		?				British Museum.
$-7\frac{1}{4}$	3	4	Chili .					J. C. Phillips.
$-4\frac{5}{8}$	$\mathbf{I}\frac{7}{8}$	$4\frac{1}{2}$	Do				۰.	American National Collection.
			- (	Owner	's mea	surem	ents.	

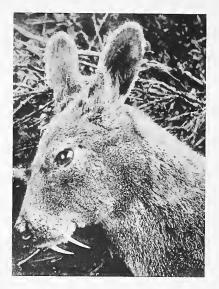
## The WOOD-BROCKET (Mazama nemorivaga).

The brockets are some of the smallest deer included in the genus *Mazama*, of which they are the typical representatives. They are recognisable by their simple spike-like antlers, the tufted crown of the head, and, in many, although not all, cases the radiation of the hair of the face from two whorls, which causes that on the nose to be directed downwards. The most widely distributed species is the red brocket (*M. americana*,<sup>1</sup> or *M. rufa*), other species being the nearly allied *M. setta* of Colombia and *M. sheila* of Venezuela, *M. tema* of Guatemala, and the small *M. simplicomis*. The present species is distinguished by its small size (height at shoulder about 19 inches), its pale pepper-and-salt brownish or grey 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.		Locali	ty.			Owner.
-45	$3^{\frac{3}{4}}_{\pm}$	4	Trinidad					Dr. Percy Rendall.
4\$	13	2	Do.					Sir Edmund G. Loder, Bart.
-3	21	2	Do.					Dr. Albert von Stephani.
			-	Owner	's mea	sureme	ents.	

<sup>1</sup> In previous editions this name was applied to the white-tailed deer, a usage which has been recently shown to be inadmissible.



Head of Musk-Deer.

## The MUSK-DEER, or KASTURA (Moschus moschiferus).

She-lu, Chinese. Kastura, Kashmiri.

From all living deer except the Chinese water-deer this species is distinguished by the absence of antlers, the function of which is discharged in the male by long upper tusks. The tail is rudimentary and the fur coarse and brittle, while 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, Amurland, and Corea.

Length of Tusk on outside curve.			Loca	lity.		Owner.
4 exposed from gum	Kashmir			·		LieutCol. H. C. Tytler.
3 <sup>3</sup> / <sub>8</sub>	Gurhwal					Capt. G. W. Burton.
3	Do.					British Museum (Hume Collection).
3	Amurland					British Museum.
$2\frac{1}{4}$	Kashmir	•	·	•		Sir Edmund G. Loder, Bart.

#### OWNER'S MEASUREMENTS.

4	Ta Chin lu .	•	•		M. Mitchell.
33	Chitral .				Capt. J. T. H. Lane.
3‡	Do	•			Dr. Albert von Stephani.
3	Upper Kumaon				Capt. K. Channer.



Skull of Transvaal Giraffe. Presented to the British Museum by the late Mr. Rowland Ward.

#### The GIRAFFE (Giraffa camelopardalis).

Ihuhla, Swazi. Indhlulamiti, Zulu. Tuthla, Basuto. Luomba ningo, Chilala. Intutwa, Chila. Ngabi, Masawara. Giri, or Halgiri, Somali. Kameel, Boer. Nyama marakiti, Asenga. Vakumin deji, Hausa.

Zaraff, Sudani.

The long limbs and neck, the peculiarly formed head, and the blotched 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, of which the largest pair rise 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-

Ι

teeth. There are no tusks in the upper jaw; and in the outermost pair of lower front teeth the crown, as in the okapi, is double, or bilobed. Lateral hoofs are wanting.

Among the local races of the species, the Nubian giraffe, G. c. typicus, is a pale-coloured animal with a large front horn and white legs; and from this the Kordofan G. c. antiquorum differs by the smaller and more numerous spots on the upper part of the legs. The Baringo giraffe, G. c. rothschildi, is characterised by the black spots of the old bulls and the jagged markings of the cows; and the Taposa G. c. cottoni is allied. The Nigerian G. c. peralta, the palest of all, is close to the Nubian. The Congo G. c. congoensis combines the presence of a third horn with fully spotted legs; this being also the case with the Kilimanjaro G. c. tippelskirchi, in which the markings have an irregular star-like form and the legs are more or less spotted. The races with fully spotted legs and a more or less rudimentary front horn include the Angolan G. c. angolensis, the North Transvaal G. c. wardi, and the South African G. c. capensis.

#### 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, liver-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.

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

# A.---NIGERIAN RACE (G. c. peralta).

Estimated maximum height.	At shoulder.	Locality.	Owner.
ft. ins. 8-16 4	ft. ins. II O	N. Nigeria	 The late Capt. G. B. Gosling.

## B.—EASTERN RACES (G. c. rothschildi, etc.)

	Estim maxin heigl	num	At shoulder.	Locality.				Owner.
	ft.	ins.	ft ins.					
	19	3		British East Africa	·	• ·	·	Col. J. Caswell.
	19	0	I2 O	Do.		•		T. P. A. Holford.
(	3 -18	7		South-east Africa				F. Vaughan Kirby.

## GIRAFFE

Estimated maximum height.	At shoulder.	Locality.			Owner.					
ft. ins. 3-18 6	ft. ins.	British East Africa				J. Hall.				
3-17 6		Do.	•			A. Vonwiller.				
ð−17 З	10 11	Do.	•	•	•	British Museum (Major P. H. G. Powell-Cotton).				
3-17 3		Do.	•	•		Lady Hindlip.				
3-16 O		East Central Africa				The late A. H. Neumann.				
♀-156 to	Average height	South-east Africa	•	•		F. Vaughan Kirby.				
16 0 9-13 10	8 91/2	British East Africa				British Museum (Major P. H. G. Powell-Cotton).				

# C.--SOUTHERN RACES (G. c. capensis, etc.).

Estimated maximum height.	At shoulder.	Locality.			Owner.
ft. ins. S-18 4	ft. ins.	Angola			Hon. Walter Rothschild.
5-18 o	12 0	South Africa .	•		The late Sir W. Cornwallis Harris.
ð−17 о		W. Matabililand			F. C. Selous.
9-16 10		North Kalahari.			H. A. Bryden.

- Owner's measurements.

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Head of Prongbuck.

## The PRONGBUCK or PRONG-HORN (Antilocapra americana).

Although commonly termed an antelope, this ruminant 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, the species is generally regarded as representing a family (*Antilocapridæ*) by itself. Horns absent or rudimentary 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 North America, from British Columbia to Mexico.

on outside curve.	Circum- ference.	Tip to Tip,	Widest inside.		Loca	lity.		Owner.
1 5 <del>3</del>	6‡	$5\frac{7}{8}$	•••	Wyoming	• •			St. George Littledale.
ı 5≩	6‡	$8\frac{3}{4}$	•••	Do.				P. B. Vander Byl.
15 <u>1</u>	$4\frac{1}{2}$	$9\frac{1}{2}$		Do.				W. R. Cookson.

# PRONGBUCK

Length on ontside curve.	Circnm- ference.	Tip to Tip.	Widest inside.	Loca	lity.	Owner.			
$15\frac{1}{8}$	61	75	••••	?					Col. Ralph Vivian.
15	$5\frac{1}{2}$	I		Wyoming			•		Sutton Timmis.
15	6			Do			•	•	H.R.H. the Duc d'Orléans.
15	58	5 <sup>곱</sup>	IOT	Do					St. George Littledale.
15	5 <sup>2</sup> / <sub>4</sub>	$7\frac{3}{4}$		Do					Isaac Bell.
14 <u>1</u>	$5\frac{3}{4}$	12		i	?				C. F. Bengough.
$14\frac{1}{2}$			$\mathrm{I}2\tfrac{1}{2}$	Wyoming			•		T. W. H. Clarke.
$14\frac{1}{2}$	5 <sup>3</sup> / <sub>±</sub>	$II\frac{3}{4}$		Do			•		British Museum.
1412	6		$9\frac{1}{2}$	Laramie Plains,	Wyo	omin	g		Ford G. Barclay.
$14\frac{1}{2}$	65	5卦		Wyoming .				•	The late LieutCol. Hon. W. Coke.
$14\frac{1}{2}$	6	6		Alberta				•	F. I. Mitchell.
14‡	6	25			?				Sir Victor Brooke's Collec- tion.
14 <sup>1</sup> / <sub>4</sub>	7	$4\frac{1}{4}$			?				J. McI. M'Iver Campbell.
141	5‡	5훟		Wyoming.					Major A. J. Carstairs.
141	5 <u>3</u>	5 <sup>3</sup>		Do				•	Earl of Dartmouth.
				OWNER'S ME	EASU	JRE	MEN	VTS.	
$20\frac{1}{1}$	e 7 <sup>1</sup> / <sub>3</sub>	$5\frac{1}{2}$			?				Wilson Potter.
17‡	$6\frac{1}{2}$		9	N.W. Canada	•			•	J. Whitaker.
17			20 outside		?				The late Otho Shaw.
17		$17\frac{1}{2}$		Wyoming					J. G. Millais.
16 <u>1</u>	61		171	L. California					J. C. Phillips.
16	$6\frac{1}{2}$			N. Dakota					Theodore Roosevelt.
16	$5\frac{1}{2}$	I 2		Wyoming.					J. M. Geddes.
15	6	$2\frac{7}{8}$		Teton Mountai	ns				Sir H. Lennard.
I 5 1	54	$2\frac{3}{4}$		N.W. Territori	ies				N. J. Dinnen.
15	t 5 <sup>3</sup>	61		Wyoming .					Count E. Hoyos.



Horns of Bubal Hartebeest. From Sir Abe Bailey's specimen.

#### The BUBAL HARTEBEEST (Bubalis boselaphus).

This species commences the family of hollow-horned ruminants or *Bovidæ*, in which the horns are in the form of unbranched hollow sheaths supported on bony cores and carried permanently. The hartebeests are large antelopes with naked muzzles, abnormally long faces, doubly-curved horns, small apertures to the face-glands, large valvular nostrils (of which the lower rims are covered with stiff hairs), long, tufted tails, and large lateral hoofs. Both sexes are horned. The females have two teats.

Typical hartebeests have a whorl of hair on the forehead, and the hair on the middle line of the face directed downwards below this till a short distance above the nose, where there is another whorl; faceglands large. The present species is the smallest of the group, standing only 43 or 44 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.—North-west Africa (interior of Morocco, Algeria, and Tunisia).

Length on front curve.	Circum- ference.	Tip to Tip.	Loca	lity.		Owner.
15½	$8\frac{1}{2}$	73	North Africa			British Museum.
$14\frac{3}{4}$	10	9	Senegal .			Hon. Walter Rothschild.
134	$9^{\frac{3}{4}}$	9‡	Tunisia .			Sir Abe Bailey.
131	$8\frac{1}{2}$	7 <del>집</del>	North Africa			British Museum.

WESTERN HARTEBEEST



Head of Western Hartebeest.

## WESTERN HARTEBEEST (Bubalis major).

# Kanki, Hausa.

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 uniform rufous fawn, varying from deep red almost to fawn-grey, face deep brown, the fore-legs streaked with dark brown or blackish from the knees downwards, and the tail-tuft black. Height at shoulder, from about 50 to 54 inches.

Distribution.—Gambia, Nigeria, and interior of the Cameruns, Togoland, etc.

Length on front curve.	Circum- ference.	Tip to Tip.	. Locality.		Owner.
$26\frac{3}{4}$	$13\frac{1}{2}$	61	Nigeria .	• .•	Capt. E. E. Williams.
$-26\frac{1}{8}$	13 <del>3</del>	II	Do		Sergeant Lefanu.
26	$\mathbf{I2}_{2}^{1}$	144	Do		Lady Constance Stewart-Richardson.
$25\frac{1}{2}$	$II\frac{3}{4}$	$12\frac{1}{2}$	Do		Capt. P. A. Clive.
$25\frac{1}{2}$	$\mathbf{I2}_2^1$	113	Gold Coast		Dr. J. H. Collier.
$25\frac{1}{2}$	$12\frac{3}{4}$	10	Nigeria .		Capt. C. C. West.
$25\frac{1}{2}$	$\mathbf{I2}\frac{1}{2}$	I I 13	Do	· " ·	R. J. Wolseley.
25 <del>8</del>	$\mathbf{I2}_4^3$	111	Yauri, Hausa	States	Major J. W. Carroll.

- Owner's measurements.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
251	$12\frac{3}{4}$	13 <u>8</u>	Near Borgu .		Capt. N. C. Welch.
25	11 <u>3</u>	10‡	Benue Valley .		Sir Abe Bailey.
25	I $2\frac{1}{2}$	101	N. Nigeria		H. J. Vicat.
25	113	8‡	Gold Coast .		Capt. Montray Read.
25	$II\frac{1}{4}$	$16\frac{1}{2}$	Nigeria		Capt. G. B. Scott.
$24\frac{3}{4}$	134	14	Do		Capt. H. T. G. Moore.
$24\frac{1}{2}$	I I 1 4	$12\frac{3}{4}$	Do		C. Francis.
$24\frac{1}{2}$	113	83	Do		Capt. S. B. B. Dyer.
$24\frac{1}{2}$	121	18	Senegambia .		G. Fenwick-Owen.
-24	$\mathrm{I}\mathrm{I}\frac{1}{2}$	12	Togoland .		Berlin Museum.
24	12	53	Nigeria	•	The late Dr. W. H. Langley
24	II $\frac{1}{2}$	84	Do	·	K. V. Elphinstone.
24	12	11	Do		Capt. A. Noel Woods.
24	$12\frac{1}{4}$	6	Do		Capt. S. C. Peck.
24	$12\frac{1}{4}$	$8\frac{1}{2}$	Do		G. F. Lobb.
24	$\mathbf{I2}\frac{1}{2}$	$II\frac{1}{2}$	Do		Capt. W. T. Wilkinson.
24	11	10 <u>3</u>	Do		Capt. W. D. Wright.
24	$12\frac{1}{2}$	1 I <del>7</del>	Do	•	C. S. Griffiths.
23 <del>3</del>	$12\frac{1}{2}$	$6\frac{3}{4}$	Do		Capt. H. N. Kempthorne.
$23\frac{3}{4}$	$12\frac{1}{8}$	143	S. Nigeria .		Capt. R. M. Heron.
$23\frac{3}{4}$	$\mathrm{I}2\tfrac{1}{2}$	11	Nigeria		Capt. G. C. Kelly.
23 <del>3</del>	12	7‡	Gambia	•	G. Blaine.
23 <del>5</del>	12	51	N. Nigeria .		W. A. Judd.
$23\frac{1}{2}$	12	9	Nigeria		Major-Gen. P. S. Wilkinson.
$23\frac{1}{2}$	12	11	Do		F. R. O'Neill.
23 <sup>1</sup> / <sub>2</sub>	12	41	Ashanti	•	C. Beddington.
23 <sup>1</sup> / <sub>2</sub>	12	${\rm I}3^{1\over 2}$	N. of Benue River	: .	W. H. Broun.
$23\frac{1}{2}$	II $\frac{1}{2}$	$4\frac{3}{4}$	N. Nigeria .	•	Capt. D. H. Thorburn.
23 <sup>1</sup> / <sub>2</sub>	12	ю	Do	·	Major R. McDouall.
$23\frac{1}{2}$	$IO_2^1$	141	Do		R. M. Borthwick.
921 <u>3</u>	IO	8	Do		Major J. G. Browne.
$21\frac{1}{8}$	$10\frac{7}{8}$	II <u>1</u> 8	Portuguese Guinea	a.	Major P. H. G. Powell-Cotton.
			- Owner's measure	mer	ats.

- Owner's measurements.



Head of Tora Hartebeest.

#### TORA HARTEBEEST (Bubalis tora).

Worobo, Abyssinian. Tora, Sudani.

Horn-pedicle of medium length, the horns themselves in the form of an inverted bracket (--).

### A.—TYPICAL RACE (Bubalis tora typica).

Height at shoulder, from 50 to 54 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 and differently shaped horns. Weight, from 300 to 400 lbs.

*Distribution.*—Abyssinia and south and middle portion of Blue Nile. The Blue Nile *B. t. rahatensis* has the horn-tips markedly inclined inwards.

Length on front curve.	Circum- ference.	Tip to Tip.	Localit	y.	Owner.
222	9	$22\frac{3}{8}$	Sudan		Carl Hagenbeck.
22	$9^{\frac{3}{4}}_{4}$	10	Do		Major Lord J. S. Cavendish.
211	10	103	Do		C. Bower Ismay.
21	9	183	Dinder Valley		C. E. Russell.

	Length on front curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.
	$20\frac{7}{8}$	9‡	$14\frac{1}{2}$	Sudan			Hon. Walter Rothschild.
	$20\frac{7}{8}$	$9^{\frac{1}{2}}$	$13\frac{1}{4}$	Do			Sir Edmund G. Loder, Bart.
	$20\frac{3}{4}$	10	$\mathrm{I}2\tfrac{1}{2}$	Do			Douglas M'Douall.
	$20\frac{1}{2}$	$9\frac{1}{2}$	16 <u>3</u>	Do			Marquis Pizzardi.
	$20\frac{1}{2}$	$IO_{2}^{1}$	$12\frac{3}{4}$	Dinder Valley			Col. A. Colville.
	$20\frac{1}{2}$	101	17	Sudan			Sir Abe Bailey.
	20	$10\frac{4}{3}$	$16\frac{3}{4}$	Do			Major H. H. S. Morant.
	20	9 <sup>5</sup>	155	Do			British Museum.
	20	$9\frac{1}{2}$	$14\frac{3}{4}$	Lake Zuay, Ab	yssinia	•	Prince de Lucinge.
	$19\frac{3}{4}$	$9\frac{1}{2}$	$13\frac{1}{2}$	Dinder Valley			Major C. P. B. Wood.
	19 <u>3</u>	$9\frac{1}{2}$	II $\frac{1}{2}$	Do.			Lord Villiers.
	19 <u>3</u>	9	$16\frac{1}{8}$	Dembelas, Aby	ssinia		British Museum.
ç	⊋ 19 <u>₹</u>	8	15	Setit Valley .			H. Leney.
	19 <u>5</u>	$IO_{\overline{8}}^{\underline{1}}$	125	Abyssinia .			Major P. H. G. Powell-Cotton.
	$19\frac{1}{2}$	$8\frac{3}{4}$	$17\frac{3}{4}$	Sudan			Capt. J. C. Graham.
	$19\frac{1}{2}$	9	$\mathrm{I}\mathrm{I}\frac{1}{2}$	Setit Valley .			Countess of Sefton.
	$19\frac{1}{2}$	9	II $\frac{1}{2}$	Dinder Valley			C. E. Oakley.
	191	$9\frac{1}{2}$	I I 1 4	Blue Nile .			G. L. Harrison.
9	<b>1</b> 9	$7\frac{1}{2}$	${}_{1}8\frac{1}{2}$	Setit Valley .			Earl of Sefton.

# B.-KEILI RACE (Bubalis tora digglei).

Horns intermediate between those of A and C; general colour dark fulvous, with a tinge of rufous.

# Distribution.—Keili northward along the Ofat River on Sudan Abyssinian frontier.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.	
$-21\frac{1}{2}$			Abyssinian Border of the Sennar Province.	W. H. Diggle.	
$20\frac{1}{4}$	9 <sup>3</sup> / <sub>4</sub>	$12\frac{3}{4}$	Do.	The Hon. Walter Rothschild.	
20	IO	II	Blue Nile	Hon. T. G. B. Morgan-Grenville.	
195	10	14	Abyssinian Border of the Sennar Province.	W. H. Diggle.	



Head of Somali Hartebeest. Shot by Col. H. G. C. Swayne.

## C.-SOMALI RACE (Bubalis tora swaynei).

Sig, Somali. Korkei, Galla.

Horns directed forwards and then inwards. Height at shoulder, about 47 inches; weight, about 300 lbs. General colour deep rufous chocolate-brown, with white tips to the hairs; face black, except the muzzle and a line between the eyes which, like the shoulders and upper part of fore-legs, as well as a patch on the upper part of the hind-legs, are black.

Distribution.—Interior of Somaliland and Shoa; in Somaliland on the dry plateau known as the *Haud*. The East Somali *B. s. noacki* is redder, with the face-mark inconspicuous and less defined.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
201	$8\frac{7}{8}$	$26\frac{3}{4}$	Somaliland	Col. H. G. C. Swayne.
195	9	27	Do	C. Bulpett.
$19\frac{1}{2}$	$9\frac{1}{2}$	$22\frac{1}{2}$	Do	G. H. Cheetham.
19‡	101	29	Do	Sir Abe Bailey.
-191		<b>2</b> 4 <sup>1</sup> / <sub>1</sub>	N. Somaliland .	J. Menges.

Length on front curve.	Circumference.	Tip to Tip.	Locality.		Owner.
-19‡		$16\frac{1}{2}$	Somaliland.		D. D. Haskard.
19‡	10	$2I\frac{5}{8}$	Do		H. A. Bryden.
19	10	231	N. Somaliland	•	A. E. Butter.
-19	9‡	181	Do		Capt. M. M'Neill.
18 <u>3</u>	9 <del>3</del>	21	Do.	•	Capt. R. M. Backhouse.
$18\frac{3}{4}$	9	$2I\frac{1}{4}$	Somaliland.		Major R. P. Cobbold.
${}_{\rm I} S^{\rm 3}_{\rm 4}$	10	19	Do		Capt. F. L. Livingstone- Learmonth.
$18\frac{3}{4}$	$9\frac{1}{2}$	19	Do, .		J. R. Luchsinger.
183	9‡	16	Do		Ford G. Barclay.
181	9‡	19‡	Do		Capt. T. W. Greenfield.
18 <u>3</u>	$8\frac{3}{4}$	18	Do	•	Col. H. G. C. Swayne.
18‡	$10\frac{1}{4}$	$22\frac{1}{2}$	Do		T. Morse.
18 <u>1</u>	9	17 <del>1</del>	Do.		Norman B. Smith.
18	83	104	Do		Count J. Potocki.
18	$9\frac{1}{2}$	20	Do		W. F. Whitehouse.
18	9	22	Do		Major B. R. M. Glossop.
173	II	17	Gallaland .		Viscount Edmond de Poncins.
$17\frac{3}{4}$	10	$2I\frac{1}{2}$	Somaliland.		E. Lee Townshend.
$17\frac{3}{4}$	IO	20	Do		Digby Davies.
$-17\frac{1}{2}$	9‡	19	Do		Sir Edmund G. Loder, Bart.
$17\frac{1}{2}$	9	$18\frac{3}{4}$	Abyssinia .		I. Buxton.
$915\frac{1}{2}$	7	IIİ	Gallaland .		Viscount Edmond de Poncins.

- Owner's measurements.



Head of Kongoni.

### The KONGONI or COKE'S HARTEBEEST (Bubalis cokei).

Horn-pedicle moderate; horns bracket-shaped, very short and thick. Height at shoulder, 48 or 49 inches. Weight, about 300 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 hind surface. Two local races, *B. c. rothschildi*, from the district north of Lake Rudolf, and *B. c. kongoni*, from the Guaso-nyero, have been named, while the Nakuru hartebeest may represent a third race, *B. c. nakuræ*.

Distribution.—Eastern Africa, from Usagara northwards to Kilimanjaro, Masailand, and north of Lake Rudolf.

Length on front curve.	Circum- ference.	Tip to Tip.		Loca	lity.			Owner.
21	9	$I3\frac{1}{2}$	East Africa					Capt. M. L. Pears.
$-20\frac{3}{4}$			Do.					Sir Abe Bailey.
20	$9\frac{1}{2}$	141	Do.			•		Col. J. Caswell.
20	9	134	Do.		,			Capt. R. Meinertzhagen.
193	$10\frac{1}{2}$	16	Do.					Major the Hon. W. G. Cadogan.
19 <u>1</u>	9 <del>3</del>	111	Do.			•		Capt. C. Brook.
$19\frac{1}{2}$	101	$I3\frac{1}{2}$	Do.				•	Capt. R. A. McClymont.
1912	$10\frac{1}{4}$	121	Do.					C. W. Turner.

- Owner's measurements.

		-				10	<b>G</b> 4	10122
Length on front curve.	Circum- ference.	Tip to Tip.		Local	lity.			Owner.
191	101	13	East Africa					The Master of Belhaven.
191	IO	$1S_{\pm}^{3}$	Do.					J. Gardiner Muir.
19‡	IO	1734	Do.					Major J. A. Hannyngton.
191	$IO_2^1$	$IO_2^1$	Do.					Major P. H. G. Powell-Cotton.
19‡	9흫	16	Do.					LieutCol. E. G. Harrison.
19	IO	15 <del>1</del>	Do.					A. Vonwiller.
19	$9\frac{3}{4}$	15	Do.					Major C. E. D. Budworth.
19	$9\frac{1}{2}$	II $\frac{1}{2}$	Do.					Dr. Welsh.
19	9 <sup>3</sup>	$I2\frac{1}{2}$	Do.					Marquis of Tweeddale.
19	9‡	$17\frac{1}{2}$	Do.					C. Frick.
19	$IO_{\pm}^{1}$	12	Do.					W. F. Wailes-Fairbairn.
19	$9\frac{3}{4}$	16	Do.					Sir Robert Harvey, Bart.
19	$9\frac{3}{4}$	15	Do.					R. J. Cuninghame.
19	9	I 5쿺	Do.					F. W. Belt.
19	$9\frac{1}{2}$	16	Do.					J. Anstruther.
18 <u>7</u>	IO	20	Do.				•	R. L. Scott.
18 <u>3</u>	94	141	Do.					C. B. C. Storey.
18 <u>3</u>	IO	14 <u>3</u>	Do.					H. Sampson.
18 <u>3</u>	$IO_2^{\underline{1}}$	$I2\frac{3}{8}$	Do.					A. G. Murray Smith.
$18^{3}_{4}$	$IO_2^1$	I $2\frac{1}{2}$	Do.					Duke of Alba.
$18\frac{3}{4}$	IO	$IO_2^1$	Do.					C. C. Wilson.
18 <u>3</u>	10	I I 1/4	Do.					Dr. A. E. Herz.
183	$10\frac{1}{3}$	19	Do.					II. Fowler.
185	$8\frac{7}{8}$	161	Do.					Sir F. J. Jackson.
$18\frac{1}{2}$	$10\frac{1}{4}$	$14\frac{1}{2}$	Do.					British Museum.
$18\frac{1}{2}$	$9\frac{1}{2}$	13	Do,					W. G. Niven.
$18\frac{1}{2}$	IO	$I2\frac{3}{4}$	Do.					J. G. Millais.
18 <u>1</u>	$9\frac{1}{2}$	I 5‡	Do.					H. G. Watson.
$18\frac{1}{2}$	10	I 3	Do.					Prince de Caraman Chimay.
$18\frac{1}{2}$	$9\frac{1}{2}$	163	Do.					Major A. Leslie Renton.
181	$IO_2^1$	15	Do.					Lieut. S. R. Bailey, R.N.
$18\frac{1}{2}$	101	13	Do.					Duke of Sutherland.
18 <u>1</u>	$9\frac{1}{2}$	16	Do.					J. Leslie.
181	$IO_2^1$	1712	Do.					Capt. J. A. Morrison.
♀ 16 <u>‡</u>	7‡	143	Do.					E. H. Litchfield.

The two following specimens represent B. c. nakuræ:---

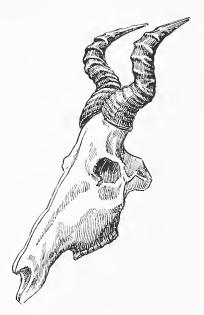
Length on front curve.	Circum- ference.	Tip to Tip.	Lo	cality.		Owner.	
192	$IO_2^1$	<b>1</b> 3‡	Lake Nakuru			Capt. E. Sartorius.	
1912	$IO_2^1$	$II\frac{1}{2}$	Do.		•	H. W. Seton-Karr.	

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The following East African heads belong to the type regarded together with the Nakuru hartebeest—by Dr. O. Neumann as hybrids between *cokei* and *lelwel jacksoni* :—

T. .......

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.		
22	10 <del>]</del>	111	East Africa					A. J. A. Douglas.
$2I\frac{1}{2}$	II	$9^{\frac{3}{4}}_{\pm}$	Do.		•			W. W. Ashley.
$2I\frac{1}{2}$	11	$\mathbf{I2}\frac{1}{2}$ .	Do.					Hon. Guy Wilson.
$21\frac{1}{2}$	$IO_2^{\underline{1}}$	16	Do.					G. C. Slacke.
$2I\frac{1}{2}$	II $\frac{1}{2}$	$18\frac{3}{4}$	Do.					C. J. Blackburne Maze.
$21\frac{1}{2}$	II	$21\frac{3}{4}$	Do.	·			•	C. Mitchell.
$21\frac{1}{4}$	12	12	Do.				•	Guy Fenwick.
$2I\frac{1}{4}$	$11\frac{3}{4}$	$10\frac{1}{2}$	Do.					S. Milsom.
21	$10\frac{3}{4}$	$9\frac{1}{2}$	Do.				•	Capt. R. Meinertzhagen.
21	9용	$II\frac{1}{2}$	Do.				•	LieutCol. the Hon. W. A. W. Lawson.
21	11 <u>3</u>	11	Do.		•			W. P. J. Fawcus.
21	$9\frac{3}{4}$	$9\frac{3}{4}$	Do.		•			Sir Richard Dane.
21	$10\frac{3}{4}$	$IO_2^1$	Do.		,		•	Capt. M. A. Black.
$20\frac{3}{4}$	$\mathrm{IO}_{\pm}^3$	81	Do.					S. E. Milsom.
$20\frac{1}{2}$	II	$II\frac{3}{4}$	Do.		•		·	W. F. Wailes-Fairbairn.
$20\frac{1}{2}$	$IO_2^{h}$	15	Do.					N. C. Cockburn.
$20\frac{1}{2}$	$IO_2^1$	153	Do.	•			·	The Master of Belhaven.
$20\frac{1}{4}$	$IO_4^1$	$IO_{\pm}^1$	Do.		·		·	Major L. H. R. Pope-Hennessy.
$20^{1}_{4}$	$IO_{\underline{2}}^{\underline{1}}$	14 <u>1</u>	Do.	•			·	H. Clarkson Williams.
$20\frac{1}{4}$	12	12	Do.	•	·		•	I. Barrington White.
20	$10\frac{3}{4}$	14	Do.		•			Capt. the Hon. G. H. Douglas Pennant.
20	$IO_{\pm}^3$	II $\frac{1}{4}$	Do.					R. J. L. Ogilby.
1943	II	$IO_4^3$	Do.					Percy C. Madeira.
$19\frac{1}{2}$	I I <sup>3</sup> / <sub>4</sub>	111	Do.	•				A. de L. Long.
$19\frac{1}{2}$	$\mathbf{II}\frac{1}{2}$	83	Do.	·				Major H. B. Dalgety.
$19\frac{1}{2}$	$11\frac{1}{2}$	$7\frac{1}{2}$	Do.					Major G. A. Swinton Home.
19 <u>‡</u>	11	$13\frac{1}{2}$	Do.	•				Col. J. E. Gough.
$19\frac{1}{2}$	$10\frac{3}{4}$	131	Do.					Sir F. J. Jackson.
191	10	II 3	Do.					J. Todd.
1912	$IO_2^1$	$9\frac{1}{2}$	Do.	•	•		·	Maharaja of Datia.
19½	II	11 <u>3</u>	Do.		•		·	Capt. J. W. H. D. Tyndall.
\$ I \$	$8\frac{1}{2}$	$IO_4^3$	Do.					Sir F. J. Jackson.



Skull and Horns of Neumann's Hartebeest.

#### NEUMANN'S HARTEBEEST (Bubalis neumanni).

In this species, which may be merely a race of *B. cokei*, the horns are to a considerable degree intermediate between those of the *tora-cokei* and those of the *lelwel-cama* group.

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. Male 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. Height at shoulder, from 48 to 50 inches.

Distribution.-East Africa, in the neighbourhood of Lake Rudolf.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality. Owner.
16 <u>1</u>	$IO_4^3$	$8\frac{1}{4}$	N.E. of Lake Rudolf . A. H. Neumann.
9 13 <u>1</u>	7‡	$9^{3}_{4}$	E. shore of Lake Rudolf Do.



Skull and Horns of Jackson's Lelwel Hartebeest.

#### The LELWEL HARTEBEEST (Bubalis lelwel).

Mangazi, Waganda. Teital, Sudani.

Related to the preceding, but the general colour uniformly rufous tawny, and the horns less abruptly bent. In the typical race the horns incline slightly outwards at the tips, and the lower part of the legs have some dark markings. In the Baringo or Jackson's race, *B. l. jacksoni*, the legs are coloured like the back, uniformly foxy red. *B. l. niediecki* of the White Nile differs by the parallel or inward direction of the horn-tips. *B. l. insignis* of the Albert Nyanza district has a black dorsal stripe and two small dark patches on the face, and dark markings on the lower part of the legs. Weight, about 450 lbs. Height at shoulder, about 52 inches.

Distribution.—Typically from the Bahr-el-Ghazal, Upper Nubia, and Kordofan; represented in the interior of British East Africa, north of Lake Baringo, and Uganda, by *B. l. jacksoni*, to which many of the undermentioned specimens belong.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality		Owner.
26	I I <del>7</del>	$14\frac{7}{5}$	E. Africa		E. H. Litchfield.
$-25\frac{7}{8}$	$\mathbf{II}\frac{\mathbf{B}}{4}$	$9\frac{1}{8}$	Nr. Gondokor	ο.	Capt. E. T. W. McCausland.
25=	II $\frac{1}{2}$	14	E. Africa .		Capt. H. C. Hart.
$25\frac{1}{4}$	$I2\frac{1}{2}$	7축	Do, ,		A. Saunderson.
$25\frac{1}{4}$	II‡	113	Do	,	F. C. Selous.
25‡	II	141	Do		W. N. McMillan.
25	121	I258	Do		Duke of Medinaceli.

- Owner's measurements.

Length on front curve.	Circum- ference.	Tip to Tip.	Loca	lity.			Owner.
25	$IO_4^3$	103	White Nile				Duke of Alba.
25	$11\frac{1}{2}$	8	Sudan .				Sir Kenneth Crossley.
25	121	II <u>1</u>	Uganda				Douglas M'Douall.
25	12	10 <u>3</u>	Do.				Major A. W. Jennings Bramly.
24 <del>3</del>	12	141	Do.				Capt. V. C. de Crespigny.
$24\frac{3}{4}$	111	13 <u>3</u>	Kordofan				C. E. Lyall.
-44 243	11 <u>1</u>	- J+ 111	Sudan				J. V. Colby.
244 $24\frac{3}{4}$	$II_2$ $II_2^1$	9 <sup>1</sup> / <sub>2</sub>	East Africa	·	·	·	Sutton Timmis.
	-	92 8		•	·	•	Capt. R. H. Leeke.
$24\frac{5}{8}$	118		Uganda	•	·	•	1 .
$24\frac{1}{2}$	123	$7\frac{1}{2}$	East Africa	·	•	•	A. de Rothschild.
$24\frac{1}{2}$	$10\frac{3}{4}$	101	Do.	·	•	·	Col. R. Bright.
$24\frac{1}{2}$	I I 1	18‡	Do.	·	•	·	C. Bower Ismay.
$24\frac{1}{2}$	12	$8\frac{3}{4}$	Do.	·	·	•	O. Mosley.
$24\frac{1}{2}$	12	10	Sudan .	•	•	•	R. H. Willan.
241	II	105	East Africa				A. Vonwiller.
24	12	$8\frac{1}{2}$	Do.				Duke of Alba.
24	$II\frac{1}{2}$	$10\frac{1}{2}$	Do.				G. Henry.
24	I I 1/2	9	Do.				Capt. H. C. S. Ashton.
$23\frac{7}{5}$	107	12	Do.				Major P. H. G. Powell-Cotton.
$23\frac{3}{4}$	103	6	White Nile				Capt. A. H. Vivian.
$23\frac{3}{4}$	111 <u>1</u>	115	Do.			•	Earl of Sefton.
$23\frac{3}{4}$	II	121	East Africa				B. Dominick.
23 <del>3</del>	12	113	Do.				F. Santos Saurez.
23 <sup>3</sup>	ι1 <u>1</u>	71	Do.				Col. Max. C. Fleischmann.
233	$I2\frac{1}{2}$	83	Do.	•			J. Leslie.
23 <sup>B</sup> / <sub>4</sub>	I 2 1/2	$9^{1}_{4}$	Do.				Sir J. Hume Campbell, Bart.
23 <u>5</u>	11	131	Kordofan				Capt. H. S. Hearn.
$23\frac{1}{2}$	$I2\frac{1}{2}$	$10\frac{3}{4}$	East Africa				Major H. B. Dalgety.
$23\frac{1}{2}$	II $\frac{1}{2}$	$II\frac{1}{2}$	Uganda	•			Capt. P. Garrard.
$23\frac{1}{2}$	I 2	5 <sup>5</sup>	East Africa	·	·	٠	R. J. Cuninghame.
$23\frac{1}{2}$	II	7 <sup>3</sup>	Do,	•	·	•	N. C. Cockburn.
231	121	1112	Do.	·	·	•	Col. Stephenson R. Clarke.
231	121	101	Do.	·	•	•	H. Sampson.
231	12	$8\frac{1}{2}$	Do. Uganda	•	•	•	Mrs. Percy C. Madeira. Miss C. Buxton.
$23\frac{1}{4}$	I 2 ½	$7\frac{1}{2}$	Uganda . Do	•	•	·	Dr. J. O. Shircore.
23 <del>1</del> 23 <del>1</del>	11 11‡	7 10 <del>1</del>	East Africa	•	•	į	Capt. P. Chapman.
$^{2}3\frac{1}{8}$	11. <u>+</u> 12	$7\frac{1}{2}$	Do,		•		A. Fowler.
238 922	812	6 <u>7</u>	White Nile				Col. St. G. Henry.
\$ 21	10 <u>3</u>	111	Uganda				Dr. A. Paget.
20 <sup>1</sup> / <sub>2</sub>	101	13‡	Blue Nile				Capt. E. S. Stephenson.
20	IO	114	Do.				Capt. J. A. Pollock.
20	$9\frac{1}{2}$	101	Do.				Capt. N. A. Orr-Ewing.



Head of Cape Hartebeest. Shot by Mr. R. Bosworth-Smith.

#### The CAMA or CAPE HARTEBEEST (Bubalis cama).

Kama, Bechuana. Ingama, Makalaka.

Horn-pedicle greatly elongated; horns very sharply bent, and forming a letter V when viewed from the front. Height at shoulder, from 48 to 54 inches. General colour reddish brown, 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. The typical southern form is extinct, and the name *B. cama selbornei* has been proposed for the race found north of the Orange River, as typified by the Kimberley herd.

Distribution.—Africa southwards of the Limpopo, but extending farther northwards along the confines of the Kalahari desert. This species (the rooi hartebeest) is now nearly exterminated in the Cape, but 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 northwest), numbers are to be found in the plains and open forest of British Bechuanaland, the Bechuanaland Protectorate, Basutoland, and in farms near Kimberley and Mafeking. In the North Kalahari and the desert-regions about the Botletli River big troops are to be met with. In Basutoland these hartebeests live in mountainous country, at a high elevation, where there is a heavy snowfall in winter.

Circum- ference.	Tip to Tip.	Locality.	Owner.
$\mathrm{I}2^1_{\div}$	13 <del>3</del>	Orange River Colony	Sir Owen Philipps.
$\mathrm{I}2\tfrac{1}{2}$	I21	?	Sir Edmund G. Loder, Bart.
II	10	Do.	C. Rube.
$IO_2^1$	9 <del>5</del>	?	R. T. Coryndon.
12	II	Near Boshof, O.R.C.	Hon. Walter Rothschild.
12	$9\frac{1}{2}$	South Africa	C. D. Rudd.
$\mathrm{I}2\tfrac{1}{2}$	10	Ngamiland	F. T. Garbutt.
10	83	Do	British Museum (Sir Andrew Smith).
11	5 <del>3</del>	5	J. C. Phillips.
II $\frac{1}{2}$	$IO_2^1$	Kamaland	F. C. Selous.
II $\frac{1}{2}$	II 53	Bechuanaland .	G. L. Harrison.
12	$8\frac{1}{2}$	?	N. H. Barton.
	ference. $12\frac{1}{2}$ $12\frac{1}{2}$ 11 $10\frac{1}{2}$ 12 12 $12\frac{1}{2}$ 10 11 $11\frac{1}{2}$ $11\frac{1}{2}$	ference.       Tip to Tip. $I2\frac{1}{2}$ $I3\frac{3}{4}$ $I2\frac{1}{2}$ $I2\frac{1}{4}$ $I1$ $I0$ $I0\frac{1}{2}$ $9\frac{5}{8}$ $I2$ $II$ $I2$ $II$ $I2$ $II$ $I2$ $II$ $I12$ $9\frac{1}{2}$ $I12$ $I0$ $I0$ $8\frac{3}{3}$ $II$ $5\frac{3}{4}$ $I1\frac{1}{2}$ $10\frac{1}{2}$ $I1\frac{1}{2}$ $I1\frac{5}{3}$	ference.       Inp to Tup.       Locanty. $12\frac{1}{2}$ $13\frac{3}{4}$ Orange River Colony $12\frac{1}{2}$ $12\frac{1}{4}$ ? $11$ $10$ Do. $10\frac{1}{2}$ $9\frac{5}{5}$ ? $12$ $11$ Near Boshof, O.R.C. $12$ $9\frac{1}{2}$ South Africa . $12\frac{1}{2}$ $10$ Ngamiland . $10$ $8\frac{3}{5}$ Do.       . $11$ $5\frac{3}{4}$ ? $11\frac{1}{2}$ $10\frac{1}{2}$ Kamaland .       . $11\frac{1}{2}$ $11\frac{5}{3}$ Bechuanaland .       .

## OWNER'S MEASUREMENTS.

26	11 <u>3</u>	13	Natal	C. S. Mann.
$25\frac{3}{4}$	12	4	Orange River Colony	Sir Abe Bailey.
25	11‡	$IO_2^1$	Do.	Capt. W. Jardine.
$24\frac{7}{8}$	11	7	Nata River	American National Collection.
<b>2</b> 4§	113	II	?	B. Senior.
$24\frac{1}{2}$	115	I 2	Damaraland	Berlin Museum.
$24\frac{3}{8}$	101	$9\frac{3}{10}$	Do	Th. Rehbock.
$24\frac{3}{8}$	II	175	?	P. C. Keytel.
$24\frac{1}{4}$	11	$7\frac{7}{8}$	Orange River Colony	Sir Abe Bailey.
24	$10\frac{1}{2}$	81	Griqualand	A. F. Williams.
22	11‡	145	Basutoland	R. Bosworth-Smith.
♀21 <u>3</u>	$8\frac{1}{2}$	13 <u>1</u>	Orange River Colony	Sir Abe Bailey.

## LICHTENSTEIN'S HARTEBEEST



Head of Lichtenstein's Hartebeest.

#### The KONZI, or LICHTENSTEIN'S HARTEBEEST (Bubalis lichtensteini).

Inkulando, Mashona.	Konsi, Chila, Chilala, and
Kokotombwi, Barotsi.	Chibisa.
	Konshi, Chinyanja.

Horn-pedicle very short and broad, and the horns themselves much flattened and curved inwards towards one another below the terminal backward inclination. Height at shoulder, 50 to 52 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, including Nyasaland, Mozambique, German East Africa to Usagara, and N.E. and N.W. Rhodesia.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
22.1	I I $\frac{3}{4}$	15	Barotsiland	T. G. Davey.
$22\frac{1}{8}$	$12\frac{3}{4}$	20	B.C. Africa	Sir Alfred Sharpe.
$2I\frac{1}{2}$	$\mathrm{I}2^1_4$	9	E. of Tanganyika	O. L. Berringer.
$2I\frac{1}{2}$	$I2\frac{1}{2}$	9	Batoka Plateau, Northern	F. Smitheman.
$2$ I $\frac{1}{2}$	13 <u>3</u>	4	Rhodesia N.E. Rhodesia	F. H. Melland.
211	14	$11\frac{7}{8}$	Chambesi Valley	L. Harger.
211	121	$8\frac{1}{2}$	N.W. Rhodesia	Capt. P. R. Bald.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
$2I\frac{1}{4}$	$I2\frac{1}{2}$	5‡	?		L. A. Wallace.
211	10 <u>7</u>	9 <sup>1</sup> / <sub>4</sub>	N.W. Rhodesia		LieutCol. H. W. Wilberforce.
21	$I2\frac{3}{4}$	$4\frac{3}{4}$	N.E. Rhodesia .		Col. C. F. Blane.
21	13	137	N.W. Rhodesia		A. de L. Long.
21	I I $\frac{3}{4}$	$4\frac{1}{4}$	Do.		P. K. Glazebrook.
21	13	$8\frac{1}{4}$	Do.		G. F. Watherston.
21	$13\frac{1}{2}$	$IO_2^1$	Do.		Dr. W. D. Waterhouse.
$20\frac{3}{4}$	13	13 <u>1</u>	Do.		G. L. Harrison.
$20\frac{3}{4}$	II $\frac{3}{4}$	9흫	N.E. Rhodesia .		Hon. M. W. Elphinstone.
20 <sup>3</sup> / <sub>4</sub>	11	7훟	N.W. Rhodesia		T. D. M. Cardeza.
$20\frac{3}{4}$	$12\frac{3}{4}$	$IO_2^1$	Do.		J. H. Leche.
20 <sup>3</sup>	13	$8\frac{1}{4}$	Do.		Lady Scott.
$20\frac{3}{4}$	$II\frac{3}{4}$	$6\frac{3}{4}$	Do.		A. Willis.
$20\frac{1}{2}$	12	$4\frac{1}{2}$	Do.		Capt. J. Harington.
$20\frac{1}{2}$	13	9불	Do.		Capt. the Hon. G. H. Douglas-
$20\frac{1}{2}$	II $\frac{1}{2}$	17	Do.	· •	Pennant. W. F. Wailes-Fairbairn.
$20\frac{1}{2}$	$I2\frac{1}{2}$	3‡	Do.		A. W. Griffin.
$20\frac{1}{4}$	14	7	N.E. Rhodesia.	· •	R. Hayne.
$20\frac{1}{4}$	$\mathbf{I}3\frac{1}{2}$	$6\frac{1}{4}$	N.W. Rhodesia		LieutCol. R. W. R. Barnes.
20	13	$5\frac{3}{4}$	Do.	· •	Capt. F. C. L. Grieve.
20	$\mathrm{I}2\tfrac{1}{2}$	$8\frac{1}{2}$	Do.		Capt. H. L. Archer-Houblon.
20	$\mathbf{I2}_2^1$	53	Do.		A. C. Brandon.
20	13	6	N.E. Rhodesia.		R. D. Waterhouse.
193	1 3 <sup>3</sup> / <sub>4</sub>	$7\frac{1}{2}$	N.W. Rhodesia	· ·	Hon. Guy Wilson.
193	$12\frac{3}{4}$	$9\frac{3}{4}$	Do.		Eastman Bell.
193	13	$7\frac{1}{2}$	N.E. Rhodesia .	• •	Earl of Kingston.
193	$I2\frac{1}{2}$	6 <del>1</del>	Do		Hon. W. Guinness.
193	${\rm I} \mathfrak{Z}^{\frac{1}{2}}_{2}$	$7\frac{3}{4}$	Do	· •	A. Dickinson.
♀ <b>1</b> 5	$8\frac{7}{8}$	$4\frac{7}{8}$	Sabi Valley, Masho	naland.	British Museum (F. C. Selous).
22	1.2	<u>ب</u>	OWNER'S MEAS	UREME	
23	13	7½	;		Major H. Chamney.
22 <del>]</del>	II	7 <del>]</del>	?		Mr. Justice Hopley.



Head of Hunter's Hartebeest (Female).

#### The HIROLA, or HUNTER'S HARTEBEEST (Damaliscus hunteri).

Arôli, Somali.

Blanketta, Galla.

With this species we come to a group of antelopes closely allied to the true hartebeests, but with the frontal region not elevated into a horn-pedicle, and the horns themselves forming in most cases a lyrate or simple curve, and the face of medium length. The hair of the face is directed uniformly upwards; there is a transverse fold of skin, underlain by fat, immediately behind the horns. 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 chevron on the face, the inner surface of the ears, and the tail-tuft white. Height at shoulders, about 48 inches; build light and graceful.

Distribution.—Southern Somaliland (Jubaland) to north bank of Tana River.

Len	gth.	Circum-	Tip to					
On front curve.	Straight.	ference.	Tip.	Local	lity.			Owner.
$26\frac{3}{4}$	$22\frac{1}{2}$	$8\frac{5}{8}$	$IO_2^1$	Joreh .				I. N. Dracopoli.
26 <u>3</u>		81	$14\frac{1}{2}$	Jubaland				British Museum.
261	22	$S_{\overline{s}}^{1}$	$\mathrm{I}2\tfrac{1}{2}$	Tana Valley				Sir Robert Harvey, Bart.
26	22 <u>1</u>	$8\frac{1}{2}$	$15\frac{1}{2}$	Do.			·	G. Blaine.
-25	$22\frac{1}{8}$	8	12	Jubaland				Col. E. G. Harrison.
$24\frac{7}{8}$		$8\frac{1}{8}$	15 <sup>1</sup> / <sub>2</sub>	Tana Valley				H. C. V. Hunter.
$24\frac{5}{8}$	$2I\frac{1}{4}$	83	9 <sup>8</sup>	Do.	•			Sir Robert Harvey, Bart.
- \$ 2I <sup>1</sup> / <sub>4</sub>	$19\frac{1}{2}$	$5\frac{7}{5}$	II	Jubaland				Col. E. G. Harrison.
♀ 20 <sup>3</sup>	18	6	154	Tana Valley				G. Blaine.
$20\frac{1}{8}$		5훟	$8\frac{7}{8}$	Do.				Hon. Walter Rothschild.
$19\frac{1}{2}$	173	5 <sup>3</sup> / <sub>4</sub>	10	Joreh .		•		I. N. Dracopoli.

- Owner's measurements.



Hunter's Hartebeest. Shot by Mr. I. N. Dracopoli.



Head of Korrigum. Shot by G. Blaine.

#### KORRIGUM, TIANG, or TOPI (Damaliscus corrigum).

Korrigum, Bornow. Devvi, Hausa.

Horns with a single slightly lyrate curve. Size large. General colour reddish with a blackish blaze on the face and usually similar patches on the upper part of the fore-limbs, hips, and thighs, which extend in the form of a garter on the inside of the limbs above the knees and hocks. Tail-tuft black. Face-blaze usually black, but buffish or white in the guasingishu (*D. c. phallius*).

#### A.-TYPICAL KORRIGUM or SENEGAL HARTEBEEST

#### (D. corrigum typicus).

In this race the black markings are strongly pronounced, and a streak is given off from the face-blaze to run upwards and outwards below the eye. The lower parts of the legs appear to be coloured like the body.

Distribution .- Senegambia and the interior of West Africa.

Length on front curve.	Circum- ference.	Tip to Tip.	Localit	y.		Owner.
$-2S_{2}^{1}$	$IO_4^3$	$4\frac{3}{4}$	N. Nigeria			Capt. C. F. Watson.
$-26\frac{3}{4}$	$9\frac{1}{8}$	15 <sup>1</sup> / <sub>8</sub>	Senegambia			Imperial Museum, Vienna.
$26\frac{1}{2}$	9孝	5‡	Lake Chad			Major D. F. MacCarthy Morrogh.
$-25\frac{5}{8}$	10	8	Do.			Sir Edmund G. Loder, Bart.
$-25\frac{1}{4}$	$9\frac{1}{2}$	14	Gambia .			Capt. W. B. Stanley.
243	10	$6\frac{3}{4}$	Lake Chad			A. L. Ross.
$24\frac{3}{4}$	$9\frac{1}{2}$	41	N. Nigeria		•	Capt. L. C. Brodie.
$24\frac{3}{4}$	9	9	Nigeria .			Capt. A. B. Baillie-Hamilton.
$24\frac{5}{8}$	$IO_{4}^{1}$	7	Benue .			Capt. E. J. Wolseley.
243	$9\frac{3}{4}$	91	Gambia .			G. Blaine.
$-24\frac{5}{8}$	$IO_S^1$	9	?			J. C. Phillips.
24 <u>5</u>	9 <del>5</del>	$4\frac{3}{4}$	Lake Chad	•		Major J. B. Cockburn.
$24\frac{1}{2}$	9½	$10\frac{3}{4}$	Do.			Capt. P. Chapman.
♀ 24 <u>1</u>	7	$3\frac{3}{4}$	Do.			Major D. F. MacCarthy Morrogh.
$24\frac{1}{4}$	$IO_2^1$	I $3\frac{1}{2}$	N. Nigeria	•	•'	Dr. G. J. Pirie.
241	10	10	Do.			P. E. Bradney.
24	$9\frac{1}{2}$	6	Lake Chad		•	Capt. L. C. Jackson.
24	10	5	N. Nigeria	•		Major T. Astley Cubitt.
24	9	9	Lake Chad		•	Sir F. Lugard.
$23\frac{3}{4}$	$9\frac{1}{2}$	9‡	Do.	•		Major E. J. Lugard.
23 <sup>3</sup> / <sub>4</sub>	91	7흫	Nigeria .	•		W. F. Gowers.
$23\frac{3}{4}$	10	8	Lake Chad			Capt. S. B. B. Dyer.
23 <sup>3</sup> / <sub>4</sub>	9흫	12	Do.			C. S. Burnett.
233	$9\frac{1}{2}$	13 <u>1</u>	N. Nigeria		•	Capt. C. C. West.
233	10‡	13	Do.			Capt. G. Bonham-Carter.
$21\frac{3}{4}$	$6\frac{3}{4}$	5‡	Do.	•	•	H. Maynard.

- Owner's measurements.



Skull and Horns of Tiang.

## B.-TIANG (D. corrigum tiang).

Tiang, Dinka.

The East African representative of the korrigum, from which it differs by the larger area of black on the inside of the limbs, and the tan colour of their lower portion. The tiang of the Mau Plateau, B.E.A. (*D. c. selousi*) is distinguished by the bright chestnut colour of the muzzle and of the area round the eye above the dark eye-stripe. *D. c. jonesi* of the Upper Sudan is said to inhabit sandy tracts in place of swamps, and is reported to be a plumper and browner animal, with no dark eye-stripe, and no dark markings on the limbs.

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

Length on front curve.	Circum- ference.	Tip to Tip.	Localit	y.	Owner.
25 <sup>7</sup> / <sub>8</sub>	9 <sup>3</sup>	II $\frac{1}{2}$	Kordofan		Major C. J. Hawker.
$24\frac{3}{3}$	$10\frac{1}{2}$	9충	Do.		Major A. J. B. Percival.
$24\frac{1}{2}$	$9^{\frac{1}{2}}$	9	White Nile		H. Cookson.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
$24\frac{1}{2}$	IO	7호	W. Kordofan.		A. L. Butler.
241	10	15‡	Kordofan .		Sir Robert Harvey, Bart.
23 <del>3</del>	8	$7\frac{1}{2}$	White Nile .		T. D. M. Cardeza.
$23\frac{1}{2}$	IO	101	Kordofan .		G. L. Harrison.
$23\frac{1}{2}$	$8\frac{3}{4}$	71	Sudan		Col. J. J. Asser.
231	$8^{3}_{4}$	$8\frac{1}{4}$	Dinder Valley		C. D. Eyre.
231	$8\frac{3}{4}$	$2\frac{7}{8}$	Sudan		C. R. Gurney.
23	$9\frac{1}{2}$	$8\frac{1}{2}$	White Nile .		E. C. Crispin.
$22\frac{7}{8}$	83	51	Do.		Lord St. Oswald.
$22\frac{3}{4}$	$8\frac{3}{4}$	9	Do		British Museum (R. McD. Hawker).
223	9	7	Sudan		Capt. R. J. Collins.
$22\frac{1}{2}$	9	$6\frac{1}{2}$	Do		G. C. Whitaker.
$22\frac{1}{2}$	$8\frac{3}{4}$	$6\frac{1}{2}$	Do		Capt. G. S. Cameron.
$22\frac{1}{2}$	$8\frac{1}{2}$	91	Dinder Valley	•	C. Bower Ismay.
$\begin{array}{c} \mathbb{Q} & 22rac{1}{2} \end{array}$	$8\frac{1}{4}$	$7\frac{1}{2}$	Kordofan .		Walter Jones.
$22\frac{1}{2}$	9	$6\frac{1}{2}$	Sudan		Col. A. Colville.
22 <sup>3</sup> / <sub>8</sub>	9 <sup>3</sup>	14	White Nile .		LieutGen. Sir B. T. Mahon.
$22\frac{1}{4}$	9	51/2	Sudan		Capt. G. S. Nickerson.
$22\frac{1}{4}$	$8\frac{1}{2}$	6‡	White Nile .		Major H. N. Dunn.
221	$8^{\underline{3}}_{\underline{4}}$	6	Do		Capt. A. H. Vivian.
$22\frac{1}{4}$	$8^{3}_{4}$	$4\frac{1}{2}$	Do		E. M. Tabor.
224	$9^{\frac{3}{4}}$	4	Lado		Q. Grogan.
$22\frac{1}{4}$	$9^{\frac{1}{2}}$	71	Sudan		Capt. E. H. Francis.
$22\frac{1}{4}$	9	5	Sobat District		Capt. J. A. Pollock.



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

#### C.---TOPI (D. corrigum jimela).

Korki, Galla. Mangazi, Waganda.

Differs from *D. c. typicus* by the darker colour and absence of dark eye-stripe (see illustration). General colour dark reddish brown, with a silky bluish grey gloss; shoulders and thighs with blue-black patches; no dark stripe from the frontal blaze to the eye; under-parts bright cinnamon. Dark markings absent in young. Horns lyreshaped, with the tips inclined backwards and inwards. A topi from the Upper Congo appears to connect *typicus* with *jimela*, having a vestige of the black eye-stripe. Height at shoulder, 48 to 50 inches. Weight, about 300 lbs.

Distribution.—Typically from the Juba district to British East Africa, thence to the Sabuki River, also near Lake Rudolf. The Uganda form apparently represents a distinct race of darker colour and larger stature.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
$22\frac{1}{4}$	81	$5\frac{3}{4}$	Gallaland .		D. P. MacGillivray.
21	8	$6\frac{1}{2}$	North end of Lake Rudolf		The late H. Andrew.
$-20\frac{1}{2}$	$8\frac{1}{2}$	$7\frac{1}{2}$	Uganda	•	Dr. A. MacCarthy Morrogh.
$19\frac{1}{2}$	$9\frac{1}{2}$	71	Do	•	Lord Hindlip.
19 <sup>1</sup> / <sub>4</sub>	65	33	East Africa		H. C. V. Hunter.
19‡	81	8	S. Albert Edward Nyanza		E. S. Grogan.
191	81	6‡	East Africa		A. de L. Long.
191	7 <sup>3</sup>	61	Uganda		Sir F. J. Jackson.
19	7분	8	Lake Rudolf		A. E. Butter.
19	8‡	71	Uganda		Major A. W. Jennings Bramly.
19	63	$8\frac{1}{2}$	East Africa		A. Louw.
<b>9</b> 19	71	$5\frac{3}{4}$	Lado Enclave		Major P. H. G. Powell-Cotton.
$18\frac{3}{4}$	9	8	German East Africa	•	Sir A. Sharpe.
$18\frac{3}{4}$	$7\frac{1}{2}$	7	Do		Hon. M. W. Elphinstone.
$18\frac{3}{4}$	$6\frac{1}{2}$	458	?		I. N. Dracopoli.
${\bf I} 8{\textstyle\frac{5}{8}}$	85	8	Albert Edward Nyanza .		Major P. H. G. Powell-Cotton.
$18\frac{1}{2}$	$7\frac{3}{4}$	5 <sup>3</sup>	Tana Valley		Major H. de Prée.
$18\frac{1}{2}$	$8\frac{3}{4}$	$8\frac{1}{2}$	East Africa		Sir Edmund G. Loder, Bart.
181	83	51	Do		J. Carr Saunders.
$18\frac{1}{2}$	9	$8^{3}_{4}$	Do		Capt. R. Meinertzhagen.
18‡	$8\frac{1}{2}$	8	Do		B. Barr Smith.
18 <u>‡</u>	81	$5\frac{1}{2}$	Jubaland	•	L. Aylmer.
181	$8\frac{3}{4}$	81	Uganda		E. Canaple.
\$ I \$	$6\frac{1}{2}$	75	East Africa		Duke of Medinaceli.

- Owner's measurements.



Head of Bontebok.

#### The BONTEBOK (Damaliscus pygargus).

Distinguished from the preceding species of the genus by the lower portions of the limbs being mainly white, as well as (if one race of the korrigum be excluded) by a 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 on the back of ears, upper part of face, near the rump, flanks, shoulders, front of limbs, and tail-tuft; side of basal part of rump, upper half of tail, under-parts, and much of hind 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 Orange River; now nearly exterminated. Although formerly occurring in tens of thousands on the Karus of Cape Colony and near Cape Agulhas, 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.	Loca	lity.		Owner.
16 <u>3</u>	$6\frac{3}{4}$	$9\frac{1}{8}$	?			British Museum.
16‡	$6\frac{5}{8}$	$8^{3}_{\pm}$	Bredasdorp	•		A. C. Campbell.
1 I 5 <del>7</del>	$6\frac{7}{8}$	8	Do.			British Museum (F. C. Selous).
$15\frac{1}{2}$	$6\frac{1}{2}$	$8\frac{1}{2}$	Do.			Hon. Walter Rothschild.
15 <u>1</u>	$6\frac{1}{2}$	7	Do.			W. A. Simpson Hinchliffe.
$I5\frac{1}{2}$	$6\frac{1}{2}$	9³	Do.			A. C. Humbert.
I 5읗	$6\frac{1}{8}$	8불	Cape Colony		· .	Sir Victor Brooke's Collection.
			ur • 1	<b>TT</b> •		 

1 Weight, 200 lbs. Height, 411 at shoulder.

Length on front curve.		Tip to Tip.	Loc	ality.		Owner.
15	$6\frac{3}{4}$	$8\frac{1}{2}$	Cape Colony	Į.		F. C. Selous.
15	6	7	Do.			Sir Owen Philipps.
15	$6\frac{1}{4}$	$6\frac{3}{4}$	Bredasdorp			W. S. Curtis.
15	6‡	10	Do.			A. W. Guthrie.
♀ I4 <u>1</u>	53	7흉	Do.			Sir Abe Bailey.
♀ 14 <u>‡</u>	51	7	Do.			W. A. Simpson Hinchliffe.
1 ç 13 <u>1</u>	5‡	$7\frac{1}{2}$	Do.	•		British Museum (F. C. Selous).

<sup>1</sup> Height at shoulder, 36<sup>3</sup>.

## OWNER'S MEASUREMENTS.

ı 5≩	$6\frac{1}{2}$	713	Bredasdorp			Capt. W. Jardine.
$15\frac{1}{2}$	$6\frac{1}{2}$	5	Do.			A. Ohlsson.
$15\frac{1}{2}$	6 <u>3</u>	· 9 <del>3</del>	Do.			Mr. Justice Hopley.
I 5‡	6 <del>1</del>	9	Do.			P. C. Keytel.
15	6 <u>‡</u>	7흫	Do.		•	Sir Abe Bailey.
15	6	9 <del>1</del> 8	Do.			Dr. Albert von Stephani.
$14\frac{1}{2}$			Do.			South African Museum.
Ŷ 13	5	6불	Do.			Abel Chapman.

BLESBOK



Horns of Female and Male Blesbok.

### The BLESBOK (Damaliscus albifrons).

Nunni, Bechuana.

Closely allied to the bontebok, but with the white blaze on the forehead divided by a brown line between the eyes, the absence of a white rump-patch, the wholly brown tail, and the yellowish rings of the horns; the horns themselves showing a greenish tinge.

Formerly to be numbered by hundreds of thousands, the beautiful blesbok had in the last sixty years grown very scarce, being [only met with in small numbers on a few Boer farms in the Transvaal and the Orange River Colony; but since the Boer War they have increased enormously in numbers, and it is estimated that there are now over 50,000 on farms in the Orange River Colony. Seventy years ago blesboks often literally darkened the face of the land with

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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 as follows of the blesbok-country in 1848: "The plains 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, Griqualand West, and Bechuanaland.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
18 <u>5</u>	$6\frac{1}{2}$	ю	South Africa	•	H. G. Supple.
18‡	5 <del>3</del>	121	Do		Sir Edmund G. Loder, Bart.
I7 <del>3</del>	$6\frac{1}{2}$	I 5½	Orange River Colony	•	Major B. Horsbrugh.
17‡	63	7	Transvaal		Sir Abe Bailey.
17‡	71	$6\frac{1}{2}$	Orange River Colony	•	B. J. Fitzherbert.
171	$6\frac{3}{4}$	$8\frac{1}{2}$	Do.		Sir H. J. Goold-Adams.
17	63	7	?		F. V. Worthington.
17	7	10	?		J. L. Drège.
16 <u>3</u>	$6\frac{3}{4}$	7	?		T. Stephenson.
16 <u>3</u>	$6\frac{1}{2}$	$9\frac{7}{8}$	Orange River Colony		Col. W. H. Sitwell.
$16\frac{1}{2}$	7	8	Do.		Capt. H. D. Livingstone.
161/2	$6\frac{1}{2}$	$9\frac{1}{2}$	Do.		Capt. Sandilands.
$16\frac{1}{2}$	6 <u>3</u>	6	Do.		Major C. F. Pinney.
16 <u>1</u>	6‡	$8\frac{1}{4}$	Do.		Hon. R. A. Ward.
$16\frac{1}{2}$	$6\frac{1}{2}$	$4\frac{1}{4}$	Do.		Major I. Brooke.
16 <u>3</u>	7	$6^{3}_{4}$	Do.		A. E. Croker.
16‡	6 <u>3</u>	71	Do.		LieutCol. F. Fitzherbert.
16 <del>1</del>	6 <del>3</del>	74	Do.		Major G. F. Henry.
16 <u>‡</u>	6	$6\frac{1}{2}$	5		Capt. R. Meinertzhagen.
16 <del>]</del>	7	9‡	- ?		British Museum.
16 <del>]</del>	63	$9^{1}_{4}$	Transvaal		Capt. C. G. Leslie.
16	63	7	?		Capt. E. W. S. Balfour.
16	$6_{4}^{3}$	83	Orange River Colony		Col. Lord Douglas Compton.

## BLESBOK

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
16	6 <del>3</del>	7	Orange River Colony .	W. A. Simpson Hinchliffe.
$15\frac{7}{8}$	6 <u>3</u>	71	Do	Sir Owen Philipps.
<sup>1</sup> 15‡	$6\frac{1}{2}$	IO	Driefontein, Orange River Colony	British Museum (F. C. Selous).
Ŷ 15	5‡			Capt. H. D. Livingstone.



Head of Blesbok.

## OWNER'S MEASUREMENTS.

$18\frac{1}{2}$			?		W. Colson.
18	$6\frac{1}{2}$	1058	Orange River Colony		F. R. N. Findlay.
I7축			Do.	•	C. S. Mann.
171	$6\frac{1}{2}$	$8\frac{3}{4}$	Transvaal		J. B. Wheelwright.
17‡	$6\frac{1}{4}$	$10\frac{1}{8}$	Orange River Colony		Capt. W. Jardine.
17		$8\frac{1}{2}$	?		Major W. Anstruther Gray.
17	$6\frac{3}{4}$	$9\frac{1}{2}$	?		J. C. Phillips.
16 <del>7</del>	7	7 <sup>1</sup> / <sub>2</sub>	Orange River Colony		Count E. Hoyos.
9 16 <u>1</u>	6‡	$8\frac{3}{4}$	Do.		Sir Abe Bailey.
16	$6\frac{1}{2}$	$IO_2^1$	5		A. F. William.
15 <u>5</u>	$6\frac{1}{2}$	7‡	Transvaal		H. A. Bryden.
♀ 14 <del>7</del>	$4\frac{3}{4}$	$8\frac{1}{4}$	Orange River Colony		P. C. Keytel.
		i	Weight, 180 lbs. Height at	shou	lder, 39½ inches.

I47



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

#### The SASSABY or BASTARD HARTEBEEST (Damaliscus lunatus).

Incolomo, Matabili.	Luchu, Masara.
Ingalowana, Basuto.	M'tengo, Chilala and Chibisa.
Inkweko, Masubia.	Mzanci, Swazi.
<i>Inyundo</i> , Makalaka.	Mzanzi, Zulu.
Kaboli, Barotsi and Ngami.	Unchuru, Makuba.

Horns short, starting obliquely outwards, with a single upward and backward lunate curve. Height at shoulder, from 3 feet 10 inches to 4 feet. General colour dark chestnut-red, 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 antelope in South Africa; and were it not that, in common with the Cape hartebeest, it 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 its 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.

### SASSABY

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.
$I7\frac{1}{2}$	7‡	II	N.E. Rhodesia			Sir Abe Bailey.
$17\frac{1}{2}$	$S^{1}_{2}$	$9^{3}_{4}$	Do.	•		Earl of Kingston.
17‡	$8\frac{1}{8}$	10 <u>3</u>	Do.	• .		R. D. Waterhouse.
177	$7\frac{1}{2}$	$II\frac{1}{2}$	Do.			Col. C. F. Blane.
17	$8\frac{1}{2}$	$12\frac{1}{4}$	Do.			Col. A. Colville.
17	73	10 <u>1</u>	Do.	•		P. M. Stewart.
16 <del>3</del>	71	I 2	Do.			W. A. Conduitt.
16 <u>3</u>	7‡	$II\frac{1}{4}$	Ngamiland .	•	•	Hon. G. Legge.
16 <u>3</u>	81	107	N.E. Rhodesia			J. Turner.
165	73	13 <u>3</u>	Do			F. H. Melland.
$16\frac{1}{2}$	71	14	Do.			R. Hayne.
$16\frac{1}{2}$	6 <u>3</u>	131	Ngamiland .			A. G. Stigand.
$16\frac{1}{2}$	$7\frac{1}{2}$	I 2 1	N.E. Rhodesia	•	•	H. Cookson.
161	74	103	Do.			Capt. S. H. Christy.
16 <u>1</u>	7 <sup>3</sup>	101	S. Rhodesia .			C. W. Adams.
161	74	$II\frac{1}{2}$	N.E. Rhodesia			Hon. W. Guinness.
16	$7\frac{3}{4}$	111	?			A. Hugh Bainbridge.
16	7 <del></del> §	I2 <sup>3</sup> / <sub>4</sub>	Chinama, B.C.A.			Hon. Walter Rothschild.
ş 16	61	I4 <sup>1</sup> / <sub>4</sub>	N.E. Rhodesia			Col. A. Colville.
$15\frac{3}{4}$	71/2	$15\frac{1}{2}$	Mashonaland .			Sir John Willoughby, Bart.
15 <del>1</del>	$7\frac{1}{2}$	II	N.E. Rhodesia			F. H. Melland.
15§	71	1 I <del>3</del>	S. Africa .	•		Sir Edmund G. Loder, Bart.
$15\frac{1}{2}$	8	II <sup>3</sup>	N.E. Rhodesia			A. de L. Long.
$15\frac{1}{2}$	81	10‡	?			W. A. Simpson Hinchliffe.
$I5\frac{1}{2}$	8	13	N.E. Rhodesia			P. K. Glazebrook.
151			Mashonaland .			F. C. Selous.
15‡	7	14 <u>3</u>	3			F. T. Garbutt.
15‡	$S\frac{1}{2}$	13#	3			W. F. Wailes-Fairbairn.
151	8	I 2 <sup>1</sup> / <sub>4</sub>	S.E. Africa .			British Museum (Sir Andrew Smith).
15 <sup>1</sup> / <sub>4</sub>	71	I I <u>1</u> 2	Rhodesia .	•		N. II. Barton.

#### OWNER'S MEASUREMENTS.

171 8 141 N.E. Rhodesia . J. C. Phillips.



Frontlet and Horns of Brindled Gnu. From specimen in the British Museum, presented by the late Mr. Rowland Ward.

#### The BRINDLED GNU or BLUE WILDEBEEST (Connochætes taurinus).

<i>Ee-vumba</i> , Makalaka.	Minyumbwi, Batonga.
Ikokoni, Basuto.	Munyumbwa, Chila.
Inkoni-koni, Amandebili.	Numbo, Masubia.
Inkongoni, Swazi and Zulu.	Nyamba, Chilala and Chisenga.
Kokong, Barotsi and Batoka.	<i>Unzozo</i> , Makuba.

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 long, 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 long 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 in S. Africa, is a large animal, standing from 4 feet 3 to 4 feet  $4\frac{1}{2}$  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 almost uniformly black tail, the partially pendent mane, the presence of a fringe on the throat, the downward direction of the long hair on the face, and the absence of long hair on the lower part of the chest and between the fore-legs. The general colour varies from

#### BRINDLED GNU

grizzled roan to blackish slaty brown, with more or less distinct vertical dark stripes, most conspicuous in the lighter-coloured specimens, on the sides of the neck and fore-quarters. 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 survives in parts of Griqualand



Head of Brindled Gnu.

West and the Kalahari, as well as in British Bechuanaland, and is numerous in northern Zululand, as well as in Khama's country, the Orange River Colony, and Rhodesia, and thence northwards through Central and East Africa, 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 Nyasa race (*C. taurinus johnstoni*), distinguished by the white chevron on the face. Another race is noticed below.

## A.-TYPICAL (C. taurinus typicus) and NYASA RACES.

Widest outside.	Widest inside.	Length on front curve.	Breadth of palm.	Tip 10 Tip.	Locality.	Owner.
$32\frac{1}{2}$	29	20	4	$26\frac{1}{2}$	P.E. Africa .	British Museum (late Mr. Rowland Ward). See illus-
	29	31	131	15‡	Sabi Flats .	tration, p. 150. Dr. R. P. Mitchell.
32	28	24	44	21	P.E. Africa .	J. C. Phillips.
	$28\frac{1}{2}$	$21\frac{5}{8}$	$5\frac{1}{4}$	17 <u>3</u>	Matabililand .	G. H. M. Banks.
$31\frac{3}{4}$	28	$22\frac{1}{4}$	$4\frac{3}{4}$	$18\frac{3}{4}$	Nyasaland .	Capt. G. M. F. Hawthorne.
	$28\frac{1}{2}$	$20\frac{2}{4}$	5	16	Pungwe	C. C. Gouldsmith.
$30\frac{7}{8}$	$26\frac{3}{4}$	21	$4\frac{1}{4}$	$2I\frac{1}{2}$	S.E. Africa .	American National Collection.
30 <u>\$</u>	26 <u>3</u>	$23\frac{1}{2}$	51	$16\frac{3}{4}$	?	Sir Abe Bailey.
$30\frac{1}{2}$	$26\frac{1}{2}$	$23\frac{1}{2}$	$6\frac{1}{2}$	181	S.E. Africa .	F. C. Selous.
$30\frac{1}{2}$	26 <u>3</u>	$24\frac{1}{4}$	$4\frac{1}{2}$	18	P.E. Africa .	Capt. R. A. McClymont.
$30\frac{1}{2}$	26	$22\frac{1}{4}$	$4\frac{1}{2}$	${\tt I}8\tfrac{1}{2}$	Do	Col. A. Colville.
30 <del>.]</del>	26	22	$4\frac{1}{2}$	174	Do	W. A. Simpson Hinchliffe.
	$26\frac{1}{2}$	$21\frac{1}{4}$	$4\frac{5}{8}$	$20\frac{1}{2}$	Matabililand .	Major R. Hayes-Sadler.
$30^{1}_{4}$	$26\frac{1}{4}$	$10\frac{1}{5}$	5	$2I\frac{1}{2}$	?	B. Nicolson.
30	25 <del>3</del>	$21\frac{1}{2}$	$4\frac{3}{4}$	19‡	Pungwe	Dr. S. Martin.
30	261	$2I\frac{1}{2}$	$4\frac{1}{2}$	181	Do	Hon. Walter Rothschild.
30	26	21	$4\frac{1}{2}$	19‡	Do	Count R. Coudenhove-
•••	$25\frac{1}{2}$	22	$4\frac{1}{4}$	17	S. Africa .	Kalergi. G. Richards.
$29\frac{3}{4}$	$25\frac{1}{2}$	22	$4\frac{3}{4}$	$16\frac{1}{2}$	G.E. Africa .	J. R. Rolls Richardson.
$29\frac{3}{4}$	$24\frac{1}{4}$	<b>2</b> 4 <sup>5</sup> / <sub>8</sub>	41	18 <u>3</u>	S.E. Africa .	H. W. Elliott.
$29\frac{3}{4}$	26	22	4	$18\frac{3}{8}$	?	British Museum (Sir A.
$29\frac{1}{2}$	25	$19\frac{1}{4}$	5	$20\frac{1}{4}$	?	Smith). G. Bateman.
$29\frac{1}{2}$	$25\frac{1}{4}$	$20\frac{1}{2}$	5	20	Zululand	MajGen. Sir David Bruce.
$29\frac{1}{2}$	$25\frac{1}{2}$	$21\frac{1}{4}$	4‡	$18\frac{3}{4}$		Sir Owen Philipps.
29	26	19	4	$2I\frac{1}{4}$	N.E. Rhodesia	H. Cookson.
29	251/2		$3\frac{3}{4}$	19	Pungwe	H.R.H. Prince Pedro
29	24 <sup>3</sup> / <sub>4</sub>	$20\frac{1}{4}$	$4\frac{1}{4}$	163	?	d'Orléans et de Braganza. A. Hugh Bainbridge.

#### OWNER'S MEASUREMENTS.

$33\frac{1}{2}$	$28\frac{3}{4}$	 61	24	Sabi Flats	B. Secretan.
30 <u>3</u>	27	 4	$20\frac{3}{4}$	S.E. Africa	IJ. M. von Archer.
			1 Circu	umference.	



Head of White Bearded Gnu.

## B.-NYASA RACE.

Widest outside.	Widest inside.	Length on front curve,	Breadth of palm.	Tip to Tip.	Locality.	Owner.
30	$25\frac{3}{4}$	$24\frac{1}{2}$	$4\frac{1}{2}$	$18\frac{3}{4}$	Nyasaland .	Capt. R. Meinertzhagen.
$29_{15}^{1}$	25	$20\frac{3}{4}$	5	16	Do	A. R. Andrew.
29	$24\frac{3}{4}$	21	$4\frac{3}{4}$	14	Do	T. Mills.
26	22	13	5	19	N.W. Rhodesia	G. Crompton.
26	$2I\frac{3}{4}$	134	41	17 <u>3</u>	Nyasaland .	Sir Alfred Sharpe.
$225\frac{7}{8}$	$2I\frac{1}{8}$	$18\frac{7}{8}$	4	$12\frac{3}{5}$	$\operatorname{Mashonaland}$ .	J. Ff. Darling.
25 <sup>3</sup> / <sub>4</sub>	$2I\frac{1}{2}$	${}_{\rm I}8^{\rm 3}_{\rm 4}$	$4\frac{1}{2}$	I 3½	Nyasaland .	R. H. Storey.
$25\frac{1}{2}$	215	$17\frac{1}{2}$	4	15	Barotsiland .	R. T. Coryndon.



Skull and Horns of White-bearded Gnu.

# C.--KILIMANJARO or WHITE-BEARDED RACE (C. taurinus albojubatus).

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

A race distinguished by its slightly paler colouring, and the yellowish white throat-fringe, a few whitish hairs being also mingled with the mane. The form of the widest part of the front of the horns is somewhat different from the corresponding region in the typical race. Weight, about 550 lbs.

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

Widest ontside.	Widest inside.	Length on front curve.	Breadth of palm.	Tip to Tip.	Locality.	Owner.
$29\frac{1}{2}$	$26\frac{1}{4}$	$24\frac{1}{4}$	$4\frac{1}{2}$	$18\frac{3}{4}$	East Africa	W. L. Spencer Churchill.
$29\frac{1}{2}$	$25\frac{1}{2}$	24	5‡	165	Do.	Sir Edmund G. Loder, Bart.
$29\frac{1}{4}$	$25\frac{3}{4}$	$2I\frac{1}{2}$	$4\frac{3}{4}$	$17\frac{1}{2}$	Do.	G. L. Harrison.
29	25	$25\frac{3}{4}$	$4\frac{3}{4}$	$16\frac{3}{2}$	Do.	Mrs. J. E. R. Oldfield.
29	$24\frac{3}{4}$	21	43	18	Do.	H. C. Phipps.
28 <u>3</u>	25	$2I\frac{1}{2}$	$4\frac{1}{2}$	$18\frac{3}{4}$	Do.	C. Bulpett.
$28_{4}^{3}$	$25\frac{1}{4}$	21	$4\frac{3}{4}$	18	Do,	W. Sewall.
$28\frac{1}{2}$	25	21	$4\frac{1}{2}$	$17\frac{1}{2}$	Do.	The late G. G. Longden.
28 <del>1</del>	24 <sup>1</sup> / <sub>2</sub>	21	5	183	Do.	Abel Chapman.

## WHITE-BEARDED GNU

Widest outside.	Widest inside.	Length on front curve.	Breadth of palm.	Tip to Tip.	Locality.		Owner.
28‡	$24\frac{1}{2}$	22	5	16	East Africa		J. H. Penruddock.
$28\frac{1}{4}$	25	22	$4\frac{1}{2}$	19	Do.		W. Neilson.
$28\frac{1}{4}$	$24\frac{1}{2}$	$22\frac{1}{2}$	$4\frac{1}{2}$	15	Do.		R. H. R. Brocklebank.
281	$24\frac{1}{2}$	2 I	$4\frac{3}{4}$	$16^{3}_{4}$	Do,		Capt. R. Meinertzhagen.
28‡	24	$2$ I $\frac{1}{2}$	$4\frac{3}{4}$	16‡	Do.		R. W. McKergow.
28	$24\frac{1}{2}$	24 <del>3</del>	$4\frac{3}{4}$	18	Do.		Dr. A. E. Herz.
28	$23\frac{1}{2}$	20	$4\frac{1}{2}$	$18\frac{3}{4}$	Do.		Capt. V. C. de Crespigny.
28	25	24	$4\frac{1}{4}$	181	Do.		Capt. G. F. Phillips.
28	$24\frac{1}{2}$	$22\frac{3}{4}$	5	19	Do,		G. W. C. Drexel.
$27\frac{3}{4}$	$24\frac{1}{4}$	2 I	5	$\mathbf{I}S^3_{\frac{1}{2}}$	Do.		C. B. C. Storey.
$27\frac{3}{4}$	$24\frac{1}{4}$	$22\frac{3}{4}$	$4\frac{1}{4}$	$19^{1}_{4}$	Do.		J. Anstruther.
$27\frac{3}{4}$	$23\frac{3}{4}$	$2I_{4}^{3}$	$5\frac{1}{2}$	17‡	Do.		Comdr. H. L. P. Herd, R.N.
$27\frac{3}{4}$	24	$23\frac{1}{2}$	4 <sup>3</sup> / <sub>4</sub>	154	Do.		Col. D. M. Lumsden.
$27\frac{3}{4}$	$25\frac{1}{2}$	$22rac{1}{4}$	5킄	$I4\frac{1}{2}$	Do.		Capt. T. H. Rivers Bulkeley.
$27\frac{3}{4}$	$23\frac{1}{2}$	$25\frac{1}{4}$	$4\frac{3}{4}$	$16\frac{1}{2}$	Do.		W. N. McMillan.
$27\frac{3}{4}$	24	$25\frac{1}{4}$	$4\frac{1}{2}$	I4 <u>1</u>	Do.		F. C. Selous.
$27\frac{3}{4}$	25	$23\frac{1}{2}$	48	21	Do.	•	G. C. Slacke.
27 <sup>3</sup>	$23\frac{3}{4}$	23	$5^{\frac{1}{2}}$	23	Do.	•	W. H. Levy.
$27\frac{1}{2}$	$23\frac{3}{4}$	$21\frac{1}{2}$	$4\frac{3}{4}$	154	Do.		C. Craig.
$27\frac{1}{2}$	$23\frac{3}{4}$	$15\frac{1}{2}$	$4\frac{3}{4}$	$20\frac{3}{8}$	Do.		T. D. M. Cardeza.
$27\frac{1}{2}$	23=	21	$4\frac{1}{2}$	$16\frac{3}{4}$	Do,	•	Master of Belhaven.
$27\frac{1}{2}$		22	6	$I5\frac{1}{2}$	Do.		Lord Delamere.
$27\frac{1}{2}$	24	${}_{\mathbf{I}}8^{3}_{4}$	4초	181	Do.		Dr. Clifford Brookes.
$27\frac{1}{2}$	24	$24\frac{1}{2}$	4‡	$16\frac{1}{2}$	Do.		S. E. Milsom.
$27\frac{1}{4}$	$23\frac{3}{4}$	$18_{\pm}^{1}$	$4\frac{5}{8}$	19	Do.		Lord Alex. Thynne.
$27\frac{1}{4}$	23	2 I	$4\frac{1}{4}$	$14\frac{1}{2}$	Do.		A. de Rothschild.
$27\frac{1}{4}$	$22\frac{3}{4}$	23	$5\frac{1}{2}$	15	Do.		Major J. A. Hannyngton.
$27\frac{1}{4}$	$23\frac{1}{4}$	21	$4\frac{1}{2}$	167	Do.		Percy C. Madeira.
271	$23\frac{1}{2}$	$20\frac{1}{4}$	$4\frac{3}{4}$	$2Irac{1}{2}$	Do.		C. Frick.
27‡	24	23	$4\frac{1}{2}$	${\tt I} 8{\scriptstyle \frac{1}{4}}$	Do.		LtCol. T. A. Colfox.
우 22 <u>3</u>	$19\frac{1}{2}$	$16_{2}^{1}$	31	$I2\frac{3}{8}$	Do.		R. E. Wemyss.



Head of Gnu.

## The GNU or BLACK WILDEBEEST (Connochætes gnu).

This southern species is the true gnu, which was formerly known to the Hottentots by that name, although, 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 white tail, the abundant fringe of long hair on the lower part of the chest and between the fore-legs, the upright mane, and the crest of hair on the face, 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. At the time of the Boer War this gnu was represented by herds of a few hundred in the Orange River Colony and on Mr. C. D. Rudd's estate near Cape Town. On the plains of the latter country, as well as on the Karus 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. GNU

Length on front curve.	Breadth of palm.	Tip to Tip.	Locality.	Owner.
$26\frac{1}{2}$	$7\frac{3}{4}$	$\mathbf{I4}\frac{1}{2}$	Orange River Colony	Sir Edmund G. Loder, Bart.
$25^{1}_{+}$	7 - 5	$2I\frac{1}{4}$	Do.	Major P. A. Cox.
25	63	151	Do.	A. Payne-Gallwey.
$24\frac{1}{2}$	8	16	Do.	W. A. Simpson Hinchliffe.
$24\frac{1}{2}$	$7\frac{1}{4}$	18	Do.	Capt. C. Staveley.
$24\frac{1}{2}$	8	17 <sup>3</sup> / <sub>4</sub>	Do.	Major C. D. Vaughan.
$24\frac{1}{4}$	$7\frac{1}{2}$	$19\frac{1}{2}$	Do,	G. B. Plumptre.
24	$8\frac{1}{2}$	15	Do.	Hon. Walter Rothschild.
2.4	$9\frac{1}{2}$	$15\frac{1}{2}$	Do.	Major C. L. Graham.
24	8‡	I 3 <sup>1</sup> / <sub>4</sub>	Do.	C. D. Rudd.
24	8	14	Do.	Col. Lord Douglas Compton.
$23\frac{1}{2}$	8	$16\frac{1}{2}$	Do.	E. McClellan.
$23\frac{1}{2}$	7‡	I 5 <sup>1</sup> / <sub>2</sub>	Do.	A. F. William.
23	$7\frac{1}{2}$	II $\frac{1}{2}$	Do.	Capt. V. C. de Crespigny.
23	$7\frac{1}{2}$	15	Do.	Bloemfontein Museum.
23	8	$I2\frac{1}{2}$	Do.	R. T. Coryndon.
23	71	13 <sup>1</sup> / <sub>2</sub>	Do,	Major B. Horsbrugh.
23	7 <sup>3</sup> / <sub>4</sub>	$14\frac{3}{4}$	Do.	B. J. Fitzherbert.
$22\frac{3}{4}$	$7\frac{1}{4}$	15	Do.	F. C. Selous.
$22\frac{3}{4}$	$8\frac{1}{2}$	161	Do.	Capt. R. Meinertzhagen.
$22\frac{3}{4}$	7 \$	$I2\frac{1}{2}$	Do.	Sir H. J. Goold-Adams.
♀ 19 <u>3</u>	$13\frac{1}{2}$	10 <u>3</u>	Do.	Dr. W. P. Y. Bainbrigge.
		01	WNER'S MEASUREN	IFNTS
		0		
30 <del>3</del>	$122\frac{1}{2}$	14	Kalahari	Dr. F. H. H. Guillemard.
30	$IO_{2}^{1}$	17\$	?	Mr. Justice Hopley.
$29\frac{1}{2}$	$6\frac{3}{4}$	7	Orange River Colony	Sir Abe Bailey.
$27\frac{7}{8}$	7	1 I	Do.	Count E. Hoyos.
$27\frac{1}{2}$	ю	$II\frac{1}{2}$	Do.	C. S. Mann.
$26\frac{3}{4}$	7	14	?	Major W. Anstruther Gray.
26 <del>1</del>	$8\frac{1}{2}$	15	Cape Colony	Grahanistown Museum.
			<sup>1</sup> Circumference.	

<sup>1</sup> Circumference.



Skull and Horns of Abyssinian Duiker shot by Mr. J. G. Millais.

#### The DUIKERBOK (Cephalophus grimmi).

Puti, Bechuana. Impunsi, Matabili. Gwapi, Chinyanja. Nagi, M'Kua. Impungi, Swazi and Zulu. Imputi, Basuto. Gudda, Hausa. Mpewo, Waganda. Nakasha, Chila.

The Cape duiker, or 'diver,' is a southern representative of an extensive group of, mostly small, antelopes confined to Africa. 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; while in both sexes they are more or less hidden by a tuft of long hairs growing from the crown of the head. The upper cheek-teeth have low crowns, with square grinding surfaces, 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 characterised by the horns (absent in the females) inclining upwards at an obtuse angle to the plane of the profile of the nose. Other features of the sub-group are the long and pointed ears, the general vellowish fawn colour, devoid of dark markings, except a brown nosestreak. The Cape duiker, which measures from 23 to 26 inches at the shoulder, ranges on the west as far north as Angola, and on the east, in the shape of local races, to the Shiré Highlands, north of which it is

DUIKERBOK

replaced by shorter-eared races akin to the Abyssinian *C. g. abyssinicus*. Weight, about 30 lbs. Throughout its habitat the duikerbok is to be met with wherever sufficient covert exists; and its furtive, squatting, dodging habits are most aptly indicated by its name. Occurring either singly or in pairs, it strictly avoids both open plains and steep, rocky mountains.

Length on front.	Circum- ference.	Tip to Tip.	Locality.	Owner.		
$6\frac{3}{8}$ .	$2\frac{1}{4}$	$2_{16}^{9}$	Transvaal		Dr. W. Gibson.	
$6\frac{1}{4}$	23	$3\frac{1}{4}$	Do		Sir Owen Philipps.	
5 <del>7</del> 8	$I\frac{7}{8}$	$2\frac{1}{2}$	South Africa .		W. A. Simpson Hinchliffe.	
5 <sup>2</sup> / <sub>4</sub>	2	$3\frac{1}{8}$	Do		R. McClellan.	
<b>5</b> §	$2rac{1}{16}$	2 <u>3</u>	N.W. Rhodesia .		Guy Nickalls.	
$5\frac{1}{2}$	$2\frac{1}{8}$	$2\frac{7}{8}$	Selinya, Khama's		F. C. Selous.	
$5\frac{1}{2}$	$2^{1}_{+}$	23	country Cape Colony .		Mr. Justice Hopley.	
$5^{\frac{1}{2}}$	2	$2\frac{1}{4}$	Delagoa Bay .		F. W. Parish.	
5‡	$2\frac{1}{4}$	$I\frac{1}{2}$	Zululand		Major L. O. Williams.	
5‡	$2\frac{1}{8}$	15	N.W. Rhodesia .		Earl of Kingston.	
5‡	$2\frac{1}{4}$	$3\tau_{6}^{5}$	Do		Col. Lord Douglas Compton.	
51	$2\frac{1}{8}$	2	Do		J. C. Phillips.	
5 <sup>1</sup> / <sub>8</sub>	2	3	S. Rhodesia .	•	Capt. N. Livingstone Learmonth.	
5 <sup>1</sup> / <sub>8</sub>	$2\frac{1}{8}$	3	S.W. Transvaal .		W. F. Tuthill.	
5 <del>1</del> 8	2	$2\frac{3}{3}$	Transvaal		H. T. and A. H. Glynn.	
5 <sup>1</sup> / <sub>5</sub>	$2\frac{3}{16}$	$2\frac{3}{8}$	Cape Flats		Capt. W. Jardine.	
5	2	I <del>3</del>	South Africa .	•	J. J. B. Saffery.	
5	$2\frac{1}{4}$	$2\frac{1}{4}$	Do		G. Richards.	
5	23	$2\frac{1}{4}$	Do		G. B. Plumptre.	
5	$2\frac{1}{4}$	$2\frac{1}{2}$	Do		F. C. Selous.	
5	$2\frac{1}{4}$	$2\frac{1}{4}$	Angola	•	C. H. Pemberton.	
5	$2rac{1}{4}$	$2\frac{1}{2}$	Ş		C. C. Bowring.	
5	$2\frac{1}{4}$	$2\frac{5}{8}$	Ngamiland		Mervyn G. Williams.	
5	$2\frac{1}{2}$	$3\frac{1}{4}$	Northern Rhodesia		F. Smitheman.	
5	$2\frac{1}{4}$	I 1/2	Do.		R. Beaumont.	
5	$2\frac{1}{4}$	$2\frac{3}{4}$	Nyasaland		Dr. J. O. Shircore.	

A.---CAPE AND ALLIED RACES.

Length on front.	Circum- ference.	Tip to Tip.	Locality.			Owner.
$6\frac{1}{2}$			Angola			E. P. Cooper.
6 <u>3</u>	2.1	$2\frac{3}{8}$	S. Africa			C. S. Mann.
6	2S	34	Do.			Col. J. J. Harrison.
6	23	$2\frac{3}{4}$	Do.			H. Henderson.
5 🗄	$2\frac{3}{4}$	$2\frac{1}{4}$	Do,			Major H. Chamney.
58	$2\frac{1}{2}$	$2\frac{1}{2}$	Do.			Sir Abe Bailey.
54		$2\frac{1}{2}$	Do.			J. Whitaker.
9 4≟	$2\frac{3}{8}$	$2\frac{3}{4}$		?		P. C. Keytel.

#### OWNER'S MEASUREMENTS.

## B.-ABYSSINIAN (C. grimmi abyssinicus) AND ALLIED RACES.

Midaku, Abyssinian.

Smaller than the Cape duiker, and agreeing in size and in the relative shortness of the ears with the crowned duiker (*C. g. coronatus*), this race differs from the latter by the general colour of the fur being greyish brown instead of bright yellow. Allied but larger races occur in the Kenia and Zomba districts of Eastern Africa, respectively known as *C. g. hindei* and *C. g. shirensis.* 

*Distribution.*—The highlands of Abyssinia : the East African specimens mentioned below belong to the allied races.

Length on front.	Circum- ference.	Tip to Tip.	Locality	y.		Owner.
$5\frac{1}{4}$	$2\frac{1}{8}$	2	E. Africa .		•	A. de L. Long.
$4\frac{3}{4}$	21		Do			Abel Chapman.
45	$2\frac{1}{4}$	$2\frac{1}{4}$	Do			E. B. Horne.
45	28	I 1	Do			Viscount Ennismore.
$4\frac{1}{2}$	$2\frac{1}{4}$	$2\frac{3}{8}$	Do			W. H. Lindsay.
$4\frac{1}{2}$	2	$I\frac{1}{2}$	Do			Gerard Buxton.
$4\frac{1}{2}$	$2\frac{1}{4}$	$2\frac{3}{4}$	Do			R. F. C. Tompson.
43	23	$2\frac{1}{8}$	Do			J. F. Franks.
$4\frac{1}{4}$	23	$2\frac{1}{4}$	Do			J. G. Millais.
4 <sup>1</sup> / <sub>4</sub>	2	2	Sudan .			Major P. M. Dove.]
41	$2\frac{1}{4}$	3	Abyssinia .			D. P. MacGillivray.
41	$2\frac{1}{4}$	$1\frac{3}{4}$	Do .		•	W. F. Whitehouse.
4.1	25	Ţ	Bahr-el-Ghaza	al.		F. C. Selous.

DUIKERBOK

Length on front.	Circum- ference.	Tip to Tip.	Loca	dity.		Owner.
4 <sup>1</sup> / <sub>8</sub>	2	2	Gallaland			Lord Hindlip.
$4\frac{1}{8}$	$2\frac{1}{8}$	$I\frac{7}{8}$	Abyssinia			Major P. H. G. Powell-Cotton.
$4\frac{1}{8}$	2	$I\frac{3}{4}$	Do.			F. Gillett.
$4\frac{1}{8}$	$2\frac{3}{16}$	I	E. Africa	•		E. H. Litchfield.
$4\frac{1}{8}$	$2\frac{1}{4}$	$2\frac{3}{8}$	Do.			K. V. Painter.
$4\frac{1}{8}$	2	$2\frac{1}{4}$	Do.			Sir Richard Dane.
$4\frac{1}{8}$	$2\frac{3}{8}$	$I\frac{1}{2}$	Do.			Capt. C. J. Murray.
$4\frac{1}{8}$	$2\frac{5}{8}$	$I\frac{1}{4}$	Do.			Sir J. Hume Campbell, Bart.
4 <sup>1</sup> / <sub>8</sub>	2	2	Sudan .			Col. A. Colville.

# C .--- WESTERN RACES (C. grimmi coronatus and C. g. campbelliæ).

A small short-eared race standing about 15 or 16 inches in height, of a bright yellowish fawn colour, showing a faint tinge of black; *C. g. campbelliæ* is an allied West African race, with much more dark speckling in the coat, to which most or all of the following specimens probably belong. *Distribution.*—West Africa.

Length on front.	Circum- ference.	Tip to Tip.	Locality.	Owner.
$4\frac{15}{16}$	$2\frac{1}{4}$	25	N. Nigeria	. S. M. Grier.
4\$	$2\frac{1}{4}$		Do	. Capt. G. C. Kelly.
$4\frac{1}{2}$	$2\frac{1}{2}$	$\frac{7}{8}$	Do	. Major E. M. Baker.
$4\frac{1}{2}$	21/4	$2\frac{7}{8}$	Nigeria	. Major J. A. Burdon.
$4\frac{1}{2}$	$2\frac{3}{4}$	$I\frac{3}{4}$	Do	Major J. B. Cockburn.
$4\frac{3}{8}$	$2\frac{1}{4}$	$2\frac{1}{2}$	Do	. Capt. W. M. Fowler.
48	$2\frac{1}{4}$	$I\frac{1}{2}$	Do	. G. W. Webster.
43	$2\frac{1}{4}$	$I\frac{7}{8}$	Gold Coast .	. Capt. B. E. Murray.
4 <del>3</del> 6	$2\frac{1}{2}$	1 <u>3</u>	Okutu, S. Borgu .	Major B. R. M. Glossop.
415	$2\frac{1}{8}$	$2\frac{1}{2}$	Nigeria	. C. Bryant.
4	$2\frac{3}{8}$	$3\frac{1}{2}$	Do	Capt. F. Call.
4	2	13	Lokoja, Niger .	Capt. T. N. Puckle.
$2\frac{1}{1}\frac{5}{6}$	1 <del>7</del>	$I\frac{7}{5}$	Portuguese Guinea	Major P. H. G. Powell-Cotton.

### THE BLACK DUIKER (Cephalophus niger).

# Distribution.-Liberia to the Gold Coast.

Length on front.	Circum- ference.	Tip to Tip.	Locality.	Owner.	
3‡	$2\frac{1}{8}$	2	?	J. C. Phillips.	
$2\frac{1}{2}$	$2\frac{1}{2}$	1 <u>3</u>	Gold Coast .	Capt. G. Wolfe-Murray.	

### RECORDS OF BIG GAME



Head of Blue Buck.

#### The BLUE DUIKER or BLUE BUCK (Cephalophus monticola).

Ipiti, Zulu.

In the great majority of duikers, that is to say all except those 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 subgroup characterised by the smoky-brown or blackish colouring, 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.
$2\frac{1}{2}$	134	$I\frac{1}{2}$	Tushila Plain,	B.C.A	۱	Hon. Walter Rothschild.
$2\frac{1}{8}$	$I\frac{3}{4}$	$\frac{7}{8}$	?			Sir Owen Philipps.
$2\frac{1}{16}$	$1\frac{1}{2}$	I <u>3</u>	Nyasaland .			D. D. Lyell.
2	$I\frac{1}{2}$	$I\frac{1}{2}$	Pondoland .			Sir Edmund G. Loder, Bart.
2		1 <u>3</u>	Natal			F. C. Selous.
2	15	1 <u>3</u>	Benguela .			G. W. Penrice.
2	13	IŢ	N. Rhodesia			L. de Fries.
2	$1\frac{3}{4}$	$I\frac{1}{2}$	?			Col. E. St. C. Pemberton.
♀ I <u>₹</u>	13	1 <u>3</u>	Nyasaland .			D. D. Lyell.
15	15	13	Benguela .			Hon. Walter Rothschild.

# A.-TYPICAL RACE.

#### B.-SUDANI RACE (C. monticola æquatorialis).

Length on front.	ference.	Tip to Tip.	Lo	cality.		Owner.
$I\frac{1}{2}$	$1\frac{3}{8}$	$I\frac{1}{2}$	Sudan.			Capt. C. Leigh.
13		I	Uganda			Capt. II. S. Toppin.

#### MAXWELL'S DUIKER (Cephalophus maxwelli).

This species belongs to the sub-group characterised by the smokybrown 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 greyish brown; and the rump is not parti-coloured. It was first brought to England by Col. C. Maxwell, and described by Col. Hamilton Smith in 1827.

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

Length on front.	Circum- ference.	Tip to Tip.	Locality.			Owner.		
$2\frac{1}{2}$	$2\frac{3}{4}$	13	Portuguese Guinea			Viscount de Thiene.		
$2\frac{1}{4}$	$2\frac{1}{4}$	$2\frac{1}{8}$	Do.	•		M. V. Hay.		
-2 <sup>2</sup> 5		$2\frac{n}{5}$	Sierra Leone .			L. J. Jones.		
$2\frac{1}{4}$	2 \$	1 <del>7</del> 5	Ashanti		•	D. H. M. Boyle.		
$2\frac{1}{8}$	$2\frac{1}{4}$	2	S. Nigeria			Major E. M. Baker.		
I 5	$2\frac{1}{8}$	2	Fanti			Hon. Walter Rothschild.		
9 I <del>5</del>	$I\frac{3}{4}$	$I\frac{7}{16}$	S. Nigeria			Major E. M. Baker.		

#### The RED or NATAL DUIKER (Cephalophus natalensis).

Rooi-Bosch-bokje, Boer.	Msumbi, Swazis and Malonga.
Mkumbi, Zulu.	Izikupu, Basuto.
Chisimbi, I	Lower Zambesi.

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, 18 to 19 inches) and completely uniform colouring, having no dark markings on either the face or body. The horns are short and thick.

*Distribution.*—Natal, Transvaal, and Mashonaland (including all the forest and bush country of the East Coast), and perhaps the Lualwa River district of the Mozambique Province.

Length on front.	Circum- ference.	Tip to Tip.		Lo	cality.		Owner.
-3 <del>%</del>	$2\frac{3}{4}$	2			?		Sir Abe Bailey.
* -3 <del>5</del>	$2\frac{3}{4}$	$\mathbf{I}_{\frac{3}{4}}^{3}$			?		Major H. Chamney.
-35	31	3‡	Natal				C. S. Mann.
38	$2\frac{1}{2}$	$2\frac{1}{8}$	Sabi Flats				Col. J. J. Harrison.
34	$2\frac{5}{8}$	2			?		S. Butcher.

- Owner's measurements.

Length on front.	Circum- ference. 1	Tip to Tip.	Loc	cality.				Owner.
3	25	$I\frac{1}{4}$		?				Col. E. St. C. Pemberton.
3	25	$I\frac{5}{8}$	Natal .	•		•		Sir Owen Philipps.
3		$1\frac{7}{8}$		?				J. H. Leche.
<sup>1</sup> 3	$2\frac{3}{4}$	•••	N. Makualand					Hon. Walter Rothschild.
- 9 2 <sup>3</sup>	$1\frac{7}{8}$	I	Foot-hills of Ka	ahlan	ıba			F. Vaughan Kirby.
우 1출		I	Near Durban					F. C. Selous.
	- Own	er's measu	rements.		1 Dete	erminat	ion	provisional.

#### The 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 buttocks, and the evenly haired tail, which shows no sign of a tuft, and is white below.

Distribution.—West Africa, from Sierra Leone to the Gold Coast, being replaced in the Cameruns by C. castaneus.

Length on front.	Girth.	Tip to Tip.	Locality.	Owner.
$3\frac{11}{16}$	$2\frac{1}{8}$	2	West Africa	Hon. Walter Rothschild.
$3^{\frac{1}{2}}$	$3\frac{1}{2}$	3를	Cameruns (C. castaneus).	C. S. Mann.
$2\frac{7}{5}$	$2\frac{1}{4}$	I 1/4	Sierra Leone	Major-Gen. P. S. Wilkinson.
$2\frac{1}{2}$	I <del>3</del> 4	$I\frac{1.5}{1.6}$	S. Nigeria	Major E. M. Baker.
$2\frac{1}{2}$	$2\frac{1}{2}$	15	Portuguese Guinea	C. S. Burnett.

#### BANDED DUIKER or ZEBRA-ANTELOPE (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.	Locality.	Owner.
$\mathbf{I}_{\mathrm{S}}^{7}$		I	Liberia	British Museum (Dr. J. Büttikofer).
15	I ]	I <u>1</u>	Do	Hon. Walter Rothschild.

### DUIKERS



Head of Yellow-backed Duiker.

#### YELLOW-BACKED DUIKER (Cephalophus sylvicultor).

This species, which is the type of the genus, is distinguished from most other duikers by its large size, coupled with its blackish colouring, and the presence of a yellowish crest on the back and a similarly coloured longitudinal patch on the rump. Height at shoulder, 34 inches. The N.E. Rhodesian form of the species has been named *C. coxi*, and the Ituri yellow-backed duiker has also received a name, but neither appears entitled to rank even as a distinct race.

Distribution.—The West Coast of Africa from Liberia to Angola, and thence eastwards through the forest-zone.

Length on front.	Circum- ference.	Tip to Tip.	Locality.			Owner.
$7\frac{1}{2}$	$4\frac{3}{4}$	$4\frac{1}{8}$	N.E. Rhodesia			E. R. D. Hall.
7	$3\frac{1}{2}$		Sierra Leone			Major C. E. Palmer.
$-6\frac{7}{8}$	3	3	N.E. Rhodesia			Dr. Albert von Stephani.
$6\frac{3}{4}$	3=	$4\frac{1}{2}$	Fanti			British Museum.
$6\frac{5}{8}$	33	3 <sup>5</sup> / <sub>5</sub>	Luapulu River, Rhodesia	Ν	. Е.	G. M. E. Leyer.
$6\frac{1}{2}$	$3\frac{3}{8}$	5	Sierra Leone	•		W. St. J. Oswell.
$6\frac{1}{4}$	$3\frac{1}{2}$		Ashanti .			C. Beddington.
$-6\frac{1}{8}$						C. S. Mann.
- 9 54	$3\frac{1}{4}$	38	Congo .			Do,
$5\frac{1}{2}$	38	$4\frac{1}{8}$	Gabun .			Sir Edmund G. Loder, Bart.
5	34	41	Angola .			Hon. Walter Rothschild.
5	33	$4\frac{1}{8}$	Do			G. W. Penrice.
5	3		N.E. Rhodesia			H. Cookson.
5	3	$2\frac{7}{8}$	Do.			Earl of Kingston.

- Owner's measurements.

# RECORDS OF BIG GAME

#### HARVEY'S DUIKER (Cephalophus harveyi).

This East African species is in size and its dark chestnut-red colour very similar to the Natal duiker, but with a dark brown or blackish blaze on the face, and the horns thick at the base and rough. *C. isaaci* is an allied species.

# Distribution .- East Africa.

Length on front.	Circum- ference.	Tip to Tip	. Loc	cality.			Owner.
415	$2\frac{7}{8}$	$2\frac{7}{5}$	Kikuyu Fore	est .			Sir Edmund G. Loder, Bart.
$-3\frac{7}{8}$	2		East Africa				Major H. W. A. Christie.
<sup>1</sup> 3 <sup>5</sup> / <sub>8</sub>	3‡		Mau Forest,	East	Africa		Hon. Walter Rothschild.
35	$2\frac{7}{8}$	$2\frac{1}{2}$	I	Do.			Sir F. J. Jackson.
$3\frac{1}{2}$	$2\frac{3}{4}$	23	East Africa		•	•	The late Rear - Admiral R. A. J. Montgomerie.
$3\frac{1}{4}$	35	$2\frac{3}{8}$	Do.		•		Sir J. Hume Campbell, Bart.
	- (	Owner's mea	asurements.			1 C	ephalophus isaaci.

### LEOPOLD'S DUIKER (Cephalophus leopoldi).

Distribution .- Ituri Forest.

Length on front.	Circum- ference.	Tip to Tip.	Locality.	Owner.
$3^{\frac{1}{2}}$	$3\frac{1}{2}$	178	Uganda '	Capt. H. S. Toppin.

#### **RED-FLANKED DUIKER** (Cephalophus rufilatus).

#### Gudda-n Kurimi, Hausa.

This species stands about 14 inches, and is orange-rufous in colour, with the front of the face, the dorsal stripe, and the tail and limbs bluish grey, the crest black, the under-parts paler, and the throat whitish.

Distribution .- West Africa, from Senegambia to Nigeria.

Length on front.	Circum- ference.	Tip to Tip.	Locality.	Owner.
$3\frac{3}{4}$	$3^{\frac{1}{2}}$	18	N. Nigeria	H. de C. Mathews.
35	$2\frac{1}{4}$	2	Do	R. M. Blackwood.
$3\frac{1}{2}$	3	$2\frac{3}{5}$	Do	B. C. B. Tower.
3 <del>1</del> 7 8	$2\frac{7}{8}$	25	Gambaga, Gold Coast	British Museum (Capt. W. Giffard).
38	$2\frac{3}{4}$	I 1/2	Nigeria	Capt. C. C. West.
34	318	I <u>5</u>	Portuguese Guinea .	Major P. H. G. Powell-Cotton.
35	$2\frac{1}{2}$	2	Nigeria	Capt. P. A. Clive.
3	$2\frac{7}{8}$	112	Okutu, S. Borgu .	Major B. R. M. Glossop.
$2\frac{\tilde{1}}{3}$	$2\frac{1}{2}$	23	Lagos	Capt. W. A. Ross.
$2\frac{3}{4}$	$2\frac{1}{2}$	I <u>1</u>	N. Nigeria	G. W. Webster.
25	$2\frac{1}{4}$	I 🗄	Lokoja, Nigeria .	Major-Gen. P. S. Wilkinson.
25	$2\frac{1}{2}$	13	Nigeria	Capt. H. V. Venables Kyrke.
2 <u>5</u> 8	$2\frac{1}{2}$	I 1/2	Do	W. D. Downes.
25	$2\frac{5}{8}$	I.]	Do	Dr. M. W. Manuk.
13		I	Ashanti	Capt. B. E. Murray.



Head of Beira.

#### The BEIRA (Dorcotragus melanotis).

## Beira or Baira, Somali.

Although at one time classed with the gazelles, this peculiar little Somali antelope is considered to be best placed in the neighbourhood of the dik-diks. The beira is characterised by the moderately long and spike-like horns of the bucks; but its most striking peculiarity is the great size of its ears, which led its discoverer, Mr. Menges, to describe it as a species of klipspringer. Another noticeable feature is the large size of the rounded hoofs, which are supported on globular pads. In colour, the upper-parts and legs are greyish fawn, with a tinge of pink; 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 "beira are good hillclimbers, and keep on rocky ground. The general shape is slender, the 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 greyish 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, the tail is generally kept down. Horns resemble those of the klipspringer, but curve forward slightly more." From nose to root of tail,  $32\frac{1}{4}$ ; height at shoulder, 21 inches; horns, 4 inches; weight, about 20 lbs.

## RECORDS OF BIG GAME

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.

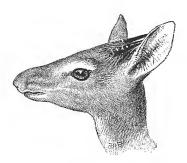
Length on front.	Circum- ference.	Tip to Tip.	Locality.		Owner.
5	$I\frac{3}{4}$	$3\frac{1}{4}$	Somaliland		J. Rosen.
$4\frac{1}{1}\frac{5}{6}$	$I\frac{7}{8}$		Do	•	Lord Delamere.
4 <del>3</del>	13	$\mathbf{I}_{\pm}^{\underline{3}}$	Do		Capt. J. H. Brocklehurst.
-43	13	$2\frac{3}{16}$	Northern Somaliland		J. H. II. Dodds.
$-4\frac{3}{4}$	$1\frac{3}{4}$	$2\frac{1}{2}$	Do.		R.E. Mess, Roorkee.
45	2	$2\frac{7}{8}$	Abyssinia		Major P. H. G. Powell-Cotton.
$4\frac{1}{2}$	$I\frac{3}{4}$	2 <u>5</u>	Northern Somaliland		F. N. Ransford.
$4\frac{1}{4}$	2	$2\frac{1}{2}$	Abyssinia		W. F. Whitehouse.
41	I <del>7</del>	$I\frac{3}{4}$	Somaliland		A. de L. Long.
$4i^{3}_{15}$	$I\frac{7}{8}$	2 <u>5</u>	Do		Capt. R. A. McClymont.
4	2	$2rac{1}{16}$	French Somaliland		Viscount Edmond de Poncins.
4	$2\frac{1}{8}$	$2\frac{3}{4}$	Somaliland		Sir Edmund G. Loder, Bart.
375	2	$2\frac{1}{4}$	Do		Capt. II. C. Dobbs.
34	$I\frac{3}{4}$	$2\frac{1}{4}$	Do		W. Mure.
$3\frac{1}{4}$	I <sup>3</sup> 4	$2\frac{1}{8}$	Do		H. D. Briggs.
3	I <u>1</u>	$2\frac{3}{4}$	Do	•	P. K. Glazebrook.

- Owner's measurements.



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

#### DIK-DIKS



Head of Salt's Dik-dik.

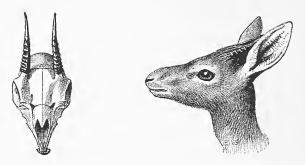
#### SALT'S DIK-DIK (Madoqua saltiana).

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 yellowish or fulvous grey, scarcely more rufous on the sides than on the back. Height at the shoulder, 14 inches.

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

Length on front.	Circum- ference.	Tip to Tip.	Lo	cality.		Owner.
$3\frac{1}{2}$	$I\frac{1}{2}$	$I\frac{3}{8}$		?		Hon. Walter Rothschild.
31	$I\frac{1}{2}$	13	Abyssinia			V. Bell.
3	I	I	Do.			Sir Edmund G. Loder, Bart.
<sup>1</sup> 3	÷	$I\frac{1}{S}$	Do.			H. Boughton Leigh.
$2\frac{3}{4}$		$I\frac{3}{8}$	Do.			Major P. H. G. Powell-Cotton.
$2\frac{3}{4}$	I = 3	I 1 4	E. Sudan		•	Major H. H. S. Morant.
$2\frac{5}{8}$		$I\frac{3}{4}$	Abyssinia			Sir Victor Brooke's Collection.
$2\frac{1}{2}$	$I\frac{1}{2}$		North Kassa	ıla		Col. Ralph Vivian.
23		13		?		British Museum.

<sup>1</sup> Determination provisional.



Skull and Horns of Phillips's Dik-dik.

Head of Swayne's Dik-dik.

### SOMALI DIK-DIKS

### A.-Madoqua swaynei, M. phillipsi, and M. [Rhynchotragus] guentheri.

Sakáro, Somali.

Different districts of Somaliland are inhabited by several species of dik-diks, of which three are named above. The first of these is allied to Salt's dik-dik but smaller; 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 grey 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 undermentioned Kirk's dik-dik, from which it is distinguished by the form of the nasal bones in the skull. It inhabits the central plateau of Northern Somaliland.

Height of Swayne's dik-dik at shoulder, about 13 inches. Weight, & 6 lbs. ; & 5 lbs.

Length on front.	Girth.	Tip to Tip.	Locality.		Owner.
<sup>1</sup> 3 <sup>5</sup> / <sub>8</sub>	$I\frac{5}{8}$	2	Somaliland		Col. II. D. Olivier.
312	$I\frac{1}{4}$	1 <u>5</u>	Do,		J. Kenneth Foster.
31	11	12	Do.		W. W. Ashley.
35		$\mathbf{I}_{\overline{S}}^{\underline{7}}$	Do.		P. K. Glazebrook.
$3\frac{1}{5}$	I 1.	$\mathbf{I}_{\underline{2}}^{1}$	Do.		Col. C. F. Blane.
<sup>1</sup> 3 <sup>1</sup> / <sub>8</sub>		IS	Do.		Sir Abe Bailey.
318	, I <u>1</u>	I 34	Do.		P. II. Thomas.
			<sup>1</sup> M. guenthe	eri.	

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DIK-DIKS

Length on front.	Girth.	Tip to Tip.	Locality.			Owner.
<sup>1</sup> 3 <sup>1</sup> / <sub>8</sub>	112	13	Somaliland			A. E. Pease.
3 <sup>1</sup> 8	$1\frac{1}{2}$	13	Do.	•		Capt. F. L. Livingstone- Learmonth.
3	$I\frac{1}{4}$	11	Do.			J. H. H. Dodds.
3	$1\frac{1}{8}$	$I\frac{1}{S}$	Do.			J. H. Miller.
3		1	Do.			Sir Edmund G. Loder, Bart.
3	11	13	Do.			Capt. G. H. Hastings.
$2\frac{7}{8}$		$1\frac{3}{4}$	Do.	•	•	Major P. H. G. Powell-Cotton.
$2\frac{7}{8}$	$1\frac{3}{8}$	15	Do.	•		Lord Delamere.
$2\frac{7}{8}$	$I\frac{1}{2}$	18	Do.	•		Lord Hindlip.
$2\frac{1}{1}\frac{2}{6}$	$I\frac{1}{2}$	3	Do.			LieutCol. E. G. Harrison.
$2\frac{3}{4}$	$\mathbf{I}_{\pm}^{2}$	$1\frac{1}{8}$	Do.	•		R. E. Drake-Brockman.
2꽃	I	1	Do.			T. W. H. Clarke.
$2\frac{3}{4}$	$I\frac{1}{2}$	$I\frac{1}{8}$	Do.			A. E. Butter.
$2\frac{3}{4}$	$I\frac{1}{2}$		Do.			C. Liddell.
$^{2}2\frac{3}{4}$		$I_{\frac{1}{16}}$	Do.			Major W. Anstruther Gray.
$2\frac{5}{8}$	17	13	Do.			A. de L. Long.
$2\frac{1}{2}$	ĬŢ	18	Do.			J. C. Monteith.
$2\frac{1}{2}$	$I_{\pm}^{\underline{1}}$	18	Do.			Capt. A. H. Mosse.
$2\frac{1}{2}$		18	Abyssinia .			R. Hayne.
		<sup>1</sup> M. guentheri.			<sup>2</sup> M.	phillipsi.

The following are the dimensions of a specimen of *M. guentheri* shot at Njemps by Sir F. J. Jackson :---

Length,  $23\frac{1}{4}$ . Height,  $15\frac{1}{4}$ . Horns,  $2\frac{1}{2}$ . Weight,  $8\frac{1}{4}$  lbs.

### B.-M. piacentinii.

Length on front.	Girth.	Tip to Tip.	L	ocality		Owner.
$2rac{5}{16}$	$1_{\frac{5}{16}}$	$I_{\frac{1}{16}}$ .	Somaliland			British Museum.
$2\frac{1}{4}$	$I\frac{5}{6}$	I 1/8	Do.			Hon. Walter Rothschild.

### KIRK'S DIK-DIK (Madoqua [Rhynchotragus] 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. From the other members of the group M. damarensis differs by its superior size, and M. guentheri by the still greater development of the trunk. They belong to the subgenus Rhynchotragus. 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	$I\frac{1}{2}$	$I\frac{7}{8}$	East Africa			J. V. Colby.
-3 <u>5</u>	$1\frac{5}{8}$	$I\frac{1}{8}$	Rift Valley			C. Steuart Betton.
$3\frac{1}{2}$	$1\frac{3}{8}$		East Africa			The late Prince P. Demidoff.
370	$I\frac{3}{4}$	15	Do.			J. B. Wheelwright.
$^{1}3^{\frac{3}{8}}$		$I\frac{1}{2}$	Do.			F. C. Selous.
38	$I\frac{1}{4}$	2	Do,			Marquis of Tweeddale.
3불	I 1/4	2	Do.	•	•	P. Fleming.
$3\frac{5}{16}$	$I\frac{1}{2}$	$I_{\frac{7}{16}}$	Uganda .			Major P. H. G. Powell-Cotton.
34	I 1/4	I‡	East Africa			Hon. Walter Rothschild.
$3\frac{1}{4}$	2	$I\frac{1}{2}$	Do.			K. V. Painter.
34	13	$2\frac{1}{8}$	Do.			Capt. M. L. Pears.
$3\frac{1}{4}$	$I\frac{1}{4}$	15	Do.			H. Johnson.
31	$I \tfrac{1}{8}$	$I\frac{3}{4}$	Do.			W. P. Lowe.
3‡	$I\frac{1}{8}$	$\mathbf{I}\frac{3}{4}$	Do.			J. Todd.
$3\frac{1}{8}$	···•	$2\frac{1}{4}$	Do.			Major W. E. Stobart.
35			Do.			A. Benitz.
318		I $\frac{1}{2}$	Do.			G. C. Slacke.
315		I 5	Do.			G. de P. Colvile.
3	$I\frac{1}{2}$	$1\frac{3}{4}$	E. of Lake (	Chom	ο.	Lord Hindlip.
3	13	14	East Africa			11. Fowler.
3	• • •	I 1/2	Do.			Sir F. J. Jackson.
		- Owner's meas	surements.			1 M. cavendishi.

DIK-DIKS

Length on front.	Circum- ference.	Tip to Tip.	Locality	÷.		Owner.		
3		I 1/4	East Africa			Capt. R. H. Hermon-Hodge.		
3	2	I <u>5</u>	Do.			Capt. the Hon. G. H. Douglas- Pennant.		
3		I 1/2	Do.		•	R. de la Huerta.		
3	$I\frac{1}{2}$	$I\frac{1}{2}$	Do.			Percy C. Madeira.		
3		2	Do.			Gerard Buxton.		
3		2	Do.	•		S. S. Steele.		
$^{1}2_{16}^{15}$	13	I <del>3</del>	Do.			Sir F. J. Jackson.		
$12\frac{1}{4}$		$I_{4}^{3}$	Lake Baring	ю.		Rhys Williams.		
<sup>1</sup> M. cavendishi.								

# DAMARA DIK-DIK (Madoqua [Rhynchotragus] damarensis).

Characteristics mentioned under heading of the preceding species.

Distribution.-Damaraland and Angola.

Length on front.	Circum- ference.	Tip to Tip.	Locality.	Owner.		
4	13	$I\frac{1}{2}$	5	Sir Owen Philipps.		
$-3\frac{1}{4}$	$I\frac{1}{2}$	I $\frac{1}{2}$	5	P. C. Keytel.		
-3		•••	?	Capt. M. Jurich.		
$-2\frac{5}{8}$	15	15	Omararu	J. B. Wheelwright.		
$-2\frac{5}{8}$	IS	13	Do	Capt. W. Jardine.		
$-2\frac{1}{2}$		o	Damaraland	South African Museum. (Type specimen.)		

# HEMPRICH'S DIK-DIK (Madoqua hemprichiana).

Further information is desirable as to the claim of this dik-dik to distinction from M. saltiana.

Length on front.	Circum- ference.	Tip to Tip.	Locality.			Owner.		
3 <del>3</del>	13	$I\frac{1}{2}$	Basaland				Hon. Walter Rothschild.	
$2\frac{5}{8}$	II	I <sup>1</sup> / <sub>±</sub>	Blue Nile				Capt. J. A. Pollock.	
$2_1^5$	1 <u>3</u>	$I \stackrel{1}{\xrightarrow{1}{16}}$	Abyssinia				Hon. Walter Rothschild.	

- Owner's measurements.



Head of Oribi.

### The ORIBI (Oribia scoparia).

Also known as Oribia oribi.

Inla, Swazi and Zulu. Pulukudukamani, Basuto. Nakafwifwi, Chila. Kamunda, Barotsi and Batoka. Mazia, Hausa.

The oribis, grysbok, 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 usually present only in the bucks, and are short, almost or quite straight, with smooth tips and ridged bases. The upper cheek-teeth have tall and narrow crowns. 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 eve-socket. In the typical species the horns of the bucks are comparatively smooth and slender, with only their basal two inches slightly ridged; there is a black patch on the forehead between the horns; and the tail is tufted and moderately bushy, with its terminal two-thirds black. Height at shoulders, 24 to 26 inches.

*Distribution.*—Typically, Africa south of the Zambesi. On grassy plains this graceful little antelope is still plentiful in many districts.

# ORIBI

Length on front.	Circum- ference.	Tip to Tip.	Locality.		Owner.
7 <del>3</del> 3	$2\frac{5}{16}$	$2\frac{1}{4}$	Angola	•	. G. W. Penrice.
$6\frac{1}{2}$		$2\frac{7}{8}$	Near Ladysmith	•	. Col. P. J. R. Crampton.
$6\frac{3}{8}$	$2\frac{1}{8}$	$I\frac{1}{8}$	N.W. Rhodesia		, P. R. Ramsey.
$6\frac{1}{4}$	$2\frac{1}{4}$		E. Griqualand .		. British Museum (J. ff. Darling).
6	$2\frac{1}{8}$	$2\frac{1}{4}$	Spitzkop		. H. T. and A. H. Glynn.
6	$I\frac{1}{2}$		Rhodesia		. H. H. Williams.
6	2	$2\frac{3}{8}$	Angola		. C. H. Pemberton.
6	2	4	N.W. Rhodesia.		. R. E. Critchley-Salmonson.
5풍	2	33	Do	•	. T. D. M. Cardeza.
5 <del>7</del> 5	$2\frac{3}{8}$	$3\frac{1}{2}$	Do		. R. C. Wood.
5 <sup>2</sup>	$2\frac{3}{8}$	$2\frac{3}{8}$	Nyasaland		. J. H. Hayes.
5 <sup>2</sup>	2	3‡	N.W. Rhodesia.	•	. H. Timmins.
5 <sup>2</sup>	2	$2\frac{1}{4}$	Do		. Capt. R. Meinertzhagen.
5 <sup>3</sup>	2	$2\frac{3}{4}$	Do		. Lady Sarah Wilson.
58	2	$2\frac{3}{4}$	Bengueolo .		. F. Smitheman.
5흫	$2\frac{1}{8}$	$I\frac{7}{S}$	Transvaal	•	. F. R. N. Findlay.
5륗	2	23	N.W. Rhodesia		. Col. Lord Douglas Compton.
58	2	$2\frac{3}{4}$	Do.		. Sir Owen Philipps.
$5\frac{1}{2}$	2	$3\frac{1}{2}$	Do.	·	. Capt. H. T. Lumsden.
51/2	$I\frac{3}{4}$	$2\frac{5}{8}$	Do.		. G. L. Harrison.
51/2	2	2 ,	N.E. Rhodesia .	•	. Hon. W. Guinness.
$5\frac{1}{2}$	$2\frac{1}{4}$	$2\frac{1}{4}$	N.W. Rhodesia	•	. Hon. Guy Wilson.

# OWNER'S MEASUREMENTS.

7호	$2\frac{3}{4}$	2\$	Zomba, Nyasaland		D. MacAlpine.
$6\frac{1}{2}$		$I\frac{3}{4}$	Batoka Plateau .		E. Folley.
$6\frac{1}{2}$		$3\frac{3}{4}$	?		J. L. Drège.

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Head of Abyssinian Oribi. Shot by Lieut.-Col. P. Polovtsoff.

### The ABYSSINIAN ORIBI (Oribia montana or O. cœrulea).

Făckō and Miwaka, Abyssinian. Mori or Lōyīk, Dinka.

Very similar in most characters to the typical species, but with a shorter and less bushy tail, the tip of which has only a few sparse black hairs. Height at shoulder, 22 to 23 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.

A male weighing 38 lbs. stood  $22\frac{1}{2}$  inches at the shoulder.

Distribution .- Abyssinia and Bogosland, with part of the Sudan.

Length on front.	Circum- ference.	Tip to Tip.	Locality.	Owner.
518		$2\frac{1}{8}$	Bahr-el-Ghazal .	Capt. J. L. F. Tweedie.
51		$2\frac{1}{2}$	Bahr-el-Zaraf .	E. M. Tabor.
51	2	$I\frac{1}{S}$	Kordofan	E. A. T. Bayley.
58	2	$2\frac{5}{8}$	Abyssinia	Sir Abe Bailey.
58	2	23	Sudan	Capt. G. Wauhope.

# EAST AFRICAN ORIBIS (Oribia kenyæ, O. cottoni, etc.)

Several oribis allied to the last have been described from B.E.A.; O. kenyæ being from Mt. Kenia, and O. cottoni and O. microdon from the Guasin-gishu Plateau.

Length on front.	Circum- ference.	Tip to Tip.	Locality.		Owner.
6물	$2\frac{3}{4}$	38	E. Africa	•	LieutCol. P. Polovtsoff. (See illustration, page 176.)
$6_{4}^{3}$	$2\frac{1}{2}$	3	Do		G. P. L. Cosens.
$6\frac{1}{2}$	$2\frac{1}{4}$	31	Near Mount Elgon		Capt. H. C. S. Ashton.
$6\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{3}{4}$	E. Africa		Col. Max. C. Fleischmann.
6흫	28	2	Near Lake Victoria		G. J. Muir.
61	$2\frac{1}{4}$	3	E. Africa		H. B. Tate.
61	$2\frac{1}{4}$	$2\frac{1}{4}$	Do		C. Bower Ismay.
6 <u>1</u> 8	2	3	Do		W. A. Baird.
61	2	$2\frac{3}{4}$	Do		R. B. Loder.
6	23	27	Do		H.R.H. the Duke of Connaught.
6	$2\frac{1}{4}$	$2\frac{3}{4}$	Do		Capt. M. L. Pears.
6	21	31	Do		Capt. R. Meinertzhagen.
6	2	$2\frac{7}{8}$	Do		W. N. McMillan.
6	$2\frac{1}{3}$ ,	$2\frac{1}{4}$	Do		Capt. W. H. Wilkin.
53	$2\frac{1}{4}$	$2\frac{1}{2}$	Do		E. B. Horne.
5 <sup>3</sup> / <sub>4</sub>	$2\frac{1}{4}$	2	Do		G. de P. Colvile.
5\$	$2\frac{3}{8}$	2	Do		Lieut. S. R. Bailey, R.N.
51/2	17	3불	Do		Duke of Medinaceli.
51/2	2	$2\frac{1}{4}$	Do		F. C. Selous.
$5\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{3}{4}$	Do		Capt. R. Meinertzhagen.
$5\frac{1}{2}$	$2\frac{1}{4}$	2	Do	•	A. G. Murray Smith.
$5\frac{1}{2}$	$2\frac{1}{4}$	$2\frac{1}{8}$	Do	·	Capt. C. Brook.
5 <del>1</del>	2	$2\frac{1}{8}$	Do	•	Sir Richard Dane.
$5\frac{1}{2}$		3	Do	•	L. L. Biddle.
$5\frac{1}{2}$	$2\frac{5}{8}$	$2\frac{1}{4}$	Do	•	H. Fowler.
5흫	$2\frac{1}{4}$	$2\frac{1}{2}$	Do	•	A. de Rothschild.
5용	$2\frac{1}{4}$	2	Do	·	H. S. Keating.
5흫	$2\frac{1}{8}$	3=3	Do		Sir F. J. Jackson.
5흫	$2\frac{1}{8}$	1 <del>7</del> 8	Do	·	Duke of Peneranda.
5흫		$2\frac{1}{2}$	Do	·	R. de la Huerra.
5용		3	Do	·	H. B. Cox.
5흫		3	Do	·	C. W. Turner.
5 <sup>1</sup> / <sub>5</sub>	$2\frac{3}{8}$	$2\frac{7}{8}$	Uganda	·	Major P. H. G. Powell-Cotton. N

### The GAMBIAN ORIBI (Oribia nigricaudata).

### Bevsia, Hausa.

A species very close to the Abyssinian oribi, but of smaller size, greyer, and with a distinct black tip to the tail, as in the Cape species. Height at shoulder, 21 inches.

Distribution .--- The open country of Senegal and Nigeria.

Length on front.	Circum- ference.	Tip to Tip.	Locality	y.		Owner.
$4\frac{3}{4}$	$2\frac{1}{2}$	$2\frac{1}{4}$	Lake Chad			Capt. S. B. B. Dyer.
45	134	$2\frac{1}{2}$	N. Nigeria .			Capt. T. N. Puckle.
$4\frac{1}{2}$	13	$2\frac{1}{4}$	Nigeria .			Capt. G. B. Scott.
$4\frac{3}{16}$	175	2	Do			F. Dwyer.
4 <del>1</del>	$I\frac{3}{4}$	$2\frac{1}{4}$	Do			Capt. H. V. Bastow.
418		2	Gold Coast			Capt. B. E. Murray.
4	13	2	Nigeria .			Capt. H. A. Porter.
4		$2\frac{3}{4}$	Do			Major J. A. Burdon.
4	$1\frac{3}{4}$	$2\frac{3}{4}$	Do			Capt. S. C. Peck.
4	17		Senegambia			G. Fenwick Owen.
4	15	$2\frac{1}{2}$	N. Nigeria .		•	Major E. M. Baker.
3=	15	$\mathbf{I}\frac{7}{8}$	Ashanti .			D. H. M. Boyle.

#### HAGGARD'S ORIBI (Oribia haggardi).

Taya, Swahili.

Nsilatso, Uganda.

Distinguished from 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. Some of the undermentioned specimens may belong to allied species.

Length on front.	Circum- ference.	Tip to Tip.	Locality. Owner.
$6\frac{3}{8}$	$2\frac{1}{8}$	3	East Africa Hon. Walter Rothschild.
6	$2\frac{1}{2}$	$2\frac{1}{8}$	Do H. Twyford.
5불	$2\frac{1}{2}$	2	Tana Valley Capt. J. Harington.
58	$2\frac{1}{4}$	21	East Africa C. Craig.
5불		$2\frac{7}{8}$	Do C. C. Bowring.
5불	$2\frac{1}{4}$	$3\frac{1}{8}$	Do L. Aylmer.
5용	2	$2\frac{5}{8}$	Tana Valley Capt. Mackenzie Murray.
5홍		28	East Africa Dr. A. Paget.
1 5 <sup>1</sup> / <sub>8</sub>	$2\frac{1}{4}$	2	East Central Africa Hon. Walter Rothschild.
$^{1}5\frac{1}{8}$	$I_{16}^{13}$	23	North end of Lake Albert . Col. Trevor Ternan.
5불	2	34	East Africa Col. A. Colville.

<sup>1</sup> Determination provisional.



Head of Suni. Shot by Mr. F. C. Selous.

#### The SUNI (Neotragus moschatus).

The elegant little antelopes included in the genus *Neotragus* 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, as also by the large size of the open spaces in the skull in front of the sockets of the eyes, and the breadth of the nasal bones. In the present species the horns, although short, project behind the back of the head, are somewhat elevated above the plane of the forehead, and strongly and closely ridged, while the colour of the upper parts, inclusive of the tailtip, is greyish fawn. Height at shoulder, 13 to 14 inches.

Distribution.—Zanzibar, adjacent islets, and mainland coast from B.E. Africa, through Kilimanjaro, to Mozambique.

Length on front.	Circum- ference.	Tip to Tip.	L	ocality			Owner.
31	I 1/2	2	Zanzibar				Sir John Kirk.
31	Iŝ	$I\frac{1}{2}$	Do.				British Museum (Capt. Speke).
31	I 1/2	$\mathbf{I}_2^1$	Do.		•	•	British Museum (Sir John Kirk).
$2\tfrac{1\cdot3}{1\cdot6}$	I <u>1</u>	13	Kikuyu .		•		Master of Belhaven.
$2\tfrac{1}{1}\tfrac{3}{6}$	$I\frac{3}{8}$	I <u>5</u>	Do				Sir F. J. Jackson.
$2\frac{3}{4}$	$I\frac{1}{2}$	$I\frac{1}{2}$	Near Nairob	i.	•	•	F. C. Selous. (See illustration.)
			OWNER'S	ME.	ASU	REM	IENTS.
378	$I\frac{7}{8}$	$1\frac{5}{8}$	Zanzibar				Dr. Albert von Stephani.
38		$I\frac{5}{8}$	Do.	•			F. C. Selous.



Skull and Horns of Livingstone's Suni.

#### LIVINGSTONE'S SUNI (Neotragus livingstonianus).

Lumswi, Shupanga.

Inhlengana, Amatonga.

Distinguished from the preceding species by its slightly superior dimensions (height at shoulder, 14 to 15 inches), the longer and thicker horns, more rufous coloration, and the blackish upper surface of the tail.

Two specimens killed by Mr. F. Vaughan Kirby measured-

				Male.	Female.
Extreme length over all, tip of	nose to	o end	of tail	$27\frac{1}{8}$ ins.	25 <u>3</u> ins.
Length of tail	•	•		$3\frac{1}{2}$ "	3 "
Perpendicular shoulder-height				$I4\frac{1}{4}$ ,,	$13\frac{1}{8}$ "
Girth behind the shoulder .				$I4\frac{1}{8}$ "	$I 3\frac{5}{8}$ ,,

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

1	Length on front.	Circum- ference.	Tip to Tip.	Locality	<i>.</i>		Owner.
	$4\frac{1}{2}$	13	$I\frac{1}{2}$	Zambesia .	•	•	Rowland Ward.
	438	$2\frac{1}{8}$		Gungunyana's	cour	ntry	British Museum (H. T. Glynn).
	4 <del>18</del>		175	Inhambani			Major J. Stevenson-Hamilton.
	41	178	1 <u>2</u>	Delagoa Bay			Col. Lord Douglas Compton.

# LIVINGSTONE'S SUNI

Length on front.	Circum- ference.	Tip to Tip.	Locality	<i>.</i>		Owner.
4 <del>1</del>		I	Delagoa Bay			F. C. Selous.
4		$1\frac{7}{8}$	Do.			A. Torre do Valle.
4		$I\frac{1}{2}$	Do.			A. F. Williams.
37		$I\frac{1}{2}$	Do.			Sir Owen Philipps.
· 3 <sup>3</sup> / <sub>4</sub>	$I\frac{1}{2}$	13	Zambesia .			Sir Edmund G. Loder, Bart.
3 <sup>3</sup> / <sub>4</sub>	I 1/4	$2\frac{1}{4}$	Delagoa Bay			W. E. Butcher.
$3\frac{1}{1}\frac{1}{6}$	$I\frac{3}{4}$	$2rac{5}{16}$	Do.			Hon. Walter Rothschild.
		OW	NER'S MEAS	SURI	EME	NTS.
5	I <u>7</u>	$2rac{1}{4}$	?			C. S. Mann.
45	2	$2\frac{1}{4}$	?			Sir Abe Bailey.
$4\frac{1}{2}$		IA	5			F. J. Newnham.
3 <del>7</del> 8	$\mathbf{I}_{4}^{\underline{3}}$	I <sup>1</sup> / <sub>1</sub>	Delagoa Bay	,		Capt. R. Meinertzhagen.

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Skull and Horns of Record Steinbok, the property of Mr. D. Mackintosh.

### The STEINBOK (Rhaphiceros campestris).

Isha, Swahili.	Impulupudi, Basuto.
Ingaina, Swazi.	Phuduhudu, Bechuana.
Timba, Barotsi and Batoka.	<i>Umgwena</i> , Matabili.

From the other members of the oribi group the grysbok and its cousin the steinbok are readily distinguished by the absence of a bare ear-patch, and by horns rising nearly vertically from the skull, in which the open spaces below the eye-sockets are unusually small. As mentioned below, this species is at once distinguished from the grysbok by the absence of the lateral hoofs and the uniform colour of the coat. The general tint of the latter is bright sandy rufous, becoming richer on the head, with a black horseshoe-mark on the crown. Height at withers, about 22 inches. Weight, about 25 lbs.

Distribution.—Africa south of the Zambesi on the east, and the Cuneni on the west, the north-east Transvaal race being separated as *R. c. capricornis*, and coming nearer to the Nyasa *R. c. neumanni*, which is paler. Probably owing to its small size, the steinbok has managed to escape the fate that has befallen so many South African antelopes. Wherever the traveller journeys on the veldt, he is

#### STEINBOK

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 exist in the heart of the Kalahari, where water may not occur for fifty miles.

Length on front.	Circum- ference.	Tip to Tip.	Locality.			Owner.
$7\frac{1}{2}$	$\mathbf{I}_{\pm}^{3}$	$3\frac{1}{2}$	Cape Colony .	•	•	D. Mackintosh. (See illustration.)
$6\frac{1}{2}$	2	$2\frac{3}{4}$	;			Sir Owen Philipps.
6	2	$2\frac{1}{4}$	N. Transvaal.			Hon. Walter Rothschild.
5룹	$I\frac{3}{4}$	$I\frac{5}{8}$	East Africa .			Percy C. Madeira.
5 <del>1</del> 8		$2\frac{5}{8}$	Near Middelburg			Major E. H. E. Abadie.
5 <sup>3</sup>	2	I <sup>7</sup> / <sub>5</sub>	South Africa .			Sir Edmund G. Loder, Bart.
$^{1}5^{\frac{1}{2}}$		$I\frac{9}{1.6}$	Kimberley .			F. C. Selous.
51 <sup>7</sup> 6		$2\frac{5}{8}$	Cape Colony .			British Museum.
5흫	2	$1^{3}_{4}$	East Africa .			E. Gedge.
5흫	$2\frac{1}{4}$	$2\frac{3}{8}$	Ş			G. B. Plumptre.
5‡		" I <u>1</u>	South Africa .	•		J. B. Neilson.
51	$\mathbf{I}\frac{7}{8}$	$2\frac{3}{8}$	Do			Capt. Lord R. Wellesley.
5‡	$I\frac{7}{8}$		East Africa .			Capt. E. H. Sinkinson.
$5^{\frac{1}{4}}$	13	$2\frac{1}{8}$	Cape Colony .			E. McClellan.
5흉	$1\frac{3}{4}$	$I\frac{7}{8}$	East Africa .	•		F. C. Selous.
5 <sup>1</sup> 8	$\mathbf{I}_{\frac{3}{4}}$	$\mathbf{I}\frac{7}{8}$	Do			Mrs. Percy C. Madeira.
¥ 5			Do	•	•	J. G. Millais.

<sup>1</sup> Killed with hounds.

#### OWNER'S MEASUREMENTS.

$7\frac{3}{8}$			Cape Colony.	•	C. S. Mann.
$6\frac{7}{8}$			Graaf Reinet, C.C.		American National Collection.
5분	$I\frac{7}{8}$	3	?		Mr. Justice Hopley.
$5\frac{3}{4}$	12	$I\frac{7}{8}$	?		J. Whitaker.
58	13	$2\frac{1}{4}$	?		Major H. Chamney.
58	2	I 1/4	?		Sir Abe Bailey.
5 <del>호</del>	$I\frac{3}{4}$	$\mathbf{I}_{\pm}^{\underline{B}}$	Griqualand, West .		A. F. Williams.



Skull and Horns of Sharpe's Steinbok.

# SHARPE'S STEINBOK (Rhaphiceros sharpei).

This species has the white-speckled chestnut coat of a grysbok, coupled with the feet of a steinbok. The crown of the head has a crescent-shaped black mark; and the large ears are very sparsely haired externally.

Distribution.—Nyasaland and Rhodesia; represented by a local race, R. s. colonicus, in North-eastern Transvaal and Swaziland.

Length on front.	Circum- ference.	Tip to Tip.	Locality.		Owner.
$2rac{3}{16}$	13	$I\frac{3}{4}$	B.C. Africa .		H. S. Buist.
$I^{\underline{3}}_{\underline{4}}$ .	I 7 0		Near Tete		D. D. Lyell.
$I\frac{5}{8}$		15	N.E. Rhodesia .	•	Major L. Boyd-Moss.
$I_{\frac{9}{16}}$	$I\frac{1}{2}$	$\mathbf{I}rac{1}{2}$	Lower Shiré River		Lord William Percy.
$\mathbf{I}\frac{1}{2}$	•••	2	B.C. Africa		R. C. Wood.
$I\frac{1}{2}$	$I\frac{1}{2}$	$2\frac{1}{8}$	Do		Dr. J. O. Shircore.
$I\frac{1}{2}$	$I\frac{1}{2}$	$\mathbf{I}\frac{1}{2}$	N.W. Rhodesia .		Marquis Pizzardi.
11	I 1/4	15	N.E. Rhodesia .		Hon. Walter Rothschild.
I 1	$I\frac{7}{8}$	IS	B.C. Africa		L. H. Cripps.

#### OWNER'S MEASUREMENTS.

2	 	N.W. Rhodesia	•	Dr. A. H. B. Kirkman,
2	 	Do.		C. S. Mann.

# GR YSBOK



Head of Steinbok.

# The GRYSBOK (Rhaphiceros [Nototragus] melanotis).

Isikupi, Basuto. Kulu, Makua. Timba, Chila.

Grysbok retain the lateral hoofs, which have disappeared in steinbok, and are further distinguished by the fur showing a large admixture of white, instead of being uniformly coloured. Height at shoulder, 22 inches. Weight, 24 lbs. The species has been made the type of a separate genus—*Nototragus*.

*Distribution.*—South Africa, extending as far north as Natal and Mozambique.

Length on front.	Circum- ference.	Tip to Tip.	Locality.		Owner.
- 4 <del>3</del>	$I\frac{1}{2}$	$\mathbf{I}_{\overline{S}}^{\underline{7}}$	Cape Colony.		. R. A. Cooper.
$4\frac{1}{2}$	II	2	Do		. LieutCol. H. J. G. Lloyd.
$4\frac{1}{2}$		$I\frac{1}{2}$	Do		. Sir Owen Philipps.
35	13	$2\frac{1}{4}$	Knysna, C.C.		. Commander the Hon. R. O. B. Bridgeman, R.N.
37 <sup>9</sup>	$\mathbf{I}\frac{4}{3}$	$\mathbf{I}\frac{7}{8}$	Cape Colony.		. F. C. Selous.
$3\frac{1}{4}$	$I\frac{1}{2}$	I <del>3</del>	Knysna .		. Sir II. J. Goold-Adams.
		OV	VNER'S MEAS	URE	EMENTS.
45		$I\frac{3}{4}$	Cape Colony .		. P. C. Keytel.

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Caledon, C.C. . . South African Museum.

## RECORDS OF BIG GAME



Head of Klipspringer.

### The KLIPSPRINGER (Oreotragus saltator).

Alakud, Somali. Chipomco, Chilala. Chinkomo, Chinyanja. Ingululu, Makalaka. Ikumi, Basuto. Klipbok, Boer. Ligoka, Zulu and Swazi. Njereri, Batoka. Sassa, Abyssinian. Ngombani, Chila.

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 hairs are olive-grey tipped with golden yellow, thus giving the characteristic speckled hue to the coat. Height at shoulder, from about 20 to 22 inches.

Distribution.—Mountainous and rocky districts in South and East Africa, from the Cape northwards to Nigeria in the west and Abyssinia in the east. The species has been divided into several local races of which the typical southern one has relatively short ears, with little black on them. In the East African O. s. schillingsi the females carry horns; the Nigerian race is O. s. porteousi.

# KLIPSPRINGER

Length on front.	Circum- ference.	Tip to Tip.	Locality.			Owner.
5 <u>1</u> 8	$2\frac{1}{4}$	15	N.E. Rhodesia			P. M. Stewart.
$5\frac{1}{2}$	$2\frac{3}{8}$	15	P.E. Africa .			Hon. Walter Rothschild.
5량	2	$2\frac{1}{8}$	N.E. Rhodesia			Dr. F. O. Stoehr.
$5\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{1}{4}$	Swaziland .			C. H. Taylor.
5 <sup>1</sup> / <sub>8</sub>	2	$2\frac{1}{4}$	Lebombo Mts.			R. T. Coryndon.
$4\frac{3}{4}$	$I\frac{3}{4}$	$2\frac{3}{8}$	East Africa .			Capt. W. B. Brook.
$4\frac{3}{4}$	2	$2\frac{1}{2}$	Nyasaland .			J. Stewart Wells.
$4\frac{3}{4}$	$2\frac{3}{8}$	$2\frac{1}{8}$	Rhodesia .			Col. Lord Douglas Compton.
45	2	$2\frac{1}{2}$	East Africa .		•	Capt. J. N. Price Wood.
$4\frac{1}{2}$	$2\frac{1}{16}$	$2rac{1}{1}rac{1}{6}$	Witberg, Cape C	olony		H. A. Bryden.
$4\frac{1}{2}$		23	N.E. Rhodesia		·	Major L. Boyd-Moss.
$4\frac{1}{3}$	$2\frac{1}{2}$	$2\frac{1}{2}$	?			Capt. J. Harington.
$4\frac{1}{2}$		$I\frac{3}{4}$	S. Rhodesia .	•		Major L. Williams.
$4\frac{1}{2}$	2	$3\frac{1}{4}$	East Africa .			E. Gedge.
$4\frac{1}{2}$		28	Do			Sir Owen Philipps.
$4\frac{1}{2}$	$2\frac{1}{4}$	$2\frac{l}{s}$	B.C. Africa .	•		E. Homer.
$4\frac{7}{16}$	$2\frac{1}{8}$	$2\frac{1}{8}$	E. Mashonaland	•		F. C. Selous.
$4\frac{3}{8}$	$I\frac{3}{4}$	$2\frac{1}{4}$	Matabililand			Hon. R. A. Ward.
43	21	$2\frac{1}{4}$	N.E. Rhodesia	•	•	H. Cookson.
43	$2\frac{1}{4}$	$2\frac{1}{8}$	East Africa .			W. H. Levy.
43		$2\frac{1}{8}$	Do	•		G. B. Blackwell.
43	2	2	Somaliland .			Capt. C. Steele.
41	$2\frac{1}{4}$	$2\frac{5}{8}$	Do	•	·	Capt. R. A. McClymont.
41	2	$2\frac{1}{4}$	Do	•	•	A. de L. Long.
4 <sup>1</sup> / <sub>8</sub>	$2\frac{1}{2}$	I <del>3</del>	North Nyasaland	ι.	·	James Yule.
4	$I\frac{7}{8}$	2	Sudan			Major H. H. S. Morant.
Ŷ 4	2	$2\frac{1}{4}$	East Africa .			Capt. R. Hall.
378	$I\frac{7}{8}$	$2\frac{1}{4}$	Abyssinia .			Major P. H. G. Powell-Cotton.
375	2	$2\frac{1}{4}$	Do			J. H. Miller.
$3^{\frac{1}{1}\frac{1}{6}}$		$2\frac{3}{8}$	N. Nigeria .			British Museum (Dr. E. J. Porteous).
♀ 3‡	13	2	East Africa .			Stephenson R. Clarke.

## OWNER'S MEASUREMENTS.

57	2‡	3	Transvaal .		C. S. Mann.
우 4 <del>홍</del>	2	$I_{1}^{1}\frac{3}{6}$	East Africa .		Capt. R. S. Hart.

# RECORDS OF BIG GAME



Frontlet and Horns of Waterbuck.

### The WATERBUCK (Cobus ellipsiprymnus).

Chuzu, Chilala and Chizenga. Kring-gaat, Boer. Li Tumogha, Matabili. Mukulo, Chila. M'dongoma or Matutwi, Barotsi. Kuru, Swahili. Tumoga, Bechuana. Na'Toro, M'Kua.

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, rudimentary 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 check-teeth are tall and narrow. In the waterbucks and kobs, which include the largest representatives of the

#### WATERBUCK

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. Its present strongholds are the districts between the Sabi and Zambesi, the affluents of the latter, and the Chobi, Okavango, and other rivers above Lake Ngami; it occurs locally in Mozambique and Portuguese Amatongaland; but in Barotsiland, N.W. Rhodesia, it is stated to be replaced by the defassa. White waterbuck, with eyes of normal colour, occur on the Guasu-nyero, near the Lorian swamp, B.E. Africa. Numerous local races have been named.

Length on front.	Circum- ference.	Tip to Tip.	Locality.			Owner.
36‡	$8\frac{3}{4}$	$20\frac{1}{4}$	Delagoa Bay .			American National Collection.
35	$9^{\frac{3}{4}}$	$16\frac{3}{4}$	Sabi River .			Major J. Stevenson Hamilton.
$33\frac{1}{2}$	9 <sup>1</sup>	$2Irac{1}{2}$	S.E. Africa .			Hon. Walter Rothschild.
33	$8\frac{3}{4}$	223	Nyasaland .			Capt. R. Meinertzhagen.
33	9흫	II $\frac{1}{2}$	Mashonaland .			British Museum (F. C. Selous).
33	$8\frac{3}{4}$	24	Do			J. G. Millais.
32 <u>3</u>	$9^{\frac{3}{4}}$	218	South Africa .			Sir Victor Brooke's Collection.
32 <u>§</u>	83	251	N. Transvaal .			Major F. W. Jarvis.
$32\frac{1}{2}$	$9^{\frac{1}{2}}$	$29\frac{1}{2}$	N.W. Rhodesia			R. T. Coryndon.
32	IO	$22\frac{1}{2}$	Rhodesia .			Val Gielgud.
31 <u>3</u>	9 <del>1</del>	24	Zululand .			Major L. O. Williams.
31 <sup>3</sup> / <sub>4</sub>	II	183	N.W. Rhodesia		•	J. H. Leche.
31 <u>3</u>	$8^{1}_{\pm}$	$22\frac{1}{2}$	P.E. Africa .			British Museum (the late Rowland Ward).
$31\frac{1}{2}$	91	I 3 <sup>1</sup> / <sub>4</sub>	Do			J. Pinto Leite.
$31\frac{1}{2}$	9	$23\frac{1}{4}$	Do			Sir Owen Philipps.
$31\frac{1}{4}$	9	16	East Africa .			A. Saunderson.
314	$IO_{\overline{S}}^{1}$	138	Pungwe			Earl of Dunmore.
311	$9\frac{5}{8}$	191	South Africa .	•	·	Sir Edmund G. Loder, Bart.

# RECORDS OF BIG GAME

Length on front.	Circum- ference.	Tip to Tip.	Locali	ty.			Owner.
31	$9^{\frac{1}{2}}$	22	Zululand				R. D. Talbot.
31	$9^{\frac{1}{2}}$	15	Rhodesia				A. W. Griffin.
31	$S^{\underline{3}}_{\underline{4}}$	32	Zambesia				R. H. Storey.
31	$9\frac{1}{2}$	22	Mashonaland				F. C. Selous.
30 <del>3</del>	$9\frac{1}{2}$	27	E.C. Africa				C. E. Dashwood.
30 <u>3</u>	$9^{1}_{\pm}$	$24\frac{1}{4}$	Ngamiland	•			Mervyn G. Williams.
30 <u>3</u>	8	$23\frac{1}{4}$	Pungwe .	•			Col. Lord Douglas Compton.
30 <u>3</u>	$S^{1}_{4}$	$24\frac{1}{2}$	Do	•	•	•	J. C. Phillips.
$30\frac{1}{2}$	$8\frac{3}{4}$	25	Nyasaland				S. Robins.
$29\frac{3}{4}$	9	151	Rhodesia	•			C. W. Adams.
$29\frac{3}{4}$	$S_{\frac{3}{4}}^{\frac{3}{4}}$	25	East Africa	•			J. Giffard.
29	9	10	P.E. Africa		•		R. Elliott-Cooper.
29	$8\frac{1}{2}$	$32\frac{3}{4}$	Do.				Rhys Williams.
29	$9\frac{1}{2}$	26	East Africa				E. Gedge.
29	9	$23\frac{3}{4}$	S.E. Africa		•		R. E. Critchley-Salmonson.
29	$9\frac{1}{2}$	$16\frac{1}{2}$	East Africa	•	•	•	Col. W. H. Williams.
$28\frac{3}{4}$	$8\frac{1}{2}$	23	Lake Baringo	•			H. Hyde-Baker.
$28\frac{3}{4}$	81	$8\frac{1}{2}$	P.E. Africa			•	Capt. R. A. McClymont.
$28^{3}_{4}$	$IO_2^1$	I 3 <sup>1</sup> / <sub>4</sub>	Rhodesia	•	·		Dr. Sauer.
$28\frac{1}{2}$	$IO_2^{\underline{1}}$	$22\frac{1}{2}$	Do.	•			W. Harcourt Webb.
$28\frac{1}{2}$	IO	${}^{\rm I}5{}^{1\over 2}$	S.E. Africa	•			H. W. Elliott.
$28\frac{1}{2}$	$9\frac{1}{4}$	$20\frac{3}{4}$	N.E. Rhodesi	ia		•	F. H. Melland.
$28\frac{1}{2}$	$9\frac{3}{4}$	10	East Africa		•	•	G. de P. Colvile.
$27\frac{3}{4}$	8	18	Somaliland			•	A. E. Butter.
27	$8\frac{3}{4}$	$2I_{4}^{1}$	Gallaland	•	•	•	Ivor Buxton.

# OWNER'S MEASUREMENTS.

36 <del>3</del>		39	?	C. S. Mann.
35‡	9	14	?	Mr. Justice Hopley.
$34\frac{1}{2}$			Limpopo Valley, S.E. Africa	H. T. and A. H. Glynn.
33	83	I7寺	Do	A. Ohlsson.
31=	81	$21\frac{7}{8}$	North of Pungwe	Count E. Hoyos.
311	9	17	?	Sir Abe Bailey.



Skull and Horns of Defassa Waterbuck, in the Tervueren Museum.

#### The DEFASSA or SING-SING WATERBUCK (Cobus defassa).

Defassa, Abyssinian.Pior, Dinka.Gŭrŭmes, Galla.Katambur, Sudani.Nsama, Waganda.Kuru, Swahili.

Distinguished from the typical waterbuck by the general presence of a large white patch on the lower part of the buttocks, instead of a white elliptical ring extending higher up. Several local races of this species have been named. Among these, the West African or sing-sing (*C. d. unctuosus*), of Senegal, Nigeria, etc., is characterised by its rufous colour and the small amount of white in the region of the eye; Crawshay's defassa (*C. d. crawshayi*), from Nyasaland, has a dusky coloration and shorter horns; while in the Angola defassa (*C. d. penricei*), from the interior of Benguela, Angola, the general colour is so dark as to appear almost black at a distance. Then follows the typical Abyssinian defassa (*C. d. typicus*), from Western Abyssinia, but generally stated to extend through Sennar, Kordofan, and the valley of the White Nile to British and German East Africa. The ears are longer and more pointed, and there is more white in the region of the eye than in the preceding races; the general colour being brownish rufous. Nearly allied are *C. d. matschiei* of Lake Abaya and *C. d. ugandæ*, of Uganda; the latter characterised by its bright rufous colour, especially on the forehead, and having the finest horns of all. Many other names have been given to local forms.

Length on front.	Circum- ference.	Tip to Tip.	Localit	y.			Owner.
34‡	81	18	White Nile				G. W. Egerton.
$-33\frac{1}{2}$			Bahr-el-Ghazal				A. L. Butler.
$-33\frac{1}{2}$	$8\frac{1}{2}$	$32\frac{1}{2}$	G.E. Africa				S. E. White.
331-	81	$25\frac{1}{2}$	Sudan .				Capt. C. E. Hills.
33‡	8 <u>1</u>	194	Pibor River				Capt. H. V. Venables Kyrke.
33	8	17	Sudan .				Lord Desborough.
33	9	311	East Africa				J. Jay White.
$32\frac{3}{4}$	$8\frac{3}{4}$	22	Do.				Hon. H. Brougham.
$32\frac{3}{4}$	$8\frac{1}{2}$	$2I\frac{1}{4}$	Sudan ,				N. C. Cockburn.
$32\frac{1}{2}$	$8\frac{1}{4}$	181	Bahr-el-Ghazal				R. Colville.
$32\frac{1}{2}$	9	183	Do.				Capt. E. P. Blencowe.
$32\frac{1}{2}$	$8\frac{3}{4}$	25 <sup>3</sup> / <sub>4</sub>	Do.			•	Sir Robert Harvey, Bart.
$32\frac{1}{2}$	$8\frac{1}{2}$	18	Sudan .				Major P. M. Dove.
321	$8\frac{3}{4}$	$20\frac{1}{4}$	Do				A. J. Grieve.
321	85	30	East Africa				Baron M. de Rothschild.
321	$8\frac{3}{4}$	$24\frac{3}{4}$	Dinder Valley				C. E. Russell.
321	9‡	$17\frac{3}{4}$	Abyssinia Borde	er			Capt. J. A. Pollock.
321	8	$20\frac{1}{2}$	Sudan .				LieutGen. Sir B. T. Mahon.
32	9	$22\frac{1}{2}$	Bahr-el-Ghazal		•		LieutCol. G. Christian.
32	9	20	Sudan .	•			Major C. S. Cumberland.
32	9	$26\frac{3}{4}$	Do				C. E. Oakley.
313	$8\frac{3}{4}$	16 <u>1</u>	Do	•			Capt. J. P. V. Hawksley.
311	8	I 5 <sup>1</sup> / <sub>4</sub>	Do				F. W. Greswolde-Williams.
313	8	$20\frac{3}{4}$	Do	•			S. H. Whitbread.
311	101	$22\frac{3}{4}$	East Africa	•			E. H. Litchfield.
317	9랿	$II\frac{3}{4}$	Do.			•	Major G. A. Swinton Home.
31‡	7.1	24	Sudan .				Capt. E. C. Hamilton.
31	9	20	East Africa				B. Dominick.
31	81/2	$17\frac{1}{2}$	Sudan .	•		•	Earl of Kingston.
31	$8\frac{1}{2}$	14 <u>3</u>	Do				LieutCol. J. W. Yardley.
31	9 <del>3</del>	$18\frac{1}{2}$	East Africa		•		N. E. F. Corbet.
30 <u>3</u>	81	34	Sudan .				W. F. Wailes-Fairbairn.
30 <sup>3</sup>	$9\frac{1}{2}$	15	Do	•	•	•	E. M. Tabor.

A.-ABYSSINIAN DEFASSA (C. defassa typicus).<sup>1</sup>

- Owner's measurements.

<sup>1</sup> Inclusive of the large number of local forms named by Dr. Matschie.

# DEFASSA

Length on front.	Circum- ference.	Tip to Tip.	Locality.		Owner.
30 <u>3</u>	II	$28\frac{1}{2}$	East Africa .		W. N. McMillan.
$30\frac{3}{4}$	10	I2 <sup>3</sup> / <sub>4</sub>	Do		Duke of Alba.
303	10‡	$20\frac{3}{4}$	Do		H. Sampson.
30 <sup>3</sup> / <sub>4</sub>	$8\frac{1}{2}$	24	Dinder Valley .		Lord Villiers.
30 <sup>3</sup>	83	20	Sudan		Capt. Lord R. Innes-Ker.
$30\frac{1}{2}$	83 ,	21	?		N. E. Waterfield.
301	10	16	East Africa .		H. G. Watson.
30 <sup>1</sup> / <sub>2</sub>	8 <u>1</u>	$17\frac{1}{2}$	Sudan		W. D. Roberts.
30 <sup>1</sup> / <sub>2</sub>	83	$9\frac{1}{2}$	Do		N. Macklin.
301	91	$15\frac{1}{2}$	Do		Major F. F. Carroll.
30 <sup>1</sup> / <sub>2</sub>	83	25	East Africa .		Earl of Warwick.
$30\frac{1}{2}$	9§	16	Do		Capt. H. C. S. Ashton.
3012	9‡	$14\frac{3}{4}$	Do		J. G. Millais.
$30\frac{1}{2}$	81	191	Sudan		Major R. M. Sanders.
30‡	8 <u>1</u>	28 <u>3</u>	Do		R. H. Willan.
30‡	8	18 <u>1</u>	Do		Col. A. Colville.
$30\frac{1}{4}$	8	$19\frac{1}{2}$	Do		W. Mure.
30‡	IO	$2I\frac{3}{4}$	East Africa		Gerard Buxton.
30‡	9½	138	Do		Capt. R. Clemm.
30 <del>1</del>	9章	$12\frac{1}{2}$	Do		G. P. L. Cosens.
30	81	18	Sudan .		R. McD. Hawker.
30	$8\frac{1}{2}$	301/2	Do		Capt. O. C. Downes.
30	8 <u>1</u>	21	Do		Capt. G. S. Nickerson.
30	8 <u>3</u>	16	Do		Capt. H. Craufurd.
30	9`	12	East Africa .		Duke of Medinaceli.
30	101	15	Do		R. B. Loder.
30	$9\frac{1}{2}$	18	Do		Sutton Timmis.
30	8	101	Do		H. Fowler.
30	8 <u>‡</u>	2I1	Sudan		C. C. Branch.
30	9 <sup>3</sup> / <sub>4</sub>	12	Do		W. R. Rhinelander Stewart.
29 <sup>3</sup> / <sub>4</sub>	9 <sup>1</sup> / <sub>2</sub>	$14\frac{1}{2}$	East Africa		S. S. Steel.
29 <sup>3</sup> / <sub>4</sub>	9‡	201	Do.		A. G. Murray Smith.
29 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>2</sub>	$2I\frac{1}{2}$	Do		F. C. Havemeyer.
29 <sup>3</sup> / <sub>4</sub>	83	151	Sudan		Major A. J. B. Percival.
29 <sup>3</sup> / <sub>4</sub>	83	18	Do		Capt. E. S. Stephenson.
29 <sup>3</sup> / <sub>4</sub>	81	12	Do		G. Munn.
29 <sup>3</sup> / <sub>4</sub>	83	16 <u>3</u>	Do ·		C. A. Munn.
29 <sup>3</sup>	81	$21\frac{1}{2}$	Do		Capt. R. F. Balfour.
29 <sup>3</sup> / <sub>4</sub>	9‡	23 <sup>1</sup> / <sub>4</sub>	Do		W. H. Lindsay.
$29\frac{1}{2}$	83	17	Do		Capt. C. Leigh.
$29\frac{1}{2}$	8 <u>3</u>	18 <u>5</u>	Do		Capt. the Hon. M. P. Macnaghten.
$29\frac{1}{2}$	$9\frac{1}{2}$	18 <u>3</u>	Do		Capt. J. G. A. Massy.
$29\frac{1}{2}$	10	20	East Africa .		O. Mosley.
$29\frac{1}{2}$	9	$19\frac{1}{2}$	Do		G. P. Gough.
$29\frac{1}{2}$	83	15	Do		W. Sewall.
$29\frac{1}{2}$	10	I 5 <sup>1</sup> / <sub>2</sub>	Do		Capt. M. L. Pears.
			-		0

# RECORDS OF BIG GAME

Length on front.	Circum- ference.	Tip to Tip.		Loca	lity.			Owner.
$29\frac{1}{2}$	9	17‡	East Afr	ica				A. Vonwiller.
$29\frac{1}{2}$	$9\frac{1}{2}$	194	Do.					G. de P. Colvile.
$29\frac{1}{2}$	9	22	Sudan					Major C. P. B. Wood.
$29\frac{1}{2}$	8	21	Do.					C. R. Gurney.
<b>2</b> 9‡	$7\frac{3}{4}$	33	Do.					Major the Hon. H. Fraser.
29‡	$8\frac{1}{4}$	16 <u>1</u>	Do.			•	•	F. L. Slade.
29‡	9‡	24	Do.					Capt. P. M. Larken.
291	9홍	19	Do.					Norman B. Smith.
29‡	8	10 <u>3</u>	Do.					H. W. Thornton.
$29\frac{1}{4}$	9	$21\frac{1}{2}$	Do.					A. Robinson.
29‡	$8\frac{1}{2}$	231	Do.					C. D. Eyre.
$29\frac{1}{4}$	9	17	East Afri	ca				Sir Kenneth Crossley.
29‡	9	$19\frac{1}{2}$	Do.					Viscount Ennismore.
$29\frac{1}{4}$	$9\frac{1}{2}$	$2I\frac{3}{4}$	Do.					Sir H. Seton Karr.

# B.----UGANDA DEFASSA (C. defassa ugandæ).

Length of front.	on Circum- ference.	Tip to Tip.	Local	ity.			Owner.
37 <sup>3</sup>	$8^{3}_{\pm}$	258	Kivu District		•	•	Tervueren Museum. (See illus- tration.)
36 <u>3</u>	9흫	36	Nr. Lake Alber	t Edv	ward		A. F. R. Wollaston.
363	9	$20\frac{1}{2}$	Do.				F. A. Knowles.
36 <u>3</u>	$8\frac{1}{2}$	$19\frac{1}{2}$	Semliki Valley				Duke of Peneranda.
$135\frac{1}{2}$	$IO_2^1$	$22\frac{1}{2}$	Uganda .				Major de Courcy Ireland.
35	91	$29\frac{3}{4}$	Lake George				Col. C. F. Blane.
34 <sup>3</sup> / <sub>4</sub>	$9\frac{1}{2}$	$22\frac{1}{2}$	Do				Dr. H. B. Owen.
345	$9\frac{1}{2}$	$35\frac{1}{2}$	Semliki Valley				The late G. G. Longden.
$34\frac{1}{2}$	85	27	Uganda .	•	•		British Museum (Sir F. J. Jackson).
34 <del>3</del>	$IO_8^1$	187	Edward Nyanza	•			Major P. H. G. Powell-Cotton.
341	IO	32	Uganda .				Capt. R. H. Leeke.
34 <del>1</del>	IOT	$23\frac{1}{2}$	Semliki Valley	•			Hon. G. Legge.
34‡	$9^{\frac{1}{2}}$	317	Uganda .	•		•	Douglas M'Douall.
34 <sup>1</sup> / <sub>8</sub>	83	$20\frac{1}{4}$	Toru, Uganda	•	•	•	British Museum (Sir H. H. Johnston).
335	$S_{2}^{1}$	27 ਵੈ	Do.	•	•		Sir F. J. Jackson.
33 <sup>1</sup> / <sub>2</sub>	$9\frac{3}{4}$	17	Lado	•	•	•	Major P. H. G. Powell-Cotton.
331	IO	$29\frac{3}{4}$	Semliki Valley		•		G. Blaine.
331	9	$19\frac{1}{2}$	Uganda .	•			E. Canaple.
334	$9\frac{1}{2}$	$22\frac{3}{4}$	Do	•			Hon. Walter Rothschild.
323	9	$18\frac{3}{4}$	Do	•			H. Twyford.
$32\frac{1}{2}$	81	27 <sup>3</sup> / <sub>4</sub>	Semliki Valley		•	•	Col. R. Bright.
321	$IO_2^1$	18	E. Congo .			•	Hon. M. W. Elphinstone.
321	9	$19\frac{1}{2}$	Edward Nyanza	1	•		Mrs. P. H. G. Powell-Cotton.
32	$9\frac{3}{4}$	22	Semliki Valley		•	•	R. de la Huerta.
318	9	21	Do.				Major R. A. Markham.
31‡	IO	261	Do.		•		D. Carruthers.
311	$9\frac{1}{2}$	21	Gondokoro	·	•	•	Major A. W. Jennings Bramly.

<sup>1</sup> In collection of Sir Hy. E. M. James.

### C.---RHODESIAN DEFASSA (C. defassa crawshayi).

<i>Idcittei</i> , Barotsi			Barotsi.	Ingonduma, Matoko.					
Length on front.	Circum- ference,	Tip to Tip.	Locality.			Owner.			
29	9	22	Lake Mweru .			Hon. Walter Rothschild.			
$27\frac{3}{4}$	81	20	N.W. Rhodesia			Capt. C. G. Leslie.			
$27\frac{1}{2}$	7훌	$12\frac{1}{2}$	N.E. Rhodesia .			G. Sandeman.			
$27\frac{1}{2}$	9	12	Do			P. M. Stewart.			
271	8	16 <u>3</u>	Lake Mweru .			K. C. North.			
27	91	17 <sup>1</sup> / <sub>2</sub>	Do			Capt. H. E. Hambro.			
27	$9^{\frac{3}{4}}$	I 2	N.W. Rhodesia			Capt. J. F. Laycock.			
27	83	175	N.E. Rhodesia .			W. A. Conduitt.			
267	83	13 <del>3</del>	Do			Capt. L. E. H. Molyneux-Seel.			
$26\frac{3}{4}$	9	$13\frac{1}{2}$	Nyasaland .			L. H. Cripps.			
$26\frac{3}{4}$	9	151	N.E. Rhodesia .	•	•	Major L. Boyd-Moss.			

# D.-WESTERN DEFASSA, or SING-SING (C. defassa unctuosus).

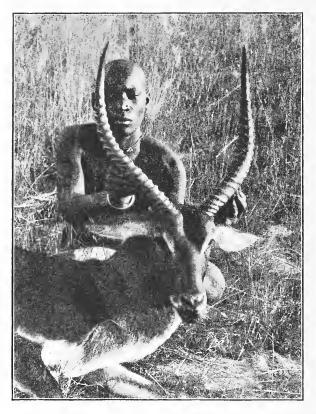
Dadoko and Gwombaza, Hausa. Sing-sing, Gambian.

Height at shoulder, 47 to 48 ins.

Length on front.	Circum- ference.	Tip to Tip.	Loc	ality.		Owner.
311	101	197	Sierra Leone			C. Cary Barnard.
$29\frac{3}{4}$	85	$21\frac{3}{4}$	N. Nigeria			Capt. N. K. Street.
291	7 소 `	23	Nigeria .			MajGen. P. S. Wilkinson.
29 <u>1</u>	81	$17\frac{1}{2}$	Do			R. Marmon.
281	81	191	Do			Capt. A. C. Aubin.
281	8	18 <u>3</u>	Do			Capt. H. T. G. Moore.
28	8	171	Sierra Leone			Major W. Gillman.
$27\frac{3}{4}$	8	15	Gambia .			H. North.
275	Sł	171	Nigeria .			W. F. Gowers.
$27\frac{1}{2}$	71	12	Do			Lady Constance Stewart Richardson.
27	8	141	Do			Capt. W. H. Wilkin.
26불	8	17±	Senegambia			G. Fenwick Owen.
261	7	191	Gold Coast			Capt. P. J. Mackesy.
26	7호	19‡	Nigeria .			Major E. M. Baker.

### E.-ANGOLA DEFASSA (C. defassa penricei).

Length on front.	Circum- ference.	Tip to Tip.	Lo	ocality.		Owner.
29 28를 25 <del>1</del> 24 <sup>1</sup> / <sub>2</sub>	8 <sup>3</sup> / <sub>4</sub> 7 <sup>1</sup> / <sub>4</sub> 8 <sup>3</sup> / <sub>4</sub> 8	18½ 9¾ 10¾ 9⅓	Benguela . Do Do Do			G. W. Penrice. Major Boyd A. Cuninghame. W. C. Neilson. Hon. Walter Rothschild.
28½ 28¼	8 <del>3</del> 81	20 I I <sup>1</sup> / <sub>2</sub>	OWNER'S Benguela . Do.	ME	ASUI	IENTS E. P. Cooper. A. Ohlsson.



Head and Fore-quarters of Lechwe. From a photograph by Mr. Poulett-Weatherley.

### The LECHWE (Cobus [Onotragus] leche).

<i>Umbundu</i> , Angola.	Lechi or Li-gwi, Makololo.
Lechwi, Barotsi and Ngami.	<i>Inya</i> , Masubia.
Mumembi (male), Ngia (female),	<i>Unya</i> , Makuba.
Chilala and Chibisa.	Bainanja, Mushu Kulumbwi.
Nainja,	Chila.

In this antelope the horns are relatively long, considerably exceeding twice the length of the head, and show a tendency to a double curvature; the front of the fore-legs is black, and the hair is long and coarse. Height at shoulder, 40 or 41 inches.

Like the puku, this antelope 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. 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 formed 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 year. Lechwe seldom venture into the deep rivers from fear of the crocodiles, but frequent the reed-beds, shallow lagoons, and flooded flats, and in the less accessible regions frequently occur in vast herds. Excellent swimmers they progress by a succession of splashing bounds at great speed through the lagoons and shallows. They are extremely tenacious of life.

Distribution.-Zambesia, Barotsiland, and Nyasaland.

Length on front.	Circum- ference.	Tip to Tip.	Locality.		Owner.
34 <del>3</del>	$8\frac{1}{2}$	14§	N.W. Rhodesia		O. C. Bevan.
33	9	19‡	Do.		Major G. A. Swinton Home.
33	$8\frac{1}{2}$	26	Do.		Major P. G. A. Cox.
32 <del>3</del>	8	29‡	Do.		R. C. Wood.
32‡	$7\frac{3}{4}$	193	Do.		G. L. Harrison.
$32\frac{1}{4}$	81	181	Do.		Earl of Kingston.
$32\frac{1}{4}$	9‡	$26\frac{1}{2}$	Do.		C. M. Rolker.
$31\frac{1}{2}$	8	22	Do.		Hon. Guy Wilson.
$3I\frac{1}{2}$	7	18	Do.		Col. C. Harding.
$31\frac{1}{2}$	8	19§	Do.		Capt. A. Willis.
$31\frac{1}{2}$	83	$2$ I $\frac{1}{2}$	Do.		Major G. J. Fitzgerald.
311	83	$24\frac{1}{2}$	Do.		Capt. F. W. Reichwald.
31 <u>1</u>	81	221	Do.		Capt. F. O. Grenfell.
31	8	$18\frac{1}{2}$	Do.		A. de L. Long.
31	$8\frac{1}{4}$	$23\frac{1}{4}$	Do.		W. H. Rawnsley.
31	83	13	Do.		P. K. Glazebrook.
30 <u>3</u>	8	251	Do.		G. de P. Colvile.
$30\frac{1}{2}$	8	${\rm I} 8^{\underline{3}}_{\underline{4}}$	Do.		LieutCol. R. W. R. Barnes.
$30\frac{1}{2}$	7분	25 <sup>3</sup> / <sub>4</sub>	Do.		H. M. P. Hewett.
30 <del>2</del>	$8\frac{1}{5}$	191	Do.		Sir Edmund G. Loder, Bart.
30 <del>1</del>	8	$20\frac{3}{4}$	Do.		Capt. R. A. McClymont.
30‡	$8\frac{1}{2}$	$2I\frac{1}{4}$	Do.		G. F. Watherston.

Length on front.	Circum- ference.	Tip to Tip.	Locality.		Owner,
30±	s	19 <u>1</u>	N.W. Rhodesia .		Capt. Viscount Bury.
304 30	8	25 <sup>2</sup>	Do		V. F. Bishop.
30 30	8±	20년 20년	Nyasaland.		J. H. Hayes.
30 29축	8 <u>1</u>	18 <del>3</del>	N.W. Rhodesia .		Capt. G. M. Lumsden.
29章 29章	8	20 <sup>3</sup> / <sub>4</sub>	Do		Duke of Westminster.
$29\frac{1}{2}$	8 <u>1</u>	17 <sup>1</sup> / <sub>4</sub>	Do		B. Ryan.
292 29 <del>3</del>	7 <sup>3</sup>	174 15章	Do	•	Sir J. Walton, Bart.
298 291	74 8 <u>1</u>	134 20북	Do	•	Major J. Carden.
294 29	8	19 <sup>1</sup> / <sub>2</sub>	Do		P. B. Vander Byl.
29 29	8	194 164	Do	•	Col. Lord Douglas Compton.
29 28 <del>3</del>	8	28½	Do	-	R. T. Coryndon.
28 <u>3</u>	7±	123 <u>2</u> 12 <u>1</u> 2	Do	•	H. H. Williams.
28 <u>3</u>	7∓ 8	12 <sub>2</sub> 18	Do		Capt. P. R. Bald.
-		13 16	Do	•	T. D. M. Cardeza.
28 <u>3</u> 28 <del>3</del>	81/2 12	21	Do	•	Capt. the Hon. G. H. Douglas-
-	$7\frac{1}{2}$			•	Pennant.
28 <u>3</u>	8	28	Do	•	Capt. J. F. Laycock.
28 <u>3</u>	81	$26\frac{1}{2}$	Do	•	Hon. Mrs. Guy Wilson.
28 <sup>1</sup> / <sub>2</sub>	$6\frac{1}{2}$	18	Do	•	Dr. Russell.
28 <u>1</u>	8	$17\frac{3}{4}$	Do	•	R. D. Waterhouse.
28	$7\frac{1}{2}$	17‡	Do		R. Beaumont.
$27\frac{3}{4}$	8	6	Ngamiland	•	A. G. Stigand.
$27\frac{1}{2}$	$7\frac{1}{2}$	14 <u>1</u>	Do	•	F. T. Garbutt.
$27\frac{1}{2}$	$10\frac{7}{3}$	19 <sup>1</sup> / <sub>8</sub>	Chobi Valley .		British Museum (F. C. Selous).
$27\frac{1}{2}$	8	$20\frac{1}{2}$	N.W. Rhodesia .	•	Lord H. Seymour.
$27\frac{1}{2}$	8	$17\frac{1}{2}$	Chobi Valley .	•	R. Campbell Heathcote.
$27\frac{1}{2}$	83	12	Do	•	Capt. C. G. Leslie.
		0	WNER'S MEASU	REM	IENTS.
$34\frac{15}{16}$	8‡	17	N.W. Rhodesia .		A. Faulkener.
33 <sup>1</sup> / <sub>2</sub>	7	$26\frac{3}{4}$	Lake Bangweolo		Poulett-Weatherley.
33‡		27	N.W. Rhodesia .		Major W. Q. Winwood.

In the *Field* of September 17, 1910 (vol. cxvi. p. 551), Mr. H. W. Martin states that he once came across a herd of white lechwe with black points, of which one was killed, but the skin subsequently lost. The locality is not mentioned.



Head of Black Lechwe.

### The BLACK LECHWE (Cobus [Onotragus] smithemani).

Nearly allied to the last, of which it may be only a local race, but the upper-parts of adult males blackish brown, and the horns with a more distinct double curvature.

*Distribution.*—Lake Mweru district, and thence to Lake Bangweolo, North-east Rhodesia. A North Rhodesian black lechwe has been separated as *C. robertsi*.

Length on front.	Circum- ference.	Tip to Tip.	Locality.			Owner.
29 <sup>3</sup>	75	19	N.E. Rhodesia			J. E. Hughes.
251	7	191	Do.			P. M. Stewart.
$-24\frac{3}{8}$	71	15	Do.			C. S. Mann.
$24\frac{1}{4}$	7	$14\frac{1}{2}$	Lake Bangweolo			Claude Francis.
23 <sup>3</sup>	7불	20불	Do.		•	Earl of Kingston.
$23\frac{1}{2}$	7불	I 2 <sup>3</sup> / <sub>8</sub>	Do.			Major L. Boyd-Moss.
$23\frac{1}{2}$	7월 7월	I 3‡	Do.	•		Capt. S. H. Christy.
231/2	$6\frac{3}{4}$	$22\frac{3}{4}$	Do.	•	•	J. Turner.
23‡ *	7幸	II 1 2	Do.	•	•	Hon. W. Guinness.
234	7_	13 <u>1</u>	Do.			W. A. Conduitt.
231	53	I I <del>7</del> 8	Do,	•	•	Hon. Walter Rothschild.
23 <u>3</u>	61	17	Do.	•		P. K. Glazebrook.
$22\frac{3}{4}$	$6\frac{1}{2}$	13 <del>3</del>	N.E. Rhodesia	•		R. Hayne.
$22\frac{3}{4}$	7초	17‡	Do.	•	•	A. de L. Long.
$22\frac{3}{4}$	65	II‡	Do.		•	G. F. Watherston.
$22\frac{3}{4}$	$6\frac{3}{4}$	I 5 1/2	Do.		•	F. H. Melland.
22	7	16	Do.	•		Capt. J. Harington.
22	7월	II 3	Do.	·	·	O. L. Beringer.



Head of Mrs. Gray's Lechwe.

### MRS. GRAY'S LECHWE (Cobus [Onotragus] maria).

This handsome species is distinguished by the long, slender, doubly curved horns, ridged nearly to the tips, and the blackish brown bodycolour of the old bucks; the dark colour being relieved by a whitish patch in front of the withers, the yellowish white ears, a yellowish white patch in front of and behind each eye, and the yellowish muzzle, chin, and lower part of the throat. The limbs and much of the underparts are wholly dark-coloured. Coat long and rough. Height at shoulder, about 38 inches. Young males and females of all ages are chestnut-coloured.

It seems not improbable that Mrs. Gray's lechwe is the supreme development of the lechwe stock (with which it agrees in its long, rough coat); thus occupying a position analogous to that held by the white-eared kob as compared with Buffon's kob. The black lechwe forms in some respect a connecting link between the true lechwe and

### MRS. GRAY'S LECHIVE

the present animal, in which the extreme blackness is doubtless due to the hot, moist climate of the Bahr-el-Ghazal.

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

Length on front.	Circum- ference.	Tip to Tip.	Locality.	Owner,
$34\frac{1}{4}$	$6\frac{7}{8}$	24	Sudan	J. C. Phillips.
$-33\frac{1}{2}$			Do	Lieut. W. Scott-Hill, R.N.
$32\frac{8}{4}$	61	18	Do	Col. A. Colville.
$-32\frac{3}{8}$			Do	C. S. Mann.
32 <del>1</del>	71	161	Do	Sir Abe Bailey.
32	$6\frac{7}{8}$		Near Junction of Bahr- el-Gebel and White Nile	Major H. N. Dunn.
31 <u>3</u>	$6\frac{1}{4}$	191	?	R. H. Willan.
-31‡	7봉	$1S_{\frac{1}{2}}^{1}$	Bahr-el-Ghazal	Sir W. Garstin.
311	$6\frac{3}{4}$	$II\frac{3}{4}$	Do	Norman B. Smith.
31	$7\frac{1}{2}$	$19\frac{1}{2}$	Sobat-Pibor District .	Capt. J. A. Pollock.
31	61	$2I\frac{1}{2}$	?	Col. J. J. Asser.
30 <sup>3</sup> / <sub>4</sub>	7	$2I\frac{1}{4}$	Bahr-el-Ghazal	Capt. A. H. Vivian.
305	7	14	Do	Capt. H. Gordon.
$30\frac{1}{2}$	7	9	Do	R. A. Colvin.
301	7	144	Bahr-el-Zaref	Capt. C. E. Hills.
30	7	$14\frac{1}{2}$	Do	Major W. H. Drake.
30	$6\frac{1}{2}$	$I4\frac{1}{2}$	Do	H. St. C. Garrood.
$29\frac{3}{4}$	$6\frac{1}{2}$	101	White Nile	Major P. M. Dove.
$29\frac{3}{4}$	75	174	Do	Countess of Sefton.
$29\frac{3}{4}$	6‡	12	Do	Hon. Walter Rothschild.
$29\frac{1}{2}$	71	16	Do	C. H. Goschen.
29‡	7불	194	Do	Major A. W. Jennings Bramly.
$29\frac{1}{2}$	$7\frac{1}{2}$		Do	N. C. Cockburn.
291	71	171	Sudan	Capt. C. Hankey.
29 <del>1</del>	7	$20\frac{3}{4}$	Do	Duke of Alba.
291	65	$12\frac{5}{8}$	Do	G. L. Wingfield.
29	$7\frac{3}{4}$	$12\frac{3}{4}$	Do	Col. E. G. T. Bainbridge,
29	7	16	Tonga Island, White Nile	Col. W. Hayes-Sadler.
29	7	$24\frac{1}{2}$	Sudan	G. W. Egerton.



Head of Western Kob. Shot by Lady Constance Stewart Richardson in Nigeria.

### THE KOB (Cobus [Adenota] cob).

Maria, Hausa.

There is little doubt of the existence of a more or less complete gradation from the wholly fulvous typical or Buffon's kob to the white-eared kob, in which the general colour of old bucks is blackish brown. The simpler form and smaller size of the horns affords a sufficient distinction from C. maria.

Distribution.- The Forest Zone and Swamps of the White Nile.

### A.—WESTERN RACES (C. cob typicus), etc.<sup>1</sup>

This race has the back of the ears rufous like the body: the horns are less than twice the length of the head, the hair is short, and the front of the fore-legs black. The approximate height at the shoulder is from 32 to 35 inches.

Distribution.-Gambia to Nigeria and Lake Chad district.

 $^1$  Several allied races have been described from the Lake Chad (Shari) district, which are included under the present heading.

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### KOB

Length on front.	Circum- ference.	Tip to Tip.	Locality.		Owner.
221	7	II 3	N. Nigeria .		Major E. M. Baker.
$22\frac{1}{8}$	7응	7축	Do		Capt. G. Bonham-Carter.
22	61	II3	Do		E. H. M. Bennett.
214	7 <sup>3</sup>	IO	Do		J. Goold Adams.
$2I\frac{1}{2}$	7‡	9초	Do		Capt. L. C. Brodie.
21	6 <u>1</u>	81	Do		Dr. C. W. O'Keefe.
21	6	141	Do		Lady Constance Stewart Richardson.
205	61/3	$9\frac{3}{4}$	French Congo		W. S. Race.
$20\frac{1}{3}$	$6\frac{3}{4}$	IO	Nigeria		Capt. W. H. Wilkin.
20 <sup>1</sup> / <sub>2</sub>	71	IO	Lake Chad .		Capt. L. C. Jackson.
$-20\frac{1}{2}$	7	$7\frac{1}{2}$	Nigeria		Capt. P. Chapman.
201 201	6 <del>1</del>	121	Do		Capt. A. B. Baillie-Hamilton.
20	7	7	Do		W. F. Gowers.
20	7	7 <sup>3</sup>	Do		Sir E. Stewart Richardson, Bart.
20	6 <u>§</u>	$6\frac{3}{4}$	Lake Chad .		Sir Edmund G. Loder, Bart.
20	7불	141	Do		Major J. B. Cockburn.
20	7	1018	Nigeria		C. S. Burnett.
193	7	31	Do		Major Lord J. S. Cavendish.
19 <del>3</del>	7흫	9	Lake Chad .		MajGen. T. L. N. Morland.
193	$6\frac{7}{8}$	71	Nigeria		Major A. H. Festing.
19 <sup>1</sup> / <sub>2</sub>	$6\frac{1}{2}$	8	Do		Major T. Astley Cubitt.
191	61	$6\frac{1}{2}$	Do		Capt. R. W. Fox.
19 <sup>1</sup> / <sub>2</sub>	6	14 <sup>1</sup> / <sub>2</sub>	N. Nigeria .		L. C. Murray.
$19\frac{1}{2}$	61	$5\frac{1}{2}$	S. Nigeria .		Capt. W. V. Nugent.
19‡	7	87	N. Nigeria		C. S. Mann.
191	6	ΊΙ <sup>1</sup> / <sub>8</sub>	Do.		Dr. G. J. Pirie.
19‡	6 <u>1</u>	$6\frac{1}{2}$	Do.		Capt. F. E. Bissell.
19‡	$6^{3}_{4}$	13	Lake Chad		Capt. J. C. Parker.
191	6 <u>3</u>	II	N. Nigeria		Major C. A. Booth.
19	$6^{3}_{4}$	$I3\frac{1}{2}$	Lake Chad		Capt. A. Noel Woods.
19	$6\frac{1}{2}$	II	Do.		Capt. S. B. B. Dyer.
19	$6^{3}_{4}$	$8\frac{3}{4}$	Nigeria		Capt. G. C. Kelly.
19	$6\frac{1}{2}$	$9\frac{3}{4}$	Do		D. W. Pawle.
181	6	5 <sup>3</sup> / <sub>8</sub>	Gambia .		G. Blaine.
17를	5 <del>3</del>	$6\frac{1}{8}$	S. Nigeria	•	C. E. Stewart.
$17\frac{1}{2}$	$6\frac{1}{2}$	$10\frac{3}{4}$	Sierra Leone		C. Cary Barnard.
171	6	$8^{3}_{4}$	Portuguese Gu	inea	M. V. Hay.
16 <u>7</u>	6	$IO_4^3$	Sierra Leone .		Major W. Gillman.
165	$6^{1}_{4}$	9 <del>5</del>	Portuguese Gu	inea	Major P. H. G. Powell-Cotton.
I 5½	6	$7\frac{3}{4}$	Senegambia		G. Fenwick Owen.
15	51	54	Gold Coast		Capt. G. H. Hastings.



Skull and Horns of Uganda Kob.

#### B.---UGANDA RACE (Cobus cob thomasi).

#### Nsuna, N'Sunu, or Sunu, Waganda.

From the typical Buffon's kob the eastern or Uganda race 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 35 inches.

Distribution.-East Africa, from Kavirondo to Uganda.

Length on front.	Circum- ference.	Tip to Tip.	Local	ity.		Owner.
$-24\frac{1}{4}$	7 불	12	Wadelai			Major G. A. S. Cape.
$23\frac{1}{2}$	71	$6\frac{7}{8}$	Mruli .	•	•	LieutCol. J. Ponsonby.

# KOB

Length on front.	Circum- ference.	Tip to Tip.	Locality.		Owner.
-23	$7\frac{1}{2}$	$16\frac{1}{2}$	Edward Nyanza	•	Mrs. P. H. G. Powell-Cotton.
$22\frac{3}{4}$	7 <sup>옵</sup>	$15\frac{1}{2}$	Uganda .	. +	P. F. Hadow.
$22\frac{3}{4}$	$7\frac{1}{8}$	1 I <sup>1</sup> / <sub>2</sub>	Do		Major C. A. Sykes.
$22\frac{1}{2}$	$7\frac{3}{4}$	14‡	Do		Capt. W. S. Nicolson.
$22\frac{1}{2}$	$6\frac{1}{2}$	$IO_{\frac{3}{4}}^3$	Albert Nyanza		Capt. P. Garrard.
221	8 <u>1</u>	$15\frac{1}{2}$	Uganda .		Major R. H. Price.
221	$6\frac{3}{4}$	$10\frac{3}{4}$	Do		Dr. Shircore.
22	$7\frac{1}{2}$	$12\frac{3}{4}$	Do		Capt. A. J. Whittle.
22	7	$7\frac{3}{4}$	Do		P. B. Vander Byl.
$21\frac{7}{8}$	7	154	Do		Capt. P. M. Larken.
$21\frac{3}{4}$	$6\frac{7}{8}$	$I2\frac{7}{8}$	Do.		Col. C. F. Blane.
$2I\frac{3}{4}$	$7\frac{3}{4}$	9	Do		Major R. A. Markham.
$21\frac{3}{4}$	$6\frac{3}{4}$	6	Do		G. C. Slacke.
$2I\frac{1}{2}$	$7\frac{1}{2}$	$IO\frac{1}{2}$	Do		Sir F. J. Jackson.
$2I\frac{1}{2}$	8	$9\frac{3}{4}$	Do		Douglas M'Douall.
$21\frac{1}{4}$	$6\frac{3}{4}$	13	Do		Sir F. J. Jackson.
$21\frac{1}{4}$	6§	$7\frac{1}{2}$	Do		R. de la Huerta.
$21\frac{1}{4}$	7‡ <sup>`</sup>	14	Do		Miss C. Buxton.
$-2Irac{1}{8}$	$7\frac{1}{2}$	I 3‡	Lado		Major P. H. G. Powell-Cotton.
2 I <sup>1</sup> / <sub>S</sub>	7‡	$7\frac{3}{4}$	Wadelai .		LieutCol. M. L. Carleton.
21	$6\frac{3}{4}$	5	Uganda .		G. L. Harrison.
21	74	II	East Africa .		F. C. Selous.
2 I	$6\frac{3}{4}$	$I4\frac{1}{2}$	Semliki Valley		M. P. Lupton.
21	$7\frac{3}{4}$	$9\frac{1}{2}$	Do.		R. E. Dent.

### C.--VAUGHAN'S RACE (Cobus cob vaughani).

Very similar to the last, but the general colour of old bucks at one season bright foxy red, much as in the typical race; the red extends on to the bases of the ears, and there is rather less white on the face than in the next race. Adult bucks may become more or less black at one season. Possibly the name *vaughani* will have to be replaced.

*Distribution.*—The south-western districts of the Bahr-el-Ghazal province.

Length on front.	Circum- ference.	Tip to Tip.	Locality.			Owner.
23	6	15 <sup>3</sup> / <sub>4</sub>	Nr. Wau .	·		Capt. L. D. Spencer.
$2I\frac{1}{2}$	$7\frac{1}{4}$	$9\frac{1}{2}$	Bahr-el-Ghazal			H. StC. Garrood.
$20\frac{1}{4}$	$6\frac{1}{2}$	I 2	Do.		•	Major P. M. Dove.
$20\frac{1}{4}$	7용	81/2	Do.			G. L. Wingfield.
$20\frac{1}{4}$	$6\frac{1}{2}$	II	Do.			C. Mathews.
20	$6\frac{3}{4}$	9 <del>§</del>	Do.	•	•	Major F. F. Carroll.
19‡	7	II $\frac{1}{2}$	Do.			Capt. P. E. Vaughan.
19	$6\frac{3}{4}$	51/2	Do.			J. C. Phillips.
18 <u>1</u>	$6^{3}_{\pm}$	7	Do.			Major J. L. J. Conry.
18‡	$6^{1}_{4}$	$8\frac{3}{4}$	Do.			Hon. Walter Rothschild.

#### D.-WHITE-EARED RACE (Cobus cob leucotis).

Hamaraia dyl, Sudani. Kala, Niam-Niam. Jwil, Dinka and Shooli.

The old bucks of this race 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 characterised 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. The direction of the hair on the middle line of the back 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.



Head of White-eared Kob.

Length on front.	Circum- ference.	Tip to Tip.	Locality.		Owner.
$^{1}24\frac{3}{4}$	7‡	11	Bahr-el-Ghazal .		Capt. J. P. V. Hawksley.
234	6‡	121	Do	•	Major A. J. B. Percival.
231	6‡	103	White Nile		C. Bulpett.
23 <del>1</del>	$6^{3}_{4}$	117	Sobat-Pibor District		Capt. J. A. Pollock.
23	$6\frac{1}{2}$	ю	White Nile	•	Capt. A. H. Vivian.
23	61	113	Bahr-el-Ghazal .		Sir Robert Harvey, Bart.
$22\frac{7}{8}$	$7\frac{1}{2}$	$15\frac{3}{4}$	White Nile		Capt. G. L. Cameron.
22 <sup>2</sup> / <sub>1</sub>	$6\frac{3}{4}$	I I 1	Do		W. H. Lindsay.
221/2	6 ′	105	Pibor District .	•	Capt. H. V. Venables Kyrke.
$22\frac{1}{4}$	$5\frac{3}{4}$	$\mathbf{I}\mathbf{I}\frac{1}{2}$	Sudan		E. M. Tabor.
22	$6\frac{1}{2}$	10	White Nile	•	F. W. Greswolde-Williams.
22	б	13	Do	•	Capt. A. Craufurd.
$2I\frac{3}{4}$	$6\frac{1}{2}$	$13\frac{1}{2}$	Do		Major J. H. Rivers.
$21\frac{3}{4}$	6	1412	Do		Lord Desborough.

<sup>1</sup> Determination provisional.

Length on front.	Circum- ference.	Tip to Tip.	Locali	ty.		Owner.
$2I\frac{3}{4}$	$6\frac{1}{2}$	9 <del>3</del>	White Nile .			E. C. Crispin.
2I <sup>3</sup> /4	$6\frac{3}{4}$	$8\frac{1}{2}$	Do			F. C. Selous.
$2I\frac{3}{4}$	$6\frac{1}{4}$	$7\frac{1}{2}$	Do			P. M. Tottenham.
$2I\frac{3}{4}$	$6\frac{7}{3}$	13 <sup>3</sup>	Do			F. L. Slade.
$2I\frac{1}{2}$	7‡	I2 $\frac{1}{4}$	Do			LieutGen. Sir B. T. Mahon.
$2I\frac{1}{2}$	7	II $\frac{1}{2}$	Do			H. Fitzroy.
$2I\frac{1}{2}$	$6\frac{3}{4}$	12	Do	٩		R. McD. Hawker.
$2I\frac{1}{2}$	$6^{3}_{4}$	10‡	Do			Capt. E. C. Hamilton.
$2Irac{1}{2}$	$6\frac{1}{2}$	7	Do			C. Bower Ismay.
$2I\frac{1}{2}$	$6\frac{1}{2}$	13	Do			C. de la Huerta.
$2I\frac{1}{2}$	6	91	Do		·	C. C. Branch.
$2I\frac{1}{2}$	$6\frac{3}{4}$	$7\frac{1}{2}$	Do			Major W. F. Sweny.
$2I\frac{1}{4}$	$7\frac{1}{2}$	I 2 <sup>1</sup> / <sub>4</sub>	Do			E. D. H. Tollemache.
$2I\frac{1}{4}$	6	131	Do			Capt. G. Stewart.
211	$6\frac{7}{8}$	II	Do		•	Major W. Hayes-Sadler.
$21\frac{1}{4}$	$6\frac{1}{4}$	8	Do			Major R. M. Sanders.
211	$6\frac{1}{2}$	$8\frac{1}{2}$	Do			Capt. H. R. Headlam.
2 I 1 ±	$6\frac{1}{2}$	4	Do			W. R. Rhinelander Stewart.
$2I\frac{1}{4}$	7	II $\frac{1}{2}$	Do			N. C. Cockburn.
$21\frac{1}{4}$	$7\frac{1}{4}$	9 <sup>3</sup>	Do			G. Munn.
$2I\frac{1}{4}$	71 `	15	Do		·	Capt. R. G. C. Brock.
211	6	II $\frac{1}{2}$	Do			Duke of Alba.
211	$6\frac{3}{4}$	$IO_S^{\frac{1}{S}}$	Do			G. L. Wingfield.
21	$6\frac{1}{2}$	83	Do		•	Capt. G. F. Pridham.
21	$6\frac{1}{2}$	$IO_2^{\frac{1}{2}}$	Do			J. H. Greathead.

### E.--LODER'S PUKU (C. cob loderi).

Typified by the under-mentioned skull, but probably identical with a puku-like kob subsequently described as *Adenota pousarguesi*. Horns of a somewhat puku-like type.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
2 I	8	81	?	Sir Edmund G. Loder, Bart.

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PUKU



Skull and Horns of Puku.

#### The PUKU (Cobus [Adenota] vardoni).

Impuku, Masubia. Muntinya, Barotsi. Puku, Ngami. Seūla, Chilala and Chibisa. Sichisunu, Chila.

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, including Barotsiland, very common, and found in small herds of ten to twenty in North-west and North-east Rhodesia.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
$20\frac{3}{4}$	7흉	17	N.E. Rhodesia .		Hon. Walter Rothschild.
$20\frac{1}{2}$	$6\frac{3}{4}$	II	N.W. Rhodesia .		Dr. Cole.
$-20\frac{1}{2}$	7	15	Do.		C. S. Mann.
$20\frac{1}{4}$	81	121	Lake Bangweolo		F. Smitheman.
20	7불	7‡	N.W. Rhodesia .		T. D. M. Cardeza.
19§	7 <sup>3</sup>	$6\frac{7}{8}$	N.E. Rhodesia .		W. A. Conduitt.
191	$6\frac{1}{2}$	4	Do	•	H. Cookson.
191	$7\frac{1}{2}$	9‡	?		T. G. Davey.
19 <sup>1</sup> / <sub>8</sub>	$6\frac{3}{4}$	$S_{2}^{1}$	?		J. Carr Saunders.
19	7ᡱ	$5\frac{3}{4}$	N.W. Rhodesia .		Major J. Carden.
19	7‡	8	N.E. Rhodesia .		F. H. Melland.
-19	$7\frac{1}{2}$	6	Do	•	J. C. Phillips.
18 <u>3</u>	8	6 <u>5</u>	Do		Earl of Kingston.
18 <del>3</del>	6 <u>3</u>	$8\frac{1}{2}$	N.W. Rhodesia.		R. T. Coryndon.
18 <u>3</u>	7	$6\frac{1}{2}$	?		J. L. Drège.
$\mathbf{I} \mathbf{S}_{\pm}^{\underline{3}}$	6	6	Nyasaland .		Dr. A. MacCarthy Morrogh.
$18\frac{1}{2}$	$6\frac{1}{2}$	91	?		S. R. Price.
$18\frac{1}{2}$	$6\frac{1}{2}$	$4\frac{1}{2}$	;		Sir Owen Philipps.
$18\frac{1}{2}$	7‡	7불	N.E. Rhodesia .		Col. C. F. Blane.
18 <del>1</del>	7	$8\frac{3}{4}$	;		W. H. Fountain.
181	71	8	?		Capt. G. M. Spencer-Smith
1 S‡	7‡	$7\frac{1}{2}$	N.E. Rhodesia .		P. M. Stewart.
18	7	$9\frac{1}{2}$	N.W. Rhodesia		Capt. H. E. Hambro.
18	7	I I 14	Do		Col. C. Harding.
18	7흫	6	Do		The late George Grey.
173	$6\frac{1}{2}$	$8\frac{1}{2}$	Do		Capt. A. L. Godman.
I7 <del>3</del>	6	$7\frac{1}{2}$	Do		J. Ripley.
17 <u>3</u>	71	8	Ulanga Valley .		R. Berridge.
175	$6\frac{1}{4}$	$9\frac{1}{2}$	N.E. Rhodesia .		J. Turner.
$17\frac{1}{2}$	$6\frac{3}{4}$	71	Tanganyika Plateau		Claude Francis.
17 <u>1</u>	$7\frac{1}{8}$	55	N.E. Rhodesia.		Col. A. Colville.
$17\frac{1}{2}$	71	14	N.W. Rhodesia		Capt. H. L. Archer-Houblon.
171	7	12 <u>5</u>	Do		Major A. H. Daukes.
$17\frac{1}{2}$	7	7	Do		E. McClellan.
$17\frac{1}{2}$	$7\frac{1}{2}$	5辈	Do		J. H. Leche.
$17\frac{1}{2}$	$6\frac{3}{4}$	8	Do		E. Fowler.
♀ <b>5</b> ੈ	38	51	Loru Valley .	•	J. Gibson Hall.



Head of Vaal Rhebok.

#### The GREY or VAAL RHEBOK (Pelea capreolus).

Vaal Rhebok, Cape Dutch. Iliza, Swazi.

Pshiatla, Basuto. Peeli, Bechuana.

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 grey, tending somewhat to fawn on the head and limbs. Height at shoulder, about 28 inches in females and 30 or 31 inches in males. The chief distinctions between this antelope and reedbuck are the form of the horns and the absence of the bare patches below the ears.

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 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 are wonderful. A peculiar feature of the vaal rhebok is the soft and woolly nature of the grey coat; the horns afford insignificant trophies, and the flesh is of poor quality.

Length on front.	Circum- ference.	Tip to Tip.	Locality.	Owner.
II $\frac{1}{2}$	$2\frac{1}{2}$	$4\frac{1}{2}$	?	Sir Owen Philipps.
$10\frac{3}{4}$	2	$2\frac{1}{2}$	Basutoland	Sir Abe Bailey.
$IO\frac{3}{16}$	$2\frac{1}{8}$	3	Cape Colony .	H. Hodgson.
IOlis	2	$3\frac{7}{8}$	Near Middelburg .	Major E. H. E. Abadie.
9‡	$2\frac{1}{2}$	$2\frac{3}{4}$	?	Dr. Oakeshott.
9	$2\frac{5}{8}$	$2\frac{5}{8}$	?	Mr. Justice Hopley.
85	25	$2\frac{1}{2}$	Cape Colony .	R. H. Venables Kyrke.
85	$2\frac{1}{2}$	$2\frac{5}{8}$	South Africa .	British Museum (Dr. Burchell).
81	$2\frac{1}{2}$	2	?	G. Richards.
8	$2\frac{1}{4}$	$2\frac{3}{4}$	?	Capt. R. Meinertzhagen.
8	2	$4\frac{1}{8}$	?	R. E. Critchley-Salmonson.
8	2	$3\frac{1}{2}$	?	V. Ryves.

#### OWNER'S MEASUREMENTS.

II $\frac{1}{2}$	•••		Spitzkop American National Collection.
1112	•••		Cape Colony . South African Museum.
105		6	Do E. T. Murray.
$10\frac{1}{2}$	$2\frac{1}{8}$	43	Transvaal H. T. and A. H. Glynn.
10 <u>1</u>	$2\frac{3}{8}$	512	? Major H. Chamney.
$9\frac{1}{2}$		31	? Major W. Anstruther Gray.
9 <del>8</del>	2	41	Basutoland Lord Milner.
9‡	$2\frac{1}{4}$	$2\frac{1}{2}$	Near Cape Town . Capt. W. Jardine.
9	$2\frac{1}{4}$	31	Natal C. S. Mann.



Head of Reedbuck.

### The REEDBUCK (Redunca<sup>1</sup> arundinum).

Rietbok, Cape Dutch. Bushmat, Sudani. Bemba, Masara. Inzigi, Amandebili. Im-vwi, Masubia. Um-vwi, Makuba. Inhlango, Swazi. Iklabu, Basuto. Impoyo, Lower Zambesi. Mziki, Zulu and Matabili. Natafwi, Mashukulumbwi. Mutobo, Barotsi. Sibughat, Ngami. Mpoyo, Chilala and Chibisa. N'tobi, M'Kua. Maluvwi, Chila.

Reedbucks, none of which is so large as a waterbuck, differ from the latter and the kobs by their 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 is more bushy and shorter, the lateral hoofs are relatively smaller, and the black horns, which are of medium length and stoutness, diverge in an upward and outward direction, with a forward curvature at the tips, which may be hooked. Till very late in life the basal portion of the horns is of a pasty consistence, and sportsmen's measurements on the field often include this. The present species, the true rietbok 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 curving regularly forwards without terminal hooks. Reedbuck are generally met with in small family parties, and when excited or alarmed utter a shrill whistle. Their flesh is of fair quality.

Distribution.—Africa, from the Cape to Angola on the western side, and on the eastern side through Mozambique and South Nyasaland to lat. 8° 25' N. in the Bahr-el-Ghazal district. As their name implies, reedbuck frequent the reed-brakes fringing so many African rivers; some of the rivers where they are still fairly abundant being the Lotsani in Bamangwato and those of Ngamiland and the country between Mashonaland and the east coast. The under-mentioned Rhodesian specimens probably belong to R, a. occidentalis, distinguished by a greyish tinge in the coat.

Length <sup>1</sup> on front curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.
17	6	$15\frac{3}{4}$	N.W. Rhodesia .			C. Mathews.
16 <u>3</u>	61	$15\frac{3}{4}$	Sabi River			Major J. Stevenson-Hamilton.
$16\frac{1}{2}$	$5\frac{3}{4}$	$14\frac{1}{2}$	P.E. Africa .			British Museum (the late Rowland Ward).
°16 <u>1</u>	6	$I2\frac{3}{4}$	Do			Hon. Walter Rothschild.
$16\frac{3}{8}$	63	11	N.W. Rhodesia .			Capt. P. R. Bald.
161	6	163	Matabililand .			R. C. Batley.
161	$6\frac{1}{2}$	$15\frac{1}{2}$	N.W. Rhodesia.			Col. Lord Douglas Compton.
164	5 <sup>1</sup> / <sub>2</sub>	$20\frac{1}{2}$	Barotsiland, N.W. R	hod	esia	R. T. Coryndon.
16	$7\frac{1}{2}$	$9\frac{1}{2}$	Do.			Col. C. Harding.
16	$7\frac{1}{2}$	$II\frac{3}{4}$	N.W. Rhodesia .			Capt. F. W. Reichwald.
$15\frac{7}{5}$	$6\frac{1}{4}$	$IO_2^1$	?			C. D. Rudd.
1 5 <del>7</del> 8	61	I4‡	5			British Museum.
$215^{3}_{4}$	6 <u>1</u> 8	$I3\frac{1}{2}$	Transvaal			Sir Abe Bailey.
15 <sup>2</sup>	6	19	Tanganyika Plateau			Hon. Walter Rothschild.
I 5 <sup>3</sup> /4	<b>7</b> <sup>1</sup> / <sub>4</sub>	161	N.W. Rhodesia .			LieutCol. R. W. R. Barnes.
		1 Horn or	nly, not the pad.			<sup>2</sup> Abnormal head.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.			
$15\frac{1}{2}$	$5\frac{1}{2}$	$19\frac{1}{2}$	Mpimbi, Nyasaland	British Museum (the late Col. F. Trollope).			
15½	$6\frac{1}{2}$	13	Nyasaland	Capt. J. Harington.			
I 5흫	$5\frac{1}{2}$	19‡	5	Sir Owen Philipps.			
I 5 <del>1</del>	$6\frac{1}{4}$	134	N.W. Rhodesia	A. P. Henderson.			
I 5‡	61	138	Barotsiland, N.W. Rhodesia	F. V. Worthington.			
15‡	6	13 <u>1</u>	Do	Norman B. Smith.			
15‡	6	137	Do	The late George Grey.			
15‡	$6\frac{1}{2}$	I2 <sup>1</sup> / <sub>8</sub>	N.W. Rhodesia	J. E. R. Oldfield.			
15 <del>1</del>	$6\frac{1}{2}$	10	Do	M. C. Crawshay.			
15 <sup>1</sup> / <sub>8</sub>	$6\frac{5}{8}$	111	Manica Plateau, N. of Zambesi	F. C. Selous.			
15	$6\frac{1}{2}$	9 <del>3</del>	Mashonaland	Sir John Willoughby, Bart.			
15	$6\frac{1}{2}$	13	N. Zululand	R. T. Coryndon.			
15	$6\frac{1}{4}$	$8\frac{1}{2}$	N.E. Rhodesia	Col. C. F. Blane.			
15	$5\frac{1}{2}$	II	N.W. Rhodesia	G. T. Hutchinson.			
15	$6\frac{3}{4}$	141	Do	J. Bell.			
15	$6\frac{1}{2}$	9‡	Do	T. D. M. Cardeza.			
14 <u>3</u>	512	$9^{1}_{2}$	Do	Capt. R. Meinertzhagen.			
144	6 <u>3</u>	$15\frac{1}{2}$	Do	Capt. H. E. Hambro,			
14 <u>3</u>	6	$10\frac{1}{2}$	Do	R. E. Critchley-Salmonson.			
144	$6\frac{1}{2}$	II $\frac{1}{2}$	Do	Capt. H. E. E. Pankhurst.			
14 <u>3</u>	$6\frac{3}{4}$	9‡	Do	Capt. C. G. Leslie.			
$14\frac{3}{4}$	$6\frac{1}{4}$		Do	J. H. Leche.			
I4 <u>3</u>	7	$13\frac{1}{2}$	Do	Val Gielgud.			
<sup>1</sup> I 2 <sup>1</sup> / <sub>4</sub>	5‡	$9\frac{1}{2}$	Congo	H. M. Stephenson.			
<sup>2</sup> I 2	$6\frac{1}{2}$	$12\frac{1}{2}$	Nyasaland	Mrs. C. B. C. Storey.			
OWNED'S MEASUDEMENTS							

#### OWNER'S MEASUREMENTS.

<sup>3</sup> 18			South Africa	F. Vaughan Kirby.
$17\frac{1}{2}$	$6\frac{1}{2}$	$17\frac{1}{2}$	Barotsiland, N.W. Rhodesia	Percy C. Reid.
16 <u>7</u>			?	C. S. Mann.
167	$5\frac{3}{4}$	$I3\frac{1}{8}$	Zululand	J. Sealy-Bell.

Determination provisional.
 <sup>2</sup> Albino specimen.
 <sup>3</sup> This was seen and measured by Mr. Kirby. It had one horn only ; the other was shot off.



Skull and Horns of Eastern Mountain-Reedbuck.

#### MOUNTAIN-REEDBUCK or ROOI RHEBOK (Redunca fulvorufula).

This reedbuck is considerably smaller than the type species, measuring from about 28 to 31 inches at the shoulder, but has horns of much the same type, without distinct hooks to the tips. The general colour is greyish fawn, showing in some cases a more or less distinct rufous tinge.

Distribution.—Eastern Africa to the south of the Zambesi, particularly Natal, Zululand, and Bechuanaland; represented farther north by the undermentioned 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, they are still abundant. Those from the Manica plateau, north of the Zambesi, may be the East African race.

Certain reedbuck from the Lydenburg range of the Transvaal exhibit a tendency to albinism, and have been described as a distinct race (*Redunca fulvorufula subalpina*), but are more probably "sports." MOUNTAIN-REEDBUCK

A reedbuck from the Mount Kenia district of East Africa appears to be a local race of this species (R. *fulvorufula chanleri*). In the original specimen the nose shows a dark streak like the one often seen in this and the typical reedbuck.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
8	$3\frac{7}{8}$	$3\frac{1}{2}$	S.E. Africa .		H. W. Elliott.
7 <sup>3</sup> /4	$4^{\frac{3}{4}}_{\frac{4}{4}}$	$4\frac{3}{4}$	?		Hon. Walter Rothschild. (Shot by F. C. Selous.)
7홍	3 <sup>3</sup> / <sub>4</sub>	4 <del>1</del> 8	Zululand		Sir Owen Philipps.
71	5	3	Near Bloemfontein		Major R. Rankin.
$7\frac{1}{8}$	$3\frac{3}{4}$	31	?		R. T. Coryndon.
7	$3\frac{1}{2}$	$4\frac{1}{4}$	Zululand		A. Cameron.
7	$3\frac{3}{4}$	$4\frac{3}{4}$	?		II. E. Berry.
7	$3^{\frac{1}{2}}$	6	?		P. H. Stewart.
7	$3^{\frac{1}{2}}$	5 <sup>3</sup> / <sub>4</sub>	?		G. Bateman.
		OW	NER'S MEASURE	MEI	NTS.
$9\frac{1}{16}$	5	$6\frac{1}{2}$	Zululand		C. S. Mann.
$8\frac{7}{8}$	$4\frac{7}{8}$	41	Humansdorp .		F. Vaughan Kirby.

### A.-TYPICAL RACE (R. fulvorufula typica).

P. C. Keytel. ? 85 5불 5 . F. R. N. Findlay. Transvaal . . 8±  $3\frac{3}{4}$ 41 . J. L. Drège.  $7\frac{3}{4}$ ...  $2\frac{1}{2}$ Do. . Lebombo Range, S.A. Count E. Hoyos. 7불  $3^{\frac{1}{2}}$ 4

# B.-EASTERN RACE (R. fulvorufula chanleri).

Length on front curve.	Circum- ference.	Tip to Tip.	Loca	lity.			Owner.
7	41	4불	East Africa				H. G. Watson.
$6\frac{3}{4}$	$4\frac{1}{2}$	3	Do.	•	•		Earl of Kingston.
$6^{3}_{4}$	3	$2_{\mathrm{S}}^{\mathrm{S}}$	Do.				A. E. Butter.
$-6\frac{3}{4}$	31	5 <sup>음</sup>	Do.				Major H. W. A. Christie.
$6^{3}_{4}$	4	3롱	Do			•	Capt. T. H. Rivers Bulkeley.
63	$3\frac{1}{2}$	$4\frac{1}{4}$	Do.				N. J. Hitchings.
63	$3\frac{1}{2}$	$3\frac{1}{2}$	Do.				Duke of Sutherland.
$6\frac{3}{4}$	3 <sup>3</sup> / <sub>4</sub>	34	Do.				Capt. J. A. Morrison.

Length on front curve.	Circum- ference.	Tip to Tip.	Lo	cality.			Owner.
65	41		East Africa				Capt. E. H. Sinkinson.
65	$4\frac{1}{2}$	34	Do.				G. W. C. Drexel.
65	4‡	2 <sup>3</sup> / <sub>4</sub>	Do,	<i>.</i>			G. Henry.
65	$3\frac{3}{4}$	$3\frac{1}{2}$	Do.				Lord Waleran.
65	$3\frac{1}{4}$	358	Do.				Col. J. E. Gough.
-65	51	$4\frac{1}{2}$	Do.				Sir Edmund G. Loder, Bart.
$6\frac{1}{2}$	$4\frac{1}{2}$	$2\frac{7}{8}$	Do.	•			K. V. Painter.
$6\frac{1}{2}$	4	$5\frac{1}{4}$	Do.				Sir H. Seton Karr.
$6\frac{1}{2}$	31	318	Do.				Col. C. F. Blane.
$6\frac{1}{2}$	4	4 <del>3</del>	Do,				W. A. Baird.
$6\frac{1}{2}$	31	5	Do.				D. L. Seth-Smith.
6 <u>3</u>	$3\frac{3}{4}$	4	Do.				Capt. H. C. Hart.
63	$4\frac{1}{4}$	$3\frac{1}{2}$	Do.				S. H. Christy.
6 <u>3</u>	$3\frac{1}{2}$	51	Do.				P. K. Glazebrook.
6 <u>3</u>	$4\frac{1}{4}$	31	Do.				J. R. Bradley.
63	35	4	Do.				Mrs. Percy C. Madeira.
61	$4\frac{1}{2}$	$2\frac{5}{8}$	Do.				Sir Robert Harvey, Bart.
61	$3\frac{1}{2}$		Do.			. •	J. Jay White.
61	3=	3‡	Do,				E. B. Bronson.
$6\frac{1}{4}$	4	48	Do.				A. de L. Long.
61	$3\frac{1}{2}$	$3\frac{3}{4}$	Do.				R. Holmes.
61	$4\frac{1}{4}$	$2\frac{3}{4}$	Do.				J. Leslie.
$6\frac{1}{4}$	$3\frac{7}{8}$	35	Do.				Capt. A. Neave.
61	$4\frac{1}{4}$	$3\frac{3}{4}$	Do.			•	G. P. Gough.
$6\frac{1}{8}$	$3\frac{3}{4}$	$4\frac{3}{4}$	Do.		·		R. de la Huerta.
6불	4호	$4\frac{3}{4}$	Do.				A. Fowler.
6 <u>1</u>	378	4\$	Do.		·	•	Gorham Brooks.
618	$4\frac{1}{4}$	4	Do.	•			Major P. H. G. Powell- Cotton.
$6\frac{1}{8}$	$4\frac{1}{2}$	3불	Do.				S. L. Hinde.
61	$3\frac{1}{2}$	3	E. of Lake	Margher	ita		Lord Hindlip.
61	34	4	East Africa				H. Johnson.
61	4	4	Do,				G. C. Slacke.
618	4	$2\frac{1}{2}$	Do.				I. Barrington White.
6 <u>1</u>	4	34	Do.				R. B. Loder.

### BOHOR REEDBUCK



Frontlet and Horns of Eastern Bohor Reedbuck.

#### The BOHOR REEDBUCK (Redunca redunca).

Kwantan Rafi, Hausa. Njaza, Waganda.

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 hooks. General colour uniformly bright fawn, usually with 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.

In addition to one other the following races are recognised :---

*R. redunca typica.*—Senegal, Gambia, and Gold Coast. Size small; horns short and stout, very thick at base, curved in front, points turned inwards.

*R. redunca nigeriensis.*—N. Nigeria. Size larger and horns larger and depressed below level of frontal plane.

*R. redunca cottoni.*—Kordofan, White Nile, and Isle of Meroë, to east of Lado and western Somaliland. Horns long and thin, much curved outwards and backwards, with the points curled straight over, or turning outwards or inwards.<sup>1</sup>

*R. redunca bohor.*—Central Abyssinia. Horns shorter, stouter, and less curved than in *cottoni*.

*R. redunca wardi.*—East Africa. Horns larger, stout, curved outwards, with the points much turned inwards.

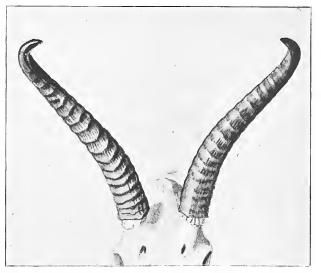
<sup>1</sup> In the Dinder Valley the type of head with in-curving horns described as *Cervicapra r. donaldsoni* intergrades with *cottoni*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
10	$4\frac{3}{4}$	$6\frac{1}{4}$	Gold Coast		Capt. G. H. Hastings.
$8^{3}_{4}$	$5\frac{3}{4}$	43	Gambia	•	Commr. A. A. Ellison, R.N.
$S\frac{1}{4}$	$5\frac{1}{2}$	5	Senegambia .		G. Fenwick-Owen.
$8\frac{1}{8}$	$4\frac{1}{2}$	57	Portuguese Guinea		Major P. H. G. Powell-Cotton.

### A.--TYPICAL RACE (R. r. typica).

### B.---NIGERIAN RACE (R. r. nigeriensis).

Length on front curve,	Circum- ference.	Tip to Tip.	Loc	ality.			Owner.
11	5	7	N. Nigeria		•		L. Donisthorpe.
103	$6\frac{1}{8}$	7	Do.				Major C. A. Booth.
105	6	$4\frac{1}{4}$	Do.				F. Beckles Gall.
103	$6\frac{1}{2}$	$2\frac{7}{8}$	Lake Chad				Capt. S. B. B. Dyer.
103	$5\frac{1}{2}$	8	N. Nigeria				Capt. O. Oakes.
$-10\frac{1}{4}$	5‡	$4\frac{1}{2}$	Do.				Capt. C. F. Watson.
$IO_{\pm}^{1}$	5	44	Do.				Capt. G. C. Kelly.
10	5킄	$5\frac{3}{4}$	Do.				Capt. J. C. Parker.
10	$5\frac{1}{2}$	$6\frac{7}{8}$	Do.				Capt. L. C. Brodie.
10	$5\frac{1}{2}$	51	Nigeria				Capt. W. H. Wilkin.
9 <del>3</del>	53	5	N. Nigeria			•	A. A. Smith.
$9\frac{3}{4}$	5	7	Do.				H. C. Bridges.
$9\frac{1}{2}$	51	7킄	Do.				Capt. A. Noel Woods.
$9\frac{1}{2}$	5	31	Do.	•			Major J. W. Carroll.
$9\frac{1}{2}$	$5\frac{1}{2}$	$7\frac{1}{2}$	Do.		•	•	Capt. A. C. Aubin.
$9\frac{1}{4}$	$5\frac{1}{2}$	$2\frac{3}{4}$	Do.			•	G. L. Harrison.
9‡	5	$4\frac{1}{8}$	Do.	•			Capt. W. C. N. Hastings.
91	$5\frac{1}{2}$	41	Do.				Major Lord J. S. Cavendish.
$9\frac{1}{5}$	5‡	6‡	Do.			•	Major W. Anstruther Gray.
9불	43	$6\frac{3}{4}$	Do.				Capt. S. C. Peck.
9 <sup>1</sup> / <sub>5</sub>	63	3	Do.				Capt. G. Bonham-Carter.
9	$4\frac{1}{2}$	$7\frac{1}{2}$	Do.				Lady Constance Stewart- Richardson.
9	5	54	Do.	•		•	Sir E. Stewart-Richardson, Bart.



Skull and Horns of Abyssinian Bohor Reedbuck.

# C.-ABYSSINIAN RACE (R. r. bohor).

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
$IO_{4}^{3}$	` 5 <sup>큪</sup>	11 <sup>3</sup>	West of Lake Tana		Major P. H. G. Powell-Cotton.
105	$5\frac{1}{2}$	5	Abyssinia		D. P. MacGillivray.
10	$4\frac{1}{2}$	3‡	Do		Sir Edmund G. Loder, Bart.
$9\frac{3}{4}$	5章	5	Lake Zuay		Lord Hindlip.
9 <sup>3</sup> 4	6	8	Zuguala Mt		A. E. Butter.
$9\frac{1}{2}$	5 <sup>7</sup> 8	$9\frac{1}{2}$	Abyssinia	•	R. Hayne.
9‡	$5\frac{3}{4}$	$5\frac{1}{2}$	Do		Hon, Walter Rothschild.

### D.-SUDANI RACE (R. r. cottoni).

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.
16	5	23 <sup>3</sup> / <sub>5</sub>	Mongalla .			E. M. Sinauer.
15	$4\frac{1}{2}$	17	Dinder Valley			R. von Rothermann.
15	5‡	$12\frac{5}{8}$	Do.			C. Bower Ismay.
144	5‡	16 <u>5</u>	Do.	•		Capt. B. W. Y. Danford.
145	6	113	Do.			Col. A. Colville.
14 <u>1</u>	$5\frac{1}{4}$	13	Do.			Lord Villiers.
14 <u>1</u>	$4\frac{3}{4}$	15	Blue Nile .		•	G. L. Harrison. (See illustration, p. 222.)



Head of Sudani Bohor Reedbuck, showing the divergent type of horns. Shot by Mr. G. L. Harrison.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.
14 <u>3</u>	$5\frac{1}{2}$	13	Sudan .			Prince Colloredo Mannsfeld.
I4	6	16 <u>3</u>	Dinder Valley			Norman B. Smith.
-14		16 <u>7</u>	Blue Nile .			A. L. Butler.
-14		18	Do			G. B. Middleton.
13 <del>3</del>	$5\frac{1}{4}$	9	Sudan .			Douglas M'Douall.
13 <del>3</del>	$5\frac{1}{2}$	$7\frac{1}{2}$	Dinder Valley		•	C. D. Eyre.
13 <u>3</u>	5 <del>1</del>	15	White Nile .	•		P. Santos Saurez.
13 <u>3</u>	6	$9\frac{1}{8}$	Dinder Valley			Miss C. Buxton.
13 <u>3</u>	5	I2 $\frac{1}{2}$	Do.			Major C. P. B. Wood.
134	6	9 <del>5</del>	Do.			Prince F. Liechtenstein.
134	6	12	Do.			Capt. J. C. Graham.
133	5‡	$7\frac{1}{2}$	Dc.			Capt. A. Craufurd.

## BOHOR REEDBUCK

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
I 3 <sup>1</sup> / <sub>4</sub>	5	181	Dinder Valley		C. E. Russell.
13‡	5흫	$I2\frac{3}{5}$	Mongalla		Capt. P. A. Wilson.
13‡	$5\frac{1}{2}$	1 5 <sup>1</sup> / <sub>4</sub>	White Nile.		Duke of Alba.
$12\frac{3}{4}$	6‡	8	Blue Nile .		Hon. T. G. B. Morgan-Grenville.
$12\frac{3}{4}$	5	15	Sudan .	•	Major P. M. Dove.
I 2 <sup>3</sup> / <sub>4</sub>	$5\frac{7}{8}$	ΙIŢ	Mongalla .		Capt. R. F. Balfour.

# E.-EASTERN RACE (R. r. wardi).

Length on front curve.	Circum- ference.	Tip to Tip.	· Locality.			Owner.
13 <del>3</del>	5 <sup>1</sup> / <sub>8</sub>	8 <u>‡</u>	East Africa .			British Museum (Sir John Kirk).
13 <sup>1</sup> / <sub>2</sub>	5 <sup>1</sup> / <sub>2</sub>	$4\frac{1}{2}$	Do			MajGen. Sir J. R. Macdonald.
-12	7	51	G.E. Africa			S. E. White.
$\mathbf{II}\frac{1}{2}$	61	9‡	East Africa			Lord Hindlip.
11 <del>3</del>	$5\frac{1}{2}$	$7\frac{1}{2}$	Do			S. H. Christy.
$IO_{\overline{S}}^{7}$	63	$8\frac{1}{2}$	Do			A. Fowler.
IOS	5축	7흥	Do			Sutton Timmis.
105	$4\frac{1}{2}$	$5^{\frac{1}{2}}$	Do			Sir Robert Harvey, Bart.
$IO_2^{\frac{1}{2}}$	$5\frac{1}{2}$	$9\frac{1}{2}$	Uganda <sup>1</sup> .			Duke of Peneranda.
$IO_2^1$	63	3축	Do			Col. C. F. Blane.
$IO_2^{\frac{1}{2}}$	6 <del>3</del>	7	East Africa .			F. C. Selous.
$IO_2^1$	5‡	$IO_{4}^{1}$	G.E. Africa			F. H. Melland.
101	$6\frac{1}{4}$	4	East Africa .			Lord Montgomerie.
101	6	$4\frac{1}{4}$	Do			Lord Wodehouse.
104	$5\frac{7}{3}$	$7\frac{1}{8}$	Do			H. Fowler.
101	$6\frac{1}{2}$	$5\frac{1}{2}$	Do			J. Todd.
IO1	5 <del>4</del>	71	Do			B. Barr Smith.
IOS	6	5‡	?			Col. Max. C. Fleischmann.
ю	$5\frac{1}{2}$	6‡	Mau Plateau		•	Sir F. J. Jackson.
IO	71	4 <sup>3</sup> /3	East Africa .		•	C. Craig.
ю	5=	5	Do			Capt. R. Meinertzhagen.
10	6	$7\frac{1}{2}$	Do		•	R. de la Huerta.
ю	6	5	Do		•	Duke of Medinaceli.
ю	5축	$6\frac{1}{2}$	Do	•		Duke of Alba.
ю	$5\frac{1}{2}$	6	Do			N. C. Cockburn.
10	51	7	Do			W. N. McMillan.
	- Owne	er's measuremer	nts.		1 1	lay belong to R. r. uganda.



Head of Dibatag.

### The DIBATAG (Ammodorcas clarkei).

Although resembling the gazelles in the face-markings, the dibatag approximates in foot-structure and the form of the horns to the reedbuck group, to which it may be related. The horns of 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 in 1890.

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

Length on front curve.	Circum- ference.	Tip to Tip.	Owner.
125	5‡	458	Hon. Walter Rothschild.
I I 🔒	$4\frac{7}{8}$	35	Gen. Sir Arthur Paget.
I I <sup>3</sup> / <sub>4</sub>	$4\frac{3}{4}$	3 <sup>5</sup> 8	T. W. H. Clarke.
II.1	41	6	R. McD. Hawker.

DIBAT.4G

Length on front curve.	Circum- ference.	Tip to Tip.	Owner.
111	$4\frac{1}{2}$	$4\frac{3}{4}$	Col. J. E. Gough.
11	$5\frac{1}{2}$ °	2]	Major B. R. M. Glossop.
11	5	$5\frac{1}{2}$	S. Payne-Gallwey.
$10\frac{3}{4}$	41	$4\frac{3}{4}$	Mr. Justice Hopley.
$IO_{4}^{\underline{3}}$	51	4	Sir Edmund G. Loder, Bart.
$10\frac{3}{8}$	$4\frac{1}{2}$	3	Capt. B. E. Murray.
IO‡	$4\frac{3}{4}$	43	Capt. A. H. Mosse.
$IO_8^1$	$4\frac{1}{8}$	$4\frac{1}{2}$	Major P. H. G. Powell-Cotton.
$9\frac{3}{4}$	$4\frac{1}{2}$	5 <sup>1</sup> / <sub>3</sub>	British Museum (T. W. H. Clarke).
9 <del>§</del>	4	$3\frac{1}{2}$	Capt. H. A. Carter.
$9\frac{1}{2}$	$4\frac{1}{2}$	4\$	Dr. R. E. Drake-Brockman.
$9\frac{1}{2}$	5	5	Capt. F. R. Tarleton.

### OWNER'S MEASUREMENTS.

		J. D. Inverarity.
		Capt. G. G. S. Brander.
		C. S. Mann.
$4\frac{1}{4}$	5	Capt. J. Brander-Dunbar.
$4\frac{1}{2}$	5 <del>1</del> 5	Capt. M. McNeill.
41	5	P. C. Keytel.
	$\frac{1}{4^{\frac{1}{4}}}$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$

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Head of Pala.

### The PALA or IMPALA (Æpyceros melampus).

Rooibok, Cape Dutch. Inzero, Masubia. chuna. Szvala, Swahili. Luondo and Mpala, Barotsi, Luboudar, Chila. Ngami, Chilala, and Chibisa.

Pala, Waganda, Basuto, and Be-

Impala, Zulu, Swazi, and Matonga.

The pala, saiga, and chiru have been generally classed with the gazelles, but apparently form independent groups. The specific name (black-footed) of the first refers to the pair of black tufts 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, from about 34 to 37 or 38 inches. Weight, from about 130 to 160 lbs.

Distribution.—Southern and Eastern Africa, extending as far north as Lower Kordofan. In Angola replaced by an allied form, 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 the line of each eye. In the days of their abundance pala

### 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. Some half-century ago they were to be found in similar numbers among the covert on the banks of every river in the Transvaal and Bechuanaland; but it is not till the northern border of the former country that they are now 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.

Len	gth.						
On front curve.	Straight.	Circum- ference.	Fip to Tip.	Locality	y.		Owner.
318	$25\frac{1}{2}$	$6\frac{1}{2}$	181	East Africa		•	Sir Richard Dane.
$31\frac{1}{2}$	$24\frac{5}{8}$	6	163	Do.		·	W. Judd.
311	25	65	13	Do.			E. M. Crosfield.
30 <del>1</del> 8		5=	$23\frac{1}{2}$	Do.			Capt. E. Berry.
30‡	$24\frac{3}{4}$	.61	$24\frac{1}{2}$	Do.			T. de Halpert.
30‡	$23\frac{1}{2}$	61	$15\frac{1}{2}$	Do.			J. G. Millais.
30	$24\frac{3}{4}$	$6\frac{1}{2}$	$20\frac{3}{4}$	Do.			Count C. Podstatzky.
30	24	6‡	$17\frac{1}{2}$	Do.			Lord Delamere.
$29\frac{3}{4}$	24	5 <sup>7</sup> /8	19 <u>3</u>	Do.			P. F. Hadow.
29 <u>3</u>	241	6‡	17	Do.			Capt. W. M. Burrell.
29 <del>§</del>	$23\frac{1}{2}$	$6\frac{1}{2}$	18	Do.			G. C. Slacke.
$29\frac{1}{2}$	25	6	24	Do.			H. Hyde-Baker.
$29\frac{1}{2}$	$24\frac{3}{4}$	6	$22\frac{3}{4}$	Do.			C. Fahnestock.
$29\frac{1}{2}$	24	6	18‡	Do.			J. E. R. Oldfield.
$29\frac{1}{2}$	$23\frac{1}{2}$	$6\frac{1}{2}$	192	Do.			G. P. L. Cosens.
$29\frac{1}{2}$	$23\frac{3}{4}$	$6\frac{1}{2}$	$15\frac{3}{4}$	Do.			A. E. Butter.
29‡	$24\frac{1}{2}$	6	$19\frac{1}{2}$	Do.			Count E. Hoyos.
$29\frac{1}{4}$	235	63	161	Do.			W. W. Ashley.
291	$24\frac{1}{2}$	$6\frac{1}{2}$	$22\frac{1}{2}$	Do.			H. B. Cox.
29‡	241	61	161	Do.			A. J. A. Douglas.
29‡	23 <del>3</del>	5 <sup>7</sup> 8	183	Do.			Capt. G. V. Clarke.
294	238	6옿	17	Do.			Capt. E. Sartorius.
29	$24\frac{1}{2}$	6	271	Do.			Capt. F. H. Span.
29	23 <sup>3</sup> / <sub>4</sub>	6‡	19 <sup>3</sup> / <sub>4</sub>	Do.			Major W. E. Stobart.
29	$24\frac{1}{4}$	6	211	Do.			Capt. M. L. Pears.
29	$22\frac{1}{2}$	6	14	Do.			Marquis of Tweeddale.

#### A.-TYPICAL RACE (Æ. melampus typicus).

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Leng On front curve.	gth. Straight.	Circum- ference.	Tip to Tip.	Locali	ty.		Owner.
29	241	6 <u>3</u>	16 <u>3</u>	East Africa			H. S. L. Scott.
29	$24\frac{1}{2}$	61	$22\frac{1}{4}$	Do.			T. W. H. Clarke.
29	23	61	$17\frac{1}{2}$	Do.			Capt. T. H. Rivers Bulkeley.
29	$22\frac{3}{4}$	$5\frac{3}{4}$	197	Do.			LieutCol. P. Polovtsoff.
29	$22\frac{1}{2}$	6	9흫	Do.			Dr. A. Paget.
$28\frac{7}{8}$		5 <sup>3</sup> / <sub>4</sub>	17 <u>\$</u>	Do.			Major P. H. G. Powell-Cotton.
$28\frac{3}{4}$	24	$6\frac{1}{2}$	17‡	Do.			Major L. Boyd-Moss.
$28\frac{3}{4}$	$23\frac{1}{2}$	$6\frac{1}{4}$	19	Do.			Sir Edmund G. Loder, Bart.
$28\frac{3}{4}$	$22\frac{1}{2}$	6	16‡	Do.			N. C. Cockburn.
$28\frac{3}{4}$	24‡	$6\frac{1}{4}$	18 <sup>3</sup>	Do.			Capt. C. Steele.
$28\frac{3}{4}$	$23\frac{1}{2}$	6	I 5‡	Do.			Capt. E. C. Hamilton.
$28\frac{3}{4}$	$23\frac{1}{2}$	6	$I2\frac{1}{4}$	Do.			Capt. R. A. McClymont.
28 <u>5</u>	$23\frac{1}{2}$	6	24	Do.			W. N. McMillan.
28 <del>5</del>	$22\frac{3}{4}$	6 <u>1</u>	13 <u>1</u>	Do.			Capt. J. N. Price Wood.
$28\frac{1}{2}$	23‡	6	16	Do.			C. W. Turner.
$28\frac{1}{2}$	23	$6\frac{1}{4}$	$2\mathrm{I}rac{1}{2}$	Do.			C. J. Blackburn Maze.
$28\frac{1}{2}$	22	$6\frac{1}{4}$	II $\frac{1}{2}$	Do.			Major Lord J. S. Cavendish.
$28\frac{1}{2}$	231	$6\frac{1}{2}$	$16\frac{1}{2}$	Do.			Capt. E. F. Hausburg.
28 <u>1</u>	$22\frac{1}{2}$	$6^{1}_{4}$	121	Do.			Capt. L. H. Lloyd.
$28\frac{1}{2}$	<b>2</b> 4‡	6	$20\frac{1}{2}$	Do.			Capt. L. H. Hickson.
284	248	6‡	$24\frac{1}{2}$	Do.			Capt. R. Meinertzhagen.
$28\frac{1}{4}$	23	$6\frac{1}{2}$	пţ	Do.			J. R. Bradley.
<b>2</b> 8‡	23	6	19	Do.		•	G. F. Archer.
28 <u>‡</u>	2 I $\frac{3}{4}$	$5\frac{3}{4}$	174	Do.			H. C. Allfrey.
$28\frac{1}{4}$	$23\frac{1}{2}$	6‡	$22\frac{1}{2}$	Do.			Duke of Sutherland.
28 <u>‡</u>	231	6	19 <sup>3</sup>	Do.		•	E. B. Horne.
28 <u>1</u>	$23\frac{1}{2}$	6 <u>1</u>	16 <u>3</u>	Do.	•	·	Capt. R. Clemm.
281	231	$5\frac{3}{4}$	$I_{4\frac{1}{2}}$	Do.	·		R. B. Loder.
28 <u>1</u>	23	$6\frac{1}{2}$	2I <sup>3</sup> /4	Do.			Col. C. F. Blane.
28 <u>1</u>	231	51	17 <u>1</u>	Do.			R. de la Huerta.
281	23	6	18	Do.	•	•	A. Hamilton Gault.
284	23½	6	$20\frac{3}{4}$	Do.			H. H. Williams.
28	23	$6\frac{1}{2}$	I 2	Do.			H.R.H. Prince Arthur of Con- naught.
28	223	$6\frac{3}{4}$	25	Do.	•		Earl of Warwick.
28	23	$6\frac{1}{4}$	13	Do.			Walter Jones.
28	241	63	171	Do.			R. Hayne.

Len On front curve.	gth. Straight.	Circum- ference.	Tip to Tip.	Locality	y.		Owner.
28	<b>2</b> 31/4	5 <sup>3</sup> /8	22	East Africa			Hon. E. Coke.
28	23 <del>3</del>	5 <sup>3</sup>	174	Do.			C. H. Tritton.
28	24	-6	$22\frac{3}{4}$	Do.			H. B. Tate.
28	22 <sup>1</sup> / <sub>2</sub>	6	12	Do.			Sir F. J. Jackson.
28	21	578	121	Do.			G. E. Smith.
28	22	$5\frac{1}{2}$	16‡	Do.			Capt. F. W. Barrett.
28	$22\frac{3}{4}$	5½	13 <sup>1</sup> / <sub>2</sub>	Do.			The Master of Belhaven.
28	$23\frac{1}{2}$	6 <u>1</u>	22	Do.			Capt. C. J. Murray.
28	$22\frac{3}{4}$	53	<b>2</b> 4 <sup>1</sup> / <sub>8</sub>	Do.			Capt. W. H. Wilkin.
28	$22\frac{1}{2}$	$5\frac{3}{4}$	19출	Do.			Capt. J. Fitzgerald.
28	$22\frac{1}{4}$	6	13	Do.			D. Davies.
28	<b>22</b> <sup>3</sup> / <sub>4</sub>	6‡	$9\frac{1}{2}$	Do.			G. O. Sloper.
28	$22\frac{1}{2}$	$6\frac{1}{4}$	18 <u>3</u>	Do.			P. Fleming.
$27\frac{3}{4}$	23	$6\frac{1}{4}$	19	Do.			Lord Wodehouse.
$27\frac{3}{4}$	$22\frac{1}{2}$	6	II‡	Do.			Capt. G. F. Phillips.
$27\frac{3}{4}$	22	$5\frac{3}{4}$	16 <u>3</u>	Do.			Capt. the Hon. G. H. Douglas- Pennant.
$27\frac{3}{4}$	21	6	9 <sup>1</sup> / <sub>2</sub>	Do.			LieutCol. the Hon. W. A. W.
$27\frac{3}{4}$	23	5 <sup>3</sup>	18	Do.			Lawson. Hon. Mrs. Blyth.
$27\frac{3}{4}$	231	6	1 3 <sup>1</sup> / <sub>2</sub>	Do.			Major H. F. T. Fisher.
$27\frac{3}{4}$	$2I\frac{1}{2}$	6	$I2\frac{3}{4}$	Do.			F. Garside.
$27\frac{1}{2}$	$22\frac{1}{4}$	57	I 5‡	Do.			Major S. Belfield.
$27\frac{1}{2}$	231	53	$12\frac{3}{4}$	Do.			Rhys Williams.
$27\frac{1}{2}$	$22\frac{1}{4}$	6	$II\frac{3}{4}$	Do.			F. C. Selous.
$27\frac{1}{2}$	$2I\frac{1}{2}$	57	$I3\frac{1}{2}$	Do.			Lord Hindlip.
$27\frac{1}{2}$	23	6	192	Do.		· .	G. C. Whitaker.
$27\frac{1}{2}$	$22\frac{1}{4}$	$6_{4}^{1}$	144	Do.			A. Brocklehurst.
$27\frac{1}{2}$	$22\frac{7}{8}$	$6\frac{1}{4}$	$10\frac{1}{2}$	Do.			Major C. U. Price.
$27\frac{1}{2}$	23 <sup>1</sup> / <sub>8</sub>	6	18 <u>3</u>	Do.		•	A. Bayley-Worthington.
$27\frac{1}{2}$	$2I\frac{1}{2}$	$6\frac{1}{8}$	103	Do.	•	•	G. de P. Colvile.
$27\frac{1}{2}$	$23\frac{1}{2}$	5 <sup>§</sup>	$2I\frac{1}{2}$	Do.	•	•	H. C. Phipps.
$27\frac{1}{2}$	$22\frac{1}{4}$	6‡	171	Do.	•	·	Capt. J. A. Morrison.
27½	$23\frac{1}{2}$	5 <sup>3</sup>	191	Do.	·		Arthur James.
$27\frac{1}{2}$	21	5 <sup>7</sup> 8	141	South Africa	·	•	British Museum (Dr. Burchell).
24	19‡	6‡	12	N. Zululand	·	·	Col. Lord Douglas Compton.
233	185	51	1078	Ngamiland	•		A. G. Stigand.

### B.---NYASA RACE (Æ. melampus johnstoni).

Most of the following specimens are only referred provisionally to this race.

Mr. R. T. Coryndon writes that although in N.E. Rhodesia horns of 20 inches are rare, in the Northern Transvaal and Swaziland, where pala abound, horns of 22 inches are not uncommon, and a few specimens are still longer.

Leng	gth.							
On front curve.	Straight.	Circum- ference.	Tip to Tip	. Localit	y.			Owner.
$22\frac{1}{2}$	181	5‡	$9\frac{1}{2}$	N.W. Rhodesia		•		H. D. Hannay.
$22\frac{1}{4}$	$\mathrm{I}\mathrm{S}\tfrac{1}{2}$	$5\frac{1}{2}$	9 <sup>3</sup> / <sub>4</sub>	N.E. Rhodesia	•			R. D. Waterhouse.
22	181	5‡	II	Nyasaland .		·		A. V. Willcox.
21	18 <u>1</u>	$4\frac{3}{4}$	I I <sup>3</sup> / <sub>4</sub>	Do				Capt. J. S. Brogden.
21	$17\frac{1}{2}$	5‡	I 5½	Rhodesia .	·	•	•	A. W. Griffin.
20 <del>]</del>	17	6	$9\frac{1}{2}$	N.W. Rhodesia				J. Bell.
20	i6	51	$8\frac{1}{2}$	N.E. Rhodesia	•		•	F. H. Melland.
20	16	5	$6\frac{1}{2}$	Do.	•	•		H. Cookson.
20	16	5	$6\frac{1}{2}$	N.W. Rhodesia	•			Hon. J. Cunliffe-Lister.
193	$16\frac{1}{2}$	$5\frac{1}{8}$	6 <u>5</u>	Do.	•	•		Major J. Carden.
194	16	$4\frac{3}{4}$	91	Do.	•		•	R. C. Wood.
$19\frac{1}{2}$	I 5 <sup>3</sup> / <sub>4</sub>	5	$6\frac{1}{4}$	Nyasaland .	•			K. L. Storey.
19 <sup>1</sup> / <sub>2</sub>	17	5	7흥	N.W. Rhodesia	·			J. H. Leche.
1912	161	$5\frac{1}{2}$	$12\frac{3}{4}$	Do.			•	H. R. Phillips.
19‡	1 5 <sup>2</sup> / <sub>4</sub>	$4\frac{3}{4}$	$7\frac{1}{2}$	N.E. Rhodesia		•		Col. A. Colville.
-191	151	5	$6\frac{1}{4}$	N.W. Rhodesia	•		•	Capt. the Hon. G. H. Douglas-Pennant.

### C.---ANGOLA RACE (Æ. melampus petersi).

Lei	igin.						
On front curve.	Straight.	Circum- ference.	Tip to Tip.	I	ocality	у.	Owner.
23 <sup>3</sup> / <sub>4</sub>	193	6	14 <u>3</u>	Angola			C. W. Sharp.
$23\frac{1}{2}$	1912	$5\frac{1}{2}$	13 <sup>3</sup> / <sub>4</sub>	Do.		.	Sir Edmund G. Loder, Bart.
231		$5\frac{1}{2}$	15	Do.			A. H. Harrison.
231	181/2	5용	$9\frac{3}{8}$	Do.	•		W. C. Neilson.
217	18	5‡	191	S.W. A	frica		A. N. Henderson.
21	17 <del>3</del>	5 <del>7</del>	II 3	Angola			Hon. Walter Rothschild.

Longth



Horns of Saiga. From the Hon. Walter Rothschild's specimen.

#### The 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 Kalmuk steppes of Southern Russia, Northern Russian Turkestan, particularly between the Sea of Aral and Lake Balkash; and locally throughout Zungaria as far east as the western edge of the Gobi. Formerly the range extended to the confines of Poland.

	<b>1.</b>
14 $\frac{3}{2}$ 5 $\frac{1}{2}$ 3 $\frac{1}{2}$ Siberia	
13 <sup>2</sup> 5 Volga Steppe Sir Edmund G. Loder,	Bart.
$13\frac{3}{4}$ $4\frac{3}{3}$ $3\frac{1}{2}$ ? Sir Victor Brooke's Coll	ection.
13 $\frac{6}{5}$ 5 5 $\frac{1}{2}$ Sarepta, South Russia British Museum.	
$13\frac{1}{2}$ 5 $3\frac{3}{5}$ Eastern Zungaria J. H. Miller.	
-I2 <sup>3</sup> / <sub>4</sub> 5 2 ? Imperial Museum, Vier	ma.

Length on front curve.	Circum- ference.	Locality.						Owner.	
$-I2\frac{3}{4}$	5	5			?				J. C. Phillips.
$-12\frac{1}{2}$	5	41	Siberia						Dublin Museum.
121	5	$5\frac{7}{8}$	Do.						Duke of Bedford.
121	5	$4\frac{1}{2}$	Do.						Rowland Ward.
$-II\frac{1}{2}$	$4\frac{3}{4}$	5 <sup>1</sup> / <sub>2</sub>	Do.						Dr. Albert von Stephani.
$S_2^1$		51	Do.						Major W. Anstruther Gray.
- Owner's measurements.									



Head of Saiga.



Chiru. Shot by Mr. H. C. V. Hunter.

#### The CHIRU or TIBETAN ANTELOPE (Pantholops hodgsoni).

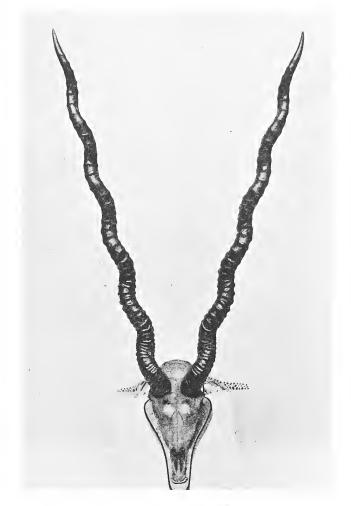
Among several animals peculiar to the Tibetan plateau none is more interesting than the chiru, whose beautiful horns form some of the most cherished trophies of the sportsman. Although very unlike in general appearance, the chiru is related to the saiga, having the nose even more swollen at the sides, 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 3I or 32 inches; weight, from 90 to 120 lbs. The genus is peculiar in having only two pairs of premolar teeth in each jaw.

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

Length on front curve.	Circum- ference.	Tip to Tip.	Lo	cality.			Owner.
<b>2</b> 7 <sup>3</sup> / <sub>4</sub>	$6\frac{1}{8}$	13½	North of	Beans	i Pas	s .	British Museum (Hume Collection).
278	$5\frac{1}{2}$	II1	Tibet .				Sir Robert Harvey, Bart.
$27\frac{1}{8}$	$5\frac{7}{8}$	15 <sup>1</sup> / <sub>8</sub>	North of	Beans	si Pas	s.	British Museum (Hume Collection).
27	6	$I_{4\frac{1}{2}}$		?			Hon. Walter Rothschild.
27	5	13 <u>1</u> 2	Tibet .			•	P. F. Hadow.
<b>2</b> 6	4 <del>इ</del>	$12\frac{7}{8}$	Do				Capt. G. Campbell.
25 <del>5</del>	$5\frac{1}{2}$	I2 <u>3</u>		?			Arnold Pike.
$25\frac{1}{2}$	5章	II $\frac{1}{2}$	Tibet .				Major C. B. Vandeleur.
$25\frac{3}{4}$	$5\frac{3}{4}$	141		?			Major Sir W. Codrington.
$25\frac{1}{2}$	$5\frac{1}{2}$	I2 <u>3</u>		?			Miss Barber.
24 <sup>3</sup> / <sub>4</sub>	5	II		?			E. L. Phelps.
24 <sup>3</sup> / <sub>4</sub>	$5^{\frac{1}{2}}$	$15\frac{1}{2}$	Tibet .	•			Capt. J. A. Stewart-Balmain.
243	5	191	Do				Royal Scottish Museum.
$24\frac{1}{2}$	5	$12\frac{3}{4}$	Do				Capt. H. H. P. Deasy.
$24\frac{1}{2}$	5	$I3\frac{1}{2}$	Do				Capt. J. F. Turner.
24 <del>1</del>	$4\frac{3}{4}$	181		?			Capt. D. L. R. Lorimer.
24 <del>1</del>	5‡	$I3\frac{1}{2}$		?			Capt. W. F. Corbett.
24	$5\frac{1}{2}$	15		?			Capt. L. Oldfield.
24	54	II $\frac{1}{2}$	Tibet .				Sutton Timmis.
24	5	$\mathrm{I}2_2^{1}$	Do				P. Radclyffe.

## OWNER'S MEASUREMENTS.

27	6	17	Mansarawar Lake	Capt. F. M. Bailey.
27	5 <del>5</del>	141	Tibet	Major G. K. Channer.
27		12	?	J. D. Inverarity.
26 <u>3</u>	6	13 <u>3</u>	Tibet	Dr. Albert von Stephani.
$26\frac{1}{2}$			Chang-chenmo .	LieutCol. A. E. Ward.
26 <sup>1</sup> / <sub>8</sub>	54	$12\frac{3}{4}$	Tibet	J. C. Phillips.
$25\frac{1}{4}$	5	$IO_{4}^{\underline{3}}$	Do	Major P. H. G. Powell-Cotton.
25	5 <sup>3</sup> / <sub>4</sub>	II	Chang-chenmo .	Sir Edmund G. Loder, Bart.
$24\frac{1}{2}$	$4\frac{3}{4}$		Tibet	Major-General A. A. A. Kinloch.



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

#### The BLACKBUCK or INDIAN ANTELOPE (Antilope cervicapra).

Although in former days nearly all the then known species of antelopes 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 subfamily or group of antelopes, embracing the springbuck, gazelles, and gerenuk. These are small or medium-sized antelopes, with hairy muzzles, generally short tails, and tall, narrow-crowned cheek-teeth, like those of sheep. In the springbuck and the majority of the gazelles horns are present in both sexes, but in the rest 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, expansile face-glands, a short and compressed tail, and 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; the latter, like gazelles, have two teats.

*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.

] st	Length traight.	Circum- ference.	Tip to Tip.	Locality.		Owner.
	281	5	17=3	Near Delhi .		British Museum (Hume Collection).
	$27\frac{3}{4}$	51		Central Provinces		A. H. Morris.
	$27\frac{3}{8}$	5	18 <u>5</u>	Bikanir		H.H. the Maharaja of Bikanir.
	27	5흫	19§	Patiala		Major W. Cox.
	$26\frac{7}{8}$	$4\frac{3}{4}$	26	Alwar		LieutCol. L. Impey.
	$26\frac{3}{4}$	$4\frac{3}{4}$	251	Bhurtpore .		LieutGen. Sir E. T. H. Hutton.
	$26\frac{1}{2}$	$5\frac{1}{2}$	I I <sup>1</sup> / <sub>2</sub>	Alwar		Hon. E. S. Montagu.
	$26\frac{1}{2}$	5‡	$27\frac{3}{4}$	United Provinces		Capt. C. B. Oldfield.
	$26\frac{1}{2}$	475	14 <u>3</u>	Bikanir		Lord Hardinge.
	26 <u>3</u>	5	17 <del>7</del>	Sirsa, Punjab .		British Museum (Hume Collection).
	$26_{\frac{5}{16}}$	51	22	Bikanir		Col. G. D. F. Sulivan.
	$26_{\frac{3}{10}}$	$4\frac{1}{2}$	20	2		Sir Edmund G. Loder, Bart.
	26 <u>1</u>	5	19	Alwar	•	H.H. the Maharaja of Alwar.
	261	5	$23\frac{1}{8}$	Oudh		E. St. J. Lawson.
	261	5	231	Bikanir .		H.H. the Maharaja of Kotah.
	26	5	$2$ I $\frac{7}{8}$	Do		LieutCol. H. W. Codrington.
	254	43	19	Jeypore		Hon. A. Holland-Hibbert.
	$25\frac{3}{4}$	43		Agra		Capt. F. W. Van der Kiste.
	25 <u>5</u>	5‡	19	?		Lady Jenkins.
	$25\frac{1}{2}$	478	18	Punjab		LieutCol. R. H. Rattray.
	251	43	19	Jeypore		A. B. Graves.
	$25\frac{1}{8}$	518	15	Kathiawar .		LieutCol. L. L. Fenton.
	25	5	181	?		LieutCol. H. G. Mainwaring.
	$24\frac{3}{4}$	5	20	Jeypore		LieutCol. J. B. Buchanan.
	$24\frac{3}{4}$	$4\frac{1}{2}$	171	Dholpur		A. J. Coppinger.

BLACKBUCK

Length straight. $24\frac{1}{2}$	Circum- ference. $5\frac{1}{2}$	Tip to Tip. IS‡	Locality. ?		Owner. Capt. G. S. Bull,
$24\frac{1}{2}$	5	15	?		The late Earl of Minto.
$24\frac{1}{2}$	5	18	Bikanir		P. B. Vander Byl.
		01	WNER'S MEASU	REM	IENTS.
$30\frac{1}{2}$			?		Capt. J. MacRae-Gilstrap.
$^{1}28\frac{3}{4}$			Jeypore		General Sir B. Blood.
28		20	Do		LieutCol. P. Durell Pank.
28	5	15	Near Ahmedabad		T. Le Mesurier.
$27\frac{3}{4}$	51/2	16 <u>1</u>	Jeypore		R.E. Mess, Roorkee.
27	5	$20\frac{3}{4}$	Rajputana .		BrigSurg. A. D. Campbell.
27	5	$19\frac{1}{2}$	Bikanir		Capt. Harry V. Brooke.
26 <u>3</u>	5	$21\frac{3}{8}$	Punjab		Major R. P. Wemyss Quin.

<sup>1</sup> Measured and recorded by the late Mr. A. O. Hume, but not now in the possession of General Sir B. Blood.



Head of Blackbuck.



Head of Goa.

## The GOA or TIBETAN GAZELLE (Gazella [Procapra] picticaudata).

The goa is the typical representative of a subgenus of gazelles characterised by the short tail, the absence or small size of the face-glands and the tufts of hair on the knees, and the lack of horns in the female. Face-markings are also wanting. As a species, the goa 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 large size of the white rump-patch, and the pale colour of the coat. 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.
143	$3\frac{3}{4}$	5	Ladak	•	Sir Edmund G. Loder, Bart.
14 <u>1</u>	35	2	Hanle, Spiti .	•	Hon. Walter Rothschild.
13 <del>7</del> 8	$3\frac{1}{2}$	83	Gyantse, Tibet		Capt. R. S. Kennedy.
134	34	3	Ladak		Major G. F. Mockler.
131	38	54	N. of Sikhim .	·	British Museum (Hume Collection).
13 <u>1</u>	38	5	Tibet		C. Hamilton.
13 <sup>1</sup> /8	43	33	Ladak		Major Neill Malcolm.

# GOA OR TIBETAN GAZELLE

Length on front curve.	Circum- ference.	Tip to Tip.	Locali	ty.		Owner.
13 <sup>1</sup> / <sub>5</sub>	4	35	Tibet .			H. C. V. Hunter.
13	$4\frac{1}{8}$	$4\frac{1}{2}$	East Ladak		•	Col. J. Biddulph.
13	34	$I\frac{1}{2}$	?			Major C. B. Vandeleur.
13	$3\frac{7}{8}$	45	?			Capt. W. T. Hodgson.
13	3 <sup>8</sup>	41	Tibet .	•		P. K. Wise.
13	34	5용	N. of Sikhim	•		Major A. Pearse.
$\mathrm{I}2rac{3}{4}$	$3\frac{3}{4}$	6 <u>1</u>	?			E. McClellan.
$I2\frac{3}{4}$	4	$6\frac{1}{4}$	Ladak .			Baroda State Museum.
$12\frac{3}{4}$	4	4 <del>3</del>	Do			Earl of Ilchester.
125	$3\frac{1}{2}$	$2\frac{1}{4}$	Do			K. C. Zarzhetsky.
$12\frac{1}{2}$	38	5	Do			Dr. T. G. Longstaff.
$12\frac{1}{2}$	$3\frac{7}{8}$	$2\frac{1}{2}$	?			Major Lord Charles M. Nairne.
$I2\frac{1}{2}$	$3\frac{1}{2}$		?			G. W. Grabham.
123	$3\frac{1}{2}$	$5\frac{1}{2}$	South of Har	ıle		Col. F. C. Lister-Kay.
121	33	$2\frac{1}{2}$	?			T. R. Ubsdell.
$I2\frac{1}{4}$	$3\frac{1}{2}$	6‡	Ladak .			The late David T. Hanbury.
121	3 <del>3</del> 4 ,	4	Tibet .		•	W. A. Conduitt.
$I2\frac{1}{4}$	$3\frac{3}{4}$	$4\frac{1}{2}$	Do			Major F. G. T. Deshon.
12	34	$3\frac{5}{8}$	Kan-su, Tibe	t Bor	ler	K. K. Horn.
		0	WNER'S MI	EASU	RE	MENTS.
14			Ladak .			Major Brown.
14			Do			C. C. Winn.
138	$3\frac{1}{2}$	$6\frac{1}{8}$	Do			Capt. F. M. Bailey.
131	$3^{\frac{1}{2}}$	3	Do			LieutCol. H. W. Codrington.
13 <sup>1</sup> / <sub>8</sub>	3 <del>5</del>	$6\frac{1}{4}$	S.E. of Hanl	e		Major P. H. G. Powell-Cotton.
13	3 <sup>3</sup> / <sub>4</sub>	5 <sup>3</sup> / <sub>4</sub>	Tibet .			Bombay Natural History Society.
13	$3\frac{1}{2}$	4	Do			Capt. F. W. A. Wells.
$I2\frac{15}{16}$	3 <del>5</del>	4	Do			Officers' Mess, 3rd Gurka Rifles.
121	312	$7\frac{1}{2}$	Gyantse, Tib	et	•	Capt. A. O. Creagh.
						,



Head of Przewalski's Gazelle. Shot by Mr. G. Fenwick-Owen.

# PRZEWALSKI'S GAZELLE (Gazella [Procapra] 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.

Distribution.-Northern Kan-su and Ordos.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
$I2\frac{1}{2}$	4 <del>3</del>	$4\frac{1}{2}$	Nr. Shiakou, 2 days S.E. of Kanchow	G. Fenwick-Owen.
10‡	48	$2\frac{3}{4}$	?	British Museum.
10	4	45	5	II.R.H. Henri de Bourbon, Comte de Bardi.
9 <del>3</del>	$4\frac{1}{8}$	4 <sup>3</sup>	North of Pekin .	British Museum (R. Swinhoe).
9 <sup>3</sup>	45	ΙŢ	Nr. Shiakou, 2 days S.E. of Kanchow	H. F. Wallace.
$-8\frac{1}{16}$	37	48	North China	Paris Museum (Père A. David).



Frontlet and Horns of Altai Zeren Gazelle.

#### The ZEREN or MONGOLIAN GAZELLE (Gazella [Procapra] gutturosa).

Zeren or Seren, Mongolian.

Hwang-yang, Chinese.

Much larger than the goa, this species takes its name from the swollen condition of the throat of the bucks during the pairing-season. In addition to its size (height at shoulder, about 30 inches), it is characterised by the comparatively slight backward curvature of the light brown or grey horns, which are relatively small and not hooked at the tips; the general colour of the upper-parts and fronts of the legs in summer being pale fawn, with the front of the face light brown, and the white of the rump reaching to the sides of the short tail. The ears are relatively small. Rudimentary knee-tufts and small faceglands, as well as inguinal glands (lacking in the goa) are present.

*Distribution.*—The whole of northern Mongolia from the Kosh-Agatch steppe in the west to the Khingan region in the east. Also the central Gobi.

Two closely allied races are recognised, the typical *G. gutturosa typica* and the Altai *G. g. altaica*. The following specimens belong to the Altai race.

Length on front curve.	Circum- ference.	Tip to Tip.	Loo	cality.		Owner.
13 <del>3</del>	$4\frac{3}{8}$	$3\frac{1}{2}$	Altai			Sir Edmund G. Loder, Bart.
12	$4\frac{3}{8}$	6	Do.			J. H. Miller.
$11\frac{4}{3}$	$4\frac{1}{2}$	$5\frac{1}{2}$	Do.			Sir Edmund G. Loder, Bart.
11	43	43	Do.			St. George Littledale.
11	$4\frac{1}{2}$	$6\frac{1}{4}$	Do.			A. Louw.
II	4	7	Do.			British Museum (R. Hayne).
1078	4	65	Do.			P. B. Vander Byl.
$IO_2^{\frac{1}{2}}$	4	5불	Do.	•	•	Hon. Walter Rothschild.



Head of Goitred Gazelle. Shot by Mr. G. Fenwick-Owen.

#### The GOITRED GAZELLE (Gazella subgutturosa).

With this species we come to the true gazelles, in which the tail is considerably longer than in *gutturosa*, *przewalskii*, and *picticaudata*, being from six to eight inches in length and black, while tufts of long hair on the knees, glands on the face and in the groin are always developed. In immature animals a dark streak in front of the eyes is present, but in many adult specimens this and the light fawn of the upper part of the face are very indistinct and often wanting in the winter coat. Horns, which are absent in the female, relatively large and divergent. The rump-patch extends to the root of the tail, and the ears are small. Height at shoulder, from 26 to 27 inches. The larynx is swollen in males during the breeding-season, when it forms a prominence on the front of the upper part of the throat of the bucks. The Marica gazelle is smaller, with horns in the females.

There are two races of this gazelle, the Caspian and Persian G. s. *typica*, and the Altai G. s. sairensis, in which the size is large but the horns are relatively small.

Distribution.—From north-west Persia, eastern Asia Minor, and Caucasia in the west, through Russian Turkestan and Zungaria to the southern Gobi in the east.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
I 5 <sup>3</sup> / <sub>4</sub>	$4\frac{3}{4}$	$4\frac{1}{2}$	Persia	Sir W. Preece.
$-15\frac{1}{8}$	$4\frac{1}{4}$	71	Sheraz	Dr. Albert von Stephani.
I4 <u>3</u>	$4\frac{1}{2}$	$9\frac{1}{2}$	?	Hon. Walter Rothschild.
13 <del>7</del> 8	44	$7\frac{3}{4}$	Ili Valley	Capt. J. N. Price Wood.
13 <u>3</u>	$4\frac{1}{2}$	6	Saissan, W. Siberia .	British Museum (Dr. O. Finsch).
138	4 <u>5</u>	$4\frac{1}{4}$	S. Zungaria	J. H. Miller.
13 <u>1</u>	$4\frac{1}{2}$	5‡	San-cao-tion, Kan-su	G. Fenwick-Owen.
13	$4\frac{3}{4}$	41	Persia	E. Rennie.
121	$4\frac{1}{2}$	$5\frac{1}{2}$	San-cao-tion, Kan-su	H. F. Wallace.
			- Owner's measurements.	

#### The SAIKIK GAZELLE (Gazella yarcandensis).

## Saikik, Turki.

A larger species than the goitred gazelle, standing some 28 inches, with the ears much longer, the face-markings distinct, and the general colour darker. The horns, present only in the bucks, are somewhat heavier and longer than in the typical form, and the white markings on the rump extensive.

Distribution.-Chinese Turkestan from Yarkand to Lob Nor.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.	
17	$4\frac{1}{2}$	$6\frac{7}{8}$	Eastern Turkestan		Sir Edmund G. Loder, Bart.	
16	5	$3\frac{1}{4}$	Yarkand		British Museum (Hume Collection).	
-151		5	Maralbashi .		Sir H. Lennard, Bart.	
I4 <u>3</u>	4동	3	Eastern Turkestan	2	Major C. S. Cumberland.	
			- Owner's measurem	ents.		



Skull and Horns of Saikik Gazelle, in the possession of Sir Edmund G. Loder, Bart.

Length on front curve		Tip to Tip.	Locality.		Owner.
I41	5	$5\frac{1}{4}$	Tien Shan .		G. L. Harrison.
14	5	$5\frac{3}{4}$	Eastern Turkestan		Col. J. Biddulph.
I 3 <sup>3</sup> / <sub>4</sub>	5	4	Chinese Turkestan		J. V. Phelps.
133	478	$4\frac{1}{2}$	Do.		E. L. Phelps.
$13\frac{1}{2}$	$4\frac{3}{4}$	6 <u>5</u>	Maralbashi .	•	The late David T. Hanbury.
		Ο	WNER'S MEASUR	ΕM	ENTS.
I4 <u>5</u>	313	43	Lob Nor		Paris Museum (Prince Henri d'Orléans).

## THE SEISTAN GAZELLE (Gazella seistanica).

The Seistan gazelle of Eastern Persia differs by the much smaller extent of the white on the rump, which does not reach the root of the tail, and the white muzzle.

Length on front curve.	Circum- ference.	Tip to Tip.	Local	ity	Owner.
I44	5	$7\frac{3}{4}$	N. Persia .		Capt. C. T. Daukes.
14	4	38	Do		LieutCol. R. L. Kennion.
I2 <sup>3</sup> / <sub>4</sub>	4 <u>3</u>	5‡	Do		British Museum (LieutCol. R. L. Kennion).



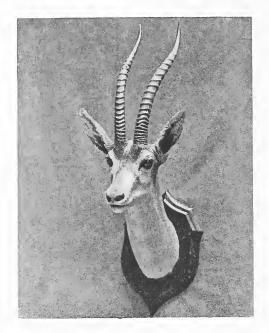
Heads of Seistan Gazelle and Kennion's Gazelle. The three upper figures are the Seistan, and the three lower (of which the middle one is a doe) Kennion's gazelle.

## KENNION'S GAZELLE (Gazella fuscifrons).

Allied to the last (which it serves to connect with the Indian gazelle), but with horns in both sexes, and no goitre in the throat of the bucks.

Distribution.—Typically Jalk, but ranging over Seistan and Kain to Baluchistan.

Length on front curve.	Circum. ference.	Tip to Tip.	Locality.		Owner.		
$14\frac{1}{2}$	$4\frac{3}{4}$	$4\frac{1}{2}$	Baluchistan			Capt. T. W. Greenfield.	
I 2	4	$3\frac{1}{8}$	S.E. Persia			LieutCol. R. L. Kennion.	
$II\frac{3}{4}$	4	$3\frac{1}{4}$	Do.			Capt. C. T. Daukes.	
9 <sup>1</sup> / <sub>2</sub>	3 <sup>3</sup> / <sub>4</sub>	38	Do.			Capt. A. McCleverty.	



Head of Indian Gazelle. Shot by Lieut.-Col. P. C. Palin.

#### The CHINKARA or INDIAN GAZELLE (Gazella bennetti).

Closely allied to the last species, this gazelle (the ravine-deer of many Anglo-Indian sportsmen) is characterised by the absence of in-turning of the tips of the horns, the restriction of the white on the rump to the back and inner sides of the thighs, so that it does not reach the root of the tail: the height at the shoulder varies from 25 to 26 inches, and the general colour of the upper-parts is dull fawn.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality		Owner.		
15§	$4\frac{3}{4}$	$5\frac{1}{2}$	?		LieutCol. P. C. Palin. (See illustration.)		
15§	41		Ferozepore	•	Mess of the 14th Sikhs.		
-15	5		Rajputana		H.H. Maharaj Rana Bahadur of Ihalawar.		
144	$4\frac{1}{2}$	8	Punjab .		C. H. Shanan.		
14 <u>3</u>	48	7‡	Sind .		Capt. J. L. Sleeman.		
1412	$4\frac{1}{2}$	85	Dholpur .		L. M. le Champion.		

Distribution .--- Peninsular India.

# CHINKARA OR INDIAN GAZELLE

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
14 <sup>1</sup> / <sub>2</sub>	$4\frac{3}{4}$	$7\frac{1}{8}$	Patiala		Major J. F. P. Langdon.
141	$4\frac{3}{4}$	6	Bikanir		J. A. ffolliott Powell.
141	4‡	3	Wana Plain, W istan.	azir-	A. J. Grant.
14	$3\frac{7}{8}$	$7\frac{1}{8}$	Patiala		Major R. P. Wemyss Quin.
14	$4\frac{1}{2}$	$6\frac{5}{8}$	Bikanir		Maharaja of Bikanir.
134	4‡	7	?		R. H. Edmondson.
13 <sup>3</sup> / <sub>4</sub>	4 <del>3</del>	$8\frac{1}{2}$	Sind		L. Napier.
135	43	$7\frac{1}{2}$	Bikanir		Capt. C. F. Vander Byl.
13 <u>1</u>	41	6흫	Muttra		Major G. F. Mockler.
13 <sup>3</sup>	$4\frac{1}{2}$	6‡	Punjab		R. H. Heath.
131	4	$4\frac{1}{4}$	5		Sir Edmund G. Loder, Bart.
134	4	$6\frac{1}{4}$	?		Major O. A. Chambers.
13‡	41	4	Khelat		British Museum (Hume Collection).
131	$4\frac{1}{2}$	$6\frac{3}{4}$	?		Mess of the 2nd Central Indian Horse.
13	$3\frac{1}{2}$	6	Bikanir		LieutCol. H. C. Morland.
13	3출	6	?		LieutCol. R. H. Rattray.
$12\frac{3}{4}$	41	5	Goorgaon, Punja	ıb.	${ m British}$ Museum (Hume Collection).
$12\frac{3}{4}$	4\$	$7\frac{1}{2}$	;		H. C. V. Hunter.
$12\frac{3}{4}$	44	5풍	North Punjab .		Col. J. Biddulph.
123	41	7	?		Major L. I. B. Hulke.
$12\frac{3}{4}$	4 <sup>1</sup> / <sub>8</sub>	54	Bikanir		Capt. E. N. Jones-Vaughan.
$12\frac{3}{4}$	4	6	Jodhpore	•	H.H. the Maharaja of Bikanir.
$12\frac{5}{8}$	4	8	?		J. Gouldsmith.
$\mathrm{I}2\tfrac{1}{2}$	4 <sup>3</sup> 8	63	?		Major A. D. Greenhill-Gardyne.
우 7圭	2	$2\frac{1}{2}$	;		Sir Edmund G. Loder, Bart.
우 7 <del>호</del>	53	$2\frac{1}{4}$	?		Sir Victor Brooke's Collection.



Horns of the Edmi Gazelle.

#### The EDMI or ATLAS GAZELLE (Gazella cuvieri).

The African representative of Kennion's gazelle and the chinkara, characterised by the horns in the bucks diverging more or less regularly upwards, and not incurving at the tips. There is a blackish spot on the tip of the muzzle, and the coat is rough. 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 white. Height at shoulder, 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.	Locality.			Owner.					
14 <del>3</del>	5	3 <del></del>	Algeria .				Sir Edmund G. Loder, Bart.				
14 <u>5</u>	$4\frac{3}{4}$	4‡	N. Tunis				J. I. S. Whitaker.				
1415	475	S	Constantine				British Museum (E. Richardson Cox).				
14§	$4\frac{3}{8}$	7	Do.	·	•	•	Royal Scottish Museum (E. Richard- son Cox).				
14 <u>1</u>	$3\frac{7}{8}$	$5\frac{1}{2}$	Algeria .	•							
-I41			Do. ,				C. S. Mann.				
-141	4	3‡	Do				American National Collection.				
우 13 <sup>7</sup> 8	31/2	$7\frac{1}{8}$	Do				E. N. Buxton.				
138	$4\frac{1}{2}$	$7\frac{1}{8}$	Do				Hon. G. Gordon.				
13	3‡	68	Do				A. F. Williams.				
13	4	5	Do				G. L. Harrison.				
11 9	$2\frac{1}{2}$	$5\frac{7}{8}$	Do				J. I. S. Whitaker.				
	- Owner's measurements.										

#### The ARABIAN GAZELLE (Gazella arabica).

From the edmi the ordinary Arabian race of this gazelle, as met with at Aden, may be distinguished by its smaller size, smoother hair, and darker colour, the general tint of the upper-parts being dark smoky fawn, with a distinct dark flank-band, the central face-band rufous fawn, and a black spot on the tip of the nose. The horns are relatively small. Height at shoulder, 24 or 25 inches. The Aden race has been named *G. a. erlangeri*; the typical race, *G. a. typica*, which is from the island of Farsan, in the Red Sea, being lighter, with no dark flank-band. The Sinaitic *G. a. rueppelli* is coloured like *dorcas* with the face-markings of *a. erlangeri*; the nose being reddish brown with a distinct blackish spot.

Distribution.—Western and South Arabia, where it is known as ghasal, its Syrian title being ariel or aiel.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owne1.
$IO_{\pm}^3$	43	43	Syria		II. H. Youssouf Kamal.
$-10\frac{1}{2}$	$4\frac{1}{8}$	$4\frac{1}{8}$	S. Arabia	•	Dr. Albert von Stephani.
$8\frac{1}{2}$	4	2	Mocha, South Arabia	•	British Museum (the late W. T. Blanford).
$- 27\frac{1}{2}$	2	$4\frac{3}{4}$	?		Charterhouse Museum.
$4\frac{7}{8}$	318	35	South Arabia		Sir Victor Brooke's Collection.
$94\frac{1}{2}$	$I\frac{3}{4}$	$2\frac{1}{2}$	?		Col. H. G. C. Swayne.



Head of Dorcas Gazelle.

## The DORCAS GAZELLE (Gazella dorcas).

Rozal or Hemar, Algerian Arabic.

Ghasal, Syria.

The typical race of this species is characterised by 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; ears short (125 mm.). Height at shoulder, 21 to 22 inches; total length, about 42 inches. General colour of upper-parts pale fawn, of rather variable tint, with the facemarkings distinct.

*Distribution.*—Typically Lower Egypt ; thence eastwards to Palestine and Syria ; westwards to the plains of Morocco, Algeria ; and southwards to Nigeria and the Sudan.

Length on front curve.	Circum- ference.	Tip to Tip.		Loca	ality.		Owner.
13½	35	$2\frac{1}{4}$		?			Sir Edmund G. Loder, Bart.
133	41	$2\frac{3}{4}$	Kordofan				F. P. Nathan.
13 <sup>1</sup> / <sub>8</sub>	4	$3\frac{1}{2}$	Syria .				H. H. Youssouf Kamal.
$-13\tfrac{1}{8}$			Kordofan				Capt. L. Buxton.
13	41	2	Sudan				Capt. B. W. Y. Danford.

## A.-TYPICAL RACE.

# DORCAS GAZELLE

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.
13	4	$3\frac{1}{2}$	El Obeid, Kordofan	n.		Capt. J. G. A. Massy.
$12\frac{7}{8}$	4	$2\frac{1}{2}$	Sudan			Capt. C. P. Heywood.
$12\frac{3}{4}$	$3\frac{7}{8}$	4	Algeria			A. Louw.
$12\frac{3}{4}$	4	45	Kordofan			Capt. J. C. Graham.
$12\frac{3}{4}$	4	$I\frac{3}{4}$	Do			Lord Villiers.
125	4	3	Ş			P. K. Glazebrook.
125	38	43-	Sudan			LieutGen. Sir B. T. Mahon.
$I2\frac{1}{2}$	4	3 <sup>용</sup>	Kordofan			Capt. P. E. Vaughan.
$\mathbf{I2}\frac{1}{2}$	35	$3\frac{3}{4}$	Southern Sahara			J. I. S. Whitaker.
$I2\frac{1}{2}$	4	$2\frac{3}{4}$	Kordofan			LieutCol. C. J. Hawker.
$\mathrm{I}2rac{1}{2}$	$4\frac{1}{2}$	3	Do			Major C. S. Cumberland.
123	3 <sup>3</sup>		Southern Sahara .			British Museum.
123	$3\frac{3}{4}$	2	Sudan			H.H. Prince Omar Toussoun.
121	4춫	3	Palestine			P. B. Vander Byl.
121	31	5	Kordofan	• .		G. L. Harrison.
$12\frac{1}{8}$	41	$3\frac{1}{2}$	Do			Major J. H. Rivers.
128	$3\frac{1}{2}$	$2\frac{3}{8}$	Do			Capt. R. A. McClymont.
12	3 <sup>3</sup>	$3^{\frac{1}{2}}$	Do			Capt. F.L. Livingstone-Learmonth.
12	3 <del>3</del>	$3\frac{1}{2}$	Do			B. Chew.
12	3ª	5 <sup>1</sup> 등	Do			Sir Robert Harvey, Bart.
12	$3\frac{1}{2}$	$2\frac{3}{4}$	Do			Capt. J. P. V. Hawksley.
12	4	$3\frac{3}{4}$	Southern Sahara			J. H. Thomas.
I I <del>7</del> 8	3 <sup>3</sup> / <sub>±</sub>	4홍	?			R. E. Fawkes.
IIZ	4	4	Kordofan .			Major G. Lumsden.
I I <del>7</del> 8	4	2	Do		•	Capt. C. E. Hills.
$11\frac{3}{4}$	41	518	Do	•	•	Walter Jones.
II $\frac{3}{4}$	4	4	Do			Norman B. Smith.
11 <del>3</del>	4	3 <del>3</del>	Algeria		•	E. C. Miller.
11 <u>8</u>	3불	$I\frac{3}{4}$	Dongola	•		Capt. W. H. Wilkin.
♀ıı‡	2 <sup>3</sup> / <sub>16</sub>	54	Kordofan .	•	·	Major J. H. Rivers.
ΙI‡	4	$3^{\frac{1}{2}}$	N. Nigeria .	•		C. S. Burnett.
$10\frac{3}{4}$	41	$2\frac{1}{4}$	Lake Chad .	•	•	Major J. K. Cochrane.
- 9 9 <del>8</del>			Algeria	·		A. E. Pease.

#### B.-ABYSSINIAN (ISABELLA) RACE (Gazella dorcas isabella).

Gannai of the natives.

The so-called Isabella gazelle is now regarded as the Abyssinian race of *dorcas*. It is typically characterised by the tips of the horns being strongly hooked inwards so as to form nearly or completely a right angle. The colour of the upper-parts is rufous fawn, with the lateral band well developed. Height at shoulder, about 25 inches.

#### Distribution.-Abyssinia.

	Circum- ference.	Tip to Tip.	Locality.	Owner.
101	3 <del>3</del>	4	Komayli, Abyssinia	British Museum (the late W. T. Blanford).

#### ERYTHRÆAN GAZELLE (Gazella littoralis).

Ghazal of the Sudanese.

Rather smaller than *G. dorcas*; general colour pale reddish fawn, with a pale lateral band, and the dark flank-band rich rufous or madderbrown; nose-spot blackish; ears very long, 144 mm. Skull long and low, with the brain-case flatter, the profile from crown to occiput less nearly vertical, and the basisphenoid more inclined than in *dorcas*; auditory bullæ small; row of upper cheek-teeth larger (56 mm.) than in *dorcas* but the molars narrower.

Distribution.—The African coast of the Red Sea, from Suakin northwards, and adjacent parts of Nubian desert.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
118	4	3	Red Sea Province		H. G. Watson.
11	3 <del>5</del>	$3\frac{3}{4}$	Do.	•	Capt. the Hon, G. H. Douglas- Pennant.
II	37	$2\frac{2}{4}$	Do.	•	W. B. Cotton.
II	4	$3\frac{1}{2}$	Do.		G. L. Harrison.
$10\frac{7}{8}$	3	38	Do.		P. H. Thomas.
IOZ	4‡	$4\frac{5}{8}$	Do.		Capt. P. C. Lord.
$10\frac{3}{4}$	4	$4\frac{1}{4}$	Do.		N. C. Cockburn.
105	3=1	31	Do.		W. Mure.
108	4	$3\frac{1}{2}$	Do.		W. H. Lindsay.
$10\frac{1}{2}$	$3\frac{1}{2}$	3	Do.		G. C. Whitaker.
103	$3\frac{1}{2}$	2	Do.		J. H. Miller.
10‡	$3\frac{3}{4}$	4	Suakin		C. E. Russell.
101	31	$2\frac{1}{2}$	Sudan		Major H. II. S. Morant.



Head of Speke's Gazelle.

#### SPEKE'S GAZELLE (Gazella spekei).

## Dhero, Somali.

From the edmi and its allies, with which it agrees in its leading characteristics, this gazelle is readily distinguished by the development of a flabby corrugated elevation on the skin of the nose of both sexes. The coat is thick and the general colour of the upper-parts 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 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 seems therefore capable of distension during life.

Distribution.-The plateau of Somaliland.

Length on front curve.	Circum- ference.	Tip to Tip.	Loc	ality.		Owner.
$I2\frac{1}{2}$	4	5 <del>7</del> 5	Somalilan	d.		Col. P. Schletter.
II $\frac{3}{4}$	$3\frac{3}{4}$	3불	Do.			A. F. Williams.
I I <del>3</del>	3 <del>3</del>	45	Do.			Col. H. G. C. Swayne.
115	3축	$2\frac{1}{2}$	Do.			Gen. Sir Arthur Paget.
II $\frac{1}{2}$	48	$2\frac{3}{4}$	Do.			T. W. II. Clarke.
II $\frac{1}{2}$	3 <sup>3</sup> / <sub>4</sub>	3章	Do.			Capt. A. H. W. Temple.

Length on front curve.	Circum- ference.	Tip to Tip.	Loca	lity.			Owner.
113	3 <del>7</del>	25	Somalilan	đ.			Capt. H. du B. O'Neill.
111	4	$4\frac{1}{4}$	Do.				Col. H. D. Olivier.
111	4	4	Do.				W. H. Cobb.
111	$4\frac{1}{8}$	4	Do.				Capt. H. W. Thorpe.
I I 1 4	$3\frac{1}{2}$	4	Do.		•		A. de L. Long.
I I 1 4	4	4	Do.	•	•		Major P. C. Elliott-Lockhart.
111	4	41	Do.				Capt. F. R. Tarleton.
-114	4	5‡	Do.		•		R.E. Mess, Roorkee.
113	4	5‡	Do.				C. Liddell.
II	4	$4\frac{1}{2}$	Do.		•		J. H. Whitehouse.
II	4	4	Do.				A. H. Straker.
11	37	5	Do.				LieutCol. H. C. Morland.
I I	$4\frac{1}{8}$	35	Do.				Lord Delamere.
II	$3\frac{1}{2}$	4	Do.		•	•	Capt. A. E. H. Breslin.
11	4	$2\frac{3}{4}$	Do.	•			Dr. R. E. Drake-Brockman.
$10\frac{3}{4}$	4	43	Do.				P. H. Thomas.
$10\frac{3}{2}$	3‡	3 <sup>3</sup>	Do.				Sir Edmund G. Loder, Bart.
$10\frac{1}{3}$	3 <sup>3</sup> / <sub>4</sub>	45	Do.		•		J. H. Miller.
$10\frac{3}{4}$	48	54	Do.				Major B. R. M. Glossop.
$10\frac{3}{4}$	4	4	Do.				R. McD. Hawker.
$10\frac{3}{4}$	33	3	Do.		•		C. N. Welsh.
$10\frac{4}{3}$	3=	34	Do.		•	•	E. Lort-Phillips.
$IO_{\pm}^{3}$	4	34	Do.				Major B. Vincent.
$10\frac{3}{4}$	4	$4\frac{3}{4}$	Do.		.8		A. Louw.
103	4	31	Do.				Col. E. St. C. Pemberton.
$9^{\frac{1}{2}}$	$2\frac{7}{8}$	$3\frac{1}{4}$	Do.				T. W. H. Clarke.

- Owner's measurements.



Head of Pelzeln's Gazelle.

#### PELZELN'S GAZELLE (Gazella pelzelni).

Dhero, Somali.

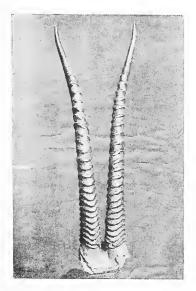
This species, the lowland gazelle of Somaliland, is nearly related to the last, from which it differs by the absence both of the corrugated elevation on the nose and of the black spot on the muzzle. It is also slightly larger than Speke's gazelle, the height at the shoulder being about 25 inches; and its colour is somewhat more rufous, the light flank-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.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.		
14	$4\frac{1}{2}$	415	Somaliland		•		Sir Edmund G. Loder, Bart.	
$13\frac{1}{2}$	$3\frac{3}{4}$	4 <sup>3</sup> / <sub>4</sub>	Do				W. Mure.	
13	$4\frac{1}{4}$	$4\frac{3}{4}$	Do.		•		A. de L. Long.	

•						
Length on front curve.	Circum- ference.	Tip to Tip.	Locality	5.		Owner.
13	4	61	Somaliland			H. D. Briggs.
$I2\frac{7}{8}$	$3\frac{1}{2}$	58	Do.			Capt. H. McLear.
$I2\frac{7}{8}$	$3\frac{7}{8}$	53	Do.			Capt. H. C. Dobbs.
$12\frac{3}{4}$	4‡	43	Do.		•	R. P. Dennistoun-Webster.
I $2\frac{1}{4}$	33	$4\frac{1}{4}$	Do.			Col. H. G. C. Swayne.
I 2 <u>1</u>	$4\frac{1}{8}$	$5\frac{1}{2}$	Do.			Lord Delamere.
I21/4	4	45	Do.			Major K. L. W. Mackenzie.
I 2	$3\frac{1}{4}$	57	Do.			Capt. F. W. Richey.
12	3=	$4\frac{1}{2}$	Do.			Major A. G. Stevenson.
I 2	3=	51	Do.			Viscount Edmond de Poncins.
I <b>2</b>	$3\frac{1}{2}$	$5\frac{1}{4}$	Do.		•	Major C. R. Kelly.
113	4	5	Do.			Lieut. H. V. B. Firman, R.N.
II 3	$4\frac{1}{8}$	4	Do.			Dr. R. E. Drake-Brockman.
11 <u>5</u>	4	$3\frac{1}{2}$	Do.			Capt. H. du B. O'Neill.
II $\frac{1}{2}$	$3\frac{1}{2}$	$5\frac{1}{2}$	Do.			T. W. H. Clarke.
$II\frac{1}{2}$	$3\frac{1}{2}$	41	Do.			LieutCol. H. C. Morland.
II $\frac{1}{2}$	$3\frac{1}{2}$	5	Do.			Capt. W. H. Williamson.
$1 I \frac{1}{2}$	$3\frac{3}{4}$	$4\frac{1}{4}$	Do.			C. S. Mann.
II $\frac{1}{2}$	$3\frac{3}{4}$	458	Do.		•	W. F. Whitehouse.
$II\frac{1}{2}$	$3\frac{1}{2}$	$4\frac{1}{2}$	Do.	•		Capt. G. W. Denison.
Ŷ 9			Do.	•		C. S. Mann.
♀ 8 <u>↓</u>	$2\frac{1}{8}$	$3\frac{1}{2}$	Do.		•	W. F. Whitehouse.

## RHIM OR LODER'S GAZELLE



Horns of Loder's Gazelle.

#### The RHIM or LODER'S GAZELLE (Gazella leptoceros).

## Rhim, Arabic.

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. This species is easily recognisable by the long and slender form of the nearly straight horns of the bucks, and the very pale tone of colouring of the upper-parts, which may be described as pale sandy fawn, with the characteristic gazellemarkings 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. Knee-brushes very small. Height at shoulder, about 28 inches. Weight, 34 lbs.

 $\mathbf{S}$ 

Distribution.—The desert tracts of the interior of Western Egypt, thence extending southwards into Nubia and Sennar; represented by a distinct race on the sand-dunes of the Algerian and Tunisian Sahara.

## A.-TYPICAL RACE.

Length on front curve.		Tip to Tip	. Locality.		Owner.
131	41	51	Fayum, Egypt		Capt. S. S. Flower.

## B.—TUNISIAN RACE (G. leptoceros loderi).

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
15 <del>7</del>	33	$7\frac{1}{2}$	Tunisian Sahara		Sir Edmund G. Loder, Bart.
15 <del>1</del>	$3\frac{1}{2}$	61	South of Biskra		Dr. Dawtrey Drewitt.
153	4	$4\frac{1}{4}$	Tunisian Sahara		J. I. S. Whitaker.
15	34	$7\frac{3}{4}$	Algerian Sahara		G. L. Harrison.
15	$3\frac{1}{2}$	$4\frac{1}{4}$	?		J. C. Phillips.
142	$3\frac{1}{2}$	$5\frac{1}{2}$	South of Biskra	•	American National Collection.
$14\frac{7}{16}$	3 <del>3</del>	4 <del>3</del>	Algerian Sahara		Sir Abe Bailey.
143	$3\frac{1}{2}$	8	?		C. S. Mann.
141	3 <sup>3</sup>	$6\frac{1}{2}$	Algerian Sahara		H.H. Prince Omar Toussoun.
141	$3\frac{1}{2}$	10‡	Do		Sir Edmund G. Loder, Bart.
14	3 <del>7</del>	3	Do	•	Hon. R. A. Ward.
135	38	$5\frac{1}{2}$	Do		W. E. Pease.
131	3 <del>3</del>	8봋	Tunisian Sahara		Sir Edmund G. Loder, Bart.
13 <sup>1</sup> / <sub>2</sub>	$3\frac{1}{2}$	IO	Algerian Sahara		British Museum.
13 <del>1</del>	$3\frac{1}{2}$	34	?		A. Louw.
131	31/2	54	Tunisian Sahara		J. I. S. Whitaker.
¢11 <del>3</del>	2	38	Do.		Sir Abe Bailey.



Head of Heuglin's Gazelle.

#### HEUGLIN'S GAZELLE (Gazella tilonura).

# Tel-Badu, Tigri.

This well-marked species represents 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, Abyssinia, Sennar, and Northern Bahr-el-Ghazal.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
I I <del>7</del> 8	$4\frac{1}{4}$	$3\frac{1}{2}$	Atbara River .		W. B. Cotton.
I I <sup>3</sup> / <sub>4</sub>	5	2	Sudan		Major F. J. L. Howard.
II $\frac{1}{2}$	$4\frac{1}{2}$	2	Atbara River .		W. B. Cotton.
I I <del>5</del>	4	7	Sudan		H. Leney.
II	4	$3\frac{1}{2}$	Do		Lord Villiers.
10 <u>7</u> 8	$4\frac{1}{2}$	$2\frac{1}{2}$	Do	•	H. Boughton Leigh.
$10\frac{3}{4}$	3 <sup>3</sup>	$4\frac{1}{2}$	?		E. Lort-Phillips.
$IO_{4}^{3}$	4	$2\frac{1}{8}$	Bogosland .		British Museum.
$IO_2^1$	48	3	Near Kassala .		Prince Colloredo Mannsfeld.
101	$4\frac{1}{2}$	$3\frac{1}{2}$	Sudan		C. E. Russell.
101	4통	$4\frac{1}{4}$	Basaland .		Hon. Walter Rothschild.
101	48	$2\frac{7}{8}$	?		Col. Ralph Vivian.
IO	48	$2\frac{1}{2}$	Setit Valley .		Earl of Sefton.
Ŷ7	$2\frac{1}{2}$	37	Do		Do.



Skull and Horns of Red-fronted Gazelle.

#### The KORIN or RED-FRONTED GAZELLE (Gazella rufifrons).

Seni, Gambian. El Hamra, Dinka. Bavewa, Hausa. Ngār, Sudani.

This medium-sized and rather stoutly built species agrees with Heuglin's gazelle in the narrow dark brown flank-band, but differs by the absence of a distinct inward hooking of the tips of the horns. The general colour of the upper parts is deep sandy rufous, brightening into rich rufous on the forehead and face, where there is no nose-spot. 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, Gambia, Northern Nigeria, Kordofan, and White Nile, to Northern Uganda. The typical race is from Gambia and Nigeria; the eastern race being distinguished as G. r. lævipes, with which the so-called G. salmi is identical.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
131	45	5물	Northern Nigeria	Capt. C. V. Boyle.
121	5	$4\frac{1}{2}$	Do.	Capt. L. C. Brodie.
12	$4\frac{1}{4}$	5 <sup>3</sup> / <sub>4</sub>	Do.	Capt. A. C. Aubin.
1 I <sup>3</sup> / <sub>4</sub>	41	34	Do.	Capt. G. Bonham-Carter.
I I <sup>1</sup> / <sub>2</sub>	$4\frac{3}{4}$	$4\frac{1}{2}$	Do.	H. C. Bridges.
1112	4\$	$4\frac{3}{4}$	Do.	C. Francis.
II <u>1</u>	41	$4\frac{3}{4}$	Do.	Capt. G. C. Kelly.
II <del>]</del>	$4\frac{1}{2}$	43	Do.	Capt. C. C. West.
II. <u>1</u>	41	4 <sup>3</sup> / <sub>4</sub>	Do,	F. B. Gall.
111	$4\frac{3}{4}$	4	Do.	Major R. McDouall.
II	$4\frac{1}{2}$	$3\frac{1}{4}$	Do.	C. S. Burnett.
II	4‡	4\$	Do.	Major J. G. Browne.
II	$4\frac{3}{4}$	48	Do.	Capt. Lord Henry Seymour.
♀ 9 <sup>1</sup> 3	$2\frac{1}{2}$	$4\frac{1}{2}$	Do.	Capt. L. C. Brodie.

# A.-TYPICAL RACE (G. rufifrons typica).

# B.-EASTERN RACE (G. rufifrons lævipes).

Length on front curve.	Circum- ference.	Tip to Tip.	Locali	ty.		Owner.
13 <del>3</del>	5‡	$7\frac{1}{2}$	White Nile			LieutCol. J. W. Yardley.
I 3‡	$4\frac{3}{4}$	678	Kordofan .			B. Chew.
13	51	8	White Nile			F. W. Greswolde-Williams.
13	4\$	43	Do.			Capt. R. F. Balfour.
13	$4\frac{1}{2}$		Do.			Capt. A. II. Vivian.
$12\frac{7}{8}$	41	51	Kordofan .			Col. A. Colville.
$I2\frac{3}{4}$	$4\frac{1}{2}$	7불	Do			Capt. C. E. Hills.
$12\frac{3}{4}$	$4\frac{7}{8}$	7	White Nile			Capt. B. W. Y. Danford.
125	4 <del>3</del>	7	Do.			R. McD. Hawker.
125	$4\frac{3}{4}$	$4\frac{1}{4}$	Kordofan .			Capt. B. H. S. Romilly
125	4\$	6 <u>§</u>	White Nile			H. Cookson.
$I2\frac{1}{2}$	5	5	Do.			Capt. E. Berry.
$I2\frac{1}{2}$	$4\frac{3}{4}$	61	Do.			Capt. J. C. Graham.
$12\frac{1}{2}$	$4\frac{1}{2}$	6	Do.			J. C. Phillips.
$I2\frac{1}{2}$	5	$5\frac{1}{2}$	Kordofan .			Sir Robert Harvey, Bart.
128	5	41	White Nile			C. Cookson.
123	5	$5\frac{3}{4}$	Do.			R. H. Willan.
124	418	5용	Do.			LieutGen. Sir B. T. Mahon.
121	$4\frac{1}{2}$	5 <del>3</del>	Do.			C. Bower Ismay.
$12\frac{1}{8}$	44	5 <sup>3</sup> / <sub>4</sub>	Do.			Col. II. W. Guinness.
I 2	$4\frac{3}{4}$	6	Do.			Norman B. Smith.
12	4\$	58	Do.			Major J. F. Wolseley.
12	41	6	Do.			Lieut. W. B. Drury, R.N.
I 2	$4\frac{3}{4}$	5‡	Do.			T. D. M. Cardeza.
I 2	$4\frac{3}{4}$	41	Kordofan .			LieutCol. C. J. Hawker.
12	5	6	Sudan .			A. L. Butler.
$\begin{array}{c} \bigcirc 10\frac{1}{2} \end{array}$	23	$2\frac{3}{4}$	Kordofan .			G. L. Harrison.



Head of Mongala Gazelle. From the type specimen.

## MONGALA GAZELLE (Gazella albonotata).

Closely allied to G. thomsoni, of which it may be merely a race.

*Distribution.*—According to the late Capt. H. S. Logan, from Gondokoro, in Uganda, to Bor, in the Mongala district of the Sudan, on the Abyssinian side of the Bahr-el-Gebel.

Length on front.	Circum- ference.	Tip to Tip.	Locali	y.	Owner.
$12\frac{3}{4}$	4‡	$6\frac{1}{4}$	Mongala .		Capt. P. E. Vaughan.
I25	4축	4	Do		P. Niedieck.
121	48	61	Do.		Major A. W. Jennings Bramly.
I 2	5	3	Do		Duke of Alba.
I 2	$4\frac{3}{4}$	5	Do		Capt. E. E. B. Mackintosh.
117	5	5	Do		Capt. R. F. Balfour.
113	. 4‡	5	Do.		Capt. B. W. Y. Danford.
111	4‡	3 <sup>3</sup> / <sub>4</sub>	Do. ,		Major P. M. Dove.
II	41	41	Do		Capt. P. A. Wilson.
107	$4\frac{1}{2}$	3	Pibor River		Col. J. J. Asser.
IOZ	$4\frac{1}{2}$	38	Mongala .		J. V. Colby.
IO	48	53	Do, .		Hon. Walter Rothschild.
우 4 <sup>3</sup>	1 <del>1</del> 8	I 1/2	Do		(Type specimen.) C. Logan.



Heads of Thomson's Gazelle.

#### THOMSON'S GAZELLE (Gazella thomsoni).

Swalla, Swahili. Engoli, Masai.

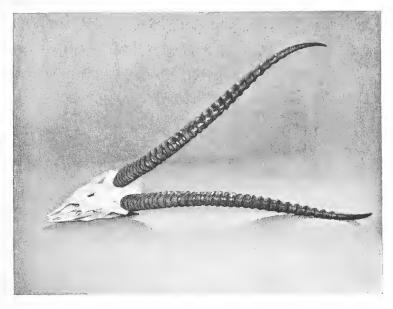
The distinct black nose-spot, the pure white eye-streak, and the great depth of the black flank-band serve to distinguish this species from *G. rufifrons*; with which it agrees in the general form of the horns. The prevailing colour of the upper parts is deep sandy rufous, with all the markings well developed and sharply defined; the central face-streak being a deeper rufous mingled with black, and having a black spot, and the light flank-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. The horns are long, and rather like those of the Indian gazelle on an enlarged scale. Height at shoulder of males, from about 25 to 27 inches; of females, about  $23\frac{1}{2}$  inches. Weight of bucks, from 52 to 62 lbs.; of does, about 32 lbs. The species has been divided by a German naturalist into a number of races, but at least many of these can scarcely be regarded as valid.

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

Length on front curve.	Circum- ference.	Tip to Tip.	Local	lity.		Owner.
16 <u>1</u>	5	$4\frac{1}{4}$	East Africa			H. Fowler.
161	$4\frac{1}{2}$	5	Do.			Earl of Kingston.
16	45	$4\frac{1}{2}$	Do.			W. A. Baird.
16	43	37	Do.			Lady Margaret Loder.
$15\frac{7}{8}$	$4\frac{1}{2}$	55	Do.			J. G. Millais.
-58 15 <del>3</del>	$\frac{+2}{4\frac{1}{2}}$	58 7	Do.			Sir Richard Dane.
15 <del>4</del>	42 5	7 413	Do.			R. de la Huerta.
154 15 <sup>2</sup>	5 5‡	43 $4\frac{3}{4}$	Do.	·	·	H. Irvine.
÷	5年 4章	41 6	Do.	•	·	W. N. McMillan.
15 <sup>3</sup> / <sub>4</sub>		-			•	C. W. Turner.
154	$4\frac{7}{8}$	$4\frac{1}{2}$	Do.	•	·	
15 <u>3</u>	5	43	Do.	·	·	W. P. Lowe.
158	$4\frac{1}{2}$	51	Do.	•	·	Major H. B. Dalgety.
153	48	3불	Do.	•	•	C. J. Murray.
I 5½	$4\frac{1}{2}$	$6\frac{1}{2}$	Do.		•	E. M. Crosfield.
151	5	3불	Do.		•	F. W. Belt.
$15\frac{1}{2}$	$4\frac{3}{4}$	$5\frac{1}{2}$	Do.	•	•	Duke of Peneranda.
$15\frac{1}{2}$	$4\frac{3}{4}$	$3\frac{3}{4}$	Do.	•	•	Sir F. J. Jackson.
151	$4\frac{1}{2}$	3	Do.	•	•	Capt. M. L. Pears.
15 <u>1</u>	41	$5\frac{3}{4}$	Do.	•	·	G. Henry.
158	43	5	Do.	•	•	Stephenson R. Clarke.
158	51	4 <del>1</del> 8	Do.		·	G. P. L. Cosens.
15용	418	3	Do.	·	•	The Master of Belhaven.
15‡	4 <sup>3</sup> / <sub>4</sub>	51	Do.	•	·	N. C. Cockburn.
15 <del>1</del>	$4\frac{3}{4}$	48	Do. Do.	•	·	British Museum (Sir F. J. Jackson).
15‡ 15‡	4월 4월	4 <sup>1</sup> / <sub>5</sub>	Do. Do.	•	·	Major A. E. Smith. Guy Fenwick.
15 <del>1</del> 15 <del>1</del>		5 4 <sup>3</sup>	Do.	·	•	C. B. C. Storey.
154 15‡	5 5	48 31	Do.	·	•	Gerard Buxton.
154 15 <del>1</del>	5 4 <sup>1</sup> / <sub>2</sub>	5∓ 113	Do.	•		F. C. Cobb.
15±	$4\frac{3}{4}$	6	Do.			Sir J. Hume Campbell, Bart.
15k	$4\frac{7}{8}$	5 <del>3</del>	Do.	÷	·	Lord Basil Blackwood.
15 <sup>1</sup> / <sub>5</sub>	45 45	6	Do.	ż		Capt. C. Brook.
15 <sup>1</sup> / <sub>8</sub>	5불	5	Do.			I. N. Dracopoli.
15 <sup>1</sup> / <sub>8</sub>	5	6 <u>‡</u>	Do.			Major W. E. Stobart.
15	44	4	Do.			H. B. Tate.
15	$4\frac{1}{2}$	51	Do.			Major C. U. Price.
15	$4\frac{1}{4}$	5孝	Do.			B. Dominick.
15	5	4	Do.			J. F. Franks.
15	$4\frac{1}{4}$	$4\frac{5}{8}$	Do.			Capt. W. H. Wilkin.
15	5	$5\frac{3}{4}$	Do.			F. Santos Saurez.
15	45	43	Do.			Capt. R. A. McClymont.
15	5	4	Do.	•	•	W. J. Barry.
15	5	6	Do.		•	Lord Wodehouse.

# OWNER'S MEASUREMENTS:

163	51	51	German East	Africa	S. E. White,
16	41	2	East Africa		C. S. Mann.
₽6 <u>1</u>	2	$2\frac{1}{2}$	Do.		C. Steuart Betton.



#### Skull and Horns of Grant's Gazelle.

#### GRANT'S GAZELLE (Gazella [Nanger] granti).

Suara, Swahili. Ngoli, Nodorobo.

This handsome species is the first of a group of gazelles characterised by their large size and by the fawn colour of the back being encroached upon to a greater or less degree by the white of the rump. In this species the horns are very long and typically lyrate; there is a dark streak on the front border of each side of the rump-patch; the middle face-streak is chestnut, with a black nose-spot; and the tail, with the exception of the black crest, is either wholly white, or sandy above and white beneath. On the neck and back the hair has a peculiar wavy appearance, recalling that of watered silk. Height at shoulder, from about 32 to 34 inches; weight of male, from about 150 to 165 lbs., when cleaned, about 115 lbs.

Distribution.—East Africa; throughout Masailand, Kilimanjaro, north of Baringo, Mount Elgon, and the Suk country; generally on open grass-lands. In *G. granti typica*, of the interior of East Africa, the flank-bands are faint in the adult, and the fawn area does not extend far on to the white of the rump-patch. In the Usukuma race, *G. g. robertsi*, the horns show a peculiar outward twist, so that their points are far apart. In the Tana *G. g. petersi* the stature is smaller, the horns are nearly straight, and the fawn

of the back extends along the middle of the upper surface of the tail. In the Loroghi *G. g. notata* the flank-bands are very distinct with a dark one above and below the light one, and the horns are nearly straight. The Lado *G. g. brighti* is a small race, without dark flank-bands, and a narrow black border to the rump-patch. The Abaya *G. g. laccuum*, which is also rather small, has a dark flank-band in the young, and horns of the *petersi* type.

Length on front curve.	Circum- ference.	Tip to Tip.	Loc	cality.		Owner.
29	7	14	East Africa			R. O. Preston.
29	$6\frac{1}{2}$	$20\frac{3}{4}$	Do.			Sheffield Neave.
$28\frac{7}{8}$	63	13 <u>3</u>	Do.			A. Fowler.
$28\frac{3}{4}$	63	175	Do,			Capt. F. W. Barrett.
284	65	15 <sup>1</sup> / <sub>8</sub>	Do.		•	Sir F. J. Jackson.
281	$6\frac{1}{2}$	$I_{3\frac{1}{2}}$	Do.			Capt. E. C. Hamilton.
$28\frac{1}{4}$	7	$I7\frac{1}{2}$	Do.			Lord Wodehouse.
28	7	21	Do.			K. V. Painter.
28	$7\frac{1}{2}$	16	Do.			· Douglas M'Douall.
28	63	<b>2</b> 4§	Do.			Capt. N. E. Playfair.
27 \$	6 <u></u>	18 <u>3</u>	Do.			H. C. V. Hunter.
$27\frac{3}{4}$	6 <u>3</u>	14	Do.			J. Jay White.
27 <sup>3</sup> / <sub>4</sub>	$6\frac{3}{4}$	11	Do.			C. C. Wilson.
27 <sup>3</sup>	7	18	Do.			Major G. E. Tuson.
27 <sup>3</sup> / <sub>4</sub>	71	16 <u>8</u>	Do.			W. H. Levy.
$27\frac{1}{2}$	$6\frac{1}{2}$	$6\frac{1}{2}$	Do.	1		Capt. A. Neave.
271/2	7	17	Do.			Capt. D. H. Macdonell.
271/2	$7\frac{1}{4}$	13	Do.			LieutCol. G. S. McLoughlin.
27 <u>1</u>	7	174	Do.			R. B. Loder.
27 <sup>3</sup> 8	6 <u>3</u>	$20\frac{5}{8}$	Do.			H. Fowler.
27‡	63	$8\frac{3}{4}$	Do.			R. B. Seager.
271	$6\frac{1}{2}$	18 <u>7</u>	Do,			Sir Robert Harvey, Bart.
271	7	19	Do.			Marquis of Waterford.
271	7	167	Do.			E. H. Litchfield.
27	7	15‡	Do.		•	A. J. A. Douglas,
27	7	$I2\frac{1}{2}$	Do.		•	H. T. Barclay.
27	7	20	Do.		·	Major Lord J. S. Cavendish.
27	6≩	14‡	Do.			Dr. A. E. Herz.
27	$7\frac{1}{2}$	144	Do.			L. M. Douglas.
27	7	16 <u>3</u>	Do.			Hugh G. Barclay.

## A .-- Many of the following belong to the TYPICAL RACE.

# GRANT'S GAZELLE

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.		
27	$6\frac{1}{2}$	$22\frac{1}{2}$	East Africa				G. Williams.	
27	$6\frac{1}{2}$	$II_{4}^{3}$	Do.				C. W. Fuller.	
27	7	14 <del>3</del>	Do.				C. Fahnestock.	
27	$6\frac{1}{2}$	IO	Do.				Sir Owen Phillips.	
26 <u>3</u>	71	$I4\frac{1}{2}$	Do.				J. G. Millais.	
26=	7	14 <u>1</u>	Do.				A. Bayley-Worthington.	
$26\frac{3}{4}$	$6\frac{1}{2}$	$\mathbf{I2}\frac{1}{2}$	Do.				Capt. W. H. Wilkin.	

## OWNER'S MEASUREMENTS.

30‡	$7\frac{3}{4}$	20	Kilimanjaro		Major F. A. Dickinson.
$28\frac{1}{2}$	7	1 5 <del>3</del>	Do.		C. S. Mann.
♀ 26 <u>1</u>	$5\frac{1}{2}$	194	Do.		Nairobi Club.



Skull and Horns of G. granti robertsi.

# B.-USUKUMA RACE (G. granti robertsi).

<	curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
	29	$6\frac{3}{4}$	$23\frac{1}{2}$	?	W. N. McMillan.
	28	•••	$28\frac{1}{2}$	Kedong Valley .	 Capt. R. S. Hart.
	28	61	29	?	Capt. C. Brook.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality	5.		Owner.
$*27\frac{1}{2}$	$6\frac{1}{2}$	22	Lemek Valle	y		Capt. the Hon. O. H. Stanley.
$26\frac{3}{4}$	$6\frac{1}{2}$	20 <sup>1</sup> / <sub>4</sub>	East Africa			Mrs. A. K. Muir.
$26\frac{3}{4}$	61	20	Do.			C. Bower Ismay.
$26\frac{3}{8}$	6	$22\frac{1}{2}$	Do.			H. Johnson.
261	5 <del>3</del>	23\$	Do.			A. Fowler.
261	$6\frac{1}{2}$	251	Do.			H. Sampson.
261	$6\frac{1}{8}$	25 <del>3</del>	Do.			H. Fowler.
26‡	63	19 <u>3</u>	Do.			H. R. M'Clure.
26 <u>1</u>	6	17 <del>3</del>	Do.			G. P. L. Cosens.
261	6	$26\frac{1}{2}$	Do.			R. B. Muir.
26 <u>1</u>	61	24	Do.			J. F. Franks.
$25\frac{1}{2}$	6	${\rm I}8{\textstyle\frac{1}{2}}$	Do.			Capt. H. C. S. Ashton.
25 <del>8</del>	5뤃	$25\frac{3}{4}$	Do.			Capt. H. C. Hart.
$24\frac{3}{4}$	6	181	Do.	•		F. C. Stern.
$24\frac{1}{2}$		28	German East	Afri	ca	British Museum (F. Russell Roberts and G. Blaine).

## OWNER'S MEASUREMENTS.

$28\frac{1}{8}$	$5\frac{1}{2}$	$38\frac{1}{2}$	Sotik	•				R. J. Cuninghame.	
		* Determination provincial.							

# C.---TANA RACE (G. granti petersi).

# Distribution .-- Coast districts of East Africa.

Length on front curve.		Tip to Tip.	Lo	ocality.		Owner.
234	61	II	E. Africa .			Capt. R. Meinertzhagen.
$22\frac{1}{2}$	63	8	Voi .			Sir Edmund G. Loder, Bart.
$22\frac{1}{8}$	6 <u>3</u>	578	Mherereni			British Museum (Sir F. J. Jackson).
22	5音	$7\frac{1}{8}$	Tana Valley			G. Blaine.
$2I\frac{3}{4}$	$6\frac{1}{2}$	ΙI		?		Major L. Boyd-Moss.
$2$ I $\frac{1}{2}$	67	83		?		T. F. V. Buxton.
2 I 1	$6\frac{1}{2}$	$6\frac{1}{2}$		?		C. S. Mann.
21	$6\frac{1}{2}$	9	Tana Valley			C. H. Young.
$20\frac{1}{3}$	5‡	91 2	Do,			Capt. C. Hankey.
$20\frac{1}{2}$	5축	58	De.			Major H. De Prée.

### SEMMERRING'S GAZELLE



Head of Sœmmerring's Gazelle.

#### The AOUL or SCEMMERRING'S GAZELLE (Gazella [Nanger] scemmerringi).

<i>Aoul</i> , Somali.	Meidafihel, Abyssinian.
Maédedo, Danakil.	Ariel, Sudani.

In this species the white of the rump-patch intrudes more into the fawn-area than in *granti*; there is generally no black streak dividing the sides of the rump-patch from the fawn of the body, the face-markings are black, and the horns, which are shorter and more massive than in *granti*, hook inwards at the tips. The tail, except for its black crest, is white. Height at shoulder, about  $35\frac{1}{2}$  inches. Weight, clean, about 90 lbs.

Distribution.—The Abyssinian coast of the Red Sea, Berber, East Sennar, Danakil, Bora-Gallaland, and Somaliland; in the latter country occurring all over the Haud and Ogaden. The North Somali G. s. berberana is larger and darker than the typical form, with differently curved horns.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.		
23	478	$13\frac{1}{2}$	Somaliland			G. H. Kirkpatrick.		
21	5 <del>1</del>	IO	Do.			Major P. H. G. Powell-Cotton.		

#### A.--SOMALI RACE (G. sæmmerringi berberana).

	ngth on nt curve.	Circum- ference.	Tip to Tip.	Lo	cality.			Owner.
	2 I	6‡	$4\frac{3}{4}$	Somaliland	•		•	Col. V. M. Stockley.
	$20\frac{3}{4}$	63		Do.				W. N. McMillan.
	$20\frac{3}{4}$	53	35	Do,			•	G. H. Cheetham.
	20 <u>‡</u>	6	45	Do.				Norman B. Smith.
	201	$5\frac{1}{2}$	$7\frac{1}{2}$	Do.		•		Capt. A. E. Burnett.
	201	5 <del>3</del>	3	Do.				Capt. J. W. C. Kirk.
	201	5‡	$6\frac{3}{4}$	Do.				Capt. A. E. H. Breslin.
	201	$5\frac{1}{2}$	$8\frac{1}{2}$	Do.	•			Major F. Rowley.
	20	5‡	5훟	Do.		•		Hon. Walter Rothschild.
	20	53	4	Do.		•		LieutCol. J. W. H. Flanagan.
	20	6	71	Do.	•			A. Louw.
	20	5‡	$5\frac{1}{2}$	Danakil				Viscount Edmond de Poncins.
ç.	-20		54	Somaliland				A. E. Pease.
	20	$5\frac{1}{2}$	54	Do.				Capt. H. du B. O'Neill.
	20	5풍		Do.				MajGen. Sir A. N. Rochfort.
	20	5호	1078	Do.				G. Blaine.
	19 <u>3</u>	5‡	63	Do.				Sir Abe Bailey.
	$19\frac{1}{2}$	51	· 5 <del></del>	Do.		•		T. W. H. Clarke.
	19 <u>1</u>	5 <sup>9</sup> 10	2	Do,				Sir Edmund G. Loder, Bart.
	1912	$5\frac{1}{2}$	4 <del>3</del>	Do.				Major J. J. Richardson.
	$19\frac{1}{2}$	512	4\$	Do.				Count J. Potocki.
	$19\frac{1}{2}$	5‡	151	Do.				R. McD. Hawker.
	19‡	5‡	$4\frac{1}{2}$	Do.			•	Major B. L. Carew.
	19‡	54	7 <del>3</del>	Do.				Capt. H. C. Dobbs.
	191	5뢒	$7\frac{3}{4}$	Do.			•	P. K. Glazebrook.

- Owner's measurements.

# B.-TYPICAL RACE (G. sœmmerringi typica).

Length on front curve.		Tip to Tip.		Locality	7.	Owner.
I <b>7</b>	5	5	Sudan		,	Count J. Potocki.
163	5‡	10	Do.			J. H. Butler.
161	5축	$3\frac{1}{2}$	Do.			Prince Colloredo Mannsfeld.

270

# SEMMERRING'S GAZELLE

$16\frac{3}{2}$ $5\frac{1}{2}$ Sudan       .       .       C. D. Eyre. $16\frac{1}{2}$ 6 $8\frac{1}{2}$ Do.       .       .       .       W. H. Lindsay. $16$ $5\frac{1}{4}$ 5       Do.       .       .       .       Commdr. A. H. Home, R.N. $16$ $5\frac{1}{4}$ Do.       .       .       .       Capt. N. A. Orr-Ewing. $16$ 5 $4\frac{1}{2}$ Do.       .       .       G. L. Harrison. $16$ $4\frac{1}{2}$ $5\frac{1}{4}$ Do.       .       .       Col. A. Colville. $16$ $4\frac{1}{2}$ $5\frac{1}{4}$ Do.       .       .       .       H. G. Watson. $16^{\frac{1}{2}$ $5\frac{1}{2}$ $4\frac{1}{4}$ Do.       .       .       W. H. Diggle. $15\frac{1}{2}$ $5\frac{1}{2}$ $5\frac{1}{4}$ Do.       .       .       Najor H. H. S. Morant. $15\frac{1}{2}$ $5\frac{1}{2}$ Do.       .       .       Capt. P. C. Lord. $15\frac{1}{2}$ $5\frac{1}{3}$ Do.       .       .       Major Lord J. S. Cavendish. $15\frac{1}{2}$ $5\frac{1}{4}$ $6\frac{1}{4}$ <	Length on front curve.	Circum- ference.	Tip to Tip.		Localit	у.		Owner.
$16$ $5\frac{1}{4}$ $5$ Do. $\cdot$ $\cdot$ Commdr. A. H. Home, R.N. $16$ $5$ $4\frac{1}{2}$ Do. $\cdot$ $\cdot$ Capt. N. A. Orr-Ewing. $16$ $5$ $3\frac{1}{4}$ Do. $\cdot$ $\cdot$ Gapt. N. A. Orr-Ewing. $16$ $5$ $3\frac{1}{4}$ Do. $\cdot$ $\cdot$ G. L. Harrison. $16$ $4\frac{1}{2}$ $5\frac{1}{4}$ Do. $\cdot$ $\cdot$ G. J. Harrison. $16$ $4\frac{1}{2}$ $5\frac{1}{4}$ Do. $\cdot$ $\cdot$ G. Vatson. $16$ $5\frac{1}{2}$ $3$ Do. $\cdot$ $\cdot$ H. G. Watson. $15\frac{3}{4}$ $5\frac{1}{2}$ $4\frac{1}{4}$ Do. $\cdot$ $\cdot$ Major H. H. S. Morant. $15\frac{3}{2}$ $5\frac{1}{4}$ $3\frac{2}{4}$ Do. $\cdot$ $\cdot$ Capt. P. C. Lord. $15\frac{1}{2}$ $5\frac{1}{3}$ $5$ Do. $\cdot$ $\cdot$ Col. Ralph Vivian. $15\frac{1}{2}$ $5\frac{1}{3}$ $6\frac{2}{4}$ Do. $\cdot$ $\cdot$ Earl of Sefton.	16 <del>3</del>	5	51/2	Sudan .		•	•	C. D. Eyre.
16       5       4 $\frac{1}{2}$ Do.       Capt. N. A. Orr-Ewing.         16       5       3 $\frac{1}{4}$ Do.       G. L. Harrison.         16       4 $\frac{1}{2}$ 5 $\frac{1}{4}$ Do.       G. L. Harrison.         16       4 $\frac{1}{2}$ 5 $\frac{1}{4}$ Do.       G.       Harrison.         16       4 $\frac{1}{2}$ 5 $\frac{1}{4}$ Do.       G.       Harrison.         16       5 $\frac{1}{2}$ 3       Do.       Harrison.       Harrison.         15 $\frac{3}{2}$ 5 $\frac{1}{2}$ 5 $\frac{1}{2}$ 50.       Harrison.       Harrison.         15 $\frac{1}{2}$ 5 $\frac{1}{2}$ 5 $\frac{1}{2}$ 5 $\frac{1}{2}$ 5 $\frac{1}{2}$ 5 $\frac{1}{2}$ 6 $\frac{1}{2}$ 4 $\frac{1}{2}$ 5 $\frac{1}{2}$ 6 $\frac{1}{2}$ 5 $\frac{1}{2}$ 6 $\frac{1}{2}$ 10.       10.	16‡	6	$8\frac{1}{2}$	Do				W. H. Lindsay.
16       5 $3\frac{1}{2}$ Do.       .       G. L. Harrison.         16 $4\frac{1}{2}$ $5\frac{1}{4}$ Do.       .       .       G. L. Harrison.         16 $4\frac{1}{2}$ $5\frac{1}{4}$ Do.       .       .       Col. A. Colville.         16 $5\frac{1}{2}$ 3       Do.       .       .       .       Col. A. Colville.         16 $5\frac{1}{2}$ 3       Do.       .       .       .       H. G. Watson.         15\frac{3}{4} $5\frac{1}{2}$ $5\frac{3}{4}$ Do.       .       .       Major H. H. S. Morant.         15\frac{5}{8} $5\frac{1}{2}$ $5\frac{3}{4}$ Do.       .       .       Major H. H. S. Morant.         15\frac{5}{8} $5\frac{1}{2}$ $5\frac{3}{4}$ Do.       .       .       Capt. P. C. Lord.         15\frac{1}{2} $5\frac{1}{8}$ 5       Do.       .       .       Col. Ralph Vivian.         15\frac{1}{2} $5\frac{1}{4}$ $6\frac{2}{4}$ Do.       .       .       Earl of Sefton.         15\frac{1}{2} $5\frac{1}{4}$ $6\frac{2}{4}$ Do.       .       .       Earl of Sefton.	16	5ŧ	5	Do				Commdr. A. H. Home, R.N.
$16$ $4\frac{1}{2}$ $5\frac{1}{4}$ Do.       .       .       Col. A. Colville. $16$ $5\frac{1}{2}$ $3$ Do.       .       .       .       H. G. Watson. $15\frac{3}{4}$ $5\frac{1}{2}$ $4\frac{1}{4}$ Do.       .       .       W. H. Diggle. $15\frac{3}{4}$ $5\frac{1}{2}$ $5\frac{3}{4}$ Do.       .       .       Major H. H. S. Morant. $15\frac{5}{5}$ $5\frac{1}{2}$ $5\frac{3}{4}$ Do.       .       .       C. Bower Ismay. $15\frac{1}{2}$ $5\frac{1}{4}$ $3\frac{3}{4}$ Do.       .       .       Capt. P. C. Lord. $15\frac{1}{2}$ $5\frac{1}{8}$ 5       Do.       .       .       Col. Ralph Vivian. $15\frac{1}{2}$ $5\frac{1}{8}$ 5       Do.       .       .       Major Lord J. S. Cavendish. $15\frac{1}{2}$ $5\frac{1}{4}$ $6\frac{2}{4}$ Do.       .       .       Earl of Sefton.	16	5	$4\frac{1}{2}$	Do				Capt. N. A. Orr-Ewing.
$16$ $5\frac{1}{2}$ $3$ Do. $\cdot$ $\cdot$ H. G. Watson. $16$ $5\frac{1}{2}$ $4\frac{1}{4}$ Do. $\cdot$ $\cdot$ H. G. Watson. $15\frac{3}{4}$ $5\frac{1}{2}$ $5\frac{1}{4}$ Do. $\cdot$ $\cdot$ W. H. Diggle. $15\frac{3}{4}$ $5\frac{1}{2}$ $5\frac{3}{4}$ Do. $\cdot$ $\cdot$ Major H. H. S. Morant. $15\frac{5}{2}$ $5\frac{1}{2}$ $5\frac{3}{4}$ Do. $\cdot$ $\cdot$ Rapper Ismay. $15\frac{1}{2}$ $5\frac{1}{4}$ $3\frac{2}{4}$ Do. $\cdot$ $\cdot$ Capt. P. C. Lord. $15\frac{1}{2}$ $5\frac{1}{8}$ $5$ Do. $\cdot$ $\cdot$ Col. Ralph Vivian. $15\frac{1}{2}$ $5\frac{1}{5}$ $5$ Do. $\cdot$ $\cdot$ Major Lord J. S. Cavendish. $15\frac{1}{2}$ $5\frac{1}{4}$ $6\frac{2}{4}$ Do. $\cdot$ $\cdot$ Earl of Sefton.	16	5	3 <del>1</del>	Do				G. L. Harrison.
$15^{2}$ $5^{2}$ $5^{3}$ $10^{10}$ $$ W. H. Diggle. $15^{\frac{3}{4}}$ $5^{\frac{1}{2}}$ $5^{\frac{3}{4}}$ $Do.$ $$ $$ W. H. Diggle. $15^{\frac{3}{4}}$ $5^{\frac{1}{2}}$ $5^{\frac{3}{4}}$ $Do.$ $$ $$ Major H. H. S. Morant. $15^{\frac{5}{2}}$ $5^{\frac{1}{2}}$ $5^{\frac{3}{4}}$ $Do.$ $$ $$ C. Bower Ismay. $15^{\frac{1}{2}}$ $5^{\frac{1}{4}}$ $3^{\frac{3}{4}}$ $Do.$ $$ $$ Capt. P. C. Lord. $15^{\frac{1}{2}}$ $5^{\frac{3}{8}}$ $5$ $Do.$ $$ $$ Col. Ralph Vivian. $15^{\frac{1}{2}}$ $5^{\frac{1}{4}}$ $6^{\frac{3}{4}}$ $Do.$ $$ $$ Major Lord J. S. Cavendish. $15^{\frac{1}{2}}$ $5^{\frac{1}{4}}$ $6^{\frac{3}{4}}$ $Do.$ $$ $$ Earl of Sefton.	16	$4\frac{1}{2}$	54	Do				Col. A. Colville.
$15\frac{3}{4}$ $5\frac{1}{2}$ $5\frac{3}{4}$ Do.       .       .       Major H. H. S. Morant. $15\frac{3}{2}$ $5\frac{1}{2}$ $5\frac{3}{4}$ Do.       .       .       .       Major H. H. S. Morant. $15\frac{1}{2}$ $5\frac{1}{2}$ $5$ Do.       .       .       .       C. Bower Ismay. $15\frac{1}{2}$ $5\frac{1}{4}$ $3\frac{2}{4}$ Do.       .       .       .       Capt. P. C. Lord. $15\frac{1}{2}$ $5\frac{1}{8}$ 5       Do.       .       .       .       Col. Ralph Vivian. $15\frac{1}{2}$ 5       5       Do.       .       .       .       Major Lord J. S. Cavendish. $15\frac{1}{2}$ $5\frac{1}{4}$ $6\frac{2}{4}$ Do.       .       .       Earl of Sefton.	16	$5\frac{1}{2}$	3	Do				H. G. Watson.
$15\frac{5}{2}$ $5\frac{1}{2}$ <	15 <del>2</del>	$5\frac{1}{2}$	$4\frac{1}{4}$	Do				W. H. Diggle.
$15\frac{1}{2}$ $5\frac{1}{4}$ $3\frac{2}{4}$ Do.       .       .       Capt. P. C. Lord. $15\frac{1}{2}$ $5\frac{3}{8}$ 5       Do.       .       .       Col. Ralph Vivian. $15\frac{1}{2}$ $5\frac{3}{8}$ 5       Do.       .       .       Major Lord J. S. Cavendish. $15\frac{1}{2}$ $5\frac{1}{4}$ $6\frac{2}{4}$ Do.       .       .       Earl of Sefton.	r5≇	51/2	54	Do				Major H. H. S. Morant.
$15\frac{1}{2}$ $5\frac{3}{4}$ $5\frac{1}{4}$ $5\frac{1}{4}$ $5\frac{1}{4}$ $15\frac{1}{2}$ $5\frac{3}{5}$ $5$ $Do.$ $.$ $.$ Col. Ralph Vivian. $15\frac{1}{2}$ $5$ $5$ $Do.$ $.$ $.$ Major Lord J. S. Cavendish. $15\frac{1}{2}$ $5\frac{1}{4}$ $6\frac{3}{4}$ $Do.$ $.$ $.$ Earl of Sefton.	158	51	5	Do				C. Bower Ismay.
$15\frac{1}{2}$ $5s$ $5$ $Do.$ $Najor Lord J. S. Cavendish.$ $15\frac{1}{2}$ $5\frac{1}{4}$ $6\frac{2}{4}$ $Do.$ $Earl of Sefton.$	15 <u>1</u>	5‡	$3\frac{3}{4}$	Do				Capt. P. C. Lord.
$15\frac{1}{2}$ $5\frac{1}{4}$ $6\frac{3}{4}$ Do Earl of Setton.	15½	5 <sup>8</sup>	5	Do				Col. Ralph Vivian.
	I 5 <sup>1</sup> / <sub>2</sub>	5	5	Do				Major Lord J. S. Cavendish.
	15 <u>1</u>	5‡	$6\frac{3}{4}$	Do				Earl of Sefton.
$\varphi_{15\frac{1}{4}}$ $2\frac{7}{5}$ $7\frac{3}{5}$ Do The late Lieut, Col. Hon. W	♀ 15 <u>‡</u>	$2\frac{7}{8}$	7흥	Do				The late LieutCol. Hon. W.
$15\frac{1}{4}$ 5 $4\frac{1}{2}$ Do Miss C. Buxton.	15 <u>‡</u>	5	$4\frac{1}{2}$	Do				
15 5 $4\frac{3}{4}$ Do H. S. Smiley.	15	5	4 <del>3</del>	Do			•	H. S. Smiley.
15 5 6 Suakin Hon. Walter Rothschild.	15		6	Suakin .		•		Hon. Walter Rothschild.
15 $5\frac{1}{2}$ $6\frac{3}{4}$ Sudan F. W. Greswolde-Williams.	15	51	$6\frac{3}{4}$	Sudan .				F. W. Greswolde-Williams.
15 $5\frac{3}{5}$ $2\frac{5}{5}$ Do Hugh C. E. Ross.	15	5응	25	Do				Hugh C. E. Ross.

# C.-BORANI RACE (G. sæmmerringi butteri).

Length on front curve.	Circum- ference.	Tip to Tip.	Loc	ality.		Owner.
131	$4\frac{3}{4}$	$3\frac{1}{2}$	Boraland			A. E. Butter.



Skull and Horns of Addra Gazelle.

### The DAMA, MHORR, or ADDRA GAZELLE (Gazella [Nanger] dama).

Addra, Dongolese. Ričl, Dinka. Ariel, Sudani.

The largest species of the genus *Gazella*, standing 36 or 37 inches at the shoulder, and characterised by the white of the rump including the tail (which may be tipped with fawn), coupled with the absence of a black border to the rump-patch and of a dark flank-band, and the forward hook of the tips of the horns. In the mhorr or Moroccan race (G. d. mhorr) of Southern Morocco there are dark face-markings, and the rufous of the body extends down the legs. In the Senegambian G. d. permista the rufous occupies a smaller area on the body, and there is only a narrow bridge connecting the rufous of the back with that of the hind-legs, while in the fore-legs the upper part is wholly white, and there is only a rufous streak in front below the knee. The typical G. d. typica, probably from Lake Chad, connects the mhorr with the addra or Kordofan race (G. d. ruficollis), in which the rufous is limited to the neck and a saddle-shaped area on the back.

Distribution.—The desert regions of northern, western, and northeastern Africa, from Nigeria and Senegambia through Morocco to Kordofan.

Length on front curve.	Circum- ference.	Tip to Tip.	Lo	cality.		Owner.
14 <del>8</del>	5 <sup>2</sup>	$8\frac{1}{2}$	Lake Chad			C. S. Burnett.
14	6‡	5‡	Do.			Capt. L. C. Brodie.
135	6‡	9	Do.			Capt. G. Bonham-Carter.
13 <u>3</u>	512	$6\frac{3}{4}$	Do.			Capt. A. B. Baillie-Hamilton.
134	$5\frac{3}{4}$	$7\frac{1}{2}$	Do.			Major J. B. Cockburn.
134	$5^{3}_{4}$	31	Do.			Major D. F. MacCarthy Morrogh.
13§	578	8§	Do.			J. Goold-Adams.
$13\frac{1}{2}$	5\$	$6\frac{1}{2}$	Do.			F. Beccles Gall.
13 <del>3</del>	5 <sup>8</sup> / <sub>4</sub>	3	Do.			Capt. Lord Henry Seymour.
124	5용	6	N. Nigeria			Capt. G. C. Kelly.
$ \begin{array}{c} \begin{array}{c} & \mathbf{I} \\ \mathbf{I} \\ \mathbf{I} \\ \mathbf{I} \end{array}$		$3\frac{1}{2}$	Lake Chad			C. S. Mann.
121	$5\frac{3}{4}$	$6\frac{3}{4}$	Do,			Sir F. J. Lugard.

# A.--TYPICAL RACE (G. dama typica).

### B.-SENEGAMBIAN RACE (G. dama permista).

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
$8\frac{1}{2}$	$3\frac{1}{2}$	5홍	?	Hon. Walter Rothschild.

# C.-MHORR or MOROCCAN RACE (G. dama mhorr).

Length on front curve.		Tip to Tip.	Locality.	Owner.
II <u>3</u>	6	$3\frac{3}{4}$	Wednoon, Mogador	British Museum (W. Willshire).

### D.-ADDRA or KORDOFAN RACE (G. dama ruficollis).

Length on front curve.		Tip to Tip.	Locality.		Owner.	
I 5 <sup>3</sup> / <sub>4</sub>	6	II $\frac{1}{2}$	Kordofan	• •	Capt. B. H. S. Romilly.	
15 <sup>1</sup> / <sub>2</sub>	$5\frac{1}{4}$	8‡	Do		Col. A. Colville.	
154	5 <sup>\$</sup>	15 <u>1</u>	Do	· ·	Capt. C. E. Hills.	
-151	54	6	Do		H. A. MacMichael.	
			<b>a</b> 1			

- Owner's measurements.

Length on front curve.	Circum- ference.	Tip to Tip.		1	Locality.		,	Owner.
-15			Kordofan					A. L. Butler.
-15	5 <del>§</del>	61	Do.			•		J. C. Phillips.
148	5	378	Do.					W. Mure.
144	6	7	Do.					Major H. G. F. Stallard.
$14\frac{3}{4}$	$5\frac{3}{4}$	$10\frac{3}{4}$	Do.				•	G. L. Harrison.
144	$4\frac{3}{4}$	9 <del>1</del>	Do.					Lord Villiers.
144	51	$6\frac{5}{8}$	Do.					Norman B. Smith.
14 <sup>3</sup>	5‡	61	Do.					Walter Jones.
145	5 <sup>3</sup> 4	1175	Do.					Sir Robert Harvey, Bart.
1412	51	7‡	Do.					LieutCol. C. J. Hawker.
143	51	5응	Do.					Capt. R. A. McClymont.
148	$5\frac{3}{4}$	$S_{s}^{1}$	Do.					Capt. G. M. Lumsden.
148	5	$9\frac{3}{4}$	Dongola					Capt. W. H. Wilkin.
141	5 <del>1</del> 8	7초	Kordofan			•		Capt. A. K. Hargreaves.
14	5	9‡	Dongola					Capt. the Hon. G. H. Douglas-
14	$5\frac{3}{4}$	$7\frac{1}{2}$	Kordofan					Pennant. Capt. B. W. Y. Danford.
134	5 <sup>3</sup>	4 <del>3</del>	Do.					LieutGen. Sir B. T. Mahon.
134	6	51	Do.					G. Chetwynd.
134	$5\frac{1}{2}$	48	Do.					Capt. G. S. Cameron.
$13\frac{1}{2}$	5 <sup>1</sup> 8	$10\frac{3}{4}$	Do.		•			Capt. F. L. Livingstone-Learmonth.
131	54	I I <sup>1</sup> / <sub>4</sub>	Do.					Earl of Kingston.
$12\frac{3}{4}$	6	543	Do.					Major C. S. Cumberland.
I 2 <u>3</u>	5‡	4	Do.					Hon. Walter Rothschild.
$212\frac{3}{4}$	33	$6\frac{1}{4}$	Do.					LieutGen. Sir B. T. Mahon.
1212	5 <sup>3</sup> 8	6 <u>\$</u>	Do.					E. N. Buxton.
121	4	<b>5</b> <sup>§</sup>	Sennar					British Museum.

- Owner's measurements.



Horns of Springbuck. From a specimen in the American National Collection.

### The SPRINGBUCK (Antidorcas euchore or A. marsupialis).

Springbok, Cape Dutch.	<i>Itsaypi</i> , Maklaka.
Tsipi, Bechuana.	<i>Menya</i> , Angola.

Although nearly allied to the preceding group of large gazelles, 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. With the exception of a chestnut eye-streak, and in one form of a patch of the same colour at the base of the horns, the springbuck has the whole face white; and the white on the rump, which includes the tail and joins that of the middle of the back, also occupies a large area. Height at shoulder, 30 inches. Weight, from 70 to 80 lbs.

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 Botlitli and the neighbouring salt-pans, as well as in Great Namaqualand, Damaraland, and the Ovampo Flats, they occur in large numbers. Springbuck-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.
<sup>1</sup> 19	5	$20\frac{1}{4}$	Kalahari	The late W. F. Webb.
164	6	6	?	J. Rosen.
16	6	7	5	W. A. Simpson Hinchliffe.
154			?	J. G. Millais.
15 <u>1</u>	$6\frac{1}{2}$	$7\frac{1}{4}$	?	Hon. T. Thynne.
$15\frac{1}{2}$	$6\frac{1}{4}$	5	?	Sir Abe Bailey.
15 <u>1</u>	6 <del>1</del>	$3\frac{1}{2}$	Cape Colony	C. D. Rudd.
I 5½	6	$2\frac{3}{4}$	S. of Great Namaqualand	Th. Rehbock.
15‡	$5\frac{1}{2}$	7	Orange River Colony .	Sir H. J. Goold-Adams.
I 5 <sup>1</sup> / <sub>4</sub>	$6\frac{1}{2}$	3 <sup>8</sup> 4	?	Sir Edmund G. Loder, Bart.
15 <del>1</del>	$5\frac{1}{2}$	7	?	Major W. Anstruther Gray.
15 <del>8</del>	6‡	578	Ovampo Flats	The late Capt. F. Cookson.
15	5 <sup>3</sup> 4	7	?	The late George Grey.
15	5½	84	?	Major E. J. Lugard.
141	5 <del>3</del>	$4\frac{1}{2}$	2	C. L. Blundell.
141	6‡	5	?	C. Ansell.
141	6	$2\frac{3}{4}$	;	C. Challis.
14	6	2]	Ngamiland	F. T. Garbutt.
14	54	$4\frac{1}{4}$	?	British Museum.
14	6 <u>1</u>	$6\frac{1}{2}$	3	Sir Owen Philipps.
14	6	3	?	Hon. J. C. Lyttelton.
14	51/2	5	?	F. E. Potter.
14	6	$2\frac{1}{2}$	5	N. H. Barton.
13 <del>3</del>	6	53	Griqualand	F. C. Selous.

<sup>1</sup> A malformed specimen.

SPRINGBUCK

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
$13\frac{3}{4}$	6	5章	?	Earl of Kingston.
135	5‡	5출	Benguela	G. W. Penrice.
135	$5\frac{1}{2}$	41	Angola	C. W. Sharp.
13 <u>1</u>	$5\frac{1}{4}$	$3\frac{1}{4}$	Orange River Colony	Capt. V. C. de Crespigny.
$13\frac{1}{2}$	5½	5	Angola	A. H. Harrison.
$13\frac{1}{2}$	$5\frac{1}{2}$	5	Ngamiland	H. A. Bryden.
$I3\frac{1}{2}$	5 <sup>3</sup> / <sub>4</sub>	$4\frac{1}{2}$	Near Kimberley .	G. L. Harrison.
♀ 13 <u>1</u>	4	$6\frac{3}{4}$	?	Sir Abe Bailey.

### OWNER'S MEASUREMENTS.

19 <del>1</del>	6	71	Near Beaufort West		W. H. Allhusen.
		$I2\frac{1}{2}$	?		P. C. Keytel.
17			Middelburg Flats		American National Collection. (See illustration, page 275.)
$16\frac{1}{2}$			Bechuanaland .	·	Vryburg Club.
16		$6\frac{1}{2}$	Griqualand West .		Capt. G. S. Leslie.
15 <u>3</u>	5	$2\frac{1}{8}$	German S.W. Africa	•	H.R.H. Prince George of Bavaria.
$I5\frac{1}{2}$	6		?		Dr. Maloney.



Head of Springbuck.



Head of Gerenuk.

### The GERENUK or WALLER'S GAZELLE (Lithocranius walleri).

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

The gerenuk is easily recognised by the great elongation of the neck and the slender legs, which 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 deep rufous fawn, but down the middle of the back runs a broad 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, from about 36 to 41 inches; weight, 115 lbs.

This antelope, first described by the late Sir Victor Brooke, 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.

Mr. Oscar Neumann pointed out in 1899 that the Somali and Abyssinian gerenuk (L. walleri sclateri) is somewhat different from the East African or typical gerenuk. The northern race is larger, with finer horns, a longer neck, a less rufous colour, and brown instead of black knee-tufts, while the white markings of the tail are also different.

Length on front curve.	Circum- ference.	Tip to Tip.	L	ocality.			Owner.
17	51	$3\frac{3}{4}$	Somaliland				H.R.H. the Duc d'Orléans.
16 <u>1</u>	51/2	15	Do.				Mr. Justice Hopley.
16	53	6	Do.				Sir Edmund G. Loder, Bart.
16	51	$2\frac{3}{4}$	East Africa				W. H. Levy.
151	$5\frac{1}{2}$	3	Somaliland				J. Kenneth Foster.
$-15\frac{1}{2}$	5불	$4\frac{7}{8}$	Do.		•		American National Collection.
158	55	4	Do.			•	Col. H. G. C. Swayne.
158	58	4불	Do.				C. Liddell.
158	58	$4\frac{3}{4}$	Do.				Lord Wolverton.
15‡	51/2	43	Do.				Sir Abe Bailey.
154	5 <sup>1</sup> / <sub>2</sub>	$2\frac{3}{4}$	East Africa				R. B. Loder.
15‡	57	5 <del>3</del>	Do.				Capt. F. Blacker.
15 <sup>1</sup> / <sub>5</sub>	$5\frac{1}{2}$	$2\frac{1}{2}$	Do.				R. L. Scott.
15	`5불	I <del>7</del> 8	Do.				Capt. R. Clemm.
15	$5\frac{1}{2}$	5용	Do.				P. F. Hadow.
15	$5\frac{1}{2}$	$4\frac{1}{2}$	Do.				J. E. R. Oldfield.
15	5흫	63	Somaliland				F. G. Gunnis.
15	5	· 4 <sup>3</sup>	Do.				LieutCol. J. McCall Maxwell.
15	5 <sup>3</sup> / <sub>4</sub>	$4\frac{1}{2}$	Do.				Capt. H. Maclean.
14 <del>7</del> 8	$5\frac{1}{2}$	6	East Africa				P. Fleming.
$14\frac{3}{4}$	5		Abyssinia				N. C. Cockburn.
14 <sup>3</sup>	5 <sup>1</sup> / <sub>2</sub>	5‡	East Africa				G. de P. Colvile.
14 <u>3</u>	$5\frac{3}{4}$	5윷	Somaliland				LieutCol. H. G. Mainwaring.
141	5\$	$4\frac{1}{2}$	East Africa				C. C. Wilson.
144	5‡	21	Do.				LieutCol. J. H. Patterson.
143	5	3	Do.				Col. C. F. Blane.
143	6	$4\frac{3}{4}$	Do.				C. Frick.
14 <del>5</del>	51	5	Do.				C. Bower Ismay.
145	5 <sup>3</sup>	34	Somaliland				A. de L. Long.
I4½	5축	$6\frac{1}{2}$	East Africa			•	H. S. L. Scott.
141	512	$4\frac{3}{4}$	Do.	•	•	•	Capt. the Hon. G. H. Douglas- Pennant.
$I4\frac{1}{2}$	$5\frac{1}{2}$	$2\frac{3}{4}$	Do.				Hon. W. Guinness.
141	5	4 <del>3</del>	Do.	•	•	•	A. F. Williams.
			0 1				

- Owner's measurements.



Head of Sable Antelope.

### The SABLE ANTELOPE (Hippotragus niger).

Impengo, Masubia.	Qualata inchu, Bamangwato and
Impalampala, Swazi and Zulu.	Makololo.
<i>Ukwa</i> , Makuba.	<i>Utjieli</i> , Amandebili.
Potoquani, Southern Bechuana.	Kwalata n'tso, Barotsi.
Pala-hala, Swahili.	Qualata Tshumu, Ngami.
<i>Pala-pala</i> , Makalaka.	Mperembi, Chilala and Chibisa.
Solupi, Masara.	Mpalari, M'Rua.
	C1. 1

Kantanta, Chila.

Among the leading features of the group of antelopes which includes the present species, the roan antelope, the gemsbuck, addax, etc., are the scimitar-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. The upper molar teeth have square grinding-surfaces and tall crowns, like those of oxen. Several of the species have face-markings like those of the gazelles, to which the group is probably related. There are four teats.

From the other members of the group the beautiful sable antelope and its near ally the roan antelope are well distinguished by the scimitar-shaped horns, which arise at an obtuse angle with the plane of the face, as well as by the maned neck, the tufts of long white hair below the eyes, and the large 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. 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. 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; and other specimens approximating to, or even exceeding this length are in existence.

Distribution.—From about the centre of the Transvaal northwards to Nyasaland and the adjacent districts of South-East and East Africa, and westwards to Angola. 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.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
60	105	17§	Angola		J. C. Phillips.
58‡	9 <del>5</del>	134	Do		J. W. Walker.
56	$IO_4^1$	13 <del>3</del>	Do		Sir Edmund G. Loder, Bart.
55	9 <u>5</u>	145	Do		Sir Abe Bailey.
53 <del>5</del>	$9\frac{3}{4}$	$23\frac{1}{2}$	Do		American National Collection.
52 <sup>1</sup> / <sub>8</sub>	ю	$23\frac{1}{2}$	Do		Major Boyd A. Cuninghame.
51	$10\frac{1}{2}$	11	N.W. Rhodesia .		Capt. A. P. Heneage.
50 <del>3</del>	$9\frac{1}{2}$	$18\frac{1}{4}$	Do		Hon. Walter Rothschild.
50 <u>3</u>	$9\frac{1}{2}$	$24\frac{3}{8}$	N.E. Rhodesia .		R. D. Waterhouse.
$50\frac{3}{4}$	IO	$19\frac{1}{2}$	N.W. Rhodesia .		G. F. Williams.
50 <sup>1</sup> 8	9 <sup>1</sup> / <sub>4</sub>	23 <del>3</del>	Do		Capt. C. G. Leslie.
50	1018	74	Do		Norman B. Smith.
50	10 <u>7</u>	$IC_{\pm}^{1}$	Do		Earl of Kingston.
$49\frac{3}{4}$	10	125	Do		Capt. W. F. Reichwald.
49 <sup>5</sup>	10 <del>7</del>	I 2	Do	•	T. P. Kempson.
49	IO	17章	S. Rhodesia		A. T. Reid.
$48\frac{3}{4}$	9‡	$IO_{2}^{1}$	N.W. Rhodesia		LieutCol. R. W. R. Barnes.
$48\frac{3}{4}$	IO	234	Do		J. H. Hayes.
$48\frac{3}{4}$	$9\frac{1}{2}$	171	Do		Capt. R. A. McClymont.
$48\frac{3}{4}$	$9\frac{1}{2}$	$I2\frac{1}{2}$	Do		J. H. Leche.
$48\frac{1}{2}$	9‡	$22\frac{3}{4}$	Do		E. Caldwell.
$48\frac{1}{4}$	$IO_2^1$	9	N.E. Rhodesia .		W. A. Conduitt.

#### A.-TYPICAL RACE.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
$48\frac{1}{4}$	IO	20	N.W. Rhodesia		Major P. A. Cox.
48	9	14 <del>3</del>	Do		C. Phillips.
48	10 <u>1</u>	15 <u>3</u>	Matabililand		Major J. P. Grenfell.
47쿸	103	21	Do		J. Bell.
47 <sup>3</sup>	IO	$23\frac{1}{2}$	Do		R. T. Coryndon.
4 <b>7</b> ≟	9 <sup>3</sup>	13 <sup>1</sup> / <sub>4</sub>	Do		J. L. Philips.
47 <del>5</del>	IO	13	Do		Guy Nickalls.
473	$9\frac{3}{4}$	II	Do		Major E. de L. Hayes.
$47\frac{1}{2}$	10	9	Do		S. R. Price.
47초	$9\frac{7}{8}$	$23\frac{1}{2}$	Do		Col. C. Harding.
46 <u>3</u>	IO	$2I\frac{1}{2}$	British Central Africa		J. B. Davey.
$46\frac{3}{4}$	9‡	13	N.E. Rhodesia .		H. Cookson.
467	$9\frac{1}{4}$	<b>I</b> 9 <sup>1</sup> / <sub>2</sub>	N.W. Rhodesia .		Dr. E. H. Tripp.
$46\frac{1}{2}$	9 <sup>3</sup> / <sub>4</sub>	121	Do		F. Barker
$46\frac{1}{2}$	10	15	Ngamiland		F. T. Garbutt.
$46\frac{1}{2}$	$9\frac{1}{2}$	18	N.E. Rhodesia		E. M. Crosfield.
$46\frac{1}{2}$	$9\frac{1}{2}$	<b>I</b> 4	N.W. Rhodesia		Hon. Sir Arthur Lawley.
461	10	II	Do		G. L. Harrison.
461	101	1912	N.E. Rhodesia		Col. C. F. Blane.
461	9‡	$2I_{4}^{1}$	N.W. Rhodesia		J. M. Kearney.
46 <del>]</del>	9 <sup>8</sup>	5‡	S. Rhodesia		Val Gielgud.
46	10	I I <u>1</u>	N.W. Rhodesia.		T. G. Davey.
46	9§	10§	Do	•	Capt. the Hon. G. H. Douglas- Pennant.
46	$IO_{4}^{1}$	21	Do	•	H. M. P. Hewett.
46	$10\frac{1}{4}$	15 <u>1</u>	Do	•	T. Clemens Usher.
46	$9^{3}_{4}$	$16\frac{1}{2}$	British Central Africa	•	Capt. R. S. Chichester.
45章	107	$12\frac{1}{2}$	Do.		Sir Edmund G. Loder, Bart.
45 <sup>8</sup> /4	$10\frac{4}{3}$	$16\frac{1}{2}$	Rhodesia	•	A. Yale Massey.
45축	$9\frac{3}{4}$	II $\frac{1}{2}$	Do		C. W. Adams.
45호	9‡	I 5½	Mashonaland		Major G. A. L. Carew.
451	$IO_2^{\frac{1}{2}}$		N.W. Rhodesia		H. B. Marshall.
452	$IO_2^1$	I 3 <sup>1</sup> / <sub>4</sub>	Do		A. C. Brandon.
$45\frac{1}{2}$	10	13	Do		Dr. Cole.
$45\frac{1}{2}$	$9\frac{1}{2}$	15 <sup>2</sup>	Do	·	B. Ryan.
우 39불	6 <u>‡</u>	$6\frac{5}{8}$	Mashonaland		F. C. Selous.

### OWNER'S MEASUREMENTS.

$62\frac{3}{4}$	118	231	Angola .		E. J. Boake.
54‡			Do		Essington Brown.
51 <del>1</del> 8	÷.,		?		W. Colson.
49 <del>1</del>			5		C. S. Mann.
48		15¥	Transvaal .		LieutCol. R. B. Fell.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
40	$9\frac{3}{4}$	20	British East Africa		Capt. C. J. Murray.
$37\frac{1}{2}$	8		Do.		R. B. Loder.
37	9	II $\frac{1}{2}$	Do.		C. Bower Ismay.
35	$8\frac{1}{4}$	$6\frac{1}{2}$	Do.		British Museum (G. J. Muir).
$34\frac{1}{2}$	$8\frac{3}{4}$	$I3\frac{1}{2}$	Do.		N. C. Cockburn.
$34\frac{1}{4}$	9\$	15‡	Do.		Capt. W. H. Wilkin.
34	$9\frac{1}{2}$	$6\frac{3}{4}$	Do.		The late G. G. Longden.
$33\frac{3}{4}$	9	15	Do.		Capt. M. Kincaid Smith.

#### B.-EAST AFRICAN RACE (H. niger roosevelti).

The East African race was described, as a distinct species, in 1910 by Mr. Heller on the evidence of a female killed in the Shimba Hills, British East Africa, and said to be paler in colour than the typical race.



Skull and Horns of Sable Antelope, Quanza River District, Angola. Length, 60 inches. In the collection of Mr. J. C. Phillips.



(1) Head of Roan Antelope, and (2) Skull and Horns of the record specimen shot by Major the Hon. C. B. O. Mitford.

### The ROAN ANTELOPE (Hippotragus equinus).

Amōn, Sudani. Abu uruf, Dinka and Arabic. I-taka, Amandebili. I-pala-pala chena, Makalaka. Gwenki, Hausa. Impengo eetuba, Masubia. Kwar, Masara. Klabakila, Basuto. Ipewa, Chilala and Chibisa. Mtagaisi, Swazi and Zulu. U-ka-muh-wi, Makuba. Qualata, Northern Bechuana. Kwalata and Etselta, Ngami. Qualata Tseu, Barotsi. Tai-hait-sa, Southern Bechuana. Wunderbi, Abyssinian. Abú aruf, Sudani. Chilumbulumbu, Chila.

Its much 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 or rufous coat, render the present species easily distinguishable from 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, and Senegambia. The name *H. equinus* langheldi has been applied to the East African race, one Sudani race is known as *H. e. bakeri*, the West African as *H. e. gambianus*, and others have been named. Gordon Cumming shot roan antelope just north of the Orange River in Griqualand West, where the species has long been exterminated. Nowhere abundant, it is now 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*), exterminated about the commencement of last century.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
$40\frac{1}{4}$	$9\frac{1}{2}$	$7\frac{3}{4}$	Rhodesia		Major the Hon. C. B. O. Mitford.
$34\frac{1}{2}$	9	91	S. Rhodesia .		A. T. Reid.
34 <b>‡</b>	9	7	Okavango Valley		Sir H. J. Goold-Adams.
$32\frac{3}{4}$	85	$9\frac{1}{2}$	Rhodesia		Sir Abe Bailey.
$32\frac{3}{4}$	9‡	$11\frac{1}{2}$	Do		R. E. Gunther.
$32\frac{1}{2}$	9	9‡	Do		W. A. Simpson Hinchliffe.
32	` 9 <sup>1</sup> <sub>2</sub>	12	Hanyani Valley .		F. C. Selous.
31#	$9\frac{1}{2}$	$5\frac{1}{2}$	South Africa .		Sir Edmund G. Loder, Bart.
$31\frac{1}{2}$	$9\frac{1}{2}$	I I <del>7</del> 8	Mashonaland .		F. C. Selous.
$31\frac{1}{2}$	104	$8\frac{3}{4}$	Angola		Surgeon C. G. Sprague, R.N.
31 <u>1</u>	9	101	N.W. Rhodesia .		Col. Lord Douglas Compton.
♀ 31 <u>1</u>	7	$13\frac{1}{2}$	Do		Capt. E. C. Hamilton.
317	9 <del>2</del>	I41	N.E. Rhodesia .		G. Sandeman.
317	9	13	N.W. Rhodesia .		J. Bell.
31	83	13	Mashonaland .		J. A. Jameson.
♀ 30 <u>1</u>	7	7흫	Do		F. C. Selous.
$30\frac{1}{2}$	9	I 3 <sup>1</sup> / <sub>4</sub>	South Africa .		G. Richards.
$30\frac{1}{2}$	9	$13\frac{1}{2}$	Angola		Major Boyd A. Cuninghame.
$30\frac{1}{2}$	10	$5\frac{3}{4}$	Matabililand .		Capt. Lord H. Seymour.
30 <del>1</del> 8	9‡	13	British C. Africa	•	Dr. J. E. S. Old.
30	$9\frac{3}{4}$	5	Rhodesia		Capt. G. M. Spencer-Smith.
30	$9\frac{1}{2}$	$6\frac{3}{4}$	British C. Africa		Capt. G. M. P. Hawthorn.
30	10	I I <sup>1</sup> / <sub>2</sub>	N.W. Rhodesia .		Capt. L. C. Brodie.
30	8 <u>7</u>	13 <sup>1</sup>	?		Sir Owen Philipps.

#### A.-TYPICAL RACE (H. equinus typicus).

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
29 <del>]</del>	108	14§	Matabililand .	W. Van Ness.
29 <del>]</del>	9 <del>§</del>	111	Mashonaland .	Hon. Walter Rothschild.
$29\frac{3}{4}$	$9\frac{7}{5}$	10	Do	Sir John Willoughby, Bart.
$29\frac{3}{4}$	94	6	N.W. Rhodesia .	Duke of Westminster.
$29\frac{5}{8}$	$8\frac{7}{8}$	9	Do.	Capt. W. F. Reichwald.
$29^{1}_{2}$	7	61	British C. Africa	R. H. Storey.

### OWNER'S MEASUREMENTS.

$39\frac{1}{4}$			Tokwi Valley, South Rhodesia	South African Museum (R. C. Camp).
35	$9^{1}_{2}$	$S_{\frac{1}{2}}$	South Africa	A. Ohlsson.
$31\frac{1}{2}$	$10\frac{1}{2}$	ΙI‡	Angola	E. P. Cooper.
$30\frac{1}{2}$	9 <sup>3</sup>	9	?	A. F. Williams.

# B.--SUDANI RACE (H. equinus bakeri).

Length on front curve.	Circum- ference.	Tip to Tip.		Locality		Owner.
371	10	71	Sudan	•	•	P. Niedieck.
34 <sup>1</sup> / <sub>2</sub>	10	9	Do.			LieutGen. Sir B. T. Mahon.
34	$9^{3}_{4}$	3‡	Do.			The late Major J. L. J. Conry.
34	$9\frac{1}{4}$	5 <sup>용</sup>	Do.			Major G. de H. Smith.
$33\frac{1}{4}$	10	174	Do.			Marquis Pizzardi.
33	$8\frac{3}{4}$	10	Do.			S. H. Whitbread.
33	$9\frac{1}{2}$	65	Do.			Capt. A. K. Hargreaves.
32 <sup>3</sup> / <sub>4</sub>	9	144	Do.			Sir Savile Crossley, Bart.
32 <u>1</u>	9	$I2\frac{1}{4}$	Do.			Capt. E. Berry.
$32\frac{1}{2}$	$9\frac{1}{4}$	13g	Do.			Capt. C. R. G. Mayne.
$32\frac{1}{2}$	$9\frac{3}{4}$	15	Do,			Capt. G. Stewart.
$32\frac{1}{2}$	9		Do.			R. McD. Hawker.
$32\frac{1}{4}$	10	$8^{3}_{4}$	Do.			G. H. Cheetham.
321	9‡	II	Do.			Lord Villiers.
$-32\frac{1}{4}$	$9\frac{7}{8}$	138	Do.			British Museum (Sir W. Garstin).
32	95	$5\frac{3}{4}$	Do.			C. Adeane.
32	9‡	13	Do.			E. D. H. Tollemache.
32	9 <del>1</del>	I 3 <sup>1</sup> / <sub>4</sub>	Do.			Norman B. Smith.
313	$9\frac{3}{4}$	115	Do.			Hon. T. G. B. Morgan-Grenville.

- Owner's measurements.

### C.-WESTERN RACE (H. equinus gambianus).

(Including H. e. scharicus, of the Lower Shari Valley.)

Length on front curve.	Circum- ference.	Tip to Tip		Locality	y.	Owner.
33	$9\frac{1}{2}$	$17\frac{1}{2}$	N. Nige	ria		G. C. W. King.
321/4	9	$I2\frac{1}{2}$	Do.			W. A. Judd.
$30\frac{1}{2}$	9	$10\frac{3}{2}$	Nigeria			LieutGen. Sir James Willcocks.
$29\frac{1}{2}$	9	98	Do.			Capt. E. J. Wolseley.
29	91	$I_{3\frac{1}{2}}$	Do.			A. F. Hordern.
$-28\frac{3}{4}$	85	$\mathbf{I2}\frac{1}{2}$	Gambia			Dr. Percy Rendall (Charterhouse School Museum).
♀ 28 <u>3</u>	$6\frac{7}{8}$	$2\frac{3}{4}$	Nigeria	•		The late Capt. G. H. F. Abadie.
28 <sup>3</sup>	$9\frac{1}{2}$	$8\frac{3}{4}$	Gold Co	ast		Capt. G. H. Hastings.
28 <sup>1</sup> / <sub>4</sub>	$9\frac{1}{2}$	13	Nigeria			Dr. G. J. Pirie.
28	$8\frac{1}{4}$	$IO_4^3$	Do.			Capt. H. N. Kempthorne.
28	$8\frac{1}{2}$	$IO\frac{3}{4}$	Do.			W. Dales.
$27\frac{3}{4}$	$9\frac{1}{2}$	111	Do.			Capt. G. C. Kelly.
$27\frac{3}{4}$	9	$IO_4^1$	Do.			Dr. E. Charteris.
$27\frac{3}{4}$	$9^{\frac{1}{2}}$	9	Do.			S. F. Birch.

# D.-EASTERN RACES (H. e. langheldi).

Length on front curve.	Circum- ference.	Tip to Tip.	Localit	y.		Owner.		
$29\frac{3}{4}$	9	9흏	East Africa			K. V. Painter.		
$29\frac{1}{2}$	9	51	Do.			Gerard Buxton.		
$29\frac{3}{8}$	$9^{\frac{3}{4}}$	9	Do.			Stephenson R. Clarke.		
`29	$9\frac{1}{2}$	7불	Do.			M. Bell.		
285	87	$8\frac{3}{4}$	Do.			Walter Jones.		
$27\frac{1}{2}$	$9\frac{1}{2}$	7‡	Do.			Percy C. Madeira.		
271	$9\frac{1}{2}$	8	Do.			W. L. Spencer Churchill.		
27	$9\frac{1}{2}$	$4\frac{1}{4}$	Do.			A. Vonwiller.		
26 <u>1</u>	9	61	Do.			Capt. G. F. Phillips.		
$26\frac{1}{4}$	81	3	Do.			LieutCol. F. Wormald,		
26	$8\frac{3}{4}$	71	Do.			Sir Kenneth Crossley.		
26	$8\frac{1}{2}$	$7\frac{3}{4}$	Do.			Capt. Mackenzie Murray.		
253	9	5	Do.			W. A. Baird.		
$25\frac{3}{4}$	8‡	$10\frac{3}{4}$	Do.			H. B. Cox.		
$25\frac{1}{2}$	9	$6\frac{1}{2}$	Do.			N. Flower.		
$25\frac{1}{2}$	$9\frac{1}{2}$	10	Do.			J. G. Millais.		
$25\frac{1}{2}$	83	9	Do.			W. H. Lindsay.		
$25\frac{1}{2}$	8	91	Do.			Capt. R. A. McClymont.		
25흫	$9\frac{1}{2}$	12	Do.			E. M. Crosfield.		
$25\frac{1}{4}$	83	10	Do.			Capt. H. C. S. Ashton.		
° 25	6	2	Do.			C. Bower Ismay.		
			- Owner's me	surem	ente			

- Owner's measurements.



Skull and Horns of Gemsbuck. From Mr. F. H. Barber's specimen in American National Collection.

#### The GEMSBUCK (Oryx gazella).

Gemsbok, Cape Dutch. Kukama, Bechuana. Ko, Burman.

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 scimitar-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 4 feet at the shoulder. In addition to the length of

### GEMSBUCK

its horns, the species is sufficiently characterised by the presence of a tuft of dark 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 Karus 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. About 1846 Gordon Cumming found gemsbuck abundant on the northern Karus 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.	Locality.			Owner.		
48	$S^{1}_{\pm}$	$23\frac{3}{4}$	Bechuanaland .			Sir Abe Bailey.		
$47\frac{1}{2}$	634	17 <u>1</u>	South Africa .			The late J. S. Jameson.		
$46\frac{3}{4}$	7	$22\frac{1}{2}$	Do.			Sir Owen Philipps.		
46	7	$25\frac{1}{2}$	Do			W. A. Simpson Hinchliffe.		
45 <del>5</del>	$6\frac{1}{2}$	19 <u>3</u>	?			Sir Edmund G. Loder, Bart.		
♀ 45‡	61	$33\frac{3}{4}$	Ngamiland .			Sir H. J. Goold-Adams.		
451	$6\frac{3}{4}$	20 <u>3</u>	Do			G. M. Bond.		
45	81	${\tt I} 8{\textstyle\frac{1}{2}}$	Do			Hon. Walter Rothschild.		
45	7	26	Do			R. H. Venables Kyrke.		
44	$7\frac{1}{4}$	20	S.W. Africa .			C. G. Carew Elers.		
43 <sup>3</sup>	$6\frac{3}{8}$	$1S\frac{1}{2}$	Nata Valley .			F. C. Selous.		
431	6§	$20\frac{7}{8}$	?			Sir Victor Brooke's Collection.		
431	$6\frac{1}{2}$	${}_{\mathbf{I}}S_{\underline{2}}^{1}$	?			British Museum.		
43 <sup>1</sup> / <sub>8</sub>	$6\frac{3}{4}$	16	Kalahari			A. F. Williams.		
43 <sup>1</sup> / <sub>8</sub>	$6\frac{1}{4}$	16 <u>1</u>	?			M. Drew.		
43	$6\frac{1}{2}$	22	. ?			W. Y. Campbell.		
$42\frac{1}{2}$	7	$20\frac{1}{2}$	Bechuanaland .			A. Neilson.		

U

Length on front.	Circum- ference.	Tip to Tip.	Locality.			Owner.					
$42\frac{3}{8}$	61	191	Bechuanaland			Capt. F. H. Lehmann.					
$42\frac{1}{4}$	$6\frac{1}{2}$	$24\frac{3}{4}$	Do.			Col. St. C. Pemberton.					
42	$8\frac{1}{2}$	$24\frac{1}{2}$	Do.			Capt. the Hon. G. H. Douglas- Pennant.					
42	6 <u>1</u>	$20\frac{3}{4}$	?			A. Ryley.					
$4I\frac{1}{2}$	7	$2I\frac{1}{4}$	Ş			Dr. S. Martin.					
$4I\frac{1}{2}$	$7\frac{1}{2}$	18 $\frac{1}{2}$	5			R. T. Coryndon.					
41	$II\frac{1}{2}$	$23\frac{1}{2}$	Bechuanaland .			G. L. Harrison.					

# OWNER'S MEASUREMENTS.

♀46 <u>1</u>			Bechuanaland			C. S. Mann.
♀ 45½			Do.		,	American National Collection. (See illustration.)
45‡		235	Ngamiland		•	
$44\frac{1}{2}$	61	25	3			P. C. Keytel.
44	$6\frac{1}{2}$	17	?			A. Ohlsson.
43‡	8	16	?			Col. J. J. Harrison.
421	7	23	Kalahari .			H. A. Bryden.



Head of Beisa.

### The BEISA (Oryx beisa).

Biid, Somali. Sala, Danakil.

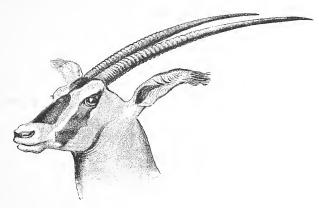
The beisa may be regarded as the north-eastern representative of the gemsbuck, from which it is distinguished at a glance not only by the absence of a fringe of hair on the throat, but also by the separation of the black nose-stripe from the eye-stripes. There is also no black on the haunches or thighs, and the horns are considerably shorter and less divergent. Height at shoulder reaching 4 feet or rather more. Weight, about 450 lbs.

Distribution.—North-east Africa, from Suakin through Abyssinia to Berbera in Somaliland, and south to the Tana River. The Galla beisa, on account of its darker colouring, is separated as O. b. gallarum; the Kilimanjaro race, O. b. callotis, is characterised by its tufted ears; and intermediate between this and the typical race is O. b. annectans of the Laikipia plateau.

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T	C*		I IOAH MAOH		
Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
♀ 39	$5\frac{1}{2}$	8	Hargeisa, Soma	liland .	E. P. Hare.
$3S_{4}^{3}$	$5\frac{1}{2}$	II $\frac{1}{2}$	East Africa .	· ·	Capt. W. H. Wilkin.
38	7	10	Do		Capt. F. H. Span.
38	5	13	Abyssinia .		N. C. Cockburn.
374	$6\frac{3}{8}$	8	East Africa.		Capt. W. M. Burrell.
375	5	$9\frac{3}{4}$	Do		C. Fahnestock.
1 37 <del>5</del>	IIIS	I. <b>1</b>	Do		P. Fleming.
♀ 37뒾	6	IO	Do		W. N. McMillan.
37‡	7	I I 1 4	Somaliland .		G. D. E. Chapman.
36%	$7\frac{1}{4}$	$12\frac{1}{4}$	Do	· .	A. E. Butter.
$36\frac{1}{2}$	6	10	East Africa .		Rhys Williams.
363	$6\frac{1}{4}$	/ 7 <del>3</del>	Somaliland .		G. J. A. Troyte.
36‡	$6\frac{1}{2}$	$8\frac{1}{2}$	Gallaland .		M. V. Hay.
361	$6\frac{3}{4}$	$9\frac{1}{4}$	East Africa .		Col. J. Caswell.
36	$6\frac{1}{2}$	$IO\frac{1}{2}$	Somaliland .		Capt. J. T. Brinkley.
36	6	8	Do		Count J. Potocki.
36	71	8	East Africa .	: .	The late G. G. Longden.
36	$6\frac{3}{4}$	10	Do		J. L. Baird.
35 8	54	$9\frac{7}{8}$	Do		G. F. Archer.
357	$6\frac{3}{4}$	$9^{1}_{8}$	Somaliland .		Lord Delamere.
♀ 35 <sup>3</sup> / <sub>4</sub>	$6\frac{1}{2}$	$9\frac{1}{2}$	East Africa.		British Museum.
♀ 35킄	5 <sup>3</sup> / <sub>4</sub>	$9\frac{1}{2}$	Do		Capt. G. H. Riddell.
$35\frac{3}{4}$	51	83	Somaliland .		Sir Edmund G. Loder, Bart.
358	7	IO	East Africa .		J. E. R. Oldfield.
♀ 35 <sup>1</sup> / <sub>2</sub>	6	II	Do		W. F. Whitehouse.
₹ 35 <u>±</u>	51	7	Do		MajGen. Sir A. N. Rochfort.
35 <sup>1</sup> / <sub>2</sub>	6	$9\frac{1}{4}$	Do		C. S. Collier.
$35\frac{1}{2}$	$6\frac{1}{2}$	$8\frac{3}{4}$	Somaliland .		Prince Nicolas Ghika.
♀ 35‡	6	$IO_2^1$	East Africa.		Capt. Lord Gerard.
35‡	$6\frac{1}{2}$	9 <u>1</u>	Do		G. Fenwick-Owen.
35‡	$6\frac{1}{2}$	101	Do		E. V. Hemmant.
35	6	71	Do		W. N. McMillan.
35	6	9	Somaliland .		Gen. Sir Arthur Paget.
35	58	$9^{3}_{4}$	S. Abyssinia		T. Morse.
35	$5\frac{2}{4}$	$6\frac{1}{2}$	Do.		Capt. F. L. Livingstone-Learmonth
35	5 <sup>3</sup> / <sub>4</sub>	7 <del>5</del>	Somaliland .		A. S. Trevor.
\$ 35	51	91	East Africa .		Col. C. F. Blane.
35	$6\frac{3}{4}$	7	Do		Capt. G. V. Clarke.
		O.	WNER'S MEAS	UREMI	ENTS.
\$ 38 <del>1</del>	6	9	Somaliland .		Major E. Bell.
+ 30 fc 37 k	7	$7\frac{1}{2}$	Do		
515	,	12	<sup>1</sup> Abnormal		
			1 KOHOTAHAI	** ****	

# A.-TYPICAL RACE (O. beisa typica).



Head of Fringe-eared Beisa,

# B.-KILIMANJARO or FRINGE-EARED RACE (O. beisa callotis).

Distinguished from the typical beisa by the fringe of long hairs surmounting the ears, by the extension of the eye-stripe to the lower jaw, along which it generally 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.

Length on front.	Circum- ference.	Tip to Tip.	Locality.			Owner.		
$33\frac{1}{2}$	7	13	Makindu .			R. B. P. Cator.		
33 <sup>1</sup> / <sub>4</sub>	7‡	II $\frac{1}{2}$	Near Lake Na	laron		Capt. Mackenzie Murray.		
33	7	$9\frac{1}{2}$	Kilimanjaro			The late G. G. Longden.		
$32\frac{3}{4}$	6 <u>5</u>	113	East Africa			A. Fowler.		
32 <sup>2</sup> / <sub>4</sub>	712	, 12	Do.			A. Murray Smith.		
$32\frac{1}{2}$	7	II	Do.			G. N. Crisford.		
$32\frac{1}{4}$	7‡	13	Do.			Lieut. S. R. Bailey, R.N.		
31 <del>3</del>	$6\frac{1}{2}$	83	Do.			H. Fowler.		
$31\frac{1}{2}$	78	94	Do.			W. H. Levy.		
31	6	IO	Do.			W. M. Greiss.		
31	7‡	10	Do.			A. W. Mayo Robson.		
\$ 3I	5登	$12\frac{1}{2}$	Do.			J. Leslie.		
305	$6\frac{1}{2}$	$9\frac{1}{2}$	Do.			G. de P. Colvile.		
30 <u>1</u> 2	5 <sup>3</sup> / <sub>4</sub>	$IO_2^1$	Do.			Sir F. J. Jackson.		

Length on front.	Circum- ference.	Tip to Tip.	Locality.			Owner,
30‡	•••	6	Sabaki District			Capt. T. W. Greenfield.
$29\frac{1}{2}$	6	$12\frac{3}{4}$	East Africa			Sutton Timmis.
$29\frac{1}{2}$	$6\frac{7}{8}$	10	Do	•		H. G. Watson.
$29\frac{1}{2}$	58	7흥	Do			Sir Robert Harvey, Bart.
29 <u>3</u>	$7\frac{1}{2}$	$9\frac{1}{2}$	Do			Capt. R. H. R. Brocklebank.
$29\frac{1}{4}$	61	11 <u>1</u>	Do			Count B. Tyszkiewicz.
$29\frac{1}{4}$	$6\frac{7}{8}$	$IO\frac{1}{2}$	Do			Sir J. Hume Campbell, Bart.
$29\frac{1}{4}$	$6\frac{3}{4}$	$12\frac{1}{2}$	Do			F. C. Stern.
29	7	10 <u>3</u>	Do		•	David Davies.
29	$7\frac{1}{2}$	$IO_4^1$	Do			Count A. Tyszkiewicz.
29	6	II	Do			E. H. Litchfield.
29	5‡	$II\frac{1}{2}$	Do			Sir Edmund G. Loder, Bart.
29	658	13§	Do			Lord Wodehouse.
29	5=3	II	Do			H. Sampson.
$28\frac{3}{4}$	58	6	Do			H. C. V. Hunter.
ç 28§	$4\frac{3}{4}$	121	Do			Henry Charrington.
28 <u>1</u>	7	$10\frac{1}{2}$	Do			A. Hamilton Gault.

# OWNER'S MEASUREMENTS.

♀ 33 <del>1</del>	5章	$14\frac{1}{2}$	Kilimanjaro	•	•	Major F. A. Dickinson.
32 <del>]</del>	6	121	Do.			Do.

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Head of Arabian Oryx. Shot by Mr. D. Carruthers.

### The ARABIAN ORYX (Oryx leucoryx).

This oryx is a 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. The horns are slightly curved.

*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.		Local	ity.		Owner.
$23\frac{3}{4}$	5	9 <sup>1</sup> / <sub>4</sub>	Arabia		•	•	Sir Edmund G. Loder, Bart.
22	4	10	Do.				British Museum (P. B. Vander Byl).
Ŷ 15	38	$4\frac{1}{2}$	Head of	Persi	an Gu	ulf.	Do. (B. T. Ffinch).

### OWNER'S MEASUREMENTS.

271	41	$I2\frac{1}{2}$	Tebuk		D. Carruthers.
$26\frac{1}{1}\frac{3}{6}$	4 <del>3</del>	10‡	Arabia		Paris Museum.

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Head of White Oryx.

### The WHITE ORYX (Oryx algazel).

### Abū harb, Sudani.

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 colouring, showing a more or less distinct chestnut tinge. The chestnut is developed on the neck, shoulders, under-parts, upper portions of the limbs, and the face; the last corresponding very closely with the dark markings of the beisa in their arrangement.

Distribution.—North-western Central Africa, from Nigeria to Sennar, Kordofan, and parts of Nubia and the Eastern Sudan generally.

Length on front.	Circum- ference.	Tip to Tip.	Loca	ality.		Owner.
45	$6^{1}_{4}$	$8\frac{1}{2}$	Kordofan			G. Blaine.
$44\frac{1}{2}$	$6\frac{3}{3}$	9	Do.			Major II. G. F. Stallard.
43 <sup>5</sup>	$6^{1}_{2}$	$10\frac{1}{2}$	Do.			Major H. H. S. Morant.
♀ 43‡	$4\frac{7}{5}$	$\mathbf{I2}_{\pm}^3$	Do.			Norman B. Smith.
<del>?</del> 43	51		Gold Coast			P. J. Partridge.

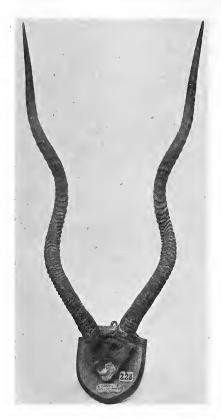
# WHITE ORYX

	Length on front.	Circum- ference.	Tip to Tip.	Locali	y.			Owner.
,	$42\frac{3}{4}$	$6\frac{1}{4}$	9	Kordofan				Hon. Walter Rothschild.
	$42\frac{1}{4}$	5 <sup>1</sup> / <sub>8</sub>	$IO_2^1$	?				Sir Owen Philipps.
	42	$7\frac{1}{8}$		Northern Terr	itori	es, G	old	Capt. H. Read.
	<sup>1</sup> 42	5 .		Coast Nigeria .				Capt. W. D. Wright.
	$^{1}4I_{8}^{7}$	6 <del>1</del>		Lake Chad				E. B. Macnaughten.
	41 <u>3</u>	5	$16\frac{1}{2}$	Kordofan				Walter Jones.
	41 <sup>2</sup>	6 <u>3</u>	83	Dongola .				Capt. W. H. Wilkin.
	41 <u>5</u>	6	$10\frac{1}{2}$	Kordofan				E. N. Buxton.
	41 <u>8</u>	$6\frac{1}{2}$	9	Do.				Capt. A. K. Hargreaves.
	41 <del>1</del>	6 <u>3</u>		N. Nigeria				Capt. S. C. Taylor.
	40 <sup>1</sup> / <sub>3</sub>	$5^{\frac{3}{4}}$	61	Kordofan				Capt. J. C. Graham.
	$40\frac{1}{2}$	6 <u>5</u>	$8\frac{1}{4}$	Do.				Sir Robert Harvey, Bart.
	$940\frac{1}{2}$	51	$15\frac{1}{2}$	Do.				Do.
	$39\frac{3}{4}$	$5\frac{1}{2}$	I4↓	Do.				The late Prince Henry of Liechten- stein.
	$39\frac{3}{4}$	6 <del>]</del>	$4\frac{1}{2}$	Do.				British Museum (Major H. N. Dunn).
	♀ 39‡	5‡	6#	Do.				Capt. G. S. Cameron.
	39 <del>1</del>	$6\frac{1}{2}$	$3\frac{1}{2}$	Do.				C. E. Lyall.
	39 <del>1</del>	5 <del>§</del>	I I $^3_4$	Do.				LieutGen. Sir B. T. Mahon.
	<sup>1</sup> 39	51		N. of Sokoto				Major-Gen. P. S. Wilkinson.
	39	$5\frac{1}{2}$	$10\frac{1}{4}$	Dongola	•			Capt. the Hon. G. H. Douglas- Pennant.

# OWNER'S MEASUREMENTS.

43 ... 15 Kordofan . . . Major A. J. B. Percival.

<sup>1</sup> Single horn.



Horns of Addax. In the collection of Sir Edmund G. Loder, Bart.

### The ADDAX (Addax nasomaculatus).

# Kūbbăji, Arabic.

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 lesser kudu). The general colour in summer is sandy above and whitish below, with a brown patch on the forehead. In winter, at any rate in the case of the typical Tunisian race, the coat is grey and a heavy mass of long brown hair developed on the neck, shoulders, and forehead, 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.

# ADDAX

# Distribution.—North Africa, as far south as lat. $7^{\circ}$ 15' N. in the Egyptian Sudan.

Len	Length.							
On front curve.	Straight line.	Circum- ference.	Tip to Tip.	Locality.		Owner.		
$39\frac{5}{16}$	$34\frac{1}{2}$	$5\frac{7}{8}$	183	5		Sir Edmund G. Loder, Bart. (See illustration.)		
우 39불	32 <u>5</u>	43	24	Sudan	•	H. Hodgson.		
39	31	$6\frac{5}{8}$	$20\frac{7}{8}$	Dongola	•	Capt. the Hon. G. H. Douglas- Pennant.		
39	33	6	$20\frac{1}{2}$	5		Carl Hagenbeck.		
$38\frac{1}{2}$	$30\frac{1}{2}$	$6\frac{1}{2}$	$12\frac{1}{2}$	South Tunisia .	·	British Museum (J. I. S. Whitaker).		
373	31=3	5축	$23\frac{1}{2}$	Sahara		W. Barry.		
37‡	31	6 <u>‡</u>	$28\frac{1}{2}$	Sudan		H. Hodgson.		
36§	291	$6\frac{1}{2}$	13 ]					
$36\frac{1}{2}$	311	6	19 <u>3</u>	South Tunisia .	•	American National Collection.		
36	30 <u>1</u>	$6\frac{1}{4}$	183	Dongola		G. Blaine.		
36	$28\frac{3}{4}$	$6\frac{3}{4}$	12	S.W. Dongola .		Major A. J. B. Percival.		
354	28	63	13 <u>5</u>	North Africa .		Hon. Walter Rothschild.		
♀ 34 <sup>3</sup>	28	$4\frac{3}{4}$	$7\frac{1}{2}$	Do		Do.		
341	29	$6\frac{1}{4}$	$20\frac{1}{2}$	W. of Dongola		Earl of Kingston.		
34	$29\frac{1}{2}$	$5\frac{3}{4}$	14 <u>3</u>	Do.		Mr. Justice Hopley.		
34	29	6 <u>3</u>	101	Do.		Sir Abe Bailey.		
$33\frac{1}{2}$	26	$5\frac{1}{2}$	$I2\frac{1}{4}$	Do.	•	Hon. R. A. Ward.		
32 <sup>8</sup> /4	$27\frac{1}{4}$	6‡	14	Do.		Sir Robert Harvey, Bart.		
3 <b>2</b> <sup>5</sup> /8	$27\frac{1}{2}$	$6^{3}_{4}$	18	S.W. of Dongola		Capt. P. E. Vaughan.		
$32\frac{1}{4}$	$27\frac{1}{5}$	$6\frac{1}{2}$	17	Algeria		A. F. Williams.		
31½	26	5 <sup>2</sup>	$I2\frac{1}{4}$	Do		Major R. Rankin.		

### OWNER'S MEASUREMENTS.

•	~	£.	
5	5	$\overline{\mathbf{y}}$	

 $30\frac{1}{4}$   $6\frac{1}{2}$ 

20

5

J. C. Phillips.



Skull and Horns of Four-horned Antelope.

### FOUR-HORNED ANTELOPE or CHOUSINGHA (Tetraceros quadricornis).

This antelope, which was formerly classed with the African duikers, is now regarded as a relative of the nilgai. Typically there are two pairs of horns, and the face-glands form deep slits; the females being hornless. The upper molar teeth have low, squared crowns. 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 infrequently mere knobs, and may even be wanting, as in most Madras and Kathiawar specimens.

### Distribution .- Peninsular India south of the Himalaya.

	of horns ront.	Circum	ference.	Tip to	o Tip.	Locality.	Owner.	
Rear.	Fore.	Rear.	Fore.	Rear.	Fore.	130 4411 ( )		
$4\frac{1}{2}$	$2\frac{3}{4}$	$2\frac{1}{2}$	$2\frac{1}{4}$	3		?	G. Masters.	
$4\frac{1}{2}$	$2\frac{1}{4}$	23	$2\frac{1}{4}$	3	•••	?	Major J. C. B. Statham.	
43	$2\frac{1}{2}$	$2^{1}_{+}$	28	15	25	Ś	Sir Edmund G. Loder, Bart.	
4	$2\frac{1}{2}$	178	178	3	$I\frac{1}{8}$	Indore	British Museum (Col. J. Evans).	
4	2	3	$1\frac{2}{3}$	$1^{\frac{1}{2}}$	$2\frac{1}{2}$	Karkote Jungle, near Mhow	Col. G. D. F. Sulivan.	
4	$2\frac{1}{16}$	2	I <del>7</del> 5	$\mathbf{I}\tfrac{1}{2}$	•••	rear Mnow ?	C. Cunningham.	
4	Iŝ	$2\frac{1}{2}$	17	$2\frac{1}{4}$	•••	Central Provinces	Hon. Walter Rothschild.	
33	I	$2\frac{1}{4}$	2	I 5		Do.	Major A. D. Greenhill- Gardyne.	
34	2	2‡	$2\frac{1}{4}$	Iĝ		Do.	W. Moylan.	

#### OWNER'S MEASUREMENTS.

5	••••	• • •	•••			Jhalawar		H.H. Maharaj Rana Bahadur of Jhalawar.
$4\frac{1}{2}$	$2\frac{1}{2}$	21	$I\frac{7}{5}$	$2\frac{1}{8}$	I	Lulitpur		General Walker.
$4^{1}_{s}$	$I\frac{1}{2}$					?		J. D. Inverarity.



#### Head of Nilgai.

### The NILGAI or BLUE BULL (Boselaphus tragocamelus).

This ungainly and small-horned antelope is an Asiatic representative of a group whose other members, apart from the chousingha, 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. Face glands are wanting in the African genera, the muzzle is naked, and the tail is either hairy throughout or long and tufted. The upper cheek-teeth have broad crowns. The females have four teats.

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 grey, 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, the chin, the under-parts, the lower surface 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. The late Mr. A. O. Hume shot a specimen in the Aligurh district in 1855 in which the horns measured  $11\frac{3}{4}$  along the front curve, with a circumference of  $9\frac{1}{2}$ . 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 United Provinces, Guzerat, and the Central Provinces.

Length on front.	Circum- ference.	Tip to Tip.	Locality.		Owner.
91등	9 <sup>3</sup> / <sub>4</sub>	$5\frac{1}{2}$	?		Sir Edmund G. Loder, Bart.
$9\frac{1}{2}$	$6\frac{1}{2}$	6	?		Major G. F. Mockler.
9월	$7\frac{1}{2}$	$6\frac{1}{4}$	?		J. Whitaker.
$9\frac{3}{8}$	83	55	Nepal Terai .		Capt. J. L. Sleeman.
9‡	6 <u>3</u>	$4\frac{7}{5}$	?		British Museum.
9‡	7 <sup>음</sup>	74	?		Capt. G. W. Hemans.
9	6 <u>5</u>	$3\frac{1}{2}$	?		British Museum (Hume Col-
9	$8\frac{1}{2}$	6 <u>5</u>	United Provinces		lection). A. V. Wilcox.
$8\frac{7}{3}$	$6\frac{1}{2}$	51	Central Provinces		C. D. Twopeny.
8=	6 <del>1</del>	54	Bhurtpur		LieutCol. J. M. Fawcett.
$8^{3}_{4}$	8	61	Central Provinces		Duke of Peneranda.
$8^{3}_{4}$	•••	5 <sup>3</sup> / <sub>4</sub>	Do		Capt. L. P. Haviland.
$8\frac{3}{4}$		7	,Do		Capt. F. A. B. Johnstone.
82		$8\frac{1}{2}$	;		J. Gouldsmith.
85	$8\frac{1}{4}$	6‡	Bhopal		C. H. Payne.
8 <u>1</u>	$7\frac{1}{2}$	43	Central Provinces		Capt. E. H. R. Hibbert.
$8\frac{1}{2}$	8	5‡	Do.		Major C. D. White.
$8\frac{1}{2}$	$7\frac{3}{4}$	5	?		H. T. Cawley.
		OW	NER'S MEASURE	MEI	NTS.
101	74	51	Baratpur		Capt. R. W. Hutton.
10	81	$6\frac{1}{2}$	United Provinces		Capt. W. R. P. Henry.
10	$9\frac{1}{2}$	5	Agra		J. W. Pickthall.
$9^{15}_{16}$	78	63	Central Provinces	•	M. Rawlence.
9 <sup>1</sup> / <sub>2</sub>	$8\frac{1}{2}$		Bhurtpur	•	Major E. R. Gordon.
9	7	7	Muttra	•	Capt. S. H. Charrington.
9	6	5불	Bignor	•	R.E. Mess, Roorkee.
$8\frac{3}{4}$			Jumna Valley .	·	Indian Museum.
83	7		United Provinces	·	C. Rose.
8 <u>ş</u>		5	Oudh	·	Mess, 3rd Gurka Rifles.

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### B USHB UCK



Skull and Horns of Bushbuck in the Collection of the Hon. Walter Rothschild.

### The BUSHBUCK (Tragelaphus scriptus).

Abu Nabah, Sudani.	M'babala and Serolo buchuhu,
Assali, Danakil.	Ngami.
Bata, M'Kua.	Mbawara, Swahili.
Chiwalawala, Chilala and Chibisa.	Mazo and Bŭlŭmgito, Hausa.
Boschbok, Cape Dutch.	<i>Ngabi</i> , Waganda.
Ibawara, Lower Zambesi.	Scrolobutuku, Bamangwato.
Imbabala, Swazi and Matonga.	Ungurungu, Makuba.
Inkonka (male), Imbabala (female),	Dol, Somali.
Zulus.	Decula, Abyssinian.
M'babala, Barotsi.	Shichibange, Chila.

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 does 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 true bushbuck is the smallest and at the same time the most widely spread member of the group, having many 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. Bucks have a crest of long hair, which may be white and erectile along the middle of the back ; while in many, and especially

the southern races, there is a collar round the neck on which the hair is quite short. In the Abyssinian T. scriptus decula, which ranges into the forests bordering the Webbe in Somaliland, and is known as dol, the build is low and stout, and the general colour cinnamon, the light stripes being nearly obsolete. The Nile T. s. bor is allied. In the West African T. s. typicus, from West, Central, and South-Central Africa, the ground-colour is bright rufous, and the spots and stripes are very conspicuous. In the Limpopo T. s. roualeyni the bucks are dark brown, with only faint indications of white markings, but in the Cape T. s. sylvaticus the colour is dark brown without transverse white stripes, and the spots are reduced to a few indistinct ones on the haunches and behind the shoulder. The bucks of the Arusi T. s. meneliki are nearly black, with much white on the legs and a dark dorsal crest; and those of the smaller Shoan T. s. powelli are also dark, but with white tips to the dorsal crest and dark legs. Many other races have been named, several based on specimens in the collection of Major Powell-Cotton.

As an abnormality, females may carry horns. In bushbuck, kudu, and nyala the outer edge of the tips of the hoofs is rounded, thus producing very characteristic slots.

Many of the following belong to the Cape T. s. sylvaticus, but the one from the Limpopo represents T. s. roualeyni, while the specimens from Nyasaland and neighbouring districts belong to other races.

Length on front curve.		Tip to Tip.	Locality.		Owner.
$2I\frac{3}{4}$	$6\frac{1}{2}$	$7\frac{1}{2}$	B.C. Africa		Dr. J. O. Shircore.
$20\frac{1}{2}$	$6\frac{7}{8}$	6	Do		Hon. Walter Rothschild.
$20\frac{1}{10}$	$6\frac{7}{8}$	10 <u>3</u>	?		Sir Edmund G. Loder, Bart.
20	$6\frac{1}{4}$	$5\frac{1}{2}$	B.C. Africa		W. Kirby Green.
193	6 <u>3</u>	7	Do		G. Dickie.
$19^{3}_{4}$	6 <u>‡</u>	$4\frac{1}{2}$	Upper Shiré Valley .	•	IIon. Walter Rothschild. (See illustration.)
193	$6\frac{1}{2}$	$8\frac{3}{4}$	N.E. Rhodesia .	•	H. S. Thornicroft.
19	58	34	B.C. Africa		Dr. J. E. S. Old.
18 <u>3</u>	6	103	;		Sir Edmund G. Loder, Bart.
18 <u>1</u>	6	$8\frac{5}{8}$	Pungwé		P. H. Illingworth.
181	61	9 <u>3</u>	S. Africa		Col. E. St. C. Pemberton.
181	$5\frac{1}{2}$	87	B.C. Africa		J. Sealy Bell.
181	6‡	71	E. Transvaal		Major J. Stevenson-Hamilton.
181	6]	7	N.W. Rhodesia		G. de P. Colvile.
173	51/2	4 <u>3</u>	Zululand .		Sir Abe Bailey.
171	. 6	5‡	N.E. Gazaland .		A. M. Naylor.
171	7	78	Near Port Shepstone.		Major E. H. E. Abadie.
17.1	63	73	S.E. Africa		H. Miller.
$17\frac{1}{8}$	6	31	Do		Sir Owen Philipps.
175	$7\frac{1}{2}$	52	?		British Museum.

## B USHB UCK

17 5 <sup>1</sup> / <sub>2</sub> 8 <sup>1</sup> / <sub>8</sub> Zomba, B.C.A C. C. Bowring.	
$16\frac{1}{2}$ $5\frac{3}{4}$ $7\frac{3}{8}$ B.C. Africa . R. H. Storey.	
$16\frac{1}{4}$ $5\frac{3}{8}$ $7\frac{3}{4}$ Pungwé Major G. T. M. Bridges.	
$16\frac{1}{4}$ 6 7 N.W. Rhodesia R. E. Critchley-Salmonson.	
16 $6\frac{1}{4}$ $7\frac{1}{4}$ Do Capt. Sir K. Fraser, Bart.	
16 $5\frac{1}{2}$ $4\frac{1}{2}$ Do W. H. Tapp.	

#### OWNER'S MEASUREMENTS.

$19\frac{7}{16}$	5축	II	Lower Zambesia	•	Fleet-Surgeon W. II. S. Stalkartt, R.N.
18	$6\frac{1}{2}$	$I2\frac{1}{2}$	B.C. Africa .		
171	$6\frac{1}{2}$	78	Zomba, B.C.A.		D. MacAlpine.
$17\frac{1}{2}$	51/2	$10\frac{3}{4}$	Limpopo Valley		Grahamstown Museum.

The following belong to the West African T. s. typicus :---

Length on front curve.		Tip to Tip.	Loca	lity.		Owner.
í 3 <del>1</del>	5	$4\frac{1}{2}$	N. Nigeria			Capt. W. M. Fowler.
13	5‡	6	Do.			Capt. L. C. Brodie.
121	5‡	$2\frac{7}{3}$	Nigeria .			Capt. H. T. G. Moore.
I21	5	5	Do			Major J. A. Burdon.
$12\frac{1}{4}$	5	5	Do			Capt. G. C. Kelly.
$12\frac{1}{8}$	5‡		Do			Capt. W. C. Street.
I 2	$4\frac{1}{2}$	$4\frac{1}{2}$	Do			Capt. W. H. Wilkin.
I 2	5	6 <u>3</u>	Do			Major-Gen. P. S. Wilkinson.
I 2	5‡	$I\frac{7}{8}$	Senegambia			G. Fenwick-Owen.
$II\frac{3}{8}$	61	$4\frac{3}{8}$	S. Nigeria			Capt. R. M. Heron.
II‡	5	$4\frac{3}{4}$	Nigeria .			Capt. N. F. Baynes.
II	5	$4\frac{3}{4}$	Sierra Leone			R. H. Gill.
$IO_2^1$	5	$4\frac{1}{2}$	Nigeria .			Capt. A. K. O'Brien.
$IO_2^1$	$4\frac{1}{2}$	$2\frac{1}{4}$	Gambia .			-British Museum (13th Earl of Derby).
юţ	$4\frac{1}{4}$	$4\frac{1}{8}$	Gold Coast			T. E. Fell.
9 <del>7</del>	$4\frac{1}{2}$	2\$	Do		•	Capt. A. H. Hobbs.

# The following belong to the Masai T. s. masaicus :---

Length on front curve.		Tip to Tip.	Loca	lity.	Owner.		Owner.
$20\frac{1}{2}$	7	$8\frac{1}{2}$	East Africa				Capt. J. A. Morrison.
$18\frac{1}{2}$	6‡	51	Do.				R. P. Carroll.
$_{1}8\frac{1}{2}$	$5\frac{1}{2}$	$S_{2}^{1}$	Do.				Sir Abe Bailey.
18	6‡	$7\frac{1}{2}$	Do.				Gerard Buxton.
18	$7\frac{3}{4}$	7‡	Uganda .				J. Leslie.
18	7	61	East Africa				Capt. J. W. H. D. Tyndall.
17 <del>7</del>	6‡	5 <del>7</del>	Do.				Sir John Kirk.
							X

Length on front curve.	Circum- ference.	Tip to Tip.	Loca	al <b>ity.</b>		Owner.
17‡	$6\frac{1}{2}$	$6\frac{3}{4}$	East Africa			R. J. Church.
17\$	63	6	Do.			R. B. Loder.
17	7불	$7\frac{1}{2}$	Do.			J. Hall.
17	7	8	Uganda .			H. Twyford.
17	6	9	Do			Marquis of Tweeddale.
17	6	IO	Do			Capt. C. Brook.
16 <u>3</u>	6	7	Do			T. D. M. Cardeza.
16 <u>4</u>	$6\frac{1}{2}$	7=2	Do			J. K. Hill.
16 <u>3</u>	7	4	East Africa			I. N. Dracopoli.
16§	5 <del>इ</del>	$6\frac{1}{4}$	Manda Island			British Museum.
$16\frac{1}{2}$	7	7	East Africa			Sheffield Neave.
$16\frac{1}{2}$	61	8	Do.			Major H. B. Dalgety.
16 <u>1</u>	7	$7\frac{1}{2}$	Do.			E. H. Litchfield.
16 <u>1</u>	6	7월	Do.			F. W. Belt.
16 <u>1</u>	6	4 <sup>1</sup> / <sub>4</sub>	Do.			Count B. Tyszkiewicz.
16 <u>8</u>	6‡	9	Do.			Hon. H. Brougham.
161	$6\frac{1}{2}$	7	Do.			F. C. Selous.

#### OWNER'S MEASUREMENTS.

$20\frac{3}{4}$	7	6	East Africa		C. S. Mann.
18 <u>3</u>	7용	$6\frac{3}{4}$	Unyoro .		F. A. Knowles.
$17\frac{7}{8}$	$5\frac{3}{4}$	3	East Africa		Capt. C. H. Elliot.
ıб‡	6‡	51	Do.		S. E. White.

# The following belong to the Upper Nile T. s. bor :---

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
$I4\frac{1}{2}$	4 <sup>3</sup>	51	Sudan		The late Capt. H. S. Logan.
$I3\frac{1}{2}$	6	$5\frac{1}{2}$	Blue Nile .		Capt. J. A. Pollock.
13 <u>1</u>	5	••••	Do		G. L. Harrison.
13 <u>1</u>	512	4#	Bahr-el-Ghazal .		Major R. B. Airey.
13 <u>3</u>	6	I =====	Do		Capt. H. M. Hutchinson.
13§	6	5‡	Setit Valley .		W. B. Cotton.
I 3‡	6	41	Sudan		Capt. C. E. Hills.
13	$5\frac{1}{2}$	$4\frac{1}{2}$	Do		Capt. B. W. Y. Danford.
13	5	6	Do		Capt. A. C. Jeffcoat.
$I2\frac{7}{8}$	$5\frac{3}{4}$	51	White Nile .		Earl of Kingston.
I2 <sup>3</sup> / <sub>4</sub>	51	3‡	Do		E. C. Crispin.
123	$5\frac{1}{2}$	41	Dinder Valley .		C. Bower Ismay.
$I2\frac{1}{2}$	5	51	S. of Abukutu .		Major R. M. Sanders.
$I2\frac{1}{2}$	51	23	Sudan		Prince Colloredo Mannsfeld.
123	4 <sup>1</sup> / <sub>2</sub>	54	White Nile .	۰.	G. C. Whitaker.
I 2.‡	5	5	Sudan		Col. E. G. T. Bainbridge.
121	6‡	45	Blue Nile		J. G. O. Thomson.
I 2.1	54		Sudan		G. C. Brock.

### B USHB UCK



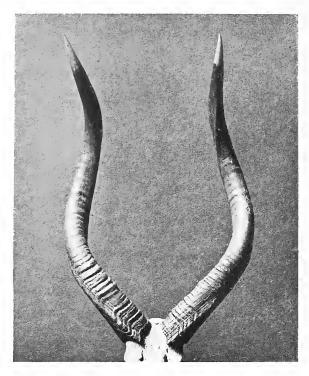
Head of Bushbuck.

Of the following specimens some belong to the Abyssinian T. s.decula, but the one from the Hawash River represents T. s. multicolor, while the Somali examples may be either T. s. delamerei, or T. s.fasciatus.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.		
19 <u>1</u> 2	$6\frac{1}{4}$	$8\frac{2}{4}$	Somaliland			C. S. Mann.		
19불	6‡	71	Do			Hon. Walter Rothschild.		
13 <sup>1</sup> / <sub>2</sub>	5 <del>1</del>	$4\frac{1}{2}$	Harar, Abyssin	ia		Ivor Buxton.		
$\mathbf{I} 2_{\mathrm{S}}^{\mathrm{T}}$	5‡	51	Abyssinia .			R. Hayne.		
12	6	4	Do			Lord Wodehouse.		
I 2	5 <sup>1</sup> / <sub>8</sub>	5불	Do			British Museum.		
114	6	51	Do			A. E. Butter.		
II <u>1</u>	$4\frac{7}{8}$	$4\frac{3}{8}$	Do	•		Major P. H. G. Powell-Cotton.		
11	41	$5\frac{1}{4}$	Do			Sir Edmund G. Loder, Bart.		
II	5 <sup>1</sup> / <sub>8</sub>	5	Setit Valley			Col. Ralph Vivian.		
II	$4\frac{3}{5}$	25	Northern Abys	sinia	·	British Museum.		

#### OWNER'S MEASUREMENTS.

17			Somaliland Col. H. G. C. Swayne.	
$16\frac{1}{2}$	$6\frac{1}{4}$	5	Do A. II. Straker.	
13 <u>3</u>	$5\frac{1}{2}$	5‡	Harar, Abyssinia Prince de Lucinge.	
I 2 <sup>7</sup> / <sub>5</sub>	5‡	31	Hawash Valley, Abyssinia Viscount Edmond de Ponci	ins.



Horns of Nyala. From a specimen presented by the late Mr. Rowland Ward to the British Museum.

#### The NYALA (Tragelaphus angasi).

Nyala, Zulu.

Bo, Nyasa.

This representative of the bushbuck group is a large, delicately built species, standing about 3 feet 6 inches at the shoulder. Weight, about 250 to 300 lbs. In the males the hair is long and soft, forming a fringe on the throat and the under-parts of the body, and a white crest along the back, the general colour being dark slaty grey, with a few indistinct white transverse stripes. In females the hair is short throughout, and the general colour bright reddish chestnut, with numerous distinct white stripes. The lower parts of the legs are tan, and 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. NYALA

Ler	ngth.				
On front curve.	Straight.	Circum- ference.	Tip to Tip.	Locality.	Owner,
~ 31 <sup>1</sup> / <sub>2</sub>	26	$8\frac{1}{2}$	$12\frac{3}{4}$	Zululand	British Museum (Late Rowland Ward).
318	245	$8\frac{1}{4}$	$9\frac{1}{2}$	Do	Hon. Walter Rothschild.
318	$24\frac{1}{2}$	8‡	$3\frac{1}{2}$	Shiré Valley, B.C.A.	Fergus Maclagan.
$30\frac{1}{3}$	$24\frac{7}{8}$	81	17	?	Sir Owen Philipps.
$29\frac{3}{4}$	23	8	13	S.E. Africa	Col. Lord Douglas Compton.
29 <sup>3</sup>	25	$7\frac{7}{8}$	141	Zululand	Surgeon-Gen. Sir D. Bruce.
29‡				Delagoa Bay	American National Collection.
291	24 <sup>1</sup> / <sub>2</sub>	9	13	?	C. B. Addison.
28 <u>3</u>	$22\frac{1}{2}$	$8\frac{1}{4}$	$8\frac{1}{2}$	S.E. Africa	H. L. Pattinson.
$28\frac{1}{2}$	23=3	8	$12\frac{3}{4}$	Zululand	Hon. Walter Rothschild.
$28\frac{1}{2}$	22	$8\frac{1}{2}$	$7\frac{1}{2}$	Do	C. S. Jameson.
$28\frac{1}{2}$	$23\frac{1}{2}$	$7\frac{3}{4}$	II $\frac{1}{2}$	Do	H. C. da Costa.
28‡	$21\frac{1}{4}$	71	$9\frac{3}{4}$	Delagoa Bay	R. T. Coryndon.
28‡	24‡	$7\frac{3}{4}$	13	Do	Capt. R. Meinertzhagen.
28 <del>1</del>	24	$7\frac{1}{2}$	9	Do	Col. E. St. C. Pemberton.
281	23 <del>5</del>	$8\frac{1}{4}$	9	Do	H. W. Elliott.
28	24	8	15	Katanga, B.C.A.	John Yule.
28	23	7‡	I 3 <sup>1</sup> / <sub>4</sub>	Near Chiromo, B.C.A.	Surgeon J. Dowson, R.N.
28	$22\frac{3}{4}$	7‡	$17\frac{1}{2}$	Delagoa Bay	F. A. R. Zurcher.
27 <sup>8</sup> / <sub>4</sub>	$22\frac{1}{2}$	8	10 <u>3</u>	Do	G. L. Harrison.
$27\frac{3}{4}$	$23\frac{3}{4}$	8	15‡	Do	R. T. Coryndon.
$27\frac{3}{4}$	$22\frac{1}{2}$	7 <del>1</del> 8	10	Do	Marquis Pizzardi.
$27\frac{1}{2}$	$22\frac{1}{2}$	8	$9\frac{1}{2}$	Do	Major-Gen. Sir J. Dartnell.
$27\frac{1}{2}$	22 <del>]</del>	7 <del>5</del>	$8\frac{1}{2}$	Do	C. D. Rudd.
$27\frac{1}{2}$	20	8	5‡	Do	R. Elliott-Cooper.
$27\frac{1}{2}$	$23\frac{1}{2}$	$7\frac{1}{2}$	<b>1</b> 5흫	Do	Sir H. J. Goold-Adams.
27	2I <sup>3</sup> / <sub>5</sub>	$7\frac{1}{2}$	$9\frac{1}{2}$	P.E. Africa	H. C. Brocklehurst.

# OWNER'S MEASUREMENTS.

C. S. Mann.

3	C			

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Skull and Horns of the Mountain Nyala. From the specimen presented by Mr. Ivor Buxton to the British Museum.

#### The MOUNTAIN NYALA (Tragelaphus buxtoni).

Allied in the form of the horns and the colouring of the male to the nyala, but nearly as large as the typical kudu, and the two sexes nearly similar in colour. The male has a dark-brown coat of moderate length, with the usual face-markings; the under surface of the lower jaw, two gorgets on the throat and chest, a few spots on the flanks, and in some cases two stripes—one larger than the other white. There is no fringe on the under-parts, but a crest of longish white and black hairs along the back. Legs with the front surface much like the back in colour, but elsewhere white. Horns with yellow tips; varying somewhat in form, and intermediate in this respect between those of the nyala and the kudu.

## MOUNTAIN NYALA

# Distribution.—The Sahatu (Shabatu) Mountains of North-western Gallaland, to the east-north-east of Lake Zuay (Zwei).

Leng	gth.	~.		Locality.		
On outside curve.	Straight line.	Circum- ference.	Tip to Tip.			Owner.
44	$27\frac{1}{2}$	10	21 <sup>3</sup> 5	E. of Lake Zuay .		R. Hayne.
39	$30\frac{1}{2}$	$9\frac{3}{4}$	22	Sahatu Mountains.		M. C. Albright.
37	$26\frac{1}{2}$	$9\frac{1}{4}$	21	Do		British Museum (Ivor Buxton).
$36\frac{3}{4}$	25	10	$14\frac{1}{2}$	Arusi Country .	•	Hon. Walter Rothschild.
$33\frac{3}{4}$	<b>2</b> 6‡	$9\frac{1}{2}$	$\mathbf{I2}^{\underline{S}}_{\pm}$	Do.		Lord Wodehouse.
331	26	87		Sahatu Mountains		Ivor Buxton.
3178	$23\frac{3}{4}$	$9\frac{1}{8}$	6	?		D. R. Brodie.
29 <u>3</u>	$2I\frac{1}{2}$	9	$IO_2^1$	Arusi Country .		C. S. Mann.
29	23	81	103	5		Rowland Ward Collection.

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Horns of Situtunga. From Mr. John Yule's specimen.

#### The SITUTUNGA (Tragelaphus [Limnotragus] spekei).

<i>Situtanga</i> , Barotsi.	Kawi, Cameruns.
Zowi, Chilala and Chibisa.	Mluri, Duala.
Nakong, Batauwani of Lake	Nkaya and Nkoko, Congo.
Ngami.	Situtunga, Puvula, Unzuzu, Chobi
<i>Njobi</i> , Waganda.	and Central Zambesi.
N'zoi, Lakanga.	Shichinzebe, Chila.

The typical situtunga differs from the other members of the group by the 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 are much more developed than in the other species. In the typical eastern race from the Victoria Nyanza district the adult males are uniformly greyish brown without stripes, while the females are rufous with faint stripes. On the other hand, in the Zambesi T. s. selousi, the adults of both races are uniformly greyish brown. In the western T. s. gratus, the colouring

#### SITUTUNGA

of the upper-parts approximates to that of the nyala, the ground-colour of the male being brownish grey, and that of the female bright rufous, marked in both with white stripes on the back and spots on the face and flanks, with two white gorgets on the throat. There is no fringe on the throat. In *T. s. albonotatus*, of which the habitat is unknown, the white face-markings are larger. Height at shoulder, from about 45 to 48 inches. The horns of the males are longer and more twisted than in other members of the genus, and wear yellow at the tips.

Distribution.—The situtunga is typically an inhabitant of the dense reed-swamps bordering the rivers of Central, South-Central, and East Africa. These antelopes are semi-aquatic in habits, frequently sinking themselves up to the eyes in the water. Consequently they are some of the most difficult of all antelopes to kill; but by 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. A few are found on a bushclad rocky island far out in the Victoria Nyanza; in which neighbourhood the species was first discovered by Captain Speke.

Leng	su. ,					
On front curve.	Straight line.	Circum- ference.	Tip to Tip.	Locality.		Owner.
35	$28\frac{3}{4}$	8	26	Bahr-el-Ghazal		Hon. Walter Rothschild.
328	$26\frac{1}{2}$	81	I2 <sup>3</sup> 8	Uganda :		Lord Cranworth.
30	24	7	17‡	Bahr-el-Ghazal		Major R. B. Airey.
$29\frac{3}{4}$	24	7호	19	Do.		Lieut. W. B. Drury, R.N.
$28\frac{1}{4}$	$23\frac{1}{2}$	7축	20	Do.		Capt. P. E. Vaughan.
$27\frac{1}{2}$	22	77	II1	Do.		Col. J. J. Asser.
$27\frac{1}{2}$	23	$7\frac{1}{2}$	II 3	Uganda .		J. Leslie.
$25\frac{1}{2}$	$22\frac{1}{2}$	71	9‡	E. Congo .		Major W. I. Webb-Bowen.
235		7 <del>3</del>	64	Lake Kivu .		N. A. H. Campbell.
23	$18\frac{1}{2}$	$6\frac{3}{4}$	$8\frac{3}{4}$	Uganda .		C. E. Lamb.
$^{1}22\frac{1}{2}$	201	7	II $\frac{1}{2}$	Do		Major de Courcy Ireland.
22	19		$7\frac{1}{2}$	Do		Major R. H. Price.
						•
				(T. s. selousi)	).	
35ई	$28\frac{5}{8}$	8	15 <del>1</del>	Lake Mweru		Hon. Walter Rothschild.
$35\frac{1}{2}$	$29\frac{1}{2}$	8§	191	B.C. Africa		F. E. F. Jones.
35	$24\frac{1}{2}$	$7\frac{1}{4}$	14 <u>1</u>	N.E. Rhodesia		J. Turner.

### A.-TYPICAL and CHOBI RACES (T. spekei typicus).

Length.

<sup>1</sup> In the collection of Sir Hy. E. M. James.

Leng	gth.					
On front curve.	Straight line.	Circum- ference.	Tip to Tip.	Locality.		Owner.
35	27	7	8	N.E. Rhodesia .		J. E. Hughes.
35	28	$7\frac{1}{2}$	I 5½	South end of Lake Tanganyika		John Yule. (See illustration.)
34	28	8	17 <u>3</u>	N.E. Rhodesia .	۰.	J. C. Phillips.
34	$27\frac{3}{5}$	7‡	15‡	Do		Earl of Kingston.
337	$27\frac{3}{4}$	$7\frac{1}{2}$	147	Do		R. D. Waterhouse.
331	26‡	8	16 <u>§</u>	Okavango Valley		Sir H. J. Goold-Adams.
$32\frac{3}{4}$	27흫	7흉	265	Chinde		Hon. Walter Rothschild.
325	27	$7\frac{1}{2}$	16 <u>3</u>	Chobi Valley .		F. C. Selous.
$32\frac{1}{2}$	$25\frac{1}{2}$	$7\frac{1}{2}$	$7\frac{3}{4}$	N.W. Rhodesia .		A. J. Brandon.
323	254	8	19 <u>1</u>	Do		A. F. Williams.
32	25	$S_{4}^{1}$	161	?		G. M. Bond.
313	$26\frac{1}{2}$	$8\frac{1}{4}$	17章	N.E. Rhodesia .		J. H. Whitehouse.
$3^{1\frac{1}{2}}$	$24\frac{3}{8}$	7	16 <u>1</u>	Chobi Valley .		British Museum (F. C. Selous).
311	235	8	15	Ngamiland		Mervyn G. Williams.
31 <u>1</u>	$25\frac{3}{4}$	$7\frac{1}{2}$	I 3 <del>1</del>	Bangweolo		F. Smitheman.
$3I\frac{1}{2}$	27	$7\frac{5}{8}$	$2$ I $\frac{1}{2}$	N.W. Rhodesia .		Dr. W. D. Waterhouse.
31‡	26‡	$7\frac{1}{2}$	$2.4\frac{1}{2}$	Ngamiland .		H. D. Hannay.
317	25‡	8	15 <u>3</u>	?		N. H. Barton.
317	25 <sup>1</sup> / <sub>4</sub>	$7\frac{3}{4}$	$17\frac{1}{2}$	Ngamiland		F. T. Garbutt.
31	$23\frac{3}{4}$	8	$9\frac{1}{2}$	?		G. Richards.
30 <u>3</u>	$26\frac{1}{2}$	71	16	N.E. Rhodesia		H. Cookson.
30 <u>1</u> 2	$24\frac{1}{4}$	81	14 <u>3</u>	Barotsiland .		Sir Edmund G. Loder, Bart.
30 <u>1</u>	$25\frac{1}{2}$	74	163	Do		Major J. Carden.
$30\frac{1}{2}$	$24\frac{1}{2}$	74	$12\frac{1}{2}$	B.C. Africa .		Grahamstown Museum.
301	25쿺	$7\frac{1}{2}$	193	N.W. Rhodesia .		G. L. Harrison.
301	$25\frac{1}{4}$	8	14 <u>3</u>	Do		A. C. Brandon.
30	$24\frac{1}{2}$	8	14 <sup>1</sup> / <sub>2</sub>	Do		Sir Owen Philipps.
30	$24\frac{1}{4}$	7#	16	Do		E. McClellan.
30	24	8	16	Bechuanaland		Sir Ralph Williams.
$25\frac{1}{2}$	$22\frac{3}{4}$	$7\frac{1}{2}$	131	Angola		Major Boyd A. Cuninghame.
24 <sup>1</sup> / <sub>4</sub>	21	63	$9\frac{1}{2}$	Do		C. H. Pemberton.
$20\frac{3}{4}$	181	61	IO	Benguela		G. W. Penrice.

## OWNER'S MEASUREMENTS.

34‡	281	$7\frac{3}{4}$	21	N.W. Rhodesia .	C. S. Mann.
334	27 <u>5</u>	$7\frac{7}{8}$	19	?	Sir Abe Bailey.
<sup>1</sup> 31 <sup>1</sup> / <sub>8</sub>	$25_{16}^{9}$	$7\frac{7}{8}$	145	Congo	Paris Museum (S. de Brazza).

<sup>1</sup> Determination provisional.



Horns of Western Situtunga from the Gambia.

BWESTERN	RACE	( <b>T</b> .	spekei	gratus).
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		<i>D</i> .—		TOTA TOTTOTT (	e o b c	AFOT.	5140440/1
Len	gth.						
On front curve.	Straight line.	Circum- ference.	Tip to Tip.	Locality	·.		Owner.
$34\frac{3}{4}$	$28\frac{1}{2}$	S	21	Gambia .			H. C. Goddard.
$32\frac{3}{4}$	$27\frac{1}{4}$	9 <del>1</del> 8	16 <u>1</u>	Gabun .			Sir Edmund G. Loder, Bart.
325	$25\frac{1}{4}$	7	8	Gambia .			Hon. Walter Rothschild.
30.1	$26\frac{7}{8}$	8	145	French Congo	).		Do.
30	261	7章	143	?			Sir Abe Bailey.
$29\frac{1}{2}$	$24\frac{1}{2}$	$8\frac{1}{8}$	1.1	Gabun .			American National Collection.
$28\frac{1}{2}$	23	8	8	Gambia '.			A. Ohlsson. (See illustration.)
$27\frac{1}{2}$	$22\frac{3}{8}$	$S_{\pm}^{\pm}$	$6\frac{1}{2}$	N. Nigeria .			J. C. Sciortino.
27	23 <del>1</del>	8	13 <del>7</del> 8	Gabun .			F. M. Milligan.
$25\frac{3}{4}$	$21\frac{1}{4}$	$6\frac{3}{4}$	121	Gambia .			Guy 11. Sangster.
$24\frac{3}{4}$	2 I	7	I 5 <sup>2</sup> / <sub>4</sub>	S. Nigeria .			C. E. Stuart.
$24\frac{1}{4}$	$2I\frac{1}{2}$	78	IO	Do			A. W. Hunt.

## OWNER'S MEASUREMENTS.

$27\frac{1}{2}$	$8\frac{1}{2}$	141	Nigeria				А.	F. Williams.
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#### The KUDU (Strepsiceros capensis, or S. strepsiceros).

Agarzin, Abyssinian.	Kudu, Hottentot.
Ibala-bala, Amandebili.	Ngomo, Chilala and Chibisa.
I-silarwa, Makalaka.	Noro, Mashona.
Dwar, Masara.	Tata, M'Kua.
Godir, Somali.	Tolo, Bechuana, Barotsi, and
Itolo, Basuto.	Ngami.
Itshongonons, Swazi.	Unsa, Mazubia.
Muziloua, Batonga.	Unzwa, Makuba.
Nylat, Sudani.	Shombololo, Chila.

Although rather less brilliantly coloured than some of the bushbucks, the two 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 the 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. The Somali kudu (*S. c. chora*) differs from the typical southern form in having only about five transverse stripes instead of the usual nine or ten.

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 British 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. The Somali form inhabits less thickly wooded country than the southern race, and it is in accordance with this that it has fewer stripes.

Although unrivalled at traversing 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.



Head of Kudu.

# A.-TYPICAL RACE (S. capensis typicus).

Lengi	th.					
On outside curve.	Straight line.	Circum- ference.	Tip to Tip.	Locality.		Owner.
64	4 <b>I</b>	ΙI	23	Mashonaland .		F. C. Selous.
63	$48\frac{1}{2}$	$\mathbf{I2}\frac{1}{2}$	49	Macloutsie Valley	•	E. W. Tompson.
6 <b>2</b> <sup>3</sup> / <sub>4</sub>	$42\frac{3}{4}$	II $\frac{1}{2}$	$37\frac{1}{4}$	?		Sir Owen Philipps.
61	40	II $\frac{1}{2}$	141	N.W. Rhodesia .		M. Tennant.
60 <u>5</u>	45 <del>3</del>	II $\frac{1}{2}$	33	Macloutsie Valley .		F. C. Selous.
59½	$4I_{4}^{3}$	I 2	30 <u>1</u>	Rhodesia		W. Griffin.
$59\frac{1}{2}$	44	$II\frac{1}{2}$	$25\frac{3}{4}$	?		S. T. Teague.
59½	431	II	38	South Africa.		W. A. Simpson Hinchliffe.

Leng						
On outside curve.	Straight line.	Circum- ference.	Tip to Tip.	Locality.		Owner.
<b>5</b> 9 <sup>1</sup> / <sub>4</sub>	$42\frac{1}{4}$	115	19	?		G. Richards.
59‡	$43\frac{1}{2}$	II $\frac{1}{2}$	30 <u>3</u>	N.W. Rhodesia .		Col. H. Clifton Brown.
58 <del>≩</del>	46 <u>1</u>	12	$36\frac{3}{4}$	Do		B. Ryan.
58 <u>5</u>	$44\frac{1}{2}$	11	$33\frac{1}{2}$	Do		Capt. H. T. Byas.
$58\frac{1}{4}$	46	IO	$39\frac{3}{4}$	South Africa .		Sir Abe Bailey.
584	$44\frac{1}{4}$	12	4 I	N.E. Rhodesia .		R. D. Waterhouse.
58	46	115	39	S.E. Mashonaland.		J. G. Millais.
58	46			Zomba, B.C.A		D. MacAlpine.
58	$43\frac{1}{2}$	101	$32\frac{1}{2}$	Okavango Valley .		Sir H. J. Goold-Adams.
57章	461	$12\frac{1}{4}$	43 <sup>2</sup>	S. Rhodesia		A. Doughty.
$57\frac{1}{2}$	40 <u>3</u>	111	$22\frac{3}{4}$	B.C. Africa		F. A. Coe.
57 <sup>1</sup> / <sub>2</sub>	41	$11\frac{1}{8}$	$21\frac{1}{2}$	N.E. Transvaal .		A. M. Naylor.
571	$4I\frac{1}{2}$	10	27	Do		Capt. D. J. Marker.
57 <u>1</u>	4 I	$IO_2^1$	25	B.C. Africa		J. H. Hayes.
$57\frac{1}{2}$	44	117	31	Transvaal		Capt. A. C. H. Kennard.
$57\frac{1}{2}$	451	12	4 I	B.C. Africa		E. Homer.
57흥	47	103		Do		J. B. Davey.
571	45 <sup>8</sup>	103	35	Do		H. C. Macdonald.
57‡	$44\frac{7}{8}$	$11\frac{3}{4}$	$34\frac{3}{5}$	South Africa .		Sir Edmund G. Loder, Bart.
571	$41\frac{3}{4}$	115	23	N.W. Rhodesia .		G. L. Harrison.
57‡	$44\frac{1}{2}$	ΙI	29	?		T. N. G. Jennings.
57	43	I.4	32	South Africa		A. Moseley.
57	$42\frac{1}{4}$	I I	31	Do		LieutCol. M. D. Graham.
57	$40^{1}_{4}$	I 2	$2I_{4}^{1}$	?		G. V. Blackwell.
57	$40\frac{1}{2}$	12	$24\frac{3}{4}$	?		Capt. G. M. Spencer-Smith.
57	$45\frac{1}{2}$	I 2 <sup>1</sup> / <sub>2</sub>	40 <u>3</u>	?		T. Stephenson.
57	$40\frac{1}{2}$	103	$28\frac{1}{4}$	N.W. Rhodesia .	•	G. de P. Colvile.
56 <u>3</u>	43	I I <sup>1</sup> / <sub>2</sub>	301/2	Do.		Capt. P. R. Bald.
56 <u>1</u>	431	II $\frac{1}{2}$	$26\frac{1}{2}$	Matabililand		W. Van Ness.
561	4 I	10	$29\frac{1}{2}$	?		J. W. Williamson.
56 <u>1</u>	$41\frac{1}{2}$	$IO\frac{1}{2}$	234	Matabililand		Hon. C. Greville.
$56\frac{1}{2}$	$44\frac{n}{1}$	$1 I \frac{1}{2}$	371	N.E. Rhodesia .		Earl of Kingston.

KUD U

Ler	ngth.					
On outside curve,	Straight line.	Circum- ference.	Tip to Tip.	Locality.		Owner.
561	$41\frac{1}{2}$	II	$28\frac{3}{4}$	S. Rhodesia		R. C. Dundas Firth.
$56\frac{1}{2}$	39	$1\mathrm{I}rac{1}{4}$	22	Do		Col. E. St. C. Pemberton.
$56\frac{1}{2}$	41	II	$36\frac{1}{2}$	N.W. Rhodesia .		Sir J. Walton, Bart.
° 37	10			South Africa .		F. C. Selous.
			OWNE	R'S MEASUREMENT	гs.	
•••	$48\frac{7}{8}$			Ngamiland		American National Collec- tion. (See illustration.)
63 <u>1</u>	$46\frac{7}{8}$	$II\frac{1}{4}$	45 <sup>8</sup>	Upper Shiré Valley		
$63\frac{1}{2}$	$47\frac{1}{2}$		$46\frac{1}{2}$	N.W. Rhodesia		F. J. Nottage.
63	$44\frac{1}{2}$		$42\frac{3}{4}$	Near Teté, Zambesia		Major P. W. Forbes.
63	39	$IO_2^1$	I 2	?		Mr. Justice Hopley.
62	•••	12	27	Delagoa Bay		C. S. Mann.
$61\frac{1}{2}$	45 <sup>1</sup> / <sub>2</sub>	$10\frac{3}{4}$	34	?		A. Griffiths.
617	$42\frac{1}{4}$	$10\frac{3}{4}$	$24\frac{3}{4}$	?		J. C. Phillips.
60 <u>5</u>	44		31	South Africa .		H. T. and A. H. Glynn.
$60\frac{1}{2}$	47	$IO_2^1$	$44\frac{3}{4}$	Do		A. Ohlsson.

## B.-SOMALI (S. c. chora) and EAST AFRICAN (S. c. bea) RACES.

Ler	ngth.						
On outside curve.	Straight line.	Circum- ference.	Tip to Tip.	Locality.			Owner.
61	$42\frac{1}{2}$	II	34	East Africa .	•	•	The late G. G. Longden.
58 <del>1</del>	4 I $\frac{1}{4}$	II	29	Do			G. F. Archer.
58	43	10	40	Somaliland .			G. Chetwynd.
57‡	42	I I 14	41	Lake Baringo			The late H. Hyde Baker.
57	39	9 <u>5</u>	$36\frac{1}{2}$	Somaliland .			H.R.H. the Duc d'Orléans.
57	$40\frac{1}{2}$	$9^{3}_{4}$	28	Do			Capt. J. H. Brocklehurst.
$56\frac{1}{2}$	35	$IO_8^1$	30	Do			Sir Edmund G. Loder, Bart.
$56\frac{1}{2}$	$36\frac{1}{2}$	$S_{\frac{1}{2}}^{1}$	$2$ I $\frac{1}{2}$	Do			Dr. R. E. Drake-Brockman.
56	44‡	103	$44\frac{1}{4}$	East Africa .			H. C. Phipps.
55	40 <del>1</del>	ΙI	$35\frac{3}{4}$	Do			Major the Hon. C. H. C. Guest.
$54\frac{1}{2}$	$39\frac{1}{4}$	10	271	Sudan .			Major the 11on. II. Fraser.
541	43	103	<b>3</b> 9축	Somaliland .			Capt. R. A. McClymont.

Leng	th.						
On outside curve.	Straight line.	Circum- ference.	Tip to Tip.	Locality.			Owner.
54 <sup>1</sup> / <sub>3</sub>	$-38\frac{7}{8}$	$10\frac{1}{4}$	$22\frac{5}{8}$	Somaliland .	·		Major P. H. G. Powell-Cotton.
54	383	$9\frac{3}{4}$	$29\frac{3}{4}$	Do	ť		Capt. E. J. F. Vaughan.
54	39	$IO_{\pm}^{1}$	32	Do			Norman B. Smith.
54	40 <u>1</u>	10	$38\frac{3}{4}$	Do			Capt. J. C. Monteith.
54	38 <u>1</u>	10	$2I\frac{1}{2}$	Sudan			LieutGen. Sir B. T. Mahon.
54	37	$10\frac{3}{4}$	$26\frac{1}{2}$	Somaliland .			Capt. J. L. Baird.
53 <sup>3</sup> / <sub>4</sub>	37 <sup>3</sup> / <sub>4</sub>	10	32	S. Abyssinia .		•	T. Morse.
538		$IO_{\overline{4}}^{\underline{3}}$	41	East Africa .			Major P. H. G. Powell-Cotton.
531	$36\frac{1}{2}$	9	28	Sudan			Earl of Sefton.
$53\frac{1}{2}$	40	ΙI	25	East Africa .	• .		Hon. Guy Wilson.
531	$36\frac{3}{4}$	$9^{\frac{1}{2}}$	13 <del>4</del>	Somaliland .			P. K. Glazebrook.
531	35	$9\frac{3}{4}$	$27\frac{1}{2}$	Do	•	•	H. J. T. Hamer.
53	$41\frac{1}{2}$	$11\frac{3}{4}$	47‡	Lake Rudolf.			A. E. Butter.
53	$38\frac{3}{4}$	$9^{\frac{1}{2}}_{2}$	29	Sudan			Earl of Kingston.
53	$39\frac{1}{4}$	II	$37\frac{1}{2}$	Lake Baringo			Capt. W. H. Nicolson.
53	$36\frac{1}{2}$	IO	$8\frac{1}{2}$	Sudan		•	Capt. G. Stewart.
$52\frac{3}{4}$	$39\frac{3}{4}$	$IO_2^1$	36	East Africa .			Capt. D. I. Shuttleworth.
$52\frac{1}{4}$	$39\frac{1}{2}$	I I 1 ±	28	Do			Hon. Walter Rothschild.
52	$37\frac{1}{2}$	1112	$31\frac{1}{2}$	Do			Baron Maurice de Rothschild.
51 <u>3</u>	39‡	$10\frac{1}{4}$	$26\frac{3}{4}$	Do.			Duchess of Sutherland.
511	40	10	42	Sudan			LieutGen. Sir B. T. Mahon.
511	36 <u>1</u>	$II\frac{1}{2}$	$25\frac{1}{2}$	Somaliland .			Capt. A. E. H. Breslin.
51 <u>1</u>	34‡	10	19	Do			Capt. F. M. Ransford.
51.1	$38\frac{1}{2}$	I I 1	32	East Africa .	٠		K. V. Painter.
51	37 <del>3</del>	II	$32\frac{3}{4}$	Somaliland .			A. de L. Long.
51	$33\frac{1}{2}$	$9\frac{1}{2}$	14 <u>1</u>	Do			Major G. G. Gilligan.
51	381	IO	30	Sudan			Capt. A. C. Parker.
51	42	$12\frac{1}{4}$	33 <sup>2</sup>	East Africa .			Dr. E. D. Anderson.
50 <del>3</del>	34 <sup>2</sup> / <sub>4</sub>	$IO\frac{3}{4}$	$20\frac{1}{4}$	Somaliland .	•		J. H. Miller.
50 <u>1</u>	363	9 <sup>2</sup> ±	334	Sudan			Capt. J. A. Pollock.
50 <u>1</u>	39‡	IO	31 <u>1</u>	Do			Capt. S. J. Burton.
50	38	10	37	Somaliland .			P. H. Thomas.

#### 320

### LESSER KUDU



Head of Lesser Kudu. Shot by Mr. Norman B. Smith.

#### The LESSER KUDU (Strepsiceros imberbis).

Andeiro or Godir, Somali.Sara, Danakil.Gadams, Galla.Kungu, Swahili.

Except for its brighter colour, the closer spiral and smaller divergence of the horns, the absence of a fringe of long hair on the throat, the more numerous stripes, white throat-bands, and narrower ears, this 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 British and German East Africa. This antelope generally goes in pairs or threes, and is partial to the covert of thick bush, from which it seldom emerges except for the purpose of feeding. Its coloration is typical of that of forest-dwelling antelopes, and is essentially of a protective nature.

5-	Length.		1	LUUN	DS OF DI	G	GА	
	n outside S curve.		Circum- ference.	Tip to Tip.	Locality.			Owner.
	351	26 <u>1</u>	$7\frac{1}{2}$	$16\frac{1}{2}$	Somaliland			Norman B. Smith.
	35‡	$26\frac{1}{2}$	5흫	173	Do.			G. Chetwynd.
	$34\frac{1}{2}$	25	7	$14\frac{3}{4}$	Do.			J. Higgins.
	34‡	26	$6\frac{1}{2}$	ΙI	Do.			Hon. Walter Rothschild.
	34	$26\frac{1}{2}$			Do.			Col. H. G. C. Swayne.
	34	26	64	14 <sup>1</sup> / <sub>4</sub>	Do.			W. W. Ashley.
	34	27	$6\frac{3}{4}$	II	Do.			British Museum (R. McD. Hawker).
	$33\frac{1}{2}$	26‡	$7\frac{3}{4}$	$IO_2^{\underline{1}}$	Do.			A. E. Butter.
	$33\frac{1}{2}$	27	71	II $\frac{1}{2}$	Do.			Vicomte de Thiene.
	33	$25\frac{3}{4}$	$6\frac{7}{8}$	14	East Africa			The late A. H. Neumann.
	$32\frac{1}{2}$	25 <sup>1</sup> / <sub>8</sub>	7	8	Somaliland			LieutCol. T. R. Harkness.
	321	$25\frac{3}{4}$	7	17	Do.			Sir Edmund G. Loder, Bart.
	32	$24\frac{1}{2}$	7	$I4\frac{1}{2}$	N. Somaliland			W. F. Whitehouse.
	317	$24\frac{1}{4}$	61	$I4\frac{1}{2}$	Do.			Lord Delamere.
	311/2	251	63	IIŜ	Do.			Sir John Kirk.
	311	24	$6\frac{1}{2}$	12	Do.			T. W. H. Clarke.
	313	24	$6\frac{3}{4}$		Do.			Col. C. C. Ellis.
	31 <u>1</u>	231/4	$6\frac{1}{2}$		Abyssinia .			R. Hayne.
	311	25	7	IO	Somaliland			Major G. F. T. Leather.
	31	25	71	$9\frac{1}{2}$	Do.			W. H. Cobb.
	31	24	634	$9\frac{1}{2}$	Do.			G. H. Cheetham.
	31	231	7	$IO_2^1$	East Africa			Capt. G. F. Phillips,
	31	$23\frac{1}{2}$	6‡	14	Do.			Major W. E. Stobart.
	31	241	71	II	Do.			Capt. G. V. Clarke.
	30 <u>1</u>	23 <del>5</del>	6	$9\frac{1}{2}$	Tana Valley			Capt. C. Hankey.
	301/2	23 <sup>1</sup> / <sub>2</sub>	7	$6\frac{3}{4}$	East Africa			W. H. Lindsay.
	30	$22\frac{3}{4}$	63	I 5‡	Do.			C. Bower Ismay.
	30	$23\frac{3}{4}$	7	$13\frac{1}{2}$	Do.			G. Blaine.
	$29\frac{1}{2}$	$23\frac{1}{4}$	6클	14 <u>1</u>	Do.			A. J. B. Wavell-Paxton.
	29 <sup>3</sup>	$23\frac{2}{4}$	7국	13	Do.			W. N. McMillan.
	$29\frac{1}{4}$	25	64	$12\frac{1}{2}$	Do.			Capt. W. H. Wilkin.
	29	$23^{1}_{2}$	7	$9^{3}_{4}$	Do.		•	Lord Wodehouse.
	29	$22\frac{3}{4}$	7	141	Do.	·	•	J. Giffard.
				OWNI	ER'S MEASUI	REN	1 EN	TS.
	36	$27\frac{3}{4}$	71	20	?			A. Bolle.
	33		$6\frac{1}{2}$	$19\frac{1}{3}$	?			J. C. Phillips.

#### 322



Head of Bongo.

#### The 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 colouring. It differs, however, in that the tail is tufted (like that of an eland), and also by the presence of horns in both sexes. The general colour of the coat is bright chestnut-red, marked with a number of narrow vertical white stripes, a white crescent on the breast, a white chevron on the forehead, two white spots below each eye, and some white marks on the legs; the front of the face being brown, with a tawny patch round each eye. In old bulls the coat becomes mahogany-colour. There is no dewlap, throat-fringe, or frontal tuft, 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, the Gabun, and Sierra Leone, and thence

through the forest district to Uganda. The East African representative of the species has been named *B. e. isaaci*.

Lei	ngth.						
On front curve.	Straight line.	Circum- ference.	Tip to Tip.	Locality.			Owner.
♀ 37흫	30	8	9	Ashanti			Dr. M. Graves.
35	$29\frac{7}{8}$	IO	ΙI	Do			Hon. Walter Rothschild.
35	291	ΙI	$8^{3}_{4}$	Do			D. H. M. Boyle.
34	29	1 I <sup>2</sup>	16	Ivory Coast .			British Museum (G. Chetwynd).
33		12	14	Ashanti			T. E. Fell.
32 <del>3</del>	25	$9\frac{3}{4}$	5	Gold Coast	•		Capt. T. W. Breckenridge.
$32\frac{1}{4}$	26	10 <u>3</u>	158	Do			Ivor Lewis.
$32\frac{1}{4}$	265	$IO_{2}^{1}$	I 2 1	Togoland			C. Beddington.
31		II	II	Do			British Museum.
$30\frac{1}{2}$	26	10 <del>3</del>	$13\frac{1}{2}$	Sierra Leone			Capt. E. J. Carter.
30 <del>1</del>	$24\frac{1}{2}$	$9\frac{1}{2}$	9‡	West Africa		•	Sir Abe Bailey.
30	$24\frac{1}{8}$	9 <sup>§</sup>	117	Ashkankolu Mou	ntain	s	British Museum.
30	25 <sup>글</sup>	$10\frac{1}{2}$	I3≩	Sierra Leone			Capt. E. R. A. Hall.
$29\frac{1}{2}$	$25\frac{7}{8}$	9불	$IO_{\overline{S}}^{1}$	Gabun .			British Museum (P.Du Chaillu).
$2S_{2}^{1}$	25‡	IO	103	Cameruns .			J. C. Philipps.
$28\frac{1}{2}$	24	9	5축	Togoland .			Hon. Walter Rothschild.
♀ 27½	241	$7\frac{1}{2}$	$4\frac{1}{2}$	Gold Coast .	•		Do.

## TYPICAL RACE.

## EASTERN RACE (B. e. isaaci).

On front curve.	Straight line.	Circum- ference.	Tip to Tip.	Locality.		Owner.
$39\frac{1}{2}$	32호	ΙIŢ	16 <u>3</u>	East Africa .		Sir Abe Bailey.
363	$29\frac{1}{2}$	II‡	ΙI	Mau Forest, E. Africa		Pretoria Museum (Dr. Sauer).
36‡	30½	113	$2I\frac{5}{8}$	Do.		J. Jay White.
358	291	$II\frac{1}{2}$	$I2\frac{1}{2}$	Do.		W. N. McMillan.
337	27\$	ΙI	134	Do.		Hon. Walter Rothschild.
$33\frac{1}{2}$	27출	II	134	Do.		G. L. Harrison.
33 <sup>1</sup> / <sub>2</sub>	$27\frac{1}{4}$	$10\frac{1}{2}$	I 5½	Do.		G. C. Whitaker.
33		I 2	14	Do.		J. H. Milton.
30 <del>3</del>	253	II	15	Do.		Sir Edmund G. Loder, Bart.
♀ 30 <u>1</u>	$27\frac{1}{2}$	8 <del>1</del>	II	Do.		Hon. Walter Rothschild.
30‡	$24\frac{3}{4}$	II	8	Do.	•	Rev. S. Weeks.
30 <del>]</del>	$26\frac{1}{2}$	ΙÍ	16	Do.		Capt. J. A. Morrison.
\$ 30	$27\frac{1}{2}$	$7\frac{1}{2}$	$II\frac{1}{2}$	Do.		A. F. Williams.
9 29 <del>1</del>	<b>2</b> 6‡	8	$3\frac{1}{2}$	Do.		Capt. J. W. H. D. Tyndall.
29	$24\frac{1}{2}$	10 <del>]</del>		Do.		R. J. Church.
29	228	$10\frac{3}{4}$	7	Do.		The late G. Grey.
28 <del>]</del>	$23\frac{1}{2}$	$IO_2^1$	I I 🗄	Do.		A. W. Reid.
♀ 27 <u>1</u>	25	8	$6\frac{1}{2}$	Do.		Viscount Ennismore.
<b>?</b> 25 <sup>3</sup> / <sub>4</sub>	22	71	21	Do.		W. N. McMillan.
$22\frac{1}{2}$	211	7 <sup>3</sup>	8	Do.		Lord Wodehouse.
$21\frac{1}{2}$		71/2	3	Do.	·	Capt. M. Kincaid-Smith.

324

Length.



Head of Eland.

#### The ELAND (Taurotragus oryx).

Du, Masara. I-pofo, Makalaka. Eland, Cape Dutch. Impofo, Amandebili. Insefo, Masubia and Batonga. Mofo, Mashona. Moju, Galla. Mpofu, Barotsi and Ngami. Ntamu, Waganda. Msongo, Chilala and Chibisa. U-schefo, Macuba. Pakala, Makua. Pofo, Bechuana. Mpofu, Swahili. Bŏggă, Sudani. Musefu, Chila.

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. They likewise resemble the bongo in possessing a long, tufted, ox-like tail, but have a distinct dewlap. Horns of cows are more slender than those of bulls.

Bulls of the eland stand from 5 feet 9 inches to perhaps as much as 6 feet at the shoulder. They have a large tuft of 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. Farther north a dark brown knee-band is assumed by adult bulls; and towards the Zambesi, and thence north and east into the heart of the continent, the bulls have not only this dark knee-band, but the body in both sexes is marked by fine vertical white lines. The Zambesi race is named T. oryx livingstonei. In Mashonaland eland show an incomplete white chevron on the face, with a large brown tuft on the forehead ; this race, as typified by heads figured in A Hunter's Wanderings, has been called T. o. selousi. In the British East African T. o. pattersonianus the sides of the forehead are chestnut in place of dark brown, a white chevron is present, the frontal tuft is shorter, and the pasterns are black behind instead of white. 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 exist for a great part of the year without water, large herds still remain. Occasionally female eland develop horns in which the spiral is almost obsolete and the length exaggerated.

Length on front of horn.	Circum- ference.	Tip to Tip.	Locality.	Owner.
37	$I2\frac{3}{4}$	234	Barotsiland $(N.W.R.)$	T. G. Davey.
343	$II\frac{1}{2}$	27	B.C. Africa	F. E. F. Jones.
34	I 2 <sup>3</sup> / <sub>4</sub>	$22\frac{1}{2}$	N.W. Rhodesia .	LieutCol. H. W. Wilberforce.
333	I2 <sup>3</sup> / <sub>4</sub>	19	N.E. Rhodesia .	H. Cookson.
33	$I3\frac{1}{2}$	141	N.W. Rhodesia .	Major C. L. Graham.
323	$I2\frac{1}{2}$	$2I\frac{1}{4}$	Do	Dr. Ellacombe.
$32\frac{1}{2}$	134	$22\frac{3}{4}$	Do.	G. Mitchell.
321	113	153	Do.	G. F. Watherston.
32	131	$I2\frac{3}{4}$	Rhodesia	Major C. A. Sykes.
314	$12\frac{1}{4}$	$22\frac{3}{4}$	Do	Hon. Walter Rothschild.
313	II	17½	Do	T. N. G. Jennings.

## A.-ZAMBESI RACE (T. oryx livingstonei).

## ELAND

Length on front of horn.	Circum- ference.	Tip to Tip.	Locality.		Owner.
311	$12\frac{8}{4}$	I $2\frac{1}{2}$	Rhodesia		British Museum (F. C. Selous).
31 <u>1</u>	12	$20\frac{3}{4}$	N.W. Rhodesia.		R. C. Wood.
31 <u>1</u> 2	13	151	Do		Marquis Pizzardi.
311	14	22	Do		Col. C. Harding.
311	$13\frac{1}{2}$	9	Do		Dr. Sauer.
31‡	131	I 3 <sup>1</sup> / <sub>2</sub>	Do		Norman B. Smith.
311	II $\frac{1}{2}$	$24\frac{1}{2}$	N.E. Rhodesia .		J. E. Hughes.
31‡	14 <del>3</del>	$I4\frac{1}{2}$	S.E. Africa .		H. Knieson.
31	16	14	Rhodesia		F. C. Selous.
31	II	$19\frac{1}{2}$	S. Africa		W. A. Simpson Hinchliffe.
31	$I2\frac{1}{2}$	15 <u>3</u>	Rhodesia		H. H. Williams.
31	I 2	18	Do		R. T. Coryndon.
31	13	154	Do		Major J. P. Grenfell.
31	$12\frac{1}{2}$	I I $\frac{3}{4}$	Do		E. McClellan.
30 <u>3</u>	$12\frac{1}{2}$	$20\frac{1}{4}$	N.W. Rhodesia .		J. H. Leche.
30 <u>1</u>	II $\frac{1}{2}$	$20\frac{1}{2}$	B.C. Africa .		Capt. F. D. Markham.
$30\frac{1}{2}$	141	10	Rhodesia		Capt. P. R. Bald.
30 <u>1</u>	12	$7\frac{1}{2}$	Do		G. Crompton.
$30\frac{1}{2}$	I2 $\frac{1}{4}$	$21\frac{1}{4}$	Do		L. Messel.
30 <u>1</u>	$13\frac{1}{2}$	17=3	N.W. Rhodesia .		W. H. Rawnsley.
301	I 2	$16\frac{1}{2}$	S. Rhodesia .		W. Harcourt Webb.
301	I I 1 ½	18	B.C. Africa .	·	E. Sharpe.
301	13	20	Do. • .		A. R. Andrew.
30‡	$I2\frac{3}{4}$	$20\frac{1}{4}$	N.W. Rhodesia .	·	R. Campbell Heathcote.
301	141	10	Do		A. de L. Long.
30 <u>1</u>	$12\frac{3}{4}$	1 5 <del>3</del>	Do		J. E. R. Oldfield.
30	13	16‡	Do		Capt. R. A. McClymont.
30	II $\frac{1}{2}$	22	Do.		Sir Randolph Baker, Bart.
30	$\operatorname{I}2\tfrac{1}{2}$	, 2 I	Do		Capt. Mackenzie Murray.
30	$I4\frac{1}{2}$	$12\frac{1}{2}$	S. Rhodesia .	;	A. Doughty.
30	$13\frac{1}{2}$	18	N.E. Rhodesia .		P. M. Stewart.
30	I 2 <sup>3</sup> / <sub>4</sub>	$8\frac{1}{2}$	Ďo		Earl of Kingston.
30	13½	121	Do	•	A. Dickinson.

Length on front of horn.		Tip to Tip.	Locality.	Owner.
30	II $\frac{1}{2}$	$I_{3\frac{1}{2}}$	B.C. Africa	C. B. C. Storey.
30	14	17 <u>1</u>	Rhodesia	H. C. da Costa.
30	13	213	N.W. Rhodesia	G. L. Harrison.

## B.-EAST AFRICAN RACE (T. oryx pattersonianus).

Length on front of horn.	Circum- ference.	Tip to Tip.	Locality.			Owner.
321	13	16	German East A	frica		J. R. Rolls Richardson.
315	101	$25\frac{1}{2}$	East Africa			Sir F. J. Jackson.
30	II	$I3\frac{1}{2}$	Do.			E. B. Horne.
30	12	17‡	Do.			Lady Grizel Hamilton.
29	$12\frac{3}{4}$	161	Do.			G. Henry.
29	12	<b>I</b> 4	Do.			R. L. Scott.
$28\frac{3}{4}$	13 <u>3</u>	$12\frac{1}{2}$	Do.	•		G. Blaine.
28	12	17 <u>3</u>	Do.	•		Capt. G. F. Phillips.
28	II	$19\frac{1}{2}$	Do.			LieutCol. J. H. Patterson.
$27\frac{3}{4}$	117	10 <sup>1</sup> /2	Do.			Gerard Buxton.
$27\frac{3}{4}$	12	II $\frac{1}{2}$	Do.			Dr. E. D. Anderson.
$27\frac{1}{2}$	$\mathbf{I2}\frac{1}{2}$	131	Do.			H. G. Barclay.
$27\frac{1}{2}$	$11\frac{1}{2}$	9	Do.			G. N. Crisford.
$27\frac{1}{2}$	10	153	Tana Valley			Major H. De Prée.
271	$12\frac{1}{2}$	II $\frac{1}{2}$	East Africa			E. H. Litchfield.
271	II $\frac{1}{2}$	114	Do.			L. L. Biddle.
$27\frac{1}{8}$	111	23	Do.			Capt. V. C. de Crespigny.
27	13 <u>1</u>	$\mathbf{I2}\frac{1}{2}$	Do.			The late G. G. Longden.
27	$II\frac{1}{2}$	131	Do.			W. Neilson.
$26\frac{3}{4}$	$I2\frac{1}{2}$	15	Do.			LieutCol. P. Polovtsoff.
26 <u>3</u>	$10\frac{1}{2}$	I 5 <sup>3</sup> / <sub>4</sub>	Do.			Capt. L. W. Sadlier-Jackson.
$26\frac{1}{2}$	I 2	9‡	N. of Machakos			E. J. Mardon.
$26\frac{1}{2}$	$10\frac{1}{2}$	13	East Africa			Mrs. A. K. Muir.
$26\frac{1}{2}$	11 <u>3</u>	16	Do.			H. S. Keating.
26½	I 2	61	Do.			The Master of Belhaven.
$26\frac{1}{2}$	$10\frac{1}{2}$	16‡	Do.		•	Major H. B. Dalgety.
26 <u>1</u>	113	$8\frac{1}{2}$	Do.	•		J. Hall.



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

The following are female specimens :---

Length on front of horn.	Circum- ference.	Tip to Tip.	Locality. Owner.		Owner.
$39\frac{1}{2}$	7	$26\frac{3}{4}$	?		Major W. Anstruther Gray.
35흉	$7\frac{1}{2}$	15	Angola		C. W. Sharp.
$33\frac{1}{2}$	9	15 <u>3</u>	N.W. Rhodesia .		J. H. Leche.
$32\frac{1}{4}$	6꽃		Chobi Valley .		M. C. Greaves-Bagshawe.
32 <del>1</del>	63	5불	South Africa .		Sir Abe Bailey.
321	$7\frac{1}{8}$	$8\frac{3}{4}$	?		Mr. Justice Hopley.
32	8	20	B.C. Africa .		Capt. J. S. Brogden.
30 <del>1</del>	$7\frac{1}{2}$	131	Do		R. C. Wood.
29 <sup>3</sup> / <sub>4</sub>	8	I I <sup>1</sup> / <sub>2</sub>	Angola		Sir H. E. M. James.
$29\frac{3}{4}$	$8\frac{1}{2}$	19	N.W. Rhodesia .		A. Willis.
29‡	$7\frac{3}{4}$	20	East Africa .		F. W. Greswolde-Williams.
291	$8\frac{1}{2}$	21	N.W. Rhodesia.		R. Beaumont.

Length on front of horn.	Circum- ference.	Tip to Tip.	Locality.			Owner.	
$28\frac{3}{4}$	7‡	$13\frac{1}{2}$	East Africa			Capt. T. H. Rivers Bulkeley.	
271	$7\frac{3}{4}$	181	Do.			J. Leslie.	
$27\frac{1}{4}$	71	14 <u>3</u>	Do.			Capt. C. Brook.	
		OV	WNER'S MEA	SURE	ME	NTS.	
41	$7\frac{7}{5}$	13	German East	Africa		Major von Tiedemann.	
36	$7\frac{1}{2}$	$2I\frac{1}{4}$	?			P. C. Keytel.	
351 <sup>3</sup> t	8 <sub>16</sub>	$20\frac{1}{16}$	Zomba Plain,	B.C.A	۹.	Charterhouse Museum (Dr. Percy Rendall).	

## C.-MASHONA RACE (T. oryx selousi).

Length on front of horn.	Circum- ference.	Tip to Tip.	Locality.	Owner.	
Ŷ 32	$9^{\frac{1}{2}}$	$20\frac{1}{2}$	Mashonaland .	F. C. Selous.	

## LORD DERBY'S ELAND



Head of Lord Derby's Eland, from Senegambia.

#### LORD DERBY'S ELAND (Taurotragus derbianus).

In this species the horns are larger than in the typical eland, the ears are broader and truncated at the tips, and the dewlap commences at the chin, instead of on the throat. Sub-adult bulls have the forehead chestnut, but a chocolate frontal tuft is developed later; there is an imperfect white chevron below the eyes; the lower part of the face is dark brown; a dark collar bordered below with white occupies the sides of the neck; the back of the neck carries a dark brown mane. The general colour of the hair is chestnut or rufous in the typical race, but paler in the Sudani race; the number of white bodystripes being 14 or 15 in the former and about 10 in the latter. Dark knee-bands are present; and the pasterns are black behind.

Distribution. — The open districts of the interior of Senegambia, Gambia, and Portuguese Guinea, and thence to the Bahr-el-Ghazal, Lado, and the Upper Congo.

Length on front of horn.	Circum- ference.	Tip to Tip.	Locality.	Owner.
$42\frac{1}{2}$	1 3 <sup>1</sup> / <sub>2</sub>	44꽃	French Congo .	Hon. Walter Rothschild.
42	14	$22\frac{1}{2}$	Do	American National Collection.
$36\frac{1}{2}$	$15\frac{1}{2}$	$18\frac{1}{2}$	Senegambia .	Major J. C. B. Statham.
$36\frac{1}{2}$	14	$27\frac{1}{2}$	Gambia	Hon. Walter Rothschild.
36	1 3 <del>1</del>	$23\frac{1}{4}$	Do	G. Fenwick-Owen.
$^{\circ}34\frac{1}{2}$		$25\frac{1}{2}$	Portuguese Guinea	Major P. H. G. Powell-Cotton.
34‡	$I4\frac{1}{8}$	$22\frac{3}{4}$	Gambia	Sir Edmund G. Loder, Bart.
34	$I2\frac{3}{4}$		?	J. Carr Saunders.
33‡	14	$25\frac{3}{4}$	French Guinea.	W. C. Rose.
33	I 3 <sup>3</sup> / <sub>4</sub>	26	Gambia	C. Sharland.
$32\frac{1}{2}$	$I2\frac{1}{2}$	$29\frac{7}{5}$	Do	British Museum (13th Earl of
$32\frac{1}{2}$	91	$12\frac{3}{4}$	?	Derby). Sir Edmund G. Loder, Bart.
321	13	231	Gambia	H.R.H. the Duc d'Orléans.
313	I 2	20	Portuguese Guinea	Major P. H. G. Powell-Cotton.
31‡	$I2\frac{1}{2}$	I 5‡	Gambia	H. C. Goddard.
30 <del>7</del> 8	$10\frac{4}{3}$	$26\frac{3}{4}$	?	British Museum (F. W. Reade).
$29\frac{1}{2}$	101	13	Portuguese Guinea	Vicomte de Thienne.
Ŷ 25	9	$10\frac{1}{3}$	Gambia	H. C. Goddard.
♀ <b>2</b> 4‡	9	6‡	Do	British Museum (F. W. Reade).

# A.-SENEGAMBIAN RACE (T. derbianus typicus).

## B.-SUDANI RACE (T. derbianus gigas).

Length on front of horn.	Circum- ference.	Tip to Tip.	Locality.	Owner.
4 I	13‡	25 <del>3</del>	Bahr-el-Ghazal	Sir Robert Harvey, Bart.
401	13½	$24\frac{3}{4}$	Do	Capt. R. C. Greenwood.
$39\frac{3}{4}$	141	<b>2</b> 9 <sup>3</sup> / <sub>4</sub>	Do	Hon. Walter Rothschild.
39 <sup>3</sup>	14 <u>1</u>	27	Do	Capt. J. L. F. Tweedie.
39 <sup>1</sup> / <sub>2</sub>	121	$30\frac{1}{2}$	Do	G. Blaine.
391	13		Near Lado, White Nile	Gen. Sir F. R. Wingate.
39	$I4^{1}_{2}$	39‡	Near Wau, Bahr-el- Ghazal.	British Museum.



Skull and Horns of Sudani race of Lord Derby's Eland, in the Collection of Sir Abe Bailey.

Length on front of horn	Circum- . ference.	Tip to Tip.	Locality.		Owner.
39	14	291	Bahr el-Ghazal		Capt. R. J. Collins.
$38\frac{1}{2}$	13 <sup>3</sup> / <sub>4</sub>	19 <u>1</u>	Do.		Sir Abe Bailey.
$38\frac{1}{2}$	151	33	Tembura .		Capt. E. S. Stephenson.
38 <del>1</del>	$II\frac{3}{4}$	$22\frac{3}{4}$	Bahr-el-Ghazal		Major C. A. Wilding.
38	I412	251	Do.		Col. A. Colville.
37=	14	$3I\frac{1}{2}$	Do.		A. F. Williams.
$37\frac{1}{2}$	13 <sup>8</sup> / <sub>4</sub>	$2S_{4}^{3}$	Do		Major A. J. B. Percival.
$37\frac{1}{2}$	$13\frac{3}{4}$	35	Do		Major R. B. Airey.
371	$I4\frac{1}{2}$	$23\frac{3}{4}$	Yei Valley .		Major P. M. Dove.
$36\frac{1}{2}$	14	$29\frac{1}{2}$	Bahr-el-Ghazal		Capt. G. F. Pridham.
36 <u>1</u>	131	$33\frac{1}{2}$	Do.		Sir Edmund G. Loder, Bart.
36 <u>1</u>	13		Do.		Capt. J. G. A. Massy.
35 <sup>1</sup> / <sub>2</sub>	14	34	Do.		Major R. B. Airey.
$34\frac{1}{4}$	I 3‡	194	Do		Baron F. Nicolics.
° 34	$9\frac{1}{2}$	291	Do.		Capt. H. R. Headlam.
♀ 33불	10‡	16 <u>3</u>	Do		Hon. Walter Rothschild.

Measurements of an old bull, shot near Wau, Bahr-el-Ghazal, by Capt. R. J. Collins (horns  $39\frac{3}{4}$  inches):----

Height just behind centre of	der		5	feet	8 in	nches	
Nose to base of tail .				9	,,	0	,,
Girth 6 inches from fore-leg				7	"	1 <u>1</u> 2	"
Length of tail				2	,,	3	,,
Length of body .				6	,,	2	,,
Round centre of neck .				4	"	$2\frac{1}{2}$	"

## C.-CONGO RACE (T. derbianus congolanicus).

Length on front of horn.	Circum- ference.	Tip to Tip.	Locality.		Owner.
$29\frac{1}{2}$	II	19 <u>3</u>	Stanley Falls		Sir Edmund G. Loder, Bart.



Frontlet and Horns of Count Arpad Teleki's Chamois.

#### The CHAMOIS (Rupicapra tragus, or R. rupicapra).

The chamois does not belong to the antelopes properly so-called, but represents 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 molar 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 colouring 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, and those of Asia Minor. Chamois vary in colour according to season, but it seems that some races are darker than others. Several local races are recognised, such as the true chamois, or gems, of the Alps; the smaller and lighter coloured izard (R. t. pyrenaica) of the Pyrenees, and the darker R. t. parva of the Cantabrian Mountains of Spain. The Apennine R. t. ornata has the light throat-patch larger, and the upper side also light; the Carpathian race, not yet named, is very dark, old bucks being nearly black above. The Caucasian R. t. caucasica is distinguished by its relatively short and stout horns and certain features of the bones of the nasal region of the skull; while the light-coloured Trebizond R. t. asiatica is likewise distinguished by horn and skull characters. A great feature from an Austrian sportsman's point of view is the length of the beard, which in old chamois may measure over eleven inches in length.

Length on front curve.	Circum- ference.	Tip to Tip.	Spread.	Locality.	Owner.
9 12 <u>5</u>	3‡	$5\frac{7}{8}$		Carinthia	J. D. Heaton Armstrong. (See illustration, p. 339.)
$I2\frac{1}{8}$	$3\frac{1}{2}$	5용	6불	Branu, Carpathians	C. G. Danford.
11 <u>5</u>	$4\frac{3}{8}$	7		?	Hon. Walter Rothschild.
I I <sup>3</sup> / <sub>8</sub>	358	78		S. Austria	J. Hamilton Leigh.
113	$3\frac{5}{8}$	5176		Do	R. K. Cross.
111	$3\frac{1}{2}$	$6\frac{1}{2}$		?	Col. Howard.
II $\frac{1}{8}$	4	$3\frac{3}{4}$		Austria	J. R. Luchsinger.
II	$3\frac{1}{2}$	41 <sup>3</sup> 0		Transylvania	F. C. Selous.
II	34	$7\frac{1}{2}$		Do	St. George Littledale.
II	33	$7\frac{1}{2}$		Austria	J. R. Luchsinger.
10 <del>3</del>	$3\frac{1}{2}$	$4\frac{3}{10}$		Tyrol	Sir Edmund G. Loder, Bart.
I0 <u>3</u>	3	$4\frac{1}{4}$		Austria	M. D. V. Holt.
♀ 10 <del>§</del>	3	5‡		Do	Hon. Walter Rothschild.
105	38	5븅		5	Rev. J. F. Glossop.
$10\frac{1}{2}$	31 <sup>9</sup>			Do	L. R. Rate.
♀ 10 <u>1</u>	$3\frac{3}{4}$	$6\frac{3}{4}$		S. Austria	J. Hamilton Leigh.
101	$3\frac{1}{2}$	54	•••	;	E. N. Buxton.
10‡	3‡	5‡		Austria	Sir Robert Harvey, Bart.
IO	31/2	$3\frac{1}{2}$		W. Caucasus	A. F. Broadley-Smith.
$9\frac{7}{8}$	$3\frac{1}{2}$	3		5	Norman Lamont.
9 <del>1</del> 8	3	$4\frac{3}{4}$		5	Capt. W. Waring.
9 <del>3</del>	35	2		Carinthia	R. C. Graves Sawle.
$9\frac{8}{4}$	$2\frac{3}{4}$	$6\frac{1}{2}$		Pyrenees	D. Davies.

## CHAMOIS

Length on front curve.	Circum- ference.	Tip to Tip.	Spread.	Localit	y.		Owner.
$9\frac{3}{4}$	$3\frac{3}{4}$	3		W. Caucasus			St. George Littledale.
$9^{\frac{1}{2}}$	3	378		Gerlos .			Hon. M. W. Elphinstone.
$9\frac{1}{2}$	$2\frac{1}{2}$	5		Pyrenees			P. H. Thomas.
9 .	3	51		Do.			Sir Victor Brooke's Collection.
9	$3\frac{1}{2}$	$2\frac{5}{8}$		Caucasus			Rhys Williams.
$8^{3}_{4}$	3	3		Do.			Prince E. Demidoff.
			OWNE	R'S MEASU	REN	MEN	TS.
$112\frac{3}{4}$	418		$7\frac{7}{8}$	Hungary			Baron Donald Schönberg.
$12\frac{1}{4}$				Do.			C. G. Danford.
$212\frac{1}{4}$	$4\frac{1}{3}$		$7\frac{1}{2}$	Retyezat, Cai	rpath	ians	Count Arpad Teleki. (See illus-
12	4			Hinter Riss			tration, p. 335.) H.R.H. the Duke of Saxe-Coburg
12				Tyrol (?).			and Gotha. Count Arco.
12				Carpathians			Count Zdenko Kinsky.
II $\frac{1}{2}$	34	$3\frac{3}{4}$	$4\frac{1}{2}$	Do.			Archduke Carl Franz Joseph.
II $\frac{1}{2}$				Retyezat			Count Erbach.
II $\frac{1}{2}$	35	$6\frac{7}{8}$	•••	Albreis Mort	erato	h,	A. E. Pease.
♀ıı‡	`	4 <del>1</del> 5		Engadine Retyezat			Baron A. Nopcsa.
II $\frac{1}{16}$				<sup>t</sup> Do.			G. von Kendeffy.
11	$3\frac{3}{4}$	$5\frac{1}{2}$		?			Count John of Meran.
$\mathrm{IO}_{\overline{16}}^{\underline{15}}$	35	4		Tyrol .			Sir Edmund G. Loder, Bart.
$IO_8^{\underline{7}}$	34	$6\frac{7}{8}$		Bulgaria .			Dr. Albert von Stephani.
$10\frac{4}{3}$	3 <sup>3</sup> / <sub>4</sub>	$7\frac{1}{2}$		Herzegovina			Eberhard Hollinek.
$$10\frac{3}{4}$		$5\frac{1}{4}$		Retyezat			C. G. Danford.
♀ I0 <sup>5</sup> 8			7	S. Austria	•		R. K. Cross.
$10\frac{5}{8}$	3 <sup>7</sup> 8	$4\frac{1}{2}$		Styria .			Dr. H. Sonnenthal.
$IO_2^1$	$3^{\frac{1}{2}}$	5 <sup>8</sup>		Austria .			H.R.H. the Duke of Braganza.
$IO_2^1$	$2\frac{3}{4}$	5	•••	?			Count John of Meran.
$10\frac{1}{2}$	$3\frac{1}{2}$	$4\frac{3}{4}$		Austria .	·		T. V. Holt.
$IO_{\overline{1}\overline{6}}^{5}$	3흫	35		S. Austria		•	J. Kenneth Foster.
101	3	5용		Do.			Count Palffy.
♀ I 0 <sup>1</sup> / <sub>4</sub>				Grindelwald	·		F. A. Labouchere.
IO	$3^{\frac{1}{2}}$	$4\frac{1}{2}$	$5\frac{1}{2}$	S. Austria	•	•	W. Winans,
$8\frac{1}{2}$	3	$3\frac{3}{4}$		N. Spain	•		Abel Chapman.
	1 13 wh	en killed.		2 1238 lbs. not	clear	n, and	horns now measure 11 <sup>7</sup> / <sub>5</sub> .

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Ζ



The best Chamois Heads shot by His Majesty the Emperor of Austria.

The following are the best specimens in the collection of His Imperial Majesty the Emperor of Austria, who between 1849 and 1902 shot 1991 chamois :---

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.			Date.
$Q - I I \frac{1}{4}$	38	63	Salzkammergut			July 26, 1889.
-11	38	51	Do.		•	December 10, 1859.
$-IO_{4}^{3}$	$3\frac{3}{4}$	$4\frac{7}{8}$	Do.			,, 28, 1868.
$-10\frac{1}{2}$	$3\frac{7}{8}$	$4\frac{7}{8}$	Do.			July 31, 1885.
$-10\frac{3}{8}$	38	5충	Do.			November 10, 1870.
$-10\frac{3}{8}$	$3\frac{7}{8}$	$4\frac{7}{8}$	Do.	۰.	•	July 31, 1885.
♀ <i>−</i> 9 <sup>5</sup> 8	$2\frac{3}{4}$	$7\frac{1}{2}$	Do.			,, 10, 1886.

- Owner's measurements.



Frontlet and Horns of Chamois, shot by Mr. J. D. Heaton Armstrong.



Head of Himalayan Goral.

#### HIMALAYAN and BURMESE GORALS (Nemorhædus goral, etc.).

Goral, W. Himalaya. Pj, Par, Rai, Rom, Kashmiri. Sáhari, Sarr, Sutlej Tribes.

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. Height at shoulder, from 26 to 28 inches; weight, from 58 to 63 lbs.

The following species occur in the Indo-Burmese countries :---

*Nemorhædus hodgsoni.*—Tail short. Colour brown, with a white patch on the throat and chin, a black dorsal stripe and tail, and a black stripe down the front of each leg and over knee. Horns comparatively straight, and not heavily ringed. Eastern Himalaya.

*Nemorhædus goral.*—Tail short. Colour yellowish grey fawn suffused with blackish, throat-patch white, little or no distinct dorsal stripe, a dark streak on muzzle; base of tail and knees blackish, the rest of the legs being fawn. Horns more curved and more heavily ringed than in the last. Western and part of Eastern Himalaya.

## GORAL

*Nemorhædus griseus.*—Tail larger. Colour brownish grey fawn suffused with brown; throat-patch small and yellow; no stripe on muzzle or back; tail and back of legs dark brown, rest of legs rufous fawn. Horns very small. Sze-chuan to Upper Burma.

Length on front curve.	Girth.	Tip to Tip.	Loca	ality.			Owner.
85	$3\frac{3}{4}$	$I\frac{1}{2}$	Kishtwar	•	•		P. F. Hadow.
81	375	I 🖁	Garhwal			•	Capt. D. L. R. Lorimer.
8	$3\frac{3}{4}$	3 <sup>1</sup> / <sub>8</sub>	Chamba				Major C. Levita.
7 <sup>7</sup> /8	34	3	Do.				Capt. R. A. C. Murray.
<b>7</b> 축	33		Near Musu	ri			Col. C. T. McM. Kavanagh.
75	4호	21		?			D. Lawrie.
75	3축	$3\frac{1}{2}$		?			British Museum (Hume Collec- tion).
$7\frac{1}{2}$	3	$2\frac{3}{4}$	Near Musu	ıri			British Museum (Hume Collec- tion).
$7\frac{1}{2}$	$3\frac{3}{4}$	3	Do.				R. Stephens.
$7\frac{1}{2}$	3 <sup>3</sup>	$3\frac{1}{4}$		?			Capt. P. H. H. Bailey.
7 <del>1</del> 8	$3\frac{1}{2}$	$2\frac{3}{4}$	Chamba				Major A. H. Ogilvy Spence.
7용	3 <sup>7</sup> / <sub>8</sub>	$3\frac{1}{2}$	Kishtwar				P. B. Vander Byl.
78	4	5 <sup>৳</sup>	Garhwal				Major L. W. S. Oldham.
7용	3 <sup>3</sup> / <sub>4</sub>	35	Jhelam Va	lley,	Kasł	mir	Major P. H. G. Powell-Cotton.
$7\frac{1}{4}$	3	3	Chamba				Major F. W. II. Walshe.
71	3 <sup>옵</sup>	$2\frac{1}{8}$	Do.				Capt. F. Pope.
7불	31	$2\frac{1}{2}$	Do.			•	Sir Edmund G. Loder, Bart.
7불	4	$2\frac{3}{4}$		?			Capt. M. E. D. Hepenstat.
		OW	NER'S MI	EASU	JRE	MEI	NTS.
9ま	34	4 <sup>5</sup> 78	Near Musu	ıri	·		H. Simons.
83	34	3	Musuri	•	·	•	V. A. Mackinnon.
$8\frac{1}{2}$	·		Bissahir			·	LieutCol. A. E. Ward.
81	$3\frac{1}{2}$			?			Col. J. Biddulph.
₽ 8	$2\frac{1}{4}$	4	Garhwal			·	J. O'Brien.
8			Chamba	•			Major C. B. Vandeleur.
7 <del>7</del>	33	3130	Do.	•			D. Cameron.
7 <sup>7</sup> /8	4	23	Near Musu	ıri	•		Major J. T. C. Murray.
$7\frac{1}{2}$	4	3	Mohand Pa	ass			R.E. Mess, Roorkee.

### VARIOUS CHINESE GORALS AND SEROWS.

# Gni Lu of Chinese.

Species		Collected by	Length on front curve.	Girth.	Tip to Tip.	Locality.	Owner.
Capricornis r edwardsi	nilne-	Abbé A. David	$\begin{array}{c} -8\frac{1}{1}\frac{1}{6} \\ -8\frac{5}{1}\frac{5}{6} \end{array}$	7호 7호	4 2	Moupin, Sze- chuan	Paris Museum (Type).
			-8			Ichang	Comdr. F. B. Noble, R.N.
			78	$3\frac{7}{8}$	$3^{\frac{1}{2}}$	Shen-si	K. K. Horn.
Nemorhædus cinereus		Abbé A. David	$-7\frac{1}{2}$	$3\frac{1}{8}$	$3\frac{5}{16}$	Sze-chuan .	Paris Museum (Type).
•••			$$^{\circ}7\frac{1}{2}$$	3		Nank'ou	W. F. Collins.
,, C	audatus	Abbé A. David	$-6_{\frac{5}{16}}$	$3\frac{9}{10}$	318	North of Pekin	Paris Museum (Type).
			61	4	$3\frac{1}{2}$	?	British Museum.
·, g	riseus .	Do.	-4 <u>3</u>	318	$2\frac{3}{8}$	Sze-chuan .	Paris Museum (Type).
			<b>`</b>				

- Owner's measurements.

## JAPANESE SEROW (Capricornis crispus).

A rather small species of serow with a coat of long grey hair.

Distribution.—The southern islands of Japan; an allied species (C. swinhoei) inhabiting the island of Formosa.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.	
-7	4	$3\frac{7}{5}$	Japan			Sir Edmund G. Loder, Bart.	
-61	31	37	Do.			Imperial Museum, Vienna.	
5‡	318	318	Do.			British Museum.	
$4\frac{3}{4}$	3	31	Do.			E. L. Fletcher.	

- Owner's measurements.



Head of Serow.

#### The SEROW (Capricornis sumatrensis).

Serow, serowa of Gurhwal and Himalaya. Ramu-Halj, Sàlàbhir. Aimu, Kumaon. Jungal, Kangra. Goa, Chamba.

Yamu, Kulu.

Serows are clumsily built ruminants generally larger than gorals, with face-glands and longer horns. The ears are long; the hair is coarse, rather thin, and elongated, into a crest from the nape to the withers; the under fur found in the gorals being usually absent. In the typical species the general colour of the upper-parts is normally black or dark grey, with a grizzled appearance, owing to the whitish bases of the hairs; the under-parts, shoulders, and thighs being rusty red. There is, however, great local variation; some races being wholly or mainly rufous and others black, while the lower portion of the legs may be white or rufous or a mixture of both. The form of the skull also differs. Height at shoulder, from about 34 to 38 inches. Weight, 120 to 190 lbs. Distribution.—Typically from Sumatra, but ranging from Yun-nan and Sze-chuan to the Eastern Himalaya, and occurring throughout the elevated tracts of Assam, Burma, Siam, and the Malay Peninsula. In the Sumatran race the limbs are wholly rusty; in the Darjiling N. s. jamrachi the lower portions of the legs are mingled rufous and white, while in the Nepalese C. s. bubalinus they are white. The Chamba C. s. rodoni is dark, with under-fur; but in the Kashmiri C. s. humei the head is rufous brown, and in the Arakan C. s. rubidus bright rufous. The Malay C. s. swettenhami and C. s. robinsoni are almost wholly black, but the Sze-chuan and Burmese C. s. milne-edwardsi is black with rufous shanks. In rubidus the nasal bones are very short; in swettenhami they are longer and narrower, and the profile of the skull is more vaulted.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
II $\frac{1}{2}$	$5\frac{1}{4}$	31	Mishmi Hills .	•	R. Sinclair.
$IO_{\overline{16}}^{\overline{15}}$	5	a I Z	Burma		O. F. Wheeler-Cuffe.
$IO_2^1$	6	5	Do		A. L. Bacon.
95	6	$2\frac{3}{4}$	Chin Hills.		Capt. F. W. A. Wells.
9§	$4\frac{1}{2}$	$4\frac{3}{4}$	Burma		British Museum (Hume Collection).
9	5	2	Sumatra		Do.
₽9	$4\frac{1}{2}$		Upper Burma .		H. Shaw Dunn.
$8\frac{7}{8}$	5‡	•••	?		H. E. Stephens.
83	$5\frac{1}{2}$	$4\frac{3}{4}$	Muleyit		British Museum (Hume Collection).
$8\frac{3}{4}$	5‡	$3\frac{1}{2}$	Upper Burma .	•	H. O. Whittall.
83	5	3‡	Do		Capt. L. Trevor Goff.
		OW	NER'S MEASUR	EMF	ENTS.
$10\frac{1}{2}$	$5\frac{1}{2}$	5	Ta-chi-lu, China		M. Mitchell.
101	5‡		Upper Burma .		H. Shaw Dunn.
$9\frac{1}{2}$	5	5½	Arakan Hills .		British Museum (Hume Collection).
9 <sup>‡</sup>	5	$4\frac{1}{2}$	Burma		H. L. P. Walsh.
9	5 1/2	$5\frac{1}{2}$	Do		Bombay Natural History Society.
9	5	5	Do		LieutCol. G. H. Evans.
830	$5\frac{1}{2}$	41	Manipur		LieutCol. H. S. Wood.
83	4 <sup>7</sup> / <sub>5</sub>	$2\frac{1}{8}$	Perak		Perak Museum.

A.--EASTERN RACES.

# SEROW

# B.—WESTERN RACES.

Length on front curve.	Circum- ference.	Tip to Tip.	L	ocality			Owner.	
$I2\frac{1}{4}$	$6\frac{1}{2}$	$2\frac{3}{4}$	Garhwal				British Museum (Hume Collection).	
$IO_2^{\frac{1}{2}}$	5	$3\frac{1}{2}$	Chamba				H.H. the Raja of Chamba.	
9 10‡	$5\frac{3}{4}$	$3\frac{3}{4}$	Kumaon				LieutGen. Sir R. Hart.	
ю	45	314	Garhwal				Major J. C. B. Statham.	
10	6	$\frac{7}{8}$		?			C. B. Atkinson.	
$9\frac{3}{4}$	$5\frac{1}{8}$	6	Kashmir				British Museum (R. Lydekker).	
98	$5\frac{1}{4}$	34		?			Col. C. M. Haggard.	
$9\frac{1}{2}$	$5\frac{1}{2}$	4		?			K. C. Zarzhetsky.	
$9\frac{1}{2}$	5 <del>8</del>	$4\frac{3}{4}$	Kashmir	•			St. George Littledale.	
$9^{1}_{2}$	$4\frac{7}{8}$	3‡	Nepal				British Museum (the late B. H. Hodgson).	
$9\frac{1}{2}$	5흉	33		?			Sir Edmund G. Loder, Bart.	
9½	51	• 1 4	Kashmir				Bombay Natural History Society.	
9훟	51 <sup>3</sup> 8	378	Chamba				LieutCol. C. W. Tribe.	
9‡	5	$3\frac{1}{2}$	Do.		•	•	Capt. H. Meynell.	
91	$4\frac{1}{2}$	3	Do.	•			Major the Hon. A. Hamilton- Russell.	
9‡	$4\frac{3}{4}$	4‡	Do.				H. L. P. Walsh.	
91	5‡	•••	Do.				Capt. L. R. Hogge.	
91	54	3	Do.				Capt. W. B. Baker.	
		OW	NER'S M	EAS	URE	ME.	NTS.	
124	6	•••		?			E. C. Stuart Baker.	
12			Himalaya	•	·	·	LieutCol. A. E. Ward.	
$IO_{\overline{S}}^{\underline{7}}$	5	4		?			V. A. Mackinnon.	
$IO_2^1$	58	31/2	Garhwal				A. P. Davis.	
'⊋ 9 <sup>3</sup>	5 <del>\$</del>	4	Sind Valle	ey, K	ashmi	ir.	Major P. H. G. Powell-Cotton.	



White-Maned Serow. Shot by Mr. G. Fenwick-Owen.

## WHITE-MANED SEROW (Capricornis argyrochætes).

A large species of a mingled rufous grey colour, with more or less white in the mane and the thighs, and whole of the limbs rufous. Weight, about 250 lbs. (G. Fenwick-Owen).

Distribution .- Sze-chuan, Kan-su, and Shen-si.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
$9_{10}^{9}$	5**	4	Sze-chuan	British Museum (the late J. W. Brooke).
$-9\frac{1}{2}$	7½	4	Do	
$7\frac{7}{8}$	$4\frac{7}{8}$	47	W. Kan-su	G. Fenwick-Owen.
♀7卦	41	258	Kan-su, Tibet Border .	K. K. Horn.
			- Owner's measurements.	



Kan-su Takin. Shot by Mr. G. Fenwick-Owen.

### The TAKIN (Budorcas taxicolor).

Probably also akin to the musk-ox, this ruminant is a relative of the serows. It is heavily built, with stout limbs, large lateral hoofs, a short tail, a convex profile, and a partially hairy muzzle. The horns, which are large, massive, and bent somewhat after the fashion of those of the gnu, curve at first outwards and somewhat downwards, and then bend 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 females being smaller than those of males. The general colour varies from greyish brown with a light saddle, and passing into blackish on the head, limbs, and underparts, with a continuous dark dorsal streak, to deep rufous or black.

Distribution.—Typically the Mishmi Hills on the northern frontier of Assam, but represented by the small-horned *B. t. whytei* in Bhutan.

Length on ront curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.
$23\frac{1}{4}$	$\mathrm{I}2\tfrac{1}{2}$	10 <u>3</u>	Mishmi Hills			Capt. II. C. Nicolay.
$22\frac{1}{2}$	II1	I 2	Do.			Hon. Walter Rothschild.
$22\frac{3}{8}$	$IO_8^{\frac{5}{2}}$	14 <u>3</u>	Do.		ι.	British Museum.
$22\frac{3}{8}$	II	12	Do.			Duke of Bedford.
$22\frac{1}{4}$	$IO_2^1$	$IO_{\frac{3}{4}}$	?			Major C. P. Gunter.
2I‡	II1	$IO_2^1$	Abor Country			Sir Edmund G. Loder, Bart.
21	12	13 <u>1</u>	Mishmi Hills			A. J. Walter.
$20\frac{7}{8}$	113	$II\frac{7}{8}$	Do.			British Museum (Hume Col-
$20\frac{3}{4}$	II <del>7</del> 8	$\mathrm{I}2\tfrac{1}{2}$	Do.			lection). British Museum (Hume Col- lection).
$20\frac{1}{4}$	II‡	IO	S.E. Tibet .			Capt. F. M. Bailey.
19 <u>3</u>	124	$\mathrm{I}2\tfrac{1}{2}$	Tibet (?) .			Hon. Walter Rothschild.
915	9	$8\frac{1}{2}$	Do	·		Lord Osborne Beauclerk.
		O	WNER'S MEAS	URI	EME:	NTS.
25	13	II $\frac{1}{2}$	Mishmi Hills			F. J. Needham.
24‡			Do.			Col. J. Biddulph.
$24\frac{1}{4}$	$I2\frac{3}{4}$	$I2\frac{3}{4}$	Do.			Indian Museum.
22	$I2\frac{3}{4}$	$I2\frac{1}{4}$	Do,			Bombay Natural History Society.
$2I\frac{1}{4}$	II	$7\frac{1}{2}$	Do.			R.E. Mess, Roorkee.

#### SZE-CHUAN and KAN-SU TAKIN (Budorcas tibetana and B. bedfordi).

Typically the colour of the fore-quarters in the Sze-chuan race is bright orange, passing into greyish behind and beneath, with the ears and lower part of the face black, and the dorsal stripe stopping at withers. In a second phase the orange area is replaced by dirty white and pale grey. Horns relatively long and slender. In Shen-si and part of Kan-su this race is replaced by *B. bedfordi*, which is wholly orange, or orange-brown.

Distribution.—The first race inhabits Sze-chuan, Yun-nan, Tibet, and part of Kan-su.

Length on front curve.	Circum- ference,	Tip to Tip.	Locality.	Owner.
$22\frac{3}{4}$	$10\frac{1}{2}$	$9\frac{1}{2}$	Tsinling Mountains, Shen-si.	G. Fenwick-Owen.
$20\frac{1}{2}$	$II\frac{1}{2}$	113	Kan-su, China .	Hon. Walter Rothschild.
$20\frac{1}{2}$	I 2 <sup>1</sup> / <sub>4</sub>	I 1 <sup>3</sup> / <sub>5</sub>	S. Shen-si	British Museum.
201	II	$8\frac{3}{4}$	Tsinling Mountains, Shen-si	H. F. Wallace.
-193	II	13 <sup>3</sup>	Sze-chuan	Paris Museum (Abbé A. David).
$-18\frac{1}{2}$	12	16	Nr. Ta-chi-lu .	M. Mitchell.
17 <sup>3</sup>	$\mathrm{I}2^1_2$	I I 1	Shen-si	K. K. Horn.
			0 1	

- Owner's measurements.

### ROCKY MOUNTAIN GOAT



Head of Rocky Mountain Goat.

### The ROCKY MOUNTAIN GOAT (Oreamnus americanus).

### (Also known as *Haploceros montanus*.)

This is one of the very few mammals that are permanently white or whitish at all seasons; and although commonly termed a goat, 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. There is a black gland, sometimes as large as half an orange, at the back of the base of each horn. Height at shoulder, from 3 feet to 3 feet 9 inches; weight, about 300 lbs. Four local races have been named. Of these, the typical Rocky Mountain race is of medium size, with a broad skull; the British Columbian O. a. columbæ is larger, with a narrow skull; while the Montana O. a. missoula, which also has a narrow skull, is small. The Alaskan O. a. kennedyi differs by its slender and widely divergent horns.

Distribution.—North America; throughout the Rocky Mountains, from the Salmon River, Idaho, nearly as far north as Cook's Inlet, Alaska.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
$10\frac{5}{8}$	6	$7\frac{1}{2}$	Cassiar	Major J. F. Church.
103	6‡	$7\frac{1}{2}$	Do	K. K. Horn.
10‡	6	$6\frac{3}{4}$	Montana	D. Davies.
IOL	$5\frac{1}{4}$	$5\frac{1}{2}$	British Columbia .	R. Rankin.
$IO_{\pm}^{1}$	6	7	Do	H. B. Tate.
101	6		Cassiar	R. Beaumont.
101	5킄	6	Do	C. H. Young.
$IO_S^1$	5	$6\frac{1}{8}$	3	E. N. Buxton.
$IO_8^1$	$5\frac{3}{4}$	7불	British Columbia .	Hon. M. Egerton.
IO	5흫	5흥	Do	Rev. Lord Victor Seymour.
IO	51	$7\frac{1}{4}$	Cassiar	M. W. Ward.
9불	$5\frac{1}{4}$	$6\frac{1}{4}$	Do	W. A. Conduitt.
9 <sup>3</sup> / <sub>4</sub>	$4\frac{1}{2}$	$7\frac{1}{2}$	?	S. H. Christy.
9 <sup>3</sup>	6	63	Cassiar	H. C. Wilson.
9불	43	6	Do	A. H. Goodall.
9§	6	$6\frac{3}{4}$	Do	J. S. Shepherd.
9 <del>§</del>	5‡	$5\frac{1}{2}$	British Columbia .	G. C. Whitaker.
9§	$4\frac{1}{2}$	7	Do. ,	T. A. Henderson.
9 <del></del> §	5‡	$6\frac{1}{8}$	Cassiar	Sir Edmund G. Loder, Bart.
$9\frac{1}{2}$	$5\frac{1}{2}$	5	?	F. Edelmann.
$9\frac{1}{2}$	4 <sup>3</sup>	63	British Columbia	P. N. Graham.
$9\frac{1}{2}$	$4\frac{3}{4}$	$8\frac{3}{4}$	Do	R. M. Spence.
9 <sup>1</sup> / <sub>2</sub>	$5\frac{1}{2}$	$6\frac{1}{4}$	Alaska	St. George Littledale.
9½	$4\frac{1}{2}$		North America	J. D. Cobbold.
9 <del>1</del>	5‡	6 <u>8</u>	East Kutenay, B.C	A. E. Butter.
$9\frac{1}{2}$	6	5	British Columbia .	W. Neilson.
9 <sup>1</sup> / <sub>2</sub>	5章	5‡	Do	H. F. Wallace.
$9\frac{1}{4}$	$5\frac{1}{2}$	6	Do	P. K. Glazebrook.
		OW	NER'S MEASUREMI	ENTS.
$I2\frac{1}{2}$	$5\frac{1}{4}$	II $\frac{1}{2}$	British Columbia .	Wilson Potter.
II $\frac{1}{2}$			Do	Clive Phillipps-Wolley.
♀ I I ½	4 <sup>3</sup>	$6^{1}_{4}$	Montana	G. L. Harrison.
10 <u>7</u>	7		Cassiar	Col. Max C. Fleischmann.
103			3	S. E. White.
$IO_2^1$	5 <sup>3</sup>	•••	Montana	Walter James.
10 <u>3</u>		$4\frac{7}{8}$	British Columbia .	Madison Grant.
9 10 <del>1</del>	$4\frac{3}{4}$		Do	Capt. A. Egerton.
10	6	61	Idaho	R. Edmunds.



Head of Greenland Musk-Ox.

### The 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 by no means 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. Probably the genus is more or less nearly related to the serows and takins. 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 the 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. Several races are known, including 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 a bull (piecemeal), 579 lbs. (the late 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; approximate southern limit, lat. 60° N. About a century ago musk-oxen also inhabited the districts west of the Mackenzie, including Alaska.

Length on outside curve.	Breadth of palm.	Tip to Tip.	Locality.			Owner.
$27\frac{3}{4}$	IO	$27\frac{1}{2}$	Barren Grounds			The late David T. Hanbury.
$27\frac{1}{2}$	10	$23\frac{1}{2}$	Do.			H. Darrell.
$27\frac{1}{4}$	$\mathbf{I}2\frac{1}{2}$	27	Do.			Earl of Lonsdale.
$26\frac{7}{8}$	II	27	Do.			American National Collection (Warburton Pike).
$26\frac{3}{4}$	$12\frac{3}{8}$		Arctic America	•		British Museum (J. Rae).
$24\frac{3}{4}$	II	$25\frac{1}{2}$	Barren Grounds			Warburton Pike.
$24\frac{1}{4}$	$7\frac{1}{2}$	19	Do.		•	J. Talbot Clifton.
$24\frac{1}{4}$	$IO_2^1$	26	Do.			Hon. Walter Rothschild.
24	$9^{\frac{3}{4}}$	23 <sup>1</sup> / <sub>8</sub>	Arctic America			Sir Edmund G. Loder, Bart.
231	6	22 <sup>3</sup> / <sub>4</sub>	Do.			A. Barclay Walker.
23	10	$23\frac{1}{2}$	Do.			His Majesty the King.
23	7	$2I\frac{1}{2}$	Do.			Royal Scottish Museum.

#### A.-CANADIAN RACE (O. moschatus typicus).

#### B.---GREENLAND RACE (O. moschatus wardi).

Length on outside curve.	Breadth of palm.	Tip to Tip.	L	ocality.		Owner.
24 <del>3</del>	81	$22\frac{1}{2}$	Greenland	•	•	British Museum (the late Row- land Ward).
$24\frac{1}{2}$	7幸	27	Do.	•		Do.
23	7	$23\frac{1}{2}$	Do.			H.R.H. the Duc d'Orléans.

#### OWNER'S MEASUREMENTS.

33	$I2\frac{1}{2}$	$24\frac{1}{2}$	Barren Grounds o Northern Canao		N. J. Dinnen.	
30 <u>1</u>	13 <del>3</del>	, 301	. ?			J. C. Phillips.
29	II	28	Greenland .			Dr. M. E. Johnstone.
$28\frac{3}{4}$	$13\frac{1}{2}$	23 <sup>3</sup> / <sub>4</sub>	?			G. L. Harrison.
$27\frac{1}{2}$	$II\frac{3}{4}$	23	Barren Grounds			Caspar Whitney.
$27\frac{1}{4}$	105	$27\frac{1}{2}$	Do.			Imperial Museum, Vienna.
♀ 21 <sup>1</sup> / <sub>5</sub>	44	$20\frac{5}{8}$	Arctic America			Do.

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Head of Tahr.

#### The TAHR (Hemitragus jemlaicus).

The tahr and its relatives are the first representatives of that great group of ruminants which 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 typical tahr is easily recognised by the great the males. 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  $10\frac{1}{9}$  inches, as measured by Mr. A. O. Hume.

Distribution.—The Himalaya, from Bhutan to Kashmir.

•••								
Length on front curve.	Circum- ference.	Tip to Tip.	L	ocalit	у.			Owner.
15	$9^{3}_{4}$	5킄	Chamba				·	Col. C. M. Haggard.
14 <sup>9</sup>	$8\frac{3}{4}$		Do.	•			•	Major J. S. Rivett-Carnac.
I4 <sup>1</sup> / <sub>2</sub>	$8\frac{3}{4}$		Do.					Earl of Altamont.
14 <del>1</del>	9	$4\frac{3}{4}$	Kishtwar	•				Capt. W. F. Corbett.
14 <u>‡</u>	$8\frac{7}{8}$	4\$		?				LieutCol. A. Cadell.
14 <sup>1</sup> / <sub>8</sub>	$8\frac{7}{8}$	65	Kunìaon					British Museum (Hume Collection).
14	9	6	Chamba					H.H. the Raja of Chamba.
14	9	$6\frac{5}{8}$	Do.	•				Major R. St. J. Gillespie.
14	$S_{\overline{s}}^1$	5 <del>5</del>		?				R. Heber-Percy.
14	$8\frac{3}{4}$	7		?				C. V. Stockwell.
14	9	31	Padir					P. F. Hadow.
13 <del>7</del> 8	9	$8^{3}_{4}$	Chamba					Hugo de Burgh.
13 <del>3</del>	83	71	Do.					P. Radclyffe.
13 <del>3</del>	9	I11		?				British Museum (Hume Collection).
13 <u>3</u>	$8\frac{1}{4}$	7축		?				I. Morse.
135	$9\frac{1}{2}$	$6\frac{3}{4}$		?				G. M. Ram.
13 <u>1</u>	$8\frac{1}{2}$	$7\frac{1}{2}$	Kashmir					J. H. Phelps.
$I3\frac{1}{2}$	$8\frac{1}{2}$	71	Chamba					Col. H. D. Olivier.
13 <u>1</u>	9	$6^{3}_{4}$	Kishtwar					P. B. Vander Byl.
13 <u>1</u>	$9\frac{1}{2}$	61		?				R. C. Watson.
13 <u>1</u>	9	$7\frac{1}{2}$		?				Sir H. E. M. James.
13 <sup>3</sup>	9	$8\frac{7}{8}$	Garhwal					Capt. A. W. Robertson-Glasgow.
13불	9 <del>1</del>	54		?				Hon. Walter Rothschild.
			OWNE	R'S	MEA	SUR	EM	IENTS.
15½	8‡	83	Garhwal					V. A. Mackinnon.
1411	83	5	Chamba	•		•		Major J. T. C. Murray.
14 <sup>7</sup> / <sub>8</sub>	94	$7\frac{1}{2}$	Garhwal					Mess of the 3rd Gurka Rifles.
I4 <sup>1</sup> / <sub>2</sub>	$9\frac{1}{2}$	$7\frac{1}{2}$	Chamba					R.E. Mess, Roorkee.

#### The 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 the late Col. 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.	Circum- ference.	Locality.	Owner.
-I I <del>5</del>		Oman Mountains .	. The late LieutCol. A. S. G. Jayaker.
$-$ II $\frac{1}{2}$	513	?	Bombay Natural History Society.

- Owner's measurements.



Head of Nilgiri Tahr.

### The NILGIRI TAHR or "IBEX" (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 was greatly reduced in numbers by constant persecution, but since the herds have been under Government protection, and a special permit is necessary for shooting, there has been a large increase.

Length on front curve.		Tip to Tip.		Locality.		Owner.
163	87	55	Nilgiris			British Museum (Hume Collection).
$16\frac{1}{2}$	$8\frac{1}{2}$	5	Do.			Col. R. Hoare.
16 <u>1</u>	8 <u>‡</u>	6	Do.			S. G. Bird.

NILGIRI TAHR

Length on front curve.		Tip to Tip.	Locality		Owner.
15 <del>3</del>	7출	5용	Nilgiris		J. II. Whitehouse.
I 5½	85	$7\frac{7}{3}$	Do		Sir Edmund G. Loder, Bart.
15 <u>3</u>	$8\frac{3}{4}$	$6\frac{3}{4}$	Do		Martyn Kennard.
15 <u>ड</u>	81	6	Do		St. George Littledale.
151	74	$5\frac{3}{4}$	Do		G. L. Harrison.
15	81	$5\frac{1}{8}$	Do		The late Sir H. D. Tichborne, Bart.
14 <sup>3</sup> / <sub>4</sub>	$8\frac{1}{2}$	5 <sup>§</sup>	Do		Capt. C. S. Timins.
14 <u>3</u>	$8\frac{1}{4}$	74	Anamalai Hills		M. Loani.
$14\frac{1}{2}$	$8^{3}_{4}$	$6\frac{1}{4}$	Nilgiris	•	British Museum.
$I4\frac{1}{2}$	8§	5불	Do		Sir Victor Brooke's Collection.
14 <sup>8</sup>	8	4\$	Anamalai Hills		Capt. T. W. Greenfield.
♀ 12 <del>3</del>	$5\frac{1}{2}$	$2\frac{3}{8}$	Do.		M. Loam.
♀ I I <del>3</del>	$5\frac{3}{4}$	4 <del>1</del> 8	Do.		Hon. Walter Rothschild.

# OWNER'S MEASUREMENTS.

1712	9종	6	Nilgiris .			Rhodes Morgan.
<sup>'</sup> 17	9 <sup>3</sup>		Do			Measured by Gen. MacMaster, 1869.
$16\frac{1}{2}$			Do	·.		St. George Littledale.
$15\frac{1}{2}$	$8\frac{3}{4}$	$4\frac{3}{4}$	Do			Major F. W. H. Walshe.

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Head of Astor Markhor. Shot by Capt. H. Barstow in Gilgit.

### The MARKHOR (Capra falconeri).

The markhor, of which there are several races, passing more or less completely into one another, introduces us to the true goats (*Capra*). The males differ from the tahr by their larger horns, the length of which greatly exceeds that of the head, and likewise by the presence of a 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 is also elongated; and the horns form a spiral, unlike the scimitar-shape characteristic of the ibex and goat. In Gilgit the summer coat is yellowish white, and the winter-dress of the old bucks dark iron-grey.

Distribution.—The Western Himalaya, Gilgit, Afghanistan, Bokhara, etc.

### A and B.-ASTOR and PIR PANJAL MARKHOR

### (C. f. typica and C. f. cashmiriensis).

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, Baltistan, and Chilas, while the Pir Panjal form inhabits the Pir Panjal and Kajnag ranges of Kashmir, and extends to the north-west into Hazara. In Chitral and Gilgit occur gradations between horns of the Pir Panjal and Astor types.

Leng On outside curve.		Circum- ference.	Tip to Tip.	I	Locali	ty.		Owner.
$60\frac{3}{4}$	39‡	111	46	Gilgit				Capt. H. Barstow. (See
59	36	10 <u>3</u>		Kajnag		•		illustration, p. 358.) LieutCol. S. D. Turnbull.
57 <sup>8</sup>	42	$10\frac{3}{4}$	4 I	Do.				Major A. R. Knox.
$57\frac{1}{2}$	40 `		$47\frac{1}{2}$	Drosh				Capt. B. C. Graham.
56	$5I\frac{1}{2}$			Near Bu	nji	•		Capt. T. S. Johnson.
55	$44\frac{1}{4}$	II	47		?			East India Club.
55		•••		Astor				The late Otho Shaw.
541		$IO\frac{1}{2}$	$26\frac{1}{2}$		?			British Museum (Hume Collection).
54	•••	$10\frac{5}{8}$	33 <del>1</del>	Astor				Martyn Kennard.
53 <sup>3</sup>	$38\frac{1}{4}$	${\rm I}2{\textstyle\frac{1}{4}}$	$40\frac{1}{2}$	Do.				LieutCol. J. Manners Smith.
53 <del>4</del>	$37\frac{3}{4}$	10	35	Chilas			•	Major C. A. Smith.
<b>5</b> 3‡	$40\frac{1}{2}$	12	43 <del>3</del>	Do.				Capt. J. A. Pottinger.
<sup>1</sup> 53‡	$42\frac{1}{2}$	II $\frac{1}{2}$	52 about	Astor	•			Sir Victor Brooke's Collec- tion.
53	40	II	42	Gilgit				Capt. H. F. L. Grant.
53	$38\frac{3}{4}$	$9\frac{3}{4}$	$35\frac{1}{2}$	Do.				Hon. Walter Rothschild.
53	35 <sup>3</sup> / <sub>4</sub>	$II\frac{3}{4}$	$34\frac{1}{2}$	Pir Panj	jal			Major F. W. H. Walshe.
53	$34\frac{1}{4}$	II	32	Astor				LieutCol. the Hon. C. Wil- loughby.
$52\frac{3}{4}$	371	ΙI	$35\frac{1}{2}$	Kajnag			·	Major A. G. W. Malet.

1 Shot by Capt. Harry V. Brooke.

	gth.					
On outside curve.	Straight line.	Circum- ference.	Tip to Tip.	Locality		Owner.
$52\frac{1}{2}$	39	II	39	Gilgit .		Col. G. D. F. Sulivan.
$52\frac{1}{2}$	383	I 2 <sup>1</sup> / <sub>4</sub>	$44\frac{1}{2}$	Chilas .	•	P. F. Hadow.
518	$36\frac{1}{2}$	113	$37\frac{1}{2}$	Gilgit .		LieutCol. B. E. M. Gurdon.
5 I <sup>1</sup> / <sub>2</sub>	$40\frac{1}{4}$	$13\frac{1}{2}$	34	Astor .		Capt. H. Whitaker.
51흫	37 <del>1</del> 8	10	33	Pir Panjal	•	Sir Edmund G. Loder, Bart.
51늘		12	441	Haramosh		Major P. H. G. Powell-Cotton.
51	36 <u>1</u>	II1	$40\frac{1}{2}$	Chilas .		Capt. A. H. Cameron.
51	36 <del>1</del>	11 <u>1</u>	31	Kajnag .		Sir H. E. M. James.
51	$36\frac{1}{2}$	11	$34\frac{1}{2}$	Do.		Col. J. W. A. Morgan.
50 <sup>3</sup>	361	12	$35\frac{1}{2}$	Do		Mess of the Seaforth High-
50 <sup>1</sup> / <sub>2</sub>	361	11	35	Do		landers. J. Arbuthnot.
$50\frac{1}{2}$	35 <sup>3</sup>	$IO_2^1$	$45\frac{1}{2}$	Haramosh		Capt. B. H. Shaw-Stewart.
50 <del>1</del>	39	12		Do.	•	W. R. Read.
50	38	I I <sup>8</sup> / <sub>4</sub>	36	Astor .		Sir Edmund G. Loder, Bart.
50	$36\frac{1}{2}$	I 2	36	Chilas .		Major W. Hayes-Sadler.
50	37	II	46	;		Major C. R. Kelly.
50	$32\frac{1}{4}$	10	31	?		Capt. S. M. Toppin.
$49\frac{1}{2}$	371	12	35	Baltistan .		H. H. Cripps.
$49\frac{1}{2}$	39	$\mathrm{I}2^1_{\pm}$	$32\frac{1}{2}$	?		G. O. Smyth.
49 <del>‡</del>	36	114	32	Chilas .		Major L. W. S. Oldham.
491	$36\frac{1}{2}$	$II\frac{1}{2}$	31	?		Capt. A. Young.
49	35	14	44	Astor .		British Museum (Hume Collection).
49	$34\frac{1}{2}$	$10\frac{1}{2}$	37	?		LieutCol. E. B. Cook.
49	33‡	$IO_2^1$	$37\frac{1}{2}$	?		P. Radclyffe.
49	$32\frac{3}{4}$	I I $^3_4$	36 <u>3</u>	?		N. S. Regnart.
48=	34 <del>3</del> ,	$12\frac{1}{2}$	36 <del>3</del>	Haramosh	•	Hon. H. G. O. Bridgeman.
483	34	$10\frac{1}{4}$	$30\frac{1}{2}$	?		Capt. H. A. G. Chamier.
$48\frac{1}{2}$	$39\frac{1}{2}$	, 9	27	Pir Panjal	•	J. G. Millais.
$48\frac{1}{2}$	35	13	41	Chilas .	•	J. D. Cobbold.
$48\frac{1}{2}$		$II\frac{1}{2}$	45	Astor .		Capt. M. Murphy.
$48\frac{1}{2}$	32	II	311	Baltistan .		Major C. A. Smith.
$48\frac{1}{2}$	$36\frac{1}{2}$	11	331	?		Capt. A. H. Wilson.

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Skull and Horns of Pir Panjal Markhor. From a specimen presented by the late Mr. A. O. Hume to the British Museum.

Lei	ngth.				
On outside curve.	Straight line.	Circum- ference.	Tip to Tip.	Locality.	Owner.
$48\frac{1}{4}$	35	I I	$29\frac{1}{2}$	?	Capt. the Hon. A. C. Murray.
48	34	$10\frac{3}{4}$	36	Astor	His Majesty the King.
48	<u></u> 37 <sup>3</sup> ₹	I 2 <sup>3</sup> / <sub>4</sub>	29	Pir Panjal	British Museum (Hume Col- lection). (See illustration on this page.)
48	37	II	4 I	?	Capt. E. Berry.
48	34	91	39	?	Capt. A. Marshall.

362		RECORDS	OF BIG	GAME	
Length.					
On outside Straight curve. line.	Circum- ference.	Tip to Tip.	Localit	у.	Owner.

48	34	10 <sup>3</sup> / <sub>4</sub>	314	?	H. W. Seton.
48	361	II	30	Chilas (?)	Capt. E. Le G. Whitting.

### OWNER'S MEASUREMENTS.

<sup>1</sup> 63				Pir Panjal			Major-General A. A. A. Kinloch.
60				Astor .			
59		12	36	Kajnag .		•	The late Major J. C. Shirres.
$57\frac{1}{2}$		111	40	Do			Capt. H. D. McLaughlin.
57	$40\frac{1}{2}$	$9\frac{3}{4}$	38	Gilgit .			Marquis of Lansdowne.
$56\frac{1}{2}$	38	II	38	Kashmir .			J. Benett-Stanford.
56‡	35	$IO_{\frac{3}{4}}^3$	37	Gilgit .			W. P. Appleford.
56	36§	13 <del>3</del>	34 <del>§</del>	Kashmir .			Viscount Edmond de Pon- cins.
$55\frac{1}{2}$		9‡	311	Chilas .		•	Mess of the Queen's Own Corps of Guides.
55	39	11	34	Gilgit .	•		F. M. Hodgkins.
55	$38\frac{11}{16}$	II	411	Do		•	Mess of the 3rd Gurka Rifles.
53	$33\frac{1}{2}$	$IO_2^1$		Baltistan .	·		W. M. Logan-Home.
53	$31\frac{1}{2}$	10	33≩	Gilgit .			Capt. H. R. P. Dickson.

<sup>1</sup> Picked up either on the Pir Panjal or the Kajnag Range by the late Col. Cuppage, and measured by General Kinloch.

Certain horns in the Hume Collection indicate a type in some degree intermediate between the Panjal and the Cabul type; their place of origin is unknown, but was probably somewhere west of the Indus.

## MARKHOR

CHITRAL	SPECIMENS.
---------	------------

Len	gth.							
On outside curve.	e Straight line.	Circum- ference.	Tip to Tip.		Loca	ity.		Owner.
$50\frac{1}{2}$	37	10	341	Chitral				Capt. R. A. Lyall.
50	36	10	33	Do.				Major R. H. Macdonald.
47‡	34	$10\frac{1}{2}$	39	Do.				H. Gough.
			OWNER'	S MEAS	URE	EMEN	ITS.	
57	38	101	35	Chitral				Bombay Natural History Society.
56	41	I I 1 ½	32	Do.				Major C. Rose.
53		II	34	Do.				Col. A. C. O'Donnell.
52	34	10	334	Do.				Capt. G. W. Burton.
51 <u>북</u>		II	30 <sup>1</sup> / <sub>2</sub>	Do.				Capt. J. Carruthers.
511			36	Do.			•	Major G. A. Leslie.
49	39‡	IIİ		Do.				Major C. R. Johnson.

# C.---CHIALTAN RACE (C. falconeri chialtanensis).

Differs from other races in the form of the spiral of the horns. May perhaps turn out to be a hybrid between the markhor and domesticated goat; some Chialtan specimens being almost certainly of this nature.

Distribution.-The Chialtan Range of Baluchistan.

Len On outside curve.		Circum- ference.	Tip to Tip.	Locality.		Owner.
-36	25	$8\frac{1}{2}$		Chialtan Range		Capt. W. M. Hunt ( <i>The Field</i> , June 7, 1913).
$34\frac{1}{2}$	26	9	$13\frac{1}{2}$	Do.	•	British Museum (Col. H. Appleton).
-34	27	9		Do.	•	Capt. W. M. Hunt ( <i>The Field</i> , June 7, 1913).

- Owner's measurements.



Skull and Horns of Suleman Markhor. From a specimen presented by the late Mr. A. O. Hume to the British Museum.



Skull and Horns of Cabul Markhor. From a specimen presented by the late Mr. A. O. Hume to the British Museum.

#### D. and E.-CABUL and SULEMAN RACES

#### (C. falconeri megaceros and C. f. jerdoni).

In the Cabul race of the markhor (*C. falconeri megaceros*), typically from the trans-Indus districts near Cabul, the horns are nearly straight, but show a slightly open spiral; being, in fact, intermediate between those of the Pir Panjal and Suleman races. Markhor from the Chitral valley generally have horns of the Cabul type, but in some cases these conform to the Pir Panjal type; both types occurring in the members of one and the same flock. In the Suleman markhor (*C. falconeri jerdoni*) the 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. Straight line.	Circum- ference.	Tip to Tip.	Locality.			Owner.
$48\frac{1}{2}$	$7\frac{3}{4}$	Odd horn	?			British Museum.
39흫	101	Suleman race 24‡	Afghanistan			British Museum (Col. Grant).
391	I 2 1/2	38	Range 25 mile of Wana	s N.V	v.	A. J. Grant.
$38\frac{1}{2}$	$IO_2^1$	23 <del>3</del>	Afghanistan			H.R.H. the Duke of Saxe-Coburg and Gotha.
38	10	26	Cabul			Capt. O. H. Radford.
37	10	32	Kurram Valley			LieutCol. Sir G. Roos-Keppel.
$35\frac{3}{4}$	$9^{3}_{4}$	15	Khyber Pass			Major E. Kirkpatrick.
34	II	23	? .			G. F. Giffard.
33	9‡	193	Afghanistan			Sir Edmund G. Loder, Bart.
32 <del>3</del>	$9\frac{3}{4}$	20	Waziristan .			Major G. Dodd.
321	9 <sup>3</sup>	28	?			British Museum (Hume Col-
32	10	$27\frac{1}{2}$	Cabul .	•		lection). British Museum (Hume Col- lection). See illustration on
$31\frac{1}{2}$	$9\frac{1}{2}$	27	Suleman Range			page 365. Hon. Walter Rothschild.
30 <sup>3</sup> / <sub>4</sub>	10	25	Baluchistan .			Col. J. Biddulph.
30	$9\frac{1}{2}$	$20\frac{3}{4}$	S. Waziristan			Capt. A. G. Shea.
$29\frac{3}{4}$	81	$23\frac{3}{4}$	Baluchistan .		:	LieutCol. R. H. Rattray.
294	10	19	Khyber Pass			Major A. L. Bickford.
29	$IO_2^1$	16	?			American National Collection.
$28\frac{1}{2}$	$9\frac{1}{2}$	18 <u>3</u>	Sheik Budin	•		J. C. Phillips.
27	9	18	Do.			Col. J. Biddulph.
26 <u>3</u>	11.1	$22\frac{1}{10}$	Suleman Range			British Museum (Hume Col- lection). See illustration on page 364.
		OW	NER'S MEASU	JREM	IEN'	ГS.
36	II	32	Bunnu .			F. M. Hodgkins.
332	101	23	?			Bombay Natural History Society.
$32\frac{1}{2}$	10	$22\frac{1}{2}$	Bunnu .			Mess of the Queen's Own Corps of Guides.
311	$9^{\frac{1}{2}}$	$17\frac{3}{4}$	?			C. P. Henderson.

?

R.E. Mess, Roorkee.

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31

 $9\frac{3}{4}$ 

25

SAKIN OR ASIATIC IBEX



Head of Tien Shan race of Asiatic Ibex. From Lord Elphinstone's specimen.

### The SAKIN or 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 welldeveloped 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 near Lhasa, the Tien Shan, and the Altai to the Himalaya (exclusive of the Pir Panjal), and from the neighbourhood of Herat to Kumaon and adjacent districts as far east as the source of the Ganges. Several local races of this species are recognised; the typical race (C. sibirica typica) of the Sayansk range, the Irtish race (C. s. altaica), the Tien Shan race (C. s. almasyi), the Gilgit race (C. s. pedri), the Katutay ibex (C. s. lydekkeri), the Balti ibex (C. s. wardi), the Himalayan ibex (C. s. sacin) from the mountains to the northward of Kashmir, and the Lahul (C. s. filippii).

# TIEN SHAN RACE.

Length on front curve.	Circum- ference.	Tip to Tip.	Loc	ality.		Owner.
58	11‡	$44\frac{1}{2}$	Tien Shan .			Col. H. Appleton.
57 <del>3</del>	II	$40\frac{1}{2}$	Do			C. H. Bury.
57½	103	24	Do			H. M. von Archer.
57호	II <u>3</u>	28	Do			Capt. G. R. H. Cheape.
57흫	11	30	Do			A. Bayley-Worthington.
56 <sup>3</sup>	II $\frac{1}{2}$	$36\frac{1}{2}$	Do			Lord Elphinstone.
56 <u>3</u>	$IO\frac{1}{2}$	31	Do			Capt. J. F. Turner.
56 <del>1</del>	11	40	Do			R. F. Glyn.
<b>5</b> 6	$10\frac{1}{4}$	$2I\frac{3}{4}$	Do			P. F. Hadow.
$54\frac{3}{4}$	I I <sup>1</sup> / <sub>4</sub>	29	Do			P. B. Vander Byl.
$54\frac{3}{4}$	II1	$30\frac{1}{4}$	Do			Major A. D. Greenhill-Gardyne.
541	111	•••	Do			B. Chew.
<sup>1</sup> 54	$10\frac{3}{4}$	45	Do		•	His Majesty the King.
53 <sup>3</sup>	II1	45	Do		•	J. H. Miller.
$53\frac{3}{4}$	$IO\frac{1}{2}$	$33\frac{1}{2}$	Do	•	•	Ford G. Barclay.
53 <sup>3</sup> 4	113	34	China .	•		Major P. Hambro.
53‡	$II\frac{1}{2}$	42	Tien Shan .		•	R. Hayne.
531	$IO\frac{3}{4}$	2I <sup>3</sup> /4	Do	•	•	Col. C. B. Wood.
53‡	I2 $\frac{1}{4}$	35	Do	•	•	Capt. J. N. Price Wood.
53	12	$35\frac{1}{2}$	Do		•	St. George Littledale.
$52\frac{1}{2}$	121	26	Do			P. Church.
52춫	$11\frac{1}{2}$	$22\frac{1}{2}$	Do			T. P. Miller.
52	$II\frac{1}{4}$	$40\frac{3}{4}$	Do			W. R. Read.
51 <del>≩</del>	$12\frac{1}{2}$	48	Do	•	•	Capt. H. Whitaker.
51 <sup>3</sup> / <sub>4</sub>	I 2	34	Do		•	Capt. the Hon. G. H. Douglas- Pennant.
<b>5</b> 0 <sup>5</sup> /8	II1	$35\frac{1}{2}$	Do	•		British Museum (St. George Littledale).
50‡	103	31	Do	•		C. C. Tower.
50	II	$30\frac{1}{2}$	Do			Marquis of Lansdowne.
50	117	$24\frac{1}{2}$	Do			Col. A. H. Hussey.
50	12	19 <sup>3</sup>	Do			J. V. Phelps.
$48\frac{1}{2}$	101	$38\frac{1}{2}$	Altai		•	Col. C. B. Wood.
$46\frac{1}{2}$	12	$20\frac{1}{2}$	Do			Hon. Walter Rothschild.

<sup>1</sup> Shot by St. George Littledale.

# LADAKI, BALTI, and KASHMIRI RACES.

Length on front curve.	Circum- ference.	Tip to Tip.	L	ocality	·.		Owner.
55	$11\frac{1}{2}$	35	Gilgit				LieutCol, B. E. M. Gurdon.
53 <sup>1</sup> / <sub>4</sub>	$IO_{\frac{1}{2}}^{1}$	201	Do.				Col. J. Biddulph.
511	$9\frac{1}{2}$	$34\frac{1}{2}$		?			LieutCol. J. Manners Smith.
$49\frac{3}{4}$	IO	$2I\frac{1}{2}$	Chitral		•		British Museum (LieutCol.
49	101	$9\frac{1}{2}$	Skardo				B. E. M. Gurdon). Major George Douglas.
$48\frac{3}{4}$	$IO_2^1$	33	Baltistan				H. H. Cripps.
$48\frac{1}{2}$	9 <sup>§</sup>	$30\frac{1}{2}$	Nubra, n	orth	of Le	h.	British Museum (Hume Collec-
48 <u>1</u>	9	$22\frac{3}{4}$	Kashmir				tion). Col. G. D. F. Sulivan.
48 <u>1</u>	$IO_2^1$	28	Do.				Capt. S. H. Charrington.
481	$IO_{\pm}^{1}$	$29\frac{3}{4}$	Ladak				Capt. R. H. R. Brocklebank,
$47\frac{1}{2}$	83	$29\frac{3}{4}$	Chitral				M. Ostreham.
47	101	35	Baltistan				Lady Constance Stewart-
$46\frac{3}{4}$	10	$18\frac{1}{2}$	?				Richardson. E. R. Harris.
$46\frac{3}{4}$	91		Kashmir				LieutCol. E. B. Cook.
46 <u>3</u>	` 9ŝ	251	Do.				P. Radclyffe.
46 <u>3</u>	9 <del>3</del>	$22\frac{1}{2}$	Do.				LieutCol. W. Goring.
$46\frac{1}{2}$	10	$25\frac{1}{2}$	Kashmir	•			G. A. Lloyd.
$46\frac{1}{2}$	$10\frac{1}{2}$	$23\frac{1}{2}$		?			Major J. S. Bogle.
46‡	$IO_2^1$	$\mathrm{I}2\tfrac{1}{2}$		?			Capt. E. T. W. McCausland.
46	$IO_2^1$	17 <sup>3</sup> / <sub>4</sub>	Baltistan				Capt. R. S. H. Walpole.
46	10 <u>1</u>	2I 5		?			Major C. E. Palmer.
46	103	$12\frac{1}{4}$	Ladak				P. F. Hadow.
46	ю	$24\frac{1}{2}$		?			Capt. H. G. Stafford.
46	II	$I4\frac{1}{2}$	Kashmir				Capt. H. Meynell.
46	103	251	Do.				J. Platt.
$45\frac{3}{4}$	101		Do.				Capt. H. Nicolay.
45 <sup>3</sup> / <sub>4</sub>	II	$I3\frac{1}{2}$	Do.				F. H. Norton.
45불	9	19	Baltistan				Hon. A. G. Brand.
45章	$IO_2^1$	18		?			J. V. E. Lees.
45½	$9\frac{1}{2}$	33 <sup>3</sup>	Pamir				Major J. B. Mackintosh. 2 B

Length on front curve.	Circum- ference.	Tip to Tip.	Lo	cality.			Owner.
$45\frac{1}{2}$	$9\frac{3}{4}$	$19\frac{1}{2}$	Pamir				LieutCol. R. L. Kennion.
$45\frac{1}{2}$	9 <del>3</del>	$19\frac{1}{2}$	Baltistan				T. R. Ubsdell.
$45\frac{1}{2}$	$IO_2^1$	27	Do.				His Majesty the King.
$45\frac{1}{2}$	10	$18\frac{1}{2}$		?			Capt. A. Courage.
45	9	$I2\frac{1}{2}$	Baltistan	•		•	Major C. B. Vandeleur.
		OWN	NER'S MH	EASU	JRE	MEN	TS.
$56\frac{1}{2}$	$II\frac{1}{8}$	37‡	Tien Shar	1.			LieutCol. H. M. Biddulph.
55			Tagdumb	ash			Col. A. E. Ward.
<sup>1</sup> 54 <sup>3</sup>	101	25	Gilgit				Mess of the Queen's Own Corps of Guides.
$52\frac{1}{2}$	II	113	Hunza				Capt. H. R. P. Dickson.
52	10		Baltistan				H.H. the Maharaja of Travancore.
$51\frac{1}{2}$			Kashmir			•	Martyn Kennard.
51			Do.	•			Col. A. E. Ward.
51	101	<b>2</b> 9	Gilgit				F. M. Hodgkins.
45‡	9§	24 <del>3</del>	Baltistan				Mess of the Queen's Own Corps of Guides.
45	IO	$20\frac{1}{4}$	Gilgit	•	•		Col. J. Biddulph.

<sup>1</sup> Picked up by Maj.-Gen. R. E. Hutchinson.

### The IBEX or STEINBOCK (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 34 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.

on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
$34\frac{1}{2}$	9 <del>3</del>	<b>2</b> 6‡	Styria .		Sir Edmund G. Loder, Bart.
29	$8\frac{3}{4}$	101	Valley of Aosta		Rev. J. M. Gordon.
$28\frac{3}{4}$	83	$17\frac{1}{2}$	Do.		J. Hamilton Leigh.
28	9‡	174	Do.		Hon. Walter Rothschild.

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# IBEX OR STEINBOCK

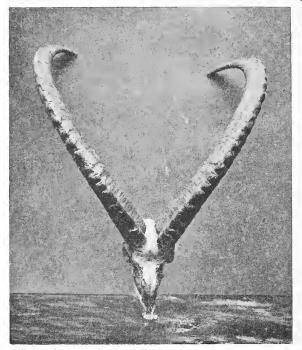
Length on front curve.	Circum- ference.	Tip to Tip.	Weight.	Locality.		Owner.
$27\frac{1}{2}$	9‡	$11\frac{1}{2}$		Valley of Aosta	•	Royal Scottish Museum.
26 <del>3</del>	83	$22\frac{1}{8}$		Do.		British Museum.

## OWNER'S MEASUREMENTS.

$44\frac{5}{8}$	$10\frac{1}{4}$		170 lbs.	Valley of Aosta	H.M. the King of Italy.
$39^{\frac{3}{4}}_{4}$	$10\frac{1}{8}$	$40\frac{1}{4}$		?	Imperial Museum, Vienna.
$38\frac{5}{8}$				Valley of Aosta .	H.M. the King of Italy.
30	9	21	•••	?	Dublin Museum.
28 <del>1</del>	9 <del>8</del>	18		Valley of Aosta .	C. H. Wilczek.



Ibex Head, in the possession of H.M. the King of Italy.



Skull and Horns of Abyssinian Ibex. Shot by Major P. H. G. Powell-Cotton.

# The WALA or 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, as well as by its darker colour and superior size. 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 Major Powell-Cotton. Height at shoulder, about 40 inches. Weight, about 260 lbs.

Distribution .- The mountains of Simien, Abyssinia.

Length on front curve.	Circum- ference.	Tip to Tip.		Loc	ality.			Owner.			
43 <sup>7</sup> / <sub>5</sub>	117	27	Abyssinia	•	•	·	·	British Museum (Major P. H. G. Powell-Cotton).			
438	II $\frac{1}{8}$	$I2\frac{1}{2}$	Do.					Major P. H. G. Powell-Cotton.			
43	$IO_{\underline{2}}^{\underline{1}}$	23	Do.	•		•		Admiral the Hon. Sir Hedworth Meux.			
$^{1}42_{1}^{3}$	101	183	Do.					Her Majesty Queen Alexandra.			
413	II	16 <u>3</u>	Do.					Major P. H. G. Powell-Cotton.			
405	II		Do.					Hon. Walter Rothschild.			
♀ 13 <del>]</del>	47	85	Do.					Major P. H. G. Powell-Cotton.			
	Presented by the late Ras Makunnan, 1902.										

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### BEDEN OR NUBIAN IBEX



Head of Nubian Ibex. Shot in the Red Sea Province by Mr. J. H. Miller.

### The BEDEN or NUBIAN IBEX (Capra nubiana).

This species may be easily distinguished from both the Asiatic and the Alpine ibex 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. Three races are recognised, namely, the typical Nubian form, *C. n. typica*, 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.

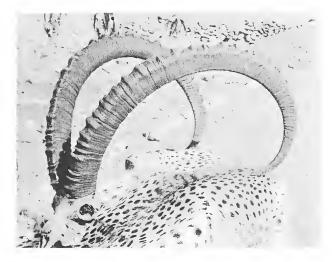
*Distribution.*—The mountains of Southern Arabia, Palestine, the Sinaitic Peninsula, Upper Egypt, and probably also those of Morocco and the interior of Senegambia. Arabian name, *beden*.

Length on front	Circum- ference.	Tip to	Locali	ty.		- Owner.
curve.	ierence.	Tìp.		5		
46 <del>1</del>	8		North Africa			British Museum.
$45\frac{1}{2}$	8	$32\frac{1}{2}$	Do.			H.H. Prince Omar Toussoun.
45	$7\frac{3}{4}$	16 <u>ş</u>	Red Sea Provin	nce		G. E. Burnett-Stuart.
$44\frac{1}{2}$	8	$16\frac{1}{2}$	Do.			J. H. Miller. (See illustration,
433	$9\frac{1}{4}$	$6^{3}_{4}$	North Africa			p. 373.) Percy C. Madeira.
431	7‡	$22\frac{1}{4}$	Do.			LieutCol. H. R. Lloyd.
43	8	19	Near Suakin			A. L. Butler.
42	$7\frac{1}{2}$	20	Do.			Hon. Walter Rothschild.
$4I\frac{3}{4}$	7\$	17§	North Africa			Major W. H. Besant.
$40\frac{3}{4}$	$7\frac{3}{4}$	$20\frac{3}{4}$	Do.			W. H. Watney.
40 <del>1</del>	$7\frac{1}{2}$	24	Do.			A. Fowler.
$40\frac{1}{4}$	$7\frac{1}{2}$	183	Do.			H. Boughton Leigh.
40	8	$19\frac{1}{2}$	Do.			Major H. H. S. Morant.
$38\frac{7}{8}$	$7\frac{1}{2}$	$I2\frac{1}{2}$	Upper Egypt			Sir Edmund G. Loder, Bart.
$38\frac{1}{2}$	$7\frac{1}{2}$	14 <sup>1</sup> / <sub>4</sub>	North Africa			Prince E. Demidoff.
$38\frac{1}{2}$	83	10 <u>1</u>	Do.			Lord Villiers.
$38\frac{1}{2}$	7	$2I_{\frac{3}{4}}^{\frac{3}{4}}$	Suakin .			L. C. G. Clarke.
$38\frac{1}{2}$	$7\frac{3}{4}$	23	Do			P. B. Vander Byl.

# A.---NUBIAN RACE (C. nubiana typica).

# OWNER'S MEASUREMENTS.

51	85	$39\frac{1}{2}$	Upper Egypt	•	•	The late Prince Henry of Liechten- stein.
$43\frac{3}{4}$		••••	Do.			C. S. Mann.



Skull and Horns of Arabian Ibex. Shot by Major W. Merewether.

# B. and C.—S. ARABIAN and SINAITIC RACES (C. nubiana mengesi and sinaitica).

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.				Owner.		
50	9		Southerr	n Aral	bia			Capt. J. T. Brinkley.	
42	71		Arabia					East India Club.	
$4I\frac{1}{2}$	8	16 <u>1</u>	Do.					Sir Edmund G. Loder, Bart.	
$39^{\frac{1}{2}}$	$8\frac{7}{8}$	$19\frac{1}{2}$	South-E	ast A	rabia		•	Hon. Walter Rothschild.	
$38\frac{1}{2}$	$7\frac{1}{2}$	12	Sinai			•		R. Hayne.	
37 <sup>3</sup>	7	$I3\frac{1}{2}$	Do.				•	Capt. C. P. Heywood.	
$37\frac{1}{2}$	$6\frac{1}{2}$	12	Do.				•·	P. Swan.	
363	$7\frac{1}{2}$	$9\frac{1}{4}$	Do.					W. II. Tottie.	
$36\frac{3}{4}$	7	10	Do.					P. A. Kennedy.	
$5 10\frac{3}{2}$	3‡	$2\frac{1}{2}$	Do.					W. E. Pease.	

#### OWNER'S MEASUREMENTS.

49 <sup>1</sup> 8	$8\frac{1}{2}$	12	Southern Arabia	•	Major W. Merewether. illustration.)	(See
39			Sinai		Capt. L. Buxton.	



Skull and Horns of Sind Wild Goat. From a specimen presented by the late Mr. A. O. Hume to the British Museum.

## The PASANG or WILD GOAT (Capra hircus).

The horns of the wild goat (*C. hircus ægagrus*) of the Caucasus and Persia—which is 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 grey in winter and reddish brown in summer, while the under-parts are white, and there are blackish brown and white markings on the body, face, and limbs. Height at shoulder reaching to 37 inches.

The so-called Sind ibex (*C. hircus blythi*) forms a second local race of the species, inhabiting Sind and parts of Baluchistan, where it probably passes imperceptibly into the Caucasian race. It is distinguished mainly by a slight difference in the form of the horns. Other races are found in some of 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 Asia Minor and Persia to the confines of Baluchistan and Sind. Persian name, *pasang* (rock-footed).

# PASANG OR WILD GOAT

# A.-CAUCASIAN RACE (C. hircus ægagrus).

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
55½		24	Persia	. Carl Hagenbeck.
51‡	9	7	Russian Turkestan	. The late Prince P. Demidoff.
$48\frac{1}{4}$	84.	13 <del>3</del>	Caucasus	. British Museum.
$47\frac{1}{4}$	$7\frac{3}{4}$	$S^{\underline{3}}_{\underline{4}}$	Persia	. LieutCol. R. L. Kennion.
$46\frac{1}{2}$	87	18 <u>7</u>	Asia Minor .	. F. C. Selous.
461	$9\frac{1}{2}$	14 <u>1</u>	Do	. T. Bowen Rees.
$45\frac{1}{2}$	$8\frac{3}{4}$	5	Do	. R. Graham.
45	74		British Mekran .	. Capt. A. W. White.
$44\frac{1}{2}$	$8\frac{7}{8}$	$21\frac{3}{8}$	Caucasus	. British Museum.
$43\frac{1}{2}$	ю	$\mathrm{I}2\tfrac{1}{2}$	Persia	. Hon. W. Erskine.
43	9	$15\frac{3}{4}$	Taurus Range .	. Sir Edmund G. Loder, Bart.
43	$8\frac{1}{2}$	$14\frac{1}{2}$	N. Persia	. Capt. C. T. Daukes.
43	$S^{1}_{\overline{s}}$	$22\frac{3}{8}$	?	J. Carr Saunders.
		0	WNER'S MEASUF	REMENTS.
53	10	46	Asia Minor .	. B. Hodder.
50 <sup>3</sup> / <sub>4</sub>	9‡	14	Taurus Range .	. Count C. Deym.
$47\frac{1}{2}$	9‡		Cilician Taurus .	. C. G. Danford.
45 <sup>3</sup>	$S_{\frac{3}{4}}^{3}$	$9\frac{3}{4}$	Daghestan	. E. N. Buxton.
451	9‡	21	Damascus	. Dr. Albert von Stephani.
$43\frac{1}{2}$	IO	$2I\frac{1}{2}$	Asia Minor .	. D. Forbes.
		B.— <b>S</b>	IND RACE (C. 1	nircus blythi).
Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
52흫	77	$8\frac{3}{4}$	Sind	British Museum (Hume Collection). (Shot by Col. F. Marston.) See illustration.
$49\frac{1}{2}$	$7\frac{3}{4}$	I 1	Do	. Capt. L. P. Haviland.
-48	8	$20\frac{1}{2}$	Do	. J. D. Inverarity.
46 <u>3</u>	7\$	14	Do	. Sir Edmund G. Loder, Bart.
46	78	II	Do	. Major C. S. Cumberland.

- Owner's measurements.



Head of Domesticated Goat from Daghestan. Sir Edmund G. Loder's specimen.

# DOMESTICATED GOATS.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.
$52\frac{1}{2}$	$IO_2^1$	40 <del>5</del>	Daghestan .	•	•	Sir Edmund G. Loder, Bart.
441	6	291	Angora .			Do.
$40\frac{1}{2}$	9훟		Daghestan .			Do.
$37\frac{1}{2}$	74	323	Scotland .			Col. W. Hall Walker.
-37	$7\frac{1}{2}$	35	Meoble .			Walter Jones.
354	7춯	384	?			B. de Bertodano.
34‡	$7\frac{1}{2}$	38 <u>1</u>	Scotland .			Duke of Bedford.
34	$8\frac{1}{2}$	$32\frac{1}{2}$	Do			F. C. Selous.
33 <sup>1</sup> / <sub>2</sub>	8	26 <u>1</u>	Meoble .			Hon. O. C. Molyneux.
			0			

- Owner's measurements.



Skull and Horns of Spanish Ibex. H.M. The King of Spain's record specimen.

#### The SPANISH IBEX (Capra pyrenaica).

Although commonly designated an ibex, the Spanish wild goat has horns more like those of one of the Caucasian ture, and is therefore better regarded 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 wild goat than either of the Caucasian ture. 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, Andalucia, and Portugal. The typical race of the species inhabits the Pyrenees; the ibex of the Serra do Gerez, Portugal, said to have less spreading horns, is separated as *C. pyrenaica lusitanica*; those of the Sierra Nevada form a third race (*C. p. hispanica*), characterised by the slight development of the black markings; and a fourth race (*C. p. victoriæ*), intermediate between the typical race and *hispanica*, is found on the Sierra de Grados.

Length on outside curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
$33\frac{1}{2}$	$9\frac{1}{2}$	$26\frac{1}{2}$	Sierra de Gredos	. H.M. the King of Spain.
31	$8\frac{3}{4}$	···	Pyrenees	. Sir Victor Brooke's Collection.
$30\frac{1}{2}$	9	26	Sierra de Gredos	( Marquis de Viana. • ( Marquis de Villaviciosa.
$29\frac{1}{4}$	$9\frac{1}{2}$	$23\frac{1}{4}$	Sierra Nevada	. Abel Chapman.
28	9불	23 <sup>3</sup> /8	Spain	. British Museum.
27=1/2	9	25	Central Spain .	. Sir Edmund G. Loder, Bart.
25 <sup>5</sup> / <sub>8</sub>	$S\frac{1}{2}$	16 <u>5</u>	Spain	. Hon. Walter Rothschild.
$25\frac{1}{2}$	$7\frac{3}{4}$	$IO_2^1$	Nr. Cordova	. Lord Hindlip.
$24\frac{1}{2}$	IO	14	Val d'Arras .	. E. N. Buxton.
238	8	16	Southern Spain .	. Marques Marzales.
$22\frac{3}{4}$	$9\frac{1}{2}$	183	Val d'Arras .	. E. N. Buxton.
22 <sup>5</sup> / <sub>5</sub>	10	15 <sup>9</sup> /16	Sierra de Gredos	. Duke de Turancon.
$9\frac{1}{2}$	5흫	61	Val d'Arras .	. E. N. Buxton.
		0.11		

# OWNER'S MEASUREMENTS.

301	$9\frac{1}{2}$	$23\frac{1}{2}$	Central Spain .	•	Abel Chapman and W. J. Buck.
$29\frac{3}{4}$	81	231	Almeira		H. Brinsley Brooke.
29 <u></u> 5	9 <del>3</del>	$20\frac{7}{8}$	Sierra de Gredos		Natural History Museum, Madrid.
$29\frac{1}{2}$	$8\frac{1}{4}$	$20\frac{1}{2}$	Sierra Nevada .		Do.
$28\frac{3}{4}$	$IO_2^{\frac{1}{2}}$	28 <del>5</del>	?		Imperial Museum, Vienna.
$28\frac{1}{4}$	9 <sup>3</sup> / <sub>4</sub>	$24\frac{1}{2}$	Sierra de Gredos		Marques de la Torrecilla.
27충	9 <sup>3</sup>	$20\frac{1}{2}$	Do.		Marques de Viana.
$27\frac{9}{16}$	$10\frac{1}{4}$	$2I_{1\overline{1}\overline{6}}^{1}$	Do.		H.M. the King of Spain.
$27\frac{1}{2}$	$8\frac{1}{2}$	$20\frac{1}{2}$	Do.	•	Jose del Prado.
27	101	$20\frac{1}{2}$	Do.		H.M. the King of Spain.
$25\frac{1}{2}$	$9\frac{1}{2}$	13	Spain		W. J. Buck.
$5 10\frac{3}{3}$	58	$7\frac{1}{2}$	Val d'Arras .		A. E. Leatham.

# 380



Western Tur or Caucasian Ibex. Shot by Mr. P. B. Vander Byl.

#### WESTERN TUR or CAUCASIAN IBEX (Capra severtzowi).

Of the two peculiar kinds of wild goats inhabiting the Caucasus and locally known as ture, the present species is easily recognised by the approximation in the form of its horns to those of true ibex, and the uniform chestnut-brown colour of the male in the summer coat; the chin, beard, and lower part of the legs being dark brown. In adults the beard, when fully developed, is long, straight, and narrow. Height at shoulder, about 42 inches.

Distribution.—The western half of the main chain of the Caucasus. The typical race (*C. severtzowi typica*) inhabits the mountains west of Elbruz. It is the larger, and has the knots on the horns moderately developed. Still farther west, in the North-western Caucasus, although somewhat overlapping the range of the first, comes Dinnik's race (*C. s. dinniki*), the range of which to the west, like that of the species, is limited by Mount Shungus.

# A.-TYPICAL RACE (C. severtzowi typica).

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.				Owner.
40	I 3 <sup>2</sup> / <sub>5</sub>	$14\frac{1}{2}$	W. Cauca	usus.			St. George Littledale.
37	II $\frac{1}{2}$	$26\frac{1}{2}$	Do.			•	Do.
$34\frac{3}{4}$	II	16	Do.				British Museum.

# B.-NORTH-WESTERN RACE (C. severtzowi dinniki).

Length on front curve.	Circum- ference.	Tip to Tip.	L	ocality.			Owner.
$34\frac{1}{2}$	I 2	22	Kuban, N.W.	Caucasus	5.		Prince E. Demidoff.
331	$12\frac{1}{4}$		Do.			•	P. B. Vander Byl.
$32\frac{1}{2}$	113	$22\frac{3}{4}$	Do.	•			Do.
$32\frac{1}{4}$	II $\frac{1}{2}$	251	Do.				Prince E. Demidoff.
30 <u>5</u>	113	16 <u>3</u>	Do.	•			Sir Edmund G. Loder, Bart.
30	II $\frac{1}{2}$	19 <u>1</u>	Do.				Hon. Walter Rothschild.



Head of Pallas's Eastern Tur. Shot by Prince E. Demidoff.

### EASTERN TUR or CAUCASIAN BHARAL (Capra caucasica).

Distinctly different 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 indicates a step from the more typical members of that group in the direction of the bharal. Both races are characterised by the width and shortness of the beard, which forms a curling fringe on each side of the chin. The general colour of the coat in the bharal-like race 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.

Although generally classed as typifying a species, Pallas's tur is best regarded as a race of the true *C. caucasica*, in which the horns are somewhat less bharal-like, and may show small knots in front.

Distribution.—The Central Caucasus and the Eastern Caucasus, from Kasbek to Daghestan.

#### A.-TYPICAL RACE (C. caucasica typica).

Distribution.-Central Caucasus to east of Elbruz.

on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
$29\frac{1}{2}$	12 <del>]</del>	?	Central Caucasus		Specimen described by Dinnik.

Longth

The following specimen, which has been regarded as a hybrid, is intermediate in character between the above and *C. severtzowi*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
$22\frac{3}{4}$	107	$22\frac{1}{4}$	Elbruz District	. St. George Littledale.

# B.-PALLAS'S RACE (C. caucasica cylindricornis).

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.
46	13 <u>3</u>	$8\frac{3}{4}$	Eastern Caucasus		•	Prince E. Demidoff.
$44\frac{3}{4}$	$13\frac{1}{2}$	10	Do.			The late Prince P. Demidoff.
43	14	$17\frac{1}{2}$	Do.		•	British Museum (the late Prince
$40\frac{1}{2}$	$12\frac{1}{4}$	$15\frac{1}{2}$	Do.			P. Demidoff). P. B. Vander Byl.
40	$\mathrm{I}2\tfrac{1}{2}$	10	Do.			P. H. Thomas.
39	$I3\frac{1}{10}$	19	Do.			St. George Littledale.
$38\frac{1}{2}$	13	17	Do.			Do.
$38\frac{1}{4}$	$I2\frac{1}{2}$		Eastern Caucasus			Hon. Walter Rothschild.
$36\frac{3}{4}$	131	163	Do.			Count H. de Ganay.
36	13		Daghestan			J. D. Cobbold.
351	I 2	181	Eastern Caucasus			Rhys Williams.
35	$I2\frac{3}{4}$	$20\frac{1}{4}$	Do.		•	Mervyn G. Williams.
35	$\mathbf{I2}_2^1$	16	Do.			S. Whitehouse.
34 <sup>3</sup> / <sub>4</sub>	13 <u>3</u>	24‡	Do.			Duke of Alba.
$34\frac{1}{2}$	$10\frac{7}{8}$	$I3\frac{1}{2}$	Do.			Major Talbot.
$33\frac{3}{4}$	13	I7‡	Do.			Sir Edmund G. Loder, Bart.
32	13	19,	Do.			Berthold Smith.
32	II $\frac{1}{2}$	22	Do.			Sutton Timmis.
31 <u>1</u> 2	12	$7\frac{3}{4}$	Do.			F. G. Barclay.
31	II	28	Do.			Capt. H. H. P. Deasy.

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Skull and Horns of Bharal.

#### The BHARAL or BLUE SHEEP (Pseudois nahura).

#### Ta-sang-yang, Chinese.

With horns not unlike those of Pallas's 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 next 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 grey colour of the thick coat 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, and the rudimentary condition of those between the hoofs, the bharal differs from typical sheep and approximates to goats.

Distribution.—From Hunza, and Shigar, in Baltistan, and near Sanju, south-east of Yarkand, to Sze-chuan and Shen-si, and from the main axis of the Himalaya, or locally some distance south of the same, to the Kuenluen 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.	Lo	ocality.			Owner.
$31\frac{1}{2}$	$13\frac{1}{2}$	$22\frac{1}{2}$	Ladak				J. Campbell of Kilberry.
$30\frac{7}{8}$	121	$2I\frac{7}{8}$	Garhwal				British Museum (Hume Collection).
$30\frac{1}{2}$	10	${\tt I} {\tt S} ^1_2$		?			Major F. G. T. Deshon (King Edward's Hospital for Officers).
30	131	$25\frac{1}{4}$	Ladak	•	•	·	Hon. Walter Rothschild.
30	11	24	Hanle, S <sub>I</sub>	oiti		•	Major B. L. Carew.
$29\frac{1}{2}$	115	25 <u>1</u>	NT (1	?			H.R.H. the Duke of Saxe- Coburg and Gotha.
$29\frac{1}{2}$	12	$26\frac{1}{2}$	Northern		nı.	·	Major A. Pearse.
28 <u>3</u>	$IO_2^1$	$2I\frac{1}{2}$		?			Major Lord Charles M. Nairne.
$28\frac{3}{4}$	1212	22	Chang-ch		·	·	Capt. B. H. Shaw-Stewart.
$28\frac{1}{2}$	$II\frac{1}{2}$	161		?			Major C. A. Vivian.
$28\frac{1}{2}$	$I2\frac{1}{4}$	$26\frac{1}{2}$	Hanle .	•	•	•	Major F. W. II. Walshe.
28	II	$20\frac{1}{4}$		?			British Museum (Hume Collection).
28	II	16	Hanle .	·			Arnold Pike.
$27\frac{3}{4}$	$IO_2^1$	$23\frac{1}{2}$		?			R. H. Edmondson.
$27\frac{3}{4}$	$IO_4^1$	10	Ladak				Capt. G. Campbell.
$27\frac{1}{2}$	13	34	Kumaon		•		E. R. Neave.
$27\frac{1}{2}$	$IO_{4}^{3}$	16 <u>3</u>		?			P. Radclyffe.
$27\frac{1}{4}$	II	$2I\frac{1}{2}$	Ladak				St. George Littledale.
$27\frac{1}{4}$	12	$25\frac{1}{4}$	Do.				Col. H. Appleton.
27	$I2\frac{1}{4}$	$22\frac{1}{2}$	Do.				Capt. R. S. H. Walpole.
27	ΙI‡	25 <sup>3</sup> / <sub>1</sub>	Do.				Capt. A. E. Cathcart.
:27	II $\frac{1}{2}$	28	Tibet .				Major C. S. Cumberland.
$26\frac{3}{4}$	$IO_2^1$	16‡	Ladak		·		Capt. W. F. Reichwald.
		OW	NER'S M	EASU	JRE	MEI	NTS.
$33\frac{1}{4}$			Shot on I tion, 19		Expe	edi-	H. H. Hayden.
$32\frac{1}{2}$		I 2	Milam Pa				Major W. de L. Williams.
$^{1}30\frac{1}{2}$	II	$15\frac{1}{2}$	Ladak				Major P. H. G. Powell-Cotton.
30		•••	Baba Pas	s.			Major R. W. Johnston.
29	12			?			LieutCol. A. E. Ward.
$28\frac{1}{2}$	II	9	Ladak				R.E. Mess, Roorkee.
$28\frac{1}{2}$	$IO_2^1$			?			Indian Museum.

# Chinese Specimens.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
$-26\frac{1}{2}$	I 2	29	Ta-chi-lu	M. Mitchell.
241	I I 1 <sup>1</sup> / <sub>2</sub>	311	Kan-su, Tibet border.	K. K. Horn.
$18\frac{3}{4}$	II	$27\frac{3}{4}$	SW. border of Kan-su	H. F. Wallace.
$17\frac{1}{2}$	10‡	24	Do.	G. Fenwick-Owen.
		- Owner's me	asurements.	Picked up.



Head of Arui.

#### The ARUI, UDAD, or BARBARY SHEEP (Ammotragus 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 many domesticated sheep, of which, however, it is not the ancestor. Height at shoulder, about 3 feet 3 inches. Three races are recognised.

Distribution.—The mountains of Northern and North-Eastern Africa, from Morocco to Egypt, and thence southwards nearly to Khartum, in about lat.  $16^{\circ}$  N.; also the desert south of Biskra.

Length on outside curve.	Circum- ference.	Tip to Tip.		Locality.			Owner.
$33\frac{1}{4}$	131	$I2\frac{3}{4}$	Algeria				Sir Abe Bailey.
$29\frac{1}{8}$	$I2\frac{1}{2}$	19	Do.				V. Cholmondeley.
$28\frac{3}{4}$	12	14 <u>3</u>	Do.				R. A. Cooper.
$2S_{2}^{1}$	$II\frac{1}{2}$	18	Do.				British Museum (Hon. John Ward).
$2S_{2}^{1}$	I I <u>5</u>	1 S <u>1</u>	Do.				Sir Edmund G. Loder, Bart.
$27\frac{3}{4}$	16	301	Sudan				D. P. MacGillivray.
$27\frac{1}{2}$	I 2	2 I	Tunisia	ı.			P. H. Thomas.
$26\frac{1}{2}$	I <b>I</b>	19	Algeria	ı.			W. H. Lindsay.
26	111	161	Do.				W. H. Edgar.
26	13	24	Sudan				A. L. Butler.
$25\frac{1}{2}$	II $\frac{1}{2}$	$17\frac{1}{2}$	Algeria	ι.			Hon. John Ward.
$25\frac{1}{2}$	$II\frac{1}{2}$	17	Do.				F. de Murietta.
$25\frac{1}{2}$	105	16	Do.				Col. G. J. Cuthbert.
$24\frac{3}{4}$	$10\frac{7}{8}$	16	Tunisia	a.			Capt. W. W. Pitt-Taylor.
$24\frac{3}{4}$	II $\frac{1}{2}$	$17\frac{1}{2}$	Algeria	a.		•	E. Richardson Cox.
$24\frac{3}{4}$	I I <sup>5</sup> / <sub>8</sub>	${\tt I} 8{\textstyle\frac{3}{4}}$	Do.				H. G. Watson.
$24\frac{1}{4}$	121	171	Dongo	ola .		•	O. Atkey.
231	$IO_2^1$	I <b>7</b>	Tunis				C. Trevor Wingfield.
$22\frac{3}{4}$	101	$22\frac{1}{4}$	Algeria	ı.			F. M. Bailey.
<b>22</b> §	II‡	I 4 <sup>1</sup> / <sub>4</sub>	Tunisi	a.			Capt. J. B. Jenkinson.
$22\frac{1}{2}$	II	141	Algeri	a.	•		Hon. Walter Rothschild.
$22\frac{1}{2}$	12	$16\frac{3}{4}$	Dongo	ola .	•	•	Capt. W. H. Wilkin.
9 22	I I <sup>3</sup> / <sub>4</sub>	15‡	Dongo	ola .		·	O. Atkey.
22	11‡	16	Red S	ea Littora	al		R. Wavell-Paxton.
$2I\frac{1}{4}$	101	${}_{\rm I} 8 {}_2^{\rm 1}$		Do.		•	Capt. S. S. Flower.
$2I\frac{1}{4}$	I 0 <sup>3</sup> / <sub>4</sub>	I7½		Do.	•		Capt. the Hon. G. H. Douglas- Pennant.
2 I	101	15 <sup>1</sup> / <sub>8</sub>		Do.			G. C. Whitaker.
21	II	$1S_2^1$	W. of	Dongola			Earl of Kingston.

### OWNER'S MEASUREMENTS.

28	II $\frac{1}{2}$	161/2	S. Tunisi	a .		J. I. S. Whitaker.
$27\frac{3}{4}$	II 1 4	$14_{1}\frac{9}{6}$	Algeria			Viscount Edmond de Poncins.
$27\frac{1}{2}$	125	13 <sup>1</sup> / <sub>8</sub>		?		Imperial Museum, Vienna.
9 20‡	10	16	Algeria			A. E. Pease.



Skull and Horns of Rocky Mountain Bighorn. 3

#### The BIGHORN SHEEP (Ovis canadensis).

The bighorn of the American continent, inclusive of its local races, 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 face-glands. 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. In O. canadensis stonei of the North-West Territories the colour of the back is very dark, and the white on the hind part of 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. The grey O. c. fannini tends to connect stonei with dalli, and as a matter of fact all three intergrade. Height at shoulder, about 3 feet 2 inches. Weight, about 350 lbs. Numerous other American races have been named.

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.

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. On the Asiatic side of Bering Strait the species is represented by two, or perhaps three, races nearly allied to the northern New World forms.

#### A.-ROCKY MOUNTAIN BIGHORN (O. canadensis typica).

Specimens referable to some of the allied American races are included in this list.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
42	16		Wyoming		T. W. H. Clarke.
41	17	14	Alberta		G. L. Harrison.
40 <u>3</u>	161		Yellowstone		British Museum.
401	I 5‡	201	?		Sir Edmund G. Loder, Bart.
40	15	$2I\frac{1}{2}$	British Columbia .		J. W. R. Young.
395	15 <sup>용</sup>		Colorado		St. George Littledale.
$39\frac{1}{2}$	$16\frac{1}{2}$	$24\frac{3}{4}$	Montana		British Museum.
$39\frac{1}{2}$	$15\frac{1}{2}$	19	?		Sir Edmund G. Loder, Bart.
39½	14	$2I\frac{1}{2}$	Mexico		R. O. Crewe Read.
38흫	$15\frac{1}{2}$	22	?		Gerald Buxton.
384	16 <u>3</u>		Bighorn Mountains .		Sir H. Seton-Karr.
38‡	151	19‡	Montana		Edmund Littledale.
38‡	16	19	N.W. Territories .		S. Ratcliff.
38	17		Alberta, N.W.T.		Arnold Pike.
38	18	21	?		Hon. Walter Rothschild.
373	I 5 <sup>7</sup> / <sub>8</sub>	23 <del>3</del>	Mexico		J. A. H. Drought.
$37\frac{1}{2}$	$15\frac{1}{2}$	18	Do		1. N. Dracopoli.
37 <sup>1</sup> / <sub>2</sub>	161	$32\frac{1}{2}$	Californian Baja, Mexico	ο.	L. J. Cadbury.
$37\frac{1}{2}$	16	15	British Columbia .		Col. A. Charlesworth.
37‡	I 5 <sup>1</sup> / <sub>2</sub>	16	Do		J. Turner-Turner.
37	161		Montana		Major Maitland Kirwan.
37	16 <u>5</u>	16	British Columbia .		R. H. Venables Kyrke.
37	I 5‡	1912	Wyoming		II. A. C. Darley.
37	$15\frac{1}{2}$	18 <u>1</u>	Do		Lord Rodney.
363	19	15	British Columbia .		C. H. Kennard.
$36\frac{3}{4}$	15 <del>1</del>	$22\frac{1}{2}$	Wyoming		Earl of Lonsdale.
36 <u>3</u>	I412	$22\frac{1}{2}$	Do		A. Willis.
$36\frac{1}{2}$	16	15	Do		W. F. Wailes-Fairbairn.
361	14		?		J. D. Cobbold.
361/2	I 5‡	1912	?		Capt. C. R. E. Radclyffe.

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# BIGHORN

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.			
36‡	143	18	British Columbia			Capt. W. A. Armitage.			
36	15	9	Wyoming .			J. L. Scarlett.			
36	14 <u>3</u>	16 <u>1</u>	Montana .			R. H. Sawyer.			
36	14 <u>3</u>	16	Wyoming .			Major G. Dalrymple White.			
353	154	20	Mexico			R. F. Glyn.			
35 <sup>3</sup>	$13\frac{3}{4}$	$17\frac{1}{2}$	British Columbia			Hon. S. Tollemache.			
351	16	21	Do.			T. P. Kempson.			
35‡	15‡	$18\frac{1}{2}$	Do.			Sir Peter Walker, Bart.			
35‡	16‡	17	Do.			L. Ardern.			
35‡	16	12	Do.			G. C. Whitaker.			
$9 \text{ 10}_2^1$	$5\frac{1}{2}$	13	Do.			A. Neilson.			

# OWNER'S MEASUREMENTS.

$44\frac{1}{2}$	17	21	Near Golden, B.C Madison Grant.
$43\frac{1}{8}$	16 <u>3</u>	$/_{I}8\frac{1}{2}$	British Columbia Wilson Potter.
43	181		? H. E. Knobel.
$42\frac{1}{2}$	161	$25\frac{3}{4}$	Lower California American National Collection.
$42\frac{1}{2}$	16 <u>3</u>	$14\frac{1}{2}$	Do S. E. White,
$42\frac{1}{2}$	161	25 <u>3</u>	Do G. H. Gould.
42	16		Do Capt, E. H. Funke.
	17‡		Wyoming T. W. H. Clarke.
$4I_{\pm}^{3}$	$17\frac{1}{2}$	19	Rocky Mountains N. J. Dinnen.
$41\frac{1}{2}$	15		Kootenay, B.C Provincial Museum, B.C.
$40\frac{1}{2}$	$16\frac{1}{2}$	17	S.E. of British Columbia. American National Collection.
40	$15\frac{1}{2}$	$25\frac{1}{2}$	Lower California . J. C. Phillips.
40	$16\frac{1}{2}$		Do W. Kent.
391	17 <del>%</del>		Mexico G. L. Harrison.



Head of White Bighorn. Shot by Lieut. R. C. Dalglish, R.N.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.
47	13 <u>3</u>	28	Yukon			Lieut. R. C. Dalglish, R.N.
$43\frac{1}{2}$	$15\frac{1}{2}$	26	Alaska			His Majesty the King.
431	14 <u>1</u>	27 <sup>3</sup> / <sub>4</sub>	Do.			H. B. Alexander.
43	13 <u>1</u>	$27\frac{1}{4}$	Do.			Hon. Walter Rothschild.
41	14	23=	Do.			Hon. M. Egerton.
$40\frac{3}{4}$	I 2 <sup>1</sup> / <sub>4</sub>	$27\frac{1}{2}$	Do.			F. T. Colby.
40	14	$28\frac{1}{2}$	Do.			J. Todd.
39	13 <u>3</u>	$23\frac{1}{2}$	Yukon			S. R. Vereker.
384	$I2\frac{1}{2}$	$21\frac{1}{4}$	Alaska			P. B. Vander Byl.
38	13 <del>1</del>	18	Do.			A. E. Butter.
$37\frac{3}{4}$	$15\frac{1}{2}$	$29\frac{1}{2}$	Yukon			Surg. C. R. Rickard, R.N.
371	13 <u>3</u>	$2I\frac{1}{4}$	Alaska			Lord Elphinstone.
37	134	$20\frac{1}{2}$	Do.			Hon, J. C. Lister.
$36\frac{1}{2}$	${\rm I} {\bf 3}^1_{\pm}$		Do.			Sir A. Armstrong, Bart.
36‡	13	18	Do.			R. F. Glyn.
36	$14\frac{1}{2}$	$17\frac{3}{4}$	Do.			C. G. Cowan.
36	$\mathrm{I}2\tfrac{1}{2}$	18	Do.	•		Capt. C. R. E. Radclyffe.

# B.---WHITE BIGHORN (O. canadensis dalli).

#### OWNER'S MEASUREMENTS.

$49\frac{1}{4}$	$14\frac{1}{2}$	$29\frac{3}{4}$	Yukon		Major A. L. Snyder.
44 <del>3</del>	14 <u>3</u>	$34\frac{1}{2}$	Do.		Wilson Potter.
$4I_{8}^{3}$	14‡	29	Do.		American National Collection.
4I1	$I2\frac{1}{2}$	$28\frac{1}{2}$	Do.		J. C. Phillips.
$40\frac{1}{2}$	$I3\frac{1}{2}$	$27\frac{1}{2}$	Do.		H. Disston.

# C.-GREY BIGHORN (O. canadensis fannini).

A race characterised by the grey colour of the back.

Length on front curve.			Locality	γ.		Owner.	
$42\frac{1}{2}$	14	291	Yukon .			Hon. M. Egerton.	
-401/2	13	20	Near Dawson	. City		Provincial Museum, B.C.	
37	13 <u>5</u>	181	Yukon .		•	Hon. Walter Rothschild.	
3 <b>5</b> 륲	14	24 <sup>3</sup> / <sub>4</sub>	Do		•	W. H. Bell.	
35‡	1 3 <del>]</del>	241	?			K. K. Horn,	
99	$5\frac{1}{2}$	$9\frac{1}{2}$	Do			Prince Colloredo Mannsfeld.	

- Owner's measurements.

# BIGHORN



Head of Black Bighorn. Shot by Major J. F. Church.

# D.-BLACK BIGHORN (O. canadensis stonei).

Length on front curve.	Circum- ference.	Tip to Tip.		Localit	y.		Owner.
42	I4 <u>1</u>	28	Cassiar				M. W. Ward.
41	14	$28\frac{1}{2}$	Do.				Viscount Lascelles.
$40\frac{3}{4}$	13 <del>3</del>	25	Do.				Lord Hindlip.
40	15	$24\frac{1}{2}$	Do.				C. H. Young.
40	14		Do.				C. D. Butler.
40	123	$2I\frac{1}{2}$	Do.				Major J. F. Church.
$39^{\frac{1}{2}}$	$I2\frac{1}{2}$	$27\frac{1}{2}$	Do.				Col. H. Appleton.
39	131	$22\frac{3}{4}$	Do.				K. K. Horn.
39	14 <sup>1</sup> / <sub>2</sub>	$23\frac{1}{4}$	Do.				Capt. The Hon. G. H. Douglas- Pennant.
$37\frac{1}{2}$	13 <u>3</u>	23	Do.				W. M. Tangye.
371	$13\frac{1}{2}$	${}_{1}S_{2}^{1}$	Do.				R. Hayne.
363	14 <sup>1</sup> / <sub>1</sub>	24	Do.				R. Beaumont.
36 <del>3</del>	$I2\frac{1}{2}$	$2I_{\pm}^{1}$	Do.				British Museum (J. M. Hanbury).
		OV	VNER'S	MEA	SUR	REM	ENTS.
44	14	25	Cassiar				Col. Max C. Fleischmann.
431	14 <u>1</u>	30	Do.				Wilson Potter.
43	$I4\frac{1}{2}$	30	Do.				J. C. Phillips.
$4I\frac{1}{2}$	14	29	Do.				C. F. Collins.
38‡	13 <u>3</u>	19	Do.				P. N. Graham.
36	$13\frac{1}{2}$	$23\frac{3}{4}$	Do.				Count C. Hoyos.



Skull and Horns of Kaunchatkan Bighorn. Shot by Prince E. Demidoff.

#### E.-KAMCHATKAN BIGHORN (O. 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 white Alaskan and the black 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.

on front curve.	Circum- ference.	Tip to Tip.	Loca	ality.		Owner.
39‡	I4 <u>1</u>	$28\frac{1}{4}$	Kamchatka			Prince E. Demidoff.
383	I4 <u>1</u>	305	Do.		·	Do.
-38	1 3 <sup>1</sup> / <sub>2</sub>	26	Do.			Dr. F. H. II. Guillemard.
35 <sup>2</sup> / <sub>4</sub>	13‡	24	Do.			P. Niedieck.

Owner's measurements.

Longth

BIGHORN

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.				Owner.		
$35\frac{1}{2}$	1412	$24\frac{3}{4}$	Kamchatka	•	°.		St. Petersburg Museum.		
35‡	144	$24\frac{1}{2}$	Do.				British Museum (St. George Little- dale).		
35	13 <del>5</del>	24	Do.				W. S. Race.		
34 <sup>3</sup>	$I4\frac{1}{2}$	$25\frac{1}{2}$	Do.			·	St. George Littledale.		
34	$I3\frac{1}{2}$	235	Do.	•			Hon. Walter Rothschild.		
33	13 <del>3</del>	22	Do.				Capt. C. R. E. Radclyffe.		
$32\frac{3}{4}$	$I3\frac{1}{2}$	23	Do.				Sir Edmund G. Loder, Bart.		
♀ 10 <u>3</u>	5	14 <u>1</u>	Do.				Hon. Walter Rothschild.		

#### F.—CLIFTON'S BIGHORN (O. 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 rumppatch, more 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 male was presented to the British Museum in 1902.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.			
$37\frac{1}{2}$	II	$22\frac{1}{4}$	Yana Valley			J. Talbot Clifton.			
33	13	$22\frac{1}{2}$	Do.			British Museum (J. Talb Clifton).	ot		
$32\frac{3}{4}$	I I <sup>1</sup> / <sub>2</sub>	$24\frac{1}{2}$	Do.	•		J. Talbot Clifton.			
♀ 5½	35	$5\frac{1}{2}$	Do.			Do.			

#### The ARGALI SHEEP (Ovis ammon).

In common with the following members of the genus *Ovis*, this splendid sheep has the transverse wrinklings of the horns well developed, and glands present on the face, with pits for their reception in the skull. In the present species the horns of the adult rams are characterised by their large size, massiveness, and the outward direction of their tips. The hind-quarters often show a large amount of white, extending on to the thighs; and the throat may be furnished with a voluminous ruff of long white hairs, which may or may not disappear in summer. Height at shoulder reaching in some races to about 4 feet; weight of adult male about 22 stone.

Regarding all forms of big Central Asiatic sheep, or argalis, as races of a single species, they may be classified as follows:—(1) The Tibetan race, Ovis ammon hodgsoni, of Tibet, with thick, massive horns, which do not form more than one complete circle, and have a maximum length of from  $48\frac{1}{9}$  inches to 57 inches, and a girth of from 17 inches to 19 inches; (2) O. a. mongolica, of Mongolia, nearly allied to the last; (3) O. a. typica, of the Altai, with the massive horns forming more than a complete circle, rounded in front, approximated to the sides of the face, and having a maximum length of from 59 inches to 62 inches, and a girth of from 18 inches to 20 inches; (4) O. a. storcki, of south-eastern Kamchatka, distinguished by its small size; (5) O. a. sairensis, from the Saiar Mountains, with small but relatively massive horns, measuring from about  $45\frac{1}{2}$  inches to 47 inches in length, and  $14\frac{1}{2}$  inches to  $15\frac{1}{2}$  inches in girth; (6) O. a. karelini, of the Alatau, with a small rump-patch, and the horns more angulated in front than in O. a. typica, diverging more from the sides of the face, and having a maximum length ranging from  $45\frac{1}{2}$  inches to  $49\frac{1}{2}$ inches, and a girth of about 16 inches; (7) O. a. humei, of the Tien Shan N.-W. of Kashgar, nearly allied to the preceding, but with a larger rump-patch and other slight colour-differences, and outer angle of horns often rounded; (8) O. a. littledalei, of the Kulja district of the Tien Shan, with a rufous (instead of grey) colouring and no rumppatch, and long, thin horns, of which the maximum length ranges from 55 inches to 58 inches, with a girth of 17 inches or a fraction more; (9) O. a. nigrimontana, a small outlying race from the Karatau of Bokhara, allied to littledalei; (10) O. a. poli, of the Pamir, in which the horns are narrower and longer than in any of the other races, forming much more than one complete circle, with the front surface markedly angulated, and the maximum length ranging from 69 inches to 75 inches, and the girth from  $14\frac{1}{9}$  inches to 16 inches, or, rarely, 17 inches.

ARGALI

Although the gradation in horn-characters may not be absolutely complete from the *hodgsoni* to the *poli* type, it is sufficiently well marked to justify the view here taken of the mutual relationships of these wild sheep.

It cannot be guaranteed that all the undermentioned specimens are correctly classified.

Distribution.—The Highlands of Central Asia, from Bokhara to Mongolia; also Kamchatka.



Head of Tibetan Argali.

#### A.-TIBETAN ARGALI (O. ammon hodgsoni).

Chiefly distinguished from the Siberian argali by the development of a distinct white ruff on the throat of the males, which appears to persist in summer, and also by the less degree of lateral expansion of the horns, which do not form more than a single complete circle, are not "nipped in" below the eyes, and 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 apparently rather less than in the typical argali. A ram shot by Lieut.-Col. Greenaway measured 76 inches from the nose to the tip of the tail, and weighed about 212 lbs. In another ram, whose age was estimated at 10 years, the height at the

shoulder was 43 inches, the girth 50 inches, and the weight 205 lbs. (Major Powell-Cotton).

*Distribution.*—The plateau of Tibet, from Northern Ladak to the districts north of Sikhim, and northwards to the Kuenluen; eastern limits unknown.

Length on front curve.	Circum- ference.	Tip to Tip.		Locality.			Owner.
57	18 <del>3</del>	29	Tibet .				Arnold Pike.
$50\frac{1}{2}$	1 S‡	19	Pangon	g Lake			Sir Edmund G. Loder, Bart.
$49\frac{1}{2}$	19	$21\frac{1}{4}$	Tibet .				Capt. F. M. Bailey.
48	16	23	Rudok				Major G. A. L. Carew.
48	$18\frac{1}{2}$	20	Ladak				LieutCol. II. C. Morland.
48	IS	31	Do.				LieutCol. Hon. A. Dalzell.
$47\frac{1}{4}$	16 <u>3</u>	24	Do.				K. C. Zarzhetsky.
47	17	$27\frac{1}{4}$		?			Col. H. Appleton.
$46\frac{1}{2}$	193	20	Ladak				British Museum (Hume Collection).
$46\frac{1}{2}$	$16\frac{3}{4}$		Do.				LieutCol. H. M. Biddulph.
46	16	17		?			Hon. R. A. Ward.
$45\frac{1}{2}$	161	17		?			Duke of Teck.
$45\frac{1}{2}$	17‡	19		?			C. P. Radclyffe.
45 <del>1</del>	174	$17\frac{1}{2}$		?			Capt. R. S. Kennedy.
45‡	$18\frac{1}{2}$	$19\frac{1}{2}$		?			C. E. Bryant.
45	17	16	Ladak				J. V. Phelps.
45	16	$19\frac{1}{2}$	Do.		. –		P. F. Hadow.
45	17	$22\frac{3}{4}$	Do.				Col. C. B. Wood.
$44\frac{1}{2}$	171	19	Do.				W. A. Conduitt.
$44\frac{1}{2}$	17	22		?			Major F. G. T. Deshon.
44	16	I71/2	Ladak				Duke of Bedford.
44	16	$17\frac{1}{2}$	Do.				W. R. Lawrence.
44	17	$18\frac{1}{2}$	Do.		•	·	Major C. MacI. Ritchie.
		OW	NER'S	MEAS	URE	MЕ	NTS.
50	17		Tibet .				Major W. H. Lane.
$49\frac{3}{4}$	18		Ladak				Capt. G. W. S. Sherlock.
49 <sup>1</sup> / <sub>2</sub>	18		Tibet				G. Burrard.
48 <u>1</u>	19		Do.				E. Howard Brooke.
48	181		Do.				Col. T. K. E. Johnston.
47	17 <sup>1</sup> / <sub>2</sub>	18		2			LieutCol. G. W. Brazier-Creagh.
$^{1}46\frac{1}{2}$	161	21	Do.				Major P. H. G. Powell-Cotton.
46	19			?			Major C. S. Cumberland.

1 Picked up.



Head of Siberian Argali. Shot by Mr. J. H. Miller in the Altai.

#### B.—SIBERIAN ARGALI (O. ammon typica).

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 to the Altai; now chiefly restricted to the latter area.

Length on front curve.	Circum- ference.	Tip to Tip.		Lo	cality.			Owner.
$62\frac{1}{4}$	193	$38\frac{1}{4}$	Altai	• •		•		St. George Littledale.
621	191	$4I\frac{1}{2}$	Do.	•	•			Col. C. B. Wood.
62	19	$38\frac{3}{4}$	Do.	•	•			II. J. Elwes.
$61\frac{1}{2}$	$20\frac{1}{2}$	$37\frac{1}{2}$	Do.			·		J. H. Miller. (See illustration.)
$61\frac{1}{2}$	191	$39\frac{1}{4}$	Do.			•	·	British Museum (St. George Littledale).

Length on front curve.	Circum- ference.	Tip to Tip.	Lo	cality.			Owner.
60	20	41	Altai .				Lord Elphinstone.
$59\frac{1}{2}$	$2I\frac{1}{2}$	$42\frac{1}{2}$	Do				T. P. Miller.
$59\frac{1}{2}$	20	$4I\frac{1}{2}$	Do		٠		Hon. Walter Rothschild.
59불	19 <sup>1</sup> / <sub>3</sub>	$38\frac{1}{4}$	Do. ,				St. George Littledale.
-59 <del>1</del>	191	40	Do				American National Collection.
59	18	36‡	Do				H. W. Seton-Karr.
59	19	$37\frac{1}{2}$	Do				Ford G. Barclay.
$56\frac{1}{2}$	${}_{1}S_{2}^{1}$	$33\frac{1}{2}$	Do				Major C. S. Cumberland.
56	$18\frac{1}{2}$	35	Do			•	British Museum.
56	171	33	Do				E. W. Dixon.
55‡	${}_{\mathbf{I}}\mathbf{S}_{2}^{1}$	361	Do				Count E. Hoyos.
55	18	39	Do				Prince E. Demidoff.
55	193	$34\frac{3}{4}$	Do				D. Carruthers.
55	$19\frac{1}{2}$	39	Do				Col. Max C. Fleischmann.
54 <sup>1</sup> / <sub>2</sub>	19	33	Do				R. Hayne.
$54\frac{1}{4}$	18	$33\frac{1}{2}$	Do				Lord Osborne Beauclerk.
534	$2I\frac{3}{4}$	$33\frac{1}{2}$	Do				Duke of Bedford.
53‡	19	22	Do				St. George Littledale.
53	18	39	Do				W. E. Pease.
$52\frac{1}{2}$	$19\frac{1}{2}$	39	Do				J. R. Bradley.
52	21	30 <u>1</u>	Do				P. B. Vander Byl.
- 9 26	7‡	23 <del>3</del>	Do			•	Berlin Museum.

-- Owner's measurements.



Mongolian Argali (O. a. mongolica). Shot by Col. J. H. Abbot Anderson.

#### C.---MONGOLIAN ARGALI (O. ammon mongolica).

Allied to the Tibetan race, having a distinct yellowish-white throat-ruff, but apparently less massive horns, in which the outer front angles may be much rounded off. The white on the buttocks and hind surface of legs more abundant and purer in colour.

# Distribution.—Eastern Mongolia and Manchuria to the north of Pekin.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.
50½	18	29	N. Shan-si, S.	Manchu	ria	Col. J. H. Abbot Anderson.
49	16 <u>1</u>	25	S. Mongolia	•	•	H. Fowler.
47	16 <u>3</u>	$25\frac{1}{2}$	Do.	•		G. N. Atkinson.
$44\frac{3}{4}$	$16\frac{1}{2}$	23	Manchuria .	·	·	H.R.H. Henri de Bourbon, Comte de Bardi.
41	171	$19\frac{1}{2}$	N. Shan-si	•		Major Sir T. S. Tancred, Bart.
41	17‡	$24\frac{1}{2}$	Do.			M. G. Brisker.

#### D.-SAIAR ARGALI (O. ammon sairensis).

This rather small sheep is in some respects intermediate between *poli* and *ammon*, but 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.

Distribution .- The Saiar or Sair Mountains.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
$47\frac{1}{2}$	$15\frac{1}{2}$	27	Saiar Mountains	British Museum (St. George Little- dale. Type).
-47	I 5 <sup>1</sup> / <sub>4</sub>	30	Do	American National Collection.
<sup>1</sup> 46‡	141	27	Irtish District .	Hon. Walter Rothschild.
46	13‡	$27\frac{3}{4}$	Saiar Mountains	J. C. Phillips.
<sup>1</sup> 40	$14\frac{3}{8}$	$29\frac{1}{2}$	Nr. Sairam Nor	Lord Elphinstone.

#### E.-ALATAU ARGALI (O. ammon karelini).

Rump-patch smaller than in next race; horn characters mentioned under head of species.

Distribution .- Typically the Alatau and adjacent parts of Altai.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
53	16 <u>1</u>	331	Alatau Mountains		J. H. Miller.
$49\frac{1}{2}$	161	$25\frac{1}{2}$	Do.	•	Sir Edmund G. Loder, Bart.
$45\frac{1}{2}$	144	34	Do.	•	Do.

#### F.-KASHGARIAN ARGALI (O. ammon humei).

General colour in winter greyish, with a ruff and large rump-patch.

Distribution.-Tien Shan, north-west of Kashgar.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
47	$I3\frac{1}{4}$	40	NW. of Kashgar	British Museum (co-type; Hume Collection).

#### G.--LITTLEDALE'S ARGALI (O. ammon littledalei).

General colour in winter rufous, with a yellowish ruff but no rumppatch.

Larger than *sairensis*, with the same brown forehead and white muzzle, but the ears smaller and rather farther away from the horns, and the latter less "nipped in" below the eyes than in the typical argali, and showing more of their inner surfaces in a front view. This is a "thin-horned" sheep.

Distribution.—Typically the east end of the Tien Shan, to the south-east of Kulja, or Ili.

- Owner's measurements.

<sup>1</sup> Determination provisional.

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Length on front curve.	Circum- ference.	Tip to Tip.	Lo	cality	·.	Owner.
58	17	4I <sup>3</sup> /4	Tien Shan			A. Bayley-Worthington.
58	151	$40\frac{1}{2}$	Do.			W. R. Read.
571	$17\frac{1}{2}$	41	Do.			Major A. D. Greenhill Gardyne.
$55\frac{1}{2}$	15	45	Do.			Col. H. Appleton.
$55\frac{1}{2}$	161	35 <del>3</del>	Do.			Capt. J. N. Price Wood.
55‡	16	37	Do			LieutCol. G. E. Pereira.
55	18	43	Do.			Col. H. Appleton.
55	16	44	Do.			H.R.H. the Duc d'Orléans.
55	16	43	Do.			Lord Osborne Beauclerk.
54‡	$14\frac{3}{4}$	$36\frac{3}{4}$	Do.			T. P. Miller.
$54\frac{1}{4}$	16	34	Do.			A. W. Berg.
53 <sup>3</sup> / <sub>4</sub>	I 5 <sup>1</sup> / <sub>2</sub>	38	Do.			 C. H. Bury.
$53\frac{1}{2}$	17	41‡	Do.			B. Chew.
53‡	$15\frac{1}{2}$	$40\frac{1}{2}$	Do.			H. Whitaker.
52	15 <sup>3</sup> / <sub>4</sub>	$42\frac{3}{4}$	Do.			J. H. Miller.
511	17	$41\frac{1}{2}$	Do.			St. George Littledale.
51	$16\frac{1}{2}$	39	Do.			British Museum (St. George Littledale. Type).



Bokharan Argali.

# H.-BOKHARAN ARGALI (O. ammon nigrimontana).

The characters of this race are given under the heading of the species. Distribution.—The Karatau (Black Mountain) of Bokhara, Russian Turkestan.

Length on front curve.	Circum- ference.	Tip to Tip.		Locality.		Owner.	
353	$IO_2^1$	24	Bokhara	•		D. Carruthers.	(See illustration.)
33	$IO_2^1$	$2I\frac{3}{4}$	Do.			Sir Edmund G.	Loder, Bart.



Skull and horns of Marco Polo's Argali. Sir Edmund G. Loder's specimen.

#### I.-PAMIR or MARCO POLO'S ARGALI (O. ammon poli).

Distribution.—The Pamir plateau, extending to Hunza. This argali was first definitely made known in England by specimens obtained during the Second Yarkand Mission under the late Sir D. Forsyth during the years 1873 and 1874; since which date it has been killed by Mr. St. George Littledale, Major C. S. Cumberland, Col. H. Bower, Viscount de Poncins, and other sportsmen.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
$70\frac{3}{4}$	15 <u>3</u>	44 <del>2</del>	Yuldez	G. L. Harrison. (See illustration, page 405.)
70	$14\frac{1}{2}$	45	Do	His Majesty The King.
70	17	52	Do	H.H. the Maharaja of Cooch- Behar.
$69\frac{1}{2}$	1 5 <del>1</del>	56	?	Marquis of Lansdowne.
69 <u>1</u>	$14\frac{1}{2}$	39	Tagdumbash	Sir Edmund G. Loder, Bart. (See illustration.)
$68\frac{3}{4}$	15	$50\frac{1}{2}$	;	II. J. Elwes.
$68\frac{1}{2}$	15	35홏	?	Lewis Flower.
68	17	43	Pamir	LieutGen. Sir R. Pole-Carew.
67	15 <u>1</u>	$42\frac{1}{2}$	;	Duke of Westminster.
66 <del>7</del>	15 <u>5</u>	46	Tagdumbash	Sir Edmund G. Loder, Bart.
$66_{s}^{7}$	13 <u>7</u> 8	$46\frac{1}{2}$	Valley between Little and Great Pamir	British Museum (Hume Collection).
66	15‡	44	Do.	· Do.
66	154	42	?	A. Leslie Renton.
$65\frac{1}{2}$	16	53	Great Pamir (16,000 feet) .	British Museum (the late Gen. Sir T. E. Gordon).

ARGALI



Skull and horns of Ovis poli in the collection of Mr. George L. Harrison.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality	<i>.</i>		Owner.
65	$16\frac{1}{2}$	$49\frac{1}{2}$	2			Col. C. F. Blane.
$64\frac{1}{2}$	$16\frac{1}{2}$	46	Pamir .			Major C. C. Ellis.
64 <del>1</del>	$16\frac{1}{2}$	4 I	Do.			W. Lawrence.
641	15‡	39	Do			H. C. V. Hunter.
64	$15\frac{1}{2}$	50	Little Pamir			Major R. P. Cobbold.
64	I 5 ·	39	Do.			A. Ezra.
64	I 5	49	?			Duke of Portland.
635	16 <u>1</u> 8	$42\frac{1}{2}$	Pamir .			Hon. Walter Rothschild.
63	143	321	Do			Col. G. D. F. Sulivan.
63	16	$49\frac{1}{2}$	Little Pamir			Bachelors' Club (Major R. P.
$62\frac{3}{4}$	161	51	Tagdumbash			Cobbold). Capt. T. W. Greenfield.
$62\frac{1}{2}$	15	57	Do.			Sir Edmund G. Loder, Bart.
62	$15\frac{1}{2}$	$46\frac{1}{2}$	Do.			G. L. Harrison.
62	$14\frac{1}{2}$	$43\frac{1}{2}$	Do.			L. C. Sanford.
$61\frac{1}{2}$	I 5 <sup>1</sup> / <sub>2</sub>	$46\frac{1}{4}$	Do.			E. L. Phelps.
$60\frac{3}{4}$	I 5 <sup>3</sup> / <sub>4</sub>	46 <del>1</del>	Pamir .			St. George Littledale.
60	I 5 <sup>3</sup> / <sub>4</sub>	$46\frac{3}{4}$	Tagdumbash			Capt. T. W. Greenfield.
60	I 5 <sup>1</sup> / <sub>2</sub>	46	Do.		•	P. Church.
60	15 <u>3</u>	43	Do.			J. C. Phillips.
$59\frac{1}{4}$	16	46	Do.			Capt. H. H. P. Deasy.
59	$15\frac{1}{2}$	40	Do.			Lord Curzon of Kedleston.
59	$15\frac{3}{4}$	4 I	?			Martyn Kennard.
59	$16\frac{1}{2}$	441	?			R. F. Glyn.

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Length on front curve.	Circum- ference.	Tip to Tip.	Locality.			Owner.
57킄	I 5 $rac{3}{4}$	47	Pamir	•		H. M. von Archer.
571	16‡	48	5			J. Forbes Crombie.
57½	148	43‡	?			Col. C. B. Wood.
57	144	$4S^{\frac{1}{2}}_{\frac{1}{2}}$	Russian Pamir .			Col. H. Appleton.
57	15‡	42	Tagdumbash .		•	Hon. R. A. Ward.
56 <del>1</del>	15 <sup>1</sup> / <sub>8</sub>	351	Do			St. George Littledale.
56‡	163	$49\frac{1}{2}$	Do			C. C. Tower.
56	14	45훜	?			LieutCol. J. Manners Smith.
56	$15\frac{1}{2}$	$43\frac{1}{2}$	Pamir		•	Col. A. H. Hussey.
56	$14\frac{1}{2}$	43	?			W. O. Bell-Irving.
55흉	$16\frac{1}{2}$	43	Pamir			Major C. S. Cumberland.
$55\frac{1}{2}$	16 <u>3</u>	40	5			P. Radclyffe.
55 <sup>1</sup> / <sub>2</sub>	161	$46\frac{1}{2}$	Pamir			P. F. Hadow.
541	16 <u>3</u>	$39\frac{1}{2}$	Do			H.R.H. Prince Pierre d'Orléans and Braganza.
54 <sup>1</sup> / <sub>2</sub>	14 <del>7</del>	$43\frac{1}{2}$	Do			Major J. B. Mackintosh.
53 <sup>3</sup>	$16\frac{1}{2}$	$44\frac{1}{2}$	Do			K. V. Painter.
$53\frac{1}{2}$	14 <u>3</u>	384	N. Pamir .			R. Hayne.
		(				
		1	OWNER'S MEAS	URE	ME.	NTS.
75	16	$54\frac{1}{2}$	Pamir			Field-Marshal Earl Roberts.
73	15	48	Little Pamir			The late Col. H. C. B. Tanner.
71	$15\frac{1}{2}$	$53\frac{3}{4}$	Great Pamir .			Viscount Edmond de Poncins.
$68\frac{1}{2}$	15‡	$45\frac{3}{4}$	Do, .			Mess of the Queen's Own Corps of Guides.
68	16	52	5			Indian Museum.
67§	16	53흌	?			Indian Museum (Col. J. Biddulph).
67	16		?			H.H. the Maharaja of Travancore.
65	16	4 I	?			Dublin Museum.
63	15	54‡	?			R.E. Mess, Roorkee.
61	15	48	Killik <sup>'</sup> Pass, Gilgit			F. M. Hodgkins.
♀ 4 <sub>1</sub> <sup>7</sup> ₀	$5\frac{9}{10}$	15 <u>4</u>	Great Pamir .			Viscount Edmond de Poncins.

URIAL



Head of Shapo or Ladak Urial.

#### The URIAL or SHAPO (Ovis vignei).

A much smaller sheep than most 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 developed mainly whitish ruff on the throat. General colour varying from rufous brown to grey 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, Transcaspia, Afghanistan, Baluchistan, Southern Persia, the North-West Frontier of India, the Punjab Salt-Range, and Sind. Four local races, two of which probably intergrade in the Indus valley, are recognised :---The typical urin of Astor, the sha or shapo of Ladak (O. vignei typica) with much black in the ruff; the Afghan urial (O. v. cycloceros) of Afghanistan, Baluchistan, and the Trans-Indus districts, in which the points of the horns tend to turn up, and the front angles may be knotted; the Punjab urial (O. v. punjabiensis) of the Cis-Indus Punjab, in which the size is less, the colour redder, the ruff much developed, and the horns form a close-coiled spiral; the Kopet-Dagh urial (O. v. arkal) of the Ust-Urz plateau and the Kopet-Dagh and Alag-Dagh, in which the front of the horns is much flattened, with the two angles very pronounced, and the ruff wholly white in front, the general colour being rufous.

# A.-SHAPO or LADAK URIAL (0. vignei typica).

Length on front cnrve.	Circum- ference.	Tip to Tip.	L	ocality		Owner.
39	1 I <sup>3</sup> / <sub>4</sub>	$15\frac{1}{2}$		?		MajGen. Sir H. S. Rawlinson, Bart.
38 <u>5</u>	121	111		?		J. Carr Saunders.
$38\frac{1}{2}$	11‡	$8\frac{1}{2}$	Near Leh			E. L. Phelps.
361	$11\frac{1}{2}$	4‡	Do.			British Museum (Hume Collection).
36 <del>1</del>	103	$II\frac{5}{8}$	Baltistan			Major Sir T. A. Salt, Bart.
34 <del>3</del>	II			?		East India Club.
331	12	I 2	Ladak .			Arnold Pike.
33	11	$17\frac{1}{2}$	Do			P. F. Hadow.
33	$10\frac{1}{2}$	15	Do			Major F. W. H. Walshe.
$32\frac{1}{2}$	$9^{\frac{1}{2}}_{2}$	131	Do	•		Capt. H. R. P. Dickson.
$32\frac{1}{4}$	10	ΙI	Do			Capt. D. L. R. Lorimer.
32	103	13 <sup>3</sup> / <sub>4</sub>	Chitral .			Capt. B. A. R. Blewitt.
313	$IO_4^1$	14	Ladak .			Capt. L. Trevor Goff.
31 <u>3</u>	$10\frac{1}{4}$	7	Do			Col. F. C. Lister-Kay.
$31\frac{1}{2}$	10	15	Gilgit .	•		LieutCol. B. E. M. Gurdon.
$31\frac{1}{2}$	101	$13\frac{1}{2}$	Do			Capt. B. H. Shaw-Stewart.
311	I I	91		?		Major F. W. Wormald.
31	ΙI		Do			J. D. Cobbold.
31	11‡	12	Ladak .			N. C. Cockburn.
30 <u>1</u>	$8\frac{1}{2}$	19	Gilgit .			Capt. K. Dingwall.
301	9 <sup>3</sup> / <sub>4</sub>	$6^{1}_{4}$	Chitral			Capt. A. W. Robertson-Glasgow.
30	114	16		?		Hon. Walter Rothschild.
30 -	IO	10	Ladak .		′.	Lady Jenkins.
$29\frac{7}{8}$	103			?		H. C. V. Hunter.
$29\frac{1}{2}$	$IO_4^1$	9		?		Col. C. B. Wood.
$29\frac{1}{2}$	$IO_2^1$	13	Ladak .			J. V. Phelps.

#### OWNER'S MEASUREMENTS.

36‡	$11\frac{3}{4}$		Near Leh		LieutCol. A. E. Ward.
36	IO	13	Gilgit .		F. M. Hodgkins.
33 <sup>1</sup> / <sub>5</sub>	II $\frac{1}{2}$	$IO_8^{\underline{5}}$	Ladak .		Sir Edmund G. Loder, Bart.
31	$1.1{}^1_2$	9	Chilas .		R.E. Mess, Roorkee.



Urial Skull and Horns in the Mess of the S.W. Militia, Wana.

#### Length on front curve. Circum-Locality. Owner. Tip to Tip. ference. ? The late Major G. Dodd. $41\frac{1}{2}$ 12 153 Waziristan Major F. H. Taylor. 39<sup>1</sup>/<sub>2</sub> 10<sup>3</sup>/<sub>4</sub> $18\frac{1}{4}$ . Royal Artillery Mess, Woolwich (Lieut. Col. C. F. Massey). Oapar Range, 383 Chita $9^{\frac{1}{2}}$ 9章 near Attock British Museum (Hume Collection). II Haji Khan, Kelat, $37\frac{1}{2}$ 101 3000 ft. of Mess of the 60th Rifles (Lord 363 9 Hills north - west 9 Walter Fitzgerald). Peshawur British Museum (Dr. J. Aitchison). Gulran, Afghanistan 35호 101 16 S. Waziristan Capt. A. G. Shea. 101/2 12 351 Waziristan Major F. H. Taylor. 354 $10\frac{1}{2}$ 9늘 IO<sup>1</sup>/<sub>2</sub> TT Do. Sir Edmund G. Loder, Bart. 34<sup>1</sup>/<sub>2</sub> 81 16 Sind L. Napier. $34\frac{1}{2}$ 2 83 Major R. L. Tottenham. $33^{1}_{2}$ 95 Capt. J. F. Turner. 33<sup>1</sup>/<sub>2</sub> $9\frac{3}{4}$ 154 Waziristan ? Capt. E. A. Fielden. 321/2 $9\frac{1}{2}$ ΙI

#### B.—AFGHAN URIAL (0. vignei cycloceros).<sup>1</sup>

#### C.--SALT RANGE URIAL (O. vignei punjabiensis).

Length on front curve.	Circum- ference.	Tip to Tip.	L	ocality	•		Owner.
34 <del>3</del>	$9\frac{5}{8}$	71	Kala Chitta	Hills,	Pun	jab	Hon. H. G. O. Bridgeman.
34	9 <del>3</del>	$4\frac{1}{2}$	Salt-Range	·			Capt. L. Trevor Goff.
$33\frac{1}{2}$	9‡	$\mathrm{I} 2\tfrac{1}{2}$	Do.	•			British Museum (Hume Collection).

<sup>1</sup> Blanford (*Fauna Brit. India Mamm.*) pointed out that the type of *O. cycloceres* has heavier horns than the Punjab Urial, but does not seem to have been aware that it came from Afghanistan.



Urial. Shot by Col. H. V. Biggs, near Rawal Pindi.

Length on front curve.	Circum- ference.	Tip to Tip.	Loca	ality.		Owner.
33‡	9	$I4\frac{1}{2}$	Salt-Range		•	Capt. R. Milne.
323	9	$I2\frac{1}{2}$	Near Rawal	Pindi		Major E. G. de Labillière.
32 <del>3</del>	74	12	Punjab .			G. Blois Johnson.
$32\frac{1}{4}$	IO	I I <sup>1</sup> / <sub>2</sub>		?		British Museum (Hume Collection).
31 <u>1</u>	$9\frac{1}{2}$	163	Salt-Range			LieutCol. H. W. Codrington.
$3I\frac{1}{2}$	12	10‡		?		LieutCol. J. Manners Smith.
31	9	17‡	Jhelam			Capt. W. F. Brayne.
31	9 <sup>8</sup>	$I4\frac{1}{2}$	Do <b>.</b> .			LieutCol. R. H. Rattray.

# D.-KOPET DAGH URIAL (0. vignei arkal).-

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
451	II	16 <u>1</u> N	. Persia .	• •	Capt. C. T. Daukes.
$39\frac{1}{2}$	121	14‡ R	ussian Turkestar	ı.	Prince E. Demidoff.
381	I 2	14 <u>1</u> N	. Persia .	· ·	Capt. C. T. Daukes.
38	ΙI	11‡ Pe	ersia		Lord Osborne Beauclerk.
38	$IO_2^1$	13	Do		Major P. M. Sykes.
37章	12	17 E	lburz Mountains (north side)	, Persia	LieutCol. R. L. Kennion.
37	II	$10\frac{1}{2}$ N	orth Persia		A. Bayley-Worthington.

#### RED SHEEP

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.		Owner.
36 <u>3</u>	10	$17\frac{1}{2}$	Persia	•	Major J. W. Watson.
36	$IO_{4}^{1}$	15	Do		Hon. Walter Rothschild.
34 <sup>1</sup> / <sub>2</sub>	II	Ι2	Russian Turkestan		St. George Littledale.
	V	ARIOUS F	RACES-OWNER'S	MEA	ASUREMENTS.
$39\frac{3}{4}$			?	/	Mess of the 27th Punjabis (the late Major G. Dodd).
$39\frac{1}{2}$	10	9	Seistan, Persia .		Bonibay Natural History Society.
38	103	9	Waziristan		late Capt. G. B. Brown. (See
$37\frac{1}{2}$	$8\frac{3}{4}$	9	Do		illustration, page 409.) R.E. Mess, Roorkee.
371	9 <sup>3</sup> / <sub>4</sub>		Near Rawal Pindi .		Col. H. V. Biggs. (See illustration,
363	$9\frac{7}{8}$	5§	5		page 410.) Dr. Albert von Stephani.
36‡	$9\frac{1}{2}$	14	Near Quetta .		F. Beaty.
$35\frac{1}{2}$	101	$20\frac{3}{4}$	3		Mess of the 21st Punjab Infantry.
$34\frac{1}{2}$	$II\frac{1}{4}$	21	Gilgit		J. West.

#### The RED or GMELIN'S SHEEP (Ovis orientalis).

Apparently 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 usually 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 in summer; in winter, brownish with a whitish saddle-patch; the under parts and lower portions of the legs, as well as muzzle, white. A smaller throatfringe than in the urial, which is always black. Height at shoulder, typically about 2 feet 9 inches.

Distribution .- Cyprus, Persia, Asia Minor, and Transcaucasia.

#### A.---CYPRIAN RACE (O. orientalis typica).

The typical race, distinguished by its small size, coloration, and the complete rounding-off of the front outer angle of the horns of the rams. This is the smallest of the wild sheep, standing only about 28 inches at the shoulder. Weight, about 70 lbs.

Distribution.-Troödos Mountains of Cyprus.



#### Cyprian Mouflon.

Length on front curve.	Circum- ference.	Tip to Tip.	Owner.
27	$7\frac{1}{2}$	83	Hon. Walter Rothschild.
25 <del>§</del>	7흉	$7\frac{1}{2}$	J. A. Bucknill.
25	8	I 5킄	H. Williamson.
$23\frac{1}{2}$	81	$12\frac{1}{4}$	Col. J. Biddulph.
$-23\frac{1}{2}$	$8\frac{1}{2}$	$9\frac{1}{2}$	Sir Edmund G. Loder, Bart.
23	7	5#	British Museum.
$22\frac{7}{8}$	71	6	British Museum (Gen. Sir R. Biddulph).
$22\frac{1}{4}$	8	$12\frac{3}{4}$	Sir Victor Brooke's Collection.
$20\frac{1}{2}$	7불	$9^{\frac{3}{4}}$	Sir H. J. Goold Adams.
$-17\frac{1}{2}$	8	$I\frac{1}{2}$	Dublin Museum.
16	71	$16\frac{1}{2}$	Cambridge Museum.

- Owner's measurements.

# B.--ARMENIAN RACE (O. orientalis gmelini).

*Distribution.*—The mountains of Armenia and other parts of Asia Minor, and Transcaucasia. Heads from the Cilician Taurus approach the Cyprian type and may indicate a distinct race.

,	Length on outside curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
	40.1	$IO_2^1$	$5\frac{1}{2}$	?	British Museum (W. Burchart Barker).
	36.1	103	54	?	British Museum.

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Armenian Mouflon. Shot by Mr. P. H. Thomas.

Length on outside curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
31 <del>3</del>	9	16 <u>1</u>	Near Daghestan .	R. Graham.
30 <u>1</u>	9	$17\frac{1}{2}$	Cilician Taurys .	P. H. Thomas. (See illustration.)
- <b>2</b> 9 <sup>3</sup>	9불	$9\frac{1}{2}$	Axylon	E. N. Buxton.
$28\frac{1}{2}$	10	I41	Asia Minor .	R. P. Page.
271	$9\frac{1}{2}$	2 I	W. Asia Minor	T. Bowen Rees.
$26\frac{1}{2}$	9‡	14	Asia Minor .	Col. C. M. Dobell.
261	$9\frac{7}{8}$	I 2 <sup>3</sup> / <sub>4</sub>	Do	Capt. F. Blacker.
2611	$8\frac{1}{2}$	I21/5	Cilician Taurus .	C. G. Danford.
<b>2</b> 4 <sup>3</sup> / <sub>4</sub>	$9\frac{3}{4}$	16	Asia Minor .	II. O. Whittall.
$24\frac{1}{2}$	91	$II\frac{1}{2}$	Persian Frontier .	Prince E. Demidoff.
$24\frac{1}{2}$	9	16 <del>3</del>	W. Asia Minor .	C. G. R. Lee.
24	9 <del>§</del>	17	Asia Minor .	Col. J. Biddulph.
24	$9\frac{1}{2}$	183	Do	W. N. Williamson.
23	$9\frac{7}{8}$	$I4\frac{1}{2}$	Do	Capt. W. W. Pitt-Taylor.

## C.-PERSIAN RACE (O. orientalis erskinei).

In some instances the horns curve forward, when this sheep is practically indistinguishable from an urial. If the two really intergrade, the name *O. orientalis* has priority over *O. cycloceros*.

Distribution .- South flank of the Elburz Mountains of Persia.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	, Owner.
$27\frac{1}{2}$	10	14	Elburz Range	Hon. W. Erskine.
$24\frac{3}{4}$	$9\frac{1}{2}$	15끞 (no beard)	1	Capt. the Hon. G. H. Douglas- Pennant.
24	$9\frac{1}{2}$	(beard)	Do.	Do.



Head of Mouflon. Shot by Count Andrassy.

#### The MOUFLON (Ovis musimon).

The large light-coloured saddle on the otherwise dark winter-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 rams normally curve forwards so as to have their tips near the eyes, and are comparatively massive, with the wrinkles of a type somewhat different from that obtaining in the red 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. Probably the race with hornless ewes is restricted to one of these islands.

Length on front curve.	Circum- ference.	Tip to Tip.	Ι	Locality.			Owner.
$38\frac{1}{2}$	8	II $\frac{1}{2}$	Sardinia		•		Duke of Bedford.
$34\frac{1}{2}$	$S_{4}^{3}$	16 <u>3</u>	Do.				W. Moncreiffe.
$33\frac{1}{2}$	9	9	Do.			•	Hon. M. Egerton.
32‡	9	9	Do.				C. Sloane-Stanley.
32	83	142	Do.				American National Collection.
31	81	10	Do.				C. G. R. Lee.

# MOUFLON

Length on front curve.	Circum- ference.	Tip to Tip.		Locali	ty.		Owner.
30 <del>1</del>	$8\frac{5}{8}$	14	Sardinia				Rhys Williams.
304	$8\frac{1}{4}$	10	Do.				Major B. H. Piercey.
$29\frac{3}{4}$	8	I $2\frac{1}{2}$	Do.				C. Sloane-Stanley.
$29\frac{3}{4}$	8		Do.				J. D. Cobbold.
29 <del>5</del>	$8\frac{3}{4}$	II	Do.				Hon. R. A. Ward.
$28\frac{7}{8}$	$S\frac{1}{8}$	2 I	Do.				E. N. Buxton.
28 <u>3</u>	9	IO	Do.				F. G. Barclay.
$28\frac{1}{2}$	$8\frac{5}{9}$	$9\frac{1}{2}$	Do.				Sir Edmund G. Loder, Bart.
$28\frac{1}{2}$	$8\frac{3}{4}$	7	Bohemia	(intro	oduce	d)	J. Hamilton Leigh.
284	9 <u>5</u>	9를	Sardinia				Edinburgh Museum.
27 <sup>7</sup> 8	$S_{4}^{3}$	54	Do.				W. E. Pease.
27 ह	$8\frac{3}{4}$	9	Do.				Prince E. Demidoff.
$27\frac{1}{2}$	$8\frac{3}{4}$	$6\frac{1}{4}$	Do.				Commander J. E. Cameron, R.N.
278	$8\frac{1}{4}$	$6\frac{1}{4}$	Do.				Lieut. E. S. Fleetwood Nash,
27	$S^{1}_{2}$	IO	Do.				R.N. British Museum.

# OWNER'S MEASUREMENTS.

34‡	$9\frac{1}{2}$	$18\frac{3}{4}$ ?	Hungary (i	ntroduced)	Count M. Andrassy.
32 <u>8</u>	$9\frac{1}{8}$		Austria	do.	Count G. Andrassy.
314	$8\frac{1}{2}$	II $\frac{1}{2}$	Bohemia	do.	W. Winans.
$29\frac{3}{4}$	$8\frac{3}{4}$	$IO_{\underline{2}}^{\underline{1}}$	Do.	do.	Count Erdödy.
$29\frac{1}{4}$	910	131?	Do.	do.	W. Winans.
$27\frac{1}{2}$	104	$18\frac{1}{2}$ ?	Do.	do.	J. H. Thomas.
27	$8\frac{1}{2}$	19?	Do.	do.	W. Winans.
26	108	.1012?	Corsica		Col. J. Marriott.

#### 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 with certainty 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 Africa and elsewhere, this point of difference is of comparatively little importance. More weight has been attached to the length of the tail, which may be longer than in the arui; but in some breeds like that of Soa, and also in the Himalayan Barwal and Hunia sheep, this appendage is comparatively short, and its length in other breeds is probably due to a kind of degeneration. The ancestry of domesticated breeds may therefore be looked for among the mouflons or urial or some allied extinct form, since the horns of most breeds approximate to the mouflon-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 mouflon-type by the development of upright corkscrew-horns comparable in form with those of the markhor, but with the twist of the spiral in the opposite direction.

Length on outside curve.		Tip to Tip.	Lo	ocality	y.	Owner.
$45\frac{1}{2}$	9	15	Scotland			J. A. H. Drought.
41	IO	21	Do.			J. C. Lyell.
$39\frac{1}{2}$	$8\frac{3}{4}$	2 I		?		H. E. Surtees.
37	81	20	Loch Awe	e, N.	в.	H. Murray.
35½	8	16 <u>7</u>		?		Sir Victor Brooke's Collection.
$35\frac{1}{2}$	$8\frac{1}{2}$	24	Dorset			Hon. Walter Rothschild.
33	II	$22\frac{1}{4}$	Yarkand			
$23\frac{1}{4}$	$7\frac{1}{2}$	$32\frac{1}{2}$	W. Kan-s	su		tion). H. F. Wallace.

#### OWNER'S MEASUREMENTS.

$43\frac{1}{2}$	10	14 <u>3</u>	Scotland			R. Shoolbred.
$42\frac{1}{2}$	81	15		?		J. C. Phillips.
37	9‡	14	Scotland			Sir Edmund G. Loder, Bart.

# DOMESTICATED SHEEP

Length on outside curves.	Circum- ference.	Tip to Tip.	Number of Horns.	Owner.
$23 \dots 20^{\frac{1}{2}}$	$6\frac{1}{2}4\frac{1}{4}$	29	Six	J. G. Millais.
$21\frac{1}{4}17\frac{1}{2}$	$7\frac{1}{2}\cdots 5$	35	Four	Capt. H. II. Banner.
2120	$6\frac{3}{4}4\frac{1}{4}$	$25\frac{1}{4}$	Do.	D. McDouall.
20 <u>1</u> 16	$64^{\frac{3}{4}}$	I 5 <sup>1</sup> / <sub>2</sub>	Do.	The late Sir H. B. Meux, Bart.
19\314	$6\tfrac{1}{2}4\tfrac{1}{2}$	2116	Do.	P. C. Millbank.
$19\frac{1}{2}14\frac{1}{4}$	85‡	2791	Do.	British Museum.
$19\frac{1}{2}19$	$7\cdots 4\frac{3}{4}$	$9_4^322$	••••	R. J. Cuninghame.
$19 \dots 18\frac{1}{2}$	96	$31\frac{1}{2}\dots 5\frac{3}{4}$	Four	Sir Basil S. Brooke, Bart.

# Many-horned Breeds.

The following belong to the Wallachian breed :---

Length on the curve.	Length in a straight line.	Girth.	Tip to Tip.	Owner.
$34\frac{3}{4}$	$24\frac{3}{4}$	8	$40\frac{1}{2}$	British Museum.
33	$17\frac{1}{2}$	71	19 <u>1</u>	H.R.II. the Duc d'Orléans.
.32	24	71	38	Do.
28	191	$7\frac{1}{2}$	$38\frac{3}{4}$	Hon. Walter Rothschild.
$23\frac{1}{2}$	21	81	$33\frac{1}{2}$	Sir Edmund G. Loder, Bart.
₽ I2§	$IO_2^1$	41	17‡	British Museum.

**Unicorn Sheep.** — An artificial product from the Himalayan Barwal breed :—

Length on curve.	Girth.	Locality.	Owner.	
193	14	Nepal	. Duke of Bedford.	



Horns of Limpopo Buffalo from the Sabi Valley. (In American National Collection ; shot by Mr. F. H. Barber.)

#### The AFRICAN BUFFALO (Bos [Bubalus] caffer).

Gamus, Sudani.Mbogo and Nyati, Swahili.Gădărs, Galla.Nadi, in Barotsi and Ngami.Inyati, Swazi and Zulu.Nari, Basuto.Mboa and Nyati, Chilala and Chibisa.Beva, Hausa.

All African buffaloes may be regarded as referable to a single species, of which the extreme forms are represented by the great black Cape buffalo and the small red buffalo of the Congo; *B. c. cottoni* of the Semliki Forest, in which only adult bulls are black, being one of the intermediate types. The number of races that have been named is so large that they cannot be quoted here.

## A.-SOUTHERN RACES (B. caffer typicus, etc.).

Among the distinctive features of the typical race 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 5 feet.

Distribution.—Southern and Eastern Africa. 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. Except 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. The Ankoli buffalo has been described as *B. c. radcliffei*, and is characterised by the flattened and less rugged horns; while the name *B. c. neumanni* has been given to the buffalo of northern Uganda, and *B. c. athiensis* to the B.E. African race. The Kivu *B. c. mathewsi* of the Albert Edward Nyanza district is a smaller horned animal, with a white tail-tip, related to the Sudani race.



Ankoli Buffalo. Shot by F. A. Knowles in Uganda.

Greatest Outside.	width. 1nside.	Length on front curve.	Tip to Tip.	Width of palm measured on face of horn.	Locality.	Owner.
$52\frac{1}{2}$	$48\frac{3}{4}$		47	I I <sup>3</sup> / <sub>1</sub>	Uganda	Her Majesty Queen Alexandra. (Shot by F. A. Knowles.)
514	47		39‡	II	East Africa .	S. J. Pearson.
50읗	461		$43\frac{1}{4}$	IO	Do	G. N. Crisford.
50	$45\frac{1}{2}$		37	I I <sup>1</sup> / <sub>2</sub>	Do	Col. Max. C. Fleischmann.
50	$45\frac{1}{2}$		$40\frac{1}{4}$	II	Bechuanaland	Sir Edmund G. Loder, Bart.
49 <sup>3</sup>	47		45‡	11	East Africa .	H. A. Penton.
$49\frac{3}{4}$	$44\frac{1}{2}$		$32\frac{1}{2}$	103	Do	Major H. W. Stevens.
49축	$45\frac{1}{4}$		$40\frac{1}{2}$	9 <sup>3</sup> / <sub>4</sub>	Do	Maharaja of Datia.
49 <del>3</del>	$47\frac{1}{2}$		$48\frac{1}{2}$	$IO_2^1$	Do	R. Holmes.
49‡	44 <u>3</u>		35 <del>3</del>	I I <sup>3</sup> / <sub>1</sub>	N.W. Rhodesia	Major P. J. Bailey.

Greatest Outside.	width. Inside.	Length on front curve.	Tip to Tip.	Width of palm measured on face of horn.	Locality.		Owner.
49	453		461	91	East Africa		R. G. C. Napier.
49	461		47	104	Lomagundi's		E. T. Palmer.
49	$44\frac{1}{2}$		$40\frac{1}{2}$	II.]	Country. Limpopo	۰.	Sir Richard Glyn, Bart.
48 <sup>3</sup>	43	41	32	IO	East Africa		E. C. Gepp.
48§	44		$35^{\frac{1}{2}}$	9=	Chiromo, B.C	.A.	Hon. Walter Rothschild.
48	43		36	12	East Africa		E. B. Horne.
48	44 <sup>음</sup>		39	9	Rhodesia		C. Grey.
$47\frac{3}{4}$	$42\frac{1}{2}$		31를	II	East Africa		S. S. Bagge.
$47\frac{3}{4}$	43 <sup>2</sup> / <sub>4</sub>		42	$9\frac{1}{2}$	Do. ·		F. Santos Saurez.
473	- 441		40 <u>1</u>	103	Do.		Sir J. Hume Campbell, Bart.
$47\frac{1}{2}$	43 <sup>1</sup> / <sub>2</sub>	341	$39\frac{1}{2}$	ΙΟ	Do.		H.R.H. Prince William of Sweden.
$47\frac{1}{2}$	42		37‡	II $\frac{1}{2}$	Ngamiland		Mervyn G. Williams.
47 <u>늘</u>	$42\frac{3}{4}$		$36\frac{1}{2}$	$12\frac{1}{4}$	Natal .		Capt. J. C. Phillips.
$47\frac{1}{4}$	$42\frac{3}{4}$		42	10	East Africa		Capt. H. A. Case.
47	40 <del>7</del>			I2 <sup>1</sup> / <sub>4</sub>	Do.		Sir F. J. Jackson.
47	421		35 <del>1</del>	$II\frac{1}{2}$	Do.		H. G. Barclay.
47	$42\frac{1}{2}$		38	10 <u>1</u>	Do.		Duke of Alba.
$46\frac{3}{4}$	$42\frac{1}{2}$		317	$9\frac{1}{4}$	Do.		Capt. W. H. Wilkin.
$46\frac{3}{4}$	413		36 <u>1</u>	II	Do.		Duchess d'Aosta.
46 <u>3</u>	$4I\frac{1}{2}$		35	$7\frac{1}{2}$	Do.		Col. G. Gimlette.
$46\frac{1}{2}$	$42\frac{1}{2}$		$38\frac{1}{2}$	9 <b>‡</b>	Do.		A. F. C. Hartley.
$46\frac{1}{2}$	$42\frac{1}{2}$		311/2	$IO_2^1$	Do.		Marquis de la Scala.
46 <u>1</u>	4I <sup>1</sup> /2		33‡	$8\frac{1}{2}$	Do.		Hon. Mrs. Blyth.
$46\frac{1}{2}$	423		41 <del>1</del>	IO	Do.		I. N. Dracopoli.
$46\frac{1}{4}$	43		$42\frac{1}{2}$	$IO_4^1$	Do.		Baron M. de Rothschild.
$46\frac{1}{4}$	$42\frac{1}{2}$		$39\frac{1}{4}$	$IO_2^1$	Do.		S. E. Milsom.
46	$40\frac{1}{2}$		36	IO	Do.		Lord Hindlip.
45 <del>3</del>	4 I	•••	$27\frac{3}{4}$	8	Pungwe .	·	Sir Abe Bailey.
45축	4I‡		37 <sup>1</sup> / <sub>8</sub>		South Africa		British Museum.
45 <del>3</del>	$42\frac{1}{2}$		$44\frac{1}{4}$	$9\frac{3}{4}$	East Africa		F. C. Stern.
45 <sup>3</sup> / <sub>4</sub>	401		317	II	Do.		Capt. F. W. Barrett.
45 <sup>1</sup> / <sub>2</sub>	$4I\frac{1}{2}$		32‡	$10\frac{3}{4}$	Do.	·	H. S. L. Scott.
451	40		$27\frac{3}{4}$	ΙI	Do.		Capt. D. H. Macdonell.
$45\frac{1}{2}$	4 I		$34\frac{1}{4}$	10	Nyasaland	•	Capt. R. Meinertzhagen.
$45\frac{1}{2}$	40‡		317	II	N.W. Rhodes	sia	Hon. Guy Wilson.
$45\frac{1}{2}$	40		$29\frac{1}{2}$	9	East Africa		Capt. T. H. Rivers Bulkeley.
$45\frac{1}{2}$	423	•••	43 <sup>율</sup>	9‡	Do.	·	H. Sampson.
451	$4I\frac{1}{2}$	•••	37‡	IO	Do.	·	Major S. Belfield.
$45\frac{1}{4}$	4 I	•••	30‡	9월	Do.	·	M. Seth-Smith.
451	$40\frac{3}{4}$	•••	323	9	Tana Valley	•	Major H. De Prée.
45 <del>1</del>	411		37t				British Museum.
45	$39\frac{1}{2}$	•••	33	10	East Africa	•	Capt. G. Wynne Finch.
45		•••	44	10	Do.	·	H. S. Keating.
45	4I <u>1</u>	•••	34章	101	?		H. de la Pasture.
45			44	1012	East Africa	. •	H. H. Williams.
45	41		32	9 <sup>1</sup> / <sub>2</sub>	N.W. Rhodes	ia	LieutCol. Frank Lee.
45	391		29	114	East Africa	·	Capt. R. Clemm.
45	39 <sup>1</sup> / <sub>2</sub>	•••	26	113	Do.	·	L. L. Biddle.
45	404		313	10	Do.	·	P. F. Hadow.

# AFRICAN BUFFALO

Greatest width. Outside. Inside.		Length on front curve.	Tip to Tip.	Width of palm measured on face of horn.	Locality.	Owner.
$44\frac{3}{4}$	40 <del>1</del>		36 <u>3</u>	9	East Africa .	Capt. P. Chapman.
44 <sup>3</sup>	39 <sup>2</sup>		$27\frac{1}{2}$	85	Uganda	G. Blaine.
$44\frac{3}{4}$	395		$27\frac{1}{2}$	111	East Africa .	Sir Robert Harvey, Bart.
$44\frac{3}{4}$	412		391	111	N.W. Rhodesia	G. de P. Colvile.
443	39 <sup>3</sup>		$24\frac{1}{2}$	$9\frac{3}{4}$	Do.	O. C. Bevan.
$44\frac{3}{4}$	$40\frac{1}{4}$		36 <u>1</u>	ιI <sup>1</sup> / <sub>2</sub>	Ngamiland .	F. T. Garbutt.
$44\frac{1}{2}$	$39\frac{1}{4}$		29	12	Pungwe	F. S. Staples.
$44\frac{1}{2}$	$38\frac{3}{4}$		29	$9\frac{1}{4}$	East Africa .	H.R.H. the Duke of Con- naught.
$44\frac{1}{2}$	39‡		29	15	Chobi Valley .	F. C. Selous.
$44\frac{1}{2}$	40		38 ,	101	East Africa .	D. Davies.
$44\frac{1}{2}$	$39\frac{1}{4}$		$33\frac{3}{4}$	101/2	N.W. Rhodesia	J. H. Leche.
$44\frac{1}{2}$			$37\frac{1}{2}$	12	East Africa .	F. Charrington.
$44\frac{1}{2}$	40		$39\frac{1}{4}$	II	Do	Dr. A. E. Herz.
$44\frac{1}{2}$	41		$38\frac{1}{2}$	10	N.W. Rhodesia	R. Beaumont.
44	39		$27\frac{3}{4}$	11	Do.	Capt. H. E. Hambro.
44	$39\frac{1}{2}$		36	9 <u>1</u>	N.E. Rhodesia	W. A. Conduitt.
44	41		$39\frac{1}{2}$	$10\frac{1}{2}$	B.C. Africa .	Dr. J. O. Shircore.
$943\frac{1}{2}$	$40\frac{1}{2}$		29	6‡	East Africa .	N. C. Cockburn.
$942\frac{1}{2}$	381		32	5	N.E. Rhodesia	J. Turner.
			OWN	NER'S ME	ASUREMENTS.	
54 <sup>3</sup>				$16\frac{1}{2}$	German E. Africa	E. von Sick.

54응		 	102	German E. Arrica	E. von Sick.
51	47	 40	ΙI	Uganda	Major H. W. A. Christie.
51	47	 39	I41	East Africa .	H. B. Kittermaster.
48 <sup>3</sup> / <sub>5</sub>	••••	 358		Upper Zambesi	F. W. Walker.
$48\frac{1}{4}$	43	 $30\frac{1}{2}$	ΙI‡	Sabi Valley .	American National Collection. (See illustration, p. 418.)
48		 $44\frac{1}{2}$	$II\frac{1}{2}$	East Africa .	R. O. Roberts.
47		 31	12	Zitzi Forest, S. Africa.	Capt. E. H. Studdy.
46‡	$40\frac{1}{2}$	 39	12	N.E. Rhodesia	O. Letcher.
46		 35		N.W. Rhodesia	C. S. Mann.

As will be seen from the illustrations, the greatest width scarcely conveys a correct idea of all specimens.



Horns of Bechuana Buffalo. Sir Edmund G. Loder's Specimen.



Skull and Horns of Sudani Buffalo.

#### B.-NORTHERN RACES (B. caffer æquinoctialis, etc.).

The Sudani race is a smaller animal than the Cape buffalo (height at shoulder, about 4 feet), with the general colour blackish or tawny brown, tinged locally with rufous, and tending to greyish 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 Sudani race was originally described on the evidence of a skull from East Central Africa, but also occurs on the White Nile. The name *B. c. asracensis* has been applied to the buffalo of the Bahr-el-Azrek, a tributary of the Blue Nile, on the southern frontier of Abyssinia. Its horns are described as being more like those of the Cape race.

Greates Outside.	t width. Inside.	Tip to Tip.	Width of palm.	Localit	y.,	Owner.
44	$42\frac{1}{2}$	43	$8\frac{1}{2}$	White Nile		P. Niedieck.
41‡	371	$34\frac{3}{4}$	81	Mongala		E. M. Sinauer.
40	39	39	IO	White Nile		LieutCol. J. W. Yardley.
40	$37\frac{1}{2}$	$38\frac{3}{4}$	8‡	Kordofan		Capt. C. C. Maud.
40	37	32	$II\frac{7}{8}$	Abyssinia		E. Lort-Phillips.
<b>3</b> 9∰	351	$27\frac{1}{2}$	9	Sudan .		Capt. F. L. Livingstone-Lear- month.
$39\frac{1}{2}$	35 <sup>3</sup> / <sub>4</sub>	34	81	White Nile		C1

# AFRICAN BUFFALO

Greatest Outside.	width. Inside.	Tip to Tip.	Width of palm.	Locality.	Owner.
39	36	$33\frac{3}{4}$	IO	White Nile .	. W. F. Wailes-Fairbairn.
$38\frac{7}{8}$	33	251	12	Do	. Douglas McDouall.
38 <u>1</u>	351	301	$8\frac{1}{2}$	Do.	. H.R.H. the Duke of Connaught.
$38\frac{1}{2}$	$34\frac{1}{2}$	32 <u>3</u>	7	Do	. Major P. M. Dove.
381	34 <del></del> 5	$32\frac{1}{4}$	$8\frac{3}{4}$	Do	. R. McD. Hawker.
381	34	23 <sup>1</sup> / <sub>2</sub>	10	Do	. Capt. R. F. Balfour.
38	34	33		Do	. F. W. Greswolde-Williams.
38	$34\frac{1}{2}$	$28^{3}_{4}$	7 = 1	Do	. G. H. Cheetham.
38	34	29	8	Do	. Major H. D. Pearson.
$37\frac{3}{4}$	$33\frac{1}{2}$	261	10	Do	. Capt. C. E. Hills.
$37\frac{1}{4}$	$34\frac{1}{8}$	$33\frac{1}{4}$	S§	Lado	. Major P. H. G. Powell-Cotton.
371	34	$33\frac{1}{4}$	9½	White Nile .	. P. Santos Saurez.
37‡	33	$28\frac{1}{4}$	9	Do	. Capt. W. E. Reymes-Cole.
37	$34\frac{1}{2}$	35‡	$IO_2^1$	Bahr-el-Ghazal	. G. Blaine.
37	$32\frac{1}{4}$	234	$9\frac{1}{4}$	White Nile .	. Lord Desborough.
36 <del>§</del>	$32\frac{1}{2}$	26	8‡	Sudan	. Capt. A. Craufurd.
$36\frac{1}{2}$	$32\frac{1}{4}$	$26\frac{1}{2}$	8	Do	. P. M. Tottenham.
$36\frac{1}{2}$	33	30 <u>1</u>	$9\frac{1}{2}$	Do	. Col. A. Colville.
$36\frac{1}{2}$	317	29	9	Do	. Capt. the Hon. M. P. Macnaghten.
36‡	32=	$32\frac{1}{2}$	$7\frac{1}{2}$	Do	. Countess of Sefton.
$36\frac{1}{4}$	32	$29\frac{1}{4}$	9	Do	. C. C. Tower.
36‡	32	$22\frac{5}{8}$	$8\frac{1}{2}$	White Nile .	. H. E. Allen.
36	$32\frac{1}{2}$	29	$9\frac{1}{2}$	Do	. J. V. Colby.
36	$33^{\frac{1}{2}}$	32	$9\frac{1}{2}$	·	British Museum.
$35\frac{3}{4}$	32	$30\frac{1}{2}$	9	Sudan	. R. A. Colvin.
$35\frac{3}{4}$	$33\frac{1}{2}$	35	$7\frac{1}{2}$	Do	. G. C. Whitaker.
$35\frac{1}{2}$	314	$28\frac{1}{4}$	8‡	White Nile .	E. N. Buxton.
$35\frac{1}{2}$	32	28 <del>4</del>	8	Lado	. Major P. H. G. Powell-Cotton.
35 <sup>1</sup> / <sub>2</sub>	$32\frac{1}{2}$	31‡	$7\frac{3}{4}$	White Nile .	. S. H. Whitbread.
♀ 35 <sup>1</sup> / <sub>2</sub>	32	$25\frac{1}{4}$	5	Dinder Valley .	. C. D. Eyre.
35±	313	$29\frac{3}{4}$	$8\frac{1}{4}$	Blue Nile .	. Capt. N. A. Orr-Ewing.
$35\frac{1}{4}$	305	$21\frac{2}{4}$	9 <del>3</del>	Do	. Capt. H. R. Headlam.
$35\frac{1}{4}$	30	${}_{\rm I}S^1_2$	$8\frac{1}{2}$	Do	. LieutCol. J. Ponsonby.
35	32	$31\frac{1}{2}$	$S^{\Omega}_{\pm}$	Do. ·	. Norman B. Smith.

## OWNER'S MEASUREMENTS.

43 <sup>3</sup> / <sub>4</sub>	$37\frac{1}{2}$	$28\frac{1}{4}$	II	Nimuli .		F. A. Knowles.
39 <sup>3</sup>	$34\frac{1}{2}$	$30\frac{1}{2}$	$8^{a}_{\pm}$	Sobat .		E. M. Tabor.
$38\frac{3}{4}$	$35\frac{1}{2}$	35 <sup>৳</sup>	9‡	White Nile		Sir W. Garstin.

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#### Skull and Horns of Congo (?) Dwarf Buffalo.

## C.—SHORT-HORNED RACES (B. caffer brachyceros, B. c. planiceros, B. c. nanus, etc.).

#### Bona, Hausa.

Despite the differences in size, colour, and the form of the horns between the dwarf red buffalo of the Congo (B. c. nanus) and its gigantic black cousin of the Cape, such a gradual transition can be traced from the one type to the other, that both are evidently nothing more than local modifications of one variable species. 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 Gabun. In Ashanti it is replaced by the red B. c. beddingtoni. In Gambia and Senegambia there is a larger brownish buffalo, with more laterally expanded and recurved horns known as B. c. planiceros. In the south Nigerian B. c. hunti cows and young bulls are dun. In the Kwilu district of the Congo occurs a dark-coloured race (B. c. simpsoni,) typified by a female head in the British Museum. Another type is the Lake Chad buffalo (B. c. brachyceros), first discovered by the early explorers Denham and Clapperton. In height the Congo dwarf buffalo only reaches some 42 inches at the shoulder. Weight, 579 lbs. clean.

# AFRICAN BUFFALO

Length on outside curve.	Circum- ference.	Tip to Tip	p. Local	ity.		Owner.
28	20	20	Senegambia			Hon. Walter Rothschild.
$27\frac{1}{2}$	$20\frac{1}{2}$	$12\frac{3}{4}$	Gold Coast	•		Capt. C. H. Armitage.
26 <u>1</u>	19	18	N. Nigeria			Capt. J. C. Parker.
$26\frac{1}{2}$	191	7	Do.			Capt. H. V. Venables Kyrke.
26	$18^{3}_{4}$	$22\frac{3}{4}$	Do.			G. C. W. King.
26	$22\frac{1}{2}$	20	French Congo			C. S. Mann.
<b>25</b> ≩	174	$17\frac{1}{2}$	S. Nigeria			W. D. Downes.
$25\frac{1}{2}$	$18\frac{3}{4}$	15	N. Nigeria			F. Cogan.
$25\frac{1}{2}$	$20\frac{1}{2}$	12	S. Nigeria			Lieut. A. W. Hunt, R.N.
25	$17\frac{1}{2}$		Portuguese Gu	inea		M. V. Hay.
$24\frac{3}{4}$	19	$7\frac{1}{2}$	Sierra Leone			Capt. W. B. Stanley.
$24\frac{3}{4}$	$23\frac{1}{2}$	141	N. Nigeria			Capt. O. M. Harris.
$24\frac{3}{4}$	$2I\frac{3}{4}$	26	Do.			H. de C. Mathews.
$24\frac{1}{2}$	$18\frac{1}{2}$	15	Do.			J. C. Sciortino.
24	$15\frac{1}{2}$	7	Do.			Capt. L. M. Bucknill.
24	19‡	17	Do.			Capt. G. C. Kelly.
24	183	$13\frac{1}{2}$	Nepoko Valley	, Cor	igo	R. de la Huerta.
$23\frac{1}{2}$	$23\frac{1}{2}$	I 2	Do,			Duke of Peneranda.
$23\frac{1}{2}$	,I 5	10	Gold Coast			Major G. S. C. Jenkinson.
23 <u>1</u>	20	16‡	Do.			Capt. G. W. Dawes.
23	19	$20\frac{1}{2}$	N. Nigeria			R. M. Blackwood.
23	$16\frac{1}{2}$	81	Nigeria			Sir Abe Bailey.
$22\frac{3}{4}$	$16\frac{1}{2}$	12	Ashanti .			C. Beddington.
$22\frac{3}{4}$	$17\frac{3}{4}$	20‡	N. Nigeria		· .	H. S. Berkeley.
$22\frac{1}{2}$	17	14	Gold Coast			Capt. T. W. C. Carthew.
$22\frac{1}{2}$	$16\frac{1}{2}$	181	Nigeria .			Major-Gen. P. S. Wilkinson.
$22\frac{1}{4}$	21	$12\frac{3}{4}$	N. Nigeria	•		C. S. Burnett.
22	14	15	Congo .	•		Capt. II. M. Stephenson.
22	191	91	Do			J. Seally Bell.
$2I\frac{1}{2}$	$17\frac{1}{2}$	$9\frac{1}{2}$	Near Kumasi	•	•	The late Dr. W. H. Langley.
$21\frac{1}{2}$	15	8	Gold Coast	•	·	Capt. G. H. Hastings.
$21\frac{1}{8}$	$12\frac{3}{4}$	$2\frac{1}{4}$	West Africa	·		British Museum.
21	17 <u>4</u>	141	Portuguese Gu	inea		C. S. Burnett.
21	15	$9\frac{1}{4}$	Nigeria			A. Ohlsson.
21	$17\frac{1}{2}$	161	Do.		•	Major J. F. Loder-Symonds.
♀ 2 I	II	16	N. Nigeria		•	G. J. Letham.

Length on outside curve.	Circum- ference.	Tip to Tip	. Locali	ity.		Owner.
$20\frac{1}{2}$	11	$6\frac{3}{4}$	Nigeria .			W. D. Barker.
$20\frac{1}{2}$	17	17 <u>3</u>	Senegambia			G. Fenwick-Owen.
$20\frac{1}{2}$	$16\frac{1}{2}$	10	Nigeria .			Major D. F. MacCarthy Morrogh.
$20\frac{1}{2}$	I 3‡	14 <sup>1</sup> / <sub>4</sub>	Do			R. M. Blackwood.
$20\frac{1}{2}$	I 5	II	Benue Valley			Capt. E. J. Wolseley.
$20\frac{1}{2}$	$14\frac{1}{2}$	6 <u>1</u>	N. Nigeria		•	A. B. Harcourt.
$20\frac{1}{2}$	20	II $\frac{1}{2}$	S. Nigeria			C. Bowyer-Smijth.
20 <del>]</del>	1 S <sup>3</sup> /4	12	Do.			Capt. R. M. Heron.
$20\frac{1}{4}$	$17\frac{1}{2}$	16	Sierra Leone			Capt. J. F. Bill.
20	18	$I2\frac{1}{2}$	S. Nigeria			Capt. W. V. Nugent.
19 <u>3</u>	14	13	Sierra Leone			Capt. E. J. Carter.
19	IO		Lake Chad			Hon. Walter Rothschild.
18 <u>3</u>	$II\frac{1}{2}$	$3\frac{1}{2}$	Nigeria .			W. H. Broun.
18 <u>3</u>	16	$8^{1}_{4}$	?			A. W. Boddy.
$18\frac{1}{2}$	12	6 <u>3</u>	Gambia .			H. C. Goddard.
$1S_{2}^{1}$	17	15	N. Nigeria			Major J. B. Cockburn.
$1S_{2}^{1}$	17	$S_{\frac{1}{2}}$	Do.	• •		J. F. Pett.
$IS_{\frac{1}{2}}$	$II\frac{1}{2}$	13 <sup>3</sup> / <sub>4</sub>	Senegambia			Hon. Walter Rothschild.
♀ 18 <u>1</u>	$10\frac{1}{2}$	$II\frac{1}{2}$	Do			G. Fenwick-Owen.
18 <u>1</u>	171	$4\frac{3}{4}$	Congo .			Col. J. J. Harrison.
♀ 18 <u>1</u>	$10\frac{9}{4}$	$5\frac{1}{2}$	Lake Chad I	Distric	t.	British Museum (Capt. Denham, R.N. and Col. Clapperton).

# OWNER'S MEASUREMENTS.

$26\frac{3}{4}$	$2\mathbf{I}rac{1}{2}$	$26\frac{3}{4}$	N. Nigeria	•	H. G. Glenay.
$22\frac{3}{4}$	17	I4 <sup>3</sup>	Sierra Leone		Capt. H. A. Carter.

The following specimens from the French Congo may belong to *B. caffer brachyceros* :----

# Shot by the late Prince P. Demidoff.

Length.	Girth.	Tip to Tip.
28	$24\frac{3}{1}$	13 <sup>3</sup>
26	$21\frac{1}{2}$	$18\frac{1}{2}$
$25\frac{1}{2}$	25	$2I\frac{1}{2}$
♀ 22 <sup>1</sup> / <sub>2</sub>	16	161



Head of Indian Buffalo. Shot by the late Maharaja of Cooch Behar.

#### The INDIAN BUFFALO or ARNA (Bos [Bubalus] bubalis).

No one is the least likely to confuse this animal with the African 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 more slender, directed for the greater part of their length almost straight out from the head, and always with a wider spread. The first is the typical race (B. bubalis typicus), while the second, or Assam, race (probably now extinct) is B. bubalis macroceros. A third race from Assam has been named B. b. fulvus, and is distinguished by the concave profile of the skull and its dun colour. Height at shoulder, about 6 feet 2 inches; girth behind shoulder, 10 feet 8 inches. In a bull shot by the late Maharaja 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 II 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. Buffaloes also occur in Ceylon, as well as in the Malay and Indo-Chinese countries ; but whether any of the latter are truly wild is uncertain. In a domesticated state, South Europe, Egypt, etc. Native name of male, *arna*; of female, *arni*.

Length						
on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Widest outside.	Locality.	Owner.
77홍	$17\frac{7}{8}$				?	British Museum (Sloane Col- lection).
70	${\tt I} {\tt S} {\scriptstyle \frac{1}{2}}$	60	$67\frac{3}{4}$	72	Near Dubri, Assam	J. H. Whitehouse.
$65\frac{3}{4}$	20 <sup>1</sup> / <sub>4</sub>				Do.	British Museum (Col. J. Mathie).
62	17	101		•••	Do.	Hon. Walter Rothschild.
ç61 <del>3</del>	$15\frac{3}{4}$	$22\frac{1}{5}$	451		Cooch Behar	H.H. the Maharaja of Cooch Behar.
ç61 <u>1</u>	16	22	48		Assam	Hon. Walter Rothschild.
60	22		64	72	Central Provinces .	Major B. Vincent.
60	20	40	52		?	Sir Edmund G. Loder, Bart.
ç 6o	$I3\frac{1}{2}$	$57\frac{1}{2}$	$62\frac{3}{4}$	67 5	Assam	Capt. L. P. Haviland.
♀ 59 <sup>3</sup>	16	48	57	$63\frac{1}{4}$	Do	J. C. Phillips.
59	23	34	49	$56\frac{3}{4}$	Do	T. H. Monteath.
57 <sup>3</sup> / <sub>4</sub>	$17\frac{1}{2}$	$55\frac{1}{2}$	65	714	Central Provinces .	J. May.
57	$18\frac{1}{2}$	$4I_{2}^{1}$	60		Do	Col. G. D. F. Sulivan.
57	15	49	52		Assam	A. H. Straker.
♀ 57	$14\frac{1}{2}$	53	61		?	Sir Edmund G. Loder, Bart.
564	$2I\frac{1}{2}$	40	$52\frac{3}{4}$		Assam	British Museum (Hume Col- lection).
♀ <u>5</u> 6	194	$33\frac{7}{8}$	50‡		Cooch Behar	H.H. the Maharaja of Cooch Behar.
56	$17\frac{1}{2}$	62	61 <u>1</u>	$64\frac{1}{2}$	Bengal	G. Monteath.
56	$18^{1}_{4}$	108			Assam	H.R.H. the Duc d'Orléans.
$55\frac{1}{2}$	18 $\frac{1}{2}$	29	44		5	J. Carr Saunders.
55	22	55 <sup>1</sup> / <sub>2</sub>	62	66	Central Provinces .	L. T. Harris.
54 <sup>1</sup> / <sub>2</sub>	$18^{1}_{8}$	381	$48\frac{7}{8}$	•••	?	British Museum (Hume Collec- tion).
우 54 <u>1</u>	12 <u>3</u>	$69_{1}^{3}$	70		Assam	Do.
54 <sup>1</sup> / <sub>2</sub>	$19\frac{1}{2}$	$24\frac{1}{2}$	$40\frac{1}{2}$	49	?	Stockholm Museum.

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# INDIAN BUFFALO

Length on outside curve.	Circum- ference.	Tip to Tip.		Widest outside.	Locality.	Owner.
54½	19	50	59	64	?	Viscount Powerscourt.
54	$18\frac{1}{2}$	34	$47\frac{1}{2}$	54 <sup>2</sup>	Cambodia	H.R.H. the Duc de Mont-
<sup>1</sup> 53 <sup>1</sup> / <sub>5</sub>	23	30	$42\frac{1}{2}$		Cooch Behar	pensier. H.H. the Maharaja of Cooch Behar.
53	(6 ft. 2½ in 19	$36\frac{1}{2}$	$48\frac{3}{4}$	56	?	Col. H. Lysons.
52	20	$2Irac{1}{4}$	4I <sup>1</sup> 2	49‡	Central Provinces .	Earl of Sefton.
51 <del>3</del>	$18\frac{1}{2}$	22	38‡		Assam	Sir Peter Walker, Bart.
5 I ½	18	38	50	56	Central Provinces .	Hon. J. Best.
$51\frac{1}{2}$	19	43	$52\frac{3}{4}$	$60\frac{1}{2}$	Do	Capt. A. McB. Woodside.
51 <sup>3</sup>	19 <del>3</del>	45 <sup>3</sup>	50		Do	Major P. H. G. Powell-
50 <sup>3</sup> / <sub>4</sub>	22	$34\frac{1}{2}$	$44\frac{1}{2}$	$50\frac{1}{2}$	Cooch Behar	Cotton. The late Sir Henry D. Tich-
50 <u>3</u>	18 <u>3</u>	$54\frac{1}{2}$	60 <del>1</del>	65	Patna	borne, Bart. BrigGen. F. H. Whitby.
50 <sup>3</sup>	$19\frac{1}{2}$	$34\frac{1}{2}$	46 <u>3</u>	54	Central Provinces .	H. Tyler.
$50\frac{1}{2}$	19‡	$23\frac{3}{4}$	$42\frac{1}{2}$	$49\frac{1}{2}$	Do	H. H. Cripps.
50	20	34‡	47	$53\frac{1}{2}$	Cochin China .	D. Dickson.
50	$18\frac{1}{2}$	$48\frac{1}{2}$	60		Central Provinces .	Major C. F. Pinney.
50	13‡	33	$38\frac{1}{2}$		Assam	Noel Fenwick.
50	17	313	50		Do	Col. D. M. Lumsden.
50	19 <u>1</u>	$36\frac{1}{2}$	46	$52\frac{1}{2}$	Do	A. Ezra.
$49\frac{3}{4}$	19‡	33 <del>5</del>	48	55‡	Central Provinces .	Countess of Sefton.
			C	WNER'S	S MEASUREMENT	S.
71	$2I\frac{1}{2}$	34 <del>≩</del>	60		Near Dubri, Assam	Measured by the late A. O. Hume; shot by A. Forbes.
우 70 <u>1</u>	18		64	78	Do.	The late Sir A. Campbell-Orde.
67 <u>1</u>					Do.	Major H. Gidney.
♀64 <u>‡</u>	18	$42\frac{1}{2}$	60	96	Do.	J. Campbell of Kilberry.
59 <sup>1</sup> / <sub>2</sub>	$18\frac{1}{2}$		54	$61\frac{1}{2}$	Eastern Bengal .	R.E. Mess, Roorkee.
59 <sup>1</sup> / <sub>2</sub>	15		53	59	?	Sir Savile Crossley, Bart.
우 57 <u>월</u>	I 5 <sup>3</sup> / <sub>4</sub>	$95\frac{1}{2}$		$96\frac{1}{2}$	Cooch Behar	H.H. the Maharaja of Cooch Behar.
57	18				Central Provinces .	J. D. Inverarity.
56	18	$29\frac{1}{2}$		$57\frac{1}{2}$	?	J. Whitaker.

<sup>1</sup> Measured round outside curves across skull, 9 ft. 11<sup>4</sup>/<sub>2</sub> ins. Another pair, 10 ft. 5 ins. ; circumference of horn at base, 21 inches.

# The following specimens are, with one exception, from Ceylon :---

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Widest outside.	Locality.			Owner.
40	15 <u>1</u>	24	351	42	Ceylon		·	F. T. Wright.
♀ 37‡	$9^{3}_{4}$	$42\frac{1}{4}$	47	50 <u>1</u>	Do.	•		M. J. Alderson.
35	13 <u>3</u>	18	30 <del>1</del>	$37\frac{1}{2}$	Do.	•		Marquis of Stafford.
34‡	I 5‡	25 <del>8</del>	35		Do.			Earl Cairns.
♀ 33‡	9	$31\frac{1}{2}$	37		Do.			Do.
33‡	13	$32\frac{1}{4}$	38	43	Do.			Major F. H. N. Pym.
$31\frac{3}{4}$	16	28		$38\frac{1}{2}$	Do.			Marquis Camden.
311	$I5\frac{1}{2}$	27	34	38	Do.			P. Niedieck.
31 <u>1</u> 2	16		$47\frac{1}{4}$		South A (introd		a	H. L. Heber Percy.
29	1 3 <u>1</u> 2	$2S_{2}^{1}$	331	37	Ceylon	·		K. J. F. Bickersteth.
			OWI	NER'S	MEASU	REME	ΕN	TS.
35	$14\frac{1}{2}$	$39\frac{1}{4}$	42	$47\frac{1}{2}$	Ceylon	•	•	H.R.H. Prince George of Bavaria.

° 28	$9\frac{3}{4}$	181	26	31 <u>1</u>	Do.	. H. M. von Archer.
$$27\frac{1}{4}$$	$9\frac{1}{2}$	15	25	29‡	Do.	. II.R.H. Prince Pedro d'Orléans and Braganza.



#### Head of Anoa.

## The ANOA (Bos [Bubalus] 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. Two races are recognised.

# Distribution.---The island of Celebes.

Length on front curve,	Circum- ference.	Tip to Tip.	Owner.
12 <u>3</u>	6	$6\frac{1}{2}$	British Museum.
I 2 1 8	6	5\$	G. A. Wright.
$IO\frac{1}{2}$	$6_{4}^{1}$	7	Carl Hagenbeck.
IO	6	$5\frac{1}{2}$	Sir Edmund G. Loder, Bart.
10	5 <del>1</del>	58	Sir Victor Brooke's Collection.

### OWNER'S MEASUREMENTS.

15 <u>ਭ</u> ੈ	$7\frac{1}{8}$	$7\frac{1}{2}$	Paris Museum.
$113\frac{1}{2}$	$9^{1}_{4}$	5	Jesuit College, Manila.
9 <sup>8</sup>	58	$7\frac{1}{8}$	Dr. Albert von Stephani.
$9\frac{1}{2}$	$S_{2}^{1}$	$8\frac{1}{2}$	Dublin Museum.

<sup>1</sup> Measured by the late Rear-Admiral R. A. J. Montgomerie.



Head of European Bison. Shot by H.H. the Prince of Monaco.

## The BISON (Bos [Bison] 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 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 being 14 pairs, against 13 in the latter. 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 differences may be noted between Caucasian and Lithuanian specimens, which are now referred to separate races. Height at shoulder, 6 feet 1 or 2 inches. In a Caucasian bull killed by Mr. Littledale, the length from the nose to the root of the tail measured 10 feet 1 inch, the height at the shoulder, 5 feet 11 inches, and the approximate girth of the body, 8 feet 4 inches. Weight (Mr. W. Winans), 2001 lbs.

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, commonly misapplied to the bison, belongs to the extinct wild ox of Europe. The Caucasian race is named *B. b. caucasius*.

BISON

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Locality.	Owner,
20	12	20		Pilawin Game Park	W. Winans.
18 <u>1</u>	12 <u>1</u> 8	13 <sup>2</sup> / <sub>4</sub>	191	Lithuania	British Museum (H.I.M. the Tzar Alexander).
18	$12\frac{1}{8}$	16	20	Caucasus	a a think
$17\frac{1}{2}$	10	$18\frac{1}{2}$	•••	Lithuania	Major Algernon Heber-Percy.
171	$I3\frac{1}{2}$	17	••••	Do	Prince of Monaco.
163	$I2\frac{1}{4}$	$21\frac{7}{8}$	241	?	Sir Edmund G. Loder, Bart.
16 <u>3</u>	111	$18_{4}^{3}$	$2I\frac{1}{2}$	Woburn	G. L. Harrison.
916	81	12		Do	Royal Scottish Museum.
♀ 15‡	8	6		Lithuania	Major Algernon Heber-Percy.
14	14	261		Woburn	Royal Scottish Museum.
\$ I 3	81	9 <sup>3</sup>	14	Caucasus	St. George Littledale.

# OWNER'S MEASUREMENTS.

18 <u>1</u>	$IO_5^4$	$17\frac{1}{2}$	$20\frac{1}{7}$	Lithuania .		The late Prince Henry of Liechtenstein.
$17^{\frac{2}{5}}$	$13\frac{3}{10}$	133	$20\frac{1}{10}$	Do	•	Do.
153	125	211		Do	•	Imperial Museum, Vienna.

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Skull and Horns of Record American Bison. Shot by Lord Rendlesham.

## The AMERICAN BISON (Bos [Bison] 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 5 feet 9 inches; weight, from 15 to 20 cwt.; an adult bull weighed by W. T. Hornaday scaled 2100 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 tworaces—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.
$20\frac{7}{5}$	15		$30\frac{1}{2}$	Wyoming	Lord Rendlesham.
17\$	$12\frac{3}{8}$	15 <sup>1</sup> / <sub>8</sub>		?	II.R.H. the Duke of Saxe- Coburg and Gotha.
$17\frac{1}{2}$	I 2		$25\frac{1}{2}$	Wyoming	H.R.H. the Duc d'Orléans.
17 <u>1</u>	13 <u>1</u>	21		?	Viscount Powerscourt.
17 <sup>1</sup> / <sub>8</sub>	113	103	$17\frac{1}{8}$	?	British Museum.
163	141	24		Bighorn Mts., Wyoming	Earl of Lonsdale.

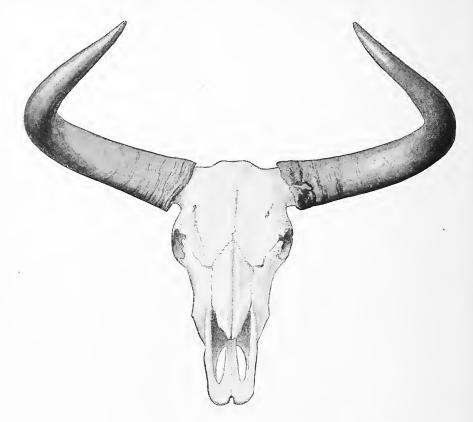
# AMERICAN BISON

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside spread.	Locality.			Owner.
$116\frac{1}{2}$	$I2\frac{1}{2}$	19 <del>3</del>		Colorado ,			Sir Edmund G. Loder, Bart.
16 <del>1</del>	13 <u>1</u>	14 <del>1</del>		?			Duke of Portland.
16 <u>1</u>	13	22 <sup>3</sup> /4		Wyoming .			Prince Nicolas Ghika.
<sup>2</sup> 16 <sup>1</sup> / <sub>8</sub>	153	$25\frac{3}{4}$		Colorado .			Sir Edmund G. Loder, Bart.
154	14	$27\frac{3}{4}$		N.W. Territory			E. G. Jenkins.
15 <u>1</u>	143		$19\frac{3}{4}$	Wyoming .	•	•	St. George Littledale.
15 <sup>1</sup> / <sub>5</sub>	105	$15\frac{1}{2}$		Do			Abel Chapman.
14	13	$21\frac{1}{2}$		Do			G. L. Harrison.

## OWNER'S MEASUREMENTS.

$20\frac{1}{4}$	16 <sup>1</sup> / <sub>8</sub>	$33\frac{1}{2}$		?				W. II. Root.
19	$12\frac{1}{2}$			W. Montana				P. Liebinger.
183	15	$27\frac{1}{2}$		;				American National Collection.
$18\frac{1}{2}$	τ5	25		Wyoming .				P. N. Graham.
18	14			Montana .				F. Sauter.
$17\frac{1}{2}$	$I2\frac{1}{2}$			S.W. Montan	1a			Theodore Roosevelt.
17	14	$17\frac{1}{2}$		Yellowstone,	Moi	ntana	a	Count E. Hoyos.
16 <u>7</u>	121	$20\frac{5}{8}$	•••	Wyoming .				Dr. Albert von Stephani.
163	13	$19\frac{1}{2}$		Nebraska .				Imperial Museum, Vienna.
		1 '	Wood Bi	son.		2 I	Prai	rie.

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Skull and Horns of Wild Yak. From a specimen in the British Museum, presented by the late Mr. A. O. Hume.

#### The YAK (Bos [Poëphagus] 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 (Lieut.-Col. 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 Kan-su province of China and North-eastern Ladak, at elevations between about 14,000 and 20,000 feet. The grunting cry from which the animal takes its name is peculiar to the domesticated breeds.

Length on outside curve.	Circum- ference.	Tip to Tip.	Lc	cality		Owner.
$38\frac{1}{4}$	17	19	Kuenlun I	Ats.		British Museum (Hume Collec-
$35\frac{1}{2}$	15	16		?		tion). E. L. Phelps.
351	$14\frac{1}{2}$	17	Tibet .			St. George Littledale.
34	12	$30\frac{1}{2}$	Ladak			Hon. Walter Rothschild.
$32\frac{1}{2}$	$14\frac{1}{2}$	I71	Tibet .			P. F. Hadow.
$32\frac{1}{2}$	16	25	Do.			Sir Edmund G. Loder, Bart.
$32\frac{1}{2}$	14	141	Do.			Capt. R. Longstaff.
32	13 <del>3</del>	151	Do.	•		H. C. V. Hunter.
32	$I4\frac{1}{2}$	9	Do.			I. Morse.
32	16	17	Do.			P. Church.
32	$15\frac{3}{4}$	$2I\frac{3}{4}$	Do.			Capt. D. L. R. Lorimer.
317	151	$15\frac{3}{4}$	Do.		•.	G. L. Harrison.
$31\frac{1}{2}$	15½	171	Chinese T	ʻibet		Capt. J. A. Stewart Balmain.
$31\frac{1}{4}$	I 5½	13	Do.			LieutCol. H. W. Codrington.
311	$I4\frac{1}{2}$	163	Do.			Major Sir E. F. Coates.
31‡	1 5 <sup>1</sup> / <sub>2</sub>	181	Do.			LieutCol. H. M. Biddulph.
31	14		Do.			Col. F. C. Lister-Kay.
31	$13^{1\over 2}$	14	Ladak			Arnold Pike.
31	161	173	Kumaon	•		E. R. Neave.
31	$\mathbf{I4}\frac{1}{2}$	164	Tibet .			Hon. J. D. Boyle.
$30\frac{3}{4}$	15	20	Do.			R. S. H. Walford.
30 <u>3</u>	16	221	Do.		•	C. F. M. Pike.
30 <del>3</del>	$13\frac{1}{2}$	$IO_2^1$	Ladak			Sir Robert Harvey, Bart.
우 30출	13	20	Do.			Major L. Oldfield.
\$ 30	II	$45\frac{1}{2}$	Tibet .			Duke of Bedford.

Length on outside curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
30	141	193	?	Major Sir W. R. Codrington.
30	143	30	?	J. C. Phillips.

## OWNER'S MEASUREMENTS.

40	18		Kuenlun Mts	A. D. Carey.
39			?	Lucknow Museum.
38 <del>1</del>	$18\frac{1}{2}$	261	Kuenlun Mts	British Museum. (Hume Collec-
33	16	18	N.W. Tibet .	tion ; shot by late A. Dalgleish.) Capt. S. H. Charrington.
$32\frac{7}{8}$	13 <sup>1</sup> / <sub>2</sub>	19	Tibet	Capt. B. H. Shaw-Stewart.
$32\frac{3}{4}$	14	$17\frac{1}{8}$	Chang Chenmo .	Major P. H. G. Powell-Cotton.
31 <del>7</del>	I41	$18\frac{1}{4}$	Do	Do.



Head of Indian Gaur.

#### The GAUR or INDIAN BISON (Bos [Bibos] gaurus).

This splendid wild ox, the so-called 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 strongly developed, and in the typical race the summit of the forehead forms a high arch between the horns, which bends forward to form a concave profile. With the exception of the white "stockings" 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 usually varies from about 6 feet to 6 feet 4 inches, though specimens of more than 5 feet 5 or 6 inches are not often killed; it is, however, stated that a Nilgiri bull stood 6 feet 10 inches, while Kachar and Burmese bulls have been asserted to reach 7 feet at the withers.

Distribution.—The forest hill-tracts of Peninsular India, Assam, Burma, Siam, 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. The Burmese race, or pyun (*B. g. readei*), is nearly black, with a throat-tuft; and in the Malay race, or saladang (*B. g. hubbacki*), the arch on the crown of the skull is less developed, and may be absent.

Widest outside.	Circum- ference at base.	Tip to Tip.	Widest inside.	Length on outside curve of longer horn.	Locality.	Owner.
441	20	42	$4I\frac{1}{4}$	$23\frac{1}{2}$	Eastern Bengal	Capt. L. P. Haviland.
44‡	21	$29\frac{1}{2}$	$38\frac{1}{4}$	$33\frac{1}{2}$	Burma	J. McF. Petters.
43 <sup>3</sup> 8	$17\frac{1}{2}$	34	39	$30\frac{3}{4}$	Parambikolam .	G. Elliot Browning.
43	20	31	38	32	Cooch Behar .	H.H. the Maharaja of Cooch Behar.
43	17	$32\frac{1}{2}$		$29\frac{1}{2}$	Coimbatore, S. India	P. Church.
$42\frac{1}{2}$	$\mathrm{I}8\frac{1}{2}$	25	331	$33\frac{1}{2}$	Travancore .	Capt. T. W. Greenfield.
$42\frac{1}{2}$	$19\frac{1}{2}$	3 I	353	$31\frac{1}{4}$	Madras	Col. T. J. R. Lucas.
42	18	$34\frac{1}{2}$	37 <del>3</del>	$29\frac{1}{2}$	Central Provinces	Hon. H. G. O. Bridgeman.
$4I\frac{1}{2}$	16	30	, ···	29	Assam	A. J. Walter.
$41\frac{1}{2}$	193	$26\frac{1}{2}$	36	31	Mysore	Capt. C. P. Graham.
414	20	$32\frac{1}{2}$	36‡	30	?	J. F. Bryant.
41	18	24	•••	334	Madura District	Bethnal Green Museum (J. D. Goldingham).
41	I7½	$28\frac{1}{2}$	35	317	Central Provinces	W. J. Considine.
4 I	20	$34\frac{1}{2}$	$36\frac{1}{2}$	27	Siam	J. H. Thurston.
4 I	193	37	•••	<b>27</b> <sup>3</sup>	Kalkerry, S. India	Col. W. E. Fairholme.
$40\frac{1}{2}$	20	25		$34\frac{3}{4}$	Vardi Mullay .	Baron von Massow.
40	192	$28\frac{3}{4}$	$34\frac{1}{2}$	31	Travancore .	A. Lampard.
40	19‡	26	34 <sup>1</sup> / <sub>2</sub>	32	Burma	A. E. English.
40	17	314	34	$27\frac{1}{2}$	E. Madras .	W. O. Horne.
40	15	33‡		26	Central Provinces	C. F. Egerton.
39 <sup>3</sup>	181	341	35‡	261	?	R. McD. Hawker.

#### A.—WILD RACES.

. 1

Widest outside.	Circum- ference at base.	Tip to Tip.	Widest inside.	Length on outside curve of longer horn.	Locality.	Owner,
$39\frac{1}{2}$	20	25‡	$33\frac{1}{2}$	31	Anamalais .	C. W. Wood.
39월	17	$30\frac{1}{4}$	$34\frac{1}{2}$	$28\frac{1}{4}$	?	Major F. C. Samborne-
$39\frac{1}{2}$	$20\frac{1}{4}$	31	$33\frac{1}{2}$	$27\frac{1}{2}$	?	Palmer. Capt. E. W. Thompson.
$39\frac{1}{2}$	${}_{\mathbf{I}}S^1_{2}$	22	$32\frac{1}{2}$	$33\frac{1}{2}$	?	A. M. Leake.
38 <del>3</del>	171	$25\frac{3}{4}$	$32\frac{3}{4}$	30	?	A. H. Sharp.
38‡	17=	$28\frac{1}{2}$	$33\frac{1}{2}$	$27\frac{3}{4}$	Cooch Behar .	H. R. Beaumont.
38	18	$22\frac{1}{2}$	33	313	Madras	S. Cox.
38	18	23‡	32	29	Burma	H. E. Beamish.
38	19	18	31	$34\frac{1}{2}$	5	Sir Edmund G. Loder, Bart.
38	191	24	$31\frac{1}{2}$	31	?	Rev. H. C. B. Stone.
37 <del></del> 5	17‡	30 <del>3</del>	32	$24\frac{1}{4}$	?	Capt. A. C. H. Trevor.
$37\frac{1}{2}$	$20\frac{3}{4}$	33	$33\frac{1}{4}$	25	Burma	Capt. T. A. Headlam.
371	17‡	$27\frac{1}{2}$	$32\frac{3}{4}$	25 <sup>3</sup> / <sub>±</sub>	5	G. Sandeman.
$37\frac{1}{2}$	18	19	$32\frac{1}{4}$	31	?	Colonel Baillie.
$37\frac{1}{4}$	${}_{1}S^{1}_{2}$	$26\frac{1}{2}$	31 <del>4</del>	28	Central Provinces	J. C. T. Fairweather.
374	20	25	31‡	29	Chutia Nagpur District	LieutCol. J. W. Yardley.
37	17‡	$31\frac{1}{2}$	33	24	Pistilet ?	Duke of Sutherland.
361	$21\frac{1}{2}$	$22\frac{1}{4}$	$29\frac{3}{4}$	28	Pahang	J. Scott Mason.
$36\frac{1}{2}$	17½	17		28	Mysore	Col. G. H. Evans.
36 <u>1</u>	16	18	31	31#	?	W. Evetts.
$36\frac{1}{2}$	18 <u>‡</u>	$26\frac{3}{4}$		$26\frac{1}{2}$	?	LieutCol. R. H. Fraser.
36‡	$18\frac{1}{2}$	$20\frac{3}{4}$	$29\frac{3}{4}$	$29\frac{1}{2}$	Marntha	J. G. Heyder.
36‡	185	$24\frac{1}{2}$	$30\frac{3}{4}$	27 <u>3</u>	Malay States .	G. Hemmant.
36	174	231	$29\frac{1}{2}$	28	S. India	Capt. C. S. Timins.
36		$2I\frac{1}{4}$	311	$24\frac{1}{2}$	Malay States .	H. E. Stewart.
₽ <b>31</b>	144	$20\frac{3}{4}$	$26\frac{1}{4}$	$24\frac{3}{4}$	?	Capt. E. H. Wildblood.
Ŷ 2 <b>7</b>	13 <u>1</u>	13	22	24	N. Travancore .	British Museum (Hume Collection).
			OWNE	R'S MEA	SUREMENTS.	
	20			$40\frac{1}{2}$	Belgaum	H. Murray.
46	$20\frac{1}{2}$	33	40		Malay States .	H. Da. Prah.
451	$17\frac{1}{2}$	36	$39\frac{7}{8}$	$33\frac{1}{2}$	N. Travancore.	G. E. Bewley.
44	$20\frac{1}{2}$	23		40	Wynaad	F. Ditmas.
433	18	33	38	31	Burma	G. H. Bell.

 $2S_{\pm}^3$  ... In Travancore . H.H. the Maharaja of Travancore.

17<del>3</del>

43<sup>1</sup>/<sub>2</sub>

Widest outside.	Circum- ference at base.	Tip to Tip.	Widest inside.	Length on outside curve of longer horn.	Locality.	Owner.
43	201	$18^{3}_{4}$	•••	39‡	Salwin, Burma	Bombay Natural History Society's Museum.
43	17	30 <u>5</u>		<b>2</b> 9 <sup>3</sup> / <sub>4</sub>	?	K. J. K. Juntke.
$42\frac{7}{8}$	184		34‡	30‡	Pegu, Burma .	Capt. W. F. Brayne.
421	$16\frac{3}{4}$	$32\frac{3}{4}$			?	W. B. Drury.
42	22	$29\frac{1}{2}$			Madras	C. W. G. Morris.
$4I_{2}^{1}$	17			33	Burma	S. E. F. Jenkins.
$39\frac{1}{2}$	$20\frac{1}{2}$	28		$27\frac{1}{2}$	Duars	E. T. Partridge.
$38\frac{1}{2}$	20	234	32		S. Madras .	Capt. S. H. Charrington.

# N.B.—In the following specimens the maximum width is *inside* measurement.

Widest inside.	Circum- ference at base.	Tip to Tip.	Length on outside curve of longer horn.	Locality.	Owner.
39	173	$28\frac{1}{2}$	$29\frac{1}{2}$	Siam	A. Waley.
37‡	$18\frac{1}{2}$	22	30‡	Travancore .	A. T. Mackenzie.
36	17	26‡	$27\frac{1}{2}$	Assam	L. Truninger.
36	15	$26\frac{1}{4}$	26	Central Provinces	Major John Fuller.
35	171	$20\frac{1}{4}$	$27\frac{1}{2}$	Tezpore, Assam	A. Y. Thomson.
35	18	23	26	Burma	Capt. S. L. Robinson.
$34\frac{3}{4}$	18	$22\frac{1}{2}$	28	Assam	Hon. S. Tollemache.
$34\frac{1}{2}$	18	23 <u>1</u>	33 <sup>1</sup> / <sub>8</sub>	Cooch Behar .	H.H. the Maharaja of Cooch Behar.
34	187	$20^{1}_{\pm}$	$27\frac{1}{2}$	Travancore .	LieutCol. the Hon. E. Baring.
34	154	245	$24\frac{1}{2}$	?	Major H. De Prée.
34	19	27	24	Burma . ,	W. F. Loftus-Tottenham.
33 <del>3</del>	18	23 <sup>3</sup> / <sub>4</sub>	25	Kanara	LieutCol. G. J. Fitzgerald.
$33\frac{1}{2}$	18	$15\frac{3}{4}$	$28\frac{1}{2}$	Travancore .	Capt. H. L. Cottingham.
$33\frac{1}{2}$	15	22	23	Assam	Col. E. T. Paul.
$32\frac{3}{4}$	17 <sup>1</sup> /8	$32\frac{1}{4}$	$27\frac{7}{8}$	Central Provinces	Major C. S. Cumberland.
32 <u>3</u>	$IS_2^1$	23 <del>3</del>	<b>2</b> 6	Do.	Major G. de H. Smith.
$32\frac{1}{2}$	19	16 <u>1</u>	26	Do.	Major C. F. Pinney.
$32\frac{1}{2}$	17 <sup>1</sup> / <sub>8</sub>	218	313	Travancore .	British Museum (Hume Collection).
Ŷ 22	$IO_2^1$	148	22	?	Major H. De Prée.

Remarks.	Record head shot Cooch Behar.			Record bull as regards bulk and height.	Record cow's head- looked like a bull a little way off.
Girth just behind shoulder.	ins. 118	120	120	124	06
Length of body between sticks.	ft. ins. 9 5	9 4 <sup>3</sup>	9 $5\frac{1}{2}$	9 $6\frac{1}{2}$	:
Total length of Length of animal between body between sticks.	ft. ins. 12 3	12 34	12 2	12 $3\frac{3}{4}$	:
Height at the hump.	hds, ins. 19 3	20 3	19 $3\frac{1}{2}$	20 O_	17 3
Height at shoulder.	hds. ins. <b>I</b> $8  ext{ } 2\frac{1}{2}$	18 3 <u>1</u>	18 3	$18  3\frac{3}{4}$	17 1 <u>1</u>
Widest splay.	43	$40\frac{3}{4}$	39	39	:
Between tips.	314	$23\frac{1}{2}$	$23\frac{1}{2}$	$26\frac{1}{4}$	:
Base of horn.	21	$18\frac{1}{4}$	$19\frac{2}{3}$	$20\frac{1}{2}$	:
One horn Tip to Tip, round Tip to Tip, outer outer curves. curves.	84	$\mathrm{SI}_{\mathrm{B}}^{\mathrm{T}}$	$78\frac{1}{2}$	$76\frac{1}{2}$	73‡
One horn round outer curves.	:	$32\frac{1}{8}$	$30\frac{1}{5}$	$30\frac{1}{5}$	:
Sex.	Bull	46	• •	"	Cow

MEASUREMENTS OF ENTIRE SPECIMENS FURNISHED BY H.H. THE LATE MAILARAJA OF COOCH BEHAR.



Skull and Horns of Gayal. From a specimen bequeathed to the British Museum by the late Mr. A. O. Hume.

## B.- DOMESTICATED BREED or GAYAL.

The gayal is a rather smaller animal than the wild gaur, nearly black in colour, with a large dewlap, and a straight line between the bases of the massive horns, which are but little divergent, curved upwards, nearly cylindrical in section, and of dark colour. The head is short, with the forehead broad and flat. It is a domesticated breed of the gaur, probably derived from the Malay and Tenasserim race of the latter.

*Distribution.*—Kept in a semi-domesticated condition by many of the hill-tribes of Assam, Chittagong, etc.

Length on outside curve.	Circum- ference.	Tip to Tip.	Loc	ality.		Owner.
I 7 1/4	17	41		?		British Museum.
15	$1 I \frac{1}{2}$	$26\frac{3}{8}$		?		Do.
$14\frac{1}{2}$	13 <u>1</u>	28	Tenasserim	•		British Museum (Hume Collec- tion). See illustration.
		OW	NER'S ME	ASURE	EMEN	TTS.
$22\frac{3}{4}$	I 2	42	Assam			E. C. Stuart Baker.
16	$I4\frac{1}{2}$	∕ 30½	Mishmi			Bombay Natural History Society.
I4	14			?		Indian Museum.



Head of Tsaine or Burmese Bantin. From a specimen shot by Maj.-Gen. H. D'U. Keary.

## The BANTIN or TSAINE (Bos [Bibos] sondaicus).

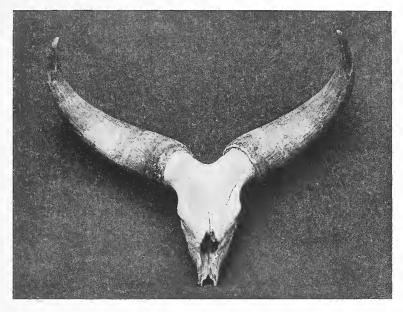
This member of the gaur group departs somewhat less widely from the normal type of cattle than does the gaur, the ridge on the withers being less developed, and the horns almost cylindrical. The cows are always reddish coloured, although the bulls may be black, and in the latter sex at least there is typically 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 connecting the bases of the horns. Height at shoulder, about 5 feet 9 inches. The humped cattle of India are probably domesticated derivatives of the bantin.

Distribution.—Burma, the Malay Peninsula, Siam, Borneo, Java, Bali, and perhaps Sumatra. Several distinct races of the bantin are distinguishable. First, the true bantin, or Java ox (*B. 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 adult male Bornean bantin (*B. sondaicus lowi*), but the horns are directed more uprightly. A third race is the tsaine (*B. sondaicus birmanicus*), which inhabits Burma, and may extend northwards to Manipur. Old bulls generally retain the fawn-colour of the cows

throughout life, showing more or less of grey on the head, but it is stated that very old individuals are occasionally nearly black. The Siamese tsaine, which, in at least some individuals, is profusely speckled with white, has been named *B. s. porteri*. Another race is represented by the Cochin China tsaine, of which the general colour is orange.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Widest outside.	Locality.	Owner.
$34\frac{1}{2}$	$II\frac{7}{8}$	21	$32\frac{1}{2}$	363	Cochin China .	. H.R.H. the Duc de Montpensier.
311	16 <u>1</u>	$21\frac{1}{2}$	311	361	Upper Burma .	. H. W. James.
30	161	$24\frac{1}{2}$	32		Do	. Capt. H. W. Marsden.
29	13	$24\frac{3}{4}$	33 <sup>2</sup>	37=	Do	. Capt. W. R. Savage.
29	16	28	34 <sup>3</sup> ∓		Burma	. H. L. P. Walsh.
$28\frac{1}{2}$	I7 <sup>2</sup>	281/2	34		Do	. W. O. Hannyngton.
$28\frac{1}{2}$	163	$40\frac{3}{4}$	40 <sup>3</sup> / <sub>4</sub>		Do	. Capt. T. A. Headlam.
28	15	193	$29\frac{1}{2}$	35	Do	. Capt. L. E. Burne.
$27\frac{3}{4}$	14 <u>3</u>	19 <u>1</u>	$30\frac{1}{2}$	35	Do	. Capt. J. M. Stewart.
271	15	34‡	38 <sup>3</sup> / <sub>4</sub>	42§	Do	. MajGen.H.D'U. Keary.
-/+	13	344	504	4-8	20	(See illustration, p. 445).
27	$I4\frac{1}{2}$	201	$28\frac{1}{2}$		Upper Burma .	. British Museum (R.McĎ. Hawker).
27	17 <u>3</u>	$24\frac{3}{4}$	$32\frac{3}{4}$		Do	. J. McF. Petters.
27	16 <u>3</u>	23 <u>3</u>	$29\frac{3}{4}$	34‡	Do	. P. Grace.
$26\frac{1}{2}$	$16\frac{1}{2}$	$2I\frac{1}{2}$	28	•••	Java	. Sir Edmund G. Loder, Bart.
$26\frac{1}{2}$	14‡	$24\frac{1}{2}$	32		Lower Burma .	. S. F. Hopwood.
$26\frac{1}{2}$	16	22	$30\frac{1}{2}$	351	Do	. T. Norman.
26	16 <u>3</u>	32	35	39 <sup>3</sup>	Burma	. Major C. P. Gunter.
$25\frac{3}{4}$	16 <u>5</u>	$20\frac{7}{8}$	$26\frac{3}{4}$		Siam	. H. C. V. Hunter.
$25\frac{3}{4}$	17 <sup>8</sup>	13	24	•••	Burma	. Major C. S. Cumberland.
25	15	$22\frac{3}{8}$	28	32 <del>3</del>	Java	. Hon. Walter Rothschild.
$24\frac{1}{2}$	16	$2I\frac{1}{2}$	$28\frac{1}{2}$	33	Do	. Capt. L. P. Haviland.
$24\frac{1}{4}$	14 <u>3</u>	22	28	$32\frac{1}{4}$	Do	. M. Maxwell.
24	16	25	30	33 <sup>1</sup> / <sub>2</sub>	?	E. V. Ellis.
233	14	$2I\frac{1}{2}$	11	$26\frac{1}{2}$	Java	. British Museum.
23	16 <u>3</u>	30	$29\frac{3}{4}$		Do	. C. W. A. Buma.
\$ 23	$12\frac{1}{2}$	161	25		Upper Burma .	. R. McD. Hawker.
♀ 22 <u>1</u>	131	15 <sup>1</sup> /2	23		Java	. C. W. A. Buma.
22	141	$II\frac{1}{2}$	$20\frac{1}{4}$	$24\frac{1}{2}$	Borneo	. H. P. Perry.
			OWNE	R'S ME	EASUREMENTS.	
33 <sup>1</sup> / <sub>2</sub>	17	$26\frac{7}{8}$	35		Upper Burma .	. LieutCol. H. S. Wood.
301	154	$27\frac{3}{4}$	36		Do	. S. E. F. Jenkins.
30	17				Java	. Indian Museum.
30	$15\frac{1}{2}$	20	$38\frac{1}{2}$		Burma	. Bombay Natural History Society.
29	I 5 <sup>1</sup> / <sub>2</sub>	24	33		Do	. J. P. Cook.
$28\frac{1}{2}$	171	$30\frac{1}{2}$	36		Do	. LieutCol. G. H. Evans.
281	15	$26\frac{1}{2}$	36 <u>3</u>		Do,	. II. Van Son.
$27\frac{1}{2}$	18	$29\frac{1}{2}$		$40\frac{1}{2}$	Do	. J. E. F. Marshall.
$27\frac{1}{2}$	15	231/2	32 <sup>5</sup> / <sub>8</sub>	37 18	Do	. Capt. C. H. Elliot.
271	143	241	331	3718	Do	. Capt. W. F. Brayne.
24	16 <u>1</u>	24	28 <sup>3</sup> / <sub>4</sub>		Borneo	. P. C. Brackenbury.

## DOMESTICATED CATTLE



Skull and Horns of Lake Chad Ox. Presented to the British Museum by Capt. A. C. Aubin.

## DOMESTICATED CATTLE (Bos taurus and B. indicus).

The ordinary domesticated cattle of Europe, such as the Spanish fighting bull, the Kerry, Pembroke, Highland, and Jersey breeds, 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 in Poland till the sixteenth century. On the other hand, some of the large light-coloured cattle of Southern Europe, such as the draught-oxen of Northern Spain, and the cattle of Italy, Greece, and Hungary, appear to be derived from the zebu, although some have been crossed with North European cattle. Their horns are unlike those of the aurochs. The zebu or humped cattle of India and the Galla and other large-horned cattle of Africa evidently represent a distinct species (Bos indicus), probably descended from the bantin. To the same species belong the Ankoli cattle of Uganda and the ancient Egyptian long-horned breed, as well as the trek oxen of the Cape, in all of which the hump is obsolete.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Locality.		Owner.	
811	18 <del>1</del>	$103\frac{1}{2}$		Ngamiland		The late W. C. Oswell.	
-?	17	100	124	Do.	•	A. Ohlsson.	
- Owner's measurements.							

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Locality.	Owner.
57	17	72		South Africa	W. A. Simpson Hinchliffe.
· 57	$19\frac{1}{2}$	82		Bechuanaland	Sir Edmund G. Loder, Bart.
$56\frac{1}{2}$	1712	76‡		South Africa.	R. A. Cooper.
56		101		Ngamiland .	British Museum.
521/2	$25\frac{1}{2}$	40		Bahr-el-Ghazal	British Museum (Capt. F. W. Woodward).
50	18	93		Natal	British Museum (Col. H. W. Feilden).
$48\frac{7}{8}$	164	67		German E. Africa	Berlin Museum.
47	I 5 -	$2I\frac{1}{8}$		Gallaland .	British Museum (Sir H. Salt).
$42\frac{1}{8}$	235	22 <sup>1</sup> / <sub>8</sub>		Borneo (N. W. Africa).	
4I <sup>3</sup>	14	52 <del>3</del>		Madagascar .	Bethnal Green Museum.
$4I\frac{1}{2}$	27	$45\frac{1}{2}$	• •	N. Nigeria .	British Museum (Capt. A. C. Aubin). (See illustration,
$4I\frac{1}{2}$	$I4\frac{1}{2}$			Ankoli	page 447.) British Museum.
401	121	60 <del>7</del>		Vienna (Polish Bull)	Do.
$39\frac{1}{2}$	15	511		Uganda .	C. Craig.
-38 <del>5</del>	125	53 <sup>7</sup> / <sub>8</sub>		Hungary .	Dr. Albert von Stephani.
$38\frac{1}{2}$	$IO_2^1$	$54\frac{3}{4}$		Italy	Bethnal Green Museum.
37훜	12	60		Cape of Good Hope	British Museum.
$3I\frac{1}{2}$	101	$23\frac{3}{4}$	• •	Gallaland .	A. E. Butter.
31	18	$32\frac{1}{2}$	•••	Nigeria .	P. M. Dwyer.
30 <u>1</u> 8	I 2 3	35		Spain	British Museum.
29 <del>3</del>	11 <u>3</u>	28 <u>7</u> 8		Gambia :	British Museum (13th Earl of Derby).
$24\frac{1}{2}$	83	15‡		Mysore .	British Museum.
1712	$10\frac{3}{3}$	$30\frac{1}{2}$		Buenos Aires (Niata Breed)	British Museum (G. Claraz).

- Owner's measurements.

The following specimens belong to British white park-cattle, which, although now half wild, are the descendants of domesticated breeds, probably nearly allied to the Pembroke :—

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Locality.	Owner.
$18\frac{1}{2}$	$9\frac{1}{2}$	$36\frac{1}{2}$		Charțley l'ark	Hon. Walter Rothschild.
181	7	344	'	Do.	Major James Grant.
$18\frac{1}{2}$	103	20	$2I\frac{1}{8}$	Chillingham Park	British Museum (Earl of Tankerville).
♀ 18 <u>‡</u>	7	103	15 <u>3</u>	Do.	Do.
15‡	9 <sup>5</sup> / <sub>8</sub>	173	181	Do.	British Museum (Duke of Hamilton).
I 5	$7\frac{1}{2}$	20 <sup>3</sup> / <sub>4</sub>		Chartley Park	Capt. G. W. Hill, R.N.

### The HIPPOPOTAMUS (Hippopotamus amphibius).

Gumari, Abyssinian.	<i>Robi</i> , Galla.	<i>Jir</i> , Somali.
Ikubu, Basuto.	Dorina, Hausa.	<i>Kiboko</i> , Swahili.
Zee-koe, Boer.	Macore, Masai.	Imvubu, Swazi.
Mourvu, Chilala.	Tumunto, M'Kua.	Moubu, Waganda.
Dul, Danakil.	Girinti, Sudanese.	Chivhubwe, Chila.

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 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 fullgrown bull hippo is at least three tons, and the total length about 14 ft. Height at shoulder, about 3 ft. 10 ins. Hippos are chiefly hunted for the sake of their hides, which are manufactured into siamboks, or raw-hide whips. Their tusks also have a certain commercial value, although not so great as formerly, when they were employed for artificial teeth.

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.

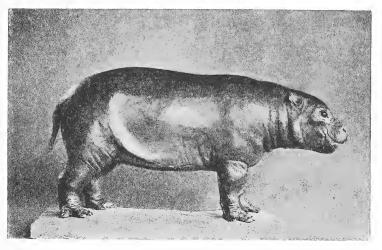
Length round outside curve.	Circum- ference.	Weight.	Locality.				Owner.		
$64\frac{1}{2}$	71		E. Africa				Sir F. J. Jackson.		
$^{1}54\frac{1}{2}$	$6\frac{3}{4}$		B.E. Africa	·			Dr. G. A. Macdonald.		
$^{1}$ 54 $\frac{1}{2}$	$6\frac{3}{4}$		B.E. Africa	·			Dr. G. A. Macdonald.		

#### Lower Curved Tusks, or Canines.

<sup>1</sup> Malformed.

2 G

Length round outside curve.	Circum- ference.	Weight.	Locality.		Owner.
$4I\frac{1}{2}$	8‡		S.E. Africa		Hon. Walter Rothschild.
<sup>1</sup> 41	8		Tana River, East Af	frica .	J. Benett Stanford.
$\frac{2}{37\frac{1}{2}}$	81		Shiré River		Capt. A. T. Hunt, R.N.
35 34축	9 9‡	8 lbs. $7\frac{3}{4}$ , $f$	Sudan		Capt. J. A. Pollock.
33	$9\frac{1}{2}$		N.W. Rhodesia .		K. C. North.
32	$9\frac{1}{2}$		Lualaba, Central Afr	rica .	S. L. Hinde.
313	$6\frac{3}{4}$	•••	B.C. Africa		F. W. Bowman.
314	103		?		The late Sir Clement Hill.
315	9 <sup>1</sup> / <sub>8</sub>		÷ ÷		Sir Edmund G. Loder, Bart.
311	9		?		E. L. Fletcher.
31	10		N.E. Rhodesia .		G. M. E. Leyer.
30 <del>3</del>	91		Abyssinia		D. P. MacGillivray.
$30\frac{1}{2}$	71		Sierra Leone		Major G. S. McLaughlin.
30	9		Shiré River		Surgeon J. Dowson, R.N.
30	9		Zambesia .		E. W. Tompson.
30	9		British Central Afric	ca .	R. M. Irwin.
$28_{4}^{3}$	81		Gold Coast .		H. J. Hobbs.
<sup>3</sup> 22	$9^{\frac{1}{2}}$		N. Nigeria		F. B. Shafto.
		01	VNER'S MEASUR	EME	NTS.
<sup>1</sup> 5 I	9		S.E. Africa		J. Lamont.
2 38			Nyasaland .		Major P. W. Forbes.
$30\frac{1}{2}$	8		Lower Zambesi		H. M. von Archer.
$29\frac{1}{2}$		••	N. Nigeria		Capt. C. F. Watson.
54					
٠					
		Lower	Straight Tusks,	, or 1	Incisors.
$2I\frac{1}{2}$	73		Abyssinia .		D. P. MacGillivray.
203	63		Lower Zambesi		Sir Ednund G. Loder, Bart.
19 <u>1</u> 19	7월 7월	$3\frac{3}{4}$ lbs. $3\frac{1}{2}$ ,,	Sudan		. Capt. J. A. Pollock.
18 <u>1</u>	$6\frac{1}{2}$		Nigeria		Major J. A. Burdon.
18 <u>1</u>	71		N.W. Rhodesia		K. C. North.
<sup>1</sup> Malfo	ormed.	<sup>2</sup> Malf	ormed and protruding fro	om jaw.	<sup>3</sup> Protruding from gum.



Young Pigmy Hippopotamus.

### PIGMY HIPPOPOTAMUS (Hippopotamus [Cheeropotamus] liberiensis).

The pigmy hippopotamus of Liberia and the adjacent parts of the West Coast, measures only about 6 feet in length, and has habits approaching those of a pig. It also differs from the typical species by having, as a rule, only one pair of incisor teeth between the tusks, in place of two pairs, as well as in the relative size of the head and the conformation of the limbs.

Measurements of a specimen shot near Salon, on the Mauwa River, about 2 miles from the Liberian frontier :----

ail			781/2 ins.
			37 ins.
			56 ins.
			боо lbs.
id 3 <u>3</u> in	is. (proje	cting	
			3 <u>응</u> ins.
	ıd 3 <u>3</u> in	id 3 <sup>3</sup> / <sub>8</sub> ins. (proje	ad $3\frac{3}{8}$ ins. (projecting

Skull measurements of a Liberian specimen in the Tring Museum :---

Length Width Weight		• • •			•	$13\frac{1}{8}i$ $7\frac{3}{4}i$ 5i	ns. ns. bs.
Tusks. Total length.	Girth.		Locality.	Ov	vner.		
8	$2\frac{5}{8}$	∫Sk	arcies River	t, } Capt. E.	L Cart	0 <b>r</b>	
8	24	lSi	erra Leone	() Capti 1.	J. Carr		



Head of Wild Boar.

### The WILD BOAR (Sus scrofa).

The European wild boar is a large coarse-haired species usually with an under-coat of woolly fur, no warts on the face, and standing from about 33 to 36 inches at the shoulder. It often lacks the crest or mane of long black bristles running from the nape down the back in its Indian cousin. Hungarian and Russian wild swine represent a race (*S. scrofa attila*) distinguished by its large size; and several other local races have been named.

A Spanish boar killed by H.R.H. the Duc d'Orléans weighed 302 lbs.

Distribution.—Europe, North Africa, and South-Western and Central Asia.

	th on curve. Left.	Length of tusk out of gum.			Locality	у.	Owner.
13	•••		Albania				Lord Brackley.
12			Do.				Lord Carnegie.
9 <sup>7</sup> 8			Andalucia	•			H.R.H. the Duc de Montpensier.
$9\frac{3}{4}$			Asia Mino	or			Admiral Sir Michael Culme-Seymour, Bart.
$^{1}9^{\frac{5}{8}}$			Caucasus				Prince E. Demidoff.
$9\frac{1}{2}$			Do.				Do.
9			Albania				Sir Reginald Cathcart, Bart.
8	$2\frac{1}{2}$		Russia		•		Count J. Potocki.
			OWNEI				 IENTS.

### Tusks.

Length outside c Right.		Length of tusk out of gum.	Locality. Owner.
111	••••		Caucasus Major Robert Finnie.
II	•••		New Zealand (introduced) . H. J. Mussen.
$8\frac{3}{4}$		••••	Hungary Count G. Andrássy.
8§	•••		Algeria Sir Edmund G. Loder, Bart.
$^{1}8\frac{1}{2}$	$8\frac{1}{8}$	3	Near Bona, Algeria Viscount Edmond de Poncins.
$8\frac{1}{8}$			Algeria LieutCol. J. Marriott.

1 Weight, 275 lbs. clean.

#### INDIAN WILD BOAR (Sus cristatus).

This species is allied to the typical wild boar, from which it is distinguished by the strong development of the dorsal crest and the rather more complex character of the last lower molar tooth. Other and more distinct species, such as *S. vittatus*, *S. verrucosus*, and the long-snouted *S. barbatus*, inhabit the Malay countries.

Length on outside curve.	Weight.	Loca	lity.		Owner.
12 <u>5</u>	`	Gosrama		· .	V. N. Hickley.
122		Upper Assam .			J. D. Berrington.
IIS			?		C. F. Knyvett.
105	*	Kotri Dun .			T. H. Carlisle.
103		Assam			N. Williamson.
104		Meerut			A. F. Brooke.
93			?		Dr. Travers.
9 <sup>1</sup> / <sub>2</sub>		Burma	•		Langford Whitehouse.
$9^{\frac{1}{2}}_{9}$			?		Major C. Gough.
9용		North Kanara .			LieutCol. L. L. Fenton.
9 <del>3</del>		Central Provinces			LieutCol. J. S. Ashby.
9 <del></del> 8		Ceylon			Major F. H. N. Pym.
9	182 lbs.	Jhelam			Capt. W. F. Brayne.
834		Oudh			J. C. Faunthorpe.
83		Roorkee			C. Bovill.
85		Meerut			Capt. S. H. Charrington.

Length on outside curve.	Weight.	Locality.				Owner.
143		Behar, Purneah			•	Capt. L. Cheape.
$^{14\frac{3}{4}}$ (malformed)		Purneah .				H. R. P. Carter, recorded in <i>Field</i> , 19th January 1895. (See illus- tration.)
148		Hills above Jam	u			Col. Sir Neville Chamberlain.
105		North Kanara				Bombay Natural History Society.
$10\frac{1}{2}$		Burma .	•			Mrs. O. F. Wheeler-Cuffe.
$10\frac{1}{2}$				?		Meerut Tent Club.
10		Ceylon .				H. Storey.
$9^{3}_{4}$				?		Meerut Tent Club.

### OWNER'S MEASUREMENTS.

The following specimen belongs to one of the above-mentioned Malay species.

Length on outside curve.	Weight.	Locality.		Owner.		
II		North Borneo			C. P. Brook.	



Abnormal Lower Tusk of Wild Boar.

### The BUSH-PIG (Potamochærus chæropotamus).

Bosch-vark, Cape Dutch. Ingulubi, Swazi and Zulu.

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 the presence in old boars of two pairs of ridge-like prominences on the sides of the face, the lower one being on the sheath of the tusk. The ears are surmounted with tufts of long hair. The various species are best distinguished by the characters of their skulls, colour forming an uncertain guide. The Cape bush - pig, or bosch-vark, in which the upper prominences on the skulls of old boars are convex and raised above the line of the nose, is generally grey, although scarcely any two specimens exhibit the same colours, some being brownish black variegated with white, and others almost entirely light reddish brown or rufous, without any white markings. In British Central Africa they are invariably reddish, and form a distinct race, *P. c. nyasæ.* Height at shoulder, about 31 inches; weight, 35 lbs. Lower tusks average 6 to 7 inches long.

Distribution .--- South and South-East Africa.

Leng	th.	Exposed	Locality.	Owner.		
Upper.	Lower.	from gum.	Locanty.	Owner.		
31	$6\frac{1}{2}$		N.E. Rhodesia	Hon. Walter Rothschild.		
		4 \$	P.E. Africa	F. Vaughan Kirby.		
Height at shoulder.		Weight.				
-231		35 lbs.	Shiré River, British Central Africa	•		

- Owner's measurements.

#### The RED RIVER-HOG (Potamochœrus porcus).

In this species the prominences on the skulls of adult boars are flat-topped, and do not reach above the line of the nose; 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, and the mane of the back, part of the margins of the ears, the tips of the long tufts of hairs with which they are surmounted, and streaks above and below the eyes white. Weight, 250-260 lbs., Nigeria (Major J. B. Cockburn).

Distribution .--- West Africa.



Head of Forest-Hog. Shot by Lieut.-Col. J. W. Yardley.

#### The FOREST-HOG (Hylochærus meinertzhageni).

A huge black pig serving in some respects to connect the bush-pigs with the wart-hogs, although markedly distinct from both. The boars have a large fungus-like warty growth below each eye. Height at shoulder, 30 ins.; weight, 265 lbs. clean (Capt. F. L. Archer-Houblon).

Distribution.—Kenia, the Nandi Forest, and Abyssinia; represented by a local race in the Eastern Cameruns, and a third in the Ituri Forest.

### Upper Tusks.

Total Length.	Protruding from guni.	Circum- ference.	Local	ity.			Owner.
1218		45	Kenia				G. St. J. Orde Browne.
	10 <u>7</u> 8	5章	Mount Kenia				R. Kenyon-Slaney.
10 <u>4</u> ) 943 ∫		48	Nandi Forest				Hon. Walter Rothschild.
	81	43	Mount Kenia				LieutCol. J. W. Yardley.
	81	51	Do.				British Museum.
	$7\frac{1}{2}$	41	Do.				E. B. Horne.
	$7\frac{1}{2}$	5幸	Do.	·	•	·	G. C. Slacke.
			Lower T	usks.	,		
95		$2\frac{5}{8}$	Kenia	•			G. St. J. Orde Browne.
$\left. \begin{array}{c} 9 \\ 8\frac{1}{2} \end{array} \right\}$		$3\frac{1}{2}$	Nandi Forest				Hon. Walter Rothschild.
	$6_{4}^{3}$	$3\frac{1}{2}$	Do.				British Museum.
	44	3	Mount Kenia				G. C. Slacke.
	5輩	3	Do.		,		LieutCol. J. W. Yardley.
	51	21	Do.				R. Kenyon-Slaney.
	31	21	Do.	•	•	. •	E. B. Horne.



Tusks of Wart-Hog in American National Collection.

#### The WART-HOG (Phacochærus æthiopicus).

Bango or Nguruwi, Swahili. Hallūf, Sudani. Ikulubi, Basuto. Indaigazana, Swazi and Zulu. Karkari, Somali. Ngolobwi, Barotsi and Ngami. Njiri or Injiri, Chilala and Chibisa. Vlak-vark, Boer. Gado and Darunga, Hausa. Ngron, M'Kua. Chila

Shaukoli, Chila.

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 two 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 typical 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. The last molar teeth of each jaw, which, together with the tusks, are often the only teeth remaining in very old animals, are large and tall-crowned, consisting of a number of closely-packed cylindrical columns of enamel, which, when worn, present a characteristic pattern. This type of tooth is quite unlike that of ordinary pigs, in which the last molars are low-crowned and simple. 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. Weight (Capt. R. Meinertzhagen), 210 lbs.

Distribution.—The wart-hog is typically an inhabitant of South and South-East Africa. Pigs of the same genus extend, however, right through East and Central Africa to Abyssinia; those from the latter country forming a local race (*P. athiopicus africanus*). Wart-hogs, 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 tusks seldom exceed 6 inches on the front curve.

Outside spread.	Length on outside curve.	Length exposed from gum.	Locality.	Owner.
	22 <sup>1</sup> / <sub>8</sub>	21	Uganda	Rev. A. B. Fisher.
	22		?	J. N. Coute.
		16	South Africa	W. A. Simpson Hinchliffe.
34		15 <del>§</del>	Do	Sir Edmund G. Loder, Bart.
		$15\frac{1}{2}$	British Central Africa.	A. J. Swann.
		I4 <sup>1</sup> / <sub>2</sub>	N.E. Rhodesia	H. Cookson.
	$17\frac{3}{4}$	15 <u>1</u>	East Africa	R. S. Meikle.
	$17\frac{1}{4}$		Portuguese Nyasa .	C. F. Tristram.
	16 <u>1</u>	$I2\frac{1}{2}$	East Africa	Capt. the Hon. O. H. Stanley.
	$16\frac{1}{2}$	•••	Do	Capt. V. C. de Crespigny.
	I 5 <sup>1</sup> / <sub>2</sub>	15§	N. Nigeria	Capt. C. F. Watson.
	15 <sup>3</sup>	15	East Africa	A. J. A. Douglas.
	154	13	Somaliland	Major K. L. W. Mackenzie.
	15 <del>1</del> 5		N.E. Rhodesia	F. H. Melland.
		I 3 <sup>3</sup>	S. Rhodesia	C. W. Adams.
		13 <u>§</u>	East Africa	Mrs. J. E. R. Oldfield.
	15	$I_{3\frac{1}{2}}$	British Central Africa.	R. II. Storey.
	I4 <u>3</u>		Do	John Yule.
		123	Do	Capt. C. J. Murray.
	14 <u>8</u>	I 2	Do	Dr. J. E. S. Old.
		121	Sudan	Lord Desborough.
	14	114	Do	Capt. A. C. Jeffcoat.
	13 <del>7</del> 8	I I <del>5</del>	N. Nigeria	Capt. W. H. Wilkin.
	1316		Somaliland	Major B. R. M. Glossop.
		13 <sup>1</sup> 8	East Africa	Walter Jones.
		13	South-East Africa .	F. C. Selous.
		$12\frac{1}{2}$	East Africa	Major H. W. Stevens.
		I 2 1/4	Do	Percy C. Madeira.
		12	N.W. Rhodesia	J. Ripley.
		I 2	East Africa	C. W. Turner.
		11 <u>5</u>	?	J. Kingdon.
•••		112	N.E. Rhodesia	P M. Stewart.

#### Upper Tusks.

## WART-HOG

Outside spread.	Length on outside curve.	Length exposed from gum.	Locality.			Owner.
		I I <sup>1</sup> / <sub>2</sub>	East Africa			Gorham Brooks.
		11‡	Do			B. Dominick.
		II	N.E. Rhodesia			Sir Philip Brocklehurst, Bart.
		II	?			R. B. Loder.
		11	East Africa			F. Santos Saurez.
···	···· ·	103	Do			Major H. B. Dalgety.

## OWNER'S MEASUREMENTS.

37 <del>\$</del>	20	$16\frac{1}{2}$	South Africa .	American National Collection. (See illustration, p. 457.)
··· <b>·</b>	$\left. \begin{array}{c} 27 \\ 26 \end{array} \right\}$		Annesley Bay .	Capt. Ralph Berners, R.N.
	25		British East Africa	C. S. Mann.
		$16\frac{1}{2}$	S. Nigeria	E. A. Martin.
•••		II $\frac{1}{2}$	Angola	W. C. Neilson.

## Lower Tusks.

	$I I \frac{1}{2}$		Somaliland		Major K. L. W. Mackenzie.
~	° 9 <sup>1</sup> / <sub>2</sub>	••••	Do.	·	J. D. Inverarity.

- Owner's measurements.





Head of Babirusa.

#### The BABIRUSA (Babirusa celebensis).

Pig-deer (to translate the Malay name) are not the least notable of several remarkable animals restricted to Celebes and Boru; the peculiar form and position of the upper tusks of the boars rendering them almost comparable to horns. Unlike those of other pigs, in which they curve upwards from the sides of the lips, the upper tusks pierce the skin of the upper part of the snout, 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 their organisation babirusas are, however, very like the latter, although the nearly naked skin of B. celebensis is of a 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 islands of Celebes and Boru, where they afford good sport to the natives, who drive them into nets and then spear them. The Boru species (B. alfurus) is clothed with greyish hair, and also differ in the character of the skull and tusks from the Celebes B. celebensis.

#### BABIRUSA

Dr. Guillemard, in the *Cruise of the "Marchesa*," recorded the following weights and dimensions :---

Weight, male, 128 lbs.; female, 85 lbs. Height at shoulder,  $27\frac{1}{2}$  ins.; female,  $25\frac{1}{2}$  ins.

### Tusks.

Upper.	Length. Lower.	Owner.
163	$13\frac{1}{2}$	Rowland Ward.
143	12	M. Maxwell.

### OWNER'S MEASUREMENTS.

17	E	H. Van Son.
$14\frac{1}{2}$		Dr. F. H. H. Guillemard.
131	15	Imperial Museum, Vienna.
II	83	Dr. Albert von Stephani.

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Record Horn of Great Indian Rhinoceros. Shot by the late T. Briscoe.

### The GREAT INDIAN RHINOCEROS (Rhinoceros unicornis).

In addition to being the giant among its Asiatic kindred and possessing only a single horn, this species 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. Folds before and behind the shoulder mark 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 over 6 feet; girth behind shoulder, 105 inches. Weight of living animal, 1010 lbs. (New York Zool. Soc.).

### GREAT INDIAN RHINOCEROS

Distribution.—The Assam plain and the Tarailand of Nepal and some of the adjacent territories. Formerly this rhinoceros was found over the greater part of the Indian peninsula, as attested by fossil remains. There is evidence of the occurrence of a more or less nearly related rhinoceros, apparently with two horns, in the Singpu district of Upper Burma.

Length on front curve.	Circum- ference.	Weight.	Locality.		Owner.
24	$24\frac{3}{4}$		Assam		British Museum (the late T. Briscoe).
19 <del>1</del>	$22\frac{3}{8}$		Assam (?) .		Ipswich Museum.
18 <u>3</u>	234	4 lbs. 9 oz.	Assam		D. H. Felce.
Ŷ 18	16		Do		The late M. II. Logan.
16 <u>3</u>			Belsire, Assam .		W. C. Sherwill.
♀ 16 <u>‡</u>			Cooch Behar .		H.H. the Maharaja of Cooch Behar.
¥ 16		$3\frac{1}{2}$ lbs.	Nowgong, Assam		L. Fabre Tonnerre.
15	$22\frac{3}{4}$		Nepal		Dr. T. G. Longstaff.
14‡	21		Assam		Dr. W. P. Y. Bainbrigge.
¥ 14	$22\frac{7}{8}$	$4\frac{1}{2}$ lbs.	Nowgong, Assam		L. Fabre Tonnerre.
$13\frac{1}{2}$	22		Nepal		His Majesty The King.
13	20		Do		Capt. M. L. Pears.
13	$20\frac{1}{2}$		Assam		G. A. Dolby.
13	$20\frac{3}{4}$		Do		W. A. Doxat.
$\mathbf{I2}_{\pm}^{3}$	23		Do		H. B. Firman.
$12\frac{1}{2}$	215	•••	Do		H. C. Holland.
$12\frac{1}{2}$	21		Ş		J. W. Grieve.
12	$2I\frac{1}{2}$		Cooch Behar .		A. Ezra.
12	$2I\frac{3}{4}$		Nepal .		Major Lord Charles M. Nairne.
113	194		Do		H.S.H. the Duke of Teck.
		01	WNER'S MEASU	REN	ients.
$2I\frac{1}{2}$	$24\frac{3}{4}$		Nepal		Lord Curzon of Kedleston.
13 <del>7</del>			Cooch Behar .		H.H. the Maharaja of Cooch Behar.
113			Do		Do.
13		•••	?		Indian Museum, Calcutta.
$12\frac{1}{2}$	$15\frac{1}{2}$	•••	Cooch Behar .		
			<sup>1</sup> Height at shoulder,	6 ft. (	5 ins.



Javan Rhinoceros. Shot by Mr. M. Maxwell.

#### The JAVAN RHINOCEROS (Rhinoceros sondaicus).

A less gigantic and smaller-headed species than the last, with the skin marked by a kind of mosaic pattern, and the fold in front of the shoulder continued right across the body like the two hindmost 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 is not much inferior in height to the Indian species, although of lighter build.

Distribution.—The Sanderbans and other parts of Eastern Bengal, to the Tarai, Sikhim, Assam, and thence through Burma and the Malay Peninsula to Sumatra, Java, and Borneo.

Length on front curve.	Circumference.		Loc	ality.		Owner.
103	20	Java				M. Maxwell. (See illustra- tion).
105	195	Do.				British Museum.
10 <u>5</u>	19 <u>1</u>	Do.				H. Van Son.
81	20	Do,				A. S. Campbell.



Front Horn of Sumatran Rhinoceros. Shot by Mr. G. F. W. Curtis.

#### The SUMATRAN RHINOCEROS (Rhinoceros [Ceratorhinus]<sup>1</sup> sumatrensis).

The smallest of the Asiatic rhinoceroses, and the only one with two horns; differing, however, from the African members of the genus by the presence of folds in the skin and 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 animal is a distinct local race (*R. sumatrensis lasiotis*).

Lengt outside		Circumf	erence.	Locality.		Owner.	
Front.	Rear.	Front.	Rear.				
$32\frac{1}{8}$		17 <del>3</del>			?		British Museum.
$27\frac{1}{8}$		$I7\frac{7}{8}$			?		Do.
15	$7\frac{1}{2}$	$17\frac{1}{2}$	17	Malay P	eninsul	a	C. B. Smales.
II	$3\frac{1}{2}$	151	II 1 1 1		?		Sir T. S. Tancred, Bart.
7	$2\frac{1}{2}$	14	ю		?		Capt. P. Hudson.
5	$2\frac{3}{4}$	13	II	Burma			Capt. W. F. Brayne.

<sup>1</sup> An earlier name is Dicerorhinus, but this is too like Diceros, the subgeneric (or generic) name of the African rhinoceroses.



Mr. S. L. Hinde's Horns of Black Rhinoceros.

### The BLACK RHINOCEROS (Rhinoceros [Diceros] bicornis).

Aurarissi, Abyssinian. Abu Gesn-Khartyl, Sudani. Chipamberi, Lower Zambesi. Chipémberi, Chilala. Fava, Swahili. Gurhu, Danakil. Muin, Masai. Kifuvi or Marili, Hausa. Megi, M'Kua. Sipejana, Swazi and Matonga. Upejana, Matabili and Zulu. Upelepi, Basuto. Wărtses, Galla. Wil, Somali. Zwart Rhinaster, Boer. Shempola, Chila.

The African rhinoceroses are two-horned animals, distinguished from their Asiatic relatives by the absence or slight development of the folds of skin which form such a characteristic feature of the latter, and also 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

### BLACK RHINOCEROS

this animal is also considerably inferior to the next. The black rhinoceros is likewise well characterised by the comparative shortness of its skull, and the form and structure of the cheek-teeth, which are adapted for a diet of twigs and leaves. Average height at shoulder, 5 feet. Weight (Capt. R. Meinertzhagen), I ton I cwt. I qr. 8 lbs.

Black rhinoceroses sometimes have more than the usual two horns. Gordon Cumming, for instance, records having killed a three-horned



Head of Black Rhinoceros.

specimen; and several others have been recorded from East Africa, including a five-horned specimen.

Distribution.—From Abyssinia and Somaliland through East and Central Africa, in suitable localities, to the Cape. Now rare to the south of the Zambesi, but probably more abundant in the districts between the interior of Somaliland and Lake Rudolf than anywhere else. Although more alert and active than the white 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. Of the local races at present named, the E. African R. *bicornis holmwoodi* is distinguished by the long and compressed front horn; while the Somali R. *b. somaliensis* is a relatively small form characterised by the proportions of the skull.

Lengtl outside o		Circumf	erence.				
Front horn.	Rear horn.	Front horn,	Rear horn.	Locality			Owner.
$53\frac{1}{2}$		18‡		East Africa			Dr. C. H. Orman.
47	$22\frac{1}{4}$	22	20	Do			S. L. Hinde.
44				Do			The late F. Holmwood.
$^{1}43^{\frac{1}{2}}$		$21\frac{3}{4}$		Congo-Uganda	L		Hon. Walter Rothschild.
43		$2Irac{1}{2}$		Boundary ?			The late A. Beit.
$4I\frac{1}{2}$	ю	$20\frac{1}{2}$	$16\frac{1}{2}$	Zululand .			The late LieutCol. the Hon. W. Coke.
40	$14\frac{3}{4}$	$18\frac{1}{2}$	$20\frac{1}{4}$	Mt. Kenia, Bri Africa	tish I	East	The late A. H. Neumann.
39	$19\frac{3}{4}$	19 <u>3</u>	17	East Africa	•		E. B. Horne.
38 <u>3</u>		2 I		?			Hon. Walter Rothschild.
$38\frac{1}{2}$		19		Masailand .			Sir John Kirk.
♀35 <sup>3</sup>	• • •	17‡	、	Do			Capt. G. H. Riddell.
35	117	21	20	East Africa			Capt. L. W. Sadlier-Jackson.
33 <del>3</del>	16	20	$19\frac{1}{2}$	Do.			T. P. Kempson.
$$233\frac{1}{2}$$		17 <u>1</u>		Matabililand			W. Van Ness.
33	22	$19\frac{1}{2}$	$20\frac{1}{2}$	East Africa			A. J. A. Douglas.
$32\frac{1}{2}$	16	22	19	Do.			Capt. R. Meinertzhagen.
317	12	$16\frac{1}{2}$	16	Do.			G. St. J. Orde Browne.
31	····	18		Do.			R. P. Carroll.
\$ 3I	13½	$18\frac{1}{4}$	18	Do.			W. Neilson.
31	$19\frac{1}{2}$	16	16 <del>1</del>	Do.			H. C. V. Hunter.
$30\frac{1}{2}$	163	$2I\frac{3}{4}$	$20\frac{1}{2}$	Do.			R. W. McKergow.
<sup>2</sup> 30	$2I\frac{1}{2}$	$22\frac{1}{2}$	$23\frac{1}{2}$	Do.			LieutCol. the Hon. A. Greville.
30	<b>7</b> 출	21	$19\frac{1}{2}$	Do.			K. V. Painter.
<b>2</b> 9½	$I4\frac{1}{2}$			Somaliland			A. H. Straker.

δ Living animal, 602 lbs. (New York Zool. Soc.). 9 ,, ,, 1080 ,, ,, ,, ,,

<sup>1</sup> Determination provisional.

<sup>2</sup> Weight front horn, 13<sup>3</sup> lbs. Weight rear horn, 15 lbs.

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Lengtl outside d		Circumfe	erence.				
Front horn,	Rear horn.	Front horn.	Rear horn.	Locality.			Owner.
29	$29\frac{1}{2}$	17‡	18	South Africa			R. B. Keeling.
29		19		East Africa			S. H. Christy.
28 <u>1</u>	117	20 <sup>1</sup> / <sub>4</sub>	$20\frac{1}{2}$	S.E. Africa			Dr. Sauer.
281	8 <u>3</u>	181	-	South Africa	-		F. C. Selous.
28 28	-		•••	East Africa	•	•	F. Baden-Powell.
		231	- 01		•	•	
28	$7\frac{1}{2}$	17#	1812	Do.		•	F. C. Selous.
우 27 <u>4</u>	22	19 <sup>렱</sup>	$20\frac{1}{4}$	Do.	•	•	The Master of Belhaven.
271	10	21	17	Masailand .	•	•	The late Rear-Admiral R. A. J. Montgomerie, R.N.
27	$12\frac{1}{2}$	$24\frac{3}{4}$	20	East Africa	•	·	Abel Chapman.
27		$20\frac{1}{2}$	•••	Do.	•	·	E. Gedge.
27	$16\frac{1}{2}$	17 <del>7</del> 8	$17\frac{1}{2}$	Do.			Sir Robert Harvey, Bart.
27	12			Do.			Sir John Willoughby, Bart.
$26\frac{3}{4}$	$20\frac{1}{2}$	$2I_{\frac{3}{4}}^{\frac{3}{4}}$	19	Do.			W. N. McMillan.
$26\frac{1}{2}$	$IO_2^1$	$19\frac{1}{2}$	15	Do.			Henry Charrington.
$26\frac{1}{2}$	$25\frac{1}{2}$	$18\frac{1}{2}$	19	Do.			H. Sampson.
$26\frac{1}{2}$	, II	24	20	Do.			Col. A. Colville.
<b>2</b> 6	13	$20\frac{1}{4}$	$23\frac{1}{2}$	Do.			C. Craig.
26	9	18	17	Do.			LieutCol. M. Tighe.
<b>2</b> 6	10	$20\frac{1}{2}$	19	Do.			F. W. Belt.
26	$13\frac{1}{2}$	$\mathbf{I8}_{2}^{1}$	17	Do.			Stephenson R. Clarke.
26	$12\frac{3}{4}$	$17\frac{1}{2}$	$17\frac{3}{4}$	Do.			H. S. L. Scott.
26	163	$20\frac{1}{2}$	21	N.E. Rhodesia			P. M. Stewart.
26	$19^{1}_{2}$	$II\frac{3}{4}$	22	N. Nigeria			Capt. N. K. Street.
26	$II\frac{3}{4}$	$23\frac{3}{4}$	22	East Africa			H. C. Allfrey.
258	$10\frac{1}{2}$	$20\frac{3}{4}$	$16\frac{1}{2}$	Nigeria .			Major J. G. Browne.
$22\frac{1}{2}$	$14\frac{1}{2}$	1 <b>7</b>	$16\frac{1}{2}$	Somaliland			Sir Abe Bailey.
224	IO	$22\frac{3}{4}$	19	Do.			The late Sir H. D. Tichborne,
22	$6^{3}_{4}$	17‡	16	Do.	•		Bart. Col. H. D. Olivier.
21 <u>3</u>	17	14	16	Abyssinia .			British Museum.
201		19‡		Lake Chad			Capt. G. W. Moran.
$19\frac{1}{2}$	$9^{\frac{3}{4}}$	18	14	Nigeria .			Capt. H. V. Venables Kyrke.

Lengt outside		Circumf	erence.				
Front horn.	Rear horn.	Front horn.	Rear horn.	Locality.			Owner.
$17\frac{3}{4}$	8	16 <u>3</u>	15 <sup>3</sup>	Nigeria .			Major J. B. Cockburn.
16	$9\frac{3}{4}$	17	15 <u>3</u>	Do	•		P. E. Bradney.
14 <del>3</del>	9	171	14	Benue, Nigeria	•		Capt. E. J. Wolseley.
13	$6\frac{3}{4}$	171	$16\frac{1}{2}$	Abyssinia .			O. Neumann.
			OWNI	ER'S MEASURI	EME	NT	rs.
$44\frac{1}{2}$	····			East Africa	•		Imperial Museum, Vienna.
41‡		$22\frac{1}{2}$		Orange River C	colon	у.	Major - Gen. Sir William Crossman.
41				-?			Carl Hagenbeck.
40		22		East Africa			Berlin Museum.
39 <sup>1</sup> 8		$2I\frac{1}{2}$ .	•	South Africa	•		J. Lamont.
38	II	24	$2I\frac{3}{4}$	Do.		•	Earl of Dartmouth.
37	I $2\frac{1}{2}$	$20\frac{1}{2}$	$17\frac{1}{2}$	Uganda .			Sir Edmund G. Loder, Bart.
36				East Africa			Sir Bartle Frere, Bart.
$35\frac{1}{2}$		18		?			H. Murray.



Head of Northern White Rhinoceros.



Skull and horns of White Rhinoceros from Lado in the possession of Sir Edmund G. Loder, Bart.



Front Horns of Female White Rhinoceros. From specimens in the Collection of the late Roualeyn Gordon Cumming, in the possession of Col. W. Gordon Cumming.

### The WHITE or BURCHELL'S RHINOCEROS (Rhinoceros [Diceros] simus).

Um Girin, Sudani. Vit Rhinaster, Cape Dutch.

Next to the Indian elephant this is the largest existing land mammal. Its huge bulk, the bluntly truncate muzzle, which has no prehensile tip, the great length of the skull, and the enormous front horn, with its expanded base and flat front surface, form the most striking external characteristics of this species. The cheek-teeth are of a different type of structure from those of the preceding species, being, in fact, adapted for chewing grass. In walking, the animal carries its head low, so that in examples in which the front horn bends forward, its tip becomes worn by being pushed along the ground. It is stated that the colour of the skin is rather lighter than that of the black species.

Distribution.—South and South-East Africa, in suitable localities, as far north as the Zambesi; and again in Equatorial Africa at Lado, just north of 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 Umvolosi rivers. Between the Zambesi and Orange rivers the species was abundant about half a century ago; Andersson alone having killed sixty in the course of a few months. Its existence in Central Equatorial Africa was indicated by Sir Samuel Baker on the evidence of horns, and subsequently made certain in the neighbourhood of Lado by Major Gibbons. The northern race (*R. s. cottoni*) is distinguished by the proportions of the skull, and apparently by the sculpture of the skin.

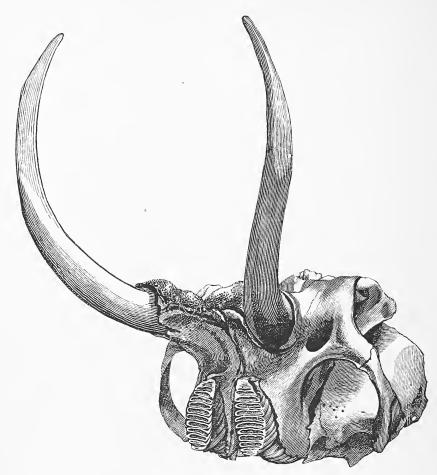
Length on outside curve.		Circumfe	erence.				
Front horn.	Rear horn.	Front horn.	Rear horn.	Locality.			Owner.
56 <u>1</u>		$23\frac{1}{2}$ about		South Africa	•	•	British Museum.
50 <del>章</del>	10	25	22	Do.		•	W. N. McMillan.
$46\frac{1}{2}$		27		Do.			Carl Hagenbeck.
44		20		Do.			British Museum.
$43\frac{3}{4}$		$23\frac{3}{4}$		Do.			The late A. Beit.
$42\frac{3}{4}$		255		Limpopo			The late W. C. Oswell.
403		$29^{3}_{4}$		South Africa			Sir Edmund G. Loder, Bart.
$40\frac{1}{2}$		$20\frac{3}{4}$		Do.			Hon. Walter Rothschild.
$40\frac{1}{2}$		$22\frac{1}{2}$		Do.			Sir Edmund G. Loder, Bart.

### A.-SOUTHERN or TYPICAL RACE.

# WHITE RHINOCEROS

Length on outside curve.		Circum	ference.			
Front horn.	Rear horn.	Front horn.	Rear horn.	Locality.		Owner.
39 <sup>1</sup> / <sub>8</sub>		23		? East Africa .		Lord Delamere.
♀ <u>3</u> 8 <del>§</del>		24 <u>1</u>		South Africa .		The late W. C. Oswell.
$38\frac{1}{4}$		$22\frac{1}{4}$		Do		J. B. Taylor.
373	175	271		Mashonaland .		F. C. Selous.
36		$28\frac{1}{2}$		Do		C. D. Rudd.
$135\frac{1}{2}$	<b>7</b> <sup>5</sup>	26	21	Mount Domo, shonaland ?	Ma-	South African Museum (late Cecil Rhodes). Sir Abe Bailey.
331		23 221		Mashonaland .		F. C. Selous.
33	13 <sup>1</sup> / <sub>3</sub>	$23\frac{1}{4}$ $26\frac{3}{4}$	 26	Zululand .		J. C. Phillips.
314	84			Mashonaland .		J. G. Griffiths.
31		22			·	Pretoria Museum (Julius Jeppe).
<sup>1</sup> ♀ 29 <sup>3</sup> / <sub>4</sub>	512	23	$20\frac{1}{2}$	Zululand	•	Hon. Walter Rothschild.
$122\frac{1}{2}$	$7\frac{1}{2}$	26‡		Mashonaland .	•	
$^{1}20\frac{3}{4}$	7	28 <u>3</u>		Do	•	British Museum.
<sup>1</sup> 20	6	$25\frac{1}{2}$	$18\frac{1}{2}$	Zululand	•	H.R.H. the Duc d'Orléans.
			OWNI	ER'S MEASURE	MEN	KTS.
50		$22\frac{1}{2}$		South Africa .		Col. W. Gordon Cumming.
59		$22\frac{1}{2}$ 21 $\frac{1}{2}$	•••	Do	•	Do.
52½ 41		21 <u>2</u>		Do	•	J. W. Fitzherbert.
	N	R. <b>_N</b>	ORTH	ERN RACE (R	sim	us cottoni)
		<i>D</i> . <b>.</b>	<b>U</b> 101111	CITAL TOLICE (TO		
41	II	26	$22\frac{1}{4}$	Mongalla .		Major P. M. Dove.
401		25	ו•	Bahr-el-Ghazal		Major F. G. Poole.
39	II	26 <u>1</u>	$25\frac{3}{4}$	Do		Capt. C. Graham.
36‡		193		S. Sudan .		LieutGen. Sir B. T. Mahon.
$36\frac{1}{4}$	14	27	18 <u>1</u>	Lado		The late G. G. Longden.
35	$13\frac{1}{2}$	$2I\frac{1}{2}$	$20\frac{1}{2}$	Do		H. Twyford.
Ŷ 35	10 <sup>3</sup> / <sub>4</sub>	221	205	Do		Major P. H. G. Powell-Cotton.
$33\frac{3}{4}$	12	$25\frac{1}{2}$	20	S. Sudan .		The late Prince Paul Demidoff.
$32\frac{1}{2}$	$I2\frac{1}{2}$	$2I\frac{1}{3}$	19	Near Lado .		Col. J. J. Harrison.
32	13	271	$25\frac{1}{2}$	Do	•	Capt. the Hon. M. P. Macnaghten.
32	7	2 I	16 <u>3</u>	Do		Douglas McDouall.
31‡	131	$25\frac{1}{4}$	24	Lado		C. Mathews.
31	I 2	27	27	Do	•	British Museum (Major P. H. G. Powell-Cotton).
303		253		White Nile .		LieutCol. C. J. Hawker.
29	10	25	23	Do		Major R. M. Sanders.
$27\frac{3}{4}$		28 <sup>3</sup> / <sub>4</sub>		S. Sudan .		Hon. Walter Rothschild.
27	9	251	$22\frac{1}{2}$	Do		A. A. R. Boyce.
27	9	$22\frac{3}{4}$	211	Do		Capt. F. W. Woodward.
26	$15\frac{1}{2}$	26	191	Do, .		Sir Kenneth Crossley.
				1 Mounted specimen	s.	

1 Mounted specimens.



Under Surface of Skull of Indian Elephant.

### The ASIATIC or 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 hind pair. 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. In the African elephant the trunk may be compared to a telescope consisting of segments of different calibre. Although males do not generally exceed 9, and females 8 feet in height, specimens have been killed measuring over 10 feet, while one is stated to have reached 11 feet, and a skeleton in the Indian Museum, Calcutta, indicates a still larger individual.

Distribution.—The forest-districts of India, Ceylon, Assam, Burma, Malay Peninsula, Siam, Cochin China, Sumatra, and Borneo. There is some doubt as to which is the typical form of the species. It has been considered that the Ceylon elephant holds this position, but the specimens originally named were probably tuskers introduced from the mainland. The Indian race may therefore be taken as the type. In the Ceylon race (*E. maximus zeylanicus*) the males have very small tusks, and the females are tuskless. The Sumatran race (*E. m. sumatrensis*) is characterised by the coarser structure of the molar teeth, and the Malay *E. m. hirsutus* by the shape of the ear.

 $_{\rm Q}^{\rm S}$  Indian elephant, living, 6800 lbs. (New York Zool. Soc.).  $_{\rm Q}$  ,, ,, ,, 4500 ,, ,, ,, ,,

#### Height (Owner's Measurements).

At sho ft.	ulder. ins.		Lo	ocality.			Owner.
10	6	Burma					H. Shaw Dunn.
10	5	Coorg					Capt. S. H. Charrington,
10	4	Burma					A. E. S. Minett.
10	4	Garhwal,	Unite	ed Pro	ovince	es	Col. J. E. Campbell.
10	I	Ceylon					Col. J. J. Harrison.
10	I	India					Major-General A. A. A. Kinloch.
9	8	Southern	India				F. Gompertz.

Length out- Greatest side curve. circumference	e. Weight.	Locality.	Owner.
ft. ins. ins.	lbs.		
$-9 \ 10\frac{1}{2} \ 15\frac{1}{2}$	··· )	2	Royal Siamese Museum, Bangkok.
-9 0 15 <sup>3</sup> / <sub>8</sub>	J	•	Tegai Chinece Maccain, Langueni

Tusks.

Owner's measurements.

Length ou side curve	t. Greatest cir- cumference.	Weight.	Locality.	Owner.
ft. ins.	ins.	lbs.		
-89 r	17‡	81		
-8 2 L	•••	80°2	Assam	The late Earl of Lytton.
$\begin{pmatrix} -8 & 9 \\ -8 & 6 \end{pmatrix}$			Burma	Government House, Rangoon.
8 o	$16\frac{7}{8}$	90	S. India	Sir Victor Brooke's Collection.
<sup>1</sup> 79	17		Burma	Royal Palace, Mandalay.
7 6 7 0	$\left. \begin{array}{c} 15\frac{1}{2} \\ 14\frac{1}{2} \end{array} \right\}$		Sumatra	G. F. W. Curtis.
-7 41	18‡	85	Assam	T. H. Monteath.
$^{2}7$ $3^{\frac{3}{5}}$	$17\frac{1}{2}$	102	Dur	Manual of XV- tenford
7 34	175	97½)	Burma	Marquis of Waterford.
6 II 6 6	$ \begin{array}{c} 15\frac{1}{2} \\ 15\frac{1}{2} \end{array} \right\} $	тоб	Do	R. Gordon Smith.
6 10	1712	65§	India	Bethnal Green Museum (J. D. Goldingham).
-6 8	183	84 }	Burma	H. Shaw Dunn.
-6 5	183	83)		
$6 7\frac{1}{2}$	143	$52\frac{1}{2}$	Mysore	Viscount Powerscourt.
-6 7	1212	$46\frac{1}{2}$	Yala, S. Provinces, Ceylon	LieutCol. R. J. Marker.
$3 II\frac{3}{4}$	121	<b>2</b> 9흎 )	0 - ) - 0	
-6  6 -6 4		$73^{\frac{1}{2}}$ $71^{\frac{1}{3}}$	Burma	A. E. S. Minett.
,		/12)		C II M
-6 4			Assam	G. H. Moore.
$-6  3^{\frac{1}{2}}$		73 <del>1</del>	Madura District .	British Museum.
62	16 <u>1</u>	<sup>58</sup>	North Coimbatore .	Rev. H. C. B. Stone.
5 11‡	16 <u>1</u>	561		
-6 і	174	$56\frac{1}{2}$	Assam	Noel Williamson.
$-5 11\frac{3}{4}$	175	53½)		
6 і	1612	$48\frac{1}{2}$	Burma	E. M. Alexander.
5 10	164	42 J		
			- Owner's measureme	nte

.

1 Exposed from gum.

Owner's measurements.
 <sup>2</sup> The tusks of the sacred white elephant from King Thebaw's Palace, Mandalay.

# INDIAN ELEPHANT

		Greatest cir- cumference.	Weight.	Lo	cality.			Owner.
ft.	ins.	ins.	lbs.					
6 5	$\begin{pmatrix} o_2^1\\8 \end{pmatrix}$		109	S. India .		•		F. Gompertz.
6	0		50	Madras .				J. Fortune.
5	II	16	45 )	Bengal				H. K. Robinson.
5	10	16	$46\frac{1}{2}$	8				
-5	10			Borneo .		•		C. M. D. Stewart.
-5	3	15	42	Ceylon .				W. S. Murray.
4	$10\frac{3}{4}$	I 3 <sup>1</sup> / <sub>2</sub>	28	Malava				J. Scott Mason.
4	$7\frac{1}{2}$	$I3\frac{1}{2}$	27 ∫					
				- Owner'	s mea	surem	ent	S.

## **Feet** (after preservation).

Circumference at base.	Width at bottom, back to front.	Locality.		Owner.		
$\begin{array}{c} 63\frac{1}{2} \\ 62\frac{1}{2} \end{array}$		Pegu, Burma		. (	Capt. W. F. Brayne.	
$62\frac{1}{2}$	۰۰۰ ،	South Arcot Dist	rict	. J	. Fortune.	
61	20	Travancore		. (	Col. D. M. Lumsden.	
60	18	Mysore .		. 1	Viscount Powerscourt.	
59	19	5		I	Lieut. R. Home, R.N.	
$58\frac{1}{2}$	18	Travancore		. (	Capt. H. L. Cottingham.	
$58\frac{1}{2}$	18	Assam .	•	. 1	A. H. Cuming.	
58	19	Do		. 1	Major F. B. Stapleton-Bretherton.	
58	18	Travancore		. I	Hon. E. Stonor.	
57 <sup>3</sup> / <sub>4</sub>	19	Assam .	•	. I	H. C. Holland.	
57축	18	?		1	L. V. Bagshawe.	
$57\frac{1}{2}$	$18\frac{1}{2}$	Assam .		. 1	D. D. F. Hosack.	
56	17	Do		. (	G. M. Norrie.	
56	171	?		0	Capt. G. P. Evans.	
<sup>1</sup> 55	17	Garhwal .		. 1	B. B. Osmaston.	
<sup>2</sup> 55	$20\frac{3}{4}$	?		1	Lieut. R. Home, R.N.	

<sup>1</sup> Measured,  $59\frac{1}{2}$  when shot.

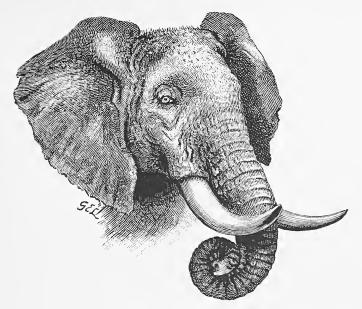
<sup>2</sup> Hind foot.

Circumference at base.	Width at bottom, back to front.	Locali	ty.		Owner.
67 <u>1</u>			?		From living elephant, by Major-Gen. G. W. Hanson.
$63\frac{1}{2}$		N. Burma			
61 <u>1</u>	••	Coorg	•		Capt. S. H. Charrington.
$60\frac{1}{2}$			?		Major-Gen. A. A. A. Kinloch.
$^{1}57\frac{1}{2}$	17	Ceylon			R. Gordon Smith.
$57\frac{1}{2}$		S. India			Col. E. T. Taylor.
56		Ceylon			E. J. Brooke.
56	18	Do.			Sir Peter Walker, Bart.

## OWNER'S MEASUREMENTS.

<sup>1</sup> Measurements, 54 ins.  $\times$  17 ins. when dried.

#### AFRICAN ELEPHANT



Head of African Elephant.

#### The AFRICAN ELEPHANT (Elephas [Loxodon] africanus).

*Årb*, Galla. *Dakana*, Danakil. *Fyl*, Sudani. *Giwa*, Hausa. *Marodi*, Somali. *Muzovu*, Chila. Njovu, Chilala and Chibisa. Njovu, Waganda. Temba, Swahili. Tepo, M'Kua. Thlo, Ngami. Tlo, Barotsi.

Zahon, Abyssinian.

Some of the distinctive features of the African elephant are indicated under the heading of the Indian species.

The African elephant, although still abundant in many regions of Central Africa, in the southern part of the continent is rapidly approaching extinction. A remarkable exception to this 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 herds are now left south of the Zambesi. The species has been divided into a number of local races, mainly distinguished by the form and size of the ears and tusks.

Heig shou in stra lin	lder aight	Total length (trunk to end of tail).	Girth of fore-foot.	Localit	у.			Owner.
ft.	ins.	ft. ins.	ft. ins.					
ΙI	$8\frac{1}{2}$			Abyssinia .		•	•	H. Weld-Blundell.
<sup>1</sup> I I	$6\frac{1}{2}$	15 5	5 5‡	Near Wadelai	•	•	·	Major P. H. G. Powell-Cotton.
ΙI	6	•••	4 IO	Do.	•			E. S. Grogan and Major G. A. S. Cape.
II	4			Kavirondo Hi	lls			E. B. Bronson.
II	4			Sudan .				Earl of Sefton.
ΙI	3			East Africa				The late A. H. Neumann.
ΙI	3			Do.				H. B. Tate.
II	$2\frac{1}{2}$			Blue Nile .	·			Capt. J. A. Pollock.
II	I	17 3	4 II	Mozambique				Col. J. J. Harrison.
ΙI	I		54	Toro, E.C.A.	•	•		E. S. Grogan.
ΙI	I			East Africa				Abel Chapman.
ΙI	0			Do.	•			G. F. Archer.
ΙI	0			Uganda .				G. M. Norrie.
10	$IO_2^1$			Sudan .				G. C. Whitaker.
IO	$IO_2^1$		• • •	Sierra Leone	•			Capt. W. P. Pearse.
10	10			N.W. Rhodesia	ı			Dr. A. H. B. Kirkwood.
10	10			White Nile				Major R. M. Sanders.
IO	9	<sup>2</sup> 12 8	5 0	Lake Rudolf				The late A. H. Neumann.
10	8			Uganda .				M. Mitchell.
10	8		4 10	Tana Valley				Major H. De Prée.
10	7'	'Jumbo"			?			Barnum and Bailey.
10	6		4 8	Tana Valley	•			Capt. C. Hankey.
IO	6	•••		S.E. Africa				F. C. Selous.
10	4	• • •		N.E. Rhodesia				R. D. Waterhouse.
IO	3	21 0	5 I	Nyasaland				Sir John Kirk.
9	7‡		$4 \frac{6\frac{3}{8}}{(dried)}$	Somaliland		•		Viscount Edmond de Poncins.

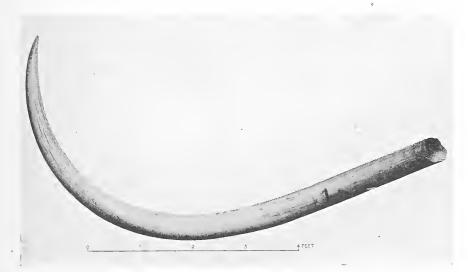
#### BODILY SIZE.—OWNER'S MEASUREMENTS.

<sup>1</sup> Length of humerus, 3 ft. 8 ins.

<sup>2</sup> Length from root of tail to eye, in straight line.

480

With reference to the height of elephants, the late Mr. A. H. Neumann, in *Elephant Hunting in East Equatorial Africa*, stated that "I am an unbeliever in 14 ft. elephants or anything like it. Possibly (though I doubt even that) there may be a 12 ft. one in existence, but I have had some experience (and probably more opportunities of judging than most of those who pose as authorities), and I have never killed one that could be absolutely guaranteed to be over 11 ft. 3 ins. in height (to be quite on the safe side, for as a fact I made it an inch more). I have killed two of that height in my time, and not another within several inches of this."



African Elephant Tusk in the American National Collection.

Tusks.

Le (outsic	ength le curve). circ	Greatest cumference.	Weight.	Locali	ty.		Owner,	
ft.	ins.	ins.	lbs.					
11	$5\frac{1}{2}$	18 <sup>1</sup> / <sub>2</sub>	293	East Africa			American National Collection.	
ΙI	0	$18\frac{1}{2}$			•	•	(See illustration.)	
10	4	18 <u>3</u>	126	Mongalla			H.R.H. the Duc de Montpensier.	
9	7	19	1231	in ongaine	•		Alternation Due de Hontpensier.	
IO	$2\frac{1}{2}$	241	226 <u>1</u>	East Africa		•	British Museum.	
10	2		159	Marsabit			F. J. Watson Taylor.	
9	10	191	247	Do.			Charles Pulley.	
9	5	19 ∫	~47	10.	,	·	charles I uncy.	

	ength le curve).	Greatest circumference.	Weight.	Locality.	Owner.
ft.	ins.	ins.	lbs.		
9	$5\frac{1}{2}$	183	120	Tana Valley	Major H. De Prée.
9	0	18‡	117 )		
9	5	$22\frac{1}{2}$	184	3	Sir Edmund G. Loder, Bart.
9	4	$20\frac{1}{2}$	160	East Africa	Sir John Kirk.
9 (tip b	4 roken)	18	IIO	Do	Duke of Westminster.
-9	4		151	Elgayu, E. Africa .	Sir F. J. Jackson.
9	4	22	156½	Uganda	R. Grauer.
9	I	$22\frac{3}{4}$	168 <u>1</u> ∫	oganda	K. Orauci.
9	3‡	183	•••	Tana Valley	Sir Robert Harvey, Bart.
-9	3		129	East Africa	Sir F. J. Jackson.
9	$2\frac{3}{4}$	20		Tana Valley	Sir Robert Harvey, Bart.
9	2	24	240	Uganda	Capt. H. S. Burrough.
8	5	24 ∫	340	Oganda	Capt. II. 5. Dunlough.
9	$I\frac{1}{2}$	24	176	Do	Capt. E. B. Place.
8	$9^{\frac{1}{2}}$	<b>2</b> 4§	179≩∫		Capt. 1. D. 1 acc.
9	I	$19\frac{1}{2}$	114	East Africa	Col. A. Eric Smith.
8	$IO_2^1$	19 <u>1</u>	108	Last milea	Con II. Life Sinth.
<sup>1</sup> 9	0	2I <sup>3</sup> 8	161	Tana Valley	His Majesty The King.
8	II	$22\frac{1}{2}$	167 J	Tana Vancy	mis majesty me ming.
<sup>2</sup> 9	0	$2I\frac{1}{2}$	139	Uganda	Frankfort Museum. Shot by the
8	6	$2I\frac{1}{2}$	141)	o gundu	late G. G. Longden.
9	0	25	198	Central Africa .	Major P. H. G. Powell-Cotton.
8	II	$23\frac{1}{2}$	174)		
9	0	21	130	East Africa	J. Elkington.
8	10	21	124)		
8	II	20	130	Do	N. C. Cockburn.
8	$8\frac{1}{2}$	193	1241)		
-8	II	18 <u>1</u>	110	Mt. Elgon, E. Africa	LieutCol. J. D. Ferguson.
-8	9	187	108)		
8	IO	18	105	East Africa	Lord Delamere.
-8	9 <sup>1</sup> <sub>2</sub>		102	Tana Valley	Major H. De Prée and Capt. C.
-8	0	•••	91)	- Owner's measurement	Hankey. s.
	1 Pre	sented by H.H	. the Aga K		resented by Rudolf de Goldschmidt.

<sup>1</sup> Presented by H.H. the Aga Khan. <sup>2</sup> Presented by Rudolf de Goldschmidt.

AFRICAN ELEPHANT

Le: (outsid	ngth ( e curve). circ	Greatest umference.	Weight.	Locality.			Owner.
ft.	ins.	ins.	lbs.				
8	$9\frac{1}{2}$	17	90}	East Africa			Sutton Timmis.
7	$II\frac{1}{2}$	$17\frac{1}{2}$	92)				
8	9	19 <u>1</u>	104	Do.			G. M. Norrie.
8	$3^{\frac{1}{2}}$	$19\frac{1}{2}$	100)				
8	7 <u>1</u>	$22\frac{3}{4}$	165	Do.		•	His Majesty The King.
8	6	171	$78\frac{1}{2}$	Congo .			Duke of Peneranda.
8	6	17	$78\frac{1}{2}$	0			
8	5 <sup>1</sup> / <sub>2</sub>	171	$\left\{ 80\frac{1}{2} \right\}$	Do .			Sir A. Sharpe.
8	0	173	79 J				en menere
8	5	233	175	Uganda .	•	•	Graham Pownall.
8	5	19 <u>3</u>	139 <sup>1</sup> / <sub>2</sub>	Bahr-el-Gebe	ī		Major R. M. Sanders.
8	13	193	137 J	Dame of Ococ			
8	$4\frac{1}{2}$	19‡	$99^{\frac{1}{2}}$	Sudan .			Capt. E. C. Hamilton.
7	6	19	$96\frac{1}{2}$	Suttain .		•	oupt, E. C. Hummon,
8	$4\frac{1}{2}$	18	$97\frac{1}{2}$	B.E. Africa			Capt. W. H. Wilkin.
7	0	181/2	91 )	Di Li, Tilitou	•	•	
8	4	1712	88‡	East Africa	•	•	W. Neilson.
8	4		76	M'bogo	•		E. S. Grogan.
8	4	$2I\frac{1}{2}$	150	Near Wadela	i.		W. Y. Wyndham.
8	3	21	147)			-	
8	3	$18\frac{3}{4}$	817	East Africa			Capt. T. W. Greenfield.
8	2	183	80 J	Last milea	•	'	oupt. 1. We oreemicid.
8	3	22	$^{135\frac{1}{2}})$	Sudan .			Sir W. Garstin.
7	II	231	159½)				
8	2	$20\frac{3}{4}$	145	Gondokoro			His Majesty The King.
7	$8\frac{1}{2}$	$20\frac{1}{2}$	121)	Condition	·	·	110 111/001/ 110 11116
8	I	173	86	5			Major G. G. P. Humphreys.
8	I	16		East Africa			Capt. C. J. Murray.
7	2	16)			·		- <u>-</u>
8	I	20 <del>1</del>	110	Abyssinian S	udan		W. N. McMillan.
8	٥.	20	108)				
8	0	20	118 }	Uganda .			Capt. C. H. Stigand.
7	81/2	$19\frac{1}{2}$	1061)	U			

.

Length (outside curve). ci	Greatest rcumference.	Weight.	Locality	r.		Owner.
ft. ins.	ins.	lbs.				
<sup>1</sup> 7 II	194	<sup>98</sup> }	Sierra Leone			Major C. E. Palmer.
7 8 <del>3</del>	$20\frac{1}{4}$	138)				
7 11	178	90)	White Nile .			Capt. E. R. Wishaw.
7 0	17	80 J	time time	•		Cupti D. R. Wishaw.
7 IO <sup>1</sup> 2	20	113)	Upper Nile .			Douglas McDouall.
$7 5^{\frac{1}{2}}$	$20\frac{1}{2}$	108∫		·		
7 10	$17\frac{1}{2}$	85)				
7 $6\frac{1}{2}$	17	81	East Africa .		. C. Bower Ismay.	
7 10	$16\frac{1}{2}$	63)	~			
$-7$ $8\frac{1}{2}$	$16\frac{1}{2}$	$68\frac{1}{2}$	Do	•	•	R. Holmes.
79	1712	$95\frac{1}{2}$	Do.	•		P. Niedieck.
-7 9	22	119)	N.E. Rhodesia			F. H. Melland.
-7 81	$20\frac{1}{2}$	110)				
79	$22\frac{1}{2}$	40				
77	$21\frac{1}{2}\int$	268	Lake Rudolf .		•	A. E. Butter.
77	163		Lake Naivasha			<b>—</b> ••• •
76	16 <u>3</u> ∫	•••			•	T. W. Brooke.
7 6§ .	19 <del>1</del>	101	C 41 · ·			
$6 9\frac{7}{8}$	19	91)	S. Abyssinia	•	•	J. R. Luchsinger.
7 $6\frac{1}{2}$	$17\frac{1}{2}$	781)	G			
72		75 <del>4</del> Ĵ	Congo	·	•	R. de la Huerta.
76	20	103	East Africa			Col. Max C. Fleischmann.
69	193	93)	Last milea .	•	Col. Max C. Pleischmann.	
76	174	76)	Uganda			II I aman
$6 11\frac{1}{2}$	18	81∫		•	H. Leney.	
7 $5\frac{1}{2}$	18	85)	Cultur			Maine A. W. Louisson Docula
75	181	80∫	Sudan .	•	•	Major A. W. Jennings Bramly.
75	19 <u>1</u>	84	Do			Major H. D. Pearson.
75	$22\frac{1}{2}$	114	Lado		;	Capt. R. S. Hart.
7 2	23	112		·		
$7 4^{\frac{1}{2}}$	20	$92\frac{1}{2}$	Uganda			J. Jay White.
$7 4^{\frac{1}{2}}$	19 <u>1</u>	91 <u>1</u> ∫		·	·	

- Owner's measurements. <sup>1</sup> In Hon. Walter Rothschild's Museum at Tring.

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AFRICAN ELEPHANT

	ength de curve).c	Greatest sircumference.	Weight.	Locality.		Owner.	-
ft.	ins.	ins.	lbs.				
7	$2\frac{1}{2}$	18‡	87	Abyssinian Sudan		C. Bulpett.	
6	7	18 <del>1</del>	85 )				
7	2	$19\frac{1}{2}$	88 }	Uganda		G. M. Norrie.	
6	10	19					
7	2	171	$\left\{ S_{1\frac{1}{2}} \right\}$	Sudan		Countess of Sefton.	
6	$7\frac{1}{2}$	171	001)				
7	0	213	93	Uganda	•	G. Blaine.	
·	0	$2I\frac{1}{2}$	91 )				
	$IO_2^{\underline{1}}$	17-2	65	N. Nigeria		Capt. G. C. Kelly.	
	0	$17\frac{1}{2}$	59± )				
	10	22	112	N. Nigeria		G. M. Norrie.	
	4	22		South-East Africa .			
	7	167		South-East Ainca .	•	r. C. Selous.	
6	7	171	73	N.E. Rhodesia .	•	Hon. M. W. Elphinstone.	
	$O_2^1$	174					
6 6	6 $4\frac{1}{2}$	$18\frac{1}{2}$	57	S.E. Africa	•	P. Neergaard.	
		$10\frac{1}{2}$	032 )				
6 6	$\begin{pmatrix} 6 \\ 4 \end{pmatrix}$	$15\frac{1}{2}$		B.C. Africa	•	R. H. Storey.	
₽6	5호	$I2\frac{1}{2}$		N. of Lake Rudolf .	•	The late A. H. Neumann.	
б	$2\frac{1}{2}$	181		Lomagundi's Countr	-w	Duke of Westminster.	
. 5	$7\frac{1}{2}$	18§ ∫		Loniagundi's Counti	.y	Dake of Westminister.	
- ¥ 5	II $\frac{1}{2}$		40 }	Uganda		Capt. E. B. Place.	
- ¥ 5	$IO_4^3$						
5	0	143	49 )	Abyssinia		A. E. Butter.	
4	8	143	47 )				
4	11	15	26	Somaliland	•	A. H. Straker.	
4	$9\frac{1}{2}$	14 <del>3</del>	$33\frac{1}{2}$	Do		Major E. W. S. Brooke.	
4	81	$I_{3\frac{1}{2}}$		Do		Sir Edmund G. Loder, Bart	
4	5	$12\frac{1}{2}$	•••	Do. , ,		Lord Delamere.	
4	4	137	26	Do		LieutCol. J. McCall Maxw	ell.

The following specimens probably belong to the Dwarf Congo race (*E. africanus pumilio*):---

	ength de curve).	Greatest circumference.	Weight.	Locality.		Owner.
ft.	ins.	ins.	lbs.			
5	6	13‡	$\begin{array}{c} 27\frac{1}{2} \\ 27\frac{1}{2} \end{array} \right)$	Semliki		G. Blaine.
5	4	131	$27\frac{1}{2}$			
3	8	12	17			
3	7호	$12\frac{1}{4}$	17	- Umfumbro, E. Congo		Major J. Webb Bowen.
Ŷ 2	11	$8\frac{1}{4}$	77	- O munifilo, L. Congo	•	Major J. Webb Dowen.
<b>? 2</b>	II	$8\frac{1}{2}$	8)			

# **Feet** (after preservation).

Circumference at base.	Width at bottom, back to front.	Locality.			Owner.
$66\frac{1}{2}$	22	East Africa	•		G. F. Archer.
65‡	$20\frac{1}{2}$	Near Albert N	yanza		H. S. Keating.
65‡		Near Wadelai			Major P. H. G. Powell-Cotton.
-65		Central Africa	•		Arnold Mathews.
64		Uganda .			G. M. Norrie.
64	$20\frac{1}{2}$	Toro			E. S. Grogan.
$63\frac{1}{2}$	20	White Nile			Sir W. Garstin.
$63\frac{1}{2}$	$2I\frac{1}{2}$	Uganda .	•		The late G. G. Longden.
63	20	White Nile			Major C. J. Hawker.
-63		Blue Nile .	•		Capt. J. A. Pollock.
$62\frac{1}{2}$	21	Sudan .			Earl of Sefton.
$62\frac{1}{2}$		Do		•	M. C. Radford.
62	20	East Africa			C. Craig.
61		N. Nigeria			Capt. G. C. Kelly.
-61		East Africa			Marquis Pizzardi.
$-60\frac{3}{4}$		Somaliland			Capt. M. S. Wellby.
60 <u>1</u>		White Nile			Sir Edmund G. Loder, Bart.
$60\frac{1}{2}$	20	Sudan .			G. C. Whitaker.
60	19	Wadelai .	•	•	LieutCol. M. L. Carleton.

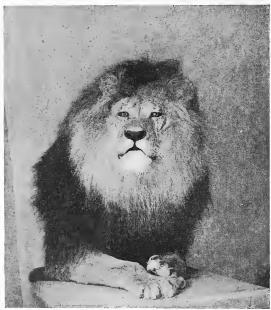
- Owner's measurements.

### MAMMOTH

## MAMMOTH or EXTINCT 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, the ears smaller, and the skin clothed in woolly fur with long bristles intermixed. The height is generally inferior to that of the Indian species. 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. ins.	ins.	lbs.				
$12 \ 10\frac{1}{2}$	$3I\frac{1}{2}$			?		Stuttgart Museum.
12 8	`		Siberia		. (.	Hon. Walter Rothschild.
12 6	23			?		British Museum.
12 0	19			?		Hon. Walter Rothschild.
11 9	35	330 (estimated)		;		Milan Museum.
11 5	$17\frac{3}{4}$			?		Hon. Walter Rothschild.
II O	$20\frac{7}{8}$	173	Siberia		· •	Sir Edmund G. Loder, Bart.



Modelled in the Rowland Ward Studios.

African Lion (fore part).

### The LION (Felis leo).

Ambassa, Abyssinian. Asad, Arabic. Imbubi, Ibubesi, Inyonyama, Matonga, and Marhanganga, Swazi and Zulu. Karamo, M'Kua. Lendjandnēk, Galla. Libba, Somali. Leeuw, Cape Dutch. Libbaka, Danakil. Nkango or Nkalamo, Chilala and Chibisa. Shumba, Chila. Simba, Swahili. Tau, Basuto and Bechuana. Tauw, Barotsi and Ngami. Iausa.

*Zaki*, Hausa.

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 points of interest attaching to the species is its wide distribution. Several local races are now recognised. Somali lions are smaller and greyer than those from either the Cape or Algeria, although their manes are often very fine, and the East African (F. l. masaicus) is distinguished by the persistence in the adult, especially the female, of the chocolate spots of the cubs. The Indian lion (F. leo gujratensis), distinguished by its small, straight, and tawny mane and pale tawny colour, is another race. Heights of 3 feet  $3\frac{1}{2}$  and 3 feet 8 inches at the shoulder have been recorded in African specimens (the larger measurement by Mr. Selous), and 3 feet 6 inches in an Indian example (by Gen. W. Rice). Mr. Selous killed an African lion weighing 500 lbs.; and between 400 and 500 lbs. may be taken as the average weight. Wild lions seldom develop such enormous manes as menagerie examples.

A lion's skull may be easily recognised when placed beside that of a tiger by the fact that in the former the terminations of the sutures dividing the frontal from the nasal and maxillary (jaw) bones are situated nearly in the same transverse line, while in the latter the nasal bones extend much farther back than the maxillary. Moreover, the lower jaw of a lion 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 rare in India, where it is confined to the Gir Forest in Kathiawar.

len bei	otal gth fore ning.	Length from nose to root of tail.	Skin measure- ment from tip of nose to tip of tail.	Estimated height at shoulder.	Mane.	Locality.	Owner.
ft.	ins.	ft. ins.	ft. ins.	ft. ins.			
10	5 (A)		$\begin{array}{c} \text{IO}  \text{IO}_2^1 \\ \text{(raw)} \end{array}$	3 7	Black	S.E. Africa .	F. Vaughan Kirby.
10	5				Fine	East Africa .	Dr. W. S. Rainsford.
10	4	76	10 3 (dressed)		Fair	Gir Forest, India	Lord Lamington.
10	4		II 2		Good	East Africa .	Capt. the Hon. G. H. Douglas-Pennant.
10	$2\frac{1}{2}$	•••			Fair	N.E. Rhodesia.	R. D. Waterhouse.
10	2		10 $2\frac{1}{2}$		Do.	N.W. Rhodesia	Major R. Gordon.
10	2	73		3 6	Do.	Blue Nile	Capt. C. C. Maud.
10	I				Fine	East Africa .	Capt. E. Sartorius.

#### OWNER'S MEASUREMENTS.

Owner.		W. Yellowby.	C. C. Branch.	Count R. Coudenhove-Kalergi.	S. E. White.	F. C. Selous.	Norman B. Smith.	The late Rear-Admiral R. A. J. Montromerie R N	Major A. St. H. Gibbons.	Capt. M. Kincaid Smith.	J. Bracken.	A. E. Leatham.	R. G. Beswick.	Major H. B. Dalgety.	LieutCol. J. H. Patterson.	Sutton Timmis.	Capt. M. McNeill.	Lord Harris.	S. Robins.	Sutton Timmis.	LieutCol. L. L. Fenton.	Capt. C. G. Leslie.	Capt. R. Meinertzhagen.	H.R.H. the Duke of Connaught.	
Locality.	;	Edmund's Menagerie	East Africa	Somaliland .	East Africa .	Hartley Hills, Machanaland	East Africa.	Do	Mushukulumbwe	East Africa	N.W. Rhodesia	Somaliland .	Zomba	East Africa .	Do	Do	P.E. Africa	Kathiawar .	B.C. Africa .	East Africa .	Kathiawar .	N.W. Rhodesia	East Africa .	Do	
Mane.		Fine	Fair	::	:	Fine	Do	Do	Full black .	Good	:	Yellow and black	Full yellow	Fine black .	None	Fair	Fine	Do	:	:	:	:	:	:	
Weight.	lbs.	434	÷	:	÷	410	:	516	÷	÷	÷	:	÷	:	÷	:	:	:	÷	÷	:	÷	260	÷	
Girth behind shoulder.	ins.	57	:	$52\frac{3}{4}$	:	:	÷	$51\frac{1}{2}$	$49_{8}^{1}$	:	:	:	÷	52	÷	:	45	:	49	:	:	44	:	÷	
Girth of forearm.	ins.	22 (upper arm)		:	:	:	161	$19\frac{1}{2}$	÷	÷	19	:	154	19	:	17	$21\frac{1}{2}$	:	19	:	:	173	:	÷	
Estimated height at shoulder.	ft. ins.	3 6 (u	$3 7^{1}_{2}$	:	3 9 :	3 8	3 7	3 6	3 7	:	4 0	:	$\frac{3}{4\frac{1}{2}}$	:	3 9	:	:	:	:	:	:	3 73		a :	
Skin measure- ment from tip of nose to tip of tail.	ft. ins.	:	6 11	IO 2	:	6 II	(raw) II 5 <sup>1</sup>	IO 8	(dressed) 12 14	(raw) IO 5	ì	11 6		:	:	12 0	:	:	;	:	:	IO I <sup>1</sup>	:	10.2 (dressed)	(mncenth)
Length from nose to root of tail.	ft. ins.	6 10	0 2	7 53	:	:	:	6 8	:	:	:	:	$6 6_{\frac{1}{2}}$	:	:	:	:	:	10 5		6 6	:		: :	
Total length <sup>1</sup> before skinning.	ft. ins.	10 O	10 0	IO 0	9 11Å	9 II (C)	II b	9 $10\frac{1}{2}$ (D)	(н) от б	0 IO (L)	9 IO	9 IO (K)	9 8	0 S	9 8	9 8	6	6	9 0	9 0 6	5 0 5		98 IÅ	50 : : ) +	

OWNER'S MEASUREMENTS-continued.

# LION

# Skulls.

Length from back to front. <sup>1</sup>	Width across the zygomatic arches,	Weight cleaned.	Locality.	Owner.
$16\frac{1}{2}$ (A)	10		South-East Africa	F. Vaughan Kirby.
16 (end broken)	$IO_{4}^{1}$	5 lbs.	East Africa	E. Gedge.
1518	10	6 lbs. 8 oz.	Do	Hon. C. G. Murray.
$15\frac{1}{2}$ (D)	$10\frac{1}{2}$	5 lbs. 3 oz.	Do	The late Rear-Admiral R. A. J. Montgomerie, R.N.
15 <u>1</u> 2	91		Pungwe	Hon. T. Thynne.
15 <sup>1</sup> / <sub>2</sub>	9‡		S. Rhodesia .	C. W. Adams.
$15\frac{3}{16}$	9‡		E. Africa	H. H. Williams.
15	IO		Mashonaland .	Basil H. Woodd.
15	$9\frac{1}{2}$		Somaliland	H.R.H. the Duc d'Orléans.
15	IO		Do	Gen. Sir Arthur Paget.
15 (C)	10	5 lbs. 8 oz.	South-East Africa	F. C. Selous.
15	$IO_8^1$	5 lbs. 6 oz.	East Africa	Capt. A. E. F. Fawcus.
14 <del>7</del>	9		Do	G. L. Harrison.
14%	91	5 lbs. 8 oz.	Do	Sir Thos. R. Dewar.
14 <u>7</u> 5	91 <sup>7</sup> 6	5 lbs.	N.W. Rhodesia .	J. H. Venning.
143	95		Do	J. Bracken.
I4 <u>3</u>	9		South-East Africa	H. M. von Archer.
14 <u>8</u>	9		Matabililand .	Capt. Sir K. Fraser, Bart.
$14\frac{11}{16}$	$IO_{16}^{-1}$	5 lbs.	East Africa .	C. C. Branch.
$14\frac{11}{16}$ (L)	91 <sup>9</sup>	5 lbs. 3 oz.	Do	Capt. M. Kincaid-Smith.
143	9 <del>1</del> 5	4 lbs. 8 oz.	S.E. Africa .	E. P. Frost.
14§			Nigeria	N. J. Dodd.
I4 <sup>9</sup> 16	$10\frac{13}{16}$	4 lbs. 12 oz.	East Africa	Major P. H. G. Powell-Cotton.
I412	$9\frac{3}{4}$	4 lbs.	South Africa .	Sir Edmund G. Loder, Bart.
141	$9\frac{1}{2}$		Do	Sir Abe Bailey.
I4 <u>1</u>	10		East Africa	Norman B. Smith.
I4 <sup>1</sup> / <sub>2</sub>	10	5 lbs.	Do	H.R.H. the Duke of Connaught.
148	9흫		Rhodesia	W. Robinson.
I4 <sup>1</sup> / <sub>4</sub>	9‡	4 lb. 14 oz.	East Africa .	Hon. W. Guinness.
♀ 14 <sup>1</sup> 8	83		South-East Africa	F. Vaughan Kirby.
				<b>0</b>
		OWNER'S	5 MEASUREMENT	`S.
17	I I 1 1 6		Delagoa Bay .	Berlin Museum.

$II_{\overline{1}\overline{6}}^1$		Delagoa Bay .	Berlin Museum.
$IO_2^1$ .		5	P. C. Keytel.
9 <u>8</u>	6 lbs.	South Africa .	J. Lamont.
$9\frac{3}{4}$		Mushukulumbwe.	Major A. St. H. Gibbons.
91		Somaliland	A. E. Leatham.
	$10\frac{1}{2}$ . $9\frac{3}{4}$ . $9\frac{3}{4}$	$10\frac{1}{2}$ $9\frac{3}{4}$ 6 lbs. $9\frac{3}{4}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$

49 I

<sup>1</sup> The measurements are taken from the summit of the occiput to the front of the upper jaw.

Shot by His Highness Figer. Felio Tigris the Maharajah of Cooch Behar. High SH. Qu Mut and JBL BRA Length from nose to tip of Fail before skinning 10 to 1/2 min dried skin 11 - 7 -Indian Tiger-Skin. 492



Head of Tiger.

#### The TIGER (Felis tigris).

## Sher or Bagh, Hindustani.

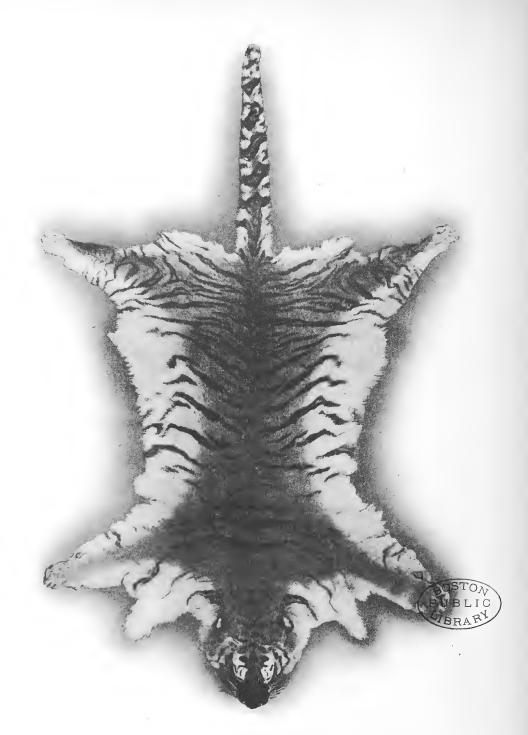
A much less noisy animal than the lion, the great striped cat of Asia is also a more variable species, of which several local races are recognised. First is the typical Bengal tiger, a large, long-limbed, lithe, and short-haired creature. A smaller and rougher-haired race (*F. tigris septentrionalis*, likewise known as *F. t. virgata*) inhabits the Caspian provinces of Persia, and also extends into the Caucasus. The Manchurian tiger (*F. t. mongolica*) is characterised by its large size, heavy build, short limbs, and the great length and thickness of the winter coat, which may be less fully striped than in Indian specimens. The Javan tiger (*F. t. sondaica*) differs, among other features, by the amount of white on the face. The Maharaja of Cooch Behar measured a tiger standing 3 ft.  $10\frac{1}{2}$  ins. at the shoulder.

Distribution.—From the Caucasus through Northern Persia, India, Assam, Burma, the Malay Peninsula, Sumatra, Java, and China, to Manchuria, Amurland, and Korea. In India ranging from an elevation of some 7000 feet in the Himalaya to Cape Comorin, but unknown in Ceylon.

	Owner.		. H.H. the Maharaja of Datia.	. Col. Evans Gordon.	LieutGen. Sir R. Hart.	His Majesty The King.	. Sir Savile Crossley, Bart.	The late A. M. Markham.	E. W. Dixon.	W. Holland.	Major S. H. Pollen.	H.H. the Maharaja of Cooch Behar.	l The late A. M. Markham.	H.H. the Maharaja of Datia.	H H the Maharaia of Cooch Rahar	TITL MC Manarala OI COOCH DCHat.	H.H. the Maharaja of Alwar.	H.H. the Maharaja of Bikanir.	H H the Maharaia of Coach Dahar	. IIIII IIIA MARIANAJA OL COOCH DEHAL	H. Bliss.	H.H. the Maharaja of Cooch Behar.
5	. Locality.		Seonda .	Ramshai Hâb, Ducce Beneol	Duars, Dengar	Cooch Behar	Nepal.	Bijnor, United	Nepal Tarai	Kanara .	Duars .	Cooch Behar	Patli Dun, United	Seonda .	Conch Behar		Alwar	Central Provinces	Conch Bahar		Rewa, C.P.	Cooch Behar
	Weight.	lbs.	:	491	i	504	÷	:	÷	÷	÷	487	÷	÷	530	546	:	÷	462	600	:	540
	Estimated height at shoulder.	ft. ins.	:	3 4	÷	3 5	:	3 6	:	÷	:	$3 4_{\frac{1}{2}}$	3`4	4 2	$3  3\frac{1}{2}$	3 3	÷	:	$3 4\frac{3}{8}$	$3 8\frac{3}{4}$	:	3 4
	Head.	ins.	38	36	:	36	:	39	:	÷	:	$36\frac{1}{2}$	$32\frac{1}{2}$	÷	$38\frac{1}{2}$	:	:	;	38	$40\frac{1}{2}$	:	36
1	Fore- arm.	ins.	:	₽61	$19\frac{1}{2}$	$18\frac{1}{2}$	:	21	÷	÷	÷	$19\frac{1}{2}$	$19^{\frac{1}{2}}$	15	20	20	÷	:	$13\frac{3}{4}$	21	:	21
	Upper arm.	ins.	÷	25	:	26	÷	÷	:	:	:	29	:	3т	$26_{2}^{1}$	26	:	:	$28_{2}^{1}$	29	:	26
ц.,.	girth of body.	ins.	:	$56\frac{1}{2}$	÷	51	÷	52	÷	:	÷	52	49	$58\frac{1}{2}$	$48\frac{1}{2}$	$55\frac{1}{2}$	;	:	$51\frac{1}{2}$	54	99	52
	Length dressed.	ft. ins.	:	12 I	:	I2 IO	:	$12 \ 2\frac{1}{2}$	:	:	:	12 I	12 2	:	:	:	:	:	12 4	11 7	12 6	:
	Length of body.	ft. ins.	:	0 2	7 IÅ	6 11	:	7 I <sup>1</sup>	2	:	:	$^{-7}$ 1 $\frac{1}{2}$	т 2	7 2	2 0	7 O	:	:	6 IO	$7 I_{\frac{1}{2}}^{\frac{1}{2}}$	÷	6 11
	Length before skinned.	ft. ins.	0 11	IO 7 (A)	10 5 <u>1</u>	IO 5	10 5	10 4	IO 4	IO 4 (D)	IO 4 (F)	10 3	10 3 (C)	10 3	IO $2\frac{1}{2}$	IO 2	IO 2	IO 2	IO $1\frac{3}{4}$	IO $I\frac{1}{2}$	IO $0\frac{1}{2}$	I0 0

OWNER'S MEASUREMENTS.

Pilibhit H. Ruttledge.	Nepal Tarai . R. Nolan.	Central Provinces Major M. D. Goring-Jones.	Cooch Behar . Count E. Hoyos.	Mirzapur . P. B. Vander Byl.	Cooch Behar . A. Ezra.	Do. Major S. H. Pollen.	Central India . Capt. A. R. B. Cossart.	Nepal Tarai . Col. B. B. Russell.	Hyderabad, Deccan A. M. Rotheram.	Central Provinces Prince A. Taxis.	Hyderabad,Deccan Major C. E. G. Norton and Capt. Sir K. Fraser Bart	Central Provinces LieutCol. R. W. Mapleton.	S. India . American National Collection.	Tarai LicutCol. B. D. Möller.	North Kanara . Lieut. Col. L. L. Fenton.	Cooch Behar . Lord Villiers.	Deccan . Major W. J. R. Wingfield.	Nepal Tarai . LieutCol. H. F. Dease.	Tigers have been recorded from time to time which are said to have measured up to 12 feet and over.
:	÷	700	:	:	508	500	:	:	:	:	:	:	495	:	÷	:	:	•	said to
3 4	:	3 4	$3 3\frac{1}{2}$	:	3 4	:	:	:	÷	:	3 34	:	÷	÷	:	:	:	:	iich are s
÷	÷	:	37	:	$39\frac{1}{2}$	:	÷	:	÷	:	$34\frac{1}{2}$	:	:	:	:	35	43	÷	me wh
:	:	22	$20\frac{1}{4}$	:	$19\frac{1}{2}$	÷	;	:	÷	:	17	:	÷	:	:	15	17	20	ne to ti
÷	:	:	$28\frac{3}{4}$	÷	29	÷	÷	:	÷	÷	$24\frac{1}{2}$	:	:	:	:	20	÷	:	rom tin
52	÷	÷	50 <u>1</u>	:	54	:	55	÷	:	:	48	:	50	45	:	42	:	:	orded f
11 $6\frac{1}{2}$	12 2	:	:	:	÷	12 10	:	:	11 8	:	:	6 01	:	:	:	÷	÷	:	een reco
:	:	6 10 <sup><u>1</u></sup>	69	:	6 11	$6 10^{\frac{1}{2}}$	€ 10‡	66	: '	÷	:	:	:	:	:	6 $2\frac{1}{2}$	÷	$6 4_{2}^{1}$	have t
10 O	10 0 (E)	9 II <sup>1</sup> 2 (н)	11 6	9 $IO_{\overline{2}}^{1}$	9 10 <sup>1</sup> /2	$9 10\frac{1}{2}$	9 $10\frac{1}{2}$	01 O	9 10	9 IO	$9 8_{2}^{1}$	9 $8\frac{1}{2}$	9 $8_{2}^{1}$	9 8	9 8 (B)	95 <u>5</u>	9 $5\frac{1}{2}$ (G)	9 S	Tigers



Manchurian Tiger-Skin.

## Skulls.

			okuns.	
Length from back to front. <sup>1</sup>	Breadth across the zygomatic arches.	Weight cleaned.	Locality.	Owner.
$-15\frac{3}{4}$		lbs. oz.	Cooch Behar	H.H. the Maharaja of Cooch Behar.
$-15\frac{3}{4}$	11 <del>8</del>		?	Col. A. Pollock.
15 <del>8</del>	$IO_{\pm}^{1}$		Cooch Behar	Lord Stavordale.
-15 (A)	$10\frac{1}{3}$	•••	Bengal	Col. Evans Gordon.
$14\frac{7}{8}$ (F)	IO		Duars	Major S. H. Pollen.
$14\frac{1}{2}(G)$	103		Deccan	Major W. J. R. Wingfield.
$-14\frac{1}{2}$	IO		Tarai	Bombay Natural History Society.
142	$10\frac{1}{8}$		Central Provinces .	Major W. H. Hunter.
$-14\frac{1}{2}(C)$	$10\frac{1}{4}$		Bijnor District,United Provinces	The late A. M. Markham.
141	9 <del>5</del>	4 12	Duars	Sir Edmund G. Loder, Bart.
14 <del>1</del> (н)	$IO_2^1$	52	Central Provinces .	Major M. D. Goring-Jones.
141	103		Do	LieutCol. E. A. D'Arcy Thomas.
141 (D)	$9\frac{1}{2}$		Kanara Jungles .	W. Holland.
14‡ (E)	$9\frac{1}{2}$		Tarai	R. Nolan.
145	$9\frac{3}{4}$	4 8	Rewah	H.H. the Maharajah of Rewah.
134	9 <sup>3</sup> 8	4 10	N.E. Bengal	A. M. Murdoch.
-13 <sup>3</sup> / <sub>4</sub> (B)	$9\frac{1}{4}$		North Kanara .	LieutCol. L. L. Fenton.
134	$9\frac{3}{8}$	4 10	Mirzapur	P. B. Vander Byl.
134	$9^{\frac{1}{16}}_{\frac{1}{6}}$	46	3	Col. H. W. Gordon.
$13\frac{1}{2}$	IO	5 0	Persia	LieutCol. R. L. Kennion.
♀ I 3 <u>1</u>	$9 \frac{3}{16}$		Kalchi	H. B. Learoyd.
		ARC	- Owner's measuremen	

A, B, C, D, E, F, G, H. For skins see pp. 494-495.

1779 1941 - 4

# Skins.

Length of skin dressed		L	locality.			Owner.
ft. ins.	N					A D' 11
13 6	Mongolia	•	·	•	·	A. Bignold.
I2 4	Do.	·	•	•	•	H.H. the Sultan of Johore.
12 0	Do.			·	•	H.R.H. the Duc d'Orléans.
11 $3\frac{1}{2}$	Do.	•				Col. W. Hall Walker.
10 8	Persia	•		·		LieutCol. R. L. Kennion.
		1 S	ee note	on p.	491.	

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2 K

#### The LEOPARD (Felis pardus).

<i>Chita</i> , Hindustani.	<i>Nimr</i> , Sudani.
Damissa, Hausa.	<i>Ngo</i> , Waganda.
Harvard, M'Kua.	Nyalugwi, Manganza.
Ingwi, Zulu, Swazi, Matabili,	<i>Shabel</i> , Somali.
and Matonga.	Siveri, Alomwi.
Inkwi, Bechuana and Basuto.	Tijger, Cape Dutch.

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. African leopards often have the spots on the body of smaller size, and many of them without light centres, like those on the head. The West African race is F. pardus leopardus, and large-spotted East African leopards have been named F. p. suahelica and F. p. ruwenzorii. The Somali F. p. nanopardus is a very small light-coloured race. In Persia, Baluchistan, the mountains of Sind, and probably Kashmir, is found a race of the leopard (F. p. panthera or tulliana), characterised by its pale colour, long fur, and thick tail. The Malay leopard (F. p. variegata) is a largespotted race; as is also the Korean and Chinese F. p. orientalis. Very distinct is the Amur and Manchurian F. p. villosa, an 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. In the forest districts of Asia black leopards are not uncommon, and they also occasionally occur in Abyssinia, the home of the large F. p. nimr. Some Siamese leopards show small spots within the dark rosettes. 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  $21\frac{1}{2}$  inches, of the forearm  $II_{\frac{1}{2}}^{\frac{1}{2}}$  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 Japan.

### LEOPARD

be	ngth fore med.	Total length dressed.	Weight.	Locality.			Owner.
	ins.	ft. ins.	lbs.				
8	6	••••	•••	Kashmir	•	•	Major A. G. Arbuthnot.
8	4			S. India .			F. Gompertz.
8	4			Cooch Behar		•	H.H. the Maharaja of Cooch Behar.
8	$2^{1}_{3}$			Do			Do.
8	$I\frac{1}{2}$			Central Province	es .		Capt. G. W. Hemans.
8	0	•••	154	Cooch Behar .			H.H. the Maharaja of Cooch Behar.
8	о	$8  8\frac{1}{2}$		India			Count J. Potocki.
7	II			Mandla			O. Kauffmann.
7	10	8 4 <sup>3</sup> / <sub>4</sub>		Ganges Kadir .			See below. <sup>1</sup>
7	ю			Mhow			Major F. W. H. Walshe.
7	10			Nepal			LieutGen. Kaiser Shumsher Jung, R.B.
7	$9\frac{1}{2}$	8 6		Central Province	s		Col. J. J. Harrison.
7	9			Nepal			C. H. H. B. Caldwell.
7	9			Oudh		•	Mrs. Innes.
7	8	•••	·	Hyderabad, Dec	can .		Major C. E. G. Norton and Capt. Sir K. Fraser, Bart.
7	8			Ganges Kadir .			Muttra Tent Club. <sup>2</sup>
7	8			U. Burma		•	H. Shaw Dunn.
7	7	8 7 <sup>1</sup> / <sub>2</sub>		Siwaliks			E. H. E. Green.
7	7	8 10		Central Province	s.		Capt. R. D. Gard'ner.
Ŷ7	4	8 I	145	Bijnor District	•		Major E. McK. Williams.

#### OWNER'S MEASUREMENTS—INDIAN SPECIMENS.

<sup>1</sup> Speared by Capt. H. Hoare (5th D.G.), Major J. G. Rotton (R.A.), and Major W. Gillman (R.H.A.). <sup>2</sup> Speared by Major A. C. King and some officers of the 5th Lancers, when out with the Muttra Tent Club.

ecunt Scholorer .			M	ale.	Fe	male.	
			ft.	ins.	ft.	ins.	
Length from tip of nose to end of tail			7	0	6	4	
,, ,, root of tail	• ·		4	$3\frac{1}{2}$	3	7	
Height at shoulder (estimated) .			2	$2\frac{1}{2}$	I	9	
Girth			2	7	2	I	
Circumference of upper arm			0	13	0	IO	
,, forearm			0	104	0	$8\frac{1}{2}$	

The following specimen belongs to one of the Chinese or Manchurian races :---

Length m

before skinned.	Total length dressed.	Weight.	Locality.	Owner.
ft. ins.	ft. ins.	lbs.	Tai Kung Shan Moun-	Commander the Hon. R. O. B.
85 II		65	tains	Bridgeman, R.N.

# RECORDS OF BIG GAME

	h before nned.	Height at shoulder.	Weight.	Locality.	Owner.
ft.	ins.	ft. ins.	lbs.		
8	7			East Africa	K. V. Painter.
8	$I\frac{1}{2}$			Niwimbi, Portuguese Nyasaland	J. Sealy-Bell.
7	$10\frac{1}{2}$	$2 7\frac{1}{2}$		Sudán	Marquis Pizzardi.
Ŷ7	9	2 $3\frac{1}{2}$		Matabililand	Rhodesia Museum.
7	9			Sudan	Gustav von Dippe.
7	7월	2 6		East Africa	Percy C. Madeira.
7	6			Do	Lady Grisel Hamilton.
7	4			Do	L. F. Eames.
7	$3\frac{1}{2}$			Somaliland	Count J. Potocki.
7	3‡		136 <u>1</u>	N.W. Rhodesia	C. H. S. Bellis.
7	3			Wadelai, E.C. Africa .	MajGen. W. P. Pulteney.
7	2			Somaliland	Count Scheibler.
7	0		<b>I</b> 10	Sudan	W. B. Cotton.
6	$10\frac{1}{2}$	2 $4\frac{1}{2}$		Gondokoro	Dr. A. MacCarthy Morrogh.
6	10			Somaliland	Count Scheibler.
6	10		140	Nyasaland .	A. White.
6	3			Somaliland	Norman B. Smith.
6	0			Do	Count E. Hoyos.
Ŷ 5	$10\frac{1}{2}$	2 I	55	East Africa	Capt. R. Meinertzhagen.
5	7	I IO (girth 21 <sup>1</sup> / <sub>2</sub> ins.		Nigeria	MajGen. T. D. Pilcher.

#### OWNER'S MEASUREMENTS-AFRICAN SPECIMENS.

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. :---

Leng tip in	th, tip t a straig line.	o over ht "sport	ngtn ' all— 'sman's ' rement.	"shou	nated Ider ght.	Girth of neck.	Girth behind shoulder.	Girth of forearm.	Length of skull.	Zygomatic width.	Clea: weig	
ft	ins.	ft.	ins.	ft.	ins.	ins.	ins.	ins.	ins.	ins.	lbs.	oz.
6	II	7	2	2	7	22	$35\frac{1}{2}$	$12\frac{1}{2}$	$9\frac{7}{8}$	$6\frac{1}{8}$	I	8
6	9	7	2	2	7	20	33 <sup>1</sup> 8	11‡	9	51		•

Tanah

Total length. ins	Width. ins.	Weight. lbs. oz.	Locality. Owner.
117	7 <del>호</del>	I I2	Gabun Sir Edmund G. Loder, Bart.
105	$6\frac{3}{16}$		N. Nigeria B. C. Parr.
-10‡	6 <del>§</del>		Bijnor District, United The late A. M. Markham. Provinces
104			White Nile A. L. Butler.
-I0 <sup>3</sup>	6‡		Gir Forest, Kathiawar . LieutCol. L. L. Fenton.
10	$6\frac{1}{2}$	I 6	Belgaum, India Sir Edmund G. Loder, Bart.
91 <sup>9</sup> 5	6 <del>1</del>		East Africa L. F. Eames.
9	5부분	13	Somaliland J. H. Thomson.

Skulls.

- Owner's measurements.

#### The SNOW-LEOPARD or OUNCE (Felis uncia).

### Shieh Pao, of Chinese.

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.

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	dressed.	Weight.	Locali	ty.		Owner.
ft.	ins.					
8	8		Central Asia		·	A. Ezra.
8	8		Baltistan .			Capt. C. M. Hawes.
8	6		?			Capt. B. C. Graham.
8	6	Skull, $7\frac{3}{4} \times 5\frac{1}{4}$	Baltistan			R. Rankin.
8 (r:	$2\frac{1}{2}$ aw)		Do.			E. Langworthy.
7	10	••••	Near Leh .			LieutCol. S. Frewen.
-7	8		China .		•	M. Mitchell.
-7	53		Pamir .		•	Viscount Edmond de Poncins.
-7	5		?			LieutCol. F. J. Harden.
-7	4	Skull, $7\frac{1}{16} \times 4\frac{7}{8}$	Kashmir .			LieutCol. H. C. Tytler.
-7	4	(24 inche	s at shoulder)			The late R. A. Sterndale.

- Owner's measurements.

## The CLOUDED LEOPARD (Felis nebulosa).

Kwei ko-pao, Chinese.

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 greyish 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 race (*F. nebulosa brachyurus*), with somewhat different markings and a shorter tail, in Formosa.

Length ft.	dressed. ins.	Weight. Ibs.	Locali	ty.	Owner.
-6	6		Assam .		The late B. H. Hodgson.
6	5		Yun-nan	•	M. Mitchell.
-6	4	$44\frac{1}{2}$	?		The late R. A. Sterndale.
6	3		?		Sir Guy Fleetwood Wilson.
5	10		Sumatra.	•	British Museum.
5	9		?		Major B. R. M. Glossop.
5	$7\frac{1}{2}$		Assam .	•	P. Russel.
			<b>O</b> 1		

## Skins.

- Owner's measurements.

#### Skulls.

Basal length from back to front.	Breadth.	Locality.	Owner.
6.2 ins.	4.75	Assam	. The late B. H. Hodgson.

#### The 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. The tail is shorter than a leopard's.

Distribution.—America, from Louisiana, Texas, and Northern Mexico to about the Rio Negro on the northern confines of Patagonia in lat.  $40^{\circ}$  S.

Length before skinned.	Length dressed.	Locality.	Owner.
ft. ins.	ft. ins.		
-9 3	9 3	Brazil	Count Henry Coudenhove.
$-8 3\frac{3}{4}$		Do	Do.
-6 II	79	Paraguay	Col. J. J. Harrison.

### The PUMA (Felis concolor).

With the exception of the small and long-tailed jaguarondi and eyra, 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 white-tailed deer, to reddish in summer and to greyish in winter, with the middle of the back darker, and a whitish patch on the back of the otherwise black

## RECORDS OF BIG GAME

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 greyer tint of the fur. A Patagonian race has pale ears.

Length before skinned.	Weight.	Locality.	Owner.
ft. ins.	lbs.		
-8 6	about 150	?	A. Pendarves Vivian.
-7 65		Brazil	Count Henry Coudenhove.
-7 5		Gallegos River, Patagonia .	W. Moncreiffe.
-7 3		Fraser River, British Columbia .	The late J. Fannin.
-7 0		Wyoming	J. L. Scarlett.

- Owner's measurements.

## LYNXES (Felis [Lynx] 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 race, and the Canadian lynx (F. lynx canadensis), which ranges as far south as California, is another race; while the Caucasian and Persian lynx is now classed as a distinct species, F. cervaria. The red lynx (F. rufa), which is also widely extended in America, and has numerous local races, is a third 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.

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## L YNXES

# A.--EUROPEAN LYNX (Felis lynx).

Length before skinned.	Estimated height at shoulder.	Locality.	Owner.
-49‡ ins.		Andalusia	. Abel Chapman.
-46 ,,		Near St. Petersburg	. Count Bobrinskoy.
-42.9 ,,		Eastern Carpathians	. Prince Henry of Liechtenstein.
-42 ,,	23	Do.	. Count Henry Coudenhove.

# B.-CANADIAN LYNX (F. lynx canadensis).

Length before skinned.	ngth before Height at Weight. skinned. shoulder. Weight.		Locality.		Owner.	
-38 ins.	25	60 lbs. (about)	Wyoming	•	Major G. Dalrymple White.	
			- Owner's measurements.			

# C.-RED LYNX (Felis rufa).

Length before skinned.	Height at shoulder.	Weight.	Locality.		Owner.
-33 ins.	´17	•••	Wyoming .		Capt. M. McNeill.
-32 ,,	22	40 lbs. (about)	Nova Scotia	· ·	Major G. Dalrymple White.

# D.-CARACAL (Felis caracal).

Flat skin.	Locality.		Owner.
$-46\frac{1}{2}$ ins.	Nr. Grahamstown, S. Africa		Dr. H. Smith.

- Owner's measurements.

#### The 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.

In Africa the chita is the "Ihlose" of the Zulus and Swazis. It 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 wrote that "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." Many local races have been named.-

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.

I		n before ined.		gth of ail.	Estimated height at shoulder.	Locality.		Owner.
	ft.	ins.	ft.	ins.				
	-7	9				East Africa .	•	Capt. R. Meinertzhagen.
	-7	31				N.W. Rhodesia . 136½ lbs.	•	C. H. S. Bellis.
	-6	6	2	2		East Africa		Percy C. Madeira.
	6	6	2	$6\frac{1}{2}$		Zululand		A. Cameron.
	-6	$4\frac{3}{4}$	2	$3\frac{1}{2}$	$28\frac{1}{2}$	N.E. Transvaal 90 lbs.	•	Dr. Percy Rendall.
	-6	3	2	$4\frac{3}{4}$	$29\frac{1}{2}$	East Africa .	·	H. C. Williams.
						- Owner's measurem	ents.	

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.	Tail.	Vertical height.	Girth of forearm.	Do. shoulders.
6 ft. 8 ins.	7 ft. 7 ins.	2]ft. 9 ins.	2 ft. 11 <sup>1</sup> / <sub>2</sub> ins.	8‡ ins.	31 ins.

#### The SPOTTED HYÆNA (Hyæna [Crocuta] crocuta).

Uaraba, Somali.	Marfain, Sudani.
<i>Yangula</i> , Danakil.	Ugandu, Mpisi.
Jib, Abyssinian.	Setongwani, Barotsi.
Kuva, Hausa.	<i>Piri</i> , Ngami.
Kochupa, M'Kua.	Chimbwi, Chilala and Chibisa.

The hyænas form a small family of Carnivora allied in some respects to the cats, but distinguished by the structure 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, of which there are several races, 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.

Length before skinned.	Length of tail.	Extreme length over all.	Estimated standing height.	Girth behind shoulders.	Weight.	Locality.	Owner.
ft. ins. -5 0	ft. ins.	ft. ins.	ft. ins.	ins. 29	lbs. 121	East Africa	Capt. R. Meinertz-
$-4 9\frac{1}{2}$		 63		39 <sup>1</sup>			hagen. F. Vaughan Kirby,
-4 8			26				J. H. H. Dodds.

Skulls.
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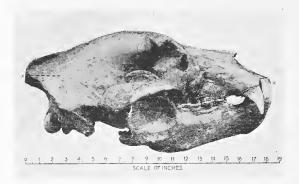
Length. ins.	Width. ins.	Weight. lbs. oz.	Locality.	Owner.
$-12\frac{1}{4}$	71	2 8	South-East Africa	. F. Vaughan Kirby.
$-12\frac{1}{4}$	7 <sup>3</sup> 8	2 12	Zomba, B.C.A.	. D. MacAlpine.
12	8		Somaliland .	. J. H. H. Dodds.
$II\frac{1}{2}$	7 <del>1</del> 3		Benue Valley .	. Capt. E. J. Wolseley.
-II	7월		Somaliland .	. Viscount Edmond de Poncins.
$-10\frac{5}{8}$	65		South-East Africa	. Sir Edmund G. Loder, Bart.
-105	$6\frac{7}{8}$	2 3	East Africa .	. The late Rear-Admiral R. A. I. Montgomerie, R.N.

## The STRIPED HYÆNA (Hyæna striata).

Distribution .- India, Arabia, Syria, etc., and North and East Africa.

Length before skinned.	Length of tail	Standing height.	· Loca	lity. :	Owner.
ft. ins. -4 4 <sup>1</sup> / <sub>2</sub>	ft. ins.	ft. ins. 2 $2\frac{1}{2}$	Somaliland		.'J. H. H. Dodds.
-3 6	I 5		India .		. The late Dr. T. C. Jerdon.

Owner's measurements.



Skull of Kamchatkan 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 Urside 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, mention may be made of their large bodily size, clumsy build, shaggy fur, generally 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. The typical member of the group is the familiar brown bear (*Ursus arctus*) of Europe, in which the colour is generally a darker or lighter shade of brown, but occasionally tends to greyish. The Syrian bear (*U. arctus syriacus*), in which this greyish 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 8 feet, but the East Siberian and Kamchatkan bears (*U. arctus piscator*) grow to 9 feet. Even more gigantic is the Kodiak bear (*U. arctus middendorffi*) of Kodiak Island, Alaska; while the Yezo bear (*U. arctus yesoensis*) of Japan is another large race, 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 Kodiak Island, with more resemblance to an ordinary brown bear than to a grizzly. The grisly, or grizzly, of the Rocky Mountains is a smaller bear, with longer, straighter, and whiter claws, and is generally regarded as representing a second species (U. horribilis). A race of this species is the Barren-Ground bear (U. h. richardsoni); and the species may be represented in Asia by the Tien Shan U. leuconyx. Another member of the group is the Atlas 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 exhibits distinctive features in the skull and teeth, and is generally black, although it may be grey, or even white (U. a. kidderi). The Himalayan black bear (U. torquatus), which may be recognised by the conspicuous white gorget on the breast, is a relative of the last-named species. In Japan it is represented by the Japanese black bear (U. japonicus). One of the smallest species of the genus is the very distinct Malay bear (U. malayanus), which ranges into Sze-chuan; and allied to this is the spectacled bear (U. ornatus) of the Peruvian and Bolivian Andes, 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 the Polar bear (U. maritimus), so distinct, indeed, that many naturalists consider it ought to form a genus 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. 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 represent 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.

D 11 1	Width				
Basal length from back to front.	across the zygomatic arches.	Weight cleaned.	Race, or Species.	Locality.	Owner.
ins.	ins.	lbs. oz.			
$-20\frac{1}{2}$	117	•••		Alaska	J. W. Anderson.
183	113	12 0	Cave bear	Europe	Sir Edmund G. Loder, Bart.
$-18\frac{3}{8}$	$10\frac{3}{4}$		?	Alaska	F. T. Colby.
18	II	10 0	Kamchat- kan	Siberia	Hon. Walter Rothschild.
$17\frac{1}{2}$	$10\frac{7}{8}$	84	Alaskan .	Alaska	Capt. C. R. E. Radclyffe.
-171	103		Do	Do	Rev. Dr. R. J. Nevin.
171	10	6 12	Kamchat-	Kamchatka .	P. Niedieck.
16	$9\frac{7}{8}$	58	kan Polar .	Novaia Zemlia	J. Lamont.
15 <u>7</u>	$IO_2^1$	5 13	Do	Polar Seas .	Sir Edmund G. Loder, Bart.
1513	$9\frac{5}{8}$	58	Do	Greenland .	C. A. Hamilton.
15 <del>3</del>	$9^{\frac{1}{1}\frac{3}{6}}$	5 14		Kamchatka .	Capt. C. R. E. Radclyffe.
$15\frac{1}{2}$	1038	бі		Alaska	L. J. Cadbury.
$15\frac{1}{2}$ (D)	9 <del>1</del>	5 10	Grizzly .	Brit. Columbia	Sir Peter Walker, Bart.
158	91	4 10	Kamchat-	Kamchatka .	Capt. R. E. R. Benson, R.N.
15 <sup>1</sup> / <sub>3</sub>	$9_{\bar{1}}^{\bar{7}}_{\bar{6}}$	5 10	kan Do	Do	W. S. Race.
$I4\frac{11}{16}$	9		Brown .	Do.	St. George Littledale.
-145	$8\frac{1}{8}$	4 2	Grizzly .	Montana .	Sir Edmund G. Loder, Bart.
$14\frac{1}{2}$	81	4 8	Do	Brit. Columbia	S. B. Bennett.
14§ (C)	81	5 0	Do	New Mexico.	Montague Stevens.
I4 <u>1</u>	81	3 12	Brown .	Europe .	Walter Winans.
135	83		Snow .	Kashmir .	Capt. B. H. Shaw-Stewart.
$-13\frac{1}{8}$	8	3 І	Do	Do	Sir Edmund G. Loder, Bart.
1278	$8\frac{3}{1.6}$	3 3	Black .	Nepal	LieutGen. Kaiser Shumsher
$-12\frac{7}{8}$	7		Sloth .	Mysore .	Jung, R.B. Capt. M. McNeill.
$12\frac{1}{2}$	7흫		Do	Cent. Prov	C. F. Egerton.
$I2\frac{1}{2}$	7		Grizzly .	Wyoming .	J. L. Scarlett.
$12\frac{1}{2}$ (B)	$6^{3}_{4}$		Sloth .	Cent. Prov	Surgeon-Major M. O'C. Drury.
$12\frac{3}{8}$	75		Snow .	Kashmir .	A. Ezra.
12 <u>3</u>	$7\frac{1}{2}$		Do	Do	Col. C. B. Wood.
123	7 <sup>3</sup> ±	3 0	Black .	Do	P. B. Vander Byl.
I 2 <sup>1</sup> / <sub>8</sub>	$7\frac{5}{8}$		Grizzly .	Wyoming .	J. L. Scarlett.
I 2	7불		Sloth .	Cent. Prov	C. F. Egerton.
$-11\frac{7}{8}$	71		Black .	Newfoundland	Percy C. Madeira.
$II_{2}^{1}(A)$	$6\frac{3}{4}$		Brown .	W. Caucasus	St. George Littledale.

# (a) Skulls.

- Owner's measurements.

# BEARS

#### OWNER'S MEASUREMENTS.

Length before skinned.	Length of raw skin.	Estimated height at shoulder.	Girth.	Weight.	Race, or Species.	Locality.	Owner.
ft. ins.	ft. ins. 13 6	ft. ins. :	ft. ins.	1bs. 1656	Kodiak .	Kodiak Island, Alaska	J. C. Tolman.
	11 6				?		American Museum of
	11 0	4 O		1460	?	Do	Natural History. J. W. Anderson.
	98	•••			Alaskan	Do	South African Museum.
	95				Do.	Do	Dublin Museum.
	95	46			Polar .	Baffin Bay .	W. Livingstone-
	95				Alaskan	Alaska	Learmonth. Hon. Walter Rothschild.
$7 9^{\frac{1}{2}}$	94			1014	Do.	Do	Capt. C. R. E. Radclyffe.
	-9 4	8 6 (across			Do.	Do	American National Collection.
	8 10	front paws	)		Do.	Do	British Museum.
8 10		(mounted)			Polar .	Barents Seas .	Duke of Peneranda.
8 7				1600	Do	Arctic Seas .	Captain Lyon.
	87		••••		Grizzly .	Wyoming .	T. P. Kempson.
8 7					Polar .	Spitzbergen .	A. Barclay Walker.
86	、···				Do	Franz Josef	Dr. S. H. T. Armitage.
8 5					Do	Land Greenland .	Col. Max C. Fleischmann.
	85				Black .	Kashmir .	LieutCol. W. Westropp
83					Kam-	Kamchatka .	White. Dr. F. H. H. Guillemard.
8 2				1020	chatkan Polar .	Greenland .	C. A. Hamilton.
	8 0 <u>1</u>				Grizzly .	Wyoming .	T. W. H. Clarke.
8 o		4 $3\frac{1}{2}$			Alaskan	Alaska	J. H. Kidder.
78					Snow .	Kashmir	W. Graham.
	8 o(1	D) 3 11			Grizzly .	Brit. Columbia	Sir Peter Walker, Bart.
	8 o (	c)		735	Do	New Mexico .	Montague Stevens.
	7 11			800	Brown .	Norway .	Capt. Gerard Ferrand.
	79			(about) 	Snow .	Kashmir	. LieutCol. C. F. Blane.
7 I					Sloth .	?	W. L. Hogg.
	7 $5\frac{1}{2}$				Black .	Wyoming	T. W. H. Clarke.
	7 $5\frac{1}{2}$				Brown .	Hungary .	Count M. Andrássy.
	74		· • •		Snow .	Kashmir	. Capt. B. H. Shaw-Stewart.

,

Length before skinned.	of	ngth raw an.		ht at	Girth.	Weight.	Race, o Species		Locality.	Owner.
ft. ins. 	ft. 7	ins. 0 <sup><u>3</u></sup> 4		ins. 	ft. ins. 	lbs. 680 (about)	Brown		Lithuania	. Prince Radziwill.
	7	0				·	Snow	·	Kashmir	. Major C. McI. Ritchie.
	7	0	3	2			Sloth		India .	. LieutCol. A. E. Ward.
•••	6	II					Black	•	Wyoming	. Col. J. J. Harrison.
	6		3	0	$\begin{array}{cc} 4 & 4rac{1}{2} \\  ext{forearm} \end{array}$	423	Sloth	•		. H.H. the Maharaja of Cooch Behar.
•••		10	4	I			?		Alaska .	. R. P. Blake.
•••	6	$9\frac{1}{2}$		•	25		Snow	·	Kashmir	. S. V. Occleston.
•••	6	$8\frac{3}{4}$		•	•••		Black	·	Garhwal	. Capt. A. W. Robertson- Glasgow.
	6	<b>8 (</b> B	)				Snow	•	Kashmir	A. Ezra.
•••	6	8	4	0		625	Kodiak		Kodiak I.	. A. W. Merriam.
67							Black		Kashmir	. LieutCol. L. L. Fenton.
	6	7					Do.		N. Brunswick	Sir Kenneth Crossley.
	6	6				700	Do.		Nepal	Lieut Gen. Kaiser
	6	6					Grizzly		Wyoming	Shumsher Jung, R.B. Count E. Hoyos.
•••	6	5					Do.		Do.	J. L. Scarlett.
	6	4			•••		Black		Kashmir	. The Master of Belhaven.
	6	3					Grizzly		Wyoming	J. L. Scarlett.
	6	$2\frac{1}{2}$			•••		Black		Brit. Columbia	a Count E. Hoyos.
	6	$I\frac{1}{2}$					Sloth		Mandla, Cent. Provinces	Capt. B. H. Boucher.
	6	I			··· <b>·</b>	•••	Cinnam	on		Col. J. J. Harrison.
	6	$O_2^1$					Sloth		Hyderabad .	Count E. Hoyos.
	6	0	3	0		280	Do.	•	?	The late G. P. Sanderson.
	6	0					Black		Newfoundland	Percy C. Madeira.
	5 1	$[0\frac{1}{2}]$	3	0	3 4		Snow		?	LieutCol. H. M. Biddulph.
	5	5	2	5 <sup>3</sup> /4	$2 10\frac{3}{4}$		Black		Brit. Columbia	Count Scheibler.
Ŷ	5 2	$2\frac{1}{2}$	2 1	1‡	4 4		Grizzly		Do.	Do.
	5	2 (A)				about	Brown		W. Caucasus .	St. George Littledale.
52			3	4	2 8	242	Do.		W. Kan-su .	G. Fenwick-Owen.
•••	4	7					Do.		Asia Minor .	H. O. Whittall.

N.B.—Some of the specimens entered as "Grizzly" may be the Barren-Ground bear.



Head of Walrus.

#### The WALRUS (Odobænus rosmarus).

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 have simple flattened crowns, unlike those of most 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, which may be regarded as races of a single species; the one restricted 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 walruses do not appear to inhabit the vast extent of coast lying between the western shore of Hudson Bay and Alaska. The Pacific walrus (O. r. obesus), which is the larger of the two, with longer tusks, always had a restricted range, and is now scarce. 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 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 those of nearly all old bull walruses, they were much broken at the points.

1	otal length of tusk.	Length from gum.	Weight.	Girth.	Locality.		Owner.
	36	$30\frac{1}{2}$	Ibs. oz.	$S_{2}^{1}$	5		Sir Thos. Hesketh, Bart.
	$-33\frac{1}{2}$	$25\frac{1}{2}$	$7 10\frac{1}{2}$	$8\frac{1}{2}$	Kamchatka		British Museum (The late Major G. E. H. Barrett-Hamilton).
	32 <del>3</del>			83	?		Bethnal Green Museum.
	32		IO 12	$IO_2^1$	2		Sir Edmund G. Loder, Bart.
	-32		99		Pacific .		Norwich Museum.
	-32		8 8	$9\frac{1}{2}$	Point Barrow	•	British Museum (Col. H. W. Feilden).
	$-31\frac{1}{2}$		•···	$8\frac{7}{8}$	Do	•	American National Collection.
	$31\frac{1}{2}$		94	9 <sup>3</sup> / <sub>4</sub>	Alaska' .		Prince Nicolas Ghika.
	305			$9^{1}_{8}$	Kamchatka	·	Lieut. H. A. Gillett, R.N.
	29			9∔	Arctic America	•	C. C. Branch.
	$-27\frac{1}{2}$			85	Pacific .		F. T. Colby.
	$-25\frac{5}{8}$			$8\frac{1}{2}$	Do		British Museum (The late Major G. E. H. Barrett-Hamilton).
	$-25\frac{1}{2}$			$8\frac{1}{2}$	Baffin Bay .		W. Livingstone-Learmonth.
4	25		7 10	9	Bering Sea .		Lieut. C. II. G. Benson, R.N.
		$22\frac{1}{8}$	•••	74	Spitzbergen	·	Sir Edmund G. Loder, Bart.
		$20\frac{3}{4}$		$7\frac{1}{2}$	Do. ,		Sir Victor Brooke's Collection.
		$18^{1}_{2}$		$7\frac{1}{2}$	Do		Arnold Pike.
		♀ 1S	•••	$4\frac{3}{1}$	Do	•	A. Barclay Walker.

Tusks.

Owner's measurements.

### NAR WHAL



Skull and Tusks of Walrus in the collection of Sir Edmund G. Loder, Bart.

### The NARWHAL (Monodon monoceros).

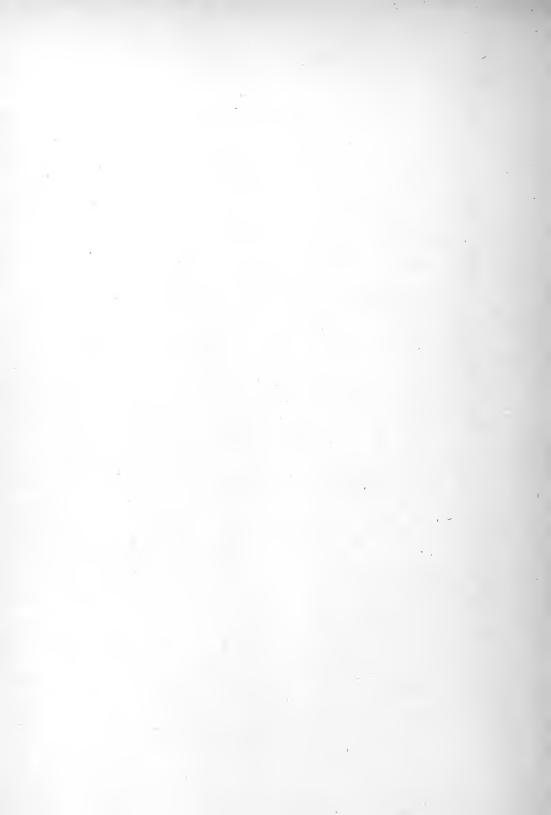
The Arctic narwhal is the only cetacean furnished with tusks. These are present only in the male, and generally the left one alone is developed. Occasionally, however, both grow, as exemplified in a specimen in the British, and a second in the Cambridge Museum. A model of this whale is exhibited in the British Museum.

Distribution.-Arctic Seas.

L	ength.		Circumference.	Weight.	Owner.
ft.	ins.			lbs.	
9	$4\frac{1}{2}$		7불		Major H. A. Steward.
8	$8\frac{1}{4}$		$8\frac{5}{8}$		Bethnal Green Museum.
8	7불		9	17	H.R.H. the Duc de Montpensier.
-8	7	1			Royal Scottish Museum.
8	7		' 8 <u>‡</u>	15	Sir Edmund G. Loder, Bart.
8	7		8		Carl Hagenbeck.
8	$3\frac{1}{4}$		7용		Bethnal Green Museum.
-8	2				American Museum of Natural History.
8	0		7 <del>3</del>		A. Barclay Walker.
7	II				J. H. Whitehouse.

## Tusks.

- Owner's measurements.



## HINTS

## FOR RECORDING THE LENGTH OF ANIMALS IN THE FIELD.

As the body lies on the ground, and where circumstances permit, proceed as follows :----

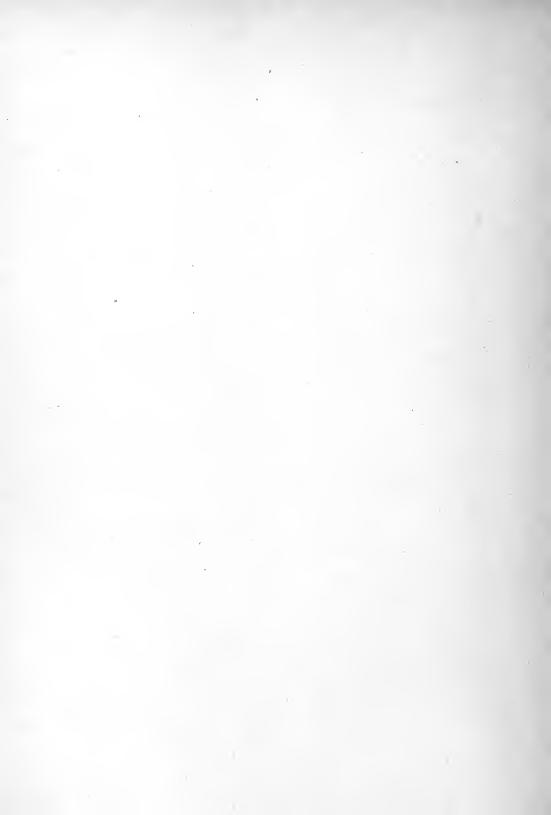
*Length.* Pull the nose and the tail so as to get them as nearly as possible in a straight line. Fix body with four pegs; one at end of the nose, one at end of tail, one at root of tail, and the fourth at the nape of the neck behind the ears.

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 :----

Length, straight from nose to tip of tail..... along curve to root of tail ... of tail . . . . •• of head to nape of neck . ... Girth, upper arm . forearm . . of body. ,, of head . Height at hind-quarters shoulder Length of foreleg hind-leg ,, Weight, cleaned . . not cleaned . ......... Cleaned skull, length. ..... . breadth . •• height . ,, weight ,,

In addition to these measurements, the sex, estimated age, locality, and 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, etc., should be recorded.



# RECORDS OF BIG GAME

Greatest width.	Length to longest tine.	Circum- ference ahove burr.	Tip to Tip.	Breadth of palm,	Points.	Locality.	Owner.
*							
Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.		Locality.	Owner.
	ı						
Length on outside curve.	Circum-	Tip to Tip.	Widest inside.	Widest outside.	Points.	Locality.	Owner.

# RECORDS OF BIG GAME

Length on front curve.	Circum- ference.	ITip to Tip.	Locality.	Owner.
Greatest width. Outside. Insid	de. Tip.to	Width of palm.	Locality.	Owner.
		۰. ۱		
Length, straight line. f	Circum- T erence. T	ip to Tip.	Locality.	Owner.

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Abyssinian Buffalo		•			422
,, Bushbuck					307
,, Defassa					192
,, Duiker					160
,, Ibex .					372
,, Oribi .					176
Addax					298
Addax nasomaculatus					298
Addra Gazelle .					273
Æpyceros melampus					226
,, ,, jok	nston	i			230
,, ,, pet					230
African Elephant .					479
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Alatau Argali .					402
Alces machlis .					96
,, ,, american	2215				97
,, ,, bedfordia	2				100
., ,, gigas					97
,, ,, typicus					99
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Altai Gazelle .		•			243
American Bison .					434
Ammodorcas clarkei					224
Ammotragus lervia		•			387
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Angola Defassa	•				195
,, Pala					230
Ankoli Buffalo .		•			419
Anoa					43I
Antelope, Four-horned			•		300
,, Indian					235
,, Roan					284
,, Sable				•	280
,, Tibetan		•			233
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Antidorcas marsup	bialis				• ,	275
Antilocapra ameri	cana					116
Antilope cervicapr	a					235
Aoul						269
Arabian Gazelle						249
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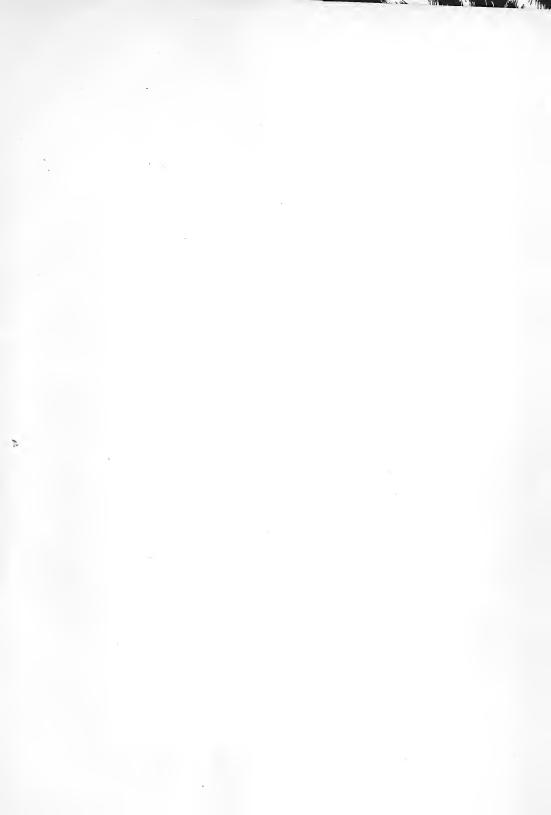
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