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THE
BOOK OF ANTELOPES.

BY

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SECRETARY TO THE ZOOLOGICAL SOCIETY OF LONDON,

AND

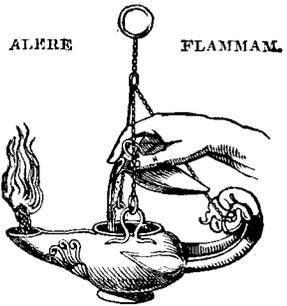
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Dedicated

TO

THE MEMORY

OF

SIR VICTOR ALEXANDER BROOKE, BART.,

NATURALIST AND SPORTSMAN

(Born 5th January, 1843, died 27th November, 1891),

BY

HIS FRIENDS AND FELLOW-WORKERS,

THE AUTHORS.

P R E F A C E.

A SHORT Introduction, stating the general plan of this work, was given in the first number of 'The Book of Antelopes,' published in August 1894. On completing the work by the issue of the last Part it has been determined by the Authors to explain its origin and object a little more fully, and this portion of the task has been intrusted to me.

It should be quite understood, in the first place, that, as has been stated in the Introduction, the original conception of the work is due to the genius and energy of the late Sir Victor Brooke, under whose supervision the greater number of the plates and other illustrations were prepared, and I need hardly say that it is greatly regretted by the authors that Sir Victor did not live to carry out his plan. Sir Victor was elected a Fellow of the Zoological Society of London in 1864, at which time I knew him only as an ardent sportsman, much attached to Natural History. Some time in the year 1870, I think it was, he called upon me at my office, and stated that he had been attending Sir William (then Professor) Flower's lectures at the College of Surgeons, and had quite determined to commence serious work in Natural History, being deeply interested in that subject. After talking over the matter with him for some time it was suggested that the Ruminant Mammals, with many of which Sir Victor as a sportsman was well acquainted, offered an excellent subject for work, and I promised that I would take every opportunity that fell in my way of putting at his disposal specimens of this

class. I was, of course, delighted at getting a recruit for Natural History of such energy and ability. I may mention here that amongst other questions which I asked him at this interview was whether he knew German, as without a knowledge of that language it would be impossible for anyone in these days to do good work in Natural Science. Sir Victor in reply regretted his ignorance of this language, but stated that he should set to work and learn it at once. A few months afterwards I found to my surprise that he had kept his word, and was already able to translate passages in the German authorities to which he had occasion to refer. I may add that I have given the same advice more than once to other would-be students of Natural History, but that I never recollect it having been followed with such immediate and successful results.

From my position at the Zoological Society and from the aid received from numerous correspondents in all parts of the world, I had little difficulty from the first in providing my much-esteemed friend with materials for his studies, and in the beginning of 1871 had the pleasure of putting at his disposal some notes and materials concerning the Antelopes of the genus *Tragelaphus*. Upon these was based the excellent paper on that genus read by Sir Victor before the Zoological Society on the 16th of May of that year, the first of a series of essays on this and kindred subjects. Four similar papers, as will be seen by reference to the Zoological Society's 'Proceedings,' followed in 1872, three in 1874, and others in succeeding years, until 1878, when, I regret to say, they came to an abrupt conclusion. The last of the series was one of an extremely useful and important character, containing, as it did, a complete essay on the classification of the Deer-family and a synopsis of the existing species, which, until recently, has remained our leading authority upon this difficult group of Mammals. During the whole of this time also Sir Victor had been engaged in collecting specimens, and in having drawings made by Wolf and put upon the stone by Smit, for a complete work on the Bovine animals which he had planned out and proposed to write. After 1878,

however, other matters intervened and sadly interfered with my friend's studies in Natural History. Sir Victor changed his habitual residence to Pau, and though I now saw him occasionally in London on his way from France to his home in Ireland, I could never induce him to continue his former researches, although he always assured me that he was still devoted to Natural Science and was determined to return to it eventually. Circumstances, however, prevented him from carrying his wishes into effect. In November 1891, when still in the prime of life, Sir Victor died, leaving his great work still unfinished, and represented mainly by a series of over a hundred lithographic plates, which, as already mentioned in the Introduction, have formed the basis of the present work. The MSS. which were also kindly placed at my disposal by the family, not having been touched for nearly fifteen years, were in such an incomplete state that it was impossible to utilize them. Upon pointing out this to his son, the present Sir Douglas Brooke, he was good enough to assure me that his only wish was that the best possible use for Science should be made of the whole of the materials accumulated by his father. Acting upon this understanding I undertook to prepare the letter-press of an entirely new work on the Antelopes, using such of Sir Victor's plates as I could employ for its illustration.

Such was the origin of the present work, now happily brought to a close after a period of six years, during which it has occupied no unimportant part of my leisure time. Even so it would not have been possible for me to have accomplished it without the able assistance of my excellent friend Mr. Oldfield Thomas, of the British Museum. It was, of course, of the greatest advantage to the work that Thomas was already familiarly acquainted with the subject, and had, moreover, under his charge the unrivalled series of specimens of Mammals contained in our National Collection.

Although Thomas and I consider ourselves, of course, jointly responsible for all the statements in this work, every line of which has undergone the supervision of both authors, I may state that Thomas's chief part of the task

was, as agreed between us, to be the synonymy and scientific descriptions, and my speciality the preparation of the ordinary letterpress. I must also not omit to mention that as regards the much-vexed subject of Zoological Nomenclature my friend and I are not in perfect accord, as he takes a more severe view of the rule of priority than I am disposed to adopt. There has, therefore, been necessarily a little "give and take" on each side as to the names to be adopted in this work. For these latter, in so far as they may be held to contravene the strict laws of nomenclature, Thomas desires to disclaim—as I am willing to accept—all responsibility. It should also be mentioned that during the issue of the last volume Thomas's somewhat serious illness and consequent absence from his post in London has compelled him to relegate some of his share in the present work to Mr. R. I. Pocock, of the British Museum, who, I need hardly say, has most efficiently assisted me in finishing the task and to whom I hereby tender my most sincere thanks.

I must also not forget to record the names of other friends and correspondents who have materially assisted us in the preparation of the 'Book of Antelopes.' Amongst these I must specially mention Herr Matschie, of the Natural History Museum of Berlin, who has kindly furnished many notes on the collection of Mammals under his charge in that Institution; nor must I forget the names of Mr. F. C. Selous, Herr Oscar Neumann, Mr. S. L. Hinde, Mr. F. V. Kirby, Capt. H. G. C. Swayne, Mr. Ernest Gedge, Sir Harry Johnston, K.C.B., Mr. R. Crawshay, Mr. Alfred Sharpe, Sir John Kirk, Mr. F. E. Blaauw, Mr. F. J. Jackson, Major F. C. Trollope, Dr. E. Büchner, Mr. E. Buxton, Mr. J. I. S. Whitaker, Sir Edmund Loder, Mr. A. E. Pease, Mr. Lort Phillips, Mr. T. W. H. Clarke, Mr. J. ffolliott Darling, Mr. John Millais, Mr. W. E. de Winton, and my son Mr. W. L. Sclater, Director of the South African Museum, Capetown, to all of whom, on behalf of Thomas and myself, I wish to tender our most heartfelt thanks for their kind assistance.

Finally, I may mention that this work has been issued in parts at the following dates :—

Part I. BUBALIDINÆ	Aug. 1894	Part X. ANTILOPINÆ	Feb. 1898
II. „	Jan. 1895	XI. „	June 1898
III. CEPHALOPHINÆ	May 1895	XII. „	Oct. 1898
IV. „	Sept. 1895	XIII. HIPPOTRAGINÆ ...	Feb. 1899
V. NEOTRAGINÆ	Jan. 1896	XIV. „	May 1899
VI. CERVICAPRINÆ	Aug. 1896	XV. TRAGELAPHINÆ ...	Jan. 1900
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The date attached to the letterpress at the end of each article is, as nearly as possible, that at which it was finished and corrected for the press.

P. L. S.

3 Hanover Square, London, W.
June 1st, 1900.

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ALPHABETICAL LIST

OF THE

ABBREVIATIONS USED IN THE REFERENCES TO LITERATURE, AND EXPLANATIONS OF THEM*.

- Abh. Ak. Berl.*—Abhandlungen der königlichen Akademie der Wissenschaften zu Berlin. 4to. Berlin.
- Act. Ac. Imp. Sc. Petrop.*—Acta Academiæ Scientiarum Imperialis Petropolitanae. 4to. Petropoli.
- Act. Holm.*—Kongl. Vetenskaps-Akademiens nya Handlingar. I. 8vo. Stockholm, 1780.
- Acta Acad. Theod. Palat.*—Acta Academiæ Electoralis Theodoro-Palatinæ. 4to. Mannhemii.
- Allamand.*—See Schneider's edition of Buffon.
- Andersson, Lake Ngami.*—Lake Ngami; or, Explorations and Discoveries during four Years' Wanderings in the Wilds of South-western Africa. By C. J. ANDERSSON. 8vo. London, 1856.
- Angas, Kaffirs Illustrated.*—Kaffirs Illustrated in a Series of Drawings taken among the Amazulu, Amaponda, and Amakosa Tribes. By G. F. ANGAS. Folio. London, 1849.
- Ann. Mag. N. H.*—The Annals and Magazine of Natural History. 8vo. London.
- Ann. Mus. Genov.*—Annali del Museo Civico di Storia Naturale di Genova. 8vo. Genoa.
- Ann. Mus. Wien.*—Annalen des k.-k. naturhistorischen Hofmuseums, Wien. 4to. Wien.
- Ann. Sci. Nat.*—Annales des Sciences Naturelles. Zoologie. 8vo. Paris.
- Arch. f. Nat.*—Archiv für Naturgeschichte, gegründet von A. F. A. WIEGMANN. 8vo. Berlin.
- Badm. Libr. Big Game Shooting.*—The Badmington Library. Big Game Shooting. By CLIVE PHILLIPPS-WOLLEY. 2 vols. 8vo. London, 1894.
- Baines, Expl. S.W. Afr.*—Explorations in South-west Africa. By T. BAINES. 8vo. London, 1864.
- Baker, Ismailia.*—Ismailia; a Narrative of the Expedition to Central Africa for the Suppression of the Slave Trade. By Sir SAMUEL W. BAKER, Pacha, M.A., &c. 2 vols. 8vo. London, 1874.
-

* Prepared (for the authors) by Mr. F. H. WATERHOUSE, Librarian to the Zoological Society of London.

- Baker, Nile Tributaries.**—The Nile Tributaries of Abyssinia, and the Sword Hunters of the Hamran Arabs. By Sir SAMUEL W. BAKER, M.A. 8vo. London, 1867.
- Baldwin, Afr. Hunt.**—African Hunting and Adventure from Natal to the Zambesi. By W. C. BALDWIN. 8vo. London, 1854.
- Barth, Reise.**—Reisen und Entdeckungen in Nord- und Central-Afrika in den Jahren 1849 bis 1855. Von Dr. HEINRICH BARTH. 8vo. Gotha, 1857.
- Bechst. Allgem. Uebers. vierf. Thiere, or Bechst. Syst. Uebers. vierf. Th.**—Thomas Pennant's Allgemeine Uebersicht der vierfüssigen Thiere. Aus dem Englischen übersetzt von J. M. BECHSTEIN. 2 vols. 4to. Weimar, 1799–1800.
- Bennett, Gard. & Menag. Z. S.**—Gardens and Menagerie of the Zoological Society delineated. 2 vols. 8vo. Chiswick, 1830.
- Blanf. E. Persia.**—Eastern Persia: an Account of the Journeys of the Persian Boundary Commission, 1870–72. Vol. II. Zoology and Geology. By W. T. BLANFORD. 8vo. London, 1876.
- Blanf. Mamm. Brit. Ind.**—The Fauna of British India, including Ceylon and Burma. Mammalia. By W. T. BLANFORD, F.R.S. 8vo. London, 1888–91.
- Blanf. Yark. Miss., Mamm.**—Scientific Results of the Second Yarkand Mission; based upon the Collections and Notes of the late Ferdinand Stoliczka, Ph.D. Mammalia. By W. T. BLANFORD. 4to. Calcutta, 1879.
- Blanf. Zool. Abyss.**—Observations on the Geology and Zoology of Abyssinia. By W. T. BLANFORD. 8vo. London, 1870.
- Blyth, Cat. Mus. As. Soc.**—Catalogue of the Mammalia in the Museum Asiatic Society. By EDWARD BLYTH. 8vo. Calcutta, 1863.
- Bodd. Elench. Anim.**—P. Boddaert, Elenchus Animalium. 8vo. Rotterodami, 1785.
- Brehm, Thierl.**—Brehm's Thierleben. Allgemeine Kunde des Thierreichs. Säugethiere. Band III. Royal 8vo. Leipzig, 1880.
- Brookes, Cat. Mus.**—A Catalogue of the Anatomical and Zoological Museum of Joshua Brookes, Esq. 8vo. London, 1828.
- Bryden, Gun and Camera.**—Gun and Camera in Southern Africa. By H. ANDERSON BRYDEN. 8vo. London, 1893.
- Bryden, Kloof and Karroo.**—Kloof and Karroo: Sport, Legend, and Natural History in Cape Colony. 8vo. London, 1889.
- Buff. Hist. Nat.**—Histoire Naturelle, générale et particulière, avec la Description du Cabinet du Roi. PAR COMTE DE BUFFON. 44 vols. 4to. Paris, 1749–1804.
- See also **Schneider**.
- Bull. Soc. Acclim.**—Bulletin de la Société Nationale d'Acclimatation de France. 8vo. Paris.
- Bull. Soc. Moscou.**—Bulletin Société Impériale des Naturalistes de Moscou. 8vo. Moscou.
- Bull. Soc. Philom.**—Bulletin de la Société Philomathique de Paris. 4to and 8vo. Paris.
- Burch. List Mamm. pres. to B. M.**—List of the Mammals presented to the British Museum. By W. J. BURCHELL. 8vo. London, 1825.

- Burchell, *Trav.*—Travels in the Interior of Southern Africa. By WILLIAM J. BURCHELL. 2 vols. 4to. London, 1822–24.
- Büttik. *Reisebilder*, or Büttik. *Reiseb. a. Liberia.*—Reisebilder aus Liberia. Von J. BÜTTIKOFER. 2 vols. 8vo. Leiden, 1890.
- Calc. Journ. N. H.*—Calcutta Journal of Natural History. 8vo. Calcutta.
- Chanler, *Through Jungle and Desert.*—Through Jungle and Desert, Travels in Eastern Africa. By W. A. CHANLER. 8vo. London, 1896.
- Chapman, *Travels &c.*—Travels in the Interior of South Africa. By JAMES CHAPMAN. 2 vols. 8vo. London, 1868.
- Cretzschmar, *Atl. Rupp. Reise.*—Atlas zu der Reise im nördlichen Afrika von Eduard Rüppell. Säugethiere. Bearbeitet von Ph. J. CRETZSCHMAR. Folio. Frankfurt-am-Main, 1826.
- Cumming, *Hunter's Life in S. Afr.*—Five Years of a Hunter's Life in the far Interior of South Africa. By R. GORDON CUMMING. 2 vols. 8vo. London, 1850.
- Cuv. *An. K.*—See Griff. *Cuv. An. K.*
- F. Cuv. *H. N. Mamm.*—Histoire Naturelle des Mammifères, avec des figures originales, coloriées, dessinées d'après des Animaux vivants ; ouvrage publié sous l'autorité de l'Administration du Muséum d'Histoire Naturelle. Par GEOFFROY SAINT-HILAIRE et FRÉDÉRIC CUVIER. Folio. Paris.
- G. Cuv. *R. A.*—Le Règne Animal. Par M. le Ch^{er}. CUVIER. 4 vols. 8vo. Paris, 1817.
- . — . 8vo. Paris, 1836–46. (Masson & Co.)
- G. Cuv. *Tabl. Élé.*—Tableau élémentaire de l'Histoire Naturelle des Animaux. 8vo. Paris, 1798.
- Daniell, *African Scenery.*—African Scenery, being Illustrations of the Animals and Native Inhabitants in Southern Africa. By SAMUEL DANIELL. Folio. London, 1804–8.
- Daniell, *Afr. Sketch.*—Sketches representing the Native Tribes, Animals, and Scenery of Southern Africa, from Drawings made by the late Mr. Samuel Daniell, engraved by WILLIAM DANIELL. 4to. London, 1820.
- De Fil. *Viagg. in Persia.*—Note di un Viaggio in Persia nel 1862. Di F. DE FILIPPI. 8vo. Milano, 1865.
- Démidoff, *Voy. Russ. Mérid.*—Voyage dans la Russie Méridionale et la Crimée. Exécuté en 1837, sous la Direction de M. ANATOLE DE DÉMIDOFF. Tome III. 8vo. Paris, 1840.
- Denh. & Clapp. *Trav.*—Narrative of Travels and Discoveries in Northern and Central Africa in the Years 1822–24. By Major DENHAM, Captain CLAPPERTON, and the late Doctor OUDNEY ; with an Appendix by Major DIXON DENHAM and Captain HUGH CLAPPERTON. 4to. London, 1826.
- Desm. *Mamm.*—Mammalogie, ou Description des Espèces de Mammifères, par M. A. G. DESMAREST. 2 parts in 1 vol. 4to. Paris, 1820–22.
- Dict. Class.*—Dictionnaire Classique d'Histoire Naturelle. 8vo. Paris, 1822–30.
- Dict. Sci. Nat.*—Dictionnaire des Sciences Naturelles. 8vo. Paris, 1816–30.

- Dict. Univ. d'H. N.*—Dictionnaire Universel d'Histoire Naturelle. Dirigé par M. CHARLES D'ORBIGNY. Text 13 vols., Atlas 3 vols. 8vo. Paris, 1847–49.
- Distant, Transvaal.*—A Naturalist in the Transvaal. By W. L. DISTANT. 8vo. London, 1892.
- Donnd. Zool. Beytr.*—Zoologische Beyträge zur xiii. Ausgabe des Linnéischen Natursystems. By JOHANN AUGUST DONNDORFF. 4 vols. 8vo. Leipzig, 1792–98.
- Drummond, Large Game S. Afr.*—The Large Game and Natural History of South and South-east Africa. From the Journals of the Hon. W. H. DRUMMOND. 8vo. Edinburgh, 1875.
- Du Chaill. Expl. & Adv. Equat. Afr.*—Explorations and Adventures in Equatorial Africa. By PAUL B. DU CHAILLU. 8vo. London, 1861.
- Echo du Monde Savant.*—L'Echo du Monde Savant. 4to. Paris.
- Edinb. Journ. Sc.*—Edinburgh Journal of Science. 8vo. Edinburgh.
- Ehrenb. Symb. Phys.*—Symbolæ Physicæ, seu Icones et Descriptiones corporum naturalium novorum aut minus cognitorum quæ ex itineribus per Libyam, Ægyptum, Nubiam, Dongalam, Syriam, Arabiam et Habessiniam. Publico Institutis sumptu F. G. HEMPRICH et C. G. EHRENBURG. Folio. Berolini, 1828.
- Eichwald, Faun. Caspio-Caucas.*—Fauna Caspio-Caucasia. Von E. EICHWALD. 4to. Petropoli, 1841.
- Elliot, Publ. Chicago Mus., Zool.*—Field Columbian Museum. Publications. Zoological Series. 8vo. Chicago, U.S.A.
- Emin, Kiese-Briefen.*—Emin Pasha in Central Africa, being a Collection of his Letters and Journal. Edited and annotated by Prof. G. SCHWEINFURTH, Prof. F. RATZEL, Dr. R. W. FELKIN, and Dr. G. HARTLAUB. Translated by Mrs. R. W. FELKIN. 8vo. London, 1888.
- Erxl. Syst. R. A.*—Christ. Polyc. Erxleben Systema Regni Animalis per Classes, Ordines, Genera, Species, &c. Classis I. Mammalia. 8vo. Lipsiæ, 1777.
- "Field."*—Field, the Farm, the Garden; the Country Gentleman's Newspaper. Folio. London, 1853–1900.
- Fisch. Zoogn.*—Zoognosia tabulis synopticis illustrata, etc. Auctore GOTTHELF FISCHER. 3 vols. Mosquæ, 1813–14.
- Fisch. Syn. Mamm.*—Synopsis Mammalium. Auctore JOHANNES BAPTISTA FISCHER. 8vo. Stuttgartiæ, 1729.
- Flow. & Gars. Cat. Ost. Coll. Surg.*—Catalogue of the Specimens illustrating the Osteology and Dentition of Vertebrated Animals recent and extinct, contained in the Museum of the Royal College of Surgeons of England. Part II. Mammalia. By W. H. FLOWER, LL.D., assisted by J. G. GARSON, M.D. 8vo. London, 1884.
- Flow. & Lyd. Mamm.*—An Introduction to the Study of Mammals living and extinct. By W. H. FLOWER, C.B., and RICHARD LYDEKKER, B.A. 8vo. London, 1891.
- Forst. Descr. Anim.*—Descriptiones Animalium quæ in itinere ad Maris Australis Terras per Annos 1772–74. Collegit, Observavit et Delineavit J. R. FORSTER. Curante HENRICO LICHTENSTEIN. 8vo. Berolini, 1844.

- Forst.** *Zool. Ind.*.—Indische Zoologie oder systematische Beschreibungen seltener und unbekannter Thiere aus Indien. Herausgegeben von J. R. FORSTER. Folio. Halle, 1781.
- Fraser**, *Zool. Typ.*.—Zoologia Typica, or Figures of new or rare Mammals and Birds described in the Proceedings or exhibited in the Collections of the Zoological Society of London. By LOUIS FRASER. Folio. London, 1849.
- Gatt.** *Brev. Zool.*.—Breviarum Zoologiæ. Pars I. Mammalia. Auctore C. W. J. GATTERER. 8vo. Gottingæ, 1780.
- I. Geoffr. St.-Hil.** *Voy. Jacq. Mamm.*.—Voyage dans l'Inde, par Victor Jacquemont, pendant les Années 1828 à 1832. Tome IV. Mammifères, par I. GEOFF. SAINT-HILAIRE. Folio. Paris, 1844.
- Gerrard**, *Cat. Bones Mamm. B. M.*.—Catalogue of the Bones of Mammalia in the British Museum. By EDWARD GERRARD. 8vo. London, 1862.
- Gerv.** *Hist. Nat. Mamm.*.—Histoire Naturelle des Mammifères. Par PAUL GERVAIS. 2 vols. 4to. Paris, 1854–55.
- Gesner**, *Hist. Anim. Quadr.*.—Conradi Gesneri medici Tigurini, Historiæ Animalium. Liber I. de Quadrupedibus viviparis. Editio secunda. Folio. Francofurti ad M., 1620.
- Ghika**, *Au Pays des Somalis.*.—Cinq Mois au Pays des Somalis. Par Prince N. D. GHIKA. 8vo. Genève et Bâle, 1898.
- Gieb.** *Säug.*.—Die Säugethiere in zoologischer, anatomischer und palæontologischer Beziehung, umfassend dargestellt von Dr. C. G. GIEBEL. 8vo. Leipzig, 1859.
- Glean. in Sc.*.—Gleanings in Science. 3 vols. 8vo. Calcutta, 1829–31.
- Glog.** *Naturg.*.—Gemeinnütziges Hand- und Hilfsbuch der Naturgeschichte. Von Dr. C. W. L. GLOGER. 8vo. Breslau, 1841.
- Gm. S. N.**.—Caroli a Linné Systema Naturæ. Cura Jo. FRID. GMELIN. Vol. I. 8vo. Lipsiæ, 1788.
- Gray**, *Cat. Hodgson Coll., or Cat. Mamm. Nepal, Hodgson Coll.*.—Catalogue of the Specimens and Drawings of Mammalia and Birds of Nepal and Thibet. Presented by B. H. Hodgson, Esq., to the British Museum. By J. E. GRAY. 12mo. London, 1846.
- . Second edition. 8vo. London, 1863.
- Gray**, *Cat. Rum. B. M.*.—Catalogue of Ruminant Mammalia (Pecora, Linnæus) in the British Museum. By J. E. GRAY. 8vo. London, 1872.
- Gray**, *Cat. Ung. B. M.*.—Catalogue of the Specimens of Mammalia in the Collection of the British Museum. Part III. Ungulata Furcipes. By J. E. GRAY. 12mo. London, 1852.
- Gray**, *Hand-l. Rum.*.—Hand-list of the Edentate, Thick-skinned, and Ruminant Mammals in the British Museum. By Dr. J. E. GRAY. 8vo. London, 1873.
- Gray**, *List Mamm. B. M.*.—List of the Specimens of Mammalia in the Collection of the British Museum. By J. E. GRAY. 12mo. London, 1843.

- Gray, *List Ost. B. M.***—List of the Osteological Specimens in the Collection of the British Museum. By J. E. GRAY. 12mo. London, 1847.
- Gray, *Med. Repos.***—Gray in Medical Repository, or Original Essays and Intelligence relative to Physic, Surgery, Chemistry, and Natural History. 8vo. New York vol. xv. (1821).
- Gray & Hardw. *Ill. Ind. Zool.***—Illustrations of Indian Zoology, chiefly selected from the Collection of Major-Gen. Hardwicke. By J. E. GRAY. 2 vols. Folio. London 1830–34.
- Griff. *Cuv. An. K.***—The Animal Kingdom, arranged in conformity with its Organization by the Baron CUVIER; with additional Descriptions of all the Species hitherto named, and of many not before noticed, by EDWARD GRIFFITH and others. 16 vols. 8vo. London, 1827–34.
- Harris, *Wild Sports S. Afr.***—The Wild Sports of Southern Africa; being a Narrative of a Hunting Expedition from the Cape of Good Hope, through the Territories of the Chief Moselekatse, to the Tropic of Capricorn. By Capt. WILLIAM CORNWALLIS HARRIS. 8vo. London, 1839.
- . ———. Fifth edition. Royal 8vo. London, 1852.
- Harris, *Wild An. S. Afr.***—Portraits of the Game and Wild Animals of Southern Africa. By Capt. W. CORNWALLIS HARRIS. Folio. London, 1840.
- Hempr. & Ehr. *Symb. Phys.***—Symbolæ Physicæ, seu Icones et Descriptiones copiarum naturalium novorum aut minus cognitorum quæ ex itineribus per Libyam, Ægyptum, Nubiam, Dongalam, Syriam, Arabiam et Habessiniam. Publico Institutis sumptibus F. G. HEMPRICH et C. G. EHRENBURG. Folio. Berolini, 1828–45.
- Herm. *Obs. Zool.***—Observationes Zoologicæ. Par JOHANNES HERMANN. 4to. Argentorati, 1804.
- Herm. *Tabl. Affin. Anim.***—Tabula Affinitatum Animalium. Auctore JOHANNES HERMANN. 4to. Argentorati, 1783.
- Heude, *Mém. Hist. Nat. Chine.***—Mémoires concernant l'Histoire Naturelle de l'Empire Chinois. Par P. M. HEUDE. Vols. I.–III. Imp. 4to. Chang-hai, 1880–97.
- Heugl. *Ant. u. Buff. N.O.-Afr. (N. Act. Leopold. xxx. pt. 2).***—Ueber die Antilopen und Büffel Nordost-Afrika's. Von TH. v. HEUGLIN. (Nova Acta kaiserliche Leopoldo-Carolinische deutsche Akademie der Naturforscher, Band xxx. part 2, 1863)
- Heugl. *Faun. roth. Meer., Peterm. Mitth.***—Th. v. Heuglin's Forschungen über die Fauna des Rothen Meeres und der Somali-Küste. (Petermann's Mittheilungen, 1861, p. 1)
- Heugl. *Reise N.O.-Afr.***—Reise in Nordost-Afrika. Von TH. HEUGLIN. 2 vols. 8vo. Braunschweig, 1877.
- Heugl. *Reise Weiss. Nil.***—Reise in das Gebiet des Weissen Nil und seiner westlichen Zuflüsse in den Jahren 1862–64. Von TH. v. HEUGLIN. 8vo. Leipzig, 1869.
- Hooker, *Himalayan Journal.***—Himalayan Journals; or, Notes of a Naturalist in Bengal, the Sikkim and Nepal Himalayas; the Khasia Mountains, &c. By JOSEPH DALTON HOOKER. 2 vols. 8vo. London, 1854.
- Horsf. *Cat. Mamm. Mus. E. I. Co., or Cat. Mamm. Ind. Mus.***—A Catalogue of Mammalia in the Museum of the Hon. East-India Company. By THOMAS HORSFIELD. 8vo. London, 1851.

- Hoyos, Aulihan.**—Zu den Aulihan. Reise- und Jagderlebnisse in Somälilande von ERNST GRAF HOYOS, JUN. 8vo. Wien, 1895.
- Huet, Coll. Mamm. Mus. d'Hist. Nat.**—Collection des Mammifères du Muséum d'Histoire Naturelle, classée suivant la méthode de Cuvier; dessinée d'après nature par HUET. 4to. Paris, 1808.
- Humboldt.**—HUMBOLDT: Monatschrift für die gesammten Naturwissenschaften. Stuttgart. III. *Prodr. Syst. Mamm.*—Caroli Illigeri Prodrromus systematis Mammalium et Avium. 8vo. Berolini, 1811.
- “*Isis.*”—See *Oken's Isis.*
- J. A. S. B.**—Journal of the Asiatic Society of Bengal. 8vo. Calcutta.
- J. R. G. S.**—Journal of Royal Geographical Society. 8vo. London.
- J. Sci. Lisb.**—Jornal de Sciencias Mathematicas, Physicas e Naturaes.—Publicado sob os auspicios da Academia Real das Sciencias de Lisboa. 8vo. Lisboa.
- Jackson, in Badm. Libr. Big Game Shooting.**—The Badminton Library. Big Game Shooting. By CLIVE PHILLIPPS-WOLLEY.
- JB. Mus. Hamb.**—Jahrbuch der wissenschaftlichen Anstalten zu Hamburg. 8vo. Hamburg.
- James, Unknown Horn of Afr.**—The Unknown Horn of Africa. An Exploration from Berbera to the Leopard River. By F. L. JAMES, M.A. 8vo. London, 1888.
- Jard. Nat. Libr., or Jard. Nat. Misc.**—The Naturalist's Library. Mammalia. Ruminantia by Sir WILLIAM JARDINE, Bart. 8vo. Edinburgh.
- Jent. Cat. Ost. Leyd. Mus. (Mus. Pays-Bas, ix.)**—Catalogue Ostéologique des Mammifères. Par F. A. JENTINK. (Muséum d'Histoire Naturelle des Pays-Bas, tome ix. 1887.)
- Jent. Cat. Mamm. Leyd. Mus. (Mus. Pays-Bas, xi.)**—Catalogue Systématique des Mammifères. Par F. A. JENTINK. (Muséum d'Histoire Naturelle des Pays-Bas, tome xi. 1892.)
- Jerd. Mamm. Ind.**—The Mammals of India; a Natural History of all the Animals known to inhabit Continental India. By T. C. JERDON. 8vo. Roorkee, 1867.
- Johnst. Brit. Centr. Afr.**—British Central Africa, an Attempt to give some Account of a Portion of the Territories under British Influence north of the Zambezi. By Sir H. H. JOHNSTON, K.C.B. 8vo. London, 1897.
- Johnston, Kilima-njaro.**—The Kilima-Njaro Expedition. A Record of Scientific Exploration in Eastern Equatorial Africa. By H. H. JOHNSTON, F.Z.S., F.R.G.S. 8vo. London, 1886.
- Johnst. River Congo.**—The River Congo, from its Mouth to Bólóbó. By H. H. JOHNSTON, F.Z.S. 8vo. London, 1884.
- Journ. Bombay N. H. Soc.**—The Journal of the Bombay Natural History Society. 8vo. Bombay.
- Journ. Phys.**—Journal de Physique. 4to. Paris.
- Junker, Travels in Afr.**—Travels in Africa during the Years 1882–86. By Dr. WILHELM JUNKER. Translated from the German by A. H. KEANE, F.R.G.S. Vol. III. 8vo. London, 1892.
- K. Vet.-Ak. Handl.**—Kongliga Vetenskaps-Akademiens Handlingar, Stockholm. 8vo. Stockholm.

- Kerr, *Linn. An. K.***—The Animal Kingdom, or Zoological System of the celebrated Charles Linnæus. Together with numerous additions from more recent Zoolog writers, and illustrated with copperplates. By ROBERT KERR. 4to. London, 1792.
- Kinloch, *Large Game Shooting.***—Large Game Shooting in Thibet and the North W By ALEXANDER A. A. KINLOCH, C.M.Z.S. 2nd series. 4to. London, 1876.
- Kirby, *Haunts of Wild Game.***—In Haunts of Wild Game, a Hunter-Natural Wanderings from Kahlamba to Libombo. By F. V. KIRBY, F.Z.S. 8vo. Edinburgh and London, 1896.
- Knowsl. *Men.***—Gleanings from the Menagerie and Aviary at Knowsley Hall. Ho Quadrupeds. Folio. Knowsley, 1850.
- Lacépède's *Buffon.***—BUFFON, DAUBENTON et LACÉPÈDE. Histoire Naturelle, générale particulière, avec la Description du Cabinet du Roi. 38 vols. 4to. Amsterdam 1766–99. (Schneider edition.)
- Lataste, *Mamm. Barb. (Act. Bord. xxix.)***—Étude de la Faune des Vertébrés de barie (Algérie, Tunisie et Maroc). Par M. FERNAND LATASTE. I. Catalogue Provisoire des Mammifères. (Actes de la Société Linnéenne de Bordeaux xxxix. p. 129, 1885.)
- Lataste, *Mamm. Tunisie.***—Exploration Scientifique de la Tunisie. Catalogue critique des Mammifères apélagiques sauvages de la Tunisie. Par FERNAND LAT. 8vo. Paris, 1837.
- Lath. & Dav. *Faunula Indica.***—Faunula Indica, id est Catalogus Animalium I orientalis concinnatus a Joa. LATHAM et HUG. DAVIES. Folio. Halæ, 1
- Layard, *Cat. S. Afr. Mus.***—Catalogue of the Specimens in the Collection of the S African Museum. Part I. The Mammalia. By E. L. LAYARD. 12mo. Town, 1861.
- Lefebvre's *Voy. Abyss. vi., Zool.***—Voyage en Abyssinie exécuté pendant les Années 1 43, par une Commission scientifique composée de M. Théophile Lefebvre VI. Zoologie, par O. DES MURS, F. PRÉVOST, GUICHENOT, et GUÉRIN-MÉNEV Text 8vo ; Atlas folio. Paris, 1845–50.
- Less. *H. N. Mamm. (Compl. Buff. x.)***, or **Less. *Compl. Buff.***—Histoire Naturelle générale et particulière des Mammifères et des Oiseaux découverts depuis la mort de Buffon. Par R.-P. LESSON. Vol. X. 8vo. Paris, 1836.
- Less. *Man. Mamm.***—Manuel de Mammalogie, ou Histoire Naturelle des Mammifères. Par R.-P. LESSON. 12mo. Paris, 1827.
- Less. *N. Tabl. R. A., Mamm.***—Nouveau Tableau du Règne Animal. Par R.-P. LESSON. Mammifères. 8vo. Paris, 1842.
- Le Vaill. *Voy. à l'Int. de l'Afrique.***—Voyage de M. Le Vaillant dans l'Intérieur de l'Afrique par le Cap de Bonne-Espérance dans les Années 1780–85. 4to. London, 1790.
- Licht. *Darst. Säug.***—Darstellung neuer oder wenig bekannter Säugethiere in A ugen und Beschreibungen von fünf und sechzig Arten auf funfzig colorirten Steindrucktafeln nach den Originalen des zoologischen Museums der Universität Berlin. Von Dr. H. LICHTENSTEIN. Folio. Berlin, 1827–34.

- Licht. Reise.**—Reisen im südlichen Africa in den Jahren 1803–6. Von HEINRICH LICHTENSTEIN. 2 vols. 8vo. Berlin, 1811–12.
- Link, Beytr. Nat.**—Beyträge zur Naturgesch. Band i. Heft 2. Von H. F. LINK. 8vo. Rostock, 1795.
- Livingstone, Miss. Trav.**—Missionary Travels and Researches in South Africa. By DAVID LIVINGSTONE. 8vo. London, 1857.
- Loche, Cat. Mamm. Algérie.**—Catalogue des Mammifères et des Oiseaux observés en Algérie. Par le Capitaine LOCHE. 8vo. Paris, 1858.
- Loche, Expl. Alg. Mamm.**—Exploration Scientifique de l'Algérie, pendant les Années 1840–42. Mammifères. Par le Capitaine LOCHE. Folio. Paris, 1867.
- Lugard, E. Afr., or Lugard, Rise E. Afr. Emp.**—The Rise of our East African Empire, early efforts in Nyasaland and Uganda. By Captain F. D. LUGARD. 2 vols. 8vo. Edinburgh and London, 1893.
- Lyd. Horns and Hoofs.**—Horns and Hoofs, or Chapters on Hoofed Animals. By R. LYDEKKER. 8vo. London, 1893.
- Lyd. Royal Nat. Hist.**—The Royal Natural History. Edited by RICHARD LYDEKKER, B.A., F.R.S. Vol. II. 8vo. London, 1894.
- MB. Abt. Berl.**—Monatsberichte der königlich Akademie der Wissenschaften zu Berlin. 8vo. Berlin.
- Madr. Journ.**—The Madras Journal of Literature and Science. 8vo. Madras.
- McMaster, Notes on Jerdon's Mamm. of India, or McMaster, Notes on Jerdon.**—Notes on Jerdon's Mammals of India. By an Indian Sportsman (A. C. McMASTER). 8vo. Madras, 1870.
- Mag. nat. Freund. Berl.**—Der Gesellschaft naturforschender Freunde zu Berlin. Magazin für die neuesten Entdeckungen in der gesammten Naturkunde. 4to. Berlin.
- Marno, Reise in der Aegypt. Aequat.-Prov.**—Reise in der egyptischen Aequatorial-Provinz und in Kordofan, in den Jahren 1874–76. Von ERNST MARNO. 8vo. Wien, 1878.
- Marno, Reise im Geb. d. blauen u. weissen Nil.**—Reisen im Gebiete des blauen und weissen Nil, im egyptischen Sudan und den angrenzenden Negerländern, in den Jahren 1869 bis 1873. Von ERNST MARNO. 8vo. Wien, 1874.
- Matsch. Mittheil. deutsch. Schutz-gebiet.**—Mittheilungen aus den deutschen Schutzgebieten. 8vo. Berlin.
- Matschie, Thierw. Ost-Afr. Säugeth., or Säug. Deutsch-O.-Afr.**—Die Thierwelt Ost-Afrikas und der Nachbargebiete, herausgegeben unter Redaktion von Prof. Dr. K. Möbius. Lief. I. Die Säugethiere Ost-Afrikas. Von P. MATSCHIE. Royal 8vo. Berlin, 1895.
- Mélang. Biol.**—Mélanges Biologiques tirés du Bulletin de l'Académie Impériale des Sciences de St. Pétersbourg. 8vo. St. Pétersbourg.
- Mém. Ac. Pétersb.**—Mémoires de l'Académie Impériale des Sciences St. Pétersbourg. 4to. St. Pétersbourg.
- Mém. de l'Inst., Sci. Phys.**—Mémoires de l'Institut Sciences et Physiques de France. 4to. Paris.
- Mem. Sci. Pisa.**—Memorie Scientifiche, Pisa. Vol. I. 8vo. Pisa, 1828.

- Ménétriés**, *Cat. rais. Zool. Caucase*.—Catalogue Raisonné des Objets de Zoologie recueillis dans un Voyage au Caucase et jusqu'aux frontières actuelles de la Perse. Par E. MÉNÉTRIÉS. 4to. St. Pétersbourg, 1832.
- Millais**, *A Breath from the Veldt*.—A Breath from the Veldt. By JOHN GUILLE MILLAIS, F.Z.S. Folio. London, 1895.
- Misc. Cur. Acad. Nat. Cur.*—Kaiserliche Leopoldino-Carolinische deutsche Akademie der Naturforscher, Dresden. *Miscellanea Curiosa sive Ephemeridum Medico-physicarum Germanicarum decuriæ secundæ*.
- Mitth. deutsch. Schutzgebiet.*, or *MT. deutsch. Schutz-geb.*—Mittheilungen aus den deutschen Schutzgebieten. 8vo. Berlin.
- Mitth. Ges. nat. Fr.*—Mittheilungen Berlinische Gesellschaft naturforschender Freunde, Berlin.
- Mockler-Ferryman**, *Up the Niger*.—Up the Niger, Narrative of Major C. Macdonald's Mission to the Niger and Benue Rivers, West Africa. By Capt. A. F. MOCKLER-FERRYMAN. 8vo. London, 1892.
- Müll.** *Naturs.*—Des Ritters Carl von Linné Natursystem. Von P. L. S. MÜLLER. 8vo. Nürnberg, 1773-76.
- Murray**, *Zool. Sind.*—The Vertebrate Zoology of Sind. By JAMES A. MURRAY. 8vo. London and Bombay, 1884.
- Nachtigal**, *Sahara and Soudan*.—Sahără und Súdân. Ergebnisse, sechsjähriger Reisen in Afrika. Von Dr. GUSTAV NACHTIGAL. 3 vols. 8vo. Berlin, 1879-89.
- N. Act. Ups.*—Nova Acta Regiæ Societatis Scientiarum Upsaliensis. 4to. Upsaliæ.
- Nature*.—Nature, a Weekly Illustrated Journal of Science. 4to. London.
- N. Comm. Ac. Petrop.*—Novi Commentarii Academiæ Scientiarum Imperialis Petropolitane. 4to. Petropoli.
- N. Dict. d'H. N.*—Nouveau Dictionnaire d'Histoire Naturelle appliquée aux Arts. 8vo. Paris.
- Neumann**, *Elephant-Hunting in E. Africa*.—Elephant-Hunting in East Equatorial Africa By A. H. NEUMANN. 8vo. London, 1898.
- Nicolls & Egl.** *Sportsm. S. Afr.*—The Sportsman in South Africa. By JAMES A NICOLLS and WILLIAM EGLINGTON. 8vo. London, 1892.
- N. L. M.*—Notes from the Leyden Museum. 8vo. Leiden.
- Novitat. Zool.*—Novitates Zoologicæ; a Journal of Zoology in connection with the Trin Museum. Edited by the Hon. WALTER ROTHSCHILD, Ph.D., ERNST HARTERT, and Dr. K. JORDAN. Vol. V. 8vo. London, 1898.
- Öfv. K. Vet.-Ak. Förh.*—Öfversigt af Kongl. Ventenskaps-Akademiens Förhandlingar 8vo. Stockholm.
- Oken**, *Allg. Nat.*, or **Oken**, *Allgem. Naturgesch.*—Allgemeine Naturgeschichte für all Stände. Von Professor OKEN. 7 vols. in 13. 8vo. Stuttgart, 1833-41.
- Oken**, *Lehrb. Naturgesch.*—OKEN's Lehrbuch der Naturgeschichte. 4 vols. 8vo. Jen. 1815-16.
- Oken's Isis*.—ISIS von OKEN. 4to. Leipzig.
- P. Ac. Philad.*—Proceedings of the Academy of Natural Sciences of Philadelphia. 8v. Philadelphia.

- P. A. S. B.*—Proceedings of the Asiatic Society of Bengal. 8vo. Calcutta.
- Pall. Misc. Zool.*—P. S. PALLAS: *Miscellanea Zoologica*. 4to. Hagæ Comitum, 1766.
- Pall. Spic. Zool.*—*Spicilegia Zoologica*. Cura P. S. PALLAS. 4to. Berolini, 1767–80.
- Pall. Zoogr. Ross.-As.*—*Zoographia Rosso-Asiatica, sistens omnium Animalium in extenso Imperio Rossico*. Auctore PETRO PALLAS. 3 vols. 4to. Petropoli, 1811.
- Penn. Hist. of Quad.*—History of Quadrupeds. By THOMAS PENNANT. 4to. London, 1781.
- Penn. Syn. Mamm.*—Synopsis of Quadrupeds. By THOMAS PENNANT. 8vo. Chester, 1771.
- Penny Enc.*—The Penny Cyclopædia of the Society for the Diffusion of Useful Knowledge. 4to. London.
- Petherick, Travels in Centr. Afr.*—Travels in Central Africa, and Explorations of the Western Nile Tributaries. By Mr. and Mrs. PETHERICK. 2 vols. 8vo. London, 1869.
- Pet. Säug. Mossamb.*—Naturwissenschaftliche Reise nach Mossambique. Von WILHELM C. H. PETERS. Zoologie. I. Säugethiere. Folio. Berlin, 1852.
- Phil. Mag.*—Philosophical Magazine. 8vo. London.
- Phil. Trans.*—Philosophical Transactions of the Royal Society of London. 4to. London.
- Pollok, Sport in Brit. Burmah.*—Sport in British Burmah, Assam, and the Cassyah and Jyntiah Hills. By Lieut.-Col. POLLOK. 2 vols. 8vo. London, 1879.
- P. Bost. Soc. N. H.*—Proceedings of the Boston Society of Natural History. VII. (1861).
- P. U.S. Nat. Mus.*—Proceedings of the United States National Museum, Washington. 8vo. Washington.
- Przewalski, Cat. Coll.*—Catalogue of the Zoological Collections collected by N. M. Przewalski in Central Asia. [In Russian.] 8vo. St. Petersburg, 1888.
- Przewalski, Mongolia.*—Mongolia and the Country of Tangut. By Lieut.-Col. N. PREJEVALSKY. [In Russian.] 2 vols. 8vo. St. Petersburg, 1875–76.
- . *Mongolia, the Tangut Country.* By Lieut.-Col. N. PREJEVALSKY. Translated by E. DELMAR MORGAN. 2 vols. 8vo. London, 1876.
- Publ. Chicago Mus. Zool.*—Publications of the Chicago Museum. Zoology. Part I. 8vo. Chicago, 1897.
- P. Z. S.*—Proceedings of the Zoological Society of London. 8vo. London.
- Quart. Orient. Mag.*—Quarterly Oriental Magazine. 8vo. Calcutta.
- Radde, Ost-Sibirien.*—Reisen im Süden von Ost-Sibirien in den Jahren 1855–59 incl. Ausgeführt von GUSTAV RADDE. Band I. Die Säugethierfauna. 4to. St. Petersburg, 1862.
- Rafinesque, Analyse de la Nature.*—Analyse de la Nature, ou Tableau de l'Univers et des corps organisés. Par C. S. RAFINESQUE. 8vo. Palerme, 1815.
- Ray, Quadr.*—Synopsis Methodica Animalium Quadrupedum et Serpentina Generis. Auctore JOANNE RAYO. 8vo. Londini, 1693.

- Reichenb. Säug.**—Die vollständigste Naturgeschichte des In- und Auslandes. Von H. C. LUDWIG REICHENBACH. Der Säugethiere. Band III. 8vo. Dresden und Leipzig 1845.
- Rep. Counc. Z. S. L.**—Report of the Council of the Zoological Society of London. 8vo. London.
- Rochebrune, Faune de la Sénégamb., Mamm.**—ROCHEBRUNE, Faune de la Sénégambie Mammifères. 8vo. Paris, 1883.
- Rothschild, Nov. Zool.**—Novitates Zoologicae; a Journal of Zoology in connection with the Tring Museum. Edited by the Hon. WALTER ROTHSCHILD, E. HARTERT, and Dr. K. JORDAN. 4to. London.
- Rüpp. N. Wirb. Abyss. Säug.**—Neue Wirbelthiere zu der Fauna von Abyssinien gehörig, entdeckt und beschrieben. Von Dr. EDUARD RÜPPELL. Säugethier. Folio. Frankfurt-am-Main, 1835.
- Rüttimeyer, Rind. Tert.-Epoch.**—Abhandlungen der schweizerischen paläontologischen Gesellschaft. Die Rinder Tertiär-Epoche nebst Vorstudien zu einer natürlichen Geschichte der Antilopen. Von L. RÜTMEYER. Folio. Zürich, 1877–78.
- S. Afr. Quart. Journ.**—South African Quarterly Journal. 2 vols. 8vo. Cape Town 1829–35.
- Salt, Travels in Abyssinia.**—A Voyage to Abyssinia, and Travels into the Interior of the Country, executed in the Years 1809–10. By H. SALT. 4to. London, 1814.
- SB. Ak. Wien., or SB. Wien.**—Sitzungsberichte der kaiserlichen Akademie der Wissenschaften. 8vo. Wien.
- SB. nat. Freund.**—Sitzungs-Berichte der Gesellschaft naturforschender Freunde Berlin. 8vo. Berlin.
- SB. zool.-bot. Ges. Wien.**—Sitzungsberichte der kaiserlich-königlichen zoologischen botanischen Gesellschaft in Wien. 8vo. Wien.
- Schinz, Cuv. Thierr.**—Das Thierreich, eingetheilt nach dem Bau der Thiere, als Grundlage ihrer Naturgeschichte und der vergleichende Anatomie. Von Baron v. CUVIER. Aus dem Franz. von H. R. SCHINZ. 4 vols. 8vo. Stuttgart 1821–25.
- Schinz, Mon. Ant., or Mon. Säugeth.**—Monographien der Säugethiere. Von H. SCHINZ. Mit Abbildungen nach der Natur und den vorzüglichsten naturwissenschaftlichen Werken gezeichnet von CONRAD KULL. Text and Atlas. 4to. Zürich 1848.
- Schinz, Nat. Abb. d. Säug.**—Naturgeschichte und Abbildungen der Säugethiere. Von H. R. SCHINZ. Text and Atlas. 4to. Zürich, 1824.
- Schinz, Syn. Mamm.**—Systematisches Verzeichniss aller bis jetzt bekannten Säugethiere oder Synopsis Mammalium nach dem Cuvier'schen System. Von Dr. HEINRICH SCHINZ. 2 vols. 8vo. Solothurn, 1844–45.
- Schneider's ed. Buffon.**—BUFFON et DAUBENTON. Histoire Naturelle, générale particulière, avec la Description du Cabinet du Roi. 38 vols. [Supplements] J. ALLAMAND.] 4to. Amsterdam, Schneider, 1766–99.

- Schreb. Säug.**—Die Säugthiere in Abbildungen nach der Natur mit Beschreibungen. Von J. C. D. VON SCHREBER. Theile I.–IV.—Fortgesetzt von Dr. J. A. WAGNER. Theile V.–VII. 4to. Erlangen, 1775–1855.
- Schweinfurth, Herz. von Afrika.**—Im Herzen von Afrika. Reisen und Entdeckungen in Centralen Aequatorial-Afrika während der Jahre 1868 bis 1871. 2 vols. 8vo. Leipzig and London, 1874.
- . ———. Translated by ELLEN E. FREWER. 2 vols. 8vo. London, 1873.
- Sci. List Anim. Zool. Soc., or Sci. List An. Z. S.**—List of the Vertebrated Animals now or lately living in the Gardens of the Zoological Society of London. By P. L. SCLATER. Eighth edition. 8vo. London, 1883.
- . ———. Ninth edition. 8vo. London, 1896.
- Sci. Cat. Mamm. Calc. Mus.**—Catalogue of Mammalia in the Indian Museum, Calcutta. By W. L. SCLATER, M.A. Part II. 8vo. Calcutta, 1891.
- Seba, Thesaurus.**—Locupletissimi Rerum Naturalium Thesauri accurata descriptio. Descripsit ALBERTUS SEBA. 4 vols. Folio. Amstelædami, 1734–65.
- Selous, Hunter's Wanderings.**—A Hunter's Wanderings in Africa. By FREDERICK COURTENAY SELOUS. 8vo. London, 1881.
- Shaw, Gen. Zool.**—General Zoology; or, Systematic Natural History. By GEORGE SHAW. 14 vols. 8vo. London, 1800–26.
- Silliman's Amer. Journ.**—The American Journal of Science and Arts. Edited by Prof. SILLIMAN. 8vo. New Haven.
- Sm. Ill. Zool. S. Afr.**—Illustrations of the Zoology of South Africa. By ANDREW SMITH. Mammalia. 4to. London, 1838–48.
- Smuts, En. Mamm. Cap.**—Dissertatio zoologica inauguralis, exhibens Enumerationem Mammalium Capensium. Defendit JOHANNES SMUTS. 4to. Lugduni-Batavorum, 1832.
- Sparrm. Reise.**—Resa till Goda Hopps-udden, södra Pol-kretsen och omkring jordklotet, samt till Hottentott- och Caffer-Landen, Åren 1772–76. A. SPARRMAN. 8vo. Stockholm, 1783.
- Sparrm. Voy. to Cape (Engl. Transl.).**—A Voyage to the Cape of Good Hope, towards the Antarctic Polar Circle, and round the World. By ANDREW SPARRMAN. (Translated from the Swedish original.) 2 vols. 4to. London, 1786.
- Speke, Journ. of Disc.**—Journal of Discovery of the Source of the Nile. By JOHN HANNING SPEKE. 8vo. Edinburgh and London, 1863.
- Speke, Rep. Zool. Coll. Somali.**—Report on a Zoological Collection from the Somali Country. By EDWARD BLYTH. With Additions and Corrections by the Collector, J. H. SPEKE. 8vo. London, 1860.
- Sterndale, Mamm. Ind.**—Natural History of the Mammalia of India and Ceylon. By ROBERT A. STERNDALE. 8vo. Calcutta, 1884.
- Sund. Pecora.**—Methodisk öfversigt af Idislande djuren, Linné's Pecora. Af CARL J. SUNDEVALL. Kongl. Vetenskaps-Akademiens Handlingar, för År 1844. 8vo. Stockholm, 1846.

- Sund.** *Hornschuch's Transl.*—Methodische Uebersicht der wiederkäuenden Thiere, Linné's Pecora. VON CARL SUNDEVALL. Aus dem Schwedischen durch Prof. HORNSCHUCH. Archiv scandinavischen Beiträge zur Naturgeschichte; von HORNSCHUCH. Band II. 8vo. Greifswald, 1850. Reprint (separately paged), 1848.
- Swayne, Somaliland, or Swayne, Seventeen Trips to Somaliland.**—Seventeen Trips to Somaliland; a Record of Exploration and Big Game Shooting, 1885 to 1893. By Captain H. G. C. SWAYNE, R.E. 8vo. London, 1895.
- Temm.** *Esq. Zool. Guin.*—Esquisses Zoologiques sur la Côte de Guiné. Par C. J. TEMMINCK. 8vo. Leiden, 1853.
- Thomson, Masailand.**—Through Masäi Land; a Journey of Exploration among the Snow-clad Volcanic Mountains and Strange Tribes of Eastern Equatorial Africa. By JOSEPH THOMSON. 8vo. London, 1885.
- Thunb. Resa.**—Resa uti Europa, Africa, Asia. CARL P. THUNBERG. 8vo. Upsala, 1788–93.
- Tied. Zool.**—Zoologie. Zu seinen Vorlesungen entworfen. VON D. F. TIEDEMANN. 3 vols. 8vo. Landshut, Heidelberg, 1808–14.
- Trans. Linn. Soc.*—Transactions of the Linnean Society of London. 4to. London.
- Tr. Z. S.*—Transactions of the Zoological Society of London. 4to. London.
- Tristr. Faun. & Flor. Pal.**—The Survey of Western Palestine. The Fauna and Flora of Palestine. By H. B. TRISTRAM. 4to. London, 1884.
- Tristram, Great Sahara.**—The Great Sahara: Wanderings south of the Atlas Mountains. By H. B. TRISTRAM, M.A. 8vo. London, 1860.
- Trouess. Cat. Mamm.**—Catalogus Mammalium tam viventium quam fossilium a Dr. E. L. TROUËSSART. Nova Ed. Fasc. IV. 8vo. Berolini, 1898.
- Turt. Linn. S. N.**—A General System of Nature through the three Grand Kingdoms of Animals, Vegetables, and Minerals, &c. By Sir CHARLES LINNÉ. . . . Together with various Modern Arrangements and Corrections, &c. By WILLIAM TURTON, M.D. 7 vols. 8vo. London, 1806.
- Verz. Senck. Mus.*—Verzeichniss der in dem Museum der Senckenbergischen aufgestellten Sammlungen. 4to. Frankfurt-am-Main, 1842.
- Von der Decken's Reise.*—Baron CARL CLAUS VON DER DECKEN's Reisen in Ost-Afrika. Band III. Abth. 3. Royal 8vo. Leipzig und Heidelberg, 1869.
- Von Höhnel, Zum Rudolph-See.**—Discovery of Lakes Rudolf and Stefanie, a Narrative of Count Samuel Teleki's Exploring and Hunting Expedition in Eastern Equatorial Africa in 1887 and 1888. By his companion Lieut. LUDWIG VON HÖHNEL. Translated by NANCY BELL (N. D'ANVERS). 2 vols. 8vo. London, 1894.
- Vosmaer, Reg. An.**—Regnum Animale. Per A. VOSMAER. 4to. Amsterdam, 1766–1804.
- Wagn. Schr. Säug.**—Die Säugthiere in Abbildungen nach der Natur mit Beschreibungen von Dr. J. C. D. VON SCHREBER. Fortgesetzt von Dr. J. A. WAGNER. 5 vols. 4to. Erlangen, 1840–55.
- Ward's Great and Small Game of Africa.*—Great and Small Game of Africa. Edited by H. A. BRYDEN. Published by ROWLAND WARD. 4to. London, 1899.

- Ward, *Horn Meas.*—Horn Measurements and Weights of the Great Game of the World. By ROWLAND WARD, F.Z.S. 8vo. London, 1892.
- Ward, *Rec. Big Game.*—Records of Big Game. By ROWLAND WARD, F.Z.S. 8vo. London, 1896.
- . ———. Third edition. 8vo. London, 1899.
- Waterh. *Cat. Mamm. Mus. Z. S.*—Catalogue of the Mammalia preserved in the Museum of the Zoological Society of London. By G. R. WATERHOUSE. Second edition. 8vo. London, 1838.
- Werther's *Hochlind. Deutsch-Ost-Afr.*—Die mittleren Hochländer des nördlichen Deutsch-Ost-Afrika. Herausgegeben C. W. WERTHER. 8vo. Berlin, 1898.
- Willoughby's *East Africa.*—East Africa and its Big Game; the Narrative of a Sporting Trip from Zanzibar to the Borders of the Masai. By Captain Sir JOHN C. WILLOUGHBY, Bart. 8vo. London, 1889.
- Wolf, *Zool. Sketches.*—Zoological Sketches. By JOSEPH WOLF. Made for the Zoological Society of London, from Animals in their Vivarium. Edited, with Notes, by P. L. SCLATER, M.A. 2 vols. Folio. London, 1861–67.
- Wood, *Ill. Nat. Hist.*—The Illustrated Natural History. By the Rev. J. G. WOOD. 3 vols. 8vo. London, 1861–63.
- Z. Ges. Erdkunde Berl.*—Zeitschrift Gesellschaft für Erdkunde. 8vo. Berlin.
- Zeitschr. ges. Nat.*—Zeitschrift für die gesammten Naturwissenschaften. 8vo. Berlin.
- Zimm. *Geogr. Gesch.*—Geographische Geschichte des Menschen. Von E. A. W. ZIMMERMANN. 3 vols. 8vo. Leipzig, 1778–1783.
- Zimm. *Spec. Zool. Geogr.*—Specimen Zoologiæ Geographica, Quadrupedum domicilia et migrationes sistens. 4to. Lugduni-Batavorum, 1777.
- Zool. Anz.*—Zoologischer Anzeiger. Herausgegeben von Prof. J. VICTOR CARUS. 8vo. Leipzig.
- Zool. Gart.*—Der zoologische Garten. 8vo. Frankfurt-a.-M.
- Zool. JB.*—Zoologische Jahrbücher. Zeitschrift für Systematik, Geographie und Biologie der Thiere. Herausgegeben von Dr. J. W. SPENGLER. 8vo. Jena.
- Zool. Journ.*—The Zoological Journal. 8vo. London.

THE BOOK OF ANTELOPES.

INTRODUCTION.

THE Authors of the present work have no intention of offering to their readers a complete scientific treatise on the Mammals of the Family *Bovidae* or on any section of it. Their main object is to furnish descriptive letterpress for the beautiful series of lithographic plates drawn some twenty years ago under the supervision of the late Sir VICTOR BROOKE, making thereto such necessary modifications and additions as the progress of science demands. This letterpress, however, will contain a full synonymy of all the species of Antelopes recognized as valid, whether here figured or not, together with such descriptions as will facilitate their identification, and all particulars concerning their habits and distribution that have been recorded by Naturalists and Sportsmen up to the present time.

As regards the Nomenclature and Systematic Arrangement to be employed in the present work, we think it sufficient to follow those adopted by Sir William Flower and Mr. Lydekker in their standard work on Mammals,

with a few slight modifications. These authors have divided the Family *Bovidæ*, to which the Antelopes pertain, into nine different groups, called sections, which are denominated as follows :—

- | | |
|--------------------------|--------------------------|
| 1. Alcelaphine Section. | 5. Hippotragine Section. |
| 2. Cephalophine Section. | 6. Tragelaphine Section. |
| 3. Cervicaprine Section. | 7. Rupicaprine Section. |
| 4. Antilopine Section. | 8. Caprine Section. |
| 9. Bovine Section. | |

The Antelopes, commonly so called, belong to the first six of these sections, and will form the subject of the present work, the last three sections, which contain the Mountain-Antelopes, Sheep, and Oxen, being excluded.

It is further considered to be more convenient to regard the sections of Messrs. Flower and Lydekker as subfamilies, and to give them the usual termination employed for such groups. Thus, after dividing the “Cephalophine Section” into two portions, which it seems desirable to do, we shall have altogether seven subfamilies of *Bovidæ* to be treated of, viz. :—

- I. BUBALIDINÆ, comprising the Hartebeests and Gnus.
- II. CEPHALOPHINÆ, comprising the Duykers and Four-horned Antelopes.
- III. NEOTRAGINÆ, comprising the Dwarf Antelopes, Oribis, Klipspringers, and Dik-diks.
- IV. CERVICAPRINÆ, comprising the Waterbucks, Reedbucks, and their allies.
- V. ANTILOPINÆ, comprising the typical Antelopes and Gazelles.
- VI. HIPPOTRAGINÆ, comprising the Sable and Roan Antelopes and the various species of Gemsbuck.
- VII. TRAGELAPHINÆ, comprising the Nyghai, Bushbucks, Kudus, and Elands.

SUBFAMILY I. *BUBALIDINÆ*.

General Characters.—Size large. Muzzle naked. A small anteorbital gland* present. Nostrils large, valvular, the lower lids covered with short bristly hairs. Tail long and tufted. False hoofs large. No knee-brushes. Mammæ 2 or 4.

Skull without supraorbital pits or lachrymal vacuities, but with shallow lachrymal pits. Upper molar teeth tall and very narrow.

Horns present in both sexes, those of the female merely rather more slender than those of the male; always of medium length, that is, approximately, of the length of the head.

Range of Subfamily. Whole of Africa, including the Arabian Subregion.

The Subfamily *Bubalidinæ* is readily divisible into three genera, as follows:—

1. *BUBALIS*, the true Hartebeests, with abnormally long faces and doubly-curved horns;
2. *DAMALISCUS*, the Bonteboks and their allies, with normal faces and simply-curved horns; and
3. *CONNOCHÆTES*, the Gnus: remarkable animals with tufted faces, maned necks, expanded muzzles, and doubly-curved horns.

* The term *anteorbital gland* denotes the so-called "tear-bag" which opens on the face of many Antelopes and Deer. The *lachrymal pits* are placed in a depression of the skull below the orbit of the eye in the lachrymal bone, and contain the above-mentioned gland. The *lachrymal vacuity* is a larger or smaller aperture between some of the component bones of the skull, situated near the lachrymal pit and at the base of the nasal bones, which form a thin roofing over the cavity of the nose. The term *supraorbital pits* is applied to deep excavations in the forehead of the skull between the eyes, which lead into perforations traversing the thickness of the bone. The *molar teeth* are the last three teeth on either side of each jaw.

GENUS I. BUBALIS.

	Type.
<i>Bubalis</i> , Licht. Mag. nat. Freund. Berl. vi. p. 154 (1814)	B. BUSELAPHUS.
<i>Alcelaphus</i> , Blainv. Bull. Soc. Philom. 1816, p. 75	B. BUSELAPHUS.
<i>Damalis</i> (gen.) and <i>Acronotus</i> (subgen.), H. Sm. Griff. Cuv. An. K. iv. pp. 343 & 345 (1827)	B. BUSELAPHUS.
<i>Bubalus</i> , Og. P. Z. S. 1836, p. 139.	B. BUSELAPHUS.

Size large and general form clumsy, with the withers considerably higher than the rump; head long and narrow; muzzle moist, naked, and rather broad; nostrils close together, lined with stiff hairs; neck not maned; suborbital glands small, tufted in some species, but not in others; hoofs small; tail reaching below the hocks, moderately haired, generally with a compressed crest along the dorsal surface of its terminal half; mammæ two.

Colour uniform brown or rufous, with or without black patches on the head, shoulders, hips, and feet.

Skull elongated; the frontal bones produced upwards and backwards into a long bony support for the horns, the occiput being entirely hidden in the upper view of the skull; parietals small, compressed behind the frontal horn-pedicle, facing nearly horizontally backwards. Small interorbital perforations present; lachrymal pits present but shallow. Molars very tall and narrow, and without supplementary lobes in the upper jaw.

Horns present in both sexes, those of the female as long, but not so thick, as those of the male, placed close together at their bases; doubly curved, first rising outwards or backwards, then curved forwards and upwards, and then bent abruptly backwards and upwards at their tips.

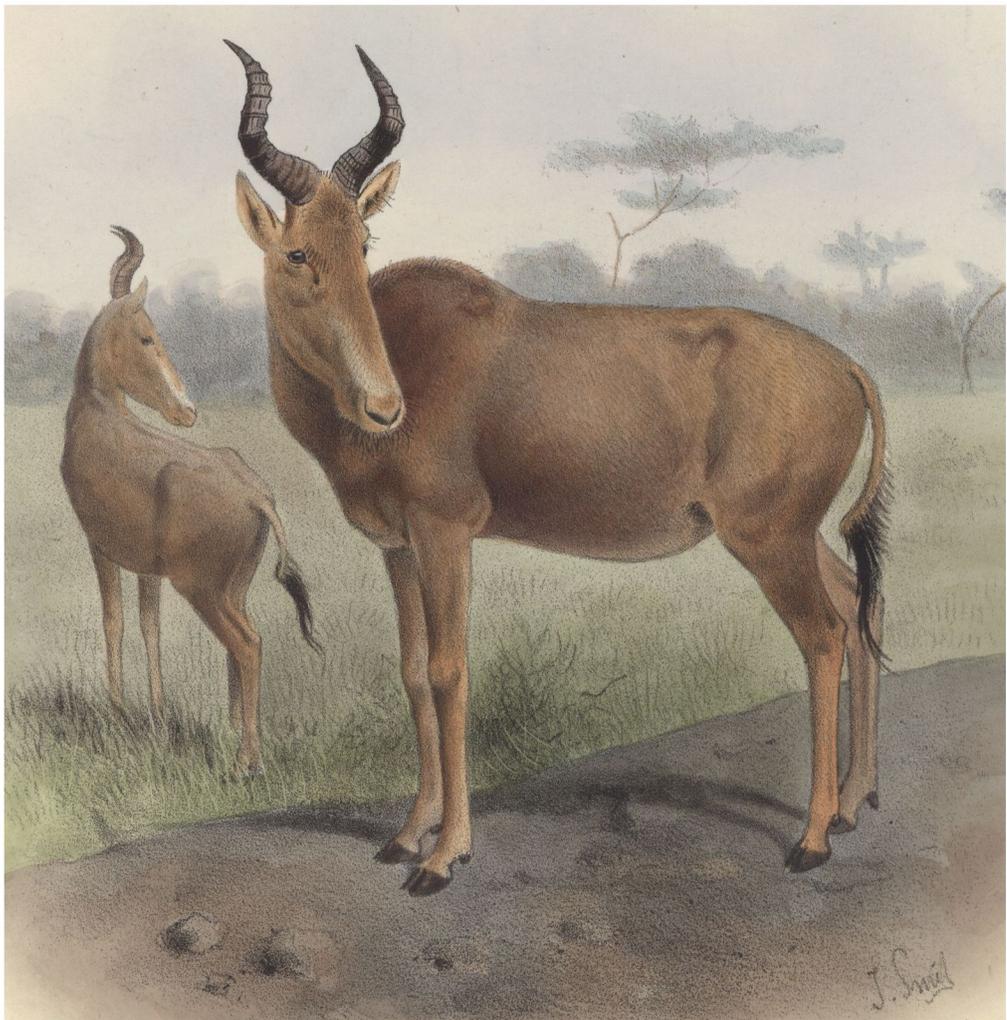
Range of the Genus. Africa and the Arabian Peninsula.

This genus, containing the Hartebeests, is a very natural and well-defined one, and is curiously shown to be so by the fact that, so far as is as yet known,

the ranges of the different species nowhere overlap each other, whilst almost every part of the range of the genus possesses its single representative species.

The members of the genus fall into four rather definite groups, as follows :

- A. Frontal horn-pedicle short ; horns forming a **U** when viewed front 1, 2. *B. buselaphus*, *B. major*.
- B. Horn-pedicle moderate ; horns forming an inverted bracket :  3, 4, 5. *B. tora*, *B. swaynei*, *B. coke*
- C. Horn-pedicle extremely elongated ; horns forming a **V** when viewed in front 6, 7. *B. caama*, *B. jacksoni*.
- D. Horn-pedicle very short and broad ; horns much curved inward towards each other before the final backward turn.
8. *B. lichtensteini*.



Small title.

The Bubal.
BUBALIS BUSELAPHUS.

Hartart imp.

Published by R.H. Porter.

I. THE BUBAL.

BUBALIS BUSELAPHUS (PALL.).

[PLATE I.]

-
- Buselaphus*, Gesner, Hist. Anim., Quadr. p. 121 (1520).
Le Bubale, Buff. Hist. Nat. xii. p. 294, pls. xxxvii. (skeleton) and xxxviii. fig. 1 (skull and horns) (1764).
Antilope buselaphus, Pall. Misc. Zool. p. 7 (1766).
Antilope bubalis, Pall. Spic. Zool. fasc. i. p. 12 (1767), xii. p. 16 (1777); Müll. Naturs. Suppl. p. 54 (1776); Erxl. Syst. R. A. i. p. 291 (1777); Zimm. Spec. Zool. Geogr. p. 544 (1777); id. Geogr. Gesch. ii. p. 122 (1780); Gatt. Brev. Zool. i. p. 83 (1780); Bodd. Elench. Anim. p. 143 (1785); Schreb. Säug. pl. cclxxvii. B (animal) (1787); Gm. S. N. i. p. 188 (1788); Kerr, Linn. An. K. p. 314 (1792); Donnd. Zool. Beytr. p. 633 (1792); Bechst. Uebers. vierf. Thiere, i. p. 95 (1799), ii. p. 645 (1800); Shaw, Gen. Zool. ii. pt. 2, p. 331 (1801); Virey, N. Dict. d'H. N. iii. p. 525 (1803); Turt. Linn. S. N. i. p. 114 (1806); Ill. Prodr. Syst. Mamm. p. 106 (1811); Licht. Mag. nat. Freund. Berl. vi. p. 163 (1814); G. Fisch. Zoogn. iii. p. 417 (1814); Afzel. N. Act. Ups. vii. p. 220 (1815); G. Cuv. Dict. Sci. Nat. ii. p. 241 (1816); Desm. N. Dict. d'H. N. (2) ii. p. 195 (1816); Goldf. in Schreb. Säug. v. p. 1171 (1820); Schinz, Cuv. Thierr. i. p. 390 (1821); Desm. Mamm. ii. p. 466 (1822); F. Cuv. H. N. Mamm. (fol.) iii. livr. li. (animal) (1825); Less. Man. Mamm. p. 381 (1827); Fisch. Syn. Mamm. p. 473 (1829); Less. N. Tabl. R. A., Mamm. p. 180 (1842); Wagn. Schr. Säug. Supp. iv. p. 469 (1844), v. p. 444 (1855); Schinz, Syn. Mamm. ii. p. 443 (1845); Gieb. Säug. p. 296 (1859); Nachtigal, Sahara and Soudan, i. p. 572, ii. p. 678 (1879).
Capra dorcas, Müll. Natursyst. i. p. 416 (1773) (*nec* Linn.).
Cerophorus (Alcelaphus) bubalis, Blainv. Bull. Soc. Philom. 1816, p. 75.
Damalis bubalis, H. Sm. Griff. Cuv. An. K. iv. p. 347, v. p. 362 (1827).
Acronotus bubalis, A. Sm. S. Afr. Quart. Journ. ii. p. 221 (1833); Gray, List Mamm. B. M. p. 157 (1843); id. List Ost. B. M. p. 58 (1847).

- Bubalus mauritanicus*, Og. P. Z. S. 1836, p. 139.
- Bubalis mauretanicus*, Sund. Pecora, K. Vet.-Ak. Handl. 1844, p. 208 (1846)
Hornschuh's Transl. p. 83 (1848); Temm. Esq. Zool. Guin. p. 195 (1853);
Horns and Hoofs, p. 195 (1893).
- Boselaphus bubalis*, Gray, Ann. Mag. N. H. (1) xviii. p. 233 (1846); id. P. Z. S. 1
p. 139; id. Knowsl. Men. p. 20, pl. xx. fig. 1 (young) (1850); Blyth, P. Z. S. 1
1869, p. 51, fig. 3 (horns).
- Alcelaphus bubalis*, Gray, Cat. Ung. B. M. p. 123 (1852); Tristram, Great Sal
p. 387 (1860); id. P. Z. S. 1866, p. 86 (Palestine); Brooke, P. Z. S. 1872, p.
Gray, Cat. Rum. B. M. p. 43 (1872); id. Hand-l. Rum. p. 114 (1873); Rütim
Rind. Tert.-Epoch. p. 47 (1877); Schmidt, P. Z. S. 1880, p. 307 (length of l
Jent. Cat. Ost. Leyd. Mus. (Mus. Pays-Bas, ix.) p. 139 (1887); id. Cat. Ma
Leyd. Mus. (op. cit. xi.) p. 171 (1892); Lyd. Field, lxxvii. p. 858 (1891).
- Alcelaphus bubale*, Gerrard, Cat. Bones Mamm. B. M. p. 243 (1862).
- Alcelaphus bubalinus*, Flow. & Lyd. Mamm. p. 335 (1891).
- Boselaphus caama* (partim), Heugl. Ant. u. Büff. N.O.-Afr. (N. Act. Leopold.
pt. ii.) p. 22, pl. 1. fig. 3 (horns) (1863).
- Acronotus lelwel*, Heugl. Rcise N.O.-Afr. ii. p. 124 (1877).

VERNACULAR NAMES:—*Begra el Ouach*, Arabs of Algeria (*Lataste*); *Bekker-el-ub*
Arabs of Palestine (*Tristram*); *Kargum* of Saharan Tuaregs; *Karia* in Bag
(*Nachtigal*). “*Lelwel*,” “*Alalüehl*,” and some others of Schweinfurth's name
also probably belong here.

Size small; height at withers only about 43 inches, and therefore mark
less than in the other species. Facial hairs reversed upwards for about
inches on the nose, then slanting downwards from a point on the forehead
just below the horns, where there is a twisted whorl from which the hairs
radiate in all directions. Colour uniform pale rufous or fawn, entirely without
darker patches on forehead, chin, or limbs; there is, however, an ill-defined
patch of greyish on each side of the muzzle above the nostrils; lower part of
rump not whitish. Tail black on the terminal tuft only, the rest like the body.

Skull long, but the elongation less than in *B. caama*. *Approximate* dimensions:
—basal length 13 inches, greatest breadth 4.8, muzzle to orbit 1.1

* These three measurements, when obtainable, will be given of the skull of every species
throughout the work. The “basal length” is taken from the front lower edge of the large
foramen at the back of the skull, the *foramen magnum*, to the front of the muzzle, in a straight line
other two explain themselves. The fourth and fifth measurements are only given in this genus
show the development of the frontal elongation.

Facial length from between the horns to the tip of the nasals 13·5 inches ; breadth of the forehead, across the frontal horn-support, 4·0. Horns diverging from each other at an even rounded curve, so as together to form a **U** when viewed from the front, a method of curvature only found in this and the next species. In length, when measured round the curves, they attain to a little more than 14 inches.

Hab. Northern Africa (interior of Morocco, Algeria, and Tunis) and Arabia.

The Bubal (*Bubalis* or *Bubalus*) is one of the few Antelopes known to the ancient writers, being included by Herodotus among the beasts of Libya, and being likewise mentioned by Aristotle, Æschylus, and Pliny. The Bubal is also referred to in the Old Testament and called “Yachmur”—a term which has been incorrectly translated in the authorized version as “Fallow Deer.” Under this name it is included in the list of the daily provisions of King Solomon (i. Kings, iv. 23) as one of the animals brought to the royal table.

Coming to more modern days we find that in the time of Dr. Thomas Shaw, F.R.S., of Queen’s College, Oxford (who was resident twelve years at Algiers as British Chaplain), the Bubal was abundant on the north of the Atlas. Dr. Shaw (‘Travels in Barbary and the Levant,’ Oxford, 1738), in his “Physical and Miscellaneous Observations on the Natural History of Algiers and Tunis,” tells us:—

“Of cattle that are not naturally tame and domesticated, these Kingdoms afford large Herds of the Neat kind called *Bekker el Wash* by the *Arabs*. This *Species* is remarkable for having a rounder Turn of Body, a flatter Face, with Horns bending more towards each other than in the tame kind. It is therefore, in all Probability, the *Bos africanus* of *Bellonius*, which he seems justly to take for the *Bubalus* of the Ancients ; though, what he describeth is little bigger than the *Caprea* or Roe-Buck, whereas ours is nearly of the same size with the Red-Deer, with which also it agreeth in Colour. The young Calves of this *Species* quickly grow tame, and herd with other Cattle.”

Since the days of Shaw, however, the Bubal has retired far beyond the Atlas into the recesses of the desert, and has become a difficult animal to meet with. Loche (Expl. Sc. de l’Algérie) tells us that it is now confined to the mountainous districts of the Sahara, where it roams about in small troops. Canon Tristram states that “the hunters of Souf frequently obtain this, the largest

of game in North Africa." But he does not think that it "ever ventures north of the Wed R'hir and M'zab districts, while its home is certainly further south. It is considered to be the most savoury meat of the desert-epicure." During his extensive explorations in the Great Sahara Canon Tristram saw this Antelope only on one occasion: this was at a distance, in the south of the Djereed of Tunis.

From the Algerian Sahara the Bubal extends no doubt into Morocco on one side and Tripoli on the other; but our knowledge of the animals of both these countries is still very meagre, and we are unable to quote precise authorities. In Egypt, so far as we know, the Bubal appears to be now quite extinct, but on the other side of the Red Sea it reappears in Arabia and extends even up to the confines of Palestine. Canon Tristram never saw it alive in Palestine; "but it certainly exists on the borders of Gilead and Moab," and is well known to the Arabs, who assured him that "it sometimes comes down to drink at the head-waters of the streams flowing into the Dead Sea, where they not unfrequently capture it." Canon Tristram has kindly allowed one of us to examine a pair of horns obtained from the Arabs in this locality, which are apparently referable to a female of this species.

The Bubal has been long introduced to the zoological gardens of Europe, and its name occurs in the MS. Catalogues of the Zoological Society as early as 1832. It bred in the Derby Menagerie, and the young one was figured in the drawings illustrative of that splendid collection (pl. xx.). It is not, however, very common in captivity, and of late years but few specimens have been received. At the present time there is only a single example of this Antelope in the Zoological Society's collection. It is a female, presented by Mr. Robert Pitcairn, of Oran, in October 1883, and obtained, no doubt, in the interior of Western Algeria. Mr. Smit's illustration (Plate I.) was prepared from this specimen.

The series of specimens of this Antelope in the British Museum is not by any means a full one. There are an adult male (stuffed) and an adult female (in skin) from the Zoological Society's old collection, and a young one obtained by Fraser in the Djereed of Tunis in 1846, besides some pairs of horns and frontlets. Fresh examples of this species from definite localities would therefore be highly valued by the Trustees.

May, 1894.

2. THE WEST-AFRICAN BUBAL.

BUBALIS MAJOR (BLYTH).

- Boselaphus bubalis*, var. 1, Gray, P. Z. S. 1850, p. 139 (?).
Alcelaphus bubalis, var. *tunisianus*, Gray, Cat. Ung. B. M. p. 123 (1852); id. Cat. Rum. B. M. p. 44 (1872) (?).
Boselaphus major, Blyth, P. Z. S. 1868, p. 52, fig. A 1 (horns).
Alcelaphus major, Gray, Cat. Rum. B. M. p. 44 (1872); id. Hand-l. Rum. p. 114 (1873).
 “*Bubalis lelwel*, Heugl.,” Matsch. Arch. f. Nat. 1891, pt. i. p. 355 (Cameroons).
Bubalis major, Ward, Horn Meas. p. 62 (1892); Matsch. Mitth. deutsch. Schutzgebiet, vi. pt. iii. p. 17 (1893) (Togo); Lyd. Horns and Hoofs, p. 196 (1893).

Essential characters as in *B. buselaphus*, but larger in all its dimensions.

“Body of a uniform greyish brown; face deep brown; fore legs streaked with dark brown or blackish from the knees downwards. Terminal tuft of tail black.

“Frontal bone between the base of the horns and orbit convex, the same part being remarkably flat in other species.” (*Brooke*, MS.)

Facial length $17\frac{1}{2}$ inches, muzzle to orbit 13, breadth of forehead 4.4.

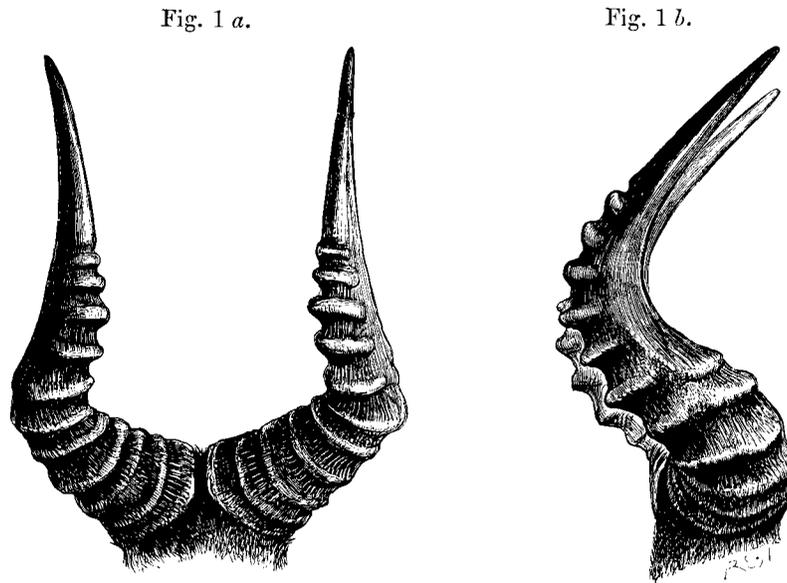
Horns curved as in the Bubal, but longer and heavier, their length round the curves amounting to over 20 inches.

Hab. Gambia, Lower Niger district, and interior of Cameroons.

There can be no doubt of the existence of a Bubal allied to *B. buselaphus* in several districts on the West Coast of Africa. But there are no perfect specimens of this Antelope at present available for comparison, and its distinctness from its northern representative may still be a matter of some

uncertainty, although we have good reason to believe that the two species will ultimately prove to be specifically different.

The well-known naturalist Edward Blyth, for many years Curator of Indian Museum, Calcutta, and a good authority on the larger Mammals, the first writer to call attention to the existence of this Antelope. In a communication made to the Zoological Society in 1869, Blyth states that he had examined a "perfect skin" of what he at once recognized as a "distinct though closely allied species," differing from *B. buselaphus* "in being :



Horns of *Bubalis major*.
(Gambia, Carter, 1891.)

as large as a Hartebeest, and in having black markings in front of all feet above the hoofs." Blyth's opinion was that some mounted specimens which he saw in the Museums of Leyden and Amsterdam referred to *B. buselaphus* belonged strictly to this new form. He also exhibited on the same occasion a pair of frontlets belonging to Ward, of Vere Street, as referable to what he proposed to designate *Boselaphus major*. These frontlets, which were subsequently figured in the Society's 'Proceedings,' are now in the British Museum.

Whether the "variety 1" of the Bubal, established by Gray in 1850 is

a skin without horns or hoofs, said to have been brought by Fraser from Tunis, really belonged to this species, must ever remain doubtful. This skin is no longer to be found, and if it were really referable to *B. major* it was probably brought by Fraser from West Africa and not from Tunis, where the

Fig. 1 c.

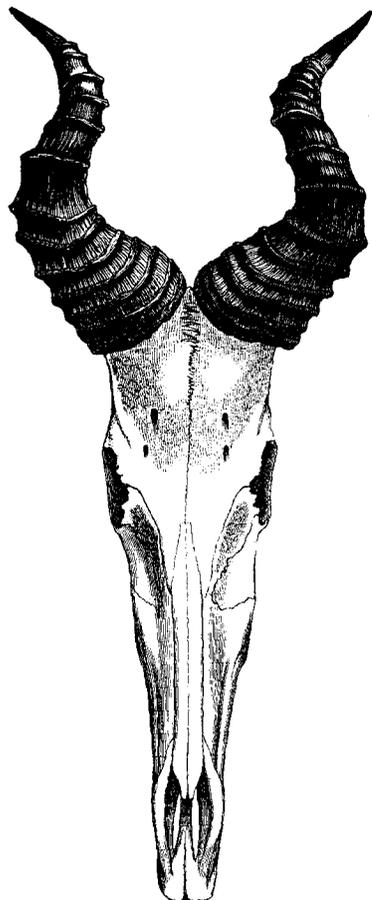


Fig. 1 d.



Horns and skull of *Bubalis major*.
c. Front view; d. Side view. (Brooke.)

typical *B. buselaphus* is found. Gray's inaccuracy as regards localities is notorious, and Fraser visited both parts of Africa. Under these circumstances we may altogether neglect the name "*tunisianus*" bestowed on this "variety" in 1852, as being highly doubtful as well as inapplicable.

It is probable that the horns from the Cameroons, referred by Herr Matschie to "*B. lelwel*, Heuglin," and those from Togoland, referred by the same author to *B. major*, also belong to this species, which would appear to inhabit suitable districts in Western Africa from Senegal to the Cameroons.

A pair of horns of this Antelope was amongst the specimens obtained by Dr. Percy Rendall from the Gambia in 1890. Another very fine pair was brought by Sir Gilbert Carter from the Gambia in 1891, from which the accompanying drawings (figs. 1 *a* and 1 *b*, p. 12) have been taken. These horns are in Sclater's possession.

The two other figures (figs. 1 *c* and 1 *d*, p. 13) were prepared by Sir Victor Brooke, probably from horns in his collection.

Besides Blyth's frontlets already mentioned, there are a pair of horns of the Bubal in the British Museum obtained by Mr. E. Bower on the Lower Niger in 1892, and several other specimens of horns without exact localities. Sclater has also examined, casually, a mounted specimen in the Senckenbergian Museum at Frankfort-a/M., labelled *Bubalis mauritanica*, which is probably of this species. According to his notes it is "nearly uniform brown; forehead ferruginous; black round the feet."

May, 1894.

3. THE TORA.

BUBALIS TORA (GRAY).

Boselaphus bubalis, Heugl. Ant. u. Büff. N.O.-Afr. (N. Act. Leopold. Carol. xxx. pt. ii.) p. 21 (1863) (*nec* Pall.).

Tétel (*Antilope bubalis*), Baker, Nile Tributaries, p. 179 (1867).

Alcelaphus tora, Gray, Nature, viii. p. 364; *id.* Ann. Mag. N. H. (4) xii. p. 341 (1873); *id.* Hand-l. Rum. p. 172, pl. xli. (skull and horns) (1873); *Sci. P. Z. S.* 1873, pp. 729 and 762 (Settite R.), 1875, p. 529; Rüttimeyer, Rind. Tert.-Epoch. p. 47, pl. v. figs. 7 & 8 (1877); *Jent. Cat. Ost. Leyd. Mus.* (Mus. Pays-Bas, ix.) p. 139 (1887); *Lyd. Field*, lxxvii. p. 858 (1891); *Jent. Cat. Mamm. Leyd. Mus.* (op. cit. xi.) p. 171 (1892).

Acronotus bubalis, Heugl. Reise N.O.-Afr. ii. p. 122 (1877).

Bubalis bubalis, Brehm, Thierl. iii. p. 217, pl. (animal) (1880).

Bubalis tora, Ward, Horn Meas. p. 59, fig. (head) (1892); *Lyd. Horns and Hoofs*, p. 198 (1893).

VERNACULAR NAMES:—*Tora* in Amhar, Abyssinia; *Tori* in Tigre; *Guragua* or *Quaragua* in Belen; *Tétel* of Arabs in Sennaar (*Heuglin*).

Size large, height at withers about 48 inches; hairs of face directed as in *B. buselaphus*. Colour uniform pale fulvous, decidedly paler than in other species, and, with the exception of the usual black chin and tail-tuft, entirely without black markings. Lower part of rump behind decidedly lighter than the dorsal surface.

Skull slenderer and more lightly built than usual; frontal narrow; its elongation medium.

Basal length 15·7 inches, greatest breadth 5·3, muzzle to orbit 12·5, facial length 16·5, breadth of forehead 3·4.

Horns shaped somewhat like an inverted bracket, a comparison that is however, better borne out by the two following species, as in the Tora the diverging parts of the two horns start up at a slight angle with each other instead of being in the same straight line. The horns themselves are unusually slender, and attain a length of about 19 inches.

Hab. Upper Nubia, Northern Abyssinia, and Kordofan.

The Tora or Tétel was confounded by von Heuglin and Sir Samuel Baker its first discoverers, with the Bubal. But these two Antelopes, though all of uniform colour, are easily distinguishable on comparison by the larger size and higher gait of the Tora and by the different shape of its horns. The Tora would also seem to inhabit more wooded and broken country than the open deserts that are the home of the allied species.

Heuglin tells us that this Antelope is found in families and herds in the valleys at the foot of Mount Takah, in the district of the Beni-Ammer Arat in Upper Barca, on the Anseba and Atbara and their confluents, and in the lower districts of Northern Abyssinia. He found it likewise plentiful on the sources of the Dender and Rahad, and in Galabat. It inhabits the sheltered country where there is high grass and underwood, is not particularly timid and sometimes even stupidly bold, resorting regularly in the morning and evening to the usual pastures and drinking-places.

In his volume on 'The Nile Tributaries of Abyssinia' Sir Samuel Baker frequently mentions the "Tétel," as he calls this Antelope.

In August 1861, being on the banks of the Atbara, he writes:—

"The country being now bright green, the Antelopes are distinctly visible on the opposite side. Three Tétel graze regularly together in the same place daily. This Antelope is a variety of the Hartebeest of South Africa; it is a reddish-chestnut colour, and is of about the size of an Alderney cow."

A month later Sir Samuel tells us:—

"When about halfway to the river, as we were passing through grass about 4 feet high, three Tétel bounded from a ravine, and passing directly before us, gave me a splendid shot at about sixty yards. The Ceylon No. 10 struck the foremost through the shoulder, and it fell dead after running a few yards. This was also my first Tétel; it was in splendid condition, the red coat was like satin, and the animal would weigh about five hundred pounds live weight."

Shortly afterwards the skin of the Tétel was taken off entire, the apertures at the neck and knees tied up, and the hide inflated and ingeniously converted into a waterproof bag, to be used for the conveyance of the flesh of the animal across the river Atbara.

In a subsequent part of his journey in the valley of the Settite, a confluent of the Atbara, Baker again records his adventures with this Antelope as follows:—

“We had hardly ridden half a mile when I perceived a fine bull Tétel standing near a bush a few hundred yards distant. Motioning to the party to halt I dismounted, and with the little Fletcher rifle I endeavoured to obtain a shot. When within about a hundred and seventy yards he observed our party, and I was obliged to take the shot, although I could have approached unseen to a closer distance had his attention not been attracted by the noise of the horses. He threw his head up preparatory to starting off, and he was just upon the move as I touched the trigger. He fell like a stone to the shot, but almost immediately he regained his feet and bounded off, receiving a bullet from the second barrel without a flinch; in full speed he rushed away across the party of aggageers about three hundred yards distant. Out dashed Abou Do from the ranks on his active grey horse, and away he flew after the wounded Tétel, his long hair floating in the wind, his naked sword in hand, and his heels digging into the flanks of his horse, as though armed with spurs in the last finish of a race. It was a beautiful course; Abou Do hunted like a cunning greyhound; the Tétel turned, and taking advantage of the double, he cut off the angle; succeeding by the manœuvre, he again followed at tremendous speed over the numerous inequalities of the ground, gaining in the race until he was within twenty yards of the Tétel, when we lost sight of both game and hunter in the thick bushes. By this time I had regained my horse, that was brought to meet me, and I followed to the spot, towards which my wife and the aggageers encumbered with the unwilling apes were already hastening. Upon arrival I found, in high yellow grass beneath a large tree, the Tétel dead, and Abou Do wiping his bloody sword, surrounded by the foremost of the party. He had hamstrung the animal so delicately that the keen edge of the blade was not injured against the bone. My two bullets had passed through the Tétel: the first was too high, having entered above the shoulder—this had dropped the animal for a moment; the second was through the flank.”

As we have already stated, both Heuglin and Baker confounded the Tora with the Bubal. In 1873 the British Museum first received specimens of this Antelope from the Bogos district west of Massowa. The keen eye of the then keeper of the Zoological Department quickly recognized the essential differences of the new species from the previously known members of the

Fig. 2.



Head of *Bubalis tora*.
(P. Z. S. 1873, p. 762.)

genus, and it was briefly described, first in 'Nature' and afterwards in the 'Annals of Natural History.'

In December of the same year Sclater exhibited a mounted head of this Antelope at one of the meetings of the Zoological Society, from whose 'Proceedings' the accompanying figure of the specimen in question (fig. 2) has been borrowed by leave of the Publication Committee.

Two years later, in July 1875, a female example of this Antelope was obtained alive for the Zoological Society's Menagerie; and in the following year, in October, a fine pair of the Tora was purchased by the Society for the sum of £100, of Mr. Carl Hagenbeck, the well-known dealer of Hamburg. These animals had been obtained along with others from the Arabs of Upper Nubia and brought out *viâ* Kassala and Suakim by Mr. Hagenbeck's agents. Other specimens of the Tora from the same source reached several zoological gardens on the Continent about the same date; but we believe that they have one and all disappeared, and, so far as we know, the Tora is no longer to be seen anywhere in captivity.

There is a good pair of this Antelope in the Gallery of the British Museum mounted from skins stated to have been procured at Dembelas, in Northern Abyssinia. There are also a skeleton and other specimens from the same locality in the National Collection.

May, 1894.

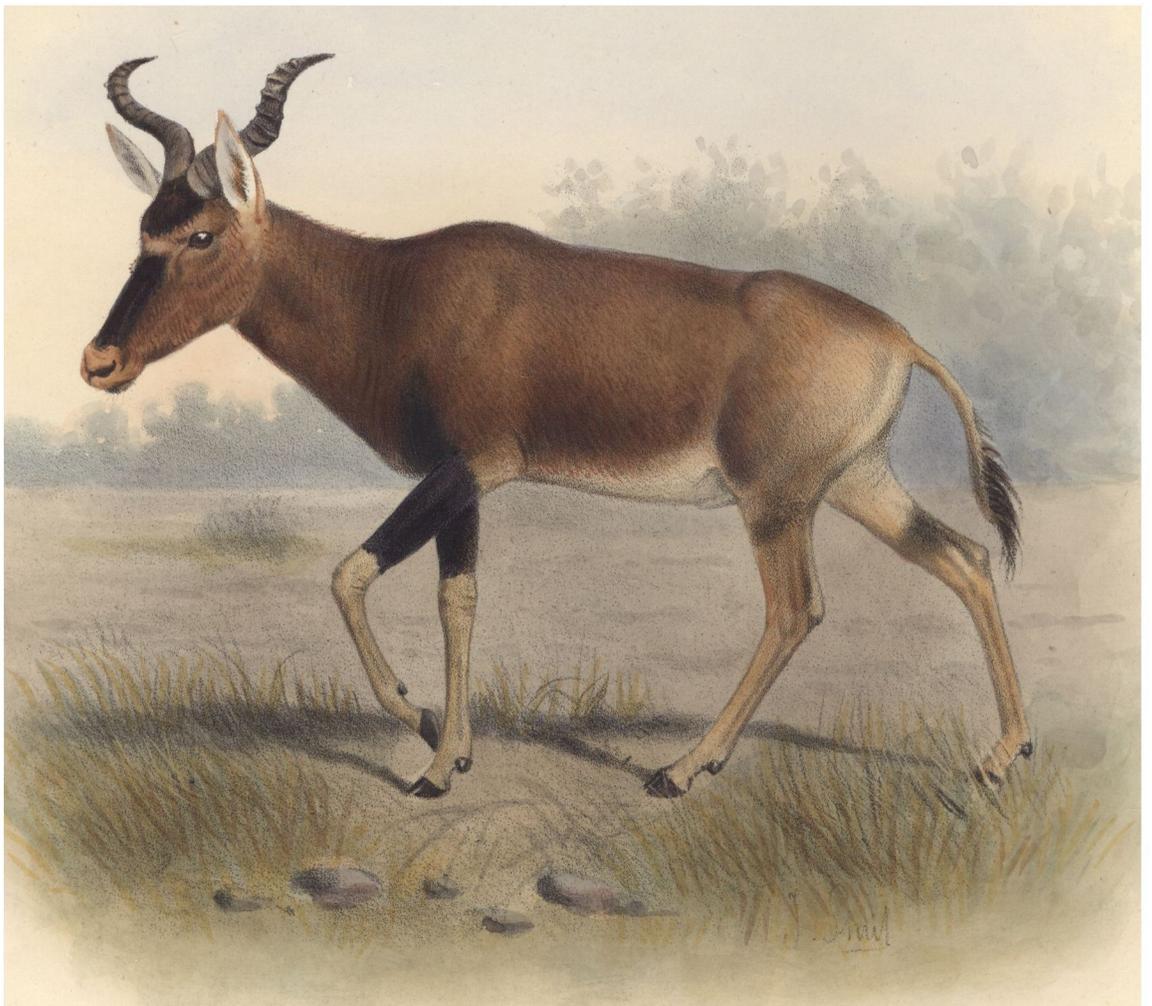


Plate 11.

Swayne's Hartbeest.
BUBALIS SWAYNEI.

Hartbeest.

Published by R.H. Porter

4. SWAYNE'S HARTEBEEST.

BUBALIS SWAYNEI, SCL.

[PLATE II.]

Boselaphus caama, Scl. P. Z. S. 1884, p. 539; id. in James, Unknown Horn of Afr. p. 262 (1888).

Alcelaphus, sp. inc., Lort Phillips, P. Z. S. 1885, p. 932.

Alcelaphus caama, Gigl. Ann. Mus. Genov. (2) vi. p. 19 (1888) (Shoa).

Bubalis swaynei, Scl. P. Z. S. 1892, p. 98, pl. v. (head), pp. 118, 257; Swayne, P. Z. S. 1892, p. 303 (habits and distribution); Ward, Horn Meas. p. 60, fig. (head) (1892); Lyd. Horns and Hoofs, p. 198, fig. 39 (head) (1893).

VERNACULAR NAME:—"Sig" of Somalis (*Lort Phillips*).

Size medium, height at withers about 47 inches. General colour a peculiar pale chocolate-brown, finely speckled over with white, each hair being brown with the extreme tip white. Face black, except a line across between the eyes to lips and tip of nose, which are fawn-coloured. Chin black. Shoulders and all round forearms black; there is also a black patch inside and a less distinct one outside the thighs. Lower legs and feet fawn, except that the backs of the pasterns are black. Hams paler than back, but not white and not sharply defined. Tail with its hairs reaching just to the hock, black-edged above for its terminal half.

Hairs of face reversed upwards for only about $1\frac{1}{2}$ inch on the tip of the muzzle, then directed downwards from a whorl just below the bases of the horns. Glandular suborbital brushes prominent.

Skull of medium proportions; its measurements as follows:—basal length 14·5 inches, greatest breadth 5·5, muzzle to orbit 8·3, facial length 14, breadth of forehead 3·5.

Horns bracket-shaped, the median portion of each in nearly the same

straight line as that of its fellow; terminal portion very short. In length good male horns attain to about 18 inches.

Hab. Interior of Northern Somaliland and Shoa.

Although this fine Hartebeest was pursued and slain by several energetic hunters before Captain Swayne met with it in Somaliland, it is to the last-named distinguished explorer that we are indebted for our first perfect specimens and for an account of its range and habits, and it is therefore appropriately named after him.

The first evidence received of the occurrence of a Hartebeest in Somaliland was a flat native skin contained in a collection brought home by Herr Menges along with a lot of living animals imported for Mr. Hagenbeck, of Hamburg. In some notes on these skins (P. Z. S. 1884, p. 539) Scater referred the specimen in question to *B. caama*. Again, Mr. E. Lort Phillips, F.Z.S., who was one of Mr. James's party in Somaliland in the winter of 1885, shot a single young male Hartebeest near the northern boundary of the high plateau south of Berbera in April of that year (see P. Z. S. 1885, p. 932), but unfortunately lost the skull which he had preserved, and did not meet with the species again.

The next record of this Hartebeest is from a different locality. The Italian naturalist Dr. Traversi in 1886 transmitted to Florence a Hartebeest's head which, in his list of Traversi's collection, Dr. Giglioli referred to *B. caama*. After examining the specimen in the Museum of Florence, and receiving a drawing of it from Dr. Giglioli, Scater (see P. Z. S. 1892, p. 258) was able to assure himself that it was in all probability the same as *B. swaynei* of Somaliland.

In his "Field-notes" on the Antelopes of Somaliland (P. Z. S. 1892, p. 303) Captain Swayne furnishes us with an excellent account of this animal, which we now reproduce:—

"South of the highest ranges of Somaliland, and at a distance of about 100 miles from the coast, are open plains some four or five thousand feet above the sea-level, alternating with broken ground covered with thorn-jungle, with an undergrowth of aloes growing sometimes to a height of six feet.

"This elevated country, called the 'Haud,' is waterless for three months, from January to March; it was crossed by Mr. James's party in 1884, when their camels were thirteen days without water.

“Much of the Haud is bush-covered wilderness or open semi-desert, but some of the higher plains are, at the proper season, in early summer, covered, far as the eye can reach, with a beautiful carpet of green grass, like English pasture-land. At this time of the year pools of water may be found, as the rainfall is abundant.

“This kind of open grass country is called the ‘Ban.’ Not a bush is to be seen, and some of these plains are thirty or forty miles each way.

“There is not always much game to be got at in the Haud; but a year ago, coming on to ground which had not yet been visited by Europeans, I found one of these plains covered with herds of Hartebeests, there being perhaps a dozen herds in sight at one time, each containing three or four hundred individuals. Hundreds of bulls were scattered singly on the outskirts and in spaces between the herds, grazing, fighting, or lying down.

“The scene I describe was at a distance of over a hundred miles from Berbera; and the game has probably been driven far beyond that point by now.

“The Hartebeest bulls are very pugnacious, and two or three couples may be fighting round the same herd at one time. Often one of the bulls will be sent rolling head over heels.

“The easiest way to get a specimen is to send a couple of Midgans round above the wind to drive the Hartebeest towards you, at the same time lying down in the grass. A shot may be got within fifty yards, but no one would care to shoot many Hartebeests, as the trophy is poor.

“Often *Oryxes* and Scemmerring’s Gazelles are seen in company with these great troops of Hartebeests, but the *Oryxes* are much wilder. The Hartebeests are rather tame, and they and the Scemmerring’s Gazelles are always the last to move away.

“Hartebeests have great curiosity, and rush round a caravan, halting now and then within two hundred yards to gaze. This sight is an extraordinary one, these Antelopes having heavy and powerful forequarters, head, and chest, of a different shade of chestnut to the hindquarters, which are poor and fall away. In the midday haze on the plains they look like troops of Lions.

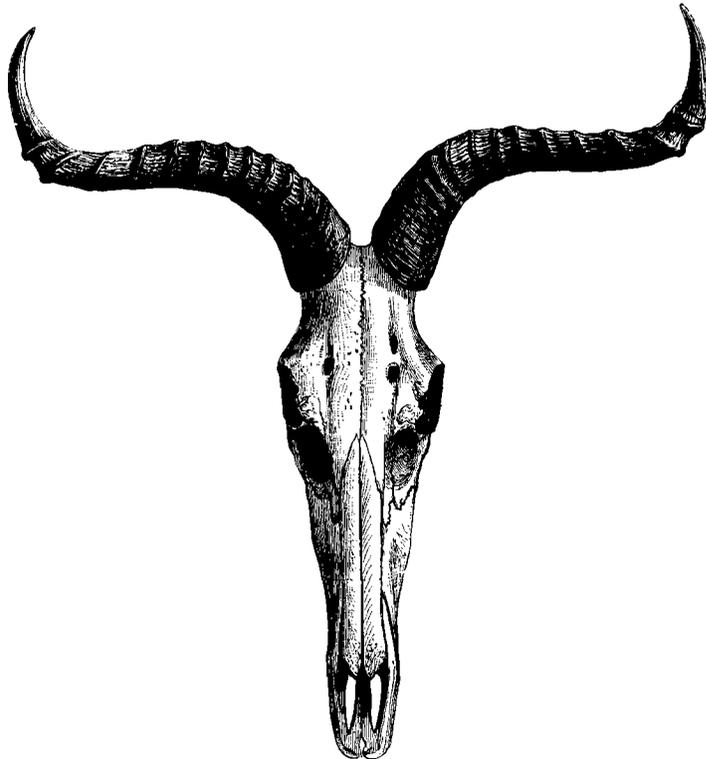
“The pace of the Hartebeest is an ungraceful lumbering canter; but this species is really the fleetest and most enduring of the Somali Antelopes. The largest herd I have ever seen must have contained a thousand individuals, packed closely together, and looking like a regiment of cavalry, the whole

plain round being dotted with single bulls. Their coats are glossy, like that of a well-groomed horse.

“From their living so much in open grass plains the Hartebeests must subsist entirely on grass, for there is nothing else to eat; and they must be able to exist for several days without water.

“Hartebeests are the favourite food of Lions, and once, when out with my brother, I found a troop of three Lions sitting out on the open plains, ten miles from the nearest bush. They had evidently been out all night among the herds, and on their becoming gorged, the rising sun had found them disinclined to move.

Fig. 3.



Skull of *Bubalis swaynei*.
(P. Z. S. 1892, p. 99.)

“Hartebeest horns vary greatly in shape and size. There are short massive horns and long pointed ones, and all the gradations between. Some

curve forward, with the points thrown back; others curve outwards in the same plane as the forehead, the points turning upwards”*.

Our coloured figure of this Antelope (Plate II.) has been drawn by Mr. Smit from the mounted specimen in the British Museum, obtained by Captain Swayne on the Haud plateau of Somaliland.

The woodcut (fig. 3, p. 24) gives a front view of the first skull and horns received from Captain Swayne, upon which Sclater based the species. This specimen is now likewise in the National Collection.

* These variations in curvature are probably mainly due to differences in age, the growth of the curved basal part of the horns giving at the various stages widely different directions to their tips.—S. & T.

May, 1894.



Smut. lib.

Coker's Kudu east.
BUBALIS COKER.

Hornb. v. p.

Enlaided by R.H. Foster.

5. COKE'S HARTEBEEST.

BUBALIS COKEI (GÜNTH.).

[PLATE III.]

- Antilope (Alcelaphus) caama*, Peters, Von der Decken's Reise, iii. pt. i. p. 9 (1869) (Lake Jipe).
- Alcelaphus cokei*, Günth. Ann. Mag. N. H. (5) xiv. p. 426, woodcut of horns (1884) (Usagara); Thomson, Masailand, p. 220, fig. (horns) (1885); Johnston, Kilimanjaro, p. 65 (1886); Hunter, Willoughby's E. Africa, p. 288, pl. i. fig. 1 (head) (1889); Von Höhnel, Zum Rudolph-See, p. 819 (1892) (Lake Jipe); Lugard, E. Afr. i. p. 532, pl. (animal), and pl. p. 448 (horns) (1893).
- Alcelaphus lichtensteini*, Pagenst. JB. Mus. Hamb. ii. 1884, p. 40 (1885) (Masailand).
- Alcelaphus cookei*, Lyd. Field, lxxvii. p. 858, fig. (horns) (1891).
- Bubalis cokei*, Ward, Horn Meas. p. 61, fig. (head) (1892); Lyd. Horns and Hoofs, p. 197, fig. 38 (horns) (1893); Jackson, Big Game Shooting, i. pp. 285, 291.

VERNACULAR NAME:—*Kongoni* in Swahili (*Lugard*).

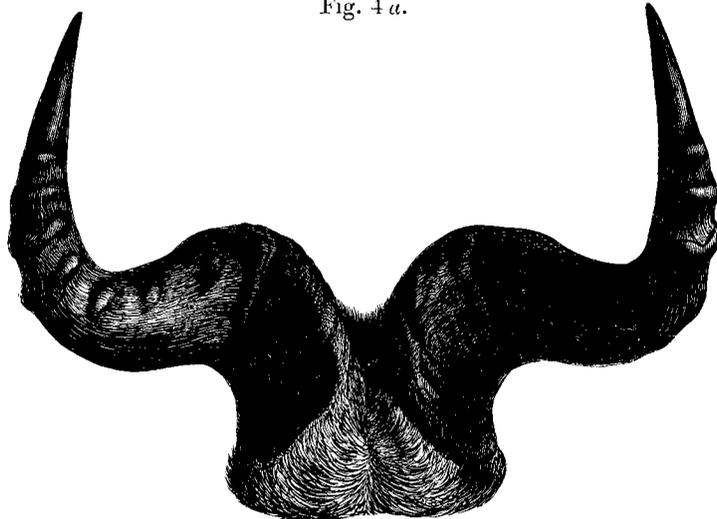
Size small, height at withers about 45 inches. General colour bright fawn all over, without dark markings, except that the lower lip is rather browner than the rest. Lower part of rump paler than the back, but not sharply defined. Tail long, its hairs reaching to the middle of the lower leg; black-crested for about its terminal three fourths. Face-hairs as in *B. swaynei* and *B. tora*. Glandular suborbital brushes short and not conspicuous.

Skull of medium proportions. Measurements:—basal length 14 inches, greatest breadth 5·2, muzzle to orbit 10·7, facial length 14·7, breadth of forehead 3·5.

Horns short and thick, bracket-shaped, the middle portions of the two sides in exactly the same straight line; their tips as long as their middle portions.

Hab. Eastern Africa, from Usagara northwards to Kilimanjaro and Masailand.

The first recorded specimen of Coke's Hartebeest was a frontlet obtained by the German traveller Von der Decken in 1862 at Lake Jipe in Masailand. These horns were referred by Peters, in his account of the mammals of Von der Decken's expedition, to *B. caama* of the Cape. But Sir Victor Brooke, who subsequently examined them at Berlin, as we know from his MSS., was convinced of their distinctness from the species of the Cape Colony, and had determined to call the new species after Von der Decken, although he never published the name. The subjoined figures (4 *a* and 4 *b*) were prepared under Sir Victor Brooke's direction, and show a front view and a three-quarter view of these horns.

Fig. 4 *a*.Horns of *Bubalis cokei*, front view.

In June 1880 Col. the Hon. W. C. W. Coke, F.Z.S., a renowned English sportsman, started from Zanzibar on a shooting-expedition towards Mpapwa, along the caravan-route from the port of Saadani. On reaching the open plains on the plateau of Usagara he met with several herds of this Antelope, and obtained the frontlet (fig. 4 *c*), now in the British Museum, upon which the species was established by Dr. Günther.

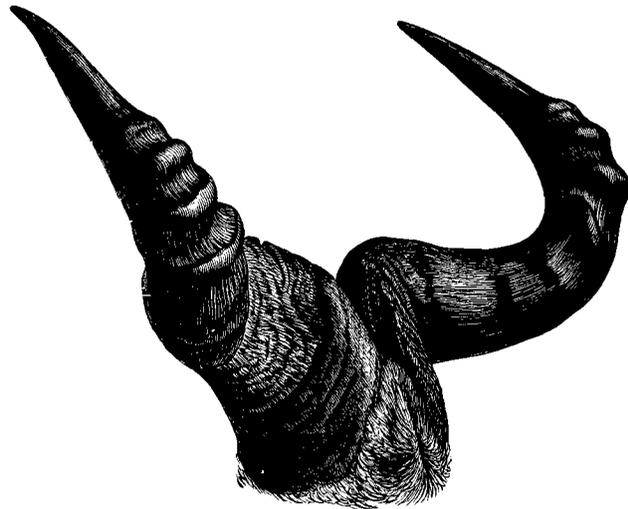
Colonel Coke has kindly permitted us to refer to his journal, in which we find it recorded that he first met with this Hartebeest on June 28th, between the Missionary Stations of Mamboia and Mpapwa. On July 10th, when encamped near M'lalli, at the edge of the plains, though sick with fever, he

went out and shot the animal, upon the head of which the species was afterwards based. After this Colonel Coke was taken so ill that he had to be carried back to the coast in a hammock, and was unable to shoot any more of these Antelopes.

In Sir John Kirk's collection are two fine heads of this Hartebeest, likewise obtained by him in Usagara.

Proceeding northwards to the country round Kilimanjaro we find that Mr. H. C. V. Hunter, in his appendix to Sir John Willoughby's 'East Africa

Fig. 46.



Horns of *Bubalis cokei*, side view.

and its Big Game,' records Coke's Hartebeest as, at the date of his visit (1887), "quite the most common Antelope in the plains" of that district, "being found everywhere in immense herds." From the same part of the British East-African Company's territory we have seen and examined numerous other heads of this Hartebeest, including fine examples of both sexes belonging to Consul-General Holmwood, obtained during a shooting-excursion from Zanzibar to this attractive district.

Mr. Ernest Gedge, who traversed British East Africa in company with Mr. F. J. Jackson, has kindly compiled from his note-books the following account of his experiences with Coke's Hartebeest:—

"These Antelopes range over a very wide extent of country in both British

and German East Africa. In the latter sphere I have procured specimens on the south shore of the Victoria Nyanza which in all respects were identical with those found nearer the coast; hence it is reasonable to suppose that they occupy the entire region lying between the lake and the coast. In British East Africa the northern limit of their extension seems to be somewhere about Lake Naivasha in the Masai country. On one occasion, however, I obtained an odd specimen in the valley of the Ngare Rongri, to the south of Lake Baringo, but, as a rule, they are not to be found so far north, as in this district they give place to *B. jacksoni*.

Fig. 4 c.



Horns of *Bubalis cokei*, front view.
(Ann. Mag. Nat. Hist. ser. 5, xiv. p. 426.)

“Between Lake Naivasha and the coast *B. cokei* is very commonly met with. It frequents every kind of locality, and is equally at home in the bush-covered wilderness lying behind the coast-line and on the vast treeless plains around the base of Kilimanjaro which extend northwards towards Lake Naivasha, and during the hottest seasons of the year it is often encountered in the most arid and pastureless localities many miles distant from the nearest water.

“Being of a sociable disposition, Coke’s Hartebeest is usually seen in

company with other game, and the sight of these vast mixed herds, which include Zebras and Grant's and Thomson's Gazelles, is one not easily forgotten. Like all Hartebeest it is very wary and difficult to approach, its senses of sight and scent being extremely keen. During the time that the herd is grazing there are usually one or two sentinels posted on the nearest elevations to give warning of the approach of danger. The white-ant-hills with which the entire country abounds are usually selected for this purpose, and are patronized to such an extent, that I have seen as many as eight or ten occupying the summit of one of these hills, which looked as if it could only support a third of that number. The reddish colour and general contour of these mounds bears in many cases so close a resemblance to the Antelopes themselves (particularly when grazing) that I have frequently been deceived by their appearance.

“When alarmed they utter a few short whistling snorts and take to flight. If surprised suddenly in the bush they usually run a considerable distance before halting, but when the danger has been perceived from a distance in the open they run but a short distance at a time, pausing frequently to turn round and scrutinize the object of their alarm. In this case there are generally one or two bulls keeping at some distance in the rear of the herd, whose fatal curiosity will often delay them until they fall victims to the rifle.

“The speed of this Antelope is very great, and when thoroughly alarmed they will cover the roughest ground in the most airy and graceful fashion, striking the earth with all four feet together, and springing up with immense bounds like an india-rubber ball. Their tenacity of life is also remarkable, and I have known them travel a long distance with several bullets in different parts of their bodies. The hunter who would be successful must in consequence possess a good rifle and hold it very straight.

“They vary in colour from a light tawny red to chestnut. Age has probably something to do with this, though the males are usually darker than the females, and they are inferior both in size and strength to *B. jacksoni* further north.

“The cows calve during the latter part of November and December, and on several occasions I have come across their young lying concealed in the long grass, whilst the anxious mother was watching the proceedings from a short distance.”

Our coloured illustration of this species (Plate III.) has been prepared by Mr. Smit from a mounted specimen in the British Museum, which was brought from the Kilimanjaro district by Mr. F. J. Jackson. There is in the same collection a head from the mountains of Taita, obtained by Mr. J. Wray.

May, 1894.



Wol del. Smut. lith.

The Cape Hartbeest .
BUBALIS CAAMA .

Hornhart. 1850

Published by R.H. Forter.

6. THE CAPE HARTEBEEST.

BUBALIS CAAMA (G. Cuv.).

[PLATE IV.]

- Hartebeest*, Sparrm. K. Vet.-Ak. Handl. 1779, p. 151, pl. v.; id. Voy. to Cape (Engl. transl.) ii. pp. 96, 199, pl. i. (1786).
- Le Caama ou Bubale*, Buff. Hist. Nat. Suppl. vi. p. 135, pl. xv. (1782).
- Antilope bubalis*, Schr. Säug. pl. cclxxvii. (animal) (1787) (and in part of other early authors, not of Pallas).
- Antilope caama*, G. Cuv. Dict. Sci. Nat. ii. p. 242 (1816); Desm. N. Dict. d'H. N. (2) ii. p. 196 (1816); Goldf. in Schr. Säug. v. p. 1174 (1820); Schinz, Cuv. Thierr. i. p. 390 (1821); Burchell, Trav. i. p. 420 (1822); Desm. Mamm. ii. p. 467 (1822); Desmoul. Dict. Class. i. p. 444 (1822); Less. Man. Mamm. p. 382 (1827); Fisch. Syn. Mamm. p. 474 (1829); Waterh. Cat. Mamm. Mus. Z. S. (2) p. 41 (1838); Less. N. Tabl. R. A., Mamm. p. 180 (1842); Wagn. Schr. Säug. Suppl. iv. p. 469 (1844), v. p. 444 (1855); Schinz, Syn. Mamm. ii. p. 443 (1845); Gieb. Säug. p. 297 (1859); Drummond, Large Game S. Afr. p. 425 (1875).
- Antilope dorcas*, Thunb. Mém. Ac. Pétersb. iii. p. 316 (1811).
- Cerophorus (Alcelaphus) caama*, Blainv. Bull. Soc. Philom. 1816, p. 75.
- Damalis caama*, Ham. Sm. Griff. Cuv. An. K. iv. p. 348; id. v. p. 362 (1827); Smuts, En. Mamm. Cap. p. 88 (1832).
- Acronotus caama*, A. Sm. S. Afr. Q. J. ii. p. 221 (1834); Harris, Wild Sport S. Afr. p. 377 (1839); id. op. cit. 5th ed. pl. x. (animal) (1852); id. Wild An. S. Afr. (fol.) pl. vii. (animal) (1840); Gray, List Mamm. B. M. p. 157 (1843); id. List Ost. B. M. p. 58 (1847).
- Bubalus caama*, A. Sm. Ill. Zool. S. Afr. pl. xxx. (animal) (1840).
- Bubalis caama*, Sund. Pecora, K. Vet.-Ak. Handl. 1844, p. 208 (1846); id. Hornschul's Transl. p. 83 (1848); Temm. Esq. Zool. Guin. p. 195 (1853); Brehm, Thierl. iii. p. 218, woodcut (animal) (1880); Nicholls & Egl. Sportsm. S. Afr. p. 45, pl. iv. fig. 13 (head) (1892); Ward, Horn Meas. p. 56 (1892); Selous, P. Z. S. 1893, p. 1

(hybrid with *Damaliscus lunatus*); **Lyd.** Horns and Hoofs, p. 196, fig. 37 (animal) (1893).

Boselaphus caama, **Gray**, Ann. Mag. N. H. (1) xviii. p. 233 (1846); id. P. Z. S. 1850, p. 139; id. Knowsl. Men. p. 20, pl. xx. fig. 2 (animal) (1850); **Blyth**, Cat. Mus. As. Soc. p. 170 (1863); id. P. Z. S. 1869, p. 52, figs. 4 & 5 (horns).

Alcelaphus caama, **Gray**, Cat. Ung. B. M. p. 124, pl. xvi. figs. 1-3 (skull and horns) (1852); **Gerr.** Cat. Bones Mamm. B. M. p. 243 (1862); **Gray**, Cat. Rum. B. M. p. 44 (1872); id. Hand-l. Rum. p. 115 (1873); **Buckley**, P. Z. S. 1876, pp. 285 & 292; 1877, p. 454 (distribution); **Rüttimeyer**, Rind. Tert.-Epoch. p. 47 (1877); **Selous**, P. Z. S. 1881, p. 763 (distribution); id. Hunter's Wanderings, p. 224, pl. vii. figs. 5 & 6 (head) (1881); **Scl.** List Anim. Zool. Soc. (8) p. 148 (1883); id. P. Z. S. 1890, p. 411; **Flow. & Gars.** Cat. Ost. Coll. Surg. ii. p. 272 (1884); **Jent.** Cat. Ost. Leyd. Mus. (Mus. Pays-Bas, ix.) p. 139 (1887); **Bryden**, Kloof and Karroo, p. 291 (1889); **Lyd.** Field, lxxvii. p. 858, fig. 1 (animal) (1891); **Flow. & Lyd.** Mamm. p. 335, fig. 137 (animal) (1891); **Scl. f.** Cat. Mamm. Calc. Mus. ii. p. 170 (1891); **Jent.** Cat. Mamm. Leyd. Mus. (Mus. Pays-Bas, xi.) p. 171 (1892); **Distant**, Transvaal, p. 12 (1892); **Bryden**, Gun and Camera, p. 505 (1893) (Kalahari Desert).

VERNACULAR NAMES:—*Hartebeest* of Cape Dutch and English; *Khama* of Bechuanas, and the same, with a click, of Masaras; *Ingama* of Makalakas (*Selous*); *Inhluzele* of Zulus (*Drummond*).

Size large; height at withers about 48 inches. Suborbital gland present, and provided with a distinct tuft. General colour brownish fulvous, darker than in any of the previous species; face with a black blaze running up to the horns, but interrupted between the eyes; back of neck with a dark line from the horns to the withers; chin blackish, outer sides of shoulders and hips black. These darker markings are not visible in the young. Lower part of rump behind whitish or yellowish, contrasting markedly with its dark upperside.

Skull with the frontal part excessively elongated and narrow. The measurements of a fine skull in the Leyden Museum are as follows:—basal length 17·6 inches, greatest breadth 6·1, orbit to tip of muzzle 12·7; facial length 19·3, breadth of forehead below horns 5·1.

Horns diverging evenly outwards at their bases, so as to form a **V** when viewed from the front, then curved forwards and upwards, and finally bent sharply backwards so as to form almost an abrupt right angle behind the last bend. Good horns attain a length of about 22 or 24 inches.

Hab. South Africa, south of the Limpopo River, but extending further north along the edge of the Kalahari Desert. Now nearly extinct in the Cape Colony; still found in the Transvaal.

The Hartebeest was well known to Sparrmann and other travellers in the Cape Colony at the close of the last century. It was figured by Buffon in one of the supplementary volumes to his 'Histoire Naturelle' as the "*Caama ou Bubale*," but was generally confounded by systematists with the Bubal of North Africa, until Georges Cuvier, in 1816, gave it the name of *Antilope caama*—"Caama" or "*Khama*" being the term applied to it by the Bechuanas. In the days of Sparrmann the Hartebeest was very abundant all over the Cape Colony, and was found in large troops even in the immediate vicinity of Cape Town.

In 1811, when Burchell visited South Africa, the Hartebeest appears to have become already much less abundant; but Burchell speaks of having met with it on the Gariep or Orange River and in other localities.

Twenty-five years later, when Harris made his celebrated sporting excursions into South Africa, the Hartebeest had retreated still further into the interior. But Harris speaks of it as being at that date still met with on the plains beyond the Orange River "in immense herds." Sir Andrew Smith, who visited the Cape Colonies at about the same epoch, and who has figured the male of this Antelope in his well-known 'Illustrations of the Zoology of South Africa,' speaks of the occurrence of the Hartebeest far in the interior. He killed specimens himself close to the Tropic of Capricorn, and had heard of its occurrence much further northwards. But, according to his observations, *Bubalis caama* begins to get rare as soon as the Sassaby (*Damaliscus lunatus*) commences to occur. His experience justified him in pronouncing that the former took the place of the latter in all the territory northward of 25° south latitude. Sir Andrew Smith gives the following account of the habits of the Hartebeest:—

"The Hartebeest, by preference, inhabits an open country, and hence is generally observed upon the plains in small herds consisting of from six to ten individuals, and often, where the plains are extensive, many of such groups are to be seen within the range of the eye. It is a very wary animal, and views with strong suspicion the advance of man, so that, unless favoured by special circumstances, he finds it an animal difficult to procure. When disturbed, the herd generally scampers off in the train of some acknowledged

leader, and they are rarely seen when flying, except in a string, one animal upon the heels of another. Their pace is a sort of heavy gallop, and though they do not appear to move with rapidity, yet the ground over which they go in a given time shows that their progressive motion is far from slow. When first they start, they appear extremely awkward, and generate in the observer an impression that to overtake them must be no very difficult task. After they have advanced a little, however, the apparent stiffness in the joints of the hinder extremities disappears, and even the indications of weakness of the hinder limbs become so indistinct, that the pursuer is soon satisfied of the inaccuracy of his first conclusion. This and the Sassaby are the only antelopes of South Africa which exhibit the peculiarity alluded to, and have led many to remark their resemblance in this respect to the Hyænas and Aard Wolf (*Proteles lalandii*). In all these animals there is a disproportion between the development of the anterior and posterior parts of the body, and each of them appears when in motion as if its hinder extremities were too weak for the duties they are destined to perform."

We now come to the distribution of the Hartebeest in South Africa in more modern days. Mr. T. E. Buckley, who published some interesting notes on the range of the large Mammals in South Africa in the Zoological Society's 'Proceedings' for 1876 and 1877, tells us that from being one of the commonest animals throughout the Cape Colony it had then become one of the rarest. He observed it only on three or four occasions during his journey into the interior—once just before reaching the Crocodile River, and once or twice in the Colony of Natal. In the south-east he says a few then still remained in the Zulu country, but he could not hear of its occurrence in Swaziland, where its place seemed to be taken by the Sassaby.

In 1881 the renowned hunter, Mr. F. C. Selous, in his "Field Notes on the Antelopes of Central South Africa," read before the Zoological Society, described the present abode of the Hartebeest as follows:—"The range of this Antelope is very similar to that of the Gemsbuck. It is still found in Griqualand West, in some parts being fairly plentiful. All along the eastern border of the Kalahari desert it is also to be found, and extends as far east as the river Serule on the road from Bamangwato to Tati. In the neighbourhood of the salt-pans lying between the Botletlie river and the road from Bamangwato to the Zambesi it is very plentiful and may be met with in large herds. It does not, however, extend its range to the north of these

salt-pans, and is unknown in all the country between the Chobe and Mababe rivers, as it is also in the Matabele and Mashuna countries. It is very fleet and enduring, and only second in these particulars to the Tsessebe.”

Our figure of this species was lithographed on the stone by Mr. J. Smit from a sketch made by Joseph Wolf, but we have been unable to ascertain from what exact specimen the sketch was taken.

There is a stuffed example of the Cape Hartebeest in the British Museum, obtained by the late Sir Andrew Smith during his journey to the Cape, probably the individual from which his figure in the ‘Illustrations’ was taken. There are also other specimens in the same collection, including the head of the curious hybrid between this species and the Sassaby (*Damaliscus lunatus*) described by Mr. Selous in 1893.

The Cape Hartebeest, though occasionally seen in zoological gardens, has never been a common animal in captivity. The Zoological Society of London received a single example in 1851, and a fine male in 1861, presented by Sir George Grey, then Governor of the Cape Colony. In 1869 a pair were obtained by purchase.

In May 1890 the Society acquired a good pair of Hartebeests imported from the Transvaal by the well-known dealer, Mr. C. Reiche, of Alfeld, in Hanover. These are still living in the Regent’s Park Gardens.

May, 1894.

7. JACKSON'S HARTEBEEST.

BUBALIS JACKSONI, THOS.

(?) *Alcelaphus bubalis*, Gray, Ann. Mag. N. H. (3) iv. p. 296 (1859) (Bahr-el-Ghazal).
Antelope caama, Schweinfurth, Herz. von Afrika, i. p. 212 (woodcut) (head, ♂), ii. p. 533
 (1873) (Niam-Niam); id. op. cit. Engl. transl. ii. p. 509 (1873).

“Hartebeest,” Speke, P. Z. S. 1863, p. 3 (no doubt *B. cokei* is also referred to).

Boselaphus, sp., Sci. P. Z. S. 1864, p. 103.

Acronotus caama, Heugl. Reise N.O.-Afr. ii. p. 123, pl. lower figure (horns) (1877)
 (White Nile).

Alcelaphus caama, Thomson, Masai-land, p. 469 (1885) (Elgeyo).

Bubalis jacksoni, Thos. Ann. Mag. N. H. (6) ix. p. 386 (1892) (Kavirondo); Ward,
 Horn Meas. p. 58, fig. (skull and head) (1892); Lyd. Horns and Hoofs, p. 196
 (1893); Jackson, Big Game Shooting, i. p. 291.

Bubalis caama, Junker, Travels in Afr. iii. p. 172 (1892) (?).

Alcelaphus jacksoni, Lugard, E. Africa, i. p. 532, and pl. p. 448 (head) (1893).

VERNACULAR NAMES:—*Ssongoro* in Niam Niam; *Nakibbih* in Monbuttu (*Schweinfurth*); *Ahwalwong* of Djeng, White Nile (*Heuglin*); *Ngazi* in Uganda (*Lugard*).

Similar in most essential characters to *B. caama*, but the face is entirely without the black blaze always found in that species, being rufous like the rest of the head, and the horns are not so abruptly bent backwards above, the back of the last bend forming an even open curve. The body-colours of *B. jacksoni* are, however, not yet accurately known, so that it is possible that other differences will hereafter be found to exist.

Skull: basal length 16 inches, greatest breadth 5·7, orbit to muzzle 12·7; facial length 17·5, breadth of forehead 4·2.

Hab. Interior of British Central Africa, north of Lake Baringo; Uganda; and probably extending northwards to the White Nile, and westwards into North-east Congoland.

This Hartebeest, which is the northern representative of *B. caama*, has been most appropriately named after Mr. Frederick John Jackson, F.Z.S., the successful conductor of the expedition of the Imperial British East African Company to Uganda in 1889 and 1890*, and the discoverer of the species, which, when previously met with, had always been confounded with other members of the genus. It should be recollected that, besides his merits as a geographical explorer, Mr. Jackson is an ardent zoological collector and observer. The splendid series of birds which he obtained during the expedition just spoken of, and which embraced examples of nearly 300 species, has been described by Dr. R. Bowdler Sharpe in five papers published in 'The Ibis' for 1891 and 1892. Dr. Sharpe's account of this remarkable collection is rendered still more complete by Mr. Jackson's excellent field-notes which accompany it. Mr. Jackson has also published some very interesting remarks on the Antelopes of British East Africa in one of the recently issued volumes of the Badminton Library upon 'Big Game Shooting.'

If we assume, as is probable, that the Hartebeest of the Bahr-el-Ghazal belongs to this species, the first examples of it sent to Europe would be those obtained by Petherick in 1859, which were referred by the late Dr. Gray to the Bubal of North Africa. Of these specimens the only one retained by the British Museum is the skull of a female. Another similar specimen from the Bahr-el-Ghazal was sent to the British Museum in 1884 by the German collector Bohndorff. Heuglin also (Reise N.O.-Afr. ii. p. 123) has spoken of the occurrence, on the Kir and Sobat rivers, of a Hartebeest allied to *B. caama* of South Africa. It is quite clear, therefore, that either Jackson's Hartebeest or a species closely allied to it is found in the White-Nile district, although we must await the arrival of fresh specimens from this country and further information before we can decide exactly what this Hartebeest is.

It is also probable that the "Central African Hartebeest" of Dr. Schweinfurth's 'Im Herzen von Africa,' and Junker's "*Bubalis caama*," met with in the Niam-Niam country, on the northern tributaries of the Congo, should both be referred to *Bubalis jacksoni*.

Thomas's original characters of *Bubalis jacksoni* were based on a specimen transmitted by Mr. Jackson to Messrs. Rowland Ward & Co., shot in November 1889 in Northern Kavirondo, which is now in the British Museum.

* See Mr. Ravenstein's narrative of this journey, Pr. R. G. S. xiii. p. 193 (1891).

In a note accompanying the specimen, in which he expresses a sagacious doubt as to "its being the same as the South-African animal," Mr. Jackson adds:—"Up north all along the top of the Elgeyo Escarpment (continuation of Mau) into Turquel to the north and north-east of Mount Elgon it is very common, and takes the place of *B. cokei*. Round Baringo it is fairly plentiful, but some marches south of Njemps *B. cokei* takes its place."

Mr. Ernest Gedge, who accompanied Mr. Jackson in his adventurous expedition, has kindly furnished us with the following excellent field-notes on this Antelope:—

"The first specimens of Jackson's Hartebeest were obtained on the Mau plateau in British East Africa. This plateau extends in a northern and southerly direction through the Masai country, and varies from 8000 to 9000 feet in elevation.

"West of Lake Naivasha the plateau is covered for the most part with dense, almost impenetrable forests, but farther north the scenery becomes more park-like, the forest clumps being intersected with grassy ranches, which open out on to the broad expanse of the Angata Nyuki, the latter extending right up to the eastern boundaries of Kavirondo. The whole of this district is frequented by *B. jacksoni*, which is also found north of Lake Naivasha in the localities bordering on Lakes Nakuro and Baringo north and west of these points; again, it inhabits the Suk country, Chibchangnani, Turquel, Karamojo, and possibly Turkana; whilst farther west it is common in the district round Mount Elgon, and is generally met with throughout Upper Kavirondo, Usoga, and Uganda, wherever the conditions are favourable.

"I have seldom encountered *B. jacksoni* in large herds, though in habits it differs very little from other species of Hartebeest. More frequently it is met with in small groups, in twos and threes, or singly. It would appear to change its locality to a very great extent according to the seasons. Thus, during the dry months of the year it will be found plentifully scattered over the highlands, from whence it retreats to the low country at the approach of the rains. In illustration of this, I would mention that when on my journey to England in 1892, in the month of December, the lowlands at the foot of the escarpment were almost entirely deserted, whilst on the high plateau above I met with these Antelopes in great numbers.

"On my return journey in the month of July of the following year the

Angata Nyuki had become very swampy, owing to the heavy rains, and was entirely deserted, save by one or two odd specimens, whereas the district around Lake Nakuro, in the low country, was fairly overrun by these Antelopes.

“When herding together these animals are commonly found (like *B. cokei*) in company with Zebras and other Antelopes, and I have frequently come across and shot Topi (*Damaliscus jimela*) amongst them, the latter being very numerous in the province of Buddu in Uganda.

“Like all Hartebeests, *B. jacksoni* is, as a rule, very shy and difficult to approach—though, on one occasion, having gone considerably to the south of the ordinary caravan-route across the Angata Nyuki, I not only met with them in great numbers, but they were so little alarmed by my appearance in so unfrequented a locality, that they allowed me to walk right up to them, and even when fired at only ran for a short distance. They do not appear to patronize the bush country like *B. cokei*, though they frequent its vicinity.

“I remarked this specially when in Uganda, for on the only occasions on which I encountered *B. jacksoni* there it was confined to certain open portions of the country bordering the Nile and a flat open plain of some 10 miles in diameter to the south of the Katonga River in the Buddu district, where I found it accompanied by Topi, Waterbuck, and Kob.

“It also, from all accounts, frequents the open tablelands bordering Unyoro and the Albert Nyanza, as well as the province of Bulamweze in Uganda, which presents somewhat similar characteristics.

“In appearance *B. jacksoni* is larger and more strongly built than *B. cokei*, and varies in colour from a light golden brown to a dark tawny red, its coat being beautifully fine and glossy. It is easily distinguished by the great length of its head and the peculiar set of its horns, which rise almost perpendicularly from the frontal bones, and curve sharply backwards near the tips at almost a right angle.

“These Antelopes possess great tenacity of life, and I have known one to get clean away though struck with two 577 express bullets. On the other hand, if fairly hit in a vital spot they die very easily. The cows calve in November and December, and, so far as one can judge, give birth to only one at a time. The calves themselves are very hardy and vigorous little animals; and I have known of one, which could not have been born more than a week or so at the most, completely out-distance one of my men who tried to run it

down in the open—and this in spite of the fact that one leg was partially deformed; but this may have been an exceptional instance.

“The Wa-Soga and Wa-Ganda dress the skins of these Antelopes very cleverly, turning them out as soft as wash-leather, and quite equal to anything that can be done in the London market.”

As already pointed out, the horns of *B. jacksoni* present a very general

Fig. 5.



Front view of head of Jackson's Hartebeest. $\frac{1}{7}$ nat. size.

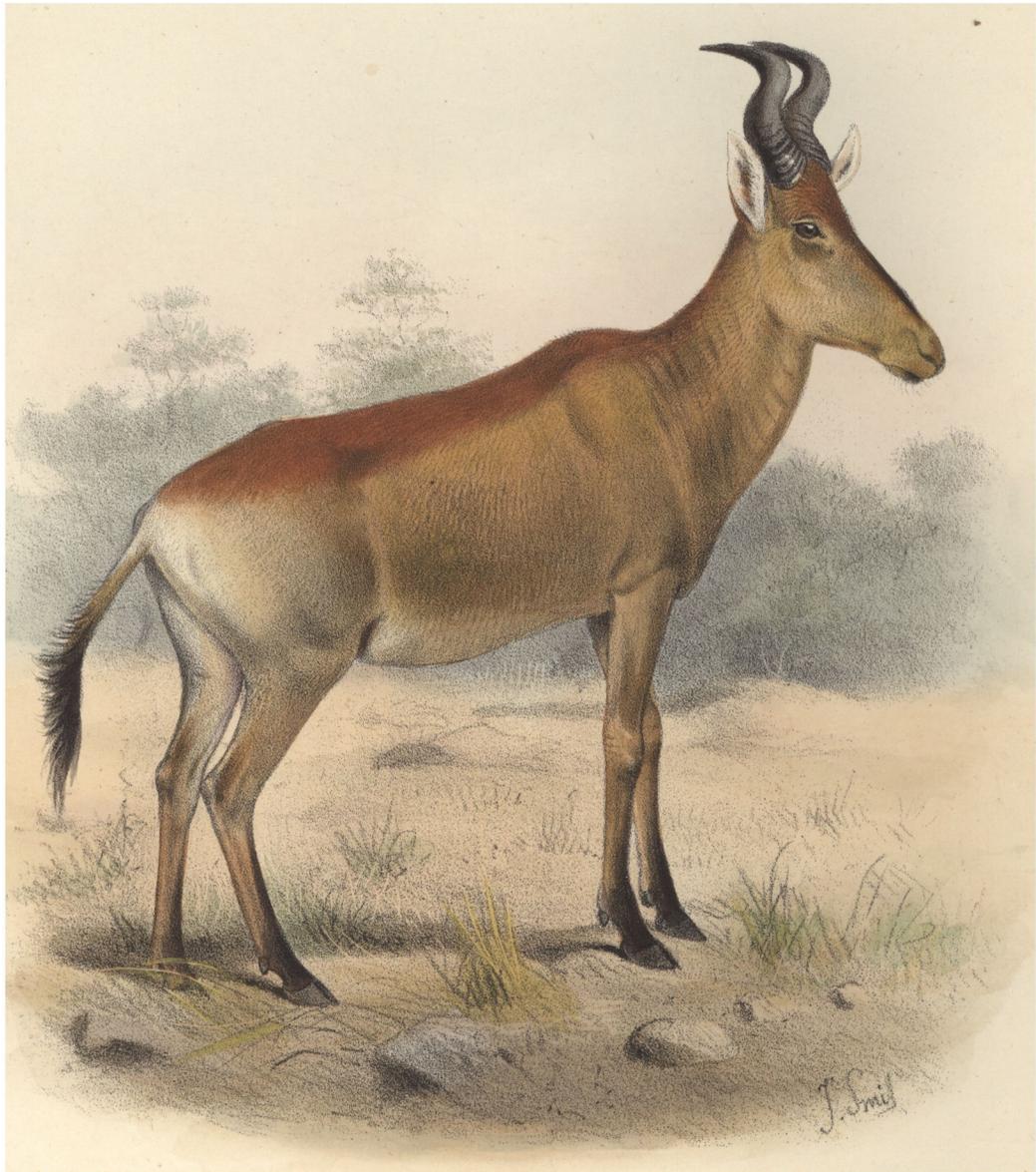
resemblance to those of its southern ally *B. cuama*, and are at once distinguishable from those of the other members of the genus by the extreme elongation of the pedicle. But the horns of *B. jacksoni* are not quite so

abruptly bent backwards as those of *B. caama*, and its head is at once distinguishable from that of the Cape species by the entire absence of black on the face.

No complete specimen of the skin of *B. jacksoni* having as yet been received, we are unable to give a coloured figure of this animal; but the accompanying woodcut (fig. 5, p. 43) represents the typical skull of this species in the British Museum.

There are no other specimens of this Antelope in the National Collection, except the doubtful heads of Petherick and Bohndorff already referred to.

May, 1894.



Smid lith.

Lichtenstein's Hartbeest.
BUBALIS LICHTENSTEINI.

Hanshart imp.

Published by R.H. Porter.

8. LICHTENSTEIN'S HARTEBEEEST.

BUBALIS LICHTENSTEINI (PETERS).

[PLATE V.]

- Antilope lichtensteini*, **Pet.** Mitth. Ges. nat. Fr. Dec. 18, 1849; **id.** Säug. Mossamb. p. 190, pls. xliii. (skull) and xliv. (animal) (1852); **Wagn.** Schr. Säug. Supp. v. p. 445 (1855); **Gieb.** Säug. p. 298 (1859).
- Bubalis lichtensteini*, **Temm.** Esq. Zool. Guin. p. 195 (1853); **Ward**, Horn Meas. p. 63, fig. (horns) (1892); **Nicholls & Egl.** Sportsm. S. Afr. p. 46, pl. iv. fig. 14 (head) (1892); **Thos.** P. Z. S. 1892, p. 533 (Nyasa), 1893, p. 504; **Scl.** P. Z. S. 1893, p. 506; **Lyd.** Horns and Hoofs, p. 198 (1893); **Barkley**, P. Z. S. 1894, p. 132 (Pungwe R.); **Jackson**, Big Game Shooting, i. p. 290.
- Alcelaphus lichtensteini*, **Gerrard**, Cat. Bones Mam. B. M. p. 243 (1862); **Gray**, Cat. Rum. B. M. p. 44 (1872); **id.** Hand-l. Rum. p. 115 (1873); **Buckley**, P. Z. S. 1877, p. 454 (distribution); **Selous**, P. Z. S. 1881, p. 763 (distribution); **id.** Hunter's Wanderings, p. 224, pl. vii. figs. 3 & 4 (head) (1881); **Jent.** Cat. Ost. Leyd. Mus. (Mus. Pays-Bas, ix.) p. 139 (1887); **Crawshay**, P. Z. S. 1890, p. 662 (Nyasa); **Lyd.** Field, lxxvii. p. 858 (1891); **Lugard**, E. Afr. i. p. 532, pl. p. 440 (head) (1893).
- Boselaphus lichtensteini*, **Kirk**, P. Z. S. 1864, p. 660 (Shupanga).
- Alcelaphus caama*, **Noack**, Zool. JB. ii. p. 208 (1887); **id.** op. cit. vii. p. 593 (1893).
- Alcelaphus caama* and *A. lichtensteini*, **Noack**, JB. Mus. Hamb. ix. p. 11 (1891).
- Bubalis leucoprymnus*, **Matsch.** SB. nat. Freund. 1892, p. 137 (?).

VERNACULAR NAMES:—*Konze* of Masubias; *Inkulanondo* of Mashunas (*Selous*); *Gondo* in Tette; *Gondongo* at Sena and Boror; *Vacca de mato* of Portuguese (*Peters*); *Nkozi* of Ahenga; *Kangosa* of Awanyakyusa (*Crawshay*).

Size rather large; height at withers about 48 inches. General colour fulvous, deeper and more rufous along the back. Chin, the usual tail-crest,

and the front of the lower part of all four limbs black. Lower part of rump white or pale yellowish, contrasting markedly with the dark rufous of its upper surface. No anteorbital tuft present. Hairs of face reversed upwards from muzzle to horns, except on a median patch, about four inches long, between the eyes, where they slant downwards.

Skull with but little frontal elongation, the elevation bearing the horns much broader and shorter than in the majority of the true Hartebeests; on the other hand, the muzzle is unusually lengthened, so that the total facial length is about equal to that of *B. caama*. Basal length 14·7 inches, greatest breadth 7·2, muzzle to orbit 11·5, length of face 17, breadth of forehead 6·1.

Horns comparatively short and thick, curved first outwards, then upwards and inwards, and finally abruptly bent backwards, their terminal portions nearly or quite parallel with each other, and comparatively close together. The largest horns are just 20 inches in length.

Hab. East Africa, north of the Sabi River, throughout Nyasaland and Mozambique to Usagara, opposite Zanzibar.

The late Dr. Wilhelm Peters, a distinguished zoologist, who explored different parts of the Portuguese territory of Mozambique from 1842 to 1848, was the discoverer of this Antelope, which he named after Lichtenstein, his not less celebrated predecessor in the keepership of the Royal Museum of Berlin, and a former well-known authority on this group of mammals. Peters gives as its locality the provinces of Tette, Sena, and Boror, from the 16th to the 18th degree of south latitude; and Sir John Kirk, in his notes on the 'Mammals of Zambesi,' published in 1864, says that "it is very common during the dry season in the forest of Shupanga and in Inhamunha, in small herds." South of the Zambesi Lichtenstein's Hartebeest appears to extend as far as the Pungue and Sabi Rivers. Messrs. Nicholls and Eglinton tell us that it is plentiful on the eastern course of the Sabi; and Mr. Buckley met with it in the rough grassy plains of the Upper Pungue Valley, in herds sometimes of considerable size. Mr. Buckley always observed these Antelopes on the open veldt, and found that they kept clear of the more hilly and timbered country.

The great hunter, Mr. F. C. Selous, met with this Antelope only on the open downs of the Manica plateau, north of the Zambesi, where it is called

the "Konze." He was a little doubtful about its identity with the "Inkulando" of South-eastern Mashunaland; but we believe that both the native names last mentioned refer alike to *Bubalis lichtensteini*. Mr. Selous makes the following remarks upon this species (P. Z. S. 1881, p. 764):—

"The Konze very closely resembles the Hartebeest of South Africa; the horns, however, are shorter and flatter at the base, and the forehead is not nearly so elongated. The black mark down the front of the face of the Hartebeest is also wanting in the Konze, where the colour is of a uniform light red. The general colour of the animal is a little lighter than that of the Hartebeest, the tail, knees, and front of all four legs being black. As in the Hartebeest, there is a patch of pale yellow on the rump; and the insides of thighs and belly are also of a very pale yellow. One old bull that I shot was of very rich dark red colour all along the back and the upper part of the sides. About a hand's breadth behind each shoulder was a patch of dark grey about six inches in diameter. A female that I shot also had these grey patches behind the shoulders. In two other full-grown males these patches were wanting."

Throughout Nyasaland, so far as it has yet been explored, Lichtenstein's Antelope appears to be an abundant species; and Mr. R. Crawshay, our principal authority on the Antelopes of this country, tells us (P. Z. S. 1890, p. 663) that it is very generally met with in the hills, if not too steep and rocky, and also in the plains, but appears to prefer a flat or undulating woody district with intervening open glades. Mr. Crawshay adds the following account of his personal experience with this Antelope:—

"In 1883 I first met with this Antelope on the plains between the Kiwira and Insesi Rivers, in Makyusa's country, at the north-west of the lake; there were just three in the troop, and with the help of another gentleman I was lucky enough to kill one—a nearly full-grown bull. In 1885 I saw several herds of these animals to the south-east of Nyasa, and between it and Lake Shirwa, and from all accounts they must be plentiful in the Yao country, to the east of the lake.

"On the West Coast, later in the same year, I came across a good many on the Kanjamwana River, and between Amuwa and Mpemba's: here they usually consorted with Impalas; but on the same plains there were also to be seen in their company, from time to time, Water-bucks, Reed-bucks, and occasionally Koodoos and Elands. Inland from Bana to the north again,

I was told there were Hartebeests, and I saw some heads of animals said to have been killed there.

“In 1889–90 I repeatedly saw a few in the low red-sandstone hills to the north of Chombi, between Makwawa’s and Afunanchenga’s, on the Hara River; here they generally went in company with Water-bucks or Zebras, and once I noticed three Hartebeests herding and feeding in the midst of some thirty or forty Water-bucks, all cows. Between Nkanga and Karonga’s, on the coast-line, and in all the intervening country between that and the Anyika Mountains, Hartebeests are commonly met with, notably at Vuwa, Mrali, and Taowira. At Nkanga, during my stay there, a cow was killed in a game-pit, and of this animal I secured the horns and frontal bone. As a rule, I have seen Hartebeests in herds numbering from half a dozen or even less to perhaps fifteen or twenty, but I never remember having come across more than that number. This Antelope possesses extraordinary vitality, and in this respect is very little behind the Water-buck.”

Mr. B. L. Sclater, R.E., who has recently passed two years in the Shiré Highlands, and has traversed nearly every part of that district*, informs us that he considers this Hartebeest to be the commonest of the larger Antelopes there, after the Waterbuck. He met with it in all parts of the country, more frequently in the open districts, but also in the wooded valley of the Shiré, sometimes singly, and at other times in larger or smaller herds. On the Tochila plains under Mount Milanji, at an elevation of about 2000 feet, in November 1891 he saw a large herd of this Antelope mixed with Zebras.

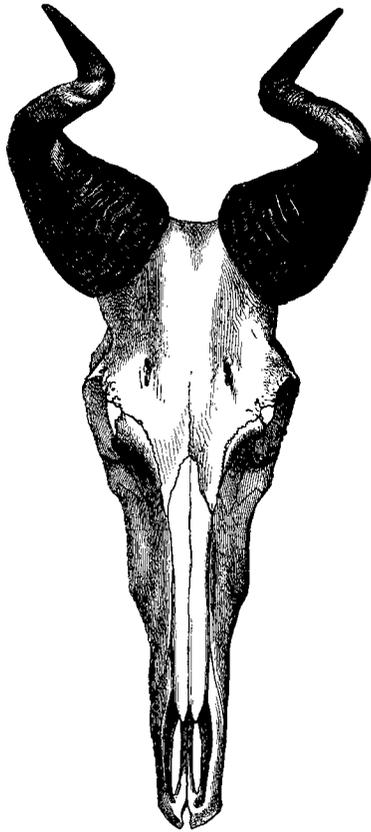
From Nyasaland, so far as we can make out, Lichtenstein’s Antelope extends northwards to the plains of the Wami River opposite Zanzibar, where Sir John Kirk procured specimens, which are now in his collection. In the hills of Usagara, north-east of this district, *B. lichtensteini* is replaced by *B. cokei*, as already mentioned in our article on the latter species. Herr P. Matschie, of Berlin, considers the Hartebeest of German East Africa, which he says extends as far north as the Pangani River, to be different from *B. lichtensteini* (although he admits that the horns of the two species very closely resemble each other), and proposes to call it *B. leucoprymnus*. We are not, however, with due respect to Herr Matschie’s views, yet prepared to

* See “Routes and Districts in Southern Nyassaland,” by Lieut. B. L. Sclater, R.E., Geogr. Journ., Nov. 1893.

recognize *B. leucopymnus* as distinct from *B. lichtensteini*, though we fully admit the possibility of being obliged hereafter, by future evidence, to alter our opinion on this point.

The main distinguishing feature of Lichtenstein's Hartebeest is the short and thick basal portion of its horns, which induces us to place it in a section

Fig. 6 a.

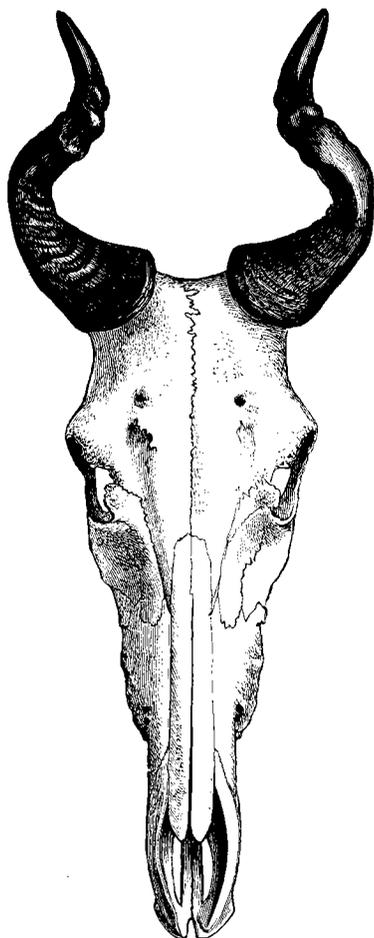


Skull of *Bubalis lichtensteini*, ♂.
(Brooke.)

by itself, and which renders it easily recognizable from the seven preceding species of this genus. This character is well shown in the accompanying woodcuts (figs. 6 a and 6 b). Figure 6 a, prepared under the superintendence of Sir Victor Brooke, shows the skull of a male of this species; fig. 6 b, p. 50 (which has been kindly lent to us by the Zoological Society of London)

represents, as we now believe, the skull of a female, though originally supposed by Mr. Crawshay to belong to a young male.

Fig. 6 *b*.



Skull of *Bubalis lichtensteini*, ♀.
(P. Z. S. 1890, p. 662.)

Our coloured figure of this Antelope (Plate V.) was prepared by Mr. Smit from a male specimen (now in the British Museum) which was shot on the River Sabi by Mr. Selous in July 1885. Besides this, the National Collection contains a stuffed female from the same locality, and a series of skulls and skins from Nyasaland, transmitted by Mr. H. H. Johnston, C.B., F.Z.S., and other specimens from the Manica plateau (*Selous*) and Usagara (*Kirk*).

May, 1894.

GENUS II. DAMALISCUS.

Type.

Damalis, Gray, Ann. Mag. N. H. (1) xviii. p. 233 (1846), et auctorum
 plurimorum, nec Ham. Sm. D. LUNATUS.
Damaliscus, nomen novum D. PYGARGUS.

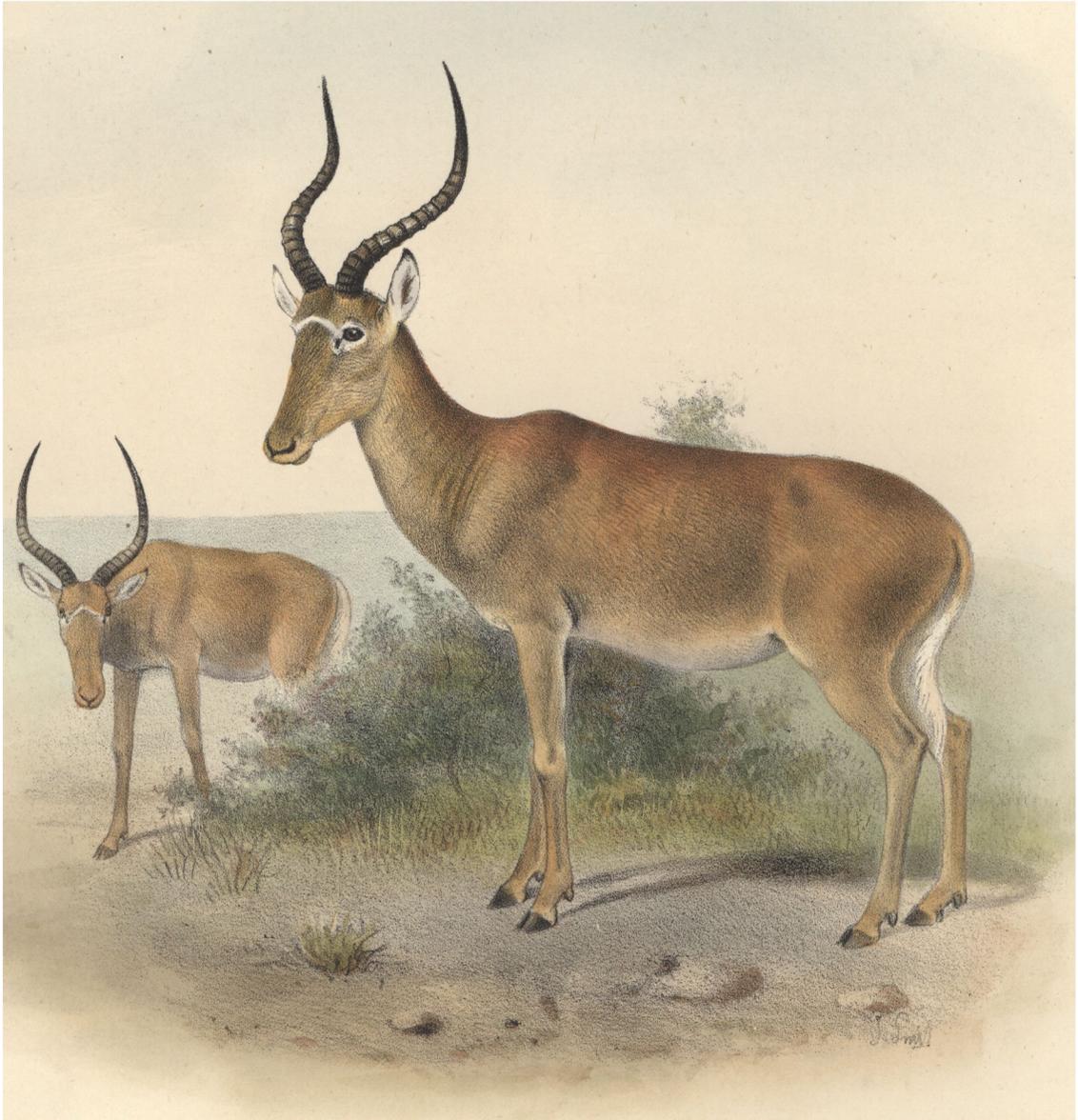
Similar in most essential characters to *Bubalis*, but distinguished by the frontals being quite normal, and not drawn upwards and backwards to form a horn-support. As a result the parietal surface of the skull faces upwards instead of backwards, and is easily visible between the horns in a vertical view of the skull.

The horns practically form a single simple or slightly lyrate curve in all the species, except *D. hunteri*, and in this, although there is a double sigmoid curve, no approximation is shown to the peculiarly abrupt double curvature characteristic of *Bubalis*.

Range of the Genus. Africa south of the Atlas.

As in the previous genus, the species of *Damaliscus*, seven in number, may be divided into groups based on the curvature and direction of the horns, as follows:—

- A. Horns with a double curve, slanting outwards and upwards, then bending slightly downwards almost at once, while their long points are again directed upwards . . . 1. *D. hunteri*.
- B. Horns evenly curved backwards or slightly lyrate; the tips only recurved upwards.
 - a. No white blaze on face . . . 2, 3, 4. *D. korrigum*, *D. tiang*, *D. jimela*.
 - b. Face with a white blaze . . . 5, 6. *D. pygargus*, *D. albifrons*.
- C. Horns starting laterally outwards, with a single lunate curve upwards and backwards 7. *D. lunatus*.



Emil W. H.

Hunter's Antelope.
DAMALISCUS HUNTERI.

W. H. A. S.

Published by R. H. Porter

9. HUNTER'S ANTELOPE.

DAMALISCUS HUNTERI (SCL.).

[PLATE VI.]

Damalis hunteri, Scl. P. Z. S. 1889, p. 58 (woodcut of head), and p. 372, pl. xlii. (animal) (Tana R.); Hunter, in Willoughby's E. Africa, p. 290, pl. iv. fig. 6 (head) (1889).

Alcelaphus hunteri, Lyd. Field, lxxvii. p. 858, fig. (head) (1891).

Alcelaphus (Damalis) hunteri, Flow. & Lyd. Mamm. p. 336 (1891).

Bubalis hunteri, Ward, Horn Meas. p. 70, fig. (head) (1892); Lyd. Horns and Hoofs, p. 200, fig. 40 (head) (1893).

VERNACULAR NAME:—*Herola* of Gallas (*Hunter*).

Size medium, form more delicate and graceful than in most of the other species. Facial hairs wholly reversed upwards from the muzzle to the horns.

Colour uniform rufous, with no darker markings anywhere, on face, chin, or limbs, and the caudal crest even, black in every other species, is here wholly white. On the face, however, there is a well-defined white line passing from one eye to the other across the forehead. Lower part of rump not markedly lighter than upper.

Skull slender and lightly built. Basal length 12·9 inches, greatest breadth 5·2, muzzle to orbit 9·1.

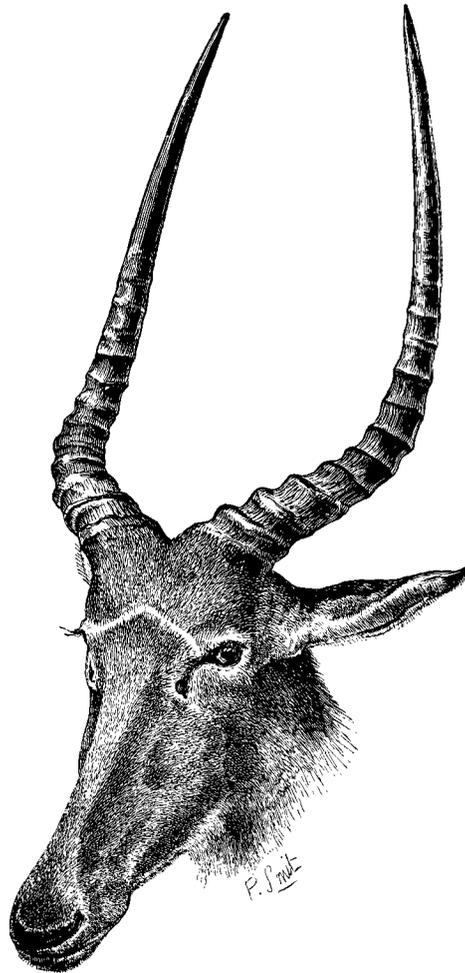
Horns quite different from those of any other species; at their base they start upwards, then curve down and out, then diverge and slant backwards, and finally they curve evenly forwards, so that their terminal halves point directly upwards. In general form, therefore, they present a slight resemblance to those of the Pallah, a very different animal in all other respects. Good male horns attain a length of 20 to 25 inches (largest recorded

26 $\frac{1}{4}$ inches) measured round the curve, but female horns are in this species but little inferior to male.

Hab. Southern Somaliland, north bank of River Tana.

We take this species of *Damaliscus* first in the present work because it is

Fig. 7 a.



Head of *Damaliscus hunteri*.

(P. Z. S. 1889, p. 373.)

clearly divergent from the typical members of the genus, as seen in the Blessbok and Bontebok, and approaches in some respects the genus *Bubalis*.

It is, however, as already pointed out, quite different from all the other species of both these genera in the shape of its horns, and is also unique in exhibiting the curious white line between the eyes across the forehead, which renders it easily recognizable.

Fig. 7 b.



Skull and horns of *Damaliscus hunteri*, ♂ ad.
(P. Z. S. 1889, p. 374.)

Fig. 7 c.



Skull and horns of *Damaliscus hunteri*, ♀ ad.
(P. Z. S. 1889, p. 375.)

Hunter's Antelope has been called after its discoverer Mr. H. C. V. Hunter, F.Z.S., who met with it under the following circumstances:—

In the year after Sir Robert Harvey's celebrated sporting-expedition to Kilimanjaro (in 1886-87), of which Sir John Willoughby has given us the history in his well-known volume on 'East Africa and its Big Game,' Sir Robert returned to Mombasa in company with Mr. Greenfield and Mr. Hunter, and, after another visit to the "Hunter's Paradise of Taveta," near Kilimanjaro, made a second trip, in quest of sport, up the valley of the River Tana, which forms the northern boundary of the dominions of the Imperial British East-African Company. Of this excursion Sir Robert prepared a short account, which has been printed as an appendix to the above-mentioned work. The party arrived at the mouth of the Tana in September, and proceeded up the river in boats to Golbanto, where they were hospitably received at the mission-station on the river. Leaving Golbanto on September 28th they reached, about ten days later, a village called Durani, some 150 miles from the mouth of the river. Here on the north bank Mr. Hunter, on October 16th, shot the first specimen of the Antelope which now bears his name, and immediately proceeded to take the photograph of its head, from which the accompanying engraving (fig. 7*a*, p. 54) was taken. Other examples of this species were subsequently procured by Mr. Hunter and Mr. Greenfield. These include two heads (male and female) which are now in Sclater's custody, and on which he established the species, and the mounted specimen which is now in the gallery of the British Museum. We are not aware that besides the examples procured on this occasion any other specimens of this rare and interesting Antelope have ever been brought to Europe.

The female Hunter's Antelope differs from the male in its rather smaller size and in its longer and more slender horns, as shown in the accompanying woodcuts (figs. 7*b* and 7*c*) kindly lent to us by the Zoological Society of London.

Mr. Hunter's field notes on this Antelope (as supplied by him to Sclater) are as follows:—

"We first met with this Antelope about 150 miles up the Tana River. It is only found for certain on the north bank of the river. It frequents the grassy plains principally, but I have also often seen it in thin thorny bush. It is generally met with in herds of from 15 to 25 individuals.

"At the time of the year when I came across them (October and November) I saw several young ones in the herds. The banks of the Tana River are

fringed with a thin belt of forest, then the ground rises slightly and one sees extensive plains dotted here and there with large patches of bush, composed principally of euphorbias and aloes. The Lesser Koodoo (*Strepsiceros imberbis*) lives principally in these patches, and feeds outside of them in the early mornings and evenings. When I first saw the new Antelope I was stalking two examples of *Gazella walleri*, and though I saw the Hunter's Antelope in the distance I mistook them for Impálas, which, however, are not found on the Tana on either bank.

“It was only when I fired at the Gazelles, and the Hunter's Antelopes (a pair of young males) ran away, that I noticed that they were something new to me. They ran with rather a heavy gallop, like a Hartbeest. I then had a very long track after them, and managed to kill the young male which I first sent you.

“We did not come across these Antelopes again for some days, but then met with them in large numbers and got several specimens. They seemed to me to have more vitality than any other Antelope I have ever killed. This species certainly does not extend down to the coast, but we saw them as far as the furthest point we reached (about 250 miles) up the river, at a place called Mussa. Their Galla name is ‘*Herola*,’ not ‘*Haranta*,’ as given in your original description.”

May, 1894.



Wolfe del. Smit del.

The Korrigum.
DAMALISCUS KORRIGUM.

Haakart imp.

Published by R.H. Porter

10. THE KORRIGUM.

DAMALISCUS KORRIGUM (OGILB.).

[PLATE VII.]

Antilope senegalensis, Children, Denh. & Clapp. Trav., App. p. 192 (1826) (*nec* Cuv.);
Wagn. Schr. Säug. Suppl. v. p. 447 (1855).

Damalis senegalensis, Ham. Sm. Griff. Cuv. An. K. iv. p. 351, v. p. 363 (1827); Gray,
Ann. Mag. N. H. (1) xviii. p. 233 (1846); id. List Ost. B. M. p. 59 (1847); id.
P. Z. S. 1850, p. 140; id. Knowsl. Men. p. 21, pl. xxi. (♀) (1850); Gerr. Cat. Bones
Mamm. B. M. p. 244 (1862); Fitz. SB. Wien, lix. pt. 1, p. 181 (1869); Gray, Cat.
Rum. B. M. p. 45 (1872); id. Hand-l. Rum. B. M. p. 115 (1873); Matschie,
Nat. Wochenschr. 1894, p. 417.

Antilope korrigum, Ogilb. P. Z. S. 1836, p. 103.

Damalis korrigum, Gray, List Mamm. B. M. p. 158 (1843); id. List Ost. B. M. p. 145
(1847).

Bubalis senegalensis, Temm. Esq. Zool. Guin. p. 195 (1853); Brehm, Thierl. iii. p. 217,
plate (animal) (1880).

Alcelaphus senegalensis, Lyd. Field, lxxvii. p. 858 (1891).

Bubalis korrigum, Lyd. Horns and Hoofs, p. 201 (1893).

VERNACULAR NAME :—*Korrigum* in Bornou (*Denham & Clapperton*).

Size medium. General colour reddish fawn, with distinct black patches on face, shoulders, hips, and thighs. No dorsal dark line, and no dark markings on feet. Tail barely reaching to hock, its terminal third with a blackish crest along the top.

Skull heavily built; its basal length (♂) 14·8 inches, greatest breadth 5·7, muzzle to eye 10·8.

Horns thick, rising abruptly upwards and backwards from the skull, and evenly curving backwards, diverging as they go; their extreme tips showing

a tendency to be recurved upwards. Good male horns are of a length over the curves of 21 inches.

This and the two next species are very closely allied in all their essential characters; but their colour-differences appear to be sufficiently constant in their respective localities to entitle them to specific recognition.

Hab. Senegambia and the interior of West Africa.

The Antelope described by Buffon, in his 'Histoire Naturelle,' as the "Koba" * or "Grande Vache Brune" of Senegal, has proved a great stumbling-block to naturalists. This has been largely due to the fact that Buffon appended to his description of the Koba the figure of some horns from a totally different source, and clearly of a different animal, which, indeed, we believe to have been simply those of the Pallah (*Æpyceros melampus*). Not noticing this confusion, many good authorities have identified the Koba with the present species, while others have been inclined to refer it, owing to the figure of the horns erroneously given by Buffon, to the Bontebok of the Cape and to other Antelopes. The description by itself is quite unrecognizable, and under the circumstances, as the matter must ever remain uncertain, the best course seems to be to ignore Buffon's animal altogether, and to reject the specific names *koba* and *senegalensis* that have been founded upon it; although there can be no doubt that the Korrigum, as now described, is the *Antelope* and *Damalis senegalensis* of Children, Hamilton Smith, Gray, and many other authors.

This being decided, the proper name to adopt for this Antelope will be *korrigum* of Ogilby. Ogilby proposed this name in a communication made to the Zoological Society of London in 1836, basing it on the head and horns brought home from Bornou by Denham and Clapperton on their return from their celebrated expedition into Central Africa in 1822-24. This skull is still in the collection of the British Museum.

About the year 1840 Whitfield, a collector employed by Lord Derby to

* The following are the chief references to the Koba:—

Le Koba, Buff. Hist. Nat. xii. p. 210, but not p. 268, or the horn pl. xxxii. fig. 2.

Senegal Antelope, Pennant, Syn. Mamm. p. 38 (1764) (name and locality, but not description or woodcut of head, which refer to *Bubalis caama*).

Antelope koba, Erxl. Syst. R. A. p. 293 (1777) (name from Buffon, description from Pennant).

Antelope senegalensis, G. Cuv. Dict. Sci. Nat. ii. p. 235 (1804) (name based on Pennant).

procure living animals for his private Menagerie, obtained specimens of the Korrigum from the vicinity of Macarthy's Island on the River Gambia, and brought them safely to Knowsley. Here they seem to have thriven and reproduced their kind, for on reference to the 'Gleanings' (published in 1850) there will be found a beautiful coloured figure by Waterhouse Hawkins of a mother and young of this Antelope drawn from life. It is a great misfortune that so few records were ever kept or, at all events, ever published of the many fine and rare animals living in this splendid collection. In the Derby Museum, now at Liverpool, are two mounted specimens of this Antelope—we believe the only perfect examples in this country. They are, no doubt, individuals formerly living in the Knowsley Menagerie.

Herr Matschie is inclined to believe that certain specimens of a *Damaliscus* recently obtained by German collectors on the north and west of Lake Victoria should be referred to the present species, and not to *D. jimela*. This, if correct, would indicate a much greater extension of the area of the Korrigum towards the east than we should consider to be probable, and further evidence on the subject is much wanted.

Besides the skulls of both sexes obtained in Bornou by Denham and Clapperton, there are other skulls of this species in the National Collection, procured by Whitfield on the Gambia, and, more recently, in the same district by Dr. Percy Rendall. We much regret that we have no further details to offer upon this fine and interesting Antelope, of the life-history of which, as is the case with most of the West-African Antelopes, we know exceedingly little. The figure of this species (Plate VII.) was put upon the stone by Mr. Smit from a drawing by Mr. Wolf, probably taken from the specimens at Liverpool; but upon this point we are not quite certain.

January, 1895.

II. THE TIANG.

DAMALISCUS TIANG (HEUGL.).

- Bubalus lunatus*, **Sund.** K. Vet.-Ak. Handl. 1842, pp. 201 & 243 (1843) (*nec* Burch.).
Bubalis koba, **Sund.** Pecora, K. Vet.-Ak. Handl. 1844, p. 209 (1846); **id.** Hornschuch's
 Transl., Arch. Skand. Beitr. ii. p. 159; Reprint, p. 83 (1848) (*nec* Erxl.).
Damalis tiang, **Heugl.** Ant. u. Büff. N.O.-Afr. (N. Act. Leopold. xxx. pt. ii.) p. 22,
 pl. 1. fig. 1 (head) (♂) (1863); **Fitz.** SB. Wien, lix. pt. 1, p. 181 (1869);
Matsch. SB. nat. Freund. Berl. 1892, p. 136 (distribution).
Damalis tiang-riel, **Heugl.** tom. cit. p. 23, pl. ii. fig. 9 (horns) (♀); **Fitz.** loc. cit.
Damalis senegalensis, **Heugl.** tom. cit. p. 22; **Gray**, Ann. Mag. N. H. (3) iv. p. 296
 (1859) (Bahr-el-Ghazal, Petherick); **Baker**, Ismailia, pp. 68, 74.
Antilope senegalensis, **Emin**, Reise-Briefen, p. 144 (Magungo) (?).

VERNACULAR NAMES:—*Tiang* and *Tian* (*Heuglin*).

Size rather smaller than that of the Korrigum. General colour purplish red; the face, a line beneath the eye, another along the nape and back brown or black; front of the limbs and tip of the tail deep black.

Skull with a comparatively short nasal region, the nasal bones themselves unusually short and broad. Measurements (♀):—basal length 13·8 inches, greatest breadth 5·75, muzzle to eye 10·2.

Horns as in the Korrigum; those of a female 20·5 inches in length over the curve.

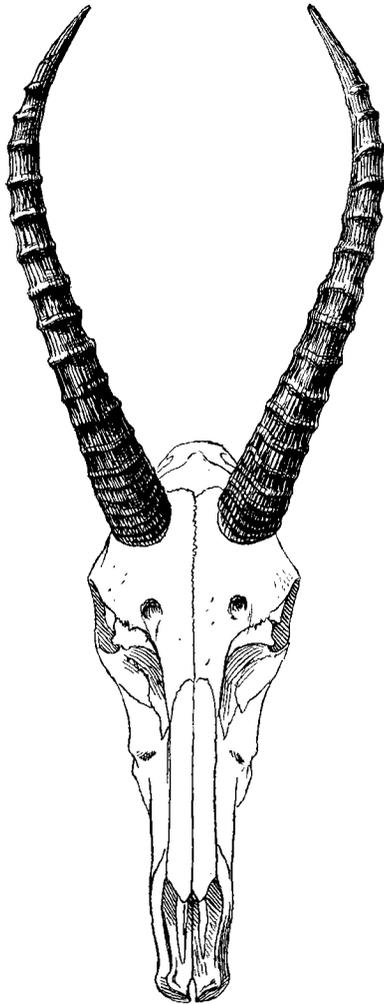
The colour-characters above given are taken from Heuglin's description and figure, as no skin has been seen by us. A skull obtained by Consul Petherick on the Bahr-el-Ghazal has, however, furnished the cranial dimensions.

Hab. Sennaar, Kordofan, and Bahr-el-Ghazal.

The Tiang, as the well-known German traveller and naturalist Theodor

von Heuglin proposed to call this Antelope, after its native name, is a representative form of the Korrigum in the upper valley of the Nile, and, so far as we are acquainted with it at present, agrees in all essential respects with its West-African ally, except in its slightly smaller bulk, and some differences

Fig. 8.

Skull of *Damaliscus tiang*, ♀.

in the black markings on the face and limbs. The Tiang, Topi, and Korrigum have been until lately generally regarded as conspecific; but in 1892 Herr Paul Matschie, of the Royal Natural History Museum of Berlin,

came to the conclusion that previous authors had been in error in uniting the present animal and its allied forms of West and East Africa respectively under one head, and that they should be distinguished as different species. We follow Herr Matschie's lead on this question, and have little doubt that his views will ultimately prove to be correct, although, from the great scarcity of specimens of all these Antelopes in European collections, it is not possible at present to arrive at a positive decision.

The Stockholm Museum appears to have been the first to receive examples of this Antelope; but Sundevall referred them first of all to the Sassaby (*Bubalis lunata*), and, when he found that this was quite wrong, named them *Bubalis koba*, supposing them to be identical with the West-African Korrigum. Sundevall's specimens were received from Sennaar, and are accurately described in his classical memoir on the "Pecora."

As already mentioned, v. Heuglin met with this Antelope during his lengthened explorations on the Upper Nile and its affluents. He described it in his memoir on the Antelopes and Buffaloes of North-east Africa (published in 1863 in the 'Nova Acta' of the Leopoldino-Carolinian Academy) as *Damalis tiang*, and tells us that it is one of the commonest Antelopes on the Sobat, Ghasal, and Kir rivers. He gives a coloured figure of its head. Whether v. Heuglin's *Damalis tiang-riel*, described in the same memoir (based on some horns from the Bahr el Abiad), is referable to the Tiang is not quite certain, but Selater, who has examined the horns upon which the species was founded, now in the Naturalien-Cabinet of Stuttgart, believes them to be so.

The only other explorer of these distant regions who has sent home examples of the Tiang is, so far as we know, Petherick, from whom skulls of an immature male and an adult female of this Antelope were received by the British Museum in 1859. The latter are represented in the accompanying figure (fig. 8).

Besides Petherick, Sir Samuel Baker appears to have met with the Tiang during his journey along the Upper Nile (see 'Ismailia,' i. pp. 68-74); and the *Antelope senegalensis* of Emin Pasha ('Reise-Briefen,' p. 144), which he encountered near Magungo, on the Albert Nyanza, may probably be referable to this species.

January, 1895.

12. THE TOPI.

DAMALISCUS JIMELA (MATSCH.).

Damalis senegalensis, **ScL. P. Z. S.** 1886, p. 176 (Lamu); **Noack**, *Zool. JB.* ii. p. 208 (1887); **ScL. P. Z. S.** 1890, p. 354 (woodcuts of head and horns, excl. all synonyms, which mostly belong to *D. korrigum* and *D. tiang*); **Kirk**, *ap. ScL. l. c.* p. 357, footnote (distribution); **Ward**, *Horn Meas.* p. 64, fig. (head) (1892).

Damalis jimela, **Matsch.** *SB. nat. Fr. Berl.* 1892, p. 135.

Bubalis jimeru, **Lyd.** *Horns and Hoofs*, p. 203 (1893).

Alcelaphus senegalensis, **Lugard**, *E. Africa*, i. p. 532, pl. p. 448 (head) (1893).

Senegal Antelope, **Willoughby**, *East Afr.* p. 283 (Tana River).

VERNACULAR NAMES:—*Jimela* of Unyamwezi (*Matschie*); *Topi*, *Tope*, or *Topee* of Swahili; *Nemira* of Uganda (*Lugard*).

Size small, height at withers 43–44 inches. Fur very short and close, but mingled with it there are numerous patches of longer hairs, so that a somewhat brindled appearance is produced. General colour a peculiar purplish brown, blackish on face and chin, shoulders, and round the upper fore legs and thighs, but these darker markings are not really black and are not sharply defined. Hams scarcely lighter than the rest. Limbs and feet without dark patches, except that the backs of the pasterns are black. Fur on face directed upwards, from the extreme tip between the nostrils up to the horns, without break. Tail reaching just to the hock, its terminal half black-crested.

Skull comparatively small, with an unusually long nasal region; the nasal bones very long and narrow. Basal length (♀) 13·3 inches, greatest breadth 5·2, muzzle to orbit 9·5.

Horns as in the *Korrigum*, but shorter and slenderer; those of a female 16·4 inches in length.

Hab. British East-African coast, from the River Juba to the River Sabaki, and extending thence into Uganda and Unyamwezi.

The "Topi," as we propose to designate another local representative of the Korrigum, from the native name given to it by the Swahili, has been known for some years to the sportsmen who have visited British and German East Africa as an abundant Antelope in certain districts, and has been generally called by them the "Senegal Antelope," from being supposed to be the same as the "Korrigum." But, as Herr Matschie first pointed out, it differs from the typical Senegal form in the absence of the black band on the inner side of the thigh, in the front legs being black down to the hoofs, and in the restriction of the black on the hinder flanks to the hips.

So far as we know, Sir John Kirk, then Consul-General at Zanzibar, was the first to obtain examples of this fine Antelope on the East Coast. Sir John has kindly supplied us with the following notes on this species:—

"The 'Tope,' or Senegal Antelope, was very common on the maritime plain of Formosa Bay when I first went to Zanzibar in 1866; before I left, in 1886, it had become rather rare near the coast. On the maritime plain it used to be seen in numerous herds of from 5 to 20. The herds of Tope generally kept alone, but you would see the herds of *Gazella granti* grazing near by. I am, however, not satisfied that this Gazelle was the real *Gazella granti*, for the horns seem to show a permanent difference of sweep.

"However, to return to the Tope, I may say that I shot it again on the south bank of the River Juba.

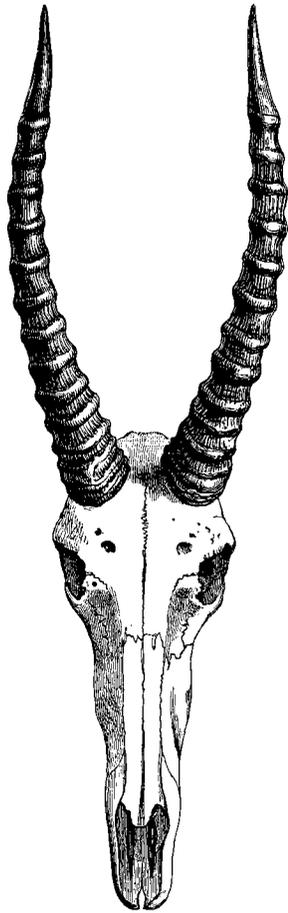
"The River Sabaki (near Malindi) is, so far as I know, the southern limit of the species *on the coast*; I have little doubt that further inland it may be met with further south, just as you find the Oryx, the Vulturine Guinea-fowl, and other species (which never occur south of the River Sabaki *on the coast*), to be common if you go inland, and in a latitude far south of Malindi, such as at Mpwapwa in Usagara.

"The Tope was at one time so common near Witu, and in the district about Lamu, as to supply a considerable number of hides that were exported from Zanzibar."

In 1885 Mr. F. J. Jackson obtained examples of this Antelope near Lamu, and transmitted to Lord Walsingham a head, which Sclater exhibited at one of the Zoological Society's meetings in 1886. During his subsequent stay in

British East Africa and on his journey to Uganda Mr. Jackson again met with this Antelope, and tells us ('Big Game Shooting,' vol. i. p. 291) that it is the "commonest species in the Galla country, and ranges from the coast right away N.E. to Uganda, passing round to the north of Mount Kenia, but is not known either in Leikipia or south of Lake Baringo."

Fig. 9.



Skull of *Damaliscus jimela*, from Lamu.
(P. Z. S. 1890, p. 356.)

Fig. 9 a.



Head of *Damaliscus jimela*, from Malindi.
(P. Z. S. 1890, p. 355.)

In 1890 Sclater exhibited at one of the meetings of the Zoological Society a head of this Antelope obtained near Malindi by Commander Montgomerie, R.N.

At that time Sclater did not distinguish between this species and the two allied forms, and referred them all three to *Damalis senegalensis*, which he believed to extend from Senegal to the east coast.

Mr. Ernest Gedge, the companion of Mr. Jackson in his Uganda expedition, has favoured us with the following interesting notes on this Antelope :—

“ Though the Topee ranges over a very wide extent of the country in the sphere of British East Africa, it is met with in no great numbers between the coast and the Victoria Lake. The nearest point to the coast-line at which I have seen and obtained specimens was a short distance north of Kikumbuliu, on the borders of the Kiboko River. In this district it is only occasionally met with, and is generally found in company with Hartebeest. Further north, in the vast plains amongst the stony hills of Turquel and Karamojo, and round the bases of Mts. Elgon and Lekakisera, it is fairly common, scattered in twos and threes amongst the herds of Hartebeest. Further northwards, in the countries lying to the west and north of Uganda proper, and indeed throughout the whole district bordering the Victoria Nyanza in this direction, it is very common, and on one occasion when traversing a plain of considerable extent in the district of Buddu I encountered several fine herds of this Antelope. It differs very little from the Hartebeest in its general habits, and, like them, it is usually shy and difficult to approach. It is easily distinguished from the latter species by the rich dark bluish-brown coat, the smaller head, and the shape of its horns, which have, on more than one occasion, caused it to be mistaken for the Sable Antelope (*Hippotragus niger*). It appears to be equally at home in swampy localities as on the dry open plains, though it shows a certain partiality for those districts which afford some cover.”

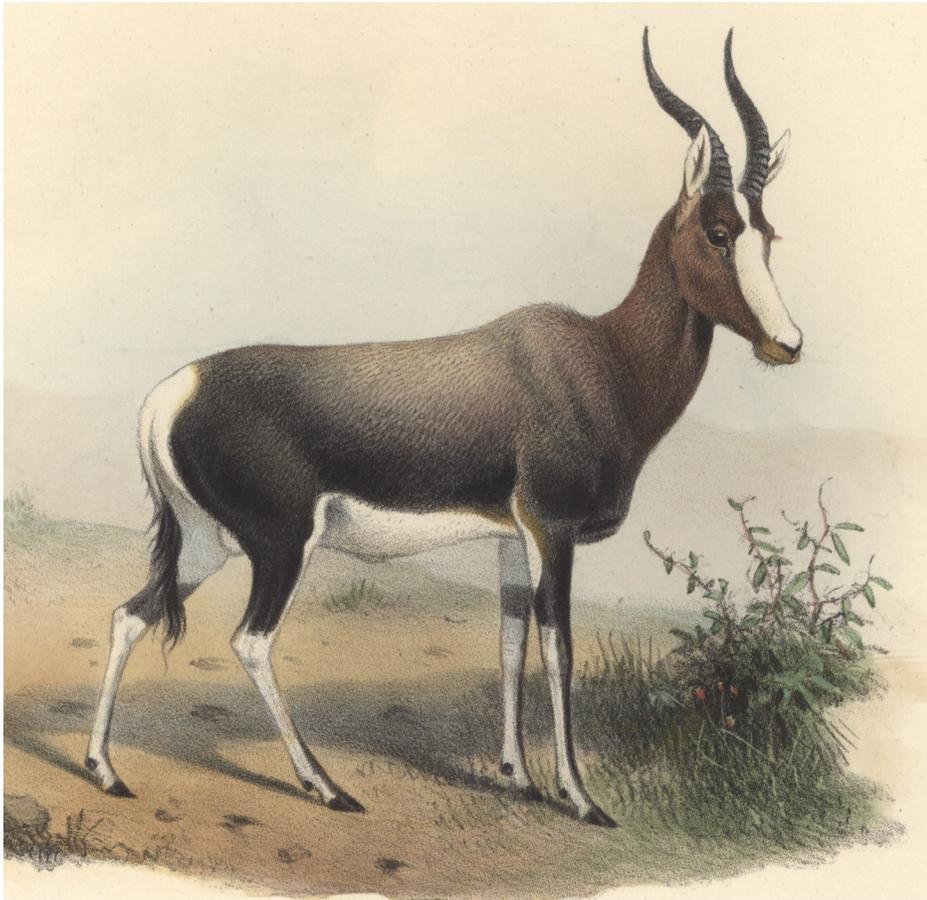
Passing now to German East Africa, we find that this Antelope, according to Herr Matschie, was met with by Böhm in Unyamwezi, south of Lake Victoria. Here it is the “ Jimela ” of the natives, which term Herr Matschie has adopted as its specific designation. In a recent letter, however, Herr Matschie tells Sclater that the specimens of this Antelope lately obtained by Herr Oscar Neumann in Kavirondo and other localities west of Lake Victoria, and by Lieut. Werther on the Rovana Steppe near Speke Gulf, more nearly resemble *D. korrigum* of the West Coast, but it seems to us hardly possible that the western form should extend so far.

It is certain, however, that we have much more to learn concerning the

distribution of this Antelope and its allied forms before the question of their specific relations and the areas which they respectively occupy can be deemed settled.

Besides the skull from the Juba, received from Sir John Kirk, the British Museum possesses a mounted specimen of the adult male of this Antelope obtained by Mr. Jackson in the Kilimanjaro district in 1893, and a flat skin procured by the same gentleman near Malindi.

January, 1895.



The Bontebok.
DAMALISCUS PYGARGUS.

Wolff del. Smit lith.

Published by P.H. Porter.

Hankart imp.

13. THE BONTEBOK.

DAMALISCUS PYGARGUS (PALL.).

[PLATE VIII.]

- Antilope dorcas*, Pall. Misc. Zool. p. 6 (1766) (nec *Capra dorcas*, L.).
- Antilope pygarga*, Pall. Spic. Zool. fasc. i. p. 10 (1767), fasc. xii. p. 15 (1777); **Erxl.** Syst. R. A. p. 287 (1777); **Zimm.** Geogr. Gesch. ii. p. 119 (1780); **Gatt.** Brev. Zool. i. p. 82 (1780); **Schreb.** Säug. pl. cclxxiii. (1784); **Bodd.** Elench. Anim. p. 143 (1785); **Gmel.** Linn. S. N. i. p. 187 (1788); **Kerr**, Linn. An. K. p. 311 (1792); **Donnd.** Zool. Beytr. p. 628 (1792); **Bechst.** Uebers. vierf. Thiere, i. p. 87, ii. p. 644 (1800); **Shaw**, Gen. Zool. ii. pt. 2, p. 352 (1801); **Turt.** Linn. S. N. i. p. 113 (1802); **Desm.** N. Dict. d'H. N. (1) xxiv. tabl. p. 33 (1804); **G. Cuv.** Dict. Sci. Nat. ii. p. 233 (1804); **Licht.** Mag. nat. Freund. Berl. vi. p. 166 (1814); **G. Fisch.** Zoogn. iii. p. 435 (1814); **Afzel.** N. Act. Upsal. vii. p. 220 (1815); **Desm.** N. Dict. d'H. N. (2) ii. p. 186 (1816); **Goldf.** in Schreb. Säug. v. p. 1187 (1820); **Schinz**, Cuv. Thierr. i. p. 388 (1821); **Desm.** Mamm. ii. p. 456 (1822); **Desmoul.** Dict. Class. d'H. N. i. p. 443 (1822); **Burch.** List Quadr. pres. to B. M. p. 5 (1825) (Swellendam); **Less.** Man. Mamm. p. 373 (1827); **Smuts**, Enum. Mamm. Cap. p. 73 (1832); **Waterh.** Cat. Mamm. Mus. Z. S. (2) p. 41 (1838); **Wagn.** Schr. Säug. Suppl. iv. p. 412 (1844), v. p. 447 (1855); **Schinz**, Syn. Mamm. ii. p. 402 (1845).
- Capra cervicapra*, Müll. Naturs. i. p. 414 (1773) (nec L.).
- Antilope grisea*, Bodd. Elench. Anim. p. 139 (1785).
- Capra scripta*, Thunb. Resa, ii. p. 50 (1789); Engl. Transl. ii. p. 44 (1793) (nec *Antilope scripta*, Pall.).
- Antilope maculata*, Thunb. Mém. Ac. Pétersb. iii. p. 315 (1811).
- Cerophorus (Gazella) pygarga*, Blainv. Bull. Soc. Philom. 1816, p. 75.
- Cemus pygargus*, Oken, Lehrb. Naturgesch. iii. pt. 2, p. 738 (1816).
- Antilope personata*, Woods, Zool. Journ. v. p. 2 (1835) (young).
- Gazella pygarga*, Harr. Wild Anim. S. Afr. (fol.) pl. xvii. (animal) (1840); **Gray**, List Mamm. B. M. p. 161 (1843).

- Damalis pygarga*, Gray, Ann. Mag. N. H. (1) xviii. p. 233 (1846); id. List Ost. B. M. p. 59 (1847); id. P. Z. S. 1850, p. 141; id. Knowsl. Men. p. 21, pl. xx. fig. 3 (young), pl. xxii. figs. 2 & 3 (adult) (1850); id. Cat. Ung. B. M. p. 127 (1852); Layard, Cat. S. Afr. Mus. p. 77 (1861); Gerr. Cat. Bones Mamm. B. M. p. 244 (1862); Fitz. SB. Wien, lix. pt. 1, p. 181 (1869); Layard, P. Z. S. 1871, p. 625, footnote (scarcity); Gray, Cat. Rum. B. M. p. 45, pl. iii. fig. 6 (skull) (1872); id. Hand-l. Rum. B. M. p. 116 (1873); Jent. Cat. Ost. Leyd. Mus. (Mus. Pays-Bas, ix.) p. 140 (1887); id. Cat. Mamm. Leyd. Mus. (op. cit. xi.) p. 171 (1892); Nicolls & Egl. Sportsm. S. Afr. p. 32, pl. vii. fig. 27 (head) (1892).
- Bubalis pygarga*, Sund. Pecora, K. Vet.-Ak. Handl. 1844, p. 209 (1846); id. ibid. Hornschuch's Transl., Arch. Skand. Beitr. ii. p. 159; Reprint, p. 84 (1848); Temm. Esq. Zool. Guin. p. 195 (1852); Brehm, Thierl. iii. p. 217 (1880); Ward, Horn Meas. p. 69 (1892); Lyd. Horns and Hoofs, p. 202 (1893).
- Alcelaphus pygargus*, Sci. List Anim. Z. S. (8) p. 150 (1883); Flow. & Gars. Cat. Ost. Coll. Surg. p. 273 (1884); Bryden, Kloof and Karroo, p. 295 (1889); Flow. & Lyd. Mamm. p. 335 (1891).
- White-faced Antelope*, Penn. Hist. of Quad. i. p. 82.

VERNACULAR NAME:—*Bontebok* of Dutch and English colonists.

Height at withers about 40 inches. Ground-colour of body, as seen on the anterior half of the back, rufous fawn. Crown, sides of face and neck, flanks, thighs, and the anterior half of the rump darkened nearly or quite to black, which colour also runs down the limbs to the knee and hock, where it passes as a dark ring right round the limbs. Face with a large strongly contrasted blaze of pure white, which covers the whole breadth of its upper surface on the muzzle, but is much narrower above the eyes, where it runs up to the bases of the horns. In the young the facial blaze is simply brown. Posterior half of rump, base of tail, belly, and lower limbs also white. Terminal half of tail, which reaches just to the hock, black-crested.

Hairs of face reversed upwards to horns. No glandular suborbital brushes.

Skull narrow and lightly built, its measurements about as in the next species.

Horns somewhat like those of *D. korrigum* and its allies, but their bases more compressed and twisted inwards towards each other in front; above they curve evenly backwards and outwards, their terminal five or six inches again gently recurved upwards. Their ridges are 15 or 16 in number, very prominent in front, less so on the sides and behind; their substance is

quite black. In length they attain 15 or 16 inches, with a basal circumference of about 6.

Hab. Cape Colony, south of Vaal River (now nearly extinct).

The "Bontebok," or "Pied Goat," of the Dutch colonists of the Cape, was amongst the earliest Antelopes known to science. In his first essay on the genus *Antilope*, published in 1766, Pallas described it as *Antilope dorcas*, having confounded it with the *Dorcas* of Ælian. But in his second essay upon the same group, issued in the following year, he selected for it the very appropriate name *pygarga*, by which it has been generally known ever since. The Bontebok and Blessbok together constitute a distinct section of the present genus, readily known from their congeners by their smaller stature and conspicuous white faces.

Lichtenstein, in his celebrated memoir on the genus *Antilope*, published at Berlin in 1814, made *Antilope pygarga* the tenth species of the genus, and gave original particulars of it from specimens which he had himself obtained during his visit to South Africa. He states, however, that this animal is the *Blessbok*, and not the *Bontebok*, of the Cape; and there can be no doubt that both these names have been applied to it, though the former term is now by general consent restricted to the next following species, *Damaliscus albifrons*. For example, Smuts, in his 'Enumeratio Mammalium Capensium,' gives both "Bontebok" and "Blessbok" as the colonial names of the present species. In fact these animals were never correctly discriminated till Harris gave figures and descriptions of them in his 'Portraits of the Game and Wild Animals of Southern Africa,' published in 1840.

Harris tells us that in his time the Bontebok was "common" in the interior of the Cape Colony, and was also found in one valley near Cape Agulhas. On the plains lying south of the Vaal River he visited the headquarters of the Bontebok, where "thousands upon thousands were seen and numbers were daily slain." They were frequently seen congregated on the salt-flats, near the stagnant pools of brackish water, licking up the crystallized efflorescence.

Thirty years later a very different tale was told of the Bontebok, which by that date had become nearly extinct except in one isolated spot. Mr. E. L. Layard (P. Z. S. 1871, p. 625) gives the following account of this animal at that period:—"The Bontebok is very nearly exterminated, and,

but for the fostering care of Messrs. Breda and Van der Byl, would be quite so in a couple of years.

“They are now confined to one spot in the extreme south of the continent of South Africa, to a portion of the country called the ‘Strand Veldt.’ It is an extensive flat, bordered by the sea on the south-west, south, and south-east, and by a range of undulating country or low hills rising to the Caledon Ranges and Zwart Bergen on the northern side. It is, in fact, the nearest plateau to the L’Agulhas Bank, and is called ‘Cape L’Agulhas.’ The whole of this country belongs chiefly to the families of Breda and Van der Byl; and they preserve the animals as much as they can. A Government permit is also required to shoot them, which must be visa’d by the magistrate at Bredasdorp, the name of the village on this range of land.

“They are, however, poached and destroyed by one or two small holders, who have patches of land surrounded by the large properties, and who refuse all offers of purchase, and plant corn on purpose to tempt the animals into it, and then at night shoot them. They roam in herds of about eight or ten, or twenty; but sometimes fine old bucks are found solitary. They are usually shot from a cart, which they will suffer to approach them, or from horseback. If wounded and approached they will charge desperately; and I have heard of a Hottentot being killed by them thus.”

Messrs. Nicolls and Eglington in their ‘Sportsman in South Africa,’ which contains the most recent account of the Antelopes of the Colony, tell us that the Bontebok can no longer “be considered as a part of the wild game of the country,” as it now exists only on Van der Byl’s farm (as mentioned by Mr. Layard) and has become totally extinct elsewhere.

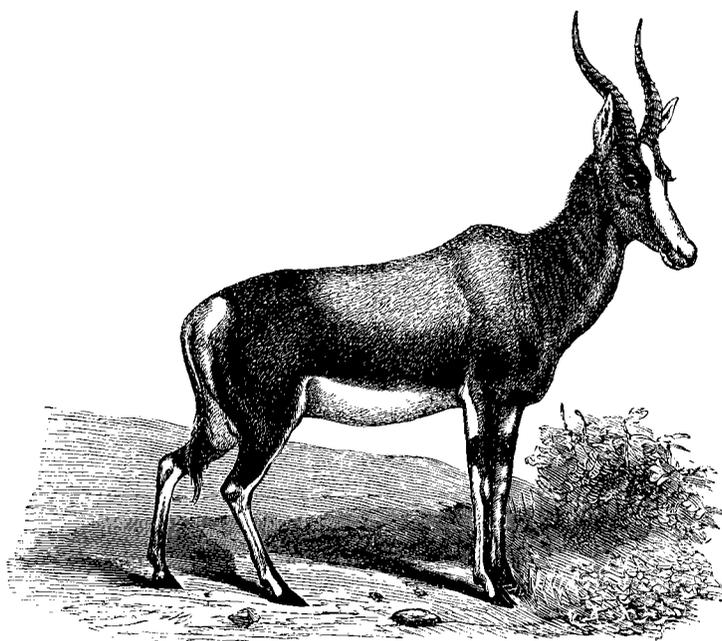
Mr. H. A. Bryden, a well-known authority upon the game of the Cape, tells us the same story. One of the last resorts of this Antelope was the Bontebok Flats, to the north of the present Queenstown district, where a few of these Antelopes existed up to 1851. It appears certain, however, that except in the farm above mentioned, where a few have been carefully preserved for many years, the Bontebok is, at the present time, an extinct animal.

The Bontebok was amongst the many splendid Antelopes that were to be seen in the celebrated Knowsley Menagerie, and which bred in that establishment. The young is figured in one of Waterhouse Hawkins’s large plates in the ‘Gleanings,’ and the adult pair in another plate along with the Blessbok.

At the dispersal of the Knowsley collection in 1851 a pair of adult Bonteboks were purchased by Mr. D. W. Mitchell, then Secretary, for the Zoological Society of London, whilst another pair, bred at Knowsley, were sold to Prince Demidoff.

In August 1871 two females of this Antelope were brought home alive by the Captain of one of the Cape mail-steamers, and purchased by the Zoological Society for £50. So far as I know, these were the last Bonteboks ever brought to Europe.

Fig. 10.

*Damaliscus pygargus.*

In the National Collection, we regret to say, the Bontebok is only represented by a single stuffed specimen—a male, received in 1839 from Dr. Smuts. There are also several skulls and horns of this Antelope, but none of them are of recent date. We fear it will now be a matter of some difficulty to obtain fresh specimens of this once so abundant Antelope.

The coloured illustration of the Bontebok (Plate VIII.) and the woodcut (fig. 10) were both prepared under Sir Victor Brooke's directions. The plate was lithographed by Smit from one of Mr. Wolf's sketches.

January, 1895.



The Eiesböck
DAMALLISCUS ALBIFRONS.

Painted by E. H. Knowlton.

Antelope, 1870.

14. THE BLESSBOK.

DAMALISCUS ALBIFRONS (BURCH.).

[PLATE IX.]

Antilope albifrons, Burch. Travels, ii. p. 335 (1824); Wagn. Schr. Säug. Supp. iv. p. 413 (1844), v. p. 448 (1855).

Gazella albifrons, Harris, Wild Anim. S. Afr. (fol.) pl. xxi. (animal) (1840).

Damalis albifrons, Gray, Ann. Mag. N. H. (1) xviii. p. 233 (1846); id. P. Z. S. 1850, p. 141; id. Knowsl. Men. p. 22, pl. xxii. fig. 1 (animal) (1850); id. Cat. Ung. B. M. p. 129 (1852); id. Cat. Rum. B. M. p. 45 (1872); id. Hand-l. Rum. B. M. p. 116 (1873); Layard, Cat. S. Afr. Mus. p. 77 (1861); Fitz. SB. Wien, lix. pt. 1, p. 181 (1869); Drummond, Large Game S. Afr. p. 425 (1875); Nicolls & Egl. Sportsm. S. Afr. p. 31, pl. iii. fig. 9 (head) (1892); Jent. Cat. Mamm. Leyd. Mus. (Mus. Pays-Bas, xi.) p. 171 (1892).

Bubalis albifrons, Sund. Pecora, K. Vet.-Ak. Handl. 1844, p. 210 (1846); id. ibid. Hornschuch's Transl., Arch. Skand. Beitr. ii. p. 159; Reprint, p. 84 (1848); Temm. Esq. Zool. Guin. p. 195 (1853); Brehm, Thierl. iii. p. 217 (1880); Ward, Horn Meas. p. 68 (1892); Lyd. Horns and Hoofs, p. 202 (1893).

Alcelaphus albifrons, Buckley, P. Z. S. 1876, pp. 286, 292 (distribution); Scl. List Anim. Z. S. (8) p. 149 (1883); Bryden, Kloof and Karroo, p. 295 (1889); Flow. & Lyd. Mamm. p. 335 (1891).

VERNACULAR NAMES:—*Blessbok* of Dutch and English colonists; *Nunni* of Bechuana natives (Harris); *Inoni* of Kaffirs (Drummond); *Inoni* or *Inpemfu* of Zulus (Rendall).

Similar to *D. pygargus* in nearly every respect; but the rufous ground-colour is much more widely extended, owing to the parts which are black in that animal being here scarcely darker than the rest. White blaze on face divided into two parts by a narrow line between the eyes. Posterior half of

rump not prominently white, a small area only round the base of the tail slightly paler than the rest.

Skull and horns as in *D. pygargus*, except that the latter are of a more or less whitish colour.

Skull-measurements of a male:—basal length 11·5 inches, greatest breadth 5·1, muzzle to orbit 8·3.

Hab. Northern plains of Cape Colony, Orange Free State, Transvaal, and Bechuana-land (now nearly extinct).

The Blessbok, so called from the white blaze on its forehead (“*bles*” in Dutch), is of exactly the same form and general appearance as the Bontebok, so that these two close allies have often been confounded together. But the present species is at once distinguishable by the absence of the broad anal white disk above the tail, which ornaments the Bontebok, and by the paler colour of the sides and flanks.

Whether Burchell, whose scientific term “*albifrons*” has been universally adopted for the Blessbok, really intended to affix that name to the present species or to the Bontebok, is, to say the best of it, very doubtful. As we have already stated, both the vernacular names “Blessbok” and “Bontebok” were occasionally applied by the Boers to *Damaliscus pygargus*, and therefore, although Burchell expressly invented his name “*albifrons*” for what he called the “Blessbok,” he equally intended by that term to designate the long-known Bontebok, from which he did not distinguish the Blessbok. It so happened, however, that this was done in reference to a specimen of the latter, so that his name has been rightly retained for it. As we have pointed out in the previous article, these two near allies were first correctly discriminated by Harris, and it is therefore in any case wise to abide by his decision as to their proper names, both scientific and vernacular. Indeed Harris’s lead on this difficult question has been generally followed.

In Harris’s days, 1836–37, the Blessbok inhabited “the elevated tracts to the eastward of the Colony known as the Bontebok Flats,” and was found on the great plains south of the Vaal River in “astounding herds.” Here it was that his first introduction to this splendid Antelope took place. Harris gives us a graphic account of how he lost himself in the wilderness when engaged in the pursuit of these herds and barely escaped with his life.

“The absence of fuel shortly obliged us to continue our march over a

succession of salt-pans, upon which numerous great herds of Blessboks were busily licking the crystallized efflorescence. Alarmed at the approach of our cavalcade, vast troops of them were continually sweeping past against the wind, carrying their broad white noses close to the ground like a pack of harriers in full cry. Having never obtained any specimens of this species, and our stock of provisions, moreover, grievously requiring to be recruited, I mounted *Breslar*, my favourite Rosinante, and, little heeding whither I sped, dashed into the very thick of the Antelopes. The pine-apple hill bearing east about five miles, must, I concluded, prove a never-failing landmark to direct my return to the road, which, however faint it had become, could still readily be distinguished by a practised eye. Dealing death around, I thus continued to scour the ensanguined plain, and to use my pleasure with the herd before me, which had in the meantime increased from hundreds to thousands—reinforcements still pouring in from all directions when, crying ‘hold, enough,’ I stayed my hand from slaughter, and having divested some of the primest of their brilliant party-coloured robes, I packed the *spolia* on my horse, and, well satisfied with my performance, set out to rejoin the waggons. But ah! vainly was it that I sought for them. Cantering to and fro between the string of frosted salt-pans and the little hill, which, floating in the sea of mirage that environed it, seemed as though poised in the sky, again and again I strained my eyes for the road. The monotony of the landscape baffled all attempts at recognition, and my search proved utterly fruitless. Every feature of the scene was precisely the same—the table mountains were completely obscured by the mid-day haze—and in the constant recurrence of similar forms, I lost the points of the compass, and at last became totally bewildered.”

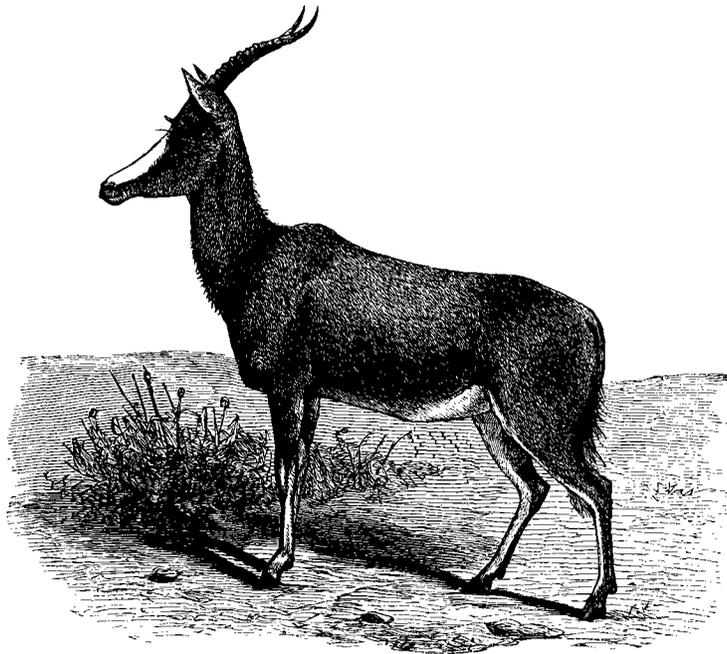
In fact it took Harris on this occasion nearly three days and three nights wandering before he managed to rejoin his waggons.

At the present time these mighty herds have altogether vanished. So late as 1861 Mr. E. L. Layard wrote that the Blessbok was “still found in considerable herds on the north-eastern border of Colony.” But in 1889 Mr. Bryden (‘Kloof and Karroo’) tells us that this Antelope had become quite extinct within the limits of Capeland. Messrs. Nicolls and Eglington, however, inform us that the Blessbok is still to be found on some farms in the Transvaal, and in one or two spots in the Orange Free State. “Previous

to Sir Charles Warren's Expedition in 1884 they were fairly common on the open flats in Southern Bechuanaland, particularly in the neighbourhood of Groot Choiang, and also in the district of Rhamathlabama, a few miles north of Mafeking. They are now practically extinct there, an occasional troop only straying into that district from the preserved farms in the Transvaal."

Of the Blessbok, so far as I know, Lord Derby never procured for the Knowsley Menagerie but a single female, which was figured by Waterhouse Hawkins on the same plate of the 'Gleanings' as the Bonteboks. At the sale of the Knowsley Menagerie in August 1851, this animal was purchased by Mr. Westermann for the Zoological Society of Amsterdam. In 1861 the

Fig. 11.

*Damaliscus albifrons.*

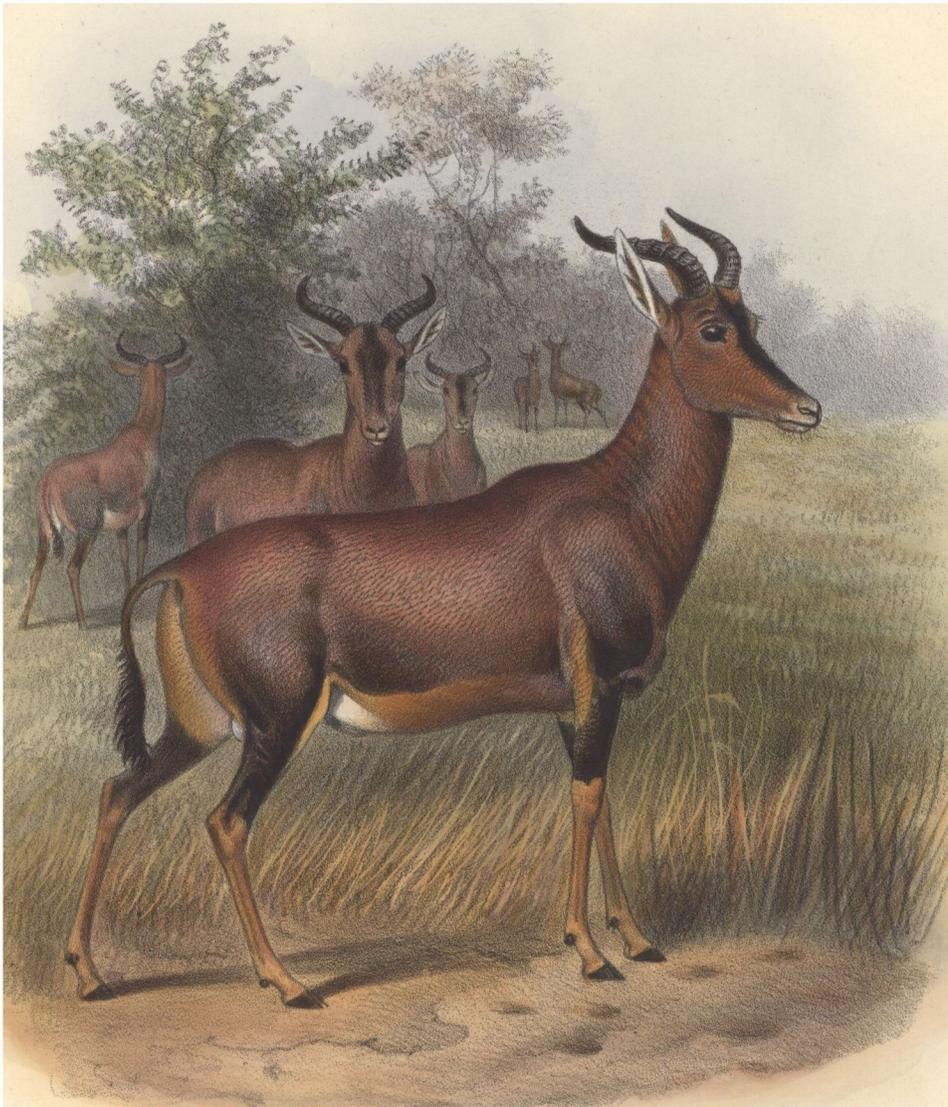
Zoological Society of London received, as a present from Sir George Grey, then Governor of the Cape Colony, a single female of this Antelope along with other valuable animals. A male of the same species was obtained by purchase in 1862 and a female about two years later. These animals thrived and bred in the Society's Gardens, and young ones were born in 1866, 1869, and 1870. But in the absence of fresh importations the whole stock was

lost, and no Blessboks have been exhibited in the Society's Gardens since 1880, when a single specimen was received "on deposit." In many of the continental gardens also Blessboks were formerly to be seen, but of late years they have become extremely scarce; although we are informed that there are still solitary examples living at Berlin, Antwerp, and Amsterdam, and Mr. Reiche kindly tells us that he imported three females from the Transvaal this summer.

In the National Collection at the British Museum the Blessbok, we regret to say, is even more imperfectly represented than the Bontebok. Besides a mounted female specimen in bad condition there are only a few frontlets of this species, so that additional specimens of this beautiful Antelope, before it becomes quite extinct, would be specially acceptable.

The drawing of this Antelope (Plate IX.) and the woodcut now given (p. 82) were both prepared under Sir Victor Brooke's directions. The Plate was engraved by Smit from one of Mr. Wolf's sketches.

January, 1895.



Wolf and Smith del.

The Sassaby.
DAMALISCUS LUNATUS .

Hanhart imp.

Published by R.H. Porter

15. THE SASSABY.

DAMALISCUS LUNATUS (BURCH.).

[PLATE X.]

- Sasayby*, Daniell, Afr. Sketch. pl. 18 (1820).
- Antilope lunata*, Burchell, Travels, ii. p. 334 (1824); *id.* List Quadr. pres. to B. M. p. 5 (1825) (Makkwarin R., Orange Free State); Fisch. Syn. Mamm. p. 642 (1830); Wagn. Schr. Säug. Supp. iv. p. 471 (1844), v. p. 446 (1855); Schinz, Syn. Mamm. ii. p. 444 (1845); Gieb. Säug. p. 298 (1859).
- Damalis lunata*, Ham. Sm. Griff. Cuv. An. K. iv. p. 352, plate (copied from Daniell), v. p. 364 (1827); Smuts, Enum. Mamm. Cap. p. 89 (1832); Gray, Ann. Mag. N. H. (1) xviii. p. 233 (1846); *id.* List Ost. B. M. p. 59 (1847); *id.* P. Z. S. 1850, p. 140; *id.* Knowsl. Men. p. 21 (1850); *id.* Cat. Ung. B. M. p. 125 (1852); Gerr. Cat. Bones Mamm. B. M. p. 244 (1862); Fitz. SB. Wien, lix. pt. 1, p. 180 (1869); Gray, Cat. Rum. B. M. p. 45 (1872); *id.* Hand-l. Rum. B. M. p. 115 (1873); Jent. Cat. Ost. Leyd. Mus. (Mus. Pays-Bas, ix.) p. 139 (1887); *id.* Cat. Mamm. Leyd. Mus. (op. cit. xi.) p. 171 (1892); Nicolls & Egl. Sportsm. S. Afr. p. 33, pl. vi. fig. 19 (head) (1892).
- Acronotus lunatus*, A. Sm. S. Afr. Quart. Journ. ii. p. 222 (1834); Harr. Wild An. S. Afr. pl. viii. (1840); Gray, List Mamm. B. M. p. 157 (1843); *id.* List Ost. B. M. p. 59 (1847).
- Bubalus lunatus*, A. Sm. Ill. Zool. S. Afr. pl. xxxi. (animal) (1841).
- Bubalis lunata*, Sund. Pecora, K. Vet.-Ak. Handl. 1844, p. 209 (1846); *id.* *ibid.* Hornschuch's Transl., Arch. Skand. Beitr. ii. p. 159; Reprint, p. 83 (1848); Temm. Esq. Zool. Guin. p. 195 (1853); Drummond, Large Game S. Afr. p. 426 (1875); Ward, Horn Meas. p. 66 (1892); Lyd. Horns and Hoofs, p. 202 (1893); Selous, P. Z. S. 1893, p. 1 (hybrid with *B. caama*).
- Alcelaphus lunatus*, Buckley, P. Z. S. 1876, p. 285 (distribution); Selous, P. Z. S. 1881, p. 764; *id.* Hunter's Wanderings S. Afr. p. 225 (1881); Flow. & Gars. Cat. Ost. Coll. Surg. p. 273 (1884).

VERNACULAR NAMES :—*Bastard Hartebeest* of Cape colonists ; *Sassaybe* (*Tsessébe*) of Bechuanas, now Anglicized into *Sassaby* by sportsmen generally ; *Incolomo* and *Incomazan* of Matabili ; *Inkweko* of Masubias ; *Unchuru* of Makubas ; *Inyundo* of Makalakas ; *Luchu* or *Lechu* of Masaras (*Selous*) ; *Myanzi* of Zulus (*Rendall*).

Size large ; height at withers nearly 4 feet. General colour dark chestnut-rufous ; front of face, outer sides of shoulders, and hips black. Chin and end of muzzle paler than cheeks. Belly purplish rufous, the groins and back of horns only white. Limbs with the dark colour of shoulders and hips passing round them just above knees and hocks ; below these the legs are all reddish brown. Tail with its tuft reaching to the hock, its base like the back, its crested terminal half black.

Face-hairs reversed up to horns. No glandular suborbital brushes.

Skull-measurements of an adult male :—basal length 14·9 inches, greatest breadth 6·2, muzzle to orbit 10·8.

Horns cylindrical, evenly curved, starting outwards and backwards, gradually turning inwards and backwards. There is also a slight liration of the horns, so that both points and bases are directed a little upwards, the general lunate curve being thereby disturbed. Good male horns attain a length of 14 or 15 inches, with a basal circumference of 7 or 8.

Hab. S.E. Africa, north of the Orange River up to the Zambesi, and westward to the district of Lake Ngami.

The Sassaby is a fine large Antelope well known to the sportsmen of South-east Africa. Though it certainly belongs to this group, it is rather isolated by the peculiar form of the horns, which somewhat resemble those of the Tora. Its nearest allies are no doubt the Blessbok and Bontebok, which, however, it considerably exceeds in stature, being nearly as big as a Hartebeest.

The first discovery of the Sassaby is due to the researches of the celebrated African traveller, Dr. William J. Burchell. On the 10th of July, 1812, when on the Makkwárin River, in what is now the Orange Free State, Burchell's hunters obtained a single specimen of an Antelope which was at once recognized as "new," and was subsequently described in the second volume of the author's 'Travels' (published in 1824), as the "Crescent-horned Antelope, *Antilope lunata*." Burchell states that it seemed to be an extremely scarce animal, as he never met with it again during the whole

of his journeyings, the fact being that he had only just entered within the southern boundary of the range of this species. Burchell's typical specimen, or rather portions of it, viz. the frontlet and horns, is still in the National Collection, to which he presented it.

Between the period of the discovery of the Sassaby by Burchell and the publication of its description this Antelope attracted the attention of another observer, Samuel Daniell, an artist who accompanied Dr. Somerville on two expeditions into the interior of the Cape Colony early in the present century. One of the copper-plates engraved by William Daniell from the drawings made by his deceased brother Samuel, and published in 1820, gives a good representation of this species, which is stated in the accompanying letterpress to be "an Antelope, heretofore not described, found in the Booshwana country." But no further particulars are given of it.

Hamilton-Smith, in his volume on the Ruminants, published in Griffith's Translation of Cuvier's 'Règne Animal,' correctly brought together Daniell's "Sassaby" and Burchell's *Antilope lunata* under one head and added a copy of Daniell's figure.

Except in the quotations of its names by various systematists we find little more recorded of the Sassaby until 1840, when Capt. W. Cornwallis Harris gave an excellent account of it in his beautiful work on the 'Game and Wild Animals of Southern Africa.' This experienced sportsman and artist devoted one of his life-like plates to the representation of this Antelope, with which he had made himself well acquainted. "The Sassaybe," he tells us, "like its congener, the Hartebeest, delights in the neighbourhood of hills, frequenting the open country with island-looking mimosa-groves, as well as the patches of scraggy forest that skirt the foot of many of the superior mountain ranges, which, however, neither species ever ascends. Among the parks of mokaala trees about the Cashan and Kurichane mountains we constantly saw them." The painted skins of the Sassaby were in those days, Harris tells us, "in great request amongst the savages for kobos or leathern mantles, as well on account of their brilliant colours as from their extreme suppleness." In this article of dress, Harris tells us, "the shining black tail, opened and squeezed flat, was usually fastened on so as to depend like a queue from the back of the neck, and the universal admiration in which this elegant appendage was held rendered its wearer the subject of many a quarrel."

Very shortly after the publication of Harris's 'Portraits,' Dr. Andrew Smith published his scientific account of the Sassaby in one of the numbers of his 'Illustrations of the Zoology of South Africa.' After an accurate description Dr. Smith well remarks that "between the appearances of the horns of the Sassaby and the Caama there are such marked differences, that we must at once conclude that no valid importance ought to be attached either to the form or direction of horns in the grouping of species. The subocular glands also differ materially in these two animals: in the Caama they are covered with short hair, similar to that of the other parts of the face; in the Sassaby they are without covering. In the Caama, the last portion of the tail is completely encircled with hair; in the Sassaby the sides and upper surface only are so furnished, the under surface being bare. In general appearance the two animals present a strong resemblance to each other." Dr. Smith adds the following note on the habits of this species:—

"While *B. caama* seems to prefer the open grassy plains for its feeding-places, the Sassaby apparently delights to resort to situations in the vicinity of wood, or to such as are actually wooded, and in districts of the latter description large herds are often observed feeding among the dense brushwood without apparent concern. All the individuals we saw near to Latakoo were vigilant in watching our motions, and apparently little disposed to trust themselves within our reach; while those, again, on the other side of Kurri-chane were comparatively tame, and though they did not actually resist our approach, yet they often continued in the situations in which we discovered them, until they were quite within the range of our guns; and even after being fired at they only retreated slowly, and rarely without frequently turning round as they retired to watch our movements. Their retreat, after each examination of the kind mentioned, was commonly preceded by some significant springs or strange gesticulations, such as are often made by common domestic cattle when they are put to flight by any object which excites their alarm. In point of manners, both the Sassaby and the Hartebeest show a considerable resemblance to the bovine tribe, and, except the Gnu, more so than any of the other Antelopes."

Coming to more modern times, Mr. T. E. Buckley, in his excellent article on the "Geographical Distribution of South-African Mammals," read before the Zoological Society of London in 1876, gives us the subjoined notes of his experience of this species:—"Although, in Harris's time, the Sassabye appears

to have been common on the plains, at the present day it is essentially a bush-loving animal. According to Dr. A. Smith the Sassabye was rarely known to advance to the south of Latakoo; at present its southern limit appears to be the Amaswazi country; along the Limpopo it is very common, and continues so into the Matabili country up to the Zambesi. The old males do not seem to associate with the females; nor do they appear so common, as out of nearly a dozen obtained by us only two were males, and one of these was immature. We observed very young calves in October. The Sassabye runs with a peculiar gait, reminding one of a rocking-horse; its shoulders are very high, sloping away to the rump; it does not seem to be a very shy animal."

Five years later the experienced African hunter and naturalist, Mr. F. C. Selous, in the same Journal, gives us the following notes on this Antelope:— "In travelling up the centre of South Africa, the first place in which the Sassaby is to be met with now-a-days is in the neighbourhood of the Marico River, a tributary of the Limpopo; and from there it is found throughout Central South Africa wherever I have been, south of the Zambesi, in all those parts of the country that are suitable to its habits. I say south of the Zambesi, because during my journey through the Manica country to the north of that river in 1877-78, although the terrain appeared well suited to its habits and requirements, I saw none of these Antelopes. I have heard, however, from the natives that they are very common in the neighbourhood of Sesheke.

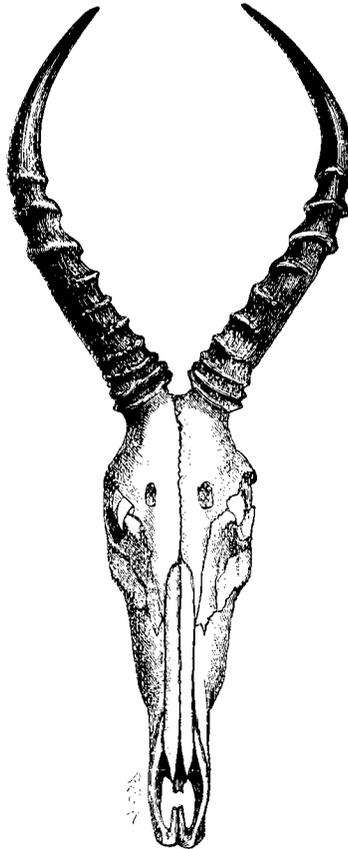
"This Antelope is never found in hilly country or in thick jungle, but frequents the open downs that are quite free from bush, or else open forest-country in which treeless glades are to be met with. On the Mababe Flat at the end of the dry season large herds of these animals congregate together, and I have often seen, I am sure, several hundreds of them at once. They are, without exception, the fleetest and most enduring Antelope in South Africa. In 1879 all the Tsessebe and Blue Wildebeest cows calved on the northern bank of the Chobe during the first week in September, whilst on the Mababe Flat, only about one degree further south, the same animals did not calve before the first week in November."

Mr. Bertram L. Selater, R.E., who was at Beira for a week in April 1892, on his way home from Nyasaland, informs us that he was told in that town that the Sassaby is one of the commonest Antelopes on the banks of the

Lower Pungwe, and that he was shown several frontlets of this species said to have been obtained between Beira and Chimoio. So far as we know, this is the furthest northern locality recorded for this species, which, as shown by Mr. Selous, does not appear to be found anywhere north of the Zambesi.

At a meeting of the Zoological Society of London in January 1893 Mr. Selous made another interesting communication on this Antelope, exhibiting a skull which he believed to be that of a hybrid between it and

Fig. 12.



Head of supposed hybrid between *Damaliscus lunatus* and *Bubalis caama*.
(P. Z. S. 1893, p. 2.)

the Hartbeest. This curious animal was shot in 1890 on the Tati River, Matabeleland, by Cornelius van Rooyen, a well-known Boer hunter. While this skull, which is now in the British Museum, closely resembles that of the

Hartebeest, its horns partake of the characters of both the supposed parents. They stand nearly straight up from the skull as in the Hartebeest, but are slightly lunate in form and ringed as in the Sassaby. Mr. Selous was informed that the general colour of its skin was precisely that of the Sassaby, but that it carried the comparatively large bushy tail of the Hartebeest. As hybrids amongst the larger mammals are excessively rare in a wild state, this occurrence is well worthy of record, and we have to thank the Zoological Society for kindly permitting us to use their woodcut to illustrate it.

Besides the typical frontlet of this species in the British Museum, already mentioned, there are a mounted pair in the Gallery obtained by Dr. Andrew Smith, and skeletons of both sexes made from specimens shot on the Manyame River, Mashonaland, by Mr. Selous.

The Sassaby is rarely seen in captivity. So far as we know, the only specimens ever brought alive to Europe are two females imported by Mr. C. Reiche, of Alfeld, from the Transvaal in 1888. One of these was sold to the Amsterdam Gardens (where Sclater inspected it in April 1889), and the other to the Antwerp Gardens.

Our figure of this species (Plate X.) was put on the stone by Mr. Smit from a sketch made for Sir Victor Brooke by Mr. Wolf.

January, 1895.

GENUS III. CONNOCHÆTES.

	Type.
<i>Connochætes</i> , Licht. Mag. nat. Freund. Berl. vi. p. 152 (1814) . . .	C. GNU.
<i>Cemas</i> , Oken, Lehrb. Naturgesch. iii. Zool. pt. ii. p. 727 (1816) . . .	C. GNU.
<i>Catoblepas</i> , Ham. Sm. Griff. Cuv. An. K. iv. p. 366 (1827) . . .	C. GNU.
<i>Gorgon</i> , Gray, P. Z. S. 1850, p. 139	C. TAURINUS.
<i>Butragus</i> , Bly. <i>apud</i> Gray, Cat. Rum. B. M. p. 43 (1872)	C. TAURINUS.

Size large, form thick and clumsy; the withers not disproportionately higher than the rump; head massive, with a broad and bristly muzzle; face with a large median tuft of thick black hairs uniting the suborbital tufts; nostrils widely separated, hairy within; neck maned; hoofs narrow; tail with its tuft reaching nearly to the ground, long-haired throughout; mammae four.

Colour grey, brown, or black, the long hairs of the dorsal and throat manes and of the tail generally black, sometimes white.

Skull broad and heavy, not specially elongated; ends of premaxillæ expanded.

Horns present in both sexes; thickened and expanded at their bases; starting outwards or downwards for their proximal halves, their points abruptly curved upwards.

Range of the Genus. South and East Africa.

This genus, that of the curious and eccentric-looking animals known as Gnus, contains two very different sections, almost worthy of being considered distinct genera. One of these consists of two closely allied forms, the Brindled and White-maned Gnu, and the other of the White-tailed or "Common" Gnu, the most peculiar and specialized of all. Their differences may be summarized as follows:—

- A. Hairs of facial tuft pointing downwards. Horns directed first outwards and then upwards. Tail black.
- a.* Throat-mane black 1. *C. taurinus*.
 - b.* Throat-mane whitish 2. *C. albojubatus*.
- B. Hairs of facial tuft pointing upwards. Horns directed first downwards, and then recurved upwards. Tail white . 3. *C. gnu*.



Wolf del. Smz. lith.

The Blunderbuss.
CONNOCHÆTES TAURINUS .

Humbert imp.

Enlaided by G. P. S.

16. THE BRINDLED GNU.

CONNOCHÆTES TAURINUS (BURCH.).

[PLATE XI.]

- Antilope gnu*, var., Licht. Mag. nat. Freund. Berlin, vi. p. 166 (?).
Kokoon, Daniell, Afr. Scenery, p. 37 (1820).
Antilope taurina, Burchell, Travels, ii. p. 278 (1824); id. List Quadr. pres. to B. M. p. 7 (1825) (Maadji Mts.); Fisch. Syn. Mamm. p. 476 (1829); Schinz, Syn. Mamm. ii. p. 447 (1845); Gieb. Säug. p. 299 (1859).
Catoblepas taurinus, Ham. Sm. Griff. Cuv. An. K. iv. p. 369, v. p. 368 (1827); Fisch. Syn. Mamm. p. 642 (1830); Smuts, Enum. Mamm. Cap. p. 94 (1832); A. Sm. S. Afr. Quart. J. ii. p. 233 (1834); Less. Compl. Buff. x. p. 305 (1836); Gray, List Mamm. B. M. p. 154 (1843); Sund. Pecora, K. Vet.-Ak. Handl. 1844, p. 205 (1846); id. ibid. Hornschuch's Transl., Arch. Skand. Beitr. ii. p. 156; Reprint, p. 80 (1848); A. Sm. Ill. Zool. S. Afr. pl. xxxviii. (♀ & yg.) (1849) Fitz. SB. Wien, lix. pt. 1, p. 182 (1869); Brehm, Thierl. iii. p. 290, fig. (animal) (1880).
Catoblepas gorgon, Ham. Sm. Griff. Cuv. An. K. iv. p. 371, v. p. 369 (1827); Fisch. Syn. Mamm. p. 643 (1830); A. Sm. S. Afr. Quart. J. ii. p. 233 (1834); Less. Compl. Buff. x. p. 306 (1836); Harris, Wild Anim. S. Afr. pl. iv. (1840); Gray, List Mamm. B. M. p. 154 (1843); id. Ann. Mag. N. H. (1) xviii. p. 232 (1846); id. P. Z. S. 1850, p. 139; id. Knowsl. Men. p. 20 (1850); Temm. Esq. Zool. Guin. p. 195 (1853); Sclater, P. Z. S. 1864, p. 103 (Uzaramo, *Speke*); Kirk, P. Z. S. 1864, p. 660 (Zambesia); Fitz. loc. cit.; Drummond, Large Game S. Afr. p. 425 (1875); Selous, P. Z. S. 1881, p. 764 (distribution); id. Hunter's Wanderings S. Afr. p. 226 (1881); Bryden, Kloof and Karroo, p. 293 (1889).
Antilope gorgon, Wagn. Schr. Säug. Supp. iv. p. 474 (1844), v. p. 448 (1855); Schinz, Syn. Mamm. ii. p. 446 (1845); Peters, Säug. Mozamb. p. 192 (1852).
Connochaetes gorgon, Gray, Cat. Ung. B. M. p. 121 (1852); Gerr. Cat. Bones Mamm. B. M. p. 243 (1862).

Gorgon fasciatus, Gray, Cat. Rum. B. M. p. 43 (1872); *id.* Hand-l. Rum. B. M. p. 114 (1873).

“*Butragus corniculatus*, Blyth, MS.,” Gray, Cat. Rum. B. M. p. 43 (1872).

Connochates gnu, Hunter, in Willoughby's East Africa, p. 288.

Connochates taurinus, *Scl.* List An. Z. S. (8) p. 150 (1883); *Flow. & Gars.* Cat. Ost. Coll. Surg. p. 275 (1884); *Jent.* Cat. Ost. Leyd. Mus. (Mus. Pays-Bas, ix.) p. 139 (1887); *Crawshay*, P. Z. S. 1890, p. 663 (Nyasa); *Flow. & Lyd.* Mamm. p. 336 (1891); *Nicolls & Egl.* Sportsm. S. Afr. p. 47, pl. iii. fig. 8 (head) (1892); *Ward*, Horn Meas. p. 72, fig. (horns) (1892); *Jent.* Cat. Mamm. Leyd. Mus. (Mus. Pays-Bas, xi.) p. 170 (1892); *Lyd.* Horns and Hoofs, p. 205, fig. 42 (head) (1893).

Catoblepas reichiei, *Noack*, Zool. Anz. 1893, p. 153 (Upper Limpopo).

VERNACULAR NAMES:—*Blue Wildebeest* of English colonists (*Selous*); *Bastard* or *Blauw Wildebeeste* of Dutch colonists (*Harris*); *Kokoong* of Bachapins (*Burchell*); *Kokoon* of Bechuanas (*Harris*); *Nyumbo* in Zambesia (*Peters & Kirk*); *Kuop* and *Baas* of Namaquas and Hottentots (*Harris*); *Imbutuma* of Kaffirs (*Drummond*); *Inkōne-kōne* of Matabilis; *Ee-vumba* of Makalakas; *Numbo* of Masubias; *Minyumbwe* of Batongas; *Unzozo* of Makubas (*Selous*); *Inkōne-kōne* of Swazis (*Rendall*).

Height at withers about 48 inches.

Fur short and close, with peculiar vertical lines of differently directed hairs on the sides of the neck and body, whence the epithet “Brindled.” General colour dull grey, lighter and more tinged with rufous on the rump and limbs. Face (except a paler area between the eyes), chin, dorsal and throat manes deep black. Tail long, its vertebræ almost reaching to the hock; its upper surface coloured like the rump, its under surface and the long tuft black.

Lower part of face and lacrymal region heavily tufted, the hairs directed downwards; the short ones of the terminal inch on the tip of the muzzle, however, pointed upwards.

Skull large and heavy, with a long muzzle. That of an old male measures as follows:—basal length 18·1 inches, greatest breadth 7·7, muzzle to orbit 13·3.

Horns placed so that the hinder edge of their palm is little more than level with the back of the skull; the palm itself comparatively low, smooth, small in comparison with the enormous palm of *C. gnu*. Beyond the palm the basal two-thirds of the horn points directly outwards, while the ends are curved upwards, forwards, and inwards. A fine pair of horns will measure 26 or 28 inches between the outer sides of the curves of the two horns.

Hab. Eastern Africa, from the Vaal River northwards through Zambesia, Nyasaland, and German East Africa to the north of Kilimanjaro.

The Brindled Gnu, although, as it seems, previously observed by Lichtenstein in Bechuanaland, was first actually obtained by the celebrated African traveller Burchell, who went far into the interior of the country in 1811 and 1812. In June of the latter year, when encamped at the great Khosi Fountain in Bechuanaland, as he tells us in the second volume of his 'Travels,' an example of a "new species of Antelope" was brought in by his hunters. Being well acquainted with the White-tailed Gnu of the Cape Colony, Burchell at once recognized it as a second species of that genus. Burchell pointed out its differences from its southern representative very clearly, and added a scientific Latin diagnosis in a footnote. He called it *Antilope taurina*, because its horns resembled those of an Ox more than those of any other Antelope. The half-bred Hottentots, he observes, give it the name of the *Bastaard Wildebeest*, while the Bechuanas call it *Kokūn* or *Kokūng*. Altogether Burchell obtained five specimens of this Antelope, one of which (a female), shot in the following October near the Maadji Mountains, was, as we learn from his "List of Quadrupeds," presented to the British Museum in 1817, and seems to have formed the basis of his technical description.

Two years previous to the actual publication of Burchell's description, however, the Brindled Gnu had been figured in Daniell's 'Sketches of African Scenery' under the name of the "Kokoon."

In 1827 Major Charles Hamilton-Smith, F.R.S., in Griffith's edition of Cuvier's 'Animal Kingdom,' besides recognizing *C. gnu* and *C. taurina*, added a presumed third species of the genus, which he based on a specimen then exhibited in the "Museum of the Missionary Society of London." It is quite clear, however, from the description and figure that Hamilton-Smith's *C. gorgon* is identical with Burchell's previously described *Antilope taurina*, and that the latter term should take precedence, although many naturalists have preferred to use Hamilton-Smith's name for this species.

In 1836 and 1837 the celebrated artist and sportsman, Cornwallis Harris, met with the Brindled Gnu on the plains of what is now the Orange Free State in "countless numbers." "Instantly after crossing the Orange River," he tells us, "the Kokoon or Brindled Gnu usurps the place of the White-tailed species, and, although herds of the former may actually be seen grazing

on the northern bank, not a single individual has ever been known to pass the barrier. . . . By the Dutch Boers the present species is termed the Bastaard or Blauw Wilde Beest: throughout the country of the Bechuanas, as far as the Tropic, it is recognized as the Kokoon, and the Hottentot tribes designate it the Kaop or Baas, both of which terms, signifying *master*, refer, in all probability, to its bold and terrific bearing. When excited by the

Fig. 13.



Adult Brindled Gnu.

(Roy. Nat. Hist. vol. ii. p. 314.)

appearance of any suspicious object, or aroused by any unusual noise, the Kokoon is wont to appear much more grim and ferocious than it actually proves—not unfrequently approaching with an air of defiance, as if resolved to do battle with the hunter, but decamping on the first exhibition of hostility on his part. On being pursued, the herd bring their aquiline noses low

between their knees, and flourishing their streaming black tails, tear away in long regular files at a furious gallop, wheeling curiously about at a distance of two or three hundred yards, advancing boldly towards the danger, tossing their shaggy heads in a threatening manner—presently making a sudden stop, presenting an impenetrable front of horns, and staring wildly at the object of their mistrust. . . . When engaged in grazing they have an extremely dull and clumsy appearance, and at a little distance might often be mistaken for wild buffaloes ; but their manner is sportive—at one moment standing to gaze at nothing, and at the next scampering over the plain without any apparent object in view, making grotesque curvets and plunges, with their preposterous Bonassus-looking heads held down between the fore legs.”

In his valuable ‘Illustrations of South-African Zoology,’ Sir Andrew Smith gives an excellent account of this species (published in August 1842), accompanied by an indifferent figure of the female and young. Sir Andrew justly observes that this and the Common Gnu are two of the most interesting and extraordinary quadrupeds which occur in South Africa. “When either the one or other of those animals, especially under excitement, stands in front of an observer, with the head and anterior parts of the body only distinctly visible, the idea of its strong resemblance to a small ox immediately arises. When, again, its body and posterior parts are the portions most conspicuously in view, the likeness to a horse is remarkable ; but when its limbs only are taken in review, it presents a strong similarity to the more typical Antelopes.”

At the time when these observations were made both the Gnus, according to Sir Andrew Smith, inhabited, in enormous multitudes, the grassy plains to the northward of the Vaal River, and after the fall of the summer rains were in the habit of advancing simultaneously in large herds as far as the southern branches of the Orange River. But on reaching the latter stream singularly enough the Brindled Gnu ceased to advance, and the Common Gnu alone passed into the Cape Colony. The appearance of the latter to the south of the Orange River was the signal for hunters of all denominations to prepare for the chase, and though the yearly slaughter was very great the herds in those days never ceased to renew their periodical visitations. Strongly expressed as are the views of both Andrew Smith and Harris as to the line of demarcation between the two species of Gnu, there seems to be some doubt as to their correctness. An excellent recent authority, Mr. H. A.

Bryden ('Kloof and Karroo'), tells us that the Brindled Gnu was in former days certainly a "denizen, albeit a rare one, south of the Orange River," and gives us Gordon-Cumming as an authority. Gordon-Cumming asserts ('Hunter's Life in South Africa,' p. 148) that he met with the Brindled Gnu in the Karroo country west of Colesberg, in what is now the Hopetown division of the Cape Colony. But Mr. Bryden admits that it has now for many years been extinct in that district. In the Transvaal, also, he tells us, the Boers have, of late years, played sad havoc with this singular Antelope, not long ago found in countless thousands on the plains of that Republic.

Messrs. Nicolls and Eglinton, in their 'Sportsman in South Africa,' tell us the same story. Writing in 1892, they state that, except in some of the northern districts along the Crocodile River, the Brindled Gnu is now extremely scarce in the Transvaal, and practically extinct in the Orange Free State. But it is still met with in Bechuanaland, and is fairly plentiful along the edges of the Great Kalahari Desert. "In the Lake Ngami district, on both banks of the Botletle River, and from thence right up to the Chobe and Zambesi, it is quite common in suitable localities, and, at the present time, large troops may be seen on the Ma-Chara-Chara and Mababe Flats, and in the country surrounding the great salt-pans of Makari-Kari, through which the main road passes to the Victoria Falls."

So much for the occurrence of this species in the South and South-west of Africa, past and present. But we must now trace its distribution to the north; for it is an extraordinary fact that the Brindled Gnu, instead of being confined, like its sister species, to a small part of South Africa, extends up along the eastern coast certainly as far as Kilimanjaro, and perhaps even into Sennaar, where reports of the occurrence of a Gnu-like Antelope were made to Heuglin. It is, however, possible that some of these northern Gnus may belong to the White-maned species, which we shall presently mention.

Beginning from the Limpopo, Mr. Selous tells us that the Brindled Gnu is found all over this portion of South-eastern Africa up to the Zambesi, in districts suitable to its habits—that is, "in open downs devoid of bush and in open glades in the forest," but not in hilly countries. Peters and Sir John Kirk both enroll it among the mammals of Zambesia, the latter author stating that at the time of his visit it was "very abundant in considerable herds in the Batoka country, also near Lake Shirwa, and at Shupanga on the Zambesi." As to its present existence in the Shiré Highlands, Mr. B. L.

Slater, R.E., sends us the following notes.—“In November 1891, while travelling between Zomba and Milanji, I was shooting in the marshes on the west bank of the Tochila. I saw a Gnu and tried to stalk it, but it was right in the open and I could not get near it. My head man, a Swahili, said it was a Gnu (*Nyumbo*), and he was well acquainted with that animal. Again, in 1892, at Midima, to the south of the Tochila, I obtained a tail of a Gnu from a native, who told me that formerly there was a large herd of them on these plains, but that he thought they were now all killed. I believe that Mr. Sharpe has met with the Gnu on the plains to the west of the Upper Shiré, between Matope and the sources of the Lesungwi River.”

As regards the more northern portion of the British Central African Protectorate, Mr. Crawshay tells us that the Gnu is apparently unknown to the natives round the northern half of Lake Nyasa, and is not met with anywhere in the immediate neighbourhood of the Lake, though found a little to the south-east, and also, he believes, to the south-west.

In 1864 Speke met with the Brindled Gnu in large herds in Khutu, on the western borders of Uzaramo, close to the Kingani River, where it inhabits the “park-like lands adjoining the stream.”

Later on Sir John Kirk obtained heads of it in the same district, and has favoured us with the following notes on its occurrence in this part of German East Africa:—

“As regards the Brindled Gnu in East Africa, I may say that, although familiar with this animal on the Upper Zambezi near the Victoria Falls, where they were common in 1860, I have only since shot them in Ukami, to the west of Dar-es-salam, and on the River Wami inland from Bagomoyo. In the plains and on the rolling ground between the River Rufiji and the River Wami they used to be common. I have shot them within ten miles of the coast, and I believe that they extend back to the foot of the mountains.

“As I was not then acquainted with the species or variety lately found by Jackson, I cannot from memory express any opinion as to the identity of these animals, further than that they seemed to me identical with the Brindled Gnus I had killed years previously near the Victoria Falls and Sesheke on the Upper Zambezi.

“In East Africa, near the coast, in the places above-named where I found this Antelope, it never occurs in numbers, but is often associated as an attendant on other game, especially upon Lichtenstein’s Hartebeest. It often

causes annoyance to the sportsman by giving warning of his approach to the other Antelopes.

“I believe this Gnu suffered from the recent cattle-disease which during the last four years has decimated the Buffalo, the Giraffe, the Eland, and many other kinds of game, not affecting, however, the Rhinoceros, and certain other animals. This disease seems to have killed off different classes of animals in different localities, attacking universally, wherever it appeared, the cattle of the natives.

“Thousands of hides of cattle that have died of this plague have been freely imported into Europe and America; the disease has travelled from Somali-land to Nyasa-land, and yet we do not know its nature. Some say it is anthrax, others that it is pleuro-pneumonia; but whether it is a disease that can be communicated by the dried hides of the diseased animals has not been ascertained. In Somali-land and Masai-land it has worked itself out, and it may stop short of the Cape Colony and not cross the Zambezi; but in the meantime it has decimated the African Game, and left its mark by changing the whole life of the pastoral peoples who depended on their cattle alone.”

In British East Africa the Brindled Gnu (here called by the Swahilis “*Nyumbo*”) is well-known to the sportsmen who have visited the happy hunting-grounds of Kilimanjaro. Sir John Willoughby and his friends found it principally to the north-east of the mountain “in large herds.” Mr. F. J. Jackson (‘Big Game Shooting’) tells us it is more plentiful in the Useri district to the north-east of Kilimanjaro, and on the Athi plains to the north and west of Machakós, than anywhere else. In the latter place, on August 5, 1890, he and his companions “saw an enormous herd of 1500”; but this was “quite unusual, as they are rarely found in herds of more than from twenty to sixty.” But it is possible that some of Mr. Jackson’s observations may refer to the following species, as when he wrote them he did not distinguish the two animals.

Mr. Jackson gives the following advice to the Gnu-hunter:—“Wildebeests are amongst the most difficult beasts to stalk, owing to the open nature of the country in which they are found, and will probably try the sportsman’s patience more than any other Antelope. They will stand gazing at him, and will sometimes allow him to get within a range of 200 yards, if he pretends to walk past them, though in reality closing in upon them in a semicircle;

but directly he stops to take a shot they will shake their heads in the most defiant way, and with a few snorts and flicks of their mule-like tails, kick up their heels and caper off jauntily. As they will, as a rule, pull up a short way off, the sportsman will have the annoyance of again adopting the same tactics, with probably like results, until he might almost believe that the Wildebeest is enjoying itself at his expense. He should, however, avoid risking a long shot (the Wildebeest is an extremely tough brute, and will go for miles when wounded in such a way as would soon bring other game to a standstill), since after two or three fruitless attempts if no shot is fired its suspicions will become allayed, and it will probably stand sufficiently long to give him a good chance."

The Brindled Gnu is not so commonly met with in Zoological Gardens as the White-tailed species. It is generally considered to be a rarer animal in the market, and the dealers ask a larger price for it. We are informed that a pair of Brindled Gnus bred in the Zoological Gardens at Breslau in 1886 or 1887. The only specimen ever received by the Zoological Society, so far as we can make out, was a female purchased in 1859. In the continental Gardens it has been better represented, and the collections at Antwerp, Amsterdam, and Berlin usually contain specimens of this Antelope. These have been, in many cases, obtained from Mr. Reiche, of Alfeld, who has received several examples of this Gnu among his recent importations of living animals from the Transvaal.

In the British Museum the Brindled Gnu is represented by one of Burchell's typical examples, as already mentioned, and by an adult male received from Sir Andrew Smith. Both these are mounted specimens. There are likewise a skeleton, obtained by Mr. Selous in Mashonaland in 1885, and a set of skulls and horns in the same collection.

Our Plate of this animal was put on the stone by Mr. Smit from a sketch made by Mr. Wolf. For the use of the woodcut (fig. 13, p. 98), drawn by the celebrated German artist Mützel, we are indebted to the kindness of Messrs. Warne and Co., by whom it has been used in their 'Royal Natural History' (vol. ii. p. 314).

January, 1895.

17. THE WHITE-BEARDED GNU.

CONNOCHÆTES ALBOJUBATUS, THOS.

Catoblepas sp. inc., Heugl. Ant. u. Buff. N.O.-Afr., N. Act. Leop. xxx. pt. ii. p. 24 (1863) (Sennaar)?

Connochætes gnu, Hunter, in Willoughby's E. Afr. p. 288 (1889)?

Connochætes taurinus albojubatus, Thos. Ann. Mag. N. H. (6) ix. p. 388 (1892); Ward, Horn Meas. p. 75, fig. (head and skull) (1892).

Connochætes taurina, Lugard, E. Afr. i. p. 540, pl. p. 530 (animal) (1893).

Similar in size and coloration to *C. taurinus*, except that the general tone is paler, especially on the cheeks and rump, and the throat-mane instead of being black is of a dirty yellowish-white colour. A few whitish hairs are also intermixed with the black of the dorsal mane.

The skull is shorter and broader than in *C. taurinus*, especially in the region of the muzzle, and the horns are placed further back on the head, so that the palm surpasses the back of the skull posteriorly by nearly half its breadth. The palm is also more tipped up behind away from the skull, and is much knobier, on which account the hinder edge of the horns forms a more serpentine curve.

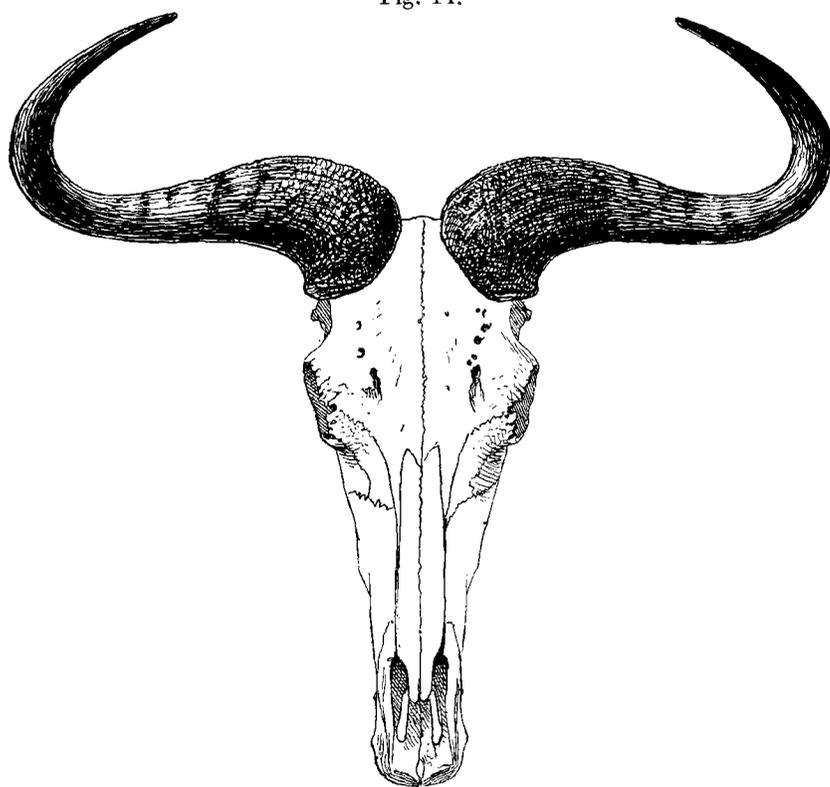
The dimensions of the typical skull are as follows:—basal length 16 inches, greatest breadth 7·6, muzzle to eye 12·1.

Hab. East Africa, Athi plains, Ukambani, north of Kilimanjaro, and west side of Victoria Nyanza.

As we have already stated, this form, although otherwise agreeing in nearly every point with the Brindled Gnu, is readily distinguishable by its white mane, white jaw-tufts, and the generally paler colour. But whether we ought to classify it as a separate species, or as a subspecies, or only as a

variety of the Brindled Gnu future researches only can decide. We know as yet too little of its exact range and mode of occurrence to be able to settle this question, nor is there a sufficient series of specimens available. If it should be found hereafter that beyond a certain boundary in Eastern Africa all the Gnus met with are of the White-bearded form, and that along this line of junction there are transitional forms between this and the ordinary Brindled Gnu, we should do well to allow it merely subspecific rank. If, on

Fig. 14.

Skull of *Connochætes albojubatus*, ♂.

the other hand, it shall be found that the White-bearded Gnu occurs side by side with the Brindled Gnu without mixing or interbreeding with that animal, we shall have to count it as a full species.

Thomas, in 1892, based his *Connochætes taurinus albojubatus* on a head in Mr. F. J. Jackson's collection, at that time under the care of Messrs. Rowland Ward and Co., but since kindly presented by Mr. Jackson to the National Collection. Thomas, from erroneous information, gave the locality as

“Uganda,” but we have since ascertained that this and another specimen, still in Mr. Jackson’s possession, were obtained on the Athi plains north of Kilimanjaro. Mr. Gedge assures us that no Gnus at all were met with by Mr. Jackson and himself in Uganda.

Mr. Gedge has kindly supplied the following notes on his experiences with the Gnus of British East Africa:—

“Both the Blue Wildebeeste and Jackson’s Wildebeeste are found in British East Africa, and are to be met with in great numbers on the Athi plains north of Ukambani. Of the two, the blue variety is, perhaps, more usually met with, though I would remark that on my upward journey to Uganda, in December 1892, I only encountered a few solitary specimens of the Blue form in a part where they are generally seen in hundreds, whereas on my downward journey, in the month of August of the following year, the same locality was entirely tenanted by Jackson’s Wildebeeste, which on this occasion were so tame that I was able to literally walk right in amongst them and knock them down with a small Winchester. This was really the one and only occasion that I have met with this latter variety in any great numbers. On the other hand, the Blue Wildebeeste will be found more or less commonly distributed over the Leikipia and Mau plateaux. It probably ranges over a very wide extent of country to the northwards, though I cannot remember having seen any Wildebeestes at all north of Lake Baringo. At the same time its non-appearance on the occasion of my visit may doubtless very easily be accounted for by the excessive dryness of the country at that time, and the consequent lack of pasturage. Similarly, I have never seen Gnus anywhere near the Victoria Lake, though possibly other travellers may have done so. The Gnu is an uncouth and ungainly beast in appearance, and, as a rule, will not allow itself to be easily approached. As the open character of the country which it usually frequents more or less precludes any idea of being able to stalk it successfully, the method which I adopted, and which I found answered best, was to walk along quietly parallel to the herd, gradually edging inwards. On such occasions their natural curiosity would often allow a shot to be obtained at a distance of from a hundred and fifty to two hundred yards. Being tough and hard to kill, Gnus must be struck accurately by a weapon with a high degree of penetration. As an illustration of their great vitality, I would mention that on one occasion I had the misfortune to break both the fore legs of one just above the fetlock, and that in spite of these crippling

wounds the poor beast was able to cover a distance of nearly half a mile on its stumps before I came sufficiently near to administer the *coup-de-grâce*. This was in spite of the fact that, in addition to this severe injury, it had received two other solid express bullets in its body, one of which was afterwards discovered to have penetrated the base of the heart. When alarmed the Gnu usually runs but a short distance at a time, at a stiff ungainly gallop, whisking its tail round in the most comical fashion. It then stops and turns to inspect the object of its alarm, at the same time uttering a few snorts. Having satisfied itself of the approaching danger, it will again gallop off and pursue the same tactics several times if unmolested. It is a very harmless and inoffensive animal in spite of its ferocious aspect."

As regards the Gnus of German East Africa there is the same difficulty. Herr Matschie has kindly sent to Sclater the following notes on this subject:—

"At Berlin we have received from Oscar Neumann several skins and skulls, young and old, of the Gnu [procured during his recent journey northwards from Irangi up the east side of Lake Victoria].

"All of these have white neck-manes and chin-bunches and brownish heads and manes, but in some cases the latter are mixed with white, and the tails are of a similar colour. The body is dirty greyish brown, without a trace of bluish. One old bull shows vertical stripes on the front of the body, the hairs having been worn short.

"The localities are—between Ngera and Irangi; Mount Guerui; Mgogo, north of the Manyara Lake; and further on as far as Ngare Dobasch, where they cease.

"Neumann writes that on Mount Guerui and farther along he observed the two varieties living apart. On the Guerui he saw at the same time a herd of light-coloured Gnus, and a herd varying from bluish black to black, but no transitional forms."

From Mgogo, Neumann writes:—"By the six skins which I obtained [these skins have not yet arrived in Berlin] I hope to prove that there are two species, or, at any rate, varieties of Gnus—one lilac-black grey, and the other bright yellowish brown. On the Mangoto natron-swamp they kept apart. Here in Mgogo the black form predominates, so that it seems to be the more northern. Of two young examples of about the same age, judging from

their horns, one has a black forehead, and the other has two white spots in front of the eyes.

“ Von Höhnel and Count Teleki found only grey-black Gnus on Mount Maeru, but these had the neck-manes striped with white and black. On the Naschiri Lake, Teleki first met with a pure white-maned specimen.”

The woodcut of the skull of this Antelope (fig. 14, p. 106) is taken from one of Mr. Jackson's specimens in the British Museum.

January, 1895.



J. Smith del. & lith.

The White-tailed Gnu.
CONNOCHTES GNU.

Published by R.H. Porter.

Enslat 1852.

18. THE WHITE-TAILED GNU.

CONNOCHÆTES GNU (ZIMM.).

[PLATE XII.]

-
- Bos gnou*, Zimm. Spec. Zool. Geogr. p. 372 (1777).
Antilope gnou, Zimm. Geogr. Gesch. ii. p. 102 (1780); Bodd. Elench. Anim. p. 138 (1785); Schr. Säug. pl. cclxxx. (animal) (1787).
Antilope gnu, Gmel. Linn. Syst. Nat. i. p. 189 (1788); Kerr, Linn. An. K. p. 315 (1792); Donnd. Zool. Beytr. p. 634 (1792); Link, Beytr. Nat. i. pt. 2, p. 100 (1795); Bechst. Uebers. vierf. Thiere, i. p. 64 (1799), ii. p. 641 (1800); Shaw, Gen. Zool. ii. pt. 2, p. 357, pl. 196 (1801); Turt. Linn. Syst. Nat. i. p. 114 (1802); Desm. N. Dict. d'H. N. (1) ix. p. 516 (1803); G. Cuv. Dict. Sci. Nat. ii. p. 247 (1804); Ill. Prodr. Syst. Mamm. p. 106 (1811); Licht. Mag. nat. Freund. Berl. vi. p. 165 (1814); G. Fisch. Zoogn. iii. p. 418 (1814); Afzel. N. Act. Ups. vii. p. 219 (1815); Desm. N. Dict. d'H. N. (2) ii. p. 201 (1816); Goldf. in Schreb. Säug. v. p. 1165 (1820); F. Cuv. H. N. Mamm. (fol.) i. livr. xvi. (animal) (1820); Schinz, Cuv. Thierr. i. p. 399 (1821); Desmoul. Dict. Class. d'H. N. i. p. 447 (1822); Burchell, List Quadr. pres. to B. M. p. 7 (1823); Less. Man. Mamm. p. 385 (1827); Fisch. Syn. Mamm. p. 475 (1829); Waterh. Cat. Mamm. Mus. Z. S. (2) p. 41 (1838); Oken, Allgem. Naturgesch. vii. p. 1400 (1838); Wagn. Schr. Säug. Supp. iv. p. 473 (1844), v. p. 448 (1855); Schinz, Syn. Mamm. ii. p. 445 (1845); Gieb. Säug. p. 299 (1859).
Antilope capensis, Gatt. Brev. Zool. i. p. 80 (1780).
Bos gnu, Thunb. Mém. Ac. Pétersb. iii. p. 318 (1811).
Cerophorus (Boselaphus) gnu, Blainv. Bull. Soc. Philom. 1816, p. 75.
Cemas gnu, Oken, Lehrb. Naturgesch. iii. pt. 2, p. 728 (1816).
Antilope (Boselaphus) gnu, Desm. Mamm. ii. p. 472 (1822).
Catoblepas gnu, Ham. Sm. Griff. Cuv. An. K. iv. p. 367, v. p. 368 (1827); Smuts, En. Mamm. Cap. p. 93 (1832); A. Sm. S.-Afr. Quart. Journ. ii. p. 224 (1834); Less. Compl. Buff. x. p. 305 (1836); Harr. Wild Anim. S. Afr. pl. i. (animal) (1840);

Gray, List Mamm. B. M. p. 154 (1843); *id.* Ann. Mag. N. H. (1) xviii. p. 232 (1846); *id.* List Ost. B. M. p. 59 (1847); **Sund.** Pecora, K. Vet.-Ak. Handl. 1844, p. 205 (1846); *id.* *ibid.* Hornschuch's Transl., Arch. Skand. Beitr. ii. p. 156; Reprint, p. 80 (1848); **Gray**, Knowsl. Men. p. 19 (1850); *id.* P. Z. S. 1850, p. 138; **Temm.** Esq. Zool. Guin. p. 195 (1853); **Fitz.** SB. Wien, lix. pt. 1, p. 182 (1869); **Murie**, P. Z. S. 1870, p. 475; **Drummond**, Large Game S. Afr. p. 425 (1875); **Buckley**, P. Z. S. 1876, pp. 286, 292 (distribution); **Brehm**, Thierl. iii. p. 287 (fig. animal) (1880); **Blaauw**, Bull. Soc. Acclim. (4) iii. p. 494 (1886) (breeding in Holland); *id.* P. Z. S. 1889, p. 2, figs. A-D (growth of horns); **Bryden**, Kloof and Karroo, p. 293 (1889).

Catoblepas operculatus, **Brookes**, Cat. Mus. p. 64 (1828).

Bos connochætes, **Forst.** Descr. Anim. p. 392 (1844).

Connochætes gnu, **Gray**, Cat. Ung. B. M. p. 119 (1852); **Gerr.** Cat. Bones Mamm. B. M. p. 243 (1862); **Gray**, Ann. Mag. N. H. (4) iv. p. 291 (fig. of young horns) (1869); *id.* Cat. Rum. B. M. p. 43 (1872); *id.* Hand-l. Rum. p. 113 (1873); **Sci.** List Anim. Z. S. (8) p. 150 (1883); **Huet**, Bull. Soc. Acclim. (3) ix. p. 678, x. p. 95 (1883) (breeding in Paris); **Flow. & Gars.** Cat. Ost. Coll. Surg. p. 274 (1884); **Jent.** Cat. Ost. Leyd. Mus. (Mus. Pays-Bas, ix.) p. 138 (1887); **W. Sci.** Cat. Mamm. Calc. Mus. ii. p. 170 (1891); **Flow. & Lyd.** Mamm. p. 336, fig. 139 (animal) (1891); **Ward**, Horn Meas. p. 74 (1892); **Nicolls & Egl.** Sportsm. S. Afr. p. 48, pl. vii. fig. 25 (head) (1892); **Jent.** Cat. Mamm. Leyd. Mus. (Mus. Pays-Bas, xi.) p. 170 (1892); **Lyd.** Horns and Hoofs, p. 205 (1893).

VERNACULAR NAMES:—*Gnu*, *White-tailed Gnu*, or *Black Wildebeest* of English Cape colonists; *Zwart Wildebeest* of Dutch colonists; *Inkonkone* of Kaffirs (*Drummond*); *Imbutuma* of Zulus (*Rendall*).

Size rather less than in *C. taurinus*. General colour dark brown or blackish, the upwardly-directed facial tuft, the long hairs of the nape, throat, and chest black. Tail very long; its thick tuft reaching nearly to the ground; its colour white, except just at the base, where it is like the back.

Skull shorter than in *C. taurinus*, but lengthened above, owing to the horn-bases being prolonged backwards to support the enormous palms of the horns, beyond the level of the occiput. Nasals short and broad.

Measurements:—basal length 15·5 inches, greatest breadth 6·4, muzzle to orbit 9·3.

Horns with very large longitudinally developed palms, frequently attaining 8 inches in their greatest diameter. Proximal half of horn directed downwards, outwards, and forwards, then rapidly recurved, the end, which

is about 10 or 12 inches in length, pointing nearly vertically upwards. Measured from the top of the palm outside the curves to the tip, good horns attain from 24 to 26 inches.

Hab. South Africa, south of the Limpopo.

The extraordinary form of the Gnu quickly attracted the notice of the early Dutch settlers at the Cape. They called it the "*Wilde-Beest*," supposing it to be a wild form of the domestic cattle, whilst the native name was stated to be *Gnou* or *Gnu*. As early as 1776 a living specimen of the Gnu appears to have reached Amsterdam, and was described by Allamand*, whose account of it was copied by Buffon in the Supplement to his 'Histoire Naturelle,' and by Vosmaer †. In 1777 Zimmermann latinized the native name, and used it specifically as *gnou*. This term was softened by Gmelin into *gnu*, and thus modified has been generally adopted as the specific name of this Antelope.

The older authors described the Gnu as lively, active, and petulant, trotting, ambling, and galloping with great swiftness; the males bellowing somewhat like a bull, the young ones having a "nasal murmur." "They are sportive, and when alarmed always commence by playing with each other, striking sideways with their horns; but this lasts only for a moment, and the whole troop soon flies away across the desert with amazing speed." By the year 1820 the Gnu appears to have been driven far from the neighbourhood of Cape Town, and even at that period not to have been found nearer than the Karroo district.

Sir Andrew Smith, whose expedition into the interior took place in 1834, 1835, and 1836, gives the grassy plains north of the Vaal River as the ordinary habitation of the Gnu at that epoch. After the fall of the summer rains the present species, he tells us, leaving its congener, the Brindled Gnu, behind, passes the Orange River into the Cape Colony. Here it becomes the prey of the hunters of all sorts who at this season turn out every year to track and slaughter the advancing herds.

Cornwallis Harris, who visited the Cape Colony shortly afterwards, tells us nearly the same story. He likewise found the Gnu, to the illustration of

* 'Histoire Naturelle du Gnou, du Grand Gerbe et de l'Hippopotame.' Amsterdam, 1776.

† 'Beschryving van een nieuw viervoetig Dier aan de Kaap de Goede Hoop geheeten: Boschbuffel en by de Hottentotten aldaar genaamd Gnou.' Amsterdam, 1784.

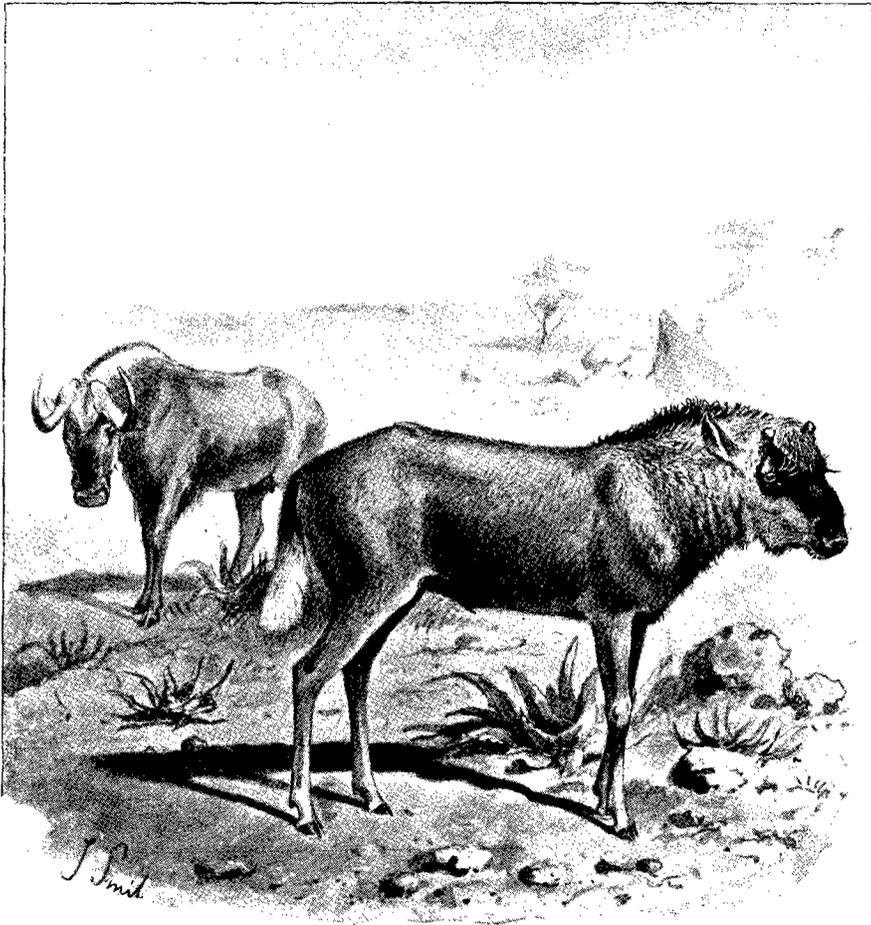
which he devotes the first plate of his great artistic work on the 'Game-Animals of South Africa,' abundant in the open plains of the Vaal River, and still to be met with even in some parts of the Colony. The hunt of the Wildebeest, Harris tells us, "forms a favourite diversion of the Dutch colonists, and occupies a very large portion of the apparently valueless time of the *trek-boors*, or nomad farmers, who graze their overgrown flocks and herds on the verdant meadows lying beyond the borders of the sterile colony. The carcase of a fullgrown Wildebeest, even when 'broken,' forms a fair load for a pack-horse; the flesh, which is very insipid and usually quite destitute of fat, resembling very coarse beef in quality. A joint is therefore never dressed by the good vrow without having first been garnished with huge lumps of sheep's-tail fat,—a *sine quâ non* in Dutch cookery,—dexterously thrust with the point of the thumb into perforations carved for their reception. This done, it is placed in the iron oven, with abundance of lard, and literally baked to rags! On account of its leanness, however, it is generally cut into strips, and converted into '*biltong*,' by being dried in the sun. The silky tail of the Gnu, which is in great demand for making chowries, forms an article of export; and the hide, when brayed, is employed by the colonists for *riems*, or thongs, with which to harness oxen in the team, and indeed for every purpose to which hempen rope, twine, and string are usually applied in other countries."

At the present time, we fear, the White-tailed Gnu affords neither sport nor food to the Boer hunter. Modern authorities assure us that this Antelope, formerly found in such vast numbers on the plains of the interior, now only remains upon one or two farms in the north of the Cape Colony in Victoria West. So late as from 1850 to 1857 it was still fairly abundant between Colesberg and Hanover, but has now perished in this district. Moreover, as this species has never been known to exist beyond the Limpopo, there is not the slightest chance of its being found anywhere further north.

The White-tailed Gnu is an apt subject for domestication. Cornwallis Harris tells us that "when captured young it may easily be reared by hand upon cow's milk, and may readily be induced to herd with cattle upon the farm, going out to the pasture, and returning with them, and exhibiting little inclination to reclaim its pristine liberty." It has thus happened that specimens of it have been brought to Europe from an early period. We have already mentioned that one was living at Amsterdam in 1776, and

others, no doubt, were introduced subsequently. In the Knowsley Menagerie both the White-tailed and Brindled Gnus found a place, and the young of both the species were figured from life by Waterhouse Hawkins, as we know from the series of magnificent drawings of the animals in the Knowsley Menagerie issued in 1850.

Fig. 15.

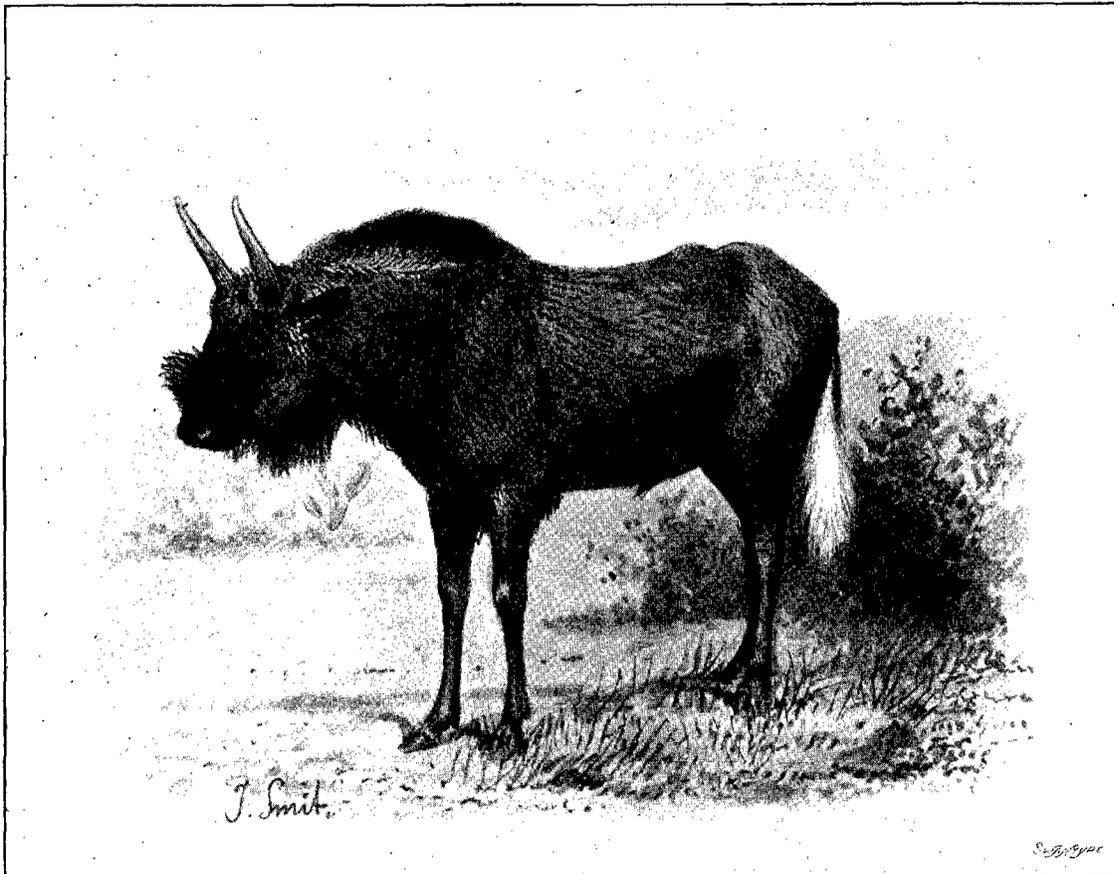


Young White-tailed Gnu (five months old).
(Zool. Soc. Gard. 1894.)

At the Knowsley auction in 1851 only a pair of the present species were put up for sale. They were purchased by a dealer for Wombwell's Menagerie at the price of £283 10s.

The Zoological Society seems to have acquired examples of the White-tailed Gnu as early as 1830, and this animal has remained represented in the collection, except for a few short intervals, ever since. Unfortunately, however, the Society was never successful in getting a breeding pair together until about two years ago, when a fine young male and two females were

Fig. 15 a.



Young White-tailed Gnu (eight months old).
(Zool. Soc. Gard. 1894.)

purchased of Mr. C. Reiche, of Alfeld. These have thriven well in the Antelope-House, and the first young Gnu was born on the 7th of March last. It grew fast and at the present time it is nearly as large as its parents.

The accompanying drawings by Mr. Smit (figs. 15 and 15 a) show this animal at the respective ages of five months and eight months.

The most successful results, however, in breeding the White-tailed Gnu have been obtained by Mr. F. E. Blaauw, Secretary to the Royal Zoological Society of Amsterdam, in his park at Westerveld, near Hilversum, in North Holland, on which he has been kind enough to furnish us with the following information:—Mr. Blaauw purchased his first pair of Gnus in 1886 from the Jardin d'Acclimatation at Paris. They arrived in winter and were kept in a covered shed without artificial warmth until the following spring, when they were turned out to a grass enclosure of about eight acres, well sheltered by plantations, and with a shed divided into compartments in one corner. The Gnus and their descendants have been kept in this enclosure ever since. In winter they are usually confined inside the house and fed on hay and oats, because the young ones are frequently born in winter and require a certain amount of protection. In the summer the Gnus never enter the shed, and subsist entirely by grazing.

Treated in this fashion the Gnus in Mr. Blaauw's possession have succeeded in a wonderful way. From the single pair originally purchased and the two young females first born, no less than fourteen young Gnus have been successfully reared, and only two have been lost, having been born in the open field during severe frost.

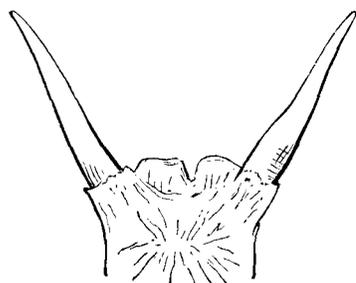
Mr. Blaauw's present herd consists of the original pair purchased in 1886, two adult females (the offspring of this pair born in 1886 and 1887), and two young ones born in May and June of the present year.

Mr. Blaauw has ascertained by frequent observation that the period of gestation in the White-tailed Gnu varies from $8\frac{1}{4}$ to $8\frac{1}{2}$ months. Only a single young one has ever been produced at a birth. The female suckles her young for seven or eight months, but it commences to eat grass when about a week old.

In the 'Proceedings' of the Zoological Society of London, Mr. Blaauw has published an article on the development of the horns of the young Gnu, two of the figures of which we are enabled to reproduce here by the kind permission of that Society. The first figure (15 *b*) represents the first stage of the horns, in which they are perfectly straight and more or less divergent; the second figure (15 *c*) represents the horns when the animal is about 19 months old. The former straight portion has now become the terminal half, and the basal portion, though not yet quite fully developed, inclines downwards and outwards. The bases of the horns are still far apart, and

there is a wide piece of hairy scalp between them. In the adult stage (as shown in Plate XII.) the basal ends of the horns become enormously swollen (especially in the male) and nearly meet together in the middle line. It should be further remarked that these swollen basal portions, which are

Fig. 15 b.



Horns of young Gnu (11 weeks old).
(P. Z. S. 1889, p. 2.)

Fig. 15 c.



Horns of young Gnu (19 months old).
(P. Z. S. 1889, p. 3.)

smooth at first, become excessively corrugated and more highly developed when the animals get old.

The females of the Gnu, according to Mr. Blaauw's observation, are very prolific. They begin to breed before they are two years old, and bear a calf regularly nearly every fifteen months. They seem to stand the damp and cold of the Dutch climate without the slightest difficulty. It would even appear that they are specially suitable to domestication, as the animals born in captivity exceed on an average the size of those freshly imported from South Africa.

The White-tailed Gnu is only represented in the National Collection at the British Museum by a single immature female, mounted, and not now in good condition, besides several skulls and horns. A good wild-killed specimen of it, were it possible to obtain such an animal, would be, therefore, very acceptable.

January, 1895.

SUBFAMILY II. *CEPHALOPHINÆ*.

General Characters.—Size medium or small. Muzzle naked. Large ante-orbital glands present, more or less elongated. Tail medium. False hoofs present. No knee-brushes*. Mammæ 4.

Skull with large anteorbital fossæ, and with the frontal bones projecting backwards between the parietals, the horns (where 4, the posterior pair) placed on the tips of the projections. Molar teeth square and low-crowned.

Horns 2 (exceptionally 4), short, straight; generally present in both sexes, but those of the female more slender and smoother than those of the male.

Range of Subfamily. Africa and India, not extending over the intermediate regions of Arabia and Persia.

This Subfamily contains two genera, as follows:—

1. *CEPHALOPHUS*. African; with two horns only, and with the opening of the anteorbital glands forming a long naked line on the sides of the muzzle. Females generally horned.
2. *TETRACEROS*. Indian; with four horns, at least in the typical variety, and with the opening of the anteorbital glands forming a deep slit in the sides of the muzzle. Females hornless.

* Unless when "*Antilope quadriscopa*" is rediscovered it shall prove to belong to this subfamily. See below, p. 124.

GENUS I. CEPHALOPHUS.

	Type.
<i>Cephalophus</i> , H. Sm. Griff. An. K. v. p. 344 (1827)	C. SYLVICULTRIX.
<i>Cephalolophus</i> (emend.), Wagner, Giebel, and others	C. SYLVICULTRIX.
<i>Sylvicapra</i> , Ogilb. P. Z. S. 1836, p. 138	C. GRIMMI.
<i>Grimmia</i> , Laurill. Dict. Univ. d'H. N. i. p. 623 (1839)	C. RUFILATUS.
<i>Cephalophorus</i> , Gray, List Mamm. B. M. p. 162 (1843)	C. GRIMMI.
<i>Guevei</i> , Gray, Cat. Ung. B. M. p. 86 (1853)	C. MAXWELLI.
<i>Terpone</i> , Gray, P. Z. S. 1871, p. 592	C. SYLVICULTRIX.
<i>Potamotragus</i> , Gray, Cat. Rum. B. M. p. 24 (1872)	C. SYLVICULTRIX.

Size medium or small; build generally thick and clumsy; naked muzzle large; anteorbital glands opening into a row of pores, which form a long naked line on each side of the muzzle; crown of head tufted, so that the horns are often quite hidden in the hairs; tail short or medium, not heavily tufted; mammæ four; lateral hoofs well developed.

Skull with large lachrymal fossæ, but no fissure at the base of the nasals, and no large pits above or beneath the eyes; auditory bullæ divided by a septum; upper molar teeth short and broad; in the larger species with an additional column on the inner side.

Horns two, generally present in both sexes, short and spike-like, placed very far back on the head, on the ends of the posteriorly extended frontals; directed straight backwards nearly in the line of the profile, not twisted or curved; their bases often roughened or angulated.

Distribution. Africa south of the Sahara.

This genus, although large, and with species ranging in size from that of a small donkey down to that of a hare, is yet a very uniform and natural one, and shows remarkably little diversity among its members in essential characters. To sportsmen in general the majority of the species

are little known, partly owing to their being too small to afford any sport and with but poor horns for trophies, but mainly owing to their inhabiting thick bush, so that they are hardly ever seen. One species, however, the common S. African Duiker, the popular name of which we have extended to all the members of the genus, is well known to every sportsman who has visited that country, both on account of its extreme abundance in most localities, and of its inhabiting more open districts than its congeners, the Bush-Duikers. It has allies in Abyssinia and Senegal, and the three have together been separated by some authors as a distinct genus, but this separation we are not at present prepared to endorse.

Considering, then, all the Duikers as forming but one genus, we may distinguish them according to the following synopsis, although, as three or four of the species are known from very insufficient materials, we may expect that the characters will require some modification hereafter.

From the localities appended it will be seen that the large majority of the species are West African in habitat, the great tropical forest which covers so much of that part of Africa being apparently especially suited to their bush-loving habits.

- A. Horns, when present, pointed directly backwards, in a line with, or below the line of, the nasal profile; generally present in the female. Ears moderate or short, rounded, their length much less than the distance from the eye to the nose. General colour fulvous, red, grey, or black, generally marked or striped. (BUSH-DUIKERS.)
- a.* Size large: hind foot (without hoof) more than 11 in.; basal length of skull more than 9·5.
- a'*. General colour blackish, with a yellowish lumbar stripe.—W. Africa.
19. *C. sylvicultrix*.
- b'*. General colour of body grey, of head and neck black.—W. Africa.
20. *C. jentinki*.
- b.* Size medium or small: hind foot less than 10 in.; basal length of skull less than 8·5.
- a'*. General ground-colour fulvous, rufous, or chestnut.
- a*². Back not transversely striped. No heel-tufts.
- a*³. Colour quite uniform, no mesial dark markings on the face or elsewhere.

- a*⁴. Size larger ; hind foot (?hoof included) 9·5 in.—E. Africa.
21. *C. spadix*.
- b*⁴. Size smaller ; hind foot without hoof 7·5 in.—S.E. Africa.
22. *C. natalensis*.
- b*³. Mesial dark markings present either on face or on back or on both.
- a*⁴. Darker markings shining black or brown.
- a*⁵. Back uniform rufous, no dorsal stripe.
- a*⁶. Ground-colour pale bay, lighter below ; chin white ;
hoofs normal.—E. Africa . . . 23. *C. harveyi*.
- b*⁶. Ground-colour dark chestnut above and below ; hoofs
elongated.—W. Africa . . . 24. *C. nigrifrons*.
- b*⁵. Back with a black dorsal stripe continued on to the tail.—
All W. Africa.
- a*⁶. Tail black and white ; back of hams red or white.
- a*⁷. Centre line of face decidedly darker than flanks.
Dorsal line from nape.
- a*⁸. Sternal region and back of hams white. Tail tufted
at tip 25. *C. leucogaster*.
- b*⁸. Sternal region and back of hams as dark as or
darker than the body. Tail evenly haired, not
tufted 26. *C. dorsalis*.
- b*⁷. Face uniformly rufous yellow, like the flanks. Dorsal
line from withers 27. *C. ogilbyi*.
- b*⁶. Tail nearly wholly black ; back of hams also black.
28. *C. callipygus*.
- b*⁴. Darker markings bluish grey.—W. Africa.
29. *C. rufilatus*.
- b*². Back transversely banded. Heels with tufts.—W. Africa.
30. *C. doriae*.
- b*¹. General colour smoky brown or blackish.
- a*². Size larger ; hind foot 8·25. Face more rufous than body.—
W. Africa 31. *C. niger*.
- b*². Size smaller ; hind foot less than 7·5 in. Face like back.
- a*³. Legs greyish brown, like body.
- a*⁴. Rump not particoloured.—Sierra Leone.
32. *C. maxwelli*.

*b*⁴. Rump particoloured.

*a*⁵. Belly usually lighter than back; female horned.—Camer-
roons; Zanzibar 33. *C. melanorheus*.

*b*⁵. Belly not or little lighter than back; female hornless.—
Uganda 34. *C. æquatorialis*.

*b*³. Legs rufous; rump not particoloured.—S.E. Africa.

35. *C. monticola*.

B. Horns, when present, slanting upwards at a sharp angle above the nasal profile; females normally hornless. Ears long, pointed, their length equal to or exceeding the distance from the eye to the rhinarium. General colour yellow or greyish; no darker markings on the body, but a brown nasal patch present. (TRUE DUKERS.)

a. Size smaller: hind foot less than 9 in.; basal length of skull less than 5·5.

a'. Colour bright yellow.—W. Africa 36. *C. coronatus*.

b'. Colour grizzled greyish brown.—Abyssinia . . . 37. *C. abyssinicus*.

b. Size larger: hind foot more than 9·5 in.; basal length of skull more than 6·0.—Southern Africa 38. *C. grimmi* *.

* An animal to which the following names refer has been described as a member of this genus:—

Antelope (Cephalophus) quadriscopa, H. Sm. Griff. An. K. iv. p. 261, fig. (♂), v. p. 345 (1827).

Quadriscopa smithii, Fitz. SB. Wien, lix. pt. 1, p. 167 (1869).

Hab. Senegal.

The figure, however, shows a species more like a Gazelle than a Duiker, although some of its characters seem rather Cephalophine. Whatever it may have been it has never been rediscovered, nor is its description sufficient for us to assign it to its proper place in the group.



*J.G. Keulemans del.
J. Smal lith.*

The Yellow-backed Duiker .
CEPHALOPHUS SYLVICULTRIX .

Hanhart imp.

Published by R.H. Porter.



Smit lith.

Fig. 1. The Black Duiker .
CEPHALOPHUS NIGER .
Fig. 2. The Yellow-backed Duiker .
CEPHALOPHUS SYLVICULTRIX .

Harbart imp.

Published by R.H. Porter .

19. THE YELLOW-BACKED DUIKER.

CEPHALOPHUS SYLVICULTRIX (AFZ.).

[PLATES XIII. AND XIV. FIG. 2.]

- Antilope sylvicultrix*, Afzelius, N. Act. Ups. vii. p. 265, pl. viii. (animal) (1815) (Sierra Leone); Goldf. Schreb. Säug. v. p. 1238 (1818); Desm. Mamm. ii. p. 462 (1822); Less. Man. Mamm. p. 378 (1827); Fisch. Syn. Mamm. p. 457 (1829); Waterh. Cat. Mamm. Mus. Z. S. (2) p. 41 (1838).
- Antilope (Cephalophus) sylvicultrix*, Ham. Sm. Griff. Cuv. An. K. iv. p. 258, plate (♂), v. p. 344 (1827); Less. H. N. Mamm. (Compl. Buff. x.) p. 293 (1836); Gerv. Dict. Sci. Nat. Supp. i. p. 262 (1840); Less. N. Tabl. R. A., Mamm. p. 178 (1842); Wagn. Schr. Säug. Supp. iv. p. 446 (1844), v. p. 422 (1855); Gieb. Säug. p. 322 (1859).
- Cephalophus sylvicultrix*, A. Sm. S.-Afr. Quart. Journ. ii. p. 214 (1834); Gray, Ann. Mag. N. H. (1) xviii. p. 165 (1846); id. Knowsl. Men. p. 10, pl. xxiii. fig. 3 (1850); id. P. Z. S. 1850, p. 122; Turner, P. Z. S. 1850, p. 170; Gray, Cat. Ung. B. M. p. 83 (1852); Temm. Esq. Zool. Guin. pp. 194 & 233 (1853); Gerr. Cat. Bones Mamm. B. M. p. 236 (1862); Fitz. SB. Wien, lix. pt. 1, p. 166 (1869); Scl. P. Z. S. 1870, p. 220 (Zool. Soc. Viv.); Gray, P. Z. S. 1871, p. 595, fig. 4 (skull); id. Cat. Rum. B. M. p. 26 (1872); id. Hand-l. Rum. B. M. p. 94 (1873); Scl. List An. Z. S. (8) p. 147 (1883); Jent. N. L. M. x. p. 20 (1887) (Liberia); Büttik. Reisebilder, ii. p. 376 (1890); Flow. & Lyd. Mamm. p. 338 (1891); Matsch. MT. deutsch. Schutzgeb. vi. p. 81 (1893) (Togo).
- Antilope (Grimmia) sylvicultrix*, Laurill. Dict. Univ. d'H. N. i. p. 624 (1839).
- Sylvicapra sylvicultrix*, Sund. Pecora, K. Vet.-Ak. Handl. 1844, p. 190 (1846); id. ibid. Hornschuch's Transl., Arch. Skand. Beitr. ii. p. 143; Reprint, p. 67 (1848).
- Cephalolophus sylvicultor*, Thos. P. Z. S. 1892, p. 416; Ward, Horn Meas. p. 77 (1892); Lyd. Horns and Hoofs, p. 213 (1893).

- Cephalophus punctulatus*, Gray, Knowsl. Men. tab. viii. fig. 1 (1850).
Cephalophus longiceps, Gray, P. Z. S. 1865, p. 204, fig. (skull) (Gaboon); Bocage, J. Sci. Lisb. ii. p. 220 (1869).
Terpone longiceps, Gray, P. Z. S. 1871, p. 592; id. Cat. Rum. B. M. p. 24 (1872); id. Hand-l. Rum. B. M. p. 93 (1873).
Cephalophus melanoprymnus, Gray, P. Z. S. 1871, p. 594, pl. xlv. (animal), figs. 2, 3 (skull) (jr.) (Gaboon).
Potamotragus melanoprymnus, Gray, Cat. Rum. B. M. p. 25 (1872); id. Hand-l. Rum. B. M. p. 94 (1873).
Cephalophus ruficrista, Bocage, P. Z. S. 1878, p. 744.

VERNACULAR NAMES :—*Bush-Goat* of English at Sierra Leone (*Afzelius*); *Mbimbi* in Longobondo (*Pechuel-Loesche*, fide *Matschie*).

Size large; form stout and heavy. Ears short, broad, and rounded, their length much less than the distance from eye to muzzle. Fur very short on the fore-quarters, longer on the hind back, but in adults worn off and showing the whitish underfur or naked skin round the base of the tail. General colour all over, of face, body above and below, and of limbs, dark blackish brown. Crest orange or rufous, little developed in youth, and again wearing off in old age. Muzzle, checks and chin, and extreme tips of ear whitish. Lumbar region with a broad pale yellowish mesial stripe running from the middle of the back on to the loins.

In extreme youth the hairs of the posterior half of the body are all tipped with white, except just along what becomes afterwards the pale lumbar stripe, where they have long blackish tips, entirely hiding the white; and the caudal region, afterwards whitish and partly naked, is clothed with long black hairs.

Skull, in proportion to the size of the animal, delicate, slender, and elongate. Muzzle slender, tapering, not laterally swollen between the premolars and the anteorbital fossa. Anteorbital fossæ of medium depth. Mesial notch of palate surpassing anteriorly the lateral ones by about half an inch, these latter comparatively deep and V-shaped.

Horns long and tapering, lying back in or below the line of the nasal profile, rather bowed downwards terminally. Divergent, slender, evenly tapering, but little roughened at base; those of male and female almost precisely alike, except that the latter are slightly smaller. Length (σ) 6.4 inches; basal diameter going about 5 or $5\frac{1}{2}$ times in the length.

Dimensions :— ♀ . Height at shoulder 34 inches, ear 4, hind foot 13·5.

Skull (♂): basal length 10·3 inches, greatest breadth 4·9, muzzle to orbit 6·5.

Hab. West Coast of Africa, from Liberia to Angola.

We commence our history of this numerous group of Antelopes, for which we adopt the term “Duiker” (*i. e.* “Diver”), originally given by the Boers of the Cape to *C. grimmi*, as a vernacular name, with two species readily distinguishable from the remainder by their greater size, but not apparently otherwise divergent in structure. These are the Yellow-backed Duiker and Jentink’s Duiker.

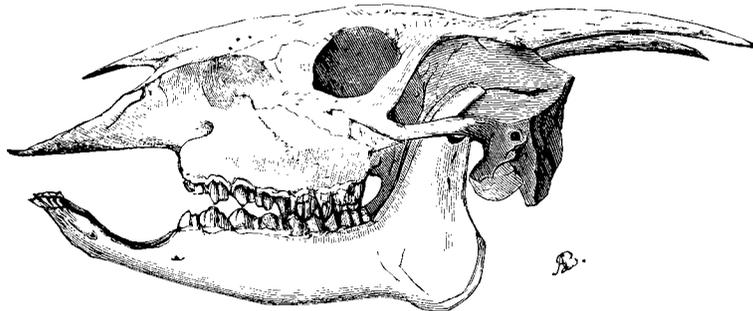
The eminent Swedish naturalist, Adam Afzelius, a pupil of Linnæus, and subsequently editor of his master’s autobiography, resided for two years (1792–94) on the West Coast of Africa, as botanist to the Sierra Leone Company. Amongst numerous papers embracing the results of his researches on the West-African fauna and flora, he published in 1815, in the ‘Nova Acta’ of the Royal Society of Sciences of Upsala, a learned treatise on Antelopes generally, and specially upon those of Guinea. In the course of this memoir he described and figured for the first time the present species, calling it *Antilope silvicultrix*, as being the “Bush-Goat” of the colonists. Afzelius speaks of it as not uncommon in the hills round Sierra Leone, particularly in the districts adjoining the rivers Pongas and Quia. Here it is not met with among the rocks, but inhabits the lower tracts of the bush, either solitary or, in the rutting-season, in pairs, and occasionally in small herds. It hides itself in the bush by daytime, but comes out in the early morning to feed in the open spaces, where the hunters lie in wait for it. Its flesh is stated to be much esteemed as food, although it has a strong musky scent, particularly at certain seasons of the year.

After Afzelius subsequent authors were for many years content to copy his notes and description, and we get no further information on the subject till we come to 1850, when the species was figured in the ‘Knowsley Menagerie’ by Waterhouse Hawkins from specimens living in that magnificent collection. In this set of drawings it appears twice—first on plate viii. fig. 1 (erroneously named *Cephalophus punctulatus*), which seems to have been taken from a young individual of this Antelope; and secondly on plate xxiii. fig. 3, as *Cephalophus silvicultrix*, in which the adult, or at any

rate a more advanced stage, is represented. At the date of the sale of the Knowsley Menagerie in 1851 it does not seem that any specimens of this Antelope were left in the collection; but a young example, no doubt one of those that died in the Menagerie, had been presented by Lord Derby to the Zoological Society of London, whence it subsequently passed into the collection of the British Museum. From the labels on this and other specimens we learn that they were obtained by Whitfield, a well-known collector formerly in the employment of Lord Derby, at Sierra Leone.

Little further information respecting this species is available until 1870, when the Zoological Society, on March 24th, purchased a single living example of it from Cross of Liverpool, as recorded in the Society's 'Proceedings' (P. Z. S. 1870, p. 220). This animal, however, did not live long in the Society's Menagerie, as it died on the 14th July of the same year. Its body was disposed of to Mr. E. Gerrard, jr., by whom it was stuffed and sold to the Melbourne Museum.

Fig. 16.



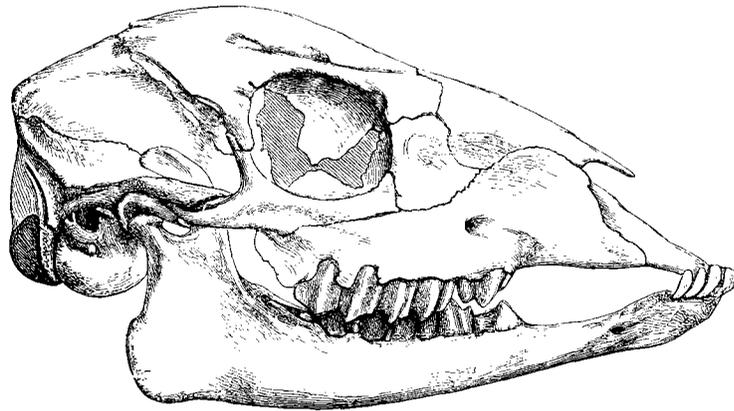
Skull of *Cephalophus sylvicultrix*, ad.
(P. Z. S. 1865, p. 205.)

The only modern authority that speaks of this Antelope is Mr. Büttikofer, of the Leyden Museum, who made two zoological voyages to Liberia in 1880 and 1886. In Dr. Jentink's list of the Liberian mammals obtained by Mr. Büttikofer and his fellow collectors in Liberia (Notes Leyden Mus. vol. x. p. 20) it is recorded that *Cephalophus sylvicultrix* is said to occur sparingly on the Jackson and Mahfa rivers in that country, but to be more common on the Manna and Solyman rivers. But Mr. Büttikofer, in spite of all his efforts, did not succeed in obtaining specimens.

Although, as already stated, originally discovered in Sierra Leone, the

Yellow-backed Duiker seems to have a somewhat extended distribution along the western coast of Africa, reaching altogether from Liberia to the Congo. A pair of mounted specimens and a skeleton in the British Museum were transmitted from Fantee by the native collector Aubinn. The same collection also contains skins from Lagos, procured by Sir Alfred Moloney, and two skulls and a skin from Gaboon, brought to England by Mr. DuChaillu on his return from his celebrated gorilla-hunting expedition. Upon one of these skulls in 1865, Dr. Gray established his *Cephalophus longiceps*, and upon the second skull and the skin which accompanied it, in 1871, the same

Fig. 16 a.



Skull of *Cephalophus sylvicultrix*, jr.
(P. Z. S. 1871, p. 594.)

author based his *C. melanoprymnus*. Thomas has shown (P. Z. S. 1892, p. 416) that both these names are merely synonyms of *C. sylvicultrix**. We may add we have as yet no information as to the range of this species into the interior, except that Herr Matschie has recorded its occurrence in Togo-

* From Loanda, further south, the Lisbon Museum received, in 1869, the head of a large Duiker, which our friend Dr. Barboza du Bocage referred, rightly as it now proves, to Gray's *C. longiceps*. Afterwards, however, in 1878, struck by the great development of the rufous crest, of which no mention had been previously made, he distinguished it as *C. ruficrista*. Thanks to his kindness we have now had an opportunity of comparing the typical head with those of the mounted specimens in the British Museum, and find it to be unquestionably the same, although, as the latter are very old, the rufous crests have been worn off and but little trace of them is left. Our figure (Plate XIV. fig. 2) shows, however, that in rather younger animals the crest is both well developed and very much of the same rufous colour as in the Lisbon example.

land ; but it must be explained that our knowledge of the distribution of West-African mammals is still woefully deficient. As the same gentleman informs us, there is, besides several skins from Togoland, a stuffed example in the Berlin Museum sent by Herr Pechuel-Loesche from Longobondo.

Our illustration of this species on Plate XIII. is copied from a water-colour drawing taken in April 1894 by Keulemans, from a fine male specimen living in the Zoological Gardens of Rotterdam. As this animal was received from the Congo in June 1891 (presented by Heer A. de Bloeme) it must be necessarily quite adult. Mr. Keulemans' notes on it are as follows :—“ Head dark grey ; neck grey, shading into brownish and becoming blackish near the shoulders ; hairs of neck and head very short and glossy ; general colour dark brown, with a bluish gloss, getting blacker on the buttocks, where the hairs are long ; tail short and black ; large plaque on the back and buttocks and tuft between the horns brownish ochre.” Our second figure (Plate XIV. fig. 2), which was prepared by Mr. Smit under Sir Victor Brooke's directions, probably represents a young male of this species ; but we do not know for certain from what specimen it was taken. The figure of Gray's *C. melanoprymnus* in the Zoological Society's 'Proceedings' for 1871 (pl. xliv.) was drawn from a still younger animal, probably of about the same stage as the figure of “*C. punctulatus*” in the 'Knowsley Menagerie.' It will be observed how greatly the colour of the back varies in these specimens of different ages.

May, 1895.



From the collection of the

Jentink's Duiker
CEPHALOPHUS JENTINKI.

Illustrated by

Published by R.H. Porter.

20. JENTINK'S DUIKER.

CEPHALOPHUS JENTINKI, THOS.

[PLATE XV.]

Antilope (Terpone) longiceps, Jent. N. L. M. vii. p. 272, pl. x. (animal) (1885) (*nec* Gray).

Terpone longiceps, Jent. N. L. M. x. p. 19, pl. i. (horns, ♀) (1887); id. Cat. Mamm. Leyd. Mus. (Mus. Pays-Bas, xi.) p. 158 (1892); Büttik. Reiseb. a. Liberia, ii. p. 374 (1890).

Cephalolophus jentinki, Thos. P. Z. S. 1892, p. 417; Lyd. Horns and Hoofs, p. 213 (1893).

Size large, though smaller than *C. sylvicultrix*; form stout. Ears short, broad, and rounded. Colour of head, ears, neck all round as far back as the withers, throat, and a narrow sternal line deep uniform black; of body above and beneath coarsely grizzled grey, the hairs ringed with black and white. Lips and chin, a line all round the fore-quarters separating the black from the grey, axillæ, groins, fore and hind legs whitish; a rather darker mark running across the outer side of the forearm.

Skull much longer in proportion to the size of the animal than in *C. sylvicultrix*, agreeing, in fact, precisely in size with that of the larger species. In other respects also it agrees so closely with that of *C. sylvicultrix* that, had the external characters not been known, the two species would have been hardly supposed to be different. Such differences as there are, however, have been fully pointed out in Thomas's monograph.

Horns long, tapering, placed in the line of the nasal profile, divergent as in *C. sylvicultrix*, those of female 6·1 inches long, base not specially thickened, basal diameter going about $5\frac{1}{2}$ times in the length.

Dimensions:— ♀. Height at withers 30 inches, ear 4, hind foot 12.

Skull (♀): basal length 10·5 inches, greatest breadth 5, muzzle to orbit 6·5

Hab. Liberia.

The present Duiker nearly equals the preceding species in size, but, as will be seen by the Plate, is immediately distinguishable by marked differences in colour, its black head and neck rendering it very conspicuous. Its discovery is due to Mr. F. X. Stampfli, a naturalist who made two expeditions to Liberia, in 1884 and 1886, to collect specimens for the Leyden Museum. In the first of these he was alone; in the second he was accompanied by Mr. Büttikofer, the well-known Conservator of that institution.

The Black-headed Duiker was first described by Dr. Jentink, the Director of the Leyden Museum, in 1885, from a single female specimen procured near Schieffelinsville, on the Junk River, by Stampfli in the preceding year. Unfortunately Dr. Jentink referred the specimen to *C. longiceps* of Gray, a species based on a skull brought home from Gaboon by Mr. DuChaillu. In doing this he was perfectly justified, on account of the extraordinarily close resemblance of its skull to that of *C. longiceps*. But Thomas subsequently showed that DuChaillu's Gaboon skull (as already mentioned above) is undoubtedly referable to the nearly allied *C. sylvicultrix*. Under these circumstances it became necessary to give another scientific name to the present species, and Thomas selected the appropriate term *jentinki*; as it was Dr. Jentink's "carefulness, led astray by Dr. Gray's serious mistakes," that had "caused him to make the venial error just referred to."

During his second expedition, in 1887, Mr. Stampfli procured two more examples of this Antelope on the Farmington River. Like the first, both these were females, and, as we are told by Dr. Jentink, do not differ in colour from the typical specimen. Mr. Stampfli's notes on this Antelope are as follows:—

"A little below Schieffelinsville, in the triangle between the Junk River on one side and its two confluent, the Du Queah and Farmington Rivers, on the other, a wooded eminence called 'Sharp Hill' rises in the middle of the marshes, to which, according to the testimony of the natives, these animals are restricted. As in the dry season the marshes cannot be traversed in canoes, and yet are not sufficiently dry to be passed on foot, these Antelopes

can only be obtained in the rainy season, and it is said to be quite an exception for a specimen to be procured except during that period.”

In the second volume of Mr. Büttikofer's 'Reisebilder aus Liberia,' which contains a complete account of the explorations and discoveries of himself and his companions in that country, will be found some additional details on this Antelope. Mr. Büttikofer calls particular attention to the large size of the inguinal glands between the belly and the thigh in this Antelope. They are so large that they will easily contain a lemon. These are said to be fat-glands, from which the beast extracts fat with its muzzle to lubricate its short, shining, hairy coat. Mr. Büttikofer also says that this Antelope, although only obtained from Sharp Hill, certainly occurs in other parts of Liberia.

Our figure of this Bush-Duiker (Plate XV.) has been prepared by Mr. Smit from the mounted specimen in the British Museum, which is the type of the species. It is one of the three specimens obtained in Liberia by Mr. Stampfli, the other two remaining at Leyden. We believe that these are the only three specimens of this rare Antelope existing in any European museum.

May, 1895.

21. ABBOTT'S DUIKER.

CEPHALOPHUS SPADIX, TRUE.

Cephalophus spadix, True, Pr. U.S. Nat. Mus. xiii. p. 227 (1890); id. op. cit. xv. p. 473, pl. lxxviii. (animal), pl. lxxix. (skull) (1892); Thos. P. Z. S. 1892, p. 418; Lyd. Horns and Hoofs, p. 209 (1893); Jackson, in Badm. Libr. Big Game Shooting, i. p. 285 (1894).

Size comparatively large. General colour dusky chestnut-brown without spots or bands, and not lighter on the belly. Forehead dusky brown, like body; chin and throat pale greyish brown. Hairs of crest chestnut-red at the base, and tipped with black: mingled with them are some hairs which are dusky throughout, and others pure white. Anterior surfaces of the legs somewhat lighter than the posterior surfaces. Tail dusky, except at the tip, where there are a few pure white hairs.

Skull elongate; muzzle slender; frontal region strongly convex.

Horns "directed backwards, and lying below the plane of the upper surface of the skull"; those of male $4\frac{1}{2}$ inches long; slender, straight, not thickened at the base in front.

Dimensions:—♂. Head and body 38 inches, ear $4\frac{1}{4}$, hind foot (hoof to hock) $9\frac{1}{2}$.

Skull: basal length, from occipital condyle, 8.5 inches; greatest breadth 4; nasals, length 3.7.

This description has been compiled from Mr. True's two notices and from his figures of the animal and its skull, as we have not as yet had any opportunity of seeing examples of the species, of which no specimen has come to Europe.

Hab. East Africa, Mount Kilimanjaro, at high elevations (*Abbott*).

We now proceed to consider the smaller Duikers of the section with horns slanting backwards. These are generally of a rufous colour, varied by more or less intense dark markings on the face and dorsal line, only *C. doriae*, which we place by itself, having the back transversely barred.

Sir John Willoughby's volume on 'East Africa and its Big Game' gives an excellent account of the adventures of himself and a party of friends during a shooting-expedition to the hunting-grounds of Kilimanjaro and its neighbourhood, and of the great variety and enormous quantity of the larger mammals to be met with, a few years ago, in that district. In an appendix to the volume, contributed by Mr. H. C. V. Hunter, F.Z.S., is added a systematic account of the principal mammals met with on the plains round Kilimanjaro and on the mountain itself, amongst which we find recorded such splendid Antelopes as the Eland, Koodoo, Oryx, Hartebeest, Gnu, Pallah, Waterbuck, Reedbuck, and three kinds of Gazelle. At the close of the list Mr. Hunter notes the occurrence, high up on Kilimanjaro, of a species of *Cephalophus* "of a dark red colour, much larger than the Common Duiker (*C. grimmii*). A male of this probably new Antelope, it is stated, had been killed by Dr. Abbott." This, so far as we know, is the first published mention of the species of which we now speak as Abbott's Duiker.

Dr. W. L. Abbott, who is thus alluded to, is an American naturalist and explorer who passed nearly two years, in 1888 and 1889, collecting objects of natural history in the district of Kilimanjaro. On his return to America Dr. Abbott presented his whole collection to the National Museum, which is under the charge of the Smithsonian Institution at Washington. Mr. Frederick W. True, the Curator of the Department of Mammals, to whom was assigned the task of describing the collection, speaks of it as "one of high scientific value." "The specimens," he says, "have been prepared with much care, the skins being almost invariably accompanied by the skulls, and furnished with labels giving the locality and date of capture, the sex, and other data." It included altogether about ninety skins and an equal number of skulls representing some thirty-eight species. Amongst these was a single male example of the present Antelope, no doubt the specimen alluded to by Mr. Hunter which is stated to have been killed at a high altitude on

Kilimanjaro. As there is no specimen of this Antelope available for our use, we have, as already stated, extracted the more essential characteristics from Mr. True's two accounts.

Mr. True was of opinion that *C. spadix* is closely allied to *C. niger*, and even possibly identical with it. We think, however, that its nearest relatives are probably *C. natalensis* and *C. harveyi*, from which it is at once distinguishable by its larger size.

May, 1895.



Wolff del., Smith lith.

The Natal Duiker
CEPHALOPHUS NATALENSIS .

Humbert sculp.

Published by R.H. Porter.

22. THE NATAL DUIKER.

CEPHALOPHUS NATALENSIS, A. SMITH.

[PLATE XVI.]

Cephalophus natalensis, A. Smith, S. Afr. Quart. Journ. ii. p. 217 (1834); id. Ill. Zool. S. Afr., Mamm. t. xxxii. (1841); Gray, Ann. Mag. N. H. (1) xviii. p. 166 (1846); id. Knowsl. Men. p. 10 (1850); id. P. Z. S. 1850, p. 123; Turner, P. Z. S. 1850, p. 170; Gray, Cat. Ung. B. M. p. 85, pl. x. fig. 1 (skull) (1852); Gerr. Cat. Bones Mamm. B. M. p. 236 (1862); Blyth, Cat. Mamm. As. Soc. p. 168 (1863); Fitz. SB. Wien, lix. pt. 1, p. 166 (1869); Gray, P. Z. S. 1871, p. 598; id. Cat. Rum. B. M. p. 27 (1872); id. Hand-l. Rum. p. 96 (1873); Drummond, Large Game S. Afr. p. 391 (1875); Sci. List Anim. Z. S. (8) p. 146 (1883); Sci. f. Cat. Mamm. Calc. Mus. ii. p. 168 (1891); Jent. Cat. Mamm. Leyd. Mus. (Mus. Pays-Bas, xi.) p. 162 (1892); Thos. P. Z. S. 1892, p. 419; Nicolls & Egl. Sportsm. S. Afr. p. 23, pl. i. fig. 2 (head) (1892); Ward, Horn Meas. p. 77 (1892); Lyd. Horns and Hoofs, p. 209 (1893).

Cephalophorus natalensis, Gray, List Mamm. B. M. p. 163 (1843).

Sylvicapra natalensis, Sund. Pecora, K. Vet.-Ak. Handl. 1844, p. 190 (1846); id. Hornschuch's Transl., Arch. Skand. Beitr. ii. p. 142; Reprint, p. 66 (1848).

Antilope (Cephalolophus) natalensis, Wagn. Schr. Säug. Supp. iv. p. 453 (1844), v. p. 426 (1855); Gieb. Säug. p. 321 (1859).

VERNACULAR NAMES:—*Incumbi* of Swazis and *Mangule* of Shangaans (*Rendall*); *Roode-bok* of Dutch.

Size rather small. Form slender. Colour bright rufous chestnut all over, without marks or stripes of any kind, except that there is a faintly marked

red superciliary line. Back of neck greyish brown. Chin and throat whitish. Tail slender, rufous at base; brown, tipped with white, at its extremity.

Horns set parallel to nasal profile; those of male conical, much thickened at their bases; their greatest basal diameter going about three times into their length; length about 3 inches in an old specimen: those of female similar, but smaller and more sharply pointed, 1·5 inch in length.

Skull—frontal region roughened and convex; anteorbital fossæ of medium depth; edge of median posterior palatal notch but little anterior (about $\frac{1}{4}$ inch) to the lateral notches.

Dimensions:—♀. Height at withers 17 inches, length of ear 2·5, hind foot 7·6.

Skull (♂): basal length 5·6 inches, greatest breadth 2·8, orbit to muzzle 3·15.

Hab. Natal, Transvaal, and Mashonaland.

The Natal Duiker, which is perhaps a southern representative of the next species, is, like it, of a nearly uniform bright bay colour, rather paler below, and with some inconspicuous darker markings on the vertical crest. Our figure of this species (Plate XVI.) was put on the stone by Mr. Smit from a sketch prepared by Mr. Wolf, and was probably taken from one of the specimens in the British Museum; but of this, we regret to say, there is no certain record.

The discovery of the Natal Duiker is due to Sir Andrew Smith, who met with it in the forests of Natal and first described it in 1834 in one of his articles on African Zoology published in the 'South African Quarterly Journal.' Sir Andrew afterwards figured it in the volume of Mammals of his 'Illustrations of South African Zoology,' where the following notes are given on its habits:—"Both *C. caeruleus* [= *C. monticola*, nob.] and *C. natalensis* inhabit the African forests; the former towards the Cape of Good Hope, the latter to the eastward about and beyond Port Natal. They both feed partly upon the grass which occurs among the underwood, and partly upon the young leaves and shoots of the brushwood and small trees which exist in the situations they inhabit; and to obtain the latter they may occasionally be seen scrambling among shrubs, or ascending the stems of

sloping trees, so as to reach what they cannot attain while they are on the ground.”

Beyond a reference to its name in various lists and catalogues, we find little more recorded concerning this Antelope until modern days, when several experienced observers have mentioned it. In his ‘Rough Notes on the Game and Natural History of South and South-east Africa,’ published in 1875, the Hon. W. H. Drummond mentions the “Red-buck,” as he calls it, as one of the two species of *Cephalophus* that inhabit the jungles of Natal, the other being “the Blue-buck” (*Cephalophus monticola*). Of these, Mr. Drummond says the Red-buck “is the larger and also the least common. It is, as its name denotes, of a light yellowish-red colour, mingled with grey on the lower parts, and its chief peculiarity is a tuft of hair growing out of the forehead, which gives a curious appearance to the hornless does, while it partially conceals the small horns of the bucks. Its flesh is anything but good, and it is difficult to shoot, from the tremendous rushes it makes when disturbed. So fast and heedlessly does it run, that I once saw a buck, that had passed me while I was loading, entangle itself in a mass of creepers, from which, despite its struggles, it was unable to escape until I released it with the help of my knife. It was quite uninjured, and I kept it in confinement for some weeks, but, like most Antelopes when caught full-grown, it ultimately pined away and died.”

Messrs. Nicolls and Eglington, in their ‘Sportsman in South Africa’ (1892), tell us that this Antelope is found only in Zululand, Natal, and the southern portions of Swaziland, but is everywhere very scarce. It is, however, stated on good authority to have been found recently in South-eastern Mashonaland. In habits, these authors say, it resembles the Common Duiker, except that it chooses dense forest as a residence.

So far as we know, but one specimen of the Natal Duiker has ever been brought to Europe alive. This was a male which was purchased in 1880 (March 14th), by the Zoological Society of London, of Mr. Charles Jamrach, for the sum of £6 10s., and lived some months in the Menagerie.

Besides the skin of an adult female of this species, received from Sir Andrew Smith as the type of *C. natalensis*, there is a mounted pair in the National Museum, collected by Dr. A. Krauss, and received in exchange

from the Stuttgart Museum. There are also skins of adults of both sexes and accompanying skulls in the same collection from the Transvaal, obtained by Dr. Percy Rendall, C.M.Z.S., in 1893 and 1894. Dr. Rendall has kindly favoured us with the following notes upon the present species of Duiker:—

“The local Colonial name for this Antelope is the ‘Lesser Red-buck.’ To the Swazis it is the ‘Incumbi,’ and to the Shangaans the ‘Mangule.’

“Its occurrence I found confined to a very limited area, *i. e.* the slopes of the Makongwa Mountains, which are locally termed ‘Moodie’s Concession,’ in the Barberton portion of the Transvaal, adjoining Swaziland. Here it was not uncommon in places; its resorts being always the wooded creeks or ‘dongas,’ where there is dense cover.

“Its habits are so skulking that it is extremely hard to procure specimens, even when the hunter is aware of its existence in a particular locality. Nothing but a well organized beat with natives and dogs will make these animals break cover from the bush and long grass they frequent.

“I never heard of one being seen or shot in the open, and their spoor and droppings are only seen just on the outskirts of the cover, where they feed at night.

“The way in which they double and dodge the dogs and beaters in full cry is inimitable, and to an onlooker is most entertaining. Their vitality is wonderful, and their power of endurance before dogs considerable, especially considering their comparatively small size. There is little difference between the respective weights of the sexes when adult, as I was surprised to find when I put them into the scale.

“The female is always horned, and in two specimens that I dissected each was found to be carrying a quarter-grown (hairless) foetus, in the month of April. A wounded animal that I saw pulled down by a dog gave vent to a prolonged squeal, not unlike a rabbit or hare does under similar circumstances, though fainter in volume.

“The long tuft of hair around and between the horns is always more marked in the male, and practically masks the horns. The flesh is not appreciated by a European palate, though the reverse is the case with the Swazis, as I have noticed.

“Measurements taken of three Adult Specimens, 15th April, 1894.

	1. (♂.)	2. (♀.)	3. (♀.)
Height at shoulder	in. 17 $\frac{3}{4}$	in. 18	in. 16 $\frac{3}{4}$
Circumference of barrel be- hind shoulder }	18 $\frac{3}{4}$	18 $\frac{1}{4}$	17 $\frac{1}{4}$
Point of shoulder to nose	12 $\frac{1}{4}$	14	12 $\frac{3}{4}$
Circumference of neck	10	9 $\frac{1}{4}$	9 $\frac{1}{4}$
Nose to tail	36 $\frac{1}{4}$	38	39 $\frac{1}{4}$
Weight	26 lbs.	27 $\frac{1}{2}$ lbs.	25 $\frac{1}{2}$ lbs.”

May, 1895.



J. Smit del et lith.

Harveys' Duiker.
CEPHALOPHUS HARVEYI.

Hartart imp.

Published by R.H. Porter.

23. HARVEY'S DUIKER.

CEPHALOPHUS HARVEYI, THOS.

[PLATE XVII.]

Cephalophus natalensis, Noack, Humboldt, v. pt. 9, p. 6, fig. 5 (animal) (1886);
Thos. P. Z. S. 1892, p. 419 (in part, *nec* A. Smith).

Cephalophus nigrifrons, True, Pr. U. S. Nat. Mus. xv. p. 476 (1892) (*Taveta*) (*nec*
Gray).

Cephalophus harveyi, Thos. Ann. Mag. N. H. (6) xi. p. 48 (1893); Lyd. Horns and
Hoofs, p. 210 (1893); Jackson, Badm. Libr. Big Game Shooting, i. pp. 167, 285,
308 (1894); Thos. Ann. Mus. Genov. (2) xv. p. 6 (1895) (Somali).

Size and general coloration almost exactly as in *C. natalensis*, but with a brown or blackish blaze on the face as in *C. nigrifrons*, extending from the nasals to the occiput, and expanding on the forehead. Feet slender; hoofs not specially elongated.

Skull much roughened and swollen in the frontal region; muzzle rather short and conical; median notch of palate but little deeper than the lateral ones.

Horns (σ) conical, very thick at the base, their greatest basal diameter going barely two and a half times in their length, which in an old individual is 3.1 inches.

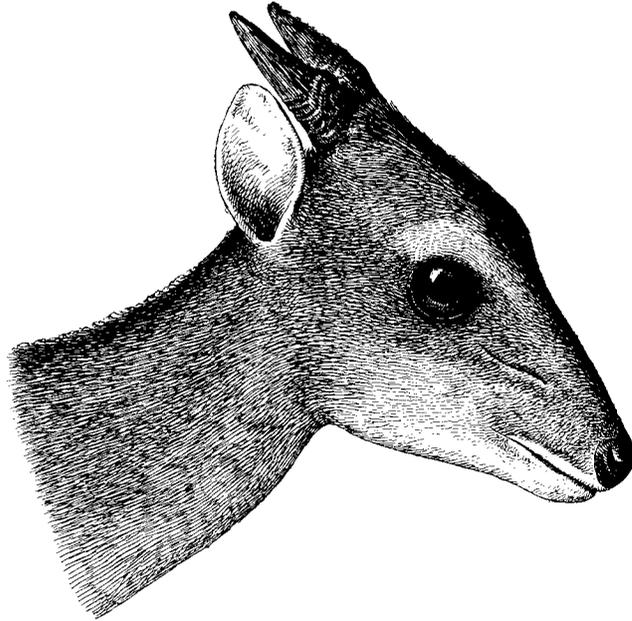
Dimensions:—Skull, basal length 5.9 inches, greatest breadth 3, muzzle to orbit 3.3.

Hab. British East Africa (Kilimanjaro district) and Southern Somaliland.

In Harvey's Duiker we have a third species of the smaller-sized section of this group of Duikers which, although, like the two preceding, of nearly

uniform colour as regards the body, has a distinct black blaze on the face, in which character it resembles *C. nigrifrons* of the West Coast of Africa. So closely allied, however, are all the Duikers of the present section that, as will be seen from our list of synonyms, Harvey's Duiker was associated first of all with *C. natalensis* and afterwards with *C. nigrifrons*, before it was recognized by Thomas as having good claims to constitute an independent species. Thomas took his characters, which were published in the 'Annals of Natural History' in 1893, from a head obtained by Mr. F. J. Jackson in the Kilima-

Fig. 17.



Head of Harvey's Duiker.
(From Mr. Jackson's specimen.)

njaro district some years ago, and subsequently presented to the British Museum. In his chapter on "Game Districts and Routes," in the first volume of 'Big Game Shooting,' we find that Mr. Jackson has mentioned the present species as met with along with the elephant in the dense and almost impenetrable forests near Taveta. At Mr. Jackson's suggestion Thomas appropriately dedicated the present species to Sir Robert Harvey, whose repeated expeditions to East Africa have made us so well acquainted with the animals of that district.

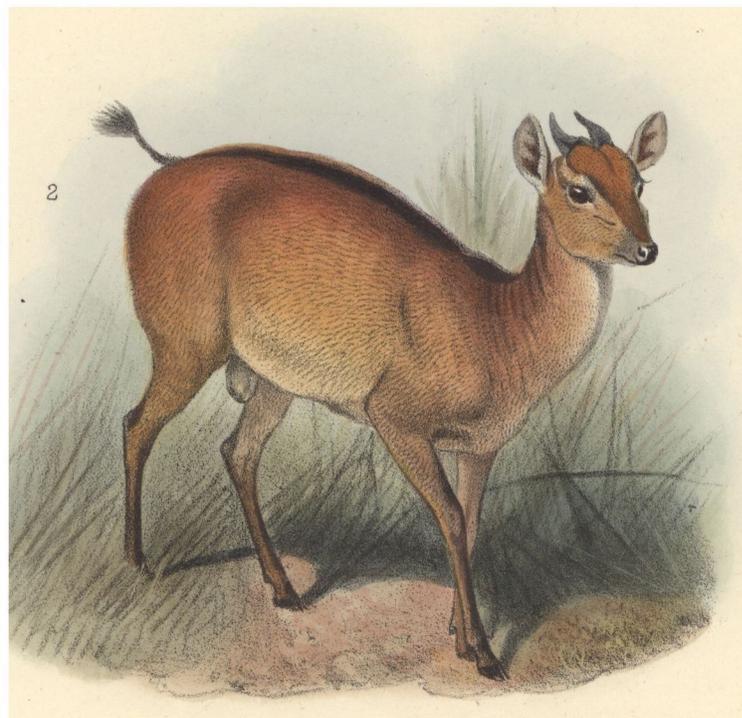
On re-examining the specimens at the British Museum, Thomas discovered that a skin obtained many years ago by Sir John Kirk near Malindi, on the coast of British East Africa, and previously referred erroneously to *C. natalensis* (owing to its having lost the fur off its face), likewise belongs to this species, which, as Mr. Jackson has informed us, does occur in a patch of forest about one day south-west of Malindi.

There can be little doubt also that the Black-fronted Antelope obtained by Dr. W. L. Abbott near Taveta during his expedition of 1888–89, of which we have already spoken, and now in the National Museum of the United States at Washington, should be referred to *C. harveyi*. Mr. True provisionally determined it as *C. nigrifrons*, not having specimens of that Antelope from the western coast to compare it with, and has given us an excellent description of it in his memoir on Dr. Abbott's mammals.

More recently, again, this species has been obtained by Capt. Bottego in South Somaliland, as mentioned in Thomas's report on the mammals presented by that sportsman to the Museo Civico at Genoa.

Our figure of Harvey's Duiker (Plate XVII.) has been prepared by Mr. Smit from Sir John Kirk's specimen in the British Museum, the head in the same collection obtained by Mr. Jackson having been used where Sir John Kirk's specimen is imperfect.

May, 1895.



Smit lith

Fig. 1. The Black-fronted Duiker.
CEPHALOPHUS NIGRIFRONS.

Fig. 2. Ogilby's Duiker.
CEPHALOPHUS OGILBYI.

Hanhart imp.

Published by R.H. Porter.

24. THE BLACK-FRONTED DUIKER.

CEPHALOPHUS NIGRIFRONS, GRAY.

[PLATE XVIII. FIG. 1.]

Cephalophus nigrifrons, Gray, P. Z. S. 1871, p. 578, fig. 6 (skull), pl. xlvi. (animal);
id. Cat. Rum. B. M. p. 27 (1872); id. Hand-l. Rum. B. M. p. 96 (1873); Peters,
MB. Ak. Berl. 1876, p. 482 (Cameroons); Scl. List Anim. Z. S. (8) p. 147 (1883);
Thos. P. Z. S. 1892, p. 419; Lyd. Horns and Hoofs, p. 210 (1893).

Cephalophus aureus, Gray, Ann. Mag. N. H. (4) xii. p. 42 (1873) (jr.); id. Hand-l.
Rum. B. M. p. 95 (1873).

VERNACULAR NAME:—*Ngolo* in the Cameroons (*Buchholz*).

Size medium. Colour of body rich chestnut, scarcely or not at all paler below. Centre of face and crest deep black, contrasting markedly with the rufous superciliary streaks. Nape browner. Feet and tip of tail blackish, a few white hairs in the terminal tuft of the latter. Hoofs apparently longer in proportion than usual; lower edge of the posterior outer hoof 1·57 inch in length.

Horns, judging only from the cores, decidedly short, and but little expanded at their base; the cores in an adult male about 1·9 inch long. Their set parallel to, and a little below, the level of the nasal profile.

Skull with the frontal region decidedly convex. Muzzle rather narrow and elongated. Anteorbital fossæ of medium depth. Median posterior palatine notch some distance ($\frac{1}{3}$ inch in type) in front of the level of the lateral notches.

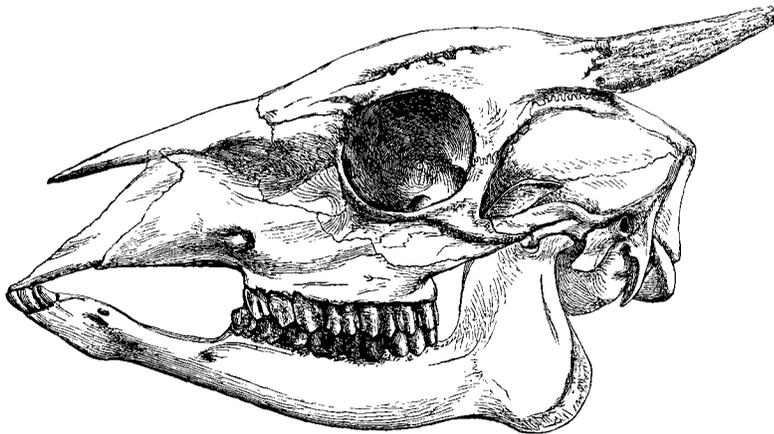
Dimensions:—♂. Approximate height at withers 19 inches, ear 2·3, hind foot 9·2.

Skull: basal length 6·3 inches, greatest breadth 3·1, muzzle to orbit 3·6.

Hab. Coast of Western Africa from Cameroons to Gaboon.

Although the great wood-region of Western Africa has been repeatedly visited by naturalists since the days of Afzelius in the last century, and many collections have been formed there, very little has been recorded respecting the habits of the mammals of this part of the continent. The reason of this, no doubt, is mainly the impenetrable nature of the forests and bush which cover the whole country and which allow much fewer observations to be made upon the habits and peculiarities of the animals than in the more open and easily traversed districts of the Ethiopian Region. Of the present and several other species of this genus of Antelopes, for example, we shall see that very little information can be given except what results from the examination of their skins and skulls brought home as specimens for our museums.

Fig. 18.



Skull of *Cephalopius nigrifrons*.
(P. Z. S. 1871, p. 598.)

Like Harvey's Duiker of Eastern Africa, the Black-fronted Duiker, which is its representative and close ally in the great western wood-region, carries a coat of a nearly uniform chestnut. Like *C. harveyi*, also, it has a distinct black blaze down the centre of the face, whence the appropriate name *C. nigrifrons* has been bestowed on it. Its distinctions from Harvey's Duiker, as pointed out by Thomas, are that it is of a much more uniform colour all over and hardly paler below, while in the last-named species the cheeks, sides of the neck, and throat are of a pale bay, and the chin is white as in

C. natalensis. Its most striking characteristic is, however, the fact that its hoofs are very much longer than is usual in the genus, an elongation which is probably due to its inhabiting marshy and boggy regions, where its long hoofs would prevent its sinking so deeply as it otherwise would into the muddy soil.

The typical specimens of this Duiker formed part of the collection made by Mr. DuChaillu during his celebrated visit to the Gaboon in 1856 and the following years, the greater part of which were ultimately acquired by the British Museum. On reference to the 'Explorations and Adventures in Equatorial Africa' of DuChaillu we can find no reference to it, unless, as is probable, it is alluded to as one of the "four species of Gazelle not yet determined," which are enumerated in the appendix. When, however, DuChaillu's specimens came under the experienced eye of the late Dr. Gray, on the occasion of his preparing a monograph of the genus *Cephalophus* (subsequently published in the Zoological Society's 'Proceedings' for 1871), it was quickly discovered that amongst them was a representative of a new and distinct species of the present genus, which was described and figured as *C. nigrifrons*. In a subsequent communication to the 'Annals of Natural History' in 1871, Dr. Gray described a specimen of what he believed to be another new species of *Cephalophus* under the name of *C. aureus*. On this occasion he tells us that the specimens, both of his *C. nigrifrons* and of his *C. aureus*, "had been sent home from Africa by Mr. DuChaillu as materials for stuffing out the skin of a specimen" of a larger Antelope (*Tragelaphus euryceros*). We believe it to be the fact that, as Sclater was assured by the late Dr. Gray, he described four new species of Antelopes from skins found in the interior of this *Tragelaphus* when it was unstuffed for the purpose of being remounted for the collection of the British Museum. As regards the so-called *C. aureus*, however, a close examination of the typical specimen, made by Thomas in 1892, convinced him that it was a very young animal and was probably only an immature individual of the present species. We may observe, however, that its body is far brighter and more fulvous than that of the adult, that the withers and shoulders are browner, and that the caudal tuft is more abundantly mixed with white.

In 1882, as recorded in the eighth edition of their 'List of Animals,' the Zoological Society acquired by purchase of Mr. Cross, of Liverpool, a living specimen of the Black-fronted Antelope, which lived for about three months

in the Menagerie. Of this it can only be said that, like most of the smaller Antelopes (if we except the Gazelles), it was shy and inoffensive in its disposition.

The existence of *C. nigrifrons* in the Cameroons has been recorded by Peters, who published in 1876 an account of the collection of Mammals made by Dr. Reinhold Buchholz in this and other localities in Western Africa. Buchholz, when at the Cameroons, obtained a specimen of the Black-fronted Duiker from the natives who had captured it alive when swimming across a river. He remarks on the prominent appearance of the inguinal glands, and says that the horns are very short and conical, and almost covered by the frontal hairs. The native name of these *Cephalophi* in the Cameroons is said to be "Ngolo."

Our figure of this Bush-Duiker (Plate XVIII. fig. 1) was prepared by Mr. Smit under the direction of the late Sir Victor Brooke. It was probably taken from the specimen in the British Museum, but of this we are not quite sure.

May, 1895.

25. THE WHITE-BELLIED DUIKER.

CEPHALOPHUS LEUCOGASTER, GRAY.

Cephalophus leucogaster, Gray, Ann. Mag. N. H. (4) xii. p. 43 (1873); Thos. P. Z. S. 1892, p. 420; Lyd. Horns and Hoofs, p. 211 (1893).

Size medium. General colour dull chestnut-rufous, with a black dorsal band. Face rufous, darker down the centre; crest mixed rufous and black. Nape browner. Dorsal stripe commencing in front of the withers, not pure black, but grizzled with rufous, and not at all sharply defined laterally; posteriorly, however, on the tail it becomes abruptly very narrow and sharply defined, not covering the whole breadth of the tail, but bordered on each side with rufous or white. End of tail with a large mixed black and white tuft. Under surface of body from chin to anus, inner sides of forearms and hips, and also a line passing down the anterior side of the metatarsi, whitish or pure white; no trace of a darker sternal patch. Posterior faces of buttocks also pure white, very different from the deep chestnut of this part in *C. dorsalis*.

Horns of type (apparently ♀) conical, sharply pointed.

Skull, so far as can be gathered from a young and very imperfect example, with a slender narrow muzzle like that of *C. dorsalis castaneus*, quite unlike the short conical one of *C. d. typicus*.

Dimensions of the type (an immature specimen):—Height at withers 15 inches, ear 2·5, hind foot 7·9.

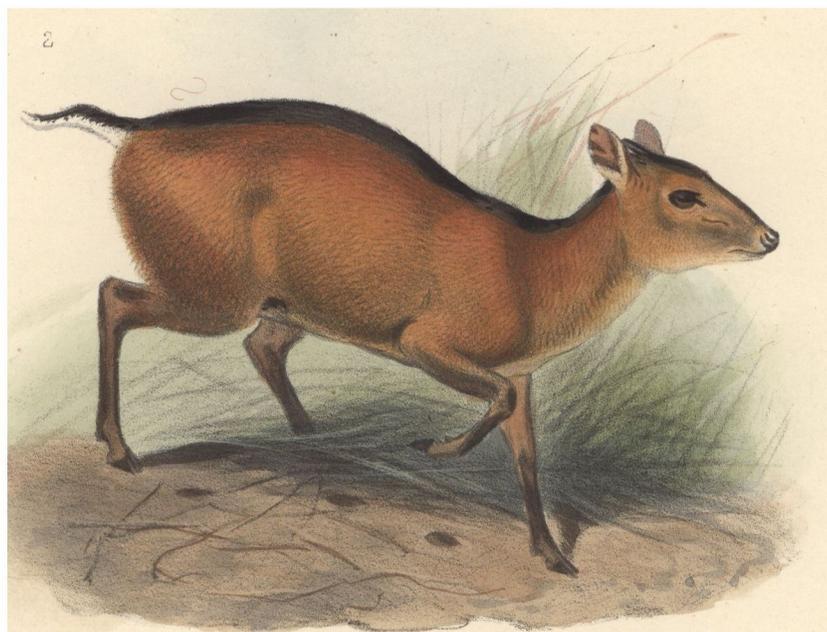
Hab. Gaboon.

The White-bellied Duiker is another discovery of Dr. Gray's, made, as in the case related in the former article, on a specimen obtained from the interior of a stuffed example of *Tragelaphus euryceros*, received from

Mr. DuChaillu. We may therefore fairly put down the locality of the specimen as Gaboon, to which district of Western Africa both of Mr. DuChaillu's great journeys were confined. As in the former case also, the present species was described in the 'Annals of Natural History' for 1873, in a supplementary paper to Dr. Gray's revision of the species of the present genus published in 1871. To what extent, however, the present is different from the allied species must remain uncertain until further specimens have been obtained, which, so far as we are aware, has not yet been the case.

The typical example of *Cephalophus leucogaster* is probably a female and is quite immature, with the milk-molars still in position and the third molar still below the bone, and it is difficult to arrive at a definite conclusion from such a specimen. At the same time, as Thomas has shown in his article on the genus *Cephalophus*, published in 1892, it is not possible, in the present state of our knowledge, to refer the specimen to any described species. The black dorsal band distinguishes it from *C. nigrifrons* and other preceding species, and the white hams and under surface from all the forms of the next following species—*C. dorsalis*—to which, perhaps, it most closely approximates. On the whole, therefore, we can at present only say that *C. leucogaster* has been established on a young specimen of a species of which the adult form is not yet known to us.

May, 1895.



Smit lith.

Hambart imp.

Fig. 1. The Red-flanked Duiker .
CEPHALOPHUS RUFILATUS .

Fig. 2. The Bay Duiker .
CEPHALOPHUS DORSALIS .

Engraved by Rilloroten .

26. THE BAY DUIKER.

CEPHALOPHUS DORSALIS, GRAY.

[PLATE XIX. FIG. 2.]

Subspecies *a.* C. D. TYPICUS.

Cephalophus dorsalis, Gray, Ann. Mag. N. H. (1). xviii. p. 165 (1846); id. List Ost. Sp. B. M. p. 146 (1847); id. Knowsl. Men. p. 10, pl. vii. (animal) (1850); id. P. Z. S. 1850, p. 123; id. Cat. Ung. B. M. p. 84 (1852); Temm. Esq. Zool. Guin. pp. 194, 218 (1853); Scl. P. Z. S. 1869, p. 594, pl. xlvi.; Murie, P. Z. S. 1869, p. 595 (anatomy); Fitz. SB. Wien, lix. pt. 1, p. 166 (1869); Gray, P. Z. S. 1871, p. 597, pl. xlv. (animal); id. Cat. Rum. B. M. p. 27 (1872); id. Hand-l. Rum. B. M. p. 96 (1873); Scl. List Anim. Z. S. (8) p. 147 (1883); Jent. N. L. M. x. p. 20 (1887) (Liberia); id. Cat. Ost. Leyd. Mus. (Mus. Pays-Bas, ix.) p. 132 (1887); Büttikofer, Reisebild. Liberia, ii. p. 377 (1890); Jent. Cat. Mamm. Leyd. Mus. (Mus. Pays-Bas, xi.) p. 162 (1892); Thos. P. Z. S. 1892, p. 420; Matsch. Mitth. deutsch. Schutz-geb. vi. p. 81 (1893); Lyd. Horns and Hoofs, p. 211 (1893).

Antilope (Cephalolophus) dorsalis, Wagn. Schr. Säug. Suppl. v. p. 424 (1855).

Cephalophus dorsalis typicus, Thos. *l. s. c.*

Cephalophus badius, Gray, Cat. Ung. B. M. p. 84 (1852); Gerr. Cat. Bones Mamm. B. M. p. 236 (1862); Gray, P. Z. S. 1871, p. 595; id. Cat. Rum. B. M. p. 26 (1872); id. Hand-l. Rum. B. M. p. 94 (1873).

Cephalophus breviceps, Gray, P. Z. S. 1866, p. 202, pl. xx. (animal).

Subspecies *b.* C. D. CASTANEUS.

Cephalophus dorsalis castaneus, Thos. P. Z. S. 1892, p. 421.

Subspecies *a.* C. D. TYPICUS.

Size medium. Ears extremely short and broad. General colour bright chestnut-rufous, with a dark mesial stripe running from the nose to the tail,

only interrupted at the crest, which is sometimes rufous. Centre line of brown; superciliary streaks bright rufous. Crest variable, either black mixed black and rufous, or wholly rufous. Dorsal stripe becoming absolutely black on the back, sometimes sharply defined throughout, sometimes broadening out on the withers into an ill-defined band passing down shoulders towards the fore legs. Under surface, inner sides of limbs back of hams rufous like the sides; a black or blackish longitudinal line present in the sternal region. Fore limbs brown, from the shoulder downwards, hind limbs from just above the heel. Tail black above through the black covering nearly the whole breadth of the tail, white beneath terminally.

Horns placed about in the same straight line as the nasal profile, the male about 2·8 inches long, slender, tapering, not thickened or rough basally, the basal diameter going nearly five times in the length.

Skull with a remarkably short conical muzzle, the distance from the anterior rim of the orbit to the muzzle less than the zygomatic breadth. Anterior fossæ of medium depth. Mesial notch of palate about $\frac{1}{3}$ inch in advance of the lateral ones.

Dimensions:—♀ (not fully adult). Height at withers 15 inches, ear hind foot 6·7.

Skull: basal length (c.) 5·5 inches, greatest breadth 3·2, orbit to muzzle

Hab. West Africa, from Sierra Leone to the Gold Coast, replaced in Cameroons by *C. d. castaneus*.

Subspecies *b.* *C. D. CASTANEUS.*

Rather larger than *C. d. typicus*, and ears apparently rather longer. Colour deep chestnut all over, the dorsal line deep black, the metacarpals and metatarsals brown. Superciliary stripe chestnut, indistinct, far brighter than in *C. d. typicus*, and the general colour of the head darker duller.

Skull with the muzzle of the ordinary slender elongate shape, the distance from the anterior edge of the orbit to the muzzle exceeding the zygomatic breadth. Teeth decidedly larger than in the typical form.

Dimensions of the type, an immature female:—Height at withers 19 inches, ear 2·4, hind foot 8.

Skull : basal length (c.) 6 inches, greatest breadth 3·3, orbit to muzzle 3·5.

This subspecies is based on a female specimen referred by Gray* to "*Cephalophus badius*"; its skull has been figured by him under that name. Thomas has, however, shown that the skull of this specimen differs so much from that of typical *C. dorsalis* that, in spite of its external resemblance, it should be looked upon as representing a distinct subspecies; and this view we have accepted in the present work. Additional specimens will, however, be needed before its position can be satisfactorily determined. For the present, therefore, we publish all that is known about it, and trust that further specimens from different localities will clear up the precise relationship it bears to the true *C. dorsalis*, and also to its close ally *C. leucogaster*.

Hab. Cameroons

The Bay Duiker, as this Antelope has long been called, is better known than the species which we have last spoken of and appears to have a wider distribution. At the same time it varies a good deal in the colour of its fur, both according to age and in the various localities in which it is found. Gray, who was an habitual species-maker, has, as was pointed out by Selater in 1869, described it under three different names, based on age-changes and on slight variations in colour.

Commencing in 1846, Gray established his *Cephalophus dorsalis* on a specimen in the British Museum, which had been brought to this country alive by Mr. Whitfield from Sierra Leone and had died in the Surrey Zoological Gardens. In 1850 he figured the same species in the 'Knowsley Menagerie' from a drawing made by Waterhouse Hawkins. This drawing was probably taken from living specimens in the Knowsley Collection, also procured by Whitfield, who was a collector employed by Lord Derby. In 1852 Dr. Gray seems to have come to the conclusion that the animal figured in the 'Knowsley Menagerie' was not the same as the true *Cephalophus dorsalis* originally described from Mr. Whitfield's specimen, and, accordingly, in his list of Ungulata Furcipes in the British Museum, named the former *Cephalophus badius*, retaining the name *Cephalophus dorsalis* for the latter. Dr. Gray, however, did not state exactly how the two species are to be distinguished, and he afterwards united them under one heading. The typical specimen of *C. breviceps* was described when alive in the Zoological Gardens,

* Hand-l. Rum. B. M. p. 94 (1873).

and, as noticed by Gray himself, “ assumed all the appearance, as it grew up, of *C. badius*.”

As recorded by Temminck in his ‘Esquisses Zoologiques sur la Côte de Guinée,’ the well-known Dutch collector Pel met with this Antelope in Ashantee and Sierra Leone, where he states that it is found, although somewhat rarely, in the littoral forests, showing itself only at night. Two other collectors from Holland, Büttikofer and Stampfli, obtained specimens of this species on the Junk River in Liberia, which were likewise transmitted to the Leyden Museum.

Examples of this species in the British Museum were procured in Fantee by the native collector Aubinn; and we may therefore state confidently that the typical form of *C. dorsalis* inhabits the whole coast-region of Western Africa from Liberia to the mouth of the Niger.

When, however, we pass southwards of the delta of the Niger and arrive at the higher ground of the Cameroons the typical *C. dorsalis* seems to be replaced by a slightly different local form, which Thomas in 1892 characterized as a subspecies, *C. dorsalis castaneus*. This Antelope is rather larger than the typical form and the ears are apparently rather larger. The chestnut superciliary stripe is indistinct, far less bright than in the typical form, and the general colour of the head is darker and duller. The typical specimen of this subspecies, which is in the collection of the British Museum, is a female obtained by Crossley in the Cameroons. Besides the colour-differences just mentioned the form of the skull, which is figured in the ‘Hand-list of Ruminants’ as that of *C. badius* (*op. cit.* pl. xxx. fig. 1), is likewise peculiar. But further specimens and more information are necessary before we can decide whether it will be advisable to give the Cameroons animal the full rank of a species.

We have already mentioned the existence of a living specimen of this Duiker in the Derby Menagerie. Living specimens of it have also been received on more than one occasion by the Zoological Society of London. In 1861 an example was purchased of a dealer in Liverpool and lived more than two years in the Society’s Gardens. A second specimen, quite immature on its arrival, was purchased in February 1866 and was shortly afterwards described by Gray as *Cephalophus breviceps*. This was a female, and, being placed in the same compartment of the Gazelle-sheds as a male of the allied

species *C. rufilatus*, bred with it when adult. It produced a young one in January, 1869, and died soon afterwards. A third specimen of the same Antelope was brought home from the Gold Coast and presented to the Society by Mr. C. B. Mosse, Staff-Surgeon, R.N., in October, 1869. This specimen was figured in the Zoological Society's 'Proceedings' for that year (*op. cit.* pl. xlvi.). Mr. Mosse presented another from the same district in 1874. Since that period six other specimens of this Antelope have been acquired at different dates.

May, 1895.

27. OGILBY'S DUIKER.

CEPHALOPHUS OGILBYI, WATERH.

[PLATE XVIII. FIG. 2.]

- Antilope ogilbyi*, Waterh. P. Z. S. 1838, p. 60, 1842, p. 129 (Fernando Po); id. Ann. Mag. N. H. (1) ii. p. 472 (1839), xii. p. 57 (1843); Fraser, Zool. Typ. pl. xix. (animal) (1849).
- Cephalophorus ogilbyi*, Gray, Ann. Mag. N. H. x. p. 267 (1842); id. List Mamm. B. M. p. 163 (1843).
- Antilope (Tragelaphus) ogilbyi*, Less. N. Tabl. R. A., Mamm. p. 181 (1842).
- Antilope (Cephalophus) ogilbyi*, Wagn. Schr. Säug. Suppl. iv. p. 446 (1844), v. p. 423 (1855).
- Cephalophus ogilbyi*, Gray, Ann. Mag. N. H. (1) xviii. p. 165 (1846); id. Knowsl. Men. p. 10, pl. viii. fig. 2 (1850); id. P. Z. S. 1850, p. 122; id. Cat. Ung. B. M. p. 83 (1852); Temm. Esq. Zool. Guin. pp. 194, 217 (1853); Gerr. Cat. Bones Mamm. B. M. p. 236 (1862); Fitz. SB. Wien, lix. pt. 1, p. 167 (1869); Gray, P. Z. S. 1871, p. 595; id. Cat. Rum. B. M. p. 26 (1872); id. Hand-l. Rum. B. M. p. 98 (1873); Jent. N. L. M. x. p. 20 (1887) (Liberia); Büttikofer, Reisebild. Liberia, ii. p. 377 (1890); Matsch. Arch. f. Nat. 1891, pt. i. p. 353 (Cameroons); Jent. Cat. Mamm. Leyd. Mus. (Mus. Pays-Bas, xi.) p. 162 (1892); Thos. P. Z. S. 1892, p. 422; Lyd. Horns and Hoofs, p. 211 (1893); Matsch. MT. deutsch. Schutz-geb. vi. p. 81 (1893).
- Sylvicapra ogilbyi*, Sund. Pecora, K. Vet.-Ak. Handl. 1844, p. 191 (1846); id. Hornschuch's Transl., Arch. Skand. Beitr. ii. p. 143; Reprint, p. 67 (1848).

Size medium. General colour bright orange, becoming rather more rufous on the hind-quarters. Nose brown, but otherwise the face is of the same colour as the body. Nape and sides of neck brown or blackish, but the hairs here so thin and short that the skin shows through and the general colour is

but little affected. Hinder back with a marked black central dorsal streak, commencing vaguely at the withers, becoming narrower and more sharply defined posteriorly, and running on to the tail. Limbs dull yellowish, except on the phalanges, where they are brown or black.

Horns in the direct line of the nasal profile; those of male about four inches long, conical, slightly incurved, much broadened basally, their greatest basal diameter going $2\frac{1}{2}$ or 3 times in their length. Female about an inch and a half in length, conical, smooth, broad at base, pointed terminally, their length not twice their basal diameter.

Skull with a very considerable convexity in the frontal region. Anteorbital fossæ shallow. Posterior palate with the three notches, median and two lateral, all at about the same level.

Dimensions:— σ . Height at withers 22 inches, ear 3, hind foot 9.4.

Skull (σ , not fully adult): basal length 7.2 inches, greatest breadth 3.5, muzzle to orbit 4.4.

Hab. Coast of West Africa, from Liberia to the Cameroons.

Ogilby's Duiker, which we now proceed to consider, is closely allied to the last species, and like it is of a generally rufous colour with a black dorsal stripe, but it is immediately distinguishable by its pale yellowish face and flanks. It was first described by Waterhouse, as long ago as 1838, from specimens presented to the Zoological Society's Museum by Mr. George Knapp, who had received them from the island of Fernando Po, and was named after William Ogilby, formerly Secretary to the Society and a great authority upon the Ruminant Mammals. When the Zoological Society's Museum was broken up the typical specimen passed into the British Museum, where it now is. About ten years afterwards Ogilby's Duiker was figured by Fraser in his 'Zoologia Typica,' probably from the typical specimen. Fraser, who had visited Fernando Po himself, states that this Antelope is extremely common in that island and is much esteemed by the natives as an article of food. In his conjecture that its range "is confined to that island," he was no doubt in error, as we have several trustworthy notices of its occurrence elsewhere.

Specimens of the present species are recorded by Dr. Jentink as having been procured on the Du Queah and Farmington Rivers in Liberia by Büttikofer and Stampfli. These are in the Leyden Museum, as is also a female

specimen from Ashantee. In his 'Reisebilder aus Liberia' Büttikofer tells us that the present species is common in the Liberian forests.

In the Cameroons the present species has been met with by the German collectors Preuss and Morgan, as recorded by Herr Matschie, and in Togoland, on the same authority, by Kling and Büttner. Thus there can be little doubt that Ogilby's Duiker ranges along the woody littoral of Western Africa from Liberia to the Cameroons.

Ogilby's Duiker having been figured by Waterhouse Hawkins in the 'Knowsley Menagerie' it is probable that one or more living specimens of it were exhibited in that splendid collection, but we can find no record of examples of it ever having been received alive by the Zoological Society of London.

Our figure of this species (Plate XVIII. fig. 2) was prepared by Mr. Smit, under Sir Victor Brooke's directions, probably from specimens in the British Museum, but of this we have no certain evidence.

May, 1895.

28. PETERS'S DUIKER.

CEPHALOPHUS CALLIPYGUS, PET.

Cephalophus callipygus, Pet. MB. Ak. Berl. 1876, p. 483, pls. iii. & iv. (animal and skull); Thos. P. Z. S. 1892, p. 422; Lyd. Horns and Hoofs, p. 211 (1893).

VERNACULAR NAME :—*Mbindi* in Mpongwe language, Gaboon (*Buchholz*).

Size about that of *C. dorsalis*. General colour of body yellowish brown, becoming more rufous posteriorly. Forehead and crest rich rufous. Chin and throat white, rest of under surface yellowish grey. Back with a broad black dorsal band commencing behind the withers, broadening posteriorly, and involving the whole of the hams and backs of the hind legs down to the heels, and also the tail, with the exception of the extreme tip beneath, where the hairs are white-tipped. On the sides of the thighs, edging the black, the general body-colour becomes rich rufous.

Horns short, directed backwards, lying below the level of the nasal profile.

Dimensions :—♀. "Total length to tip of tail 46 inches, tail 8, ear 2·7."

Skull (taken from figure, and therefore only approximate): basal length 6·4 inches, anterior edge of orbit to muzzle (more or less decreased by perspective) 3·8.

The description is compiled from Dr. Peters's description and figure of this striking species, of which no specimen has come to England.

Hab. Gaboon.

The present Duiker, although evidently belonging to the same group as the preceding species, and probably most nearly allied to *C. dorsalis*, is separated by prominent well-marked characters, combining a brownish body

and dark dorsal stripe with bright rufous markings on the forehead and haunches, which render it easily distinguishable.

Peters's Duiker was described in 1876 by the great zoologist after whom we have fashioned its English name, from a single specimen obtained by the late Professor Dr. Reinhold Buchholz during his sojourn in Western Africa, and transmitted to the Berlin Museum. In his notes upon this species Peters informs us that the specimen described, which is an adult female, was brought to Buchholz alive in Gaboon on the 18th August, 1874, and lived two days in captivity. Buchholz stated that the name of this Antelope in the Mpongwe dialect was "*Mbindi*," and noted that the iris was brown, the muffle blackish, and that the animal was provided with large purse-like inguinal glands, like other species of the genus.

Peters has given a good coloured figure of the specimen in the 'Monatsbericht' of the Royal Prussian Academy of Sciences, in which his memoir on Buchholz's mammals is published, and likewise an excellent figure of its skull of the natural size.

We are not aware that any other museum has been fortunate enough to obtain specimens of this rare Antelope.

May, 1895.

29. THE RED-FLANKED DUIKER.

CEPHALOPHUS RUFILATUS, GRAY.

[PLATE XIX. FIG. 1.]

Le Grimm, F. Cuv. H. N. Mamm. (fol.) ii. livr. xxvii. (♂) (1821).

Antilope grimmia, Desm. N. Dict. d'H. N. (2) ii. p. 191 (1816) (*nec* Pall.); *id.* Mamm. ii. p. 464 (1822); Less. Man. Mamm. p. 379 (1827); H. Sm. Cuv. An. K. iv. p. 266, v. p. 347 (1827); Fisch. Syn. Mamm. p. 468 (1829); Less. Hist. Nat. Mamm. (Compl. Buff.) x. p. 294 (1836); Gerv. Dict. Sci. Nat. Suppl. i. p. 262 (1840); Less. N. Tabl. R. A., Mamm. p. 178 (1842); Wagn. Schr. Säug. Suppl. iv. p. 451 (1844); Schinz, Syn. Mamm. ii. p. 418 (1845); Gieb. Säug. p. 321 (1859).

Cephalophus grimmia, A. Sm. S. Afr. Quart. J. ii. p. 216 (1834).

Antilope (Grimmia) grimmia, Laurill. Dict. Univ. d'H. N. i. p. 623 (1839).

Sylvicapra grimmia, Sund. Pecora, K. Vet.-Ak. Handl. 1844, p. 190 (1846); *id.* Hornschuch's Transl., Arch. Skand. Beitr. ii. p. 142; *id.* Reprint, p. 66 (1848).

Cephalophus rufilatus, Gray, Ann. Mag. N. H. (1) xviii. p. 166 (1846); *id.* List Ost. Sp. B. M. p. 56 (1847); *id.* Knowsl. Men. p. 10, pls. vi. & ix. (animal) (1850); *id.* P. Z. S. 1850, p. 123; Turner, P. Z. S. 1850, p. 170; Gray, Cat. Ung. B. M. p. 85 (1852); Temm. Esq. Zool. Guin. pp. 194, 221 (1853); Gerr. Cat. Bones Mamm. B. M. p. 236 (1862); Fitz. SB. Wien, lix. pt. 1, p. 166 (1869); Gray, P. Z. S. 1871, p. 597, fig. 5 (skull); *id.* Cat. Rum. B. M. p. 26 (1872); *id.* Hand-l. Rum. B. M. p. 95 (1873); Sci. List An. Z. S. (8) p. 147 (1883); Jent. Cat. Ost. Leyd. Mus. (Mus. Pays-Bas, ix.) p. 132 (1887); *id.* Cat. Mamm. Leyd. Mus. (*op. cit.* xi.) p. 162 (1892); Thos. P. Z. S. 1892, p. 423; Matsch. MT. deutsch. Schutz-geb. p. 81 (1893); Lyd. Horns and Hoofs, p. 211 (1893).

Antilope (Cephalolophus) rufilatus, Wagn. Schr. Säug. Supp. v. p. 425 (1855).

Cephalophus rufilatus cuvieri, Fitz. SB. Wien, lix. pt. 1, p. 166 (1869).

VERNACULAR NAME:—*Coquetoon* on the Gambia (*Whitfield*).

Size small; form slender. General colour partly bright yellowish rufous, and partly a peculiar bluish grey; the former colour covering the sides of the face, the whole of the neck, the shoulders, flanks, rump, and belly, while the latter prevails on the middle line of the nose, on the forehead, occiput, back of ears, centre of back from withers to rump, and all four limbs, from the elbows and middles of lower legs downwards. Crest long, blackish. Tail rufous above basally, black terminally.

Horns placed in the same line as the nasal profile; those of male short, conical, pointed (but no adult wild specimen is available for description); those of female rudimentary, mere low rounded knobs, hardly projecting above the skin of the head.

Skull with a long and slender muzzle. Anteorbital fossæ remarkably deep, more so than in any other species. Mesial palatal notch about a quarter of an inch anterior to the lateral ones.

Dimensions:—♂. Height at withers 14 inches, ear 2·3, hind foot 7.

Skull (♀): basal length 5·2, greatest breadth 2·6, orbit to muzzle 2·9.

It is difficult to say to which of the other species this peculiar little animal is most nearly allied, especially in the absence of wild-killed male specimens with fully developed horns.

Hab. West Africa, from Gambia to the Niger.

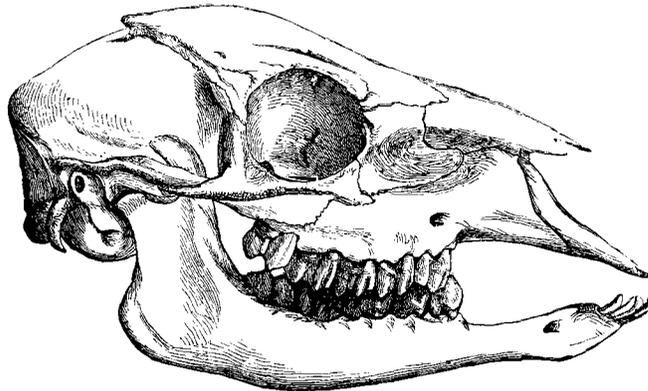
The ninth and last species of the group of Bay Duikers, though agreeing with the preceding species in its generally rufous coat, is distinguishable by its smaller size and lighter colour. The front and dorsal stripe are of a peculiar bluish grey instead of being black, and the whole of the flanks and sides are of a light yellowish rufous.

The Red-flanked Duiker, as we propose to call it, appears to have been confounded by Desmarest, Lesson, Gervais, and other French systematists with the *Antilope grimmia* of Pallas, which is *C. coronatus*—both they and the latter ignoring the fact that the name “*grimmia*” properly belongs to the Common Duiker, *C. grimmi*, of the Cape. This confusion was first properly cleared up by Dr. Gray, as early as 1846, but it is only quite recently that the correct names for the three species have come into general use. Desmarest, in his article on “*Antilope*,” published in 1816 in the ‘Nouveau Dictionnaire d’Histoire Naturelle,’ was the first describer of the present animal under the name of *Antilope grimmia*; and in 1821 F. Cuvier, in his

‘Histoire Naturelle des Mammifères,’ gave a figure of it, from a specimen from Senegal, then living in the Jardin des Plantes, under the name of ‘Le Grimm.’

In 1846, in an article published in the ‘Annals and Magazine of Natural History,’ the late Dr. Gray first distinguished the present species from the “Grimm,” and proposed to call it by the appropriate name *Cephalophus rufilatus*. Dr. Gray based his description upon a pair in the Derby Museum, and on a young female in the British Museum which had been presented to that collection by Lord Derby. This last specimen, which may now be seen mounted in the Mammal-Gallery of the National Collection, was obtained on the Gambia by Lord Derby’s collector, Whitfield. The two types in the Derby Museum are stated to have been obtained at Sierra Leone.

Fig. 19.



Skull of *Cephalophus rufilatus*, jr.
(P. Z. S. 1871, p. 597.)

In the ‘Gleanings from the Knowsley Menagerie’ are contained two figures of this animal: plate vi. fig. 3 gives a full-sized figure of what is apparently a female of this species, and plate ix. represents the heads of both sexes. Both of these plates are marked as drawn by Waterhouse Hawkins from specimens living at Knowsley in 1843. Several specimens of the Coquetoon, as this Antelope is sometimes called, have also been received by the Zoological Society, but have not proved to be long-lived in this country. The first recorded specimen was obtained in 1861, and others were subsequently acquired in 1867, 1879, and 1880. These were all obtained from

dealers and had no definite localities attached to them. But we are able to supply some indications of the range of this species from museum specimens. In the British Museum, besides Whitfield's stuffed specimen from the Gambia already alluded to, there is the skull of an adult animal from the same locality obtained by Sir Gilbert Carter, and a young skull, which has probably been correctly referred to this species from the Niger, obtained by Surgeon Baikie. In the Leyden Museum, as we find by Dr. Jentink's Catalogue, there is an adult female specimen procured at Dabocrom, in Ashantee, by the collector Pel, and an adult male from Sierra Leone received from the Bremen Museum. In reference to Pel's specimen, Temminck has informed us that this species is rare on the Guinea coast, but more common in the forests of Sierra Leone. We also find this species recorded by Herr Matschie as one of the Antelopes met with by the collectors of the Berlin Museum in the German Protectorate of Togoland. We may therefore conclude that the Red-flanked Duiker inhabits the whole coast-land of Western Africa between the British Settlement of Gambia and the River Niger.

Our figure of this species (Plate XIX. fig. 1) was prepared under Sir Victor Brooke's direction, very probably from one of the specimens in the Liverpool Museum.

May, 1895.



See p. 100 of 1871.

The Banded Duiker .
CEPHALOPHIUS DORÆ .

Illustrated by

J. Smit.

30. THE BANDED DUIKER.

CEPHALOPHUS DORIAE (OGILB.).

[PLATE XX.]

Antilope (?), Benn. P. Z. S. 1832, p. 122.

Antilope doria, Ogilb. P. Z. S. 1836, p. 121; Waterh. Cat. Mamm. Mus. Z. S. (2) p. 42 (1838); Wagn. Schr. Säug., Suppl. iv. p. 444 (1844); Fraser, Zool. Typ. pl. xviii. (animal) (1849).

Antilope zebrata *, "Robert, Echo du Monde Savant, 1836"; Gerv. Dict. Sci. Nat., Suppl. i. p. 267 (1840); id. Hist. Nat. Mamm. ii. p. 202 (1855).

Antilope zebra, Gray, Ann. Mag. N. H. i. p. 27 (1838); Less. N. Tabl. R. A., Mamm. p. 176 (1842).

Cephalophorus zebra, Gray, List Mamm. B. M. p. 163 (1843).

Damalis (?) *zebra*, Gray, Knowsl. Men. p. 22 (1850); id. P. Z. S. 1850, p. 142; id. Cat. Ung. B. M. p. 129 (1852); id. Cat. Rum. B. M. p. 45 (1872).

Cephalophus doria, Jent. N. L. M. vii. p. 270, pl. ix. (skull, ♀) (1885) (Liberia); id. op. cit. x. p. 21, pls. ii. (animal), iii. (skull, ♂) (1887); id. Cat. Ost. Leyd. Mus. (Mus. Pays-Bas, ix.) p. 133 (1887); Büttikofer, Reisebild. Liberia, ii. p. 377, pl. xxix. (animal) (1890); Jent. Cat. Mamm. Leyd. Mus. (op. cit. xi.) p. 164 (1892).

Cephalolophus doriae, Thos. P. Z. S. 1892, p. 424; Ward, Horn Meas. p. 77 (1892); Lyd. Horns and Hoofs, p. 211 (1893).

VERNACULAR NAME :—*Mountain-deer* of Liberians (*Büttikofer*).

Size small. General colour pale rufous, broadly banded with black. Face, ears, neck, and shoulders rufous or chestnut, except the nasal region, which

* This name has no connection with the "*Antilope zébré*, *Antilope fasciata*, Geoff.," mentioned (without a description) by Desmarest (N. Diet. d'H. N. (1) xxiv. tabl. p. 33, 1804). There is no evidence available to enable us to determine what this name refers to.

is blackish. Back from withers to rump pale rufous, conspicuously banded transversely with deep shining black. Under surface from chin to anus pale rufous, slightly paler than the ground-colour between the bands. Limbs rufous, but with broad black patches on the outer surfaces of the forearms and lower legs, and with the phalanges black all round. Heels with large glandular tufts of black hair on their postero-inferior surfaces. Tail rufous more or less mixed with black above, white below.

Horns short, in the same line as the nasal profile, in the male barely two inches long, conical, tapering, sharply pointed, their greatest basal diameter going about $2\frac{1}{2}$ times in their length; in the female less than one inch in an adult, smoother than in the male, but otherwise similar in character.

Skull stoutly built. Nasal region broad, flat, parallel-sided. Anteorbital fossæ very shallow. Frontal region not specially swollen. Horn-cores so pressed downwards and backwards as to cause marked depressions behind and below them on the parietals. Palate with its three posterior notches about level.

Dimensions:— σ . Height at withers 16 inches, ear 2.9, hind foot 6.8 (in a female, rather older, 7.3).

Skull: basal length 5.8 inches, greatest breadth 2.8, orbit to muzzle 3.4.

Hab. Interior of West Coast of Africa, from Liberia to Sierra Leone.

The flat skins of this Antelope, so remarkable for their transverse black bands, first attracted the attention of naturalists in 1832, when they were brought before the Committee of Science and Correspondence of the Zoological Society of London by Mr. E. T. Bennett, then Secretary of the Society. Mr. Bennett considered them as belonging "not improbably" to some species of Antelope, to which, however, he did not venture to give a name. They were supposed by Gould (then the Zoological Society's taxidermist), who had obtained them, to have been received from Algoa Bay; but there is no doubt that this was an error, and that these flat skins, some of which are even now occasionally brought to this country, are from Sierra Leone and the adjoining districts of Western Africa.

For some years this subject appears to have slept, but was revived in 1836 by Mr. Ogilby, who, in the course of some remarks upon the preserved specimens of Antelopes in the Zoological Society's Museum, took the opportunity of assuring his hearers that the skins described by Mr. Bennett belonged

to a "real Antelope" and that he hoped shortly to "have an opportunity of describing it in detail under the name of *Antelope doria*."

Some two years later the late Dr. Gray proposed the name "*Antelope zebra*" for the same animal, based upon a skin received by the British Museum from Sierra Leone. Gray recognized it as being evidently the same as that previously described by Bennett, and gave no reason for proposing to alter its name.

About the same time similar imperfect flat skins attracted the attention of M. Robert, of Paris, who shortly described them in a communication to the 'Echo du Monde Savant' of 1836 under the name *Antelope zibrata*. But there is no doubt, we think, that "*doria*" was the first published specific appellation of this Antelope, and ought to be adopted. "Doria" is stated by Gray (Cat. Ung. p. 129) to have been the Christian name of Mr. Ogilby's wife.

In his 'List of Specimens of Mammals in the British Museum,' published in 1843, Gray assigned this species to the genus *Cephalophorus*, i. e. *Cephalophus*. In his subsequent Catalogues he transferred it to the genus *Damalis* (i. e. *Damaliscus*), "on account of the dark mark on the outside of the limb."

From the flat skins in the British Museum and the Zoological Society's collection, Fraser, in 1849, gave a partly imaginative figure of this Antelope in his 'Zoologia Typica.'

It was more than 50 years after the imperfect description of this problematical Antelope from the flat skins before science obtained correct information as to its proper characters and position in the system.

During the celebrated expedition of the naturalists of the Leyden Museum to Liberia in 1879 and following years Mr. Büttikofer first obtained perfect specimens of this Duiker on the St. Paul's River. These were described by Dr. Jentink in the seventh volume of the 'Notes from the Leyden Museum' in 1885, and a figure was given of the skull. In the succeeding volume of the 'Notes' Dr. Jentink gave fuller particulars respecting this welcome re-discovery, and informed us that, as shown by the series of specimens collected by Mr. Büttikofer and his fellow travellers, this Antelope is not uncommon in certain parts of Liberia. The "Mountain-deer," as the Americanized Liberians call it, does not occur in the coast-district, but is found in the mountainous terrain of the interior. Dr. Jentink gave coloured illustrations of the male, female, and young of this Antelope, together with

representations of the skull of the adult male, the skull figured in the previous volume having been that of a female.

In the second volume of his 'Reisebilder aus Liberia,' published in 1890, Mr. Büttikofer tells us that he first saw a living example of this species in the forest near Soforeh Place, and recognized it, with much delight, as the "Mountain-deer" of which he had heard so much spoken. Here he captured a young one alive, and subsequently found the skull of the mother, which was wounded but not obtained on that occasion. In his second expedition to Liberia, Mr. Büttikofer and his companions procured a full series of examples of this beautiful species. Mr. Büttikofer remarks that the weight of a full-grown example of this animal ranges from 40 to 50 lbs., and that a specially remarkable development in its structure is that of the hairs on the hind edge of the tarsus, which form a sort of brush.

Our figure of this Antelope (Plate XX.) has been prepared by Mr. Smit from a stuffed specimen of an adult male in the British Museum obtained on the Du Queah River in Liberia during Mr. Büttikofer's second expedition. In the same collection there is a skin of an adult female from the same locality, and the skeletons of both these animals. The flat skins which were the types of the specific terms "*doria*" of Ogilby and "*zebra*" of Gray are likewise in the National Collection.

August, 1895.

31. THE BLACK DUIKER.

CEPHALOPHUS NIGER, GRAY.

[PLATE XIV. FIG. 1.]

Cephalophus niger, Gray, Ann. Mag. N. H. (1) xviii. p. 165 (1846); id. List Ost. B. M. p. 57 (1847); id. Knowsl. Men. p. 10, pl. vii. (animal) (1850); id. P. Z. S. 1850, p. 123; id. Cat. Ung. B. M. p. 84 (1852); Gerr. Cat. Bones Mamm. B. M. p. 236 (1862); Fitz. SB. Wien, lix. pt. 1, p. 166 (1869); Gray, P. Z. S. 1871, p. 597; id. Cat. Rum. B. M. p. 27 (1872); id. Hand-l. Rum. p. 96 (1873); Jent. Cat. Ost. Leyd. Mus. (Mus. Pays-Bas, ix.) p. 132 (1887); id. N. L. M. x. p. 20 (1887) (Liberia); Büttikofer, Reisebild. Liberia, ii. p. 376 (1890); Jent. Cat. Mamm. Leyd. Mus. (Mus. Pays-Bas, xi.) p. 162 (1892); Thos. P. Z. S. 1892, p. 425; Matsch. Mittheil. deutsch. Schutz-gebiet, vi. p. 81 (1893); Lyd. Horns and Hoofs, p. 212 (1893).

Antilope pluto, Temm. Esq. Zool. Guin. pp. 194, 214 (1853); Wagn. Schr. Säug., Suppl. v. p. 422 (1855).

VERNACULAR NAME:—*Bush-Goat* of Liberian Negroes (*Büttikofer*).

Size medium. Colour of body uniform dark smoky brown or black, becoming darker on the rump and limbs; paler on the throat and chest. Face fulvous, darkening into rich rufous on the crest; the centre of the forehead sometimes brown or black. Ears black haired externally, rufous internally. Tail black above, but with a whitish terminal tuft.

Skull long and narrow. Forehead swollen; anteorbital fossæ rather shallow; mesial notch of palate about $\frac{1}{4}$ inch in advance of lateral ones.

Horns, in male, "straight, rough at their base, smooth and pointed at their extremity, 3-3 $\frac{1}{2}$ inches in length" (*Temminck, l. c.*): in female short, barely an inch in length, blunt and rounded, not expanded basally.

Dimensions:—♂. Approximate height at withers 18 inches, length of hind foot 8·3, of ear 2·8.

Skull (♀): basal length (c.) 6·8, greatest breadth 3·3, anterior edge of orbit to muzzle 4·2.

Hab. West Coast of Africa, from Liberia to the Gold Coast.

The well-known field-naturalist Pel, one of the many excellent collectors employed from time to time by the Leyden Museum, was the discoverer of this Duiker, of which he transmitted specimens home from the Guinea coast about the year 1843. Shortly afterwards the British Museum acquired one of Pel's specimens from Leyden under the MS. name "*Antilope niger*." This was described by Gray in 1846 as the type of a new species, "The Black Bush-buck (*Cephalophus niger*)."¹ Gray added to his description that there was then living in the Knowsley Menagerie a "Bush-buck" which was probably of the same species; and on turning to the pictures in the 'Gleanings from the Derby Menagerie' we find what is doubtless the animal referred to, figured upon a plate (vii. fig. 2) which is initialed by Waterhouse Hawkins as having been drawn in 1846. So far as we know, this is the only individual of this Antelope that has ever been brought to Europe alive.

Although Gray had taken the name which he received with this animal from the Leyden Museum and had employed it throughout in his catalogues, Temminck, the then Director of that great establishment, when he published his 'Esquisses Zoologiques sur la Côte de Guinée' in 1855, was not content to adopt it. He considered it "too vague," as having been already applied to other species of Antelopes, and proposed to change it to *Cephalophus pluto*. Temminck informs us that this species is widely distributed on the coast of Guinea and is very common in the forests near the Dutch factories in that district, particularly in Ashantee, near Chama and Dabacrom.

In the adjoining republic of Liberia, to the west of the Gold Coast, Mr. Büttikofer and his colleagues Sala and Stampfli obtained many specimens of this Duiker during their expeditions of 1879 and 1886. Dr. Jentink, in cataloguing their results, gives various localities in which it was met with—viz. at St. Paul's River, Schieffelinsville, Junk River, Du Queah River, and Farmington River. The Liberian naturalists remark that the flesh of this Antelope has a remarkably strong bitter flavour, which they never

observed in any other species of the group. This peculiarity is probably caused by some special food to which it is addicted.

In his 'Reisebilder aus Liberia' Mr. Büttikofer informs us that the Black Duiker, known to the Liberians under the name of the Bush-Goat, is one of the commonest species of the group in that republic. Like all other members of the genus, it is exclusively an inhabitant of the high forests and bushy woods, coming out at night into the savannahs and plantations to get its food. Mr. Büttikofer repeats his statements as regards the unsavoury character of its flesh, and states that even the natives, who are by no means particular, in many cases refuse to eat it.

Besides the immature female obtained by Pel, which forms the type of *Cephalophus niger*, the National Collection possesses skins of an adult female from Fantee and of a young individual from the Ankober River in Ashantee, both obtained by the native collector Aubinn.

Our coloured figure of the Black Duiker (Plate XIV. fig. 1) was prepared by Mr. Smit under the direction of the late Sir Victor Brooke. It was probably taken from the mounted specimen in the British Museum, but of this we have no certain record.

August, 1895.



Howe del. Woodcut.

Fig. 1. The Blue Duiker.
CEPHALOPHUS MONTICOLA.
Fig. 2. Maxwell's Duiker.
CEPHALOPHUS MAXWELLI.

Howe del. Woodcut.

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32. MAXWELL'S DUIKER.

CEPHALOPHUS MAXWELLI, H. SM.

[PLATE XXI. FIG. 2.]

- Guévei* (*Ant. pygmæa*), **F. Cuv.** H. N. Mamm. (fol.) iii. livr. lxi. (animal, ♀) (1826) (Senegal).
- Antilope* (*Cephalophus maxwelli*), **H. Sm.** Griff. An. K. iv. p. 267, v. p. 347 (1827); **Less.** H. N. Mamm. (Compl. Buff. x.) p. 294 (1836); **id.** N. Tabl. R. A., Mamm. p. 178 (1842); **Gieb.** Zeitschr. ges. Nat. xxxv. p. 43 (1870).
- Antilope* (*Cephalophus philantomba*), **H. Sm.** Griff. Cuv. An. K. v. p. 349 (1827); **Og.** P. Z. S. 1836, p. 121; **Less.** H. N. Mamm. (Compl. Buff. x.) p. 295 (1836); **Waterh.** Cat. Mamm. Mus. Z. S. (2) p. 41 (1838); **Less.** N. Tabl. R. A., Mamm. p. 178 (1842); **Schinz,** Syn. Mamm. ii. p. 422 (1845).
- Cephalophus maxwelli*, **A. Sm.** S. Afr. Quart. Journ. ii. p. 216 (1834); **Gray,** Ann. Mag. N. H. (1) xviii. p. 166 (1846); **id.** List Ost. B. M. p. 146 (1847); **id.** Knowsl. Men. p. 11, pl. xi. a (animal) (1850); **id.** P. Z. S. 1850, p. 124; **id.** Cat. Ung. B. M. p. 86 (1852); **Temm.** Esq. Zool. Guin. pp. 194, 223 (1853); **Gerr.** Cat. Bones Mamm. B. M. p. 237 (1862); **Scl.** P. Z. S. 1868, p. 625; **Murie,** P. Z. S. 1869, p. 595 (anat. ♀); **Gray,** P. Z. S. 1871, p. 600, fig. 8 (skull); **id.** Cat. Rum. B. M. p. 28 (1872); **id.** Hand-l. Rum. B. M. p. 97 (1873); **Garrod,** P. Z. S. 1877, p. 4 (anat.); **Scl.** List An. Z. S. (8) p. 146 (1883); **Flow. & Gars.** Cat. Ost. Coll. Surg. ii. p. 269 (1884); **Jent.** N. L. M. x. p. 21 (1887) (Liberia); **id.** Cat. Ost. Leyd. Mus. (Mus. Pays-Bas, ix.) p. 133 (1887); **Büttikofer,** Reisebild. Liberia, ii. p. 379 (1890); **Jent.** Cat. Mamm. Leyd. Mus. (op. cit. xi.) p. 163 (1892); **Thos.** P. Z. S. 1892, p. 425; **Lyd.** Horns and Hoofs, p. 212 (1893); **Matsch.** MT. deutsch. Schutz-geb. vi. p. 81 (1893); **id.** SB. Ges. nat. Freund. 1893, p. 256 (1894) (distribution).
- Cephalophus philantomba*, **A. Sm.** S.-Afr. Quart. Journ. ii. p. 217 (1834).
- Antilope frederici*, **Laurill.** Dict. Univ. d'H. N. i. p. 623 (1839); **Less.** N. Tabl. R. A., Mamm. p. 178 (1842); **Wagn.** Schr. Säug., Suppl. iv. p. 454 (1844); **Gieb.** Säug. p. 321 (1859).

- Cephalophus punctulatus*, Gray, Ann. Mag. N. H. (1) xviii. p. 167 (1846); id. Knowsl. Men. p. 11 (but not pl. viii. fig. 1, which is *C. sylvicultrix*) (1850); id. P. Z. S. 1850, p. 125; id. Cat. Ung. B. M. p. 88 (1852); Temm. Esq. Zool. Guin. pp. 194, 236 (1853); Fitz. SB. Wien, lix. pt. 1, p. 166 (1869); Gray, P. Z. S. 1871, p. 600; id. Cat. Rum. B. M. p. 29 (1872); id. Hand-l. Rum. B. M. p. 98 (1873).
- Sylvicapra philantomba* et *S. frederici*, Sund. Pecora, K. Vet.-Ak. Handl. 1844, p. 190 (1846); id. Hornschuch's Transl., Arch. Skand. Beitr. p. 142; Reprint, p. 66 (1848).
- Cephalophus whitfieldi*, Gray, Knowsl. Men. p. 11, pl. xi. fig. 2 (1850); id. P. Z. S. 1850, p. 125; id. Cat. Ung. B. M. p. 88 (1852); Fitz. SB. Wien, lix. pt. 1, p. 166 (1869); Gray, P. Z. S. 1871, p. 599; id. Cat. Rum. B. M. p. 28 (1872); id. Hand-l. Rum. B. M. p. 97 (1873).
- Antilope (Cephalolophus) maxwelli, punctulatus, et whitfieldi*, Wagn. Schr. Säug., Suppl. v. pp. 427-429 (1855).
- Cephalophus frederici*, Fitz. SB. Wien, lix. pt. 1, p. 166 (1869).

VERNACULAR NAME :—*Fulintongue* of Liberians (*Büttikofer*).

Size considerably smaller than in the previous species. Colour uniform slaty brown, becoming paler below and on the inner sides of the limbs. Superciliary streaks whitish. Ears small, rounded, behind dark brown. Rump and backs of the hams uniform with body, except that just at the base of the tail on each side, and on the top of the proximal half of the tail itself, the colour is rather darker. Rest of tail above brown, beneath whitish; limbs externally like body.

Horns set up at a slight angle above the nasal profile, but not nearly so much as in *C. grimmi*: those of male short (about 2 inches long), thick at base; their greatest basal diameter going about $2\frac{1}{2}$ times in their length; of female, according to Temminck, exceedingly small, and indeed they are entirely absent in the only specimen available to us, but this is not fully adult.

Skull broad and strong. Muzzle rather narrow. Anteorbital fossæ rather shallow. Mesial notch of palate only about $\frac{1}{6}$ inch in advance of the lateral ones.

Dimensions :—♀. Height at withers 14 inches, ear 2, hind foot 6·7.

Skull (♂): basal length 4·7 inches, greatest breadth 2·5, anterior edge of orbit to muzzle 2·7.

This species shows a certain tendency to the peculiar coloration of the

rump characteristic of *C. melanorheus*; the colour-contrasts of black and white of the latter, however, are in this case only dark brown and light brown respectively.

Hab. Coast of West Africa from Gambia to the Gold Coast.

This Duiker, which is of considerably smaller dimensions than the two previous species, and of a nearly uniform slaty-brown colour, is likewise a West-African species, but seems to have a rather more extended range along the coast. Whether it is really the Guévei of Adamson and Buffon is, to say the least of it, very doubtful, but it is probably the species figured under that name by F. Cuvier in 1826 from a specimen from Senegal then living in the Jardin des Plantes. Cuvier referred this specimen to the *Antilope pygmæa* of former authors, but, as we know from Sir Victor Brooke's excellent article on this subject (P. Z. S. 1872, p. 637), that specific name properly belongs to the Royal Antelope of Western Africa, of which we shall give an account in a subsequent part of this work.

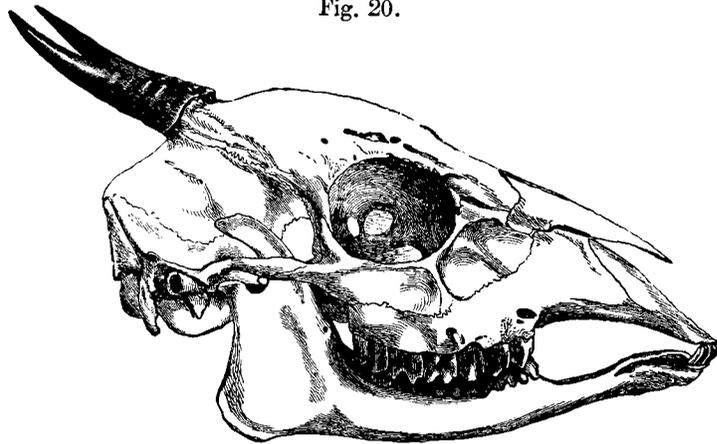
In 1827, in his volume on the order Ruminantia in 'Griffith's Animal Kingdom,' Major Hamilton Smith described a female of this species which had been brought home from Sierra Leone by Col. Charles Maxwell and dedicated it to that gentleman as *Antilope maxwelli*. In a subsequent volume of the same work, containing a synopsis of the species of mammals, Hamilton Smith not only repeated the description, but added, as apparently different, a description of another young specimen from the same country, and classed it as a different species under the name *Antilope philantomba*. Under this last designation also this Antelope is mentioned by Ogilby in the 'Proceedings' of the Zoological Society for 1836, where he gives some particulars respecting two females which had lived for some time in the Society's Gardens.

At about this date also there were several examples of the "*Philantomba*," as it is commonly called in Zoological Gardens, living in the Derby Menagerie at Knowsley. In Waterhouse Hawkins's drawings of the animals in this splendid collection, which were subsequently edited by Gray, Maxwell's Duiker appears to have been mentioned under three different names—first as *C. maxwelli* (plate xi. a), secondly as *C. punctulatus* (p. 11), and thirdly as *C. whitfieldi* (plate xi. fig. 2). So far as we can tell all these names must refer to the present species, which seems to vary considerably between youth and age.

Many living specimens of this Duiker have also been received by the Zoological Society of London, besides those mentioned by Mr. Ogilby. Although in nature shy and retiring it does well in captivity, and becomes very tame when petted. It has frequently bred in the Society's Menagerie, and specimens are registered as having been born there in 1867, 1871, 1872, 1873, and 1874. It is also well known in several of the Zoological Gardens on the Continent. Of late years there have been many examples of this little Antelope in the Zoological Gardens at Amsterdam, and there are at present two males in that Collection.

It has been stated by some authors that the female of this species is hornless, but of those in the Zoological Society's Collection it is certain that both

Fig. 20.



Skull of *Cephalophus maxwelli*.
(P. Z. S. 1871, p. 600.)

males and females have carried horns, though these appendages are usually rather smaller in the latter sex. As regards the specimens in the Zoological Gardens at Amsterdam, Mr. F. E. Blaauw likewise assures us that all the females have had horns, sometimes larger and sometimes smaller. We therefore regard the absence of horns in adult females of this species as an exceptional occurrence.

Maxwell's Duiker appears to extend from Senegal and Gambia all along the West Coast of Africa to the mouths of the Niger. From Senegal, as already mentioned, it has been received in Paris, and from the Gambia living specimens were brought by Whitfield for the Derby Menagerie. From Sierra

Leone there is a specimen in the British Museum presented by Colonel Sabine, R.E., which is the type of *Cephalophus punctulatus*. In Liberia, Mr. Büttikofer tells us, Maxwell's Duiker is unquestionably the commonest species. It is known to the Liberians under the name of "*Fulintongue*," of which no doubt "*Philantomba*" is a corruption. Mr. Büttikofer tells us that it lives in small troops in the bush, but is very shy and difficult for the hunter to approach, so that it is generally captured in snares. Proceeding farther westwards we find that specimens of this Antelope have been transmitted to the Leyden Museum from Dabacrom, on the Gold Coast, by Pel, and to the British Museum from Fantee by the native collector Aubinn. As we are kindly informed by Herr Matschie, there are examples of this species in the Berlin Museum collected in Togo-land by Herr Baumann.

Our figure of this Antelope (Plate XXI. fig. 2) was prepared by Mr. Smit many years ago under the directions of Sir Victor Brooke. It was probably taken from one of the specimens in the British Museum, but we have unfortunately no certain knowledge on this subject

August, 1895.

33. THE BLACK-RUMPED DUIKER.

CEPHALOPHUS MELANORHEUS, GRAY.

Subspecies *a.* C. MELANORHEUS TYPICUS.

Cephalophus melanorheus, Gray, Ann. Mag. N. H. (1) xviii. p. 167 (1846); id. Knowsl. Men. p. 11, pl. x. (1850); id. P. Z. S. 1850, p. 125; id. Cat. Ung. B. M. p. 88 (1852); Temm. Esq. Zool. Guin. pp. 194, 236 (1853); Fitz. SB. Wien, lix. pt. 1, p. 166 (1869); Gray, P. Z. S. 1871, p. 600; id. Cat. Rum. B. M. p. 28 (1872); id. Hand-l. Rum. B. M. p. 98 (1873); Peters, Monatsb. Ac. Berl. 1876, p. 482 (Gaboon); Matsch. Arch. f. Nat. 1891, pt. 1, pp. 353, 354; Thos. P. Z. S. 1892, p. 426; Lyd. Horns and Hoofs, p. 212 (1893).

Antilope (Cephalolophus) melanorheus, Wagn. Schr. Säug., Suppl. v. p. 428 (1855).

Cephalophus anchietæ, Bocage, P. Z. S. 1878, p. 743 (Angola).

Cephalophus maxwelli, Noack, Zool. JB., Syst. iv. p. 121 (1889) (Banana, Congo) (*nec* H. Sm.).

Subspecies *b.* C. MELANORHEUS SUNDEVALLI.

Sylvicapra pygmæa, var., Sund. Pecora, K. Vet.-Ak. Handl. 1845, p. 321 (1847); id. Hornschuch's Transl., Arch. Skand. Beitr. ii. p. 313; Reprint, p. 133 (1848).

Cephalophus pygmæus sundevalli, Fitz. SB. Wien, lix. pt. 1, p. 166 (1869) (*ex* Sund.).

VERNACULAR NAME:—"Nshiri" at Dongila, Gaboon (*Buchholz*).

Similar in all respects to *C. maxwelli*, except that it is rather smaller, and that the brown colour of the back darkens to black on and at each side of the base of the tail, below which there is an abrupt change to white on the backs of the hams. Female with horns.

Horns short, but almost as long in the female as in the male, placed in the same straight line as the nasal profile, slightly incurved: those of male about $1\frac{1}{2}$ inch long, their basal diameter going about $2\frac{1}{2}$ times in the length; those

of female about $1\frac{1}{4}$ inch long, basal diameter going about 3 times in the length.

Dimensions:—Height much as in *C. monticola*, length of ear 1·6 inch, hind foot 6·1.

Skull (♂): basal length (c.) 4·6 inches, greatest breadth 2·4, anterior edge of orbit to muzzle 2·5.

Hab. Africa south and east of the Niger, extending from the Cameroons to Angola and eastwards to the coast opposite Zanzibar.

To the east and south of the Niger Delta, Maxwell's Duiker appears to be represented by the present species, which, as we have explained above, is of the same size and closely resembles it in most particulars.

The Black-rumped Duiker was first described by Gray in an article on new species of this group, published in the 'Annals and Magazine of Natural History' for 1846, from specimens in the British Museum, transmitted from Fernando Po by James Thompson, one of Lord Derby's collectors. Shortly afterwards it was figured in the 'Knowsley Menagerie' by Waterhouse Hawkins from living specimens brought home by the same traveller.

We will now endeavour to give some idea of the range of this still imperfectly-known species. Beginning on the north, we find skins of it in the British Museum obtained in the wooded district of Cameroons and transmitted to the British Museum by the late Captain Burton and by Crossley, besides the typical specimens received from Fernando Po, which were probably originally obtained from the adjoining mainland. Herr Matschie, in an article on the Mammals of the Cameroons, published in 1891, likewise records the occurrence of this species in the Wuté district of that country, as testified by a skull sent to Berlin by Lieut. Morgen. From Gaboon there is a skin of an adult male in the British Museum, obtained by Mr. DuChaillu, and a specimen in the Berlin Museum procured by Buchholtz. To the south of the Congo this Duiker has been obtained at Capangombé in Angola by the well-known Portuguese collector Anchieta. M. de Bocage in 1878 based a new species on these specimens and proposed to dedicate it to M. d'Anchieta, having been misled by the indifferent figure and imperfect description of *C. melanorheus* given in the 'Knowsley Menagerie.' But there appears to be no reasonable doubt that they may be properly referred to *C. melanorheus*.

How far the Black-rumped Duiker extends over the forests of the Congo

basin is, as yet, quite uncertain. The authorities of the Congo Free State have, up to the present time, persistently neglected to obtain any accurate information of the zoology of the great region which they have occupied. The little we know of the animals of this wide area is based upon fragmentary specimens obtained by passing explorers. It is very probable, however, that *C. melanorheus* may range over nearly the whole of the great woody basin of the Congo and its tributaries. But when we come to the eastern slope of Africa, from various parts of which specimens referred to this species have been received, we meet, as Sundevall has pointed out, with a slightly different form, which for the present it is proposed to regard as a subspecies (following Fitzinger) as *Cephalophus melanorheus sundevalli*.

The fact is that, as regards these small Duikers, a far better series from the various points of their range must be rendered accessible before we can come to any accurate determination as to their systematic arrangement and distribution. Herr Matschie informs us that some specimens received in Berlin from Dar-es-Salaam, in German East Africa, rather more resemble *C. monticola* than *C. melanorheus*; so here is another riddle yet unsolved.

August, 1895.

34. THE UGANDA DUIKER.

CEPHALOPHUS ÆQUATORIALIS, MATSCH.

Antilope grimmia, Schweinf. Herz. v. Afrika, i. p. 267 (fig. of head), ii. p. 535 (1874).

Cephalophus æquatorialis, Matsch. SB. Ges. nat. Freund. 1892, p. 112 (Chagwè);

Scott-Elliot, P. Z. S. 1895, p. 341.

Cephalophus æquinoctialis, Lyd. Horns and Hoofs, p. 209 (1893).

VERNACULAR NAME :—“ *Mtelaganya* ” in Uganda (*O. Neumann*).

Similar to *C. melanorheus* in almost all respects, but the under surface only little lighter than the upper, and the female, at least in all the three specimens known, entirely without horns.

Dimensions (from Matschie):—“ Height at shoulder 10–12 inches, height on rump 12–13.”

Skull (♀): basal length 4·14 inches, greatest breadth 2·16, muzzle to orbit 2·34.

Horns of a male $1\frac{1}{4}$ inch long, half an inch thick at the base (*Matschie*).

Hab. Uganda.

The representative of the Black-rumped Duiker in Uganda has recently been separated by Herr Matschie from *C. melanorheus* under the name of *C. æquatorialis* on account of its darker belly, which is stated to be of a bright isabella-brown colour, “nearly of the tint which Mr. Ridgway, in his ‘Nomenclature of Colours’ (tab. iii. no. 21), calls écru drab, and scarcely lighter in colour than the back.” The species was based upon five specimens obtained by Stuhlmann in Chagwè, Uganda, in the month of December. Dr. Stuhlmann’s note is that this Antelope lives in the forests of Uganda, and that its skins are brought in numbers to the market at Mengo. A living example of this species, we are informed by Herr Matschie, was in 1892 in the Zoological Garden of Berlin.

On examining two skins of adult females of what we suppose to be the same Antelope, obtained by Capt. W. H. Williams in Uganda, and presented to the British Museum in April 1893, we do not find the character, assumed by Herr Matschie as distinctive of the species, to be quite constant. The bellies of the two specimens just referred to are scarcely darker than in West-African specimens of *C. melanorheus*. Moreover, two examples of the latter species from Cameroons, collected together, differ markedly in the coloration of their bellies. We should therefore not have been inclined to admit *C. æquatorialis* as a distinct species were it not for the fact that the perfect skull of one of the specimens in the British Museum shows no traces of horns. This is also stated to be the case in two female specimens in the Berlin Museum upon which Herr Matschie established the species. In *C. melanorheus*, as already stated, the horns are always present in both sexes. Under these circumstances it is better to keep *C. æquatorialis*, provisionally at least, as distinct, until further information is obtained.

Mr. Scott Elliot during his recent adventurous journey to Mount Ruwenzori obtained a single specimen (now in the British Museum) of this Duiker in Uganda, and has favoured us with the following note upon it:—

“The *Cephalophus* of which I brought home the skin was obtained from some natives at Kampala, Uganda, in February 1894. It was a female. I believe it was found on the highlands bordering Lake Victoria Nyanza, at an elevation of from 3900 to 4100 feet.”

August, 1895.

35. THE BLUE DUIKER.

CEPHALOPHUS MONTICOLA (THUNB.).

[PLATE XXI. FIG. 1.]

- Capra monticola*, Thunb. Resa, ii. p. 66 (1789) ; id. Engl. Transl. ii. p. 58 (1793).
Antilope monticola, Thunb. Mém. Ac. Pétersb. iii. p. 314 (1811) ; Afz. N. Act. Ups. vii. p. 220 (1815).
Antilope pygmæa, Schinz, Cuv. Thierr. i. p. 393 (1821) ; Burchell, List Quadr. pres. to B. M. p. 6 (1825) (Uitenhage) ; Licht. Darst. d. Säug. pl. xvi. fig. 1 (animal) (1828) ; Fischer, Syn. Mamm. p. 469 (1829) ; Smuts, Enum. Mamm. Cap. p. 86 (1832) ; Waterh. Cat. Mamm. Mus. Z. S. (2) p. 41 (1838) ; Laurill. Dict. Univ. d'H. N. i. p. 623 (1839) ; Wagn. Schr. Säug. Suppl., iv. p. 452 (1844), v. p. 429 (1855) ; Schinz, Syn. Mamm. ii. p. 417 (1845) ; Pet. Säug. Mozamb. p. 184 (1854) ; Gieb. Säug. p. 322 (1859).
Antilope (Cephalophus) cærulea, Ham. Sm. Griff. An. K. iv. p. 268, v. p. 348 (1827) ; Less. H. N. Mamm. (Compl. Buff.) x. p. 294 (1836) ; id. N. Tabl. R. A., Mamm. p. 178 (1842) ; Schinz, Syn. Mamm. ii. p. 422 (1845).
Antilope (Cephalophus) perpusilla, Ham. Sm. Griff. An. K. iv. p. 269, v. p. 348 (1827) ; A. Sm. S. Afr. Quart. J. ii. p. 217 (1834) ; Less. H. N. Mamm. (Compl. Buff.) x. p. 294 (1836) ; id. N. Tabl. R. A., Mamm. p. 178 (1842).
Cephalophus cæruleus, A. Sm. S. Afr. Quart. J. ii. p. 216 (1834) ; Harr. W. Anim. S. Afr. (fol.) pl. xxvi. fig. 2 (animal) (1840) ; Jent. Cat. Ost. Leyd. Mus. (Mus. Pays-Bas, ix.) p. 133 (1887) ; id. Cat. Mamm. Leyd. Mus. (op. cit. xi.) p. 163 (1892).
Tragelaphus pygmæus, Rüpp. Verz. Senck. Mus. p. 37 (1842).
Cephalophus cæruleus, Gray, List Mamm. B. M. p. 163 (1843).
Antilope minuta, Forst. Descr. Anim. p. 383 (1844).
Syvicapra pygmæa, Sund. Pecora, K. Vet.-Ak. Handl. 1844, p. 190 (1846) ; id. Hornschuch's Transl., Arch. Skand. Beitr. p. 142 ; Reprint, p. 66 (1848).
Cephalophus monticola, Gray, Ann. & Mag. N. H. (1) xviii. p. 167 (1846) ; id. Knowsl.

Men. p. 11 (1850); *id.* P. Z. S. 1850, p. 124; Turner, P. Z. S. 1850, p. 170; Blyth, Cat. Mus. As. Soc. p. 168 (1863); Bocage, P. Z. S. 1878, p. 743 (Benguella); Thos. P. Z. S. 1892, p. 427; Nicolls & Egl. Sportsm. S. Afr. p. 29, pl. iv. fig. 11 (head) (1892); Lyd. Horns and Hoofs, p. 207 (1893); Rendall, P. Z. S. 1895, p. 361 (Transvaal).

Cephalophus pygmæus, Gray, Cat. Ung. B. M. p. 87 (1852); Scl. P. Z. S. 1861, p. 209; Gerr. Cat. Bones Mamm. B. M. p. 237 (1862); Fitz. SB. Wien, lix. pt. 1, p. 166 (1869); Gray, P. Z. S. 1871, p. 599; *id.* Cat. Rum. B. M. p. 28 (1872); Gray, Hand-l. Rum. B. M. p. 97 (1873); Garrod, P. Z. S. 1877, p. 4 (anatomy); Scl. List Anim. Z. S. (8) p. 146 (1883); Jent. Cat. Ost. Leyd. Mus. (Mus. Pays-Bas, ix.) p. 153 (1887); *id.* Cat. Mamm. Leyd. Mus. (*op. cit.* xi.) p. 164 (1892); Bryden, Kloof and Karroo, p. 301 (1889).

Cephalophus bicolor, Gray, P. Z. S. 1862, p. 263, pl. xxiv. (animal); *id.* P. Z. S. 1871, p. 600; *id.* Cat. Rum. B. M. p. 29 (1872); *id.* Hand-l. Rum. B. M. p. 98 (1873).

Cephalophus pygmæus caffer, Fitz. SB. Wien, lix. pt. 1, p. 166 (1869).

Cephalophus maxwelli, Crawshay, P. Z. S. 1890, p. 661 (Nyasaland).

VERNACULAR NAMES:—*Numitji*, *Blaauw-bokje*, and *Kleine Blaauw-bok* of Dutch colonists (*Burchell*); *Petee* of Natal colonists (*Selous*); *Lumsa* of Achikundas in Zambesia (*Crawshay*); *Impiti* of Zulus; *Inhlingwaan* of Shangaans (*Rendall*).

Size and characters of horns as in *C. melanorheus*. Colour as in *C. maxwelli*, except that the legs from the elbows and knees downwards are bright rufous.

Dimensions:—♀. Height at withers 13 inches, ear 1.6, hind foot 6.1.

Skull: basal length 4.3, greatest breadth 2.2, anterior edge of orbit to muzzle 2.4.

Hab. South Africa, wooded districts of the Cape Colony, extending westwards to Benguela and eastwards to Nyasaland.

The Blue Duiker, or “Blaauw-bok,” as the colonists of the Cape call it, is one of the oldest known Antelopes of South Africa, and still exists, although nowhere plentiful, in the wooded districts of the Colony. There has been much diversity of opinion as to the specific name by which this animal should be correctly called, but we believe we are right in adopting the term *monticola* given to it by Thunberg as long ago as 1789. Thunberg was a distinguished naturalist and traveller of the last century, and a favourite disciple of Linnæus. During his travels to the Cape, Ceylon, Java, and Japan he amassed a rich harvest of plants and animals, which were described in the narrative of his journey, and in the memoirs of various scientific societies.

Another term used by many authors for this Antelope is *pygmæa*. But the true *Capra pygmæa* of Linnæus, as has been shown by the late Sir Victor Brooke, refers to a different Antelope—the little Royal Antelope of West Africa. The remaining terms, such as *cærulea*, *perpusilla*, and *minuta*, which have been applied to this species, are all ante-dated by Thunberg's term *monticola*.

The Blue-buck, Messrs. Nicolls and Eglington tell us, is now found only in the coast districts of the Cape Colony, and occasionally in Natal, being nowhere plentiful. It is solitary in its habits and keeps to the dense bush and forest, from which it is with difficulty dislodged. When pursued by dogs it darts across from cover to cover with surprising celerity. These authors add that this Antelope emits a nasty musky odour and that its flesh is not particularly good.

How far the Blue Duiker extends beyond the limits of the Cape Colony is, as yet, a matter of considerable uncertainty, these small Duikers, owing to their close similarity, being still in a state of much confusion. According to M. Du Bocage, as recorded in the Zoological Society's 'Proceedings' for 1878, this species is found in Benguela and Loando, far up the west coast. On the east coast Peters obtained specimens near Mozambique, Quillemane, and Inambane, and in Boror, which, in his 'Reise nach Mossambique,' he refers to the present species.

North of the Zambesi in Nyasaland either the Blue Duiker or a closely allied species is found, of which Mr. Crawshay speaks as follows:—

“This little Antelope, or at any rate a species of Blue-buck very closely resembling it, appears to be common in parts of the Nyasa country, especially in the densely wooded slopes of mountains; and though I cannot claim to have come across any in life, I have yet seen a good number of their skins—notably among the Anyika of Chombi and the adjoining mountains, where they are said to be plentiful. On the thickly wooded mountainous slopes between Bandawe and Syiska they are also said to exist, and again in some of the hills about Cape Maclear; but everywhere natives speak of them as being shy and very difficult to bring to bag in the thick covert where they are generally found.”

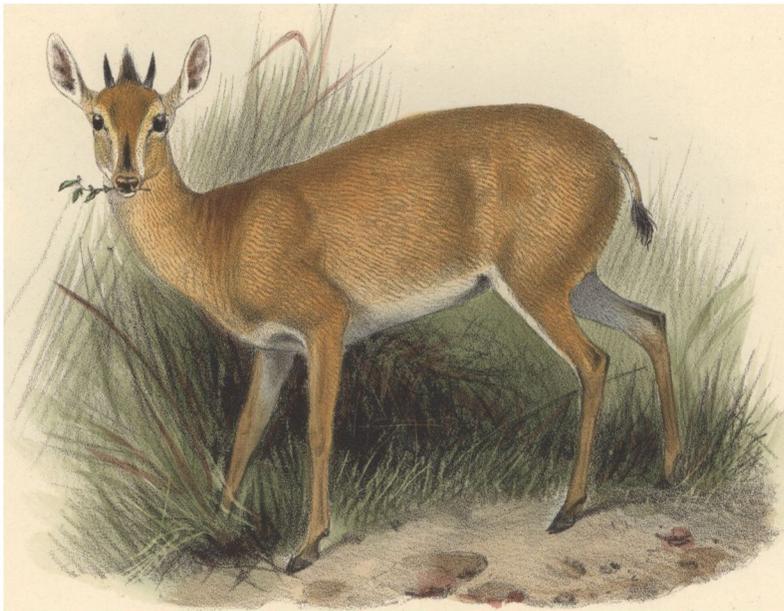
In 1862 the late Dr. Gray described and figured in the Zoological Society's 'Proceedings,' under the name of *Cephalophus bicolor*, what appears to be merely a piebald variety of the present species. The specimen was obtained

by Mr. John Dunn in the Ungozy Forest of Zululand. It is in the British Museum. There are also in the National Collection specimens of this Antelope obtained by Burchell at Galgebosch, near Uitenhage, in the Cape Colony.

Many specimens of the "Blau-bok," as it is called in the Zoological Society's Catalogues, have been captured and brought alive to this country and exhibited in the Society's Gardens. A male was presented by Sir George Grey, then Governor of the Cape, in 1861, and another by H.R.H. the Duke of Edinburgh in 1866. Other specimens of both sexes were received in 1871, 1874, 1882, and subsequent years. In every case, as we are informed by the Head Keeper and Superintendent, the females carried horns as well as the males.

Our figure of this species (Plate XXI. fig. 1) was drawn by Mr. Smit under the superintendence of the late Sir Victor Brooke. We can find no record of from what specimen it was taken.

August, 1895.



Wells coll. Smith Lib.

Fig. 1. The Abyssinian Duiker .
CEPHALOPHUS ABYSSINICUS .
Fig. 2. The Crowned Duiker .
CEPHALOPHUS CORONATUS .

Humboldt imp.

Published by R.H. Porter.

36. THE CROWNED DUIKER.

CEPHALOPHUS CORONATUS, GRAY.

[PLATE XXII. FIG. 2.]

- Antilope grimmia*, Pall. Misc. Zool. p. 12 (1766) (nec *Capra grimmia*, Linn.); id. Spic. Zool. i. p. 15 (1767), xii. p. 18 (1777); Müll. Natursyst., Suppl. p. 55 (1776); Erxl. Syst. R. A. p. 276 (1777); Zimm. Spec. Zool. geogr. p. 540 (1777); id. Geogr. Gesch. p. 111 (1780); Gatt. Brev. Zool. i. p. 80 (1780); Herm. Tab. Affin. Anim. p. 107 (1783); Bodd. Elench. An. p. 140 (1785); Gmel. Linn. S. N. i. p. 191 (1785); Schreb. Säug. pl. cclx. (animal) (1785); Kerr, Linn. An. K. p. 318 (1792); Donnd. Zool. Beytr. i. p. 641 (1792); Link, Beytr. Nat. ii. p. 99 (1795); Bechst. Uebers. vierf. Th. ii. p. 642 (1800); Shaw, Gen. Zool. ii. pt. 2, p. 324 (1801); Turt. Linn. Syst. Nat. i. p. 115 (1802); Desm. N. Dict. d'H. (1) x. p. 158 (1803), xxiv. Tabl. p. 32 (1804); G. Cuv. Dict. Sci. Nat. ii. p. 240 (1804); Ill. Prodr. Syst. Mamm. p. 106 (1811); G. Fisch. Zoogn. iii. p. 424 (1814); Afzel. N. Act. Ups. vii. p. 220 (1815); Goldf. Schr. Säug. v. p. 1230 (1818); Schinz, Cuv. Thierr. i. p. 393 (1821); Forst. Descr. Anim. p. 384 (1844).
- Antilope (Gazella) grimmia*, Licht. Mag. nat. Freund. Berl. vi. p. 177 (1814).
- Cerophorus (Cervicapra) grimmia*, Blainv. Bull. Soc. Philom. 1816, p. 75.
- Cephalophus grimmia*, Jard. Nat. Libr. (1) vii. p. 227, pl. xxxii. (1842).
- Cephalophus coronatus*, Gray, Ann. Mag. N. H. (1) x. p. 266 (1842); id. op. cit. xviii. p. 164 (1846); id. List Ost. B. M. p. 57 (1847); id. Knowsl. Men. p. 9, pl. vi. (animal) (1850); id. P. Z. S. 1850, p. 122; id. Cat. Ung. B. M. p. 82 (1852); Temm. Esq. Zool. Guin. pp. 194, 236 (1853); Gerr. Cat. Bones Mamm. B. M. p. 236 (1862); Gray, P. Z. S. 1871, p. 599, fig. 7 (skull, yg.); id. Cat. Rum. B. M. p. 28 (1872); id. Hand-l. Rum. B. M. p. 96 (1873); Thos. P. Z. S. 1892, p. 427; Lyd. Horns and Hoofs, p. 212 (1893).
- Sylvicapra coronata*, Sund. Pecora, K. Vet.-Ak. Handl. 1844, p. 191 (1846); id. Hornschuch's Transl., Arch. Skand. Beitr. ii. p. 143; Reprint, p. 67 (1848); Fitz. SB. Wien, lix. pt. 1, p. 168 (1869).

Antilope (Cephalophus) coronatus, Wagn. Schr. Säug. Suppl. iv. p. 421 (1852).

Sylvicapra grimmia, Fitz. SB. Wien, lix. pt. 1, p. 168 (1869).

Grimmia grimmia, Jent. Cat. Ost. Leyd. Mus. (Mus. Pays-Bas, ix.) p. 138 (1887).

Size probably, in adult animals, about equal to that of *C. abyssinicus*; form slender. Colour uniformly light yellow all over, except a small streak on the nasal region, the tip of the tail, and the metacarpus and metatarsus, all of which are black. The yellow hairs of the body finely grizzled with black.

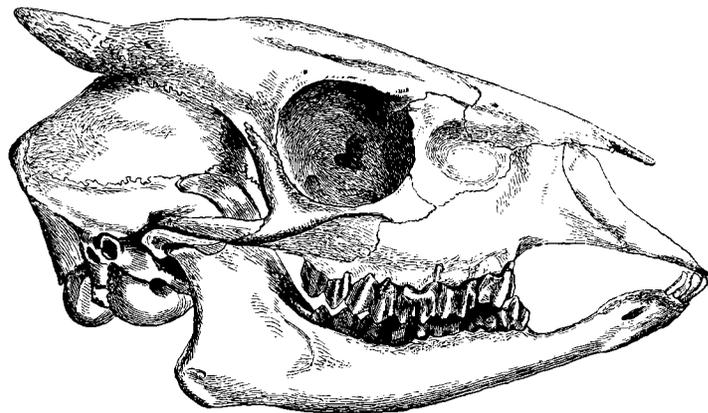
Horns, skull, and teeth of adult not yet known. In the type skull, that of a half-grown animal, the anteorbital fossæ are of moderate depth, and the mesial notch on the palate is nearly half an inch in advance of the lateral ones.

Dimensions of type, immature ♂ :—Height at withers 16 inches, ear 3, hind foot 8·1.

Hab. West Africa.

The Crowned Duiker is a species established by Gray in 1842 upon specimens brought by Whitfield, Lord Derby's collector, from the Gambia. The typical specimen in the British Museum appears to be immature, as are

Fig. 21.



Skull of *Cephalophus coronatus*.
(P. Z. S. 1871, p. 599.)

likewise other examples obtained in its company, and perfectly adult specimens of this obscure species are much required. Along with the skins

Whitfield brought home a single adult female for the Derby Menagerie. This was figured in 1842 in two positions by Waterhouse Hawkins on the sixth plate of the 'Gleanings.' In the text of the 'Knowsley Menagerie' we are told that Whitfield's name for it was the "Coquatoon," but in the plate the native name of the present species is given as "Sinani," while that of "Coquatoon" is assigned to *C. rufilatus* figured in its company, and this vernacular name has certainly been more generally applied to the latter species.

We suppose that the Antelope described by Pallas as *Antilope grimmia* from living specimens brought from the Guinea Coast may probably have belonged to this species, as may also many references of the older authors to an *Antilope grimmia* from Western Africa. But the true *Capra grimmia* of Linnæus, as we shall presently show, refers to another species.

We cannot find that any modern authority refers to fresh examples of this Antelope, and from the immaturity of the available specimens, to which we have already referred, we are quite unable to come to any definite conclusion as to its relationship. In its general appearance, however, the Crowned Duiker has a certain amount of resemblance to *C. abyssinicus* and *C. grimmii*, and we therefore place it provisionally in its present position.

The accompanying figure (Plate XXII. fig. 2), probably representing the male of this species, was drawn by Mr. Smit for the late Sir Victor Brooke, but we are unable to say from what specimen it was prepared.

August, 1895.

37. THE ABYSSINIAN DUIKER.

CEPHALOPHUS ABYSSINICUS, THOS.

[PLATE XXII. FIG. 1.]

- Antilope madoqua*, Rüpp. N. Wirb. Abyss., Säug. p. 22, pl. vii. fig. 2 (animal) (1830) (description and figure, but not references to Bruce, Lichtenstein, and others, which refer to *Madoqua saltiana*), nec *A. madoka*, H. Sm.; Schinz, Syn. Mamm. ii. p. 423 (1845); Wagn. Schr. Säug. Suppl. v. p. 422 (1855).
- Tragelaphus madoqua*, Rüpp. Verz. Senck. Mus. p. 37 (1842).
- Sylvicapra madoqua*, Sund. Pecora, K. Vet.-Ak. Handl. 1844, p. 190 (1846); id. Hornschuch's Transl., Arch. Skand. Beitr. ii. p. 142; Reprint, p. 66 (1848); Fitz. SB. Wien, lix. pt. 1, p. 168 (1869).
- Cephalophus madoqua*, Gray, Knowsl. Men. p. 9 (1850); id. P. Z. S. 1871, p. 122; id. Cat. Ung. B. M. p. 82 (1852); Temm. Esq. Zool. Guin. p. 194 (1853); Blanf. Zool. Abyss. p. 267 (1870); Gray, P. Z. S. 1871, p. 598; Heugl. Reise N.O.-Afr. ii. p. 108 (1877); Scl. f. Cat. Mamm. Calc. Mus. ii. p. 168 (1891).
- Grimmia madoqua*, Gray, Cat. Rum. B. M. p. 24 (1872); id. Hand-l. Rum. B. M. p. 93 (1873); Jent. Cat. Ost. Leyd. Mus. (Mus. Pays-Bas, ix.) p. 132 (1887); id. Cat. Mamm. Leyd. Mus. (op. cit. xi.) p. 161 (1892).
- Cephalophus abyssinicus*, Thos. P. Z. S. 1892, p. 427; Lyd. Horns and Hoofs, p. 209 (1893).

VERNACULAR NAMES :—*Madoqua* of Abyssinians; *Danido* in Massowa (*Rüppell*); *Orna* of Geez; *Midáqua* of Amharas; *Qalbadu* and *Dedanid* in Tigré (*Heuglin*).

Size about one-third smaller than that of *C. grimmi*. Ears elongated, about equal to the distance between the anterior canthus and the rhinarium. Colour grizzled yellowish grey, with rufous face, brown nasal mark, and brown feet, just as in the grizzled varieties of *C. grimmi*, of which it is obviously the Abyssinian representative.

Horns (σ) set up at an angle above the line of the nasal profile, but not so markedly as in *C. grimmi*, 3 inches long, evenly tapering, their basal diameter going nearly 5 times in their length.

Skull, besides being actually smaller, shorter and broader in proportion than in *C. grimmi*. Distance between orbit and muzzle only just about equal to the zygomatic breadth. Anteorbital fossæ of medium depth. Mesial notch of palate about $\frac{1}{3}$ inch in advance of the lateral ones.

Dimensions:— σ . Height at withers 18 inches, ear 3·5, hind foot 8·7.

Skull: basal length 5·2 inches, greatest breadth 2·98, anterior rim of orbit to muzzle 2·91.

Hab. Highlands of Abyssinia.

Dr. Edouard Rüppell, the renowned zoological explorer of Abyssinia and subsequently Director of the Senckenbergian Museum at Frankfort-on-the-Main, was the discoverer of this Antelope as well as of many other scarce and little-known animals of that wild country. Unfortunately, however, Rüppell fancied that his Antelope was the same as one previously met with by Bruce in Abyssinia, and named in Bruce's 'Travels' "Madoqua." This was possibly the case, but, as has been recently shown by Thomas, Hamilton Smith had already assigned the name *Antilope madoka* (based on the same native name) to another species—Salt's Antelope, *Madoqua saltiana*. It therefore became necessary to change the name, and Thomas proposed to call the present species *Cephalophus abyssinicus*.

In his 'Neue Wirbelthiere,' after a careful description of this Antelope, Rüppell tells us that it is only found in the mountainous provinces of Abyssinia, where the vegetation consists principally of bush, and in such parts of them as rise from five to eight thousand feet above the sea-level. Rüppell met with it first at Galla on the mountain-chain west of Massowa. Afterwards he found it common on the mountains and valleys of the "Kulla," where it is always met with in pairs and is difficult to shoot on account of its traversing the bush so quickly. Its Abyssinian native name, Rüppell tells us, is "Madoqua," which, however, as already stated, has likewise been applied to another species—Salt's Antelope.

The only more recent traveller, so far as we know, that has met with the Abyssinian Duiker in its native wilds is Dr. W. T. Blanford, F.R.S., who accompanied, as Naturalist, the British Abyssinian Expedition from Massowa

to Magdala in 1867–68 and subsequently published an excellent volume containing the results of his observations on the geology and zoology of that country. Dr. Blanford tells us that this Bush-Antelope is not rare on the highlands of Abyssinia at elevations of from 7000 to 8000 feet. He usually saw it solitary in the bushes and small clearings and obtained two bucks, one at Dildi, the other at Dongolo, of which he gives us the dimensions. These specimens (as is recorded by Mr. W. L. Sclater in his ‘Catalogue’) are now in the India Museum, Calcutta.

The British Museum contains a single adult male specimen of this species mounted (together with its skull), upon which Thomas based the name *abyssinicus*.

Our figure of this species (Plate XXII. fig. 1) was prepared by Mr. Smit under the directions of the late Sir Victor Brooke, but from what specimen we are unable to say.

August, 1895.



Woll. del. Smit del.

The Common Duiker .
CEPHALOPHUS GRIMMI .

Published by E.H. Porter.

Hanhart imp.

38. THE COMMON DUIKER.

CEPHALOPHUS GRIMMI (LINN.).

[PLATE XXIII.]

- Capra sylvestris africana*, Grimm, Misc. Cur. Acad. Nat. Cur. Decas ii. Ann. iv. 1685, p. 131 (1686).
- Capra grimmia*, Linn. Syst. Nat. (10) i. p. 70 (1758).
- Moschus grimmia*, Linn. op. cit. (12) i. p. 92 (1766).
- Antilope nictitans*, Thunb. Mém. Ac. Pétersb. p. 312 (1811).
- Cemas cana*, Oken, Lehrb. Naturgesch. iii. pt. 2, p. 743 (1816).
- Antilope mergens*, Desm. N. Dict. d'H. N. (2) ii. p. 193 (1816) ; id. Mamm. ii. p. 463 (1822) ; Desmoul. Dict. Class. d'H. N. i. p. 446 (1822) ; Burch. Travels, i. p. 187 (1822) ; id. List Quadr. pres. to B. M. p. 6 (1825) (Zwartwater Poort) ; H. Sm. Griff. An. K. iv. p. 264, v. p. 346 (1827) ; Less. Man. Mamm. p. 378 (1827) ; Licht. Darst. Säug. pl. xi. (1828) ; Fisch. Syn. Mamm. p. 467 (1829) ; Smuts, Enum. Mamm. Cap. p. 84 (1832) ; Less. H. N. Mamm. (Compl. Buff.) x. p. 294 (1836) ; Waterh. Cat. Mamm. Mus. Z. S. (2) p. 41 (1838) ; Gerv. Dict. Sci. Nat. Suppl. i. p. 262 (1840) ; Less. N. Tabl. R. A., Mamm. p. 178 (1842) ; Wagn. Schr. Säug. Suppl. iv. p. 447 (1844), v. p. 418 (1855) ; Schinz, Syn. Mamm. ii. p. 446 (1845) ; Gieb. Säug. p. 320 (1859).
- Antilope (Cephalophus) platous*, H. Sm. Griff. An. K. iv. p. 260, v. p. 344 (1827).
- Antilope (Cephalophus) burchelli* and *ptoox*, H. Sm. op. cit. iv. pp. 262, 265, v. pp. 345, 347 (1827) ; Less. H. N. Mamm. (Compl. Buff.) x. pp. 293, 294 (1836) ; id. N. Tabl. R. A., Mamm. p. 178 (1842).
- Cephalophus platous* and *ptoox*, A. Sm. S. Afr. Quart. J. ii. pp. 214, 215 (1834).
- Cephalophus burchelli*, A. Sm. op. cit. p. 215 (1834) ; Gray, Cat. Ung. B. M. p. 81 (1852) ; Gerr. Cat. Bones Mamm. B. M. p. 236 (1862) ; ScL. P. Z. S. 1868, p. 625.
- Cephalophus mergens*, A. Sm. op. cit. p. 215 (1834) ; Harris, Wild An. S. Afr. (fol.) pl. xv. fig. 2 (animal) (1840) ; Gray, Ann. Mag. N. H. (1) xviii. p. 163 (1846) ;

- id. List Ost. B. M. p. 57 (1847); Turner, P. Z. S. 1850, p. 170; Temm. Esq. Zool. Guin. p. 194 (1853); Sci. P. Z. S. 1868, p. 625; Schmidt, P. Z. S. 1880, p. 307 (length of life); Brehm, Thierl. iii. p. 253 (1880); Selous, P. Z. S. 1881, p. 763 (distribution); id. Hunter's Wanderings S. Afr. p. 223 (1881); Sci. List Anim. Z. S. (8) p. 147 (1883); Flow. & Gars. Cat. Ost. Coll. Surg. ii. p. 270 (1884); Mairet, Bull. Soc. Acclim. p. 238 (1887); Hunter, in Willoughby's E. Afr. p. 290 (1889) (Kilima-njaro); Noack, Zool. JB. Syst. iv. p. 114 (1889) (Banana, Congo); Sci. f. Cat. Mamm. Calc. Mus. ii. p. 167 (1891).
- Antilope (Cephalophus) platyotis*, Less. H. N. Mamm. (Compl. Buff.) x. p. 293 (1836).
- Antilope (Grimmia) mergens*, Laurill. Dict. Univ. d'H. N. i. p. 624 (1839).
- Tragelaphus mergens*, Rüpp. Verzeichn. Senck. Mus. p. 37 (1842).
- Cephalophus mergens, burchelli*, and *campbelliæ*, Gray, List Mamm. B. M. p. 162 (1843).
- Antilope ptox* and *burchelli*, Schinz, Syn. Mamm. ii. pp. 417, 420 (1845).
- Sylvicapra mergens*, Sund. Pecora, K. Vet.-Ak. Handl. 1844, p. 190 (1846); id. Hornschuch's Transl., Arch. Skand. Beitr. ii. p. 142; Reprint, p. 66 (1848); Fitz. SB. Wien, lix. pt. 1, p. 167 (1869).
- Cephalophus campbelliæ*, Gray, Ann. Mag. N. H. (1) xviii. p. 164 (1846); id. Knowsl. Men. p. 9 (1850); id. P. Z. S. 1850, p. 121; id. Cat. Ung. B. M. p. 80 (1852); Temm. Esq. Zool. Guin. p. 194 (1853); Gerr. Cat. Bones Mamm. B. M. p. 237 (1862).
- Cephalophus grimmia*, Gray, Knowsl. Men. p. 8, pls. i., ii. (animal) (1850); id. Cat. Ung. B. M. p. 78 (1852); Gerr. Cat. Bones Mamm. B. M. p. 237 (1862); Blyth, Cat. Mamm. As. Soc. p. 167 (1863); Buckley, P. Z. S. 1876, p. 283, 1877, p. 453 (distribution).
- Antilope altifrons* and *ocularis*, Pet. Säug. Mozamb. pp. 184–186, pls. xxxvii., xxxviii., xxxix., xli. fig. 1, xlii. fig. 1 (animal & skull, ♂ ♀) (1852); Wagn. Schr. Säug. Suppl. v. pp. 418–420 (1855).
- Cephalophus altifrons*, Temm. Esq. Zool. Guin. p. 194 (1853); Fitz. SB. Wien, lix. pt. 1, p. 166 (1869).
- Cephalophus ocularis*, Temm. Esq. Zool. Guin. p. 194 (1853); Kirk, P. Z. S. 1864, p. 656; Crawshay, P. Z. S. 1890, p. 661; Lyd. Horns and Hoofs, p. 208 (1893).
- Antilope (Cephalolophus) campbelliæ*, Wagn. Schr. Säug. Suppl. v. p. 419 (1855).
- Sylvicapra mergens, caffra, campbelliæ*, and *ocularis*, Fitz. SB. Wien, lix. pt. 1, pp. 167, 168 (1869).
- Grimmia nictitans, irrorata, splendidula, burchelli*, and *campbelliæ*, Gray, P. Z. S. 1871, pp. 589, 592, fig. 1 (skull); id. Cat. Rum. B. M. pp. 22–24 (1872); id. Hand-l. Rum. B. M. pp. 92, 93 (1873).
- Cephalophus grimmius*, Bocage, P. Z. S. 1878, p. 743 (Angola).
- Grimmia ocularis*, Jent. Cat. Ost. Leyd. Mus. (Mus. Pays-Bas, ix.) p. 132 (1887); id. Cat. Mamm. Leyd. Mus. (op. cit. xi.) p. 161 (1892).

- Grimmia mergens*, Jent. Cat. Ost. Leyd. Mus. (Mus. Pays-Bas, ix.) p. 132 (1887); id. Cat. Mamm. Leyd. Mus. (op. cit. xi.) p. 161 (1892); id. N. L. M. xv. p. 265 (1893) (Cunene R.).
- Cephalophus grimmii*, Thos. P. Z. S. 1892, p. 428; Ward, Horn Meas. p. 76 (1892); Nicolls & Egl. Sportsm. S. Afr. p. 27, pl. vii. fig. 26 (head) (1892); Lyd. Horns & Hoofs, p. 207 (1893); Thos. P. Z. S. 1893, p. 504 (Nyasa); Jackson in Badm. Big Game Shooting, i. pp. 285, 308 (1894) (E. Africa).
- Cephalophus grimmia flavescens*, Lorenz, Ann. Mus. Wien, ix. p. 60, 1895 (Victoria Falls of Zambezi).

VERNACULAR NAMES:—*Duiker* and *Duiker-bok* of Dutch and English colonists (*Thunberg, Burchell, &c.*); *Puti* of Bechuanas; *Impunzi* or *Impuzi* of Matabili [also of Zulus and Swazis (*Rendall*)]; *Pembgee* of Makalakas; *Unsa* of Masubias and Makubas; *Insea* of Batongas; *Goowah* of Masaras (*Selous*); *Nyassa* in Sena (*Peters*); *Insa* of Anyanja; *Gwapi* of Ajawa; *Nyiska* of Atonga; *Yisya* of Ahenga (*Crawshay*); *Ngruvu* of E. African Swahilis (*Jackson*).

Size medium; form much more delicate and slender than in any of the species hitherto considered. Ears long, longer than the distance from the anterior canthus to the tip of the nose, their tip narrow and pointed. General colour of body pale greyish brown, sometimes with a yellowish tinge, but very variable in tone; more or less grizzled, owing to the hairs being annulated with yellowish and brown. Face rufous or yellowish, with a deep brown longitudinal patch on the nasal region, rarely extending upwards to the bases of the horns. Throat and belly like back. Chin, inner sides of fore arms and of thighs, and underside of tail whitish or pure white. Front of fore legs with a brownish line running down them to the hoofs. Metapodials brown. Tail black above and white below, but the base above is commonly coloured like the back.

Horns normally present only in male. These (see fig. 22, p. 207) are set up at a considerable angle to the line of the nasal profile, slender, tapering, attaining to about 5 inches in length, their bases roughened but not markedly thickened, their greatest basal diameter going about 6 or 7 times in their length.

Skull long and narrow. Anteorbital fossæ of medium depth, their border above generally rounded, not sharply ridged. Muzzle long, the distance from the anterior edge of the orbit to the gnathion much exceeding the greatest zygomatic breadth. Mesial notch of palate extending some way in front of the lateral ones.

Dimensions :— ♂ . Height at withers 23 inches, ear 4·3, hind foot 10·3.

Skull : basal length 7·2 inches, greatest breadth 3·3, anterior rim of orbit to muzzle 4·4.

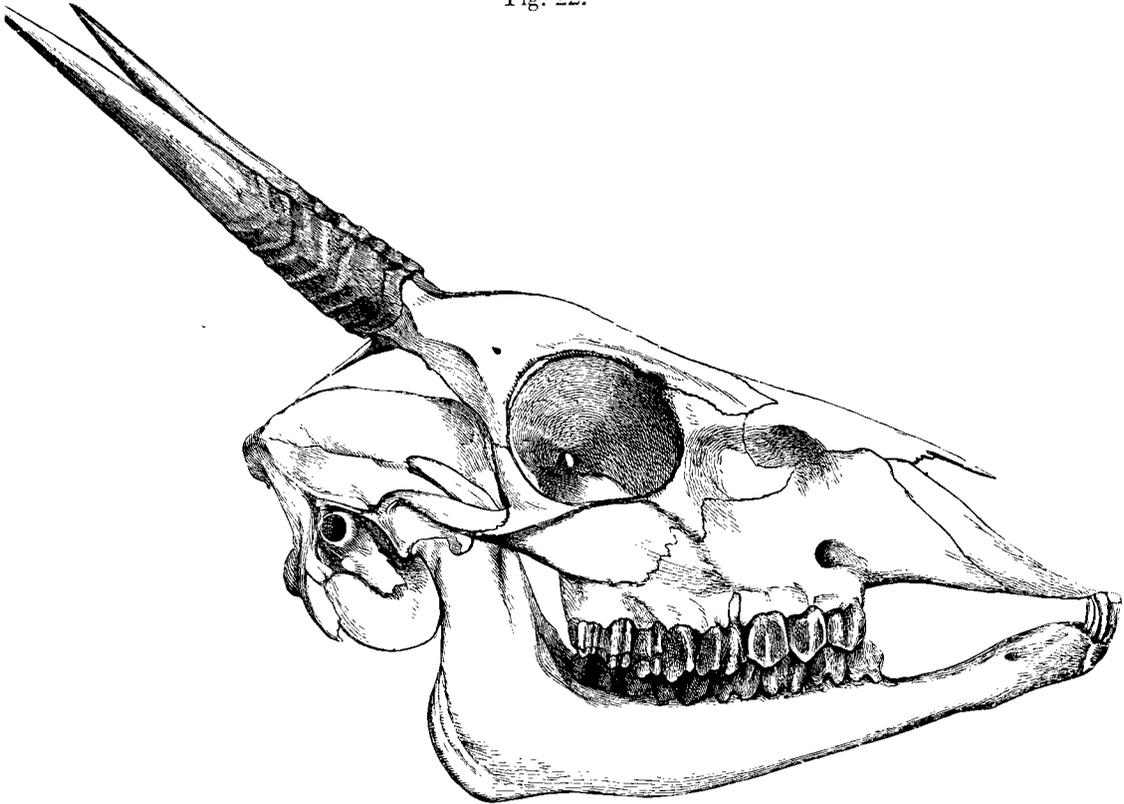
Hab. South Africa, extending on the west northwards to Angola and on the east up to British East Africa and Somaliland.

The little Antelope called at the Cape the “Duiker” or “Diver,” not from its going into the water, but from its “diving” so quickly into the bushes when alarmed, has been more or less perfectly known to the naturalists of Europe for the past 200 years. Described by Grimm in 1686 as the *Capra sylvestris africana* it was dedicated to that naturalist by Linnæus, when he adopted the binomial system, as the *Capra* or *Moschus grimmia*. This term, slightly modified in accordance with modern usage, we propose to adopt as its specific name. Other early names bestowed upon it were *Antilope nictitans* by Thunberg, of whose travels to the Cape we have already spoken, and *Antilope mergens* by Blainville, while various appellations, which are specified in our synonymy, were given to this species and its varieties by Andrew Smith, Hamilton Smith, Gray, and Fitzinger.

In his important work on the ‘Game and Wild Animals of Southern Africa,’ as they existed in 1836 and 1837, Cornwallis Harris figures the “Duiker” as a companion of the Pallah and speaks of it as common throughout the Cape Colony, especially towards the sea-coast, among the bushes and brush-wood. This experienced observer states that every female specimen of the Duiker that he had seen possessed short horns, nearly, if not totally obscured by the tuft on the head; this, we shall see, is contrary to the observations of some other writers. From the text of Harris’s volume we extract his lively account of the Duiker and its habits:—“The smaller Antelope, delineated in the annexed plate, is a denizen of the same *locale* as the Pallah; and although claiming from its diminutive stature an extremely limited portion of attention, was yet never neglected when accident placed it in our way. The pair which furnished the originals of this portrait were on my own shoulders borne three miles to the waggons from one of the central steppes of the Cashan mountains, whither, having gone out alone, I killed the buck as he sat on a projecting ledge—knocking over his disconsolate relict with the second barrel as she stood gazing in

mute amazement at her mate's death-struggles. The pasterns of this robust and sturdy little animal, which are singularly rigid, have the appearance of being encased in Blucher's, or ankle boots; two other of its most remarkable features being the long suborbital slit that traverses the whole length of its Roman features, and the pencilled *toupet* of bright fulvous

Fig. 22.



Skull of *Cephalophus grimmii*.
(P. Z. S. 1871, p. 591.)

hair arising from the forehead, neither of which occur in any other Antelopes. Writers have noticed three distinct species of the Duiker, but the peculiarities in the horns that have led to this division are so trivial that I should rather feel disposed to place them to the score of age, disease, or accident, few specimens being exactly alike. The animal is extremely common in many parts of the Cape Colony, and on the

outskirts of the deep forests which border the sea-coast especially. Here on my return from the interior, I killed several—and found it even more abundant than beyond the boundary. Occurring either singly or in pairs, the little dwarf is usually found crouching amid the shelter of bushy localities, and the dexterity with which it seeks to foil its pursuers among the intricacies of these, has gained for it the Dutch soubriquet in which it rejoices. Aroused from its snug form, the ‘Artful Dodger’ clears with one vigorous and elastic bound the nearest bush, and diving low on the other side among the heather and brushwood, continues alternately leaping and plunging whilst it flies straight as a dart to the nearest thicket—before seeking an asylum in which, and not unfrequently also during its retreat, it rises like the hare upon its hinder legs, and having thus reconnoitred the foe above the intervening vegetation, wheels with an impatient sneeze to the right about, and proceeds ducking and bounding as before.

“The approved Colonial mode of hunting the Duiker-bok is with dogs—and whilst thus topping the covert, or darting from one copse to another, the little wretch, despite of all its dodging and artifice, is easily slain with a hatful of buckshot discharged from a piece of ordnance of such calibre, that four fingers might be introduced without much squeezing! Like the rest of the Cape venison, the flesh is utterly destitute of fat, a deficiency which the thrifty Dutch housewife seeks to remedy with her usual skill by calling in the aid of a sheep’s tail. The animal is often to be seen running tame about the farm-houses, but it never ceases, even in a domestic state, to take the note of alarm from the least sound to which it has been unaccustomed—thunder invariably causing it to fly to the nearest shelter in order to hide itself away.”

As regards the Duiker in the Cape Colony at the present time, we are assured by Messrs. Nicolls and Eglington that it is still, next to the Steinbuck, the most common and widely distributed of the smaller Antelopes, being found sometimes in pairs, but more frequently singly in every suitable locality from Table Bay to the Zambezi. As a rule, these observers tell us, the Duikers of Cape Colony and Griqualand West are smaller and lighter in colour than those found further north. In certain portions of the Kalihari Desert they are very common, and attain their largest size, some specimens obtained by these gentlemen having measured 28 inches at the shoulder.

The Common Duiker no doubt extends far up the west coast of Africa.

Although not mentioned by Andersson or Bains as occurring in Damaraland, it has been recorded by M. Du Bocage as having been obtained by Anchieta in Angola, and there are specimens in the British Museum from the same country transmitted by Gabriel, upon which Gray established his species *Grimmia splendidula*. But along the eastern side of Africa the range of this little Antelope, or of slightly representative forms, which at present we are quite unable to distinguish, is much more extensive. The Duiker is found throughout the Transvaal, and the great hunter Mr. F. C. Selous informs us that during his extensive journeyings north and south of the Zambezi, except in districts devoid of bush or covered by steep rocky hills, he has always met with this Antelope. According to this experienced observer, individuals, though shot in the same district, vary much in colour, some skins being of a greenish tinge and others of a reddish brown, while specimens from the borders of the Kalihari have less white upon the belly than others. Contrary to Cornwallis Harris and other testimony, Mr. Selous states that the females are almost always hornless, though he had met with three examples of this sex bearing horns. On the Zambezi and elsewhere in Mozambique Peters met with specimens of this Antelope, which he described and figured in his 'Reise' as new species under the names *Antelope altifrons* and *A. ocularis*. These names are now generally regarded as synonymous with *Cephalophus grimmi*. A third name, without any mention of the other two, has recently been added from the same region by Dr. Lorenz, and this we are equally unable to recognize as valid.

Throughout Nyasaland, as we are assured by Mr. R. Crawshay (P. Z. S. 1890, p. 661) the Duiker is very generally met with, except on the bare open plains or in very steep rocky country. Like Mr. Selous, Mr. Crawshay notices the variation in colour of this Antelope, which ranges from a reddish brown, not unfrequently tinged with green, to almost a dark red, while in some specimens the belly is more conspicuous for whiteness than in others.

North of Nyasaland the Duiker appears to extend across German East Africa into British East Africa, where it is well known to the sportsmen of the Kilima-njaro district. Mr. F. J. Jackson, in 'Big Game Shooting,' tells us that it is found throughout British East Africa, and extends as far west as Kavirondo. Herr Oscar Neumann informs us that he has obtained it in Uganda. At Taveta it frequents the low stony hills covered with long

grass and short scrub. On the coast it is found in open bush country and also in low scrub and grass. A skin in the British Museum is stated to have been obtained as high up as 10,000 feet on Kilima-njaro. Until recently we have believed the northern range of the Duiker not to extend beyond British East Africa; but quite lately Mr. F. Gillett, who accompanied Dr. Donaldson Smith during the first part of his adventurous expedition through Somali-land towards Lake Rudolph, has met with the Duiker on the confines of Galla-land. Mr. Gillett has favoured us with the following notes on this species:—

“ I killed three specimens of this Antelope on November 1st and 2nd, 1894; they consisted of a full-grown male and female and a young female. I only came across this species in a small area of country about 20 miles long by 10 wide, at an elevation of about 7000 feet. I found them living singly. The country consisted of long grass with clumps of bushes with plenty of water. It was not timid of man's presence, because my men saw it quite close to the Abyssinian encampment, where during the day there were always crowds of people moving about; besides which the country must have been densely populated not many years ago, signs of extensive cultivation being visible. But it hides away in the bushes, and when disturbed does not usually wait to make your acquaintance. The Galla name for it is ‘*Kompee*.’ The horns of the male lay back on the skull and measured 4 in. in length by $2\frac{1}{3}$ in circumference. The tips of the feet were black for about 2 inches. The old female had a fœtus in her. The young female measured 26 in. from anus to tip of nose and 17 in. the height at shoulder. A great number of them were seen in this place by Dr. Smith and Mr. Dodson, though the three I shot were the only ones I came across. One of my camelmén recognized it at once, saying he had often seen it in the Barterri country west of the Gadabursi country, where it is numerous and called Kodobo. It has not been killed there, to his knowledge, by any European. Harar, he said, was three days from the Barterri country; but he has never heard of it there or anywhere but in his own country, which he says is exactly similar to where I found these. I killed them at a place called Sheik Mahomet in the Galla country: long. about $40^{\circ} 28' 0''$, lat. about $7^{\circ} 15' 0''$.”

The Common Duiker is not unfrequently brought alive to this country, and examples may be seen in most of the European Zoological Gardens. On reference to our Zoological Society's catalogue it will be found that examples

of the Duiker-bok were received in 1867, 1872, and 1876. Since that period the register of the Society shows that as many as eleven examples have been received up to the end of last year. These have been of both sexes, and, according to the testimony of the keepers, most of, if not all, the females have carried short horns. But the Duiker-bok does not thrive in captivity in this country, and most of the specimens acquired have been short-lived.

Our two illustrations of the Common Duiker (Plate XXIII.) were prepared by Mr. Smit under the direction of the late Sir Victor Brooke. The lower figure represents the more uniformly-coloured and typical form; the upper shows the variety which has been called *ocularis* and is known by its more rufous head, whitish eye-stripe, and much paler inferior surface.

August, 1895.

GENUS II. TETRACEROS.

Type.

Tetraceros, Hardwicke, Trans. Linn. Soc. xiv. p. 524 (1825) . . . T. QUADRICORNIS.

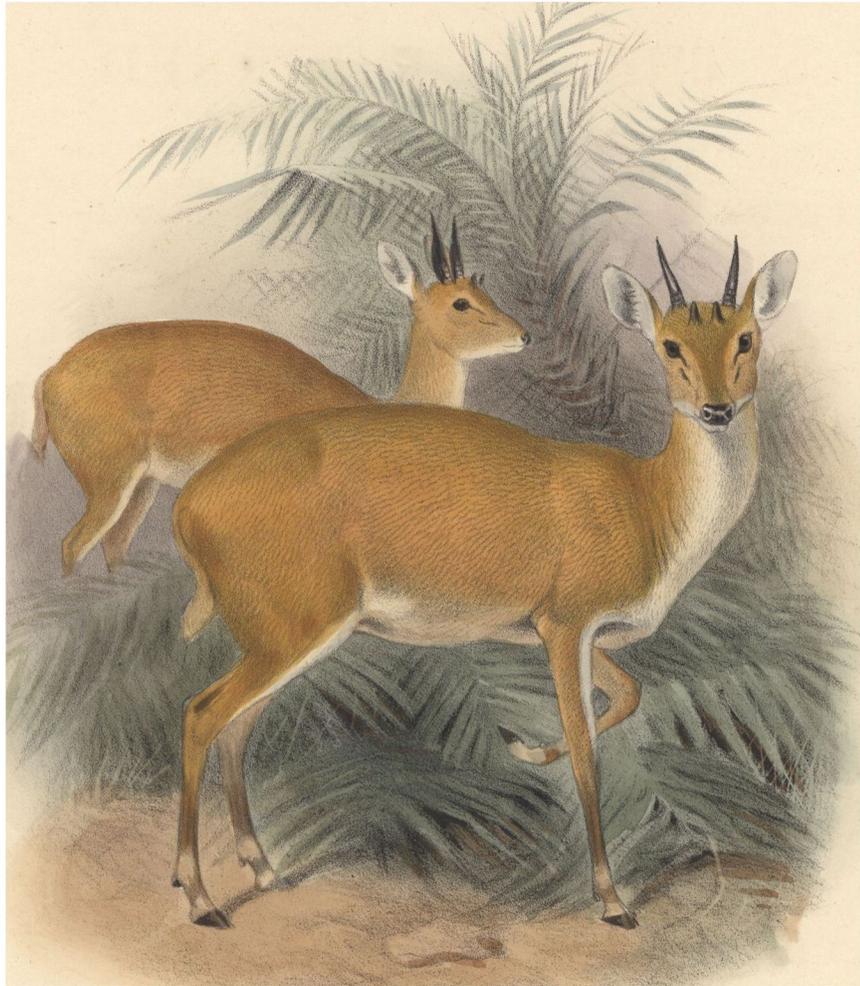
Size small; build slender; anteorbital glands large, oval, opening into a short deep slit on each side of the muzzle; crown not tufted; tail short; mammæ four.

Skull with large lacrymal fossæ; upper molar teeth without additional columns.

Horns normally four, the posterior, which correspond to the ordinary pair found in *Cephalophus*, placed as in that genus and similar in character, but directed more vertically upwards; anterior pair placed on the front part of the frontals, level with the front of the orbit, much shorter than the posterior pair, and often entirely absent. Female hornless.

Distribution. Peninsula of India.

This genus, the Indian representative of *Cephalophus*, contains only the Four-horned Antelope and its two-horned subspecies. The latter we follow Mr. Blanford, the latest and best authority on the subject, in considering as not specifically separable; but we have some hesitation in doing so, and have treated it as at any rate deserving the position of a recognizable subspecies.



Walt. and Swan. del.

The Four-horned Antelope.
TETRACEROS QUADRICORNIS.

Herbert imp.

Published by B. H. Foster.

39. THE FOUR-HORNED ANTELOPE.

TETRACEROS QUADRICORNIS (BLAINV.).

[PLATE XXIV.]

Subspecies T. Q. TYPICUS.

- Cerophorus (Cervicapra) quadricornis*, Blainv. Bull. Soc. Philom. 1816, pp. 75, 78; id. Journ. Phys., Aug. 1818, pl. fig. 3 (skull); id. Oken's Isis, 1819, p. 1095, pl. fig. 3 (skull).
- Antilope quadricornis*, Desm. N. Dict. d'H. N. (2) ii. p. 193 (1816); Schinz, Cuv. Thierr. i. p. 395 (1821); Desm. Mamm. ii. p. 466 (1822); Goldf. Schreb. Säug. v. p. 1243 (1824); Less. Man. Mamm. p. 281 (1827); Fisch. Syn. Mamm. p. 471 (1829); Waterh. Cat. Mamm. Mus. Z. S. (2) p. 42 (1838).
- Antilope (Tetraceros) quadricornis*, H. Sm. Griff. An. K. iv. p. 256, v. p. 845 (1827); Less. H. N. Mamm. (Compl. Buff.) x. p. 292 (1836); Gerv. Dict. Sci. Nat. Suppl. i. p. 262 (1840); Less. N. Tabl. R. A., Mamm. p. 178 (1842); Wagn. Schr. Säug. Suppl. iv. p. 439 (1844), v. p. 410 (1855); Gieb. Säug. p. 323 (1859).
- Antilope (Grimmia) quadricornis*, Laurill. Dict. Univ. d'H. N. i. p. 624 (1839).
- Tetraceros quadricornis*, Gray, List Mamm. B. M. p. 159 (1843); id. Cat. Hodgson Coll. (1) p. 26 (1846); Sund. Pecora, K. Vet.-Ak. Handl. 1844, p. 189 (1846); id. Hornschuch's Transl., Arch. Skand. Beitr. ii. p. 141; Reprint, p. 65 (1848); Gray, List Ost. B. M. p. 57 (1847); id. Knowsl. Men. p. 6 (1850); Blyth, J. A. S. B. xvi. pt. 2, p. 879 (1847), et xvii. pt. 1, p. 561 (1848); id. Cat. Mamm. Mus. Asiat. Soc. p. 165 (1863); Gray, P. Z. S. 1850, p. 117; Turner, P. Z. S. 1850, p. 170; Horsf. Cat. Mamm. Ind. Mus. p. 167 (1851); Gray, Cat. Ung. B. M. p. 68, pl. ix. fig. 1 (skull) (1852); Adams, P. Z. S. 1858, p. 522 (Dehra Doon); Gerrard, Cat. Bones Mamm. B. M. p. 234 (1862); Gray, Cat. Hodgs. Coll. (2) p. 13 (1863); Jerd. Mamm. Ind. p. 274 (1867); Blanf. J. A. S. B. xxxvi. p. 196 (1868); Fitz. SB. Wien, lix. pt. 1, p. 169 (1869); McMaster, Notes on Jerdon's Mamm. of

- India, p. 126 (1870); **Gray**, Cat. Rum. B. M. p. 18 (1872); *id.* Hand-l. Rum. B. M. p. 89 (1873); **Kinloch**, Large Game Shooting, ser. 2, p. 54 (with plate) (1876); **Brehm**, Thierl. iii. p. 252, figure (animal) (1880); **Sci. List An. Z. S.** (8) p. 148 (1883); **Weldon**, P. Z. S. 1884, p. 2 (placentation); **Murray**, Zool. Sind, p. 55 (1884); **Flow. & Gars.** Cat. Ost. Coll. Surg. ii. p. 270 (1884); **Jent.** Cat. Ost. Leyd. Mus. (Mus. Pays-Bas, ix.) p. 130 (1887); **Flow. & Lyd.** Mamm. p. 338 (1891); **Blanf.** Mamm. Brit. Ind. p. 519 (1891); **Sci. f. Cat. Mamm. Calc. Mus.** ii. p. 168 (1891); **Jent.** Cat. Mamm. Leyd. Mus. (Mus. Pays-Bas, xi.) p. 159 (1892); **Ward**, Horn Meas. p. 78 (1892); **Lyd.** Horns and Hoofs, p. 149 (1893).
Tchicara, **F. Cuv.** H. N. Mamm. fol. iii. livr. xliv. (animal, ♂) (1824).
Antilope chickara, **Hardw.** Trans. Linn. Soc. xiv. p. 520, pls. xv. (♂), xvi. (♀) (1825); **Hills**, op. cit. xv. p. 501, pl. xix. (♂) (1827); **Less.** Man. Mamm. p. 381 (1827); **Fisch.** Syn. Mamm. p. 471 (1829); **Hodgs. J. A. S. B.** i. p. 346 (1832); *id.* P. Z. S. 1834, p. 99; **Kaup**, Thierr. i. p. 179 (1835); **Less.** H. N. Mamm. (Compl. Buff.) x. p. 292 (1836); **Schinz**, Syn. Mamm. ii. p. 424 (1845).
Tetracerus chickara, **Hodgs. J. A. S. B.** x. pt. 2, p. 913 (1841).
Tetracerus chickara, **Jard. Nat. Libr.** (1) vii. p. 224 (1842); **Blyth**, J. A. S. B. xi. p. 451.
“*Tetracerus striaticornis*, **Leach**,” **Brookes**, Cat. Mus. p. 64 (1828); **Gray**, Cat. Ung. B. M. p. 68 (1852), *et auct. al.*
Biche des Mariannes, *Cervus latipes*, **F. Cuv.** H. N. Mamm. fol. iv. livr. lxxv. (animal, ♀) (1832); *apud* **Sund.** Pecora, K. Vet.-Ak. Handl. 1844, p. 189 (1846).
Cervus (Stylloceros) latipes, **Less.** N. Tabl. R. A., Mamm. p. 174 (1842).
Antilope tetracornis, **Hodgs. J. A. S. B.** iv. p. 525 (1835), v. p. 242 (1836).
Tetracerus chickara, *quadricornis*, *iodes*, and *paccerois*, **Hodgs.** Calc. Journ. N. H. viii. pp. 89, 90, pl. iv. (animals & skulls) (1847).

Subspecies T. q. SUBQUADRICORNUTUS.

- Antilope sub-4-cornutus*, **Elliot**, Madr. Journ. x. p. 225, pl. iv. fig. 2 (head) (1839) (Dharwar, S. Bombay).
Tetracerus subquadricornutus, **Hodgs.** Calc. Journ. N. H. viii. p. 89 (1847); **Gray**, Knowsl. Men. p. 7 (1850); *id.* P. Z. S. 1850, p. 117; *id.* Cat. Ung. B. M. p. 70 (1852); **Gerr.** Cat. Bones Mamm. B. M. p. 235 (1862); **Fitz.** SB. Wien, lix. pt. 1, p. 170 (1869); **Gray**, Cat. Rum. B. M. p. 19 (1872); *id.* Hand-l. Rum. B. M. p. 89 (1873); **Sci. P. Z. S.** 1875, p. 527; **Garrod**, P. Z. S. 1877, p. 4 (anatomy); **Sci. List An. Z. S.** (8) p. 148 (1883).
Tetracerus subquadricornis, **Gray**, List Mamm. B. M. p. 159 (1843); **Turner**, P. Z. S. 1850, p. 170.

VERNACULAR NAMES :—*Chousingha*, *Chouka*, or *Doda*, Hindi; *Benkra* or *Bekra*,

Mahratti ; *Bhokra*, *Phokra*, Guzerati ; *Bhirki* at Saugor ; *Bhir*, Gond ; *Bhirul*, Bheel ; *Kotari* in Chutia Nagpur ; *Kurus*, Gonds of Bastar ; *Konda-gori*, Telugu ; *Kond-guri*, *Kaulla-kuri*, Canarese ; *Jangli Bakri* in the Deccan (*Blanford*). The Southern Indian names may be taken as referring to subsp. *subquadricornutus*.

Height at withers about 25 inches. General colour dull rufous brown, whitish below, the line of demarcation on both sides not sharply defined. Muzzle, outer side of ears, and a line down the front of the limbs blackish brown. Outer sides of fetlocks whitish.

Skull and horns as described above (p. 213). Dimensions of an adult male skull : basal length 6·5 inches, greatest breadth 3·2, muzzle to orbit 3·65.

Horns straight, or the posterior pair slightly curving forwards ; the latter are from two to three times the length of the anterior pair. Mr. Blanford states that the anterior are usually from 1 to 1½ inch long, while the posterior are from 3 to 4 inches ; while the best head recorded by Mr. R. Ward, from the collection of Sir E. Loder, has a front horn of 2½, a back one 4¾ inches.

The subspecies *T. q. subquadricornutus* is similar in all respects to the typical form, with the exception that the anterior horns are either entirely absent, or are represented merely by small horny knobs, which often fall off and leave a black callous patch.

Hab. Peninsula of India, south of the Himalayas (in suitable localities).

The Four-horned Antelope, the single representative of the genus *Tetraceros*, is the only member of this subfamily of Antelopes found in Asia, and in its present distribution is confined to India south of the Himalayas. This species was first named by the French zoologist De Blainville, in course of a memoir read before the Société Philomathique of Paris in 1816. It was based upon a skull which he appears to have seen in London in the Museum of the Royal College of Surgeons. For several years little more was known of this animal, but in 1824 it was figured by Geoffroy St.-Hilaire and F. Cuvier in their 'Histoire Naturelle des Mammifères,' from a drawing (accompanied by notes) forwarded to them by Duvaucel, a well-known French naturalist who was then in India. In the meantime Major-General Thomas Hardwicke, a name well known in Indian zoology, who had become well acquainted with the animal during his residence in India, had described it in a memoir read before the Linnean Society in 1823. Owing to the delay

in the publication of Hardwicke's paper, which was printed in the fourteenth volume of the Linnean Society's 'Transactions,' the description and figure of this animal in the 'Histoire Naturelle des Mammifères' appeared first, as is stated by Hardwicke in an addendum to his memoir. Hardwicke declared that Duvaucel's figure and notes had been taken from a drawing which that naturalist saw in Hardwicke's possession when he visited the Major-General at Dum-dum in 1822. Hardwicke states that on that occasion Duvaucel also saw specimens of both sexes of this animal, which were then alive in his possession, and suggests that Duvaucel's imperfect notes were also drawn up on this occasion. As this seems a very probable explanation of what took place, I think that we must allow that our countryman Hardwicke was the first to recognize this species, although it is unfortunate that he gave it the name of *Antilope chickara*, as that vernacular name is, throughout all India, applied to the Indian Gazelle.

In 1839 Sir Walter (then Mr.) Elliot, in his Catalogue of the Mammals of the Southern Mahratta country, published in the 'Madras Journal' for that year, proposed, rather hesitatingly, to separate the form of this Antelope which occurs in that district under the name *subquadricornutus*, from the fact that the anterior pair of horns are in some cases not developed at all, and in other cases only occur as small projections on the skull. But Blyth, one of our leading authorities upon Indian mammals, after discussing this question, came to the conclusion that the specimens forwarded to Calcutta by Mr. Elliot did not differ specifically from the common Bengal form, the fact being that in this Antelope the development of the front horns is very variable, and that in many cases these organs appear to be reduced to mere tubercles, or to be altogether absent. Blyth allowed that this reduction of the front horns is more general in specimens from the southern districts of India, although individuals with fully developed front horns are likewise occasionally found in that part of its range. Blyth also subsequently stated that he had seen horns of both the supposed species which had been obtained in the same district near Midnapore (see J. A. S. B. xvi. pt. 2, p. 879).

A figure of the head of the Four-horned Antelope is given by General Kinloch in his useful work on 'Large Game Shooting in Thibet and the North-West.' His account of this species is as follows:—"Four-horned Antelopes are generally found alone, or frequently in pairs; they conceal themselves in long grass or among low bushes, and somewhat resemble hares

in their habits. They are seldom to be seen out feeding, but usually jump up at the feet of the hunter and bound away at a great pace. I have observed that they generally make their appearance when least expected, and I do not recollect ever meeting with one among the Sewaliks when I have been actually hunting for them."

In 1847 Hodgson, the well-known naturalist of Nepal, in a paper published in the 'Calcutta Journal of Natural History,' went even further than Sir Walter Elliot and proposed to make five species of this Antelope. These species appear to have been founded upon individual variations only and have not met with acceptance in any quarter.

Referring to Mr. W. L. Sclater's 'Catalogue of the Specimens of Mammals in the Indian Museum, Calcutta' (part ii., 1891), we find a good series of specimens of the Four-horned Antelope registered as being preserved in that Institution. But only one species is recognized from all parts of India, and the specimens are all entered under *Tetraceros quadricornis*.

In his excellent 'Manual of the Mammals of British India' Dr. W. T. Blanford describes the range of this Antelope as follows:—"The Four-horned Antelope is found all along the base of the Himalayas from the Punjab to Nepal. It also occurs in most parts of the Peninsula where the country is wooded and hilly, but not in dense jungle, but is not found in the Gangetic plain nor on the Malabar coast in the Madras Presidency. It is said by Mr. Murray to be met with in Sind. It is common in the wooded parts of Rajputana, throughout the Bombay Presidency, the Central Provinces, and the northern parts of Madras; it is less abundant to the eastward in Chhattisgarh, Chutia Nagpur, Bengal, and Orissa, and to the southward in Mysore, but it occurs in the latter State occasionally, and has been observed on the Nilgiri and Palni hills. It is unknown in Ceylon and east of the Bay of Bengal."

The experienced sportsman Mr. J. D. Inverarity of Bombay writes of this species as follows:—"This is a forest-antelope, living entirely in the jungle. It is not gregarious, but is met with either alone or in pairs. The female brings forth one or two young, and occasionally the two old and two young ones may be seen together. Though not forming a special object of pursuit, a shot at the 'Baikrie,' as it is generally called on the Bombay side of India, is often got when out stalking other game. If you see one before it sees you it is fairly easy to stalk it; but it more often happens that they see you first,

when they will not admit of approach. On three or four occasions they have stood stupidly looking at me as I walked in full view slowly towards them, and have allowed me to get within 20 yards before bolting. This only occurs when one does not want to shoot them. Forsyth says that the females are more numerous than the bucks, and bear the same proportion to each other as the does and bucks of the black buck. At one time I thought the same myself, but further experience has made me sure that this is not the fact, and that bucks are nearly, if not quite, as numerous as does. The female is hornless. The male has four horns; the posterior and larger pair in a good specimen will be four inches long or a little more. One-and-a-half inches is a good length for the anterior horns and is not often exceeded. In some heads the anterior horns are absent, though the bony knobs are covered with a callous black skin."

The Four-horned Antelope is not unfrequently brought alive to Europe, but cannot be said to accommodate itself very readily to our northern climate. In 1868 a single specimen was received by the Zoological Society of London as a present from the Babu Rajendra Mullick, of Calcutta. In 1881 a pair of the typical form were acquired by purchase, and bred in the Regent's Park in the following spring. A female calf was born on February 28th, 1882.

In 1875 three examples of the subspecies (or variety) without the anterior horns were obtained by purchase. Several examples of this same form have been received of late years, but have not thriven in the Society's Gardens. At the present time there is only a single female left in the Collection.

Our figure of this Antelope (Plate XXIV.) was lithographed by Smit from a sketch of Mr. Wolf's. It represents an adult male of the typical subspecies in two positions.

August, 1895.