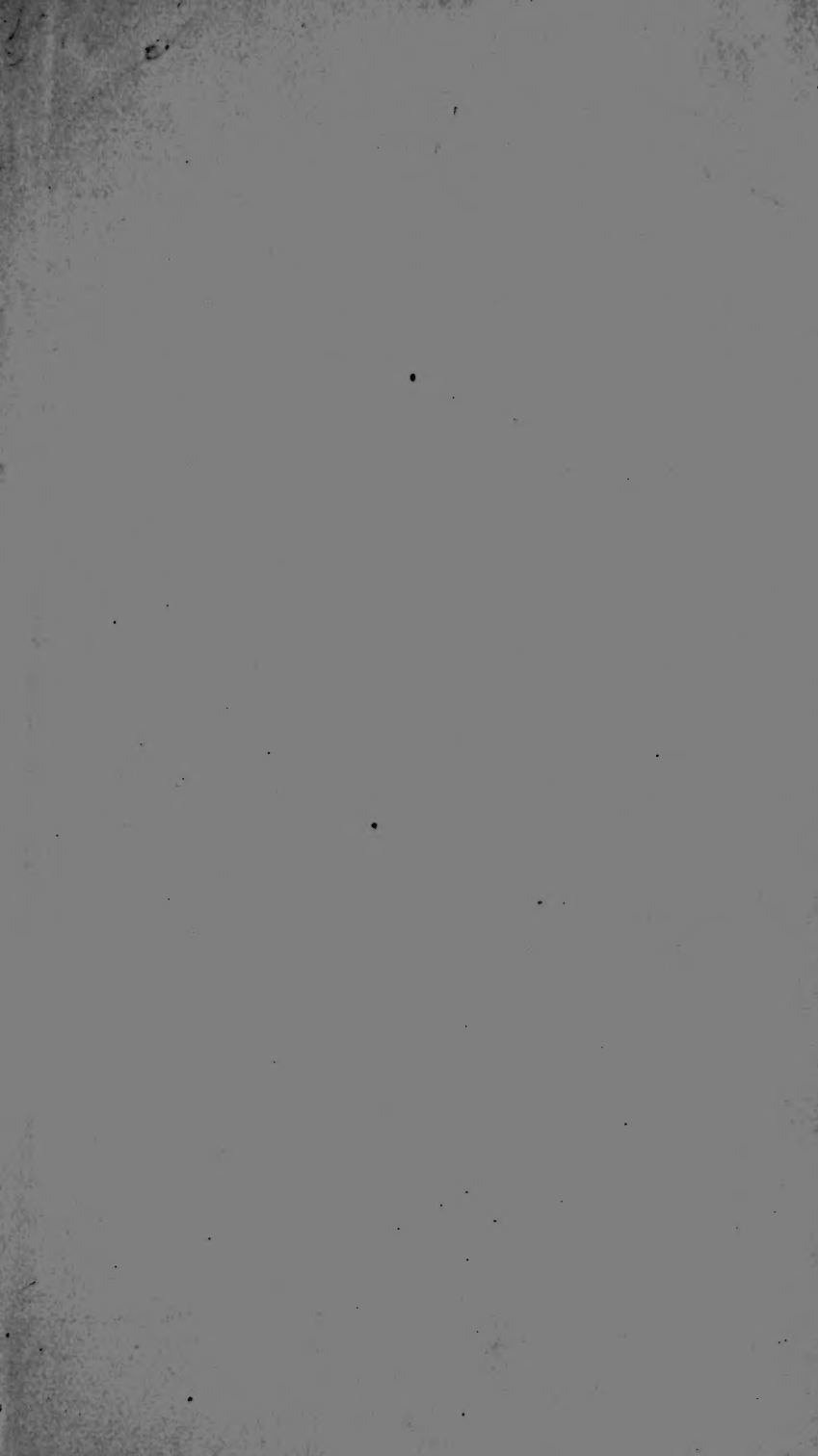


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# CATALOGUE

OF THE SPECIMENS OF

59.9:07(421)

M A M M A L I A

IN

THE COLLECTION

OF THE

BRITISH MUSEUM.

By T. E. Gray

PART III.

UNGULATA FURCIPEDA.

LONDON:

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1852.

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## P R E F A C E.

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THE chief object in preparing the present Synopsis has been, to give at one view a complete Catalogue of all the specimens of Mammalia, and their Osteological remains, at present in the British Museum Collection, and an account of the species known to exist in other collections, but which are at present desiderata in the British Museum, so as to enable travellers, collectors, and others, to assist in completing the National Collection. For this purpose, a short description has been given of all the genera and species at present known to exist in the different museums and private collections, and at the end of each description is added an enumeration, stating the state, age, country, and other peculiarities of each specimen of the kind in the Museum Collection; or when the species is not at present in that Collection, the museum, in which it has been observed, is added after the general habitat of the species.

The different individuals of each species contained in the British Museum Collection are indicated by the letters *a*, *b*, *c*, &c. When the age of the specimen is not stated, it is to be understood that it is full-grown, or nearly so; when other-

wise, its state is marked immediately after the letter by which it is distinguished ; and if the sexes are known, it is stated to be male or female. These particulars are followed by the habitat, which is given as particularly as the materials possessed by the Museum permit. Those specimens which have been presented to the Museum have the name of the donor marked immediately after the habitat. When there is no such indication, the specimens have been either purchased or procured in exchange ; and in this case, whenever the place or person from whence they have been received gives authenticity to the specimen, or adds anything to their history, they are noted as being from such or such a collection.

The various synonyms have been given to the different divisions of the class, and to the genera and subgenera and species, and a reference made to the works in which they have been characterized or described.

In the adoption of the names for these divisions and for the names of the genera and species, it has been thought right to use, whenever it was possible, that which was first used for the purpose. As far as regards the specific name, there is comparatively little difficulty in the application of this simple rule ; but ordinal, and especially generic names, have been used by different authors in senses so widely different, and the groups which they are intended to designate have been so variously extended and restricted, that it is no easy matter to determine, where several names have been used, which of them ought to be preferred. As every original observer will constantly make use of characters which others may have overlooked, or not thought of so much importance as further researches have shown to belong to it, even when a generic name is used, it will of necessity be often employed in a different sense, or with a more restricted

or very rarely a more extended meaning than its original proposer applied to it. If this was not allowed, many new names must be added to the list of genera, which is already so overburdened with synonyma. In those cases where the two sexes of the same species, or any particular individual state or variety belonging to it, have been differently named, the names belonging exclusively to the state or individual described are placed after the reference to the specimens to which they apply. To determine with accuracy the names and synonyma of the species, the various specimens, skeletons and other remains of Hoofed animals in the Museums of the Zoological Society, of the East India Company, of the Naval Hospital at Haslar, and of the different local Societies, especially those of Liverpool, Bristol, &c., and the various continental Museums of Paris, Leyden, Berlin, Vienna, and Frankfort, have been personally examined, and in many cases the specimens contained in those Museums have been sent to the Museum, so that they could be actually compared with specimens in the Museum Collection.

JOHN EDWARD GRAY.

*British Museum,*

*1st December, 1852.*

den

Artiodactyla

1 Bovidae, Bos.

2 Antilopidae, Aigoceros  
Cephalophus

Antilocapra  
Tetraceros  
Sivatierium  
Bramatherium

3 Ovidae  
Capra  
Ovis

4 Camelopardalidae  
Camelopardalis

5 Moschidae  
Moschus  
Saqualus  
Orcatherium

6 Cervidae  
Cervus  
Megaceros

7 Camelidae  
Camelus  
Anatula (Hames)

Hippocampus  
Dasyatis

Ungulata

Order a <sup>vii</sup> Artiodactyla  
1 Omnivora  
2 Ruminantia

6 Perissodactyla  
3 Sphingomorphi  
4 Multituberculata  
5 Proboscidea  
5 Elephas  
6 Dicotyles

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CATALOGUE  
OF  
M A M M A L I A.

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Order V. UNGULATA.

Teeth irregular. Cutting and canine teeth often wanting in one or both jaws. Grinders all similar, sometimes even wanting. Toes large, covered with broad hoofs or large conical claws.

Ungulata, *Ray, Syn.* 60, 1693; *Link, Beytr.* 1795; *Gray, Lond. Med. Rep.* xv. 305, *Ann. Phil.* 1825; *Latr. Fam. Nat.* 60, 1825; *Pomet, Rev. Zool.* 1848, 181.

Multungula, Solidungula et Bisulca, *Illiger, Prod.* 94, 101, 103, 1811.

Mam. 2. Bruta, 5. Pecora, and 6. Belluæ, *Linn. Syst. Nat.* ed. 12. i. 26, 1766.

Gravigrades or Onguligrades normaux, *Blainv.* 1816.

Les Edentes, Les Pachydermes, et Les Ruminans, *Cuvier, R. A.* i. 215, 227, 246, 1817; ed. 2. i. 223, 1829.

Edentata et Ungulata, *Latr. Fam. Nat.* 1825.

M. ungulorum, *Storr. Prod. Mam.* 47, 1780.

Q. Proboscidiæ, Tesserachenæ, Trichænaæ, Monochænaæ, Hydrophoræ, et Ruminantes, *Gray, Lond. Med. Rep.* xv. 307, 1821.

Belluæ, Pecora, et Bruta, *Selys Longchamps.*

Mam. Stereoplia, Pachydermia, et Anodonea, *Rafin. Anal. Nat.* 54-57, 1815.

These animals have been arranged by various scientific authors in the following manner:—

Ray, in the *Synopsis Methodica Animalium Quadrupedum*, 1693, 60, divides the viviparous, hairy animals or quadrupeds, thus:—

A. UNGULATA. I. *Solidipeda*. Equus, Asinus, Zebra.

II. *Bisulca*. 1. *Ruminantia*. a. Bos, Ovis, Capra. b. Cervus.

2. *Non-ruminantia*. Sus.

III. *Quadrifulca*. Rhinoceros, Hippopotamus, &c.

B. UNGUICULATA. 1. *Bifido*. Camelus. 2. *Multifido*.  
a. *Digitis indivisis*. Elephas. 3. *Anomala*. Tatou sive Armadillo, Tamandua, and Ai sive Ignavus.

Linnæus (*Systema Naturæ*, ed. 12, 1766) divides the Hoofed animals into three orders, and arranges the genera thus:—

Order II. BRUTA. 5. Elephas. 7. *Bradypus*. 8. *Myrmecophaga*. 9. *Manis*. 10. *Dasypus*.

Order V. PECORA. 27. Camelus. 28. *Moschus*. 29. *Cervus*. 30. *Capra*. 31. *Ovis*. 32. *Bos*.

Order VI. BELLUÆ. 33. *Equus*. 34. Hippopotamus. 35. *Sus*. 36. Rhinoceros.

Thomas Pennant, in the *Synopsis of Quadrupeds*, 1771, 8vo, divides these animals thus:—

I. HOOFED QUADRUPEDS. 1. *Whole-hoofed*. Horse. 2. *Cloven-hoofed*. Ox, Sheep, Goat, Giraffe, Antelope, Deer, Musk, Camel, Hog, Rhinoceros, Hippopotame, Tapir, Elephant.

II. DIGITATED QUADRUPEDS. 4. *Without cutting teeth*. Sloth and Armadillo. 5. *Without teeth*. *Manis*, Ant-eater.

Professor Charles Illiger (*Prodromus Systematis Mammalium et Avium*, 1811) arranged the Hoofed quadrupeds as follows:—

Order V. MULTUNGULA. Fam. 16. *Lamnunguia*. 55. *Lipura*. 56. Hyrax. 17. *Proboscidea*. 57. Elephas. 18. *Nasicornia*. 58. Rhinoceros. 19. *Obesa*. 59. Hippopotamus. 20. *Nasuta*. 60. *Tapirus*. 21. *Setigera*. 61. *Sus*.

Order VI. SOLIDUNGULA. 22. *Solidungula*. 62. *Equus*.

Order VII. BISULCA. 23. *Tylopoda*. 63. Camelus. 64. *Auchenia*. 24. *Devexa*. 65. *Camelopardalis*. 25. *Capreoli*. 66. *Cervus*. 67. *Moschus*. 26. *Cavicornia*. 68. Antelope. 69. *Capra*. 70. *Bos*.

Order VIII. TARDIGRADA. 27. *Tardigrada*. 71. *Bradypus*. 72. *Cholæpus*. 73. *Prochilus*.

Order IX. EFFODIENTIA. 28. *Cingulata*. 74. *Tolypeutes*. 75. *Dasypus*. 29. *Vermilingua*. 76. *Orycteropus*. 77. *Myrmecophaga*. 78. *Manis*.

Order X. REPTANTIA. 30. *Reptantia*. 79. *Tachyglossus*. 80. *Ornithorhynchus*. 80 b. *Pamphractus*.

C. S. Rafinesque (in his *Analyse de la Nature*, 12mo, 1815) divides the Hoofed quadrupeds into orders, thus:—

Order IV. STEREOPLIA. 1. *Stereopodia*. Fam. 8. *Solipedia*. *Caballus*. 2. *Bisulcia*. Fam. 9. *Camelinia*. Camelus, *Moschus*. Fam. 10. *Ruminalia*. 1. *Stereoceria*. *Cervus*, *Muntjacus*, Giraffa. 2. *Cerynxia*. *Taurus*, *Aries*, *Hircus*, Antelope, &c.

Order V. PACHYDERMIA. Fam. 11. *Bellua*. 1. *Rhinoceria*.



Rhinoceros and Unicornus. 2. *Rhineteria*. Elephas, Tapirus, Aper, Tagassus, Babirussa, Pachurus. Fam. 12. *Brutia*. 1. *Hyraxia*. Hippotamus, Hyrax.

Order VI. ANODONEA. 1. *Bradypia*. Fam. 13. *Tardigradia*. Bradypus, Unaus. 14. *Dasypia*. Dasypus, Matuscus, Oryctopus. 4. *Stomalia*. 15. *Manisia*. 1. Perilepia, Pangolinus, Phataginus. 2. Tamandania, Myrmecophaga, Tamandua. 16. *Monotremia*. Echidna and Ornithorinchus.

Cuvier (*Règ. Animal*, i. 215, 1817) places the Hoofed quadrupeds in three orders, thus:—

Order I. EDENTES. *a. Tardigrades*. 1. Paresseux (Bradypus). 2. Megatherium. *b. Edentes ordinaires*. 3. Tatous. 4. Orycteropes. 5. Fourmiliers. 6. Pangolins. *c. Monotremes*. 7. Echidnes. 8. Ornithorinque.

Order II. PACHYDERMES. *a. Proboscidiens*. 1. Elephans. 2. Mastodontes. *b. Pachydermes ordinaires*. 3. Hippopotames. 4. Cochons. 5. Anoplotherium. 6. Rhinoceros. 7. Damans (Hyrax). 8. Palæotherium. 9. Tapirs. *c. Solidipedes*. Chevaux (Equus).

Order III. RUMINANS. *a. Sans cornes*. 1. Chameux (Camelus). 2. Chevrotains (Moschus). *b. Avec cornes*. 3. Cerfs (Cervus). 4. Girafes. 5. Antelopes. 6. Chèvres (Capra). 7. Moutons (Ovis). 8. Bœufs (Bos).

The same arrangement, with rather more detail, is used in the second edition, published in 1829.

Mr. J. E. Gray, in the Natural Arrangement of Vertebrate Animals (*Medical Repository*, 1821, 304), arranged the Ungulated Mammalia into order thus:—

Order VI. TARDIGRADA. 1. *Bradypidæ*. Bradypus, Unaus.

Order VII. OLIGODONTÆ. 2. *Dasipidæ*. Dasypus. 3. *Orycteropidæ*. Orycteropus.

Order VIII. EDENTULÆ. 1. *Manidæ*. 1. Myrmecophaga. 2. Tamandua. 3. Cyclopes. 4. Manis.

Order IX. PROBOSCIDIÆ. 1. *Elephantidæ*. Elephas.

Order X. TESSERACHENÆ. 1. *Hippopotamidæ*. Hippopotamus. 2. *Suidæ*. Sus, Phacochæres, Dicotyles, Babiroussa.

Order XI. TRICHENA. 1. *Rhinoceridæ*. Rhinoceros, Monoceros. 2. *Hyracidæ*. Hyrax. 3. *Tapiridæ*. Tapirus, Hydrochærus (sumatranus).

Order XII. MONOCHÆNA. 1. *Equidæ*. Equus.

Order XIII. HYDROPHORA. 1. *Camelidæ*.

Order XIV. RUMINANTIA. 1. *Moschidæ*. Moschus, Memina. 2. *Cervidæ*. Alces, Cervus, Capreolus. 3. *Girafidæ*. Camelopardalis. 4. *Antilopidæ*. Dorcas, Caama, Oryx, Tseeran,

Canna, Nylgau, Catablepas. 5. *Capridæ*. Capra, Ovis. 6. *Bovidæ*. Bos.

Mr. Gray, in the "Outline of the Distribution of Mammalia" (*Annals of Philosophy*, 1825), proposes to divide the Order UNGULATA thus:—

I. Middle toes large, equal. Fam. 1. *Bovidæ*. 2. *Equidæ*.

II. Toes 3, 4, 5, subequal. Fam. 3. *Elephantidæ*. 4. *Dasy-  
pidæ*. 5. *Bradypidæ*.

This arrangement is followed in the List of Mammalia in the Collection of the British Museum, 1843; the List of Osteological Specimens in the British Museum, 1847; the List of Mammalia and Birds of Nepaul, presented by B. H. Hodgson, Esq., to the British Museum; and in this work.

Dr. J. B. Fischer (in the *Synopsis Mammalium*, 8vo, 1828) combines together the Linnæan and Cuvierian arrangement, and arranges the Hoofed Mammalia thus:—

Order VI. BRUTA. a. 102. *Bradypus*. 104. *Dasypus*. 105. *Orycteropus*. 106. *Myrmecophaga*. 107. *Manis*. b. 108. *Echidna*. 109. *Ornithorhynchus*.

Order VII. BELLUA. 110. *Elephas*. 112. *Tapirus*. 115. *Rhinoceros*. 117. *Hyrax*. 118. *Dicotyles*. 119. *Sus*. 120. *Phaco-  
chærus*. 121. *Hippopotamus*. 126. *Equus*.

Order VIII. PECORA. 127. *Camelus*. 128. *Lama*. 129. *Mos-  
chus*. 130. *Cervus*. 131. *Camelopardalis*. 132. *Antilope*.  
133. *Capra*. 134. *Bos*.

Wagler, in the *Naturl. System Amphibien*, 1830, divides the Hoofed animals thus:—

Order VI. SCROFÆ. 1. *Dicotyles*. 2. *Sus*. 3. *Porcus*.  
4. *Phaco-chærus*. 5. *Rhinochærus*. 6. *Elephas*. 7. *Hippopo-  
tamus*. 8. *Rhinoceros*.

Order VII. HYRACES. 1. *Hyrax*.

Order XIII. CAMELI. 1. *Camelus* and *Dromedarius*. 2. *Ca-  
melopardalis*.

Order XIV. PECORA. 1. *Moschus*. 2. *Cervus*. 3. *Bos*.

Order XV. EQUI. 1. *Equus*.

Order XVII. ORYCTEROPODES. 1. *Chlamydophorus*. 2. *Che-  
loniscus*. 3. *Xenurus*. 4. *Euphractus*. 5. *Dasypus*. 6. *Toly-  
peutes*. 7. *Orycteropus*.

Order XVIII. GLOTTIDES. 1. *Manis*. 2. *Uroleptes*. 3. *Myr-  
mydon*. 4. *Myrmecophaga*.

He forms a new class called GRYPHI, containing

Order I. ORNITHORHYNCHI. Fam. 1. *Glossilepti*. 1. *Tachy-  
glossus*. Fam. 2. *Autarchoglossi*. 1. *Ornithorhynchus*, arranged  
with the fossil *Ichthyosaurus*, *Plesiosaurus* and *Ornitho-  
cephalus*.

Latreille (*Fam. Nat. Reg. Anim.* 596. in 1830) divides the Hoofed quadrupeds (UNGULATA) thus:—

Order IX. PACHYDERMA. Fam. 1. *Pentadactyla*. Elephas. 2. *Tridactyla*. Tapirus, Rhinoceros. 3. *Fissipedes*. Hyrax, Dicotyles, Sus, Hippopotamus. 4. *Solipedes*. Equus.

Order X. PECORA. Fam. 1. *Inermia*. Camelus, Moschus. 2. *Plenicornia*. Cervus and Giraffa. 3. *Tubicornia*. Antilope, Bos, Capra, Ovis.

M. Lesson (*Nouveau Tabl. du Règne Animal*, 1842) arranges the Hoofed quadrupeds in the following orders:—

Suborder III. HETERODONTA. Cutting teeth none; teeth sometimes quite wanting.

Suborder IV. EDENTATA. *a. Terrestria*. Fam. 41. *Dasypodinae*. 206. Dasypus. 1. Dasypus. 2. Tatusia. 3. Priodontes. 4. Chlamyphorus. 42. *Myrmecophagineae*. 207. Myrmecophaga. 1. Myrmecophaga. 2. Tamandua. 3. Cyclothurus. 43. *Orycteropideae*. 208. Orycteropus. 44. *Manisidae*. 209. Manis. 1. Pangolinus. 2. Phataginus.

Tribe 5. UNGULIGRADA. 1. *Pachydermata*. 1. *Gravigrada*. Fam. 46. *Elephasidae*. 212. Elephas. 47. *Hippopotamidae*. 213. Hippopotamus. 48. *Rhinocerosidae*. 214. Rhinoceros. 2. *Fissipeda*. 49. *Susidae*. 215. Tapirus. 216. Phacochoerus. 217. Babirusa. 218. Sus. 219. Dicotyles. 50. *Hyraxineae*. 220. Hyrax. 3. *Solidungula*. 52. *Equideae*. 221. Equus. *a. Equus*. *b. Asinus*. 11. *Pecora*. 53. *Camelesidae*. 222. Lama. 223. Camelus. 54. *Camelopardineae*. 224. Camelopardalis. 55. *Cervisidae*. 225. Cervus. 1. Alces. 2. Rangifer. 3. Dama. 4. Elaphus. 5. Rusa. 6. Axis. 7. Capreolus. 8. Cariacus. 9. Cervequus. 10. Subula. 11. Stylocerus. 56. *Moschesidae*. 226. Moschus. 1. Moschus. 2. Memina. 3. Napu. 57. *Antilopeae*. 227. Antilope. 1. Antilope. 2. Gazella. 3. Dama. 4. Redunca. 5. Tragulus. 6. Raphicerus. 7. Tetracerus. 8. Cephalophus. 9. Spinigera. 10. Neotragus. 11. Nemorhedus. 12. Rupicapra. 13. Capricornis. 14. Dicranocerus. 15. Pantholops. 16. Anoa. 17. Ægocerus. 18. Oryx. 19. Alcelaphus. 20. Tragelaphus. 21. Boselaphus. 22. Orcas. 58. *Ovesidae*. 228. Kemas. 229. Antilocapra. 230. Capra. 231. Ovis. 232. Ovibos. 59. *Bovesidae*. 233. Catoblepas. 234. Bibos. 235. Bos. 1. Bison. 2. Bubalus. 3. Taurus.

Order III. ORNITHODEPHIE. 1. *Insectivora*. Fam. 69. *Echidneae*. 260. Echidna. 2. *Vermivora*. Fam. 70. *Paradoxideae*. 261. Ornithorhynchus.

Mr. Richard Owen (*Odontography*, 1840–1845) divides the UNGULATA thus:—

I. *Isodactyle*. “Hoofed quadrupeds with toes in even number,

as two or four, and which have a more or less complicated stomach with a moderate-sized simple cæcum, as *Ox*, *Hog*, *Peccary*, and *Hippopotamus*.

II. *Anisodactyle*. "Hoofed quadrupeds with toes (on the hind feet at least) in uneven number, as one, or three, or five, the latter number being manifest in the Proboscidiens. All these have a simple stomach and an enormous cæcum, as *Horse*, *Tapir*, *Rhinoceros*.

III. *Proboscidiens*. "Resembling the preceding in having toes in uneven number, in having a comparatively simple stomach and an enormous cæcum, but combining with a long proboscis so many other peculiarities of structure as to merit the rank of a distinct group of *Ungulata*."

In the *Quarterly Journal of the Geological Society* for 1848, p. 131, with his usual fondness of renaming old groups, Mr. Owen proposes to change the name he has given to the above group to—1. *Artiodactyla*, 2. *Perissodactyla*, and 3. *Proboscidia*. In this paper the recent genera are arranged in the following order:—

I. ARTIODACTYLA. \* *Ruminantia*. 1. *Moschus*. 2. *Antilope*. 3. *Ovis*. 4. *Bos*. 5. *Cervus*. 6. *Camelopardalis*. 7. *Camelus*. \*\* *Non-Ruminantia*. 1. *Hippopotamus*. 9. *Dicotyles*. 10. *Phacochærus*. 11. *Sus*.

II. PERISSODACTYLA. 12. *Tapirus*. 13. *Equus*. 14. *Hyrax*. 15. *Rhinoceros*.

III. PROBOSCIDIA. 16. *Elephas*.

This arrangement is only founded on the consideration of the osteological conformation of the foot, and has the disadvantage of most artificially separating a very natural group recognized by Aristotle, Ray, Linnæus, Illiger, Cuvier, and all recent authors, between two divisions of the order. Cuvier, Fleming, Blainville and others properly used the character here adopted to the whole group for the division of the *Pachydermata* into subdivisions.

Prince Charles Lucien Bonaparte (in his *Prodromus Systematis Mastozoologiæ*, 1847) arranges these animals in four orders, thus:—

Subclass I. EDUCABILIA. Ord. V. BELLUÆ. Fam. 13. *Elephantidæ*. Subfam. 23. *Elephantina*. 24. *Rhinocerotina*. 25. *Hippopotamina*. Fam. 14. *Suidæ*. 26. *Tapirina*. 27. *Suina*. 28. *Anoplotherina*. Fam. 15. *Hyracidæ*. 29. *Hyracina*. Fam. 16. *Equidæ*. 30. *Equina*.

Order VI. PECORA. Fam. 17. *Camelidæ*. 31. *Camelina*. Fam. 18. *Cervidæ*. 32. *Moschina*. 33. *Cervina*. Fam. 19. *Camelopardalidæ*. 34. *Camelopardalina*. Fam. 20. *Bovidæ*. 35. *Antilopina*. 36. *Bovina*.

Subclass II. INEDUCABILIA. Ord. VII. BRUTA. Fam. 21. *Myrmecophagidæ*. 37. Manidina. 38. Myrmecophagina. Fam. 22. *Dasypodidæ*. 39. Dasypodina. 40. Orycteropodina. Fam. 23. *Bradypodidæ*. 41. Bradypodina.

Series II. OVOVIPARA. Order XII. MONOTREMATA. Fam. 40. *Echidnidæ*. 74. Echidnina. Fam. 41. *Ornithorhynchidæ*. 75. Ornithorhynchina.

Mr. Turner, in his paper on the Skulls of Ungulated Mammalia (*Proc. Zool. Soc.* 1849, 158), adopts Mr. Owen's names for his orders, and arranges the genera as follows:—

I. ARTIODACTYLA. A. *Ruminantia*. 1. *Bovidæ*. Bos, Ovis, Capra, Antilope. 2. *Cervidæ*. Cervus and Camelopardalina. 3. *Moschidæ*. Moschina, Dichobudina. 4. *Camelidæ*. Anoplotheriana and Camelina. B. *Non-Ruminantia*. 5. *Hippopotamidæ*. Hippopotamina, Dicotylinæ. 6. *Suidæ*.

II. PERISSODACTYLA. A. *Typica*. 7. Rhinocerotidæ, Equina, Rhinocerina. B. *Aberrantia*. 8. Elephantidæ. 9. Toxodontidæ. 10. Manatidæ.

#### SYNOPSIS OF THE FAMILIES.

I. *Two middle toes large, equal. Bones of the metacarpus and metatarsus united.*

1. BOVIDÆ. Two middle toes separate; cutting teeth  $\frac{9}{8}$  or  $\frac{6}{8}$ ; grinders  $\frac{6}{8}$ ; frontal bones generally horned; gullet with two pouches.
2. EQUIDÆ. Two middle toes soldered into one; cutting teeth  $\frac{6}{8}$ ; gullet and stomach simple.

II. *Toes 3, 4, 5 to each foot, nearly equal. Teeth nearly in one series.*

3. ELEPHANTIDÆ. Grinders rooted, transversely ridged; toes 3·3, 3·4 or 5·5, last joint covered with a hoof; skin thick, nearly naked; hairs large, rigid; gullet simple.
4. DASYPIDÆ. Grinders rootless; crown flat, sometimes wanting; face long, acute; body armed with scales or rigid hairs.
5. BRADYPIDÆ. Grinders rootless; crown when young conical; face round; limbs elongate; hair dry, crisp; stomach two- or three-celled.

Or the Families may be arranged according to their teeth, thus:—

I. *Teeth well-developed, rooted. Fore-arm constantly prone. Toes hoofed.*

*Bovidæ.* Stomach for ruminating; toes 4, middle large.

*Equidæ.* Stomach not ruminating; toes 3, middle large.

*Elephantidæ.* Stomach not ruminating; toes subequal.

II. *Teeth wanting, or imperfect, rootless. Toes longly clawed.*

*Dasypidæ.* Face elongate.

*Bradypididæ.* Face short.

### Section 1. FURCIPEDA.

Two middle toes large, equal; bones of the metacarpus and metatarsus united.

Ungulata, Sect. 1, *Gray, Ann. Phil.* 1825.

Isodactyle, part., and Anisodactyle, part., *Owen, Odontography*, 1841.

Artiodactyla, part., and Perissodactyla, part., *Owen, Quart. Journ.*

*Geol. Soc.* 1848, 131; *Turner, Proc. Zool. Soc.* 1849, 158.

*Stereoplia Bisulcia, Rafin. Anal. Nat.* 55. 1815.

*Pecora, Sundevall, Kongl. Vet. Akad. Hand.* 1844; *Pecora*, 1848.

### Fam. 1. BOVIDÆ.

Two middle toes separate. Cutting teeth eight below; upper jaw callous; grinders 6·6 in each jaw. Frontal bones produced, generally bearing horns, especially in the males. Gullet with two long pouches just before the stomach, used for holding and soaking the food before it is chewed. Using their head and horns in defence.

*Ruminantia, Pallas, Zool. Ross. Asiat.* i. 192; *Bronn, Ind. Paleont.* ii. 708.

Q. *Ruminantia et Q. Camelinum, Ray, Syn.* 60. 1693.

*Bovidæ, Gray, Ann. Phil.* 1825; *List Mam. B. Mus.* xxvi.; *Storr, Prod. Mam.* 1780; *Lesson in Tab. R. A.* 167; *Fischer, Syn.* 1828.

*Mam. Pecora, Linn. S. N.* ed. 12. i. 90; *Latr. Fam. Nat.* 62. 1825; *Wagler, N. Syst. Amph.* 431. 1830; *Eichwald, Zool. Spec.* iii. 341. 1831.

*Les Ruminans (Ruminantia), Cuvier, Tab. Elem.* 1798; *Dum. Z. A.* 1806; *Cuvier, R. A.* i. 246. 1817, ed. 2. i. 254; *Desm. N. D. H. N.* xxiv. 31, 1804; *F. Cuvier*, 1829; *Dent. Mam.* 227; *Dict. Sci. Nat.* lix. 511.

Bisulca, *Illiger, Prod.* 102. 1811.

Cameli et Pecora, *Wagler, Amph.* 1831.

Gravigrades normaux, *Blainv.*

Q. Hydrophoræ et Ruminantes, *Gray, L. M. Rep.* xv. 307. 1821.

M. Callodactyles, *Pomet, Rev. Zool.* 1848, 283.

Ruminalia (Stereoceria et Cerynxia), *Rafin. Anal. Nat.* 55. 1815.

Ruminantia et Cœlocerata, *Bronn, Index Palæont.* ii. 788.

Cerophorus, *Blainv. Bull. Soc. Philom.* 1816, 74; *Gervais, Supp.*

*N. Dict. Sci. Nat.* i.

Pecora unguigrada et digitigrada, *Sundevall, Pecora.*

Isodactyla, part., *Owen, Odontography*, 1845.

Artiodactyla Ruminantia, *Owen, Quart. Journ. Geol. Soc.* 1848,

31; *Turner, Proc. Zool. Soc.* 1849.

Desmarest in his *Tableau Méthod. des Mammifères* (*N. Dict. Hist. Nat.* xxiv. 33. 1804) divides the Ruminants\* (Pecora) into the following sections:—

1. Camel and Musk. 2. Stags. 3. Giraffes. 4. Antelopes, Goats, Sheep and Oxen.

M. de Blainville in his *Notes on Ruminants* (*Bull. Soc. Philom.* 1816, 76) divides them thus:—

No horns—1. Chameaux. 2. Cerfs. Including Cervulus and Moschus.

With horns—3. Giraffe, and 4. Cerophorus. Including Antilope, Capra, Ovis vel Ammon, Ovibos and Bos.

Mr. Gray, in the "Outline of the Distribution of Mammalia" (*Ann. Phil.* 1825), proposed to divide the Bovidæ thus:—

I. Horns persistent. 1. Bovina. 2. Camelopardina.

II. Horns none or deciduous. 3. Camelina. 4. Moschina. 5. Cervina.

Colonel Hamilton Smith (*Griffith, A. Kingd.* v. . 1827; *Fischer, Syn.* 609. 1830) proposed to divide them thus:—

I. CAMELIDÆ, containing—1. Camelus. 2. Auchenia.

II. CERVIDÆ. 1. Moschus. 2. Cervus.

III. GIRAFFIDÆ. 1. Camelopardalis.

IV. CAPRIDÆ. 1. Antilope. 2. Capra. 3. Ovis. 4. Damalis.

V. BOVIDÆ. 1. Catoblepas. 2. Ovibos. 3. Bos.

Mr. Ogilby, in a paper on the genera of Ruminantia (*Proc. Zool. Soc.* 1836, 133), proposed to divide them thus:—

I. CAMELIDÆ. 1. Camelus. 2. Auchenia.

II. CERVIDÆ. 1. Camelopardalis. 2. Tarandus. 3. Alces. 4. Cervus, Capræa (Capreolus), Prox (Muntjac).

III. MOSCHIDÆ. 1. Moschus. 2. Ixalus. 3. Hinnulus and Capreolus.

IV. CAPRIDÆ. (Muffle none, browsers.) 1. Mazama. 2. Ma-

doqua. 3. Antilope. 4. Gazella. 5. Ovis. 6. Capra. 7. Ovibos.

V. BOVIDÆ. (Muffle naked, grazers.) 1. *Tragul* (*Ant. pygmeus*). 2. *Sylvicapra* (*A. Mergens*). 3. *Tragelaphus* (*A. picta*). 4. *Calliope* (*A. Strepsiceros*). 5. *Kemas* (*A. Goral*). 6. *Capricornis* (*A. Thar*). 7. *Bubalus* (*A. Bubalus*). 8. *Oryx* (*A. Oryx*). 9. *Bos*.

Lesson (*Nov. Tab. Reg. Anim.* 167. 1842) divides them into—  
1. *Camelidæ*. 2. *Camelopardinæ*. 3. *Cervidæ*. 4. *Moschidæ*. 5. *Antilopæ*. 6. *Ovesidæ*. 7. *Bovesidæ*.

Mr. Hodgson, in an Essay on various genera of Ruminants (*Journ. Acad. N. S. Calcut.* 1847; *Mission Press*, 1847), proposes to divide them into—1. *Cervidæ* or Haranadi; 2. *Moschidæ* or Mushkadi; 3. the *Cavicorniæ minores* or Flocks, as *Antilopidæ* or Sasinadi; 4. *Cavicorniæ majores* or Herds, as *Bovidæ* or Gaudrisha.

Professor Carl Sundevall in his Essay on *Pecora* (*Kongl. Vetensk. Akad. Handl.* 1844, 1846; and *Hornschuch, Archiv*, ii. 1848) proposes the following arrangement:—

A. UNGULIGRADA. a. *Cervicornia*. I. *Camelopardalina*. 1. *Camelopardalis*. II. *Cervina*. 2. *Alces*. 3. *Rangifer*. 4. *Cervus*. 5. *Capreolus*. 6. *Prox*. 7. *Moschus*. 8. *Tragul*. b. *Bovicornia*. III. *Sylvicaprina*. a. 9. *Tetraceras*. 10. *Tragelaphus*. 11. *Sylvicapra*. 12. *Neotragus*. 13. *Nanotragus*. 14. *Callotragus*. b. 15. *Cervicapra*. 16. *Strepsiceros*. 17. *Hippotragus*. IV. *Bovina*. a. 18. *Portax*. 19. *Damalis*. 20. *Anoa*. 21. *Bos*. b. 22. *Ovibos*. 23. *Catoblepas*. 24. *Oryx*. V. *Antilopina*. 25. *Bubalis*. 26. *Antilope*. 27. *Dicranoceras*. VI. *Caprina*. 28. *Ovis*. 29. *Capra*. 29 b. *Rupicapra*. 29 c. *Hemitragus*. 30. *Nemorhedus*. 31. *Oreotragus*.

B. DIGITIGRADA. VI. *Camelina*. 32. *Camelus*. 33. *Auchenia*.

M. Pucheran (*Compt. Rendus Acad. Scien.* 1849, 775) divides the Ruminantes into three families:—1. Les Camelides. 2. Les Tragulides (*Moschus*). 3. Les Cervides. The latter is divided into two tribes:—1. Les Cerviens. 2. Les Boviens.

M. F. Cuvier observes:—"Mais tous ces essais ne sont point encore de nature à satisfaire la méthode naturelle, et les naturalistes doivent encore chercher à découvrir quelles sont les parties qui, chez ces animaux, sont propres à caractériser les genres."—*Dict. Sci. Nat.* lix. 514. 1829.

Mr. Ogilby remarks (*Proc. Zool. Soc.* 1836, 133):—"The presence or absence of horns in one or both sexes; the substance and nature of these organs, whether solid or concave, permanent



or deciduous; the form of the upper lip, whether thin and attenuated as in the *Goat*, or terminating in a broad heavy naked muzzle as in the *Ox*, and the existence of lachrymal sinuses and interdigital pores, are the characters which really influence the habits and œconomy of Ruminating animals, and upon which their generic distinction mainly depends."

He continues:—"That the presence or absence of horns in the female regulates in a great measure the social intercourse of the sexes; that upon the form of the lips and muzzle, the only organs of touch and prehension among the *Ruminantia*, depends the nature of the food and habitat, making the animal a *grazer* or a *browser*, as the case may be; and that the existence or non-existence of the interdigital glands, the uses of which appear to be to lubricate the hoofs, has a very extensive influence upon the geographical distribution of the species, confining them to the rich savannah and moist forest, or enabling them to roam over the arid mountain, the parched karroo, and the burning desert."

Mr. H. N. Turner observes:—"It is certainly remarkable, that while the teeth have contributed so important a share in the characters by which the Mammalia have been arranged by various authors, they should have been so entirely overlooked in the members of the present division; for notwithstanding the great uniformity and strongly-marked character pervading the Ruminant dentition, very decided characters may frequently be found in the form and direction of the incisors, and in the presence or absence of the supplemental lobe in the molars; and it is the more to be wondered at when we consider that the incisors, from their position, may often easily be seen in dried specimens, and that the character alluded to in the molars has been found of considerable value in the interpretation of fossil remains."—*Proc. Zool. Soc.* 1849.

#### SYNOPSIS OF THE TRIBES.

- I. *Horns permanent, covered with a permanent horny coat or hairy skin. Cutting teeth only in lower jaw.*
  1. BOVINA. Horns covered with horny sheaths.
  2. GIRAFFINA. Horns covered with a hairy skin, with a tuft of hair at the tip.
- II. *Horns deciduous, covered when young with a deciduous hairy skin, or entirely wanting.*
  3. CERVINA. Cutting teeth none above. Horns deciduous. Back of tarsus hairy.

4. **MOSCHINA.** Cutting teeth none above. Horns none. Back of tarsus bald.
5. **CAMELINA.** Cutting teeth 8 above and below. Horns none. Hoofs small, compressed.

Subfamily I. Horns permanent, covered with a permanent horny coat or hairy skin. Cutting teeth only in lower jaw; front edge of upper jaw callous. Hoofs triangular.

### Tribe 1. BOVINA.

Horns expanded from a smooth horny rudiment into a permanent horny sheath to the conical process of the frontal bone.

*Bos*, *Linn. S. N.*

*Capra*, *Ovis* et *Bos*, *Linn. S. N.*

Bovidæ, *Selys Longchamps*, 1842.

Bovina, *Gray, Ann. Phil.* 1825; *List Mam. B. M.* xxvi.

*Q. Bovinum*, *Q. Ovinum*, et *Q. Caprinum*, *Ray, Syn.* 60, 1693.

*Cavicornia*, *Illiger, Prod.* 106, 184.

*Tubicornia*, *Latr. Fam. Nat.* 1825.

Capridæ et Bovidæ, *H. Smith, Griffith, A. K.* iv. 182.

Antilopidæ, Capridæ et Bovidæ, *Gray, Lond. Med. Rep.* xv. 308, 1821.

Les Kinoceres ou Ruminants à cornes osseuses (*Bos*, &c.), *Duvernoy, Tab. Anim. Vert.*

Les Ruminans à cornes osseuse, *F. Cuv.* 1829.

Antilopiens, *Pomet, l. c.* 184.

Ruminalia *Cerynxia*, *Rafin. Anal. Nat.* 56, 1815.

*Pecora Unguligrada Bovicornia*, *Sundevall, Pecora*, 64.

Fam. *Sylvicaprina*, *Bovina*, *Antilopina* et *Caprina*, *Sundevall, Pecora*, 64.

Mr. Gray, in his paper "On the Arrangement of the Hollow-horned Ruminants (*Bovidæ*)" (*Annals & Mag. Nat. Hist.* 1849, xviii. 229), observes, "The systematic arrangement of these animals has been one of the most difficult subjects for the student of mammalia.

"Linnæus (*Syst. Nat.* i. 27), in his last edition of the *Systema Naturæ*, divides them into three genera according to the direction of the horn, which he describes as erect in *Capra*, reclinate in *Ovis*, and porrect in *Bos*, and separates these from *Cervus* because they have tubular, while that genus has solid branched and deciduous horns.

"Gmelin in his edition adds to these the genus *Antilope*, which had been established by Pallas, and characterizes that genus as having solid horns like the *Cervi*, but simple and persistent. Now I need scarcely observe that these characters will not define

the genera, for all *Goats* have not erect horns, if any have, and it is the same with the other genera; and we all know that the Antelopes have tubular horns, in the sense that word is used by Linnæus, as much as the Oxen, Sheep and Goats; but this error of Gmelin has had its influence up to this time, for the horns of Antelopes in Cuvier's first and last edition of *Le Règne Animal* are described as having 'the nucleus of the horn solid, and without pores or sinuses, like the horns of the Stags.'

"M. Geoffroy, perceiving that the characters furnished by Linnæus were not sufficient to separate the Antelopes from the other genera, examined the structure of the prominences of the frontal bones which form the core or support of the horns of the Antelopes, and he describes the core of the horns of the Antelopes to be solid and without sinuses, while he characterizes the cores of the horns of the Goats, Sheep and Oxen as in great part occupied with cells which communicate with the frontal sinus, and Cuvier, Latreille and most authors have without re-examination adopted these characters.

"Some years ago I examined the cores of the horns of many species of Antelopes for Colonel H. Smith, and found they were all more or less cellular within, and these cells had a communication with the frontal sinus; certainly the cells are not so numerous as in the thick horns of some Oxen, but they are quite as numerous for the thickness of the core; but it is to be remembered that the general character of the horns of Antelopes is to be slender and elongated, and consequently there is not so much room for cells, as their presence would destroy the strength of the core, so as not to form a fit support for the horns; and thus this character is merely reduced to one dependent on the small size or slenderness of the horns, which, though usual, is not universal in the genus, for example in the *A. Oreas* and others.

"Colonel Smith, aware of this difficulty, divided these animals into two families: *Capridæ*, characterized by having the horns 'vaginating upon an osseous nucleus totally or nearly solid,' containing the genera *Antilope*, *Capra*, *Ovis*, and a new genus which he called *Damalis* for the Antelopes with high withers; and second, the family *Bovidæ*, with horns 'vaginating upon a bony nucleus not solid, but more or less porous and cellular,' including the genera *Catoblepas* or *Gnu*, *Ovibos* or *Musk Ox*, and *Bos*\*.

"This arrangement shows that much reliance is certainly not to be placed on M. Geoffroy's character for the genus *Antilope*,

\* I may remark that Cuvier says that the genus *Bos* has a large naked muffle, yet two species which he refers to it have a hairy muzzle like the Sheep, viz. *B. moschatus*.

for here the Goat and Sheep are said to have the same peculiarity as he gives to separate the Antelopes from them.

“Several authors after this period considered the subgenera proposed by De Blainville and Colonel H. Smith as genera, and grouped them into families.

“Mr. Ogilby, in a theoretical arrangement of Ruminants, published in the *Proceedings of the Zoological Society* for 1836, divides these animals into two families, characterized thus: *Capridæ*, ‘muffle none;’ *Bovidæ*, ‘muffle distinct, naked.’ Of this arrangement I need only remark, that he places *Ovibos* in *Capridæ* and *Bos* in *Bovidæ*, *Kemas* or the Jemla Goat in *Bovidæ*, and *Capra* in *Capridæ*, thus separating into distinct families most nearly allied species; while the genus *Ixalus*, which is a sheep or antelope with rudimentary horns, is referred to the family *Moschidæ*, and the *Gnu* is entirely overlooked. I am satisfied, if Mr. Ogilby had attempted to arrange a collection by this system, he must have soon abandoned it.

“Within the last few years Professor Sundevall of Stockholm has proposed to arrange these animals according to the form of their hoofs, and he has regarded the subgenera of preceding authors as genera, and divided them into four families, thus: 1. *Caprina*, containing *Ovis*, *Capra*, *Nemorhedus* and *Oreotragus*. 2. *Antilopina*: *Antilope*, *Dicranoceras* and *Bubalus*. 3. *Bovina*: *Oryx*, *Catoblepas*, *Ovibos*, *Bos*, *Anoa*, *Portax*, *Damalis*. 4. *Sylvicaprina*: *Hippotragus*, *Strepsiceros*, *Cervicapra*, *Calotragus*, *Nanotragus*, *Neotragus*, *Sylvicapra*, *Tragelaphus* and *Tetracerus*. In this arrangement he appears to have overlooked the fact, that the hoofs of these animals are modified according to the kind of country which the animal is destined to inhabit, and therefore this arrangement is dependent on that single circumstance, and not on the considerations of all the peculiarities of the species; hence the species which inhabit rocky pinnacles, as the Thar and Ghoral (*Nemorhedus*) and Klipspringer (*Oreotragus*), are separated from the other Antelopes and placed with the Goats, and the large and heavy Antelopes which inhabit the plains, as the *Oryx*, *Portax* and *Damalis*, are placed with the Oxen.

“If this system is fully carried out, the *Rein Deer* should be separated from its allies and placed with the *Musk Ox*; and I am not certain that the *Addax* Antelope should not be arranged in the same group, for it has the same shaped hoofs, the sands of the Desert probably requiring the same structure for progression as the snow.

“After examining all these arrangements, and after repeated examinations of the animals, I believe that the form of the horns affords the most natural character for subdividing them into groups; and I think that if the Antelopes are divided into two

groups, which appear to me natural, then there is no difficulty in finding neat characters for the definitions of the families."

#### SYNOPSIS OF THE SUBTRIBES.

I. The horns round or compressed, without any raised keel on the inner front angle.

1. The horns smoothish, spread out on the sides, cylindrical or depressed at the base, the knee (or wrist) below the middle of the fore-leg—*Bovææ*.

2. The horns conical, bent back, cylindrical or compressed, and ringed at the base, the knee (or wrist) in the middle of the fore-leg—*Antilopeæ*.

II. The horns subangular with a more or less distinct ridge on the front angle, the knee in the middle of the fore-leg.

3. The horns subspiral, erect; crumen distinct; forehead flat; male not bearded.—*Strepsicereæ*.

4. The horns recurved, compressed; crumen none; forehead concave; male bearded—*Caprææ*.

5. The horns spiral, bent out on the sides; crumen none; forehead convex; male not bearded—*Ovææ*.

The position of the knee is the external mark of the shortness of the cannon bone, compared with the length of the *ulna* or fore-arm bone.

Section 1. The horns round or compressed, without any raised keel on the inner front angle—*Levicornia*.

*Gray, Ann. & Mag. N. H. 1847, 230.*

Subtribe I. *Bovææ*. The horns smoothish, spread out on the sides, cylindrical or depressed at the base; situated on the frontal ridge and bent laterally outward, and recurved at the tip. The nose is broad, with the nostrils on the side. The skull has no suborbital pit or fissure; the cutting-teeth are nearly equal-sized, and slightly shelving outwards. The knee (or wrist) below the middle of the fore-leg, the cannon bone being shorter than the fore-arm bone.

*Bovææ, Gray, Ann. & Mag. N. H. 1847, 230; Gleanings Knowsley Menag.*

*Bos, Linn. S. N. i.; Gmelin, S. N. i. 202; Illiger, Prod. 107; Cuv. R. A. i. 278; Blainv. B. S. Philom. 1816, 76; Turner, Proc. Zool. Soc. 1849.*

*Bovidæ, part., Ogilby, P. Z. S. 1836, 138; Hodgson, J. A. S. Beng. 1847.*

*Bovina and Antilopina, part., Sundevall, Pecora.*

*Taurus, Rafinesque, Anal. Nat. 56, 1815.*

Colonel Hamilton Smith divides the *Boveæ* into three tribes, thus: 1. Bubalus. 2. Bison. 3. Taurus.—*Griffith, A. K.* v. 1827; *Fischer, Syn.* ii. 651.

Professor Sundevall arranges the genera of this subtribe thus: A. 1. Anoa. 2. Bos. Subdivided thus: *a.* Bos. *β.* Poephagus and Bubalus. *γ.* Bison. B. 3. Ovibos.—*Kongl. Vet. Akad. Handl.* 1846, and in *Hornschuch Arch.* 1848.

Mr. Hodgson, in his 'Illustrations of the genera of *Bovidæ*,' divides the species into the genera—1. Bos (domesticus). 2. Bibos (cavifrons and gaveus). 3. Bison or Bisonius (Americanus and poephagus). 4. Bubalus (Arna)—from the character of the skull and other parts of the skeleton. See *Journ. Asiat. Soc. Beng.* x. 449. 1847.

Mr. Gray, in the *Annals and Mag. Nat. Hist.* 1846, 229, observes, "The *Boveæ* consist of the genera *Bos*, *Bibos*, *Bison*, *Bubalus* and *Anoa*, with a naked moist muffle, and *Poephagus* and *Ovibos* with a hairy ovine muzzle.

"These genera are well distinguished by the form of the intermaxillaries. In *Poephagus* (*grunniens*), *Bibos* (*frontatus* and *Gour*), and in *Bison* (*Urus*), they are short, triangular, acute behind, and not reaching to the nasal, being gradually shorter in proportion from *Poephagus* to *Bison*. In *Bos* (*Taurus*) and *Bubalus* (*Buffelus* and *Caffer*) they are elongate, reaching to the suture between the nasal and cheek-bone, and extending furthest up in *B. Buffelus*."

A. *Muffle broad, moist at the end of the nose. Hair short, rigid, adpressed, or short, crisp and woolly. The grinder with a well-developed supplementary lobe. The bony part of the tail produced, elongated, reaching to the hocks. Living on the plains of warm or temperate regions.*

The Oxen of the Plains, Gray, *Knowsley Menag.* 1849; *Ann. & Mag.* N. H. 1848, 229.

a. *True Oxen. Bodies covered with rather stiff hair. Shoulder proportionate to the haunches; the cannon bone of the hind- and fore-legs of equal length.*

True Oxen, Gray, *Knowsley Menag.* 1849.

\* *Intermaxillaries elongate, and produced behind and between the nasal and cheek bones; the upper lip bald, callous and moist, as wide as the outer edge of the nostrils.*

### 1. Bos.

Horns cylindrical, conical, nearly circular at the base, curved upwards and outwards, far apart at the base, on the sides of the

upper part of the ridge at the hinder end of the occipital plane. The facial and frontal portion of the skull equal. Dorsal ridge distinct, sometimes produced into a dorsal hump.

Bos, sp., *Linn.*; *Desm.* 1804; *Turner, Proc. Zool. Soc.* 1849.

Taurus, *Storr. Prod. Mam.* 17; *H. Smith, Griffith A. K.* v. 182.

Bos (and Boves), *Sundevall, Pecora,* 75.

Bos, *Gray, Knowsley Menag.* 1849.

### 1. BOS TAURUS. The BULL.

Forehead flat; withers not humped.

Bos Taurus, *Plin. Hist. Nat.* viii. c. 45, 46; *Gesner, Quad.* 24-103, fig.; *Aldrov. Bisulc.* 13. fig. p. 36; *Jonston, Quad.* t. 15.

Taurus castratus, *Jonston, Quad.* t. 15.

Vacca, *Gesner, Quad.* 25. fig.

Vitutus, *Jonston, Quad.* t. 15.

Bos domesticus, *Jonst. Quad.* 36. t. 14; *Linn. Mus. Adolph. Frid.* i. 12; *Brisson, Reg. An.* 78.

Bos Taurus, *Linn. Fn. Suec.* 15; *Syst. Nat.* i. 98; *Gmelin, S. N.* i. 202; *Cuvier in Dict. Sci. Nat.* v. 19; *Desm. Nov. Dict. H. N.* iii. 536; *Mamm.* 499; *Desmoul. Dict. Class. H. N.* ii. 370; *Fischer, Syn. Mam.* 499; *Gray, List Mam. Brit. Mus.* 151; *List Osteol. sp. B. M.* 53; *List of Mr. Hodgson's Collection,* 24.

Bos (Taurus) taurus, *Lesson, Nov. Tab. R. A.* 185.

Bull, *Penn. Syn.* 4.

Ox, *Penn. Brit. Zool.* 7.

Common Ox, *Shaw, Zool.* ii. 2. 397. t. 208.

Stier and Ochs, *Meyer, Thiere,* t. 41, 42; *Schrank, Fn. Bœic.* i. 47.

Bœuf, *Buffon, H. N.* iv. 437. t. 14.

Oxe, *Koe, Pontopp. Dan.* i. 597.

*Hab.* Europe. Always in a domesticated state.

### 1. White Scotch Bull, *Gray, Cat. Mam. B. M.* 151.

Bisontes jubati, *Boethius, Reg. Scot.*; *Gesner, App.* 4, fig. imag.

White Urus (Urus Scoticus), *H. Smith, Griff. A. K.* iv. 417.

Bos Urus Scoticus, *Wagner, Schreb. S.* 1568.

Chillingham Bull, *Gray, Ann. N. H.* ii. 284; *Knight, Mus. Animated Nature,* f. 695, 696.

Bos Scoticus, *Swainson.*

Bos Taurus Scoticus, *H. Smith in Griffith A. K.* v. 376; *Fischer, Mam.* 654.

Wild or White Forest Cow and Bull, *Low, Dom. Anim. B. I.* t. 1 ♀, & *Supp.* t. 1 ♂.

Wild Cattle, Bull and Cow, *Bewick, Hist. Quad.* 38. fig.

*Hab.* Scotland.

a. Bull. Chillingham Park. Presented by the Earl of Tankerville.

2. The Pembroke Bull and Cow, *Low, Dom. Anim. B. I. t. 2.*
3. The West Highland Bull, Heifer and Cow, *Low, Dom. Anim. B. I. t. 3, 4.*
4. West Highland Ox, *Stephens, Book of the Farm, 1274. fig.*  
Kyloe Ox, *Bewick, Hist. Quad. 36. fig.*
5. The Zetland Cow, *Low, Dom. Anim. B. I. t. 5.*
6. The Kerry Cow, *Low, Dom. Anim. B. I. t. 6.*
7. The Polled Angus Bull, *Low, Dom. Anim. B. I. t. 7.*
8. Alderney Cow and Calf, *Low, Dom. Anim. B. I. t. 14.*
9. Fifeshire Cow, *Low, Dom. Anim. B. I. t. 15.*
10. Sheeted Somersetshire Cow (horned and polled), *Low, Dom. Anim. B. I. t. 16.*
11. Herefordshire Cow and Bull, *Low, Dom. Anim. B. I. t. 17 ; t. 2, Supp.*  
Hereford Ox, *Stephens, Book of the Farm, 1274. fig.*
12. Long-horned or Lancashire Bull and Ox, *Bewick, Hist. Quad. 33. fig. 35. fig.*  
Long-horned Bull, *Low, Dom. Anim. B. I. t. 18 ; Stephens, Book of the Farm, 1273. fig.*
13. The Teeswater Short-horned Bull and Cow, *Low, Dom. Anim. B. I. t. 19, 20.*  
English Short-horn Cattle, *Knight, Mus. Anim. Nat. f. 701.*  
Short-horn Ox, Bull and Cows, *Stephens, Book of the Farm, 1270. figs. t. 32.*
14. The Galloway Heifer and Bull, *Low, Dom. Anim. B. I. t. 8.*
15. The Polled Suffolk Cow, *Low, Dom. Anim. B. I. t. 9.*
16. The Devon Bull, *Low, Dom. Anim. B. I. t. 10.*
17. The Sussex Oxen. *Low, Dom. Anim. B. I. t. 11.*
18. The Glamorgan Cow, *Low, Dom. Anim. B. I. t. 12.*
19. The Ayrshire Cow, *Low, Dom. Anim. B. I. t. 13.*
20. The Yorkshire Cow, *Knight, Mus. Anim. Nat. f. 698.*
21. Holstein or Dutch Bull and Cow, *Bewick, Hist. Quad. 29. fig.*  
Improved Holstein or Dutch Bull and Cow, *Bewick, Hist. Quad. 30. fig.*  
*Bos Taurus frisius, Wagner, Schreb. Saugth. 1569, t. 297 B.*
22. French Cattle.—*Desmarest, Mammalia, 499*, described the various breeds of French domestic cattle, but he does not refer to any figures of them.



23. Polish Bull, *Gray, List Mam. B. M.* 151; *Knowsley Menag.*  
*Bos Taurus Podolicus, Wagner, Schreb. Saugth.* 1569, t. 297 A.  
*Hab.* Poland.  
 α. Bull. Poland. From the Vienna Market.
24. Hungarian Bull, *Gray, List Mam. B. M.* 151; *Knowsley Men.*  
 Wild Cattle of Marema, *Knight, Mus. A. Nat.* f. 703, 704.  
*Bos Taurus Hungaricus, Desm. Mam.* 499.  
 Ungarischer vieh, *Beckberlin, Abbild. der Rindv.* 15. t. 25, 26.  
*Hab.* Hungary.  
 Bull. Hungary. From the Vienna Market.
25. South African Long-horned Cattle, *Knight, M. A. N.* f. 710.  
*Hab.* Cape of Good Hope.  
 Pair of horns. Cape of Good Hope.  
 Two separate horns, very large, used as a powder-flask.  
 Cape of Good Hope.
- 25\*. Swiss Cattle. *Bos Taurus hyselurus, Wagner, Schreb.*  
*Saugth.* 1570, t. 297 c.  
 Freiburg Cattle, *Witte, Rindv. Rassen*, ii. t. ; *Beck-*  
*berlin, Abbild.* ii.; *Pabst, Anleit.* 42. t. 3.
- 25\*\*. Alpine Cattle.  
 Halsi Cattle, *Witte, Rindv. Rassen*, iii. t.  
 Schwyz. Rindv., *Michel & Ithens, Manathsch.* 59. t. 1, 2.  
 Gebirgsvieh, *Beckberlin, Abbild.* 9. t. ; *Pabst, Anleit.* 42.  
*Bos Taurus alpestris, Wagner, Schreb. Saugth.* 1570,  
 t. 297 d.
26. Syrian Ox, *Knight, Mus. A. Nat.* f. 726, 728.
27. Moldavian Cattle, *Knight, Mus. A. Nat.* f. 709.
28. Italian Campagna Bull, *Knight, Mus. A. Nat.* f. 705.  
 Bœuf de la Romagne, *Cuvier, Oss. Foss.* iv. 109.
29. Spanish Bulls, *Knight, Mus. A. Nat.* f. 706-708.
30. Egyptian Cattle, *Long, Egyptian Antiquities in Brit. Mus.*  
 ii. 57. fig. 169, lower animals.
31. *Bos Madagascariensis niveus, Donnd. Zool. Beytr.* 693.
32. *Bos Tinianensis niveus, Donnd. Zool. Beytr.* 693.  
 Rindvieh de Insel Tinian, *Zimm. Geog. Zool.* ii. 83; *Anson,*  
*Voy.* 285.  
*Bos Taurus Tinianensis, Gmelin, S. N.* i. 202; *Fischer, Syn.*  
*M.* 500.
33. Lant, Lampt oder Dant, *Dapper, Africke*, 24; *Leon, Afrikan.*  
 751; *Eberl. Naturlehre*, i. 287.  
*Bos humilis, Frisch. Natursys.* i. n. 5.  
*Bos Africanus niveus celer, Donnd. Zool. Beytr.* 693.

34. Der Wilde Ochse von Gebirge Nerever, *Donnd. Beytr. Zool.* 704; *Zimm. Geog. Zool.* ii. 93; *Thevenot, Voy.* iii. 113.
35. Die braunen Wilden Ochsen von Duguela, *Donnd. Beytr. Zool.* 705; *Zimm. Geog. Zool.* ii. 93; *Marmol. Afrique,* iii. 66-157.
36. Galla Ox, *Salt, Travels.*  
 The Beuraye or Beurie.  
 ? Bos Cafer, *Des Mur. & Flor. Prevost, Voy. en Abyss.* vi. 40.  
 Bos abessinicus, *Donnd. Zool. Beytr.* 693, 1792; *Zimmer. Geog. Zool.* i. 157, ii. 94; *Dapper, Afrik. Ins.* 31; *Lobo, Voy. Abess.* 70, 1728.  
 Bos Taurus Abyssynicus, *Gmelin, S. N.* 294; *Fischer, Syn. Mam.* 500.  
*Hab.* Abyssinia.  
 Pair of very thick, light horns. Central Africa. Presented by Captain Clapperton, R.N., and Major Denham. Figured in *Griffith, A. K.* iv. t. 201. f. 4.
37. Cattle of Peauhy, *Gardiner, Trav. Brazils,* 278. Horns very long, wide-spreading; colour brown.  
*Hab.* North Brazil.
38. Cattle of Brazils, *Gardiner, Trav. Brazils,* 167, 173. Used to carry loads on their back.  
*Hab.* N. Brazils.
39. Cattle of Chili, *Darwin, Journal,* 130, 145.  
*Hab.* Chili and South America generally.
40. Nata or Niata, *Darwin, Journal,* 145, 146. With a pug-nose like a pug or bull dog.  
*Hab.* Buenos Ayres. Skull in *Mus. Coll. Surg.*
41. Falkland Island Wild Cattle, *Darwin, Journal,* 190, 192. Three varieties:—1. dark brown; 2. white with black head and feet; 3. mouse colour.  
*Hab.* Falkland Islands. Introduced from France 1764.

## OSTEOLOGY.

Taureau, *Daubenton, Buff. H. N.* iv. t. 23.

Bœuf sans cornes, *Cuvier, Oss. Foss.* iv. t. 9. f. 3, 4.

Bœuf de la Romagne à grandes cornes, *Cuvier, Oss. Foss.* iv. 109. t. 9. f. 7, 8.

Petit bœuf d'Ecosse à cornes descendantes, *Cuvier, Oss. Foss.* iv. 109. t. 9. f. 9, 10.

Bull, *Stephens, Book of the Farm,* 1286. f. 598.

Skeleton. England.

Skull. England.

## 2. BOS INDICUS. The ZEBU.

Forehead convex; withers with a more or less large fleshy hump; dewlap deep, waved; the upper part of the rump shelving very much.

*Bos Scythicus gibbosus*, *Charlet. Exerc.* 8.

*Bos Indicus*, *Linn. S. N.* 99; *Eræleb. Syst.* 240.

*Bos domesticus*, *Hodgson, Journ. A. S. B.* 1841, x. 907; *Calcutta Journ. N. H.* iv. 289.

*Bos Taurus indicus*, *Fischer, Syn.* 499; *Hodgson, Proc. Z. Soc.* 1834, 99; *Gray, Cat. Hodgson Coll. B. M.* 24.

*Bos Zebu*, *J. Brookes, Cat. Mus.* 65, 1825.

*Bos pusio*, *Swains. Hist. Quad.* 283. f. 113.

*Bos Taurus Zebu*, *Wagner, Schreb.* 1570, t. 298, 298 A.

*Bos Taurus* var., *Gray, List Mam. B. M.* 151; *Cat. Osteol. Sp. B. M.* 53; *Cat. Hodgson Coll.* 24.

Domesticated Cows, *Hodgson, J. A. S. Beng.* i. 348, 382.

*Hab.* India. Always in a domestic state.

1. Little Indian Buffalo, *Edw. Birds*, vi. t. 200.

Indian Bull, *Penn. Syn.* 6. t. 1. f. 2.

Zebu, *Buffon, H. N.* xi. 439. t. 42; *Bewick, Hist. Quad.* 44. fig.

*Bos Indicus*, *Linn. S. N.* i. 99.

Male and female. Grey. India. Presented by Lady Whitshed.

2. Great Indian Ox, *Pennant, Quad.* t. 16. f. 2, lower figure.

*Bos Taurus indicus*, *a. major*, *Fischer, Syn.* 499.

Zebu grande race, *Desm. Mam.* 499.

Indian Ox, *Bos Taurus indicus*, *Bennett, Gard. Zool. Soc.* i. 65. fig.

A Guzzarah Bullock, *Hardw. Icon. ined. Brit. Mus.* n. 10,975. t. 180, 199.

Gun Bullock, *Hardw. Icon. ined. Brit. Mus.* n. 10,975. t. 183, 185, 186, 187, head, t. 188, skull.

The head and horns of a larger Zebu. India. Presented by Jacob Bell, Esq.

3. *Bos Taurus indicus*, *Cuvier, Menag. Mus.* t. ♀, grey.

*Bos taurus indicus minor*, *Fischer, Syn.* 499.

Petit Zebu, *Desm. Mam.* 499.

A Shaurr or Sacred Bull, *Hardw. Icon. ined. Brit. Mus.* n. 10,975. t. 179.

Horns project forwards, and form a considerable angle with the forehead.

4. Zebus, *Knight, M. A. N.* f. 730-753.

Horns placed nearly on the same line as the forehead; prepuce large, often visible in the females.

5. Madras Ox, *Buchanan, Mysore*, ii. 8. t. 13. f. 34.
6. Madhu Givi Oxen, *Buchan. l. c. ii. 8. t. 13. f. 35, t. 14. f. 36, 37.*
7. Seringapatam Oxen, *Buchan. l. c. ii. 8. t. 15. f. 38, 39.*  
*Hab. India, Mysore.*
8. Two-humped Zebu.  
Zebu à deux bosses, *Desm. Mam.* 499.  
Bos Indicus ditophus, *Fischer, Syn.* 499.  
Hornless Zebu, Zebu sans cornes, *Cuvier, Menag. Mus. t.*  
*Hab. India.*
9. Bucharian Ox.  
Rindviech, *Pallas, N. Nord. Beytr.* iv. t. 3.  
*Hab. Bucharia, from Arabia.*
10. Nepal Ox, *Hodgson; Gray, Cat. Hodgson Coll. B. M.* 24.
11. A Javanese Cow, *Hardw. Icon. ined. Brit. Mus. n. 10,974.*  
t. 103.

## OSTEOLOGY.

- Zebu à cornes, *Cuvier, Oss. Foss.* iv. 109. t. 9. f. 5, 6.  
Gun Bullock, *Hardw. Icon. ined. B. M.* 10,975. t. 188.  
Skull, young (lower jaw wanting).  
Two skulls of domesticated cattle of Nepal, male and female.  
Presented by B. H. Hodgson, Esq.  
Bones of body. Nepal. Presented by H. Hodgson, Esq.

## 3. BOS DANTE. The DANTE.

Face rather narrow; forehead very flat, with the horns on the side of the high occipital ridge; withers with a small but distinct hump.

- Bos elegans et parvus africanus, *Bellon. Obs.* 119. fig.  
Juvenca sylvestris, *Alpin. Æg.* i. 233. t. 14. f. 2.  
Dante, *Purchas, Pilgrim.* ii. 1002; *Gunner, Geog. Zool.* ii. 92;  
*Marmol. Afrique,* i. 52.  
Afrikanische Zivergochs, *Borowsky, Thier.* i. 42; *Halle vierfuss.*  
278.  
Kleiner Afrikanischer Ochs, *Klein, Thiere,* 12. 35.  
Afrikanische Buffel, *Fisch. Natursys.* i.  
Bos Cafer,  $\beta$ . Bubalus africanus, *Der Dante, Donnd. Beytr. Zool.*  
703.  
Bos Dante, *Link, Beytr. Nat.* ii. 95, 1795; *Meyer, Zool. Arch.*  
188, 1796.  
Bos Bubalus africanus, *Brisson, R. A.* 79.  
Bos Taurus africanus, *Fischer, Syn. Mam.* 500.  
Salam Buffalo, *Whitfield.*  
Dwarf Bull, *Penn. Syn.* 9. t. 1. f. 1, 2, 3.

? Egyptian Zebu, *Knight, Mus. Anim. Nat.* f. 723, 724; *Long, Egypt. Antiq. Brit. Mus.* ii. 57. f. 169, lower figures.  
*Hab.* Africa. West Africa; Salam; *Whitfield*.

Skin in a bad state. Gambia. Presented by the Earl of Derby.

#### OSTEOLOGY.

Two skulls. Gambia. Presented by the Earl of Derby.

This animal agrees better than the Zebus with the figure of the Humped Cattle on the ancient Egyptian tombs.—*Long's Egypt*, p. 57. f. 169.

Mr. Whitfield brought a pair of these animals. The male (now in the Zoological Gardens, 1850) is white, with a few brown specks on the head; the female yellow-brown, the head even narrower than that of the male. Purchas describes them as yellow.

#### *Hybrids with wild species.*

1. Between *Bos Indicus* and *Bibos frontalis*. Blackish, fore-legs white, face and withers brown.

Gyale at Barracpore, *Hardw. Icon. ined. Brit. Mus.* n. 10,975. t. 169, 170, copied.

Jungly gau, *Bos Sylhetanus*, *F. Cuvier, Mamm. Lithog.* t. , ♂ ♀; *H. Smith, Griffith, A. Kingd.* iv. 406.

Domestic Gyal, *Colebrook, Asiat. Research.* viii. 511; *Lesson, Compt. Buffon*, x<sup>e</sup> 317.

*Hab.* India.

2. Hybrid between a *Yak* bull and a *Zebu* cow.

Tail elongate, bushy nearly to the base; withers highly crested. Black, with a white spot on withers; in winter covered with long silky hair, in summer with shorter hair, having a crest of long hair on the dewlap, and a tuft of elongated hair on the upper part of each leg. Muffle smooth.

Hybrid Bull, *Mitchell, Proc. Zool. Soc.* 1847, 172. t. 15.

This animal was imported as a *Yak*; it was for some time at the Gardens of the Zoological Society, but has been lately transferred to Knowsley.

The travellers in Tibet state that half-bred *Yak* are common as domestic cattle.

## 2. BUBALUS.

Horns depressed or subtrigonal at the base, inclining upwards and backwards, conical, and bending upwards at the tip, on a plane rather in front of the occipital ridge; forehead rather transverse, convex, shelving before and behind; the intermaxil-

laries elongate, extending back and between the nasal and cheek bones; teats in a cross series, the outer one rather before the others.

Bubalus, *H. Smith in Griff. A. K.* v. 182; in *Fischer, Syn.* 681.  
Bos (bubali), *Sundevall, Pecora*, 77.

Bubalus, sp., *Turner, Proc. Zool. Soc.* 1849.  
Syncerus, *Hodgson*, 1847.

\* *Horns separate, not dilated at the base, directed backwards and incurved at the tip.* Bubalus, *Hodgson*.

### 1. BUBALUS BRACHYCERUS. The ZAMOUSE.

Forehead flat; horns short, thick, depressed at the base; ears very large, strongly fringed on the edge, and with two diverging longly fringed lines within; fur short, close, brown. *Male adult* with tuft of long hair on legs.

Bos brachyceros, *Gray, Mag. Nat. Hist.* 1837, t. 589; *Ann. Nat. Hist.* ii. 284. t. 13, young female; *List Mam. B. M.* 153; *Cat. Osteol. Sp. B. M.* 54; *Roulin, D'Orb. Dict. Univ. Hist. Nat. (Bœuf)* ii.

Bubalus brachycerus, *Gray, Knowsley Menag.*; *Turner, P. Z. S.* 1849.

Bos bubalus, *Children in Denham & Clapperton's Trav. in Africa.*  
*Zamouse, Denham and Clapperton's Trav. Cent. Africa.*

Bos Caffer, *Ruppell, Abyssinia, spec. in Mus. Frankfort.*

Bos Caffer junior?, *Sundevall, Pecora*, 202.

*Hab.* West Africa, Sierra Leone, Abyssinia.

Two heads of adult covered with the skin. Central Africa. Presented by Capt. Clapperton, R.N.

### OSTEOLOGY.

Skeleton of female. Gambia. Presented by the Earl of Derby.

Mr. Blyth has noticed two species of Wild Ox found in North-west Africa:—

1. Sherif al Wady (Bos Atlanticus, *Blyth*), from Mount Atlas. One lived some months at Tangiers.

2. Wadan? or Pecasse?, with a flowing nuchal mane; found in large herds at Rabat and Salee, on the Barbary Coast.—*Ann. N. H.* ix. 62.—This is no doubt the

Bos Pegassus, *H. Smith, Griff. A. K.* iv. 386. t. v. 890; *Fischer, Syn. Mam.* 652; *Blyth, Ann. Nat. Hist.* ii. 288.

Pegassus, *Plinii Hist. Nat.* viii. 21. Wadan, *Lyon's Travels*.

## 2. BUBALUS BUFFELUS. The BUFFALO.

Forehead convex, rounded; horns large, flattened at the base, black, on the plane of the face, bent down and recurved at the tip; ears not quite half the length of the head, slightly ciliated; fur rough, irregular, bristly, often very far apart, on the face before the eyes two-rowed.

*Bos bubalus*, *Brisson, Règ. Anim.* 81; *Gmelin, S. N.* i. 206; *Schreb. Saugth.* t. 300 A; *Bechst. Naturg. Deutsch.* i. 298; *Klein, Annot. Bovis Bubali*, t. ; *Cuvier, D. Sci. Nat.* v. 25; *Règ. Anim.* i. 270; *Desm. Nouv. Dict. H. N.* iii. 531; *Mamm.* 494; *Desmoul. Dict. Class. H. N.* ii. 366; *Fischer, Syn. Mam.* 495. 652; *H. Smith, Griff. A. K.* iv. 392. t. .v. 892; *Sundevall, Pecora*, 203; *Pallas, Zool. R. A.* i. 247.

*Bos bubalis*, *Linn. S. N.* i. 99; *Erxl. Syst.* 238; *Hodgson, Proc. Zool. Soc.* 1834, 99.

*Bos buffelus*, *Blumenb. Handb.* 121.

*Bubalus buffelus*, *Gray, Cat. Mam. B. M.* 152; *Cat. Hodgson Coll. B. M.* 25; *Cat. Osteol. Spec. B. M.* 54; *Turner, Proc. Zool. Soc.* 1849; *Bonap. Ind. Mamm. Eur.* 36. 1845.

*B. Bubalus Bubalus*, *H. Smith.*

*Bubalus ferus Indicus*, *Hodgson, Icon. ined. in B. Mus.* t. 139.

*Bos kerabau*, *Müller, Nederl. Verhand.* i. t. 41.

*Buffelus*, *Aldrov. Bisulc.* 365. fig. 366.

*Buffle*, *Buffon, Hist. Nat.* xi. 284. t. 25; *Bailly, Ann. Sci. Nat.* ii. 369. t. 16; *F. Cuvier, Mam. Lithog.* t.

*Büffel*, *Meyer, Thier.* ii. t. 45.

*Buffalo*, *Penn. Syn.* 7; *Shaw, Zool.* ii. 401. t. 211.

*Wild Buffalo*, *Hodgson, Journ. Asiat. Soc. B.* i. 348.

*Arnee, Knight, Mus. Anim. Nat.* f. 747.

*Hab.* South Europe; North Africa; India; and Indian Islands.

*Var. 1.* Body nearly naked.

*Naked Buffalo*, *Penn. Syn. Quad.* i. 8. t. 2. f. 1.

*Bos bubalus minor*, *Fischer, Syn.* 495.

*Hab.* Java.

A young specimen. Manilla. From the Gardens of the Zoological Society.

*Var. 2.* Horns very much elongated, nearly smooth, curved at the tips.

*Sukotyro* or *Buffalo*, *Sloane, Phil. Trans.* 26, 1727, n. 397. p. 222. f. 2, 3; *Pennant, Quad.* 25.

*Arnee, Anderson, The Bee*, 1792, xii. 105. fig. 267. t. . f. c. d.

*Bos Arnee*, *Shaw, Zool.* iv. 400. t. 210; *Kerr, Anim. Kingd.* 336. t. 295; *Blumenb. Abbild.* t. 63; *Handb.* 122; *Cuvier, Dict. Sci. Nat.* v. 27.

*Bubalus Arna* (var. *Macrocerus* et *Spirocerus*), *Hodgson, J. A.*

S. B. 1841, x. 912; *Calcutta J. N. H.* iv. 279; *Icon. ined. B. M.* t. 138.

*Bos bubalus*, arnee, *Fischer, Syn. Mam.* 495, 653.

*Bos Bubalus arni*, *Sundevall, Pecora*, 202.

*Hab.* India.

*Var.* 3. Domestic Buffalo of the Island of the Soudes.

*Bos Bubalus*, var. domest. Sonda, *Müller, Verh. Ind. Arch.* t. 41.

#### OSTEOLOGY.

*Bos bubalus*, *Cuvier, Oss. Foss.* iv. 122. t. 9. f. 11, 12, 13, t. 10. f. 7, 8, 9, 10; *Daub. in Buffon, H. N.* xi. t. 28. t. 41. f. 1, 2, 3; *Blumenb. Abbild.* t. 63.

Horns, separate, thick, 48 inches long, 18 inches in circumference at base. India.

Skull and horns. India.

Horns, very long, separate, 78 inches.

Skull and horns.—*Figured Griffith, A. K.* t. 201. f. 23.

Skull and horns.

Horns, separate, slender. India.

Skull and horns.

Frontal bone and horns, short.

Skull, with horns, polished. Neilgheries. Presented by General Hardwicke.

Skull, with horns, domestic variety. India. Presented by B. H. Hodgson, Esq.

Two skulls with horns, wild variety. India. Presented by B. H. Hodgson, Esq.

*B. B. macrocerus*, *Hodgson, l. c.* 912.

A pair of broad elongated horns. Presented by B. H. Hodgson, Esq.

A pair of horns, very slender. Presented by B. H. Hodgson, Esq.

Skull, with horns, tame variety. India. Presented by B. H. Hodgson, Esq.

*B. B. spirocerus*, *Hodgson, l. c.* 912.

#### DRAWINGS.

Drawing of a male.—*Hodgson, Icon. ined. B. M.* t. 138. f. 1, copied. Presented by B. H. Hodgson, Esq.

Drawing of four specimens.—*Hodgson, Icon. ined. B. M.* t. 139, copied t. 141. Presented by B. H. Hodgson, Esq.

Drawing of four specimens.—*Hodgson, Icon. ined. B. M.* t. 140. Presented by B. H. Hodgson, Esq.

Drawing of a male, three years old, with details of head.—*Hodgson, Icon. ined. B. M.* t. 142. Presented by B. H. Hodgson, Esq.

Drawing of horns of wild.—*Hodgson, Icon. ined. B. M.* t. 145. f. 1, a. Presented by B. H. Hodgson, Esq.



Drawing of horns of tame.—*Hodgson, Icon. ined. B. M. t. 145. f. 3.* Presented by B. H. Hodgson, Esq.

Drawing of two horns of Indian Buffalo sent to Zool. Soc.—*Hardwicke, Icon. ined. B. M. 10,975. t. 173, 174.*

Drawing of horns of Indian Buffalo.—*Hardw. Icon. ined. B. M. 10,975. t. 175, 177.*

Drawing of horns of domesticated Buffalo of Prince of Wales' Island.—*Hardw. Icon. ined. B. M. 10,975. t. 176.*

Domestic Buffalo of Polu Penang.—*Hardw. Icon. ined. B. M. 10,974. t. 108.*

Common domesticated Buffalo of Bengal.—*Hardw. Icon. ined. B. M. 10,974. t. 105.*

Drawing of Indian Buffalo.—*Hardw. Icon. ined. B. M. 10,975. t. 172, 178.*

“The *Bhainsa* or Tame Buffalo are universal in India. The *Arna* or Wild Buffalo inhabits the margins rather than the interior of primæval forests. They never ascend the mountains, and adhere, like the Rhinoceros, to the most swampy sites of the district they inhabit. There is no animal upon which ages of domesticity have made so small an impression as upon the Buffalo, the tame being still most clearly referable to the wild ones at present frequenting all the great swampy jungles of India.”—*Hodgson.*

“In the wilderness, as in the cow-house, there is a marked distinction between the long- (*Macrocerus*) and curved-horned (*Spirocerus*) Buffaloes.

“The *Arna* ruts in autumn, gestating ten months, and produces one or two young in summer. It lives in large herds, but in the season of love the most lusty males lead off and appropriate several females, with which they form small herds for the time. The wild Buffalo is fully one-third larger than the largest tame breeds, measuring  $10\frac{1}{2}$  feet from snout to vent, and 6 or  $6\frac{1}{2}$  feet high at the shoulders, and is of such power and vigour, as by his charge frequently to prostrate a well-sized elephant. It is remarkable for the uniform shortness of the tail, which does not extend lower than the hock, for the tufts which cover the forehead and knees, and lastly, for the great size of its horns; they are uniformly in high condition, so unlike the leanness and angularity of the domestic Buffalo even at its best.”—*Hodgson.*

\*\* *Horns much enlarged and close together at the base, spreading out on the side of the head and recurved at the tip; ribs very wide, t. 2.*

*Syncerus* (*Caffer*), *Hodgson, Various gen. Ruminants, 1847, 25, note, Bubalus, sp., Ham. Smith in Griffith A. K.*

## 3. BUBALUS CAFFER. The CAPE BUFFALO.

Forehead broad. Horns roundish at the end, depressed, and very rugose at the base; near the base becoming dilated, at length very broad, rugose, very convex, and close together over the forehead. Ears very large, half as large as the head, broad, acute, ciliated. Skin bluish purple or black, nearly naked, with some two-rowed diverging bristles on the middle of the back.

*Bos caffer*, *Sparm. K. S. Veter. Akad.* 1774-79, t. 3; *Griffith, A. K.* iv. 384. t. . young, v. 889; *Harris, Wild Animals Africa*, t. 13, and head; *Zimmerm. Geogr. Gesch.* ii. 90; *Gmelin, S. N.* i. 207; *Schreb. Saugth.* t. 301; *Cuvier, Dict. Sci. Nat.* v. 28; *Règ. Anim.* i. 271; *Desm. Nouv. Dict. H. N.* iii. 527; *Mam.* 494; *Ency. Méth.* t. 45. f. 5; *Thunb. Mém. Act. Petersb.* iii. 318; *Vollborth, Comm. Anat. Berol.* 1826; *Desmoul. Dict. Class. H. N.* ii. 367; *Fischer, Syn. Mam.* 494, 652.

*Bubalus caffer*, *Gray, List Mam. B. M.* 153; *Cat. Osteol. Sp. B. M.* 54; *Turner, Proc. Z. Soc.* 1849.

Cape Ox, *Pennant*; *Shaw, Zool.* ii. 416; *Harris, W. Anim. Afr.* t. 13.

Buffel, *Sparm. Reise*, 297, 379, &c. t. 2.

Dawf Ox, *Pennant, Syn. Quad.* i. 9. t. 2. f. 3, young horns.

Wilde Buffel, *Dutch at Cape*; *Forster, Reise die Welt*, i. 85.

Qu'araho, *Hottentots*.

Cape Buffalo, *Knight, Mus. Anim. Nat.* f. 751, 753.

Buffalo, *Bewick, Hist. Quad.* 47.

*Hab.* S. Africa, in the Deserts, near Cape of Good Hope.

A male, not in a good state. South Africa. Presented by W. Burchell, LL.D.

A male. South Africa. Presented by the Earl of Derby.

OSTEOLOGY. Skulls, adult and young, t. 2. f. 1, 2, 3.

Buffle de Cap, *Daub. in Buffon H. N.* xi. 416. t. 41; *Cuvier, Oss. Foss.* iv. 132. t. 9. f. 14, 15; *Vollborth, de Bobus, &c.* 1826, t. 3.

Frontal bone and horns, young. South Africa. From Mus. Royal Society.

Skull and horns. South Africa.

Skull and horns. South Africa.

Skeleton of male. South Africa. From the Gardens of the Zoological Society.

The horns of the young specimen are depressed and rugose, and very different from those of *B. brachyceros*, which Prof. Sundevall considers as the young of this species. The pair of young horns which was in the Museum of the Royal Society (*Grew, Rar.* 26), figured by Pennant (*Syn.* t. 2. f. 3), is now in

the British Museum, and at once shows the distinctness of these two species.

### 3. ANOA.

Horns subtrigonal, nearly parallel, round at the tip, depressed at the base, and slightly keeled on the inner edge, straight, nearly on the plane of the face on the hinder edge of the frontal ridge. Intermaxillary elongate, high up between the maxillæ and the nasal. Muffle large, rather narrow below. Hoofs very broad. Ears small, narrow, short. Tail elongate, tufted at the end. Hair of the back, from the nape to the pelvis, reversed. *Skull*, t. 3. f. 1, 2.

Anoa, *Leach*; *H. Smith, Griffith A. K.* v. 182; *Sundevall, Pecora*, 74.

Antilope, § Anoa, *Fischer, Syn. Mam.* 647.

Bubalus, sp., *Turner, Proc. Zool. Soc.* 1849.

Bos, sp., *Meyen*; *Gray, Spic. Zool.*

Mr. Turner observes: "Although Major Smith was deceived as to the affinities of the *Anoa*, later as well as earlier naturalists have assigned it to its true place, and a glance at the stuffed specimen in the British Museum leaves the matter beyond a doubt. I have examined the skull in the Museum of the College of Surgeons, and cannot see that it has even a title to generic distinction. Naturalists seem at all times to have been prone to assign generic rank to whatever was mysterious or difficult to classify, and I can in no other way account for this species being made a genus."—*Proc. Zool. Soc.* 1849. Mr. Turner must have observed the *skull* very superficially, for it offers many characters, especially in the palate, which separate it from the Buffaloes and all the other *Bovæ*, t. 3. f. 1, 2.

#### 1. ANOA DEPRESSICORNIS. The ANOA.

Reddish brown, with three small white spots on the cheek. Male black, spot on cheek white. Female and young brownish black.

Antilope (*Anoa*) depressicornis, *H. Smith, G. A. K.* iv. 293. t. v. 867; *Gray, Spicil. Zool.* t. 11. f. 23; *Fischer, Syn.* 647.

Antilope depressicornis, *Quoy et Gaim. Ann. Sci. Nat.* xvii. 623. t. 20; *Voy. Astrol. Zool.* i. 136. t. 26; *Férussac, Bull. Sci.* xix. 108; *Lesson, comp. Buffon*, x. 299. t. 65. f. 2.

♀ *Anoa compressicornis*, *Leach, MSS.*

Antilope depressicornis, *Leach*; *Gray, Spic. Zool.* t. 11. f. 23; *H. Smith, G. A. K.* v. 867. t. 181. f. 4, head.

Antilope platyceros et Antilope Celebica, *Temm. Mus. Leyden.*

*Bos bubalis* β. *Anoa*, *Penn. Quad.* 26; *Meyer, Zool. Arch.* 184, 1796.

*Bubalus depressicornis*, Turner, *Proc. Zool. Soc.* 1849.

Anoa, *Loten MSS. in Brit. Mus.*; *Penn. Syn.* 6; *Quad.* 26;  
*Knight, Mus. Anim. Nat.* f. 746.

Anoa *depressicornis*, *Sundévall, Vet. Akad. Handl.* 1844, 199;  
*Gray, List Mam. B. M.* 153; *List Osteol. B. M.* 54; *Gray, Knowsley Menag.* t.

*Hab.* Celebes.

Male and female. Celebes. From the Leyden Museum.

OSTEOL. Skull, t. 3. f. 1, 2.

Skull and horns. Celebes. Presented by General Hardwicke.

Skull and horns. Mauritius?

Skull and horns. Mauritius?

This animal was first noticed by Governor Loten. It was afterwards described by Colonel Hamilton Smith from a head with horns in the Museum of the College of Surgeons. A similar head was received by General Hardwicke (which was given by him to the British Museum), accompanied by a sketch of the head and front part of the body of the animal, which is copied in Gray's *Spicilegia*. MM. Quoy and Gaimard afterwards published a figure of the animal, and took two male specimens with them to Paris, one of which was transmitted to Knowsley, in exchange for the specimen of *Oreas Canina* sent to Paris by the Earl of Derby: this specimen is figured in the *Knowsley Menagerie*.

\* *Intermaxillaries short, triangular, not reaching to the edge of the nasal bone; the upper lip bald, callous and moist, only as wide as the inner edge of the nostrils.*

Mr. Turner observes: "I fear that Mr. Gray's distinction in the extent of the intermaxillary bones upon the sides of the nasal aperture will not always hold good."—*Proc. Zool. Soc.* 1849. Since this remark was penned, I have re-examined many specimens of the skull of this genus and of other oxen, and do not find any reason to doubt the validity of the distinction; I have not found a single Bison's skull with an elongated intermaxillary, nor an Ox or Buffalo with a short one. It would have been better if Mr. Turner had cited the example which made him doubt; when I applied to him on the subject, he owned that he could not refer me to a specimen to verify his remarks.

#### 4. BIBOS.

Horns depressed at the base, directed outwards, posterior on the hinder ridge of the frontal bone, which is often very prominent, recurved at the tip. Withers high, keeled, supported by the spinous processes of the dorsal vertebra, and suddenly lower be-

hind. The intermaxillaries are short and triangular, and do not reach to the nasals. Brown or black (adult males). Legs beneath the knees (and sometimes the rump) white. The baldness of the upper lip converging beneath from the inner edge of the nostrils. *Skull*, t. 3. f. 3.

Bibos, *Hodgson*; *Gray*, *Knowsley Menag.*

Bison, sp., *Ham. Smith in Griffith A. K.* v. 371; *Fischer, Syn. Mam.* 651.

Gareus, *Hodgson, Var. Genera Ruminants*, 1847, 21.

Bos (Boves propriè), part., *Sundevall, Pecora*, 200, 1844.

Bos, sp., *Turner, Proc. Zool. Soc.* 1849.

Professor Sundevall regards the three species of this genus as subvarieties of a variety of the Common Bull, *Bos Taurus* (*Pecora*, 200, 1844).

† *Forehead flat. Horns broad, depressed, black. Front half of back with an elongated keel*, t. 3. f. 3. *Probos, Hodgson.*

#### 1. BIBOS FRONTALIS. The GAYAL.

Black; lips, forehead and legs grey; inside of ears white; forehead flat, very broad. Horns depressed, broad at the base, conical, black.

*Bos bubalus* var. c. *Guavera, Penn. Quad.* i. 27.

“*Bos Guavera, Penn.*,” *Buchanan, Icon. ined. Mus. Ind. Comp.* t. 7.

*Bos bubalis* γ. *Guavera, Meyer, Zool. Arch.* 184, 1796.

*Bos frontalis*, *Lambert, Linn. Trans.* vii. t. 4, young ♂; *Gray, List Mam. B. M.* 151; *Cat. Hodgson Coll. B. M.* 24; *Delesert, Souvenir Ind.* t. , not good.

*Bos Gayeus* (*Assel Gayal*), *Colebrook, Asiatic Research.* vii. 511. t. 8; *Hardw. Zool. Journ.* iii. 233. t. 7. f. 1; *Lesson, Compl. Buffon*, x. 317.

*Bos Taurus* var. 3, subvar. 1. *frontalis, Sundevall, Pecora*, 200, 1844.

*Bos* (*Bison*) *Gaveus, H. Smith in Griffith A. K.* iv. 406. t. , v. 897; *Fischer, Syn.* 651, 654; *Hodgson, Journ. Asiat. Soc. Beng.* 1841, x. 912. 470. t. 1. f. 1.

*Bibos frontalis, Gray, List Mam. B. M.* 151; *List Osteol. Sp. B. M.* 24; *Knowsley Menag.*; *Lesson, Nov. Tab. Reg. Anim.* 184.

*Gayal, Knight, Mus. Anim. Nat.* f. 741, 742?, 743, 744.

*Hab.* India, Chittagong.

Male. India. Nepal. Presented by B. H. Hodgson, Esq.

OSTEOL. *Skull*, t. 3. f. 3.

*Gyal of Sylhet (Bos gaveus), Hodgson, J. Asiat. Soc. Beng.* 1841, x. 470. t. 1. f. 1; *Hardw. Zool. Journ.* iii. t. 7. f. 1.

Two skulls of the adult male. The Tarai. Presented by B. H. Hodgson, Esq.

Skull, half-grown, male. The Tarai. Presented by B. H. Hodgson, Esq.

Skull and some bones of foetal specimen. Presented by B. H. Hodgson, Esq.

Skeleton, imperfect. Presented by B. H. Hodgson, Esq.

#### DRAWINGS.

Assal Gyal, *Hardw. Icon. ined. B. M. n. 10,975. t. 168.*

True Asseel Gayal, *Hardw. Icon. ined. B. M. n. 10,794. t. 106,* head copied from former.

Drawing of two males.—*Hodgson, Icon. ined. B. M. t. 135.* Presented by B. H. Hodgson, Esq.

Drawing of two males.—*Hodgson, Icon. ined. B. M. t. 136.* Presented by B. H. Hodgson, Esq.

Drawing of two males.—*Hodgson, Icon. ined. B. M. t. 137.* Presented by B. H. Hodgson, Esq.

Drawing of a male.—*Hodgson, Icon. ined. B. M. t. 138. f. 2.* Presented by B. H. Hodgson, Esq.

Drawing of horns.—*Hodgson, Icon. ined. B. M. t. 145. f. 5, 6.* Presented by B. H. Hodgson, Esq.

Dr. Hamilton Buchanan's figure in the Library of the India House (marked *Bos Guavera*, Penn. t. 7) was the first and is the best.

The *Gavi* or *Gabi* is more than half redeemed from the wild state, like the *Yak* of Tibet.—*Hodgson, l. c. 22.*

♦ The *Jungly Gau* (*Bos Sylhetanus*) of M. F. Cuvier's *Mammalia* is from a tracing made by M. Duvaucelle from a drawing in General Hardwicke's collection (marked "*Gyale* at Barrackpoor," *Icon. ined. B. M. n. 10,975. t. 169, 170*), taken from a hybrid specimen bred between a *Domestic Gyal* and a *Zebu*. It has a larger, deeper and more waved dewlap than the wild species, and differently shaped horns. It was never alive in Paris, nor even seen alive by M. Duvaucelle.

†† *Forehead concave. Horns pale, rather depressed at the base. Back with a prominent keel over the shoulder, and another on the middle of the back. Bibos, Hodgson.*

## 2. BIBOS GAURUS. THE GOUR OR GAUR.

Hind hoof only half the size of the front. Brown; legs white.

Bos Gour, *Trail, Edinb. Phil. Journ.* 1824, 334; *Hardw. Zool. Journ.* iii. 232. t. 7. f. 2; *Mem. Mus.* ix. 71; *Férussac, Bull. Sci.* xiv. 252; *Lesson, Compl. Buffon*, x. 316; *Fischer, Syn. Mam.* 497.

Bos Gaur, *Evans.*

Bos (Bison) Gaurus (Gour), *Hamilton Smith in Griffith A. K.* v. 373; *Fischer, Syn. Mam.* 653; *Elliot, Madras Journ. Sci.* 1840, t. 5. adult, t. 6. f. 1 ♂. f. 2 ♀. skull.

Bos Taurus, var. 3, subvar. 2. Gaur, *Sundevall, Pecora*, 201.

Bos (Bibos) cavifrons, *Hodgson, Journal Asiat. Soc. Beng.* 1837, vi. 223, 299, 745. t. 39, x. 911; *Elliot, Madras Journ. Sci.* 1840, 37.

Bos Hardwickii (Gour), *J. Brookes, Cat. Mus.* 65 (1825).

Bos Silhetanus, *Delessert, Rev. Zool.* 1839, 129.

Bos aculeatus, *Schinz.*; *Cuvier, Thierr.* iv. 492.

Bisonius subhæmachalensis, *Hodgson, Icon. ined. B. M.* t. 135; *Calcutta Journ. Nat. Hist.* iv. 289.

Bos (Bison) Gour, *Lesson, Nov. Tab. Reg. Anim.* 184.

Bibos gaurus, *Hodgson, Icon. ined. Brit. Mus.* t. 137; *Gray, Cat. Hodgson Coll. B. M.* 24.

Gaur, *Geoffroy, Ann. Mus. H. N.* ix. 71.

Gaur, *Johnston, Sketch Indian Sports*, t.

Gour, *Knight, Mus. Anim. Nat.* f. 746.

Gauri Gau, *of the Tarai.*

Inhab. India. Mountain district, Nepal. The male is called *Gour*, and the young *Pararah*; the female *Gouvin*, and the young *Pareeah*, in Malacca. Called *Gaviya* by the Mahrattas.

Male, stuffed.

OSTEOL. *Elliot, Madras Journ. N. H.* x. 227. t. . f. , skull.

Gouri Gau of Nepal (Bibos cavifrons), *Hodgson, J. A. S. Bengal*, x. 1841, 470. t. 1. f. 2, t. 2, 3, skulls.

Two skeletons. Nepal.

Skeleton, imperfect. Nepal. Presented by B. H. Hodgson, Esq.

Skull and horns of male. Nepal. Presented by B. H. Hodgson, Esq.

Skull and horns of female. Nepal. Presented by B. H. Hodgson, Esq.

Skull and horns. India.

Skull and horns, with skin on face. India. Presented by General Hardwicke.

Horns, separate, polished. India.

Horns, separate. India.

Horns, separate, young. India.

Horns, single horn. India.

Horns, single horn. India.

Horns, single horn. Nepal. Presented by B. H. Hodgson, Esq.

#### DRAWINGS.

Bos Gour, *Hardwicke, Icon. ined. B. M. 10,974. t. 107.*

The *Gours* inhabit the primitive forests of India, under the great ranges of mountains; they rut in winter, procreate in autumn, producing one at a birth. The herds are ordinarily rather numerous, twenty, thirty, forty, and sometimes even double that number being found together; but in the breeding season not above ten or fifteen cows, with a single mature, vigorous bull, who jealously expels every young or old male from his harem. They entirely avoid the open Tarai on the one hand, and the hill on the other, adhering to the most solitary part of the Saul forest, close to and between the salient spurs of the hills, where the periodical firing of the undergrowth of the forest never reaches. They feed early and late in the more open glades of the forest, posting sentinels the while, and manifesting in their whole demeanour a degree of shyness unparalleled among the *Bovines*. They never venture even in the rains, when there is abundance of rank vegetation to cover their approaches, into the open Tarai, to depredate on the crops, as the *Wild Buffaloes* constantly do; nor do they ever associate or have sexual commerce with the tame cattle, though immense numbers of the latter every spring are driven into their retreats, to feed and remain there in a half-wild condition for three or four months, when the *Wild Buffaloes* frequently have sexual intercourse with the tame ones of their kind, of which likewise vast numbers are despatched there.

Old males of the *Gour* are often found solitary, wandering in the forests they frequent, especially in winter; but these have probably been recently expelled the herd by their more vigorous juniors, and reunite themselves with some herd after the season of love and contention has passed.

It is exceedingly difficult to rear the *Gour* in confinement. Nor did I ever know a successful experiment, though the attempt has been for fifty years constantly made by the Court of Nepal, which finds no difficulty in rearing Wild Buffaloes and causing them to breed in confinement with the domestic species, which is thus greatly improved in size and other qualities.

The *Gours* are exceedingly shy, and when approached they retreat as long as they can; but if compelled to stand and defend themselves, they do so with a courage and determination not to be surpassed.



The beef of the *Gour* is unequalled for flavour and tenderness ; but to the Aborigines only is it illicit food, and not to all tribes of them ; nor are any of them allowed to kill it in Hindu kingdoms.

Capt. Tickell, a good observer, believes there are two species of *Bibos* in the *Chola Nagpoor* territories alone.—*Hodgson, l. c.* 24.

Mr. Hodgson appears to think the *Bibos* found beyond the *Brahmaputra* is a different species.

Mr. Elliot's account of the habit of those found in the Deccan differs in several particulars from that given by Mr. Hodgson.

### 3. BIBOS BANTING. The BANTING.

Black, distinct large spot on rump and legs white. Calf pale brown, with a dorsal streak, widest behind, and tip of tail black ; rump and legs like back, not white, as in the adult.

*Bos Banting*, *Raffles, Linn. Trans.* xiii.

*Bos Taurus* var. 3, subvar. 1. *Banting*, *Sundevall, Pecora*, 201.

*Bos leucopymnus*, *Quoy & Gaim. Zool. Astrol.* i. 140, 1830 ;  
*Lesson, Compl. Buffon*, x. 319.

*Bos* (*Taurus*) *leucopymnus*, *Lesson, Nov. Tab. Reg. Anim.* 185.

*Bos frontalis*, part., *Fischer, Syn. Mam.* 550.

*Bos bantiger*, *Temm. Mus. Leyden.*

*Bos Sondaicus*, *Müller, Nederl. Verhand.* i. 45. t. 35, 39.

Sumatran Ox, *Raffles, Trans. Linn. Soc.* xiii. ; *Lesson, Compl. Buffon*, x. 315.

*Hab.* Java. Borneo. Bali.

Stuffed male. Java. From the Leyden Museum.

Skin of female. Java. From the Leyden Museum.

OSTEOLOGY. *Bos Sondaicus*, *Nederl. Verhand.* i. t. 36, 39.

Skeleton of male and female. Java. From the Leyden Museum.

ANAT. *Müller, Verhand. Ind. Arch.* t. 37, 38, 39.

b. *Bisons*. Covered with short, crisp wool ; shoulder higher than the haunches ; cannon-bone of the hind-leg longer than the fore. Ribs fourteen or fifteen pairs.

*Bison*, *Gray, Knowsley Menag.* 1849.

### 5. BISON.

Muffle short and scarcely reaching the hinder edge of the nostrils, as wide as the space behind the inner edge of the nostrils. Horns round, rather depressed at the base, lateral, coming out before the ridge of the occiput, curved upwards and outwards.

In the skull the frontals are broader than long. The intermaxillæ are very short, triangular, not reaching nearly to the nasal bones. The head, crown and shoulders covered with longer curled hair; dewlap none; teats four in a square. Skull, t. 4. f. 1, 2.

The flesh smells of musk, hence called *Bisam*, which has been changed into *Bison*. See *Pallas, Zool. Ross. Asiat.* 247.

*Bison*, *H. Smith, Griff. A. K.* iv. 182; *Fischer, Syn.* 651.

*Bison*, *Bojanus, N. Act. Acad. Nat. Cur.* xiii.; *Owen, Brit. Foss. Mam.* 491, 1846.

*Bison*, sp., *Turner, Proc. Zool. Soc.* 1849.

*Urus*, sp., *Owen, Rep. Brit. Assoc.* 1843, 232.

*Aurochs*, sp., *Cuv. Ann. Mus.* xii. 379; *Oss. Foss.* iv.

*Bonassus*, sp., *Wagner.*

*Bos* γ. *Bison*, *Sundevall, Pecora*, 78.

† *Tarsi elongate, fore and hind quarters subequal.*

## 1. BISON BONASSUS. The BISON.

Fur blackish brown, short; of neck and shoulders longer, of chin and throat, elongate, forming a dependent mane; fore and hind legs subequal; tarsi elongate.—*Bos Bison*, *Linn. S. N.* xii.

*Bos* (*Bison*) *Bison*, *H. Smith in Griffith A. K.* v. 893; *Fischer, Syn.* 654; *Sundevall, Pecora*, 203; *Baër. Bull. Petersb.* i. 53.

*Bos urus*, *Bodd. Elench.* 1788; *L. H. Bojanus, Comm. Nov. Act. Acad. Nat. Cur.* xiii. 414. t. 20, 28; *Schreb. Saugth.* t. 295; *Desm. Mamm.* 498; *Fischer, Syn. Mam.* 497; *Eichw. Zool. Spec.* iii. 342. t. ; *Vollborth, Dissert.* 1. fig.

*Bos Bison Aurochs*, *Lesson, Nov. Tab. R. A.* 184.

*Bos Taurus Urus*, *Gmelin, S. N.* i. 202; *Pallas, Zool. Ross. Asiat.* i. 242.

*Bos Bonassus*, *Brisson, Reg. A.* 84; *Linn. S. N.* xiii. 99; *Gmelin, S. N.* i. 99; *Erxl. Syst.* 235.

*Bison Europæus*, *Owen, Proc. Zool. Soc.* 1848, 126.

*Bos Taurus c. Bison* (*Der Europäische Bison*), *Donnd. Zool. Beytr.* 687.

*Bos Bison seu Bonassus*, *Wagner, Schreb.* 1481, t. 295, 295 B.

*Bison Urus*, *Gray, Cat. Osteol. Spec. B. M.* 55; *Turner, Proc. Z. Soc.* 1848.

*Bison jubatus*, *Plinii Hist. Nat.* viii. c. 15.

*Bison*, *Gesner, Quad.* 31; *Aldrov. Bisulc.* 353. f. 355, 356; *Jonston, Quad.* t. 17. 16; *Nic. Hussoviani de Bisontis Cracov.* 1525, 12; *Herberstein, Rer. Moscow. Comm. Basil.* 1556, 109. fig.; *Gilibert de Bove Lituano*, 1781, 30. fig.; *Zimmer. Geog. Zool.* ii. 84.

Uri, *Cæs. Gall.* vi. c. 28.

Urus jubatus, *Jonst. Quad.* t. 19.

Aurochs, *Buffon, Hist. Nat.* xi. 207; *Cuvier, Ann. du Mus.* xii. 379; *Dict. Sci. Nat.* v. 21. t. ; *Règ. Anim.* i. 269; *Oss. Foss.* iv. 109. t. 9, 10, 12; *Desmoul. Dict. Class. H. N.* ii. 364.

Afrikanischer Wilder Ochs, *Müller, Naturs.* i. 43; *Borowsky, Thier.* i. 40; *Gatterer, Schaden der Thiere,* i. 128; *Batsch, Thiere,* i. 141; *Graumann, Int. H. N.* 44.

Buckelochs, *Gatterer, Brev. Zool.* i. 67.

Bonassus, *Plin. Hist. Nat.* viii. 15; *Gesner, Quad.* 145. fig.; *Zimmerm. Geog. Zool.* ii. 93; *Onomat. H. N.* ii. 262; *Brisson, Reg. Anim.* 84; *Klein, Quad.* 13; *Buffon, H. N.*; *Severin, Zool. Hungar.* 35; *Raii Syn. Quad.* 71.

Munistier or Mänestier, *Gesner, Thier.* 297. fig.

Bos Munistier, *Jonst. Quad.* t. 18, 19.

Urochs or Auer Ochse or Auer Ochs, Waldochse, Wilder Ochs or Bergochs, *Müller, Natursys.* i. 436; *Henneberger, Preuss.* § 251. fig.; *Zimmer. Geog. Zool.* ii. 82; *Borowsky, Thier.* i. 39; *Funke, Naturg.* i. 34; *Ebert, Naturl.* i. 284; *Halle Vierfuss.* 280; *Gatterer, Schad. der Thiere,* i. 107; *Beckmann, Naturh.* 10; *Klein, Thiere,* 12; *Martini, Naturlex.* iii. 693; *Batsch,* i. 141; *Boch, Nat. Preuss.* iv. 191; *Hartknoch, Preuss. Hist.* i. 13; *Döbel, Jagerprak.* i. 20; *Jablonsky, Allgem. Lex.* 82; *Severin, Zool. Hung.* 36.

Preussische und Lithauische Aurochs, *Pallas, Nord. Beytr.* i. 6.

Urus de Prusse et de Lithuanie, *Pallas, Act. Acad. Sci. Petrop.* ii. 1777, 236.

Zurb, oder der Lithauische Aurochs, *Jarocki,* 1830, t. 1 ♀ . 2 ♂ .  
*Hab.* Poland. Caucasus.

Male, stuffed in Russia. Presented by the Emperor of Russia through Sir Roderick Murchison.

#### OSTEOLOGY.

*Bos urus*, *Bojanus, Nov. Act. Acad. Nat. Cur.* xiii. 414. t. 20–23; *Cuvier, Oss. Foss.* iv. 109. t. 9. f. 1, 2, t. 10. f. 1, 2, t. 12. f. 6, 7; *Volkman, Anat. Anim.* i. t. 8, skull; *Owen, Proc. Zool. Soc.* 1848, 132. fig. bones of fore and hind feet; *Vollborth, Dissert.* t.

*Buffalus*, *Pallas, Nov. Comm. Petrop.* xiii. t. 11, 12.

Aurochs foss., *Cuvier, Oss. Foss.* iv. 140. t. 12. f. 1, 2, 4, 11, t. 11. f. 5, fossil.

Skeleton. Lithuania. Presented by the Emperor of Russia.

†† *Tarsi short, hinder quarters very low.*

## 2. BISON AMERICANUS. THE AMERICAN BISON.

Crown with long, crisp hair (in all seasons). The fur dark brown; hair of head and shoulders elongate, crisp. Tarsus short, hinder quarters very low. Body and tarsus in winter covered with long hair, in summer nearly naked, except in front of body and head.

*Bos Bison*, Linn. *S. N.* i. 99; *Erzl. Syst.* 233; *Schreb. Saugh.* t. 299; *Blumb. Handb.* 121.

*Bos Bison Americanus*, *H. Smith, Griffith A. K.* v. 895; *Fischer, Syn.* 653; *Sundevall, Pecora*, 203; *Hodgson, Journ. Asiat. Soc. Beng.* x. 1841, 912.

*Bos Americanus*, *Gmelin, S. N.* i. 204; *Cuvier, Dict. Sci. Nat.* v. 24; *Règ. Anim.* i. 270; *Ossem. Foss.* iv. 117. t. 11; *Desm. Nouv. Dict. H. N.* iii. 531; *Mamm.* 496; *Ency. Méth.* t. 55. f. 3; *Fischer, Syn. Mam.* 495, 653; *Desmoul. Dict. Class. H. N.* ii. 365; *Cuvier & Geoff. Mam. Lith.* t.; *Richardson, Fauna Bor. Amer.* i. 279; *Sabine, Frank. Journey*, 668; *H. Smith, Griffith A. K.* iv. 401. t. , v. 895; *Pallas, Zool. Ross. Asiat.* i. 242; *Owen, Brit. Fossil Mam.*

*Bison Americanus*, *Gray, Knowsley Menag.* 49; *Turner, Proc. Zool. Soc.* 1849.

*Taurus Mexicanus*, *Hernand. Mex.* 587. fig. (1651).

*Taureau Sauvage*, *Hennipen, Nouv. Découv.* i. 186. fig. (1699).

*Taurus Ouivirensis*, *Nieremb. Hist. Nat.* 181. fig. from *Hernand.*

*Tauri vaccæque Quiviræ*, *Fernand. Anim.* 10.

*Tauri novi orbis*, *Nieremb. Hist. Nat.* 182.

*Armenta*, *Lact. Amer.* 303. fig. from *Hernand.*

*Urus Bison*  $\beta$ . *indicus*, *Bison Catesbeji*, *Klein, Quad.* 13.

*Bison*, *Ray, Syn. Quad.* 71; *Pennant, Arct. Zool.* i. 1; *Long, Exped.* iii. 68.

*Buffelo*, *Laws. Carol.* 115. fig.; *Brick. North Carol.* 107. fig.

*Buffalo*, *Catesby, Carol. App.* 27. fig. *App.* t. 20; *Harmon. Journey*, 415; *Franklin, First Journey*, 113 (110. fig. of *Buffalo Pound*).

*Bœuf du Canada*, *Charlev. Nouv. Fr.* iii. 131.

*American Oxen*, *Dobb's Hudson's Bay*, 41.

*American Bison*, *Shaw, Zool.* ii. 394. t. 206, 207; *Knight, Mus. Anim. Nat.* f. 759-762.

*American Bull*, *Penn. Syn.* 8. t. 2. f. 2.

*American Wild Ox* or *Bison*, *Warden's United States*, i. 248.

*Bison* (d'Amérique), *Buffon, H. N. Supp.* iii. 64. t. 5; *F. Cuvier, Mam. Lithog.* t. , adult, young, and very young.

*Bison*, *Müller, Magaz.* i. 186; *Bewick, Hist. Quad.* 43. fig.

Wilde Ochsen und Kuhe, *Kalm, Amer.* ii. 350, 425, iii. 351.  
 Amerikanische Bison, *Zimmer. Geog. Zool.* ii. 89; *Schæpf. Reise Nordamer.* ii. 167; *Pallas, Nord Beytr.* i. 5.  
 Bison d'Amérique, *Pallas, Act. Acad. Sci. Petrop.* 1777, ii. 238.  
 Buklel, Ochse, Bison, Wisent, *Borowsky, Thier.* i. 42; *Blumenb. Handb.* 111.  
 Nordamerikanischer Bisam Ochs.

*Var.* White.—*Richardson, Faun. Bor. Amer.* 283.  
*Hab.* N. America.

Male, stuffed in America. Bank of Yellow River. From M. Audubon's Collection.

OSTEOLOGY. *Skull*, t. 4. f. 1, 2.

*Bos Americanus*, *Cuvier, Oss. Foss.* iv. 117. t. 10. f. 3, 6.

Skeleton of male. North America. Presented by the Earl of Derby.

Skeleton of female. N. America. From the Collection of the Zoological Society.

*Hybrid with Bos Taurus.*

Naals Buffalo, *Americans; Fischer, Syn. Mam.* 496.

B. *Nose ovine, covered with hair, or with a small naked space between the rather close converging nostrils. Tail short. Hair during the cold season very long, pendent. Living in the Mountains or Snowy regions.*

Oxen of the Mountains or Snowy regions, *Gray, Knowsley Menag.*

## 6. POËPHAGUS.

Horns subcylindrical, curved outward on the front of the occipital ridge. Nose hairy, with a narrow bald muffle between the nostrils. Hoofs moderately thick, not dilated or expanded on the outer side, square, and straight in front. Tail moderate, not reaching to the hocks, and covered with long hair; teats 4, narrowing behind. Perineum, scrotum, and inside of the thighs and armpits naked. Skull: intermaxillaries short, triangular and acute behind, not reaching to the nasal bones.

Poëphagus, *Gray, List Mamm. B. M.* 153.

Bison, sp., *H. Smith, Griffith A. K.* v. ; *Fischer, Syn.* 651 ;  
*Turner, Proc. Zool. Soc.* 1849.

*Bos poëphagus* (part.), *Sundevall, Pecora*, 202.

Professor Sundevall observes, "Inter tres divisiones generis et

præsertim inter *Bos Bubalum et bisontes* medius videtur."—*Pecora*, 202.

Mr. Turner doubts its distinctness from Bison.—*Proc. Zool. Soc.* 1849.

### 1. POËPHAGUS GRUNNIENS. The YAC or SARLYK.

Black; back and tail often white.

*Bos grunniens*, *Linn. S. N.* i. 99; *Gmelin, S. N.* i. 205; *Erxl. Syst.* 237; *Zimmerm. Geog. Gesch.* ii. 38; *Schreb. Saugth.* t. 299 A, B; *Blumb. Abbild.* t. 22; *Cuvier, Dict. Sci. Nat.* v. 30; *Règ. Anim.* i. 270; *Oss. Foss.* iv. 129. t. 10. f. 13, 14; *Desm. Nov. Dict. H. N.* iii. 528; *Mamm.* 496; *Ency. Méth.* t. 45. f. 3; *Desmoul. Dict. Class. H. N.* ii. 368, 11; *Fischer, Syn. Mam.* 496, 653; *Hodgson, J. A. S. Beng.* i. 348; *Proc. Zool. Soc.* 1834, 99.

*Bos* (Bison) *Poëphagus*, *H. Smith in Griffith A. K.* v. 896; *Fischer, Syn.* 658; *Hodgson, J. A. S. Beng.* 1841, x. 912, xi. 282.

*Bos* (*Poëphagus*) *grunniens*, *Sundevall, Pecora*, 202.

*Bison Poëphagus*, *Gray, Cat. Hodgson Coll. B. M.* 25; *Turner, Proc. Z. Soc.* 1849.

*Poëphagus grunniens*, *Gray, List Mam. B. M.* 153; *Cat. Osteol. Sp. B. M.* 55; *Knowsley Menag.* 49.

*Bisonius Poëphagus*, *Hodgson, J. A. S. Bengal*, x. 912. 470. t. 1. f. 3; *Calcutta Journ. Nat. Hist.* iv. 289.

*Bos Poëphagus*, *Pallas, Zool. Ross. Asiat.* i. 249; *Nov. Comm. Petrop.* i. 2. 332; *Nord Beytr.* i. t. 1.

*Poëphagus*, *Ælian de Animal.* lib. xv. cap. 14, lib. xvi. cap. 11; *Marco Polo de Region. Orient.* lib. i. cap. 62; *Rubruquis, Hist. Général des Voy.* vii.

Buoi e la codo di cavallo, *N. Conti, Collect. de Ramusio*, i. 340. b.

Oxen (used for riding), *Ysbrant's Travels Muscow*, 50. tab.; *Grew, Mus. Reg. Soc.* 26.

*Vacca grunniens*, or Buffle mid dem Pferde schweif, *J. G. Gmelin, Nov. Comm. Petrop.* v. 339. t. 7.

Tangutischen Büffel, *Pallas, Nord Beytr.* i. t. 1. 1780.

Bubuls, *Bell, Travels*, i. 212.

Boëboeli, *Witsen, N. en O. Tart.* i. 66.

*Bubalus cauda equina*, Buffle à queue de cheval, *Pallas, Act. Acad. Petrop.* 1777, ii. 232.

Vache de Tartarie, *Buffon, H. N.* xv. 136.

Grunting Ox, *Bewick, Hist. Quad.* 46.

Grunting Bull, *Penn. Syn.* 5.

Yac of Tartary, *Turner, Account*, 186. t. 10; *Shaw, Zool.* ii. 411. t. 213.

Svora-Goy or Yak of Tartary, *Asiat. Research.* iv. 349. t.

Kalmükische kühe, *Georgi Russland*, i. 208.

Tangutesche kühe, *Pallas, Reise Aus.* iii. 126.

Bœuf velu, *Bruyn. Iter Mosc.* 120. t. 129.

Yack, *Desmoul. Dict. Cl. H. N.* ii. 368.

*Var. 1.* Noble Yak. Head erect; hump large; fur very long, nearly reaching the ground; tail bushy.

The Riding Yak, *Hoffmeister, Travels Ceylon, &c.*, 443.

*Var. 2.* Plough Yak. Head dependent; legs short; hair short; tail often cut off.

The Plough Yak, *Hoffmeister, Travels Ceylon, &c.*, 441.

Female, stuffed. Black; tail and middle of back whitish. Thibet. Presented by B. H. Hodgson, Esq.

*Var. 3.* Hornless Yak. Both sexes without horns.

*Pallas, Act. Acad. Petrop.* 1777, 250. t. 10; *Nord. Beytr.* f. 1. t. 1; cop. *Schreb. Saugth.* t. 299 B.

*Var. 4.* Ghainorik. Larger.

Ghainorik of the Mongolians and Calmucks, *Gmelin; Pallas, Act. Acad. Petrop.* 1777, 255.

Yac, *Stewart, Phil. Trans.* 1777, lxxvii. 478.

*Var. 5.* The Wild Yak. Much larger; the withers of the bulls high.

*Hab.* Thibet. Mr. Winterbottom.

OSTEOLOGY. Skull, t. 4. f. 3, 4.

Yac of Thibet, *Hodgson, J. Asiat. Soc. Bengal*, x. 470. t. 1. f. 3, skull.

Bos grunniens, *Cuvier, Oss. Foss.* iv. 129. t. 10. f. 13, 14.

Skeleton. Nepal. Presented by B. H. Hodgson, Esq.

Skull and horns.

Two skulls of male. Thibet. Presented by B. H. Hodgson, Esq.

Skull of the female, with the horns bent forward at the tip.

Thibet. Presented by B. H. Hodgson, Esq.

Skull of the female. Thibet. Presented by B. H. Hodgson, Esq.

Pair of horns of the male, of large size. Thibet. Presented by B. H. Hodgson, Esq.

Pair of horns of the female, slender, and bent horizontally. Thibet. Presented by B. H. Hodgson, Esq.

DRAWINGS.

Drawing of a group of the domestic variety.—*Hodgson, Icon. ined. B. M.* t. 143, copied, with front figure left out, t. 144. Presented by B. H. Hodgson, Esq.

Drawing of horns.—*Hodgson, Icon. ined. B. M.* t. 145. f. 4. Presented by B. H. Hodgson, Esq.

Drawing of horns.—*Hodgson, Icon. ined. B. M. t. 100. f. 1, 2.*  
Presented by B. H. Hodgson, Esq.

The *Yaks* dislike the warmth of summer, and hide themselves in the shade and water; they swim well; both sexes grunt like a pig. The calves are covered with rough, black, curled hair, like a curled haired dog; when of three months old they obtain the long hair on the body and tail. They willingly live with the common cows, and breed with them. The long white hairs of the tail are dyed red to form the tufts of hair on the caps of the Chinese.—*Pallas, Act. Acad. Petrop. 1777, 250.*

The *Yak* used for the plough are ugly and short-legged, and hold their heads very low; the beautiful long silky hair, hanging from below the belly, is almost, if not entirely, wanting in them, no less than the bushy tail, which their avaricious owners commonly cut off as an article of trade; they are guided by the nose.—*Hoffmeister, Travels in Ceylon, &c., 441.*

The *Yak Ox* used in riding is an infinitely handsomer animal; it has a stately hump, a rich silky hanging nearly reaching the ground, twisted horns, a noble bearing, and an erect head (p. 441). They are very shy, and *kick with their hind-feet*, turning their head round perpetually, as if about to gore their riders (p. 443).

Our broad-footed *Yak Ox* is the beast with the thick, silky, white fringe under the body, and the bushy tail, both of which sweep the ground; . . . as the steepness increased, these poor animals began to moan, or rather grunt, in the most melancholy manner, and this unearthly music gradually rose to such a violent rattle, that driven rather by its irksome sound than by the discomfort of our saddleless seat, we dismounted at the end of the first half-hour (p. 443).

The *Yak* or *Chauri Gau* inhabits all the loftiest plateaux of High Asia, between the Altai and the Himalaya, the Belut Jag and the Peling mountains, and is found tame as well as wild. It cannot live on the south side of the Himalaya beyond the immediate vicinity of the snows, where the tribes of the Cachars or Juxtanevean regions of the sub-Himalayas rear large herds of it, and cross-breeds with the Common Ox. They rut in winter, and produce young in autumn. Cæcum simple, not sacked nor banded, 4 inches long; ribs fourteen or fifteen pair; true dorsal ridge confined to the withers; dewlap none.—*Hodgson.*

## 7. OVIBOS.

Nose ovine, hairy, without any naked muffle; inner edge of the nostril with a bald margin. Horns of the male very broad at the base, nearly united together, tapering, pressed downwards



against the sides of the head, and bent up at the tips; of the female subcylindrical, curved, far apart on the sides of the forehead. Tail rudimentary, very short, entirely hidden by the fur of the haunches. Hoofs broad; apices inflexed. *Skull*: the intermaxillaries short, not reaching the nasal; a small depression in front of the orbit, but no fissure; the grinders are without supplemental lobes. The tail very short, not produced beyond the edge of the pelvis; caudal vertebra thin, flattened, expanded. *Skull*, t. 5. f. 1, 2.

N. America.

Ovibos, *Blainville*, *Bull. Soc. Philom.* 1816, 76 (character); *Desm. Mam.* 492. 181; *H. Smith, Griffith A. K.* v. 182; *Gray, List Mam. B. M.*; *Sundevall, Pecora*, 79; *Turner, Proc. Zool. Soc.* 1849.

Bos, § 3 (Farren, part.), *Wagner*!

### 1. OVIBOS MOSCHATUS. The MUSK OX.

*Bos moschatus*, *Zimm. Geog. Zool.* ii. 86; *Herm. Naturforsch.* xix. t. 5; *Schreb.* v. t. 202 a, b; *Blumb. Hand.* 122; *Donnd. Beytr. Zool.* 697; *E. Sabine, Parry's First Voy. Supp.* t. 189; *J. Sabine, Franklin Journ.* 668; *Richardson, Parry's Second Voy. App.* 331; *Gmelin, S. N.* i. 205; *Shaw, Zool.* ii. 407. t. 11; *Cuv. Dict. Sci. Nat.* v. 29; *Règ. Anim.* i. 271; *Oss. Foss.* iv. 133. t. 10; *Desmoul. Dict. Class. H. N.* ii. 367.

*Bos grunniens*, *O. Fab. Faun. Græn.* 28.

Amerikanischer Bisam Ochse, *Pallas, Nord Beytr.* i. 340; *Nov. Comm. Petrop.* xviii. 601.

Bisam Ochse, *Herm. Naturf.* xiv. 91. t. 5, head.

Bœuf Musque, *Jeremie, Voy. au Nord*, iii. 314; *Charlevoix, N. France*, v. 194; *Buffon, H. Nat. Supp.* vi. t. 3; *Pallas, Act. Acad. Sci. Petrop.* 1777, ii. 238.

Musk Ox, *Drage, Voy.* ii. 260; *Dobb's Hudson's Bay*, 19, 25; *Ellis, Voy.* 232; *Pennant, Arctic Zool.* 269. fig.; *Quad.* 131; *Hearne, Journey*, 137; *Parry, First Voy.* 257. t.; *Second Voy.* 497, 503, 512; *Knight, Mus. Anim. Nat.* f. 767.

*Ovibos moschatus*, *Blainville, Bull. Soc. Phil.* 1816; *Desm. N. Dict. H. N.* xxiv. 300; *Mam.* 492; *J. Brookes, Cat. Mus.* 65, 1825; *Gray, List Mam. B. M.* 153; *Cat. Osteol. Spec. B. M.* 55; *Knowsley Menag.* 49; *Richardson, Fauna Bor. Amer.* i. 275.

Musk Bull, *Bewick, Hist. Quad.* 49. fig.

American Ox, *Penn. Syn.* i. 8. t. 2. f. 2, good cop.; *Ency. Méth.* t. *Hab.* North America. On the Barren Land, in lat. 60" North.

Male, stuffed. N. America. Presented by the Lords of the Admiralty, from Capt. Parry's first Voyage.

Specimen figured *Parry's First Voyage*, t. 189.

OSTEOLOGY. Skull, t. 5. f. 1, 2.

*Bos moschatus*, *Cuvier, Oss. Foss.* iv. t. 10. f. 15-17, t. 13. f. 3, 8, t. 11. f. 1, 4; *Pallas, Nov. Comm. Petrop.* xvii. t. 17; *Schreb. Saugh.* t. 302 B; *Hermann, Naturf.* xix. t. 5.

*Bœuf Musque*, *Buffon, H. N. Supp.* vi. t. 3.

Skull and horns.

Skull and horns, imperfect.

*Var.* 1. Subfossil. North-west Coast, America.

*Bos Pallasii*, *Dekay, Ann. Lyc. N. York*, ii. 6; *Siebel, Fauna der Vorwelt*, i. 154.

*Bos canaliculatus*, *Fischer, Nov. Mem. Acad. Nat. Moscou*, 1834, iii. 287; *Oryct. Moscou*, 116.

*Bos moschatus*, *Pallas, Nov. Comm. Petrop.* xvii. t. 17; *Ezerevskowsky, Mem. Acad. Petersb.* iii. 215. t. 6; *Cuvier, Oss. Foss.* iv. 150. t. 3. f. 3, 8, t. 11. f. 1, 4.

*B. moschatus*  $\beta$ . fossilis, *Fischer, Syn. Mam.* 494.

## 8. BUDORCAS.

Muzzle hairy, with a small naked muffle only edging the nostrils; ears narrow, pointed. The fur (in summer at least) consists of short, harsh, adpressed hair. The tail is short, very depressed and hairy, like the tail of a goat. The head is large and heavy. The lips taper, and are clad with hair, like sheep. The nostrils are wide and terminal. The horns are round, smooth, lunate; they are nearly in contact on the top of the head; their direction is vertically upwards, then horizontally outwards or to the sides, and then almost as horizontally backwards. The limbs short and straight; the hoofs broad. *Skull*, t. 5. f. 3, 4.

*Budorcas*, *Hodgson, Journ. Asiat. Soc. Bengal*, 1850; *Gray, Knowsley Menag.*; *Turner, Proc. Zool. Soc.* 1849.

*Nemorhædus*, sp., *Turner, Proc. Zool. Soc.* 1849.

Mr. Hodgson observes, "The *Takin* is the nearest ally to the *Gnoos*, but has various points of stronger connection with *Musk Oxen*. Horns are on the highest part of the forehead, as in the *Ox* and *Sheep*, though not, as in them, at the postæal termination of the head, for the encephalon of our animal is spread behind its horns, in the manner of the *Deer* and *Antelopes*, but more restrictedly. The horns are attached, not to the lateral margins of the frontal crest, as in the *Ox*, but to its superior surface, as in the *Antelopes*, *Goats*, and *Sheep*. The horns are nearly in contact on the top of the head, but without actual touching; their direction is vertically upwards, then horizontally outwards or to the sides, then almost as horizontally backwards. Lips are both taper and clad with hair, almost as much as in

the *Goat* and *Sheep*: the animal is consequently a browser and not a grazer. Nevertheless the mere nostrils, which are wide and terminal, have a decided Bovine character both as to form and position, and, as it were to remind us of the true Bovine muzzle, there is a clear broad margin round the nostril which is quite nude and moist."

Mr. Turner (*Proc. Zool. Soc.* 1849) thinks "this genus is closely allied to *Nemorhædus*, and has no relationship with the *Gnu* or the *Musk Ox*;" indeed he appears to consider it as a species of that genus!

Mr. Blyth "believes its affinity to be strictly *Caprine*, with little relation either to the *Bovine* or to the *Gnous* (*Catoblepas*), notwithstanding the very remarkable form of the horns."—*Journ. Asiat. Soc. Bengal*, 1850, 348.

### 1. BUDORCAS TAXICOLA. The TAKIN.

Yellowish grey. Hairs yellow, black tipped. The head, neck, dorsal streak, belly, limbs and tail black; they are sometimes entirely black.

*Budorcas taxicola* (Takin), *Hodgson, Journ. Asiat. Soc. Bengal*, 1850, 65. t. 1; *Gray, Knowsley Menagerie*.

*Nemorhædus* (*taxicola*), *Turner, Proc. Zool. Soc.* 1849.

*Hab.* Eastern Himalaya. The Mishmi Mountains. Called *Takin* by the Mishmis, and *Ken* by the Khamtis.

Female. *Mus. Asiat. Soc. Calcutta*.

OSTEOL. *Hodgson, l. c. t. 2*, skull, copied, t. 5. f. 3, 4.

Subtribe II. *Antilopeæ*. The horns conical, bent back, cylindrical or compressed, and ringed at the base. The knee (or wrist) in the middle of the fore-leg.

"Occipital plane of skull forming an obtuse angle with the frontal plane. Core of the horns thin, consisting of dense bone, often with a clear sinus at the base within. Horns seated on the upper surface, below the crest of the frontals, and apart at the base. Teats 2 or 4. Feet-pits in hind feet, and generally also in the fore ones."—*Hodgson*.

*Antilopeæ*, *Gray, Ann. & Mag. N. H.* 1847, 230; *Glean. Knows. Menag.*

*Antilopeæ* (gen. *Antilope*), part., *Ovesidæ*, part., *Lesson, Nov. Tab. Reg. Anim.* 175.

*Antilopidæ*, *Tetracerocidæ*, *Rupicapradæ*, et *Damalidæ*, *Brookes, Cat. Mus.* 63. 1828.

*Bovidæ* et *Capridæ*, part., *Ogilby, P. Z. S.* 1836, 137.

*Antilope?*, *Gazella?*, *Dryxis?*, *Bubalis?*, *Enagrus*, *Rafinesque, Anal. Nat.* 56. 1815.

Antilope, *Pallas, Spicil. i. 1, 1767; Zoogr. Rosso-Asiat. i. 249.*

Sylvicaprina, Bovina, Antilopina, et Caprina, part., *Sundevall, Pecora, 51.*

Antelopes, *Gray, Proc. Zool. Soc. 1850, 111.*

Cerophorus, sp., *Blainv. Bull. Soc. Phil. 1816.*

The Antelopes have been divided into various subgenera by different authors.

Lichtenstein, "Die Gattung Antilope," divides the genus into four tribes. 1. Bubalides. 2. Connochætes. 3. Antilopæ Genuinæ. 4. Gazellæ.—*Berl. Mag. 1814, vi. p. 153.*

De Blainville divides the genus *Cerophorus* thus:—1. Antilope. 2. Gazella. 3. Cervicapra. 4. Alcelaphus. 5. Tragelaphus. 6. Boselaphus. 7. Oryx. 8. Rupicapra.—*Bull. Soc. Philom. 1816, 175.*

M. Desmarest, in his *Species of Mammalia*, adopted M. De Blainville's arrangement, separating *Oreas* from *Boselaphus*, and *Antilocapra* from *Rupicapra*.—*Mamm. 4to, 1820.*

Fischer, in his *Synopsis Mammalium*, also follows De Blainville's divisions.—8vo, 1829.

M. Gervais, in his article "Antilope," regards the subgenera of De Blainville as genera, and uses the divisions of H. Smith and Ogilby to divide them into sections. It appears to be a mere compilation, thus:—1. *Antilope*. 2. *Gazella*. 3. *Cervicapra*. *a. Dama. b. Redunca. c. Tragulus. d. Raphicerus. e. Tetracerus. f. Cephalophus. g. Neotragus. h. Nemorhedus. i. Kemas.* 4. *Rupicapra. a. Capricornis. b. Dicranocerus. c. Rupicapra. d. Pantholops. e. Antilocapra. f. Anoa.* 5. *Oryx. a. Ægocerus. b. Oryx. 6. Alcelaphus. 7. Tragelaphus. 8. Boselaphus.*—*Supp. N. Dict. Sci. Nat. i. 260, 1840.*

Colonel Hamilton Smith, in *Griffith A. K. v.*, divides the *Antelopes* of Pallas into three genera:—

I. ANTILOPE. Subdivided into—1. Dicranocerus. 2. Ægocerus. 3. Oryx. 4. Gazella. 5. Antilope. 6. Redunca. 7. Tragulus. 8. Raphicerus. 9. Tetracerus. 10. Cephalophus. 11. Neotragus. 12. Tragelaphus. 13. Nemorhedus. 14. Rupicapra. 15. Aplocerus. 16. Anoa.

II. DAMALIS. Divided into—1. Acronotus. 2. Boselaphus. 3. Strepsiceros. 4. Portax.

III. CATOBLEPAS.—Translated in *Fischer, Synopsis Mammalia*, ii. 623, and in *Lesson, Complet. Buffon*, x. 278, 300, 314, 1836.

Mr. Ogilby ("On the Generic Character of Ruminants") divides them into two families, on the form of the muzzle:—

I. CAPRIDÆ. 1. Mazama (furcifer). 2. Madoqua (Saltiana). 3. Antilope (cervicapra). 4. Gazella (dorcas).

II. BOVIDÆ. 1. Tragulus (pygmeus). 2. Sylvicapra (mergens). 3. Tragelaphus (picta). 4. Calliope (strepsiceros). 5. Kemas (goral). 6. Capricornis (Thar). 7. Bubalus (mauritanicus). 8. Oryx (capensis).—*Proc. Zool. Soc.* 1836, 131.

Professor Carl Sundevall ("On the Pecora of Linnæus," in Swedish, in *Kongl. Vetén. Akad. Handl.* 1844, published separate in German in 1848) divides the Antelopes into four families, according to the form of the hoofs.

I. CAPRINÆ. 1. Nemorhedus. 2. Oreotragus.

II. ANTILOPINA. 1. Antilopæ Gazellæ. 2. Dicranoceras. 3. Bubalus.

III. BOVINA. 1. Oryx. 2. Catoblepas. 3. Anoa. 4. Por-tax. 5. Damalis.

IV. SYLVICAPRINA. 1. Hippotragus. 2. Strepsiceros. 3. Cervicapra. 4. Calotragus. 5. Nanotragus. 6. Neotragus. 7. Sylvicapra. 8. Tragelaphus. 9. Tetraceras.

Rafinesque names, but does not define, the following genera, which appear to belong to this tribe: Antilope, Gazella, Strep-siceros, Dryxis, Addax, Bubalis, and Enagrus.—*Anal. Nat.* 56, 1815.

In the *Annals and Magazine of Natural History* for 1847, *Gleanings of Knowsley Menagerie*, vol. ii. 1850, and *Proc. Zool. Soc.* 1851, 111, I proposed to divide them as they are arranged in this work.

#### SYNOPSIS OF THE GENERA OF ANTILOPEÆ.

I. *Nostrils bald within.* Antelopes of the Fields.

A. *Body light, elegant. Limbs slender. Hoofs small. Tail short, or moderate, covered with elongated hairs at the base. Horns lyrate or conical, placed over the eye-brows. True Antelopes.*

a. *Horns moderate, lyrate. Nose ovine, hairy.*

\* *Nose very high; nose-hole of skull very large.*

1. SAIGA. *Nose very high, compressed, truncated. Horns white, lyrate.*

**\*\*** *Nose conical, tapering. Horns black.*

2. PANTHOLOPS. Horns elongate, compressed, sublyrate. Nose of male with a dilatation on each side; nose-hole large.
3. PROCAPRA. Horns moderate, lyrate. Females hornless. Crumen none. Nose-hole large.
4. GAZELLA. Horns moderate, lyrate. Females horned. Crumen distinct.
5. TRAGOPS. Horns moderate, lyrate. Females horned. Crumen none. Back simple.
6. ANTIDORCAS. Horns moderate, lyrate. Females horned. Crumen small. Back with expansile white streak.
7. ÆPYCEROS. Horns elongate, wide, spreading, lyrate. Pattern with tuft of black hair.
8. ANTILOPE. Horns elongate, erect, subspiral. Crumen large.

*b. Horns small, slender, straight, conical.*

† *Crumen large. Muffle generally large.*

9. TETRACERUS. Horns 2 pair. Muffle large. Crumen longitudinal. Females hornless.
10. CALLOTRAGUS. Horns 2, subulate. Muffle large. Crumen arched. Hoofs triangular; knees not tufted.
11. SCOPOPHORUS. Horns 2, subulate. Muffle large. Crumen transverse. Knees largely tufted.
12. OREOTRAGUS. Horns 2, subulate. Muffle large. Crumen transverse. Hoofs square, high, contracted.
13. NESOTRAGUS. Horns 2, subulate. Muffle large. Crumen large. Tail very short.

†† *Crumen large. Nose ovine. Muffle none.*

14. NEOTRAGUS. Crown crested.

††† *Crumen a glandular line on side of face. Muffle large.*

15. CEPHALOPHUS. Crown crested.

†††† *Crumen none. Muffle large. Crown not crested.*

16. NANOTRAGUS. Horns very short, erect. Nose tapering.

17. PELEA. Horns conical, slender, erect. Nose swollen.
18. ELEOTRAGUS. Horns conical, diverging, bent forward at the tip. Nose tapering.
- B. *Body large, rather heavy. Limbs slender, strong. Tail elongate, cylindrical at the base, and with longer hair at the end, often forming a compressed ridge. Muffle cervine. Cervine Antelopes.*
- a. *Neck not maned.*
19. ADENOTA. Horns sublyrate, tip rather recurved. Hair of back whorled.
- b. *Neck maned on the sides.*
20. KOBUS. Horns elongate, sublyrate.
- c. *Nape with a linear, central, compressed, recurved mane.*
21. AIGOCERUS. Horns moderate, recurved.
22. ORYX. Horns elongate, straight, or slightly recurved.
- d. *Neck simple. Throat slightly maned.*
23. ADDAX. Horns elongate, slender, subspiral.
- c. *Body heavy. Legs strong. Hoofs and false hoofs large. Tail very short, flat, hairy above. Horns conical, recurved. Goat-like Antelopes.*
- a. *Nose cervine. Muffle moderate. Horns short, conical.*
24. CAPRICORNIS.
- b. *Nose ovine, hairy.*
25. NEMORHEDUS. Horns short, conical, recurved. Crumen distinct.
26. MAZAMA. Horns short, conical, recurved. Crumen none.
27. RUPICAPRA. Horns slender, erect, bent forward at the tip.
28. ANTILOCAPRA. Horns compressed, with a process in front, conical, and recurved at the tip.

II. *Nostrils bearded within, beneath, operculated, far apart. Horns on frontal ridge. Legs rather stout. Tail elongate. The Antelopes of the Desert.*

D. *Muzzle very depressed, spongy and bristly. The Equine Antelopes.*

29. CATOBLEPAS. *Horns bent down on the sides, recurved at the tip. Nose with crest of recurved hair. Chest maned.*

30. GORGON. *Horns like former. Nose smooth. Chest not maned.*

E. *Muzzle moderately broad, with a small moist muffle. Bovine Antelopes.*

31. BOSELAPHUS. *Horns on upper edge of frontal bone, suddenly curved back.*

32. DAMALIS. *Horns on front of frontal bone, regularly lyrate.*

“The genera of the *Antilopeæ* being more numerous are worthy of a more minute examination, considering as I do that it is important to divide these numerous genera into natural groups, more especially as there appears to be a character afforded by the nostrils which has been hitherto overlooked, and which separates them into two very distinct and easily recognised sections. This character shows the real position of the *Gnu*, and at the same time proves that Colonel Hamilton Smith was correct in forming his genus *Damalis*, though he did not discover the character by which it was best to be defined, and hence placed with it some species that were not truly allied to it; and it leaves the other Antelopes easily reducible into small groups.”—*Gray, Ann. & Mag. N. H. 1849, 231.*

1. Antelopes of the Fields. *Nostrils bald within.*

Antelope of the Fields, *A. campestris*, *Gray, Ann. & Mag. N. H. 1847, 231; Knowsley Menag.; Proc. Zool. Soc. 1850, 111.*

A. The True Antelopes. *Body light. Limbs slender. Hoof small. Tail short or moderately elongate, and covered with elongated hairs to the base. Horns lyrate or conical.*

True Antelopes (*Antilopeæ veræ*), *Gray, Ann. & Mag. N. H. 1847, 231; Knowsley Menag.; Proc. Zool. Soc. 1850, 111.*  
*Antilopina, part., Sundevall, Pecora.*



a. Horns lyrate, (or rarely cylindrical subspiral,) strongly ringed at the base. Nose ovine, without any naked muffle; inguinal pores deep. Crumen generally distinct.

a. Nose high, compressed; nose-hole of skull very large.

### 1. SAÏGA.

Horns short, strong, lyrate, annulated, white. Nose compressed, very high, rounded. Nostrils very close together. Crumen distinct. Fur soft. Skull: nose-opening very large, extended back to over the eyes, t. 6. f. 1. 2.—Pallas, *Spic. Zool.* xii. t. 3. f. 9, 10.

Saïga, Gray, *Ann. & Mag. N. H.* 1847, 231; *Glean. Knows. Menag.* 3; *Proc. Zool. Soc.* 1850, 112.

Antilope (Gazellæ), sp., *Licht. Berl. Mag.* vi. 172, 1814; *Sundevall, Pecora*, 86.

Cerophorus (Antilope vera), sp., *Blainv. Bull. Soc. Phil.* 1816, 75.

Antilope (vera), *H. Smith, G. A. K.* v. 1827; *Gervais, Supp. N. D. Sci. Nat.* i. 260.

Gazella, sp., *Turner, P. Z. S.* 1849.

Colus, "Wagner."

Mr. Turner observes, "This genus (*Gazella*) seems prone to exhibit in certain species inhabiting more temperate regions, enlargements of, or appendages to, the respiratory passages; for example, the enlarged larynx of *G. gutturosa*, the elevated nose of *G. Colus*, and the appendages to its sides in the *Chiru* (*G. Kemas*); these seem to be physiological adaptations, in no case marking a group, and therefore insufficient to warrant generic distinction, which has been made in the two latter instances. However, not having as yet seen entire skulls of these species, I retain them provisionally in this genus, judging by the horns. I think few naturalists will set forth, with Mr. Gray, the colour of the horns of the *Saïga* as a generic character." If Mr. Turner had consulted Pallas's description and figure of the skull of the *Saïga*, or Hodgson's figure of the skull of the *Chiru*, I think he would have been satisfied they were good genera.

### 1. SAÏGA TARTARICA. The COLUS and SAÏGA.

Pale yellowish; crown and back greyish washed. Young: crown greyer.

Antilope Saïga, *Pallas, Misc.* 6; *Spic.* xii. 14. 21. t. 1, t. 3. f. 6, 9, 10, 11; *Zool. Ross. Asiat.* i. 252; *Gmelin, S. N.* i. 185.

A. (Gazella) Saïga, *Licht. Berl. Mag.* vi. 172; *Schreb. Saughth.* 1216. t. 276; *Desm. Mam.* 452; *E. M.* t. 52. f. 1; *Fischer, Syn.* 458.

- A. (vera) Saiga, *Blainv. B. S. Phil.* 1816, 75.  
 Antilope Scythica, *Pallas, Spic.* i. 9; *Penn. Quad.* 86.  
 Capra Tatarica, *Linn. S. N.* i. 97, from *Aldrov.*  
 Capra Sayga, *Forster, Phil. Trans.* lvii. 344; *G. G. Gmelin, Nov. Comm. Petrop.* xiv. 512.  
 A. (Antilopa) Colus, *H. Smith, G. A. K.* v. 829.  
 Saiga Tartarica, *Gray, List Mam. B. M.* 160; *Cat. Osteol. Spec. B. M.* 55; *Knowsley Menag.* ii. 3; *Proc. Zool. Soc.* 1850, 112.  
 Saiga Colus, *Gray, Ann. & Mag. N. H.* 1847, xviii. 231.  
 Colus Tartarica, *Wagner.*  
 Gazella Colus, *Turner, Proc. Zool. Soc.* 1849.  
 Colus, *Strabo, Geog.* vii.  
 Colus Strabonis, *Gesner, Quad.* 893; *Jonst. Quad.* t. 27.  
 Suhac, *Aldrov. Bisulc.* 763; *Rzacz. Polon.* 224.  
 Ibex imberbis, *J. G. Gmelin, Nov. Comm. Petrop.* v. 345; *Summ.* vii. 39. t. 19.  
 Saiga, *J. G. Gmelin, Sibir.* i. 212; *Buffon, H. N.* xii. 198. t. 22. f. 2, horns; *Shaw, Zool.* ii. 339.  
 Saigaki, *S. G. Gmelin, Reis.* ii. 174. t. 12.  
 Scythian Antelope, *Penn. Syn.* 35; *Quad.* i. 98.  
 Margatsch, *Russians.*  
*Hab.* Siberia.

Adult male. Siberia. Mr. Brandt's Collection.  
 Young ——. Siberia. Mr. Brandt's Collection.

ANAT., t. 6. f. 1, 2. *Pallas, Spicil. Zool.* xii. 41. t. 3. f. 9 & 10, skull, f. 6, 11, stomach; *Daub. in Buffon H. N.* xii. t. 22. f. 2.

Horns, separate. Russia.  
 Two horns, separate.

†† *Nose appendaged. Nose-hole of skull rather large.*

## 2. PANTHOLOPS.

Horns elongate, lyrate. Nose (of the males?) with a dilated pouch on each side. Crumen distinct. Hair close, erect, spreading. Skull: nose-hole large. *Females* hornless, t. 6. f. 3, 4.

*Kemas, Gray, Ann. & Mag. N. H.* 1847, 231; *Knowsley Menag.* 3; *Proc. Zool. Soc.* 1850; not *Ogilby.*

*Pantholops, Hodgson, Journ. Asiat. Soc. Bengal,* xi. 282; *Wagner.*  
 Antilope (Gazellæ), sp., *Sundevall, Pecora,* 86.

*Oryx, sp., H. Smith, G. A. K.; Fischer, Syn.* 624; *Lesson, Comp. Buffon,* x. 283.

*Cervicapra a. Pantholops, Gervais, Supp. D. S. N.* i. 264.  
*Gazella, sp., Turner, P. Z. S.* 1849.

## 1. PANTHOLOPS HODGSONII. The CHIRU.

Pale brown; chest and inside of the limbs white; front of face and front of fore-legs blackish.

Antilope Hodgsoni, *Abel, Edin. Journ. Sci.* 1827, 163; *Férussac, Bull.* xv. 141; *Fischer, Syn.* 462; *Hodgson, P. Z. Soc.* 1831, i. 52; 1832, ii. 15; 1833, 110; 1834, 80; 1835, 3; 1836, 39.

Antilope Chiru, *Lesson, Man. Mamm.* 371; *Comp. Buffon*, x. 285.

Antilope (Oryx) Kemas, *H. Smith, Griff. A. K.* iv. 197. t., v. 819.

A. Komas, *Lesson, Comp. Buffon*, x. 285.

Chirsu, *Ann. Philos.* 40. n. 59.

Kemas Hodgsonii, *Gray, Ann. & Mag. N. H.* 1847, xviii. 231; *List Mam. B. M.* 157; *Cat. Osteol. Sp. B. M.* 55; *Cat. Hodgson Coll. B. M.* 26; *Knowsley Menag.* 3; *Proc. Zool. Soc* 1850, 112.

Pantholops Hodgsonii, *Hodgson, J. A. S. Beng.* xi. 282; *Calcutta Journ. N. H.* iv. 290.

Gazella Kemas, *Turner, P. Z. S.* 1849.

The Chiru, *Hodgson, J. A. S. Beng.* 1832, i. 59. t. 340; 1834, iii. 134, x. 913.

*Hab.* Thibet.

Male. Thibet. Presented by B. H. Hodgson, Esq.

OSTEOLOGY, t. 6. f. 3, 4. *Hodgson, J. Asiat. Soc. Beng.*

Horns, separate. Himalaya. Presented by Major Honeywood.

Skull of male, with horns. Presented by B. H. Hodgson, Esq.

A single slender horn. Presented by B. H. Hodgson, Esq.

Skull of male, with horns. Nepal. Presented by B. H. Hodgson, Esq.

## DRAWINGS.

Drawing of male and female, t. 146. Lithograph proof by Mr. F. Howard, t. 147.

Drawing of male and female, t. 148.

Drawing of male without inguinal gland, t. 149.

Drawing of horns, t. 150.

Drawing of skull and details of head, t. 151.

Drawing of skull of male, t. 186. f. 7, 8.

The *Chiru* inhabits the open plains of Thibet. They are gregarious, rutting in winter, gestating six months, having one at a birth in summer. They are very pugnacious and jealous, and in their contests often break off one of their long horns, hence the rumour of Unicorns in Thibet.—*Hodgson, l. c.* 12; *Journ. Asiat. Soc.* nos. 2 & 27.

††† *Nose tapering. Nose-hole of skull moderate.*

### 3. PROCAPRA.

Horns lyrate, strong, black. Tail tapering. Nose simple, ovine. Muffle none. Crumen none. Feet with small feet-pits. Post-corneal sinus large. Inguinal pores none. Hair elongated, especially above the head and neck; knees not tufted. *Females* hornless. Teats 2. Skull with rather large nose-hole; no suborbital pits, but very large slits. Intermaxillary rather short, not reaching to the small nasal bone, t. 7. f. 2.

*Procapra*, Hodgson, *Journ. Asiat. Soc.* n. 173; on *Var. Gen. Ruminants*, 13, 1847.

Inhab. ravines in open plains of Thibet, in small herds or families.

#### 1. PROCAPRA GUTTUROSA. The DSEREN.

Pale yellowish; hair long, soft.

*Antilope gutturosa*, Pallas, *Spic.* vii. 14, 49. t. 2, t. 3. f. 14-17; *Licht. Berl. Mag.* vi. 171; *Desm. Mam.* 452 (*E. M.* t. 52. f. 4); *Fischer, Syn.* 458. 627; *H. Smith, G. A. K.* v. 830.

A. (*Gazella*) *gutturosa*, Gmelin, *S. N.* i. 186; *Schreb. Saugh.* 1221. t. 275.

A. (vera) *gutturosa*, Blainv. *B. S. Phil.* 1816, 7; Gervais, *l. c.* 260.

*Gazella gutturosa*, Gray, *Ann. & Mag. N. H.* xviii. 231; *List Osteol. Spec. B. M.* 56; *Knowsley Menag.* 3.

*Procapra gutturosa*, Gray, *Proc. Zool. Soc.* 1850, 115.

*Antilope orientalis*, Erxl. *Syst.* 288.

*Antilope*, Bellon. i. 311.

*Capra gutturosa a*, Messerschm. *Mus. Petrop.* i. 356.

*Capra campestris gutturosa*, J. G. Gmelin, *Nov. Comm. Petrop.* v. 347. t. 9, 10.

*Capra flava*, Du Halde *Gesch. v. China*, ii. 280.

Tzeeran Dscheren, Buff. *H. N. Supp.* vi. 170.

Chinese Antelope, Penn. *Syn.* 35; *Quad.* i. 96; *Shaw, Zool.* ii. 342.

*Hab.* Mongolia. Siberia. Thibet.

Male and female, stuffed. Thibet.

ANAT. Pallas, *Spic. Zool.* xii. 52. t. 3. f. 13, horns; f. 14, stomach; f. 15, —; f. 16, 17, larynx.

Skull, female. Siberia. From Mr. Brandt's Collection.

2. *PROCAPRA PICTICAUDA*. The RAGOA or GOA.

Hair sordid brown, with rufous tips. Underside, inside of the ears and limbs, and anal disk white. Tail black.

*Procapra picticauda*, Hodgson, *Journ. Asiat. Soc. Calc.* 1846, (n. 173) 384; *Icon. ined. Brit. Mus.*; Gray, *Knowsley Menag.*; *Proc. Zool. Soc.* 1850, 116.

*Hab.* Thibet. B. H. Hodgson.

Perhaps the same as the former in summer coat.

## OSTEOLOGY, t. 7. f. 2.

Three skulls, male. Thibet. Presented by B. H. Hodgson, Esq.

## 4. GAZELLA.

Horns lyrate, strong, black. Face tapering. Nose simple. Crumen distinct. Fur short, close-pressed. *Females* with smaller horns. Teats 4. *Skull* with a suborbital fissure, and a moderate, or very slight fossa, suddenly pressed in before the orbit; the masseteric ridge rising before the orbit; the auditory bulla large and prominent; the basioccipital bone having its tubercles but little or not developed; the median incisors expanded at their summits; the molars without supplemental lobes, t. 6. f. 5.

*Gazella*, sect. 2, Gray, *Ann. & Mag. N. H.* 1847, 231; *Knowsley Menag.* 3.

*Gazella*, Gray, *Proc. Zool. Soc.* 1850.

*Gazella*, sp., *Blainv. Bull. Soc. Phil.* 1816, 75; *Ogilby, P. Z. S.* 1836, 137; *Gervais, Supp. D. S. N.* i. 260; *H. Smith, Griffith A. K.* v. 182; *Fischer, Syn.* 624.

Antilope *Gazella*, sp., *Licht. Berl. Mag.* vi. 171.

Antilope *Gazellæ* (*typicæ*), *Sundevall, Pecora*, 85.

Antilope vera, sp., *Blainv. Bull. Soc. Phil.* 1816, 75; *Gervais, Supp. D. S. N.* i. 260.

*Cervicapra*, a. *Dama*, *Gervais, Supp. Dict. Sci. Nat.* i. 261, 1840.

\* *Knee with tufts. Back and rump brown. Vent white.*

† *Lower part of the sides with a dark oblique streak. Feet with a tuft of black hair.*

## 1. GAZELLA DORCAS. The GAZELLE.

Fur rather elongate and harsh, grey brown. Outside of fore-legs broad, oblique streak along the side. Edge of anal disk, front of face, and face-streak dark brown. Face-streak, throat, chest, belly, insides of thighs, and anal disk, white. Tuft at

underside of feet and end of tail black. Knee-tufts blackish. Young : back and side-streak rather paler.

Antilope Dorcas, *Pallas, Spic.* i. 11, xii. 15.

A. (vera) Dorcas, *Licht. Berl. Mag.* vi. 168; *Berlin Akad.* 1824, 231. t. 5; *Saughth.* t. 5; *Schreb. Saughth.* 1193. t. 269; *Gmelin, S. N.* i. 187 (*E. M.* t. 53. f. 2).

A. Gazella Dorcas, *Blainv. B. S. Phil.* 1816, 75; *H. Smith, G. A. K.* v. 825; *Fischer, Syn.* 459. 628; *Desm. Mam.* 453.

Antilope Gazella, *Pallas, Misc.* 7.

Capra Dorcas, *Linn. S. N.* i. 96.

Gazella Dorcas, *Ogilby, P. Z. S.* 1836, 137; *Gray, List Mam. B. M.* 160; *Cat. Osteol. Spec.* 56; *Knowsley Menag.* ii. 4. t.; *Proc. Zool. Soc.* 1850, 112; *Turner, P. Z. S.* 1849.

Algazel ex Africa, *Hernand. Mex.* 893. fig.

Gazella Africana, &c., *Raii Syn.* 80; *Brisson, R. A.* 69.

#### FEM.

Antilope Corinna, *Pallas, Misc.* 7; *Spic. Zool.* i. 12, xii. 16; *Gmelin, S. N.* i. 188; *Schreb.* t. 271.

A. Gazella Corinna, *Blainv. B. S. Phil.* 1816, 75; *H. Smith, G. A. K.* v. 333.

Antilope Dorcas ♀, *Fischer, Syn.* 259. 628.

Corinne, *Buff. H. N.* xii. 261. t. 27, t. 31. f. 3, 4, horns (not *F. Cuvier*); *Cuvier, Menag. Mus.* t.

Corine, *Adanson.*

Spotted Antelope, *Penn. Syn.* 37.

Corine Antelope, *Penn. Quad.* i. 101; *Shaw, Zool.* ii. 193. t. 194.

#### JUN.

Antilope Kevella, *Pallas, Misc.* i. 7; *Spic.* i. 12, xii. 15; *Gmelin, S. N.* i. 187.

A. Gazella Kevella, *Blainv. B. S. P.* 1816, 75; *H. Smith, G. A. K.* v. 322.

A. Dorcas jun., *Fischer, Syn.* 260. f. 28.

Kevel, *Buffon, H. N.* xii. 204. 258. t. 26, t. 31. f. 2; not *F. Cuvier.*

Flat-horned Antelope, *Penn. Syn.* 34; *Quad.* i. 92; *Shaw, Zool.* ii. 351. t. 194.

#### Var. 1.

Antilope Arabica, *Hempr. & Ehrenb. Symb. Phys.* t. 5; *Licht. Saughth.* t. 6; *Fischer, Syn.* 460.

Antilope Dorcas var., *Rüppell.*

Antilope Gazella Cora, *H. Smith, G. A. K.* v. 338.

A. Dorcas var. Cora, *Fischer, Syst.* 628.

A. Dorcas var., *Rüppell.*

Female. Shores of the Red Sea. Presented by Edward Cross, Esq.

Male. Shores of the Red Sea?

Male. Shores of the Red Sea?

Male, rather small. Shores of the Red Sea? Presented by the Earl of Derby.

Male, adult. Egypt. Presented by Sir John G. Wilkinson.

Male, young, horns short. Egypt.

Female. Egypt. Presented by James Burton, jun., Esq.

Three young kids. Egypt.

Male, adult. Presented by the Earl of Derby.

Male. Presented by the Earl of Derby.

Female, young. Presented by W. Tyler, Esq.

*Var. 2.* Nose with a dark spot or streak.

*Var. 3.* Larger. Legs thicker.

G. Dorcas Cuvieri, *Gray, Knowsley Menag.* t. 3. f. 2.

Antilope Cuvieri, *Ogilby; Frazer, Zool. Typica,* t.

Kevel Gris, *F. Cuv. Mam. Lithog.* t. 3.

*Hab.* Mogadore.

*Var. 4.* Horns elongate.

Antilope leptoceros, *F. Cuvier, Mam. Lith.* t. 8 ♀.

*Hab.* Senaar.

OSTEOLOGY, t. 6. f. 5.

Gazelle, *Daub. Buff. H. N.* xii. t. 25. t. 31. f. 1?

Kevel, *Daub. Buff. H. N.* xii. t. 31. f. 2?

Corinne, *Daub. Buff. H. N.* xii. t. 30. t. 31. f. 4?

Skull of female. North Africa. Presented by Sir John Gardner Wilkinson.

Four pair. Horns of males. N. Africa.

Two. Single horn of males. N. Africa.

Three pair. Horns of females. N. Africa.

Bones of the body.

Skull.

Skull. India. From Capt. Boys' Collection.

Skeleton. India. From the Zoological Society.

†† *Upper part of the sides with a pale streak.*

### 3. GAZELLA ISABELLA. The ISABELLA GAZELLE.

Fur short, very soft, pale yellowish brown, with a broad, rather paler oblique streak on the upper part of the side. Knee-tuft, front of face, and lower face-streak, darker yellow-brown; upper face-streak, chest, hinder edge of tarsus, underside of feet, inside

of limbs, belly and vent, white. Tail black. *Female*: horns very slender, longer than the head. *Young* paler, the lower part of the sides rather darker.

*Gazella Isabella*, *Gray, Ann. & Mag. N. H.* 1846; *Ann. & Mag. N. H.* xviii. 331; *Knowsley Menag.* ii. 4; *Proc. Zool. Soc.* 1850.

A. *Isidis* (Die Isis Antelope), *Licht. Darstel.*

A. *Dorcas*, *Licht. Darstel.* t. 5.

A. *Dorcas* var. *a*, *Sundevall, Pecora*, 83.

*Hab.* N. Africa. Egypt. Kordofan.

Male. Abyssinia.

Female? Kordofan. From Mr. Parrey's Collection.

Two females: "Antilope montana," *Parrey's MSS.*; "Antilope megalotis," *Parrey's MSS.* Kordofan.

#### OSTEOLOGY.

A skull. Abyssinia.

This species is easily known from the foregoing by the softness and fineness of the fur, and the lower side-streak being of the same colour as the back, and from it and the following by having no dark edge to the anal disk.

#### 4. GAZELLA SUBGUTTUROSA. The JAIROU.

Pale brown; upper part of sides with a broad, rather paler streak. Crown and knee-tuft greyer. Face-streak indistinct. Nose, lower part of sides, belly, hinder side of fore, and front side of hinder limbs, and anal disk, white. Streak on haunches dark brown. End of tail black.

*Antilope subgutturosa*, *Gulderst. Act. Acad. Petrop.* 1778, i. 251. t. 9-12; *Gmelin, S. N.* i. 186; *Schreb. Saughth.* 1196. t. 270 B.

A. *Gazella subgutturosa*, *Licht. Berl. Mag.* vi. 271, 1814; *Blainv. B. S. Phil.* 1816, 75; *Desm. Mam.* 454; *H. Smith, G. A. K.* iv. 210. t. skull, v. 824; *Fischer, Syn.* 460. 629.

*Gazella subgutturosa*, *Gray, List Mam. B. M.* 160; *Ann. & Mag. N. H.* xviii. 1847, 331; *Knowsley Menag.* 4; *P. Z. Soc.* 1850, 113.

A. *Dorcas* var. *Persica*, *Rüppell.*

*Capra Ahu*, *Kæmpf. Exol.* 403. fig. 407.

*Dsheren*, *J. G. Gmelin, Sibir.* ii. 103.

*Guldensted's Antelope*, *Penn. Quad.* i. 97; *Shaw, Zool.* ii. 343.

*Hab.* Siberia? Tartary. Armenia and North Persia.

A female. Siberia. From Mr. Brandt's Collection.



\*\*\* *Knees with tufts (rump-mark and throat-spot white). Side-streak none. Tail slender, compressed, only hairy above.*

Dama, Bennett, *Trans. Zool. Soc.* i.  
Cervicapra (Dama), Gervais, *l. c.* 1840.

5. GAZELLA SCÖMMERINGII. THE ABYSSINIAN MOHR.

Pale brown. Nose, forehead, lower edge of face-streak, and end of tail, blackish. Chest, belly, angular mark on rump above tail, face-streak, and spot on throat, white. Limbs pale. *Female*: forehead paler in centre.

Antilope Scömmeringii, *Cretzschm. in Rüpp. Zool.* 49. t. 19.

A. Gazella Scömmeringii, *Fischer, Syn.* 462.

Gazella (Dama) Scömmeringii, *Gray, List Mam. B. M.* 161; *Ann. & Mag. N. H.* xviii. 1847, 331; *Knowsley Menag.* 5; *Turner, P. Z. S.* 1849.

*Hab.* Lower Abyssinia. Senaar.

Male, adult, from Abyssinia. From Dr. Rüppell's Collection.  
Female. Senaar. From Dr. Rüppell's Collection.

6. GAZELLA MOHR. THE MOHR.

Bay. Chin, spot on throat, chest, belly, edge and inside of limbs, and angular spot on rump above the tail, white. Spot on side of face and end of tail black.

Antilope (Dama) Mohr, *Bennett, Trans. Zool. Soc.* i. t. 8; *Knight Mus. Anim. Nat.* f.

Gazella (Dama) Mohr, *Gray, Knowsley Menag.* 5; *Proc. Zool. Soc.* 1850.

Cervicapra (Dama) Mohr, *Gervais, Supp. D. S. N.* i. 261.

Gazella Mohr, *Turner, P. Z. S.* 1850, 114.

*Hab.* West Africa.

Stuffed: not good state. Gambia. Presented by the Earl of Derby.

*Var.?* Bay. Chin, spot on throat, belly, lower part of sides, hinder part of the back, and inside of the limbs, white. No spot on side of the face.

Nangeur, *Buffon, H. N.* xii. t. 32. f. 3. t. 34; *Shaw, Zool.* ii. 359. t. 197.

Antilope Dama, *Pallas, Misc.* 5; *Spic. Zool.* i. 8 (from Nangeur, *Buffon*), xii. 22; *Gmelin, S. N.* i. 183; *Schreb. Saugth.* 1199. t. 264, from *Buffon*.

Gazella Dama, *Gray, Ann. & Mag. N. H.* xviii. 1847, 231.

Antilope (Dama) nangeur, *Bennett, P. Z. S.* 1832, 2.

Antilope rubra, *Afzelius*.

Antelope (Cervicapra) Dama, *Blainv. Bull. Soc. Phil.* 1816, 75.  
Gazella (Dama) Dama, *Gray, Knowsley Menag.* 5; *Proc. Zool. Soc.* 1850.

Swift Antelope, *Penn. Syn.* 30; *Quad.* i. 84.

*Hab.* West Africa. Senegal. *Buffon.*

Not seen since Buffon's time; perhaps a bad figure of former.

#### OSTEOLOGY.

Nangeur, *Daub. Buff. H. N.* xii. t. 32. f. 3.

#### 7. GAZELLA RUFICOLLIS. The ANDRA.

Whitish. Neck and front part of the middle of the back reddish. Face-streak none.

Antelope (vera) Dama, *Licht. Berl. Mag.* vi. 170; *Berl. Akad. Abh.* 1824, 251. t. 5; *Saugth.* t. 3, 4; *Rüppell, Atlas Zool.* 39. 42. t. 14, 16; *Ehrenb. Symb. Phys.* t. 6.

A. Gazella Dama, *H. Smith, G. A. K.* v. 822.

A. Cervicapra Dama, *Blainv. B. S. Phil.* 1816, 75, part.; *Desm. Mam.* 458; *Fischer, Syn.* 464.

Antelope (Dama) Addra, *Bennett, Proc. Z. S.* 1833, 2.

Antelope ruficollis, *H. Smith, G. A. K.* iv. 205. 355. t.

Gazella ruficollis, *Gray, Ann. & Mag. N. H.* 1847, xviii. 231; *Knowsley Menag.* 5; *Proc. Zool. Soc.* 1850, 114.

Cervicapra (Dama) ruficollis, *Gervais, l. c.* 261.

A. Dama var. orientalis, *Sundevall, Pecora,* 82.

Dama, *Plinii H. N.* viii. 53; *Aldrov. Bisulc.* 729. fig.

Female, stuffed. Kordofan. Senaar.

*Var.* or *young?* with an indistinct narrow brown streak across the outside of the thighs, and the forehead iron-grey, with longer hair at the base of the horns. Horns small. *Mus.* Frankfort.

*Hab.* North Africa. Kordofan.

These species differ in size as well as markings. The *Mohr* and *Andra* differ from *G. Sæmmeringii* in being of much larger size, and in wanting the black face and streaks. *Bennett's Mohr* has only an angular white spot on the rump, like *G. Sæmmeringii*; *Buffon's Nangeur* is smaller, and has more white on the rump, thighs and sides; and the *Andra*, which agrees with the figures cited, is almost all white, with a reddish neck and withers.

\*\*\* *Knees without tufts (but with rather longer hair, forming a linear keel in front). Back and rump brown. Sides with dark streak.*

#### 8. GAZELLA RUFIFRONS. The KORIN.

Bay brown; sides above paler, with a broad, dark streak below.

Chest, belly, inside of legs, back edge of tarsus, and underside of feet and anal disk, white. Face bright bay, with a broad white side-streak.

*Adult female*: nose blackish above. *Young* pale yellowish. Side-streak brownish.

*Gazella rufifrons*, Gray, *Ann. & Mag. N. H.* 1846; 1847, xviii. 231; *Knowsley Menag.* 5. t. 4; *Proc. Zool. Soc.* 1850, 115.

Antilope (*Gazella*) *lævipes*, *Sundevall, Pecora*, 82.

*Kevel* (male), *F. Cuvier, Mam. Lithog.* t. 3; not *Buffon*.

*Corinne*, *F. Cuvier, Mam. Lithog.* t., young and female; not *Buffon*.

*Hab.* W. Africa; Senegal. Gambia, called *Seni*. Senaar (*Sundevall*).

Two males, stuffed. Senegal.

Two females, stuffed. Senegal.

Two young, stuffed.

#### ANAT.

Skull, adult female.

Skull, young.

*Buffon* mentions a *Corine* as coming from Senegal, but he says it is smaller than the *Kevel*, and *Daubenton* says that it has knee-tufts, so that it cannot be this species. Indeed the *Gazelle*, *Corine*, and *Kevel* of *Buffon* are clearly all *A. Dorcas* of this Catalogue.

The *Kevel* figured by *M. F. Cuvier* well represents this species. He says it was sent from Senegal, and probably it has not knee-tufts, for they are not indicated in the figure, or mentioned in the text; like other descriptions of this author, though it occupies more than two pages, all the peculiarities of the species are left out. The *Corine* of the same author, also from Senegal, well represents the young. *M. Cuvier* considers the *Kevel* and *Corine* and *A. Dorcas* form one species, but afterwards, under *Kevel gris*, he appears to change his mind and thinks they may be two.

#### 5. TRAGOPS.

Horns lyrate, short, black: in both sexes. Face tapering. Nose ovine. Muffle none. Crumen none. Fur short, adpressed; sides without any dark streak. Knees tufted. Feet with large feet-pits. Inguinal pits distinct. *Female* with slender horns. Teats 2. Head, t. 7. f. 1.

*Hab.* India. Not gregarious.

Tragops, *Hodgson, Var. Genera Ruminants*, 1847, 11; *Gray, Proc. Zool. Soc.* 1850.

*Gazella*, sp., Gray, *List Mam. B. M.* 161; *Ann. & Mag. N. H.* 1847, xviii. 231; *Knowsley Menag.*

The *Chikara* are not gregarious. They have lyrate horns, common to both sexes, knee-tuft, line along the flanks, and ovine nose of the Gazelles of Africa, but they are wholly destitute of the eye-pits; they have the large, dark-lustred eyes of the Antelopes, very unlike the small, pale-eyed Goats.—Hodgson.

Mr. Hodgson separates this genus from *Gazella*, because he declares it has no *crumen*; but Mr. Turner, who says he has seen a skull, describes it as being a typical *Gazella*; and Colonel Sykes described the suborbital sinuses as very small, not observable in dried skins, nor does the animal dilate them unless very much alarmed.—*P. Z. S.* 1831, 106.

### 1. TRAGOPS BENNETTII. THE CHIKARA OR RAVINE DEER.

Bay brown. Knee-tuft, end of nose and tail black. Streak on haunches blackish. Face-streak, chest, belly and inside of limbs white. Feet black or brown.

Antelope *Bennettii*, Sykes, *Proc. Zool. Soc.* 1831, 140; Hodgson, *Journ. Asiat. S. B.* x. 913; *Calcutta Journ. N. H.* iv. 290.

*Gazella Bennettii*, Gray, *Ann. & Mag. N. H.* 1847, xviii. 231; *Knowsley Menag.* 4; *List Mam. B. M.* 161; *Cat. Osteol. Spec. B. M.* 56; *Cat. Hodgson Coll. B. M.* 27; Turner, *P. Z. S.* 1849.

Antelope *Christii*, Gray, *B. M.*

Antelope *Bharatensis*, Hodgson, *Journ. Asiat. S. Beng.* x. 913; *Calcutta Journ. N. H.* iv. 290; *Zool. Nepal, MSS.* t.

Antelope *Hazenna*, *I. Geoff. Voy. Jacq. Mam.* t. 6, bad.

Antelope *Dorcas* var.  $\epsilon$ , *Sundevall, Pecora*, 85.

Tragops *Bennettii*, Hodgson, *Journ. Asiat. Soc. Bengal*, 1847, 11; Gray, *Proc. Zool. Soc.* 1850, 116.

Chouka or Ravine Deer, Hodgson, *J. A. S. Beng.* i. 347 & 913.

The Kalsiepie or Black tail, *Mahrattas*.

Goat Antelope, *Europeans in Deccan*.

*Var.* Feet brown, like back.—Gray, *P. Z. S.* 1850, 116.

*Hab.* India; Madras. Nepal; Tarai.

Male. Plains of the Seramic Country, Madras. Presented by Walter Elliot, Esq.

Male and female. Madras. Presented by Col. Sykes.

Skin of male, with head and horns, very imperfect. Nepal. Presented by B. H. Hodgson, Esq.

Tragops *Bennettii*, Hodgson.

Skin of young male, imperfect. Nepal. Presented by B. H. Hodgson, Esq.

OSTEOLOGY. Head, t. 7. f. 1.

Horns of male. Presented by Dr. Turnbull Christie.

Antilope Christii, Gray, MSS. B.M.

DRAWINGS.

Drawing of male and female, t. 156.

The *Chikara* carries its tail erect when in rapid motion.—*Sykes*.

An albino of this species now living in the Zoological Gardens has white horns.

## 6. ANTIDORCAS.

Horns lyrate, short, black. Face tapering. Nose simple. Crura moderate, distinct. Back with an expansile white fold or streak. Hair close-pressed. Knees not tufted. Female with small horns. Teats —.

South Africa. Living in large herds, migrating.

Antidorcas, *Sundevall, Pecora*, 87; *Gray, Proc. Zool. Soc.* 1850, 116.

Gazella, sp., *Gray, List Mam. B. M.* 160; *Cat. Osteol. Sp. B. M.*; *Ann. & Mag. N. H.* 1847. xviii. 231; *Turner, Proc. Zool. Soc.* 1849.

Gazella, § 5, *Knowsley Menag.*

### 1. ANTIDORCAS EUCHORE. The TSEBE or SPRING BOC.

Pale brown. Face, throat, chest, belly, broad expansile streak on back to base of tail, edge and inner side of limbs, white. Face-streak and middle of forehead pale brown. Side-streak oblique, dark brown. Young paler. Side-streak paler. Back-streak distinct.

Antilope Euchore, *Forster in Itin.*; *Sparrm. Act. Holm.* 1780, 275.

A. vera Euchore, *Licht. Berl. Mag.* vi. 169; *Saugth.* t. 7; *Schreb. Saugth.* 1189. t. 272; *Harris, W. Anim. Africa*, t. 3, a head; *Burchell, Trav.* i. 290, ii. 109.

A. Gazella Euchore, *Blainv. B. S. Phil.* 1816, 75; *Desm. Mamm.* 455; *Desm. Dict. Class. H. N.* i. 441. t. . f. 1; *Fischer, Syn.* 461. 629; *H. Smith, G. A. K.* v. 823.

Gazella Euchore, *Gray, List Mam. B. M.* 160; *Cat. Osteol. B. M.* 56; *Knowsley Menag.*; *Turner, P. Z. Soc.* 1849.

Antilope Dorcas, *Gervais, l. c.* 261.

A. Dorcas var. pygargus, *Forster, in MSS.* 62.

Antidorcas Euchore, *Gray, Proc. Zool. Soc.* 1850, 116.

Antilope Marsupialis, *Zimmerm. Geog. Gesch.* 111. 427; *Burchell, Trav.* i. 290.

Antilope pygarga, *Blumenb. Handb.* 119.

- Antilope dorsata, *Lacep. in Buff.*; *Burchell, Trav.* i. 290.  
 Antilope saliens, *Lacep. in Buff.*; *Burchell, Trav.* i. 290.  
 Antilope saltatrix, *Link, Beytr.* 99, from *Buffon*.  
 Pronkbock, *Vosmaer. Besch.* 1784, t.  
 Gazelle à bourse, &c., *Allam, Buffon Supp.* iv. 142. t. 60.  
 Gazelle de parade, *Vosmaer*.  
 Gazelle sautante, *Buffon, H. N. Supp.* vi. 183. t. 21.  
 Springer Antelope, *Penn. Quad.* i. 94; *Shaw, Zool.* ii. 344. t. 192.  
 Springbock, *Licht. Reise,* i. 525, 564, 580.  
 Tzebi, *Shaw, Reise,* 151.  
 Gazelle, *Buffon, H. N.* xii. 201. t. 23, t. 31. f. 1, skull.  
 Barbary Antelope, *Penn. Syn.* 33. fig.; *Quad.* i. 42; *Shaw, Zool.*  
 ii. 350.  
*Hab.* South Africa.

A male, in a bad state. S. Africa. Presented by W. Burchell, Esq., LL.D.

A male. S. Africa. From the South African Museum.

A male. S. Africa. Presented by the Earl of Derby.

A young female. S. Africa.

OSTEOL. *Buffon, H. N.* xii. 201. t. 31. f. 1, skull.

Skull and horns. South Africa. Presented by W. Burchell, Esq., LL.D.

Horns. South Africa.

Horns. South Africa.

Horns on frontal bone.

Skull, young. S. Africa.

The *Spring Bok* is found throughout the whole of South Africa, but in no part so numerous as in the colony, the north-eastern division of which they traverse in herds of thousands, devouring everything they meet with in their course. They remain only a portion of the year, and it is during that season the Lion is most frequently found there. Vast numbers are killed, and the flesh dried against a season of scarcity.—*A. Smith.*

The *Springbock* at certain periods make a *trak bokken* or grand migration. They march slowly and steadily along, like the flood of a river, about half a mile in width. These vast legions will continue streaming along in an unbroken, compact phalanx for two or more hours.—*R. G. Cumming, Hunter's Life,* i. 122.

## 7. ÆPYCEROS.

Horns lyrate, elongate, wide-spreading, black, curved outwards from the base, then backwards and upwards at the tip. Face tapering. Nose simple. Crumen none. Knees not tufted. Feet with tuft of (black) hair near pasterns. Female hornless?, teats 2.

Skull with "no suborbital fissure nor fossa, but a wide opening on the side of the muzzle, between the maxillary and intermaxillary bones; the masseteric ridge rising before the orbit; the auditory bulla large and prominent, with only a small groove on its outer side to receive the attachment of the stylohyal bone; the occiput broad, somewhat produced downwards; its basal portion with the posterior pair of tubercles broad, the anterior ones small. Molars without the supplemental lobe."—Turner. *Skull*, t. 7. f. 3.

Antilope vera, sp., *Licht. Berl. Mag.* vi. 1814.

A. (Ceratophorus) Gazella, sp., *Blainv. Bull. Sci. Phil.* 1816.

Gazella, sp., *Gervais, Supp. D. S. N. i.* 261, 1840.

Antilope, *Gray, Ann. & Mag. N. H.* 1847; *Knowsley Menag.* 6; *Turner, P. Z. Soc.* 1849.

Æpyceros, *Sundevall, Pecora*, 87.

Major H. Smith erroneously assigns a suborbital sinus to this animal.

#### 1. ÆPYCEROS MELAMPUS. PALLAH OR ROOYE BOG.

Bay; sides and beneath paler. Belly, anal disk, and lower side of tail white. Crown, anal streak and tip of tail blackish. Tuft above feet, and back of feet black.

Antilope (vera) Melampus, *Licht. Berl. Mag.* vi. 167, 1814; *Burch. Trav.* ii. 301; *Reise*, ii. 544. t. 4; *Schreb. Saugth.* 1224. t. 274; *Harris, Wild Anim. Africa*, t. 15.

A. (Gazella) Euchore, *Desm. Mamm.* 456; *H. Smith, G. A. K.* iv. 198. t., v. 828; *Fischer, Syn.* 463. 630; *Burchell, Trav.* ii. 301.

Antilope Melampus, *Gray, List Mam. B. M.* 162; *Cat. Osteol. B. M.* 56; *Knowsley Menag.* 6; *Turner, P. Z. S.* 1849.

Gazella melampus, *Gervais, Supp. D. S. N. i.* 261.

Æpyceros melampus, *Gray, Proc. Zool. Soc.* 1850, 116.

Pallah, *S. Daniel, Afric. Scen.* n. 9.

Betjuan, *Caffers*.

*Hab.* South Africa.

Adult male. S. Africa. From Dr. Smut's Collection.

Adult female. From Dr. Smut's Collection.

Young male. From the South African Museum.

Female. S. Africa. Presented by the Earl of Derby.

OSTEOLOGY. *Skull*, t. 7. f. 3. *Turner, P. Z. Soc.* 1849, skull.

Horns. South Africa. Presented by William Burchell, Esq., LL.D.

Two pairs of horns. S. Africa.

Two pairs of horns. S. Africa. Mr. Argent's Collection.

The *Pallah* is common in the wooded country north of the Kurrichane, where it occurs in herds equally as large as those of the *Spring Bok* are more to the southward. It feeds on grass or the more delicate twigs of the brushwood. When startled, they generally move off in perfect files, and will not diverge far from the course they first adopt, even to avoid a man, which renders them an easy prey to the hunter who carries fire-arms. Where not disturbed by hunters, they are less shy than the *Spring Bok*. The flesh is esteemed.—*A. Smith*.

### 8. ANTILOPE.

Horns elongate, subspiral, erect, diverging. Face tapering. Nose simple. Crumen large. Skull with a small suborbital fissure and a very large suborbital pit. The tubercles and median grooves of the basioccipital bone well developed, t. 8. f. 1. 3.

*Hab.* India. Gregarious.

*Cervicapra*, *Gray, Ann. & Mag. N. H.* 1847, 231, not *Blainv.* nor *Sundevall*; *Knowsley Menag.* 6; *Turner, P. Z. S.* 1850.

Antilope (*Cervicapra*), sp., *Blainv. Bull. Soc. Phil.* 1816; *Desm. Mam.* 457; *H. Smith, Griffith A. K.* v. 1827; *Gervais, Supp.*

*D. S. N.* i. 260; *Gray, Proc. Zool. Soc.* 1850, 117.

Antilope (*Gazellæ*), sp., *Sundevall, Pecora*, 86.

*Strepsiceros*, sp., *Rüppell, Verz. Senck.* 183, 1845.

### 1. ANTILOPE BEZOARTICA. The ANTELOPE OF SASIN.

Grey brown or black. Lips, orbits, chest, lower part of sides, belly, edge and inside of limbs, white. Nose, front of shoulder and outside of thighs, end of tail and front of feet, blackish. Neck redder. *Young* with a narrow pale streak on the upper part of sides.

Antilope *Cervicapra*, *Pallas, Misc. Zool.* 9; *Spic.* i. 18. t. 1, 2. xii. 19; *Gmelin, S. N.* i. 192.

*A. Gazella Cervicapra*, *Licht. Berl. Mag.* vi. 172; *Schreb. Saughth.* 1214. t. 268. from *Pallas*.

*A. (vera) Cervicapra*, *Blainv. B. S. Phil.* 1816, 75; *Desm. Mam.* 451; *Fischer, Syn.* 457. 626; *F. Cuvier, Mam. Lith.* t.; *Gervais, l. c.* 260; *H. Smith, G. A. K.* v. 831; *Gray, Illust. Ind. Zool.* t.; *Hodgson, J. A. S. Beng.* x. 913; *Calcutta Journ. N. H.* iv. 290; *Proc. Zool. Soc.* 1834, 99.

*Capra Cervicapra*, *Linn. S. N.* i. 96.

*Strepsiceros Cervicapra*, *Rüppell, Verz. Senck.* 183, 1845.

*Cervicapra bezoartica*, *Gray, List Mam. B. M.* 159; *Cat. Osteol. Spec. B. M.* 56; *Cat. Hodgson Coll. B. M.* 26; *Ann. & Mag. N. H.* 1847, 230; *Turner, Proc. Z. Soc.* 1849.



Antelope bilineata, *Temm. Mus. Leyden* (young).

Damalis Cervicapra (Ledmee), *J. Brookes, Cat. Mus.* 64, 1828.

Capra Bezoartica, *Aldrov. Bisulc.* 256.

Gazella, *Jonston, Quad.* t. 29; *Brisson, R. A.* 68.

Gazella Africana, *Raii Syn.* 79.

Tragus Strepsiceros, *Klein, Quad.* 18.

Gazelle, *Perr. Anim.* i. 93. t. 11.

Lidmee, *Shaw, Trav.* 243?

Antelope and Antelope des Indes, *Buffon, H. N.* xii. 215, 217.

t. 35. t. 36. f. 1, 2; *Suppl.* vi. t. 18, 19; *F. Cuvier, Mam. Lith.* t.

Common Antelope, *Penn. Syn.* 32; *Quad.* i. 89. t. 15; *Shaw, Zool.* ii. 336. t. 191.

Bahmunnee Hurn, *Sykes.*

*Hab.* India, in the dry, open plains, in flocks of scores.

A male. Madras, India. Presented by Walter Elliot, Esq.

A male. India.

OSTEOLOGY. *Skull*, t. 8. f. 1-3.

Antelope, *Daub. in Buffon H. N.* xii. 273. t. 35. t. 36. f. 1-3.

Three bases of skulls and horns. India.

Skull and horn. India.

Skull and horn. India.

Skull and horn. India.

Skull, with horns, of adult male. India. Presented by B. H.

Hodgson, Esq.

A pair of horns. Presented by B. H. Hodgson, Esq.

One odd deformed horn. Presented by B. H. Hodgson, Esq.

Two pairs of horns. India. Mr. Argent's Collection.

DRAWINGS.

Drawing of a skull of a male.—*Hodgson, Icon. ined. B. M.* t. 186. f. 9, 10. Presented by B. H. Hodgson, Esq.

Drawing of old male, female and young.—*Hodgson, Icon. ined. B. M.* t. 155. Presented by B. H. Hodgson, Esq.

The Black Antelopes are very gregarious on the open, dry plains of India.—*Hodgson.*

*b. Horns small, slender, straight, conical, tapering, more or less diverging, and often bent forward at the tip. Muffle generally large and moist.*

*a. Crumen large. Muffle large.*

## 9. TETRACERUS.

Muffle large. Crumen large, longitudinal. Horns 4; front

pair very short, placed over the orbits; hinder on back edge of frontal, conical, straight. Skull like *Cephalophus*, with nasal bones not expanded. Suborbital fossæ large, shallow, occupying nearly the whole of the cheek. Knee-tufts none. *Females* hornless. *Skull*, t. 9.

*Tetracerus*, *Leach*; *H. Smith, Griffith A. K.* v. 1827; *Fischer, Syn. Mam.* ii. 624; *Gray, Ann. & Mag. N. H.* 1847, 231; *Proc. Zool. Soc.* 1850, 117; *Knowsley Menag.*; *Turner, P. Z. S.* 1850.

*Cervicapra*, sp., *Blainv. Bull. Soc. Phil.* 1816, 75.

*Cervicapra*  $\epsilon$ . *tetracerus*, *Gervais, Supp. D. S. N.* i. 262.

*Tetraceros*, *J. Brookes, Cat. Mus.* 64, 1828.

*Tetracerocidæ*, *J. Brookes, Cat. Mus.* 64, 1828.

### 1. TETRACERUS QUADRICORNIS. THE CHOUSINGHA.

Front pair of horns conical, distinct.

Antelope (*Cervicapra*) *quadricornis*, *Blainv. Bull. Soc. Philom.* 1816, 75, 78; *Journ. Phys.* 1816, t. . f. ; *Isis*, 1819, t. 12. f. 3, skull; *Desm. Mamm.* 466; *Fischer, Syn.* 471. 639.

*A. Tetracerus quadricornis*, *H. Smith, G. A. K.* iv. 256. t. 181. f. 3. t. 186, v. 845.

Antelope Chickara, *Hardw. Linn. Trans.* xiv. 520. t. 15, 16; *Hodgson, Proc. Z. S.* 1834, 99; *Zool. Nep. ined. t.*; *Fischer, Syn.* 471. 639.

*A. Tetracerus Chickara*, *H. Smith, G. A. K.* v. 844; *R. Hill, Linn. Trans.* xv. 501. t. 20.

*A. Chicara*, *Hodgson, J. A. S. Beng.* i. 346, 347.

*Tetracerus Chicara*, *F. Cuv. Mam.* t. ♂.

*Tetracerus striaticornis*, *Leach, MSS.*

*Tetracerus quadricornis*, *Gray, List Mam. B. M.* 159; *Cat. Osteol. Spec. B. M.* 57; *Cat. Hodgson Coll. B. M.* 26; *Ann. & Mag. N. H.* 1847; *Proc. Zool. Soc.* 1850, 117; *Knowsley Menag.* 6; *Turner, P. Z. S.* 1849.

*Tschikkara*, *F. Cuvier, Mam. Lith.* t. , from *Hardwicke, Icon.*

*Tetracerus Chickara*, *Hodgson, Journ. A. S. B.* x. 413; *Calcutta Journ. N. H.* iv. 291.

Antelope *tetracornis*, *Hodgson, Journ. A. S. Beng.* iv. 542, v. 242.

*Tetraceros striaticornis* (*Chickara*), *Leach in Brookes' Cat. Mus.* 64, 1828.

*Cervus albipes*, *F. Cuvier, Mam. Lith.* t. ♀.

"*Cervus labipes*, *F. Cuvier*," *Lesson, Sundevall.*

*Cervus* (*Stylocerus*) *labipes*, *Lesson, Nov. Tab. R. A.* 174.

*Chousingha*, *Hindoos.*

*Hab.* India. Nepal. Thibet. *Mus. Ind. Comp.*

A male. Nepal. Presented by B. H. Hodgson, Esq.

Two males; front of fore legs dark. Nepal. Presented by B. H. Hodgson, Esq.

A female; rufous, without any dorsal streak, and with the front of the fore legs pale. Nepal. Presented by B. H. Hodgson, Esq.

The imperfect skin of a male, with two horns. Nepal. Presented by B. H. Hodgson, Esq.

OSTEOLOGY. *Skull*, t.

Horns. North India.

Frontal bone, with horns.

Skull, with lower jaw. India. Presented by B. H. Hodgson, Esq.

Skull. India.

DRAWINGS.

Drawing of male and female.—*Hodgson, Icon. ined. B. M. t. 152.* Presented by B. H. Hodgson, Esq.

Drawing of male, copied from Hamilton Smith, with details of head added.—*Hodgson, Icon. ined. B. M. t. 153.* Presented by B. H. Hodgson, Esq.

Drawing of male, with details of head.—*Hodgson, Icon. ined. B. M. t. 154.* Presented by B. H. Hodgson, Esq.

M. De Blainville, in describing this animal, from Dr. Buchanan Hamilton's drawing in the India House Library, read *Moorshadabad*, the habitat, for *Hoornadabad*, and thought it the name of the animal.

The *Chouka* inhabits the forests of India, avoiding the mountains and open plains. They are not gregarious; rutting in summer, and gestating six months, the young mostly born in January or February. They are very shy, and when hunted lie close or go off far ahead, bounding like the common Antelope, and hence one of their names from *Chouk*, a leap.—*Hodgson.*

## 2. TETRACERUS IODES. THE RUSTY-RED CHOUSINGHA.

*Tetracerus Iodes*, *Hodgson, Calcutta J. N. H. 1847, t. 4. f. 3.*  
*Hab.* India. Nepal.

OSTEOL. *Hodgson, l. c. t. 4. f. 3, skull.*

## 3. TETRACERUS PACCERVIS. THE FULL-HORNED CHOUSINGHA.

*Tetracerus paccervis*, *Hodgson, Calcutta J. N. H. 1847, t. 4. f. 1, 2.*

*Hab.* India. Nepal.

OSTEOL. *Hodgson, l. c. t. 4. f. 1, 2, skull.*

## 4. TETRACERUS SUBQUADRICORNUTUS. The JUNGLIBURKA.

Front pair of horns rudimentary, tubercular; hinder conical, subcylindrical. Pale brown, sides rather paler. Chest, belly, inside and front of legs whitish. Feet paler, varied. *Female*: front of legs blackish.

Antelope subquadricornutus, *Elliot, Madras Journ.* 35. t. 4. f. 2.

Tetracerus subquadricornutus, *Gray, List Mam. B. M.* 159; *Ann. & Mag. Nat. Hist.* 1847; *Knowsley Menag.* 7; *Proc. Zool. Soc.* 1850, 117; *Turner, P. Z. S.* 1849.

Antelope (brown), *Sykes, Proc. Zool. Soc.* 1831, 105.

*Hab.* India. Bombay.

A male and female, stuffed. Bombay. Presented by Walter Elliot, Esq.

Male and female. Madras. Presented by J. C. Jerdon, Esq.

## OSTEOLOGY.

Skull, female. Madras. Presented by J. C. Jerdon, Esq.

## 10. CALOTRAGUS.

Muffle large. Crumen arched, transverse. Horns subulate, elongate, erect. Hoofs triangular, flattish beneath, acute in front; false hoofs small or none. Crown of head smooth. Tail very short. Groin and orbits nakedish. Knees not tufted; inguinal pores none. Ears elongate. *Females* hornless. Teats 4. Skull with "a small suborbital fissure, with a large deep fossa suddenly pressed in before the orbit; the masseteric ridge rising a little before the orbit; the auditory bulla rather large and prominent; the basioccipital bone flat and smooth; the median incisors expanded at their summits, and the molars without supplemental lobes." *Skull*, t. 8. f. 4, 5.

Calotragus, part., *Sundevall, Pecora*, 68.

Calotragus (grisea), *Gray, Ann. & Mag. N. H.* 1847, 232; *Knowsley Menag.* 7; *Proc. Zool. Soc.* 1850, 118.

Tragulus (grisea), *H. Smith, Griffith A. K.* v. 182; not *Brisson* nor *Ogilby*.

*Servicapra*, sp., *Blainv. Bull. Soc. Phil.* 1816, 75.

*Capra*, sp., *Licht. Berl. Mag.* 1814.

*Dicotyles*, sp., *Gray, List Mam. B. M.* 164; *Turner, P. Z. S.* 1850.

*Capra*, sp., *H. Smith*.

*Servicapra c. Tragulus*, sp., *Gervais, Supp. D. S. N.* 262.

\* *False hoofs none.*

1. CALOTRAGUS CAMPESTRIS. The STEINBOC.

Fulvous ash. Hair uniform. Small spot on nose and two diverging streaks on crown to nape blacker. Upper part of throat, chest and abdomen white. Ears three-fourths the length of head. False hoofs none.

Var. 1. Glaucons, hair white-tipped.

Var. 2. Crown without black streak. Throat whiter.

Antilope (Gazella) Tragulus, *Forster, MSS.* 52; *Licht. Berl. Mag.* vi. 176, 1814; *Saughth.* t. 19 ♂ ♀; *Goldfuss in Schreb. Saughth.* 1254; *Desm. Mamm.* 458; *Fischer, Syn.* 464. 631.

Calotragus Tragulus, *Gray, Ann. & Mag. N. H.* 1847; *Knowsley Menag.* 7.

A. Cervicapra Stenbock, *Blainv. B. S. Phil.* 1816, 75.

Antilope Ibex, *Afzel. Nov. Act. Upsal.* vii. 254.

Oreotragus Tragulus, *Gray, List Mam. B. M.* 164; *Turner, P. Z. S.* 1849.

Antilope campestris, *Thunb. Mem. Acad. Petersb.* iii. 313, 1811.

Antilope capensis, *Afzelius, N. Act. Upsal.* vii. 260, 1815.

Antilope fulvo-rubescens, *Desmoul. D. Class. H. N.* i. 446.

Antilope (Tragulus) rupestris, *Burchell, Trav.* i. 202. 281, ii. 15;

*H. Smith, G. A. K.* v. 838; *Harris, W. A. Africa,* t. 25. f. 2.

Steinbock, *Buffon, H. N. Supp.* vi. 185.

Tragelaphus Tragulus, *Rüppell, Verz. Senck.* 181.

*Hab.* S. Africa.

Three males. S. Africa.

Three females. S. Africa.

Four young. S. Africa.

OSTEOLOGY. *Skull,* t. 8. f. 4, 5.

Two skulls, males.

One skull, female.

Two skulls, young.

Var.? *Paler.*

Antilope pediotragus, *Afzel. Nov. Act. Ups.* vii. 260.

Antilope pallida, *H. Smith, G. A. K.* v. 841.

Antilope (Gazella) Tragulus pallida, *Licht. Berl. Mag.* vi. 176; *Fischer, Syn.* 464. 632.

Bleekbock, *Forster, MSS.*; *Buffon, H. N. Supp.* vi. 186.

A. Tragulus pallida, *H. Smith, G. A. K.* v.

Vlacksteenbock, *Sparrm. Reise,* 630.

Antilope rufescens, *Burchell.*

A. Tragulus rufescens, *H. Smith, G. A. K.* iv. 248. t., v. 839.

Var. ?

Antilope traguloides (Ogilby's Steinbok), *Ogilby, MSS.*; *Waterhouse, Supp. Cat. Zool. Soc. Mus.* n. 385 B. & 385 B. a. 1839.

*Hab.* S. Africa.

This species varies much in colour, perhaps according to the season; sometimes the hairs are whitish at the tip, giving the fur a glaucous appearance; the black streaks are as distinct in the young as in the adult.

*A. rupestris* (the *Steinbok*) has favourite feeding- and resting-places, to which it returns as speedily as possible if driven from them. It occasionally crosses pools and streams, and even lies down in them, to avoid leaving its scent, when hunted by dogs.—*A. Smith.*

\*\* *False hoofs small.*

## 2. CALOTRAGUS MELANOTIS. The GRYS BOG.

Red bay, with intermixed white hairs. Crown with two dark streaks. Ears two-thirds the length of head. False hoofs small.

Antilope melanotis, *Thunb. Mem. Acad. Petersb.* iii. 312, 1811; *Afzel. Nov. Act. Upsal.* vii. 257, 1815; *Goldf. Schreb. Saugth.* 1235; *Licht. Saugth.* t. 12; *H. Smith, G. A. K.* v. 840; *Desm. Mam.* 459; *Fischer, Syn.* 465. 632; *Harris, W. A. Anim.* t. 26.

Tragelaphus melanotis, *Rüppell, Verz. Senck.* 181, 1845.

Antilope grisea, *Cuv. Dict. Sci. Nat.* xi. 244, 1816.

A. Tragulus grisea, *H. Smith, G. A. K.* v. 840.

A. Cervicapra grisea, *Blainv. B. S. Phil.* 1816, 75.

Antilope (Gazella) Tragulus var. melanotis, *Licht. Berl. Mag.* vi. 176.

Cervicapra (Tragulus) grisea, *Gervais.*

Oreotragus melanotis, *Turner, P. Z. S.* 1849.

Antilope rubro-albescens, *Desm. Dict. Class. H. N.* ii. 446.

Oreotragus griseus, *Gray, List Mam. B. M.* 164.

Calotragus melanotis, *Gray, Ann. & Mag. N. H.* 1847, 217; *Proc. Zool. Soc.* 1850; *Knowsley Menag.*

Grysbog, *Forster, MSS.*; *Buffon, Supp.* vi. 183.

*Var. pallida.* Pale ashy white. Hairs some white, others lead-coloured with grey tips.

Calotragus melanotis pallida, *Gray, Knowsley Menag.* 7; *Proc. Zool. Soc.* 1850, 118.

*Hab.* S. Africa.

Male. Cape of Good Hope.

Female. Cape of Good Hope. Presented by William Burchell, Esq., LL.D.

Young, with two large black oblong spots on each side of the back of the forehead and the tip of the nose. Cape of Good Hope. From M. Verreaux' Collection.

Yellowish grey, with two black oblong spots on back of forehead. From M. Verreaux' Collection.

## 11. SCOPOPHORUS.

Muffle small, bald. Tear-bag transverse. Horns subulate, elongate, acute, slightly recurved at the tips. Knees largely tufted. Inguinal pores distinct and bearded. Ears moderate, with a naked spot on the outside of their base. Hoofs triangular; false hoofs distinct. Skull like *Callotragus*.

*Scopophorus* (*Ourebi*), Gray, *Ann. & Mag. N. H.* 1846, 232; *Knowsley Menag.* 7; *Proc. Zool. Soc.* 1850, 118.

*Calotragus*, sp., *Sundevall, Pecora*, 68.

*Cervicapra c. redunca*, sp., *Gervais, l. c.* 261, 1840.

*Oreotragus*, sp., Gray, *List Mam. B. M.* 164; *Turner, P. Z. Soc.* 1847.

### 1. SCOPOPHORUS OUREBI. THE OUREBI.

Temple spot small, indistinct. Fur red brown. Cheek paler. Crown darker red brown. Orbit, chest, belly and middle of upper part of inner side of legs, white. End of tail, arched line before the eyes, and spot between the ears, black.

*Var.* End of nose blackish.

Antilope *Scoparia*, *Schreb. Saughth. t.* 261; *Desm. Mam.* 464; *Licht. Saughth. t.* 13; *Fischer, Syn.* 468. 658.

*A. redunca scoparia*, *H. Smith, G. A. K.* v. 836.

*Cervicapra Redunca scoparia*, *Gervais, l. c.* 261.

Antilope *melanura*, *Bechst.*

Antilope *Ourebi*, *Shaw, Zool. ii.* 320; *Lesson, Man.*

*Ourebi*, *Allam, Buffon H. N. Supp.* v. 33. t. 12.

*Scopophorus Ourebi*, Gray, *Ann. & Mag. N. H.* 1846, 232; *Knowsley Menag.* 7; *Proc. Zool. Soc.* 1850, 118.

*Ourebi Antelope*, *Penn. Quad.* i. 79.

*Oreotragus Scoparius*, Gray, *List Mam. B. M.* 164; *Turner, P. Z. S.* 1849.

*Hab.* S. Africa.

Male, female and young. S. Africa. Cape of Good Hope. From the South African Museum.

Two females. S. Africa.

## OSTEOLOGY.

Two skulls. S. Africa.

The *Ourebi* live in the continuous swards of tall grass near the sea-coast, but they are nearly exterminated near the colony, and now chiefly confined to the country between the Uuzimvooboo River and Port Natal.—*A. Smith*.

## 2. SCOPOPHORUS MONTANUS. The GIBARI.

Temple spot large, deep (more than half an inch over), naked. Fur greyish brown. Cheeks paler. Crown red brown. Orbits, chest, belly, under side of tail, and middle of the inner side of the upper part of the legs, white. End of tail and arched line before the eyes black.

*Antilope montana*, *Rüppell, Zool. Atlas*, t. 3; *Fischer, Syn.* 469.

*Tragelaphus montanus*, *Rüppell, Verz. Senck.* 181.

*Scopophorus montanus*, *Gray, Ann. & Mag. N. H.* 1846, 232; *Knowsley Menag.* 7. t. 5; *Proc. Zool. Soc.* 1850, 119.

*Hab.* Eastern Africa; Abyssinia; *Rüppell.* West Africa; *Gambia*; *Earl of Derby. Mus.* Earl of Derby.

Very like the former, but grey brown, and the temporal spot much larger, deeper, more distinct and bald, both when alive and in the skin, so that it does not depend on the stuffing.

## 12. OREOTRAGUS.

Muffle large. Crumen arched, transverse. Horns subulate, elongate. Hoofs squarish, high, compressed, much contracted, concave beneath. False hoofs large, blunt. Crown of head smooth. Tail very short. Hair thick, goat-like, spread out. *Female* hornless. Teats 2.

*Oreotragus*, *Gray, Ann. & Mag. N. H.* 1846, 231; *Proc. Zool. Soc.* 1850, 119; *Knowsley Menag.* t.; *Sundevall, Pecora*; *Harris, W. Anim. Afr.*

*Tragulus*, sp., *H. Smith, G. A. K.* v. 1827; *Fischer*, ii. 424, not *Pallas*.

*A. cervicapra*, sp., *Blainv. Bull. Soc. Phil.* 1816; *Desm. Mam.* 460.

*Cervicapra c. Tragulus*, sp., *Gervais, l. c.* 262, 1840.

## 1. OREOTRAGUS SALTATRIX. The KAINSI or KLIPPSPRINGER.

Dark, brown yellow, grised. Hair grey, brown at the end, with a short yellow tip, beneath whitish. Edge of ears and feet above the hoofs black.



Antilope *Oreotragus*, *Forster, MSS.* 58; *Schreb. Saugth.* 1228. t. 259.

A. (*Gazella*) *Oreotragus*, *Licht. Berl. Mag.* vi. 175; *Saugth.* t. 15; *Thumb. Mem. Acad. Petersb.* iii. 511; *Desm. Mam.* 460; *Fischer, Syn.* 466. 634.

A. *Tragulus oreotragus*, *H. Smith, G. A. K.* v. 837.

*Oreotragus Saltatrix*, *Harris, W. Anim. Afr.* t. 24. f. 2.

*Cervicapra Tragulus oreotragus*, *Gervais.*

A. (*Cervicapra*) *oreotragus*, *Desm. Mam.* 460.

Antilope *Saltatrix*, *Bodd. Elench.* 141; *O. Des Mur. & F. Pré-vost, Voy. en Abyssinie*, vi. 33. t. 4.

*Tragelaphus oreotragus*, *Rüppell, Verz. Senck. Samml.* 181, 1845.

*Gazelle, Le Vaillant, Deuz. Voy. d'Afrique*, i. 162.

*Klippspringer*, *Buff. H. N. Supp.* vi. 183. t. 29, cop. *E. M.* t. 54. f. 3; *Penn. Quad.* i. 80; *Shaw, Zool.* ii. 321.

*Kainsi, Hottentots.*

*Sessa* in Amareen.

*Sessah* in Tigren.

*Hab.* Africa. S. Africa; Cape of Good Hope. East Africa; Abyssinia.

Male and female, stuffed. S. Africa.

Varies in brightness and depth of colour according to the season.

### 13. NESOTRAGUS.

Muffle large, bald. Crumen large, deep, arched. Face and forehead not crested. Ears large. Horns nearly straight, elongate, strong, many-ringed, incumbent, in the direction of the facial line nearly parallel. False hoofs none. Tail very short. *Females* hornless.

Very like *Neotragus* in form and character.

*Nesotragus*, *Von Duben, Vet. Ac. Oefvers.* 1846, 221; *Sundevall, Pecora*, 134; *Gray, Knowsley Menag.* 8; *Proc. Zool. Soc.* 1850, 119.

#### 1. NESOTRAGUS MOSCHATUS.

Reddish grey. Belly white. Legs pale reddish. Hair of back brown, reddish above the middle, with an obscure pale dot and blackish tip.

*Nesotragus moschatus*, *V. Duben, l. c.*; *Sundev. Vet. Acad. Oefversigt*, 1846, 221; *Sundevall, Pecora*, 134; *Gray, Knowsley Menag.* 8; *Proc. Zool. Soc.* 1851, 119.

*Hab.* E. Africa; Island of Zanzibar. Male and female in Stockholm Museum.

$\beta$ . Crumen large. Nose ovine. Muffle none.

#### 14. NEOTRAGUS.

Muffle none. Nose ovine. Nostrils close together. Crumen roundish. Horns short, conical, recumbent. Tail very short, crown crested. *Female* hornless.

Neotragus, *H. Smith, G. A. K.* 1827; *Fischer, Syn.* ii. 624; *Wagner; Gray, Ann. & Mag. N. H.* 1846, 231; *Knowsley Menag.* 8; *Proc. Zool. Soc.* 1850, 120; *Sundevall, Pecora,* 67.

Madoqua, *Ogilby, P. Z. Soc.* 1836, 137.

Cervicapra, sp., *Blainv. Bull. Soc. Phil.* 1816, 73.

Cervicapra,  $\S$  g. Neotragus, *Gervais, l. c.* 263.

Colonel Hamilton Smith did not observe the crumen.

#### 1. NEOTRAGUS SALTIANA. The MADOQUA.

Antilope Cervicapra Saltiana, *Blainv. Bull. Soc. Philom.* 1816, 75. 79; *Journ. Phys.* 1818. t. . f. ; *Isis*, 1819, t. 12. f. 5, 9, skull; *Desm. Mamm.* 465; *Fischer, Syn.* 470. 638; *Licht. Saugth.* t. 16; *Rüppell, Zool. Atlas*, 55. t. 21; *Ehrenberg, Symb. Phys. t.*

Neotragus Saltiana, *Gray, Cat. Osteol. B. M.* 561; *Ann. & Mag. N. H.* 1846, 231; *Knowsley Menag.* 8; *Proc. Zool. Soc.* 1850, 120.

Antilope Neotragus Madoka, *H. Smith, G. A. K.* v. 857.

Tragelaphus Hemprichii, *Rüppell, Verz. Senck.* 181.

Antilope Hemprichianus, *Ehrenb. Symb. Phys. t.* 7.

Antilope Grimmia, *Rüppell.*

Antilope Hemprichii, *Rüppell, Abyss.* t. 5.

Cervicapra Neotragus Saltiana, *Gervais, l. c.* 263.

Madoqua Saltiana, *Ogilby, P. Z. S.* 1836, 137.

Neotragus Hemprichianus, *Sundevall, Pecora,* 67.

Madoka Saltiana, *Gray, List Mamm. B. M.* 164.

*Hab.* Abyssinia.

Male and female. Abyssinia. From the Frankfort Museum.

*ANAT. Journ. Phys.* t. . f. ; *Isis*, 1819, t. 12. f. 5, 9.

Frontal bone with horns. Abyssinia.

The specimen described by M. De Blainville.

$\gamma$ . Tear-bag replaced by a glandular line across the face. Muffle large, bald. Africa.

#### 15. CEPHALOPHUS.

Muffle large. Crumen none, but a naked glandular line, formed of two series of pores, on the side of the cheek. Crown

crested, forming a tuft between the horns. Horns short, conical, far back on the hinder edge of the frontal bone, and inclined backwards. Skull without any suborbital fissure, a large suborbital pit occupying the whole side of the cheek; the nasal bones expanded behind, reaching over on the sides into the suborbital pit; in other respects like *Oreotragus*.

*Hab.* Africa.

*Cephalophus*, *H. Smith, Griffith A. K.* v. . 1827; *Fischer, Syn.* 624; *Gray, Ann. & Mag. N. H.* 1846, xviii. 162 & 231; *Knowsley Menag.* 8; *Proc. Z. Soc.* 1850, 120; *Turner, P. Z. S.* 1850 (not *Cephalopus*, as quoted by *Sundevall, Pecora*, 66).

*Cephalolophus*, *Wagler*.

*Cephalophorus*, *Gray, List Mam. B. M.* 162.

*Cervicapra*, sp., *Blainv. Bull. Soc. Phil.* 1816; *Desm. Mam.* 458.

*Cervicapra*, § f. *Cephalophus*, *Gervais, l. c.* 261, 1840.

*Tragul* (*pygmæus*), *Ogilby, P. Z. S.* 1836, 138.

*Sylvicapra* (*mergens*), *Ogilby, P. Z. S.* 1836, 138.

*Sylvicapra*, *Sundevall, Pecora*, 66.

*Tragelaphus*, sp., *Rüppell, Verz. Senck.* 181, 1845.

*Grimmia*, *Laurillard*.

Professor Sundevall adopts Mr. Ogilby's name for the genus. *Cephalophus* was first used; but he rejects it, because it is badly formed. Wagler has emendated Colonel H. Smith's name by changing it to *Cephalolophus*.—*Pecora*, 66.

Professor Sundevall has in his specific characters laid some stress on the direction of the lachrymal streak. I find, on comparing different specimens of the same species, that little reliance can be placed on this character, in stuffed specimens at least, for the direction of the streak is altered according as the skin of the face is more or less stretched.—*Gray, Ann. & Mag. N. H.* xviii. 163.

“\* *Knees and hind legs tufted. Ears and horns elongate. Crumens under the eyes, and a narrow naked streak on cheeks.*”

#### 1. CEPHALOPHUS? QUADRISCOPA. FOUR-TUFTED ANTELOPE.

“Buff; paler on the sides. Tail, knee-tuft, front of nose, narrow inferior lateral and anal streak, and streak across legs, blackish. Lips, breast, inside of limbs, vent and houghs, white.”

Antelope *Cephalophus quadriscopa*, *H. Smith, G. A. K.* iv. 261. t. 188, v. 847; *Fischer, Syn.* 634.

*Cephalophus? quadriscopa*, *Gray, Ann. & Mag. N. H.* 1846, 164; *Knowsley Menag.* 8; *Proc. Zool. Soc.* 1850, 120.

*Hab.* Senegal.

This specimen is only known from Colonel Hamilton Smith's description and figure, who informs me that the specimen was not preserved after its death.

\*\* *Knees not tufted. Ears elongate, acute. Horns slender, elongate, subangular in front.*

## 2. CEPHALOPHUS GRIMMIA. The IMPOON OF DUYKER.

Yellowish brown (greyish in winter). Hair yellowish, with black tips. Forehead yellowish bay. Inside of ears, chin, throat, abdomen, inside of fore and hind legs, and under side of tail, white. Feet, streak on the nose and up the legs, and upper part of the tail, black. Ears elongate, nearly as long as the head, acute. Horns black, elongate, slender; base rugose and subangular in front. Skull small, short. Suborbital pit large, deeply concave. The intermaxilla (in three specimens) reaching just up to the edge of the nasals. Nasal hole moderate, sides nearly parallel.

? *Capra sylvestris Africana*, N. Grimm, *Mis. Cur. Norimb.* 1705, t. 13.

*Capra Grimmii*, *Raii Syn.* 80.

*Moschus Grimmia*, *Linn. S. N.* i. 92, from Grimm.

*Capra Grimmia*, *Linn. S. N.* ed. 10. i. 70, from Grimm.

Antilope (*Gazella*) *Grimmia*, *Licht. Berl. Mag.* vi. 177 (1814).

Antilope *Cervicapra Grimmia*, *Blainv. Bull. Soc. Phil.* 1816, 75.

*Cephalophus Grimmia*, *Gray, Ann. & Mag. N. H.* 1846, 163; *Knowsley Menag.* 8. t. 1. f. 1, t. 2. f. 1, 2; *Proc. Zool. Soc.* 1850, 120.

Antilope (*Cervicapra*) *mergens*, *Blainv. Bull. Soc. Philom.* 1817; *Desm. Mam.* 463; *Licht. Saugth.* t. 11; *Burchell, Trav.* ii. 187; *Fischer, Syn.* 468. 635.

A. *Cephalophus mergens*, *H. Smith, G. A. K.* v. 849.

*Cervicapra* (*Cephalophus*) *mergens*, *Gervais, l. c.* 262.

Antilope *nictitans*, *Thunb. Mem. Petersb.* iii. 312, 1811.

*Cephalophorus mergens*, *Gray, List Mamm. B. M.* 162.

*Sylvicapra mergens*, *Ogilby, P. Z. Soc.* 1836, 138; *Sundevall, Pecora*, 66. 133.

*Cephalophus mergens* (*Duiker*), *Gray, Cat. Osteol. B. M.* 57; *Harris, W. A. S. A.* t. 15. f. 2.

*Tragelaphus mergens*, *Rüppell, Verz. Senck.* 181.

*Cephalophorus Burchellii*, *Gray, List Mamm. B. M.* 162.

Duyker or Duykerbok, *Dutch at Cape.*

*Hab.* S. Africa. Cape of Good Hope.

*Var. ?*

Antilope *Cephalophus Platous*, *H. Smith, G. A. K.* iv. t., v. 846.

Antilope (*Sylvicultrix*)  $\beta$ . *platyotis*, *Fischer, Syn.* 634.

*Hab.* S. Africa.

*Var. ?*

Ptoox, *Licht. Berl. Mag.* vi. 177.

Antilope *Cephalophus Ptoox*, *H. Smith, G. A. K.* v. 850 (young?);  
*Fischer, Syn.* 635.

*Hab.* S. Africa. Cape of Good Hope.

Adult male and female. South Africa. S. African Museum.  
*Cephalophorus Burchelli* (*a. & b.*), *Gray, List Mam. B. M.* 162.

An adult male. S. Africa.

Two young females. S. Africa.

*Var. 1.* Back brighter red. Black streak on face from nose to base of horns. Orbits white. The hairs with short black tips, and a narrow subapical whitish ring. Shanks whitish.

*Hab.* Angola. St. Paul de Lolanda.

A male. St. Paul de Lolanda. Presented by Edmund Gabriel, Esq.

#### OSTEOLOGY.

Skull, young male. South Africa.

Skull and horns. South Africa.

\*Skull. S. Africa. From Mr. Warwick's Collection.

The specimen in the Museum of the London Missionary Society (No. 8 Blomfield Street, Moorfields, formerly in Austin Friars), Case 5, described by Colonel H. Smith under the name of *A. Platous*, is the size and has the horns and ears of an adult *C. Grimmia*, but differs in being paler, and having no dark colour on the nose or feet; but it is evidently much bleached. It has certainly no relation to the *C. sylvicultrix*, with which Colonel Smith was afterwards inclined to place it as a variety (see *Griff. A. K. Syn.* v. 344).

There are three species which have been called *Antilope Grimmia*:—

1. The *Capra sylvestris africana* of N. Grimm, *Misc. Cur. Norimb.* 1705, 131. t. 13, the authority for *Capra Grimmii*, Ray, *Syn.* 80, and Linn. *S. N.* ed. 10. 70. *Moschus Grimmia*, Linn. *S. N.* ed. 12, from the Cape, of a dull grey colour. Probably the Duyker.

2. *Le Grimme* of Buffon, *H. N.* xii. 307. 329. t. 41. f. 2, 3, from a head sent from Senegal by Adanson; the *Antilope Grimmia* of Desmarest, F. Cuvier, and H. Smith, &c.; the *Cephalophus rufilatus*.

3. The *A. Grimmia* of Pallas, with large ears and a black streak to the horns, like *C. Campbelliæ*, but is from Guinea. I know of no species common to the W. and S. coast of Africa, so that it is probably yet to be distinguished.

The "*Fitomba*" or "*Philantomba*" appears to be the generic name of all the W. African *Cephalophi* or Bush Antelopes.

### 3. CEPHALOPHUS CAMPBELLIÆ. THE BLACK-FACED PHILANTOMBA.

Grey and black grised, beneath white. Cheeks, neck and chest yellowish. Forehead yellow, with a black streak on the nose, widening on the forehead, and ending in a tuft of hair behind the horns. Feet and front of the fore legs reddish black. Fur soft. Hair grey, with a black ring and tips. Ears elongate, acute.

*Cephalophus Campbelliæ*, Gray, *Ann. & Mag. N. H.* 1846, 164; *Knowsley Menag.* 9; *Proc. Zool. Soc.* 1850, 121; *Sundevall, Pecora*, 133.

*Sylvicapra mergens* var., *Sundevall, Pecora*, 133.

*Cephalophus Burchellii* var. (*C. Campbelliæ*), Gray, *Cat. Mamm. B. M.* 162.

? Antelope *Grimmia*, *Pallas, Misc.* i. t. 1; *Spic. Zool.* i. 38. t. 3. t. 4. f. 3, xii. 18; *Fischer, Syn.* 468?

? Le Grimme, *Buffon, H. N. Supp.* iii. t. 14, from *Pallas*.

Antelope *mergens* var. *Burchellii*, part., *Sundevall, Pecora. Hab. W. Africa.*

Adult female. S. Africa. Stockholm Museum.

A young specimen, with the streak up the face to the back of the forehead. Sierra Leone. Presented by Mrs. A. George Campbell.

Antelope *Campbelliæ*, Gray, *MSS. in List Mamm. B. M.* 162.

*Cephalophorus Burchellii*, jun., Gray, *List Mamm. B. M.* 162.

This species differs from the *Duyker* by being much darker, and more distinctly grised or dotted, and the under side being much whiter. It may be only a darker variety of that species.

The adult female was sent as *A. mergens*, var. *Burchellii*, by M. Sundevall (the other specimen of the same name being a true *Duyker*). The young specimen, which has been in the British Museum for several years, was sent from Africa, under the generic name of *Philantomba*, by Mrs. Ambrose George Campbell.

The *A. Grimmia* of Pallas, *Spic. Zool.* i. 18. t. 3, which he describes as grey grised, becoming brownish ash on the buttocks; throat, chest and beneath the body white; head and neck yellowish grey; a black streak between the horns, forming a

fascia on the forehead and broader on the nose; fur softer than the Deer, but rough, of lower part of the neck rougher and more lax; feet and line on fore-legs blackish; tail black above; ears rather acute: inhabits Guinea; agrees in most respects with this species, but most probably is yet to be procured from W. Africa.

#### OSTEOLOGY.

\*A skull. South Africa; Port Natal. From Stockholm Museum.

#### 4. CEPHALOPHUS BURCHELLII. BURCHELL'S BUSH BOB.

Fur reddish brown, very slightly black punctated. Face redder. Throat, chest, legs and belly rather greyer brown. Middle of the chin, inner side of the thighs, and under side of the end of the tail, whitish. Short streak up the nose and the front of the legs black. Skull large, elongate. The intermaxillary not reaching to the nasal. The suborbital pit very large, rather shallow. Nasal hole large, swelling out on the side.

Antelope (*Cephalophus* *Burchellii*, *A. Smith, Griffith A. K.* iv. v. 844?; *Fischer, Syn.* 635.

*Cephalophorus mergens*, *Gray, List Mamm. B. M.* 162.

*Cephalophus grimmia* var., *Gray, Ann. & Mag. N. H.* 1846, 164; *Knowsley Menag.; Proc. Zool. Soc.* 1850.

*Hab.* S. Africa.

A small male (wants cover of horns; hair of body rather elongate). South Africa.

Young. South Africa. From M. Verreaux' Collection.

A large female (hair shorter, adpressed). S. Africa.

Inhabiting the district more or less densely covered with underwood in Caffreland and the country north of the Orange River. When interrupted in feeding, or pursued by dogs, it springs with considerable activity over such bushes as may stand in its course, and endeavours to plunge into the closest thickets for concealment; hence they are called *Duiker bok*.—*A. Smith.*

#### OSTEOLOGY.

\*Skull of female. Port Natal. From Stockholm Museum.

?Skull and horns. S. Africa. Presented by W. Burchell, Esq.,

LL.D.

Skull of specimen described *Burchell, Travels*, ii. 337, and *A. Smith, G. A. K.* iv., as *A. Burchellii*.

This species is easily known from either *C. Grimmia* or *C. Campbelliæ* by its darker colour, and by the under sides and inside of the legs being nearly of the same colour as the back, and not white, as in those species, and also by the shortness of the in-

termaxillary and the width of the nose-hole. There has been a great difficulty about the determination of the species which Col. Hamilton Smith intended under the above name. The imperfect skin which Col. Smith described having lost its hair, has perished, and the skull alone has been preserved. This skull exactly agrees with the skull of the species above described in all its more important characters, but is rather smaller in size; and the colour of the fur best agrees with Col. Smith's description, for he observes that the animal is more ashy beneath, while *A. Platous*, *A. Ptoon* and *A. mergens* are described as white or whitish beneath.

\*\*\* *Knees not tufted. Ears moderate, acute. Horns short, conical, thick.*

##### 5. CEPHALOPHUS MADOQUA. The ABYSSINIAN BUSH GOAT.

Yellowish brown, slightly punctulated with black. Neck yellowish. Limbs blacker. Face-streak and feet black. Hair rather rigid, close-pressed, reddish grey at the base; upper part polished, yellow brown with dark tips. Forehead reddish.

Antilope Madoqua, *Rüppell, Faun. Abyss.* t. 7. f. 2.

Cephalophus coronatus, part., *Gray, Ann. & Mag. N. H.* 1846, 164.

Cephalophus Madoqua, *Gray, Knowsley Menag.* 9; *Proc. Zool. Soc.* 1850, 121.

Madoqua, *Bruce, Travels*, vii. 360. t. 56.

Tragelaphus Madoqua, *Rüppell, Verz. Senck.* 181.

Sylvicapra Madoqua, *Sundevall, Pecora*, 66.

*Hab.* Abyssinia. Mus. Frankfort.

This species is very distinct from *C. coronatus*, being darker, and the fur more rigid and close-pressed.

##### 6. CEPHALOPHUS CORONATUS. The COQUETOON OR RED-CROWNED BUSH BUCK.

Pale yellowish brown. Middle of the back and front of fore legs varied, with a few scattered black hairs. Crown light bay. Crest blackish brown, bay in front. Feet and streak up the nose blackish. Inside of ears, chin, throat, chest, belly, and inner side of the legs, whitish. Tip of tail black. Horns short, conical. Ears acute, about half as long as the head.

Cephalophorus coronatus, *Gray, Ann. & Mag. N. H.* x. 1842, 266; *Sundevall, Pecora*, 67; *Gray, Ann. Nat. Hist.* 1846, 164; *Knowsley Menag.* 9. t. 6. f. 12; *Proc. Zool. Soc.* 1850, 122.

*Sylvicapra coronata*, *Sundevall, Pecora*, 133.

*Hab.* W. Africa; Gambia; Macarthy's Island: called *Coquatoon*.



Adult, stuffed. West Africa. Gambia. Presented by the Earl of Derby.

Female, adult.

Young: brighter coloured; streak on nape more distinct; tip of tail black.

#### OSTEOLOGY.

Skull, adult male. West Africa. Presented by the Earl of Derby.

Skull, young male. Gambia. Presented by the Earl of Derby.

Two skulls, young. Gambia. Presented by the Earl of Derby.

\*\*\*\* *Knees not tufted. Ears moderate, rounded. Horns conical, thick, without any streak over the eye.*

#### 7. CEPHALOPHUS SYLVICULTRIX. The WHITE-BACKED BUSH BUCK.

Blackish brown, minutely grey grised. Hair brown, with whitish tips. Back with a large yellowish white spot, narrow in front. Throat, chest and belly redder. Crown, nape and legs darker. Horns —? Varies in the size of the dorsal spots.

Antilope sylvicultrix, *Afzel. Nov. Act. Upsal.* vii. 265. t. 8, 1811.

A. Cervicapra sylvicultrix, *Desm. Mam.* 462; *Fischer, Syn.* 467. 654.

A. Cephalophus sylvicultrix, *H. Smith, Griffith A. K.* iv. 258. t. 187, v. 846.

Cephalophorus sylvicultrix, *Gray, Ann. & Mag. N. H.* 1846, 165.

Cephalophus sylvicultrix, *Knowsley Menag.* 10. t. 23. f. 3, t. 8. f. 1; *Proc. Zool. Soc.* 1850, 120.

Sylvicapra sylvicultrix, *Sundevall, Pecora,* 67.

Bush Goat, *Colonists, Sierra Leone.*

*Hab.* Sierra Leone, in swampy places.

A young male. Sierra Leone. Presented by the Earl of Derby.

#### 8. CEPHALOPHUS OGILBII. The BLACK-STRIPED BUSH BUCK.

Pale bay brown, with a deep black dorsal streak, beneath pale. Crown and haunches brighter bay. Neck, withers and side of the dorsal line varied with deep brown hairs. Streak up the fore-legs, upper part of hock, feet above the hoofs, and end of tail, black. Horns short, thick, conical, very rugose on the inner front edge of the base.

Antilope Ogilbii, *Waterhouse, Proc. Z. S.* 1838, 60; 1842, 129.

Cephalophorus Ogilbyi, *Gray, List Mamm. B. M.* 163.

Cephalophus Ogilbii, *Gray, Ann. & Mag. N. H.* 1842, x. 267;

1846, 165; *Knowsley Menag.* 10. t. 8. f. 2; *Proc. Zool. Soc.* 1850, 120; *Frazer, Zool. Typica*, t.

*A. Tragelaphus* Ogilbyi, *Lesson, Nov. Tab. R. A.* 181.

*Sylvicapra* Ogilbii, *Sundevall, Pecora*, 67.

*Hab.* Fernando Po.

A male (one horn wanting). Fernando Po. Presented by Thomas Thomson, Esq., R.N.

#### 9. CEPHALOPHUS BADIUS. The BAY BUSH BUCK.

Bright yellowish brown. Hair adpressed, flattened. Crown, nape, broad well-defined dorsal streak, and upper part of tail, black. Legs blackish grey. Spot over orbits, lips, chin and gullet, whitish. Head very large. Skull broad. Forehead rounded.

*Cephalophus dorsalis*, *Gray, Knowsley Menag.* t. 7. f. 1, not description.

*Hab.* Sierra Leone.

Young male. Sierra Leone; Waterloo. Presented by the Earl of Derby.

#### OSTEOLOGY.

Skull. Sierra Leone. Presented by the Earl of Derby.

Very like *C. Ogilbii*, but darker bay; the legs are blackish; and the neck bright bay and not blackish grey, as in that species.

#### 10. CEPHALOPHUS DORSALIS. The BAY BUSH GOAT.

Dark bay; shoulders and legs darker. Hair brown; a few on the haunches white-tipped. Crown and nape, a broad dorsal streak to tail, black. A spot over each eye, the lips, sides of chin, front of chest, under side of tail, and inside of the thighs, pale brown.

*Cephalophus dorsalis*, *Gray, Ann. & Mag. N. H.* 1846, 165; *Knowsley Menag.* 10 (not fig. t. 7. f. 1); *Proc. Z. Soc.* 1850, 123; *Sundevall, Pecora*, 134.

Bush Goat, *Colonists*.

*Hab.* Sierra Leone.

A young male. Sierra Leone. From Surrey Zool. Gardens.

#### 11. CEPHALOPHUS NIGER. The BLACK BUSH BUCK.

Sooty black; greyer in front half of body. Chin, throat, abdomen, and inside of the thighs, grey. Forehead and crown dark bay and black mixed. Cheek pale brown, black varied. Tail, end whitish.

*Cephalophus niger*, *Gray, Ann. & Mag. N. H.* 1846, 165; *List*

*Osteol. Spec.* 57; *Knowsley Menag.* 10. t. 7. f. 2; *Proc. Zool. Soc.* 1850, 123; *Sundevall, Pecora*, 134.

*Antilope niger*, *Temm. Mus. Leyden.*

*Hab.* Guinea.

A male, half-grown. Coast of Guinea. From Leyden Museum.

OSTEOLOGY. Leg-bones, imperfect.

12. CEPHALOPHUS NATALENSIS. The NATAL BUSH BUCK  
OR RHOODE BOK.

Bright red bay. Nape, withers and feet varied with dark grey hairs. Nose-streak short, blackish. Lips, chin, upper part of throat, and end of tail, whitish. Lower part of cheek, throat and abdomen, pale yellowish. Crown and tuft bright red. Horns short, conical.

*Antilope Natalensis*, *A. Smith, S. African Quart. Journ.* 217;  
*Illust. Zool. S. Africa*, t. 32.

*Cephalophorus Natalensis*, *Gray, List Mamm. B. M.* 167.

*Cephalophus Natalensis*, *Gray, Ann. & Mag. N. H.* 1846, 165;  
*Knowsley Menag.* 10.

*Sylvicapra Natalensis*, *Sundevall, Pecora*, 66.

*Hab.* S. Africa; Port Natal.

Male and two females. Port Natal. From Dr. Krauss' Collection.

Female. Port Natal. From the South African Museum.

Male. Port Natal. From Mr. Williams's Collection.

OSTEOLOGY.

Skulls. Port Natal. From Mr. Warwick's Collection.

*A. Natalensis* inhabits the forests about Port Natal and country more to the eastward, living in thick brushwood which blocks up the intervals between the larger trees; they feed on grass, the young shoots of trees, and the more delicate twigs of the smaller shrubs. They take the place the *Little Blue Antelope* occupies at the Cape.—*A. Smith.*

13. CEPHALOPHUS RUFILATUS. The COQUETOON.

Deep reddish bay. Legs, nape, streak on the nose to the crown, and broad streak on back, blackish grey. Ears blackish. Crest and upper part of tail black. Cheeks rather paler. Chin and abdomen pale yellowish. Inside of ears whitish, with a brown spot on the outer side. Horns conical, rather elongate, obscure annulated, slightly recurved.

*Antilope (Cephalophus) Grimmia*, *H. Smith, G. A. K.* v. 266.

*Cephalophus rufilatus*, Gray, *Ann. & Mag. N. H.* 1846, 166;  
*List Osteol. B. M.* 56; *Knowsley Menag.* 10. t. 9; *Proc. Zool.*  
*Soc.* 1850, 123.

Le Grimme, *Buffon*, *H. N.* xii. t. 41. f. 2, 3.

*Var.* 1. Sides paler, greyish red; forehead rough.

Le Grimme (*Antilope Grimmia*), *F. Cuvier*, *Mam. Lithog.* t. ,  
 not good (not separate head).

*Cephalophus rufilatus* var. 1, Gray, *Knowsley Menag.*; *Proc.*  
*Zool. Soc.* 1850, 124.

*Hab.* Sierra Leone.

Two females, young. Gambia. Presented by the Earl of Derby.

#### OSTEOLOGY.

?Grimme, *Daub. Buffon H. N.* xii. t. 41. f. 2, 3.

\*Skull. West Africa. Presented by the Earl of Derby.

\*Skull. Gambia. Presented by the Earl of Derby.

The hair is rather paler at the base, of the dorsal streak grey, with a blackish tip.

M. F. Cuvier's (*Mamm. Lithog.* t. ) figure is the pale variety, which Mr. Whitfield regards as distinct; he says it is called *Grimme* by the natives: the separate head of Cuvier's plate appears to have been taken from the *Guevei*.

\*\*\*\*\* *Knees not tufted. Ears moderate, rounded. Head with a pale streak on each side over the eyes to the base of the horns. Horns short, thick, conical. Guevei.*

#### X 14. CEPHALOPHUS MAXWELLII. THE GUEVEI.

Grey brown or sooty black. Sides of the head and body greyer. Chin, throat, chest and belly whitish grey. Abdomen and front of thighs white. Feet and end of nose rather darker. Fur rather rigid. Hair uniform. Broad streak over each eye to the base of the horns yellowish white.

*Antilope (Cephalophus) Maxwellii*, *H. Smith*, *G. A. K.* v. 852;  
*Fischer*, *Syn.* 637.

*Cervicapra Cephalophus Maxwellii*, *Gervais*.

*Cephalophus Maxwellii*, Gray, *Ann. & Mag. N. H.* 1846, 166;  
*Knowsley Menag.* 11.

*Antilope pygmea*, *Pallas*, *Spic. Zool.* xii. 18?

*Cephalophorus cæruleus*, part., Gray, *List Mamm. B. M.* 163.

*Guevei*, *Buffon*, *H. N.*

*Guevei (Antilope pygmea)*, *F. Cuvier*, *Mam. Lithog.* t., good.

La Grimme (separate head), *F. Cuvier*, *Mam. Lithog.* t.

*Antilope Fredericei*, *Laur.*

*Sylvicapra Frederici*, *Sundevall, Pecora*, 66. 133.

*A. monticola* var., *Thunb. Stockh. N. H.* xxxii.

Antilope Philantomba, *Ogilby, P. Z. Soc.* 1836, 121; 1839, 27.

Chevrotain du Senegal, *Buffon, H. N.* xii. 315. t. 43. f. 2, horns.

Petite bisches, *Adans. Seneg.* 114.

Royal Antelope, *Penn. Syn.* 28; *Quad.* i. 82.

Pygmy Antelope, *Shaw, Zool.* ii. 326. t. 188.

Guevei, *Guinea.*

*Hab.* West Africa; Senegal; Gambia.

Males (horns large). W. Africa. Presented by the Earl of Derby.

Half-grown, bright. Sierra Leone. Presented by Col. Edward Sabine, R.E.

*A. Maxwellii*, *H. Smith, Griffith A. K.* v. 852?

*Cephalophorus cæruleus*, part., *Gray, List Mamm. B. M.* 163.

#### 15. CEPHALOPHUS PYGMEA. The NOUMETZI or CAPE GUEVEI.

Grey brown. Streak over the eye, legs, and outer part of thighs, rufous. Feet grey brown. Chin, chest, abdomen and under side of tail, and inside of ears, white. Fur soft, grey, with intermixed rather rigid black hairs.

*Antilope monticola*, *Thunb. Mem. Acad. Petersb.* iii. 315, 1811; *Stockh. N. H.* xxii. t. 5, 1811.

Antilope *Cephalophus cærulea*, *H. Smith, G. A. K.* v. 853; *Fischer, Syn.* 637; *Harris, Wild Anim. Afr.* t. 26.

Blauwbokje, *Dutch at Cape of Good Hope*; *Daniel, Scenery S. Africa*, t.

Antilope (*Cephalophus*) *perpusilla*, *H. Smith, G. A. K.* v. 854; *Fischer, Syn.* 637.

*Cephalophorus cæruleus*, *Gray, List Mamm. B. M.* 163.

*Capra pygmea*, *Linn. S. N.* ed. 10.

Antilope *pygmea*, *Schreb. Saugth.* 1237. t. 260 B.

*A. Gazella pygmea*, part., *Licht. Berl. Mag.* vi. 178; *Saugth.* t. 16, not *Pallas*; *Desm. Mam.* 465; *Fischer, Syn.* 469. 638.

*A. Cephalophus pygmea*, *H. Smith, G. A. K.* v. 856.

*A. Cervicapra pygmea*, *Blainv. B. S. Phil.* 1816, 75.

*Tragulid pygmeus*, *Ogilby, Proc. Zool. Soc.* 1836, 138.

*Sylvicapra pygmea*, *Sundevall, Pecora*, 66. 122.

?Antilope *minuta*, *Forster, MSS.*

*Cephalophus monticolus*, *Gray, List Skelet. B. M.* 57.

*Tragelaphus pygmeus*, *Rüppell, Verz. Senck.* 181.

*Cervus juvenis perpusillus*, *Seba, Thes.* i. 70. t. 43. f. 5.

*Hab.* South Africa.

A male. South Africa.

A young male, brighter. South Africa. From M. Verreaux' Collection.

A female (one horn deficient), larger. South Africa.

ANAT. Skeleton.

16. CEPHALOPHUS MELANORHEUS. The BLACK-RUMPED GUEVEI.

Grey brown. Throat and sides paler. Rump and upper part of tail black. Chin, chest, abdomen, back and front edge of thighs, and under part of tail, white. Narrow streak over the eyes whitish. Feet like back. Fur soft, pale grey, with intermixed rather rigid black hairs.

*Cephalophus melanorheus*, Gray, *Ann. & Mag. N. H.* 1846, 166; *Knowsley Menag.* 11. t. 10; *Sundevall, Pecora*, 134.

*Cephalophorus Philantomba* (The Guevi), Gray, *Cat. Mam. B. M.* 163, not *H. Smith*.

*Hab.* Fernando Po.

Male and two females. Fernando Po. Presented by Thomas Thomson, Esq., R.N.

*Note.*—Antelope (*Cephalophus*) *Philantomba*, *H. Smith, G. A. K.* v. 855; *Fischer, Syn.* 637—appears to be a doubtful species.

17. CEPHALOPHUS PUNCTULATUS. The GRISLED GUEVEI.

Dark fulvous brown; sides and legs rather paler. Narrow streak over the eyes and inside of ears pale brown. Chin, throat, chest, belly, front of thighs, and under part of tail, white. Hair grey at the base, with brown ends and yellow subterminal rings. Crown and upper part of tail darker. Feet pale varied.

*Cephalophus punctulatus*, Gray, *Ann. & Mag. N. H.* 1846, 166; *Knowsley Menag.* t. 11. f. 1; not t. 8. f. 1, as quoted.

*Hab.* Sierra Leone.

A young specimen (female?). Sierra Leone. Presented by Capt. Sabine.

18. CEPHALOPHUS WHITFIELDII. The WHITE-FOOTED GUEVEI.

Yellowish ash. Shoulders, outside of limbs, and hinder part of back, rather darker. Ears and crown pale yellowish brown. Streak over the eyes, cheeks, throat, belly, inside of the limbs, and ring round the feet above the hoofs, ashy white. Hair ashy grey; of the back brown at the end, with a yellow tip.

*Cephalophus Whitfieldii*, Gray, *Knowsley Menag.* 12. t. 11. f. 2.  
*Hab.* W. Africa; Gambia.

A young specimen. Gambia. Presented by the Earl of Derby.

♂. *Crumen* none, no glandular streak on face. Muffle large, moist.  
 Crown smooth.

## 16. NANOTRAGUS.

Horns very short, conical. Crown not crested. Ears small, rounded. Tear-bag none. Legs slender. Tail subpectinate. Hoofs small, triangular. False hoofs none.

Antelope subgen. *Spinigera*, Lesson, *Nov. Tab. R. A.* 178, 1842, not described.

*Nanotragus*, Sundevall, *Pecora*, 67. 134; Gray, *Ann. & Mag. N. H.* 1846, 231; *Knowsley Menag.* 12.

*Neotragus*, sp., Wagner.

*Cephalophorus*, sp.?, Gray, *List Mamm. B. M.* 163.

*Tragul*us, sp., Klein, *Quad.* 22; Brisson, *R. A.* i. 65; not Gray, *Ant. spinigera*.

Antelope, sp., Pallas.

*Capra*, sp., Linn.

*Moschus*, sp., Linn. *S. N.* ed. 12. 92, 1766; *Erxleb.* 1788.

*Neotragus*, sp., H. Smith, *Griffith A. K.* v. 182.

## I. NANOTRAGUS PERPUSILLUS. The ROYAL ANTELOPE.

Fulvous. Throat, belly, edge of thigh and tip of tail, white.

*Capra perpusilla*, Linn. *Mus. Adolph. Fred.* i. 12, fide spec. Linn.

*Cervus Guinensis*, Linn. *Mus. Adolph.* 12; *S. N.* (from Seba, t. 45. f. 1).

*Cervus stylocerus Guinensis*, Lesson, *Mamm.* x. 276.

*Cephalophorus?* *pygmeus*, Gray, *List Mamm. B. M.* 163.

Antelope regia, *Erxleb. Syst.* 278, from Buffon.

Antelope spinigera, Temm. *Menag. Mamm.* i. xxx. 1827; Fischer, *Syn.* 469; Wagner, *Sup.* 457.

*Nanotragus regius*, Sundevall, *Pecora*, 67; Gray, *Knowsley Menag.* 12.

Antelope pygmea, Pallas, *Spic. Zool.* xii. 18, from Buffon.

*Nanotragus spiniger*, Sundevall, *Pecora*, 67, 121.

*Moschus pygmeus*, Linn. *S. N.* i. 92 (see Sundevall, *Pecora* 116); Schreb. *Saugth.* 956. t. 244.

Antelope *Gazella pygmea*, Licht. *Berl. Mag.* vi. 178.

*Tragul*us *Guinensis*, Brisson, from Seba, t. 45. f. 1; Klein.

*Cerva parvula africana*, &c., Seba, *Thes.* i. 70. t. 43. f. 1-3 A, B.

- Hinnulus s. *Cervus pergracilis*, *Seba, Thes. i. 70. t. 43. f. 2.*  
*Cervus africanus pilo rubro*, *Seba, Thes. i. 73. t. 45. f. 1.*  
 ?Klein Hirschen, &c., *Mus. Bareuth. 5. t. 5.*  
 Chevrotain d'Afrique, *Buffon, H. N. xii. 310-341. t. 42. f. 2,*  
 horn, f. 3-6, feet.  
 Royal Antelope, *Penn. Syn.*  
 Guinea Musk, *Penn. Syn. 59; Quad. i. 127.*  
 Pygmy Musk, *Shaw, Zool. ii. 254.*  
 Antilope (*Spinigera*) *spinigera*, *Lesson, Nov. Tab. R. A. 178.*  
*Hab. W. Africa; Guinea.*

A young specimen, stuffed, formerly in spirits, discoloured.  
 W. Africa; Guinea.

### 17. PELEA.

Horns conical, erect, slender, scarcely diverging, bent forward at the tip. Face narrow, elongate. Nose swollen. Muffle large, extended far behind the nostrils. Crumen none. Fur soft, woolly. Hoofs and false hoofs rather large. Inguinal pores distinct. Teats four.

*Hab. Africa.*

- Eleotragus, § 1. *Pelea*, *Gray, Knowsley Menag.; Proc. Zool. Soc. 1849, 126.*  
*Tragelaphus*, sp., *Rüppell, Verz. Senck. 181.*  
*Eleotragus*, sp., *Gray, Ann. & Mag. N. H. 1846, 232; Turner, Proc. Zool. Soc. 1848.*  
*A. Gazella*, sp., *Licht. Berl. Mag. vi. 247, 1814.*

#### I. PELEA CAPREOLA. The REHBOCK or PEELE.

Head slender, compressed. Temple-spot none. Horns erect, scarcely diverging, very slender. Fur short, soft, woolly, grey brown. Back redder. Throat and beneath whiter. End of nose and chin blackish. Feet darker.

- Antilope (*Gazella*) *Capreolus*, *Licht. Berl. Mag. vi. 147, 1814;*  
*Saugth. t. 8; Thunb. Afzel. Nov. Act. Upsal. vii. 257, 1816;*  
*Schreb. Saugth. 1230; Thunb. Mem. Petersb. iii. 312; Harris, W. A. Africa, t. 28. f. 1; Desm. Mam. 461; Fischer, Syn. 467.*  
*Eleotragus (Pelea) Capreolus*, *Gray, Ann. & Mag. N. H. 1846, 232; Knowsley Menag. t. 12; Proc. Zool. Soc. 1849, 126.*  
*Antilope lanata*, *Desmoul. Dict. Class. H. N. i. 445. t.*  
*Antilope villosa*, *Burchell, Travels, ii. 302, 1822.*  
*A. redunca villosa*, *H. Smith, G. A. K. v. 835.*  
*Rehbock*, *Dutch; Sparrm. Reise, 517.*  
*Eleotragus villosus*, *Gray, List Mamm. B. M. 165.*



*Eleotragus Capreolus*, Gray, *List Osteol. B. M.* 57.

*Tragelaphus Capreolus*, Rüppell, *Verz. Senck.* 181.

*Hab.* South Africa.

Male. S. Africa. Presented by W. Burchell, Esq., LL.D.

Female. S. Africa.

Young. S. Africa.

#### OSTEOLOGY.

Head and horns. South Africa. Presented by Dr. Burchell.

### 18. ELEOTRAGUS.

Horns conical, thick, diverging, bent back and then bent forwards at the tip. Face broad. Nose not swollen. Muffle rather large. Crumen none. Fur harsh, of back more or less whorled. Hoofs and false hoofs rather large. Inguinal pores distinct. Teats four. Skull: "Nasal opening rather lengthened, the nasal processes of the intermaxillary bones long, yet not always reaching the nasal bones; a large infraorbital fissure, but no fossa; the masseteric ridge ascending rather high; the auditory bulla large and swollen; the basioccipital bone with its median groove and tubercles well developed; the median incisors expanded at their summits; a well-developed supplemental lobe in the first true molar of each jaw, and usually more or less appearance of it in those behind."—Turner.

*Hab.* Africa, in marshy places.

*Redunca*, sp., *H. Smith, Griffith A. K. v.* , 1827; *Fischer, Syn.* 624.

*Eleotragus* § 1, *Gray, Ann. & Mag. N. H.* 1846, 232; *Knowsley Menag.* 12.

*Eleotragus*, sp., *Turner, P. Z. S.* 1850.

*Cervicapra*, sp., *Blainville, Bull. Soc. Phil.* 1816.

*Cervicapra*, *a* and *β*, *Sundevall, Pecora*, 60.

*Cervicapra b. Redunca*, sp., *Gervais, Supp. D. S. N. i.* 261, 1840.

*Nagor*, *Laurillard.*

*Sylvicapra*, *Ogilby, Proc. Zool. Soc.* 1836.

† *Fur* grised, harsh, straight, with a subterminal pale band, and often whorled. Head broad. Temple with a naked spot. Muffle large, flat, extending behind the nostrils. S. Africa.

#### 1. ELEOTRAGUS ARUNDINACEUS. INGHALLA or RIETBOCK.

Head broad. Temple-spot naked. Horns divergent, conical, tapering. Fur brown yellow, grised. Hair pale brown, with a

subterminal yellow band. Cheeks and neck yellower. Base of ears, chest, belly, inside of the legs, and under side of the bushy tail, white. Front of legs black. Hair of back forms a round or elongate whorl.

Antilope arundinacea, *Shaw, Zool. ii. 347. t. 193, lower fig.; Bechst.*

Antilope Eleotragus, *Schreb. Saugth. 1225. t. 266.*

*A. gazella* Eleotragus, *Licht. Berl. Mag. vi. 173; Saugth. t. 9; Thunb. Mem. Petersb. iii. 314; Desm. Mam. 459; Fischer, Syn. 465. 633.*

*A. redunca* Eleotragus, *H. Smith, G. A. K. v. 832; Harris, W. A. Africa, t. 26.*

*A. Cervicapra* Eleotragus, *Blainv. B. S. Phil. 1816, 75.*

Eleotragus arundinacea, *Gray, List Osteol. Spec. B. M. 57.*

Antilope redunca, *H. Smith, G. A. K. v. 833.*

Eleotragus reduncus, *Gray, List Mam. B. M. 165.*

Eleotragus arundinaceus, *Gray, Ann. & Mag. N. H. 1846, 232; Knowsley Menag. 12; P. Zool. Soc. 1849, 127; Turner, P. Z. S. 1848.*

Antilope cinerea, *Afzelius, Nov. Act. Upsal. vii. 244, 1815.*

Ritbock, *Allam. Buff. H. N. Supp. v. 34. t. 13, 14; vi. t. 31, 32; Penn. Quad. i. 81.*

Redunca Eleotragus, *Rüppell, Verz. Senck. 182, 1845.*

Cinereous Antelope, *Penn. Syn. 86.*

♀ Antilope Lalandia, *Desmoul. Dict. Class. H. N. i. 445.*

Antilope Lalandiana, *Desmar. Mam. 462.*

Antilope Lalandii, *Fischer, Syn. 467.*

*Hab.* South Africa; Cape of Good Hope.

Female (hair in the front of the dorsal line twisted, face rather darker). S. Africa.

Female (hair of the dorsal line to the loins twisted). S. Africa.

Male and female, adult, stuffed. S. Africa.

Skull. S. Africa.

#### OSTEOLOGY.

\* Skull, female. South Africa.

Horns. South Africa.

Two skulls. S. Africa. Presented by W. Burchell, Esq., LL.D.

Horns. S. Africa. From Mr. Argent's Collection.

*Var. 1. Larger.*

Antilope Isabellina, *Afzel. Nov. Act. Upsal. vii. 244, 1815; Schreb. Saugth. 27; Licht. Saugth. t. 10.*

*A. redunca* Isabellina, *H. Smith, G. A. K. v. 832.*

*Cervicapra Isabellina*, *Sundevall*, *Pecora*, 70.

Antelope *Eleotragus*  $\gamma$ . *Isabellina*, *Fischer*, *Syn.* 435. 465.

*Var.* 2. With a large black rhombic spot on the back of the head behind the ears; female.—*Gray in Knowsley Menag.* 13.

Afzelius, Lichtenstein, H. Smith and Sundevall have described two species of this genus as coming from South Africa; the smaller they call *A. Eleotragus*, and the larger *A. Isabellina*. The latter author has given a comparative character between the two kinds, but he has only seen two specimens of the former (a male at Berlin and a female at Stockholm), and several specimens of the larger kind. I have examined with care a series consisting of four males and five females from different parts of South Africa, and can find no distinction between them, except a slight difference in the length of the fur and in its colour. Two specimens in the British Museum are larger than the rest, and have the tarsus one-fourth longer than the others; they have a shorter fur and are of a rather brighter colour, and the front of the leg is blacker; but the fur and colour probably depend on the season when they were killed. In these respects they agree with Sundevall's description of *A. Isabellina*, but they both have the temporal spot large and quite naked, while Prof. Sundevall described the spot on this species as pubescent. The female of the larger specimen has the black spot on the back of the head; some of the smaller ones have the temple-spot much smaller and less naked than the others. The two larger specimens have a single whorl of hair in the middle of the back; the others, with longer hair, show the whorls more distinctly, and have the hair from the central whorls to the shoulders forming a more or less diverging line. After examining these specimens and those in other collections, I conclude that they form only a single species. M. Sundevall, in a note just received, observes, "Mr. Wahlberg considers *A. Isabellina* and *A. Eleotragus* as very distinct, and our specimens seem to show a difference, though not very well expressed. Also I have committed a mistake, for the young female described in my *Synopsis* as  $\gamma$ . under *A. Isabellina* is really *A. Eleotragus*."

*Riet* or *Reed Bok* (*Eleotragus*) lives in reedy marshes, and in the grass of damp flats, in which it lies close until actually put up by the hunter or his dogs, and even then rarely running beyond musket range; hence it has been nearly exterminated near the colony.

The *Rooye Rhee Bok* inhabits the rugged slopes of high mountains, and the summits of those of less elevation, from the eastern district of the Cape colony to the Tropic of Capricorn, living in small herds.—*Andrew Smith*.

†† *Fur not grised. Hair grey, yellow tipped. Head broad. Muffle small, scarcely extending beyond the nostril behind. Tail only slightly bushy. N. and W. Africa.*

2. ELEOTRAGUS REDUNCUS. The WONTO or NAGOR.

Head broad. Horns conical, thick at the base, diverging. Fulvous brown, rather pale on the sides. Hair soft, grey, yellow tipped, all in regular order. Chin, throat, spot under the ear and over the eye, inside of limbs, under side of tail and lower side of the body, white. Front of legs sometimes blackish.

*Antilope redunca, Pallas, Spic. i. 8 (from Buffon, Nagor, xii. 13); Gmelin, S. N. i. 184.*

*A. vera redunca, Licht. Berl. Mag. vi. 170; Schreb. Saughth. 1200. t. 265.*

*A. Cervicapra redunca, Blainv. B. S. Phil. 1816, 75; Desm. Mam. 458; Fischer, Syn. 464. 631; Rüppell, Abyss. t. 7, good.*

*A. rufa, Afzelius, Act. Holm. 1815, 250, from Buffon.*

*Eleotragus reduncus, Gray, Proc. Zool. Soc. 1849, 127; Knowsley Menag. 13. t. 13.*

*Antilope reversa, Pallas, Misc. 5.*

*Eleotragus reduncus, Gray, Ann. & Mag. N. H. 1846, 232.*

*Eleotragus isabellinus, Gray, List Mam. B. M. 165.*

*Nagor, Buffon, H. N. xii. 326. t. 46? cop. E. M. t. 51. f. 2.*

*Redunca Nagor, Rüppell, Verz. Senck. Samml. 182, 1845.*

*Red Antelope, Penn. Syn. 30; Quad. i. 86; Shaw, Zool. ii. 360.*

*♀ Oureby, F. Cuv. Mam. Lithog. t.*

*Hab. W. Africa; Senegal; Gambia; called Wonto.*

*Var. 1. Larger, brighter coloured.*

*Antilope Bohor, Rüppell, Faun. Abyss. t. 7; Sundevall, Pecora.*

*Eleotragus reduncus var., Gray, Knowsley Menag. 13; Proc. Zool. Soc. 1849, 128.*

*Redunca Bohor, Rüppell, Verz. Senck. Samml. 182, 1845.*

*Hab. Abyssinia. Mus. Frankfort.*

*A male. W. Africa.*

*A male. W. Africa; Gambia.*

*A fawn. W. Africa; Gambia.*

Pallas and Afzelius's account of this species is derived from Buffon's description; both he and Adanson (*Hist. Nat. xii. 326*) say that it is "all pale red," and Buffon further observes that it has not the white on the belly of the Gazelles. This does not agree with our animal, which is white in several parts, but certainly not so white as the Gazelle, and has black on the legs; but as yet no other animal has been brought from West Africa which better agrees with their account or figure.

M. Sundevall considers specimens of the *Nagor* of Senegal and the *Bohor* of Abyssinia, in the Frankfort Museum, as distinct, the former having the hair of the back whorled, the fore-leg with a dark stripe, and the latter having the hair not whorled and the legs pale. Our specimens, from Gambia, have the hair not whorled, and more or less distinct streaks on the fore-legs; hence I am inclined to believe the *Nagor* and the *Bohor* to be alike. Sundevall's animal may be the *Kob*, but that has only one whorl on each end of the back, a nearly cervine muffle, and the end of the tail black.

When in Frankfort, I observed that the male *Antilope Bohor*, from Abyssinia, was rather larger than the male of "*A. redunca*," from Senegal, in the same collection, and much brighter, and the horns more slender; the female was darker and browner than the male; both sexes have more black on the carpus and tarsus than the specimen of *A. redunca* in the same Museum.

*Note.*—*Antilope fulvo-rufula*, *Afzel. N. Act. Upsal.* vii. 289; *A. Eleotragus* var. *fulvo-rufula*, *Fischer, Syn.* 465; *Ritbock* var., *Allam. Buffon H. N. Supp.* v. 34; *Braunroth Antelope*, *Schreb. Saugth.* 1226—is a very doubtful species, if not the same as the former.

#### RAPHICERUS.

*Raphicerus (acuticornis)*, *H. Smith, Griffith A. K.* v. 842, 1822; *Fischer, Syn.* ii. 624.

Is a very doubtful genus. Colonel Hamilton Smith formed it for two pairs of horns on part of the frontal bones in the College of Surgeons, which he called *Raphicerus acuticornis* and *R. subulata* (*Griffith, A. K.* t. 181. f. 2. 1). The figures are not sufficient to identify the species, and we now know that the horns of the same species differ greatly in individuals of the same species, and during the growth of the same specimen. *R. acuticornis* may be the horns of the *Duyker Boc*, *Ceph. Grimmia*?

1. *Antilope Cervicapra acuticornis*, *Blainv. Bull. Soc. Phil.* 1816, 75-78; *Journ. Phys.* 1818, t. . f. ; *Isis*, 1819, t. 12. f. 3.

*A. Raphicerus acuticornis*, *H. Smith, Griffith A. K.* iv. 198. t., v. 842; *Desm. Mam.* 460; *Fischer, Syn.* 466. 633.

*Cephalophus Grimmia*?

*Hab.* ——. *Skull Mus. Coll. Surg.*

2. *Antilope (Raphicerus) subulata*, *H. Smith, G. A. K.* iv. 198. t. 181. f. 1, 2, skull; v. 843; *Fischer, Syn.* 633.

*Hab.* ——. *Skull.*

Cervine Antelopes. *Body rather heavy. Tail elongated, with short hair at the base, and a tuft of longer hair at the tip. Horns elongate. Generally of a large size.*

Cervine Antelopes (*Antilopeæ Cervinæ*), *Gray, Ann. & Mag. N. H.* 1846, 232; *Knowsley Menag.* 14; *Proc. Zool. Soc.* 1849, 128.

*a. Neck not maned.*

19. ADENOTA.

Muffle cervine, cordate, moderate. Nose hairy between and over the nostrils. Horns sublyrate, ringed; when young recurved. Tear-bag none, or covered by a tuft of hair. Hair of back whorled, of dorsal line and back of head reversed. Tail elongate, hairy.

A. *Gazella*, sp., *Blainv. Bull. Soc. Phil.* 1816, 75.

Antilope (*Antilope*), sp., *H. Smith, G. A. K.* v. ; *Fischer, Syn.* 624.

Adenota, *Gray, Knowsley Menag.* 14, 1849; *Proc. Zool. Soc.* 1849, 129.

This genus is very like *Eleotragus*, but has a smaller, more cervine muzzle and lyrated horns; it differs from *Kobus* in the form of the tail, and wanting the mane, and from both in having a tuft of hair in the front of the orbit.

\* *Horns short. Tail short, hairy.*

1. ADENOTA KOB. The ÆQUITOON.

Pale brown. End of nose, inside of ears, chest, belly, inside of legs and thighs, tip of tail, end band above hoofs, white. Front of fore and hind legs, and end of ears and tail, black. Hair of dorsal line reversed, with a whorl on the shoulder and loins.

Antilope Kob, *Erxl. Syst.* 293, from *Buffon*; *Desm. Mamm.* 457; *Fischer, Syn.* 463; *Ogilby, P. Z. S.* 1836.

A. *Gazella* Kob, *Blainv. Bull. S. Phil.* 1816, 75.

A. Antilope adenota, *H. Smith, G. A. K.* iv. 224. t. 184, t. 183. f. 3, 4, horns? v. 828; *Fischer, Syn.* 626, not *Syn.*

Antilope defassa jun., *Rüppell.*

Kob, *Buffon, H. N.* xii. 210. 267. t. 32. f. 1, skull.

Gambian Antelope, *Penn. Syn.* 39; *Shaw, Zool.* ii. 338, from *Buffon.*

Kobus Adansonii, *A. Smith, S. African Quart. Journ.* , from *Buffon.*

Antelope annulipes, Gray, *Ann. & Mag. Nat. Hist.* 1843, x. 267.

Antelope Kob, Ogilby, *Proc. Zool. Soc.* 1836, 103.

Adenota Kob, Gray, *Knowsley Menag.* 14. t. 14, 15; *Proc. Zool. Soc.* 1849, 129.

Petit Vache brune, Adanson, MSS.

Kob, Mandingoes.

Æquitoon, Ioliffs.

Hab. West Africa; Gambia.

Var.? Hair longer; sides of face whitish. A female.

Kolus Sing-Sing, Gray, *List Mam. B. M.* 159 (not Bennett).

Adenota Kob, var., Gray, *Knowsley Menag.* 14; *Proc. Zool. Soc.* 1849, 129.

Antelope Koba, Ogilby, *Penny Ency.* fig.

Hab. E. Africa.

Female. E. Africa. Presented by Edward Cross, Esq. (Figured by Mr. Ogilby in the *Penny Ency.* as *A. Koba.*)

Half-grown male. Gambia. Presented by the Earl of Derby.

Female and young. Gambia. Presented by the Earl of Derby.

#### OSTEOLOGY.

Skull, male. Gambia. Presented by the Earl of Derby.

Skull, young. Gambia. Presented by the Earl of Derby.

Kob, *Daub. H. N.* xii. t. 32. f. 1.

Mr. Gray observes, "A fine pair has been at Knowsley some years. Thinking them new, I described them as *A. annulipes*. Mr. Ogilby has called it the *Nagor*, but it is scarcely the *Nagor* of Buffon. An adult male noticed by Mr. Ogilby as the *Kob* is now in the Museum of the Zoological Society; its horns, like the male at Knowsley, are much worn down. They whistle like a stag.

"Buffon (*H. N.* xii. 219. 267. t. 32. f. 1) figures a skull with horns, brought from Senegal by Adanson, under the name of *Kob*, which is also called the *Petit Vache brune*. Erxleben gave this figure the name of *A. Kob*, and Pennant called it the *Gambian Antelope*, *Syn.* i. 39. The figures somewhat resemble the head of a half-grown male of this species, but the horns are longer, and have more rings than the specimen in the British Museum; but I am inclined to agree with Mr. Ogilby in believing that it was intended for this species. In the *Jardin des Plantes* they called the Sing-Sing the *Kob* of Senegal; this may be a mistake for the *Koba*. I may remark that the horns of the *Koba* in the same plate of Buffon are represented with more rings than are mentioned in the description.

"Colonel Hamilton Smith describes and figures a male and female specimen which were alive in Exeter Change, and figures

the male and its skull and horns under the name of *A. adenota*, which well agrees with this species, and has the peculiar distribution of its hair; hence its name: but he says, it has 'a long open suborbital slit, and small black brushes on the knees;' but this I suspect must be a mistake, as he himself observes that no lacrymal cavity was found in the skull. He might have mistaken the tuft of hair for the gland at the distance at which he saw the specimens. He also (*G. A. K.* iv. 221) described a specimen which was in Exeter Change, which he regarded as the *Gambian Antelope* of Pennant, and calls *A. forfex*. His characters agree in most particulars with this species, but he says it had 'a long lacrymal sinus, and had small brushes on the knees.' If there was not some mistake in transcribing these descriptions, both these animals should be *Gazellas*, but I have never seen any which agreed with them.

"The young male in the British Museum shows the development of the horns of these animals. The upper rings of the growing horn fall off in large thick flakes as the horn increases in size beneath: this explains how the extent of the smooth tapering part of the horns increases in length as the horn grows, and how the number of rings are found to be nearly the same in the various ages, and different individuals of the various species. Mr. Whitfield informs me that the scrotum is rarely developed or dependent externally in different kinds of Antelopes before they have completed their first year."

The Antelope (*Antelope*) *forfex*, *H. Smith, Griffith A. K.* iv. 221, v. 827; *Fischer, Syn. Mam.* 627; which has been compared with this species, is perhaps a young *Gazella*.

\*\* *Horns elongate, recurved at the tip. Tail slender, tufted at the end.*

## 2. ADENOTA LECHÈE. The LECHÈE.

Pale brown. Orbit and lower part of body whitish. Front of legs dark brown. Horns elongated, strongly nodose in front. Withers with a small roundish whorl of hair.

Lechee, *Oswell, Journ. Roy. Geogr. Soc.* xx. 150, 1850.

Eleotragus, sp., *Turner, Proc. Zool. Soc.* 1848.

Kobus Lechèe, *Knowsley Menag.* 23, 1849.

Adenota Lechèe, *Gray, Proc. Zool. Soc.* 1849, 130.

*Hab.* South Africa; banks of river Zouga, lat. 22° S.

A male. S. Africa; banks of the river Zouga, lat. 21°. Presented by Capt. Frank Vardon, Madras Army.

This animal is nearly as large as the *Water Buck*. The horns



are very like those of that animal; the neck is covered with short adpressed hair, and has no appearance of a mane.

*b. Neck maned on the sides.*

20. KOBUS.

Horns elongate, sublyrate, bent back and then forwards at the tip. Muffle cervine. Tear-bag none. Inguinal pores none. Hair rough, elongate. Neck covered with longer diverging and drooping hair. Tail rather elongated, depressed, hairy on the sides and below. *Females* hornless. Teats 4.

Kobus, *H. Smith in Griffith A. K. v.*; *Gray, Ann. & Mag. N.*

*H. 1846, 232; Knowsley Menag. 15; Proc. Zool. Soc. 1849, 130.*

Kobus, *A. Smith, Ill. Zool. S. Africa; Gray.*

*Cervicapra, sp., Sundevall.*

*Eleotragus, sp., Turner, Proc. Zool. Soc. 1848.*

*Ægocerus, sp., Harris, Wild Animals Africa; Lesson.*

*Ægocerus, sp., et Neotragus, sp., Lesson, Nov. Tab. R. A. 178.*

1. KOBUS ELLIPSIPRYMNUS. PHOTOMOK OR WATER BUCK.

Brownish. Rump with a whitish elliptical ring near the base of the tail. Horns converging at the tip.

*Antelope ellipsiprymna, Ogilby, P. Z. S. 1833, 47; Harris, W. Anim. Africa, t. 14.*

*Kobus ellipsiprymnos, A. Smith, Illust. Zool. S. A. t. 28, 29.*

*Kobus ellipsiprymnus, Gray, List Mam. B. M. 159.*

*Kobus ellipsiprymnus, Gray, Ann. & Mag. N. H. 1846, 232; Knowsley Menag. 15; Proc. Zool. Soc. 1849, 130.*

*A. Ægocerus ellipsiprymnus, Lesson, Nov. Tab. R. A. 179.*

*Antelope Kemas?, H. Smith, Griffith A. K. iv. t. 181. f. 6, horns. Hab. South Africa.*

Male. S. Africa. From the South African Museum.

Female. S. Africa. Presented by the Earl of Derby.

OSTEOLOGY.

Skull and horns. S. Africa. From Mr. Argent's Collection.

Horns. S. Africa. From Mr. Warwick's Collection.

The *Water Buck* lives in small herds on the banks of rivers, and has not occurred south of 26°. It is very timid, rushing into and crossing rapid rivers when alarmed. The flesh is not esteemed as food, having a rank, pungent smell, but the taste is less so.

2. KOBUS SING-SING. The SING-SING.

Rump without any pale ring. Reddish or yellowish grey

brown, rather greyer on the shoulders. Nose, lips, hinder parts of the thighs, under the neck, from the ears to the gullet, a streak over each eye, and ring above the hoofs and false hoofs, white. Belly and legs blacker. End of tail and legs, from shoulder to hough, black. *Females* greyer. Belly and upper part of legs paler.

Antelope Sing-Sing, *Bennett, Rep. Zool. Soc.; Waterhouse, Cat. Zool. Soc. Mus.* 41. n. 378.

Antelope defassa, *Rüppell, Faun. Abyss.* t. 3.

Redunca defassa, *Rüppell, Verz. Senck. Samml.* 1822, 1845.

Antelope unctuosa, *Laurillard, D'Orb. Dict. Univ. H. N.* i. t. 622 ♂, good.

A. Neotragus unctuosa, *Lesson, Nov. Tab. R. A.* 178, 1842.

Antelope Koba, *Ogilby, Penny Ency.* ii. 79 f. ♀; *Proc. Zool. Soc.* 1836, not *Erxl.*

? Koba, *Buffon, H. N.* xii. 210. 267. t. 32. f. 2, horn? (more probably *Damalis pygarga?*).

? Senegal Antelope (part.), *Pennant, Syn.* 38, part. from *Buffon* only.

*Hab.* W. Africa.

Female, adult. Gambia. Presented by the Earl of Derby.

Male, young. Gambia. Presented by the Earl of Derby.

#### OSTEOLOGY.

Skeleton, male, young. Gambia. Presented by the Earl of Derby.

Skull, female, adult. Gambia. Presented by the Earl of Derby.

Skull, female, young. Gambia. Presented by the Earl of Derby.

This species varies much in the tint of the colouring, and in the length of the hair in the different seasons. In summer they are covered with very short, closely pressed fur, letting the skin be seen between the hairs. In the cold weather, and in England, the fur is longer and more abundant. The hair of the chin and neck is long and rigid in all seasons, and even in the young animals. The tail of the adult specimen is cylindrical and nearly bald, ending in a tuft of black hair; in the young specimens, especially in the winter fur, the base of the tail is fringed with hair on each side. The male is much brighter-coloured, and the chest and belly are nearly black, like the legs. The hinder parts of the rump of the young animals are greyish white; in the older specimens it becomes pure white and broader in extent.

This animal is called *Sing-Sing* by all the negroes. They do not think their flocks of cattle will be healthy or fruitful unless they have one of the Sing-Sings accompanying them, as some persons think a Goat necessary to be in a stable in England. The English on the Gambia call it the *Jackass Deer* from its ap-

pearance, and it is called *Koba* and *Kassimause* by the negroes at Macarthy's Island. Its flesh is very strong, unpleasant, and scarcely palatable.

As far as I could judge by my recollection and description, the adult specimen at Knowsley, the young male and adult female in the British Museum, the male and female at Frankfort, and the adult male in the Paris menageries, are the same species.

Buffon figured (*Hist. Nat.* 210, 267. xii. t. 32. f. 2) under the name of *Koba* a pair of horns which were in the library of St. Victor at Paris. He described them as larger and more curved above than those of the *Kob*, eighteen inches long, and five inches in circumference at the base, and he refers them to an animal which Adanson says is called *Koba* in Senegal, and the *Great Brown Cow* by the French colonists. Pallas refers these horns to *A. Pygargus*, and the figures and description agree in many particulars with the horns of that species; but they are rather longer, and have more rings. Pennant (*Syn. Mam.* 38) gave the name of *Senegal Antelope* to Buffon's short account and figure, but has added to it the description and the figure of the head of a skin which came from Amsterdam, and appears to be *A. Caama* of South Africa. Cuvier (*Dict. Sci. Nat.* ii. 235) only translated Pennant's name to *A. Senegalensis*. Erxleben (*Syn.* 293) and Zimmerman (*Zool.* 345) have translated Pennant's description of his skin from Amsterdam of *A. Caama*, and called it *A. Koba*, referring to Buffon's description and Daubenton's figure. Fischer, Hamilton Smith and M. Sundevall regard the *Koba* of Buffon the same as the *Korrigum* of Denham and Clapperton, but the horns of that species are considerably longer and much thicker at the base than those described by Daubenton, and the annulations of the horns are higher and more regular. It should be remarked that Buffon describes his horns as having eleven or twelve rings, but figures them as having seventeen or eighteen. Mr. Ogilby (*Penny Cyclopædia* and the *Proceedings of the Zoological Society*) considers Buffon's *Koba* to be the *Sing-Sing*; in the length of the horns, and in the number, disposition and form of the rings, his figure more nearly agrees with the horns of that species than of that of the *A. Pygarga*, to which Pallas first referred it; but the horns are represented much more lyrated than any horns of the *Sing-Sing* I have seen; indeed, not one of the specimens which have come under my observation have had any inclination to assume that form: but as this is the only Western-African species which in any way agrees with Buffon's figure, perhaps it is best to adopt Mr. Ogilby's suggestion. The name of *Koba* or *Kob* appears to be common to many species. Schinz erroneously considers *Damalis Senegalensis*, *Antilope adenota* and *A. forfex* (H. Smith) as synonyms of this species.

## c. Nape with an erect, recurved mane.

## 21. ÆGOCERUS.

Horns conical, elongate, recurved, rather compressed, ringed, arising immediately above the orbits. Nape with a linear, erect, reversed mane. Tear-bag covered with a tuft of hair. *Female* horned. Teats 2. *Skull* with "a small suborbital fissure, but no fossa; the masseteric ridge ascending high before the orbit; the auditory bulla moderate; the occipital portion of the skull much prolonged; the basioccipital portion widened, its two pairs of tubercles much developed, with a deep groove between them; the incisors gradually increasing in size to the median pair, which are not expanded at their summits; the molars with largely-developed supplemental lobes."

Ægocerus, sp., *H. Smith, Griffith A. K. v.* , 1827; *Fischer, Syn.* 623; *Turner, P. Z. S.* 1850, not *Pallas*.

Aigoceros, *Gray, Ann. & Mag. N. H.* 1846, 232; *Knowsley Menag.* 16; *Proc. Zool. Soc.* 1849, 132.

Egocerus, *Desmar. Mamm.* 475.

Oryx, sp., *Blainv. Bull. Sci. Phil.* 1816; *Ogilby, P. Z. S.* 1836, 139.

Hippotragus, *Sundevall, Pecora,* 72.

Bubalides, sp., *Licht. Berl. Mag.* vi. 159, 1814.

## 1. ÆGOCERUS LEUCOPHÆUS. THE ETAAC OR BLAUBOC.

Glaucous grey.

*Capra cærulea, Kolbe, Cap.* i. 141.

Antilope Leucophea, *Pallas, Misc.* 4; *Spic. Z.* i. 6, xii. 1; *Eral. Syst.* 271; *Gmelin, S. N.* i. 182; *Schreb. Saugth.* i. 183. t. 278.

A. Bubalides Leucophea, *Licht. Berl. Mag.* vi. 159; *Thunb. Act. Petersb.* iii. 314.

A. Oryx Leucophea, *Blainv. B. S. Phil.* 1816, 75; *Desm. Mam.* 475.

A. Ægocerus Leucophæa, *H. Smith, G. A. K.* v. 510; *Fischer, Syn.* 480, 646.

Ægocerus leucophæus, *Gray, List Mamm. B. M.* 158; *Cat. Osteol. Spec. B. M.* 58; *Turner, P. Z. S.* 1848.

Antilope Equina, *Geoff. Cat. Mus. Par. in Cuvier R. A.* i. 263; *Dict. Sci. Nat.* ii. 446. t. . f. .

B. Oryx Equina, *Blainv. B. S. Phil.* 1816, 75; *Desm. Mam.* 476; *Desmoulin, Dict. Class. H. N.* vi. 446. t., head; *Fischer, Syn.* 480, 645.

A. Ægocerus Equina, *H. Smith, G. A. K.* iv. 177. t., v. 811.

Aigocerus Equina, *Gray, Knowsley Menag.* 16.

Antilope aurita, *Burchell, MSS.*, fide *H. Smith*.

Antilope Osanne, *I. Geoff. Dict. Sci. Nat.* t.

Antilope glauca, *Forster, MSS.*

Oryx Leucophea, *Ogilby, P. Z. S.* 1836, 137.

Blau bock, *Licht. Reise*, ii. 121.

Blaue bocke, *Kolbe, Vorgeb.* 141.

Blue Antelope, *Penn. Syn.* 24. fig. head, 29; *Shaw, Zool.* ii. 355. t. 193.

Tzeiran, *Buff. H. N.* xiii. 271. t. 31. f. 6, horn; *Supp.* vi. 168. t. 20.

Blauw Bock, *Dutch at Cape.*

Antilope Truteri, *Fischer, Syn.* 478, 644.

Antilope (*Ægocerus*) barbata, *H. Smith, Griffith A. K.* v. 813.

Capra Æthiopica, *Schinz; Cuvier, Thier.* i. 403.

Bouquetin à crinière d'Afrique, *Cuvier, R. A.* i. 266.

Täkhitse, *Truter & Sömm. Geog. Ephem.* 1807, 274.

Takhaize, *Daniel, Afric. Scenery*, xxiv. t.

? Bastard Eland, *Licht. Reise*, ii. 462.

*Hab.* South Africa.

Male. Cape of Good Hope. From the South African Museum.

Male. Cape of Good Hope. Presented by the Earl of Derby.

#### OSTEOLOGY.

Horns. South Africa.

Skull and horns (of female?), horns slender.

Base of skull and horns. South Africa.

Horns (separate), short, thick. South Africa.

Horns, separate. S. Africa. Mr. Argent's Collection.

*Var.?* Docoli or White Mouth, *Mandingoes.*

Kob or Koba of the *Ioliffs.*

Vache brune, *French in Senegal.*

*Ægocerus equinus* var., *Gray, Knowsley Menag.* 16.

*Hab.* West Africa, *Whitfield.*

Two pair of horns. Gambia. Presented by the Earl of Derby.

The *Docoli* is pale reddish brown. Hair pale at base, with a minute black tip. Front of fore-legs and line on centre of tail blackish. Belly and inside of legs white. Face black brown. Crown and temple browner. Nose, lips, eyebrows, tuft of hair before eyes, white.

The head of the female covered with skin from Macarthy's Island, on the coast of Gambia, which Mr. Whitfield brought home, did not appear to differ from the specimen from the Cape in the British Museum. The species does not appear to be uncommon in the locality, for Mr. Whitfield brought over several pairs of horns. He informs me the flesh is very good venison. "It is called *Docoli* or *White Mouth* by the Mandin-

goes, *Kob* and *Koba* by the Ioliffs, and *Vache brune* by the French at Senegal." This is certainly not the *Kob* of Buffon (xii. t. 32. f. 1, 2). The negroes at the Gambia declare that this animal never bears more than one fawn; for after that period, the horns increase in length, and enter the loins and destroy the animals!

The small variety in the Paris, Upsal and Stockholm Museums, described as *A. Leucophæus* by Pallas and Sundevall, which was formerly found at the Cape, but is now said to be extinct, is the size of the Common Stag, *Cervus Elaphus*. M. Sundevall observes that it is as different from *A. Equina*, as the species of *Eleotragi* and *Tragelaphi* are from one another; and he observes, in a letter I have just received, "I must tell you, that after the inspection of a whole series of *A. Equina*, which Wahlberg brought home, I am convinced that the *A. leucophæa* of Pallas is a very distinct race. Our stuffed specimen, that must have been adult, has much smaller hoofs than the very young *A. Equina*, male as well as female, amongst Wahlberg's, and the tuft over the lachrymal sinus, as I have shortly expressed in the printed survey."

Mr. Gray observes, "When I examined the specimen at Paris, I regarded it as a young or rather dwarf specimen of *A. Equina*, and the absence of the nuchal crest led to this belief; and I am not satisfied that the number of rings on the horns is a sufficient proof of its being adult."

The *Blaubok* lives in herds of six to twelve, on the slopes and summits of small hills. They are most abundant north of the Kurrichane. They are exceedingly swift. Their flesh is used as food, but has a rank flavour, and is inferior to most of the South African Antelopes.—*A. Smith*.

## 2. ÆGOCERUS NIGER. The BLACK BOC.

Black. Face white, with a dark streak. Female and young brown.

Antelope niger, *Harris, Trans. Zool. Soc.* ii. 213. t. 29; *Gervais, Dict. Sci. Nat. Supp.* i. 267.

Antelope Harrisii, *Harris, Narrative*.

Ægocerus niger, *Gray, List Mamm. B. M.* 158.

Aigocerus niger (Sable Antelope), *Harris, Proc. Zool. Soc.* 1838, 2; *W. A. S. Africa*, t. 23, and head; *Gray, Ann. & Mag. Nat. H.* 1846, 232; *Knowsley Menag.* 17; *Proc. Zool. Soc.* 1849, 133; *Turner, P. Z. S.* 1849.

*Hab.* S. Africa.

A male. S. Africa. Major Harris's Collection. The specimen described by Capt. Harris.

Male. S. Africa. From M. Sundevall's Collection.

Female. S. Africa. From M. Sundevall's Collection.

## 22. ORYX.

Horns elongate, subulate, ringed at the base, straight or slightly arched, placed on a line with the face. Neck maned above and below. Tear-bag none. Nose subcervine. Muffle only margining the nostrils. Hoofs narrow in front; false hoofs large. *Female* ——. Teats 2 or 4. *Skull*: a suborbital fissure, but no fossa, the masseteric ridge not extending high; the auditory bulla large and compressed; the basioccipital bone with a raised eminence on each side; molars with supplemental lobes.

Oryx, *H. Smith, Griffith A. K.* v. 182; *Fischer, Syn.* 624; *Gray, Ann. & Mag. N. H.* 1846, 232; *Knowsley Menag.* 17; *Turner, P. Z. S.* 1848.

Bubalides, sp., *Licht. Berl. Mag.* vi. 155, 1816.

Oryx, sp., *Ogilby, P. Z. Soc.* 1836, 139.

A. Oryx, sp., *Blainv. Bull. Soc. Phil.* 1816.

A. Orix, *Lesson, Nov. Tab. R. A.* 180, 1842.

\* *Horns straight.*

## 1. ORYX GAZELLA. The KOOKAAM or GEMSBOK.

Horns straight, shelving backwards. Throat with a bunch of black hairs. Grey. Rump, face, spinal line, lateral streak, and a very broad band on the thigh and cubitus, black in summer. Black streak on the face conjoined under the chin. *Young* pale brown. Hair blackish at the base.

Capra Gazella, *Linn. S. N.* i. 96.

Antilope Oryx, *Pallas, Spic. Z.* i. 14, xii. 16. 65; *Gmelin, S. N.* i. 189.

A. Bubalides Oryx, *Licht. Berl. Mag.* vi. 155; *Reise*, ii. 38; *Schreb. Saugth.* 1177. t. 257. t. 257 A. f. 1; *Desm. Mamm.* 473.

A. Oryx oryx, *Blainv. B. S. Phil.* 1816, 75; *H. Smith, G. A. K.* v. 814; *Fischer, Syn.* 478, 644; *Burchell, Trav.* ii. 23.

Oryx Gazella, *Gray, List Mamm. B. M.* 156; *Cat. Osteol. Sp. B. M.* 58; *Ann. & Mag. N. H.* 1847, 232; *Knowsley Menag.* 17. t. 16. f. 2, young; *Proc. Zool. Soc.* 1849, 124; *Turner, P. Z. S.* 1848.

A. bezoartica, *Pallas, Misc.* 8.

A. Gazella, *Forster, MSS.* 56.

A. Recticornis, part., *Erxl. Syst.* 272; *Gatterer, Brev. Zool.* i. 78; *Pallas, Nov. Com. Petrop.* xiii. t. 10. f. 6.

Oryx or Gemsbok, *Harris, W. A. S. A.* t. 9, and head.

Oryx capensis, *Ogilby, P. Z. S.* 1836, 139; *Harris, W. An. Africa*, t. 9.

Oryx, *Cuvier, R. A. i. 262.*

Passan, *Buff. H. N. xii. 212. 272. t. 33. f. 3; Supp. v. 157. t. 17.*

Egyptian Antelope, *Penn. Syn. 25; Quad. i. 72; Shaw, Zool. ii. 312. t. 183.*

Gemsbock, *Dutch at the Cape.*

*Hab.* South Africa.

Female, adult. S. Africa.

Young. Presented by the Zoological Society.

Adult. S. Africa.

#### OSTEOLOGY.

Passan, *Daub. Buffon H. N. xii. t. 33.*

Single horn. South Africa.

Horns on base. South Africa.

Horns on head. South Africa.

Horns on head. South Africa.

Skull and horns. S. Africa. Mr. Stevens's Collection.

The *Gemsbock* eat the bulb of the water-root, a liliaceous plant.—*G. Cuming, Hunter's Life, i. 118.*

## 2. ORYX BEISA. The BEISA.

Horns straight. Throat without any bunch of hair. Pale grey. Face, belly and limbs white. Front of face, two streaks on cheek (not united under the throat), narrow line along throat, dorsal streak, streak on each side of abdomen, band round upper part, and streak in front of lower part, of fore-leg, and end of tail, black.

Antelope Beisa, *Rüppell, Atlas, t. 5.*

Oryx Beisa, *Sundevall; Gray, Ann. & Mag. N. H. 1847, 232;*

*Knowsley Menag. 17; Proc. Z. Soc. 1849, 134.*

*Hab.* Abyssinia. Mus. Frankfort.

#### OSTEOLOGY.

Antelope beisa, *Rüpp. Faun. Abyss. t. 5.*

The male and female in the Frankfort Museum are smaller than *A. Gazella* of the Cape, and both have the face-streaks separate; there is a black streak on the throat, as in *A. Gazella*, but no bunch, nor is there any in the Frankfort specimen of *A. Gazella*; the mane of the nape of the male is small, indistinct, continued behind in a broader dark streak to the middle of the loins. In the male the mane is blackish, in the female like the back. They have no dark mark on the rump, found in *A. Gazella*.



\*\* *Horns arched, recurved.*

3. ORYX LEUCORYX. The ORYX. A

Horns slender, slightly arched, white, reddish varied; in winter grey.

Antilope Leucoryx, *Pallas, Spic. i. 14; xii. 17. t. 3. f. 1. 61.*

A. Bubalides leucoryx, *Licht. Berl. Mag. vi. 156; Akad. Abh. 1824, 200. t. 1; Saugth. t. 1; Gmelin, S. N. i. 190; Schreber, Saugth. 1180. t. 256; Ehrenberg, Sym. Phys. t. 3.*

O. (Oryx) leucoryx, *Blainv. B. S. Phil. 1816, 75; Desm. Mamm. 474.*

A. Oryx leucoryx, *H. Smith, G. A. K. v. 815; Fischer, Syn. 479. 645.*

Antilope Algazella, *Rüppell; F. Cuvier, Mam. Lith. t.*

Antilope ensicornis, *Ehrenb.*

Oryx leucoryx, *Ogilby, P. Z. S. 1836, 139.*

Gazella reticornis, *Pallas, Nov. Com. Petrop. xiii. 468. t. 10. f. 5.*

Oryx, *Plin. Hist. Nat. ii. 40, viii. 55; Oppian. Cynege. iii. ver. 445; Gesner, Quad. i. 870; Descrip. Egypt, v. t. 18. f. 9, 10; Bull. Soc. Philom. 1816, 80; Oriental Misc. i. 127.*

Oryx Leucoryx, *Ogilby, P. Z. Soc. 1836, 139; Gray, List Mamm. B. M. 156; Cat. Osteol. Sp. B. M. 56; Ann. & Mag. N. H. 1846, 232; Knowsley Menag. 17. t. 16. f. 1. t. 17; Proc. Zool. Soc. 1849, 134; Turner, P. Z. S. 1848.*

Antilope Eleotragus, *Schreb. t. , not description.*

Milk-white Antelope, *Penn. Syn. 25; Quad. i. 76. t. 12.*

White Antelope, *Shaw, Zool. ii. 315. t. 184.*

El Walrugh el Bukras, *Persians.*

Abu-hard, Jachmur and Yazmur, *Arabs.*

Antilope Gazella, *Pallas, Spic. Z. xii. 17; Gmelin, S. N. i. 190; Schreb. Saugth. 1182. t. 257 A. f. 2, horn; Fischer, Syn. 479, 645.*

A. Oryx Gazella, *Blainv. Bull. S. Phil. 1816, 75.*

? Antilope bezoardica, *Erxl. Syst. 274?*

A. Bubalides bezoartica, *Licht. Berl. Mag. vi. 158.*

A. (Oryx) bezoartica, *H. Smith, G. A. K. v. 817.*

Capra Gazella, *Linn. S. N. i. 97?*

Gazella Indica, *Brisson, Reg. A. 67.*

Gazella, *Alpin, Ægypt. 232. t. 14. f. 1.*

Capra s. Hircus bezoartica, *Aldrov. Bisulc. 755 fig.*

Algazel, *Buffon, H. N. xii. 211. t. 33. f. 1, 2; Penn. Quad. i. 77;*

*Shaw, Zool. ii. 216; F. Cuvier, Mam. Lithog. t.*

*Hab. N. or W. Africa; Nubia; Senaar; Senegal.*

Female. Senaar.

Young. Senaar.

There is no appreciable difference between the Nubian and Senegal specimens.

#### OSTEOLOGY.

Algazel, *Daub. Buffon H. N.* xii. t. 32. f. 1, 2.

Skull and horns. North Africa.

Single horn of young. North Africa.

Single horn. North Africa.

Skull, young. Senaar.

#### Note.

1. Antilope Chora, *Rüppell, Zool. Atlas*, 22.

A. (Alcelaphus) Chora, *Fischer, Syn.* 475.

*Hab.* N. Africa. "Very doubtful;" *Rüppell*.

2. Antilope Dammah, *Rüppell, Zool. Atlas*, 22.

A. (Alcelaphus) Dammah, *Fischer, Syn.* 475.

*Hab.* N. Africa; desert of *Haraga*. "Very doubtful;" *Rüppell*.

*d. Throat slightly maned. Nape not maned.*

#### 23. ADDAX.

Horns slender, elongate, ringed, slightly spirally twisted, sloping nearly in a line with the face. Forehead with long hair. Neck with a slight gular mane, but no nuchal mane. Nose ovine, hairy. Hoofs semicircular, thin-edged. Tear-bag marked with a tuft of hair.

Addax, *Rafinesq. Anal. Nat.* 56, 1815?; *Gray, Ann. & Mag. N.*

*H.* 1846, 232; *Turner, Proc. Zool. Soc.* 1850.

Addax, sp., *Laurill.*

Oryx, sp., *H. Smith; Fischer, Syn.* 624.

Strepsiceros, sp., *Rüppell, Verz. Senck. Samml.* 182, 1845.

Gazella, sp., *H. Smith, G. A. K.*

Damalis Acronotus, sp., *H. Smith, G. A. K.*

A. Alcelaphus, sp., *Lesson, Nov. Tab. R. A.* 180.

1. ADDAX NASOMACULATUS. The ADDAX.

White; forehead and front of face darker; in winter grey.

Capra Cervicapra, *Linn. S. N.*, fide *Ogilby*.

Antilope Cervicapra, *Children, Denham's Travels*.

Antilope Addax, *Licht. Berl. Abhand.* 1824, 215. t. 2; *Saugth.*

t. 2, fem. and young; *Rüppell, Zool. Atl.* 19. t. 7; *F. Cuv.*

*Mam. Lithog.*

A. Oryx Addax, *H. Smith, G. A. K.* iv. 193. t.; v. 818.

A. Alcelaphus Addax, *Fischer, Syn.* 474, 641.

- Antilope gibbosa*, *Savi, Mem. Fig.; Féruss. Bull. Sci.* xx. 163.  
*Antilope Gazella mytilopes*, *H. Smith, G. A. K.* iv. 204. t. 182.  
 t. 183. f. 6, head; v. 821; *Fischer, Syn.* 636.  
*Antilope suturosa*, *Otto, Nova Act. Nat. Cur.* xii. 521. t. 48;  
*Griffith A. K.* t. 180.  
*A. (Alcelaphus) suturosa*, *Fischer, Syn.* 475, 641.  
*Damalis Acronotus suturosa*, *H. Smith, G. A. K.* iv. 350. t.;  
 v. 878.  
*Strepsiceros quem Addacem, &c., Plinii H. N.* xi. 37.  
*Strepsiceros addax*, *Rüppell, Verz. Senck.* 183.  
*Strepsiceros*, *Caji, Opusc.* 56; *Gesner, Quad.* 323.  
*Addax*, *F. Cuvier, Mam. Lith.* t., winter and summer; *Ehrenberg, Symb. Phys.* t. 4.

## JUNIOR.

- Ant. Gazella nasomaculata* (*A. Bleue*), *Blainv. Bull. Soc. Philom.*  
 1816, 75-78. t.; *Journ. Phys.* t. . f. ; *Isis*, 1819, t. 12.  
 f. 4-7; *Desm. Mam.* 456; *Fischer, Syn.* 462, 630.  
*A. Oryx addax*, *H. Smith, G. A. K.* iv. 204. t. 210. t. head;  
 v. 821, jun.  
*Addax nasomaculatus*, *Gray, Ann. & Mag. N. H.* 1846, 233;  
*Cat. Osteol. Spec. B. M.* 58; *Knowsley Menag.* 17; *Proc.*  
*Zool. Soc.* 1849; *Turner, P. Z. S.* 1848.  
*Oryx nasomaculata*, *Gray, List Mamm. B. M.* 156.  
*Antilope (Oryx) Tao*, *H. Smith, Griffith A. K.* v. 816.

A young female. N. Africa. From Mr. Bullock's Museum.  
 (The specimen described as *Antilope mytilopes*, *H. Smith*, t. 182,  
 and *A. nasomaculatus*, *Blainv.*)

Female and young. N. Africa. Presented by the Earl of Derby.

## OSTEOLOGY.

Horns (not united). North Africa. Presented by Captain Clapperton, R.N., and Major Denham.

\* Skeleton, imperfect. Presented by the Earl of Derby.

The Caprine Antelopes. *Body heavy. Legs and hoofs large. Tail very short, depressed, covered with hair to the base. Horns conical, rarely with a flat process in front.*

Caprine Antelopes (*Antilopæ Caprinæ*), *Gray, Ann. & Mag. N. H.* 1846, 232; *Knowsley Menag.* 18.

Goat-like Antelopes, *Gray, Proc. Zool. Soc.* 1849, 135.

Ovine and Caprine Antelopes, *Turner, P. Z. S.* 1850.

*a. Nose cervine, with a moderate muffle. Horns short, inclined, recurved.*

#### 24. CAPRICORNIS.

*Nemorhædus, H. Smith; Turner, P. Z. S. 1850.*

Horns short, strong, conical, inclined, recurved, arising behind the orbit. Nose cervine. Muffle moderate. Tear-bag and interdental pores large. Skull with "no suborbital fissure; the fossa rounded, shallow, very variable in size, sometimes very minute; the nasal bones rather short and broad, joining the maxillaries only by the interposition of some imperfect ossifications, or separated from them altogether; the masseteric ridge extending high before the orbit; the auditory bullæ very small; the basioccipital bone broad, with moderately developed eminences; the middle incisors slightly expanded at their summits; the molars without supplemental lobes."

*Hab. Asia.*

*Capricornis (Sumatranus), Ogilby, P. Z. S. 1836, 138; Gray, Cat. Osteol. Spec. B. M. 57; Ann. & Mag. N. H. 1846, 232; Knowsley Menag. 18; Proc. Zool. Soc. 1849, 135.*

*Nemorhedus, sp., H. Smith; Turner, P. Z. Soc. 1848.*

*Bubalides, sp., Licht. Berl. Mag. vi. 115.*

*Oryx, sp., Rüppell, Verz. i. 80.*

#### 1. CAPRICORNIS SUMATRENSIS. The CAMBING OUTAN.

Black. Chin and linear nuchal mane yellowish, especially near the withers. Inside of the ears white. Young like adult.

*Antelope Sumatrensis, Shaw, Zool. ii. 354; Desm. Mam. 465; Fischer, Syn. 470, 639; Raffles, Linn. Trans. xiii. 266; F. Cuv. Mam. Lith. t.*

*A. Nemorhedus Sumatrensis, H. Smith, G. A. K. iv. 277. t.; v. 861.*

*Antelope Bubalides interscapularis, Licht. Berl. Mag. vi. 115, 1814; Schreb. Saugth. 1158.*

*Capricornis Sumatrensis, Ogilby, P. Z. S. 1836, 139; Gray, Cat. Osteol. Sp. B. M. 57; Ann. & Mag. N. H. 1846, 232; Knowsley Menag. 18; Proc. Zool. Soc. 1849, 135.*

*Cambing Outan, Marsd. Sumatr. 93. t.*

*Nemorhedus Sumatrensis, Gray, List Mamm. B. M. 166; Turner, P. Z. S. 1848.*

*Sumatran Antelope, Penn. Quad. ii. 321.*

*Oryx Sumatrensis, Rüppell, Verz. Senck. i. 80.*

*Hab. Sumatra. Mus. Leyden.*

#### OSTEOLOGY.

?Frontal bone, with horns.

## 2. CAPRICORNIS BUBALINA. The THAAR OR THAR.

Grey brown, blackish washed. Crown and dorsal streak black. Thighs and outside of legs rufous. Nose, chin, inside of ears, lower part of mane, and legs below the hocks, whitish.

Capricornis Thar, *Ogilby, Proc. Zool. Soc.* 1836, 139.

Antilope Bubalina, *Hodgson, Proc. Zool. Soc.* 1832, ii. 12.

Kemas proclivis vel Thar, *Hodgson, J. A. S. B.* x. 913; *Calcutta Journ. N. H.* iv. 291.

Antilope Thar, *Hodgson, P. Z. S.* 1833, iii. 105; 1834, 99; *Journ. Asiat. Soc. Beng.* i. 346; iv. 1835, 889.

Oryx? Thar, *Rüppell, Verz. Senck.* 180.

Næmorhedus Thar, *Hodgson, Proc. Z. Soc.* 1834, 36; *Journ. A. S. B.* iv. 1835, 489.

Kemas Thar, *Hodgson.*

Næmorhedus proclivis, *Hodgson, Zool. Nepal ined. B. M.* t.

Capricornis bubalina, *Gray, List Mamm. B. M.* 166; *Cat. Osteol. Sp. B. M.* 57; *Cat. Hodgson Coll. B. M.* 27; *Ann. & Mag. N. H.* 1846, 232; *Knowsley Menag.* 18; *Proc. Zool. Soc.* 1849, 135.

Nemorhædus Bubalina, *Turner, P. Z. S.* 1848.

*Hab.* India; Nepal.

Male and female. Nepal.

Nepal. Presented by B. H. Hodgson, Esq.

## OSTEOLOGY.

Frontal bone and horns. Nepal.

Frontal bone and horns. Nepal.

Skull, male. Nepal. Presented by B. H. Hodgson, Esq.

Skull, female. Nepal. Presented by B. H. Hodgson, Esq.

Horns. Nepal. Mr. Argent's Collection.

## ICON.

Drawing of male.—*Hodgson, Icon. ined. B. M.* t. 160. f. 1. Presented by B. H. Hodgson, Esq.

Drawing of male and female.—*Hodgson, Icon. ined. B. M.* t. 161. Presented by B. H. Hodgson, Esq.

Drawing of head.—*Hodgson, Icon. ined. B. M.* t. 163, 164. Presented by B. H. Hodgson, Esq.

Drawing of skull.—*Hodgson, Icon. ined. B. M.* t. 187. f. 5, 6. Presented by B. H. Hodgson, Esq.

A head was sent to the United Service Museum by Lieut.-Colonel Childers, of the 11th Dragoons, in 1820, under the name of *Serow* or *Imo*. "It is not speedy, as might be inferred from its make. Its flesh is very coarse and bad. It is usually killed with poisoned arrows."—*Hodgson, l. c.* 14.

The *Thar* or *Suraw* inhabits the sub-Himalaya as far north as the forest extends. They are not gregarious, and they rush with fearful precipitancy down the steep mountain. They rut in February or March, gestate eight months, and have one young in September or October. They always have a gall-bladder.—*Hodgson, Journ. Asiat. Soc.* 1835, Sept.

The *Gorals* and *Thars* differ from the Antelope in being stout, clambering animals, but they are not, as some have supposed, allied to the *Bovines*.—*Hodgson*.

### 3. CAPRICORNIS? CRISPA. THE JAPANESE GOAT ANTELOPE.

Fur harsh, crisp, brown or brownish. Sides whitish. Cheeks white. Legs black brown.

Antilope crispa, *Temm. Fauna Japon. t.* , 1819.

Capricornis crispa, *Gray, Ann. & Mag. N. H.* 1846, 232; *Knowsley Menag.* 18; *Proc. Zool. Soc.* 1849, 136.

*Hab.* Japan. Mus. Leyden.

OSTEOLOGY. *Temm. Fauna Japon. t.*

*b.* Nose ovine, without any muffle. Horns short, conical, recurved, ringed.

### 25. NEMORHEDUS.

Horns short, conical, inclined, recurved, arising from behind the orbits. Nose ovine, hairy. Muffle none. Tear-bag none? Interdigital pores none. Fur short.

*Nemorhedus*, sp., *H. Smith, Griffith A. K.* v. 182; *Turner, P. Z. S.* 1850; *Gray, Ann. & Mag. N. H.* 1846, 232; *Knowsley Menag.* 18.

*Kemas* (*Goral*), *Ogilby, Proc. Zool. Soc.* 1836, 138 (not *Lesson*).

*Kemas*, sp., *Hodgson; Lesson, Nov. Tab. R. A.* 182, 1842.

*Damalis*, sp., *J. Brookes, Cat. Mus.* 64, 1828.

Mr. Turner observes, "Although the 'tear-bag' is said to be wanting in the *Goral*, there is certainly a slight depression upon the lacrymal bone, and the pore with which the gland opens may be so small in this species as to escape detection in dried specimens."—*Turner*.

### 1. NEMORHEDUS GORAL. THE GORAL.

Grey brown, minutely black-dotted. Streak on lower part of neck blackish. Cheeks, chin and upper part of throat white. Front of fore-legs blackish. Feet rufous. *Young* paler. Dorsal line rather darker.

Antilope Goral, *Hardw. Linn. Trans.* xiv. 518. t. 14; *Calcutta Journ. N. H.* i. t. 12. f. 2, 3; *Fischer, Syn.* 471, 639.

A. Nemorhedus Goral, *H. Smith, G. A. K.* v. 862; *Hodgson, J. Asiat. Soc. Beng.* i. 346; *Proc. Zool. Soc.* 1833, 105; 1834, 99.

Kemas Goral, *Ogilby, P. Z. Soc.* 1836, 138; *Hodgson, Calcutta Journ. N. H.* iv. 291.

Kemas ghoral, *Lesson, Nov. Tab. R. A.* 182.

Bouquetin de Nepaul, *F. Cuvier, Mam. Lith.* t., copy of *Hardwicke*.

Antilope Goural, *Hodgson, J. Asiat. Soc. Beng.* 1835, 418.

Nemorhedus Goral, *Gray, List Mamm. B. M.* 166; *Cat. Osteol. Sp. B. M.* 37; *Cat. Hodgson Coll. B. M.* 27; *Ann. & Mag. N. H.* 1846, 232; *Knowsley Menag.* 18; *Proc. Zool. Soc.* 1849.

Suja? et Goomast?, *Affghanistan, Journ. Asiat. Soc. Calcutta.*

A. Duvaucellii, *H. Smith, G. A. K.* iv. 277, v. 861.

A. Sumatrensis  $\beta$ . Duvaucelli, *Fischer, Syn.* 639.

Damalis Hardwickii, *J. Brookes, Cat. Mus.* 64, 1828.

Næmorhedus Goural, *Hodgson, J. Asiat. Soc. B.* iv. 1835, 488.

N. Goral vel Hardwickii, *Hodgson, Proc. Zool. Soc.* 1834, 88; *Journ. Asiat. Soc. B.* x. 913.

*Hab.* India; Sub-Himalayas.

Hunter's skin, without feet. Nepal. Presented by General Hardwicke.

Male and female. Nepal. Presented by B. H. Hodgson, Esq.

Male. Nepal. Presented by B. H. Hodgson, Esq.

Young, half-grown. Nepal.

#### OSTEOLOGY.

Horns (of female?), very thin, far apart at the base.

Two skulls of males. India. Presented by B. H. Hodgson, Esq.

Three imperfect skulls of females. Presented by B. H. Hodgson, Esq.

Skeleton, imperfect. Presented by B. H. Hodgson, Esq.

#### ICON.

Drawing of male, female and young.—*Hodgson, Icon. ined. B. M.* t. 157; male copied t. 160. f. 2. Presented by B. H. Hodgson, Esq.

Drawing of male and female.—*Hodgson, Icon. ined. B. M.* t. 158. Presented by B. H. Hodgson, Esq.

Drawing of head of male and female in detail.—*Hodgson, Icon. ined. B. M.* t. 159. Presented by B. H. Hodgson, Esq.

Drawing of skull.—*Hodgson, Icon. ined. B. M.* t. 187. f. 7, 8. Presented by B. H. Hodgson, Esq.

The *Goral* inhabits the Sub-Himalayas as far towards the snows as the great forest extends, to which exclusively they adhere, living in families of four or six. Breeding amid the crags and rocky recesses: rutting in January: gestate six months: the young born in May or June.

*Note.*—Antilope *Nemorhædus Duvacellii*, *H. Smith, G. A. K.* iv. 277, v. 861; Antilope *Sumatrensis*  $\beta$ ? *Duvacellii*, *Fischer, Syn.* 639—was described from a drawing sent to Paris by M. Duvacel without any notes, as were most of his drawings. It is only a badly coloured tracing of a drawing of the *Goral* in General Hardwicke's Collection. It has no connection with *C. Sumatrensis*, to which many naturalists have referred it.

In the *Bengal Journal*, two Antelopes, said to resemble the *Goral*, are mentioned as found in Afghanistan, one called *Suja* and the other *Goomast*.

## 26. MAZAMA.

Horns small, conical, round, nearly erect, slightly inclined backwards, and recurved at the tip, ringed at the base. Nose ovine, hairy. Muffle none. Tear-bag none. Fur double; outer very long, hairy, dependent; under fur short, woolly.

*Aplocerus*, *H. Smith, Griffith A. K.* v. 1827; *Turner, P. Z. S.* 1850. *Mazama*, *Rafinesque*; *Gray, Ann. & Mag. N. H.* 1846, 232;

*Knowsley Menag.* 19; not *H. Smith*, nor *Ogilby, P. Z. S.* 1836.

*Rupicapra*, sp., *Blainv. Bull. Soc. Phil.* 1816.

*Capra*, sp., *Desmoulin, Dict. Class. Hist. Nat.* 111; *Ogilby, Proc. Zool. Soc.* 1836, 137.

*Ovis*, sp., *Ord, Bull. Soc. Phil.* 1817.

*Antilocapra*, sp., *Lesson.*

### 1. MAZAMA AMERICANA. The MAZAME or SPRING-BUCK.

White. Horns and edge of the nostrils black.

*Capra? Columbiana*, *Desmoulin, Dict. Class. H. N.* iii. 580; *Fischer, Syn.* 487.

*Capra Americana*, *Rich. Faun. Bor. Amer.* 268. t. 22.

*Capra montana*, *Harlan, Fauna Amer.*

*Capra lanigera* aut *Americana*, *Ogilby, P. Z. S.* 1836, 137.

*Ovis montana*, *Ord, Bull. Soc. Philom.* 1817, 175; *Journ. de Phys.* lxxxv. 333.

*Antilocapra montana*, *Lesson, Nov. Tab. R. A.* 182.

A. (*Rupicapra*) *Americana*, *Blainv. Bull. Soc. Phil.* 1816, 73–80.

*Antilope lanata* (Mountain Sheep Antelope), *Bennett, Cat. Mam. Zool. Soc.* 1828, 14 fig., & 1829, 18 fig.



Antilope Americana, *Desm. Mam.* 478.

Antilope Aplocerus lanigera, *H. Smith, Linn. Trans.* xiii. 38. t. 4 ;  
*G. A. K.* v. 865.

Mazama dorsata, *Rafinesque.*

Mazama sericea, *Rafinesque.*

Antilope (Aplocerus) Mazama, *H. Smith, Linn. Trans.* xiii. 33 ;  
*Griffith, A. K.* v. 865 ; *Fischer, Syn.* 482. 647.

Aplocerus Americanus, *Turner, P. Z. S.* 1850.

Mazama seu Cervus cornutus, *Seba, Thes.* i. 69. t. 42. f. 3.

Rocky Mountain Sheep, *Jameson, Wern. Mem.* iii. 306.

*Hab.* N. America ; Rocky Mountains. *Mus. Linn. Soc. Mus.*  
*Zool. Soc.*

## 27. RUPICAPRA.

Horns elongate, slender, round, nearly erect from above the orbit, suddenly hooked backward at the tip. Nose ovine, hairy. Muffle none. Fur soft. Skull with "a minute suborbital fissure, but no fossa; the masseteric ridge ascending high before the orbit; the auditory bulla very small and compressed; the basi-occipital bone flat; the incisors equal-sized, vertical; the molars without supplemental lobes."—*Turner.*

Antilope, *Pallas, Misc.* 4 ; *Spic.* 7. 17.

A. Rupicapra, *Erxleb. S. A.* 268, 1777 ; *Desm.* 1804 ; *Illiger,*  
1811.

Capra, sp., *Linn. ed.* 6. 14. 17.

Rupicapra, *Fleming, Phil. Zool.* 198, 1822 ; *H. Smith, Griffith*  
*A. K.* v. 182 ; *Gray, Ann. & Mag. N. H.* 1846, 232.

Rupicapradæ, *J. Brookes, Cat. Mus.* 64, 1828.

### 1. RUPICAPRA TRAGUS. The CHAMOISE or GEMS.

Yellowish brown, with a dark dorsal streak ; in winter blackish.

Antilope Rupicapra, *Pallas, Misc.* 4 ; *Spic.* i. 7, xii. 12 ; *Gmelin,*  
*S. N.* i. 182.

A. (vera) rupicapra, *Licht. Berl. Mag.* vi. 171 ; *Schreb. Saugth.*  
1200. t. 279 ; *Burchell, Trav.* ii. 23 ; *Desm. Mam.* 477.

A. Rupicapra Rupicapra, *Blainv. B. S. Phil.* 1816, 76.

A. (Rupicapra) Rupicapra, *H. Smith, G. A. K.* iv. 281 t., v. 863 ;  
*Cuvier, Dict. Sci. Nat.* ii. 249 t. ; *Règ. Anim.* i. 264 ; *Fischer,*  
*Syn.* 481, 646.

A. Rupicapra Persica, *H. Smith, G. A. K.* v. 863.

Rupicapra pyrenaica, *H. Smith, G. A. K.* v. 863 ; *Bonap. Fauna*  
*Ital.*

Rupicapra Europæa, *Rüppell, Verz. Senck. Samml.* 183, 1845.

Rupicapra (hæmulicornis), *J. Brookes, Cat. Mus.* 64, 1828.

Capra Rupicapra, *Linn. S. N.* i. 95.

Rupicapra tragus, *Gray, List Mamm. B. M.* 167; *Cat. Osteol. B. M.* 57; *Ann. & Mag. N. H.* 1846, 232; *Proc. Zool. Soc.* 1849.

Rupicapra, *Plinii H. N.* viii. 53; *Gesner, Quad.* 321. fig. 329.

Rupicapra Tragus, *Turner, P. Z. S.* 1850.

Rupicapra capella, *Bonap. Fauna Ital.*

Tragus seu Dorcas, *Klein, Quad.* 17.

Ἄξ ἄγριος, *Oppian, Cyneq.* ii. 338.

Chamois, *Perrault, Anim.* i. 201. t. 29; *Buffon, H. N.* xii. 136, 177. t. 16; *Penn. Syn.* 17; *Quad.* i. 72; *Shaw, Zool.* ii. 361. t. 187.

Gems, *Riding Jagdb. Th.* t. 12; *Kleine, Th.* t. 72; *Wilde, Thier.* t. 25; *Meyer, Thier.* i. t. 66; *Lewenwald. Damegraph.* 1793; *Allisser. v. Salins Marschlin Hopfn. Mag.* i. 111.

*Hab.* South Europe; Switzerland; Pyrenees and Pindarus.

In summer coat, yellowish. Alps, Europe.

In change (nose imperfect). Alps, Europe.

In winter coat, blackish. Alps, Europe.

Two skins. Mount Pindus. Presented by S. S. Saunders, Esq. Young. Alps, Europe.

#### OSTEOLOGY.

Chamoise, *Daub. in Buffon Hist. Nat.* xii. t. 17.

Two skulls and horns. Alps. Presented by General Hardwicke.

Three horns. Alps.

Skull, with horns. Alps. Presented by John Gould, Esq.

Skeleton. Alps. From Mr. Brandt's Collection.

Three pair of horns of different ages. Alps. Presented by J. E. Gray, Esq.

I have compared specimens from Switzerland, the Pyrenees and Mont Pilatus, and cannot discover any difference between them.

#### 28. ANTILOCAPRA.

Horns erect, arising directly over the orbit, compressed at the base, with a flattened process in front, and ending in a conical recurved tip. Nose ovine, hairy. Muffle none. Tear-bag none. Fur very close. Hair stiff, coarse, flattened, wavy. Tail very short. False hoofs none. Inguinal pores none. Legs rather slenderer than the other Goat Antelopes. *Female* horned. Skull with "no suborbital depression; the fissure lengthened; the nasal bones widest posteriorly; the orbit a little elevated above the line of the face, and the masseteric ridge not rising before

it; the auditory bulla moderate, compressed and angular; the incisors equal-sized, sloping; the molars without supplemental lobes."—Turner.

Dicranocerus, *H. Smith, Griffith A. K.* v. 182; *Fischer, Syn.* 623; *Turner, P. Z. S.* 1850.

Antilocapra (Americana), *Gray, Ann. & Mag. N. H.* 1846, 232; *Knowsley Menag.* 19.

Antilopecapra, *J. Brookes, Cat. Mus.* 64, 1828.

Oreammos, *Rafin.*

Mazama, *Ogilby, P. Z. S.* 1836, 137.

Cervus, sp., *Blainville.*

Antilopecapradæ or falcicornis, *J. Brookes, Cat. Mus.* 64, 1828.

### 1. ANTILOCAPRA AMERICANA. THE CABRIT OR PRONG-HORN.

Pale brown; beneath and caudal disk white.

Antilope (Dicranocerus) furcifer, *H. Smith, Linn. Trans.* xiii. 28. t. 2; *Griffith, A. K.* iv. 170 t., 352 t., v. 808.

*A. rupicapra furcifer, Desm. Mamm.* 479; *Fischer, Syn.* 481. 646.

Antilocapra furcifer, *Richardson, Fauna Bor. Amer.* t. 21; *Gray, List Mamm. B. M.* 170.

Cervus bifurcatus, *Rafinesque.*

Antilope (Dicranocerus) palmata, *H. Smith, Linn. Trans.* xiii. 31. t. 3, horns; *Griffith A. K.* iv. 352 t., v. 809; *Desm. Mamm.* 479; *Fischer, Syn.* 481. 647; *Coulter, P. Z. S.* 1826, 121.

Antilopecapra furcifer, *J. Brookes, Cat. Mus.* 64, 1828.

Antilocapra americana, *Gray, Cat. Osteol. B. M.* 58; *Ann. & Mag. N. H.* 1846, 232; *Knowsley Menag.* 19; *Proc. Zool. Soc.* 1849, 137.

Cervus hamatus, *Blainv. Bull. Soc. Philom.* 1816, 73.

Antilocapra Americana, *Ord & Blainv. Bull. Soc. Philom.* 1818, 146; *Journ. Phys.* lxxxviii. 314.

Mazama furcifer, *Ogilby, P. Z. S.* 1836, 137.

Prong-horned Antelope, *Lewis & Clark, Travels.*

Springbock, *Anglo-Americans.*

Cabrit, *Canadian Hunters.*

Kistu-he, *N. Amer. Indians.*

*Hab.* N. America; in the plains in summer, and in the mountains in winter. Called the Goat. Mexico (*Coulter*).

A fawn, just born. N. America. Presented by Sir John Richardson, M.D.

Male and female. Rocky Mountains. Presented by the Hudson's Bay Company.

Male, adult, and young. Rocky Mountains.

## ANAT.

Antilope furcifer, *H. Smith, Linn. Trans.* xiii. t. 2.

*A. palmata*, *H. Smith, Linn. Trans.* xiii. t. 3, horns only.

\*Skull, female. Hudson's Bay. Presented by the Hudson's Bay Company.

Dr. Coulter brought a head from Mexico which had the face dark brown, and the horns large, wide-spreading and much hooked at the tip, like the *A. palmata* of H. Smith (*Proc. Zool. Soc.* 1826, 121). This is probably only a larger variety in the summer fur.

## II. The Antelopes of the Desert. *Nose broad; nostrils subvalvular, and lined with bristles within.*

Antelopes of the Desert (*Antilopæ desertorum*), *Gray, Ann. & Mag. N. H.* 1846, 232; *Knowsley Menag.* 19; *Proc. Zool. Soc.* 1849, 138.

*Damalidæ*, *J. Brookes, Cat. Mus.* 64, 1828.

I am not aware that this division was ever hinted at until published in the *Ann. & Mag. N. H.* for 1846. Mr. Turner observes: "I will now proceed to the 'Antelopes of the Desert' of Mr. Gray, a very well-marked natural group, consisting of two distinct genera, which have usually been widely separated. Mr. Blyth, however, in the translation of Cuvier's *Animal Kingdom*, hints at their affinity, and Mr. Waterhouse informs me that he has long held that opinion. Indeed he has placed the species next each other in the Catalogue of the Society's Museum." And again: "*A. pygargus* has usually been placed among the Gazelles, where it was left by Mr. Blyth, who speaks of it as leading 'through *A. Caama*, *Bubalis*, &c. to the Gnus.' Mr. Waterhouse, who in the Catalogue of the Society's Museum uses the generic name *Antilope* throughout, places this species between the Gazelles and the others of its natural genus, to which the Gnu follows. Mr. Gray, who had left it with the Gazelles in the *List of Mammalia* in the British Museum, has removed it to its true place in his paper in the *Annals and Magazine of Natural History*."

The reference to the Catalogue of the Zoological Society's Museum does not justify these observations. In the edition for 1839 I find the species placed in the middle of the genus *Antilope*, intermixed with other subgenera, thus: 272. *A. Dama*; 273. *A. Pygarga*; 274. *A. Caama*; 275. *A. Gnu*; 276. *A. Oryx*; 277. *A. leucoryx*; 278. *A. Sing-Sing* (p. 41).

The only observation I can find in Blyth respecting the subject is as follows: "*A. pygargus*, which seems to tend through

*A. Caama* and *bubalus*, &c., to the Gnus" (p. 139); but in neither is there the slightest idea of the character which unites them together as a natural group.

A. Equine Antelopes. *Muzzle broad, depressed, spongy, bristly; nostrils large, covered with a large spongy valve.*

Equine Antelopes (Antilopeæ Equinæ), *Gray, Ann. & Mag. N. H.* 1846, 232; *Knowsley Menag.* 19; *Proc. Zool. Soc.* 1849, 138.

Catoblepas et Damalis (et acronotus), *H. Smith, G. A. K. Damalidæ, part., J. Brookes, Cat. Mus.* 64.

## 29. CONNOCHETES.

Horns bent down and outwards on the sides, broad at the base, bent up at the tip. Nose broad, dilated, spongy, bristly. Nostrils large, operculated. Tail elongate, bushy, hairy from the base. Hoofs compressed in front. Intermaxillaries elongate, extending to the nasal, the front half expanded and flattened, the front part much dilated, flattened and sharp edged. Nose-hole rather large. Frontal bone much produced behind. *Females*: teats 4. Skull: "the general characters the same as in *Alcelaphus*; but the depression before the orbit less marked; the occiput rather less prolonged, and its base, together with the auditory bulla, broader."—*Turner.*

*Hab.* S. Africa.

Connochetes, *Licht. Berl. Mag.* vi., 1814.

Catoblepas, *Plin.*; *Gray, Lond. Med. Repos.* 1821; *H. Smith, Griffith A. K.* v. 182; *Fischer, Syn.* ii. 625; *Gray, Ann. & Mag. N. H.* 1847, 232; *Knowsley Menag.*; *Turner, P. Z. S.* 1850; *Cuvier, Règ. Anim.* ed. 2. i. 274.

Catablepas, *J. Brookes, Cat. Mus.* 64.

Boselaphus (type), *Blainv. Bull. Soc. Philom.* 1816, 75.

Bos, sp., *Forster MSS.*

This genus, which has all the characters of the true Antelopes, in the slenderness and proportion of the leg-bones, has been placed with the Oxen by Forster, and in the Bovine section by Professor Sundevall. Lichtenstein's name has undoubted priority of publication.

*a. Nose with a crest of reversed hair. Chest maned. Catoblepas.*

1. CONNOCHETES GNU. The GNU or KOKOON.

Nose with a tuft of reversed hair. Chest maned. Brown or

blackish; the lower part of the mane and tail often paler or whitish. Young pale fulvous. Nasal, gular and nuchal mane black.

Antelope Gnu, *Zimmerm. Geog. Gesch.* ii. 102; *Gmelin, S. N.* i. 189.

A. *Connochætes* Gnu, *Licht. Berl. Mag.* vi. 165; *Reise*, ii. 66; *Schreb. Saugth.* 1165. t. 280; *Cuvier, Dict. S. N.* ii. 247. t.; *Harris, W. A. Anim.* t. 1, and heads; *Burchell, Trav.* i. 24, 431, 432, ii. 278; *Desm. Mam.* 472.

A. *Boselaphus* Gnu, *Blainv. B. S. Phil.* 1816, 75; *Fischer, Syn.* 475, 642.

A. *Capensis*, *Gatterer, Brev. Zool.* i. 80.

*Catablepas operculatus*, *J. Brookes, Cat. Mus.* 64.

*Bos Connochætes*, *Forster, MSS.* 66.

*Bos Gnu*, *Thunb. Mem. Acad. Petersb.* iii. 339.

*Catablepas Gnu*, *H. Smith, G. A. K.* v. 885; *Gray, List Mamm. B. M.* 154; *Ann. & Mag. N. H.* 1846, 232.

*Catablepas Gnu*, *Gray, List Osteol. Sp. B. M.* 59.

Antelope *Boselaphus Taurina*, *Fischer, Syn.* 476.

Antelope *Taurina*, *Burch. Travels*, ii. 277. fig.

Antelope Gnu var. *grisea*, *Goldfuss.*

*Catablepas Taurina*, *H. Smith, G. A. K.* v. 886; *Gray, List Mamm. B. M.* 154, not *A. Smith.*

*Katablepas*, *Ælian, Anim.* vii. 5; *Plinii H. N.* viii. 39.

T'Gnu, *Hottentots, Sparm. K. Svensk. V. Hand.* 1779, 76. t. 3.

Gnu or Niou, *Buffon, H. N. Supp.* vi. 39. t. 8; *Cuvier, R. A.* i. 264; *Daniel, African Scenery*, t. 3.

*Boschbuffell*, *Vosmaer, Besch.* 1784, t.

Gnu Antelope, *Penn. Quad.* i. 70; *Shaw, Zool.* i. 319; *Barrow, Travels; Burchell, Trav.*

?*Koknu*, *Truter & Sömm. Geog. Ephem.* 1807, 273.

*Wildebeest*, *Dutch at Cape.*

*Kokong*, *Licht. Berl. Mag.* vi. 166.

*Hab. S. Africa.*

S. Africa. Presented by William Burchell, Esq., LL.D.

Half-grown. S. Africa.

Young? S. Africa.

Young. South Africa. From the South African Museum.

Young. S. Africa.

Three parts grown. S. Africa.

#### OSTEOLOGY.

Frontal bone and horns. South Africa. Presented by J. Hillier, Esq.

Skull, with horns. S. Africa. From Mr. Argent's Collection.

Skeleton. S. Africa. From the Zoological Society's Collection.  
Skull, with horns. S. Africa.

ICON.

Drawing of the head in colours by Rymsdyk, 1775.—*Bank. Icon. ined. B. M. t. 56.*

*Bos Connochætus*.—*G. Forster, Icon. ined. B. M. i. t. 19, 19a, 20-28.*

The *Antilope Gnu* of Burchell, H. Smith, F. Cuvier and Harris, "and the *Kokong* of Lichtenstein," has a white tail and mane. Burchell and H. Smith have given the name of *A. taurina* to the specimens which have those parts black. When young they are fulvous, and become black as they reach maturity. The specimen of the *Kokoon* in the Museum of the London Missionary Society (Blomfield Street, Moorfields), named by Colonel H. Smith *Kokoon* (*Cat. taurina*, Griff. A. K. iv. 369, v. 368), is an adult common *Gnu*, *C. Gnu* (*Var. mane and tail white; Kokong, Licht. Trav. Cape*), and his description of Dr. Burchell's specimen in the British Museum agrees with the *Gnu* in having the ridge of hair on the face. Indeed, Dr. Burchell (*Travels*, ii. 278) appears to consider the difference between the *Gnu* and *A. taurina*, that the former has a white and the latter a black tail. Dr. Andrew Smith (*Illust. Zool. S. A.*) has regarded the *C. taurina* and *C. Gorgon* as the same species. Dr. Sundevall, in his *Synopsis*, has, by mistake, given the name of *C. taurina* to the *Gorgon*, or *Brindled Gnu* (*C. Gorgon*, H. Smith).

*b. Nose with smooth hair. Chest not maned. 30. Gorgon.*

2. CONNOCHETES GORGON. THE GORGON OR BRINDLED GNU.

Face convex, smooth, covered with hair lying towards the nose. Chest not maned. Black, varied and striped with grey. *Half-grown* blackish; crown grey. *Young* dark grey; face, gular and nuchal mane, and end of tail, black.

*Catoblepas Gorgon*, *H. Smith, G. A. K. iv. 371. t., v. 887; Gray, List Mamm. B. M. 154; Ann. & Mag. N. H. 1846, 232; Knowsley Menag. 20. t.; Proc. Zool. Soc. 1849, 139.*

*Antilope Boselaphi Gorgon, Fischer, Syn. 643.*

*Antilope Gnu var., Smut, Mam. Cap. 94.*

*Gorgon fasciatus, Gray, Knowsley Menag. t.*

*Bastard Wilde Beest, Dutch at Cape.*

*Kokoon or Brindled Gnoo, Harris, S. Africa, t. 4, and head.*

*Catoblepas Taurina, Sundevall, Pecora; not Burchell nor H. Smith.*

*Hab. S. Africa; Cape of Good Hope.*

Male. From the South African Museum.

Female. S. Africa.

Young. S. Africa. From the S. African Museum.

Half-grown. S. Africa.

#### OSTEOLOGY.

Skull. S. Africa.

The *Brindled Gnu* lives to the north of the Black River or Nugariëp, and though herds feed almost on its banks, yet it is not known to cross it. It occurs in large herds on the plains north of the Orange River, and when alarmed each herd decamps in long regular files. The flesh is much sought after. The Bechuana use the skins for their cloaks or mantles.—*And. Smith.*

*Note.*—*Catoblepas Brooksii*, *H. Smith*, *G. A. K.* iv. 366. t. f. , from horn only, is a very doubtful species.

E. The Bovine Antelopes. *Nose moderately broad, with a moderate or small, bald, moist muffle. Horn high on the frontal ridge. Grinders rather small, without supplemental lobes. The central cutting-teeth enlarged at the end. Skull with "a large deep impression before the orbit, but no fissure; the masseteric ridge not extending high; the bones of the face lengthened downwards and forwards, and the occiput also prolonged and drawn downwards; the process upon the alisphenoid bone, which terminates the pterygoid ridge, prolonged and ensiform; the auditory bulla large and prominent, enclosing a large rounded space for the attachment of the stylohyal bone; the basioccipital tubercles high and sharp, the groove between them narrow in front, wide behind, with a flat space between the occipital condyles; the median incisors expanded at their summits; the molars rather small, narrow, and without supplemental lobes, showing, when somewhat worn, a pit in the middle."*—Turner.

Bovine Antelopes, *Gray*, *Ann. & Mag. N. H.* 1846; *Knowsley Menag.* 20.

*Damalis* § *acronotus*, *H. Smith*, *G. A. K.* iv.-v.

*Alcelaphus*, *Turner*, *P. Z. S.* 1850.

*Damalidæ*, part., *J. Brookes*, *Cat. Mus.* 64.

### 31. ALCELAPHUS.

Horns lyrate, on the upper edge of the rather produced frontal bones, thick at the base, end suddenly curved at a nearly right angle. Nose moderately broad, cervine. Muffle moderate, bald, moist. Crumen covered with a tuft of hair. *Female*: teats 2.

*Alcelaphus* (*Bubalis*), *Blainv. Bull. Soc. Philom.* 1816.

*Acronotus*, sp., *H. Smith*, *Griffith A. K.* v. 182; *Fischer*, *Syn.* 625.



- Boselaphus, *Gray, Ann. & Mag. N. H.* 1846, 233; *Knowsley Menag.* 20; *Proc. Zool. Soc.* 1849, 139; not *Blainv.*  
 Alcelaphus, sp., *Turner, Proc. Zool. Soc.* 1850.  
 Buselaphus, *Raii Syn.*  
 Gazella, sp., *Blainv. Bull. Soc. Phil.* 1816.  
 ? Bubalis, *Rafinesque, Anal. Nat.* 56, 1815.

### 1. ALCELAPHUS BUBALIS. The BUBALE.

Pale brown, nearly uniform. Rump like back.

- Antelope Bubalis (part.), *Pallas, Misc.* 7; *Spic. Z.* xii. 16 (not syn.).  
 Antelope Bubalis, *Goldfuss, Schreb. Saugth.* 1171. t. 277; *Gmelin, S. N.* i. 288; *Cuvier, Dict. Sci. Nat.* ii. 241. t.; *F. Cuvier, Mam. Lithog.* t.; *Fisch. Syn.* 473, 641.  
 A. Bubalides Bubalis, *Licht. Berl. Mag.* vi. 163; *Burchell, Trav.* i. 420, ii. 82, 334.  
 A. (Alcelaphus) Bubalis, *Blainv. Bull. S. Phil.* 1816, 75; *Desm. Mam.* 466.  
 Damalis (acronotus) bubalis, *H. Smith, G. A. K.* v. 876.  
 Damalis bubalis, *J. Brookes, Cat. Mus.* 64.  
 Bubalis Mauritanicus, *Ogilby, P. Z. S.* 1836, 139.  
 Alcelaphus Bubalis, *Turner, P. Z. Soc.* 1848.  
 Βούβαλος, *Oppian, Cyneget.* ii. 300.  
 Bubalus, *Plin. H. Nat.* viii. 15; *Aldrov. Bisulc.* 363. fig. 365.  
 Buselaphus Cagii, *Raii Quad.* 81.  
 Boselaphus Bubalis, *Gray, Ann. & Mag. N. H.* 1846, 233; *Knowsley Menag.* 20. t. 20. f. 1; *Proc. Zool. Soc.* 1849, 139.  
 Acronotus Bubalis, *Gray, List Mamm. B. M.* 157; *Cat. Osteol. B. M.* 58.  
 Vache de Barbarie, *Perrault, Mém. Hist. Anim.* i. 203, ii. 24. t. 39.  
 Bekker el Wash, Yachmur bilicus, *Shaw, Reise,* 151, 358.  
 Bubale, *Buffon, H. N.* xii. 294. t. 37. t. 38. f. 1; *Supp.* vi. 133. t. 14; *Cuvier, Menag. Mus.* t.  
 Bubale des Anciens, *Cuvier, Règ. Anim.* i. 161.  
 Cervine Antelope, *Penn. Syn.* 37; *Quad.* i. 102; *Shaw, Zool.* ii. 331. t. 184.  
*Hab.* North Africa.

Young. N. Africa. From Mr. Fraser's Collection.

#### OSTEOLOGY.

- Bubale, *Daub. in Buffon H. N.* xii. t. 37, t. 38. f. 1, 2.  
 Skull and horns, one deformed. North Africa?  
 Frontal bone and horns. North Africa?

*Var.* 1.? Tunisianus. Uniform pale brown; with a dark brown streak down the outer side of the front of the fore-legs, like

the streak on the leg of the *Lecama* or *Harte beest* from South Africa, which is not generally found in this species.

*Boselaphus Bubalis* var. 1, *Gray, Knowsley Menag.; Proc. Zool. Soc.* 1849, 139.

*Hab.* Tunis.

A skin, without a head or hoofs, brought by Mr. Fraser from Tunis; it probably indicates a third species, or perhaps the dark streak is only marked in the very adult or fully-coloured specimens.

## 2. ALCELAPHUS CAAMA. THE LECAMA OR HARTE BEEST.

Grey brown. Dorsal line, streak on face, outer side of limbs, black. Large triangular spot on the haunches whitish.

Antilope Caama, *Cuvier, Dict. Sci. Nat.* ii. 242, 1816.

A. (Alcelaphus) Caama, *Blainv. B. S. Phil.* 1816, 75; *Desm. Mam.* 467; *Fischer, Syn.* 474, 841; *Burchell, Trav.* i. 420.

Antilope (Bubalides) Bubalis (part.), *Licht. Berl. Mag.* vi. 163; *Schreb.* t. 277.

Acronotus Caama, *Gray, List Mamm. B. M.* 157; *Cat. Osteol. B. M.* 58.

*Boselaphus Caama*, *Gray, Ann. & Mag. N. H.* 1847, 233; *Knowsley Menag.* 20. t. 20. f. 2, young; *P. Z. Soc.* 1849, 140.

Antilope Dorcas, *Thunb. Mém. Acad. Pétersb.* iii. 316.

*Damalis acronotus Caama*, *H. Smith, G. A. K.* iv. 338. t. 197, v. 877.

Bubale, *Buffon, H. N.* xii. t. 38. f. 2; *Suppl.* vi. 135. t. 15.

Harte beesten eller Dorcas, *Sparrm. in K. V. Handl.* 1779, 151. t. 5, bad.

Caama, *Cuvier, Menag. Mus.* t.; *Règ. Anim.* i. 261; *Pallas, Misc.* 7; *Spicil.* i. 12 (not syn.).

Antilope Senegalensis, *Cuvier, Dict. Sci. Nat.*, from *Pennant*.

Antilope Koba, *Erxleb. Syn.* 293, from *Pennant*.

? Senegal Antelope, *Penn. Quad.* i. 103. t. 50. vig. 40, head.

Harte beest, *Dutch at Cape*.

Kaama, *Hottentots*.

Licama, *Caffers*.

*Hab.* South Africa.

(Not in good state.) S. Africa. Part of Sir Hans Sloane's Museum.

Male. S. Africa. From the South African Museum.

Adult male. S. Africa. Presented by the Earl of Derby.

Male, young. S. Africa.

## OSTEOLOGY.

Frontal bone and horns. South Africa.

Frontal bone and horns, wide apart, very rough. South Africa.

Horns, with the head stuffed. South Africa.

Frontal bone, with the skin on. South Africa.

Horns. South Africa.

Two pair of horns. S. Africa. Mr. Warwick's Collection.

Skull, without lower jaw. S. Africa.

Nine pair of horns. S. Africa. From Mr. Argent's Collection.

#### ICON.

Antelope Bubalis, *Hardw. Icon. ined. B. M. n. 10,975. t. 164, 165.*

Pennant figures the head and horns of this species under the name of *Senegal Antelope*, and erroneously refers to Buffon's figures of the horns of the *Koba* as representing the species, which has occasioned some confusion; for the *A. Senegalensis* (Cuvier, *Dict. Sci. Nat.* ii. 235) is an abbreviation, and *A. Koba* (Erxleben, *Syn.* 293) is a translation, of Pennant's description of this species. Pennant's specimen is said to come from Senegal, but he describes the nuchal line and the knees as black, and the figure indicates the dark colour on the face of the Cape species.

The *Hartebeest* has an extensive range; it is found everywhere in the flat and wooded districts between the Cape of Good Hope and the Tropic of Capricorn. Its movements are ungraceful, and give a notion of great exertion, but when urged by danger it shows no want of either agility or endurance. The flesh is esteemed.—*A. Smith.*

### 32. DAMALIS, *H. Smith.*

Horns lyrate, diverging, subcylindrical. Nose moderately broad, cervine, with a small bald moist muffle between and below the nostrils; an exposed tear-bag. *Female*: two teats.

*Damalis acronotus*, sp. (*Koba*), *H. Smith, Griffith A. K. v. 182.*

*Damalis*, *Gray, Ann. & Mag. N. H. 1846, 233; Knowsley Menag.; Proc. Zool. Soc. 1849, 140.*

*Alcelaphus*, sp., *Fischer, Syn.; Turner, P. Z. S. 1850.*

*Bubalis*, sp., *Sundevall, Pecora, 83.*

*Gazella*, sp. (*pygarga*), *Blainv. B. S. Phil. 1816; H. Smith, G. A. K. v.; Fischer, Syn. 642.*

\* *Horns recurved above, diverging from the base. Face dark in front.*

#### 1. DAMALIS LUNATUS. The SASSAYBY.

Rufous, glaucous. Outer side of limbs dark.

*Antelope lunata*, *Burchell, Trav. ii. 334, 591. fig.*

*Damalis acronotus lunatus*, *H. Smith, G. A. K. iv. 352. t. 198, v. 880.*

*A. Alcelaphus lunata*, *Fischer, Syn. 642.*

*Acronotus lunatus*, Gray, *List Mamm. B. M.* 157.

*Alcelaphus lunatus*, Turner, *P. Z. S.* 1848.

*Damalis lunatus*, A. Smith, *Zool. S. Africa*, t. 31; Harris, *W. A. Africa*, t. 8, and head; Gray, *Cat. Osteol. B. M.* 57; *Ann. & Mag. N. H.* 1846, 233; *Knowsley Menag.* 21; *Proc. Zool. Soc.* 1849, 140.

*Bubalis lunata*, Sundevall, *Pecora*, 83.

*Sassaybi*, Daniel, *Afric. Scenery*, t.

*Hab.* S. Africa.

Female. S. Africa. From the South African Museum.

Male. S. Africa.

OSTEOLOGY. *Burchell, Trav.* ii. 591. fig.

Horns and skin of legs. South Africa. Presented by W. Burchell, Esq., LL.D.

Horns. S. Africa. From Mr. Warwick's Collection.

Two pair of horns. S. Africa. From Mr. Argent's Collection.

The *Bastard Hartebeest* inhabits between Latikoo and the Tropic of Capricorn. It lives in herds of six or ten in the flat or wooded districts. Its flesh is esteemed. Where not disturbed it is confiding and curious, but where hunted it becomes vigilant and shy.—A. Smith.

\*\* *Horns regularly lyrate, nearly parallel at the base, and then diverging and approaching at the tips. Face black marked. Crumen moderate.*

## 2. DAMALIS SENEGALENSIS. The KORRIGUM.

Reddish grey. Front of face from nose to occiput, a small spot behind the eyes, a small streak above the angle of the mouth, and streak on outside of the limbs above the knees, and tuft of the tail, black. *Very young*: uniform pale brown, without any dark marks.

*Damalis (Acronotus) Senegalensis*, H. Smith, *Griffith A. K.* v. t. 199. f. 3.

*Antilope Koba*, *Children in Denham & Clapperton's Travels* (not *Erxleben*).

*Bubalis Koba*, Sundevall, *Pecora*, 83.

*Bubalis lunata*, Sundevall, *Act. Stockh.* 1842, 201, 243 (not *Burchell*).

*Damalis Senegalensis*, Gray, *Cat. Osteol. B. M.* 59; *Ann. & Mag. N. H.* 1846, 233; *Knowsley Menag.* 21. t. 21.

*Damalis Korrigum*, Gray, *List Mamm. B. M.* 158.

*Antilope Corrigum*, *Ogilby, P. Z. Soc.* 1836, 103; Gray, *List Mamm. B. M.* 158.

*A. Gazella Korrigum*, Lesson, *Nov. Tab. R. A.* 176.

*Alcelaphus Senegalensis*, Turner, *P. Z. S.* 1848.

*Hab.* West Africa; Gambia River, Macarthy's Island, Mr. Whitfield, called *Yonga*; Senegal; Senaar. Mus. Stockholm.

Young. Gambia. Presented by the Earl of Derby.

#### OSTEOLOGY.

Skull and horns. Bornou. Presented by Capt. Clapperton, R.N., and Major Denham. (The specimen figured by Col. H. Smith, and noticed by Mr. Children.)

Skull and horns. Bornou. Presented by Capt. Clapperton, R.N., and Major Denham.

Skull. Gambia. Presented by the Earl of Derby.

Mr. Whitfield informs me this species is found on Macarthy's Island, on the Gambia; they afford very good venison; are called *Yonga* or *Yongah* by the Ioliffs, and *Tan Rong* by the Mandingoes.

In *Denham & Clapperton's Travels* I regarded this species as the *Koba* of Buffon, and Colonel H. Smith and Dr. Sundevall are of the same opinion: but on comparing the six pairs of horns of this species which I have been able to examine with Buffon's figure and descriptions, I find them all longer and much thicker at the base than Buffon describes them; the thinner specimen (a female?) being 7 and the others 9 or  $9\frac{1}{2}$  inches in circumference, while that Buffon described is only 5 inches. The rings are also more elevated, and reach nearer to the top than in Buffon's figure. All the characters lead me to believe that the horns figured as those of the *Koba* by Buffon belong to *Damalis Pygarga*.

Colonel Hamilton Smith, in *Griffith's Animal Kingdom*, described and figured the heads brought home by Messrs. Denham and Clapperton as *Antilope Senegalensis*, but they are different from the one so called by Cuvier. Mr. Ogilby, in the *Proceedings of the Zoological Society* (1826, 103), proposed to call these heads *A. Corrigum*.

Under the name of *Antilope Koba*, Schinz (*Syn. Mam.* ii. 407) combines the *A. defassa*, Rüppell, *Damalis Senegalensis* and *Antilope adenota*, H. Smith, the *Koba* of Buffon, and the *Antilope Koba* or *Caama* of Erxleben.

\*\*\* *Horns regularly lyrate, parallel at the base. Face of the adult white.*

### 3. DAMALIS PYGARGA. The NUNNI or BONTE BOC.

Purple red. Outer side of the limbs darker. Streak between horns, face, and rump above the tail, white. Temple and upper

part of throat whitish. Legs whitish, upper and lower part brown varied. Female: throat and under part of body white. Fawn pale yellowish brown.

Antelope Pygarga, *Pallas, Spic.* xii. 15 (not syn.); *Sparrm. Act. Holm.* 1780, 3.

A. (vera) Pygarga, *Licht. Berl. Mag.* vi. 166; *Gmelin, S. N.* i. 189; *Schreb. Saughth.* 1187. t. 273; *Desm. Mam.* 456; *Burchell, Trav.* i. 290, ii. 335.

A. Gazella Pygarga, *Blainv. B. S. Phil.* 1816, 75; *H. Smith, G. A. K.* v. 820; *Fischer, Syn.* 461, 629.

Alcelaphus Pygargus, *Turner, P. Z. S.* 1848.

Antelope pygargus, *Pallas, Spic.* i. 10.

Gazella Pygarga, *Gray, List Mamm. B. M.* 161.

Bubalis pygarga, *Sundevall, Pecora.*

Antelope Dorcas, *Pallas, Misc.* 6—not *Spicil.* i. 11.

Damalis Pygarga, *Gray, Ann. & Mag. N. H.* 1846, 233; *Knowsley Menag.* t.; *Proc. Zool. Soc.* 1849, 140.

White-faced Antelope, *Penn. Quad.* i. 93; *Shaw, Zool.* ii. 352.

Bonte bok or Pied Antelope, *Harris, W. A. Africa,* t. 17.

Antelope personata (Bonte bok), *H. Woods, Zool. Journ.* iv. 524, v. 2. t. 1, young, not arrived at its colour; *P. Z. S.* iii. 45.

Nunni, *Bushmen.*

*Hab.* S. Africa.

Horns, long and slender. Mr. Warwick's Collection.

#### OSTEOLOGY.

Koba, *Daub. in Buffon H. N.* xii. 268. t. 32. f. 2.

Skull. Cape of Good Hope. Presented by William Burchell, Esq., LL.D.

Horns. South Africa.

Two pair of horns. S. Africa. From Mr. Warwick's Collection.

Horns, ten pair. S. Africa.

Male.

Male and female. S. Africa. From Dr. Smut's Collection.

Young, pale brown. S. Africa.

Very young. S. Africa. From M. Verreaux's Collection.

Male, adult. S. Africa.

These animals are often brought to the Cape market for food.

The names *Kob* and *Koba* appear to be generic among the negroes for Antelopes. Colonel Smith, Professor Sundevall, and Mr. Children in *Clapperton's Travels*, have considered the horns figured by Buffon under the name of *Koba* the same as *Damalis Senegalensis* of this work. The comparison of six pairs of horns of that animal with Buffon's figure and description has led me to doubt the identification. I believe they are the horns of the

*Bontebok*, *D. Pygarga*; if so, all the following names which have been given to these horns must be regarded as synonyma of this species.

*A. Tragelaphus Senegalensis*, *Lesson*, *Nov. Tab. Règ. Anim.* 181.  
*Koba*, *Buffon*, *H. N.* xii. 210, 268. t. 32. f. 2, horns cop. *E. M.*  
t. 53. f. 2.

*Damalis Koba*, *J. Brookes*, *Cat. Mus.* 64, 1828.

?*Senegal Antelope*, *Penn. Syn.* 38. fig. at 39, head.

*Antilope Koba*, *Erxl. Syst.* 293; *Desm. Dict. H. N.* ii. 187;  
*Fischer*, *Syn.* 463, 630.

*A. Gazella Koba*, *Blainv. B. S. Phil.* 1816, 75.

*Antilope Senegalensis*, *Cuvier*, *Dict. Sc. Nat.* ii. 235; *Desm.*  
*Mamm.* 457.

#### 4. DAMALIS ALBIFRONS. The BLESS BOCK.

Purple red. Front of face, spot between horns and on temples, the hinder edge of rump below the tail, white. Throat, stripe down the outer side of front of legs, brown.

*Antilope albifrons* (Bless bok), *Burchell*, *Travels*, ii. 335?; *Harris*, *W. Anim. Africa*, t. 21, and head.

*Bubalis albifrons*, *Sundevall*, *Pecora*.

*Damalis albifrons*, *Gray*, *Ann. & Mag. N. H.* 1846, 233;  
*Knowsley Menag.* 22. t. 22. f. 1, half-grown; *Proc. Zool. Soc.*  
1849, 141.

*A. Pygarga*, part., *Mus. Paris*, 1851.

*Hab.* South Africa.

Dr. Burchell, when speaking of the *Bless bock*, proposed to call it *A. albifrons*, as the name *Pygarga* has been used for both the *Springer* and the *Bless bock*; but it is not certain if he intended by *Bless bock* this or the preceding species. Captain Harris's figure shows the distinction of the two species, and he applies Dr. Burchell's name to the one now described.

A half-grown specimen of this species, when compared with a similar-sized specimen of *D. Pygarga* in the same paddock, was darker, with a pale spot between the horns, separated by a dark spot from the white on the face; the temple was white, with a white spot; the legs had a brown stripe down the outer side of the front; and the throat and rump brown, the latter without any white spot.

\*\*\*\* *Horns unknown.*

#### 5. DAMALIS? ZEBRA. The DORIA.

Bright golden brown, with several black cross-bands narrowing at the end. Outside of the fore- and hind-legs dark brown.

Antilope, n. s., *Bennett, P. Z. S.* 1832, 122.

Antilope Zebra, *Gray, Ann. Nat. Hist.* i. 27, 1836.

Cephalophorus? Zebra, *Gray, List Mamm. B. M.* 154.

Antilope (Calliope) Doria, *Ogilby, Proc. Zool. Soc.* 1836, 121  
(not described); *Frazer, Zool. Typica*, t.

Antilope Zebrata, *Robert, Echo du Monde Savante*, 1836; *Gervais, Dict. Sci. Nat. Supp.* i. 267.

Damalis? Zebra, *Gray, Knowsley Menag.*

Canis or Viverra Zebra, *Whitfield, MSS.*

Antilope fasciata?, *Geof. D. H. N.* 53.

*Hab.* W. Africa.

Flat skin, without limbs. Sierra Leone.

Skins without head and feet are alone known; they are brought down the river by the negroes. In the *Catalogue of the Mammalia in the British Museum*, I have referred this species with doubt to *Cephalophus*. Mr. Ogilby (*P. Z. S.* 1836, 121) thinks it should be referred with the Harness Antelopes to *Calliope*. I am inclined, on account of the dark mark on the outside of the limb, to think it belongs to the genus *Damalis*. Mr. Whitfield believes it, on the authority of the negroes, to be a species of *Viverra*.

The specific name is supposed to be commemorative of Mrs.

Fig. 1.



Skull of *Eleotragus arundinacea*. Female (see p. 92).



Ogilby, whose christian name was *Doria*. In the *Catalogue of the Zoological Society* it is called the *Gilded Antelope*.

Section 2. Horns subangular, with a more or less distinct ridge on the front angle. Knee in the middle of the fore-leg—*Angulicornia*.

Gray, *Ann. & Mag. N. H.* 1846, 230.

Subtribe III. *Strepsicereæ*. Horns subspiral, inclined backwards. Crumen distinct. Nostrils near together in front. Fore-head flat. Males not bearded on the chin. Fur white banded or spotted. *Females*: teats 4, in a small udder.

Antelope, § *C. spiralibus*, Gray in *J. Brookes, Cat. Mus.* 63, 1828.

*Strepsicereæ*, Gray, *Ann. & Mag. N. H.* 1846, 230.

*Strepsiceres*, Gray, *Proc. Zool. Soc.* 1850, 142; *Knowsley Menag.* Antelope, part. (*Tragelaphus*), et *Damalis*, part. (*Boselaphus*, *Strepsiceros* et *Portax*), *H. Smith, G. A. K.* v. ; *Fischer, Syn.* 625.

*Strepsiceros* et *Portax*, *Turner, P. Z. S.* 1850.

*Bovina*, part. (*Portax*), *Sylvicaprina*, part., *Sundevall, Pecora.*

*Addax*, sp., *Laurill.*

*Bos*, part., *Wagler, N. Syst. Amph.* 32, 1830.

The animals of this subtribe are peculiar as being the only hollow-horned or Bovine Ruminants which are marked with white stripes and spots. The bands are not very distinct in the *Impofo* or *Eland*, but they are easily to be observed in the female, if it is looked at obliquely, which was brought home by Burke, and presented to the British Museum by the Earl of Derby. The skull, which somewhat resembles that of the Deer, has a rather small nasal opening, no suborbital pit, and only a small suborbital fissure.

Colonel H. Smith forms of the larger species three of his four subgenera of *Damalis*: he places the smaller kinds as a subgenus (*Tragelaphus*) of Antelopes.

Prof. Sundevall placed the genera here brought together in two different families; the genus *Portax* with the *Bovina*, and the others in the *Sylvicaprina*, or True Antelopes.

M. Agassiz has observed, that the horns of the *Strepsiceres* and the *Sheep* are twisted in the contrary direction. Mr. Ogilby has justly observed, that the right horn of the *Strepsiceres* is twisted in the same direction as the left horn of the *Sheep*, and *vice versá*. —*Trans. Zool. Soc.* iii. 57.

## SYNOPSIS OF GENERA OF STREPSICERÆ.

I. *Limbs equal.* African.

a. *Nose cervine.* Neck with a linear mane.

1. STREPSICEROS. Horns spiral, keeled.

2. OREAS. Horns straight, with a spiral keel.

b. *Nose bovine.* Neck with long hair.

3. TRAGELAPHUS. Horns subtriangular, subspiral.

II. *Hinder legs short.* Asiatic.

4. PORTAX. Horns short, subtriangular.

I. The *African Genera* have large heavy horns, only the rudiment of a tear-bag, and the limbs nearly equal. Skull with "the nasal opening of moderate size; a suborbital fissure, but no fossa; the masseteric ridge not extending high; the auditory bulla swollen and prominent; the basioccipital bone with its anterior and posterior pairs of tubercles well developed, the former separated by a deep median groove; the median incisors expanded at their summits; the molars without supplemental lobes."—*Turner*.

*Strepsiceros*, *Turner*, *P. Z. S.* 1850.

*Antilope et Damalis*, part., *H. Smith*.

*Sylvicaprina*, *Sundevall*, *Pecora*.

A. *Horns with strong spiral keel.* *Nose cervine, hairy.* *Muffle small, between and under the front half of the nostrils.* *Body large, heavy.* *Neck maned.*

## I. STREPSICEROS.

Horns large, heavy, spirally twisted, with a distinct, raised, rounded keel in front. Tear-bag a naked space. Throat with a central linear mane. *Females* hornless. (Skull, t. 17. f. 1, 2.)

*Damalis Strepsiceros*, *H. Smith*, *Griffith A. K.* v. , 182.

*Strepsiceros*, *Gray*, *Ann. & Mag. N. H.* 1846, 230; *Turner*, *P. Z. S.* 1850.

*Boselaphus*, *Lesson*, *Nov. Tab. R. A.* 181, 1842.

*Risia*, *Laurill*.

*Calliope*, sp., *Ogilby*.

1. STREPSICEROS KUDU. The EECHLONGOLE or KOODOO.  
(t. 17. f. 1, 2.)

Grey, white striped. Face with a broad, white, lunate cross band.

Antelope *Strepsiceros*, *Pallas*, *Misc.* 9; *Spic.* i. 17, xii. 19; *Gmelin*, *S. N.* i. 192.

A. (gazella) *Strepsiceros*, *Licht. Berl. Mag.* vi. 172; *Schreb. Saugh.* 1207. t. 267; *Burchell, Trav.* i. 267, 337, 374.

A. (*Tragelaphus*) *Strepsiceros*, *Blainv. B. S. Phil.* 1816, 75; *Desm. Mam.* 468; *Fischer, Syn.* 472. 640.

*Strepsiceros Capensis* or *Koodoo*, *Harris, W. A. Africa*, t. 20, and head.

*Damalis* (*Strepsiceros*) *Strepsiceros*, *H. Smith, G. A. K.* v. 883.

*Calliope Strepsiceros*, *Ogilby, P. Z. Soc.* 1836, 138.

*Strepsiceros excelsus*, *Sundevall, Pecora*, 71.

*Bos Strepsiceros*, *Aldrov. Bisulc.* 368. fig. 369.

*Capra Strepsiceros*, *Jonst. Quad.* t. 24; *Houtt. Nat. Hist.* iii. t. 26. f. 1, 2.

*Strepsiceros kudu*, *Gray, Cat. Mam. B. M.* 155; *Osteol. B. M.* 59.

*Condoma*, *Buffon, H. N.* xii. 301. t. 39. f. 1, 2 (cop. *E. M.* t. 56. f. 2); *Supp.* vi. t. 13.

*Coudu*, *Vosmaer, Besch.* 1783, t.

*Cerf du Cap de Bonne Esperance*, *Colini, Comm. Palat.* i. 487. t.

*Afrikanischer Kutu*, *Knorr, Dêlic.* iii. t. K.

*Striped Antelope*, *Penn. Syn.* 31. *Quad.* i. 88. t. 14; *Shaw, Zool.* ii. 324. t. 185; *Daniel, African Scenery*, t.

*Knorr, Dêlices*, i. t. K. 1. f. 1, t. K. v. f. 1, t. K. xi.

*Hab.* S. Africa.

In bad state. Cape of Good Hope. Presented by the College of Surgeons.

Male. Cape of Good Hope. Presented by the Earl of Derby.

OSTEOLOGY. *Skull*, t. 17. f. 1, 2.

*Condoma*, *Daub. Buffon H. N.* xii. t. 39.

Three pairs of horns. South Africa.

Frontal bone and horns. South Africa.

Two skulls and horns. South Africa.

Head and horns. Presented by the Trustees of the Hunterian Collection.

Single horn of young. South Africa.

\*Skull, female. S. Africa.

Skull, with horns, male. S. Africa. From Mr. Argent's Collection.

Var. 1. Smaller.—*Mus. Ind. Comp. Lond. and Frankfort.*  
 Antilope Tendall, *Rüppell, Abyssinia*, 22; *Fischer, Syn.* 475.  
 Antilope chora, *Rüppell, Abyssinia*, 22; *Fischer, Syn.* 475.  
*Hab.* Abyssinia.

Var. 2. Lighter and smaller.

Koodoo var., *Oswell, Journ. Geog. Soc.* xx. 150.

*Hab.* Banks of River Zonga, *Oswell.*

## 2. OREAS.

Horns large, straight or slightly curved, bent back from the forehead, with a strong, raised, rounded spiral keel. Throat with a longitudinal crested dewlap. Crumen ——. *Females* with smaller, thinner, less keeled horns. *Skull*, t. 17. f. 3, 4.

Oreas (Oreades), *Desm. Mam.* 471; *Lesson, N. Tab. R. A.* 181.

Boselaphus, sp., *Blainv. Bull. S. Phil.* 1816; *Desm. Mam.*

Damalis (Boselaphus), *H. Smith, Griffith A. K.* v. 182.

Boselaphus, *Gray, Ann. & Mag. N. H.* 1846, 230.

Damalis, *Sundevall, Pecora*, 74.

Bubalides, sp., *Licht. Berl. Mag.* vi. 153, 1814.

### 1. OREAS CANNA. The IMPOOFO OF ELAND.

Pale brown, nearly uniform, with very indistinct, narrow white stripes on the sides.

Antilope oreas, *Pallas, Spic. Z.* xii. 17; *Gmelin, S. N.* i. 190.

A. Bubalides oreas, *Licht. Berl. Mag.* vi. 153; *Schreb. Saughth.* 1153. t. 256.

A. Oreas oreas, *Desm. Mam.* 471; *Burchell, Trav.* i. 248.

A. Boselaphus oreas, *Blainv. B. S. P.* 1816, 75; *Fischer, Syn.* 477. 644.

Boselaphus Oreas, *Gray, Cat. Mam. B. M.* 155; *Cat. Osteol. B. M.* 59; *Ann. & Mag. N. H.* 1846.

Boselaphus Canna, *Gray, Cat. Mam. B. M.* 155, female.

Antilope Oryx, *Pallas, Misc. Z.* 9; *Spic. Z.* i. 15; *Forster, MSS.* 55; *Erxleb. Mam.*

Damalis Boselaphus Canna, *H. Smith, G. A. K.* iv. 198. t. 181. f. 5, horn ♀; v. 882.

Antilope Canna, *Fischer, Syn.* 644.

Afrikanisches Elend thier, *Kolbe, Vorgeb. Hoffn.* i. 145. t. 3. f. 1.

Coudou, *Buffon, H. N.* xii. 357. t. 46 b, horn.

Canna, *Buffon, Suppl.* vi. t. 12 ♂ adult; *Cuv. R. A.* i. 263.

Eland, *Sparrm. Kongl. V. Handl.* 1779, 155. t. 5; *Harris, W. A.* A. t. 6 and head; *Vosmaer, Besch.* 1785, t.

Cape Elk, var., *Daniel, African Scenery*, t.

Indian Antelope, *Penn. Syn.* 26; *Quad.* i. 78; *Shaw, Zool.* ii. 319. t. 183; *Barrow, Travels*; *Licht. Reise*, i. 155, ii. 39. 462; *Burchell, Travels*.

Elandt, *Dutch at Cape G. H.*

Canna t'Gann or Y'gann, *Hottentots*.

Impophos or Poffo, *Caffers*.

Empophos, *Zimmerm. Geog. Zool.* ii. 109; *Lobo, Abyss.* i. 293.

Bastard Eland, *Dutch at Cape G. H.*

*Hab.* S. Africa.

Skin and horns, in bad state. S. Africa. Presented by William Burchell, Esq., LL.D.

Female. S. Africa.

Male and female. South Africa. Presented by the Earl of Derby.

OSTEOLOGY. *Skull*, t. 17. f. 3, 4.

Coudou, *Daub. in Buffon H. N.* xii. t. 46. f.

Three pairs of horns, separate. South Africa.

Frontal bone and horns. South Africa.

Skeleton. S. Africa. Presented by the Earl of Derby.

Horns on base of skull. S. Africa.

Horns and skin of nape. Cape of Good Hope. Presented by William Burchell, Esq., LL.D.

Separate horn of an adult. (*Antilope Canna* of Col. H. Smith, and figured by Griffith, *A. K.* t. 181. f. 5.)

#### ICON.

Horns.—*Hardw. Icon. ined. B. M.* 10,975. t. 166.

A. Orix.—*Forster, Icon. ined. B. M.* i. t. 30.

Mr. Livingston observes, "It is a well-ascertained fact, that the *Eland*, *Gemsbock*, *Duiker*, *Steinbock*, &c., can live for months together without water. The *Eland* becomes enormously fat during the driest season, viz. the winter, when all the herbage is withered and so dry that it crumbles to powder in the hand; and yet the stomach of all these animals, when opened, contained a good deal of moisture. Our party was well supplied with Eland flesh during our passage through the desert; and it being superior to beef, and the animal as large as an ox, it seems strange it has not yet been introduced into England."—*Journ. Geog. Soc.* xx. 139, 1850.

They have bred at Knowsley, but are ravenous feeders, and liable to an epidemic.

#### 2. OREAS DERBIANUS. The GINGI JONGA.

Pale reddish brown. Front of the face, the neck, the front part of the under side, a spot on the front and hinder side of the

upper part of the fore-leg, and the dorsal streak, dark black. The belly, the front and back edge of the upper part of the legs, and under side of tail, whitish. A broad half-collar in front of the shoulder, narrowed above. Fourteen or fifteen narrow, waved, perpendicular streaks on each side of the body white. Withers with intermixed black hairs. Throat of female dark brown; crown reddish brown.

*Boselaphus Derbianus*, Gray, *Ann. & Mag. N. Hist.* xx. 286; *Silliman, Amer. Journ.* v. 279.

*Oreas Derbianus*, Gray, *Knowsley Menag.* t. ♂ and ♀.

*Hab.* Western Africa; River Cassaman.

Horns. Gambia. Presented by the Earl of Derby.

Horns. Gambia.

B. *Horns subangular, obscurely keeled. Nose bovine. Muffle rather large, bald between and beneath the nostrils, and on a narrow band up the middle of the hairy upper lip. Neck with longer hair, forming a mane. Body high. Legs slender. Hoofs and false hoofs small.*

### 3. TRAGELAPHUS.

Horns conical, tapering, with only one spiral turn, subangular, very obscurely angular in front at the base, with a keel above arising from the hinder part of the base. Tear-bag distinct. Neck and throat with longer hair. Nape and back with a more or less distinct mane. Legs slender. Hoofs and false hoofs small. *Females* hornless. Skull, t. 18. f. 1, 2.

Antelope (*Tragelaphus*), sp., *A. Smith, Griffith A. K.* v. 182; *Lesson, N. Tab. R. A.* 181.

*Tragelaphus*, Gray, *Ann. & Mag. N. H.* 1846, 230.

*Calliope*, *Ogilby, Proc. Z. Soc.* 1836; *Rüppell, Verz. Senck. Samml.* 1845, not of Swainson.

a. *Horns large, elongate. Face with an arched band between the eyes. Back cross-banded. Euryceros.*

*Strepsiceros*, sp., *Ogilby.*

*Euryceros*, Gray, *Knowsley Menag.*

### 1. TRAGELAPHUS EURYCERUS. THE BROAD-HORNED ANTELOPE.

Head pale brown. Broad band before the eyes, and two large spots on cheeks, chin, and front of upper lip, white. Horns

elongate, thick, scarcely bent forward at the tip. Throat with long black hairs.

Antelope, sp., *Afzelius*, *Nov. Act. Upsal.* vii. 269. t. 8. f. 3; *H. Smith*, *G. A. K.* v. 361.

Antelope *Eurycerus*, *Ogilby*, *P. Z. Soc.* 1836, 120; *Waterhouse*, *Cat. Mam. Zool. Soc.* 391.

*Tragelaphus* (*Euryceros*) *Eurycerus*, *Gray*, *Knowsley Menag.* t. , head.

*A. Tragelaphus Eurycerus*, *Lesson*, *N. Tab. R. A.* 181.

*Hab.* W. Africa.

#### OSTEOLOGY.

Horns. From Mr. Warwick's Collection.

The horns are very similar to those of *T. Angasii*, but the head is considerably larger, nearly as large as that of the *Kudu*, and the horns are thicker and larger; they are 27 inches long in a straight line from base to tip, and 9 inches in circumference at the base. The hair of the head is also paler and more uniformly coloured, and with very large white spots on the cheek, much larger than those of the *Kudu* or of *T. Angasii*. The throat has a distinct mane of blackish rigid hairs. The muffle is very like that of *T. Angasii*, and larger than that of the *Kudu*. The skull is imperfect; it has no appearance of any suborbital pit or slit.

*Var.* 1. Skull about two-thirds the size of the former.

Antelope from Bight of Biafra, *Allen*, *Proc. Zool. Soc.* 1848, 88; *Turner*, *P. Z. S.* 1850.

*Hab.* Bight of Biafra.

A skull, with horns. Bight of Biafra. Presented by Capt. Allen, R.N. (The specimen noticed in *P. Z. S.* 1848, 88.)

#### 2. TRAGELAPHUS ANGASII. The INYALA.

Black. Back with a vertebral streak and four or five bands on each side. Head blackish. Narrow band before eyes and small spot on cheeks, front of upper lip and chin, white. Forehead and feet bay. Throat with a mane of long, rigid, blackish hair. Horns rather slender, elongate, rather bent forward at the tip. Female bay, with many white bands. Muffle band small, only extending half-way up between the nostrils and about one-third the length beneath them, and entirely separated from the edge of the upper lip by a broad, hairy band (with a slight central groove). The horns are 8 inches in diameter at base, rather slender, elongate, black with white tips, rounded in front, with a very obscure indication of a keel, and with a keel arising from the back edge of the horns, on the inner side of the upper part, rather bent forwards in front.

*Tragelaphus Angasii*, Gray, *Proc. Zool. Soc.* 1848, 89. t. 4, 5.  
*Hab.* S. Africa; Port Natal; *Angas, Proudfoot.*

A skin of male and female without feet. S. Africa; Port Natal. Mr. Proudfoot's Collection.

The slenderness of the horns and smaller size of the head, and the dark colour and small size of the bands and spots on the head, chiefly distinguish the head of this species from *T. Euryceros*.

*b. Horns moderate, rather short. Face without any cross band.*  
*Tragelaphus.*

† *Back with cross bands and lateral streaks.*

### 3. TRAGELAPHUS SCRIPTA.

Pale bay. Back with four cross bands and a central white streak. Haunches white spotted. Cheek with two white spots. Spot on chest, nose, feet, and spots on the legs, blackish. Dorsal streak and end of tail black. *Adult*: chest, outside of shoulder, and haunches and legs, black.

The *adult males* (four years old) have a high ridge of long, coarse, white hair extending the whole length of the back to the tail.—*Dict. Sci. Nat.* t.; *Knowsley Menag.* t.

*Antilope scripta*, Pallas, *Misc.* 8; *Spic.* i. 15, xii. 18.

*A. vera scripta*, Licht. *B. M.* vi. 169; *Gmelin, S. N.* i. 191; *Schreb. Saughth.* 1212. t. 258.

*A. (tragelaphus) scripta*, *Blainv. B. S. Phil.* 1816, 75; *Desm. Mam.* 470; *H. Smith, G. A. K.* v. 859; *Fischer, Syn.* 473. 640.

*Tragelaphus scriptus*, Gray, *Cat. Mamm. B. M.* 160; *Cat. Osteol. B. M.*; *Knowsley Menag.* t. ♂ ♀; *Ann. & Mag. N. H.* x. 267, 1843.

*Antilope maculata*, *Thunb. Mem. A. Petersb.* iii. 313.

*Antilope (Tragelaphus) phalerata*, *H. Smith, G. A. K.* v. 860; *Fischer, Syn.* 640.

*Calliope scripta*, *Rüppell, Verz. Senck. Samml.* 182, 1845.

*Guib, Negro at Senegal*; *Buffon, H. N.* xii. 305, 307. t. 40, jun., 41. f. 1, horn; *F. Cuvier, Mam. Lithog.* t. ; *Dict. Sci. Nat.* t. ♂ adult.

*Harness Antelope, Penn. Syn.* 27; *Quad.* i. 81; *Shaw, Zool.* ii. 322. t. 186.

*Bontebock, Dutch in Africa.*

*Oualofes or Zalofes, Negro in Gambia.*

*Hab.* West Africa; Senegal and Gambia.

Female. W. Africa. Presented by the Earl of Derby.



## OSTEOLOGY.

Guib, *Daub. in Buffon Hist. Nat.* xii. t. 41. f. 1.

Skull of female with the intermaxillaries reaching to the nasal. Suborbital pit none. Nasals, slit up each side in front.

Varies, some having seven, and others nine white cross bands, and some are spotted and others not. They breed together at Knowsley, and produce specimens different in these respects from their parents.

## 4. TRAGELAPHUS DECULA. The DECULA.

Grey brown. Back with three or four indistinct cross bands. Arched streak on upper part of side, a few spots forming an arch on the haunches, dorsal line, streak on nose and on front of fore legs, blackish.

Antilope Decula, *Rüppell, Fauna Abyss.* t. 4.

Calliope Decula, *Rüppell, Verz. Senck. Samml.* 182, 1845.

Tragelaphus Decula, *Gray, Cat. M. B. M.* 160; *Knows. Menag. Hab. Africa; Abyssinia.*

Male. Abyssinia. From the Frankfort Museum.

*Var.* Back without the cross bands.

*Hab.* Africa; Abyssinia; *Rüppell.*

†† *Back without any cross bands or lateral streaks.*

## 5. TRAGELAPHUS SYLVATICA. The BOSCH BOCK.

Blackish brown. Head pale brown. Band across forehead black. Small spot on haunches, larger spot on insides of legs and on feet white. Dorsal line longly crested, black, white varied. *Female* paler brown. *Young* pale bay.

Antilope sylvatica, *Sparrm. Act. Holm.* 1780, iii. 197. t. 7; *Gmelin, S. N.* i. 192.

A. (*Gazella*) sylvatica, *Licht. Berl. Mag.* vi. 173; *Schreb. Saugth.* 1209. t. 257; *Thunb. Mem. Petersb.* iii. 315; *H. Smith, G. A. K.* v. 858.

A. *Tragelaphus sylvatica*, *Blainv. B. S. Phil.* 1816, 75; *Desm. Mam.* 469; *Fischer, Syn.* 472. 640; *Harris, W. A. Afr.* t. 26.

*Tragelaphus sylvaticus*, *Gray, Cat. Mamm. B. M.* 160; *Cat. Osteol. B. M.* 59; *Knowsley Menag.*

*Calliope sylvatica*, *Rüppell, Verz. Senck. Samml.* 182, 1845.

*Bosbok*, *Allam, Buff. H. N.* v. 35. t. 15; *Supp.* vi. t. 25; *Shaw, Zool.* ii. 348.

Forest Antelope, *Penn. Quad.* i. 86.

Bosch bock, *Dutch at Cape.*

*Hab.* South Africa.

Skin (bad state). S. Africa. Presented by W. Burchell, Esq., LL.D.

Female and males. S. Africa.

Young. From M. Verreaux's Collection.

Half-grown female. S. Africa.

*Var.* 1. Smaller. Horns shorter, less diverging and more ascending.

Serolomootlooque (*Antilopus Roualeynei*), *Roualeyn Gordon Cumming, Hunter's Life S. A.* ii. 168, 178, 179.

*Hab.* Limpopo. Head Mus. Cumming.

#### OSTEOLOGY.

Base of skull, with horns.

Pair of horns, separate.

Horns. S. Africa. From Mr. Warwick's Collection.

The two pairs of horns, named by Colonel H. Smith *Boselaphus canna* (*a, b*, in the *List of Mamm. Brit. Mus.* 155); one, presented by Dr. W. Burchell, is certainly the horns of this species, and the other appear to be those of a young male, *Strepsiceros Kudu*.

II. In the *Asiatic Strepsiceres* the horns are short, conical, angular, subspiral, with an obscure oblique ridge. Tear-bag deep, longitudinal. The hind leg much shorter than the fore; shoulder higher than rump. The nose bovine, with a large moist muffle. Skull with "the nasal opening rather small, with the nasal bones small and narrow; a minute suborbital fissure; no fossa, but a smooth line upon the lacrymal bone; the masseteric ridge not extending high; the auditory bulla moderate, bulbous, compressed; the basioccipital bone with the posterior tubercles moderately developed, the anterior ones scarcely at all; the molars with supplemental lobes. The smooth line upon the lacrymal bone terminates in a small foramen, but one side is continued for some distance forwards upon the maxillary bone, where it terminates in the same way."—*Turner*.

*Asiatic Strepsiceres*, *Gray, Knowsley Menag.; Proc. Zool. Soc.* 1850, 146.

#### 4. PORTAX.

The Character of Section.

*Damalis* (Portax), *H. Smith, Griffith A. K.* v. 182; *Fischer, Syn.* 625; *J. Brookes, Cat. Mus.* 64, 1828.

Portax, *Gray, Ann. & Mag. N. H.* 1846, 230.

Antilope *Boselaphus*, sp., *Blainville, Bull. Soc. Phil.* 1816.

Antilope Bubalides, *Licht. Berl. Mag.* vi. 164.  
 Tragelaphus, *Ogilby, P. Z. Soc.* 1836.

Fig. 2.



Skull of *Portax Tragocamelus*.

1. PORTAX TRAGOCAMELUS. The NILGHAU.

Grey. Rhombic spot on the forehead and above the hoofs black, and white ringed; tail end black. *Female* browner. *Young* dull reddish fawn. Lower part of legs brighter. Under lip, spot on jaw, and line along the belly, on outside of leg, and fore part of hock, white. Tip of tail, line on back, of nose, and on front of legs, black.

Antilope *Tragocamelus*, *Pallas, Misc. Zool.* 5; *Spic. Zool.* i. 9, xii. 13; *Gmelin, S. N.* i. 184.

Antilope *picta*, *Pallas, Spic.* xii. 14; *Gmelin, S. N.* i. 184; *Schreb. Saugh.* 1159. t. 262, 263 A, 263 B; *Desm. Mam.* 471; *Wolf. Abbild.* ii. 57. t. 16; *F. Cuvier, Mam. Lithog.* t. ; *Fischer, Syn.* 476. 645; *Bennett, P. Z. S.* 1831, 37.

A. *Boselaphus picta*, *Blainv. B. S. Phil.* 1816, 75.

Antilope *albipes*, *Erxl. Mam.* 280; *Zimmerm. Geog. Gesch.* ii. 113.

A. *Bubalides Tragocamelus*, *Licht. Berl. Mag.* vi. 164.

*Portax Tragocamelus*, *Gray, Knowsley Menag.* 28. t. 29.

*Damalis picta* (Nylgau), *J. Brookes, Cat. Mus.* 64, 1828.

*Antilope leucopus*, *Forst. MSS.*; *Zimmerm. Zool.* 541.

*Portax Tragelaphus*, *Sundevall, Pecora.*

*Damalis* (*Portax*) *Risia, H. Smith, G. A. K.* v. 884.

*Portax picta*, *Gray, Cat. Mamm. B. M.* 154; *Cat. Osteol. B. M.* 59.

*Tragelaphus Hippelaphus*, *Ogilby, Proc. Zool. Soc.* 1836, 138.

The Nyl ghau, *Hunter, Phil. Trans.* lxi. 170. t. 5 ♂, cop. *Naturf.* vii. 236. t. 2.

Neelghau, *Antilope Hippelaphus, Ogilby in Royle's Himal.* i. 73.

*Hippelaphus, Aristotle, Hist. Anim.* ii. c. 5.

Nilghau, *Shaw, Zool.* ii. 327. t. 189.

Neel ghae, *Ogilby, P. Z. S.* 1836, 338.

Nilghaut, *Buffon, H. N. Supp.* vi. 101. t. 10 ♂, t. 11 ♀, jun.; *Cuvier, R. A.* i. 264; *F. Cuvier, Mam. Lithog.* t.

White-footed Antelope, *Penn. Syn.* 29. t. 6. f. 1, 2; *Quad.* i. 83. t. 13.

Biggel, *Mandelslo Itin.* i. 122, 1658.

*Tragelaphus Caii, Ray, Quad.* 82?

Quadruped from Bengal, *Parson, Phil. Trans.* xliii. 465. t. 3. f. 9.

Hindustan Antelope, *Penn. Syn.* 29; *Quad.* i. 83; *Shaw, Zool.* ii. 329. t. 190.

*Hab.* India.

Young. India. Presented by the Zoological Society.

Skin of head. India.

OSTEOLOGY. *Skull, fig. 2.* p. 141.

*Skull.* India.

ICON.

Neelghau, *Hardw. Icon. ined. B. M.* n. 10,975. t. 149 ♀, n. 10,974. t. 90, 96.

Subtribe IV. *Capreae*. Forehead convex, elevated behind. Chin of males bearded. Suborbital sinus none. Horns erect, compressed, curved backwards and rather outwards, and furnished with a longitudinal keel in front, deeper than wide at the base, and with transverse ridges in front. Hoofs four-sided, scarcely higher before than behind. The skull has "a small suborbital fissure, no fossa; the masseteric ridge ascending high before the orbit; the auditory bulla prominent and compressed; the basioccipital flat, with its processes developed; the middle incisors not expanded; the molars without supplemental lobes." —*Turner*.

"The occipital plane of skull forms an acute angle with fron-

tal plane. Cores of horns thick, porous, cellular. Horns seated superiorly on the crest of the forehead, and by their union covering the top of the head. Canines wanting. Teats 2, rarely 4."—*Hodgson*.

The males have a strong stench; they butt first raising themselves on their hind-legs and then coming down sideways against their enemies.

Capræ, *Gray, Ann. & Mag. N. H.* 1846, 230.

Capridæ et Bovidæ, part., *Ogilby, P. Z. S.* 1836.

Ovesidæ, part., *Lesson, Nov. Tab. R. A.* 182.

Hircidæ, *J. Brookes, Mus. Cat.* 72, 1828.

Hircus, *Rafin. Anal. Nat.* 56, 1815.

Capra, *Blainv. Bull. Soc. Phil.* 1816, 76; *Sundevall, Pecora*, 90.

Bos, part., *Wagler, N. Syst. Amp.* 32, 1830.

Mr. Hodgson, in his remarks on the Craniological character of *Ovis* and its allies, observes, "That the great depth or extent of the postæal plane of the skull (comprehending half the frontal and all the parietal bones), and the acute angle it forms with the antæal plane in the genus *Ovis*, will be found to be characters of more permanence and moment in separating this genus and *Capra* from the nearest adjacent groups of Ruminants, than most of the diagnostics now employed. I subjoin an outline of the typical Antilopine and Cervine form of skull on one hand, and that of the normal form of *Ovis* and *Capra*. Of these forms, *Cervus* and *Ovis* represent the extremes, and *Antilope* and *Capra* the means; but there is a regular gradation from *Cervus* to *Antilope*, from it to *Capra*, and from it again to *Ovis*."—*J. A. S. B.* x. 234. t. 2.

Mr. Hodgson, in his remarks on the genera *Capra* and *Ovis*, observes, "The males not being odorous is one of the best characters to separate the Sheep from the male Goats, which are always odorous."—*J. A. S. B.* iv. 491, 1835; x. 234, 1841.

The horns of some domestic varieties have an inclination to twist more or less spirally, like some varieties of *Sheep* and *Strepsiceræ*.

The keel of the horns of the Sheep, and especially of the Goats, is on the inner part of the front edge of the horns; but in the Marbur or Snake-eater of Affghanistan the strongest keel which forms the spiral ridge arises from the hinder part of the inner side of the horns, the front one being obscure.

The hybrid produce of the Sheep and Goat are fertile, black-faced, and differ little in form from the black-faced Sheep. The intercourse is stated to be common.—*Muirhead, Statistical Acc. Parish of Urr.* xi. 66; *Fleming, Phil. Zool.* ii. 198; see also *Cuvier, R. A.* i. 267.

## SYNOPSIS OF GENERA OF CAPRÆ.

A. *Muffle naked.*

1. HEMITRAGUS. Horns trigonal, compressed, and knotted in front.
2. KEMAS. Horns square, flat, and cross-ridged in front.

B. *Muffle hairy.*

3. ÆGOCEROS. Horns roundish, conical.
4. CAPRA. Horns square, flat, and nodose in front.
5. HIRCUS. Horns trigonal, compressed, sharp-edged, and knotted in front.

A. *Muffle naked.*

## 1. HEMITRAGUS.

Nose cervine. Muffle small, moist between the nostrils. Horns short, recurved, compressed, triangular, shelving on the outer side, and nodose in front. Interdigital and suborbital pores none. Tail very short. *Female*: horns smaller. Teats 4. *Male* not bearded, neck maned; odour like the Goats.

Hemitragus, sp., *Gray, Ann. & Mag. N. H.* 1846, 230; *Knowsley Menag.*; *Sundevall, Pecora*, 101.

Kemas, *Ogilby, P. Z. Soc.* 1836.

Kemas, sp., *Lesson, Nov. Tab. R. A.* 182.

Hemitragus, b, *Gray, Knowsley Menag.* 31.

## 1. HEMITRAGUS JEMLAICUS. The JHARAL OF TEHR.

Brown or ashy. Dorsal streak and feet black.

Capra Jemlaica, *H. Smith, G. A. K.* iv. . t. ; *Gray, Cat. Mamm. B. M.* 168.

Capra Jemlahica, *H. Smith, Griff. A. K.* iv. 308. t. , v. 872; *Fischer, Syn.* 649.

Capra Jharal, *Hodgson, Asiat. Res.* 1833, t. ♂; *Journ. Asiat. Soc. Beng.* i. 347; iv. 1835, 491; v. 259; *P. Z. S.* 1834, 99-106; *Schinz, Verz.* ii. 462.

Capra quadrimammis vel Jharal, *Hodgson, J. A. Soc. Beng.* 1836, 254. x. 913; *Calcut. Journ. N. H.* iv. 291.

Hemitragus Jemlaicius, *Hodgson, Zool. Nep. ined.*; *Gray, Knows. Menag.* 32; *Cat. Osteol. B. M.* 60; *Hodgson, Coll. B. M.* 28.

Hemitragus iharal, *Sundevall, Pecora*, 101.

Hemicapra Jemlaicus, *Hodgson, Zool. Nep. ined.* t.

*Semicapra Jemlaicus*, *Hodgson*.

Kemas Jemlaica, *Waterh. Cat. Mus. Z. S.* 43, 1838.

Kemas Jemlaicus, *Blyth, Ann. N. H.* vii. 259, note.

Kemas iharal, *Lesson, N. Tab. R. A.* 182.

*Capra Ægagrus* var., *Hodgson, P. Z. S.* 1833, 105.

*Capra Ægagrus tubericornis* (part.), *Schinz. Verz.* ii. 467; *Wagn. Supp.*

Thar, *Ogilby in Royle's Flora*, i. 73.

*Hab.* India; Nepal, the Kachar, or northern hilly region.

An adult specimen, blackish.

An adult specimen, reddish brown, long hair of neck and back whitish.

A half-grown specimen, pale brown.

A young specimen.

Male, in winter fur. Nepal. Presented by B. H. Hodgson, Esq.

#### OSTEOLOGY.

Head and horns. Nepal.

Base of skull, with horns. Nepal.

Skull and horns. Nepal.

Basal part of skull, and horns of female. Nepal.

Skull of a young female. Nepal. Presented by B. H. Hodgson, Esq.

Broken skull of a young male. Nepal. Presented by B. H. Hodgson, Esq.

Bones of body. Nepal. Presented by B. H. Hodgson, Esq.

Bones of body, young. Nepal. Presented by B. H. Hodgson, Esq.

#### ICON.

Drawing of male, female and young.—*Hodgson, Icon. ined. B. M. t.* 165.

Drawing of male and female.—*Hodgson, Icon. ined. B. M. t.* 166.

Drawing of male.—*Hodgson, Icon. ined. B. M. t.* 167.

Drawing of male, with details of head.—*Hodgson, Icon. ined. B. M. t.* 168; copied with more details of head, t. 170.

Drawing of male.—*Hodgson, Icon. ined. B. M. t.* 169.

Drawing of skull of young female.—*Hodgson, Icon. ined. B. M. t.* 187. f. 1, 2.

“The *Jharals* inhabit the loftiest mountains of India, in the most inaccessible bare crags beyond the forest, close to the perpetual snows. They feed in the open glades below such crags at early morning and evening, returning in the day to their awful fastnesses. They are gregarious, in flocks of twenty or thirty,

but sometimes of forty or fifty. If alarmed when feeding, they go off at speed with a noise like thunder, but anon halt to gaze on the intruder, whose shot sends them off again under the guidance of an old male, whom they follow blindly. They rut in winter, and the female gestates six months, producing one young in June or July. They are more dauntless and skilful climbers than the Wild Sheep. If they can but touch a rough edge or crevice now and then, they will run up nearly perpendicular precipices of many feet elevation, and they will stand on a bit of rock not larger than one's palm, looking confidently down over sheer space, with not a shrub to break the awful absence of rest for the foot.

"The *Jharal* breeds with the domestic Goat, and perhaps more nearly resembles the ordinary model of the tame than any wild species yet known."—*Hodgson, J. A. S. B.* iv. 491, 1839.

"I never could get any progeny from the Goats by the *Jharal*, though my male had commerce with Goats of several breeds repeatedly during the six years he lived with me, quite tame and going abroad with the Sheep and Goats."—*Hodgson*.

"In February 1842, a male *Jharal* in possession of the Court of Nepal had intercourse with a female *Cervus Axis*, which in July produced a young hybrid of mixed appearance, but more like the mother than the father, which lived and grew up a fine animal; I saw it last in October 1843. I note the circumstance as a strong corroboration of the affinity of the *Hemitragus* to the *Deer*, which is indicated by the four teats and moist muzzle."—*Hodgson*.

## 2. KEMAS.

Nose cervine. Muffle small, moist between the nostrils. Horns short, recurved, thick, subquadrangular, flat in front, and rounded on the outer side, closely ringed. Interdigital pores and suborbital pores none. Hair short, adpressed. Tail ——. *Male* bearded. Odour like Goats. *Female*: horns smaller, very like male.

*Hemitragus* (part.), *Gray, Ann. & Mag. N. H.* 1846, 230; *Sundevall, Pecora*, 101.

*Hemitragus*, § a, *Gray, Knowsley Menag.* 31.

*Kemas*, part., *Ogilby, Proc. Zool. Soc.* 1837, 81.

### 1. KEMAS WARRYATO. THE WARRYATO OR JUNGLE KEMAS.

Brown, yellow grised. *Male*: back with a dirty white patch. *Female* paler. *Young* ashy grey.

*Capra* (Ibex) *Warryato*, *Gray, Mag. N. H.* x. 267, 1843, ♂ and ♀.

*Capra Warryato*, *Gray, List Mamm. B. M.* 168.



- Kemas hyllocrius*, *Ogilby, P. Z. Soc.* 1837, 81 (female only);  
*Waterh. Cat. Mus. Z. S.* 43; *Blyth, Ann. & Mag. N. H.* vii.  
 259, note; *Wagner, Supp.* 503; *Lesson, Nov. Tab. Reg. A.* 182.
- Capra hyllocria*, *Schinz, Verz.*
- Hemitragus Warryato*, *Gray, List Osteol. B. M.* 60.
- Warryato*, *Hardw. MSS.*
- Hemitragus hyllocrius*, *Sundevall, Pecora*, 101; *Gray, Knowsley Menag.*
- Wild Sheep of Tenasserim, *Low, Journ. Roy. Asiat. Soc.* 1836, 50.  
*Hab.* India; Neilgherries.

## OSTEOLOGY.

Head and horns of male and female. Neilgherries. Presented by Richard Partridge, Esq.

Head of female, without the sheath to the horns. Nepal?

## ICON.

*Warryato* or Hill Goat of the Tamooleans, *Hardw. Icon. ined. B. M.* n. 10,975. t. 192 (sketch improved from former by Col. H. Smith, t. 193).

B. *Muffle hairy, ovine.*

*Hircus*, *Brisson, R. A.* i. 38, 1762.

*Capra*, sp., *Pallas; Illiger*, 1811; *Linn. S. N.*; *Desm. N. D. H.* N. 1804.

*Capra*, *Gray, Ann. & Mag. N. H.* 1846, 230.

## 3. ÆGOCEROS.

Nose ovine, hairy, without any muffle. Horns (of male) very large, spirally curved, flat, and with nodose tubercles in front; base very thick, roundish, then conical, attenuated, with sharp and strongly converging tips; of *females* smaller. Tear-bag and inguinal pores none. Ears densely pilose. Hair of forehead simple. Tail very short, flattened. Chin bearded.

*Ægoceros*, sp., *Pallas, Act. Petrop.* 1779; *Zool. Ross. Asiat.* i. 224.

*Capra*, § a, *Sundevall, Pecora*, 91.

*Capra* (sect. *Turs*), *Gray, Knowsley Menag.*

\* *Horns keeled behind.*

## 1. ÆGOCEROS PYRENAICA. The PYRENEAN TUR.

Face black in front, paler on the sides. Horns keeled behind, flat on the inner side.

? *Capra Ibex*, *Linn. S. N. i. 95*, part. (see *Sundevall, Pecora*, 115).

*Capra Pyrenaica*, *Schinz, Nov. Mem. Soc. Helv. Sci. Nat. ii. t. 1. f. 1, 2*, skull; 1836, t. 2, animal and horns; t. 3, skull; t. 4, young; *Verz. Syst. ii. 457*; *Sundevall, Pecora*, 91; *Brehm, Isis*, 1844, 481; *Wiegmann, Arch.* 1845, ii. 41.

*Hab.* Pyrenees.

Male and female. Pyrenees.

#### OSTEOLOGY.

\*Skull, female. Pyrenees.

*Var. 1.* Legs paler, only black up the centre of the front.

Adult. Spain. Presented by R. Owen, Esq., from Professor Grael's Collection.

\*\* *Horns not keeled behind.*

#### 2. *ÆGOCEROS CAUCASICA.* The TUR or ZACK.

Wool chestnut-brown. Beard of *male* long. Horns black, wrinkled, moderately thick, semicircular behind and descending externally, the tip turning upwards and inwards; the base almost triangular; middle roundish and compressed. *Female* with no beard. Horns small, with a slight curve.

*Capra Caucasica*, *Güldenstädt in Pallas, Act. Petrop.* 1779, ii. 273. t. 17 a, female, b, head, male; cop. *Schreb. v. t. 281 B*; *Gmelin, S. N. i. 197*; *Meyer, Zool. Ann. i. 398*; *Desm. Mamm.* 487; *Keyserling et Blasius, Wirbelth. Europas*, 28; *Nordmann, Iter Demidoff*, iii. 58; *Fischer, Syn.* 485, 648; *H. Smith, G. A. K. v. 871.*

*Ægoceros ammon*, *Pallas, Zool. Ross. Asiat.* 229. t. 17, t. 18. f. 6. *Ægoceros Pallasii*, *Rouillier, Bull. Moscou*, 1841, 110; *Wagner, Supp.* 497; *Schinz, Nov. Mem. Soc. Helv. Sci. Nat. ii. t. 1*, animal; *Verz. ii. 459*; *Ray Soc. i. 64.*

*Ovis Cylindricornis* (Caucasian Argali), *Blyth, P. Z. Soc.* 1840, 68.

? *Ovis ammon* var., *H. Smith, G. A. K. iv. 317*; *Ainsworth, Travels Assyria*, 42.

Caucasian Ibex, *Shaw, Zool. ii. 367.*

Bouquetin du Caucase, *Cuv. R. A. i. 266.*

*Hab.* Caucasus.

Male and female. Aladagh. From Mr. Warwick's Collection.

"They live in droves of five or six females and their young, under the care of an old male."

## 4. CAPRA.

Nose ovine, hairy, without any muffle. Horns (of *male*) very large, elongate, recurved, curved nearly on the same plane; base subquadrangular, broad, flattened, and with broad cross ribs in front; outer side rather compressed and rounded; tip compressed, broad; of *female* smaller. Hair of forehead elongate, whorled. Crumen and inguinal pore none. Chin bearded.

Ibex, *Gray, Ann. & Mag. N. H.* 1846, 230; *List Osteol. B. M.* 59.

Capra, § 1. Ibex, *Gray, Knowsley Menag.*

*Ægoceros*, sp., *Pallas, Zool. Ross. Asiat.* i. 228.

Capra, sect. β, *Sundevall, Pecora*, 93.

\* *Ears densely villose.*

## 1. CAPRA IBEX. The IBEX OF STEINBOCK.

Ears small, acute, not one-fourth the length of the head. "Horns of the *male* very strong, thick, subquadrangular, transversely rugose, flattish and nodose in front; of *female* small, compressed, slightly nodose. Fur in summer short, adpressed, without any under coat, ashy grey. In winter, elongate, fulvous brown, with long, dense, intermixed under-fur. Beard short, brown, in summer wanting."—*Schinz*.

Capra Ibex (part.), *Linn. S. N.* i. 95; *Gmelin, S. N.* i. 196; *Meyer, Zool. Ann.* i. 397; *Desm. Mam.* 480; *Fischer, Syn.* 483, 647; *H. Smith, G. A. K.* iv. 300. t., v. 868; *Griffith, A. K.* v. t.; *Gray, Cat. Mamm. B. M.* 167; *Schinz, Nov. Mem. Soc. Helv.* ii. t. 2, horns, 1838.

Capra alpina, *Girtanner, Journ. Phys.* xxviii. 224.

Ibex alpinus, *Gray, List Osteol. B. M.* 59.

Ibex, *Plin. Hist. Nat.* viii. 53; *Gesner, Quad.* 351, fig.; *Brisson, R. A.* 64; *Shaw, Mus. Lever.* iii. 105. t. 2; *Zool.* ii. 364. t. 198; *Knight, Mus. Anim. Nat.* f. 667, 668, 669, bad.

Wild Goat, *Penn. Syn.* 13.

Bouquetin, *Buffon, H. N.* xii. t. 13, 14; *Cuvier, R. A.* i. 266; *Mam. Lithog.* t.

*Knorr, Delic.* ii. t. K. 5. f. 2.

Capricornis, *Gesner, Quad.* 1099. fig.

*Hab.* Europe, Alps.

Male. Europe, Alps. Presented by Mrs. A. G. Campbell.

Male. Europe, Alps. Presented by Messrs Murray and Brockendon.

Male. Europe, Alps.

## OSTEOLOGY.

Bouquetin, *Daub. Buff. H. N.* xii. t. 14.

C. Ibex, *Schinz, Nov. Mem. Soc. Helv. N. S.* ii. t. 2, horns.

Base of skull and horns, very large.

Two skulls and horns.

Single horn, rather compressed.

X 2. CAPRA SIBIRICA. The TEK or TAKIGA.

Pale grey. Ears oblong. Beard of both sexes dependent. Lower maxilla of *male*, and spot on each side of the jaw in the *female*, black brown.

Ibex Sibiricarum (Der Sibirische Steinböck), *Pallas, Spic. Zool.* xi. 32, 53. t. 3. t. 5. f. 4, horns.

Capra Sibirica, *Meyer, Zool. Ann.* i. 397. 4; *Schinz, Nov. Mem. Soc. Helv.* ii. t. 2, horns, 1838; *Sundevall, Pecora*, 94; *Gray, List Mamm. B. M.* 167.

Capra Ibex, *Schreb. Saughth.* t. 281, from *Pallas*.

Capra Pallasii, *Schinz in Cuvier, Thierr.* iv. 511.

Ægoceros Ibex, *Pallas, Zool. Ross. Asiat.* i. 224.

Capra Ibex  $\beta$ . Sibiricus, *Fischer, Syn.* 485.

*Hab.* Siberia.

Male and female. Siberia. From the St. Petersburg Academy.

3. CAPRA HIMALAYANA. The SAKEEN or SKYN.

Brownish grey. Tail, beard, dorsal stripe, band on shoulders, anterior part of limbs, black or dark brown.

Capra Ibex, *Hodgson, Journ. A. S. Beng.* x. 913, xi. 183.

Capra Sakeen, *Blyth, J. A. S. Beng.* xi. 283, not described.

Capra Ibex Himalayanus, *Hodgson, Calcutta Journ. N. H.* ii. 414, iv. 291.

Himalayan Ibex or Skeen, *Hutton, Calcutta Journ. N. H.* ii. 542; *Kennedy, J. Asiat. Soc. Beng.* v. 242.

Himalaya Ibex, *Blyth, Proc. Zool. Soc.* 1840, 81.

Capra himalayanus, *Schinz, Syn.* 463?

Skyn, Skeen, Saken, Sikeen, or Kyl, *Vigne, Travels*, i. 311.

Skin, *Herbert, Asiat. Res.* xv. 397.

Skyn  $\delta$ , Damma  $\text{♀}$ , *Moorcroft, Journ. Asiat. Soc. Bengal*, 1839, 928.

Capra (Ægoceros) Skyn, *Wagner; Sundevall, Pecora*, 94.

Capra Ægagrus, *Hutton, Calcutta Journ. N. H.* ii. 521. t. 19.

Ibex (from Simla), *Ogilby in Royle's Himal.* i. 75.

*Hab.* Himalaya; Little Thibet; Mountain districts of Afghanistan, called *Borz* by the Afghans.

Probably not distinct from *Ibex Sibirica*.

“The *Tehr* or Wild Goats of the Himalaya (of Simla and Muscari) have the anterior edge of the horns decidedly nodose, though less so than the *Jharal*.”—*Hodgson, J. A. S. B.* iv. 491, 1835.

“Horns of the *Ibex* are attached to the Zearuts and places of sacred note in Afghanistan.”—*Bengal Journ.* 1841, 978.

“The *Ibex* is so abundant in Thibet, as to be killed for their potham or fine wool, which is used to make shawls. They surround them when the mountains are covered with snow. The horns are slit down longitudinally, and formed into bows for archery.”—*Lord A. Hay.*

In the Collection from Thibet in the India House Museum there are the skins and skulls of what appear to be two species of *Capra*, but the skulls and skins are not attached together, and the horns of both are very similar. One has short hair and a black beard, and the skull has an elongated face. The other has a black, abundant beard, and very elongated soft fur, like *Capra Sibirica*, and the skull which appears to belong to it has a short face, very broad at the orbits.

#### 4. CAPRA? LÆVICORNIS. The SMOOTH-HORNED IBEX.

Grey brown. Feet, head, large beard, dorsal and posterior ventral line, black. Nose pale. Anal disk small, white. Lateral streak none. Horns very long, curved, smooth; base rounded, three-sided.

*Capra lævicornis, Sundevall, Pecora, 95.*

*Hab.* —? Menagerie of the French Museum. Two males.

The horns are intermediate between *C. Ibex* and *C. hircus*; they are probably hybrids. The smoothness of the horns of the specimens in the Paris Museum (1851) appears to arise from the animal having rubbed them against the wall and bars of his paddock.

\*\* *Ears very shortly pilose.*

#### 5. CAPRA NUBIANA. The BEDEN OR JAELA.

Fulvous grey (in winter brown). Dorsal line and sides of tail blackish, beneath white. Feet black and white spotted. Ears three-streaked. *Male* bearded, beard black. Horns very long, subtriangular above, knotted, reclinate on the base. *Female* beardless. Horns slender, smooth, rather compressed, apex slightly inclined.

*Capra Ibex* (Baeden), *Forsk. Faun. Arab.* iv.

*Capra Nubiana* (Boue de la Haute Egypte), *F. Cuvier, Mam. Lithog.* 1825; *Gray, Spic. Zool.* t. ♀; *Cat. Mamm. B. M.* 168; *Fischer, Syn.* 483, 648.

*Ibex Nubiana*, Gray, *List Osteol. Spec. B. M.* 60.

*Capra arabica*, Mus. *Vindob.*

*Capra Jaela*, H. Smith in G. A. K. v. n. 869 (not figure at iv. 301).

*Capra Sinaitica* (Sinaica), *Ehrenb. Sym. Phys.* t. 18; *Gene, Mem. Turino*, xxxvii. t. ♀.

"*Capra Beden*, *Forsk.*," *Wagner*; *Sundevall, Pecora*, 95.

Cretan Wild Goat, *Belon*, fig.

*Hab.* Egypt; Arabia; Crete.

Young female.—*Gray, Spic. Zool.* t. 6. f. 1. N. Africa. Presented by James Burton, jun., Esq.

Adult male, young male, and younger male. N. Africa.

#### OSTEOLOGY.

Five pairs of horns. Egypt. Presented by James Burton, jun., Esq.

Pair of horns, separate. North Africa.

Pair of horns, half-grown.

Skull and horns. Mount Sinai.

Skull. N. Africa. Presented by Major Macdonald.

*Var.* 1. Legs less black.

*Hab.* Senegal. Mus. Paris.

#### 6. CAPRA VALIE. The WALIE.

Brown, beneath whitish. Feet white. Legs and feet with a black mark in front. Beard moderate. Horns thick, nodose, subrhomboidal at the base. Forehead with a protuberance in front.

*Capra Walie*, *Rüppell, Fauna Abyss.* t. 6.

*Capra Valie*, *Sundevall, Pecora*, 95.

*Hab.* Abyssinia. Male, Mus. Frankfort. Female unknown.

OSTEOLOGY. *Rüppell, Abyss. Fauna*, t. , skull.

#### 5. HIRCUS.

Horns compressed, with a narrow, thin, nodose or torn keel in front; outer side convex, rounded behind. Ears covered with short, adpressed hairs. Hair of forehead like back, rather whorled.

*Hircus*, *Wagner, Supp.*

*Hircus*, sp., *Brisson*; *Rafin. Anal. Nat.* 56, 1815.

*Capra* ♂., *Sundevall, Pecora*, 96.

*Ægoceros*, sp., *Pallas, Zool. Ross. Asiat.* 224.

*Tragus*, *Klein, Quad.* 15; *Schrank, Fauna Boic.* i. 45.

“Goats are distinguished by the horns being inclined very obliquely, not angular, compressed, and presenting a sharp keeled edge to the front, whereby they may be distinguished at once from all kinds of *Sheep* and *Ibexes*. They have usually a true beard, common to both sexes, not present in the *Sheep*. They have callosities on the knees, and sometimes also on the chest.”  
—Hodgson.

### 1. HIRCUS ÆGAGRUS. The GOAT.

*Capra Hircus*, Linn. *Faun. Suec.* 15; S. N. i. 94; Gray, *List Mamm. B. M.* 168; *List Osteol. Spec. B. M.* 60; *List Hodgson Coll. B. M.* 28; Sundevall, *Pecora*, 96; Fischer, *Syn.* 484. 648.  
*Capra caucasica*, H. Smith in G. A. K.; Gray, *List Mamm. B. M.* 168.

*Ægoceros Capra*, Pallas, *Zool. Ross. Asiat.*; Wagner, *Supp.*

*Capra Ægagrus*, Gmelin, S. N. i. 193; Meyer, *Zool. Ann.* i. 396; Schreb. *Saugth.* t. 282; Cuvier, *Menag. Mus. R. A.* i. 267; Desm. *Mam.* 483; Fischer, *Syn.* 484. 646; F. Cuvier, *Mam. Lithog.* t.; Sundevall, *Pecora*, 97.

*Ægagrus*, Pallas, *Spic. Zool.* xi. 45. t. 5. f. 2, 3.

Ziege, S. G. Gmelin, *Reise*, iii. 493.

*Capra Hircus vulgaris*, Schreb. t. 283.

C. *Ægagrus* β. *Hircus*, Gmelin, S. N. i. 193; Desm. *Mamm.* 483.

C. *Capricornus*, Meyer, *Zool. Ann.* 39.

*Tragus Ægagrus*, Schrank, *Fauna Boic.* i. 45.

*Capra*, Plin. *H. N.* vi. 50; Gesner, *Quad.* 270. fig.; Hodgson, *J. Asiat. Beng.* xvi. 1847, 1017.

*Hircus*, Gesner, *Quad.* 301. fig.

*Hircus vel Capra domestica*, Brisson, *R. A.* 62.

*Tragus domesticus*, Klein, *Quad.* 15.

Pasen, Kämpf. *Amæn. Exot.* 398. fig. at p. 407. n. 2.

*Capra bezoartica*, Linn. S. N. i. 96, part. from Kämpfer.

*Gazella bezoartica*, Brisson, *R. A.* 69, part. from Kämpfer.

Goat, Penn. *Brit. Zool.* 13.

Domestic Goat, Penn. *Syn.* 14.

Common Goat, Shaw, *Zool.* ii. 369. t. 199.

Capricorne Goat, Penn. *Syn.* 16; Shaw, *Zool.* ii. 377.

Bouc et Chèvre, Buffon, *H. N.* v. 59. t. 8, 9.

Capricorne, Buffon, *H. N.* xii. 146. t. 15, skeleton.

Hab. Domesticated.

Stuffed, ears pendent.

Stuffed. (Africa.) Presented by Miss Inglis.

Adult, stuffed. From the Zoological Society's Collection.

Half-grown male. From the Zoological Society's Collection.

Cashmere Goat. India. From Capt. Boys's Collection.

Hybrid Goat, male and female, between Common Goat and European Ibex; bred in the Zoological Society's Gardens.

Young. From Riddle Museum.

#### OSTEOLOGY.

Chèvre, *Daub. Buffon H. N.* v. t. 13.

Capricorne, *Daub. Buff. H. N.* xii. t. 15.

*Capra hircus*, *Schinz, Nov. Mem. Soc. Helv. Sci. Nat.* ii. t. 1, skull.

Bouc de Juda, *Daub. Buff. H. N.* xii. t. 22.

Skull. England.

Skull, with horns. India. From Mr. Argent's Collection.

Horns. India. From Mr. Argent's Collection.

Horns, elongate, erect.

Horns, expanded on the side.

Three skulls, var. Sinal, with the horns regularly bent back.

Nepal. Presented by B. H. Hodgson, Esq.

Skull, with horns, var. Chângra or Shawl Goat. Thibet. Presented by B. H. Hodgson, Esq.

Skull and horns of adult. Presented by B. H. Hodgson, Esq.

Skull, with horns, var. Chappoo, *Capra Chungra*. Thibet. Presented by B. H. Hodgson, Esq.

A young skull of same. Thibet. Presented by B. H. Hodgson, Esq.

A pair of separate horn-sheaths. Thibet. Presented by B. H. Hodgson, Esq.

Two skulls and horns. (The specimens described (*Capra Caucasica*) by Col. H. Smith.)

Single horns, in bad state, with only three very distant knots on front keel. Specimen described as *Capra Caucasica* by Col. H. Smith.

*Capra Caucasica*, *H. Smith, Griffith A. K.* v.; *Gray, List Mamm. B. M.* 167; *Cat. Osteol. Spec. B. M.* 60, not *Guldenst.*

#### DOMESTIC VARIETIES.

1. The Maykay or Maycay, *Buchanan, Mysore*, i. 120. t. 5. f. 10. *Hab.* India; Mysore; kept with sheep.

2. The Sircenagur Goat, *Hardw. Icon. ined. B. M.* n. 10,974. t. 110, 112, 113. *Hab.* India.

3. Jamnapari, *C. Æg. Arietinus, Desm. Mam.*

Bouc de Nepaul, *F. Cuv. Mam. Lith.* t. ♂ ♀.

Goat of the country west of the River Jumna, *Hardw. Icon. ined. B. M.* 10,974. t. 111.

Jamnapari, *Hodgson, Journ. Asiat. Beng.* xvi. 1847, 1024, *note.* *Hab.* India, bred in Nepal.



4. The Bukee, or Goat of the Dukhun, *Sykes, P. Z. S.* 1831.  
*Hab.* Dukhun.
5. Egyptian Goat, *H. Smith, Griffith A. K.* v. 307.  
*Capra* Æg. Thebaica, *Desm. Mam.* 848.  
*C.* Æg. Thebaicus, *Fischer, Syn.* 493.  
*C.* Indica, *Gesner, Jonst. Quad.* t. 26.  
Bouc de la Haute Egypte, *F. Cuv. Mam. Lithog.* t.  
Adimain, *Nieremb. H. N.* 183. fig.  
*C.* Æg. Ægyptiacus, *Fischer, Syn. Mam.* 649.  
*Hab.* N. Africa.
6. The Doogoo, *Hodgson, J. A. S. B.* x. 913; *Icon. ined.* t. 171. ♂ ♀.  
*Capra hircus* var. Doogoo, *Gray, Cat. Hodgson Coll. B. M.* 27.  
*Capra Dúgú*, *Hodgson, J. A. S. B.* xvi. 1024.  
*Hab.* Central Hill, Nepal; common, domesticated.
7. The Sinal, *Hodgson.*  
*C. hircus* var. Sinal, *Gray, Cat. Hodgson Coll. B. M.* 28;  
*Hodgson, Icon. ined.* 172; *J. A. S. B.* i. 347, xvi. 1022. t.,  
xx. 913.  
*Hab.* Nepal; Central Mountain region; domesticated, with  
hair and shorn.  
Three skulls, with the horns regularly bent back.  
A skin, with skull and horns.  
Drawing of varieties.—*Hodgson, Icon. ined. B. M.* t. 172.  
“A tall, largish species, with ordinary horns, long, flowing,  
straight hair, drooping, longish ears, and semi-erect short tail.”—  
*Hodgs. l. c. i.* 347.
8. The Cossia Goat. White. Feet pale brown. Horns short,  
recurved.  
*Capra* Æg. Cossia, *Buchanan, Hamilton, MSS.* ii. 9, and horn, t.  
*C.* Æg. Cossus, *Blainv. Bull. Soc. Phil.* 1816, 21.  
*C.* Aries Cossus, *Fischer, Syn.* 493.  
*C. tubericornis*, part., *Schinz, Verz.* 467.  
*Hab.* High Mountain districts; called *Cossea* in the East of  
Sylhet.

They are bred by the middling and lower classes of the inhabitants of the highest Cossia mountains. Neither the skin nor hair is applied to any use. The hair is coarse and straight, long and pendulous, and has no wool mixed with it, by which it is easily distinguished from the Shawl Goat. Ears spread, covered, like the legs, with short hair. Tail small and short.

“The female long-haired Goat is said sometimes to produce at a birth one kid like itself, and another short-haired, like the Common Goat of Bengal.”—*Buchanan, Hamilton, MSS.*

## 9. Greater Shawl Goat or Changra.

*Capra Ægagrus Changra*, *Buchanan, MSS. Icon. ined. t. 11; Hodgson, Icon. ined. t. 173. f. 1, t. 174. f. 1; Journ. Asiat. Beng. xvi. 1017.*

Changra, *Ogilby in Royle's Himal. i. 75.*

Changra or Shawl Goat, *Hodgson, J. A. S. B. i. 347, x. 913, xi. 283.*

*Hab.* Nepal and Thibet.

A skull with horns.

An adult skull with horns.

Drawing of male.—*Hodgson, Icon. ined. B. M. t. 173. f. 1, and t. 174. f. 2.*

Drawing of horns.—*Hodgson, Icon. ined. B. M. t. 175. f. 1, 2.*

Chungra, *Paruttes; Cholay, Newars; Camgoo, Thibetians; Shawl Goat, English.*

“Domesticated in Thibet; wool exported to Cashmere, where it is manufactured into cloth and felts. Many castrated specimens are brought to Nepal for food. Manners exactly like common Goat, and thrive best in a very cold climate.”

“Hair of body, neck, and upper part of head remarkably long, especially that arising from the spine, pendulous, straight and rather harsh, and intermixed with remarkably fine and soft short wool, which alone is used by the manufacturer; hair on legs and face rather short, and not mixed with wool. Ears very short. Nose straight. Horns longer than the head, much compressed, inner edge sharpest, approach at the base and diverge at the summit with a twist round; they are nearly straight, and stand on the plane of the forehead. Tail short.”

“The drawing from a castrated male (made by Mr. Burton).”—*Buchanan, Hamilton MSS.*

10. Lesser Shawl Goat, *Capra Ægagrus Chapu*, *Buchanan, Icon. ined. t.; Hodgs. Journ. Asiat. Beng. xvi. 1020. t.*

*Capra Hircus Chappoo*, *Gray, Cat. Hodgson B. M. 28.*

Chappoo, *Hodgson, Journ. A. S. B. x. 913.*

Bouc de Cachemire, *F. Cuvier, Mam. Lith. t.*

Cashmir Goat, *Knight, Mus. Anim. Nat. f. 664, 665.*

White, black varied. Horns suberect, subspiral.

*Hab.* Cashmere; *Buch. Tibet; Hodgson.*

Stuffed. India. From Capt. Boys's Collection.

A skull with horns.

A young skull.

A pair of separate horn-sheaths.

Drawing of male.—*Hodgson, Icon. ined. B. M. t. 173. f. 2, and t. 174. f. 1.*

Drawing of horns.—*Hodgson, Icon. ined. B. M. t. 175. f. 3, 4.*

11. Khassia Hill Goat, *Robinson, Assam, 99.*

Hair long, rather coarse, white.

*Hab.* Assam.

## 12. Berbura Goat.

*Capra imberbis* Berbura, *Hamilton, MSS. ii. 10, and Icon. t.*

*C. Æg. imberbis* Barbara, *Blainv. Bull. Soc. Philom. 1816, 61.*

*C. Aries* Barbarus, *Fischer, Syn. 493.*

*C. Jemlaica* var., *H. Smith, G. A. K.*

*Hab.* India; West of the Jumna; called Berbura ♂, Berburi ♀, and Ram Sagul, *Bengalese.*

The horns of the male near the ear at the base, inclining a little back and spread out laterally near the tip, much compressed at the root, convex before, concave behind, and having a spiral turn, not remarkably wrinkled. Ears short. Forehead prominent, covered with longish hair. No beard. Throat of males with a deep dewlap. Fur smooth. Hair harsh, of the spine forming an erect mane, and on fore-part of hind thighs long. *Male*: scrotum divided into two distinct bags. *Female*: want the long hair on spine, thighs, and the dewlap.

They differ from the common Indian Goat by the want of the beard and the length of the legs; and from the *Maycay* of Mysore by the shortness of the ears. They are white, variegated with black and reddish brown. Length from nose to horns 9 in.; from horns to tail 3 ft. 4 in.; height at shoulders 2 ft. 9 in.

“They are said by Mr. Fleming to have been introduced from Abyssinia by an ambassador from that country.”—*Hamilton, l. c.*

## 13. Naga Goat.

“Body marked with beautiful streaks.”—*Robinson, Assam, 99.*

*Hab.* Assam.

14. Whidaw Goat, *Penn. Syn. 16.*

*Capra reversa*, *Linn. S. N. 95.*

*C. Æg. reversa*, *Gmelin, Desm.*

*C. H. reversus*, *Schreb. S. t. 206 a; Buffon, H. N. xii. 154.*

Bouc de Juda, *Buffon, H. N. xii. t. 20, 21, 22; Suppl. iii. t. 13.*

*Hab.* Whidaw.

15. African Goat, *Penn. Syn. 16.*

*Capra depressa*, *Linn.*

*C. H. depressa*, *Schreb. t. 287.*

Bouc d’Afrique, *Buffon, H. N. xii. 154. t. 18.*

Chèvre nain, *Buffon, H. N. xii. 154. t. 19; F. Cuv. Mam. Lith. t.*

*Hab.* Africa.

16. Common Goat, *Shaw.*

*Capra hircus*, *Linn.*

Capricorne, *Buffon, H. N. xii. 146. t. 15, skeleton.*

- Capra capricornus, *Meyer, Ann.* 39.  
 C. *Ægagrus capricornus*, *Gmelin, S. N. i.* ; *Erxl.* 364.  
 C. *Hircus capricornus*, *Fischer, Syn.* 486.  
 Capricorne Goat, *Penn.*  
 Goat, *Low, Dom. Anim. B. I. ii.* 73.  
 Bouc et Chèvre, *Buffon, H. N. v. t. 8, 9.*  
*Hab.* Europe.
17. Thibet Goat, C. *H. Thibetanus*, *Desm.* 484.  
 Chèvre de Thibet, *F. Cuv. Mam. Lith.*  
 Bouc de Cachemere, *F. Cuv. Mam. Lith. t.*  
*Hab.* Thibet.
18. Angora Goat, *Penn. Syn.* 15; *Shaw, Zool. ii.* 275. t. 200.  
 C. *Angorensis*, *Linn.*  
 C. *Hircus Angorensis*, *Erxleb.*; *Schreb. Saughth. t.* 284 A, B.  
 C. *Æg. Angorensis*, *Gmelin, Desm.*  
 C. *Angolensis*, *Hasselq. N. Palæst.* 285.  
 Chèvre d'Angora, *Tour. Voy. ii.* 185. fig.; *Buffon, H. N. v.*  
 71. t. 10, 11; *F. Cuv. Mam. Lith. t.*  
*Hab.* Angora.
19. Syrian Goat, *Penn. Syn.* 15. t. 5. f. 1, 2.  
 Capra *Mambrica*, *Linn.*  
 C. *Hircus Mambrica*, *Schreb. t.* 285; *Desm.*  
 C. *Mambrine ou de Levant*, *Buffon, H. N. xii.* 152. t. 10.  
 C. *auribus demissis*, *Aldrov. Bisulc.* 769. fig.  
 C. *Syriaca*, *Brisson.*  
 Long-eared Syrian Goats, *Knight, Mus. Anim. Nat. f.* 661,  
 662, 663.  
*Hab.* Syria.
20. Persian Goat, *H. Smith, Griffith A. K. v.* 306.  
 C. *Æg. Persicus*, *Fischer, Syn. Mam.* 648.  
*Hab.* Persia.
21. Indian Goat, *H. Smith, G. A. K. v.* 307.  
 C. *Æg. Indicus*, *Fischer, Syn. Mam.* 649.  
 Indian Goats (various), *Capra Ægagrus var.*, *Hardw. Icon.*  
*ined. B. M. n.* 10,974. t. 114, 115. t. 189, 190, 191.  
*Hab.* India.
22. Spanish or Hornless Goat, C. *Hircus ecornis*, *Schreb. Saughth.*  
 i. t. 287 B.  
 C. *Æ. acera*, *Desm.*  
 Chèvre sans cornes, *F. Cuvier, Mam. Lith.*  
*Hab.* Spain.
23. Caschmere Goat, C. *Æg. lanigera*, *Desm. Mam.*

Chèvre de Cachemere, *F. Cuv. Mam. Lith. t.*; *Desmoul. Dict. Class. H. N. iii.* 578.

*Hab.* Thibet.

24. Jamaica Goat, *C. Hircus Jamaicensis*, *Fischer, Syn.* 486.  
*Hab.* Jamaica.

25. South American Goat, *Capra Ægagrus*, *Renger*, 366.  
*Hab.* S. America.

Dr. Gardiner observes, "Goats in Brazil lose the long hair natural to them in cold countries, which proves how much the œconomy of animals can suit itself to change of circumstances." —*Travels*, 163.

*Var.* 1. Horns very large, more or less twisted, varying from the curvature of those of the *Koodoo* (*A. Strepsiceros*), only in an opposite direction, to the straight with spiral keel of the *Impofo* (*Antilope Oreas*). Size large. Brown, like Domestic Goat. *Aigoceros Falconeri*, *Wagner, Murch. Gel. Anzeig.* 1839, ix. 430; *Wiegmann, Arch.* 1841, 54.

*Capra Falconeri*, *Hugel*; *Wagner in Hugel Kaschmir*, iv. 579. tab. , 1844; in *Wiegmann, Arch.* 1845, ii. 7.

*Markhur*, *Vigne, Ghuzni, Kabul, Afghanistan*, 1840, p. 86; *Travels in Kashmir*, 279; *Lord in Burns' Cabool* (1842), p. 386.

Wild Goat, *Blyth, Proc. Zool. Soc.* viii. 88.

*Capra magoceros*, *Huffon, Calcutta Journ. N. H.* ii. 521. t. 20.

*Markbur*, *Blyth, Ann. N. H.* vii. 196, note.

*Capra Ægagrus*, var., *Blyth, P. Z. S.* 1840, 80.

*Markhor*, *Ray Soc.* i. 65.

*Capra hircus*  $\gamma$ . *asiatica*, *Sundevall, Pecora*, 97.

*Hab.* India; Mountains of Cashmere; *Dr. Falconer*. Called *Markhore* or Snake-Eater by the Afghans, and "*Marbul* at Cabul," *Blyth*. *Rewachi* of Little Thibet.

Mr. Blyth justly observes, that the horns of all domestic Goats have a tendency to assume the spiral form, especially at the tip, and he has never observed this in the wild kinds. He further remarks, that he has never seen two specimens of the *Markbur* with the horns alike.

Mr. Blyth says, "I consider the *Markbur* to be a feral race of domestic Goats of remarkable large size, but otherwise not essentially different from the *Shawl Goats* of the same countries." —*Ann. N. H.* vii. 196, note.

#### OSTEOLOGY.

Skull, with horns. India. Presented by the E. I. Company.

Single horn. India. Presented by H. Falconer, M.D.

*Doubtful species.*1. *Capra*?

*Antilope torticornis*, *Herm. Obs. Zool.* i. 87.

A. (*Tragelaphus*) *torticornis*, *Fischer, Syn.* 473.

2. *Antilope?* *grandicornis*, *Herm. Obs. Zool.* 87; *Fischer, Syn.* 466. 633.

A. *Ægocerus grandicornis*, *H. Smith, G. A. K.* v. 812.

Subtribe V. *Oveæ*. Forehead flat or concave. The horns are more or less spiral, wider than deep at the base, and slightly annulated in front. The females are often hornless. The skull has a more or less deep rounded suborbital pit, without any fissure; the masseteric ridge ascending high before the orbit; the auditory bulla small; the basioccipital flat, more or less expanded anteriorly by the extension of the anterior pair of tubercles, the posterior ones small; the cutting-teeth are nearly equal-sized and shelving; and there are no supplemental lobes to the grinders. The hoofs are triangular, and being shallow behind, they have distinct interdigital fossæ. Males emitting no stench.

*Ovis*, *Linn. S. N.*; *Desm.* 1804.

*Aries*, *Brisson, R. Anim.* i. 48, 1762.

*Capra*, sp., *Illiger*, 107, 1811.

*Ovis*, *Raii Syn. Quad.* 73; *Gray, Ann. & Mag. N. H.* 1846, 230.

*Ovis*, part., *Wagler, N. Syst. Amph.* 32, 1830.

*Oveæ*, *Gray, Ann. & Mag. N. H.* 1846, 230.

*Ovidæ*, *J. Brookes, Mus. Cat.* 72, 1828.

*Capridæ*, part., *Ogilby, P. Z. S.* 1836, 137.

*Ovesidæ*, part., *Lesson, Nov. Tab. R. A.* 182.

*Sheep*, *Penn. Hist. Quad.* i. 32.

*Ovis* v. *Ammon*, *Blainv. Bull. Soc. Phil.* 1816, 76.

*Aries*, *Rafinesque, Anal. Nat.* 56, 1815.

In fighting they run a-tilt, adding hither the force of impulse to that of weight; incurious and timid; rarely bark trees.

Pallas, and more lately G  n  , Hodgson, Blasius, and Blyth, have pointed out the characters that define the limits of this genus, which Desmarest, Fischer, and several other authors are inclined to place with the Goat.

The females are sometimes hornless. Gmelin noticed this with respect to *O. Ammon*, Blyth. *O. Nahor* and the female Corsican *O. Musimon* are generally hornless.

Blasius has remarked that the right horn of *O. Argali*, *O. montana*, *O. Nahor*, *O. Aries*, *O. Musimon* and *O. Vignei*, winds to the left, but in the two latter species only slightly, while in *O. Tragelaphus*, *O. orientalis*, *O. Burhel* and *O. Cyprius*, the right horn winds to the right.

## SYNOPSIS OF GENERA OF OVEÆ.

1. OVIS. Crumen distinct. Tail elongated. Skin covered with wool or adpressed hair.
2. CAPROVIS. Crumen distinct. Tail very short. Skin covered with thick hair, covering the wool.
3. PSEUDOIS. Crumen none. Tail rather elongated. Forehead convex. Skin covered with thick hair.
4. AMMOTRAGUS. Crumen none. Tail rather elongated. Forehead concave. Skin covered with short hair, and elongated tuft of hair.

*a. Crumen distinct. Infraorbital pit distinct.*

## I. OVIS.

Forehead convex. Horns more or less spiral, bent inwards at the tips, varying greatly in size and form. Crumen distinct. Tail more or less elongated. Body covered with wool or close-pressed hair. Skull with a more or less deep suborbital pit, but no fissure.

Ovis, sp., *Linn.*

Capra, sp., *Blumenb.; Fischer.*

Musmon, *Schrank, Fauna Boica.*

Aries, *Rafn. Anal. Nat.* 56, 1815.

## I. OVIS (ARIES) ARIES. THE SHEEP.

*Ægoceros Aries, Pallas; Wagner.*

Ovis Aries, *Linn. S. N.* i. 97; *Gmelin, S. N.* i. 197; *Erxl.* 242; *Desm. Mam.* 488; *Gray, List Mamm. B. M.* 169; *List Osteol. B. M.* 61; *List Hodgson Mam. & Birds B. M.*; *Sundevall, Pecora,* 89.

Ovis domestica, *Brisson, Règ. Anim.* 74.

Capra Ovis, *Blumenb. Naturg.* x. 116.

Capra Aries, *Fischer, Syn.* 489. 649.

Musmon Aries, *Schrank, Faun. Boic.* i. 46.

Pecus, Aries, Ovis, *Plin. H. N.* viii. 47, 48.

Ovis Aries, &c., *Gesner, Quad.* 872. f. 873, 925, 926; *Jonst. Quad.* 54. t. 22; *Linn. Amœn. Acad.* iv. 169.

Sheep, *Penn. B. Z.* 10; *Youatt, Sheep, their breeds, &c.*; *Low, Dom. Anim. Brit. Islands.*

Ram, *Penn. Syn.* 10.

Belier et Brehis, *Buffon, H. N.* v. l. t. 1, 2; *Schäf. Meyer Thiere,* i. t. 51; *Walther, Wetterau Ann.* i. 283.

*Hab.* Domesticated.

Female Turkish Sheep, brown and white varied; tail slender; with two throat-beards.

O. *Aries Africanus*, *Linn.*

O. *Aries longicaudatus*, *Brisson?*

Male, many-horned, white and black varied.

O. *Aries polyceratus*, *Linn.*; *Buffon*, *H. N.* xi. 354. t. 31, 32; *Penn. B. Quad.* t. 3. f. 2, 3.

Young.

#### OSTEOLOGY.

Mouton, *Cuvier*, *Oss. Foss.* iv. t. 1. f. 1-4, skull.

Brebis, *Daub.* *H. N.* v. 1.

Horns of many-horned variety.

Horns of many-horned variety.

Horns, small.

Skull and horns of spiral-horned variety.

Skull and horns of spiral-horned variety.

Horns of spiral-horned variety.

Horns of spiral-horned variety.

Skull, with the horns united together at the base.

*Var.* Huniah Sheep.

Skull of adult male, with horns. Nepal. Presented by B. H. Hodgson, Esq.

Skull of young, without the cases of the horns. Nepal. Presented by B. H. Hodgson, Esq.

Skull of young, without the cases of the horns. Nepal. Presented by B. H. Hodgson, Esq.

Two skulls of many-horned variety, horns of each side arising from the same base, showing that they are produced by the division of the core. Nepal. Presented by B. H. Hodgson, Esq.

Two skulls of four-horned varieties, with horns separate from one another at the base (each wanting one sheath). Nepal. Presented by B. H. Hodgson, Esq.

*Var.* Dumba. Skull of a "Cabul Dumba Sheep." Presented by B. H. Hodgson, Esq.

*Var.* Cago. Skull of adult (without the sheath of the horns), imperfect. Presented by B. H. Hodgson, Esq.

Skull of the young, hornless.

*Var.* Horns united at the base. Skull, with the horns cut off near the base. Presented by B. H. Hodgson, Esq.

Skull. England.

Skull. From Mr. Argent's Collection.

Skull. Fat-tailed variety. From Mr. Argent's Collection.

Horns, separate.

Skull and horns.



Skull and horns.

Skull and horns. From Mr. Argent's Collection.

The Domestic Sheep offer many varieties in the form and even the number of the horns, and especially in the texture of their fur. Many in cold and temperate climates, which are covered with wool, when they are moved to a warmer climate become permanently covered with short hair.

Dr. Gardiner in his journey from Pernambuco to Crato passed through a flock of several hundred sheep. "The excessive heat of the climate had wrought a remarkable change in their appearance, their skin being wholly destitute of wool, and replaced by a short hair not unlike that of a cow."—*Trav.* 163.

But some kinds even in England, which are covered with wool in the winter, are covered with short adpressed hair in the summer. This is the case with the West India Sheep, noticed by Mr. Blyth (*Ann. Nat. Hist.* vii. 255). They also present several varieties in the form of the tail.

Pallas divides the Russian Sheep into four varieties, according to the shape of the tail, thus:—

- a. *O. dolichura occidentalis*, Pallas, *Spic. Zool.* xi. 60; *Zool. Ross. Asiat.* 233.
- b. *O. platyura media*, Pallas, *S. Z.* xi. 78; *Itin. poster.* ii.; *Zool. Ross. Asiat.* 233.
- c. *O. Steatopyga orientalis*, Pallas, *S. Z.* xi. 63. 80. t. 4; *Nov. Comm. Petrop.* v. 31. 343. t. 8; *Zool. Ross. Asiat.* 233.
- d. *O. brachyura borealis*, Pallas, *Spic. Zool.* xi. 61; *Zool. Ross. Asiat.* 233.

#### DOMESTIC VARIETIES.

1. Spanish Sheep, *Shaw, Zool.*  
*Ovis Hispanicus*, *Linn. Amæn. Acad.* iv. 174.  
 Merino, *Desm. N. Dict. H. N.* t. 918. f. 1, 2.  
 Merino Sheep, *Knight, Mus. Anim. Nat.* f. 682.  
 British Middle-wooled Sheep, *Knight, Mus. An. Nat.* f. 684.  
 Merino Ram and Ewe, *Low, Dom. Anim. Brit. Islands*, ii. t. 12.
2. Common Sheep, *Penn. Syn.*; *Hist. Quad.* i. 33.  
*Ovis rusticus*, *Linn. Amæn. Acad.* iv. 174.  
*O. Gallica*, *Desm.*  
*O. brachyura*, Pallas, *Spic. Zool.*  
*O. leptura*, *Schreb. Saughth.* t. 290 A. B.
- a. Hornless Sheep, *O. Anglicana*, *Linn. Amæn. Acad.* iv. 174.  
*Ovis A. Anglicus*, *Erxleb.*  
 Lincolnshire Sheep.

- b. Muggs Sheep and Shetland Sheep, *Fleming, Brit. Anim.* 25.  
Shetland Sheep, *Bewick, Hist. Quad.* 68.  
Soft-wooled Highland Sheep, *Low, Dom. Anim. B. Islands.*
- c. Ryeland Ram and Ewe, *Low, Dom. Anim. B. I. ii. t.* 13.
- d. Southdown Ram, Ewe and Lamb, *Low, Dom. Anim. B. I. ii. t.* 14, 15.
- e. Old Lincoln Ram, *Low, Dom. Anim. B. I. ii. t.* 16.
- f. Romney Marsh Ewe and Lamb, *Low, Dom. Anim. B. I. ii. t.* 17.
- g. Cobwold Ewe and Lamb, *Low, Dom. Anim. B. I. ii. t.* 18.
- h. New Leicester Ram and Wether, *Low, Dom. Anim. B. I. ii. t.* 19.  
Leicester Ewe and Lambs, *Stephens, Book of the Farm*, 1278.  
fig. & t. 33.  
Improved Leicestershire Sheep, *Bewick, Hist. Quad.* 63.
- i. Cheviot Ram, *Bewick, Hist. Quad.* 58. fig.
- k. Old Teeswater Ram, *Bewick, Hist. Quad.* 60. fig.
- l. Improved Teeswater Ram, *Bewick, Hist. Quad.* 61. fig.
- m. Mr. Culley's Wedder, *Bewick, Hist. Quad.* 66. fig.
- n. The Dunky or Dwarf Ram, *Bewick, Hist. Quad.* 70. fig.
- o. Zetland and Orkney Ram and Ewe, *Low, Dom. Anim. B. I. ii. t.* 1.
- p. Higher Welsh Mountain Ewes, *Low, Dom. Anim. B. I. ii. t.* 2.
- q. Soft-wooled Sheep of Wales (Ewes), *Low, Dom. Anim. B. I. ii. t.* 3.
- r. Wicklow Mountain Sheep (Ram and Ewe), *Low, Dom. Anim. B. I. ii. t.* 4.
- s. The Kerry Sheep (Wethers), *Low, Dom. Anim. B. I. ii. t.* 5.
- t. Exmoor Ram and Ewe, *Low, Dom. Anim. B. I. ii. t.* 6.
- u. Black-faced Sheep, *Fleming, Brit. Anim.* 25.  
*Ovis collaris*, *Walker, Essays*, 522.  
Black-faced Heath Sheep (Ewe and Lamb), *Low, Dom. Anim. B. I. ii. t.* 7. Ram, t. 3, *Supp.*  
Black-faced or Heath Ram, *Bewick, Hist. Quad.* 56. fig.  
Improved Heath Ram, *Bewick, Hist. Quad.* 57. fig.  
Black-faced Ram and Ewe, *Stephens, Book of the Farm*, 1281.
- v. Cheviot Ewe, *Low, Dom. Anim. B. I. ii. t.* 8.  
Cheviot-tup, *Stephens, Book of the Farm*, 1279.
- w. Old Norfolk Ewe, *Low, Dom. Anim. B. I. ii. t.* 9.

- x.* Old Wiltshire Ram and Ewe, *Low, Dom. Anim. B. I. ii. t. 10.*
- y.* Dorset Ram and Ewe, *Low, Dom. Anim. B. I. ii. t. 11.*
- z.* The Rass or Roosh, *Ovis Polii*, *Blyth, P. Z. S. 1840, 62; Ann. & Mag. N. H. vii. 195. t. 5. f. 1, 2, horns; Gray, List Osteol. B. M. 61.*
- Ovis Sculptorum*, *Blyth, P. Z. S. 1840, 63; Ann. & Mag. N. H. vii. 196. t. 5. f. 3, 4.*
- Wild Sheep, *Marco Polo, Travels, 142.*
- Rasse, *Burnes, Travels Bokhara, ii. 208.*
- Hab.* India; Plains of Pamer, east of Bokhara, 16,000 feet above the sea level.—*Blyth.*

## OSTEOLOGY.

Horns, separate. Bokhara. Presented by the East India Company.

The skull named *Ovis Polii* in the Museum of the India Company, Leadenhall Street, which was sent from the Asiatic Society of Bengal, agrees with Blyth's figure, and is probably one of the heads he describes as being in that Collection; the facial line is very convex.

The India Company received from Capt. Strachan (Dec. 1850) the skin, with head and horns, which exactly resembles the pair of horns and skull from the Bengal Society, and with Blyth's figures; but it is evidently a variety of the Domestic Sheep covered with wool.

The animal does not agree with the *Katchgar* or Wild Sheep of *Wood's Sources of the Oxus*, 368, quoted by Mr. Blyth in the *Journal of the Asiatic Society of Bengal.*

- 3.* Barwall Sheep, *Ovis (Aries) Bâr wâl*, *Hodgson, J. Asiat. Soc. Beng. x. 913.*

*Ovis Barual*, *Hodgson, J. A. S. B. xvi. 1010. t. , & t. . f. 3, head.*

Kachar or Barwal Sheep, *Hodgson, J. A. S. B. i. 347.*

*O. Ammonoides* var. 1, *Gray, Cat. Hodgson Coll. B. M. 29.*

Barwall, *Ogilby in Royle's Himal. i. 75.*

*Hab.* Nepal.

Skin, with head and horns, imperfect. Nepal. Presented by J. B. Hodgson, Esq.

## OSTEOLOGY.

Skull, with horns, half-grown, imperfect. Nepal.

Two pair of horns of different ages. Nepal.

## ICON.

Drawing of adult.—*Hodgson, MSS. ined. B. M. t. 179, t. 181. f. 2.*

4. Huniah Sheep, *Ovis hunia*, *Hodgs. J. A. S. B.* i. 348, xvi. 1847, 1005-1; *P. Z. S.* 1834, 99.

The Hoonia or Black-faced Sheep of Tibet, *Hodgs. J. A. S. B.* xi. 284. t. , young male.

Hoaniah Sheep, *Ogilby in Royle's Himal.* i. 75.

*Hab.* Nepal, Northern hilly region.

“Large tall breed, with slender, compressed, spirally twisted horns, and short narrow tails; wool white, superb; individuals have often three, four, and even five horns.”—*Hodgson.*

#### OSTEOLOGY.

A skull of adult male, with horns.

Two skulls of young, without the cases of the horns.

Two skulls of many-horned variety, horns of each side arising from the same base, showing they are produced by the division of the core.

Two skulls of four-horned varieties, with horns separate from one another at the base (each wanting one sheath).

#### ICON.

Drawing of Hoonia Sheep, two varieties.—*Hodgson, Icon. ined. B. M.* t. 180, one copied t. 181. f. 1.

“Barwall and Hoaniah Sheep are used as beasts of burden for carrying grain and other produce across the mountains.”—*Ogilby, l. c.* 74.

5. Cago, *Hodgs. J. A. S. B.* x. 913.

*Ovis Cagia*, *Hodgs. J. A. S. B.* xvi. 1013.

The Kago, or Tame Sheep of Cabul region, *Hodgs. J. A. S. B.* i. 348.

Cago Sheep, *Gray, List Hodgson Mam. & Birds B. M.*

*Hab.* Nepal, Central hilly region.

#### OSTEOLOGY.

A skull of adult (without the sheath of the horns), imperfect.

A skull of the young, hornless.

#### ICON.

Drawing of male *Cago* or *Cajia Bhira*, female and young.—*Hodgson, Icon. ined. B. M.* t. 182.

6. Seling Ovis § *Silingia*, *Hodgs. J. A. S. B.* x. 913, xvi. 1008. t. , & t. . f. 4.

*Hab.* Nepal, Central hilly region; Tibet, eastern.

A specimen with head and horns.

#### ICON.

Drawing of *Silingia* Sheep, male and female.—*Hodgson, Icon. ined. B. M.* t. 183.

7. Curumbar (Sheep), *Buchanan, Mysore*, ii. 277. t. 17 ♂ ♀. f. 42, 43.  
Wool thick, curly, with little or no hair. Ears small.  
*Hab.* India; Mysore.
8. The Sheep called Gārār, *Buchanan Hamilton?*, *Icon. ined. Mus. Ind. Company*, t. ♂ ♀.  
Black. Wool short. Tail very long, slender. Horns short, close-pressed on side of head. Face arched. Ears large, dependent.  
*Hab.* India.
9. The Dukhun Sheep, *Sykes, P. Z. S.* 1831.  
Legs short. Body throughout short, chaffron arched. Wool short, crisp and coarse, nine-tenths black, with a white streak from angle of the eyes to the mouth, and a white patch on crown. They are extensively bred; as many as 20,000 or 30,000 Sheep and Goats may be seen together in the uncultivated tracts of the Dukhun.  
*Hab.* Dukhun.
10. West-Indian Sheep, *Blyth, Ann. N. H.* vii. 255, note.  
*Hab.* West Indies. *Mus. Zool. Soc.*
11. Brazilian Sheep, *Gardiner, Travels Brazils*, 163.  
*Hab.* Brazils.
12. Demerara Sheep. Brown. Horned. Ears small, erect, covered with long, harsh hair, much longer on the sides; of face short, adpressed. Tail elongate, slender. In summer, hair short and adpressed.  
*Hab.* W. Africa.  
A male. From the Gardens of the Zoological Society.
13. South American Sheep, *Ovis Aries*, *Renger*, 366.
14. Smooth-haired Sheep, *Ovis Africanus*, *Raii Syn.* 75; *Linn. Amæn. Acad.* vi. 173.  
*O. Æthiopica*, *Charlét. Exerc.* 9.  
*O. Africana a*, *Sloane, Jam.* ii. 328.  
*Hab.* Africa.
15. African Sheep, *Penn. Syn.* 12.  
*Ovis Guineensis*, *Raii Syn.* 75; *Linn. S. N.* 98; *I. Geoff. Dict. Class. H. N.* xi. 268.  
*A. longipes*, *Desm. Mam.* 489.  
*A. Guineensis seu Angolensis*, *Marg. Bras.* 234. fig.  
*Caper Mambrinus*, *Charlet. Exerc.* 10.  
*Adimmayn*, *Marmol. Afric.* i. 39.  
*Mouton*, *Adans. Seneg.* 37.

Mouton à longes jambes, *F. Cuv. Mam. Lith. t.*  
 Belier du Senegal, *Buffon, H. N. xi. 359.*  
 Sheep of Sahara, *Shaw, Travels, 241.*  
*Hab. Africa.*

16. Guinea Sheep, *Knight, Mus. Anim. Nat. f. 676.*  
 Belier et Brebis des Indes, *Buffon, H. N. xi. t. 35, 36; cop.*  
 O. A. Guineensis, *Schreb. Saugth. t. 294 a, b, c.*  
*Hab. Guinea.*
17. Morvant de la Chine, *Buffon, Supp. iii. t. 10.*  
*Hab. China?*
18. Shaymbliar (Sheep), *Buchanan, Mysore, ii. 277. t. 18. f. 44,*  
 45 ♂ ♀.  
 Wool very scanty, principally covered with reddish brown or  
 black hair.  
*Hab. India; Mysore.*
19. Sheep of Zeyla, *Buckingham, Trav. Arab Tribes, 93.*  
 White. Head and neck black or brown, covered with hair.  
 Tail slender at the tip, short, broad, and fat at the base.  
*Hab. Zeyla; entrance of Red Sea. Domestic at Mokha; Buck-*  
*ingham.*
20. Fezzan Sheep, *Bennett, List Anim. Gard. Zool. Soc. 1830,*  
 12. 474.  
*Hab. Tripoli. Presented by Hanmer Warrington, Esq.*
21. St. Helena Sheep. Covered with short smooth hair. White,  
 black spotted. Tail subcylindrical.  
*Hab. St. Helena.*  
 A lamb born in Enfield, from one of Mr. Warren's flocks at  
 Enfield. Purchased of Mr. Argent, 1850. A true Sheep, very  
 like a Goat, with a cylindrical tail.
22. Marocco Sheep, *Ovis Ar. Numidæ, H. Smith, Griff. A. K. iv.*  
 326.  
*Hab. Marocco.*
23. Congo Sheep, *Ovis Aries Congensis, H. Smith, Griff. A. K. iv.*  
 326.  
*Hab. Congo.*
24. Angola Sheep, *Ovis Aries Angolensis, H. Smith, Griff. A. K. iv.*  
 326.  
*Hab. Angola.*
25. Zenu or Goitred Sheep, *Ovis Aries Steatinion, H. Smith,*  
*Griff. A. K. iv. 327. t. 196.*  
*Hab. Angola.*

26. The Ixalus, *Ixalus probaton*, *Ogilby, Proc. Zool. Soc.* 1836, 119, 135.  
*Ovis* —, sp., *Blyth, P. Z. S.* 1840, 12; 1843, 73; *Ann. & Mag. N. H.* vii. 255.  
*Ovis ixalon*, *Sundevall, Pecora*, 90.  
*Ovis Aries* var., *Gray, Knowsley Menag.* 40.  
*Hab.* —. *Mus. Zool. Soc.*
- Mr. Ogilby made a genus of this skin, but it appears to be only a short-haired Sheep with rudimentary horns.
27. Cretan Sheep, *Penn. Syn.* 11. t. 3. f. 1; *Hist. Quad.* 33; *Shaw, Zool.* ii. t. 203.  
*Ovis Strepsiceros*, *Raii Syn.* 75; *Linn. Syst. Nat.* i. 98; *Belon. Obs.* 20. fig.  
*O. A. Strepsiceros*, *Schreb. Saughth.* t. 291 a. b.  
*O. Cretensis*, *Jonst. Quad.* t. 45.  
*Capra Cretensis*, *Brisson.*  
*Strepsiceros Cretica*, *Besch. Naturf. Freund.* iv. 624. t. 20.  
*Cretensis Aries*, *Aldrov. Bisulc.* 406. fig.  
*Strepsiceros*, *Buffon, H. N.* xi. 358.  
*Belier et Brebis de Valachie*, *Buffon, H. N. Supp.* iii. t. 7, 8.  
*Zackl, Austrians.*  
*Wallachian Sheep*, *Bewick, Hist. Quad.* 73. fig.  
*Chèvre de Crète*, *Buffon, H. N.*  
*Hab.* Island of Crete.
28. Long-tailed Sheep, *Ovis longicaudatus*, *Brisson, R. A.* 76.  
*O. dolichura* seu *tscherkessica*, *Pallas, Spic.* xi. 60.  
*Ovis dolichura occidentalis*, *Pallas, Zool. Ross. Asiat.* i. 233.  
*O. Arabica*, *Jonston, Quad.* t. 23.  
*Arabix Oves*, *Aldrov. Bisulc.* 404.  
*Arabisch Schaf*, *Gesn. Thierb.* 326. fig.  
*Mouton à long queue*, *Munk. Palestine*, t. 3.  
*Hab.* Russia.
29. Broad-tailed Sheep, *Shaw, Travels*, 241; *Penn. Syn.* 4. t. 1.  
*Ovis laticaudatus*, *Erxl., Geoff. Mem. Egypt.* t.; *Lesson, Comp. Buffon*, x. 312.  
*O. laticauda platyceros* s. *arabica*, *Linn. Amœn. Acad.* iv. 173;  
*J. G. Gmelin, Nov. Com. Petrop.* v. 343. t. 8.  
*O. Turcica*, *Charlet. Exerc.* 9.  
*O. cauda obesa*, *Ludolf, Æth.* 146. fig.  
*Arabix Oves*, *Aldrov. Bisulc.* 404. fig.  
*Mouton de Barbarie*, *Buffon, H. N.* xi. 355. t. 33.  
*Sheep, Russel, Aleppo*, 51.  
*Belier de Tunis*, *Ency. Méth.* t. 47. f. 2.  
*Hab.* Barbary.

- a. Fat-rumped Sheep, *Penn. Quad.*; *Shaw*.  
*O. Steatopyga*, *Pallas*, *Spic.* 55. t. 4. f. 1, 2; *Schreb. Saugh.*  
 t. 292.  
*Ovis steatopyga orientalis*, *Pallas*, *Nov. Comm. Petrop.* v. 31.  
 343. t. 8; *Zool. Ross. Asiat.* i. 233.  
*O. Aries Kurgiesia*, *Gene*, l. c.  
 Tartarian Sheep, *Bewick*, *Hist. Quad.* 71. fig.
- b. Persian Sheep, *Knight*, *Mus. Anim. Nat.* f. 677.  
*Ovis A. ecaudatus*, *I. Geoff. Dict. Class. H. N.* xi. 268.  
*O. Aries recurvicauda*, *Gene*, *Mem. Acad. Torino*, xxxvii. 286.  
 t. 1 & 2.
- c. Fat-tailed Sheep, *Knight*, *Mus. Anim. Nat.* f. 678, 679.  
*O. A. macrocerus*, *Schreb. Saugh.* t. 295; *Gene*, *Mem. Acad.*  
*Torino*, xxxvii. 285.  
 Mouton à grosse queue, *F. Cuvier*, *Mam. Lith.* t.
- d. The Aora fiyel, or Abyssinian Sheep.  
*Ovis steatopygus*, *Des Mur. et Flor. Prevost, Voy. en Abyssinie*, vi. 36. t. 6. 1851.  
*Hab.* Abyssinia.
- e. Bucharian Sheep, *Ovis Bucharica*, *Pallas*, *Spic.* xi. 78.  
 Mouton d'Astrachan, *Desm.*  
*Ovis Aries Astrachanica*, *Gene*, *Mem. Acad. Torino*, xxxvii.  
*Ovis platura media*, *Pallas*, *Zool. Ross. Asiat.* i. 233.  
*Hab.* Bucharia, Caucasus, and Persia.  
 The skin of the unborn lambs with grey curled hair is much  
 prized as a fur.
- f. Thibetan Sheep, *O. Thibetanus*, *Fischer*, *Syn.* 491.  
 Cachemerisches und Thibetanisches Schaf, *Walth.*  
 Tus Aessel, *Thibetian*.  
*Hab.* Thibet.
- g. Cape Sheep, *Penn. Syn.* t. 4. f. 2.  
*Ovis Capensis*, *Eræleb.* 250; *Thunb. Mem. Acad. Petersb.* iii.  
 318.  
*Hab.* Cape.
- h. *Ovis Aries appendiculata*, *Gene*, *Mem. Acad. Torino*, xxxvii.  
 285.
- i. Sheep of Belkah, *Buckingham*, *Trav. Arab. Tribes*, 93.  
 Body white. Head and neck black or brown. Covered with  
 thick wool. Tail short, fat, broad, with a thin excrescence at  
 the end like a pig-tail, about an inch long.  
*Hab.* Palestine; Plains of Belkah.



30. Many-horned Sheep, *Penn. Syn. t. 3. f. 2, 3*; *Bewick, Hist. Quad. 72. fig.*  
*Ovis polyceratus, Linn. Amæn. Acad. iv. 174*; *Schreb. Saugth. t. 289.*  
*O. sexcornis et O. tricornis, Aldrov Bisulc. 397. fig.*  
*Brebis à plusieurs cornes, Buffon, H. N. xi. 354.*  
*Belier et Brebis d'Island, Buffon, H. N. xi. t. 31, 32.*  
 Four-horned Ram, *Knight, Mus. Anim. Nat. f. 680.*  
 Dumba Sheep, *Gray, List Hodgson Mam. & Birds B. M. Hab. India; Nepal.*
31. The Puchia or Hindostan Dumba.  
*Ovis puchia or O. pucchia, Hodgson, Journ. Asiat. S. B. xvi. 1016. t.*  
*Cabul Dumba, Hodgson, l. c. ii. 390, iv. 330.*  
 Skull of a "Cabul Dumba" Sheep.  
 Drawing of "Indian Doomba Sheep."—*Hodgson, Icon. ined. B. M. t. 184. f. 1, copied t. 185. f. 1.*  
 Drawing of "Cabool Doomba Sheep."—*Hodgson, Icon. ined. B. M. t. 184. f. 2, copied t. 185. f. 2.*  
 Four-horned Sheep, with long mane on neck below. Drawing in India ink, with a pencil sketch on the back.—*Bank. Icon. Mam. t.*  
 Drawing in colours, by S. Parkinson, after nature.—*Bank. Icon. Mam. t., copied Pennant, Quad. i. t. 3. f. 2.*  
 Drawing in colours, by F. Masson, in lat. 50°, long. 115°.—*Bank. Icon. Mam. t.*  
*Hab. India.*
32. The Short-tailed Sheep.  
*Ovis brachyura borealis, Pallas, Spic. Zool. xi. 61; Zool. Ross. Asiat. i. 233.*  
*Hab. Northern Russia.*
33. Sheep of Tartary, *Moorcroft; Lesson, Compl. Buffon, x. 313.*  
*Hab. Tartary.*  
 "Eat bones like a dog."

## 2. CAPROVIS. MOUFFLONS OR WILD SHEEP.

Horns (in male only) bent in a half circle over the back, heavy, wrinkled, angular and compressed. Muffle none. Nose ovine. Eye-pits small, indistinct. Tail short, deer-like, without any tail-disc. Hair thick, entirely concealing the woolly under-coat. Beard none. Caprine odour none. Skull with small deep pit in front of orbit.

Caprovis, *Hodgson, Var. Gen. Ruminants, 1847, 18.*  
*Ovis § Musimon, Gray, Knowsley Menag.*

A. Musimon. *Tail very short. Horns with the outer edge not prominent and rounded. Throat and sides with a dark streak.*

1. CAPROVIS (MUSIMON) VIGNEI. The SHA or KOCH.

Throat with a fringe of black hairs. Fur rufous brown. Lateral streak, rings on lower part of feet, blackish. Belly and back of shanks, and ring above hoofs, white. Skull: suborbital pit deep and rounded.

Ovis Vignei, *Blyth, P. Z. S.* 1840; *Ann. & Mag. N. H.* vii. 251. t. 5. f. 9, horns; *Gray, List Mamm. B. M.* 169; *List Osteol. B. M.* 61.

? Mountain Sheep, *Lord in Burnes' Cabool*, 384; *Ray Soc. Rep.* i. 64.

Ovis Musimon Vignei, *Gray, Knowsley Menag.*

Wild Sheep of Hindu Koosh, *Vigne, Journ. Asiat. Soc. Bengal*, 1840, 440; *Ray Soc. Rep.* i. 64.

Ovis cycloceros, *Hutton in M'Clelland, Calc. Journ. N. H.* iii. t. 19. Sha (not Sna), *in Little Thibet.*

Koch, *at Suliman's Range.*

Koh i poombar, *by the Afghans.*

*Hab.* Thibet.

Male. Ladank. Presented by the East India Company.

Horns, with skin of forehead. Thibet?

OSTEOLOGY. *Blyth, Proc. Zool. Soc.* 1840, 71.

Skull and horns. North India. Presented by the East India Company.

Horns, separate. North India. Presented by the East India Company.

Horn, single. North India. Presented by the E. India Company.

Skull. Thibet. From Mr. Argent's Collection.

Skull. Thibet. From Mr. Argent's Collection.

Horns. Thibet. From Mr. Argent's Collection.

Horns, separate. Thibet. From Mr. Argent's Collection.

Two skulls. Ladank. Presented by the East India Company.

2. CAPROVIS (MUSIMON) ORIENTALIS. The ARMENIAN SHEEP.

Fulvous chestnut, darker on the back. Limbs and under parts whitish. Tuft of black and white hair above the wrist. Males with a dark line of more or less elongated hair on front of neck, widening into a patch on the chest. "Horns of male subtrigonal, compressed and very deep, with strongly-marked angles, and cross striæ, diverging backwards, with slight arcuation near the tips, which incline inwards."—*Blyth.*

- Ovis orientalis*, *Gmelin*, *Reise Russland*, iii. 486. t. 55; *Pallas*, *Spic. Zool.* xii. 15. t. 5. f. 1, horns; *Keyserlin*, *Europ. Wirb.*  
*Ovis Gmelinii*, *Blyth*, *P. Z. S.* 1840, 69; *Ann. & Mag. N. H.* vii. 250. t. 5. f. 8, horns.  
*Ægoceros Musimon*, *Pallas*, *Zool. Ross. Asiat.* 360.  
*Ovis Musimon*, *Brandt & Ratz. Zool. Med.* t.  
*Ovis (Musimon) orientalis*, *Gray*, *Knowsley Menag.*  
*Hab.* Armenia; Erzeroom.

Half-grown male. Armenia. Presented by the Hon. R. Curzon.  
 Skull. Tunis. From Mr. Fraser's Collection.

### 3. CAPROVIS MUSIMON. The MOUFFLON.

Brown.

- Hircus Capra orientalis*, *Brisson*, *R. A.* 71 (not *Gmelin*).  
*Capra Ammon* (part.), *Linn. S. N.* i. 47.  
*Capra Ammon*, *Blumenb. Naturg.* x. 117.  
*Ovis Ammon* (part.), *Eræl. Syst.* 250; *Gmelin*, *S. N.* i. 200.  
*Ovis Musimon*, *Schreb. Saugth.* viii. 242. t. 286; *Blyth*, *P. Z. S.* 1840, 72; *Ann. & Mag. N. H.* vii.  
*Ovis Musimon*, *Musimon*, *Gray*, *Knowsley Menag.*  
*Ovis aries fera*, *Desm. Mamm.* 488.  
*Ægionomus Ammon* (part.), *Ranz. Elem. Zool.* ii. 652.  
*Ovis Musmon*, *H. Smith*, *Griffith A. K.* v. 875; *Bonap. Faun. Ital.* i.  
*Capra Musmon*, *Fischer*, *Syn. Mam.* 488; *Bonap. Fauna Ital.* 45. t. 1 ♂.  
 Moufflon or Musmon, *Bewick*, *Quad.* 74. fig.  
 Siberian Goat (part. Corsican var.), *Penn. Syn.* i. 18.  
 Wild Sheep (part. Corsican var.), *Penn. Hist.* i. 39.  
 Ophion, *Plin. Hist. Nat.* xxviii.-xxx.  
 Musmon, *Plin. Hist. Nat.* viii.  
 Musmon or Musimon, *Gesner*, *Quad.* i. 823. fig.  
 Musimon, *Ravi Quad.* 75.  
 Mufflone, *Cette H. Sard. Quad.* i. 111. t. 2 ♂. t. 3 ♀.  
 Moufflon, *Buffon*, *H. N.* xi. 352. t. 29; *Cuvier*, *R. A.* i. 262, ed. 2. i. 277; *F. Cuvier*, *Mam. Lith.* t.; *Knight*, *Mus. A. Nat.* f. 673, 674.  
 Wildes Scharf, *Gesner*, *Thierb.* 155. fig.  
 Muffione in *Sardinia* = Murvoni ♂, Murva ♀, *Blyth*.  
 Muffolo in *Corsica* = Mufro ♂, Mufra ♀, *Blyth*.  
*Hab.* Sardinia and Corsica.  
 Var.? Horns more like *O. orientalis*, *Blyth*.  
 Moufflon (from Cyprus), *Brandt & Ratz. Med. Zool.*  
*Ovis Ophion*, *Blyth*, *P. Z. Soc.* 1840, 73; *Ann. & Mag. N. H.* vii. 250, from *Brandt*.

*Ovis Cyprius*, *Blasius*, *Bull. Soc. Moscou*, 1841, 568, from *Brandt*.  
*Tragelaphus*, *Bellon*.

*Hab.* Cyprus, *Mus. Berlin*; Candia, *Bellon*; Corsica.

#### OSTEOLOGY.

*Moufflon*, *Daub. Buff. H. N.* xi. t. 30.

B. Argali. Tail very short. Horns long, heavy, with the tips bent inwards, and with the two edges equally prominent. Throat and side without any dark streak. The suborbital pit in the skull is moderately broad and concave. "Tear-bag and interdigital pores distinct."—*Hodgson*, *J. A. Soc. Calcutta*, 1846, 308.

#### 4. CAPROVIS (ARGALI) ARGALI. The ARGALI.

*Ægoceros Argali*, *Pallas*, *Zool. Ross. Asiat.* i. 231. t. 20, 21; *Tilesius*, *Nov. Act. Acad. Nat. Cur.* xii, 279. t. 23, head; *Bojanus*, *Nov. Act. Nat. Cur.* xii. 291. t. 24, 25, skull.

*Ovis fera Sibirica*, *Argali dicta*, *Pallas*, *Spic.* xi. 3. t. 1, 2.

*Ovis Argali*, *Bodd*.

*Capra Ammon*, part., *Linn. S. N.* i. 97.

*Capra Ammon*, *Fischer*, *Syn.* 487; *Cuvier*, *R. A.*

*Ovis Ammon*, part., *Erzleb. Syst.* 250; *Schreb. Saugth.* t. 288.

*Acriodorcas pygargus* seu *Ovicapra rupestris*, *S. Gmelin*, 337. n. 14, cited by *Pallas*; *Steller*, *Besch. Kamtsch.* 127.

*Rupicapra cornubus arietinis*, *J. G. Gmelin*, *Nov. Comm. Petrop.* iv. 388. 53. t. 8 b. f. 2, 3.

Siberian Goat (part.), *Penn. Syn.* i. 18 (*Synonyma*).

Wild Sheep (Siberian), *Penn. Quad.* i. 38; *Arctic Zool.* i. 12.

Argali, *Shaw*, *Zool.* ii. t. 101.

Argali de Sibérie, *Cuvier*, *Règ. Anim.* i. 267.

*Hab.* Siberia.

Male and female. Siberia.

OSTEOLOGY. *Tilesius*, *l. c.* xii. t. 23; *Bojanus*, *l. c.* xii. t. 24, 25.

*Var.* 1. *Musimon*, *Steller*, *Kamtsch.* 127.

*Ovis Nivicola*, *Eschsch. Zool. Atlas*, t.; *Lesson*, *Comp. Buffon*, x. 313.

Argali seu Belier sauvage, *Wangl. Nord Sibérie*, ii. 158, 168.

*Hab.* Kamtschatka.

*Var.* 2. *Ovis Argali*, *Hodgson*, *J. A. S. Beng.* i. 347.

*Ovis Ammon* var., *Hodgson*, *Proc. Zool. Soc.* 1833, 105; 1834, 99; *Journ. Asiat. Soc. Beng.* xi. 283; *Institute*, n. 101, 102;

*Blyth*, *J. A. S. Beng.* x. 863; *Lesson*, *Compl. Buffon*, x. 313.

*Ovis Bambhera*, *Hodgson*, *Cat. MSS.*; *Institute*, n. 101, 102.

Nahoor Sheep (young male), *Hodgson, Asiat. Research.* xviii. t. Ovis Ammonoides, *Hodgson, J. A. S. Beng.* x. 1841, 236. t. 1. f. 1, skull; x. 913, xi. 283; *Calcutta Journ. N. Hist.* iv. 291; *Gray, Hodgson Coll. B. M.* 29.

Ovis Hodgsonii, *Blyth, Proc. Zool. Soc.* 1840, 65; *Ann. & Mag. N. H.* xii. 199. t. 5. f. 9; *Journ. A. S. Beng.* x. 284. 863.

Bambhera (or Ovis Ammon), *Ogilby in Royle's Himal.* 75.

Bambhera or Bhaaral, *Hodgson, MSS.*

*Hab.* Himalaya; Nepal.

Fragments of the skin of a male.

A flat skin of a young male.

A flat skin of a female.

Skin of young, without head. Northern hill region of Nepal.

Presented by B. H. Hodgson, Esq.

Male. Ladank. Presented by the East India Company.

OSTEOLOGY. *Hodgson, J. A. S. Bengal.* x. t. 1. f. 1; *Blyth, Ann. & Mag. N. H.* xii. t. 5. f. 9.

Pair of horns of adult. Nepal. Presented by B. H. Hodgson, Esq.

Pair of horns, adult. Nepal. Presented by B. H. Hodgson, Esq.

Pair of horns of young ram. Nepal. Presented by B. H. Hodgson, Esq.

Skull and horn of a half-grown ram. Nepal. Presented by B. H. Hodgson, Esq.

Skull, with horns. Nepal. Presented by B. H. Hodgson, Esq.

Two skulls. Ladank. Presented by the East India Company.

#### ICON.

The Bhaaral. Drawing of skull of young male.—*Hodgson, Icon. ined. B. M.* t. 186. f. 1, t. 187. f. 9, 10.

Drawing of male, female and young.—*Hodgson, Icon. ined. B. M.* t. 176, with details of the head, t. 177.

Drawing of head of adult.—*Hodgson, Icon. ined. B. M.* t. 178.

Drawing of skull of old male.—*Hodgson, Icon. ined. B. M.* t. 186. f. 3, 4.

Drawing of skull of female.—*Hodgson, Icon. ined. B. M.* t. 187. f. 3, 4.

“The Wild Sheep inhabit the snowy barriers of High Asia, Ammon of Siberia being confined to the remoter, and Ammonoides of Thibet to the nearer ranges. They are distinguished by their angular, compressed, nearly wrinkled horns, turned almost into a perfect circle, and their flat points directed forwards and outwards, the short-disked tail, and absence of a beard.”—*Hodgson.*

The Wild Sheep proper, or *Nyens* of the Thibetans, never mix with the *Nahoors*. They are far more hardy, active and inde-

pendent than any tame breeds of their kind, as may well be supposed from their terrific abode amid the snowy peaks of Hemachal. They are gregarious, feed in the glens, seek refuge on the tops, and leap and run with deer-like power, though as climbers inferior to the Jharal (*Hemitragus*), or as leapers to the *Musk*. They are often snowed up for days without perishing, unless their breathing-holes betray them to man, a more terrible foe than the direst inclemency of the season. They rut in winter, gestate about 160 days, or perhaps six months, and breed early in summer.

The *Nyens* or *Bambheras*, or Wild Sheep, seldom or never cross the Hemachal, the Indian side of which range is the special habitat of the *Nahools*, while to the north and west beyond Thibet our animal is replaced by other species, so that Thibet may be considered as the special habitat of one species (*O. Ammonides*), and the plateaux north of Thibet as far as the Altai of another (*O. Ammon*), cited as types of the true ovine form; and it may be added, that the six sorts of tame Sheep of Thibet and the sub-Himalayas, all without exception exhibit the essential characters of that form.

There are several species that may be confounded under this head; the Siberian *Argali* is found in the most northern part of that country, and it is probably different from the Himalayan animal; but I have not been able to discover any difference between the specimen received from Mr. Hodgson and those which were sent from Siberia by the Russian naturalist.

Pallas regards this and the next as one species, and observes:—"Nobilissimum et statura et agilitate animal ab Altaïco et Medio Asiæ alpestri jugo; per omnem orientalem montium tractum usque in Peninsulam Camtschatcam imo verosimillime in Continente Americæ locis maxime desertis vagatur, parvis gregibus hominis frequentiam fugiens, frigoris patiens, montibus apricis gaudens et asperrima loca frequentans. In occidentem vix processit, ubi præcedenti speciei (*Caprovis orientalis*), australiores situs amanti, locum concessit."—Pallas, *Zool. Ross. Asiat.* 232.

##### 5. CAPROVIS (ARGALI) CANADENSIS. THE TAYE OR BIG HORN.

Grey-brown. Hair thin (in summer). Rump with a very large white disk, with a narrow vertical line to the base of the tail, it and the very short tail grey-brown like the back. Horns of male very large, subtrigonal at the base, ringed, nearly equilaterally triangular, bulging a little between the angles; the inner front angle obtusely prominent, the hinder double, forming a second plane at a slight angle with the superior one, and the inferior angle much rounded off.

*Ovis montana*, Geoff. *Ann. Mus.* ii. 351. t. 60; Schreb. *Saugth.* t. 294 B., cop. *Desm. E. M.* t. . f. ; *Desm. Mamm.* 486; *Richardson, Fauna Amer. Bor.*; *Gray, List Mamm. B. M.* 169.

*Ovis Ammon*, Harlan, *Fauna Amer.* 259.

*Ovis Pygarga*, H. Smith, *Griffith A. K.*

*Ovis cervina*, *Desm. N. Dict. Hist. Nat.* xxi. 553.

Big-horned Sheep, *Ord in Blainv. Journ. Phys.* 1817, 146.

*Ovis Canadensis*, *Shaw, Nat. Misc.* xv. t. 610, cop. *E. M.* t. 14. f. 4; *Schreb. Saugth.* t. 214; *Richardson, Fauna Bor. Amer.* t. 23; *Lesson, Compl. Buffon*, x. 311.

The Argali, *Godman, Nat. Hist.* ii. 329. t. 1; *Cook, Voy.*

Rocky Mountain Sheep, *Richardson.*

White Buffalo, *Mackenzie.*

Big Horn, *Lewis & Clerk, Travels.*

*Var. 2. Ovis Californiana*, *Douglas, Zool. Journ.* iv. 332; *Blyth, P. Z. S.* 1840, 65; *Ann. & Mag. N. H.* vii. 199. t. 5. f. 5, horns; *Féruss. Bull. Sci. Nat.* xviii. 447; *Lesson, Compl. Buffon*, x. 213.

Berindo, *Forbes, California.*

Wild Sheep, *Venegos, California.*

Missiliones, *M. A. Pigafette in Ramusium*, i. 354 b, iii. 361 b.

*Hab.* N. America; California.

Male. California. Presented by Capt. Fitzroy, R.N.

Male and female. California. Presented by the Hudson's Bay Company.

Probably the same as the *Ammon* of Northern Siberia.

*b. Crumen none. Skull without infraorbital pit. Tail moderate.*

### 3. PSEUDOIS.

Horns smooth, subcylindrical, directed towards the sides (nearly at right angles with the axis of the body), and recurved backwards at the tip, with a distinct longitudinal ridge on inner? side. Forehead convex. Neck not maned. Tear-bag none. Interdigital pores distinct. Body covered with hair, dark lateral streak distinct. Tail well developed, not tufted at the end. Skull without any infraorbital pit or fissure. *Females* sometimes hornless.

*Pseudois*, sp., *Hodgson, Var. Gen. Ruminants*, 1846; *Journ. Asiat. Soc.* n. 173.

*Ovis β, Sundevall, Pecora*, 90.

1. PSEUDOIS NAHOOR. THE NAHOOR OR NERVATE OR SNA.

*Ovis Nahura*, *Hodgs.*; *Gray, Cat. Mamm.* 170.

*O. Nayaur, Hodgs. J. A. S. B.* i. 347.

O. Nahoor, *Hodgs. P. Z. S.* 1834, 107; *J. A. S. B.* iv. 1835, 492; x. 1840, 231. t. 1. f. 2, t. 2; *Blyth, Proc. Zool. Soc.* 1840, 66; *Ann. N. H.* vii. t. 5. f. 6, 7, x. 913, xi. 283; *J. A. S. B.* x. 867; *Sundevall, Pecora*, 90.

O. Nahur, *Hodgs. Calc. J. N. H.* iv. 291.

O. Thur, non var., *Hodgs. P. Z. S.* 1833, 105; 1834, 99?

Nepal Ram or Nervate, *Hardw. Icon. ined. B. M.* 10,975. t. 194, horns.

Ovis Ammon (part.), *Richardson, Fauna Bor. Amer.* i. 274.

Ovis Burrhell, part., *Blyth, P. Z. S.* 1838, 79.

Burrhal or Nahoor, *Ogilby in Royle's Himal.* i. 75.

The Nahur or Nahoor, *Gray, List Hodgson Mamm. &c. B. M. Hab.* Nepal, Northern hilly region.

Female. Nepal.

Female, horns directed on one side. Nepal.

Horns of male on base. Nepal.

Horns of male on base. Nepal.

Male, skin in fragments. Nepal. Presented by B. H. Hodgson, Esq.

Male. Ladank. Presented by the East India Company.

#### OSTEOLOGY.

Base of skull of male, with horns. Nepal.

Skull of a young male. Nepal. Presented by B. H. Hodgson, Esq.

Various separate bones of body and limbs. Nepal. Presented by B. H. Hodgson, Esq.

Skull. Nepal. Presented by B. H. Hodgson, Esq.

Skull, female. Nepal. Presented by B. H. Hodgson, Esq.

Horns.

Skull. India. From Mr. Argent's Collection.

Horns. India. From Mr. Argent's Collection.

Two single horns. India. From Mr. Argent's Collection.

*Var.* 1. Smaller, more robust, with shorter ears and very dark horns, without white.

Burul, *Hutton, Journ. Asiat. Soc. Beng.* 1839, 994; 1840, 568; *Bengal Sporting Mag.* 1839, 295.

Ovis Bhurrel (Bhurrell Sheep), *Ogilby, P. Z. S.* 1838, 79; *Waterhouse, Cat. Zool. Soc. Mus. Supp.* 9. n. 406, 1839.

Ovis Burrhel, *Blyth, P. Z. S.* 1840, 67; *Ann. & Mag. N. H.* vii. 248. t. 5. f. 7, horns; *Sundevall, Pecora*, 90.

Pseudois Burhal, *Hodgson, J. A. S. Bengal*, 1846, 308.

*Hab.* Barendâ Pass.

The Nahoor inhabit the Himalayas; they are distinguished from the Sheep by the want of the eye-pits; the rounded, uncom-



pressed, smooth horns, directed upwards and backwards with great divergency, and with their round points again bent inwards; by their short, deer-like tail, which is rather longer than that of the Wild Sheep and not disked. They rut in winter, gestate  $5\frac{1}{2}$  months, and breed in the summer.

Their habits resemble those of the *Nyens* or Wild Sheep, but the two never commingle nor approach each other, nor will the male, however long and completely they are tamed, have sexual commerce with domestic Sheep. Ribs 13 pair.—*Hodgson*.

The *Nahoor* is much less easily acclimatized in foreign parts than the *Jharal*, in confinement more resigned and apathetic. I have tried in vain to make the *Nahoor* breed with tame Sheep, because he will not copulate with them.—*Hodgson, J. A. S. B.* iv. 493.

#### 4. AMMOTRAGUS.

Forehead concave. Crumen none. Horns subcylindrical, turning outward backward, with the tips inward towards each other. Chin not bearded. Neck maned beneath. Tail rather elongate, tufted at the end. Skull with no suborbital pit nor fissure.

*Pseudois*, sp., *Hodgson*.

*Ammotragus*, *Blyth*; *Gray, Knowsley Menag.*

*Ovis* §  $\gamma$ , *Sundevall, Pecora*, 90.

#### 1. AMMOTRAGUS TRAGELAPHUS.

*Ovis Tragelaphus*, *Desm. Mamm.* 480. 1; *Blyth, Ann. N. H.* vii.

258. 261; *Gray, List Mamm. B. M.* 169; *List Osteol. B. M.* 61.

*Ovis ornata*, *Geoff. Egypt. t.*; *I. Geoff. Dict. Class. H. N.* xi.

264; *Lesson, Comp. Buffon*, x. 312.

*Capra Jaela*, *H. Smith, Griffith A. K.* t. 192, not text.

*Ammotragus Tragelaphus*, *Gray, Knowsley Menag.* 40.

Mouflon d'Afrique, *Cuv. R. A.* i. 268; *F. Cuvier, Mam. Lithog.* t.

Mouflon à manchettes, *Explor. Sci. Alger. Mam.* t. 7.

Bearded Sheep, *Penn. Quad.* i. 46.

Siberian Goat, *Penn. Syn. Quad.* i. 18 (the skin described as from India, not synon.).

*Tragelaphus seu Hircocervus*, *Caii Opusc.* 59.

Aoudad, *Jackson, Morocco*; *Knight, Mus. Anim. Nat.* f. 671.

Fichtall or Lerwea, *Shaw, Trav.* 243.

Antilope Lervia, *Pallas, Spic.* xii. 12; *Gmelin, S. N.* i. 182;

*Fischer, Syn.* 480.

*Hab.* N. Africa.

Bad state. North Africa.

Male, adult. North Africa.

## OSTEOLOGY.

Horns. North Africa.

Horns. North Africa.

Horns. North Africa.

Horns.

Pennant, in his *Synopsis*, i. 18, confounded this animal with the *Musimon*; and Pallas (*Zool. Ross. Asiat.* i. 230) on his authority gave India as the habitat of the latter, but the subgenus was not known to inhabit the Himalaya at that period.

## Tribe 2. GIRAFFINA.

Horns covered with a hairy skin, with a tuft of hair at the tip.

*Camelopardina*, Gray, *Ann. Phil.* 1825; *Cat. Mamm. B. M.* xxvi.

*Camelopardalis*, Cuv. *Tab. Elem.* 1798.

Giraffidæ, Gray, *L. M. Rep.* xv. 307, 1821; H. Smith, *Griffith*

*A. K.* v.; J. Brookes, *Cat. Mus.* 63, 1828.

*Devexa*, Illiger, *Prod.* 104, 1811.

*Plenicornia* b, Latr. *Fam. Nat.* 1821.

*Camelopardalidæ*, Selys Longchamps, 1842.

Elaphiens, part., Pomet. *l. c.* 184.

*Ruminalia stereoceria*, part., Rafin. *Anal. Nat.* 56, 1815.

*Ruminantia* B. Pygnoerate, part., Bronn, *Index Palæont.* ii. 709.

*Cameli* β, Wagler, *N. Syst. Amph.* 4-31, 1830.

*Cervidæ* (part.), Ogilby, *P. Z. S.* 1836, 134.

*Cervicornia* §, Sundevall, *Pecora*, 52.

*Unguligrada*, part., Sundevall, *Pecora*, 52.

*Ossicornia*, Rüppell, *Verz. Senck. Samml.* 183, 1845.

*Camelopardalina*, Sundevall, *Pecora*, 52.

*Camelopardineæ*, Lesson, *N. Tab. R. A.* 168, 1842.

Les Girafes, F. Cuvier, *D. Sci. Nat.* lix. 513.

## 1. GIRAFFA.

Lip not grooved, entirely covered with hair, much produced before the nostril. Tongue very extensile. Neck very long. Body short. Hinder legs short. False hoof none. Tail elongate, with a tuft of thick hair at the end. Africa. Living in families on the leaves of trees and shrubs.

*Giraffa*, Brisson, *R. A.* i. 37, 1763; Storr, 1780; Scopoli; Rafinesque, *Anal. Nat.* 56, 1815.

*Cervus*, sp., Linn. *S. N.* ed. 12. 92; Eræleb. *S. A.* 294, 1777.

*Camelopardalis*, Ray, *Syn.* 90; Aldrov.; Cuvier, *Tab. Elem.*

1798; Schreb. *Saugth.*; Lesson, *N. Tab. R. A.* 168; Desm.

1804; Illiger, 1811; Ogilby, *P. Z. S.* 1836, 134; J. Brookes,

*Cat. Mus.* 63; F. Cuvier, *D. S. N.* lix. 513; Fischer, *Syn.* 455.

Camelopardalus, Charlet.

Giraffe, Penn. Hist. Quad. i. 58.

1. GIRAFFA CAMELOPARDALIS. The GIRAFFE or CAMEL-LEOPARD.

Cervus Camelopardalis, Linn. S. N. i. 92; Erxleb. Syst. 294.

C. Capensis, Geoff.; Ogilby, P. Z. S. 1836, 134; Lesson, N. Tab. R. A. 168.

Camelopardalis Giraffa  $\alpha$ , Sundevall, Pecora, 52.

Giraffa Camelopardalis, Brisson, R. A. 61; Zimm. Geog. Gesch. ii. 125.

Camelopardalis Girafa, Gmelin, S. N. i. 181; Schreb. Saugth. 1140. t. 255-255\*; Desm. N. Dict. xiii. 165. t. E. 6; Mamm. 449; F. Cuv. Dict. Sci. Nat. xviii. 555; Lesson, N. Tab. R. A. 168; Gray, List Mamm. B. M. 170; List Osteol. B. M. 62; Owen, Trans. Zool. Soc. ii. t. 40; Thunb. Mem. Pétersb. iii. 311; I. Geoff. Dict. Class. H. N. vii. 354; Cretzschm. in Rüppell, Zool. Atlas, 23. t. 8, 9; Fischer, Syn. 455. 623; H. Smith, G. A. K. v. 807.

Var. 1. Paler.

Camelopardalis Girafa  $\beta$ . Æthiopica, Sundevall, Pecora, 52; Act. Stockh. 1842, 244.

Camelopardalis Sennaarensis, Geoff.

Camelopardalis Æthiopicus, Ogilby, P. Z. S. 1836, 134.

Camelopardalis, Plin. H. N. viii.; Gesner, Quad. 160. fig.; Alpin. Æg. i. 236. t. 14. f. 4.

Camelopardalus, Jonst. Quad. t. 39; Cateret, Phil. Trans. lx. 27. t. 1.

Camelus Indicus, Jonst. Quad. t. 40.

Gyrafte, Belon. Obs. 118. fig. 119.

Tragus Giraffa, Klein, Quad. 22.

Camelopard, Penn. Syn. 10; Quad. i. 65. f. 11.

Kamel paard, Vosmaer. Besch. t. , 1787.

Giraffe, Thevet. Cosmogr. i. 388. fig. 389; Buffon, H. N. xiii. 1; Supp. iii. 320. t. 64, 65; vii. 345. t. 81; Levaill. Trav. t; Shaw, Zool. ii. 303. t. 181, 182; Lichtenst. Reise, ii. 451, 463; Clot Bey, Acad. Sci. Petersb. vi. 6 (anat.).

Giraffe or Cameleopard, Harris, W. A. S. A. t. 11, and head; Thibaut, Proc. Z. S. 1836.

Hab. Africa; Cape of Good Hope; Æthiopia; Senaar. West Africa; Senegal and Bornou.

Male (16 feet high) and female. S. Africa. Presented by W. Burchell, Esq., LL.D.

Male (in bad state). S. Africa. Presented by the College of Surgeons. Col. Paterson's specimen.

Young male. Central Africa. Presented by Capt. Clapperton, R.N., and Col. Denham.

Male (18 feet high). S. Africa. Presented by the Earl of Derby.

Male. N. Africa. From the Zoological Society's Collection.

OSTEOLOGY. *Alton, Act. Acad. Nat. Cur.* xii. 332. t. 36; *Owen, Trans. Zool. Soc.* ii. t. 40; *Rüppell, Zool. Atlas*, t. 9; *Geoff. Ann. Sci. Nat.* xi. 210; *Salze, Mem. Mus.* xiv. 68; *Owen, Trans. Zool. Soc.* ii. t. 40.

Skull of male. South Africa. Presented by Dr. Burchell.

Skull of male. Presented by Dr. Burchell.

\*Skeleton. N. Africa. From the Zoological Society's Collection.

### ICON.

*Cervus camelopardalis*, *Linn.*—*G. Forster, Icon. ined. B. M.* t. 15, from a painting of Baron de Flettenberg, improved from a dry head; t. 16, a head.

“Mr. Wahlenberg has seen the dark and light coloured varieties mixed together in the same herd in tropical parts of Africa. The males are generally dark and the females pale, but this is not always the case. He has sent to Stockholm the skin of a female from Caffreland, which is as pale as the specimens from Sennaar.”—*Sundevall in a Letter*, 1850.

Subfamily II. Horns deciduous, covered when young with a deciduous hairy skin, or entirely wanting.

### Tribe 3. CERVINA.

Cutting-teeth none in upper jaws. Horns deciduous, often wanting in the females. Tarsus hairy on the hinder side. False hoofs distinct.

*Cervus*, *Linn.*; *Cuv. T. E.* 1798.

*Cervidæ*, *Gray, Lond. Med. Rep.* xv. 307; *Hodgson, Journ. Asiat. Soc. Beng.* 1850.

*Cervina*, *Gray, Ann. Phil.* 1825; *Cat. Mamm. B. M.* xxvii.

*Plenicornia a*, *Latr. Fam. Nat.* 63, 1825.

*Cervidæ*, *H. Smith, Griff. A. K.* v. 182; *Selys Longchamps*, 1842.

*Cervina*, *Selys Longchamps*, 1842; *Wiegman*; *Cabais in R. Schomburgk, Reisen in British Guiana*, iii. 784.

*Elaphiens*, *Pomet. l. c.* 184.

*Les Chevrotains et Les Cerfs*, *F. Cuv.* 1829.

*Ruminantia B. Pygnoerate*, part., *Bronn, Index Palæon.* ii. 709.

*Capreoli*, *Illiger, Prod.* 104, 1811; *Rüppell, Verz. Senck. Samml.* 183, 1845.

Les Cerfs (*Cervus*), *F. Cuvier, Dict. Sci. Nat.* lix. 513, 1829.

Cervidæ seu Ceratoënta, *J. Brookes, Mus. Cat.* 61, 1828.

Les Cerfs, *Lesson, Mamm.* i. 259.

Blainville proposed to divide the species thus:—A. Horns sessile. *a.* Horns divided. 1. Elans. 2. Rennes. 3. Daims. 4. Cerfs. 5. Axis. 6. Chevreuils. *b.* Horns simple. 7. Daguetts. B. Horns pedicelled. 8. Cervules. In the same note he divides the species according to their geographic distribution.—*Desm. Mamm.* 449, 1822.

M. Bravard divides the Fossil Deer of Puy du Dôme into two subgenera, thus:—1. *Catoglochis*, with the lower anterior snag on the crown. 2. *Anoglochis*, with it above the crown.—*Fide Lesson, Hist. Nat. Mamm.* 1836, p. 259.

Lesson, in the *Manuel de Mammalogie*, 1827, p. 355, thus arranges the species of the genus *Cervus*:—A. 1. Elans. B. 1. Rennes. 2. Daims. 3. Cerfs propr. dit. 4. Axis \* tachetées, \*\* sans taches. 5. Chevreuils \* ancient continent, \*\* nouveau continent. 6. Daguetts. 7. Cervules.

Colonel Hamilton Smith has adopted the section proposed by De Blainville; he regarded them as sections or subgenera, and gave them the following Latin names:—1. *Alces*. 2. *Rangifer*. 3. *Dama*. 4. *Elaphus*. 5. *Rusa*. 6. *Axis*. 7. *Capreolus*. 8. *Mazama*. 9. *Subulo*. 10. *Stylocerus*.—*Griffith, A. K.* v. 1827; translated *Fischer, Syn. Mam.* ii. 612, 1830; and *Lesson, Compl. Buffon Mamm.* x. 259, 1836.

Professor Sundevall proposed the following genera and subgenera:—1. *Alces*. 2. *Rangifer*. 3. *Cervus*. A. *a.* *Cervus*. *β.* *Hippelaphi*. *γ.* *Hyelaphus*. *δ.* *Dama*. B. *a.* *Mazama*. *β.* *Blastoceri*. *γ.* *Furciferes*. *δ.* *Subulones*. 4. *Capreolus*. 5. *Prox.* (6. *Moschus*. 7. *Tragulus*.)

Mr. Gray, in the *Proceedings of the Zoological Society* (1836, 67), proposed to arrange the species of Deer into three sections, according to the position of certain tufts of hair on the hind-legs, thus:—1. A tuft of hair below the middle of the outside of the metatarsus. 2. Above the middle of the outside of the metatarsus; and 3. With a tuft of hair on the inside of the hock. Dr. Sundevall in his *Pecora* has adopted these divisions. These tufts have the advantage of being found in all ages and in both sexes, so that they can be consulted when the horns are deficient.

M. Pucheran (*Dict. Univer. Hist. Nat.* iii. 314, 1843) divides the Deer as follows:—A. With flat horns. 1. C. *Dama* (and var. *mauricus*). B. With round horns. *a.* With more than two andouilleres. 1. C. *Virginianus*. 2. C. *Duvaucellii*. 3. C. *Wallichii*. 4. C. *Elaphus*. 5. C. *Wapiti*. 6. C. *macrotis*. 7. C. *macrurus*. 8. C. *occidentalis*. 9. C. *Elaphoides*. *b.* With only two andouilleres. 10. C. *Hippelaphus*. 11. C. *Aristotelis*. 12.

C. equinus. 13. C. marianus. 14. C. Peronii. 15. C. unicolor. 16. C. Axis. 17. C. porcinus. 18. C. nudipalpebra. 19. C. Leschenaultii. 20. C. Capreolus. 21. C. Mexicanus. 22. C. paludosus. 23. C. campestris. c. *Cerfs daguets*. 24. C. Nemorivagus. 25. C. rufus. This essay is a mere compilation without any examination.

M. Pucheran, in his "Monographie des espèces du Genre Cerf" (*Comptes Rendus Acad. Sci.* 1849, ii. 775), divides the tribe *Cerviens* into four genera:—1. Alces. 2. Tarandus. 3. Cervulus; and 4. Cervus.

Since the publication of Cuvier's Essay on Deer (*Ossemens Fossiles*, iv.), where he exhibited the development of the horns of several species, and in which he described several species from the study of the horns alone, many zoologists have almost entirely depended on the horns for the character of the species; and Mr. Hamilton Smith has been induced to separate some species on the study of a single horn. But the facilities which menageries have afforded of studying these animals, and watching the variations which the horns of the species present, have shown that several most distinct but allied species, as the Stag of Canada and India, have horns so similar, that it is impossible to distinguish them by their horns. On the other hand, it has shown that animals of the same herd, or even family, and sometimes even the same specimen, under different circumstances, in succeeding years have produced horns so unlike one another in size and form, that they might have been considered, if their history was not known, as horns of very different species. These observations, and the examination of the different cargoes of foreign horn which are imported for the uses of the cutler, each cargo of which is generally collected in a single locality, and therefore would most probably belong to a single species peculiar to the district, have proved to me that the horns afford a much better character to separate the species into groups than to distinguish the allied species from one another.

Colonel Hamilton Smith, in his *Monograph of the Genus*, separated them into genera according to the form of the horns.

In the *Proceedings of the Zoological Society* for 1836 I drew attention to the glands on the hind-legs, as affording very good character to arrange the genera proposed by Colonel Smith into natural groups, which in most particulars agreed with the geographical distribution of the species.

Dr. Sundevall, in his Essay on *Pecora*, has availed himself of the characters suggested in my paper, and has also pointed out some other external characters, such as the form and extent of the muffle, which afford good characters for the distinction of these animals, characters which, I firmly believe, are much more

important for the distinction of the genera and species than those derived from the form of the skull or the modifications of the teeth, or the form and size of the horns, as they are not, like those parts, so liable to alteration from age, local circumstances, and other changes during the growth of the animal; and the characters derived from these parts can be seen in the females as well as the males, which is not the case with the horns, as they can only be observed in the male sex.

These examinations have shown that the form and extent of the muffle, the position and presence of glands on the hind-legs, the general form of the horns, and the kind of hair which forms the fur, taken together, afford the best characters for the arrangement of the species into natural genera, and these genera into groups. And I believe that the progress of zoology, and the natural arrangement and affinities of animals, are best promoted by the general study of all the parts of the animal taken together, rather than confining one's attention to any set of characters, and believing them as much more important than the others.

The Deer may be thus divided:—

- A. *The Deer of the Snowy Regions* have a very broad muzzle entirely covered with hair. The horns are expanded and palmate; and the fawns are not spotted.
  - a. *The Alcine Deer* have no basal anterior snag to the horns, and a small bald muffle between the nostrils, as the genus *Alcis*.
  - b. *The Rangerine Deer* have a large, basal anterior snag to the horns, close on the crown or bur, and no muffle, as *Tarandus*.
- B. *The Deer of the Temperate or Warm Regions* have a tapering muzzle ending in a bald muffle. The fawns, and sometimes the adults, are spotted.
  - c. *The Elaphine Deer* have a distinct, anterior basal snag to the horns, the muffle broad and separated from the lip by a hairy band, and the tuft of hair on the outside of the hind leg above the middle of the metatarsus, as *Cervus* and *Dama*.
  - d. *The Rusine Deer* have a distinct, anterior basal snag to the horns, the muffle very high and not separate from the edge of the lips, and the tuft of hair on the outside of the hind leg above the middle of the metatarsus, as *Recervus*, *Pannolia*, *Rusa*, *Axis*, *Hyelaphus*, *Cervulus*.
  - e. *The Capreoline Deer* have no basal anterior snag to the horns, the first branch being some distance above the bur, the crumen (and pit in the skull) generally small, as *Capreolus*, *Cariacus*, *Blastocerus*, *Furcifer*, *Coassus*, and *Pudu*.

The *Alcine* and *Rangerine* Deer are confined to the northern part of both continents; the *Elaphine* and *Rusine* Deer to the Eastern World (the latter almost exclusive to the warmer part of Asia). All the *Capreoline* Deer are peculiar to America. The only exceptions to these rules are, the Wapity Deer of the *Elaphine* group is found in Northern America, and the *Roebuck* and *Ahu* of the *Capreoline* group are found in Europe and North Asia.

- I. The Deer of the Snowy Regions. *Muzzle very broad, entirely covered with hair. Fawns not spotted. Horns expanded and palmated. Tail short. Skull: nose-cavity very large. Intermaxillaries not reaching to the nasals.*

Deer of the Snowy Region, *Gray, Ann. & Mag. N. H. 1850; Gleanings Knowsl. Menag.*

*Cervus* § 1, *Blainv. Bull. Soc. Phil. 1816, 74, note.*

1. Alcine Deer (*Alcæ*). *Horns without any basal snag near the crown. Muzzle with a small bald muffle between the nostrils.*

Alcine Deer, *Gray, Ann. & Mag. N. H. 1850; Knowsl. Menag. Anoglochis, sp., Bravard.*

*Alcedæ, J. Brookes, Mus. Cat. 61, 1828.*

#### 1. ALCES.

*Alce, H. Smith.*

Muzzle very broad, produced, and covered with hair, but there is a small, moist, naked spot in front of the nostrils. Neck short and thick. Hair thick and brittle. Throat rather maned in both sexes. Hind-legs have the tuft of hair rather above the middle of the metatarsus. Males have palmated horns, subcylindrical at the base, expanded and palmated above, without any basal snag. The nose-cavity in the skull is very large, reaching behind to a line over the front of the grinders. The intermaxillaries are very long, but do not reach to the nasal. The nasals are very short.—See *Cuv. Oss. Foss. iv. t. 9. f. 49.*

They live in woods in the northern parts of both continents.

*Cervus* § 1. *Alces, H. Smith in Griffith A. K. v. , 1827.*

*Alces, Gray, L. Med. Repos. 1821; List Mamm. B. M.; Lesson, Mamm. i. 259; N. Tab. R. A. 269, 1842; Ogilby, P. Z. S. 1836, 135; Sundevall, Pecora, 54.*

*Elans, Blainv. in Desm. Mamm. ii. 448, 1822.*

*Cervus, sp., Fischer, Syn. 441.*



## 1. ALCES MALCHIS. The ELK or MOOSE.

Dark brown. Legs yellower.

*Alces antiquorum*, *Rüppell, Verz. Senck. Samml.* 183, 1845.

*Cervus Alces*, *Linn. S. N.* i. 92; *Gmelin, S. N.* i. 175; *Brisson, R. A.* 93; *Pallas, Zool. R. A.* i. 201; *Zimm. Geog. Gesch.* ii. 127; *Schreb. Saugth.* 968. t. 246 a, b, c, d; *Desm. N. Dict. H. N.* v. 519; *Mamm.* 430; *F. Cuvier, Dict. Sci. Nat.* vii. 461; *Davelli, K. Sv. Vet. Handl.* 1819, 207; *Desmoul. D. Class. H. N.* iii. 374; *Fischer, Syn. Mam.* 441. 613; *Richardson, Fauna Bor. Amer.* 232.

*Cervus Alces Alces*, *H. Smith, Griffith A. K.* v. 771.

*Alces (Cervus) Alces*, *Sundevall, Pecora*, 54.

*Alces Malchis*, *Ogilby, P. Z. S.* 1836, 135.

*Alces palmatus*, *Gray, List Mamm. B. M.* 182; *Cat. Osteol. B. M.* 70.

*Alces Europeus*, *J. Brookes, Mus. Cat.* 61.

*Moose Deer*, *Dudley, Phil. Trans.* n. 368. 165; *Dale, Phil. Trans.* n. 444. 384.

*Moose or Elk*, *Catesby, Carol. App.* 27.

*Elk*, *Laws. Carol.* 123; *Penn. Syn.* 40. t. 7; *Quad.* i. 105. t. 17; *Shaw, Mus. Lever.* i. 33. t. 8; *Gen. Zool.* ii. 261. t. 174, 175; *Knight, Mus. A. N.* f. 585, 586, 605.

*Elan*, *Buffon, H. N.* xii. 79. t. 7; *Supp.* vii. 318. t. 80; *Perrault, Anim.* i. 179. t. 25; *Cuvier, R. A.* i. 254; *Oss. Foss.* iv. 64.

*Original*, *Lu. Houtan, Voy.* 72; *Charlev. Nouv. France*, iii. 126; *Dierville, Acad.* 122; *Allam, Buff. H. N.* xv. 50. t. 2; *Buffon, Supp.* iii. 133; *Fischer, Syn.* 441. 613.

*American Black Elk (C. Alces β.)*, *Ham. Smith, Griffith A. K.* v. 771.

*Elch*, *Wangenheim, Neu. Schrift. Berl. Naturf. Fr.* i. 1. t. 1.

*Loss, Russians in Siberia.*

*Flat-horned Elk*, *Jeffers. Notes Virginia*, 49.

*Cervus palmatus Alce*, *Klein, Quad.* 577. t. 28 ♂.

*Alces*, *Cæsar, Bell. Gall.* vi. c. 27; *Gesner, Quad.* i. fig. 2. fig.; *Jonston, Quad.* 92. t. 30, 31.

*Alce*, *Plin. Hist. Nat.* viii. c. 15; *Heinsii Dissert. de Alce*, 1767.

*Hab.* The Northern Regions of America and Europe.

Female, adult. N. Europe. Presented by the Earl of Derby.  
Head, stuffed, with horns. Russia. Presented by Edward Cayley, Esq.

## OSTEOLOGY.

*Elan*, *Daub. Buff. H. N.* xii. t. 8, 9; *Cuvier, Oss. Foss.* iv. 64. t. 4. f. 22-29, t. 6. f. 8, t. 5. f. 49,  $\frac{1}{3}$ th.

*Moose Deer*, *Dale, Phil. Trans.* n. 444. 384. fig.

*C. alces*, *Schreb. Saugth.* t. 246. f. b.

Horns. Sweden. Presented by the College of Surgeons. From the Leverian Museum. Fig. *Shaw, Mus. Lev.* t. 8.

Skeletons of male and female. From the Zoological Society's Collection.

Two skulls. From the Zoological Society's Collection.

Several pair of horns.

Two single horns of young.

Single horn. Udoholm, Sweden. Presented by the Earl of Selkirk.

### ICON.

American Moose Deer, drawing of horns in India ink, by S. Parkinson.—*Bank. Icon. ined. B. N. Mammalia*, t.

Several naturalists, especially Colonel Hamilton Smith, thought they had observed a difference in the horns of the Russian and American Elks; I have compared numerous specimens from both countries, but can discover no appreciable distinction between them.

The Elks, like most of the other Deer, and especially of the animals which inhabit the cold and mountain regions, present a very considerable difference in size, according to the scarcity or abundance of the food which the locality they inhabit affords; and the development of the horns appears to be greatly influenced by this cause, so that the horns of the animal inhabiting the more barren districts are much less developed than those found in more fertile situations, and I think I have observed this to be the case with both the Russian and the American horns; but on this head naturalists are likely to be much misled, as the horns which are imported are generally chosen for their size and perfect development, and the small and less-developed specimens are only to be observed in the cargoes of horns which are imported for economic purposes.

These observations are equally applicable to the *Rein Deer*.

2. Rangerine Deer or Reins. *Horns with a large, basal, anterior branch on the crown. Muzzle entirely hairy, without any naked muffle.*

The Rangerine Deer, *Gray, Ann. & Mag. N. H.* 1850; *Knowsley Menag.*

*Catoglochis*, sp., *Bravard.*

*Rangiferinidæ*, *J. Brookes, Mus. Cat.* 61, 1828.

### 1. TARANDUS.

The muzzle is entirely covered with hair. Crumen small, co-

vered with a pencil of hairs. The fur brittle, in summer short, in winter longer, whiter; of the throat longest. The hoofs are broad, depressed, and bent in at the tip. The external metatarsal gland above the middle of the leg. Horns in both sexes, elongate, subcylindrical, with the basal branches and tip dilated and palmated; of the females smaller. Skull with rather large nose-cavity, at least half as long as the distance to the first grinder; the intermaxillary moderate, nearly reaching to the nasal; a small, very shallow suborbital pit; a very large, oblong, deep fissure. They live in the arctic regions in both hemispheres, migrating in flocks, and eating lichens.

*Cervus* § 2. *Rangifer*, *H. Smith in G. A. K.* iv. , 1827; in *Fischer, Syn.* ii. 612.

*Rangifer*, *Lesson, Mamm.* i. 260; *N. Tab. R. A.* 169, 1842; *Gray, List Mamm. B. M.* 181; *Cat. Osteol. B. M.* 69; *Sundevall, Pecora*, 64, 113, 131.

*Tarandus*, *Ogilby, P. Z. S.* 1836, 134.

*Rennes, Blainv. Desm. Mam.* ii. 448, 1822.

#### 1. TARANDUS RANGIFER. THE CARIBOU REIN DEER.

Dark brown in summer; grey in winter. Young, brown yellow varied.

*Cervus Tarandus*, *Linn. S. N.* i. 93; *Gmelin, S. N.* i. 177; *Amæn. Acad.* iv. 144. t. 1; *Erxl. Syst.* 305; *Retz. Fn. Suec.* i. 42; *Fab. Faun. Grænl.* 16; *Schreb. Saugth.* 1828, t. 248 A, B, C, D, E; *Desm. N. Dict. H. N.* ii. 521; *Mamm.* 431; *Ency. Méth.* t. 58. f. 3, 4; *F. Cuvier, Dict. Sc. Nat.* vii. 463. fig.; *Mam. Lithog.* t.; *Desmoul. Dict. Class. H. N.* iii. 375; *Fischer, Syn.* 443. 631; *Pallas, Zool. Ross. A.* i. 106; *Eversmann, Bull. Soc. Imp. Nat. Mosq.* 1840, 59; *Cuvier, Mam. Lithog.* t.; *Bennett, Gard. Z. S.* 241. fig.; *Richardson, F. Bor. Amer.* 238.

*C. Tarandus sylvestris* (Woodland Caribou), *Rich. F. B. A.* 250.

*Tarandus rangifer*, *Bonap. Index Mamm. Europ.* 35, 1845.

*Cervus rangifer*, *Raii Syn.* 88; *Klein, Quad.* 23. t. 1; *Brisson, R. A.* 92.

*Capræa Groenlandica*, *Raii Syn.* 90.

*Cervus Groenlandicus*, *Brisson, Reg. Anim.* 88.

*Cervus platyrhynchos*, *Vrolich, Rendier*, t. 2, 1828.

*Cervus coronatus*, *Geoff. MSS. in Schreb. Saugth.* 1135; *Desm. Mamm.* 439; *Fischer, Syn.* 613; *H. Smith, Griffith A. K.* v. 772; iv. 95. t. . f. 4.

*Rangifer Tarandus*, *Gray, List Mamm. B. M.* 181; *Cat. Osteol. B. M.* 69; *Sundevall, Pecora*, 54.

*Cervus mirabilis*, *Jonston, Quad.* t. 36.

*Cervus palmatus*, *Jonston, Quad. t. 37.*

*Cervus cornibus rectis*, &c., *Caribou, Brisson, R. A. 91.*

*Tarandus*, *Plin. Hist. Nat. viii. c. 34*; *Aldrov. Bisulc. 859. fig. 861*; *Scheff. Lapp. 321. fig. p. 327.*

*Rangifer*, *Gesner, Quad. 950. fig.*; *Hulden. Util. Rangifer Jena, 1694.*

*Renthier*, *Strals. Magaz. i. 394. t. 1*; *Wildung, Taschenb. f. 1805.*

*Renhirsch*, *Mellin, Schrift. Berlin Naturf. Fr. i. 1. t. 2*; *iv. 128. t. 5.*

*Rendier*, *Camp. Natursk. Verhand. 193. t. 1.*

*Tarandus borealis*, *Rüppell, Verz. Senck. Samml. 183, 1845.*

*Tarandus Rangifer*, *T. Spitzbergensis*, *T. Norvegicus*, *T. Groenlandicus*, *T. Sibiricus*, *T. nodosus*, et *T. Canadensis*, *J. Brookes, Mus. Cat. 61, 1828.*

*Rein Deer*, *Penn. Syn. 46. 36. t. 8. f. 1*; *Quad. i. 99. t. 10. f. 2*; *Knight, M. A. N. f. 587-590*; *Shaw, Zool. ii. 269. t. 176*; *Brooke, Edinb. New Phil. Journ. 1827, 30.*

*Caribou*, *Sagard. Theodat. Canad. 751*; *Buffon, H. N. xv. 50. t. 3.*

*Renne*, *Buffon, H. N. xii. 79. t. 10, 11, 12*; *Supp. iii. t. 18\*.*

*Renn Thier*, *Eversmann, Bull. de Moscou, 1840, 58.*

*Rhenne*, *Cuvier, R. A. i. 254*; *Oss. Foss. iv. 61. t. 4. f. 1-18, t. 5. f. 47.*

*Ren*, *Hollstein, K. Svensk. Vet. Handl. xxxv. 124.*

*Caribou* or *Carrebœuf*, *French Canadians.*

*Oleen*, *Russians in Siberia.*

*Greenland Buck*, *Edwards, Birds, i. t. 51, young.*

*Hirsch*, *Martin, Spitzb. 72. t. O. f. 2, young,*

*Var. Smaller.* Horns more slender, less palmated. Hair short, smooth, close, brown, with throat and belly white; in summer hair very close, thick, waved, brittle and erect, and white in winter.

*Cervus Tarandus Americanus*, *H. Smith, Griffith A. K. v. 773?*; *Fischer, Syn. 615?*

*Cervus Tarandus a. Arctica*, *Barren Ground Caribou*, *Richardson, Fauna Bor. Amer. 241. fig. 240, horns.*

*Common Deer*, *Hearne, Journ. 195. 208.*

1. *Woodland Caribou*, *Richardson.*

*Caribou des Bois*, *H. Smith, G. A. K.*

*Tarandus nemoralis*, *Rüppell, Verz. Senck. Samml. 183, 1845.*

2. *Great Caribou of the Rocky Mountains*, *H. Smith.*

3. *Labrador or Polar Caribou*, *H. Smith.*

4. *Siberian Rein Deer* (ridden by the *Tungusians*).

## 5. Newfoundland Caribou.

*Hab.* Arctic Circle, America and Europe.

Male, horns half grown. North Europe. Presented by the Earl of Derby.

Fœtus, in spirit. Greenland. From Dr. Moller's Collection.

Adult, white (no skull nor horns). Presented by the Earl of Derby.

Adult male, dark brown. Hudson's Bay. Presented by the Hudson's Bay Company.

Male, nearly white. Hudson's Bay. Presented by the Hudson's Bay Company.

Female, dark brown. Hudson's Bay. Presented by the Hudson's Bay Company.

Female, nearly white. Hudson's Bay. Presented by the Hudson's Bay Company.

Two, very young. Hudson's Bay. Presented by the Hudson's Bay Company.

Female, dark brown. Sweden. Presented by Sir T. Wilson.

Young. Bred at Charlton. Presented by Sir T. Wilson.

Young. Bred at the Zoological Gardens.

## OSTEOLOGY.

Renne, *Daub. Buff. H. N.* xii. t. 10, 11, 12; *Cuvier, Oss. Foss.* iv. 61. t. 4. f. 1-18, t. 5. f. 47, skull  $\frac{1}{4}$ .

C. Tarandus, *Schreb. Saugh.* t. 248 A, C, D.

C. rangifera, *Klein, Quad.* t. 1. fig.

Skeleton. Norway. Presented by Sir T. M. Wilson, Bart.

a. Skull, large; horns small, slender branches small subulate, middle branch largest.

b. Skull and horns large, long, slender (*Cuv. Oss. Foss.* t. 4. f. 20); no basal branch to right horn.

c. Skull and horns; horns large, long, slender, apex broad, branched behind, no basal branch to right horn.

d. Horns, middle-sized, the lower branch of left elongate, forked; of right horn very broad, palmated. North America. Presented by Captain Sir John Franklin, R.N.

e. Horns, small; the lower and middle branch of right horn confluent, palmated. North America. Presented by Captain Sir John Franklin, R.N.

f. Horns, large (*Cuv. Oss. Foss.* t. 4. f. 17); basal branch of left horn large, palmated; of right smaller, lobed.

g. Horns, large (*Cuv. Oss. Foss.* t. 4. f. 9); basal branch of left horn very large, palmated; of right simple, subulate. Siberia?

h. Horns, long, elongated, slender, erect; lower branches elongate, lobed, top broad, lobed.

*i.* Horn, middle-sized (*Cuv. Oss. Foss. t. 4. f. 8*); lower branch of left horn simple; of right broad, palmated. North America. Presented by Captain Sir John Franklin, R.N.

*j.* Horns, large, long, slender, upper back branches recurved. North America. Presented by Captain Sir John Franklin, R.N.

*k.* Horns, large, long, slender (*Cuv. Oss. Foss. t. 4. f. 13*). Presented by Captain Sir John Franklin, R.N.

*l.* Horns, very small, basal branch subulate, upper and medial branch bifid.

*m.* Horns, large, with the basal branch of each horn dilated, palmated (*Cuv. Oss. Foss. t. 4. f. 17*). From Mr. Brookes's Museum.

*n.* Horns of the year (*Cuv. Oss. Foss. t. 4. f. 1*). Knowsley. Presented by the Earl of Derby.

Horns of the year.

Horns, very large, with the head stuffed. Newfoundland.

Five pairs of horns. N.W. Coast of America. Presented by Lieut. Wood and Capt. Kellett, R.N.

Varies exceedingly in size. In the British Museum there are specimens varying from 41 to 50 inches high at the withers.

Dr. Richardson observes, "There are two well-marked and permanent varieties of *Caribou* that inhabit the fur countries: one of them (*Woodland Caribou*) confined to the woody and more southern district; and the other (*Barren Ground Caribou*) retiring to the woods only in the winter, but passing the summer on the coast of the Arctic Seas, or on the Barren Grounds so often mentioned in this work."—*Faun. Bor. Amer.* 299.

The large Siberian variety is ridden on by the Tungusians; they also use them for draught, as the Laplanders do the smaller variety.

They have a large variety in Newfoundland nearly as large as an heifer. They have very large and heavy horns. There are some horns of this variety in the British Museum. Dr. Middendorf informed me that the horns of the large Siberian variety were as large and greatly resembled the horns from Newfoundland (Nova Scotia) in the Museum Collection.

Pallas observes, "*Americæ forte continua, gregatim verno tempore per glacies admigrant, paulo diversi a Siberiæ inquilinis et verosimillime Americani.*"—*Zool. Ross. Asiat.* i. 208.

In winter the hair of the Rein Deer is long, thick, grey-brown; neck, rump, belly, ring round the hoof, and end of nose, white. In summer the same animal has short, dark sooty-brown hair, with the parts which are white in winter being rather paler grey-brown.

II. The Deer of the Temperate or Warm Regions. *Muzzle tapering, ending in a bald, moist muffle. Fawn (and sometimes the adult) spotted. Skull with a moderate nose-hole. Intermaxillaries reaching to the nasal. Tail well developed. Crumen and suborbital pit in skull distinct. The spots of the young generally disappear in the adult, or are only to be seen when the animals are in high condition. The fur is shorter and brighter in summer, and greyer in winter.*

Deer of Temperate and Warm Regions, *Gray, Ann. & Mag. N. H.* 1850; *Knowsley Menag.*

*Cervus, Sundevall, Pecora, 54.*

3. The Elaphine Deer. *Horns with a distinct anterior basal snag close on the crown. Muffle broad, shallow, separated from the upper lip by a hairy band, with only a narrow interruption in front. External metatarsal gland above the middle of the bone. Skull with a large, deep suborbital pit.*

Elaphine Deer, *Gray, Ann. & Mag. N. H.* 1850; *Knows. Menag. Catoglochis (part.), Bravard, Foss. du Dome.*

*Cervus* § 1. (*C. Veteris orbis*), *Sundevall, Pecora, 54.*

*Elaphidæ, J. Brookes, Mus. Cat. 61, 1828.*

### 1. CERVUS.

Horns round, erect, with an anterior basal snag, a medial anterior snag, with the apex divided into one or more branches, according to the age of the animal. Crumen well-developed. Hoofs narrow, triangular, compressed, covered with brittle, opaque hair. The rump is generally ornamented with a pale mark. Skull with a large, deep suborbital pit. Horns with one or two branches on the middle of the front of the beam.

*Cervus* (§ 4. *Elaphus*), *H. Smith, Griffith A. K. v.* . 1827; in *Fischer, Syn. 612; Lesson, Mamm. i. 262; N. Tab. R. A. 169.*

*Cervus* (*Elaphus*), *Ogilby, P. Z. S.* 1836, 135.

*Cervus* § 1. *a.* (*C. nobilis*), *Sundevall, Pecora, 55.*

*Cerfs, Blainv. Desm. Mamm. ii. 448, 1822.*

*Elaphus, J. Brookes, Cat. Mus. 61.*

*a. Hoofs rather broad, semicircular. Tail very short. Hair in winter soft. America. STRONGYLOCEROS.*

1. CERVUS CANADENSIS. The WAPITI.

Red brown. Rump with a very large, pale disk extending far above the base of the tail, and with a black streak on each side

of it. *Male* with hair of throat elongated, black, with reddish tips.

Stag, *Dale, Phil. Trans.* n. 444. 384.

Cerf de Canada, *Perr. Anim.* ii. 55. t. 45? (no rump disk); *Cuvier, R. A.* i. 256; *Oss. Foss.* iv. 26. t. 3. f. 13-22.

*Cervus Canadensis*, *Brisson, R. A.* 88; *Schreb. Saughth.* 990. t. 246; *Gray, List Mamm. B. M.* 177; *Cat. Osteol. B. M.* 65; *Desm. Nouv. D. H. N.* v. 546; *Mam.* 433; *Ency. Méth.* t. 58. f. 2; *F. Cuv. Dict. Sc. Nat.* vii.; *Desmoul. Dict. Class. H. N.* iii. 377; *Fischer, Syn.* 442.

*Elaphus Canadensis*, *J. Brookes, Cat. Mus.* 62.

*Cervus Elaphus* var. *Canadensis*, *Erxl. Syst.* 305; *Gmelin, S. N.* i. 176.

*Cervus Strongyloceros*, *Schreb.* t. 247; *Rich. Faun. Bor. Amer.* 251; *Sundevall, Pecora*, 55.

*C. Major*, *Ord in Desm. Mam.* 432.

*Cervus Wapiti*, *Leach, Journ. Phys.* lxxxv. 66; *Mitchell, Mam. N. York*; *Barton, Journ.* ii. *Supp.* 36; *F. Cuvier, Mam. Lithog.* t.; *Desmoul. Dict. Class. H. N.* iii. 377; *Blyth, J. Asiat. Soc. Beng.* x. 750. t. . f. 1-6, horns.

American Elk, *Bewick, Quad.*

North-western Stag, *C. occidentalis*, *H. Smith, G. A. K.* iv. 101. t. . f. 2, horn; *Fischer, Syn. Mam.* 614, not Syn.

Wapiti, *Warden, Etats Unis*, v. 638; *Wied, Voy. Amer. Sept.* iii. 302; *Knight, Mus. A. N.* f. 607, 611, 580.

Stag of Carolina, *Lawson, Carol.* 123.

Stag of America, *Catesby, Carol. App.* 28.

Alces Amer. corn. teretibus, *Jeffers. Notes Virginia*, 57, 1788.

*Var.?* Smaller.

Red Deer (or Canadian Stag), *Warden, Etats Unis*, v. 637.

Elk, *Lewis & Clerk.*

Stag, *Penn. Act. Zool.* i. 27.

Wewaskiss, *Hearne, Journ.* 360.

*Hab.* North America.

Young. N. America. Born at the Surrey Zoological Gardens.

Male, adult. N. America. Born at Windsor Park. Presented by Edward Cross, Esq.

#### OSTEOLOGY.

Cerf du Canada, *Daub. Buffon H. N.* vi. t. 26; *Cuvier, Oss. Foss.* iv. t. 3. f. 13, 17-20, 22.

Cerf, *Perrault, Anim.* ii. 65. f. 45.

*C. strongyloceros*, *Schreb. Saughth.* t. 247 g.

Horns, large. St. Diego. California. Presented by C. Pentland, Esq.



Horns, long, two lower branches near together. North America.

Horns, small, two lower branches rather near. North America.

Horns, large, beams without the upper frontal branches, the tip of right horn subpalmate (perhaps a different species).

The *American Elk* still exists on the upper branches of the Susquehanna River, and thence westward may occasionally be found in all favourable situations to the Pacific Ocean. Those observed on the mountains south of the Columbia River were of unusual size.—*Peale*.

*Var.* Smaller.

*Hab.* Plains of California and the upper parts of the Missouri River, in large herds.

The *Elks* in California are very abundant; they are not generally so large as those inhabiting the mountain districts, but we can find no specific character to separate one from the other.—*Peale*.

*b.* Hoofs narrow, triangular. Tail moderate. Covered with harsh hair. Western World. CERVUS.

## X 2. CERVUS ELAPHUS. The STAG.

**Brown.** Rump with a pale spot extending rather above the upper surface of the base of the tail.

*Cervus Elaphus*, *Linn. S. N. i.* 93; *Gmelin, S. N. i.* 176; *Erxl. Syst.* 301; *Schreb. Saugth.* 996. t. 247 A, B, C, D, E; *Desm. Mam.* 434; *Ency. Méth.* t. 57. f. 3, 4; *F. Cuvier, Mam. Lithog. t.*; *Blyth, J. Asiat. Soc. Beng. x.* 750. t. .f. 10, 11 (12?); *Sundevall, Pecora,* 55; *Gray, List Mamm. B. M.* 177; *Cat. Osteol. B. M.* 65; *Knowsley Menag.*; *Proc. Zool. Soc.* 1850.

*Cervus vulgaris*, *Linn. Mus. Ad. Frid.* i. 11.

*Elaphus communis*, *J. Brookes, Cat. Mus.* 61, 1828.

*Cervus nobilis*, *Klein, Quad.* 23.

*Cervus*, *Plinii Hist. Nat.* viii. c. 32; *Gesner, Quad.* 354. fig.; *Agricola, des Hirchen, &c.* 1603; *Aldrov. Bisulc.* 769. fig. 774; *Grabæ Elaphographiæ*, 1667; *Hill, Animal.* 577. t. 28; *Brisson, R. A.* 86.

\**Ελαφος*, *Aristof. Hist. Anim.* ii. c. 7. n. 37; *Ælian, Anim.* vi. c. 11, 15; *Oppian, Cyneg.* ii. 176.

Stag or Red Deer, *Penn. Brit. Zool.* i. 34; *Syn.* 49; *Quad.* i. 114; *Shaw, Zool.* ii. 276. t. 117.

Biche, *Buffon, H. N.* vi. t. 10.

Faon du Cerf, *Buffon, H. N.* vi. t. 12.

Cerf, *Buffon, H. N.* vi. 65. t. 9.

Cerf commun, *Cuvier, R. A. i. 255; Oss. Foss. iv. 24. t. 3. f. 1-12; F. Cuv. Mam. Lith. t.*

Hirsch, *Riding, Jagdb. Th. t. 4, 5; Meyer, Thiere, i. t. 22; Wildunger, Taschenb. 1794, i. t. 1. f. 2, 3; Schrank, Faun. Boic. i. 41.*

Rothhirsch, *Bechstein, Naturg. Deutschl. 453.*

*Cervus Elephas Hippelaphus, Erxl. Syst. 304; Fischer, Syn. 447 (Old male. Neck rather maned).*

*C. Elaphus  $\beta$ , Gmelin, S. N. i. 176.*

*Cervus Germanicus, Brisson, R. A. 87.*

*Tragelaphus, Gesner, Quad. 296 c. fig.*

*Hippelaphus, Jonston, Quad. t. 35.*

*Brandhirsch, Gesner, Thier. 119. fig.*

*Pferdhirsch, Gesner, Thier. 210. fig.*

*Cerf d'Ardenne, French Authors.*

*Hab. Europe.*

Male (not good state). Knowsley. Presented by the Earl of Derby.

Adult female. France.

Fawn. France.

#### OSTEOLOGY.

*Cerf, Buffon, H. N. vi. t. 13, 14, 18-25; Cuvier, Oss. Foss. iv. t. 2. f. 11-20, t. 3. f. 1-12.*

Horns, with two frontal antlers. England.

Horns; left divided into four long cylindrical branches; right with two frontal antlers, tip subpalmate; perhaps of *C. Canadensis*?

Horns, deformed. Germany.

Horns, deformed. Germany.

Horns, with a third horn on the right side. Germany.

Single horns, apex much branched. Germany.

Single horn, adult. Germany.

Single horn, adult. Germany.

Single horn, deformed, with only three branches. Germany.

Single horn, simple, compressed, notched at the tip. Germany.

Single deformed stunted horn. Germany.

Skull and horns. Presented by the Earl of Derby.

Skeleton. From the Zoological Society's Collection.

Two pairs of horns. From Mr. Leadbeater's Collection.

Horns. From a bog. Presented by Jabez Allies, Esq.

Horns. From Mr. Argent's Collection.

*Var.?* Hungarian Stag, *Blyth, Journ. Asiat. Soc. Bengal, 1841, 750. t. . f. 11, horns.*

*Var.?* Horns very large, larger than those of the *Wapiti*.

*Hab.* Assyrian Mountains; Lord Arthur Hay.

*Var.?* Half-fed specimens.

Cerf de Corse, *Buffon*, *H. N.* vi. 95. t. 11; *Cuvier*, *Oss. Foss.* iv. 53.

*Cervus Elaphus Corsicanus*, *Erxl.*, from *Buffon*.

*Elaphus Corsicanus*, *J. Brookes*, *Cat. Mus.* 61.

*Cervus Mediterraneus*, "*Blainv.*"; *Pucheran*, *Comptes Rendus*, 1849, 779.

*Cervus Corsicus*, *Bonaparte*; *Gervais*.

*Hab.* Corsica.

*Buffon* observes, of the *Cerf de Corse*, which has been regarded as a variety to be distinguished by the smallness of its size, that he "believes the size to depend on the scarcity of nourishment; for when moved to better pastures, in four years they become higher, larger, and stouter than the Common Stag."—*Buffon*, *Hist. Nat.* vi. 95.

*Var. Algeria.* Caudal disc to base of the tail pale brown. Horns large.

Cerf commune d'Algerie, *Geoffroy in Jardin des Plantes*, Paris, 1851.

*Hab.* Algeria. Living in Garden of Plants, Paris.

### 3. CERVUS BARBARUS. The BARBARY DEER.

Dark brown, obscurely white spotted, with a very indistinct, greyish brown, broad dorsal line; with a pale yellow spot extended considerably above the base of the tail. Back of haunches white, with a dark stripe on each side.

*Cervus Barbarus*, *Bennett*, *Catal. Gardens Zool. Soc.*

Bush Goat (Al Wassai), *Moors*, see *Griffith A. K.* v. 775; *Frazer*, *Zool. Typica*, t.; *Gray*, *Knowsley Menag.*; *Proc. Zool. Soc.* 1850.

*Hab.* Coast of Barbary; Tunis.

#### OSTEOLOGY.

Horns (of animal in *Zool. Soc. Gardens*). Tunis.

Chiefly distinguished from the common Stag, or the Algerian variety of it, by its smaller size, stouter form, and more permanently spotted fur.

### 4. CERVUS WALLICHII. The BARA SINGA OF MORL.

Brown, with a very large white spot on the rump, extending on back of the haunches, and far above the base of the tail. The horns with two basal and one or two apical branches.

*Cervus Pygargus*, *Hard. Linn. Trans.*, not *Pallas*.

Barah Singha, *Waller, Asiat. Res.* xvii. 499.

*Cervus Wallichii*, *Cuvier, Oss. Foss.* iv. 50; *F. Cuv. Mam. Lithog.*, from *Hardw. Icon. in B. M.*; *Sundevall, Pecora*, 55; *H. Smith, G. A. K.* iv. 103. t. 166, v. 788 (from Indian drawing); *Ogilby in Royle's Himal.* i. 73.

Jaareal Stag, *Blyth, Journ. Asiat. Soc. Beng.* 1841, 750. t. f. 7, young horn, f. 8, 9, horns adult.

*Pseudocervus Wallichii*, *Hodgson, J. A. S. B.* x. 914, xi. 284; *Gray, List Mamm. B. M.* 180.

*Cervus Wallichii*, or the Gyana, *Hodgson, Icon. Mamm. ined.* 198.

*Cervus*, n. s., *Falconer, Journ. Asiat. Soc.* iv. 710; *Ogilby in Royle's Himal.* 73.

?*Cervus Casperianus*, or Hangool, *Falconer, MSS.*; *Gray, Cat. Osteol. Sp. B. M.* 147.

?*Cervus Cashmerensis*, *Gray, Cat. Osteol. Sp. B. M.* 65.

Kashmir Stag?, *Blyth, Proc. Zool. Soc.* 1848, 72; *J. Asiat. Soc. Bengal*, 1841, 750. t. f. 8, 9.

Persian Deer, Maral, or Gevezu, or Gookoohee, *MacNeil, Proc. Zool. Soc.* 1840, 11; *Blyth, Journ. Asiat. Soc. Beng.* 1841, 750. t. f. 10.

*Hab.* Cachir, *Hodgson*; Persia, *MacNeil*.

The skull of Dr. Falconer's *Cashmeer Stag* is 15 inches long; the suborbital pit is oblong, triangular, and rather deep; the skull and horns are very like Mr. Hodgson's specimen of *Cervus affinis*, but considerably smaller.

Sir John MacNeil informs us, they are called by the Persians *Marāl*, or *Gevezu*, or *Gookoohee*, and are frequently noticed in their literature. They are found in all the wooded mountain districts of Persia, but apparently do not occur in the central parts of the country, and rarely descend into the plains. During the summer they are found in the highest wooded parts of the mountains, and during the winter in the lower ravines near their bases, where they are frequently tracked in the snow.

The horns of the adult males closely resemble those of the Red Deer of this country, insomuch that I doubt whether an unscientific observer could distinguish them, except by the superior size of those of the *Marāl*.—*P. Z. S.* 11.

Lesson confounds *C. Wallichii* and *C. Duvaucellii* as the same species.—*Now. Tab. R. A.* 171, 1842.

Flat skin. Nepal. Presented by Gen. Thomas Hardwicke.

Hunter's skin. Nepal. Presented by Gen. Thomas Hardwicke.

"The Nepal Deer, *Cervus* —, *Hardw. MSS.*"—*Gray, List Mamm. B. M.* 180.

## OSTEOLOGY.

*Cervus Cashmerensis*, (*Falconer, MSS.*); *Gray, Osteol. Cat. B. M.* 65.

*Cervus Casperianus*, *Falconer, MSS.*; *Gray, Osteol. Cat. B. M.* 147.

Skull and horns of male. Cashmere. Presented by H. Falconer, M.D.

Skull of female. Cashmere. Presented by H. Falconer, M.D.

## ICON.

Jerrael or Tailless Deer of Nepal, *Hardw. Icon. ined. B. M.* n. 10,975. t. 128.

The Red Deer of India, *Hardw. Icon. ined. B. M.* n. 10,975. t. 143, copied by Colonel Hamilton Smith, and called by him *C. Hardwickii*.

## 5. CERVUS AFFINIS. THE SAUL FOREST STAG.

Pale brown. —? Horns very large, as large and heavy as those of the *Wapiti*.

*Cervus affinis* (Mool Barasingha or Royal Stag of the Morung), *Hodgson, Journ. Asiat. Soc. Beng.* 1841, x. 721. t. f. 1. 914; *Calcutta Journ. Nat. Hist.* iv. 291; *Icon. ined. Brit. Mus.* n. 197; *Proc. Zool. Soc.* 1840, 79; *Sundevall, Pecora*, 131.

*Cervus* (*Wallichii*?) *affinis*, *Gray, Cat. Osteol. Sp. B. M.* 65.

Shoa or Tibetan Stag (*Cervus affinis*), *Hodgson, Journ. Asiat. Soc. Beng.* 1850, 518. t.

*Cervus Tibetanus*, *Hodgson, Journ. Asiat. Soc. Beng.* 1850, 466. t., horns.

*Cervus Elaphus*, *Hodgson, J. A. S. Beng.* iv. 1835, 648. t. 53. f. 3; x. 914.

*Cervus Wallichii*, part., *Gray, Cat. Hodgson Coll. B. M.* 32.

*Cervus Wallichii* var., *Blyth, Journ. Asiat. Soc. Beng.* 1841, 747. Bara Singha, *Hindoos*; *Hodgson*.

Barah Singa or var. of Stag, *Hodgson, J. A. S. B.* i. 346.

*Hab.* Tibet in Dingeham; *Hodgson*.

## ANAT.

Pair of horns, very large size. Nepal. Presented by B. H. Hodgson, Esq.

## ICON.

Drawing of a male.—*Hodgson, Icon. ined. B. M.* t. 197. Presented by B. H. Hodgson, Esq.

Drawing of male.—*Hodgson, Icon. ined. B. M.* t. 198. Presented by B. H. Hodgson, Esq.

Drawing of horns.—*Hodgson, Icon. ined. B. M.* t. 212. f. 11. Presented by B. H. Hodgson, Esq.

The Indian species of *Cervus* are confined to the vast primitive forests in the plains. Tail very short; a large disc or pale space round the tail, and no proper mane.—*Hodgson*.

Mr. Hodgson, in his figure of *C. affinis*, does not represent the pale space round the tail, but it is evident by this observation that it is present. Probably *C. Wallichii*, *C. Casperianus*, *C. affinis* and *C. Tibetanus*, are only one species.

Mr. Hodgson observes, "The horns of *C. affinis*, which I received from the *Morung* or Eastern Taria, most probably were brought from Thibet."—*Journ. Asiat. Soc. Beng.* 1850, 466.

The latter observation induces me to place all the above synonyma to one species.

## 6. CERVUS SIKA. The SIKA.

Dark brown. Cheeks and throat rather paler. Rump brown, without any pale spot. Tail pale, white beneath. Hair harsh. Horns rather slender, with a basal and medial snag, and a sub-apical internal one.

*Cervus Sika*, *Schlegel, Fauna Japon. t. 17; Sundevall, Pecora, 131.*

*C. Sitza*, *Temm. Mus. Leyden.*

*Cervus* (*Hippelaphi*, no. 4), *Sundevall, Pecora, 55.*

*Hab. Japan. Mus. Leyden.*

OSTEOLOGY. *Schlegel, Fauna Japon. t. 17, skull and horns.*

## 2. DAMA, *H. Smith.*

Horns round below, expanded above, smooth, and branched on the hinder edge. Tail rather elongated. Crumen well-developed. Hoofs narrow, triangular, compressed, covered with thin, rather adpressed hairs, reversed on the nape. The fur is spotted in summer. The skull with a short, broad face, an oblong, rather shallow, infraorbital pit, and short, broad nasals.

*Dama*, *Gray, Med. Repos. 1821, 4; Proc. Zool. Soc. 1850, not Bennett; J. Brooke, Cat. Mus. 62, 1828.*

*Cervus*, § *Dama*, *H. Smith, Griffith A. K. v. 182; Lesson, Mamm. i. 261; N. Tab. R. A. 169; Sundevall, Pecora, 58.*

*Daims*, *Blainville, Desm. Mam. ii. 448, 1822.*

*Platycerinidæ*, *J. Brookes, Mus. Cat. 61, 1828.*

*Tarandus*, sp., *Rüppell, Verz. 183.*

## 1. DAMA VULGARIS. The FALLOW DEER.

Fulvous. White spotted, a longitudinal line on the lower part of the side, and a line across the haunches, white.

*Var.* Nearly black to nearly pure white.

*Platyceros, Pliny.**Cervus platyceros, Raii Quad.* 85.*Cervus dama, Linn. S. N. i.* 93; *Sundevall, Pecora,* 58; *Schreb. Saugh. t.* 249 A, B.*Dama vulgaris, Gesner, Quad.* 335. f. 1; *J. Brookes, Cat. Mus.* 62; *Gray, List Mamm. B. M.* 181; *Cat. Osteol. Spec. B. M.* 65; *Knowsley Menag.; Proc. Zool. Soc.* 1850; *Bonap. Fauna Ital. t.**Dama platyceros, Bonap. Index Mamm. Europ.* 35, 1845.*Tarandus Dama, Rüppell, Verz. Senck. Samml.* 183, 1845.*Fallow Deer and Buck, Pennant; Knight, Mus. A. N. f.* 581, 597, 599.*Daim et Daime, Buffon, Hist. Nat.* vi.*Daim fauve, F. Cuvier, Hist. N.* vi. 167. f. 27, 28.*Dama maculata, J. Brookes, Cat. Mus.* 61, 1828.*Cervus coronatus, H. Smith, G. A. K.* iv. t. . f. 4, from monstrous horns.

Var. Blackish.

*Cervus mauricus, Blainv. Bull. Soc. Phil.* i. 1816, 72.*C. Dama maura, Fischer, Syn. Mam.* 448.*Daime noire, F. Cuv. Mam. Lithog. t.**Hab. Persia. Domesticated in Europe.*This species is represented in sculpture from Nineveh. See *Vaux, Nineveh, fig.* at p. 233; *Bonomi, Nineveh, p.*

Young.

Head and horns, dark variety.

*Cervus mauricus, F. Cuv. Mam. Lithog. t.*

Adult male in winter. Italy.

Young female in winter. France.

## OSTEOLOGY.

*Daim, Daub. Buffon H. N.* vi. t. 29-31; *Cuvier, Oss. Foss.* iv. 29. t. 5. f. 23-31, 32-35; *Mellin, Berlin Naturf.* ii. t. 6, 7.

Horns.

Horns, a distorted variety.

Horns, adult.

Horns, adult, a distorted variety.

Horns, adult.

Horns, adult.

4. The Rusine Deer or Samboo. *Horns subcylindrical, with a distinct, anterior basal branch close on the burr or crown, without any medial branch, and with a rather elongated peduncle. Muffle large, high, not separated from the upper lip*

by a hairy band. External metatarsal gland above the middle of the bone. Ears broad, short. Skull with a very deep suborbital pit. Fur hard, rather shining. No pale mark on rump. South-eastern Asia and its islands.

Rusine Deer, Gray, *Ann. & Mag. N. H.* 1850; *Knows. Menag.*; *Proc. Zool. Soc.* 1850.

Catoglochis, part., *Bravard*.

Cervus  $\beta$ . Hippelaphi, *Sundevall, Pecora*, 55.

Prox, *Sundevall, Pecora*, 57.

Rusadæ et Axidæ, *J. Brookes, Mus. Cat.* 62, 1828.

Dr. Sundevall observes, "The young of the typical *Rusæ* are not spotted."—*Pecora*, 130. But according to the observations and figures of Mr. Hodgson and other Indian zoologists, they are pale spotted, but not so distinctly as several other genera of Deer. Some few specimens retain the spots through life.

\* *The upper part of the horns variously branched.*

### 1. PANOLIA, Gray.

Horns round, curved backwards and outwards, with a large anterior basal snag close on the burr, the upper part bent in, forked, becoming rather expanded, and branched on the inner or hinder edge. The fur formed of rather rigid, flattened hair. Muffle large. Skull with a narrow face, a large, oblong, very deep suborbital pit, and the nasals short, broad, and dilated behind. The frontal snag of the horns often has a tubercle or branch at the base.

Panolia, Gray, *List Mamm. B. M.* xxvii.; *Knowsley Menag.*; *Proc. Zool. Soc.* 1850.

### 1. PANOLIA ELDII. The SUNGNAI.

Nondescript Deer, *P. Eld, Calcutta Journ. Nat. Hist.* ii. 1842, 415. t. 12.

Panolia acuticornis, Gray, *List Mamm. B. M.* 180.

Panolia platyceros, Gray, *List Mamm. B. M.* 181, adult; *Cat. Osteol. B. M.* 66.

Cervus (*Rusa*) frontalis, *McClelland, Calcutta Journ. N. H.* i. t. 12. f. 1, ii. 539; *Sundevall, Pecora*, 132.

Cervus Eldii —?, *Calcutta Journ. N. Hist.* ii. 417, 1842.

Panolia Eldii (The Sungnai), Gray, *Cat. Hodgson Coll. B. M.* 34; *Osteol. B. M.* 66; *Knowsley Menag.* (*P. Eedii, misprint*).

Cervus lyratus, *Schinz, Syn. Mam.* ii. 395.

Cervus Smithii, Gray, *Proc. Zool. Soc.* 1837, 45?

*Hab.* India.



## ANAT.

Horns on frontal bone. India.

*Panolia acuticornis*, Gray, *Cat. Mamm. B. M.* 180.

A large pair of horns, cylindrical, and with two small snags near the tip. India. Presented by B. H. Hodgson, Esq.

*Panolia Eedii*, Gray, *List Mamm. B. M.* 181; *Cat. Osteol. B. M.* 66 (misprint for *P. Eldii*).

A smaller pair of horns, rather compressed, and with one large and two short snags near the tip. India. Presented by B. H. Hodgson, Esq.

Skull and horns, with one large and one small snag near the tip. India.

Skull and horns, with one large and two small snags near the tip. India.

Skull and horns, with one small snag near the tip. India.

Horn. India.

*Panolia platyceros*, Gray, *List Mamm. B. M.* 181.

*Cervus*, n. s., Gray, *Proc. Zool. Soc.* 1837, 45; *Calcut. Journ. N. H.* 1842, t. 12. f.

Horns. India. From Mr. Warwick's Collection.

## ICON.

?Bara Singha.—*Hardw. Icon. ined. B. M.* n. 10,975. t. 130, the original, copied and altered by Colonel Hamilton Smith, t. 131. The *C. Smithii* of Gray, *P. Z. Soc.* 1837, 48. It may be only a bad figure of *C. Duvaucellii*.

## 2. RUCERVUS, Hodgson.

Horns cylindrical, with an anterior basal branch, and repeatedly forked at the tip. Muffle large, high, continued to the edge of the upper lip below. Tail rather short, thick. Face shortish. Crumen well-developed. Ears broad, rounded, covered with hair. Hoofs narrow, compressed. The fur is formed of rather soft, adpressed hairs, without any pale mark on the rump, and only slightly spotted. Skull with an elongate face, a large nose-opening, and an oblong, rather shallow, suborbital pit.

*Rucervus*, Hodgson, *Journ. Asiat. Soc. Beng.* 1850, 5.

*Recervus*, Gray, *Cat. Osteol. Spec.*; *Cat. Hodgson Coll. B. M.*; *Knowsley Menag.*; *Proc. Zool. Soc.* 1850.

*Elaphus*, sp., Lesson, *Mamm.* i. 263.

*Cervus*, § *Hippelaphus*, sp., Sundevall, *Pecora*, 55.

## 1. RUCERVUS DUVAUCELLII. The BAHRAINGA.

Yellowish brown, without any rump spot. Dorsal streak indistinct, dark, with a row of white spots on each side; sides not

spotted. Hair black, with yellow tips. Neck with rather longer hair. Throat, chest and belly with longer, scattered, greyish white hairs. Muzzle and front of legs dark. Chin white. *Winter*: Brown; tips of hair yellowish. Crown yellow. Dorsal line blackish, narrow. Muzzle black; chin white.

*Cervus Duvaucellii*, *Cuvier*, *Oss. Foss.* iv. t. 29. f. 6-8; *Griffith*, *A. K.* iv. 116, *note*; *Journ. Asiat. Soc. Beng.* 1836, 240. t. 66-68; *Ogilby in Royle's Himal.* 72.

*Recervus Duvaucellii*, *Gray*, *Cat. Hodgson Coll. B. M.* 33; *Cat. Osteol. B. M.* 65.

*Rucervus Duvaucelli*, *Gray*, *Proc. Zool. Soc.* 1850.

*Rucervus Elaphoides*, *Hodgson*, *Journ. Asiat. Soc. Beng.* iv. 1835, 648. t. 53. f. 4; x. 914; *Proc. Zool. Soc.* 1836, 47; *Calcutta Journ. N. H.* iv. 292.

*Cervus Bahrainga*, *Hodgson*, *P. Z. S.* 1834, 99.

*Cervus enclodocerus*, *Hodgson*.

*Cervus Bahraiya*, *Hodgson*, *P. Z. S.* 1836, 46.

*Axis?* *Duvaucellii*, *Gray*, *List Mamm. B. M.* 178.

*Cervus Euryceros*, *Gray*, *Knowsley Menag.* t.

*Cervus Elaphoides*, *Hodgson*, *Journ. Asiat. S. Beng.* 1835, 648. t. 78.

The *Bahraiya*, *Hodgson*, *J. A. S. Beng.* i. 345.

*Cervus Wallichii*, part., *Lesson*, *Nov. Tab. R. A.* 171, 1842.

*Hab.* India; Nepal.

An imperfect skin. Nepal. Presented by B. H. Hodgson, Esq.

Male. India; Nepal. From Gardens of Zoological Society.

**OSTEOLOGY.** *Cuvier*, *Oss. Foss.* iv. 505. t. 39. f. 6, 7, 8, horns.

Skull and horns of male. Nepal. Presented by B. H. Hodgson, Esq.

Skull and horns of male. Nepal.

Skull of a female. Presented by B. H. Hodgson, Esq.

Skull and horns of adult. Presented by B. H. Hodgson, Esq.

Skull and horns of adult. Presented by B. H. Hodgson, Esq.

Separate horns. Presented by B. H. Hodgson, Esq.

Separate horns. Presented by B. H. Hodgson, Esq.

**ICON.**

Barara Singha.—*Hardw. Icon. ined. B. M.* n. 10,975. t. 132, 134 (see also t. 131).

Spotted Deer of the Sunderbands.—*Hardw. Icon. ined. B. M.* n. 10,975. t. 133, 135.

*Cervus Elaphoides*.—*Hodgson*, *Icon. ined. B. M.* t. 199, male and female, and one male copied t. 200. Presented by B. H. Hodgson, Esq.

Drawing of horns.—*Hodgson, Icon. ined. B. M. t. 210. f. 66.*  
—Presented by B. H. Hodgson, Esq.

The *Bahrainya* inhabits reedy marshes and islands of great rivers; never enters the mountains or forests. Tail short, with no caudal disk, and no heavy mane.—*Hodgson.*

\*\* *The upper part of the horns simply forked.*

### 3. RUSA.

Horns placed on a moderately long peduncle, with an anterior frontal snag close on the crown, and simply forked at the tip. Fur formed of hard, rigid, very thick hair, not, or only obscurely, spotted.

*Cervus* § *Rusa*, *H. Smith, Griffith A. K. iv. ; Lesson, Mamm. i. 264 ; N. Tab. R. A. 171.*

*Rusa*, *Hodgson, Journ. Asiat. Soc. Beng. 1850, 6 ; Gray, Knows. Menag. ; Proc. Zool. Soc. 1850.*

*Cervus*, sp., *Ogilby, P. Z. S. 1836, 135.*

*Cervus* § *Hippelaphus* \*\*, *Sundevall, Pecora, 55.*

*Axis d'une seule couleur*, sp., *Blainv. Desm. Mam. ii. 448. 182.*

*Procervus (Dimorpha)*, *Hodgson, Journ. Asiat. Soc. Beng. 1850, 5.*

\* *Hair of the neck elongated, forming a kind of mane, at least in the males ; size large.*

### 1. RUSA ARISTOTELIS. The SAMBOO.

Tail not floccose, brown, rather darker at the end. Fur blackish brown, with the feet, the regions of the vent, and a spot over the eyes fulvous. Male maned. Young obscurely white spotted (*Hodgson*). Skull: suborbital pit very large, broad, deep, oblong, subtrigonal.

Gona *Rusa*, *Daniel, Ceylon, t.*

*Cervus Aristotelis*, *Cuvier, Oss. Foss. iv. 502. t. 39. f. 10 ; F. Cuv. Mam. Lith. t. ; Sundevall, Pecora, 55.*

*Cervus Hippelaphus*, *Ogilby in Royle's Himal. i. 73.*

*Cervus Hippelaphus*, *C. Aristotelis et C. heteroceros*, *Hodgson, Icon. ined.*

*Rusa Aristotelis*, *H. Smith ; Gray, List Mamm. B. M. ; Cat. Hodgson Coll. B. M. 67 ; Osteol. Spec. B. M. 67.*

*Rusa Hippelaphus*, *Gray, List Mamm. B. M. 179 ; Cat. Hodgson Coll. B. M. 33.*

*Rusa equinus*, *Gray, List Mamm. B. M. 179.*

*Cervus unicolor*, *H. Smith, Griffith A. K. v. 780.*

*Cerf de Coromandel*, *Cuvier, Oss. Foss. iv. 41. t. 5. f. 32, horns.*

- Cervus Bengalensis*, Schinz, *Syn. Mam.* ii. 390.  
 Daim noir de Bengal, *Duvaucell, Asiat. Res.* xv. 157.  
 Cerf noir de Bengal, *F. Cuvier, Menag. Lith.* t.  
*Cervus equinus* (Samboo Deer), *Bennett, Tower Menag.* 185. fig.  
 Cerf Mulet?, *Cuvier, Oss. Foss.* iv. 43. t. 5. f. 38, horn.  
 Elk, *Indian Sportsmen; Sykes, Proc. Zool. Soc.*  
 ?*Rusa Nepalensis*, *Hodgson, J. A. Soc. Beng.* x. 914; *Calcutta Journ. N. H.* iv. 292.  
*Cervus heterocerus*, *Hodgson, J. A. S. Beng.* 1841, 722. t.  
*C. Hippelaphus*, *Duvaucell, Asiat. Res.* xv. 174.  
 Biche de Malacca, *Cuvier, Oss. Foss.* iv. 41; *F. Cuv. Mam. Lith.* t.  
*Cervus Malaccensis*, *Fischer, Syn.*  
*Cervus Saumer*, *Ogilby in Royle's Himal.* i. 75.

Mr. Hodgson notices the following varieties:—

- Var. 1.* Brown; the frontal branch short.  
*Cervus Hippelaphus*, or Phursa Jarai, *Hodgs. Icon.*, not *Cuv.*  
*C. Saumur*, *Ogilby; Royle, Illustr.*  
 Phursa Jarai, *Hodgson, J. A. S. B.* i. 1132. 66. t. 5. f. 1–3, 346.  
*Var. 2.* The hinder part of the beam produced, longer than the upper prong.  
*Cervus Hippelaphus var.*, *Cuv. Oss. Foss.* v. t. 5. f. 34.  
*Var. 3.* Rump rufous; the frontal branch of horn elongate.  
*Cervus Aristotelis* (or Râto Jarai), *Hodgs. P. Z. S.* 1834, 98; 1836, 39.  
 The Rato Jarai, *Hodgs. J. A. S. B.* i. 66. f. 4, 346.  
*Var. 4.* The upper part of the beam simple.  
*Cervus heterocerus*, or Kâlo Jarai, *Hodgs. J. A. S. B.* x. 1841, 727. t. . f. 2, x. 914; *Calc. J. N. H.* iv. 292; *Cat. Osteol. Spec. B. M.* 68.  
 Kalo Jarai, *Hodgs. J. A. S. B.* i. 1832, 66. t. 5. f. 5, 346.

India. Presented by B. H. Hodgson, Esq.

A young male, with simple horns. Deccan. Presented by Colonel Sykes.—*Sykes, Proc. Zool. Soc.* 1831.

There is only *one species* of *Rusa* found in the western forests, which is common also to all the heavy jungles of Southern India.

The horns of different individuals present great diversity of forms. I have met with instances of medial antlers, of trifurcated extremities, and in one case with the extremity showing a four-fold division (see t. 4. f. 1).—*Elliot, Madras Journ.* 1840, 30.

#### OSTEOLOGY.

*Cervus Aristotelis*, *Cuvier, Oss. Foss.* iv. 509. t. 39. f. 10, horns. Sambur Horns (gigantic), weight 25 lbs., circumference above burr  $10\frac{1}{2}$  inches, in middle of beam 8 inches.—*Zoophilus, India*

*Sporting Review, Calcutta, 1849, x. 256. t., from Cuttack coast, or Madras.*

## ANAT.

Single horn. India. Exeter Change Menagerie. Presented by Edward Cross, Esq.

Horns on frontal bone. India.

Two single horns, upper branches more equal. India.

Horns on frontal bone, like the last, but thicker, heavier and more granular.

Horns on frontal bone, like the last, but the left horn has a large posterior branch at the fork.

Horns on frontal bone, like the last, but rather smaller, hinder branch of fork longest, the left one with a posterior branch in the middle. India. Presented by Mrs. Wright.

Horns of frontal bone, like the last, but larger and without posterior branch.

Horns of frontal bone, one-third smaller.

Single horn, simple, from a castrated animal?

Skull of young male. Nepal. Presented by B. H. Hodgson, Esq.

Skull of adult female. Nepal. Presented by B. H. Hodgson, Esq.

Skull of young female. Nepal. Presented by B. H. Hodgson, Esq.

Brocket horns on frontal. Nepal. Presented by B. H. Hodgson, Esq.

Three pairs of horns, second year. Nepal. Presented by B. H. Hodgson, Esq.

Single horn of the first year.

Horns on frontal bone, hinder upper branch turned back.

Horns, very long, thick, with very short, thick frontal and submedial branch on one.

Horns, apex forked. Himalaya. Presented by the Rev. R. Everest.

Horns on frontal bone, apex simple. India.

A pair of horns. India. Presented by B. H. Hodgson, Esq.

A pair of very large thick horns, with rather long frontal snag, the left with a large posterior process. India. Presented by B. H. Hodgson, Esq.

A pair of very large, thick horns, with rather long frontal snag. India. Presented by B. H. Hodgson, Esq.

Three pairs of large horns, with moderate frontal snag, the hinder upper snag rather the longest. India. Presented by B. H. Hodgson, Esq.

A pair of similar, but rather slenderer and more elongate horns. India. Presented by B. H. Hodgson, Esq.

A pair of large horns, with rather elongated front snag, the front upper snag rather longest, the horns rather close together. India. Presented by B. H. Hodgson, Esq.

A pair of large horns, with very long frontal snags, the upper snag rather the longest. India. Presented by B. H. Hodgson, Esq.

A pair of horns, the right like the former, the left quite simple, subulate. India. Presented by B. H. Hodgson, Esq.

A pair of horns, one with a moderate, and the other with a long frontal snag, the upper snag nearly equal. India. Presented by B. H. Hodgson, Esq.

A pair of rather slender, more elongate horns, with moderate frontal and short upper snags. India. Presented by B. H. Hodgson, Esq.

A pair of horns, the beam not branched.

Head of a female. India; Himalaya.

Head and horns, with skin. India. Presented by Edward Cross, Esq.

Skeleton. India. From Mr. Bartlet's Collection.

A pair of the horns. India. Presented by B. H. Hodgson, Esq.

#### Icon.

Drawing of male.—*Hodgson, Icon. ined. B. M. t. 206. f. 1.* Presented by B. H. Hodgson, Esq.

Drawing of skull.—*Hodgson, Icon. ined. B. M. t. 187. f. 11, 12.* Presented by B. H. Hodgson, Esq.

Drawing of male, female and young.—*Hodgson, Icon. ined. B. M. t. 207.* Presented by B. H. Hodgson, Esq.

Drawing of males.—*Hodgson, Icon. ined. B. M. t. 208.* Presented by B. H. Hodgson, Esq.

Drawing of female.—*Hodgson, Icon. ined. B. M. t. 209.* Presented by B. H. Hodgson, Esq.

Gouse or Indian Black Deer.—*Hardw. Icon. ined. B. M. n. 10,975. t. 139 ♀.*

Walawah Tinkee.—*Hardw. Icon. ined. B. M. n. 10,775. t. 140 ♀, t. 141 ♂ ♀* (this figure altered by Colonel Hamilton Smith), *l. c. n. 10,975. t. 142.*

Shabur or Saubur.—*Hardw. Icon. ined. B. M. n. 10,975. t. 136 ♂, t. 137 ♀, copied t. 138 ♀; n. 10,974. t. 92 ♀, t. 93 ♀.*

The *Samburs* or *Jerrows* inhabit the great forests and the mountains above them; are not gregarious; have a long, bluff tail, like a docked horse, no disk round it; and a heavy mane over the whole neck. They rut in spring, then drop their horns. The female gestates eight months and produces young in winter.

The horns take six months for their perfect replacement, and are not complete in form until the fourth year, nor in size till the eighth year.—*Hodgson*.

Colonel Sykes believes the *Sambur* of the Mahrattas to be the *C. equinus* of H. Smith; he observes, "it wants the size and is not so dark as the *Sambur* of Bengal."—*P. Z. S.* 1831.

## 2. RUSA DIMORPHE. The SPOTTED RUSA OR GERVER.

Red brown. Back with distinct series of small white spots. Sides indistinctly white spotted. Limbs paler. Neck and belly blackish. Chin white. The horns (deformed?). Young bright fawn red, white spotted.

*Cervus dimorphe*, *Hodgson, Journ. Asiat. Soc. Bengal*, 1844, t.; *Ann. & Mag. Nat. Hist.* xiv. 74; *Wiegman Arch.* 1845, ii. 40; *Sundevall, Pecora*, 132.

*Rusa Dimorpha* (Hodgson's *Rusa*), *Hodgson in Gray Cat. Hodgson Coll. in B. M.* 33.

*Procervus dimorpha*, *Hodgson, Journ. Asiat. Soc. Beng.* 1850, 5. *Hab.* India; Saul Forest; Morang.

Stuffed, not good state. India. The specimen described and figured by Mr. Hodgson.

It is very doubtful if the above specimen is more than an accidental variety, with distorted horns, of the *Sambur*.

The *Gowers* are not gregarious, confined to the Saul Forest.—*Hodgson*.

## 3. RUSA HIPPELAPHUS. The MIJANGAN BANJOE.

Greyish brown. Tail not floccose, brownish at the tip. Anal region not pale. Cheeks and upper part of the neck of the males maned. Young: hair smooth.

*Rusa ubi*, *R. saput* et *R. Tunjuc*, *Raffles, Linn. Trans.* xiii. 268.

*Cervus hippelaphus*, *Cuvier, Oss. Foss.* iv. t. 5. f. 31, 34, 42; *F. Cuvier, Mam. Lithog.* t.; *Raffles, Mem.* 645.

*Cervus Tunjuc*, *Vigors in Raffles Memoir*, 645; *Gray, P. Z. S.* 1836, 67.

Greater Muntjac, *Waterhouse, Cat. Mus. Zool. Soc.* 1828, 13. n. 302, 303 ♂ ♀; 1839, 39.

*Cervus Rusa*, *S. Müller, Nederl. Verh.* 45. t. 43.

Cerf Noir de Bengal, *F. Cuv. Mam. Lithog.* t. 2, in summer.

*Rusa Hippelaphus*, *Gray, Knowsley Menag.* 62; *Proc. Zool. Soc.* 1850.

*Cervus Leschenaultii*, *Cuvier, Oss. Foss.* iv. 508. t. 39. f. 9, from horns only.

*Var.* Smaller.

*Cervus Molluccensis*, *Quoy & Gaim.*; *Eydoux, Guérin Mag. Zool.* 1836, 26; *Sundevall, Pecora*, 56.

*Cervus Rusa Molluccensis*, *S. Müller, Nederl. Verh.* t. 43 ♂, t. 35. f. 1-4; *Mus. Leyden*, 1845.

*Cervus Rusa Timorensis*, *Mus. Leyden*, 1845.

*Hab.* Java.

Female. Java. From Gardens Zool. Soc.

This species was living some time at Knowsley and bred there. In all its states was very distinct from the *Samboor* of continental India.

The horns are similar to those of *R. equina*, but the body and horns are smaller, and the hair of the young is smoother.

#### OSTEOLOGY.

*Cervus Hippelaphus*, *Cuvier, Oss. Foss.* iv. 40. t. 5. f. 31, 34, 35 (*C. auritus?*), t. 5. f. 42.

*Cervus Leschenaultii*, *Cuvier, Oss. Foss.* iv. 508. t. 39. f. 9, horns only.

*Cervus Rusa*, *Müller, Verh. I. A.* t. 43. f. 1, 4.

*Cervus (Rusa) Molluccensis*, *Müller, Verh. I. A.* t. 43. f. 5.

*Cervus Rusa Timorensis*, *Müller, Verh. I. A.* t. 43. f. 6.

The specimen at Knowsley, received from Amsterdam, in summer had the fur formed of thick, rigid, waved quills. The fur is reddish brown, minutely punctated; on the head, neck, dorsal line and shoulders blacker; the orbits yellowish; the lips, chin, gullet, edge of nose, whiskers, and inside of the ears, white, without any black spot on the side of the lower lip.

#### 4. RUSA EQUINUS. The SAMBOE.

Brown, not spotted. Tail rounded, floccose, black at the tip. *Young* very obscurely spotted. Hair rigid and rough. Skull: suborbital pit moderate, oblong, narrow.

*Rusa, Raffles, Linn. Trans.* xiii. 263.

*Cervus equinus*, *Cuvier, Oss. Foss.* iv. 44. t. 5. f. 30, 37, 38. f. 42; *H. Smith, Griffith A. K.* iv. 112. t.; *Sundevall, Pecora*, 55; *S. Müller, Nederl. Verh.*

Eland or Elk, of the Dutch Sportsmen.

*Hab.* Sumatra; Borneo.

#### OSTEOLOGY.

*C. equinus*, *Cuv. O. F.* v. t. 5. f. 30, 42.

The specimens received from Amsterdam in the Knowsley Menagerie had the hair short, rigid, close-pressed, not waved; dull blackish brown; the lips, chin, and spot above each eye, white;



lower lip with a black spot in the middle of each side; whisker black; ears nearly naked; inside and large spot at the upper inner part of the base whitish.

*Size smaller. Mane none. The peduncle of the horns rather elongated, and covered with hair.*

#### 5. RUSA PERONII. THE SMALLER RUSA.

Brown, pale beneath. Hair rigid, *thick*, ringed. Muzzle dark. Tail brown, floccose. Anal disk white. The hind part of the feet hairy. The horns are thick and heavy. Skull: suborbital pit large and deep.—*Cuvier*, fig.

*Cervus Peronii*, *Cuvier*, *Oss. Foss.* iv. 46. t. 5. f. 41, horns, f. 45, skull; *Sundevall*, *Pecora*, 56.

*Cervus Kuhlii*, *S. Müller*, *Nederl. Verh.* 45. t. 44; *Sundevall*, *Pecora*, 56.

*Rusa Kuhlii*, *Gray*, *List Osteol. Spec. B. M.* 68; *Knowsley Menag.*; *Proc. Zool. Soc.* 1850.

*Hab.* Timor and Luboc; Bavian and Ternate.

Male. Timor. From the Leyden Museum.

OSTEOLOGY. *Cuvier*, *Oss. Foss.* iv. 46. t. 5. f. 41–45; *S. Müller*, *Nederl. Verh.* t. 43. f. 12, 14.

Femur and tibia. Timor.

#### 6. RUSA PHILIPPINUS. PHILIPPINE RUSA.

Forehead brown. End of nose and eyebrows brownish. Hair rigid, rather short. Neck not maned. Feet naked behind.

*Cervus de Philippine*, *Desm. Mam.* 442.

*Cervus (Muntjac) Philippinus*, *H. Smith, Griffith A. K.* iv. 147. t. 164. f. 5 (head), v. 803; *Fischer, Syn.* 622.

*C. (Hippelaphus) Philippinus*, *Sundevall, Pecora*, 56.

*Cervus de Manille*, *Cuvier, Oss. Foss.* iv. 46.

*Rusa Philippinus*, *Knowsley Menag.* 63; *Proc. Zool. Soc.* 1850.

*Var.?* Tail black, dependent. Front of face dark.

*Cervus Marianus*, *Cuvier, Oss. Foss.* iv. 45. t. 5. f. 30, 37, 38, 46; *H. Smith, Griffith A. K.* iv. 115. t., from Mus. Paris; *Fischer, Syn.* 453; *Sundevall, Pecora*, 57.

*Hab.* Philippines.

OSTEOLOGY. *Cuvier, Oss. Foss.* iv. 45. t. 5. f. 39, 40, f. 46, skull.

Horns. Philippines. Presented by Capt. Sir Edward Belcher, K.C.B. &c.

This species has the horns or elongated peduncles like the *Muntjacs*, but it is easily distinguished from them by the absence of the ridge, and of the grooves on the face.

#### 7. RUSA LEPIDA. SUNDEVALL RUSA.

Reddish brown. Back and sides varied, with pale spotted hair. Vent disk small, white, black edged above. Tail longly hairy, white, above black. Face brown, with a roundish white spot in front of the usual oral black spot. Horns smooth, slender, nearly straight, elongate, the basal snag bent down on the forehead.

*Cervus* (*Hippelaphus*) *lepida*, *Sundevall, Pecora*, 57.

*Rusa lepida*, *Gray, Knowsley Menag.* 63; *Proc. Zool. Soc.* 1850.

*Hab.* Java? Young male specimen in Mus. Frankfort.

Scarcely as large as a Roebuck.

#### 4. AXIS.

Fur formed of thick polished hairs, fulvous, and beautifully white spotted at all seasons. Face elongate, narrow. Ears large, rather elongate and acute. Tail rather elongate. Legs nearly equally long slender. The horns are placed on moderately long peduncles. The skull is elongate, narrow, with an oblong, rather small, deep suborbital pit.

*Axis*, *Hodgson, Journ. Asiat. Soc. Beng.* 1850, 7; *Gray, Knowsley Menag.* 64; *Proc. Zool. Soc.* 1850.

*Cervus* § *Axis*, *H. Smith, Griffith A. K.* v. 1827; *Lesson, Mamm.* i. 267; *N. Tab. R. A.* 172, 1842.

*Cervus Hippelaphus* § \* \* \*, *Sundevall, Pecora.*

*Axis tacheté*, *Blainv. Desm. Mam.* ii. 448, 1822.

#### 1. AXIS MACULATA. The AXIS or CHITTRA.

Fulvous, with a black dorsal streak ornamented, and two series of white spots. Sides with many white spots in oblique curved lines, and with a short white streak obliquely across the haunches. *Young fawn* spotted exactly like the adult.

*Axis*, *Pliny*; *Buffon, H. N.* xi. t. 38, 39; *Cuvier, Menag. Mus.* t.; *Oss. Foss.* iv. 38. t. 5. f. 24, 29.

*Cervus Axis*, *Eral. Syst.* 312; *Schreb.* t. 250; *H. Smith, Griff. A. K.* v. 786; *Cuvier, Oss. Foss.* iv. 39. t. 5. f. 29, horns; *Ogilby in Royle's Himal.* 73; *Bennett, Gard. Z. S.* 253; *Sundevall, Pecora*, 57.

*Axis maculata*, *J. Brookes, Cat. Mus.* 62, 1828; *Gray, List Mamm. B. M.* 178; *Cat. Osteol. Coll. B. M.* 178; *Cat. Hodgson Coll. B. M.* 32; *Knowsley Menag.* 63; *Proc. Zool. Soc.* 1850.

*Axis major*, Hodgson, *J. A. S. B.* x. 914; *Calcutta Journ. N. H.* iv. 292.

*Axis minor*, Hodgson, *J. A. S. B.* x. 914.

*Axis medius*, Hodgson, *Icon. ined.*

Cerf Cochon, Buffon, *Hist. Nat. Supp.* iii. 122. t. 18.

*C. axis Ceylonensis*, H. Smith, Griffith A. K.

Spotted Axis or Chittra, Hodgson, *J. A. S. Beng.* i. 346.

The Chittra or Axis, Hodgson, *Mam. Icon. ined.* n. 204. 1.

Langna, or Pada, or Spotted Porcine Deer, Hodgson, *J. A. S. B.* i. 346.

The Thou or Spotted Porcine Axis, Hodgson, *Mam. Icon. ined.* n. 204. 2 (horn smaller).

*Axis medius*, or Spotted Hog Deer, or Thou Langna of the Tarai, Hodgson, *l. c.* 205, horns smaller.

Axis Deer, Knight, *Mus. Anim. Nat.* f. 614.

*Hab.* India; Ceylon.

Male. India. Presented by P. Ducane, Esq.

*Var.* 1. Blackish.

*Cervus nudipalpebra*, Ogilby, *Proc. Zool. Soc.* 1831, 136; 1839, 150; Sundevall, *Pecora*, 57. 131.

Female. India. Presented by Edward Cross, Esq.

Male and female. India.

Young. India.

Young? (yellow). India.

Fœtus from spirits? India.

*Var.* Smaller. Fulvous; spots and a streak across the haunch and along the lower part of side, white.

*Axis minor*, Hodgs. *J. A. S. B.* x. 914; *Calc. J. N. H.* iv. 292.

*Axis medius*, Hodgs. *Icon. ined.* 205.

Lesser Spotted Deer, Hodgs.

?Langna, or Puda, or Spotted Porcine Deer, Hodgs. *J. A. S. B.* i. 346.

*Hab.* Nepal; Tarai.

#### OSTEOLOGY.

*Axis*, Daub. Buff. *H. N.* xi. t. 40; Cuvier, *Oss. Foss.* iv. 38. t. 5. f. 24-29.

Cerf Cochon, Buffon, *H. N. Supp.* iii. t. 18 (not Pennant); Cuvier, *Oss. Foss.* iv. t. 5. f. 29.

Horns on frontal bone, slender, elongate, warty. India.

Horns on frontal bone, slender, elongate. India.

Horns on frontal bone, slender, elongate, simple. India.

Skull and horns of the normal state. Nepal. Presented by B. H. Hodgson, Esq.

Horns of the usual form, with two snags near the base of the right, and one on the left side. Nepal. Presented by B. H. Hodgson, Esq.

Horns, with three small snags near the base, and a short terminal beam. Nepal. Presented by B. H. Hodgson, Esq.

Horns on frontal bone, elongate, and very warty. Nepal. Presented by B. H. Hodgson, Esq.

Skull and horns. India.

Horns on frontal. India.

Horns on frontal. India.

Horns on frontal. India.

Horns on frontal, smooth. India.

Horns on frontal, very warty. India.

Horns on frontal bone, with two snags near the base of the left, and one on the right side. Nepal. Presented by B. H. Hodgson, Esq.

Horns on frontal bone.

Skull of male. Nepal. Presented by B. H. Hodgson, Esq.

Horns on frontal bone. India.

Horns, very long, thick, with very short, thick frontal and submedial branch on one.

Axis *Pennantii*.—*Gray, Cat. Osteol. B. M.* 180.

#### ICON.

Drawing of male.—*Hodgson, Icon. ined. B. M. t.* 204. f. 1. Presented by B. H. Hodgson, Esq.

Drawing of horns.—*Hodgson, Icon. ined. B. M. t.* 212. f. 22. Presented by B. H. Hodgson, Esq.

Drawing of male.—*Hodgson, Icon. ined. B. M. t.* 204. f. 2.

Drawing of male and female.—*Hodgson, Icon. ined. B. M. t.* 205.

Drawing of horns.—*Hodgson, Icon. ined. B. M. t.* 212. f. 33?

Large Axis.—*Hardw. Icon. ined. B. M. n.* 10,975. t. 126, t. 127, horns.

The horns of this species vary greatly in size.

Pennant describes two Deer, under the names of—

1. Greater Axis, *Penn. Syn.* 52; *Quad.* 106=C. Axis  $\gamma$ . *Gmelin*;
2. Middle-sized Axis, *Penn. Quad.* 106=C. Axis  $\beta$ . *Gmelin*;

from the horns alone. These are probably only large-horned examples of the common species.

The *Chitals* inhabit the plains of India; gregarious, the herds being often very large. Tail elongate, reaching to the hocks, ending in a point. The fur smooth and spotted, without any mane. They rut in December and breed in May, and gestate six months.

3. *AXIS PSEUDAXIS*. The SPOTTED *AXIS*.

Fulvous, white spotted, a series of spots on the lower part of each side, and an oblique series of spots on the haunches.

*Cervus pseudaxis*, *Gervais, Voy. Bonite*, 64. t. 12; *Institute*, 1841, 419; *Sundevall, Pecora*, 57.

*Hab.* ——. *Mus. Paris*.

This species chiefly differs from *Axis maculata* in having a series of spots in the place of the oblique streak on the haunches.

Mule between *Cervus Axis* and *C. pseudaxis*, *Pucheran, Compt. Rendus Acad. Sci.* 1849, 774.

M. Pucheran considers these two species to belong to different sections of the genus!—*Compt. Rendus*, 1849, 778.

5. *HYELAPHUS*, *Sundevall*.

Fur of moderately thick, palish hair, fulvous, and spotted in the summer. Tail rather elongate. Legs rather short, the front being rather the shortest. Face short, broad, and arched in front. Ears short and rounded. Horns placed on moderately elongated peduncles.

*Hyelaphus*, *Gray, Cat. Osteol. B. M.* 67; *Knowsley Menag.* 64; *Proc. Zool. Soc.* 1850.

*Cervus* § *Hyelaphus*, *Sundevall, Pecora*.

*Axis*, sp., *Blainv. Desm. Mam.* ii. 448, 1822; *Lesson, Mamm.* i. 268; *H. Smith, G. A. K.*

1. *HYELAPHUS PORCINUS*. The LUGNA PARA OF SHGORIAH.

Brown or yellowish brown, with an indistinct, darker dorsal streak, and with obscure whitish spots, but without any white streak on the sides or haunches; in the winter brown and spotless. Forehead, face and front of legs darker. Line down the front of and the inside of the thighs white.

Porcine Deer, *Penn.* 42. t. 8. f. 2.

*Cervus Hippelaphus* var., *Cuvier, Oss. Foss.* iv. 43. t. 5. f. 31, horns.

*Cervus porcinus*, *Zimmer. Schreb.* t. 251; *Horsf. Proc. Z. Soc.* 1839, 150; *F. Cuvier, Mam. Lithog.* t.; *Ogilby in Royle's Himal.* 72; *Proc. Z. Soc.* 1839, 150.

*Cervus* (*Hyelaphus*) *porcinus*, *Sundevall, Pecora*, 58.

*Axis porcinus*, *J. Brookes, Cat. Mus.* 62, 1828; *Hodgson, J. A. S. B.* x. 914; *Calcutta Journ. N. H.* iv. 292; *Gray, Cat. Hodgson Coll. B. M.* 33.

*Cervus niger*, *Hamilton, Icon. ined.*; *Blainv. Bull. Soc. Philom.* 1816, 76; *Fischer, Syn.* 454; *Sundevall, Pecora*, 60. 132.

Brown Porcine Axis, *Hodgson, Journ. A. Soc. Beng.* i. 346.

*Hyelaphus porcinus*, *Gray, Cat. Osteol. B. M.* 67; *Knowsley Menag.* 64. t. 42; *Proc. Zool. Soc.* 1850.

*Cervus Hippelaphus*, var. 3, *Cuvier, Oss. Foss.* iv. 43 (for *C. niger*).

*Var.* Albino, *McClelland, Proc. Zool. Soc.* 1839, 150.

*Hab.* India; Plains of Hindostan; Ceylon; Assam and Tarai of the Kemaon Mountains; *McClelland*.

Male. India.

A flat, imperfect skin of young, with horns. Nepal. Presented by B. H. Hodgson, Esq.

?A flat skin of female, greyish, with broad dorsal streak; fur rough; head imperfect. Nepal. Presented by B. H. Hodgson, Esq.

A flat skin of female, reddish, with narrow dorsal streak. Nepal. Presented by B. H. Hodgson, Esq.

#### OSTEOLOGY.

Porcine Deer, *Penn. Hist. Quad.* t. 19. n. 59, not *Buffon, Supp.*

*Cervus niger*, *Blainv. Bull. Soc. Phil.* 1816, 76. fig.

Skull of the female. Nepal. Presented by B. H. Hodgson, Esq.

Skull, with horns. Nepal. Presented by B. H. Hodgson, Esq.

Horns, separate. Nepal. Presented by B. H. Hodgson, Esq.

Skull, with horns.

Skull, with horns. India.

Horns on frontal bone. India.

Horns, separate. India. Presented by General Hardwicke.

Horns, separate. India. Presented by General Hardwicke.

Horns, separate. India. Presented by General Hardwicke.

Two horns, single, not forked at the tip.

Skull and horns, var. frontal snag elongated and thick.

Four pair of horns. India. From Mr. Argent's Collection.

#### ICON.

Hog Deer, *Cervus porcinus* (head of female).—*Forster, Icon. ined. B. M.* t. 14, from India.

Porcine Deer.—*Hardw. Icon. ined. B. M.* n. 10,975. t. 121 ♂, t. 122, head ♂, t. 123 ♀; n. 10,974 (t. 84). t. 99.

Drawing of male in winter, and female in summer.—*Hodgson, Icon. ined. B. M.* t. 201. Presented by B. H. Hodgson, Esq.

Drawing of female in young and adult age.—*Hodgson, Icon. ined. B. M.* t. 202. Presented by B. H. Hodgson, Esq.

The tail bushy and often carried erect. The males and females in summer are reddish brown, with numerous white spots; the middle of the back rather darker. In winter the whole fur becomes blackish brown, and the spots disappear.

The *Para* live in families or small herds on the plains. They

rut in December or January and breed in May, whence they gestate six months.—*Hodgson*.

Do not ascend the mountains.—*Ogilby*.

Easily known from the *Axis* by being lower on its legs, and there is no distinct black dorsal streak, nor white streak on haunches. The horns are generally short, with only short snags or branches, but they are sometimes as large as those of the *Axis Deer*.

The *Cervus Dodur*, *Royle, Himal. t. 5. f. 1*, and *Ogilby in Royle, i. 73*, of the Himalayas, "of an ashy grey colour, the size of the female *Antilope Cervicapra*, and more graceful than the Hog Deer," is only known from the above description and figure of a female. As Hog Deer are said not to ascend the mountains, it is probably a distinct species.

*Cervus Pumilio*, *H. Smith, Griffith A. K. v. n. 788*; *McClelland, P. Z. Soc. 1839, 150*, is perhaps only a variety of the Hog Deer.

## 6. CERVULUS.

Horns on elongated pedicels, supported by longitudinal ridges on the face, which have a naked moist groove on their side. Canine teeth exerted. Crumen large and deep. Tail elongate and tufted. Hoofs triangular and partly united in front by a web; the false hoofs are small and transverse. Fur of thin, shining hair, and not spotted. They have no tuft of hair on the outside of the hind legs. Skull with a very large, deep, nearly hemispherical suborbital pit. The young, before the horns appear, have a bald groove on the head.

*Muntjacus*, *Gray, Lond. Med. Repos. 1821*; *Cat. Mamm. B. M. xxvii.*

*Muntiacus*, *Rafinesque, Anal. Nat. 56, 1815.*

*Styllocerus*, *H. Smith, G. A. K. iv. 182*; *Lesson, Mamm. i. 273*; *Nov. Tab. Reg. Anim. 174.*

*Prox (Moschatus)*, *Ogilby, P. Z. S. 1836, 135*; *Sundevall, Percora, 61.*

*Cervulus*, *Gray, Knowsley Menag. 65*; *Proc. Zool. Soc. 1850.*

*Cervus* § *Cervulus*, *Blainv. Bull. Soc. Phil. 1816, 74.*

*Cerf*, § *Les Cervules*, *Blainv. Desm. Mam. ii. 449, 1822*; *Lesson, Mam. 368.*

*Cerf à longues canines*, *Lesson.*

*Stylloceriniidæ*, *J. Brookes, Mus. Cat. 62.*

*Dioplon*, *J. Brookes, Mus. Cat. 62.*

### 1. CERVULUS VAGINALIS. The KIJANG or MUNTJAC.

Dark reddish brown. Narrow streak on the front edge of the thigh white.

Kijang, *Marsden, Sumatra*, 94.

*Cervus Muntjac*, *Zimm. Schreb.* t. 254; *Horsf. Java*, vi. t. 1; *Raffles, Mem.* 645.

Dioplon Muntjak, *J. Brookes, Mus. Cat.* 62, 1828.

Prox muntjac, *Sundevall, Pecora*, 61.

*Cervus vaginalis*, *Bodd. Elenc.* i. 136.

*Cervus (Cervulus) subcornutus*, *Blainv. Schreb.* t. 254 B. f. 2.

*Cervus plicatus*, *Forster, MSS. Icon. ined. Mus. Banks.*; *H. Smith, Griffith A. K.* iv. 147.

*Muntjacus vaginalis*, *Gray, Cat. Mamm. B. M.* 173.

?*Cervus (Muntjac) aureus*, *H. Smith, Griffith A. K.* iv. 148. t. 176?, v. 805.

Ribbed-face Deer, *Penn.*

Chevreuil des Indes, *Allam, Buff. Supp.* v. 41. t. 17, vi. 195. t. 26; *Cuvier, Oss. Foss.* iv. t. 5. f. 48, t. 3. f. 49, 54.

*Cervulus vaginalis*, *Gray, Knows. Men.* 65; *Proc. Zool. Soc.* 1850.

*Hab.* Sumatra; Java.

#### OSTEOLOGY.

*Cervus Muntjack*, *Horsf. Java*, t.; *Anat.* 6. f. A, B.

Muntjak of Sumatra, *H. Smith in G. A. K.* iv. t. 164. f. 7, jun., t. 175, adult ♂.

Muntjak of Java, *H. Smith in G. A. K.* iv. t. 164. f. 9 ♂.

#### ICON.

*Cervus Muntjac*, *Desch. MSS. Icon. ined. B. M.* t. 35.

This chiefly differs from the following in being darker-coloured.

#### 2. CERVULUS MOSCHATUS. The KEGAN or KAKER.

Bright reddish yellow. Streak on front of the thigh and under part of the tail white. Chin and gullet whitish. Hair not ringed.

*Var.* With a triangular white spot on each side of the chest.

Musk Deer of Nepal, *Ousley, Orient. Collect.* ii. t., 1798.

*Cervus* § *Cervulus moschatus*, *Blainv. Bull. Soc. Phil.* 1816, 77; *Schreb. Saugh.* t. 254 B. f. 1.

*Cervus Moschus*, *Desm. Mam.* 441.

*Cervus Ratwa*, *Hodgson, J. A. S. B.* i. 346. t., head; *P. Z. S.* 1834.

*Cervus Rutwa*, *Royle, Himal.* t. 5. f. 2; *Ogilby in Royle's Himal.* 73.

*Cervus moschatus*, Nepal Muntjak, *H. Smith, G. A. K.* iv. 149. t. 177, v. 806; *Hodgson, Journ. A. S. B.* i. 346.

*Stylocerus Ratwah*, *Hodgson, J. A. S. B.* x. 914; *Calcutta Journ. N. Hist.* iv. 292.

*Cervus Muntjac (Kacher)*, *Ogilby in Royle's Himal.* i. 73.



*Muntiacus vaginalis*, part., *Gray, List Hodgson Coll. B. M.* 173;  
*Cat. Osteol. B. M.* 68; *Cat. Hodgson Coll. B. M.* 31.

*Prox Ratwa*, *Sundevall, Pecora*, 62.

*Prox albipes*, *Wagner, Suppl.*; *Sundevall, Pecora*, 62.

*Prox stylocerus*, *Wagner, Suppl.*; *Sundevall, Pecora*, 62, 64.

*Cervulus moschatus*, *Gray, Knowsley Menag.* 65; *Proc. Zool. Soc.* 1850.

Jungle Sheep, *India*.

*Hab.* India.

Deep chestnut, becoming browner as the animal grows.—*Elliot*.

*Var.*? “Entirely black.”

*Cervus melas*, *Ogilby, P. Z. Soc.*; in *Royle's Himal.* 73.

*Prox melas* (*Ogilby*), *Sundevall, Pecora*, 62.

*Hab.* Continental India; *Ogilby*.

Male. India.

Female. India.

Head of male, with horns. India; Northern Circars.

Head and horns of male. India; Deccan. Presented by Colonel Sykes, F.R.S. &c. Deccan.

A male. Nepal.

An adult. Nepal. Presented by B. H. Hodgson, Esq.

A female; dorsal streak none. Nepal. Presented by B. H. Hodgson, Esq.

A foetal specimen, with an obscure, dark dorsal streak. Nepal. Presented by B. H. Hodgson, Esq.

OSTEOLOGY, t. 32. f. 2.

*Chevreuil des Indes*, *Buffon, Supp.* iii. t. 36; *Cuvier, Oss. Foss.* iv. t. 3. f. 49–53, t. 5. f. 48.

*Cervus moschatus*, *Blainv. Bull. Soc. Phil.* 1816, 77; *Schreb. Mam.* t. 254 B. f. 1.

Two skulls, half-grown, and young. Nepal. Presented by B. H. Hodgson, Esq.

\*Skull.

Head of male and horns. Northern Circars.

Head and horns of male. Deccan. Presented by Colonel Sykes, F.R.S.

Skull and horns. Nepal. Northern Circars.

Skull and horns. Nepal. Presented by B. H. Hodgson, Esq.

Base of skull and horns. Nepal.

Skull.

Two skulls of a male, with horns, differently developed. Presented by B. H. Hodgson, Esq.

Skull, female. Presented by B. H. Hodgson, Esq.

A pair of large horns on shortish peduncles. Nepal. Presented by B. H. Hodgson, Esq.

A pair of small horns on very long, slender peduncles. Nepal. Presented by B. H. Hodgson, Esq.

Vertebra, pelvis, and leg bones. Nepal. Presented by B. H. Hodgson, Esq.

#### ICON.

Drawing of skull.—*Hodgson, Icon. ined. B. M. t. 187. f. 14.* Presented by B. H. Hodgson, Esq.

Drawing of male and female.—*Hodgson, Icon. ined. B. M. t. 193, 194.* Presented by B. H. Hodgson, Esq.

Drawing of head of male.—*Hodgson, Icon. ined. B. M. t. 195.* Presented by B. H. Hodgson, Esq.

Drawing of horns of different ages.—*Hodgson, Icon. ined. B. M. t. 196.* Presented by B. H. Hodgson, Esq.

Drawing of head in pencil, *Cervus plicatus*, *Bank. Icon. ined. B. M. i. t. 6.*

Drawing of Kaleeātoo or Stag Deer of the Tamouleans.—*Hardw. Icon. ined. B. M. n. 10,975. t. 145, copied n. 10,974. t. 88; n. 10,975. t. 146, 147, copied n. 10,974. t. 87.*

Drawing of Chickera or Mountain Deer.—*Hardw. Icon. ined. B. M. n. 10,975. t. 144, copied n. 10,974. t. 89; n. 10,975. t. 162, 163.*

The *Ratwa* live in the mountains, or the forests at their bases; they live six or eight together, preferring dell and close cover. They bark all the year, but particularly in winter, when the males are wanton. The horns fall in May, and are perfect again in August. They rut in January or February and breed in June or July, gestating six months. The females have bristly tufts, ending in a knob, instead of a horn. The fascial creases are large, mobile, glandular, placed above the inner side of the horn pedicels.

See also—

1. Muntjak of Ceylon, *H. Smith, G. A. K. iv. t. 164. f. 8 ♀.*
2. ?Muntjak, *H. Smith, G. A. K. iv. t. 164. f. 10 ♀.*

### 3. CERVULUS REEVESII. THE CHINESE MUNTJAC.

Greyish brown. Hair short, pale, ringed.

*Cervus Reevesii*, *Ogilby, P. Z. Soc. 1838, 105.*

*Prox Reevesii*, *Wagner; Sundevall, Pecora, 62.*

*Cervulus Reevesii*, *Gray, Knowsley Menag. 65; Proc. Zool. Soc. 1850.*

*Hab. China.*

Mr. Ogilby observes, "This species has a longer head and tail than the common Indian Muntjac, also has less red and more

blue in the general shades of colouring, and is readily distinguished by the want of the white over the hoofs, which is so apparent in its congeners. The fawn is spotted."

The Earl of Derby has these three kinds at Knowsley, but they breed together, and it has hence become impossible to discriminate the mules from the original species.

5. The Capreoline Deer. *Horns without any anterior, basal snag, the first branch being considerably above the burr, very shortly peduncled. Crumen very small. Muffle broad and naked. Suborbital gland and pit in the skull generally small and shallow, except in the genus Pudu. The tuft of hair on the inside of the hock distinct. The tuft on the outer side of the tarsus sometimes present.*

Capreoline Deer, *Gray, Ann. & Mag. N. H.* 1850; *Knows. Menag. Anoglochis, Bravard, Foss. Puy du Dôme; Lesson, Mam.* 259. *Cerfs (Les Chevreuils et Les Daguets), Blainv.; Lesson, Mam.* 365, 367.

Capreolidæ, *J. Brookes, Mus. Cat.* 62, 1828.

#### A. Horns branched.

a. *Tarsal tuft above middle of bone. Old Continent.*

Capræa, *Ogilby.*

Les Chevreuils, *Blainv. in Desm. Mam.*

Capreolidæ, *J. Brookes, Cat. Mus.* 62, 1828.

#### 1. CAPREOLUS.

Horns nearly erect, small, cylindrical, slightly branched, with a very short peduncle. Tail none, but a large, white anal disk. Crumen very indistinct. Hoofs narrow, triangular. The tuft on the hind-legs rather above the middle of the metatarsus. Fur of thick, brittle hair in winter, and thinner and more flexible hair in the summer. The adults are not spotted, and have a black spot at the angle of the mouth. The skull has a very small, shallow, suborbital pit. Intermaxillary nearly to the nasal. Infraorbital impression very slight, rather deeper in the middle. Nasal not dilated behind. Two central lower cutting-teeth dilated above, outermost very narrow.

Found in Europe and North Asia.

Caprea (capreolus), *Ogilby, P. Z. S.* 1836, 135.

Capreolus, *Gray, Lond. Med. Repos.* 1821; *Ann. & Mag. N. H.* 1850; *Knowsley Menag.; Proc. Zool. Soc.* 1850; *Lesson, Mamm. i.* 269; *N. Tab. R. A.* 172.

Cervus, § Capreolus, *H. Smith, Griffith A. K.* iv. 1827.  
 Cerf Chevreuil (de l'ancien Continent), *Blainv. Desm. Mam.* ii.  
 448, 1822; *Lesson, Man. Mamm.* 365.

1. CAPREOLUS CAPRÆA. The ROEBUCK, t. 33. f. 1, t. 34. f. 4.

Inside of the ears fulvous. Chin white, with a black spot below the angle of the mouth.

Capræa, *Plinii Hist. Nat.* viii. c. 55; *Gesner, Quad.* 324. fig.;  
*Jonston, Quad.* 77. t. 31, 35.

C. Plinii, *Ray, Syn. Quad.* 89.

Capreolus, *Brisson, R. A.* 89.

Cervus minimus, *Klein, Quad.* 24.

Cervus capreolus, *Linn. S. N.* i. 94; *Gmelin, S. N.* i. 180; *Erxl. Syst.* 313; *Schreb. Saugth.* 1104. t. 212 A, B; *Pallas, Zool. Ross. A.* i. 219; *Brandt, Bull. Acad. Petersb.* iii. 280; *Desm. Mamm.* 439; *F. Cuv. Mam. Lith.* t.; *Fischer, Syn.* 450, 619; *H. Smith, G. A. K.* iv. 124. t., v. 790.

Capreolus Capræa, *Gray, List Mamm. B. M.* 176; *Cat. Osteol. B. M.* 64.

Capreolus europeus, *J. Brookes, Mus. Cat.* 62, 1828; *Sundevall, Pecora,* 61. 184.

Roe, *Penn. Syn. Quad.* 53; *Quad.* 108; *Shaw, Zool.* ii. 291.

Roebuck, *Penn. Brit. Zool.* 18. t.; *Knight, M. A. N.* f. 615; *Bell, Brit. Quad.* fig.

Chevreuil et Chevette, *Buffon, H. N.* vi. 198. t. 32, 33.

Chevreuil d'Europe, *Cuvier, Reg. Anim.* i. 257; *Oss. Foss.* iv. 47. t. 1. f. 37-40.

Rehbock, *Riding, Jagd. Th.* t. 9; *Meyer, Thier.* ii. 677. 74; *Wildung, Taschenb.* 1797, i. t. 1, 2.

*Hab.* Europe.

Female. Scotland.

Male (bad condition). Scotland.

Male, new horns, with fur coat. Presented by the Earl of Derby.

Adult male in winter. France.

Adult female in summer. France.

OSTEOLOGY, t. 33. f. 1. t. 34. f. 5. *Volkman, Anat. Anim.* i. t. 11. f. 3, t. 12. f. 4; *Kaup, Allg. Zool.* t. . f. 13.

Chevreuil, *Daub. Buff. H. N.* vi. t. 35. f. 36; *Cuvier, Oss. Foss.* iv. 47. t. 3. f. 37, 40; *Gay & Gervais, Ann. Sci. Nat.* 1846, 93.

Horns, adult. Scotland.

Horns, second year. Scotland.

Single horns. Scotland.

Base of skull of adult, with horns. Scotland. Presented by General Hardwicke.

Horns on skull (diseased), very warty. Scotland. Presented by Lord Willoughby d'Eresby.

Two skulls, female. Mr. Argent's Collection.

*Var.* Horns divided into several short branches at the top. Roe Buck in Berlin Mus., *H. Smith in Griffith A. K.* iv. t. 164. f. 6. Cervus from Brazils (?), *Cuvier, Oss. Foss.* iv. t. 3. f. 48.

## 2. CAPREOLUS PYGARGUS. The AHU.

Interior of the ears fulvous. Chin pale, blackish behind, nearly to the angle of the mouth.

*Cervus pygargus*, *Pallas, Reise*, i. 97, 198, 433; ii. 159; *Spic.* xii. 7; *Erxl. Syst.* 317; *Gmelin, S. N.* i. 175 (not *Hardwicke*); *Schreb. Saugth.* 1118. t. 253; *Desm. Mamm.* 440; *Fischer, Syn.* 450, 619; *Brandt, Bull. Acad. Petersb.* iii. 280; *Wiegman Arch.* 1845, ii. 40.

*C. capreolus*  $\beta$ , *Pallas, Zool. Ross. Asiat.* i. 219.

*Cervus Ahu*, *Griffith, A. K.* iv. 122 t., v. 789.

*Ahu*, *S. G. Gmelin, Reise*, iii. 496. t. 56.

*Capreolus pygargus*, *J. Brookes, Mus. Cat.* 62, 1828; *Sundevall, Pecora*, 61; *Gray, List Mamm. B. M.* 176; *Proc. Zool. Soc.* 1849, 64.

Tailless Deer, *Penn. Quad.* i. 121.

Tailless Roe, *Shaw, Zool.* ii. 287.

Chevreuil de Tartarie, *Cuv. Reg. Anim.* i. 257.

*Ahu*, *Persians*.

*Siaga*, *Tartars*.

*Dikaja Kosa*, *Russians*.

*Hab.* Central Asia.

A male and female. Siberia. From M. Brandt's Collection.

*b. Tarsal tuft absent or below middle of bone.* New Continent.

*Mazamadæ*, *J. Brookes, Cat. Mus.*

## 2. BLASTOCERUS.

Horns straight, erect, three-branched, without any basal snag. Tail very short. Ears rather large. Fur consisting of very thin, soft hair. They have a distinct pencil of hairs on the inside of the hock, but none on the outside of the metatarsus. Skull with oblong suborbital pit, rather deep. Confined to South America. The young are described by Azara as not spotted!

*Blastocerus*, *Gray, Proc. Zool. Soc.* 1850.

*Blastocerus*, sp., *Wagler; Sundevall, Pecora*, 59; *Gray, Knowsley Menag.*

Furcifer, part., *Wagler*; *Sundevall, Pecora*, 59; *Gray, Knowsley Menag.*

Mazama, sp., *H. Smith, Griffith A. K.* v.

Cariacus, sp., *Lesson, N. Tab. R. A.* 173, 1842.

Chevreuils du Nouveau Continent (part.), *Blainv. Desm. Mamm.* ii. 448, 1822.

## 1. BLASTOCERUS PALUDOSUS. The GUAZUPUCO.

Fulvous. Orbit, sides, muzzle, belly, and under side of tail, white. Face-marks and feet blackish.

*C. Mazama paludosus* (Guazupuco Deer), *H. Smith, G. A. K.* iv. 134. t. 169, v. 796:

*Cervus paludosus*, *Desm. Mamm.* 443; *H. Smith*; *Fischer, Syn.* 444, 616; *Licht. Darst.* t. 17; *Renger*, 344.

*Cervus Blastocerus paludosus*, *Sundevall, Pecora*, 59.

*C. palustris*, *Desmoul. Dict. Class. H. N.* iii. 379.

*Cervus dichotomus* (Guatzupucu), *Illiger, Abhand. Akad. d. W.* 1804-1811, 117; *Pr. Max. Nieuw. Ins.* 1821, 650. t. 6.

*Cervus mexicanus*, *Goldfuss in Schreb. Saugth.* 1124; *Gmelin, S. N.* i. 179; *F. Cuv. Dict. Sci. Nat.* vii. 483.

Gouazoopoucou, *D'Azara, Essai*, i. 45, 70, 73; *Apuntamientos*, i. 35.

Guazu-ete, *Brazilians.*

Guazu pucu, *Renger*, 344.

?*Mazama* (or *Cervus*) *furcata*, *Gray, List Mamm. B. M.* 176; *Cat. Osteol. B. M.* 64.

*Hab.* South America.

## ANAT.

Horns. S. America?

The Thick-horned Guazuti, *Mazama?* *furcata*, *Cervus furcatus*, *Gray, List Osteol. B. M.*

Colonel Hamilton Smith's figures, from life, represent the tail erect, showing a great quantity of white hair; and the face is dark in front, with a dark ring round the gape, which are not indicated in *Lichtenstein's* figuré.

## 2. BLASTOCERUS CAMPESTRIS. The MAZAME or GUAZUTI.

Fulvous brown. The hairs of the lower part of the nape and front of the back reversed. The hoofs narrow. *Young*: middle of back not spotted. Sides with small white spots, the upper series forming a regular line.

*Mazame*, *Hernandez, Mex.* ix. c. 14. 324; *Buffon, H. N.* xii. 317.

Veado branco, V. do campo, *Anchieta, Notic.* i. 127.

*Cervus bezoarticus*, *Linn. S. N.* ed. 10. 67; *Zimm. Geog. Gesch.* ii. 132.

- Cervus campestris*, *F. Cuvier, Dict. Sci. Nat.* vii. 484?; *Desm. Man.*; *Cuvier, Oss. Foss.* iv. 51. t. 5. f. 46, 47; *Pr. Max. Beitr.* ii. 583; *Abbild.* t.; *Waterhouse in Darwin, Zool. Beagle*, 29. fig. horns; *H. Smith, G. A. K.* iv. 136. t., v. 797; *Renger*, 350; *Licht. Darst.* t. 19. ♂ ♀ and jun.
- Cervus leucogaster*, *Goldf. Schreb. Saugth.* 1127.
- Cervus (Mazama) campestris* (Guazuti Deer), *H. Smith, Griffith A. K.* iv. 136. t. 170, v. 797.
- Mazama campestris*, *Gray, List Mamm. B. M.* 176; *Cat. Osteol. B. M.* 64.
- Blastocerus campestris*, *Gray, Proc. Zool. Soc.* 1850.
- Furcifer campestris*, *Gray, Knowsley Menag.* 58.
- Cervus (furcifer) campestris*, *Sundevall, Pecora*, 60.
- Cuquacu apara*, *Marcgr. Bras.* vi. 235.
- Biche de Pampas*, *Cuvier, Oss. Foss.* iv. 52.
- Biche de Savanne*, *De la Borde, Buff. Supp.* iii. 126.
- Gouazou-ti*, *Azara, Essai*, i. 77.
- Guazu-y*, *Renger*, 350.
- Guazu'ti*, *in Paragua.*
- Guazu para*, *in Brazils.*
- Hab.* South America; North Patagonia.

Male, female and young. Northern Patagonia. Presented by Sir William Burnett and Capt. Fitzroy, R.N. (Specimens described by Darwin and Waterhouse.)

OSTEOL. t. 35. f. 1-3. *Cuvier, Oss. Foss.* iv. t. 3. f. 46 (scarcely f. 47 or 48); *Pr. Max. Abbild.* t.

Horns on frontal bone. Northern Patagonia. From Haslar Hospital Museum. (Capt. Fitzroy's Expedition.)

Skull with horns. "Columbia." The Parzudaki Collection.

*Cervus campestris* is exceedingly abundant, often in small herds, throughout the countries bordering the Plata and in Northern Patagonia. If a person crawling close along the ground slowly advances towards a herd, the deer, frequently out of curiosity, approach to reconnoitre him. I have by this means killed from one spot three out of the same herd. Although so tame and inquisitive, yet when approached on horseback they are exceedingly wary. At Bahia Blanca, a recent establishment in Northern Patagonia, I was surprised to find how little the deer care for the noise of a gun. An overpoweringly strong and offensive odour proceeds from the buck; it is quite indescribable; several times while skinning a specimen I was almost overcome by nausea. I tied up the skin in a silk pocket-handkerchief and so carried it home. This handkerchief, after being well washed, I continually used, and it was of course as repeatedly washed, yet

every time, for a space of one year and seven months, when first unfolded I distinctly perceived the odour. Frequently when passing at the distance of half a mile to the leeward of a herd, I have perceived the whole air tainted with the effluvium. I believe the smell from the buck is most powerful at the period when its horns are perfect and free from the hairy skin; when in this state the meat is of course quite uneatable, but the Gauchoes assert, that if buried for some time in fresh earth the taint is removed.—*Darwin, Journal*, 49.

A skull at Haslar has the horns of one side normal, on the other (the left one) with the front lower branch elongated and forked.

The figures of *C. campestris* in F. Cuvier, *Man. Lithog.*, is evidently a *Cariacus*, and not of this genus.

### 3. FURCIFER.

Horns erect, forked, without any basal snag. Ears narrow, acute. Tail short. Fur consisting of thick, rather brittle, waved hairs. Skull with a moderate suborbital pit. There is a distinct parcel of hairs on the inside of the hock, but none on the outer side of the metatarsus. Confined to South America.

They differ from *Capreolus* in wanting the tuft of hair on the outer side of the hind tarsus.

*Cervus*, § *Furcifer*, part., *Sundevall, Pecora*, 60.

*Furcifer*, part., *Gray, Knowsley Menag.*; *Proc. Zool. Soc.* 1850.

*Cervus Mazama*, sp., *H. Smith, G. A. K.*

*Mazama*, *Gray, Cat. Mamm. B. M.* xxvii., not *Rafinesque*.

*Cariacus*, sp., *Lesson, N. Tab. R. A.* 173.

*Chevreuil du nouveau continent* (sp.), *Blainv. Desm. Mam.* ii. 448, 1822.

*Cervus*, sp., *D'Orb. Voy. Amér. Mérid.*

*Hippocamelus*, *Leuckart, de Equo Bisulco*, 1816.

*Camelus*, sp., *Leuckart*.

*Cervequus*, *Lesson, Nov. Tab. R. A.*

*Capreolus*, sp., *Gray, Proc. Zool. Soc.*

*Equus*, sp., *Molina, Chili*, 520; *Fischer, Syn.* 430; *Shaw, Zool.*

*Auchenia*, sp., *H. Smith in Griffith A. K.* v. 764.

#### 1. FURCIFER ANTISIENSIS. The TARUSH or TARUGA.

Yellow grey. Hairs rigid, quilled, brown, with a yellow sub-terminal ring. Edge of muffle and throat white. Face with a brown longitudinal streak and a lunate band between the eyes. The hoofs rather broad, worn in front.



*Cervus Antisiensis*, *D'Orbigny, Voy. Amér. Mérid.; Dict. Univ. H. N.* iii. 328; *Tschudi, Faun. Peru*, t. 18.

*Cervus (furcifer) Antisiensis*, *Sundevall, Pecora*, 60.  
*Hab.* S. America; Bolivian Alps.

OSTEOLOGY. *D'Orb. Voy. Amér. Mérid.* t. 20. f. 22.

Fur rigid, quilled, grey. Hair brown, with yellow tips. Throat and edge of the muffle white. *Female*: face with a brown longitudinal streak and a lunate band between the eyes. Crumen large. Hock with a large tuft on the inner side. Tail with white soft hair beneath. Mus. Paris.

## 2. FURCIFER HUAMEL. The GUEMUL.

Brown, minutely yellow dotted. Hair long, brittle, waved.

*Guemul seu Heumul*, *Vidaure, Gesch.; Konig, Chili in Neue Samml. von Reiseb. Hamb.* 1782, iv. 87, 88; *Ray, Zool. Univ. & Portat.* iv. 255, 1788.

*Gemul* or *Equus bisulcus*, *Molina, Chili*, 520; *Fischer, Syn. Mamm.* 430.

*Auchenia Huamel*, *H. Smith in Griffith A. K.* v. 764.

*Camelus Equinus*, *Leuckart; Treviranus, Biologie*, ii. 179, 252, 1803.

*Hippocamelus dubius*, *Leuckart, de Equo Bisulco*, 24, 1816.

Un nouveau genre, *Gay, Echo du Monde Savant*, 1835, June 19; *Lesson, Mamm.* i. 249.

*Cervequus andicus*, *Lesson, Nov. Tab. R. A.* 173.

*Cervus chilensis* (*Guamul*), *Gay & Gervais, Ann. Sci. Nat.* 1846, 91.

*Capreolus leucotis*, *Gray, P. Z. Soc.* 1849, 64. t. 12.

*Capreolus?* *Huamel*, *Gray, Knowsley Menag.* 66.

*Furcifer Huamel*, *Gray, Proc. Zool. Soc.* 1850.

Cloven-footed Horse, *Shaw, Zool.* ii. 441.

*Guemul*, *Chilians.*

*Hab.* East coast of S. America; Cordillera; Patagonia.

*Female*, imperfect skin. Chili. Presented by the Earl of Derby.

ANAT. *Gay & Gervais, l. c.*

“Skull the size of that of *C. campestris*, but the forehead is flattened; interocular region is squarer. The pit of the tear-bag is more considerable, and the naso-maxillary foramen is smaller.”

## 4. CARIACUS.

Horns cylindrical, arched, with a central internal snag, the tip bent forward, and with the lower branches on the hinder edge. Fur soft, of thin hair. Tail moderate, furnished with long hair on the under side, anal disk white. Ears rather elongated, large, rounded. They generally have a tuft of white hair on the outer side of the hind legs, rather below the middle of the metacarpus, but it is sometimes not to be seen. The skull has a very small, shallow, suborbital pit, and the nasal bones are broad and subtriangular behind. The tail is elongate, slender, pale, with the lower part dark, and reaching nearly to the hocks in summer; much shorter and broader, and all dark olive, in the winter. Confined to Northern America.

Mazama, sp., *H. Smith, Griffith A. K.* v. 182; *Lesson, Mamm.* i. 270.

Mazama, *Sundevall, Pecora*, 50.

Cariacus, *Gray, Proc. Zool. Soc.* 1850.

Cariacus, sp., *Gray, Med. Repos.* 1821; *Cat. Mamm. B. M.* xxvii.; *Lesson, N. Tab. R. A.* 173, 1842.

Chevreuils du nouveau continent (part.), *Blainv. Desm. Mam.* ii. 448, 1822.

Mazamadæ, *J. Brookes, Mus. Cat.* 62, 1828.

Elephalcedæ, *J. Brookes, Mus. Cat.* 62, 1828.

\* Hoofs narrow, elongate. Tail hairy beneath.

## 1. CARIACUS VIRGINIANUS. The AMERICAN DEER.

Bright fulvous in summer, greyer in winter. Tail fulvous, above the tip black, beneath white, carried erect when running. Metatarsal tuft large, white, round. Nose brown. Side of mouth white, with an oblique black band from the nostrils. Hoofs narrow, elongate.

*Dama virginiana, Raii Syn.* 86.

Fallow Deer, *Lawson, Carol.* 23; *Catesby, Carol. App.* 28.

*Cervus Dama americanus, Erxl. Syst.* 312.

*Cervus Strongyloceros*, part., *Schreb. Saugth.* 1074, not figure.

*C. Mangivorus, Schrank, Ann. Wetter.* i. 327, 1819.

*Cervus Virginianus, Gmelin, S. N.* i. 179; *Desm. Mamm.* 442; *F. Cuvier, Man. Lithog.* t.; *Bennett, Gard. Z. S.* 205; *Fischer, Syn.* 449; *Peale, U.S. Explor. Exped.* 39.

*C. (Mazama) Virginiana, Sundevall, Pecora*, 58.

*Cariacus virginianus, Gray, List Mamm. B. M.* 175; *Cat. Osteol. B. M.* 63, 64.

*Mazama Virginiana*, *J. Brookes, Cat.* 62, 1828.

Virginian Deer, *Penn. Syn.* 51. t. 9. f. 2; *Quad.* i. 104. t. 11. f. 1.

Cerf de la Louisiane, *Cuvier, R. A.* i. 256; *Oss. Foss.* iv. 33. t. 5. f. 1-5.

Cariacou, *Buffon, H. N.* xiii. 347. t. 44.

Mexican Deer, *Penn. Syn.* 110. t. 9. f. 1, horns.

*Hab.* N. America.

Female, imperfect, white gland on tarsus very distinct. N. America. Presented by the Earl of Derby.

OSTEOLOGY, t. 33. f. 2, 3.

Chevreuil d'Amérique, *Daub. Buff. H. N.* vi. t. 37; *Cuvier, Oss. Foss.* iv. t. 5. f. 19-22.

Cariacou, *Daub. B. H. N.* xii. t. 45.

Cerf de la Louisiane, *Cuvier, Oss. Foss.* iv. 33. t. 5. f. 1-16; *Dale, Phil. Trans.* n. 444. fig., 1735.

Virginian Deer, *Penn. Hist. Quad.* t. 20. f. 2.

*Var.* Mexican Deer, *Penn. Hist. Quad.* t. 20. f. 1.

Horns of young, simple. North America.

Horns of adults, moderate-sized, with two branches on upper edge of beam. North America.

Horns of adult, large, with three branches on upper edge of beam.

Horns, larger and thicker, with five branches on upper edge of beam, inner basal branch very long and forked.

Horns, very large, with many branches on upper edge of beam, inner basal branch thick and forked. Mexico. From the Royal Society's Museum. (*Cervus mexicanus*.)

Single horn, like the preceding one, but anterior basal branch very long, produced, and an additional elongate branch from the lower edge of the middle of the beam. (*Cervus mexicanus*, Mexican Deer, *Penn. Syn.* 110. t. 9. f. 1; *H. Smith, Griffith A. K.* iv. t. 163. f. 3.)

Single horn, with the upper branches on the beam rather irregular, and three produced and elongate, forked branches from the lower edge of the upper part of the beam. (*Cervus clavatus*, *H. Smith in Griffith A. K.* iv. t. 163. f. 4?)

Skeleton. Knowsley. Presented by the Earl of Derby.

Skull, male. Hudson's Bay. Presented by the Hudson's Bay Company.

Skull, female. Hudson's Bay. Presented by the Hudson's Bay Company.

Horns. Hudson's Bay. Presented by the Hudson's Bay Company.

Seven pairs of horns. N. America.

Two skeletons. From the Zoological Society's Collection.

Skull. Hudson's Bay. Presented by the Hudson's Bay Company.

Skull. Hudson's Bay. Presented by the Hudson's Bay Company.

\*Skull. South America. Presented by the Earl of Derby.

The *White-tailed Deer* inhabit the Oregon, and they were found to be most numerous near the coast of the Pacific Ocean. Their range on that coast is up to the fifteenth degree of latitude, and probably much further north. At the Umpqua River, in lat. 43°, they give place to the Black-tailed Deer, *C. Lewisii*, which occupy the country south of that parallel to the almost entire exclusion of these.—*T. Peale, U. S. Explor. Exped.* 38.

We believe that the same species of Deer inhabits all the timbered or partially timbered country between the coast of the Atlantic and Pacific Oceans. They vary in size, as all the animals of this genus do, in different feeding-grounds, but they are specifically the same. When alarmed, this species always erects its tail, which being white beneath, is a conspicuous object, and when running the tail is kept erect and wagged from side to side.—*T. Peale, ibid.* 38.

## 2. ?CARIACUS MEXICANUS. The MEXICAN DEER.

Fulvous grey; in winter —? Tail fulvous grey (without hair), half as long as the head. Muzzle fulvous grey, scarcely spotted. Metatarsal tuft evident, brown. Horns broad.

Acutillame, *Hernand. Hist. Nov. Hisp.* 324.

*Cervus mexicanus*, *Gmelin, S. N.*; *Licht. Darst.* t. 18, ♂ ♀ & jun.; *Sundevall, Pecora*, 59; *Cuvier, Oss. Foss.* iv. 37. t. 5. f. 23, horns?

*Elephalces mexicanus*, *J. Brookes, Mus. Cat.* 62.

*Hab.* Mexico. *Mus.* Berlin.

## 3. CARIACUS LEUCURUS. The LONG-TAILED DEER.

Fur brownish fulvous: does not change in winter or age. Tail yellow above, elongate. Metatarsal tuft small. Nose brown, side of muzzle white, with an oblique black band from the nose to the mouth.

Roebuck, *Dobbs, Hudson's Bay*, 41, 1744.

Fallow or Virginian Deer, *Cook's Third Voyage*, ii. 292, 1778.

Long-tailed Jumping Deer, *Umfreville, Hudson's Bay*, 190, 1790.

Deer with small horns and long tail, *Gass. Journ.* 55, 1808.

Long-tailed Red Deer, *Lewis & Clark, Travels*, ii. 41.

Small Deer of Pacific, *Lewis & Clark, Travels*, ii. 342.

Common Red Deer, *Lewis & Clark, Travels*, iii. 26.

Common Fallow Deer with long tails, *Lewis & Clark, Travels*, iii. 85.

*Cervus leucurus* (Long-tailed Deer), *Douglas, Zool. Journ.* iv. 330; *Richardson, Northern Zoology, Mam.* 258; *Wagler; Sundevall, Pecora.*

*Cervus campestris* (Mazame), *F. Cuvier, Mam. Lithog.* t., not *Desmarest.*

Jumping Deer, *Hudson's Bay Traders.*

Chevreuil, *Canadian Voyagers.*

Mowitch, *Indians west of Rocky Mountains.*

Apeesee-mongsoos, *Cree Indians.*

*Hab.* N. America; Hudson's Bay; Columbia River.

OSTEOLOGY. *a, b.* Skull, male and female. Columbia River. Presented by Hudson's Bay Company.

This species does not, on the east side of the Rocky Mountains, range further north than latitude  $54^{\circ}$ , nor is it found in that parallel to the eastward of the 105th degree of longitude. Mr. Douglas states, "It is the most common Deer in the district adjoining the River Columbia, more especially on the fertile prairies of the Cowalidske and Multnornah rivers, within 100 miles of the Pacific Ocean."

In running the tail is erect, wagging from side to side. Its gait is two ambling steps and a bound exceeding double the distance of the steps.—*Richardson.*

Dr. Richardson described a female killed in February as fawn-coloured, mixed with black; tail fawn-coloured, white at the tip and beneath. Mr. Douglas, however, described the upper part of the animal as reddish brown in summer, and changing to light grey in winter; so his animal may be a different species.

Skull elongate, narrow. Face rather produced, tapering, flattened on the sides. Intermaxillars rather broad, not reaching to the nasal bones, and fitting into a notch in the front upper edge of the maxilla. Infraorbital pit moderate; fissure very large, triangular, open. Nasals, each notched in the middle of the fronts.

*Male*: length entire 11 inches; from front of orbit to nose 6; width at lower edge of orbit  $4\frac{3}{8}$ ; of nose just before first grinder  $1\frac{1}{2}$ ; of skull 3.

*Female*: length entire  $9\frac{6}{8}$  inches; from front of orbit to nose  $5\frac{1}{4}$ ; width at lower edge of orbit  $3\frac{8}{12}$ ; upper side of orbit  $3\frac{1}{4}$ ; of nose just before first grinder  $1\frac{8}{12}$ ; of skull  $2\frac{7}{12}$ ; suborbital pit rather smaller than in the male.

A male and female in winter dress, from Fort Colville on the Columbia River, were sent by the Hudson's Bay Company to the Museum May 26, 1843: they arrived without hair or skin.

4. *CARIACUS? NEMORALIS*. The *CARIACOU DEER*.

Fulvous grey in winter. Tail above blackish (without the hair), half as long as the head. Nose brown. Muzzle white, with a black oblique streak from nose to mouth. Metatarsal tuft minute, obsolete. Ears covered externally with very short greyish hair.

*C. Nemoralis* (*H. Smith?*), *Sundevall, Pecora*, 59.

Cerf blanc ou Cerf des Paletuviers, *Cuvier, Oss. Foss.* iv. 36. t. 5. f. 22 a.

Chevreaux d'Amérique, *Daubent. Buffon H. N.* vi. t. 37; *Cuvier, Oss. Foss.* iv. 36. t. 5. f. 19-22.

*Cervus mexicanus*, part., *Pennant, Quad.*, from *Buffon*.

Biche des Savannes, *La Borde, Buffon H. N. Supp.* iii. 126; "young in winter," *Cuvier, l. c.*

Biche des Paletuviers, *La Borde, Buff. H. N. Supp.* iii. 126; "adult male," *Cuvier, l. c.*

*Hab.* Shores of Mexican Gulf; Guiana; Mexico. Cayenne; *M. Poiteau*. Surinam; *M. Baillon*.

5. *CARIACUS PUNCTULATUS*. The *CALIFORNIAN ROE*.

Dark reddish brown (in summer), minutely punctulated by the yellow tips of the hair; in winter greyish brown. Chin-mark distinct. Ears elongated, nakedish. Base of the ears, orbits, round the muzzle, underside of tail, and the upper part of the inside of the legs, white. Forehead, line down the face, and narrow streak on upper part of the nape, black. Legs brown. A very narrow, indistinct streak on the middle line of the rump yellowish. Metatarsal tuft none. Tail like back, with a blackish tip.

*Cariacus punctulatus*, *Gray, Proc. Zool. Soc.* 1850, t.

*Hab.* California. Lieut. Jones of H.M.S. 'Samson.'

There is a female of this species in the Zoological Gardens; it is much smaller and darker than *C. Virginianus*, and it differs in the hair being dark, with a distinct, yellow, subterminal band.

*Cervus gymnotis* is described as very like *C. nemoralis*, only differing in the tail being rather longer and pale above; the outer surface of the ears brown and nakedish. Metatarsal tufts none.

*Cervus Gymnotis*, *Wiegmann, Isis*, 1833; *Wayner, Supp.*; *Sundevall, Pecora*, 39.

*Hab.* Columbia. Mus. Berlin. Doubtful if distinct from the former or *C. nemoralis*.

## 6. CARIACUS LEWISII. The BLACK-TAILED DEER.

The tail black above towards the extremity, yellowish white beneath, covered with hair at all seasons, and not carried erect when running. Fulvous (in summer). Hair very soft, not rigid. Forehead and upper part of face before the eyes blackish. (In winter, fur very thick, quilled, waved, brittle.) Inside of the legs and belly white. Chin-band distinct, black. Front hoofs narrow, elongate. Horns like *C. Virginianus*, but generally more slender, and commonly without the basal antler.

Black-tailed Deer, *Anglo-American in Oregon*.

Black-tailed Fallow Deer, *Lewis & Clark, Travels to the Pacific*, iii. 26. 125 (London edit. 1807).

*Cervus Macrotis*  $\beta$ . *Colombiana*, *Richardson, Fauna Bor. Amer.* i. 257.

Long-tailed Deer (*Cervus macrourus*), *H. Smith, Griffith A. K.* iv. 134, v. 795, part.; *Fischer, Syn.* 615; *Blyth in Cuvier Animal Kingd.* 138. f. 56.

*Cervus Lewisii*, *T. Peale, U. States Explor. Exped.* 39. t. 9, ined. fig. at p. 43, fore-foot.

*Hab.* California, between Columbia River and Umpqua River; seldom seen east of the Cascade range of mountains.

OSTEOLOGY. *a, b.* Skull, male and female. Columbia River. Presented by the Hudson's Bay Company.

The *Short or Black-tailed Deer* in the winter is covered with very thick, waved, tubular, brittle quills or hair, of a grey colour, with a rather darker subterminal band. The legs are yellow brown. The tuft on the inside of the hock very large. The tuft on the outside of the tarsus large, covering an oblong, bald, callous spot, about an inch or an inch and a half long, which is hard and horny in the dry specimen.—*T. Peale*.

Skull rather broad. Forehead concave. Face rounded on the sides. Intermaxillars broad, not reaching to the nasal. Nasal dilated and bent down on the side behind, with a deep central notch. Suborbital pit large, deep, triangular. Suborbital slit large, triangular, open.

*Skull of Male*: Larger. Suborbital pit very large, triangular, deep. Intermaxillar not reaching near the nasal. Length entire  $12\frac{3}{4}$  inches; from front of orbit  $6\frac{1}{4}$ ; width at lower side of orbit  $5\frac{1}{4}$ ; upper side of orbit  $5\frac{3}{4}$ ; of nose just before first grinder  $2\frac{5}{12}$ ; of skull  $3\frac{3}{4}$ .

*Skull of Female*: Smaller. Suborbital pit smaller, narrower, oblong, linear, rather deep. Intermaxillar reaching nearly to the nasal. Length entire 11 inches; from orbit  $6\frac{1}{2}$  inches; width at lower side of orbit  $4\frac{10}{12}$ ; at upper side  $3\frac{10}{12}$ ; of nose just in front of first grinder  $2\frac{5}{12}$ ; of skull  $2\frac{1}{12}$ .

Length 6' 1½"; tail 10"; height at shoulders 3' 2"; glandular sac on tarsus 1½ inch long.

Male and female winter dress was sent from Fort Colville, Columbia River, May 26, 1843, by A. Macdonald, Esq., and presented by the Hudson's Bay Company, but arrived without hair.

The Black-tail Deer never carries its tail erect when running, and viewed from behind shows two narrow white lines of hair, instead of the large, white, and elevated tail of the Virginian Deer.

*Var. 1.* With a basal antler on the inner side of the horn, which was directed upwards and backwards.

*Hab.* Oregon; *T. Peale, l. c.* 41.

*Var. 2.* No internal basal antler.

*Hab.* California; *T. Peale, l. c.* 41.

There is a skull of a young male American Deer which was in the Zoological Gardens, the skin of which has not been preserved. It is intermediate in character between the other species; it has the rather slender face of the Virginian Deer; but it has a much larger, subtriangular, suborbital pit, of the same form, but only about two-thirds the size of the pit in the skull of the broad-faced *Long-tailed Deer*. It indicates the existence of another species, that may be characterized by the skull. Nasals: each bifid in front. Intermaxillar nearly reaching to the nasals. The length entire 9½ in.; of face from orbits 5½ in.; width of lower edge of orbit 4¼ in.; of upper edge of orbit 3¼ in.; of face in front of the first grinder 1½ in.; of skull 2½ in.

\*\* *Front hoof broad, cordate. Tail not hairy beneath.*

## 7. CARIACUS MACROTIS. The MULE DEER.

Brownish fulvous. Chin without any, or only an indistinct band. Tail pale ferruginous, with a black tuft at the end, and without any hair beneath. Ears very large. Hoofs of the fore feet broad, cordate, nearly as broad as long, flattened and concave beneath. Horns larger and more spreading than in *C. Virginianus*.

*Var.?* Jumping Deer, *Umfreville, Hudson's Bay*, 164.

Black-tailed or Mule Deer, *Gass. Journ.* 55; *Lewis & Clark*, i. 91, 92, 106, 152, 239, 264, 328, ii. 152, iii. 27, 125; *James, Long's Exped.* ii. 276; *Godman, Nat. Hist.* ii. 305.

Mule Deer, *Warden, United States*, i. 245.

Cerf Mulet, *Desm. Mamm.* 443, notes.

Le Daume fauve à queue noire, *Warden, Etats Unis, ed. Gall.* 640.

Mule Deer, *Anglo-Americans of the Rocky Mountains*.



? Mule or Black-tailed Deer, *Le Raye*; *Lewis & Clark, Travels*; *Wied, Voy. Amér. Mérid.* iii. 273, & vig. A, B.

*Cervus macrotis*, *Say, Long's Exped. Rocky Mount.* ii. 88. 254; *H. Smith, Griffith A. K.* v. 794; *Fischer, Syn.* 444. 615; *Sundevall, Pecora*, 59; *Richardson, Faun. Bor. Amer.* 254. t. 20; *Peale, U. St. Expl. Exped.* 41. t. 10. ined. fig. at p. 43, forefeet; *Sabine, Franklin Journ.* 667; *Harlan, Fauna*, 243 (Great-eared Deer); *H. Smith in Griffith A. K.* iv. 133, v. 794 (Black-tailed Deer).

*C. auritus*, *Warden, Etats Unis, ed. Gall.* v. 640; *Desmoul. Dict. Class. H. N.* iii. 379.

*Hab.* Arkansas; Rocky Mountains; on rocky hills covered with trees.

Rather larger than *Cervus Virginianus*, and having more the general aspect of the *Wapiti*; destitute of the black submaxillary marks which are always present on *C. Lewisii* and *C. Virginianus*. Horns larger and more spreading. Hoofs rounded, the under surface concave. Tail pale ferruginous, destitute of hair beneath, and having a tuft of black hair at the extremity. In summer pale ferruginous, darkest on back. Chin, throat, and inside of thighs and belly, white. Hair flattened and undulated. Total length 67 in.; tail  $7\frac{1}{2}$  in.; height at shoulders 36 in.—*T. Peale*.

This species is most abundant on the eastern slope of the Rocky Mountains, and delights in rocky hills covered with cedars and pine-trees. By the flattened and concave formation of the hoofs, they are enabled to climb the rocky steeps with much greater facility than other species of Deer, and for the same reason we infer that they are more at ease in the snowy regions of the mountains.—*T. Peale, l. c.* 43.

Mules between *Cervus Virginianus* and *C. gymnotis* have been described.—*Pucheran, Comptes Rendus, Acad. Sci.* 1849, 774.

According to M. Pucheran, the chief difference between *C. Virginianus* and *C. gymnotis* is, that the former has the chest and belly white, and *C. gymnotis* the belly white and the chest brown.

### Doubtful Species.

1. The Cariacou Deer, *Cervus nemoralis*, *H. Smith in Griffith A. K.* iv. 137. t. . & v. 798; *Fischer, Syn.* 617, described and figured from a pair said to come from Virginia, and is also said to inhabit Honduras (see p. 138). It appears by the figure of the horns rather to belong to this genus than to *Coassus*. It is a species yet to be identified. Professor Sundevall regards it as a species of *Cariacus*.

2. *Cervus spinosus*, *Gay & Gervais, Ann. Sci. Nat.* 1846, 94, from horn of *M. Poiteau*, figured *Cuvier, Oss. Foss.* iv. t. 5. f. 22 a.

*C. virginianus* var., *G. Cuvier, Oss. Foss.*

*Hab.* Cayenne; *M. Poiteau.*

Only described from a single horn from Cayenne.

3. *Cervus Savannarum*, *Cabanis & Schomburgk, Reisen in Britisch Guiana*, iii. 785.

4. *Orenoka Deer*.—There is imported into London under the above name, from Central America, the flat skins of a large species of Deer, of a bright dark red brown colour, with the chin and under part of the body white, and a blackish tail. The hair of the back is short and rather adpressed. The animal appears to be about the size of a small Stag, *C. Elaphus*. These skins are imported by the North-West American Fur Company to be tanned into leather.

5. *The Yutacan Deer*.—The North-West American Fur Company import, under the above name and from Yutacan, the skin of a smaller Deer, about the size of the *Virginian Deer*. The fur of the back is very short, of a red brown colour with blackish tips. They differ from the skins of the *Virginian Deer*, imported by the same Company from different parts of America, in the shortness and greater stiffness of the hair.

6. *Cervus affinis*, *Pucheran, Compt. Rendus, Acad. Sci.* 1849, 777, not *Hodgson*.

Hair very short, close-pressed, grey, minutely white grised.

*Hab.* ——. *Mus. Paris.*

7. *Cervus Guidotii*, *Gay & Gervais, Ann. Sci. Nat.* 1846, 94.

Horns lyrate, half the size of those of *C. axis*, and with only a single basal posterior snag.

*Hab.* New Grenada; *M. Justin Guidot*. Horns in *Mus. Paris*.

These two species are only known from the above descriptions.

#### B. *Horns simple.*

Subulidæ, *J. Brookes, Mus. Cat.* 62, 1828.

Les Daguets, *Blainv.*; *Lesson, Man. Mam.*

#### 5. COASSUS.

Horns simple, rudimentary, shelving back. Ears short, broad, rounded, nakedish. Tail short. The facial line rather convex. The fur short, of the forehead (in both sexes) elongate, forming a

rhombic tuft between the horn and face. Legs without any tuft on the outer sides of the metatarsus, but with a pencil on the inside of the hocks. Skull with a very small, shallow, suborbital pit, and supraorbital foramen in a groove. Confined to South America.

They all emit a strong odour like porcupines. They cast their horns like the other Deer:

Coassus, § 1. Coassus, *Gray, Proc. Zool. Soc.* 1850.

Subulo, *H. Smith, Griffith A. K.* v. . 1827.

Subula, *Lesson, Mamm.* i. 273; *Nov. Tab. R. A.* 174.

Subulus, *J. Brookes, Cat. Mus.* 62, 1828.

Coassus, *Gray, Med. Repos.* 1821; *Cat. Mamm. B. M.* xxvii.

Daguets, sp., *Blainv. Desm. Mam.* ii. 449, 1822.

Cervus, sp., *Renger,* 343.

• \* *Skull face rather elongate. Suborbital pit large.*

#### 1. COASSUS NEMORIVAGUS. The GAUZU-VIVA.

Pale brown. The hair dirt-coloured brown, with a yellow subterminal band which wears off; a paler spot over the eye.

*Young*: Brown, white spotted, spots of sides unequal. Nape dark.

Skull elongate. Suborbital pit broad, subtrigonal, shallow. Grinders moderate. Infraorbital ridge very distinct, sharp-edged. Intermaxillars not reaching to the nasal, but fit into a notch in the maxilla.

Cervus nemorivagus, *F. Cuvier, Dict. Sci. Nat.* vii. 485; *Cuv.*

*Oss. Foss.* iv. 54. t. 5. f. 50; *Fischer, Syn.* 446. 618; *H. Smith,*

*G. A. K.* iv. 142. t.; *Sundevall, Pecora,* 60; *Licht. Dargst.* t. 21.

Coassus nemorivagus, *Gray, Proc. Zool. Soc.* 1850; *Mammalia,*

t. 1, t. 2. f. 1; *List Mamm. B. M.* 174; *Cat. Ost. B. M.* 64.

Cervus nemorum, *Desm. Mamm.* 446.

Cervus simplicicornis, *Illiger, Pr. Max. Abbild.* t.; *H. Smith,*

*G. A. K.* v. 800. t.; *R. Schomburgk, Reisen in Britisch Guiana,*

iii. 785; *Renger,* 269.

Cervus mangivorus, *Schrank, Wett. Trans.* iv. 326.

Cuguacu-Apara, *Marcg. Bras.* vi. 235.

*Young!* Moschus delicatulus, *Shaw, Mus. Lever.* t. 36.

Guazu-viva, *Renger,* 369.

*Hab.* Brazils.

*a, b.* Females. Brazils.

*c.* Young, with a distinct line of white spots on middle of the back; sides spotted. Brazils.

Tragulus Surinamensis, *Klein. Moschus Americanus, Erxl.*

*M. delicatulus, Shaw, Mus. Lever.* t. 36; *Seba,* i. t. 44. f. 2.

*d.* Male, adult. Brazils.

## ANAT.

*C. nemorivagus*, *Cuvier, Oss. Foss.* iv. 54. t. 5. f. 50.

*e, f.* Skull. Brazils.

*Var. 1.* Dark brown. Streak on each side of the forehead, upper part of the legs, and spot on the angle of the lower lip, blackish; streak over the eye yellowish. Under lip, a spot on upper lip near muzzle, under side of tail, and inner side of the upper part of the thighs, white. Muffle smooth, black, with the upper edge slightly arched. Ears small, lower half of the inner side black. Size of a full-grown Roebuck.

*Coassus nemorivagus*, var. *a*, *Gray, Proc. Zool. Soc.* 1850, t. , male.

*Hab.* Brazil; Knowsley Menag.

*Var. 2. Female.* "Dark grey, tinged with brown, greyer on the head and neck; the lower part, and the inside of legs, the belly, and round the eyes, rust-coloured; the purple brown patch in the ears smaller and less distinct than in *C. rufus*. A small white stripe in front of the eyes, and the under surface of the tail white. From the eyes to the nose short and thick compared with the other specimens. A female."—*Frazer, MSS.*

*Coassus nemorivagus* var., *Gray, Proc. Zool. Soc.* 1850, t. , & t. . f. .

\*\* *Skull face short, broad. Suborbital pit small.*

## 2. COASSUS RUFUS. The CUGUACU-ETE OF PITA.

The fur bright shining red. Crown and neck, sides of face and chest, paler. Muffle carunculated, rather angularly produced above.

Skull: infraorbital pit triangular, small, slightly impressed. Intermaxillary scarcely reaching to the skull, elongate. Nasal bone only slightly dilated behind. Supraorbital foramen large, in a deep groove. Grinders moderate. Cutting-teeth very narrow, two central much dilated.

*Young*: Reddish, white spotted, spots of sides unequal. Nape with a distinct, white-edged, dark central streak.

*Var.* with white rings above the hoofs.

*Cervus rufus*, *F. Cuvier, Dict. Sci. Nat.* vii. 485; *Cuvier, Oss. Foss.* iv. 53. t. 3. f. 41, 42, t. 5. f. 44; *H. Smith, G. A. K.* iv. 140. t.; *Fischer, Syn.* 446, 618; *Licht. Darst.* t. 20; *Sundevall, Pecora*, 60; *R. Schomburgk, Reisen in Britisch Guiana*, 784; *Pr. Max. Abbild.* t.; *Renger*, 356.

*Coassus rufus*, *Gray, List Mamm. B. M.* 174; *Cat. Osteol. Sp.*

64; *Knowsley Menag.*; *Proc. Zool. Soc.* 1850; *Mammalia*, t. 2, t. . f. 2.

*Cervus simplicicornis* (Apara  $\beta$ .), *H. Smith, Griffith A. K.* iv. 141. t.

*Cervus dolichurus*, *Wagner, Supp.* iv. 389.

*Subulus americanus*, *J. Brookes, Cat. Mus.* 62, 1828.

*Cariacou de la Guyane*, *Buff.* ix. 90.

*Biche rouge*, *Buffon, Supp.* iii. 126.

*Gouazou-pita*, *Azara.*

*Guazu-pyta*, *Renger*, 356.

*Hab.* South America.

Young, in spirits? S. America.

Male and female. S. America.

ANAT. t. 35. f. 4.

*Cervus rufus*, *Cuvier, Oss. Foss.* iv. t. 3. f. 41, 42, horns; t. 5. f. 44, skull.

Skeleton, male. From Mr. Brandt's Collection.

Skull. Para, South America. Presented by R. Graham, Esq.

Skull of young. S. America.

### 3. COASSUS SUPERCILIARIS. The EYE-BROWED BROCKET.

Bright shining red, with neck and head grey, forehead darker. Hocks and front of fore legs grey. Stripe in front of the eye, and under surface of the tail, white. Muffle slightly arched above. Ears moderate.

*Coassus superciliaris*, *Gray, Gleanings Knowsley Menag.* t. 48\*; *Proc. Zool. Soc.* 1850; *Mammalia*, t. , t. . 45.

*Hab.* Brazils.

This species chiefly differs from the former in the form of the muffle, and in the presence of the white streak over the eyes. There is a male at Knowsley, t. , t. ; and a pair in the Gardens of the Zoological Society, t. . f. 5.

### 4. COASSUS AURITUS. The LARGE-EARED BROCKET.

Bright pale red brown. Head and neck grey. Orbits pale brownish. Spot on side of upper lip, chin, belly, hinder side of fore, and front side of hinder thighs, and under side of tail, white. Crown dark grey brown. Ears very large, broad, acute, more than half the length of the head, with two lines of hairs within.

*Coassus auritus*, *Gray, Proc. Zool. Soc.* 1850; *Mammalia*, t. , t. . f. 6.

*Hab.* Brazils?; Knowsley and Gard. Zool. Soc.

There is a female of this species in the Gardens of the Society; it greatly resembles the Indian Muntjac in the distribution of its colour.

In the British Museum there are two skulls which belong to the species of this division. They have the face shorter and thicker than the skull of *C. nemorivagus*, and the nasals are wider behind; the suborbital pit small or less compressed, and the grinders larger. The first belongs to a young specimen in the Museum Collection apparently of *C. rufus*; it has a small, slightly impressed pit just in front of the edge of the orbit. The second belongs to a more adult female, without any skin, sent from Paraby by Mr. Reginald Graham; it is considerably larger than the preceding, and there is scarcely any visible impression in front of the orbit, only a slight concavity of the general surface.

*Cervus nanus*, *Lund*; *Lesson*, *N. Tab. R. A.* 173, 1842 (not described?).

*Hab.* Brazils. May be one of the preceding.

## 6. PUDU.

Horns simple, rudimentary, shelving backwards. Ears rounded, thickly covered with short hair. Head short; facial line convex. The crown with a tuft of long hair. Crumen distinct. Fur short. Legs with a tuft of hair on the inside of the hocks, without any tuft on the outer side of the tarsus. Tail short. Skull short, high. Infraorbital impression oblong, very deep. Nasal bones much dilated behind on side of nose. Intermaxillary short, not reaching near to the nasal. Cutting-teeth rather narrow, two central rather dilated. Grinders very large. Supraorbital foramen small, scarcely forming a groove. Confined to the west coast of America.

*Coassus*, § 2. *Pudu*, *Gray*, *Proc. Zool. Soc.* 1850.

*Cervus*, sp., *Bennett*.

*C.* § *Capreolus*, sp., *Lesson*.

*Capra*, sp., *Molina*.

Antilope, sp., *Blainville*.

Antilocapra, sp., *Lesson*.

### 1. PUDU HUMILIS. The VENADA.

Brown black and pale grised. Neck blackish brown, punctulated with white. Lips, orbit, ears, legs, and under part of body, bright pale bay. Throat and inner side of thighs paler. Hair of back with a broad, blackish, subterminal band and pale brown

tips. Tail very short. Ears moderate, covered with short, close-set hair. Face dark. Crown dark red brown.

*Cervus humilis*, *Benn. Proc. Zool. Soc.* 1831, 27, fem.; *Sundevall, Pecora*, 60; *R. Schomburgk, Reisen in Britisch Guiana*, iii. 786.

*Cervus* (*Capreolus*?) *humilis*, *Lesson, N. Tab. R. A.* 172, 1842.

*C. rufus*, *Wagner, Supp.* iv.

*Capra Pudu*, *Molina*.

*Chevreuil* (de Chili), *Pöppig, Froriep's Notiz.* 1829; *Férussac, Bull. Univ.* xix. 95; 1829.

*Cervus Pudu*, *Gay & Gervais, Ann. Sci. Nat.* 1846, 90.

Antilope (*Rupicapra*) *Pudu*, *Blainv. Bull. Soc. Phil.* 1816, 76; *Gervais, Dict. Sci. Nat. Supp.* i. 264.

*Antilocapra Pudu*, *Lesson, Nov. Tab. R. A.* 182.

Antilope *Dicranocerus Temamazama*, *H. Smith, Linn. Trans.* xiii. 36; *Griffith, A. K.* ii. 866; *Fischer, Syn.* 482, 647.

Mazame, *Hernand. Mex.* ix. 14, 324; *Seba, Thes.* i. 69. t. 42. f. 3.

*Cervus Macatlecheltic*, *Seba, Thes.* i. 69. t. 42. f. 4.

*Hab.* Chili, Conception and Chiloe; *King*.

A male. Chili. From the Zoological Society. (The specimen described by Mr. Bennett.)

ANAT. *Gay & Gervais, Ann. Sci. Nat.* 1846, 90.

Skull. Chili. (The specimen described by Mr. Bennett.)

#### Tribe 4. MOSCHINA.

Cutting-teeth none above. Horns none. The hinder edge of the metatarsus more or less naked. False hoofs distinct.

*Moschus*, *Linn. Syst. Nat.*; *Cuvier, Règn. Anim.*; *F. Cuv. Dict. Sci. Nat.* lix. 513, 1829.

*Camelinia*, part., *Rafin. Anal. Nat.* 55, 1815.

*Moschidæ* seu *Ecornis*, *J. Brookes, Mus. Cat.* 60, 1828.

*Moschidæ* (part.), *Ogilby, P. Z. S.* 1836, 135.

*Inermia*, part., *Latr. Fam. Nat. R. A.* 62, 1825.

*Moschina*, *Gray, Ann. Phil.* 1825; *Cat. Mamm. B. M.* xxvii. 172, 1843; *Selys Longchamps*, 1842.

*Ruminantia c. acerata*, part., *Bronn, Index Palæont.* ii. 710.

Les Chevrotains, *F. Cuv. Dict. Sci. Nat.* lix. 513, 1829; *Dent. Mam.* 230. t. 93\*.

*Moschisidæ*, *Lesson, Nov. Tab. R. A.* 175.

The only character by which the *Musks*, as established by Linnæus and others, differ from the genus *Cervus*, consists in the absence of horns, for the elongated canines are common to it and most of the Indian species of *Cervus*, especially the *Cervus Muntjac*.

## SYNOPSIS OF THE GENERA.

- I. *Fur erect, elastic, thick. Throat and hinder edge of tarsus hairy. Males with an odoriferous gland. Young spotted.*
1. MOSCHUS. Canines of males very long.
- II. *Fur close-pressed. Throat and hinder edge of tarsus bald. Males without any odoriferous gland. Young coloured like the adult. Throat white streaked.*
2. MEMINNA. Throat hairy. Hinder edge of metatarsus covered with hair, naked on the outer side near the heel. Body spotted. Intermaxilla elongate.
3. HYEMOSCHUS. Chin and lips nakedish. Hinder edge of metatarsus hairy, naked on the outer side near the heel. Intermaxilla very short.
4. TRAGULUS. Throat and chin nakedish. Hinder edge of the metatarsus naked, callous. Fur soft. Intermaxilla elongate.
- I. *Fur elastic, thick, brittle. Throat and hinder edge of the tarsus covered with hair. Males with an odoriferous gland.*

## 1. MOSCHUS.

Muffle naked. Crumen none. Throat covered with hair. Fur very elastic, formed of erect, spreading, closely-packed, elastic, brittle, tubular, waved hair. Hinder edge of the tarsus covered with hair. Hoofs small, compressed, narrow, triangular, acute; false hoofs elongated, well-developed. Tail very short, rudimentary. Males with a large pouch, secreting *musk*, in the middle of the abdomen, and with a celluliferous and netted gland on the outer side of the thighs, secreting a serous fluid (see *Brandt, Act. Acad. Petersb.* 1836; *Ann. Anat. & Phys.* 1837, 283). Young spotted, which are often obliterated in the adult.

Moschus, *Gray, P. Z. Soc.* 1846; *Knowsley Menag.*; *List Mamm. B. M.*

Moschus, sp., *Linn. S. N.* ed. 6. 13. 1748, ed. 10. 66. 1758, ed. 12. 91. 1766; *Eræleb. S. A.* 319, 1777; *Storr*, 1780.

M. Moschiferus, *Illiger*, 1811; *Lesson, Nov. Tab. R. A.* 175.  
 Tragulus, sp., *Brisson, Reg. Anim.* i. 67, 1762.

The Musk are confined to the snowy regions, amid the glassy precipices of which they leap with a power and security far more than *Caprine*, though, owing to the unequal length of their legs, they can descend slopes only with difficulty, and falling are caught; they cannot climb at all as *Goats* do, and are solitary. They rut in winter, and produce young in May or June,



gestating 160 days. In six weeks the young can shift for themselves, and the mother drives them off. They can procreate ere they are a year old, and live ten or fifteen years. One is usually produced at a birth, in cavities of the rocks. Gall-bladder constant.

The *tail-gland* of the Musk is very large, and covers the whole tail nearly, and has a linear, longitudinal pore on each side, and an abundant secretion.

The preputial gland of the Musk is analogous to that of the Civets and the Screw-tail (*Paradoxurus*); it is placed on the prepuce, the penis opening in the midst of it: this organ is clearly subservient to sexual purposes, and so probably are several others, though the eye-pits have been variously referred to the facilitation of breathing and of smelling. The supposed end of the interdigital glands and pores, or feet-pits, viz. the lubrication of the feet and preservation of the hoofs in hot sandy deserts, is clearly erroneous, since the *Thar* has these organs of enormous size in all the four extremities, though it be the tenant of moist, cool mountain forests. It is probable that the secretion from the foot-pores enables these animals to find one another in those wildernesses of vast forest-trees and dense undergrowth which constitute their range.—*Hodgson*.

The *Musk* is said to derive its peculiar odoriferous secretion from feeding on the Kastooree plant, a kind of ground-nut which is strongly impregnated with the same pungent scent, and which the animal digs up with its long tusk.—*Ogilby in Royle, Himal.* i. lxxi.

### 1. MOSCHUS SIBIRICUS. The KUBARGA.

Ash brown, beneath paler. Throat black or ashy, with a definite white streak on each side.

Animal Moschiferum Kubarga dicta, *J. G. Gmelin, Nov. Com. Petrop.* iv. 393.

*Moschus Sibiricus*, *Pallas, Spic. Zool.* xiii. 29. t. 4, 5, 6; *Gray, Cat. Mamm. B. M.* 172; *List Osteol. Spec.* 63; *Knowsley Menag.*

*Moschus moschiferus*, *Schreb. Saugth.* 944. t. 242, 242 a; *Shaw, Lever. Mus.* i. t. 3?; *Wrangle's Siberia*, 374.

*Moschus moschiferus* var. *Altaici, Sundevall.*

*Moschus Altaicus*, *Eschsch. Jobst. Isis*, 1830, 606; *Fér. Bull. Sci.* xxii. 46.

*Hab.* Siberia; Altai Mountains; Lake Baikal; *Gmelin.* Borders of Arctic Ocean; *Wrangle.* Mongolia, *Eschsch.*

Male and female. Siberia. From the Museum of the Royal Academy of Petersburg.

## OSTEOLOGY.

Skull of male. Siberia. From the Museum of the Royal Academy of St. Petersburg.

Skull of female. Siberia. From the Museum of the Royal Academy of St. Petersburg.

The Musk Deer are found nearly to the arctic circle; they are abundant near Verkhoiansk in North Siberia (Lat.  $67^{\circ} 7'$ , E. Long.  $134^{\circ}$ ), and called *Kabarga*. A pound of musk is commonly sold from 10 to 15 roubles.—*Wrangle's Siberia and Polar Sea*, by Sabine, 374, 1844.

## 2. MOSCHUS MOSCHIFERUS. The MUSK.

Dark brown, chest and belly rather paler. Throat and chest with indistinct, pale cross bands.

*Moschus moschiferus*, Linn. S. N. i. 91; Gray, *List Mamm. B. M.* 172; *List Osteol. Sp. B. M.* 62, 63; *List Hodgson Collection*, 30.

Animal moschiferum, *Raii Quad.* 124; *Caleot. Mus.* 661. t. 666.

*Capreolus Moschus*, *Gesner, Quad.* 695; *Jonston, Quad.* 55. t. 39.

*Capra moschus*, *Aldrov. Bisulc.* 743.

Muskus, &c., *Ysbr. Reis.* 45. fig.

Musk, *Buffon, Hist. Nat.* xii. 361, *Supp.* vi. 221. t. 29.

*Moschus*, *Schrœk. Monag.* t. 44.

*Caprea moschifera*, *Sege. Misc. Acad. Nat. Cur.* i. 169. *Obs.* 128. t. 11.

*Tragulus moschiferus*, *Klein.*

Tibet Musk, *Penn. Syn.* 56. t. 10. f. 1; *Quad.* i. 112. t. 12. f. 1.

*Moschus saturatus*, *Hodgson, J. Asiat. Soc. Bengal*, viii. 203, x. 795. t. , xi. 285.

*Moschus Kacharensis*, *Hodgson, Cat. MSS.* v. t. 3.

*Moschus Moschus* var., *Ogilby in Royle, Himal.* i. LXXI.

Musk?, *Falconer, Journ. Asiat. Soc.* iv. 710.

*Hab.* Thibet; Nepal.

Male (in bad state). India. Presented by Gen. Hardwicke.

A flat hunter's skin. India. Presented by Gen. Hardwicke.

Male (in bad state). India.

Female. Nepal. Presented by the Hon. East India Company.

Nepal. Presented by B. H. Hodgson, Esq.

Two specimens from Nepal. Presented by B. H. Hodgson, Esq.

A male, brownish and dark. Nepal. Presented by B. H. Hodgson, Esq.

A male, with a dark streak on the nape, and a large dark spot between the shoulders. Nepal. Presented by B. H. Hodgson, Esq.

A flat skin without skull, blackish, with rows of pale spots. Nepal. Presented by B. H. Hodgson, Esq.

OSTEOLOGY. *Hodgson, J. A. S. Beng.* x. 795. t.

Skull of male. Nepal. Presented by B. H. Hodgson, Esq.

Skull of female. Nepal. Presented by B. H. Hodgson, Esq.

Skeleton, wanting bones of feet. Nepal. Presented by B. H. Hodgson, Esq.

Skeleton, wanting bones of feet. Nepal. Presented by B. H. Hodgson, Esq.

H. Hodgson, Esq.

Skeleton, wanting bones of feet. Nepal. Presented by B. H. Hodgson, Esq.

H. Hodgson, Esq.

Skull. Nepal. Presented by B. H. Hodgson, Esq.

Skulls of male and female. Nepal.

Two skeletons, wanting bones of the feet. Nepal.

#### ICON.

Drawing of skull of male.—*Hodgson, Icon. ined. B. M.* t. 186. f. 5, 6.

Drawing of young male.—*Hodgson, Icon. ined. B. M.* t. 188. f. 1.

Drawing of male and female.—*Hodgson, Icon. ined. B. M.* t. 189.

Drawing of female.—*Hodgson, Icon. ined. B. M.* t. 192. f. 1.

Musk.—*Hardw. Icon. ined. B. M.* n. 10,974. t. 82, t. 83, skull.

#### 3. MOSCHUS LEUCOGASTER. The WHITE-BELLIED MUSK.

Dark brown. Throat, chest, belly, and inside of the ears, pure white.

*Moschus leucogaster*, *Hodgson, Journ. Asiat. Soc. Bengal*, viii. 203, x. 914, xi. 285; *Gray, Cat. Mamm. B. M.* 172; *Cat. Hodgson Collection in B. M.* 31.

*Moschus niveiventer*, *Hodgson, Icon. ined. B. M.* n. 188, 190, 193. *Hab.* Nepal.

Nepal. Presented by B. H. Hodgson, Esq.

A male and female.

An imperfect flat skin of a female, rather darker (like a bleached specimen of *M. saturatus*).

#### ICON.

Drawing of young male.—*Hodgson, Icon. ined. B. M.* t. 188. f. 2.

Drawing of male, female and young.—*Hodgson, Icon. ined. B. M.* t. 190.

Drawing of female.—*Hodgson, Icon. ined. B. M.* t. 193. f. 3.

#### 4. MOSCHUS CHRYSOGASTER. The GOLDEN-EYED MUSK.

Grey brown. The ears, orbits, throat, chest, abdomen, and inner sides of the legs, brilliant yellow.

*Moschus chrysogaster*, *Hodgson, Journ. Asiat. Soc. Bengal*, viii. 203 (1839), x. 914, xi. 285; *Gray, Cat. Mamm. B. M.* 172; *Cat. Hodgson Collection in B. M.* 31; *List Osteol. B. M.* 63.  
*Moschus moschiferus* var., *Sundevall, Pecora*, 118.  
*Hab.* Nepal.

Two specimens. Nepal. Presented by B. H. Hodgson, Esq.

OSTEOLOGY, t. 25. f. 1.

Skull. Nepal. Presented by B. H. Hodgson, Esq.

Skull. Presented by B. H. Hodgson, Esq.

ICON.

Drawing of male and female.—*Hodgson, Icon. ined. B. M.* t. 191.

Drawing of female.—*Hodgson, Icon. ined. B. M.* t. 192. f. 2.

II. *Fur close-pressed. Throat and hinder edge of the tarsus more or less naked. Males without any peculiar odoriferous gland. Throat white streaked. Young coloured like the adult. Pigmy Musks.*

Pigmy Musks, *Gray, Knowsley Menag.*

2. MEMINNA, *Gray.*

Throat entirely covered with hair. Fur white, striped and spotted. The legs are short and rather stout. The hinder edge of the metatarsus covered with hair, but on its outer side, a little below the hock, a rather large, smooth, naked prominence, red when alive.

*Meminna*, *Knox; Gray, Cat. Mamm. B. M.* xxvii.; *Lesson, Nov. Tab. R. A.* 175.

*Moschus*, sp., *Erxleb. S. A.* 322, 1777; *Zimm.*; *Desm.* 1804.

*Musk*, sp., *Penn.*

*Moschiola*, *Hodgson, Calcutta J. N. H.* iv. 292.

*Tragulus*, sp., *Brisson, R. A.* 95, 1756.

*Tragulus*, *Sundevall, Pecora*, 118, 119.

The *Pisora* inhabit the forests of India, near to, but without the various ranges of hills.—*Hodgson.*

The flesh is excellent; it lives in the dense woods of the Dukhun, not in the plains.—*Sykes, P. Z. S.* 1831.

1. MEMINNA INDICA. The MEMINNA OF PISORA.

*Moschus Meminna*, *Erxl. Syst.* 322; *Schreb. Saugth.* 960. t. 243; *Gatterer, Brev. Zool.* i. 92; *Tickell, Calcutta Journ. N. H.* i. 1840, 420.

- Chevrotain, &c., *Buffon*, H. N. xiii. 315.  
 Memina ou Chevrotain de Ceylon, *Buffon*, *Supp.* iii. 102. 315. t. 15.  
 Meminna, *Knor*, *Ceylon*, 21; *Shaw*, *Zool.* ii. 256. t.  
 Indian Musk, *Penn. Syn.* 59. t. 10. f. 2; *Quad.* i. 127. t. 127;  
*Knight*, *M. Anim. Nat.* f. 572, 574.  
 Pissay, *Hamilton*, *Voy. E. Ind.* i. 261.  
 Mingee, *Tickell*, *Calcutta Journ.* N. H. ii. 420.  
 Tragulus Memina, *Sundevall*, *Pecora*, 63.  
 Meminna Indica, M. Malaccensis, *Gray*, *Cat. Mamm. B. M.* 172;  
*List Osteol. B. M.* 63.  
 Tragulus mininoides (or Bijay), *Hodgson*, *Journ. Asiat. Soc. Bengal*, x. 914.  
 Moschiola Minimoides, *Hodgson*, *Calcutta Journ.* N. H. iv. 292.  
*Hab.* India; Madras; Ceylon.  
 Half-grown (not in good state). Madras. Presented by Walter Elliot, Esq.  
 Young. India.  
 Adult. India.  
 Young. India.  
 Meminna Malaccensis.—*Gray*, *List Mamm. B. M.* 172.

#### OSTEOLOGY, t. 24. f. 3.

Skull of adult. India.

\*Skull and bones of body. India.

ICON. *Hardw. Icon. ined. B. M.* n. 10,975. t. 117 a, b, c.

### 3. HYEMOSCHUS.

Underlip and chin rather nakedish, with scattered hairs. The hinder edge of the metatarsus hairy, with a large callosity on the outer side near the heel. Two lateral toes elongate, with large tapering hoofs. The intermaxillary is very short, oblong, truncated behind, and placed on the front end of the truncated maxilla. The sides are spotted (like the *Meminna*).

These animals have much the habit of pigs. They take their food in the water; are called *Deer Pigs* by the French colonists in West Africa.

Dr. Hugh Falconer (*Proc. Zool. Soc.* 1843) gave some account of the osteology of the foot of this animal; and in his MSS. he informs me he has proposed to call the genus *Amphimoschus*. M. de Blainville has regarded it as the recent type of *Anoplotherium*. In the form of the feet it is very nearly allied to a fossil genus found in Auvergne, which M. A. Bravard has described under the name of *Cainotherium* (1835).

The metacarpus of *Moschus aquaticus* is distinct along their whole length; its fore-leg, from the carpus downwards, is un-

distinguishable from that of the *Pecary*; and its succentorial toes are as much developed as in the last-mentioned animal.

As *Dorcatherium* of Kaup breaks down the empirical distinction between the Ruminants and Pachyderms as regards the number of the teeth, so does the *Moschus aquaticus* as regards the structure of the feet.—*Falconer & Cautley, Proc. Geol. Soc.* 1843, 240.

*Hyemoschus*, *Gray, Proc. Zool. Soc.; Ann. & Mag. N. H.* xvi. 350; *List Osteol. B. M.* 63.

*Moschus* (aquaticus), *Falconer, Proc. Geol. Soc.* 1843, 240.

*Amphimoschus*, *Falconer, MSS.* 1843.

*Cainotherium*, sp., *Bravard*, 1835.

*Moschus*, sp., *Lesson, Nov. Tab. R. A.* 175, 1842.

*Lesson* refers *M. aquaticus* with doubt as a synonym of *Moschus Javanicus*.—*Nov. Tab. R. A.* 175.

#### 1. HYEMOSCHUS AQUATICUS. The BOOMORAH.

*Brown*. Two diverging streaks on the throat, chest, spots on back, a streak along each side, front edge of thighs, a spot over each hoof, and end of tail, white.

*Moschus aquaticus*, *Ogilby, P. Z. S.* 1840, 35; *Falconer, P. Geol. Soc.* 1843; *Wagner, Wieg. Arch.* viii. 51.

*Hyemoschus aquaticus*, *Gray, Ann. & Mag. N. H.* xvi. 350; *List Osteol. B. M.* 63.

*Moschus Stanleyanus* (*misprint for aquaticus*), *Sundevall, Pecora*, 64.

*Boomorah, Negroes of Sierra Leone.*

*Water Deer, Colonists at Sierra Leone.*

*Biche Cochon, French Colonists in W. Africa.*

*Moschus Javanicus* var.?, *Lesson, Nov. Tab. R. A.* 175.

*Hab.* W. Africa. *Bulham Creek, Sierra Leone; common.*  
*Whitfield.*

Two adult. West Africa; Gambia. Presented by the Earl of Derby.

#### OSTEOLOGY, t. 25. f. 2.

\*Skull. The specimen described in the *Ann. & Mag. Nat. Hist.* xvi. p. 350, 1845. Sierra Leone. Presented by the Earl of Derby.

\*Skull and scapular. Sierra Leone. Presented by the Earl of Derby.

#### 4. TRAGULUS, *Pallas.*

Throat with a nakedish, concave, subglandular, callous disc between the rami of the lower jaw, from which a band extends

to the fore part of the chin. The hinder edge of the metatarsus nearly bald and slightly callous. Fur soft, adpressed. The intermaxilla elongate, subtriangular, extending up to the side of the nose.

Tragulus, *Pallas*; *Gray, Cat. Mamm. B. M.* xxvii.

Moschus, sp., *Desm.* 1804; *Gray, Proc. Zool. Soc.* 1836, 65; *Lesson, N. Tab. R. A.* 175.

Tragulus, sp., *Brisson, Reg. Anim.* 95, 1756; *Sundevall, Pecora,* 118.

Tragulus § B, *Sundevall, Pecora,* 63.

Napu, *Lesson, Nov. Tab. R. A.* 175, 1842.

Tragus, sp., *Klein.*

ANAT. *Rapp. Wieg. Arch.* 1843, 43. t. 2 (three stomachs).

### 1. TRAGULUS STANLEYANUS. The STANLEY MUSK.

Reddish fulvous. Hair black tipped, beneath white. Neck and chest shining fulvous. Crown darker. Tail moderate, pale beneath.

Moschus Stanleyanus, *Gray, Proc. Zool. Soc.* 1836, 15 (not *Sundevall*).

Moschus ecaudatus, *Temm. MSS. Mus. Leyden* (1845); *Sundevall, Pecora,* 63.

*Hab.* Ceylon.

Adult. Ceylon. Presented by the Earl of Derby.

ANAT. t. 25. f. 3.

\*Skull. Presented by the Earl of Derby.

### 2. TRAGULUS JAVANICUS. The NAPU.

Pale brown, black grised. Sides of head and rump shining fulvous. Neck and nape ashy. Throat with three white stripes. Belly white. Tail elongate.

Tragulus Javanicus, *Pallas, Spic. Zool.* xiii. 18; *Sundevall, Pecora,* 121; *Gray, Proc. Zool. Soc.* 1836, 15. 65; *Cat. Mamm. B. M.* 173.

Moschus Javanicus, *Gmelin, S. N.* i. 174; *Bennett, Zool. Gardens,* 41; *Raffles, Linn. Trans.* xiii. 261; *Donnd. Zool. Beytr.* i. 583, 1792; *Rapp. Wieg. Arch.* 1843, 43. t. 2; *Mus. Leyd.* 1852.

Moschus Indicus, *Gmelin, S. N.* i. 172; *Schreb. Saugth.* 962. t. 245, not *Brisson.*

Moschus Napu, *F. Cuv. Man. Lithog.* t.; *Fischer, Syn. Mam.* 440.

Tragulus Napu, *Sundevall, Pecora,* 63.

*Hab.* Sumatra; Borneo; Java.

Male. Java. Presented by the Hon. East India Company.

Sumatra. Presented by Lady Raffles.

This species, so well described by Pallas, is easily known by its larger size and the ashy grised neck. The Kanchil has a yellow neck with a black nuchal streak.

### 3. TRAGULUS PYGMÆUS. The KANCHIL.

Fulvous varied with black. Sides of neck and body pale yellow, black tipped. Streak along nape blackish.

*Moschus pygmeus*, *Linn. Syst. Nat.* i. 92.

Kantil, *Lichtenberg in Voigt's Mag. Naturg.* iii. 2. 1.

*Moschus Kanchil*, *Raffles, Linn. Trans.* xiii. 262; *Fischer, Syn.*

*Mamm.* 441; *Waterhouse, Cat. Mus. Zool. Soc.* 31, 1838.

Chevrotain, *Buffon, H. N.* xiii. 344. *Supp.* vi. 219. t. 30.

Chevrotrain de Java ou Kanchil (*M. Javanicus*), *F. Cuvier, Mam.*

*Lithog.* t. ♂. t. ♀.

*Moschus Griffithsii*, *Fischer, Syn.*; *Griffith, A. K.* t.

Javan Musk, *Shaw, Zool.* ii. t. 173.

*Tragulus Kanchil*, *Gray, Proc. Zool. Soc.* 1836; *List Mamm.*

*B. M.* 176.

*Tragulus affinis*, *Gray, List Mamm. B. M.* 176.

*Tragulus pygmeus*, *Sundevall, Pecora*, 62; *Gray, Knowsley*

*Menag.* t.

*Hab.* Asiatic Islands; Java; Malacca; Penang; Borneo.

Java. Presented by General Hardwicke.

Female. Java. Presented by the East India Company.

Young.

Adult. India? Presented by Edward Burton, Esq.

*Var.* 1. Belly with a broad fulvous streak.

*Moschus intermedius*, "*Gray, MSS.*"; *Waterhouse, Cat. Mus.*

*Zool. Soc.* 38, 1838.

*Var.* 2. Under surface pale fulvous, with four white streaks.

Chevrotain, *Buffon, H. N.* xii. 342. t. 42, 43.

*Moschus fulviventor*, *Gray, P. Z. Soc.* 1836, 65; *Waterhouse,*

*Cat. Zool. Soc.* 38, 1838.

?? *Pelandoc*, *Raffles, Linn. Trans.* xiii. fide *Mus. Zool. Soc.*

?? *M. Pelandoc*, *H. Smith, Griffith A. K.* v. 769; *Lesson, Mamm.*

i. 258.

Female; belly streak wider. Presented by General Hardwicke.

Young. Presented by General Hardwicke.

### OSTEOLOGY.

Three skulls. India.

ICON. *Hardw. Icon. ined. B. M.* n. 10,975. t. 118, 119, 120.

n. 10,974. t. 85.



The synonyma of the species of *Tragulus* are exceedingly confused. From the very imperfect manner in which they are described and figured, it is impossible to identify with any of the foregoing species, or separate from them as distinct,

1. The Pelandoc figured in *Marsden's Sumatra*.
2. The Pigmy Musk of Sumatra, figured in Mr. Griffith's edition of *Cuvier's Animal Kingdom* (v. 62. t.), on which Fischer has established his *Moschus Griffithsii* (*Syn. Mam.* 414).

The *Moschus pygmaeus* is an Antelope; the hinder part of the tarsus being covered with hair; the false hoofs very small and rudimentary, and entirely hidden under the fur of the feet.

*Moschus Americanus* and *Moschus delicatulus*, or Leverian Musk of Shaw, are undoubtedly the fawn of Deer. It is curious that Dr. Shaw quotes as a synonym of the last-named species the figure of Seba, on which alone the *Moschus Americanus* is founded, while, at the same time, he enumerates *Moschus Americanus* as a distinct species.

#### Tribe 5. CAMELINA.

Cutting teeth eight above and below. Horns none. Hoofs small, compressed; false hoofs none.

Nose produced. Upper lip dependent, naked in front, and entirely covered with hair. Horns or crumen none. Ears oblong, moderate. Cutting-teeth eight in each jaw; canine teeth in each jaw. Neck long. Legs rather long; thigh free by the body (like those of men and apes). Toes two, elongate, callous beneath. Horns small, compressed, somewhat claw-like. False hoofs none.

Camelus, *Linn.*; *Cuv. T. E.* 1798.

(Unguiculata bifida) *Camelinum, Raii Syn.* 60, 1693.

*Camelina, Gray, Ann. Phil.* 1825; *Cat. Mamm. B. M.* xxvii.

*Tylopoda, Illiger, Prod.* 102, 1811; *Rüppell, Verz. Senck. Samml.* 184, 1845.

*Hydrophoræ, Gray, L. M. Rep.* xv. 307.

*Camelidæ, Gray, L. M. Rep.* xv. 307; *H. Smith, Griff. A. K.* v.; *Selys*, 1842; *Ogilby, P. Z. S.* 1836, 133.

*Inermia, Latr. Fam. Nat. R. A.* 62, 1825.

Les Chameaux, *F. Cuv.* 1829.

Cameliers, *Pomet, l. c.* 183.

*Camelinia, part., Rafin. Anal. Nat.* 55, 1815.

Les Chameaux, *F. Cuv. Dent. Mam.* 227. t. 93; *D. S. Nat.* lix. 512, 1829.

*Ruminantia c. acerati, part., Bronn, Index Palæont.* ii. 710.

*Cameli, part., Wagler, N. Syst. Amph.* 31, 1830.

Cameliseidæ, *Lesson, N. Tab. R. A.* 167, 1842.

Camelidæ seu Ecornis, *J. Brookes, Mus. Cat.* 60, 1828.

They fold the feet under their body when they rest, with their chest on the earth, hence the knees and chest are generally callous.

### SYNOPSIS OF GENERA.

1. CAMELUS. Back humped. Anterior grinders conical, far apart. Toes broad; soles nearly orbicular. Old World.
2. LLAMA. Back not humped. Grinders similar. Toes elongate; soles narrow. New World.

#### 1. CAMELUS.

Back with one or two humps. Grinders  $\frac{6-6}{6-6}$ ; anterior ones conical, far apart. Toes broad; sole nearly orbicular, only slightly separated in front. Tail short, tufted.

Living on leaves. Peculiar to the temperate and warmer parts of Asia and Africa, and naturalized in Southern Europe.

*Camelus*, sp., *Linn.*

*Camelus*, *Cuvier; Illiger, Prod.; F. Cuv. Dict. Sci. Nat.* lix. 512; *Fischer, Syn.* 434.

#### 1. CAMELUS ARABICUS. The SGHIMEL or DROMEDARY.

Back with a single hump.

*Camelus Dromedarius*, *Linn. Syst. Nat.* ed. 12. 90; *Gmelin, S. N.* i. 168; *Forsk. Faun. Orient.* 4; *Eral. Syst.* 218; *Zimm. Geog. Gesch.* ii. 139; *Schreb. Saugth.* t. 303; *Cuvier, Menag. Mus.* t.; *Reg. Anim.* i. 250; *F. Cuvier, Dict. Sci. Nat.* viii. 94; *Mam. Lith.* t. 1, 2; *Desm. N. Dict. H. N.* vi. 42; *Mamm.* 424; *Fischer, Syn.* 435; *Bronn, Jam.* 488; *Gray, List Mamm. B. M.* 171; *List Osteol. B. M.* 62.

*Camelus Luk*, *Eversmann, Bucharia.*

*Camelus arabicus*, *Desmoul. Dict. Class. H. N.* iii. 452; *Mem. Mus.* x. 221; *Sundevall, Pecora*, 104.

*Camelus vulgaris*, *Forsk. Faun. Orient.* 4.

*Camelus monotophus*, *Walther, Wetter. Ann.* iv. 105.

*Camelus Dromas*, *Gesner, Quad.* 171. fig. 172; *Alpin. Ægypt.* i. 223. t. 12; *Pallas.*

*Camelus Arabiæ*, *Plin. H. Nat.* viii.

*Camelus Bactrianus*, *Aldrov. Bisulc.* 908. fig.

*Camelus minimus*, *Klein, Quad.* 42.

*Camelus vetus*, *Frisch. Naturg.* iv. 1.

*Camelus*, *Jonst. Quad.* 93. t. 42, 44.

Dromedarius, *Brisson, Reg. Anim.* 55.

Chameau, *Perr. Anim.* i. 69. t. 7; *Buffon, H. N.* xi. t. 9.

Camel, *Penn. Quad.* t.

Arabian Camel, *Penn. Syn.* 60; *Shaw, Zool.* ii. 166.

*Var.* 1. Stronger and slower.

Camel (Gimel or Jermal of the Arabs).

*Camelus* Luk, *Eversmann.*

*Var.* 2. Slighter and fleeter.

Dromedary, or Hadgin of the Arabs.

*Hab.* Desert of Arabia.

Young.

Adult, white. From the Berlin Museum.

OSTEOLOGY. *Grundler, Obs. Anat. Tubing.* 1817.

Dromedaire, *Daub. Buffon H. N.* xi. t. 21.

Skull. From Dr. Mantell's Collection.

Skeleton. N. Africa. From Mr. Fraser's Collection.

\*Skull.

Domesticated in Senegal, India. Varies in colour from brown to black and white.

## 2. CAMELUS BACTRIANUS. The MECHERI or CAMEL.

Back with two humps.

*Camelus Bactrianus*, *Linn. S. N. ed.* 12. i. 90; *Gmelin, S. N.* i.

169; *Forsk. Faun. Or.* 4; *Eræleb. Syst.* 221; *Zimmerm. Geogr.*

*Gesch.* 4. 140; *Schreb. Saugth.* t. 304; *Cuvier, Menag. Mus.* t.;

*Reg. Anim.* i. 250; *Fr. Cuvier, Dict. Sci. Nat.* viii. 93; *Desm.*

*N. Dict. H. N.* vi. 22. t. P. 12. f. 2; *Mamm.* 423; *Desmoul.*

*Dict. Class. H. N.* iii. 451; *Fischer, Syn.* 435; *Gray, List Mamm.*

*B. M.* 171; *List Osteol. B. M.* 61.

*Camelus Ditophus*, *Walther, Wetter. Ann.* iv. 163.

*Camelus Bactriæ*, *Plin. H. N.* viii.

*Camelus Turcicus*, *Alpin. Æg.* i. 223. t. 13.

*Camelus*, *Gesner, Quad.* 162. fig. 163; *Brisson, Reg. Anim.* 53.

*Dromedarii*, *Jonst. Quad.* t. 42, 44.

Bactrian Camel, *Penn. Syn.* 63; *Shaw, Zool.* ii. 239. t. 67.

Chameau, *Buffon, Hist. Nat.* xi. 211. 426. t. 22; *Sante, Mem.*

*Mus.* xvii. 320.

Trampelthier, *Knorr, Delic.* ii. t. K. 6.

*Hab.* Mongolian Deserts.

OSTEOLOGY.

Le Chameau, *Daub. Buffon H. N.* xi. t. 24; *Kaup, Allg. Zool.* t.

Skeleton. Persia.

Domesticated in Eastern Europe, Persia, Tartary and India.

Varies from brown to white, and also greatly in size, strength and quickness, according to the breed and the climate.

## 2. LAMA.

Back even, not humped. Tail short, hairy. Toes slender; soles narrow, separate in front. Grinders  $\frac{5-5}{5-5}$ . South America.

*Lama*, Cuvier; *Desm. N. Dict. H. N.* xxiv. 31, 1804; *Fischer, Syn.* 436.

*Auchenia*, Illiger, *Prod.* 103, 1811 (not Marshall).

*Lacma*, Tiedemann, *Zool.* i. 421.

"*Llacma*, Cuvier," Illiger, *Prod.*

*Vicunia*, Rafinesque, *Anal. Nat.* 55, 1815.

*Dromedarius*, Wagler, *N. Syst. Amph.*

*Aucheria*, F. Cuvier, *Dict. Sci. Nat.* lix. 512 (misprint).

Les Lamas, F. Cuvier, *Dent. Mam.* 229.

*Elaphocamelus*, Mathiola, *Episc.* 381; *Marcgrave, Brasils*, 243.

*Cervocamelus*, Jonst. *Quad.*

Molini, and most systematic writers after him, have considered that there are five distinct kinds: viz.—1. *Vigoyne*, 2. *Guanaco*, 3. *Llama*, 4. *Alpaca*, 5. *Heuque*.

Desmarest (*N. D. H. N.* xxiv. 31, 1804) allows two. 1. *Lama* (*C. llama* and *huanacus*, Linn.). 2. *Vigogne* (*C. paco*, *C. Vicunia*, and *C. araucacus*, Linn.).

M. F. Cuvier allows of three kinds: he considers the *Vigoyne* as very doubtful, but the latter is often brought alive to this country.

Dr. Tschudi, in the *Fauna of Peru*, indicates four kinds: viz.—1. *A. huanaco*, 2. *A. Lama*, 3. *A. pacos*, and 4. *A. Vicunia*. He states that the *Lama* and *Alpaca* are only known in the domesticated state.

Dr. Sundevall (*Pecora*) considers there is only two species, the *A. Lama* and *A. Vicunna*, regarding the *Lama* and *Alpaca* as domestic varieties of the *Huanaco* (*A. Lama*).

Prof. F. L. Walther (*Neue Annal. Wetter. Gesellsch.* 1819, 105), on the other hand, proposes to divide the genus *Lama* into three sections. 1. *Lama*, with a callosity on the breast. 2. *Guanak*, with one on the (*Rucken*); and 3. *Araukan*, containing the *Vigogne* and *Pako*, without any callosities (*Höcker*)!

The period of gestation in the three kinds which have bred at Knowsley, namely the *Llama*, *Alpaca*, and *Guanaco*, is eleven months; the *Llama* and *Alpaca* breed regularly; but by the *Guanaco* only a single fawn has been produced, to which one of the male *Llamas* is sire. None of them produce more than one at a birth.

In confinement, the *Vicuna* and the *Alpaca* often have the lower cutting-teeth elongated and projecting, giving the face a bulldog-like appearance. I have not observed this in the *Guanaco* or *Llama*.

The *Alpaca* may be a tame, heavy variety of the *Vicuna*, as it has the same short, hairy head; but the neck is thicker, and the whole animal heavier, and the hair of the head longer and more bushy, and it wants the pectoral fringe.

All the tribe have the disagreeable habit of spitting, when irritated, a quantity of half-digested cud; the *Llama* and *Alpaca* do this only when much annoyed; the *Guanaco*, on the contrary, upon the slightest occasion.

Unlike Sheep, these animals, in confinement at least, do not shed their coat.

Though the *Llama*, *Alpaca* and *Vicuna* are generally harmless and inoffensive, the males will very readily quarrel with each other.

Mr. Walton, a zealous advocate for the naturalization of the *Alpaca*, in his little book on the subject, published by Blackwood in 1844, apprehends better success will be the result when the *Alpacas* are turned on to waste and mountain lands than when they are kept on richer pasture and well cared for. But the fact that few, if any, specimens are now living in Great Britain beside those at Knowsley, does not favour this conclusion.

The *Llama*, the *Alpaca* and the *Vicugna*, are exclusively confined to the colder and more elevated regions of the Peruvian Andes; the *Guanaco* has a wider geographic range, extending to the plains of Patagonia, and even the southernmost extremity of the continent. The *Llama* inhabits the high valleys of the Peruvian Andes, its favourite region being the valley of the lake of Titicaca. It was the only beast of burthen possessed by the Aborigines; hence we find it wherever the Incas carried their conquests and civilization, from the equator to beyond the southern tropic. It is still extensively employed by the Indians as a beast of burthen, and its wool, though coarse, is used by the Aborigines. Like all domestic animals, it varies in colour; its flesh is nauseous, black, and ill-tasted.

The *Alpaca* or *Paco*, a gentle and handsome animal, although more closely allied to the *Llama* than any of its congeners, is a distinct species; it inhabits at still more elevated places than the *Llama*, its favourite haunts being on the streams descending from the snowy peaks; it is only found in a domestic state; it is reared for its wool, which is extremely fine, silky and long, and which now bears a high price, from its introduction into some of our finest woollen tissues. The *Vicugna* is only found in the wild state, in the plains on the Andes, as high as 1500 feet; its

wool is much prized for its fineness. The animal has a shrill whistle; it is easily domesticated. The *Guanaco*, by some naturalists considered erroneously as the parent stock of the *Llama* and *Alpaca*, is also only found in the wild state; it is seen as far north as lat. 12° S., is very abundant, and in large flocks on the Bolivian and Chilian Andes, and has been seen as far as the southern extremity of the continent. All these animals feed on a species of coarse, wiry grass called *ichu*.

In the Peru-Bolivian Andes the *Llama* and *Alpaca* are daily disappearing to make room for the more useful and profitable breed of the common European Sheep, while as a beast of burthen the *Ass* is everywhere taking its place.—*Pentland*, in *Mrs. Somerville's Physical Geography*, ii. 340, 342.

M. G. Geoffroy has announced, on the authority of Dr. Weddel, that a cross-breed between the *Alpaca* and *Vicuna* had been obtained, and that the mules of this cross-breed are capable of reproducing this newly-created species, the wool of which is represented as of a valuable quality; but Mr. Pentland has examined the case referred to and the evidence adduced, and does not consider it sufficient to establish the fact.

\* *Of a nearly uniform brown colour.* Wild.

### X I. LAMA VICUGNA. The VICUGNA.

Head short. Face covered with soft hair, like the neck, and of the same colour. Cheeks rather paler. Hair of temples not longer than that of the rest of the head. Eyelashes black. Ears hairy, brown, blackish washed. Neck and head without any long hairs. Sides of the body with longer, projecting, rather rigid brown hairs. Hind legs without any appearance of elongated warts. The hinder part of the belly and inside of the thighs less naked.

Skull (adult) 9 inches long; nose short; nasal bones short, broad; lacrymal opening none.

*Camelus Vicugna*, *Molini*, *Chili*, 277; *Gmelin*, *S. N.* i. 171; *Schreb. Saughth.* t. 307; *Lesson*, *Bull. Sci. Nat. Univer.* i. 252; *Zool. Journ.* i. 242.

*Lama Vicugna*, *Fischer*, *Syn.* 437; *Gray*, *Knowsley Menag.*

*Lacma Vicunna*, *Tiedem. Zool.* i. 421.

*Auchenia Vicunna*, *Desm. Mam.* 426.

*Lama Vicunna*, *Gray*, *List Osteol. B. M.* 62.

*Auchenia Vicugna*, *Desm.*

*Auchenia Vicunna*, *Sundevall*, *Pecora*, 107.

*Auchenia Vicunia*, *Tschudi in Wiegman. Arch.* 1824, 245; *Fauna Peru*, t. 17.

*Vicunna*, *Laet. Nov. Orb.* 406; *Nieremb. H. N.* 184. f. 185; *Ulloa, Voy.* i. 506. 525. t. 24. f. 3; *Shaw, Zool.* ii. 243. t. 169.

*Vicogne*, *Buffon, H. N.* vi. 208. t. 34; *Sonnini, Nouv. Dict. H. N.* xiii. 254; *Cuvier, R. A.* i. 251; *F. Cuv. Dict. Sci. Nat.* xxv. 268; *Desmoul. Dict. Class. H. N.* iii. 456.

*Vicognes* or *Viconas*, *Frezier, Voy.* i. 266.

*Vicunias*, *Falkner, Patagonia*, 112.

*Hab.* Peruvian Alps.

Two, adult. Bolivia. From Mr. Bridges' Collection.

OSTEOLOGY, t. 24. f. 2. Skull.

Skull, male. Bolivia. From Mr. Bridges' Collection.

Skull, female. Bolivia. From Mr. Bridges' Collection.

Confined to the most elevated table-land and mountains of Bolivia and Northern Chili.

The *Vicuna* is purely a wild species; it has hitherto resisted all the efforts of the Aborigines, the most patient and docile of the human race, to render it prolific in its own climate and in domesticity.—*Pentland, l. c.* 341.

These animals jump and kick with their hind legs.

## 2. LAMA GUANACUS. The GUANACO.

Head elongate, tapering, slate-coloured, nakedish, covered with very short, uniform hair (which is often longer and rather tufted on the temple under and behind the eyes). Ears nakedish, blackish slate, white edged. Circumference of face from base of ears, and on the back of the temple, the lower jaw and chin, whitish. Eyelashes black. The neck and body covered with elongated, rather rigid hairs, projecting beyond the fur. The hinder part of the body in front of the thighs, the inner side of the fore-legs and thighs nearly naked. Chest only very slightly fringed. The hind legs with distinct, elongated warts.

Skull (adult)  $11\frac{1}{2}$  or 12 inches long; nose elongate; nasal bones elongate; lacrymal opening large.

*Camelus Guanaco*, *Trail, Wern. Trans.* iv. 492. t.

*Camelus Huanacus*, *Molini, Chili*, 281; *Gmelin, Syst. Nat.* i. 170; *Schreb. Saugh.* t. 305.

*Lama Peruana a*, *Fischer, Syn.* 436.

*Lama Pacos* (fera), *Gray, List Mamm. B. M.* 171.

*Lama huanacus*, *Gray, Knowsley Menag.*

*Auchenia Lama fera*, *Sundevall, Pecora*, 107.

*Auchenia glama* var., *Bennett, Gard. Zool. Soc.* 273. fig.

*Auchenia Lama*, *Brandt; Wagner.*

*Auchenia huanaco* *Tschudi, Fauna Peru.*

Guanaco seu Huanacu, *Laet. Nov. Orb.* 406, 1633; *Ovalle, Chili*, 44; *Ulloa, Voy.* i. 366. t. 24. f. 5; *Shaw, Zool.* ii. 246. t. 169, 170.

Guianicoes, *Hawkesw. Voy.*

Guanaco, *Byron, Voy. round the World*; *Darwin, Zool. Beagle, Mamm.* 26.

*Hab.* Peruvian Alps; the Pampas and mountains in Chili, Mendoza, and Straits of Maghellan.

Adult. Presented by Sir William Burnett and Capt. Fitzroy, R.N.

Adult. S. America. Presented by Charles Darwin, Esq.  
Half-grown. S. America.

OSTEOLOGY, t. 24. f. 1.

Skeleton. Chili.

Skull. Chili. From Mr. Bridges' Collection.

Two skulls. Chili.

Skull. From the Zoological Society's Collection.

The *Guanaco* or *Wild Llama* is the characteristic quadruped of the plains of Patagonia; it is very common over the whole of the temperate part of the continent, as far south as the islands near Cape Horn. It generally lives in small herds, of from half a dozen to thirty in each; but on the bank of the St. Cruz we saw one herd which must have contained at least 500. They are generally wild and extremely wary. If, however, by chance the sportsman abruptly meet a single animal, or several together, they will generally stand motionless and intensely gaze at him, then perhaps move a few yards, turn round and look again. They are curious; for if a person lies on the ground and plays strange antics, such as throwing up his feet in the air, they will almost always approach by degrees to reconnoitre him: this artifice has the advantage of allowing several shots to be fired, which are all taken as part of the performance. On the mountains of Tierra de Fuego, I have more than once seen a *Guanaco* on being approached not only neigh and squeal, but prance and leap about in the most ridiculous manner, apparently in defiance as a challenge.

The Wild *Guanaco* are very easily domesticated, and I have seen some thus kept in Northern Patagonia near a house, though not under any restraint. They are in this state very bold, and readily attack a man by striking him from behind with both knees. It is asserted that the motive for these attacks is jealousy on account of the females.

The *Wild Guanacos*, however, have no idea of defence; even a single dog will secure one of these large animals till the huntsman can come up.



In many of their habits they are like sheep in a flock. Thus, when they see men approaching in several directions on horseback, they soon become bewildered and know not which way to run; this greatly facilitates the Indian method of hunting, for they are thus easily driven to a central point and encompassed.

The *Guanacos* readily take to the water; several times at Port Valdes they were seen swimming from island to island. Byron, in his *Voyage*, says he saw them drink salt water. Some of our officers likewise saw a herd apparently drinking the briny fluid from a salina near Cape Blanco. I imagine, in several parts of the country, if they do not drink salt water they drink none at all. In the middle of the day they frequently roll in the dust in saucer-shaped hollows. The males fought together. Herds sometimes appear to set out on exploring parties at Bahia Blanca, where within thirty miles of the coast these animals are extremely unfrequent. I one day saw the tracks of thirty or forty which had come in a direct line to a muddy salt-water creek; they then must have perceived that they were approaching the sea, for they had wheeled with the regularity of cavalry, and had returned back in as straight a line as they had advanced. The *Guanaco* has a singular habit, which to me is quite inexplicable, namely that on successive days they drop their dung on the same defined heap. I saw one of these heaps which was eight feet in diameter, and was composed of a large quantity. This habit, according to M. D'Orbigny, is common to all the species of the genus; it is very useful to the Peruvian Indians, who use the dung in fact, and are thus saved the trouble of collecting it.

The *Guanaco* appear to have favourite spots for lying down to die, on the banks of the St. Cruz, in certain circumscribed spaces, which are generally bushy and all near the river; the ground was actually white with bones; on one such spot I counted between ten and twenty heads. I particularly examined the bones; they did not appear, as some scattered ones which I had seen, gnawed or broken, as if dragged together by beasts of prey. The animal in most cases must have crawled, before dying, beneath and among the bushes. M. Bynoe informed me, that during a former voyage he observed the same circumstance on the banks of the Rio Gallegos. I do not at all understand the reason of this, but I may observe that the wounded *Guanacos* at the St. Cruz invariably walked towards the river.—*Darwin, Journ.* 168.

\*\* *Colour various, often variegated.* Domestic.

Almost every person who has lived where these animals abound consider there are two or more kinds found in the domesticated state, and they are all distinct from the two wild kinds already noticed. They will not allow that they are like the long-legged

Sheep of France and the short-legged Sheep of Lincolnshire, mere breeds of the same kind. Some authors, as Tschudi (*Fauna Peruana*), declare that they will not breed together, nor with the wild kinds, but Lord Derby has shown at Knowsley that this is not the fact.

I am led to believe that the *Lama* and *Alpaca* are only domestic races of the two preceding species, and that the *Alpaca* is probably a mule between them, for it has many characters common to the two wild kinds.

### X 3. LAMA GLAMA. The LAMA OR YAMMA.

Fur brown or variegated. Forehead and cheeks with short hair, like the rest of the head. Legs elongate, slender.

Camelus Glama, *Linn. S. N. ed. 12. i. 91*; *Gmelin, Syst. Nat. i. 163*; *Erxleb. Syst. 224*; *Schreb. Saughth. t. 306*; *Zimmerm. Geogr. Gesch. ii. 140*; *Cuvier, Menag. Mus. t.*; *Reg. Anim. i. 251*; *F. Cuvier, Dict. Sci. Nat. xxv. 165*; *Mam. Lith. t.*; *Sonnini, N. Dict. H. N. xiii. 249. t. E. 25. f. 1.*

Camelus Peruvianus, *Brisson, Reg. Anim. 56.*

Camelus Llacma, *F. Cuvier, Mam. Lithog. t.*

Lacma Peruana, *Tiedem. Zool. i. 421.*

Auchenia Glama, *Desm. Mam. 425.*

Auchenia Lama, *Tschudi, Fauna Peru, t.*; *Brandt, Bull. Acad. Sci. Petersb. vi. 13.*

Auchenia Lama  $\beta$ . domestica, *Sundevall, Pecora, 107.*

Lama Peruana  $\beta$ . domestica, *Fischer, Syn. 436.*

Lama Pacos  $\beta$ . domestica, *Gray, List Mamm. B. M. 171.*

Lama Glama, *Gray, Knowsley Menag. t.*

Ovis Peruana, *Hernand. Mexic. 660. fig.*; *Jonst. Hist. Nat. t. 46. fig.*

Cervocamelus, *Jonston, Quad. t. 29*; *Marcgrave, Brasil, 243. fig.*; *De Chile Regn. 38. fig.*

Elephocamelus, *Mathiola, Episc. 1561, 381. fig., 1564, 630. fig.*

Llama, *Ulloa, Voy. i. 365. t. 24. f. 5*; *Laet. Nov. Orb. 1633, 405*; *Penn. Syn. 64*; *Shaw, Zool. ii. 241. t. 168.*

Lama, *Buffon, H. Nat. xiii. 16. Suppl. vi. 204. t. 27.*

*Hab.* South America.

Adult, white.

OSTEOLOGY. *Brandt, Bull. Acad. Sci. Petersb. vi. 13.*

### 4. LAMA PACOS. The ALPACA.

Black, or black and white or brown varied. Forehead and cheeks with elongated hair. Body large. Sides with long pendulous hairs. Legs short. Belly and inside of the legs nakedish.

Skull (adult) 10 inches long; nose short; nasal bones very short, broad; lacrymal opening large.

*Camelus Pacos*, *Linn. Syst. Nat.* xii. 91; *Gmelin, S. N.* i. 171; *Erxl. Syst.* 226; *Zimmerm. Geog. Gesch.* ii. 140; *F. Cuvier, Dict. Sci. Nat.* xxv. 166.

*Lama Pacos*, *Lesson, Mamm.* 352; *Fischer, Syn.* 437; *Gray, List Osteol. Brit. Mus.* 62; *Knowsley Menag.* t.

*Auchenia Lama*  $\gamma$ . *domestica*, *Sundevall, Pecora.*

*Auchenia Alpaca*, *Desm. Mamm.* 426.

*Auchenia Pacos*, *Tschudi, Fauna Peru*, t.

*Auchenia Glama* (var. *Llama*), *Bennett, Gard. Zool. Soc.* 283. fig. *Pacos, Raii Syn.* 147; *Hern. Mex.* 663; *Penn. Syn.* 66; *Shaw, Zool.* ii. 245.

*Paco, Laet. Nov. Orb.* 405; *Buffon, H. N.* xiii. 16.

*Alpaque, Frezier, Voy.* i. 266.

*Hab.* South America.

Two, adult, black, male and female. Presented by the Earl of Derby.

Black, young, just born. Presented by the Earl of Derby.

Young, white and brown varied.

Adult, black. S. America. Presented by W. Danston, Esq.

*Var.?* Hybrid?

*Alpaca, F. Cuvier, Mam. Lithog.* t. (hybrid); *Gray, Knowsley Menag.* t.

*Var.?*

*Camelus Arucanus, Molini, Chili*, 279; *Gmelin, Syst. Nat.* i. 170.

*Lama Arucana, Fischer, Syn.* 438.

*Auchenia Arucana, H. Smith, Griff. A. K.*

*Aries Moromorus, Nieremb. Hist. Nat.* 182. fig.

*Sheep, Ovalle, Chili*, 44.

*Sheep of Peru, Cieza, Peru*, 232.

*Mouton, Feuille. Journ.* iii. 23.

*Mouton de Perou, Frezier, Voy.* i. 264. t. 22. f. a.

*Chilihueque, Shaw, Zool.* ii. 418; *Desmoul. Dict. Class. H. N.* iii. 455.

#### OSTEOLOGY.

\*Skull. S. America. Presented by W. Danston, Esq.

## Fam. 2. EQUIDÆ.

Two middle toes soldered into one; covered with a single hoof; lateral toes subequal. Cutting teeth 6·6. Canines  $\frac{11}{11}$ . Gullet and stomach simple. Using the hind feet in defence.

Q. Solipeda seu Solidungula, *Ray, Syn.* 62, 1693.

Solidungula, *Illiger, Prod.* 100, 1811; *Bronn, Index Pal.* ii. 707.

M. Belluzæ pars, *Linn. S. N.* ed. 12. 27, 1766.

M. Jumenta, *Storr. Prod. Mam.* 1780.

Les Solidipedes, *Cuv. Tab. Elem.* 1798; *Desm. N. D. H. N.* xxiv. 55, 1804; *Dum. Z. A.* 1806; *Latr. Fam. N.* 62, 1825; *F. Cuv. Dict. Sci. Nat.* lix. 516; *Geoff. Mem. Mus. H. N.* x. 165.

Les Pachydermes Solipedes, *Cuvier, R. A.* i. 243, 1817, ed. 2. i. 251.

Stereoplia, Stereopodia, Solipedia, *Rafinesque, Anal. Nat.* 55, 1815.

Pachyderma Solipedia, *Owen, Brit. Foss. Mam.* 383, 1846.

Pachyderma Solidipedes, *Eichw. Zool. Spec.* iii. 351, 1831.

Q. Monochænæ, *Gray, L. Med. Repos.* xv. (1821) 306.

Equidæ, *Gray, L. M. Repos.* xv. 307, 1821; *Ann. Phil.* 1825; *List Mam. B. M.* 182; *List Osteol. Spec. B. M.* 70; *Ham. Smith, Jardine's Nat. Library*, xii.

Equi, *Wagler, N. Syst. Amph.* 4, 1830.

Solipedia, Equidæ, *Selys Longchamps*, 1842.

Solipedia, *J. Brookes, Mus. Cat.* 17, 1828.

M. Perisodactyles Palæotheriens, *Pomet, Rev. Zool.* 1848, 182.

Solidungula, Fam. Equidæ, *Lesson, N. T. Reg. Anim.* 165, 1842.

Anomalipoda, part., *Pallas, Zool. Ross. Asiat.* i. 254, 1831.

Equus, *Linn.*; *F. Cuvier, Dict. Sci. Nat.* lix. 54, 1829.

The *Equidæ* form two genera, but the species of them, viz. the Horse and the various species of the second group, breed together freely in confinement, but the produce is almost always (if not always) barren.

## SYNOPSIS OF THE GENERA.

1. EQUUS. Tail covered with long hair to the base; the fore and hind legs with a wart (sallenders) on the inner side.
2. ASINUS. Tail with short hair at the base and long at the end; the hind leg without any wart on the inner side.

## 1. EQUUS.

Tail covered with long hair to the base. Fur dappled, that is, marked with round pale spots having a dark net-like ground.

Fore and hind legs with hard horny bodies called warts, chestnuts, or sallenders, placed above the knee (wrist) on the fore-legs and below the hock (heel) in the hind ones.

*Equus*, Gray, *Zool. Journ.* i. 261, 1825; *List Mam. B. M.* 182; *List Osteol. B. M.* 70; *List Hodgson Collection*, 35.

*Equus*, sp. Linn.; Lesson, *N. Tab. R. Anim.* 165, 1842.

*Caballus*, Rafinesque, *Anal. Nat.* 55, 1815.

The warts are rarely absent on the hind legs, for it is stated that "the bay mare *Eaglet* was without sallenders on the hock joint."—*Jamaica Times*, 1845, Aug. 26.

### 1. EQUUS CABALLUS. The HORSE.

Brown, grey, or black, with roundish pale spots.

Var. *Equiferus*, Pallas, *Zool. Ross. Asiat.* i. 260; *Eichw. Faun. Casp. Caur.* 29.

Wild Pferde, S. G. Gmelin, *Reise Rusland*, i. 44. t. 9 (cop. Shaw *Zool.* t. 414; Schreb. t. 109); Pallas, *Reis.* i. 211.

Takija or Wild Horses, Hanway, *Hist. Caspian Sea*, i. 349; Bell, *Travels*, i. 212; Smith, *Equidæ*, 146.

The figure of the *Wild Horse* as given by Gmelin very much resembles the ponies left at liberty on the commons of Cornwall and mountains of Scotland, and it appears very doubtful if they are not rather to be considered as domestic horses which have escaped and deteriorated. Pallas observes that the very young are easily tamed, but the adult never. (*Z. R. A.* 260.) It is to be observed that this is not the case with the horses which have become semi-wild in the rich prairies of America, where they have retained the size and form of the well-bred horse.

#### *Domestic Varieties.*

*Equus antiquorum*, Gesner, *Quad.* 132.

*Equus Caballus*, Linn. *Syst. Nat.* i. 100; Gmel. *S. N.* i. 209; Desm. *Mamm.* 416; F. Cuvier, *Dict. Sci. Nat.* viii. 455; Fischer, *Syn. Mam.* 429; Gray, *Zool. Journ.* i. 260; *List Mam. B. M.* 182; *List Osteol. B. M.* 70; *List Hodgson Coll.* 35; Renger, *l. c.* 331.

*Equus*, *Equa*, Pliny, *H. N.*; Gesner; Pallas, *Z. R. A.* i. 255.

Horse, Penn. B. Z. i.

Generous Horse, Penn. *Quad.*

Cheval, Buff. *H. N.* iv. 174; Cuvier, *R. A.* i. 243.

Pferd, Redinger.

Ross, Schrank.

The Horse, Youatt, *The Horse, its History, Breeds, &c.*, Ham. Smith, *Equidæ*, Jardine's *Naturalist's Library*.

- The Tarpan Wild Horse, primæval bay stock, *H. Smith, Equidæ*, 160. t. 3.
- The Andalusian Horse, *H. Smith, Equidæ*, 247.
- South American Horse, *H. Smith, Equidæ*, 247.
- The Parameros of Peru, *H. Smith, Equidæ*, 248. t. 12.
- Mexican Horse and Seminole Horse, *H. Smith, Equidæ*, 249.
- Feral Horses of America, *H. Smith, Equidæ*, 173.
- The Arabian Horse, *Bewick, Hist. Quad.* 4. fig.; *Low, Dom. Anim. Brit. Isl.* t. 1; *Smith, Equidæ*, 210. t. 8.
- The Race Horse, *Bewick, Quad.* 6. fig.; *Low, Dom. Anim. B. I.* t. 2.
- English Race Horse, *Smith, Equidæ*, 251. t. 9.
- Hunter, *Bewick, Quad.* 8. fig.
- The Old Irish Hunter, *Low, Dom. Anim. B. I.* t. 3.
- The Connamara Horse, *Low, Dom. Anim. B. I.* t. 4.
- Black Horse, *Bewick, Quad.* 10. fig.
- The Old English Black Horse, *Low, Dom. Anim. B. I.* t. 5.
- The Cleveland Bay Horse, *Low, Dom. Anim. B. I.* t. 6.
- The Suffolk Punch, *Low, Dom. Anim. B. I.* t. 7.
- The Clydesdale Breed, *Low, Dom. Anim. B. I.* t. 8.
- Old English Road Horse, *Bewick, Quad.* 9. fig.
- Common Cart Horse, *Bewick, Quad.* 13. fig.
- Improved Cart Horse, *Bewick, Quad.* 14. fig.
- The Barb of Morocco, *H. Smith, Equidæ*, 224. a. The Shrubat Ur reech, t. 11.
- The Bornou (white) Race of Africa, *H. Smith, Equidæ*, 228. t. 10.
- The Dongolo (black) Race, *H. Smith, Equidæ*, 229. t. 10\*.
- The Turkish Race, *H. Smith, Equidæ*, 231.
- The Persian Race, *H. Smith, Equidæ*, 233.
- The Toorkee Races, *H. Smith, Equidæ*, 238.
- The East Indian Races, *H. Smith, Equidæ*, 241.
- The New Holland Horse, *H. Smith, Equidæ*, 245.
- The Transylvania Horse, *H. Smith, Equidæ*, 245.
- The Moldavian Horse, *H. Smith, Equidæ*, 245.
- The Greek Horse, *H. Smith, Equidæ*, 245.
- The Spanish Horse, *H. Smith, Equidæ*, 246.
- Cheval d'Islande (var. *Islandicus*), *Quoy & Gaim. Voy. Island, Mam.* t. 11; *Lesson, N. Tab. R. A.* 166.
- Equus Mongolicus*, *Lesson, N. Tab. R. A.* 166.
- Thibet Horse, *Hodgson, Journ. Asiat. Soc. Bengal*, i. 348, 349.
- Cheval à port frisses, E. frisius, *F. Cuvier, Mam. Lithog.* t.
- Equus Caballus frisius*, *Lesson, N. Tab. R. A.* 166.
- Villous Horse (primæval of the white stock), *H. Smith, Equidæ*, 262. t. 4.
- The White or Grey Horse, *H. Smith, Equidæ*, 262. (Marengo, *Bonaparte's Arab.*) t. 8.

- The Crisp-haired Horse (primæval of the black stock), *H. Smith, Equidæ*, 266. t. 5.
- The Black Horse, *H. Smith, Equidæ*, 266. t. 14. (the English Draught Horse) 269.
- The Dun or Tan Horse, *H. Smith, Equidæ*, 274.
- The Decussated Horse, or the Eelback Dun Horse of Ukraine, *H. Smith, Equidæ*, 274. t. 6.
- The Myautzee, or the Pied Horse of China, *H. Smith, Equidæ*, 277.
- The Bhooteahs Ponies, *H. Smith, Equidæ*, 278.
- The Pickarrow Ponies, *H. Smith, Equidæ*, 278.
- The Yaboos of Affghanistan Ponies, *H. Smith, Equidæ*, 278.
- The Hungarian Horse (with slit nostrils), *H. Smith, Equidæ*, 278. t. 11.
- The Common Bashkir Horse, *H. Smith, Equidæ*, 278.
- The Morea Ponies, *H. Smith, Equidæ*, 282.
- The Swedish and Norwegian Ponies, *H. Smith, Equidæ*, 282.
- The Shetland Ponies, *H. Smith, Equidæ*, 283. t. 15.
- The Galloway, *H. Smith, Equidæ*, 283.
- The Dartmoor and Exmoor Pony, *H. Smith, Equidæ*, 284.
- Sardinian Wild Horse, *H. Smith, Equidæ*, 285.
- The Tatto or the East Indian Pony, *H. Smith, Equidæ*, 285.
- Tuttoo or Mahratta Pony, *Sykes, P. Z. S.* 1831.
- Sedulously propagated in the Dukhun: much used to transport luggage, and very vicious.—*Sykes*.
- Tattoo or Hack Pony of Calcutta, *Hardw. Icon. ined.* no. 10,975. t. 116, no. 10,974. t. 81.
- The Tangum Piebald or Skewbald Horse, *Equus varius*, *H. Smith, Equidæ*, 288. t. 7.
- The Tangum (or Tanghans), Primæval Piebald stock of Thibet, *H. Smith, Equidæ*, t. 7.
- Skewbald of Achin in Sumatra, *H. Smith, Equidæ*, 293.
- Tangham of China, *Hodgson, Icon. ined. B. M.* t. 212. f. 1.
- Tangham of Lhassa, *Hodgson, Icon. ined. B. M.* t. 212. f. 3, t. 213.
- Tangham of Gyanche, *Hodgson, Icon. ined. B. M.* t. 212. f. 3.
- Hubstee of Deo Dharma, *Hodgson, Icon. ined. B. M.* t. 214.
- The Koomrah, or *Equus hippargus*, *H. Smith, Equidæ*, 294.
- The Koomrah, *Equus Lalisi*, *H. Smith, Equidæ*, t. 16.
- Hippargus, *Oppian*.
- Boryes, *Herodotus*.
- Bourra of Koldagi, *Rüppell*. Northern Africa. Not gregarious.
- The specimen in the British Museum, which Col. H. Smith mentions as being like the *Koomrah* (*Equidæ*, 296), was a Dartmoor pony which Dr. Leach had stuffed to place in the collection of British animals.

The Kuda or Saran Horse, *H. Smith, Equidæ, 287.*

The Javan Horse, *H. Smith, Equidæ, 287.*

The Tamboro or Birma Horse, *H. Smith, Equidæ, 287.*

Horse with a curled moustache on the upper lip, of Asiatic Russia, *Pallas, Spic. Zool. xi. 5. t. 5. f. 6; Zool. Ross. Asiat. i. 250.*

Horse covered with curled woolly hair, of Asiatic Russia, *Falk. Itiner. iii. 529; Pallas, Zool. Ross. Asiat. i. 250.*

Naked Horse of a beautiful form, of Asiatic Russia, *Pallas, Zool. Ross. Asiat. i. 250.*

The Argamaki of Bocharis, a White Horse with very close, minute, orbicular, brown spots, of Asiatic Russia, *Pallas, Zool. Ross. Asiat. i. 250.*

#### OSTEOLOGY, t. 37. f. 1.

Cheval, *Daubenton, Buffon, H. N. iv. t. 10; Cuvier, Oss. Foss. ii. t. 1, 2, 3; Volkmann, Anat. Anim. i. t. 11. f. 8; Stevens, Book of the Farm, 1284. f. 577.*

Skull of young with milk teeth.

Skeleton mounted

Skeleton mounted: pony.

Skull.

Skull, larger.

Skull of an English horse. Presented by B. H. Hodgson, Esq.  
Pelvis. From Dr. Mantell's Collection.

#### ICON.

Drawing of Chinese Tangham, *Hodgson, Icon. ined. B. M. t. 212. f. 1.*

Drawing of Lhasa Tangham, *Hodgson, Icon. ined. B. M. t. 212. f. 2, and t. 213.*

Drawing of Gyánchê Tangham, *Hodgson, Icon. ined. B. M. t. 212. f. 3.*

Drawing of Hubstee of Deo Dharma, *Hodgson, Icon. ined. B. M. t. 214.*

Tattoo or Hack Pony of Calcutta, *Hardw. Icon. ined. B. M. n. 10,975. t. 116, n. 10,974. t. 81.*

Horses were introduced by the French in the Falkland Islands in 1764, since which time they have greatly increased. They have never left the eastern end of the island, although there is no natural boundary to prevent them from roaming, and that part of the island is not more tempting than the rest. The



stallions are said to be constantly roaming from place to place, and compelling the mares to accompany them, whether or not the young foals are able to follow, and they are left to die. The predominant colours are roan and iron-grey.

All the horses bred here, both tame and wild, are rather small-sized, though generally in good condition, and they are not so strong as the horses from the Plata.—*Darwin, Journal*, 192.

The Horse was first landed at Buenos Ayres in 1537, and the colony being then for a time deserted, it ran wild: in 1580, only forty-three years afterwards, one hears of them at the Strait of Magellan. The natives of Terra del Fuego are well-stocked with horses, each man having six or seven, and all the women and even children their own horse.—*Darwin, Journal*, 233; *Renger, Natur. Saugth. Paragua*, 334.

The soldiers in Bahia Blanca eat mare's flesh for food.—*Darwin, Journal*, 101.

In Banda Oriental they think it ridiculous to break in or ride a mare; they are of no value except for breeding, and, rarely, to tread out the wheat from the ear, for which purpose they are driven round a circular enclosure where the wheat sheaves are strewn. Numbers are slaughtered for the sake of their hides, although only worth about half-a-crown a-piece.—*Darwin, Journ.* 134.

Darwin gives an interesting description of the breaking in of the wild young horses of Banda Oriental.—*Journal*, 151.

Horses do not breed on the southern face of the Himalayas, but are imported from Thibet.—*Munday, Journ.* ii. 75; *Ogilby in Royle Himal.* i. lxxi.

Skins of horses are used for cloth, to make churns, &c.—*Simpson, Overland Journey*, ii. 307.

The roundish marks are called *copper-marked* in brown, *dappled* in grey horses. These marks become more visible in the brown horses when they are in high condition.

Horses are technically called according to their colours. *Bay*,—Brown, with black mane and tail; some have black legs, they are then called bay with black points. *Chestnut*,—Red brown, either dark or light. *Brown*,—Nearly black: if they have a tan mouth they are called *brown muzzles*. *Black*. *Dun colour*. *Roan, Strawberry*,—very red grey. *Piebald*,—With three colours. *Skewbald*,—Two colours. *Cream colour*.—The white mark on the forehead is a *star*; if down the face, a *blaze*.

## 2. ASINUS. The ZEBRAS.

Have the upper part of the tail covered with short hair, and the lower part covered with longer hair forming a tuft; the fur marked with darker stripes; the fore-legs only furnished with hard horny warts in a similar situation to those in the front legs of the Horse, but there are none in the lower part of the hinder legs.

Asinus, Gray, *Zool. Journ.* i. 261; Lesson, *N. Tab. R. A.* 166, 1842.

Chevaux (Asinus), F. Cuvier, *Dent. Mam.* 224. t. 92.

Equus, sp., Linn.

Asinine Group, H. Smith, *Equidæ*, 298.

\* Colour nearly uniform with a dark longitudinal dorsal stripe; some have a black stripe across the shoulders. The Asses of Asia.

Asses of Asia, Gray, *Knowsley Menag.* 74.

† Ears elongated, acute. The Tame or Domestic Asses.

These animals vary greatly in size and appearance according to the climate. They are large and smooth-haired in the warmer climates; small and shaggy in the colder countries.

It is very doubtful if the Domestic Ass is found in a truly wild state; the asses which have been described as wild, appear rather to be domestic animals which have escaped, or mules between the Domestic Ass and the allied wild species; for when caught they, after a short time, submit themselves to man, which is not the case with what I have here considered as the wild kinds.

Pallas justly observes, "In extensis Asiæ desertis primam patriam esse quærendam *Equi feri et Onagri* a Nomadibus in domesticos usus domatorum, æque ac *Hemioni* hactenus indomiti."—*Zool. Ross. A.* i. 255. This is equally applicable to the African species.

## 1. ASINUS VULGARIS. The DOMESTIC ASS.

Grey, with a longitudinal dorsal streak and a dark streak across the shoulders; ears elongate; facial line arched. Skull with suborbital foramen as in *E. Hemionus*.

Equus asinus, Linn.; Renger, *Nat. Parag.* 341; Pallas, *Zool. R. A.* i. 263.

Asinus vulgaris, Gray, *Zool. Journ.* i. 244; J. Brookes, *Mus. Cat.* 19; Gray, *Knowsley Menag.* 71.

*Equus asina*, *Fleming, Phil. Zool.* ii.

*Asinus*, *Plin. Hist. Nat.* viii. 44.

Ass, *Penn.*; *Bewick.*

Asne, *Buffon.*

Ane, *Cuvier.*

*Asinus onager*, "Gray," *Bonap. Index Mam. Eur.* 34, 1845.

*Asinus domesticus*, Domestic Ass, *H. Smith, Equidæ*, 314.

*Var.* Without any cross.

*Var.* Legs and body more or less banded.

*Domestic varieties.*

Gudha of the Mahrattas, very little larger than a good mastiff or Newfoundland dog, *Sykes, P. Z. S.* 1831.

Domestic Ass of Ispahan, *H. Smith, Equidæ*, 314.

Domestic Ass of Beloochistan, *H. Smith, Equidæ*, 314.

Domestic Ass of Thibet, with a cross band, *Stacley.*

The Pico of ancient Egypt, *H. Smith, Equidæ*, 314.

Tasandunt of the Shelluhs, *H. Smith, Equidæ*, 314.

The Djaar of Arabia, *H. Smith, Equidæ*, 311.

The Lalisiones or Wild Ass Colts, *H. Smith, Equidæ*, 311.

Lalisio, *Martial*, xiii. 97.

Wild Ass, *Lenant, Voy. on the Bahar el Ahad*; *Hoskins, Travels in Ethiopia.*

Egyptian Ass, *H. Smith, Equidæ*, 312.

OSTEOLOGY.

Asne, *Daubenton, Buffon H. N.* iv. t. 12, 13.

Skeleton, mounted.

The common Domestic Ass is sometimes of the usual grey colour, without any appearance of the cross. They are sometimes black, and at others white, rarely skewbald; but this is the common albinism and melanism of domestic animals, and when of these colours the cross is not apparent, or at least sometimes only to be seen when the animal is observed obliquely.

†† *Ears moderately short, rounded.* The Wild Asses.

2. *ASINUS ONAGER.* The KOULAN or WILD ASS.

Pale reddish (in winter greyish); dorsal streak black, rather wider over the small of the back; skull with the infraorbital foramen high up, about one-third the space between the face-line and the back edge of the teeth; far back being directly over the front end of the cheek ridge and the back edge of the third grinder.

*Asinus sylvestris*, *Plin. Hist. Nat.* viii. 44.

Onager, *Plin. Hist. Nat.* viii. 44; *Raii Quad.* 6; *Act. Acad. Soc. Imp. Petrop.* 1777, 258. t. 11; *Neue Nord Beytr.* ii. 22. t. 2, iv. 80.

*E. Asinus onager*, *Schreb. Saughth.* t. 312.

*Equus onager*, *Brisson, Règ. Anim.*; *Pallas.*

Wild Ass, *Bell, Travels*, i. 212; *Heber's Travels.*

Koulán or Wild Ass, *Penn. Quad.*

*Equus Hemionus* (Wild Ass of Kutch and the Indus), *Sykes, Proc. Zool. Soc.* 1837, 91, not *Pallas*; *I. Geoff. Nouv. Ann. Mus. N. H.* iv. 97. t. ♀, 3 years old.

*Asinus Hemionus*, *Gray, Osteol. Spec. B. M.*; *H. Smith, Equidæ*, 316. t. 20; *Gray, Proc. Zool. Soc.* 1849, 29; *Knowsley Menag.* 71.

*Equus Khur* (Ane Khur), *Lesson, Manual Mamm.* 347, 1827.

Wild Ass or Gour, *Ker Porter, Travels Georgia, Persia*, i. 460.

Wild Ass or Khur of the Persians, *Isis*, 1823, 764.

Onager, *Xenophon*; *Barboza, Collect. Ramusio.* i. 300, b. (*Malabar and Golconda*).

Hemione or Dziggtai, *Lesson, Comp. Buffon*, x. 379, from *Geoffroy*; *F. Cuvier, Mamm.* 1823; not *Pallas*.

The Hymar or Hamar of Mesopotamia, *H. Smith, Equidæ*, 313.

*Asinus Hamar* (the Hamar), *H. Smith, Equidæ*, t. 19.

Chamor of the Hebrews.

*Hab.* The Plains of Mesopotamia, Persia, Kutch; shores of the Indus, Punjab.

a. Young (eight months old, died in September). Mesopotamia. Presented by J. H. Layard, Esq., M.P.

b. Adult. India, Kutch. Presented by the Earl of Derby.

#### OSTEOLOGY.

Skull and bones of body. India, Kutch. Presented by the Earl of Derby.

They are abundant in Mesopotamia, and are evidently the Wild Ass of Xenophon. The adults are very difficult to approach within rifle range. The young are sometimes caught alive.—*Layard.*

The *Khur* inhabits the deserts of Persia in troops, frequenting the hills in summer and the plains in winter.

*Pallas*, in a paper entitled "Observations sur l'Asne dans son état sauvage, ou sur le véritable Onagre des anciens" (*Act. Acad. Sci. Imp. Petrop.* 1777, 258. t. 11), figured a Wild Ass which was sent by sea from Derbent to Astracan. The figure greatly resembles the mule between the *Hemione* and the *Ass* now in the Zoological Gardens, but the ears appear a trifle longer. It is coloured in the same manner as the *Hemione*, that is to say, the more prominent parts of the body are dark, and the middle

of the back, the front of the haunches and thigh and the under part of the body are paler. The figure represents but a very indistinct cross band on the shoulder.

On this Pallas observes, "L'étalon différait encore de la femelle en ce qu'il avait tout le corps plus robuste, l'encolure plus grosse, la poitrail et la croupe plus large, et surtout par un barre ou raye transversale (tab. xi.), qui croisait sur les épaules avec celle qui s'étend de long de l'épine dans l'un et l'autre sexe. C'est cette croix que la plupart des ânes domestiques mâles ont conservés, et qui embellit surtout ceux qui ont la couleur du poil claire. Cette barre transversale bien plus étroite que l'autre manque entièrement aux Onagres femelles : quelques Tartares m'ont au contraire assurés qu'elle se voyait assez souvent double dans les mâles." (*l. c.* 269.)

This paper is translated into German, and a copy of the plates with a second figure of the back of the animal is given in Pallas, *N. Nord. Beytr.* ii. 22, t. 2; but in this figure the cross band on the shoulders is not marked. From this description it would appear that the animal which is called the *Wild Ass* is not always marked with the cross band on the shoulder which is so permanent in the domestic kind, and has hitherto been considered as its specific character.

The chief difference between Pallas's figure of the *Wild Ass* and the *Hemione* is the greater length and more acute form of the ears; of the latter the mule varies in this character.

"No attempt has been made to break the *Wild Ass* (of Rajpootana) in for riding, nor did it appear that the natives ever thought of such."—*Bishop Heber*.—*H. Smith, Equidæ*, 311.

"The *Wild Ass* of Cutch has the cross stripe on the shoulder, and differs in colours and heavier proportion from the *Wild Ass* of Kerr Porter."—*Bishop Heber*.—*H. Smith, Equidæ*, 311.

Col. Ham. Smith confounds the domesticated *Gudha* with the *Wild Ass* of the Deccan described by Colonel Sykes, and states on the Colonel's authority that "it is not larger than a mastiff."—*Equidæ*, 307.

Eversmann states that many specimens of the *Kulan* or *Equus Onager*, Pallas, have been brought to Orenburg from the high steppes between the Caspian and the Aral seas. A good specimen and a skull are in the Museum of the University of Kassar.

All these specimens are without the cross band, and have only the longitudinal dorsal streak. Eversmann considers that the cross band is either not the character of the species, or perhaps a sexual mark, as he observes that he is not able to discover the specific character which separates the *E. Hemionus* from the *E. Onager*. He further observes that the Mongolians have no particular name for the *E. Onager* of Pallas; the Tartars no name

for *E. Hemionus*: the Mongolians called the *E. Hemionus Dshiggetei*, or more properly *Tschikitei*, meaning *long ears*, and the Tartars call the *E. Onager, Kulan*.

Eversmann remarks that Pallas (*N. Nord. Beytr.* ii. 34) states that the male *M. Hablizl* brought from Persia had no cross, but that the female which was shot on the Murecy had one. He proceeds to calculate the length of the ears of these animals, compared with the other measurements of them, and he finds that the ears of the male appear to be considerably (near 2 inches) shorter in proportion than the ears of the female.—*Bull. Soc. Imp. Nat. Mosc.* 1840, 57.

The *Mule* with *Asinus domesticus* has the short smooth fur exactly like the sire, but with a short narrow cross band on the shoulder; the ears rather longer and black tipped.

### 3. ASINUS HEMIONUS. THE KIANG.

Fur short, smooth, bright red bay; legs straw colour (in winter long, rather woolly, greyish, leg whitish), with a broad longitudinal dorsal streak, broadest over the small of the back, without any cross band on shoulders. Skull: the infraorbital foramen low down, in the centre of the space between the face-line and the base of the teeth, and placed in a line over the back edge of the second grinder, some distance in front of the end of the cheek-ridge.

*Mulus dauricus fœcundus*, *Messerschm. MSS.*

*Equus Hemionus*, *Pallas, Nov. Comm. Petrop.* xix. 394. t. 7, cop. *Neue Nord. Beytr.* ii. 31. t. 1; *Reise*, iii. 217, cop. *Schreber, Saugth.* t. 311; *Eichw. Faun. Casp. Caur.*

*Equus Hemionus* (Kiang), *Ogilby, in Royle Himal.* i. lxxi.; *Walker, Journ. Asiat. Soc.* 1848, t. 1.

*Equus Hemionos*, *Bodd.*

*Asinus Hemionus*, *Gray, Zool. Journ.* i. 244; not *Knowsley Menag.*

*Equus onager*, *Eversmann, Bull. Soc. Imp. Nat. Mosc.* 1840, 56.

? *Asinus onager* (*Onager Koulan* or *Wild Ass of Tartary*), *H. Smith, Equidæ*, 307. t. 18?

*Asinus Equioides*, *Hodgson, Journ. Asiat. Soc. Beng.* xi. 287; *Blyth, Journ. Asiat. Soc. Beng.* xi. 287.

*Wild Ass, Moorcroft, Travels.*

*Equus Kiang*, *Moorcroft, Residence at Ladack*, i. 311. 443; *Lesson, Manuel*; *Gray, Proc. Zool. Soc.* 1849, 29; *Knowsley Menag.* 72; *Hodgson, Journ. Asiat. Soc. Calc.* 1842, 286.

*Equus varius*, part., *Ham. Smith, Equidæ*, 289.

*Asinus polyodon*, *Hodgson, Calcutta Journ. N. H.* 1847, 469. t. 6, animal and skull.

Jikta, *Shaw, Zool.* ii. 427.

Dshikkete, *Penn.*

Dgiggetai, *Cuvier, R. A.* i. 244.

Dzigethai, *Buffon, Supp.* vi. 37.

Wild Mule, Half Ass, or Fecund Mule, *Penn. Quad.* i.

Wild Ass, *English in Thibet.*

Hemionos, *Plin. Hist. Nat.* viii. c. 44.

L'Hemione, *Ency. Méthod.* t. 42. f. 4.

The Ghoor or Khur, "*Moorcroft,*" *H. Smith, Equidæ,* 310.

Wild Esel, *Eversmann, Bull. Mosc.* 1840; *Wagner, Wiegmann Arch.* viii. 1842, 49.

The Kiang, *H. Smith, Equidæ,* 289.

Wild Horse, *Gerrard, Asiat. Research.* xvii. 247.

*Hab.* Thibet.

Male between winter and summer fur. Thibet. Presented by Lord Gifford.

Male. Thibet. Presented by the Hon. East India Company.

*Var.* 1. with a distinct cross band on the shoulder like the Domestic Ass. Thibet. *Capt. Strachey.*

*Var.* 2. with the vertebral dorsal streak very obscure or entirely wanting. Thibet. *Capt. Strachey.*

#### OSTEOLOGY, t. 37. f. 2.

Skull. Thibet. Presented by B. H. Hodgson, Esq.

Two skulls, lower jaw wanting. Presented by B. H. Hodgson, Esq. The specimens referred to by Mr. Gray in the *P. Z. S.* 1839.

\*Skull. Thibet, N. of Ladack. Presented by the Earl of Gifford.

The forehead of all the three specimens of the skull of *E. Hemionus* from Thibet is rather convex between the eyes, and the centre of the face is narrow and keeled on the sides; while in the skull of *E. Onager* from Kutch the forehead is flat between the eyes, and the centre line of the face is rather broader and rounded gradually off on the sides, and the incisive bone is longer and more gradually arched, making the incisor more perpendicular in the latter than in any of the former.

But the most distinctive character between the four skulls is in the position of the infraorbital foramen. In *E. Onager* it is high up, about one-third the space between the face-line and the back edge of the teeth; it is far back, being directly over the front edge of the cheek-ridge and the back end of the third grinder; while in all the three specimens of the skulls of *E. Kiang* this foramen is lower down, being nearly in the centre of the space between the face-line and the base of the teeth, and it

is placed in a line over the back edge of the second grinder, some distance in front of the end of the cheek-ridge. The under surface of the body of the posterior sphenoid is narrow and convex in *E. Hemionus* and broad and flat in *E. Kiang*. The vomer is much more compressed in the latter than in *E. Hemionus*. I am not certain that the distinctions here described may be sufficient to show that these two animals are separate species, but they indicate the necessity of the subject being more fully examined.

In the position of the suborbital foramen the *E. Hemionus* more nearly resembles the *E. Asinus*, and the *E. Onager* than that of *E. Zebra* and *E. Burchellii*.—Gray, *Proc. Zool. Soc.* 1849, 29.

Two of the skulls of the *Equus Kiang* show the small rudimentary grinder in front of the other, but this tooth is to be more or less distinctly observed in the skulls of the other *Equidæ* in the Museum Collection. I may observe, that in the skull of *Equus Burchellii* in the British Museum Collection, this tooth is placed on the inner side of the first true grinder.

The suborbital foramen in the skulls in the India House from Thibet rather varies in position, but in all it is placed over the middle or third tooth. In the old male it appears to be rather higher than in the nearly adult female and in the young skull, where the hinder grinder is just springing out.

This animal must not be confounded with the domestic asses which are used for burden in Thibet.—Capt. Strachey.

The male Kiangs are larger and deeper coloured. They live in troops of from eight to ten under the care of a solitary male, where the thermometer is below zero. They live partly on the plains and partly on the mountains, and the lower surface of the hoof varies considerably in form and concavity, perhaps from that circumstance.

The *Ghoor Khur* of Ludakh, according to Moorcroft, is white about the nose and under the neck, the belly and legs; the back is light bay and the mane dun. They herd in droves, fly at a trot, stop, and look back.—H. Smith, *Equidæ*, 310.

Moorcroft saw the Kiangs on the highest summits of Thibet, in their *shining summer coats* and with their antelope form, scouring along in numbers.—H. Smith, *Equidæ*, 286.

Dr. Walker observes—The *Kiang* neighs like a horse. The *Wild Ass of Cutch* brays like an ass. The *Kiang* has no zebra stripes, neither in the adult nor in the foal. The *Wild Ass of Cutch*: transverse zebra stripes are seen on the shoulder in the adult, and still more in the foal. Sometimes also the shoulder cross has been seen. The habitat of the *Kiang* is on the high table-land of Thibet; of the *Wild Ass of Cutch* in the sultry plains near the mouth of the Indus.

The *Kiang* of Chinese Tartary greatly exceeds that of the



Donkey of Cutch in size; the stallions often stand 14 hands high. Major Charlton and Major Biddulph state that they neigh like a horse. When taken young they will become so tame as to be led about like a horse, and will follow horses almost anywhere. They live in a climate where the temperature is below the freezing point in the middle of the summer; yet they throw off their pale woolly coat during that season and become bright bay.—*Major Charlton*.

The Donkey of Cutch is often domesticated in India.—*Ibid*.

?? 4. ASINUS EQUULEUS. The YO-TO-TZE.

Yellowish red clay colour. Tip of ears, mane, long hairs of tail, well-defined line down the back to middle of tail, and cross band on shoulder, three or four cross streaks on knees and hocks, black.

Asinus Equuleus (the Yo-to-tze), *H. Smith, Equidæ*, 304.

Asinus Hippargus (the Yo-to-tze), *H. Smith, Equidæ*, t. 17.

The specimen described by Col. H. Smith was alive in a livery stable near Park Lane, London; it was said to have been brought from the Chinese frontier N.E. of Calcutta. It was most probably a *Kiang*, or perhaps a mule between it and the Domestic Ass.

\*\* *Body with a black dorsal streak and many more or less distinct transverse or curved streaks. Ears rather short and broad-tipped. The Zebras of South Africa.*

Hippotigris, *H. Smith*.

Hippotigrine group or Zebras, *H. Smith, Equidæ*, 320.

† *Hoofs slightly concave beneath; legs white, not or only slightly cross streaked.*

Living on the open plains.

5. ASINUS QUAGGA. The QUAGGA.

Brown. Head, neck and withers or front of body blackish streaked; lower part of body, legs and tail white. Hoofs flattish beneath.

Asinus Quagga, *Gray, Zool. Journ.* i. 246; *List Mam. B. M.* 183; *J. Brookes, Mus. Cat.* 20, 1828.

Equus Quoagga, *Lesson, Man. Mamm.* 347.

Equus Quagga, *Gmelin, S. N.* i. 213; *Schreb. Saugth.* t. 317; *F. Cuv. Dict. Sc. Nat.* vii. 473. t. ; *Harris, W. An. Afr.* t. 2.

Female Zebra, *Edw. Glean.* i. t. 223.

Le Couagga, *Buffon, H. N. Supp.* iii. t. 4; *Cuvier, Menag. Mus.* t. ; *F. Cuvier, Man. Lithog.* t.

Kwagga or Couagga, *Buff. Supp.* vi. 85; *Knight, Mus. Anim, Nat.* f. 480.

Opeagha or Quagga, *Masson, Phil. Trans.* lxvi. 297.

*Hippotigris quacha* (the Quagga of the Cape Colonists), *H. Smith, Equidæ*, 330. t. 24.

Quagga, *Shaw, Zool.* ii. 240.

Quacha, *Penn. Quad.* i. 14.

*Hab.* Cape of Good Hope, on open plains.

? Young, stripes very indistinct. South Africa. Presented by W. Burchell, Esq., LL.D.

*E. Isabellinus*, *Temm. MSS.*; *H. Smith, Equidæ*.

*Hippotigris isabellinus* (the Isabella Quagga), *H. Smith, Equidæ*, 332. t. 25.

*Ane isabelle*, *LeVaillant*.

Lesson places the *Quagga* with the true Horses, because the hair extends nearer to the base of the tail, overlooking the warts and other natural characters.—*Nov. Tab. R. A.* 166, 1842.

The *Quagga* is found in herds near the Cape Colony.

LeVaillant, as Col. Smith observes, only saw, and did not possess, the *Ane Isabelle*. The specimen in the British Museum described and figured by Col. H. Smith was certainly only a young *Quagga* in a very imperfect condition, having lost nearly the whole of its fur before it was stuffed. It was presented by Dr. Burchell as the skin of a *Quagga*.

#### 6. ASINUS BURCHELLII. THE PEETSI OR PEECHI.

Pale brown, under side of body whitish; head, body and upper part of leg black streaked; tail, inside and lower part of leg white. Hoof rather broad, only slightly concave beneath. Skull: suborbital foramen as in *E. Hemionus*.

*Equus Zebra*, *Burchell, Travels*, i. 139, vig. at p. 252.

*Asinus Burchellii*, *Gray, Zool. Journ.* ii. 247. t. 9. f. 1. animal, f. 2. hoof, 1824; *List Mam. B. M.* 183.

*Equus Zebroides*, *Lesson, Man. Mamm.* 346; *Nov. Tab. R. A.* 166, 1842.

*Equus Burchellii*, *Bennett, List Animals Zool. Gard.* 1830, 40. n. 62; *Fischer, Syn. Mam.* 432.

*Equus Zebra*, male, *F. Cuvier, Menag. Mus.* t.

*Equus montanus* (the Dauw), *F. Cuvier, Mam. Lithog.* t. female and foal (not *Burchell*); *Lesson, Mammifères*, i. 248.

*Hippotigris Burchellii* (the Dauw), *H. Smith, Equidæ*, 329. t. 23. ♀ & jun.

*Burchell's Zebra*, *Harris, W. A. Africa*, t. 5; *Knight, Mus. Anim. Nat.* f. 481.

Striped or Bonte Quagga of the Cape Colonists, *Harris, l. c.* 7. Peet-sey of the Matabuli and Bechianas.

Dauw, *F. Cuvier, Mam. Lithog.* t.

*Hab.* South Africa, plains.

- a. South Africa. Presented by W. Burchell, Esq., LL.D.  
 b. Young. South Africa. From the South African Museum.

## OSTEOLOGY.

\*Skull, female. South Africa.

Found in herds in every district north of the Orange river. It admits of being tamed to a certain extent with considerable facility, and occasionally a half-domesticated specimen is exposed for sale in Cape Town with a rider on its back: even in the most tractable state to which it has yet been reduced, it is regarded as wicked, treacherous, obstinate, and fickle.—*H. Smith.*

M. F. Cuvier has applied the Hottentot name for the true Zebra to this species, and used for it the name *E. montanus*, that Burchell gave to that animal, though it only inhabits the plains.

†† Hoofs narrow, deeply concave beneath; legs cross-banded.  
 Living on the mountains.

## 7. ASINUS ZEBRA. The ZEBRA.

White; head, body and legs to the hoofs black-banded; nose reddish; belly and inside of thighs not banded; tail end blackish. Hoofs narrow, deeply concave beneath. Skull: suborbital foramen as in *E. Hemionus*.

Zebra Indica, *Aldrov. Solid.* 416. fig.; *Raii Syn.* 64.

Equus Indicus, *Jonston, Quad.* t. 5.

Equus Brasiliensis, *Jacob. Mus. Reg.* 3. t. 2. f. 1.

Hippotigris, *Dio Cass. Hist.* l. 77.

Equus Zebra, *Linn. S. N.* i. 101; *Schreb. Saugh.* t. 316.

Asinus Zebra, *Gray, Zool. Journ.* ii. 248. t. 9. f. 3, hoofs; *Cat. Mamm. B. M.* 183; *Osteol. Spec. B. M.* 70; *J. Brookes, Mus. Cat.* 20, 1828.

Zèbre, *Buffon, H. N.* xii. t. 12.

Zebra, *Ray, Quad.* 69; *Penn. Quad.*; *Knight, Mus. Anim. Nat.* f. 479, 508.

Sebra, *Stubb.*

Hippotigris campestris, *H. Smith, MSS.* l. c. 329.

Equus montanus, *Burchell, Travels*, i. 139. 265, ii. 270; *Harris, W. A. Africa*, t. 24. f. 1.

Male Zebra, *Edwards, Glean.* i. t. 222.

Wild Paard or Wild Horse of the Dutch Colonists, *Burchell, Trav.*; *Harris, l. c.* 7.

Wilder Esel, *Kolbe.*

Daow (or True Zebra) of the Cape Colonists, *Harris, l. c.* 7.

Zeura or Zuora, *Lobo, Abyss.* i. 291?

Wild Ass, *Kolbe, Cape*, ii. 112.

Var.? Hippotigris zebra (the Zebra), *H. Smith, Equidæ*, 324. t. 21.

*Hippotigris antiquorum* (the Congo Dauw or Zebra of Pigafetta),  
*H. Smith, Equidæ*, 327.

*Hippotigris antiquorum* (Angola Dauw), *H. Smith, Equidæ*,  
t. 21.

*Hab.* South Africa, mountains.

*a.* Adult. South Africa. Presented by W. Burchell, Esq.,  
LL.D.

*b.* Young. South Africa. Presented by G. B. Sowerby, Esq.

#### OSTEOLOGY.

\*Skeleton. South Africa.

Skull. South Africa.

Skull of male. Mule between Zebra and Ass.

\*Skull. Presented by the Earl of Derby.

Skull. Hybrid between *Asinus Zebra* and *Asinus vulgaris*.

Presented by the Zoological Society of London.

#### *Mules or Hybrids of the different species of Horses.*

1. The Common Mule,—the hybrid between the *Ass* and the  
*Mare*.

Mules, *Raii Quad.* 64.

*Equus Asinus Mulus*, *Gmelin*.

*Equus Mulus*, *Schreb.* t. 214.

Mule, *Pennant*.

Grand Mulet, *Buffon*, *H. N.* iv. t. 12.

Maulthier, *Bechstein*.

Mule, *Bewick, Hist. Quad.* 16. fig.; *H. Smith, Equidæ*, 334.

Common Mule, *H. Smith, Equidæ*, 344.

Grey Mule of Egypt and Barbary, *H. Smith, Equidæ*, 345.

Black Mule of South of France and Spain, *H. Smith, Equidæ*,  
345.

The Dun-coloured Mules of Volterra (Italy), *H. Smith, Equidæ*,  
346.

2. The Hinny,—the hybrid between the *Horse* and the she-*Ass*.

Hinnus, *Arist. H. A.* i. c. 7.

*Equus Asinus hinnus*, *Gmelin*.

*Equus hinnus*, *Schreb.* t. 215.

Petit Mulet, *Buffon*, *H. N.* iv. t. 13.

Maulesel, *Bechstein*.

The Hinny, *H. Smith, Equidæ*, 346. t. 30.

3. Mule of a male *Hemione* and a female *Zebra*, *Knowsley Menag.*  
t. 57. f. 1. The shoulders and legs are banded.

*a.* Adult. Bred at Knowsley. Presented by the Earl of Derby.

Mule of a male *Maltese Ass* and a *Zebra*, *Knowsley Menag.* t. 57. f. 2.

The body and legs are striped; the stripes on the head and body are narrow, except the shoulder-cross, which is very distinct and forked; the rump is covered with small spots.

Ribbon-legged Ass (*Asinus vulgaris*, var. *fasciata*), *Gray, Zool. Journ.* i. 245.

a. Adult. Bred at Windsor Park.

4. Mule between a male *Ass* and *Zebra*.

Grey indistinct cross, and a few narrow dark stripes on the shoulders and fore legs; tail elongate, end tufted, upper part slightly banded; ears moderate.

Métis femelle d'Ane et de Zebra, *F. Cuvier, Mamm. Lith.* t. ♀.

This is very different from the Mule with the *Maltese Ass*. It has scarcely any stripes.

5. Mule between a male ? *Burchell's Zebra* and a common *Ass*, *Knowsley Menag.* t. 58. f. 1.

Grey, with very indistinct bands on the front of the back; a more distinct, short, narrow cross-band, divided into three below, and with some black cross-bands on the outside of the legs.

a. Adult. Used to draw in a tandem. Bred in the Zoological Gardens.

6. Mule between a male domestic *Ass* and an *Hemione*, *Knowsley Menag.* t. 58. f. 2.

It is very like the mother, but has a distinct black cross-band and some indistinct cross-bands on the outside of the hocks and knees.

This animal is now living in the Gardens of the Zoological Society. It changes its colour and becomes greyer in winter, like its female parent. I have seen another example of this Mule, exactly like the one here described.

7. Mule between an *Hemione* and a *Burchell's Zebra*, *Knowsley Menag.* t. 59. f. 1.

Reddish grey; head, neck and front part of the body with very narrow, rather darker streaks.

8. The Hybrid Ass and Zebra, *H. Smith, Equidæ*, 343. t. 28; *Mus. Paris, from F. Cuvier.*

Quagga Mule, *H. Smith, Equidæ*, 343. t. 29.

Zebra Donkey or Mule Zebras, bred between the two species of *Zebra* and the *Donkey*, *Bennett, List Anim. Zool. Gard.* 1830, 13. n. 63 & 43.

9. Mules between Male Quagga and Mare, *Morton, Phil. Trans.* 1821.

The Hybrid first foal of Brood Mare and Quagga, *H. Smith, Equidæ*, 342. t. 26.

The Filly bearing marks of the Quagga, *H. Smith, Equidæ*, 342. t. 25.

The Colt, the third issue of Brood Mare and the second by the Black Arab, *H. Smith, Equidæ*, 324. t. 27.

The Brood Mare and the third foal with marks of the Quagga, *H. Smith, Equidæ*, 324. t. 14.

10. The offspring of a Mule (the produce of a male *Ass* and a *Zebra*) with a bay mare Pony, *Knowsley Menag.* t. 59. f. 2.

Iron-grey; with a short narrow cross-band on withers, very faint indications of stripes on the sides, and more distinct dark stripes on outsides of the hocks and knees; tail bushy from the base, like a horse; head heavy; mane brown and grey.

This animal is used to draw a small cart. It stands 8 hands high.

## ADDENDA ET CORRIGENDA.



Page 26, line 34, after DRAWINGS, add—Drawing of large horned Buffalo by Daniel at Luckow, *Banks, Icon. ined. B.M. Mam. t.* .

Page 40, after line 4, add—The living YAK, POËPHAGUS, shows a much larger muffle than the dry skin leads one to expect; it is square, and occupies the space between the nostrils, but is smaller than that of the *Bisons*.

Page 43, line 16, after OVIBOS MOSCHATUS, add—  
a. Skeleton. N. America. Presented by John Rae, Esq.

Page 49, line 14, for AIGOCERUS read HIPOTRAGUS.

Page 50, line 12, for BOSELAPHUS read ALCELAPHUS.

Page 85, line 2, after CEPHALOPHUS NIGER, add as *Syn.* Antelope Pluto, *Temm. MSS. Mus. Leyd.* 1852.

Page 102, line 2, for ÆGOCERUS read HIPOTRAGUS, as the former name is applied to the wild goats; and change generic name of the two species to *Hippotragus leucophæus*, *Hippotragus niger*.

Page 114, line 29, after MAZAMA AMERICANA, add—  
a. Skin without horns. N. America. Presented by John Rae, Esq.

a. Stuffed, imperfect. N. America. From the Zoological Society Museum.

Page 192, line 17, for N.W. coast of America read Siberia, as Sir John Richardson states they were tame deer, and they are not domesticated in America.





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BUBALUS BRACHYCERUS.

Field & George, Lithographers, St. Eastern Capital.

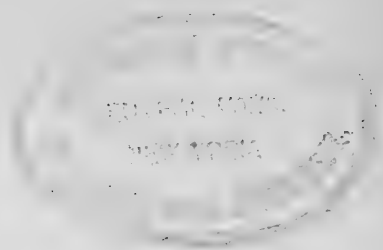


BOS TAURUS.

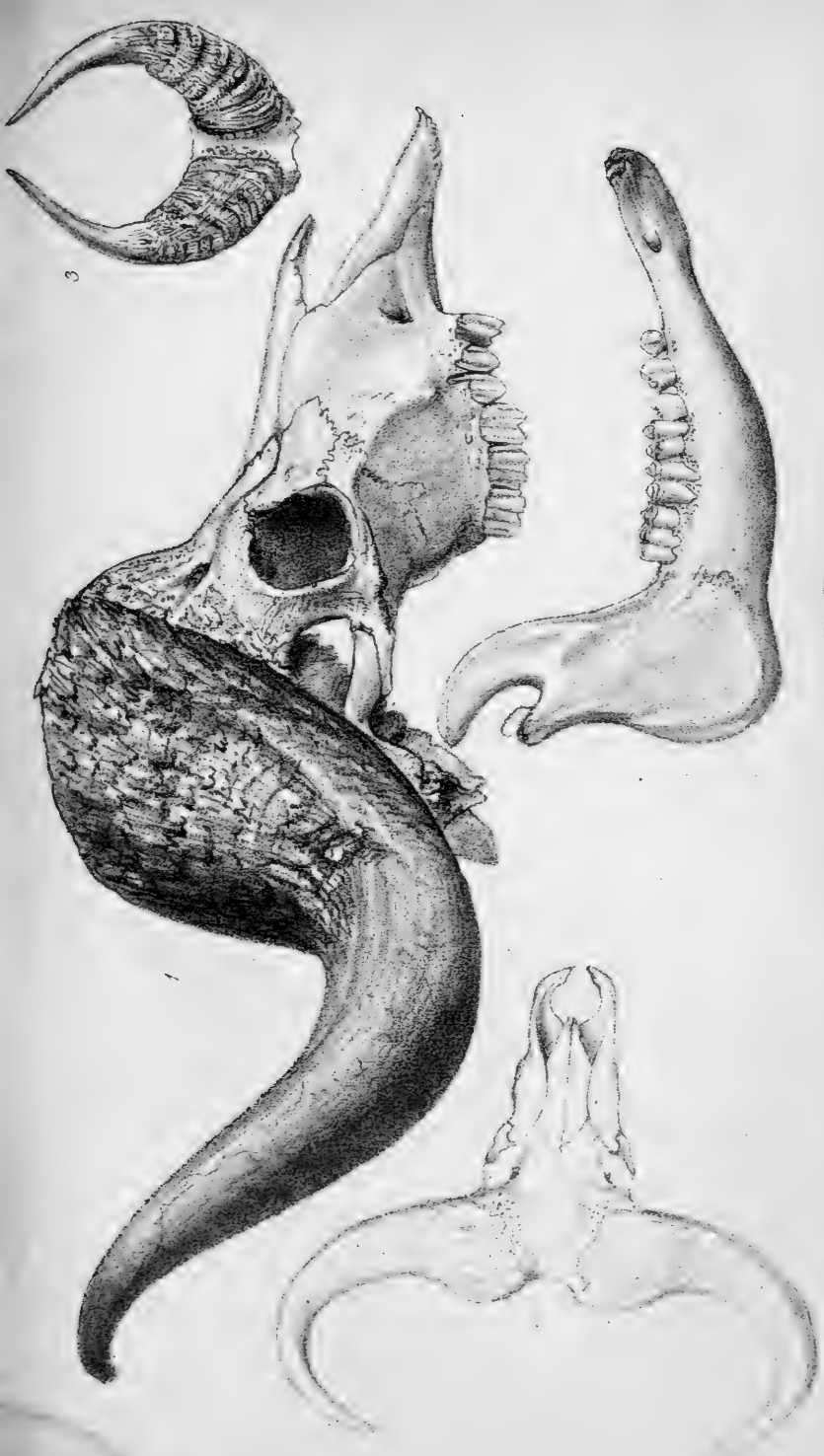
W. Wing, ad. nat. Zimc.

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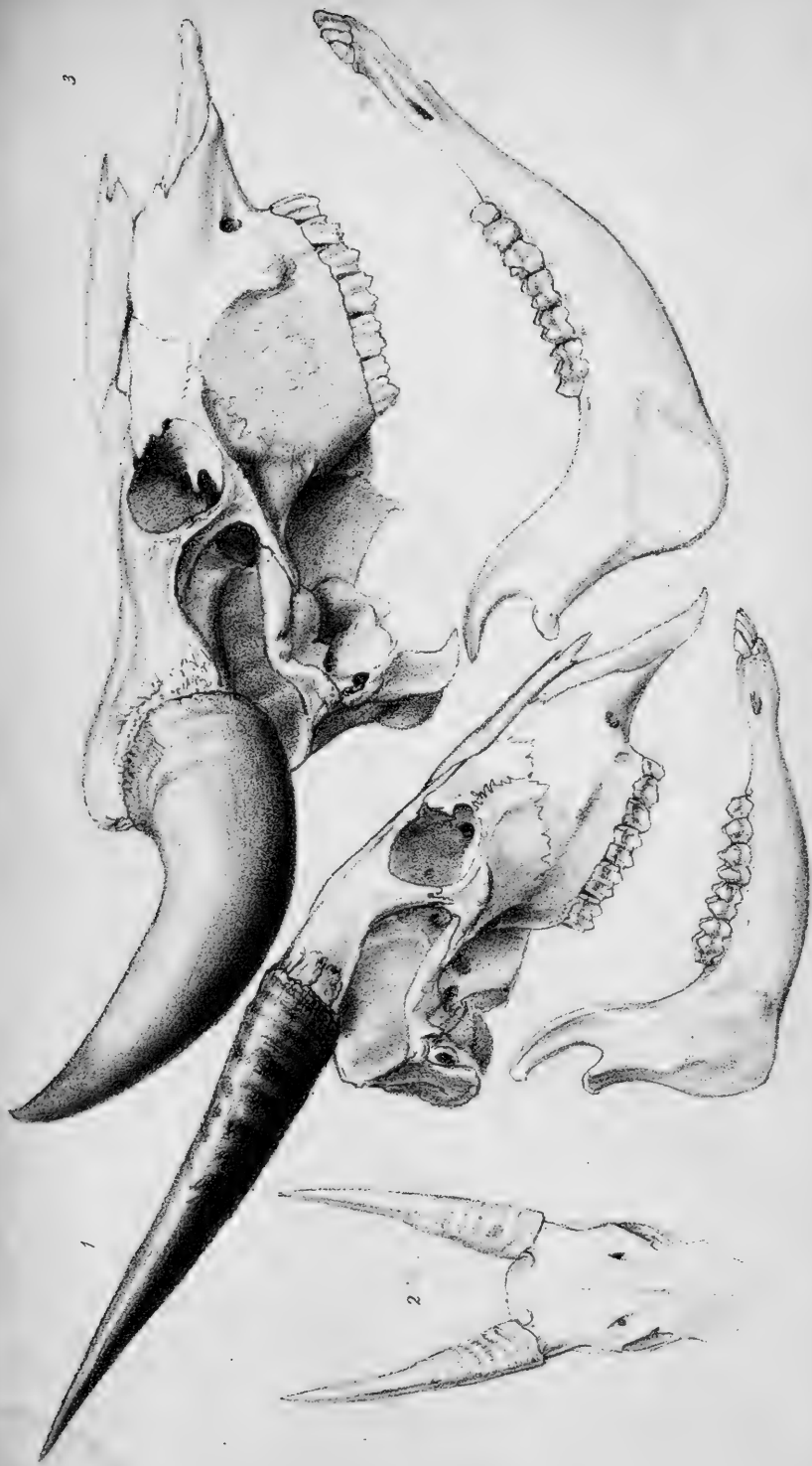




3

BUBALUS CAFFER





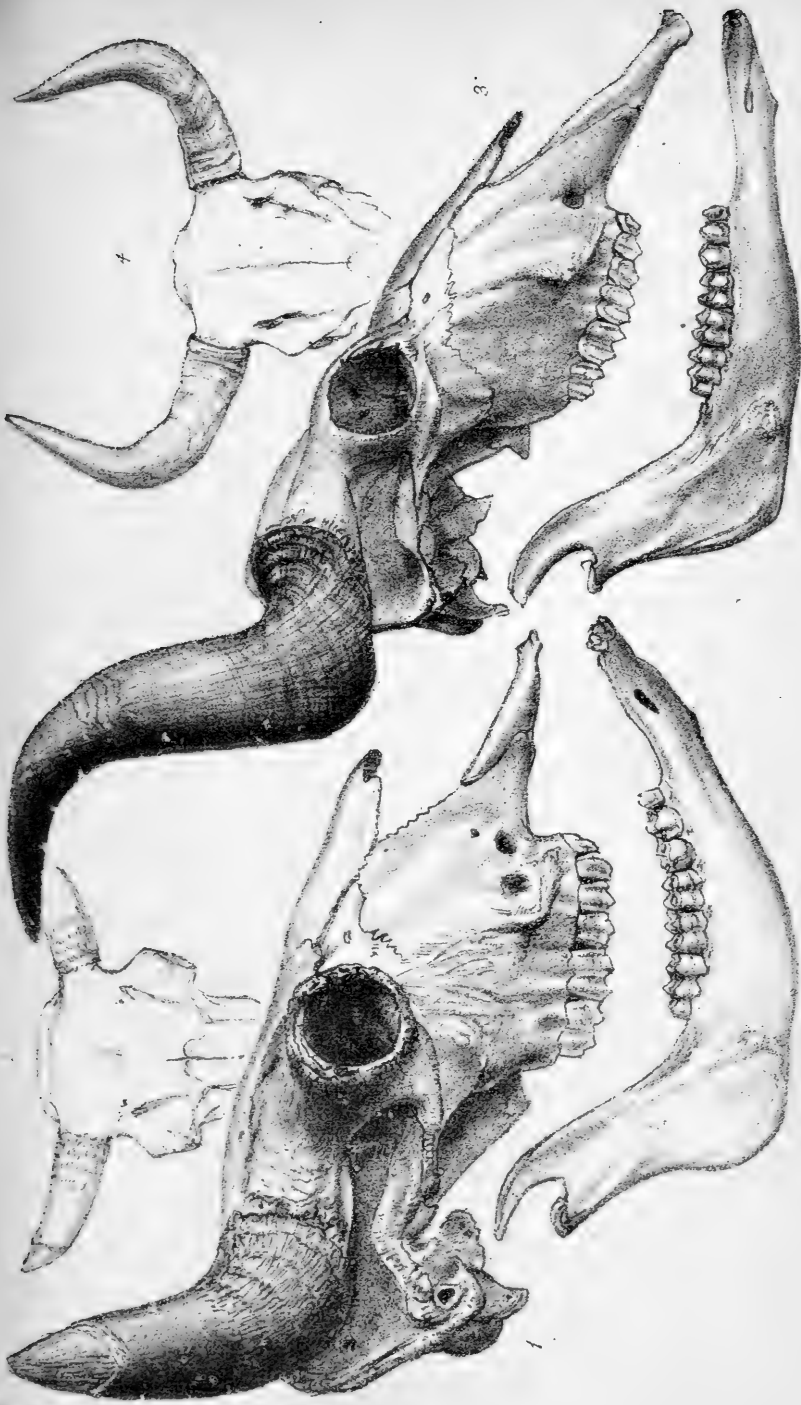
1 2. ANOA DEPRESSICORNIS. 3. BIBOS FRONTALIS.



BISON AMERICANUS.

POEPHAGUS GRUNILINUS.

Ford & George, Lithographers, 64 Hutton Garden.







1. 2. OVIBOS MOSCHATUS. ♂. JUN<sup>R</sup>. 3. 4. ♀.  
 Ford & George, Lithographers, 54, Hatton Garden.



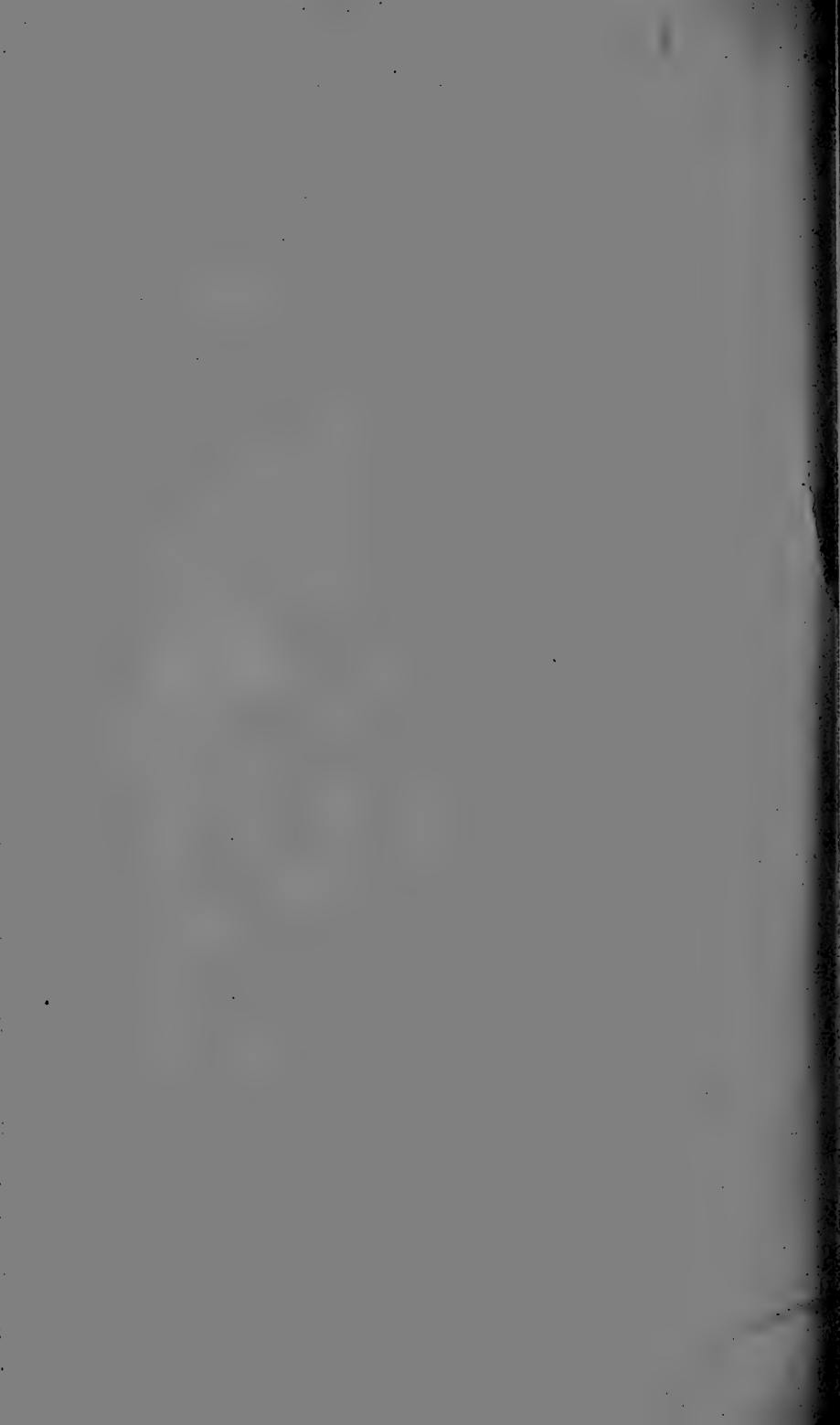




OVIBOS MOSCHATUS.

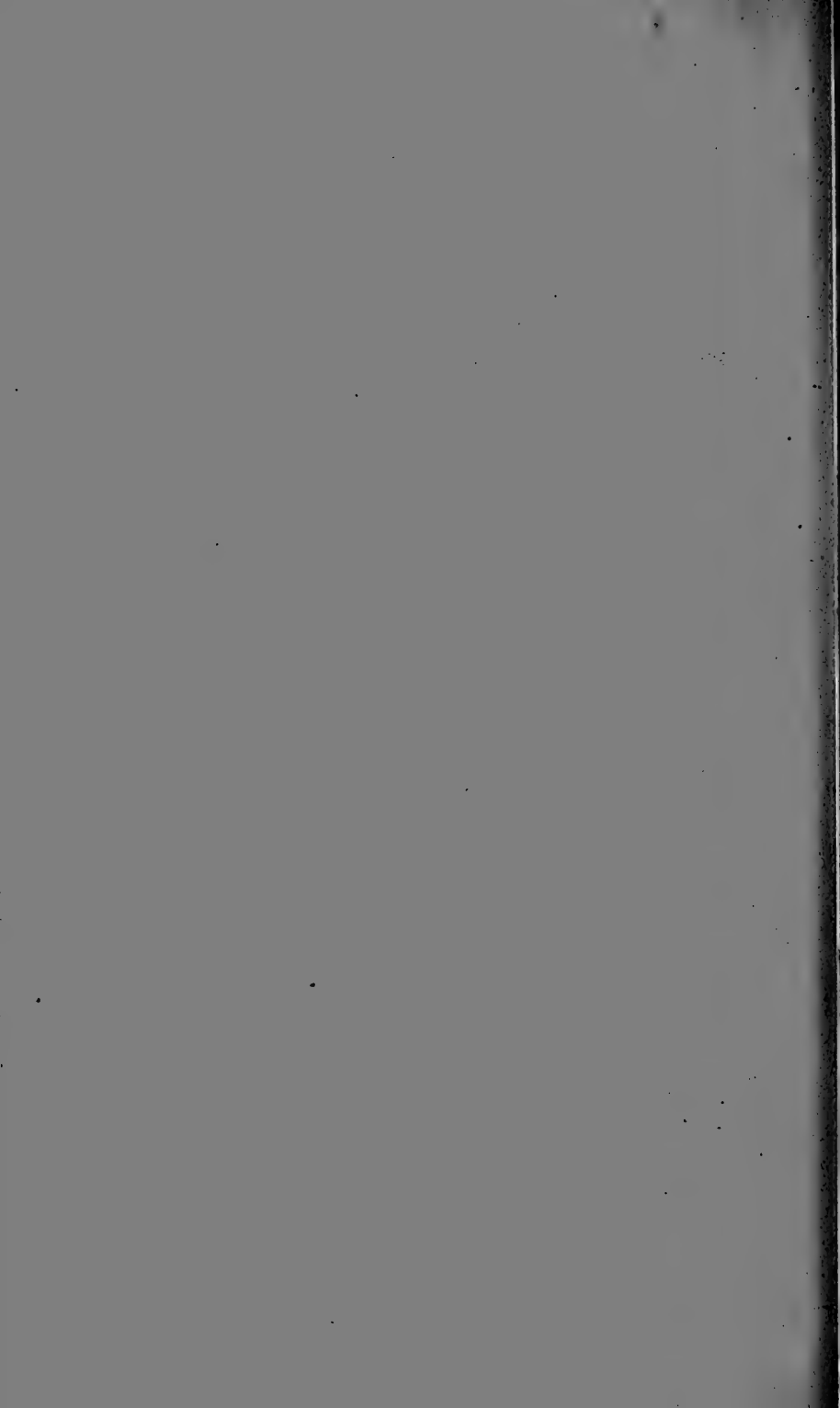


BUDORCAS TAXICOLOR





1. 2. SIAGA TARTARICA. 3. 4. PANTHIA, OP'S HODGSONI. 5. CAZELLA, A. DORCAS.





1. TRAGOPS BENNETTI.

2. PROCAPRA PICTICAUDA

3. EPYCEROS VENTRAMPITTI.

W. King and nat. lith.

Ford & George Lithographers, 64 Hatton Garden.

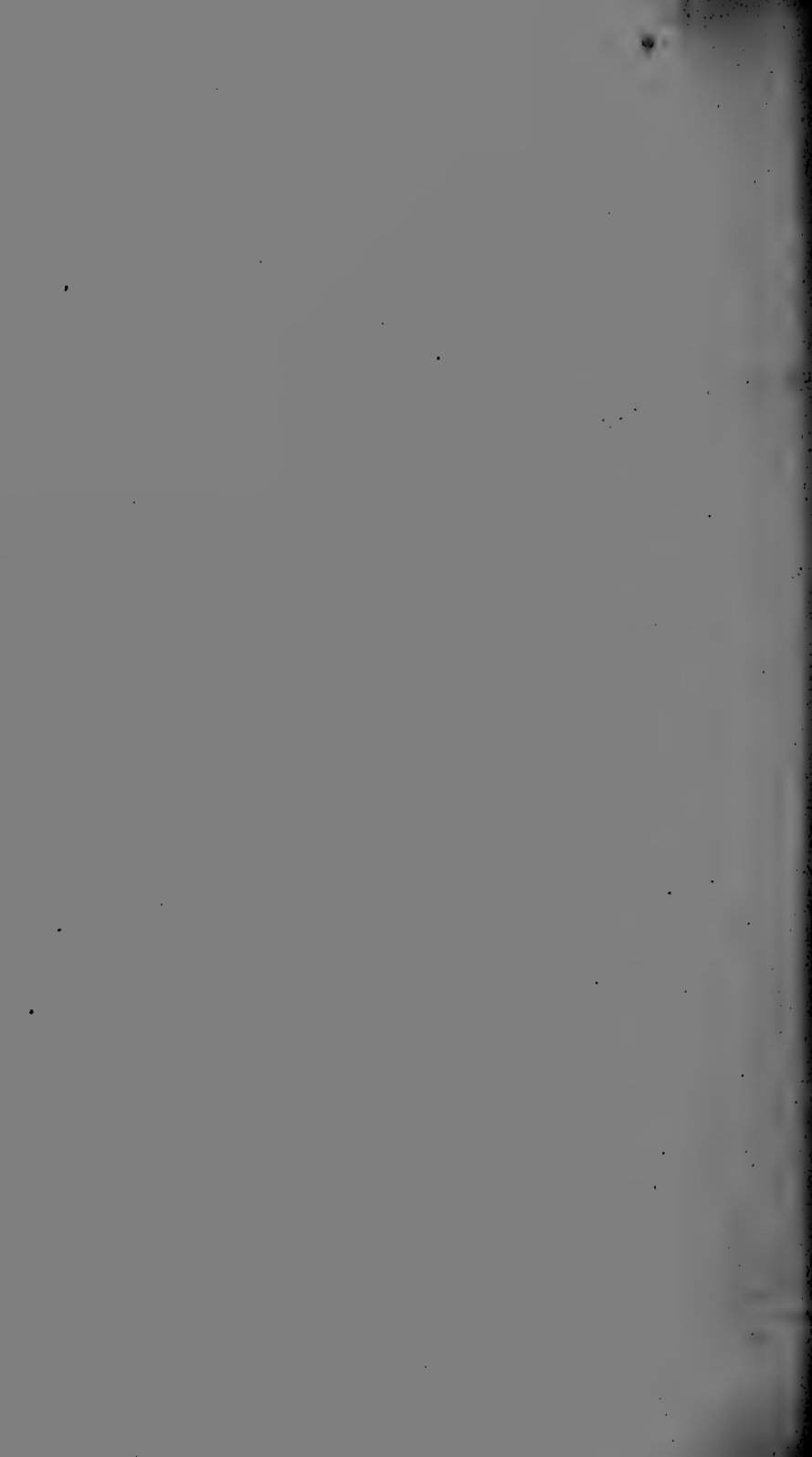




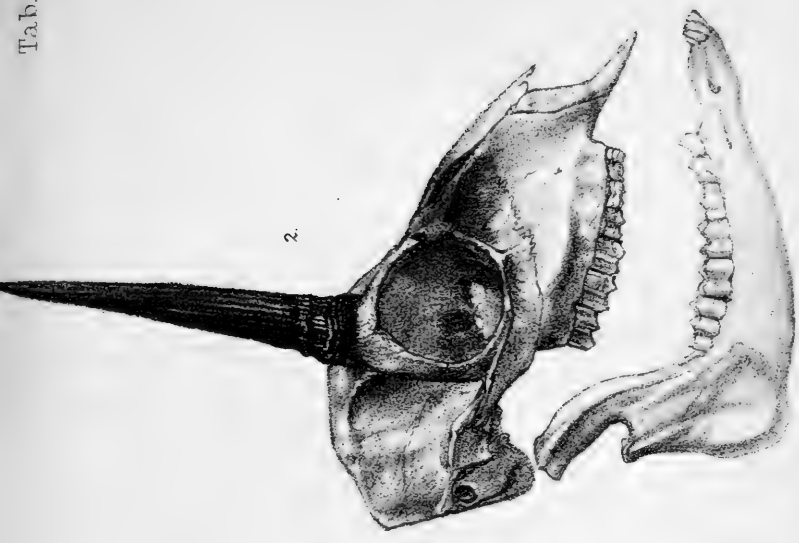
1.3. ANTILOPE CERVICAPRA.



4.5. CALOTRAGUS TRAGULUS.



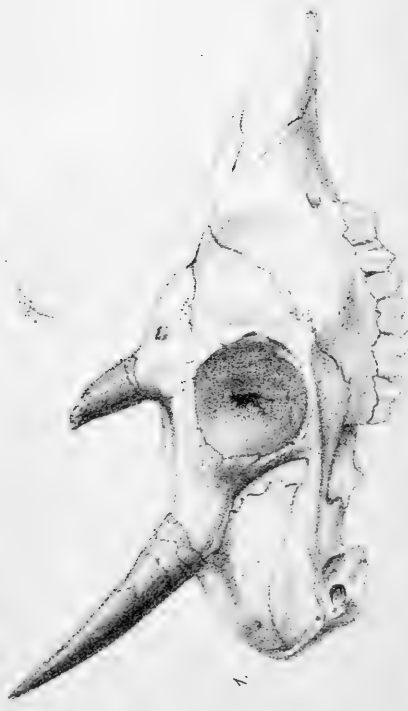




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1. TETRACEROS QUADRICORNIS 2. OREOTRAGUS SALTATRIX 3. NEO TRAGUS SALTIANA.

W. Wieg., del. nat. fid.

Fac. 1. George, Lithographe, 5, 6, Hâttre, Copenh.



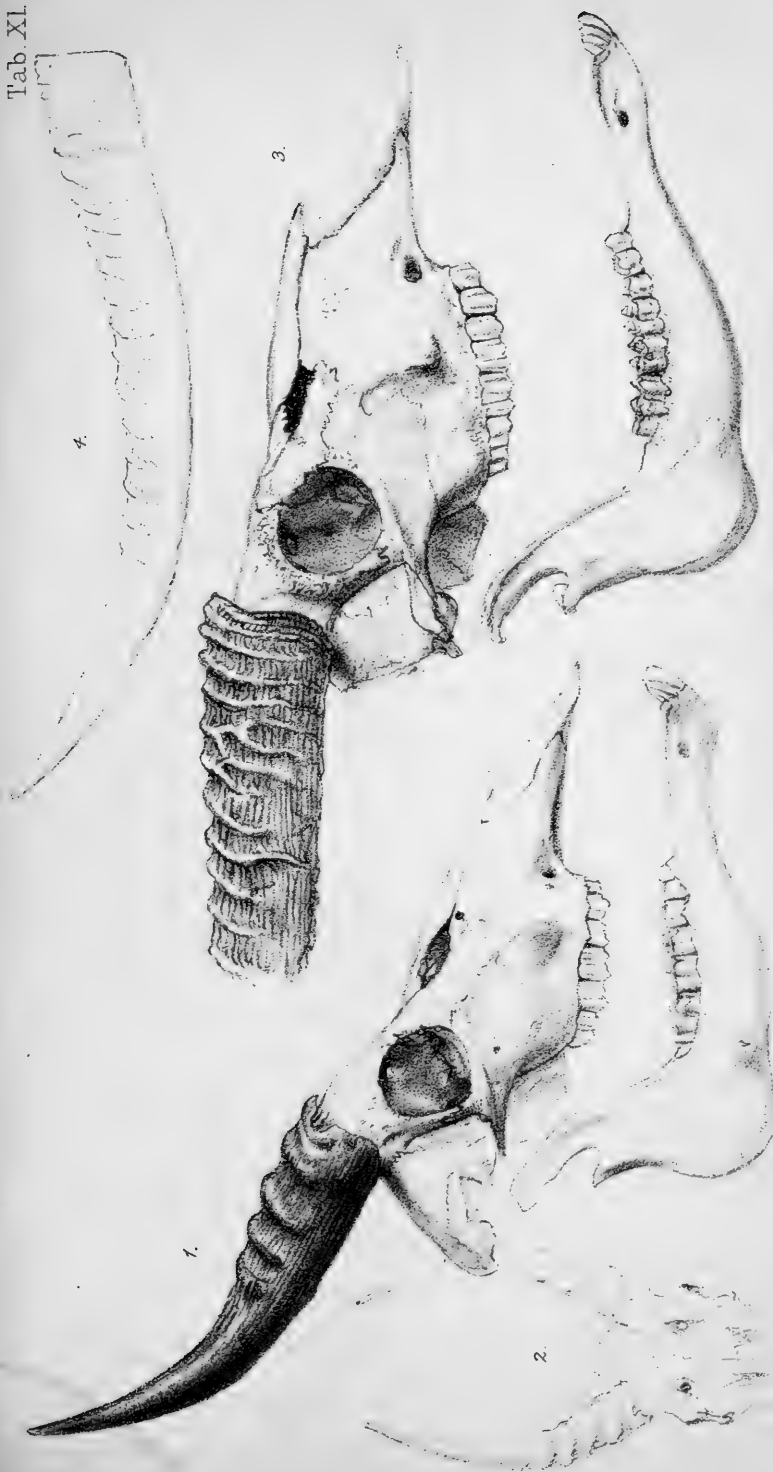


1. CEPHALOPHUS NATALENSIS. 2. NANOTRAGUS PERPUSILLUS. 3. ELLOTTRAGUS ARUNDINACANS

W. Wieg. del. et lith.

Ford & George, Lithographers, F4, Hartou Garden





1. 2. ADENOTA KOB; 3. 4. KOLUS ELLIP SIPRYMNS.





1. 2. HIPPOTRAGUS LEUCOPHAEUS. 3. 4. ORYX LEUCORYX. 5. ADDAX NASOMACULATA

W. Wieg. ad nat. lith.

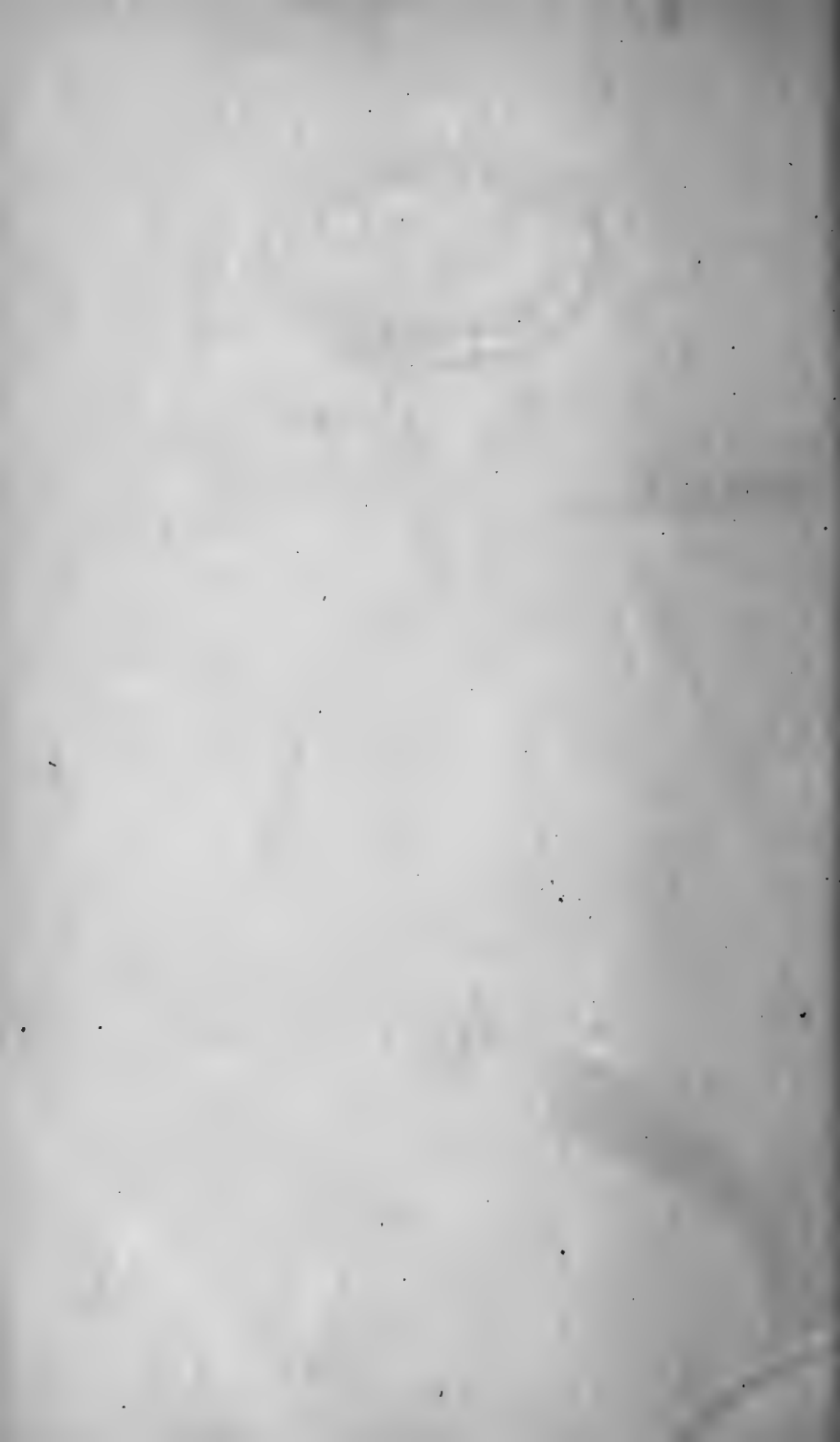
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ECAPRICORNIS BUBALINA. 2 NEMORUMHEIDTS GORAL.



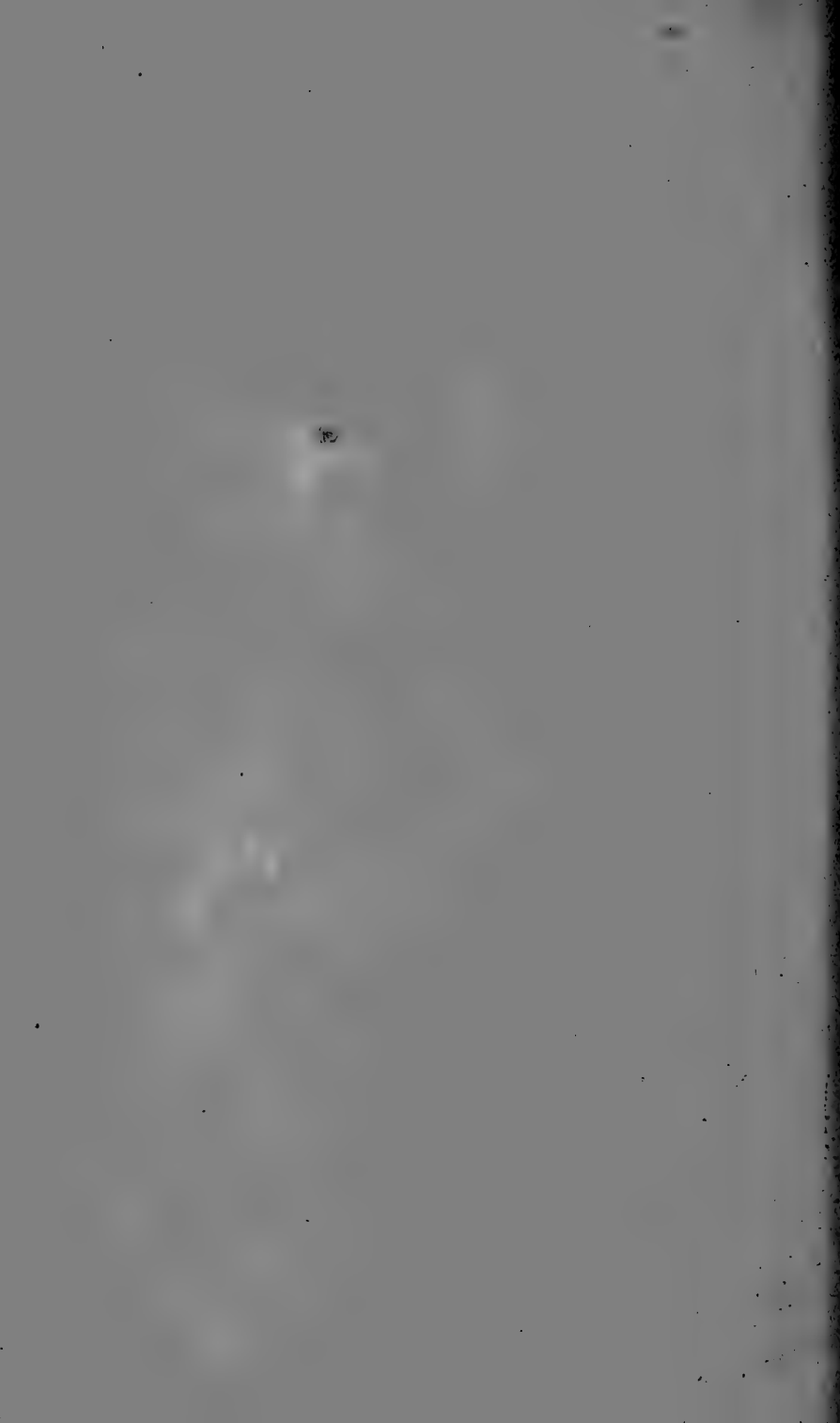


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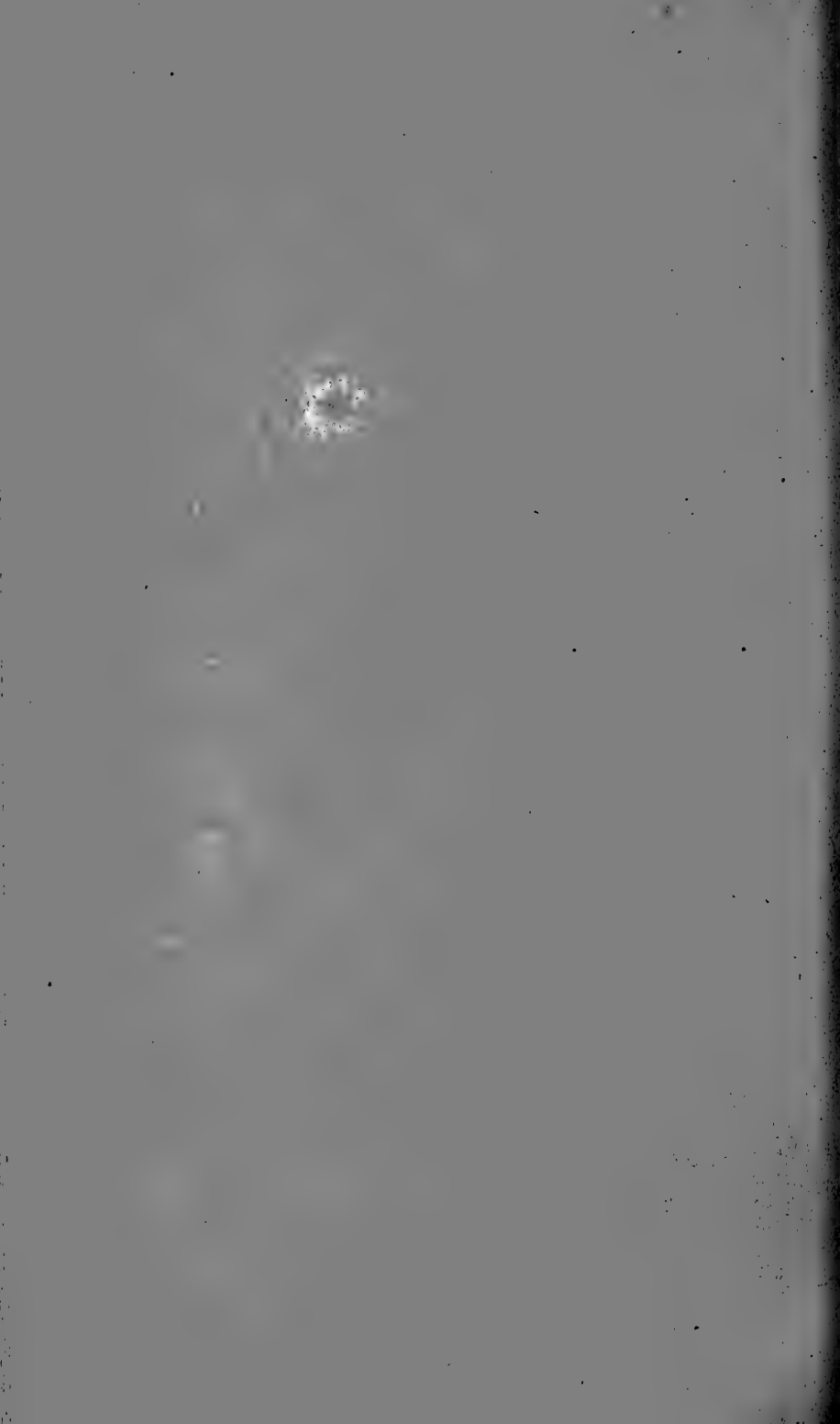


1. 3 DICRANOCEROS FURCIFER 4. 5. CONNOCHETES GNU.





1. 3 ALCELAPHUS CAAMA. 4. 5 DAMALIS SENEGALENSIS.

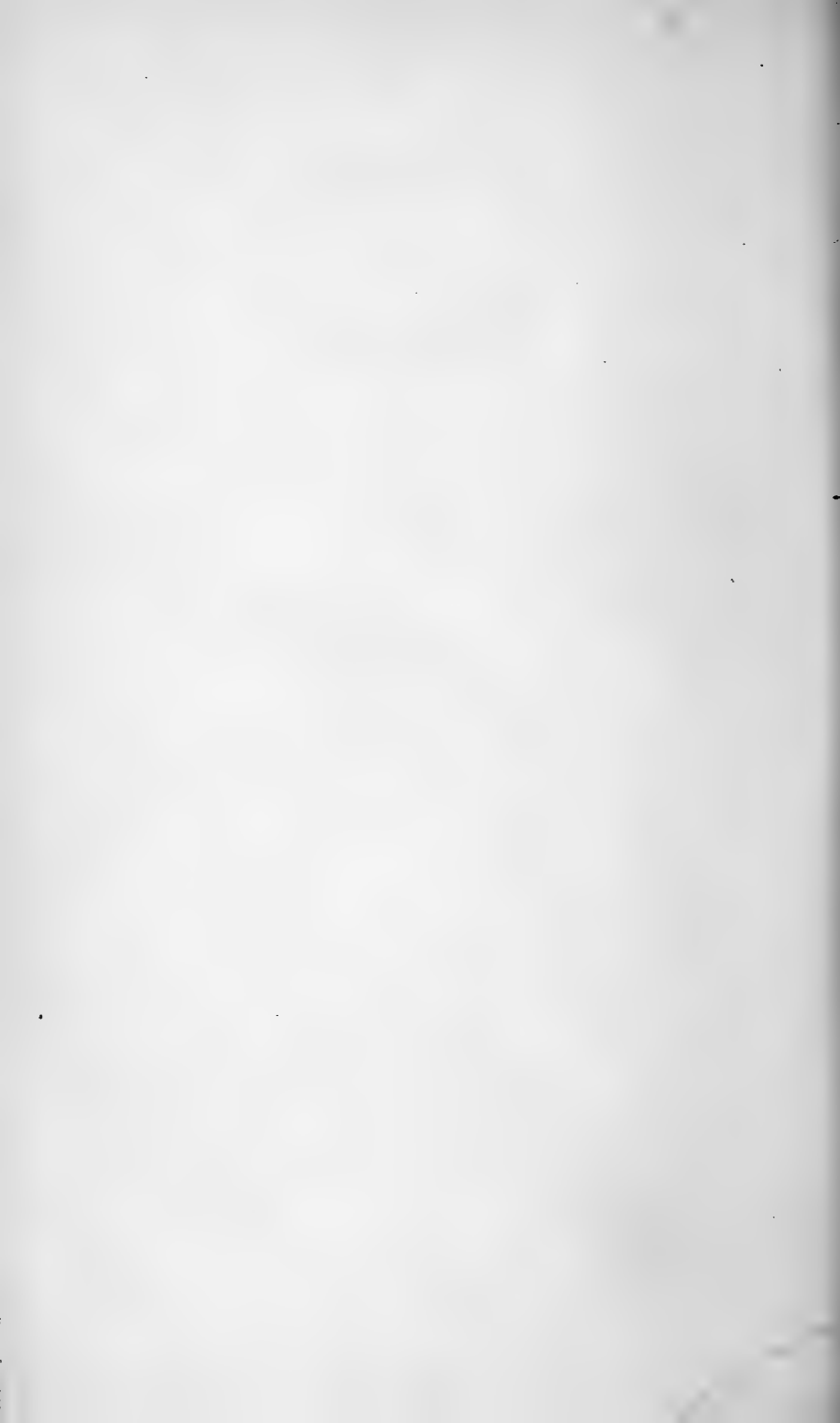






1. 2. STREPSICEROS KUDU

3. 4. OREAS CANNA

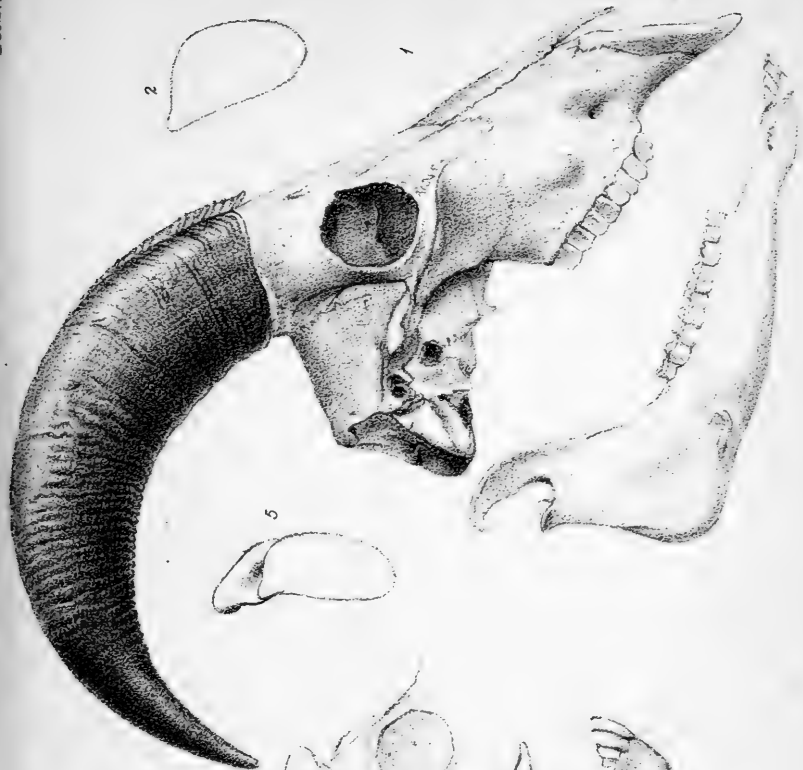




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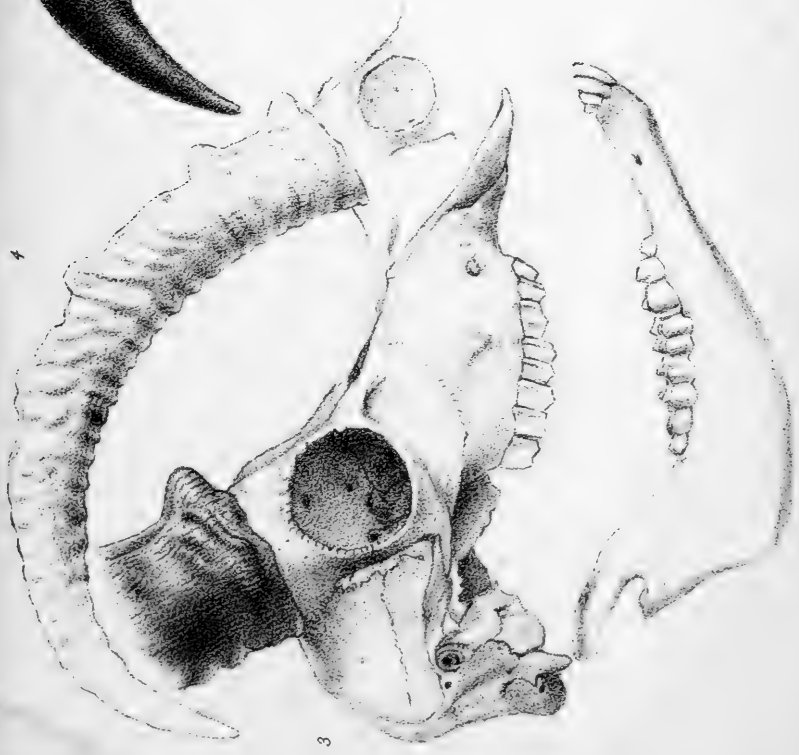
3. 4. HEMITRAGUS JEMLAICA.





1.2. KEMAS WARRYATO.

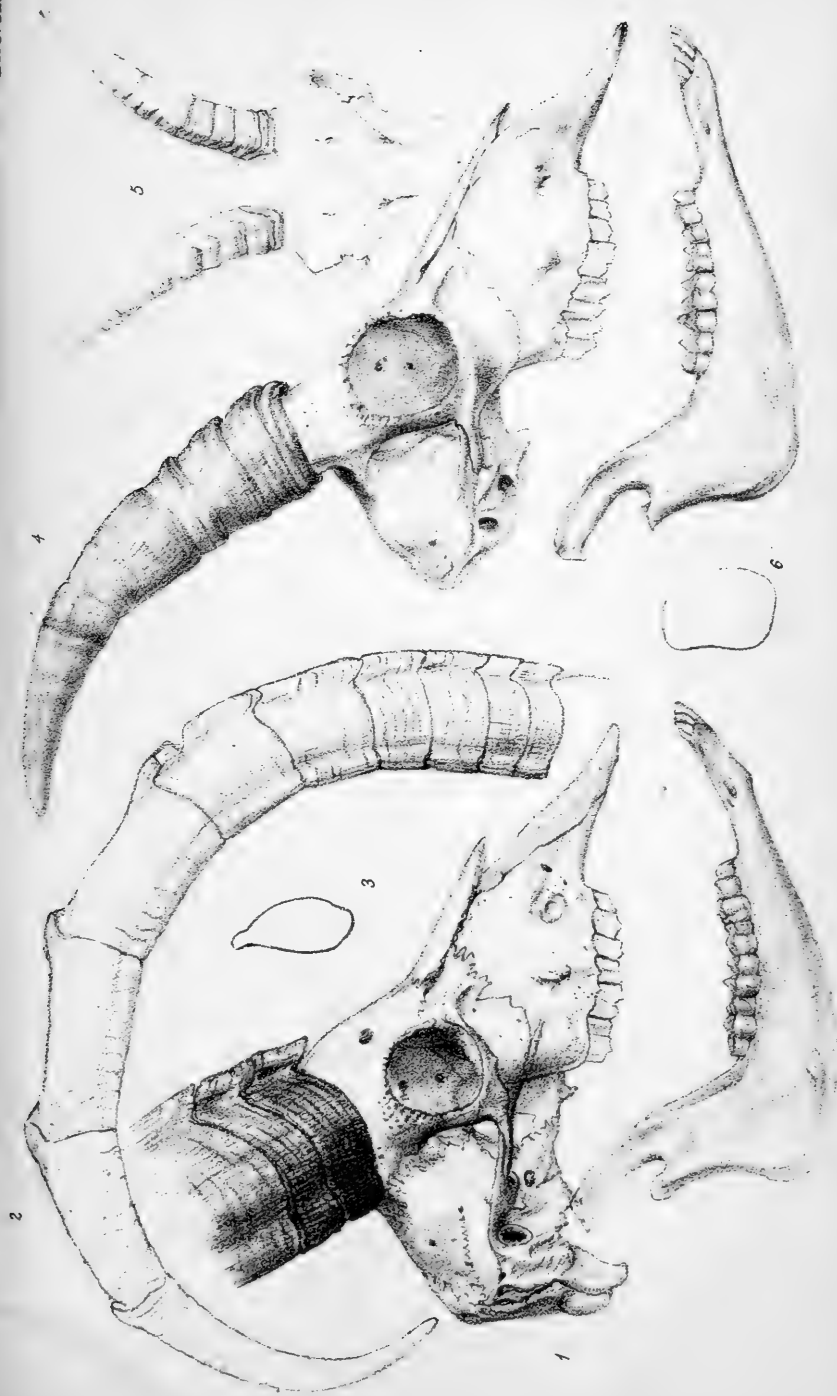
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3.5. IBEX NUBIANA.

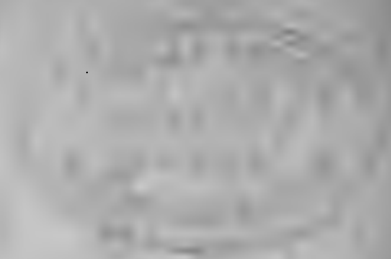
W. Wing, ad nat. lith.



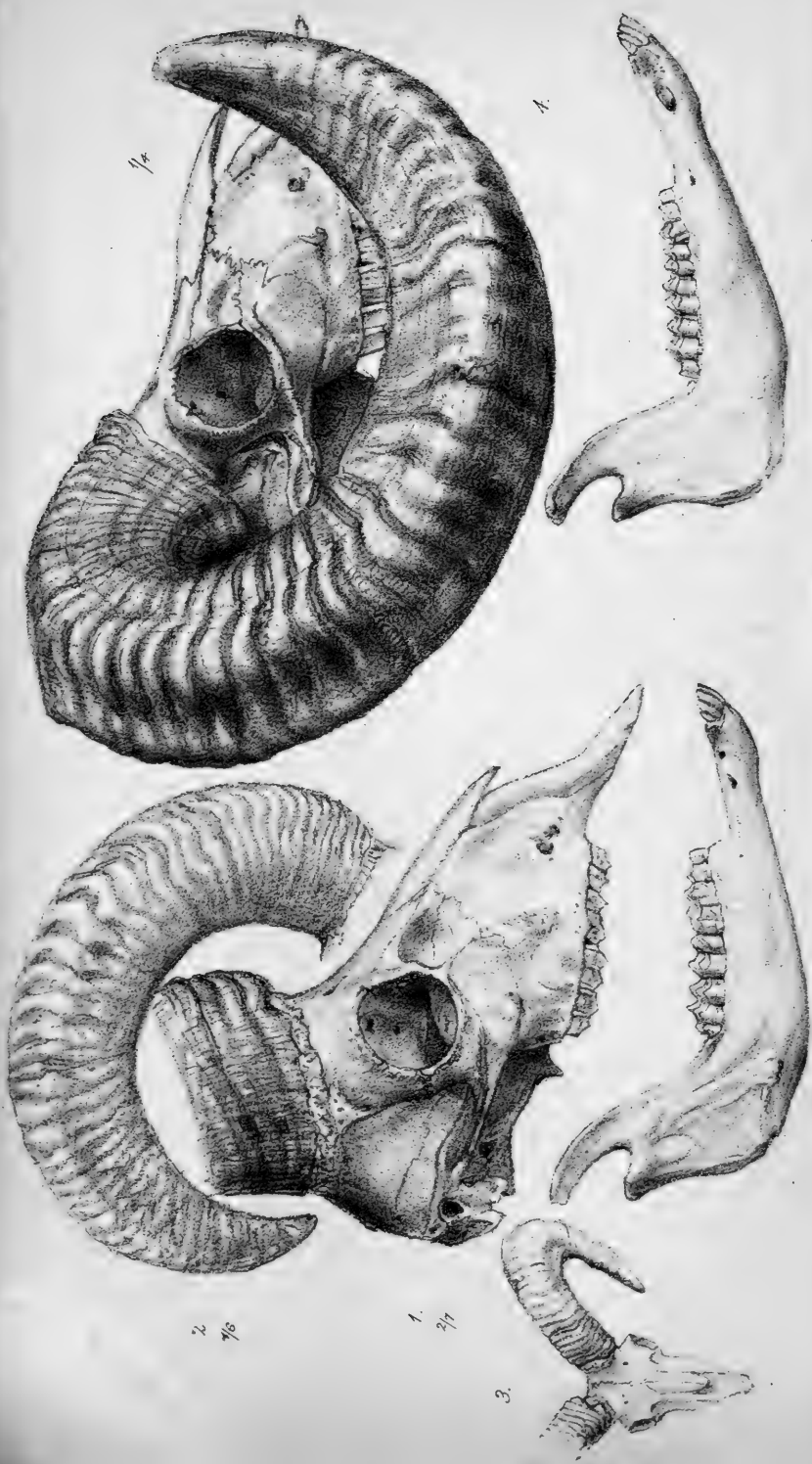


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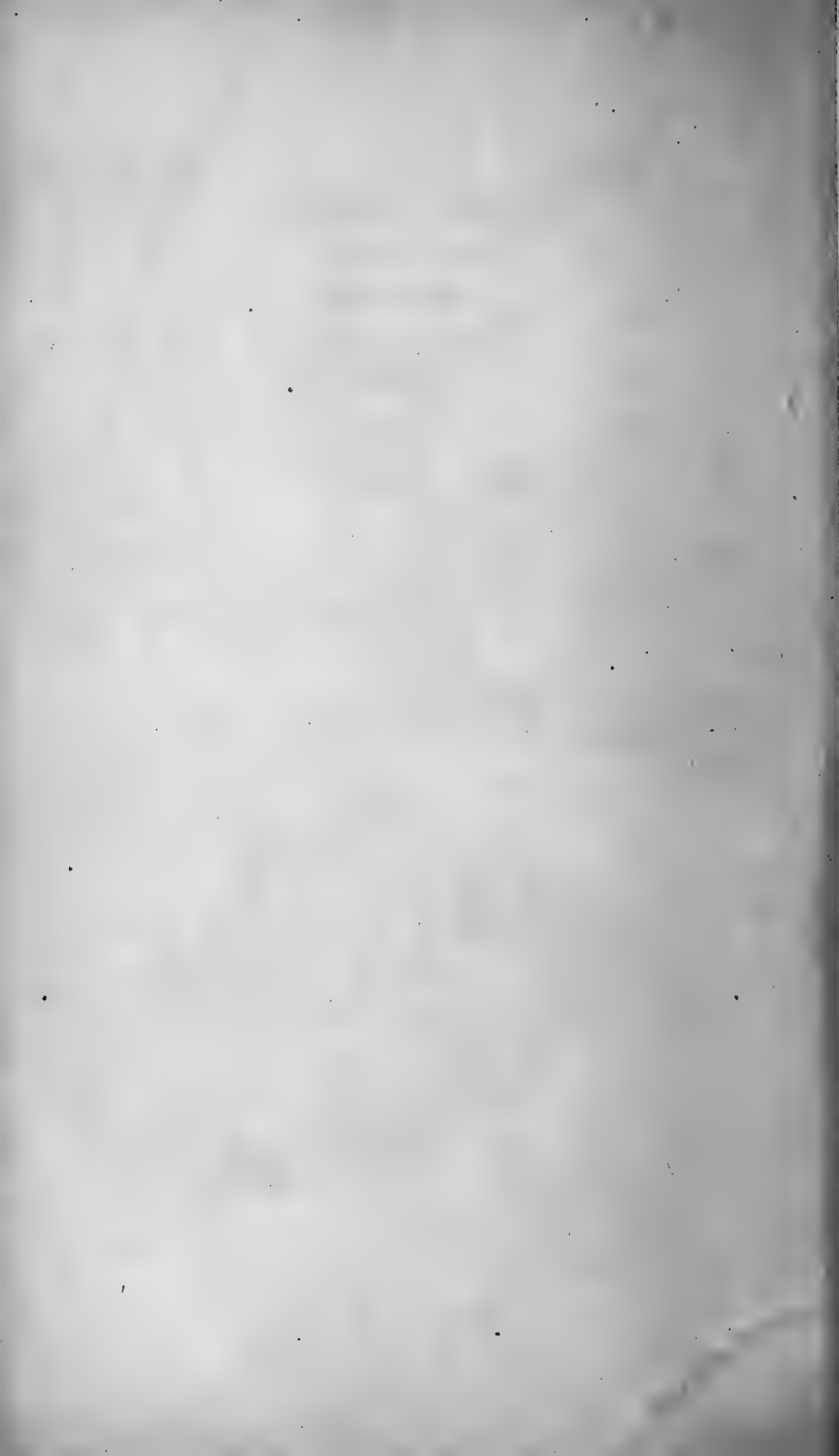
4.6. AEGOCHEROS PYRENAICA.

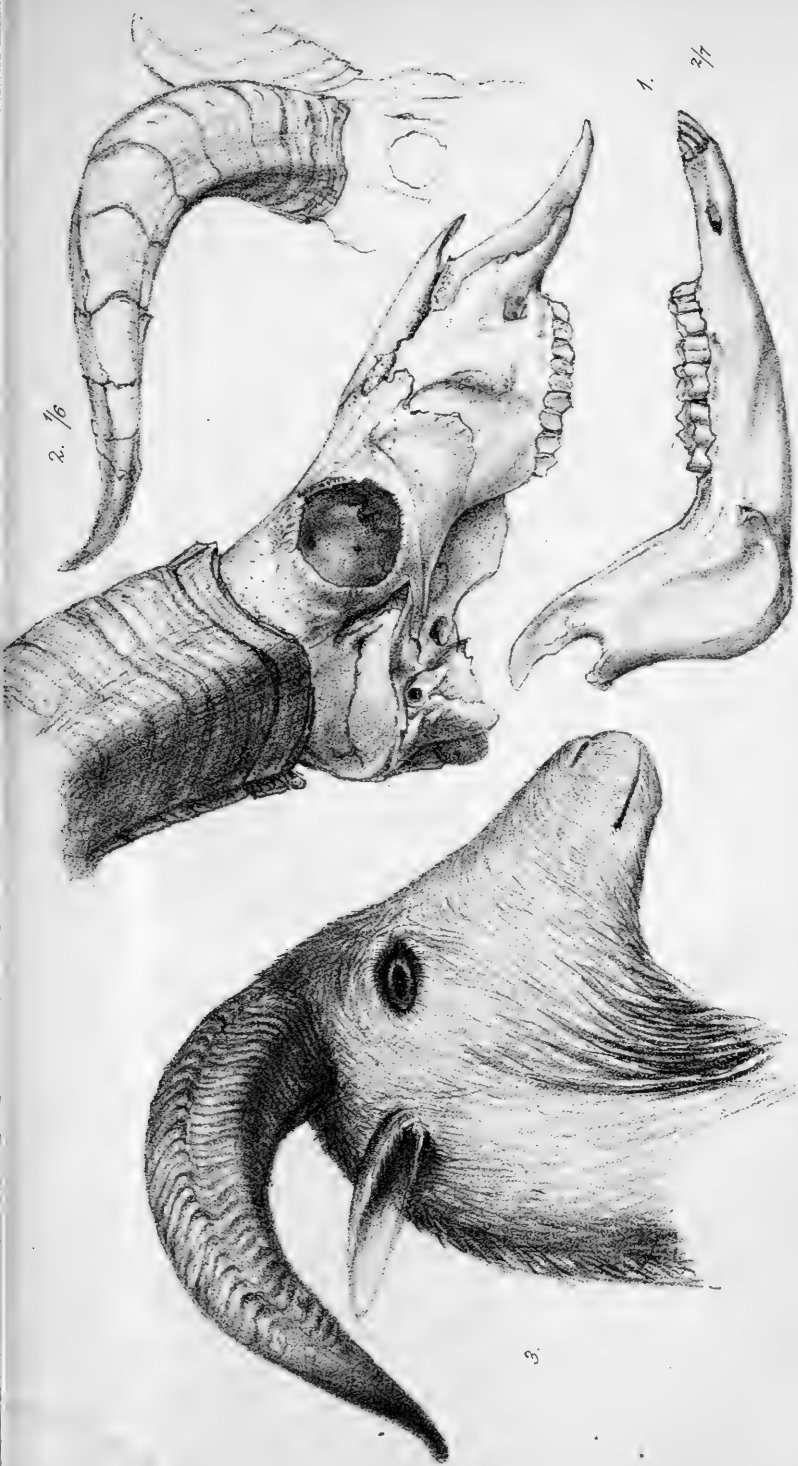




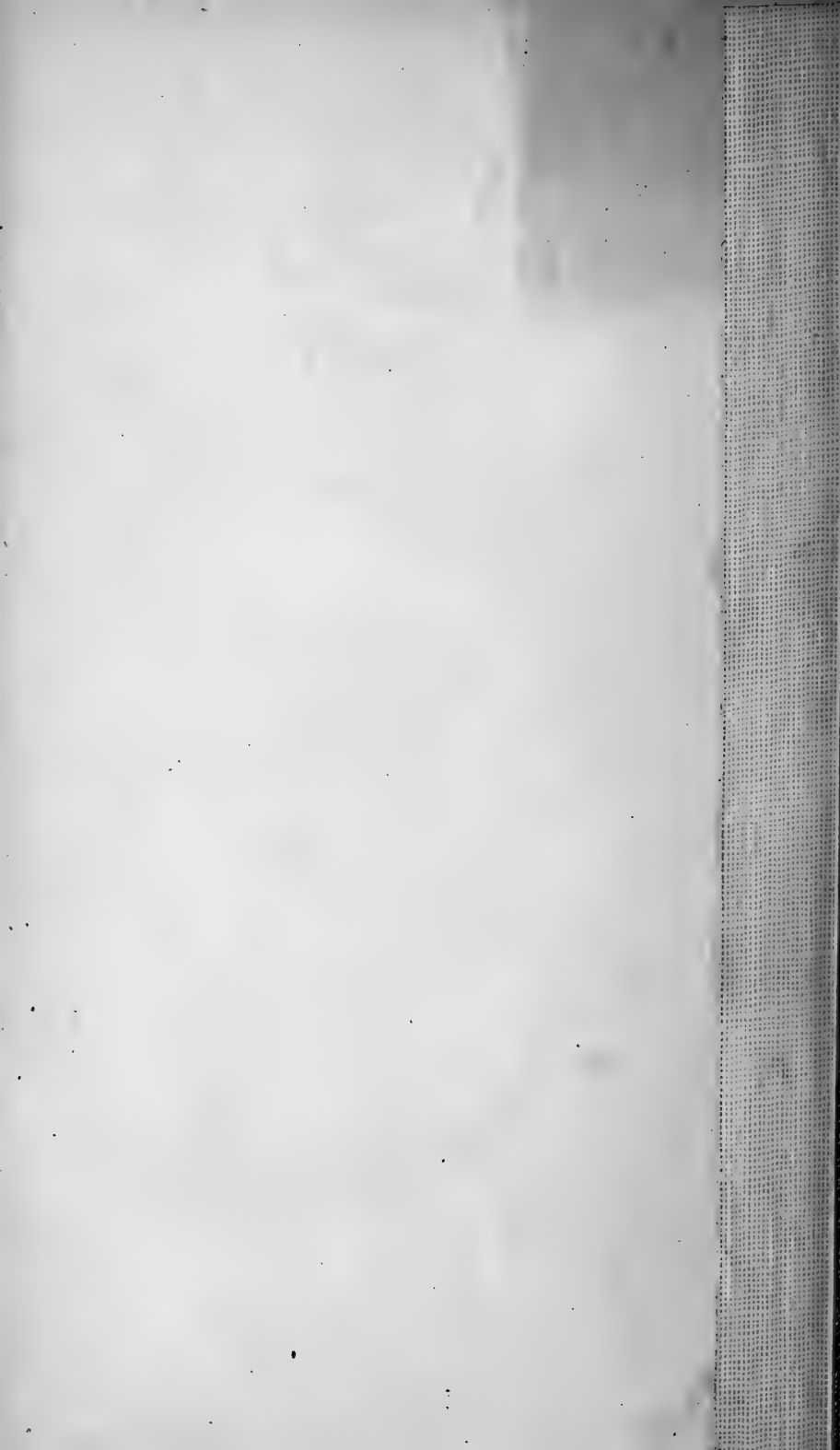


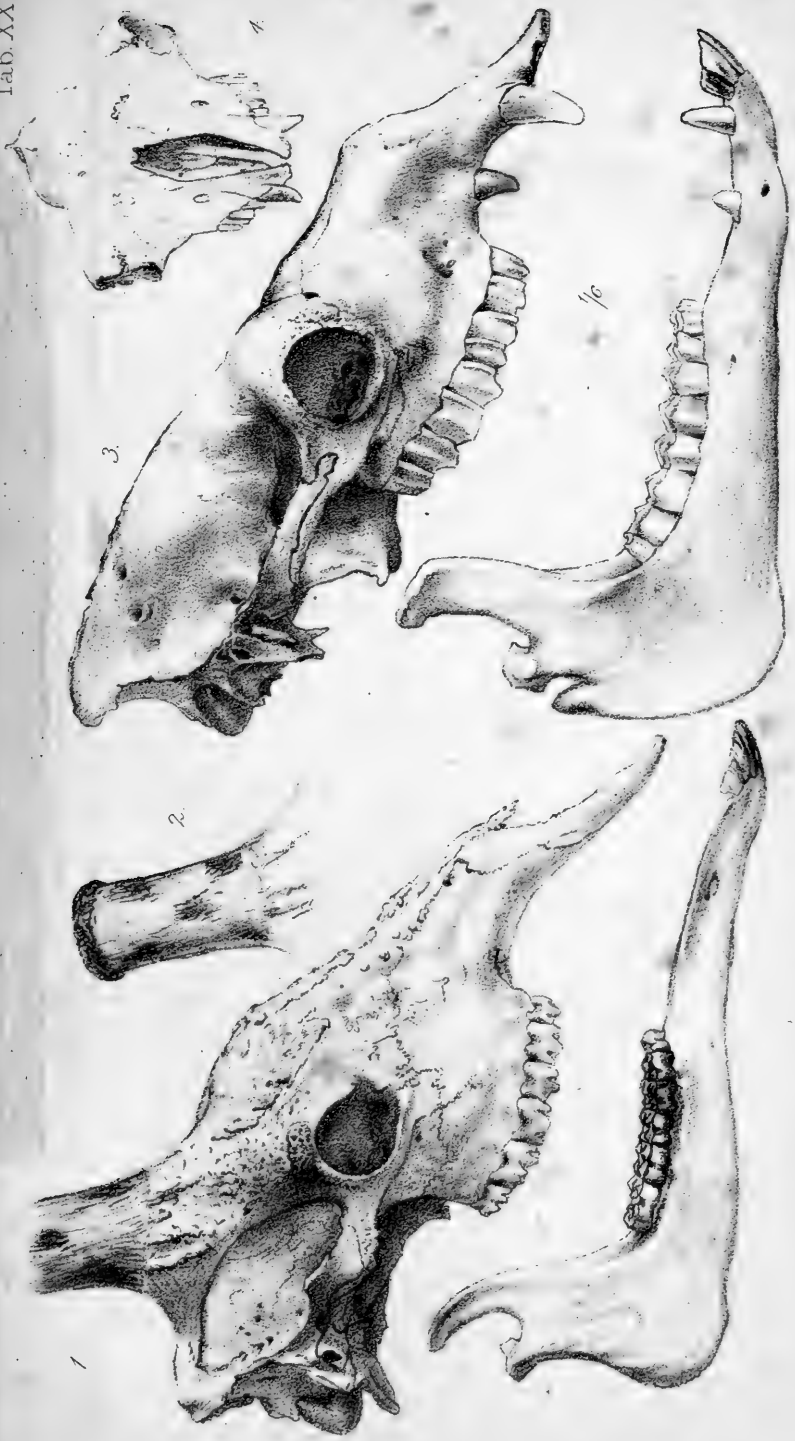
13 MUSIGMON VIGNEI. 4. OVIS



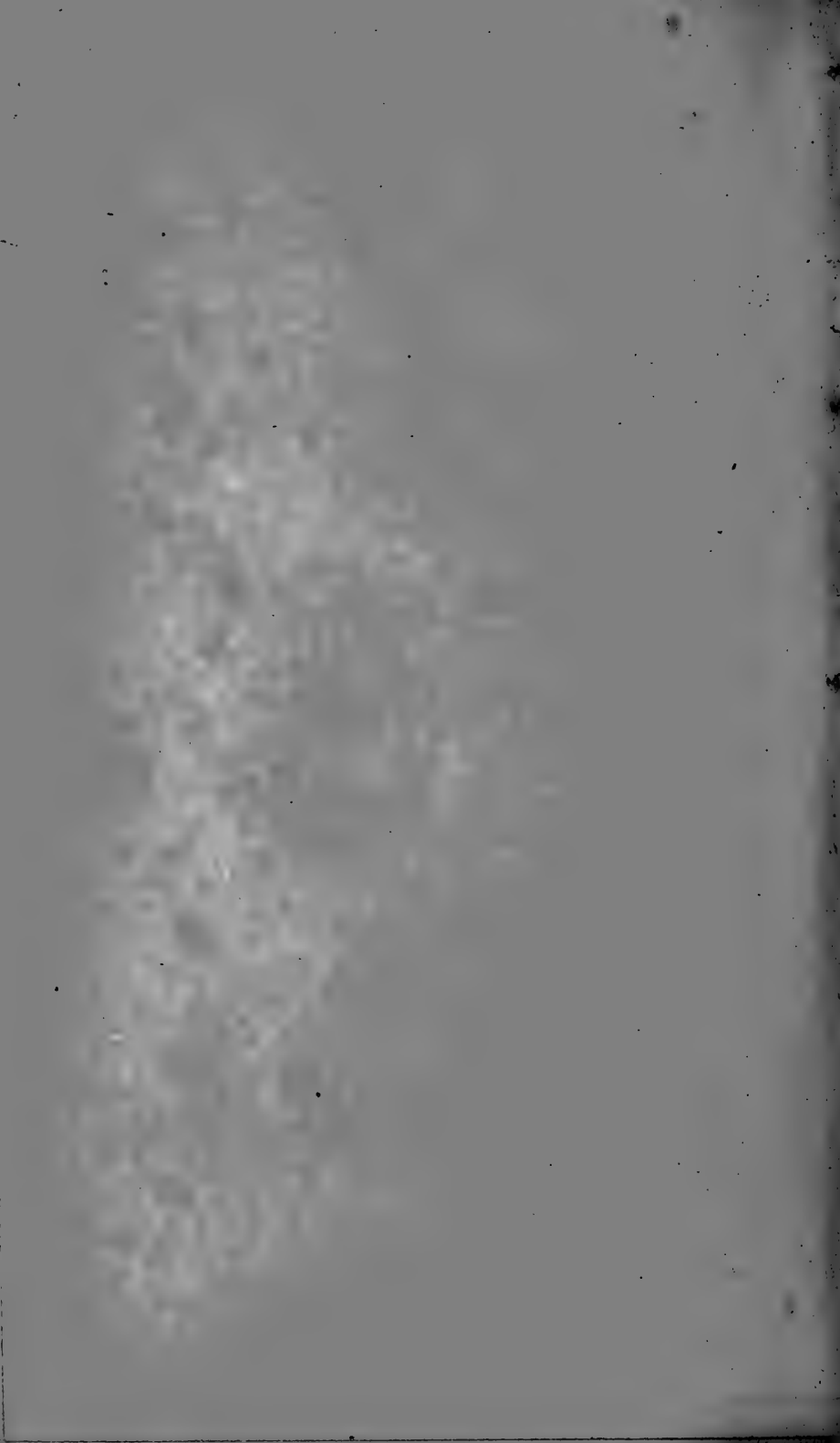


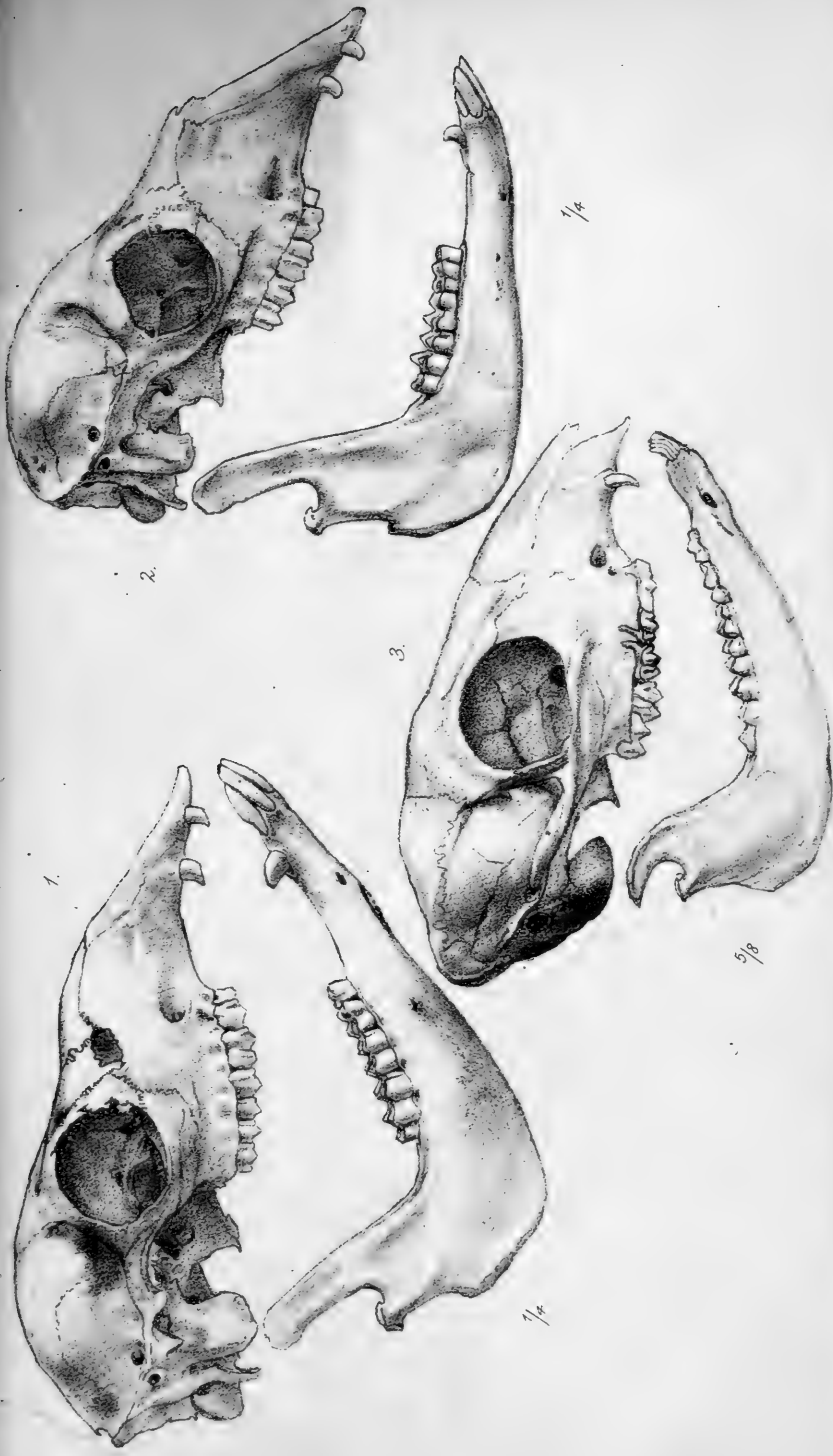
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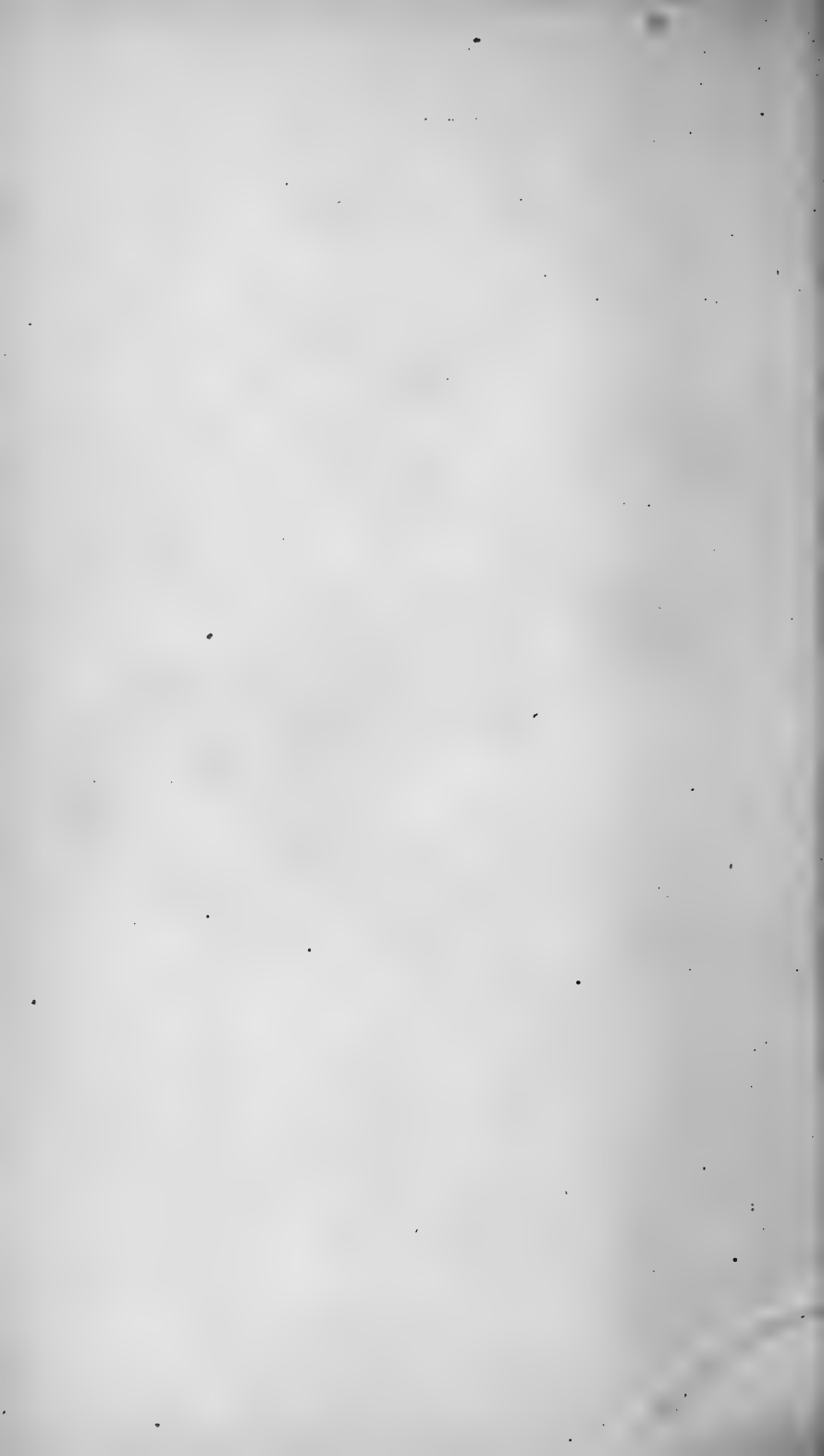


1. 2. CAMELOPARDALIS GIRAFFA. 3. 4. CAMELUS BACTRIANUS.





1. LAMA PACOS. 2. LAMA VICUGNA. 3. MEMINNA INDICA.

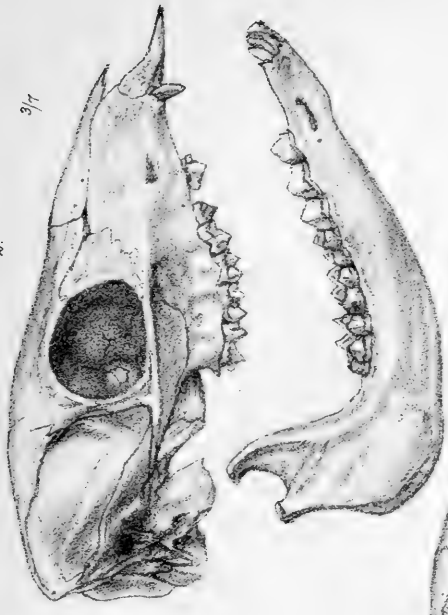






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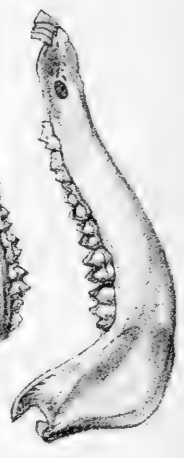
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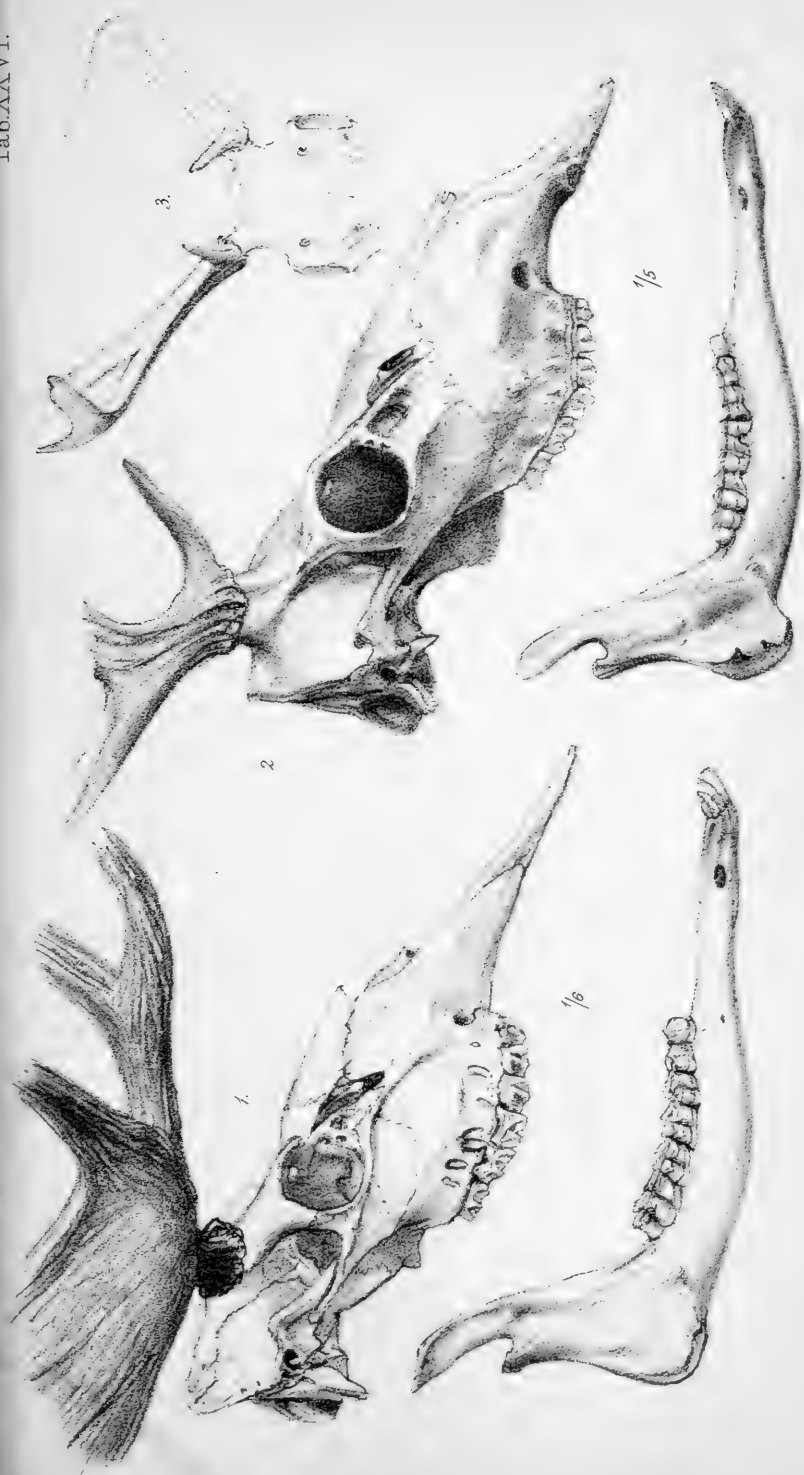
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1. MOSCHUS CHRYSOGASTER. 2. HYEMOSCHUS AQUATICUS. 3. TRAGULIUS STANLEYANUS.



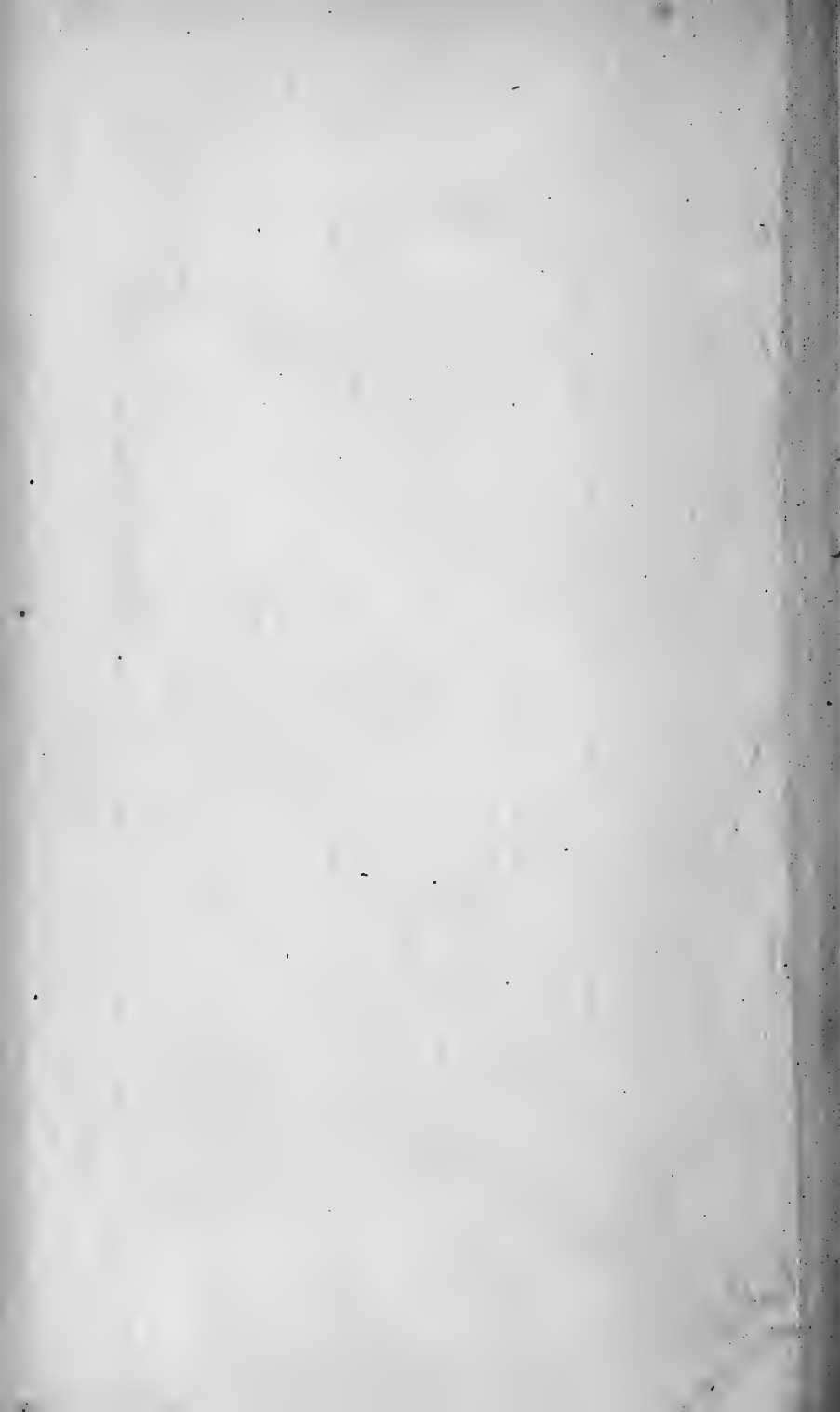


1. ALCE MALCHIS. 2. 3. TARANDUS RANGIFER.



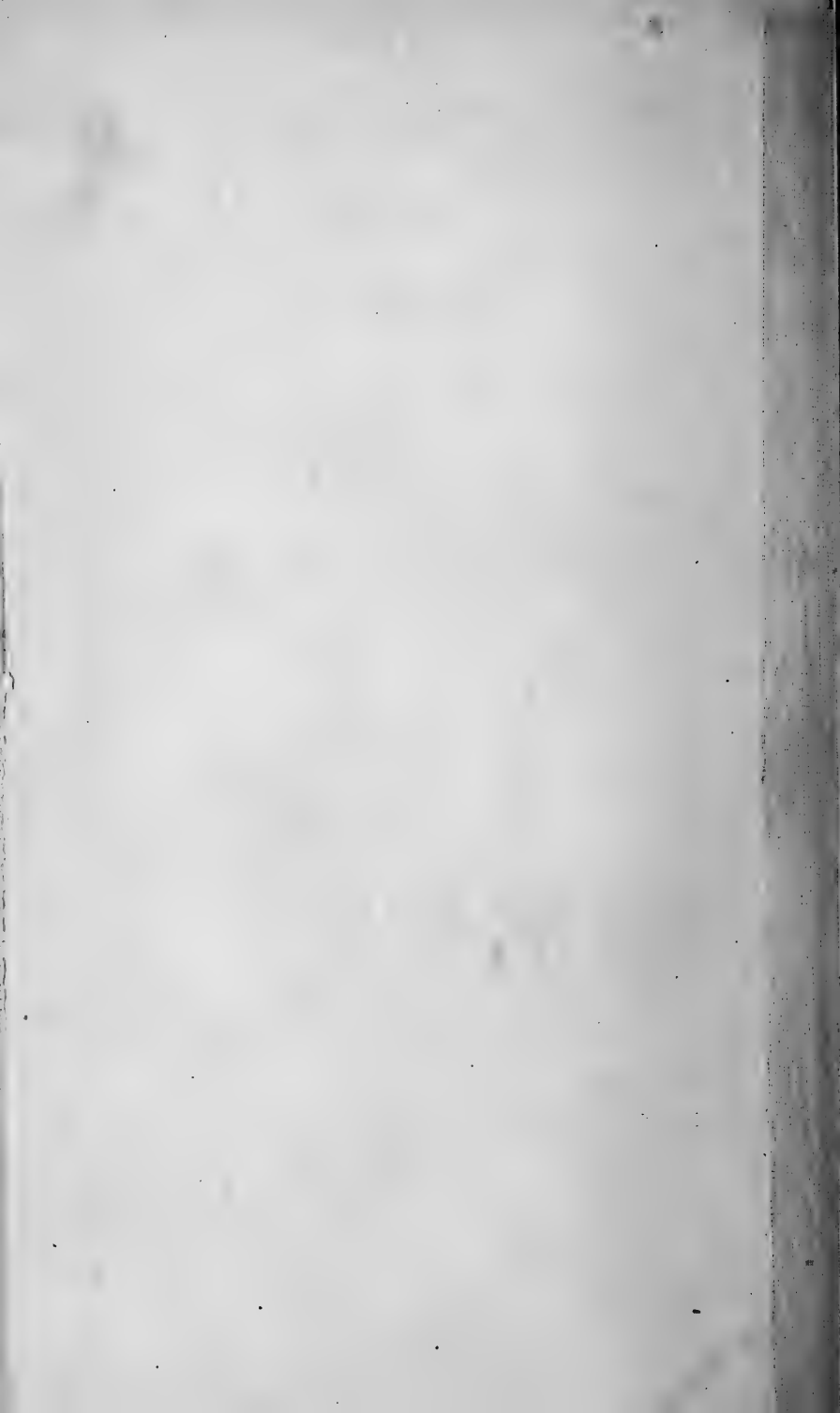


1. ALCE MALCHIS. 2. TARANDUS RANGIFER. 3. CERVUS CASPERIANUS.





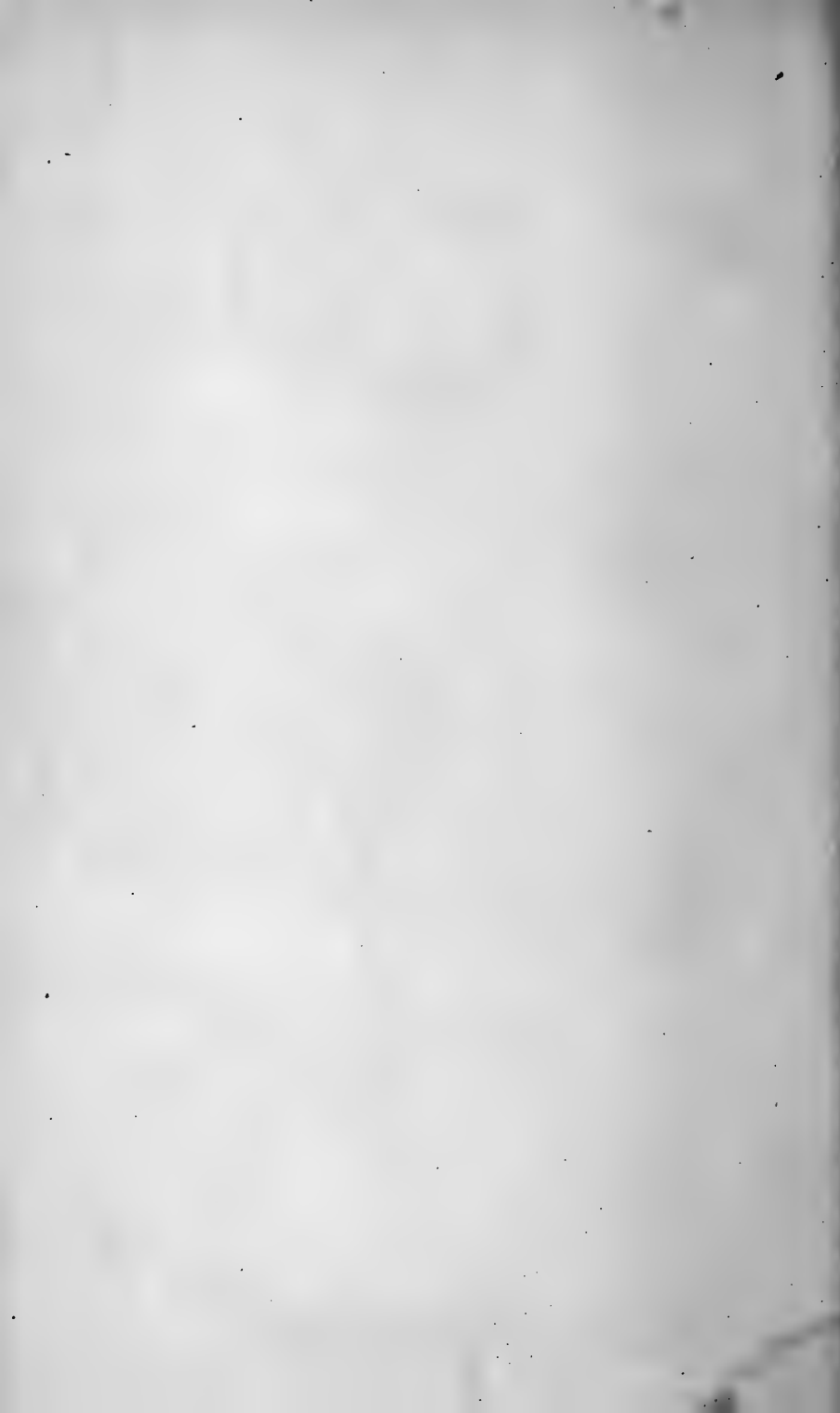
1. CERVUS CASPERIANUS 2.  $\frac{2}{11}$  DAMA VULGARIS

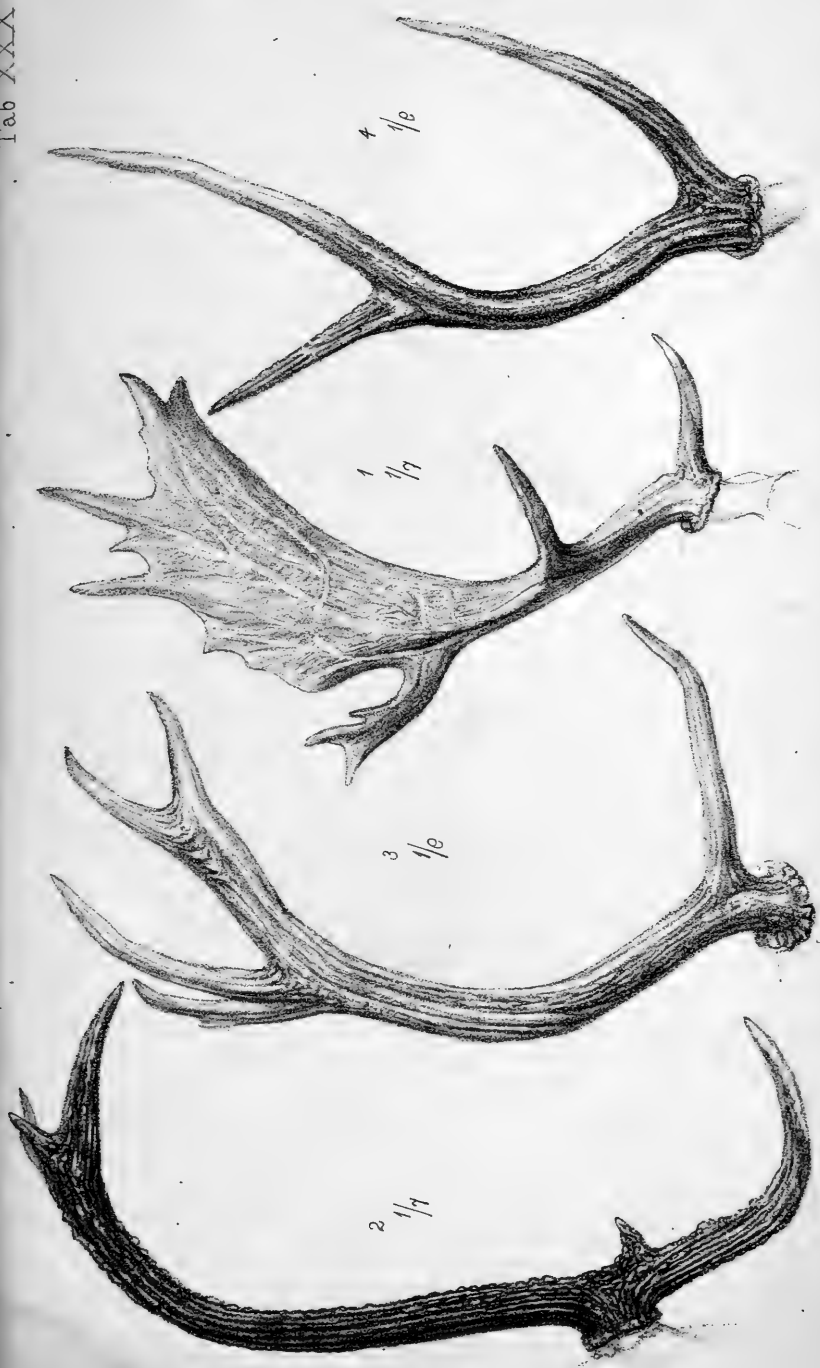




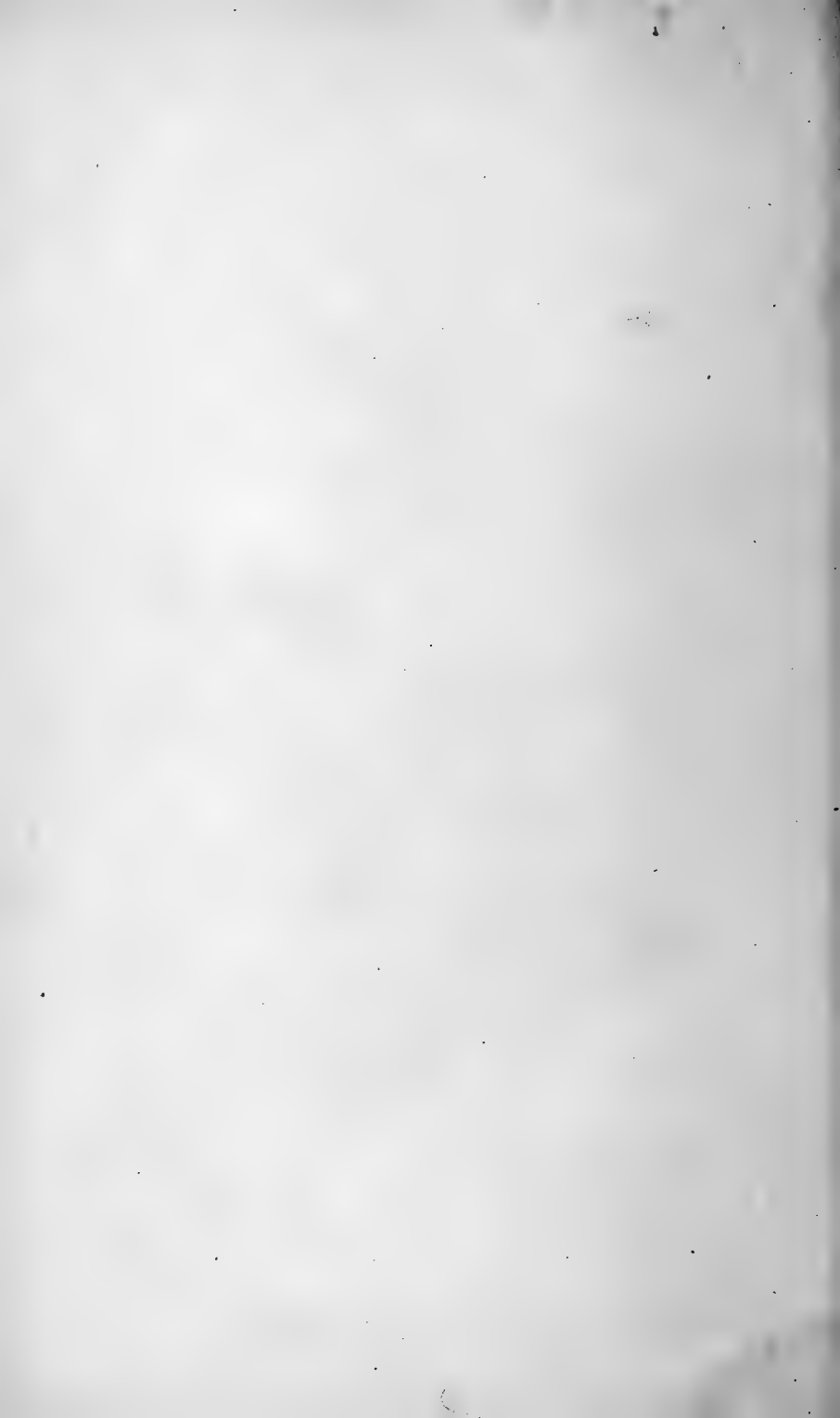


1. 2. PANOLIA EL-DII 3 4. RUCERVUS DU VANCELI, II.



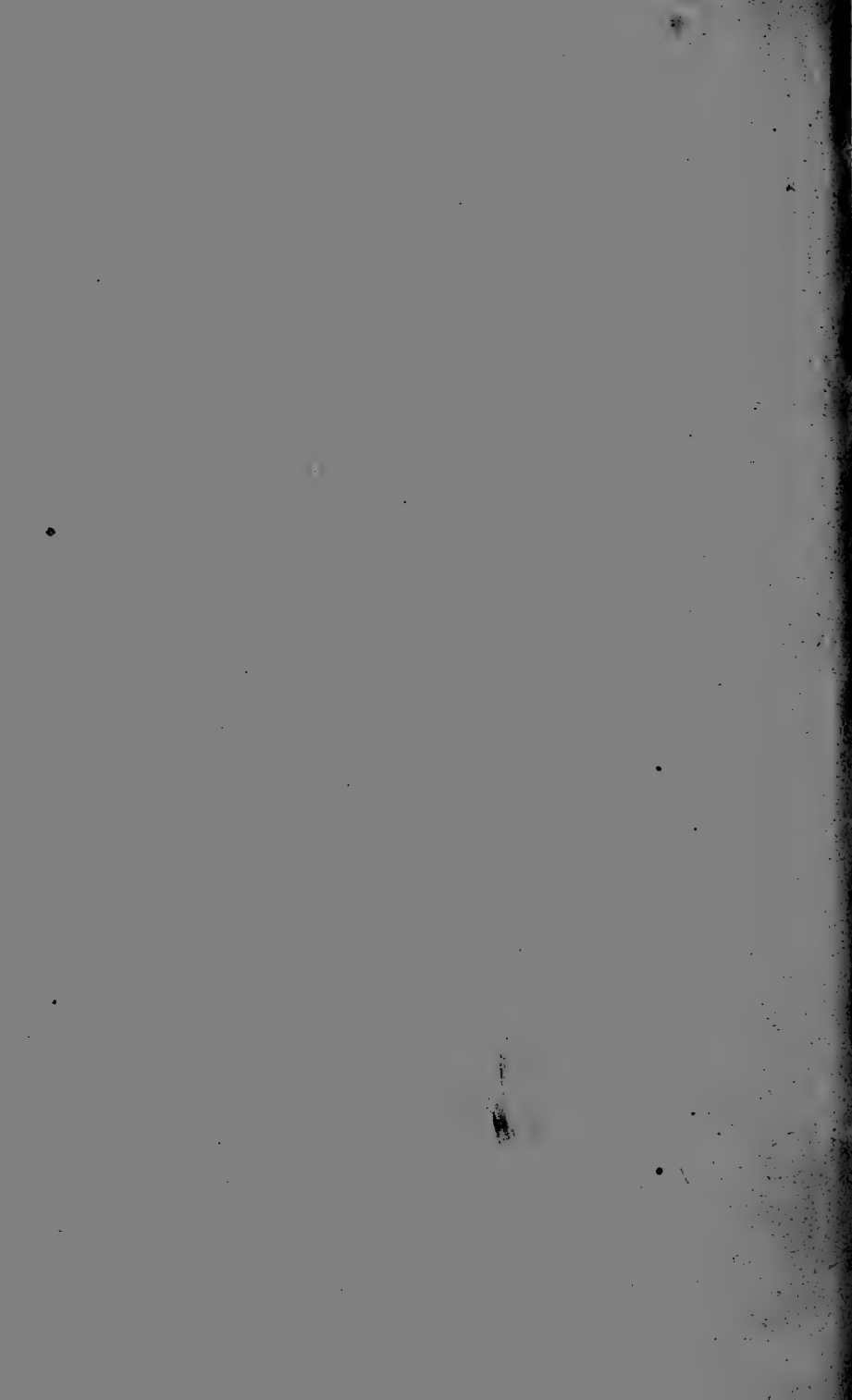


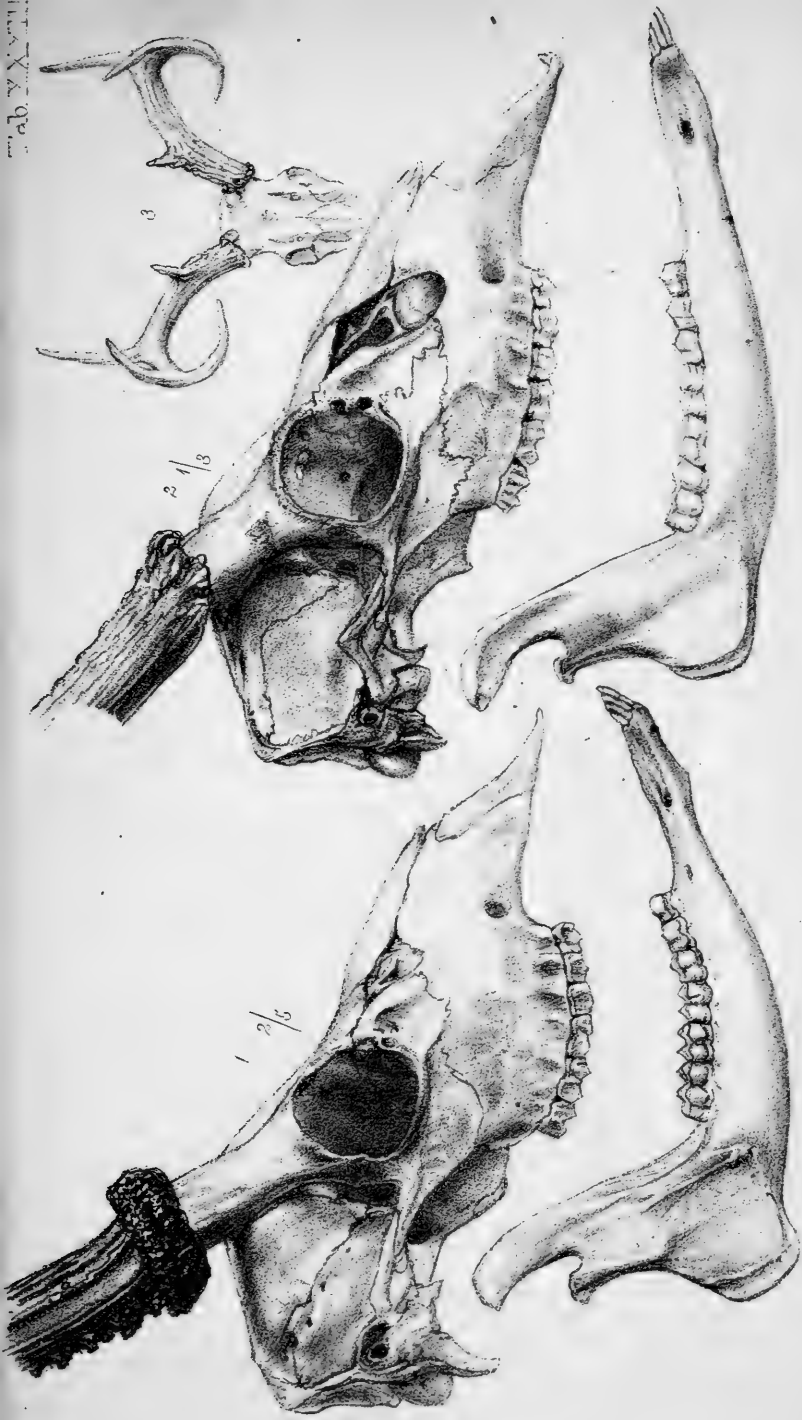
2. PANOLIA 3. RUCERVUS 1. DAMA 4. RUSA





1. 2. RUSA EQUINA. 3. 4. AXIS

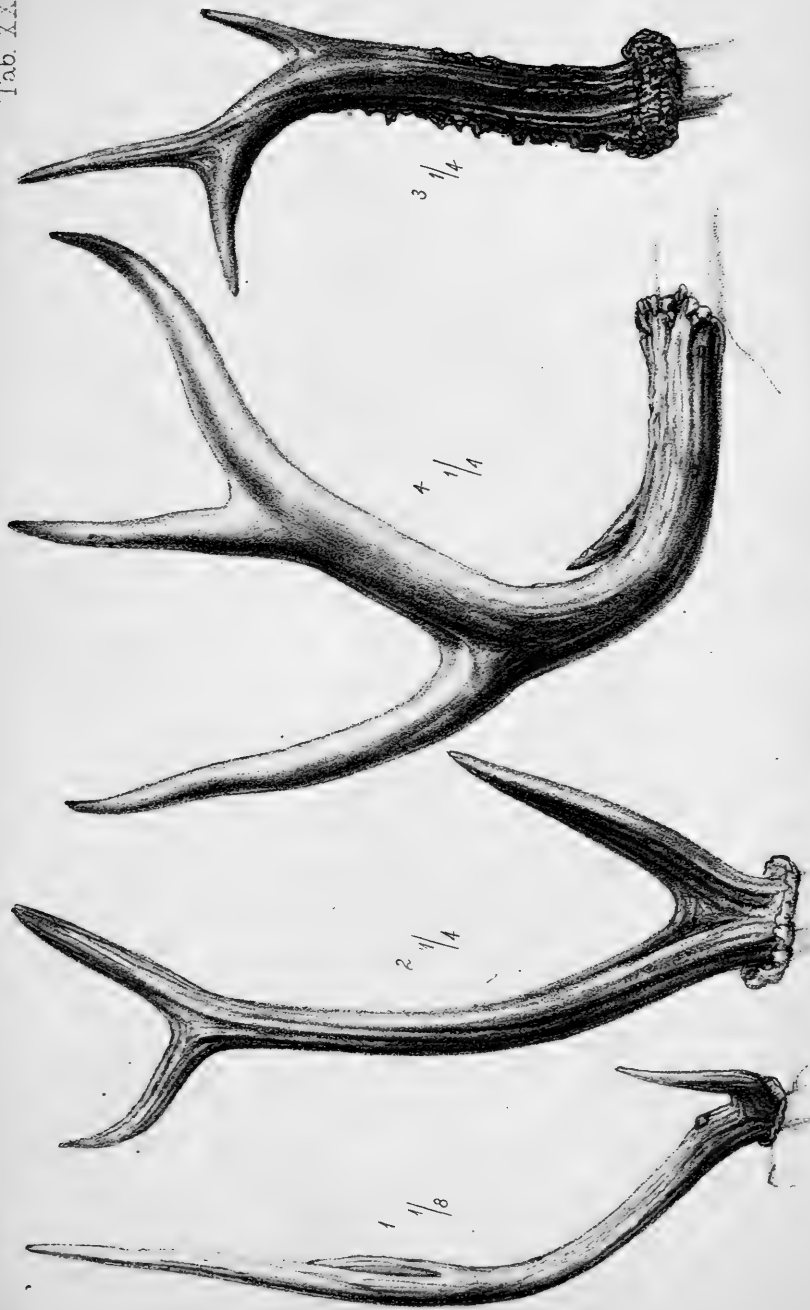




1 CAPRHOLUS CAPRAEA 2 3. CARIACUS VIRGINIANUS

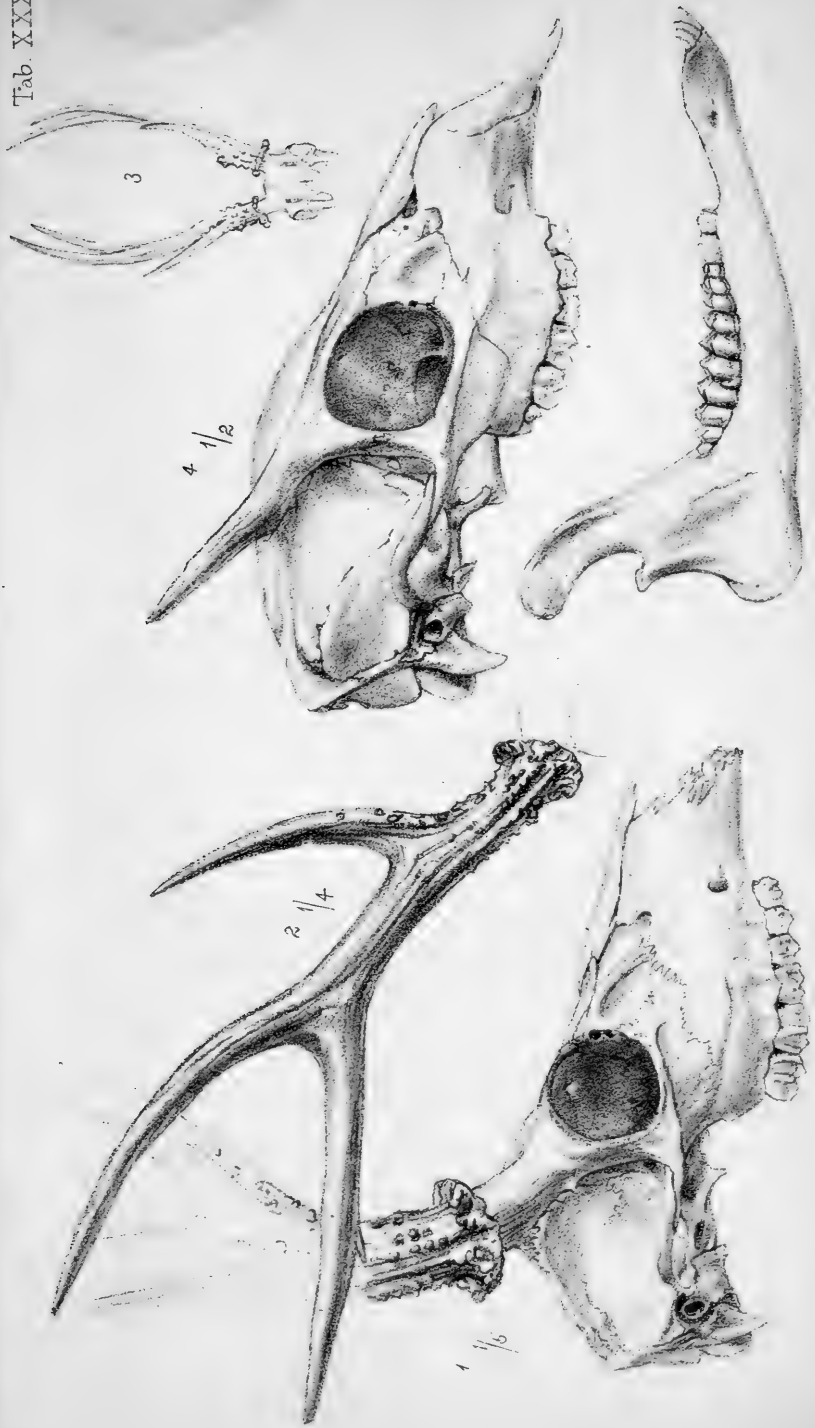






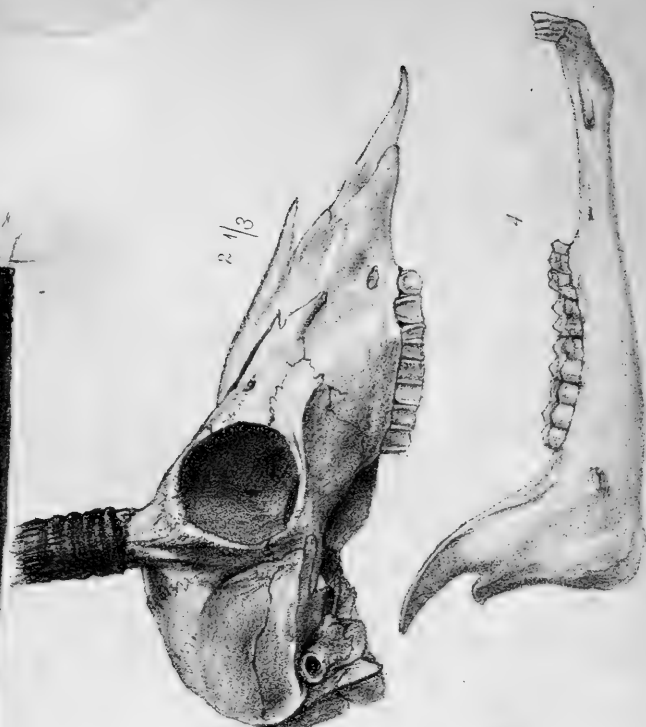
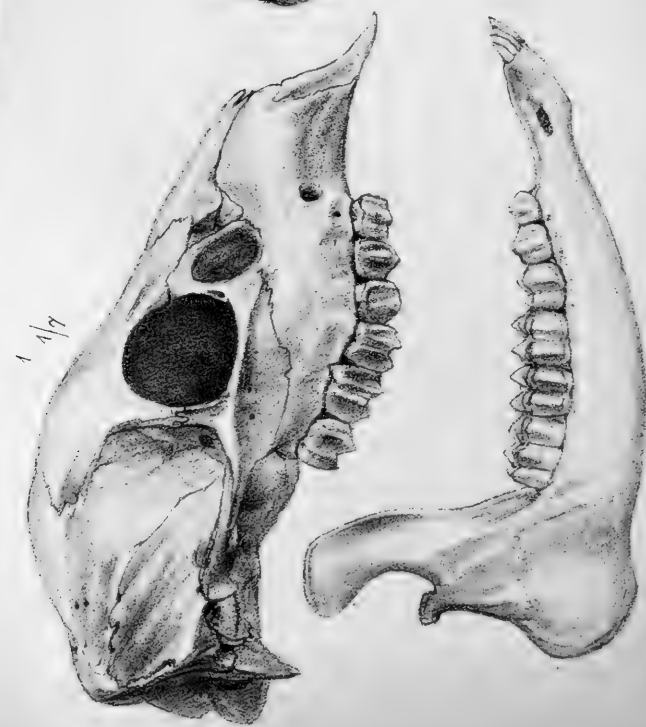
1. AXIS. 2. HYELAPHUS 4 CARIACUS . 3. CAPREOLUS .



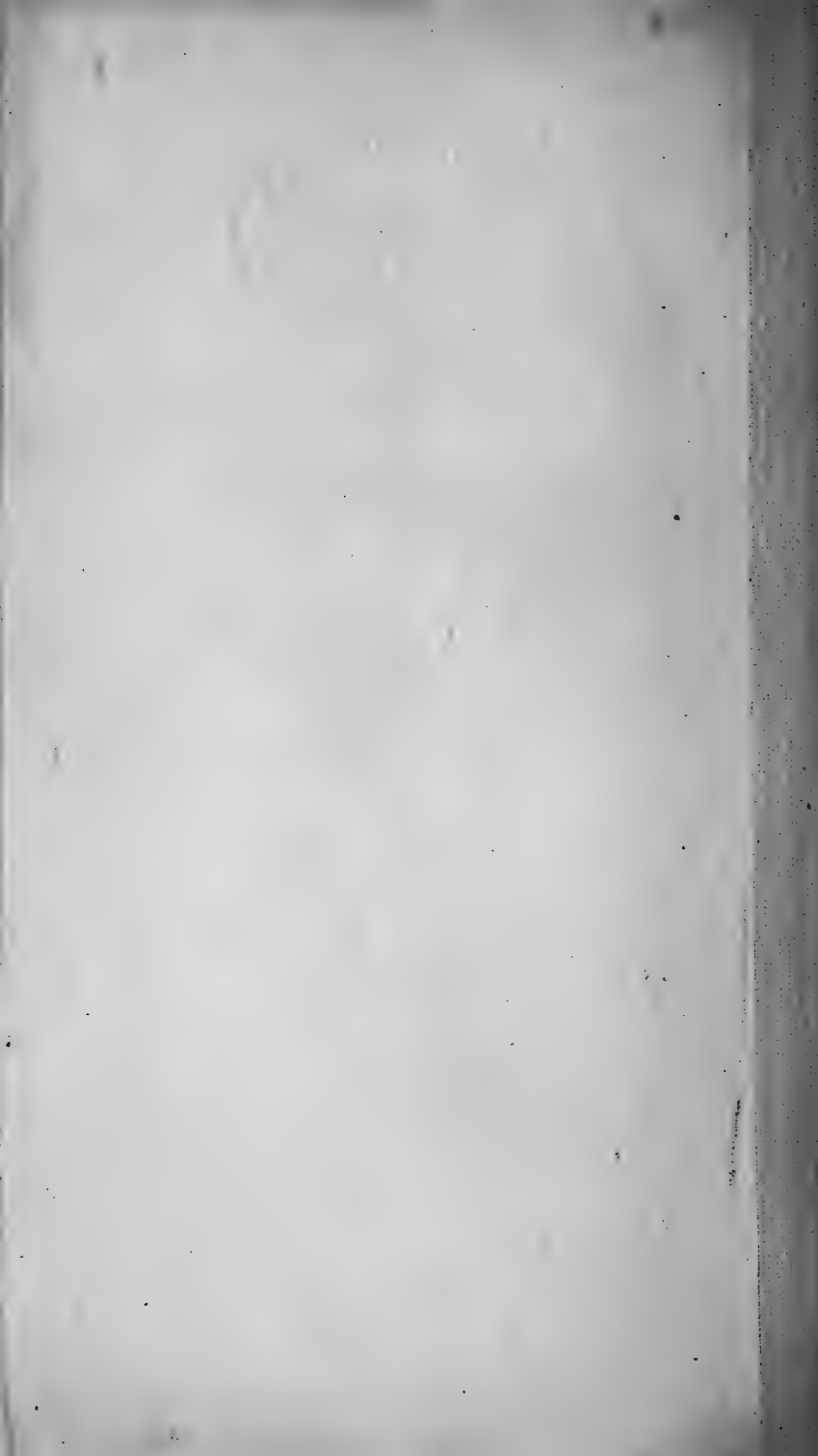


1. BLASTOCERUS CAMPESTRIS 4: COASSUS RUFUS.





1. PUDJ CHIENSIS. 4 PELEA 2 3 PELEA





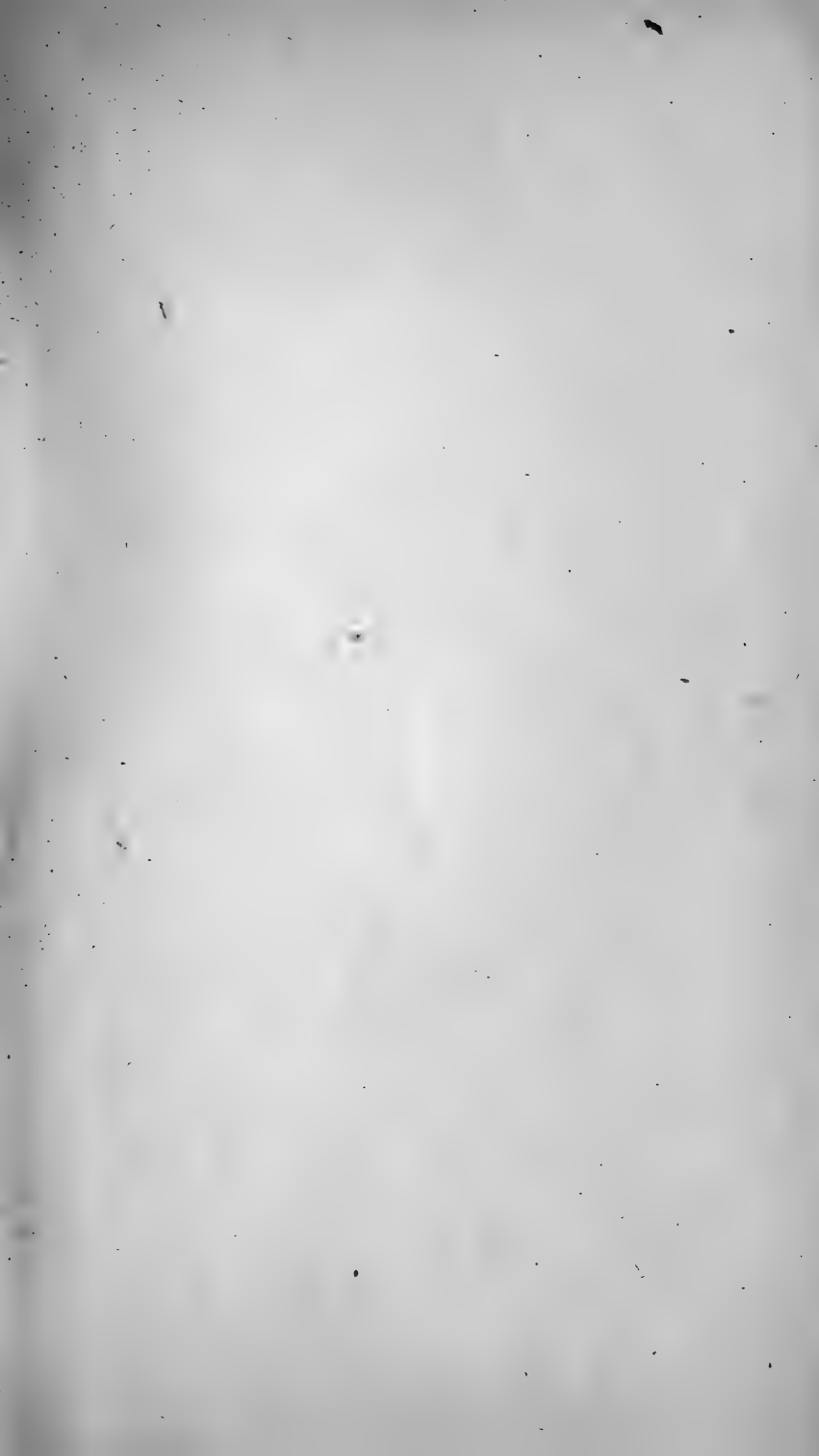
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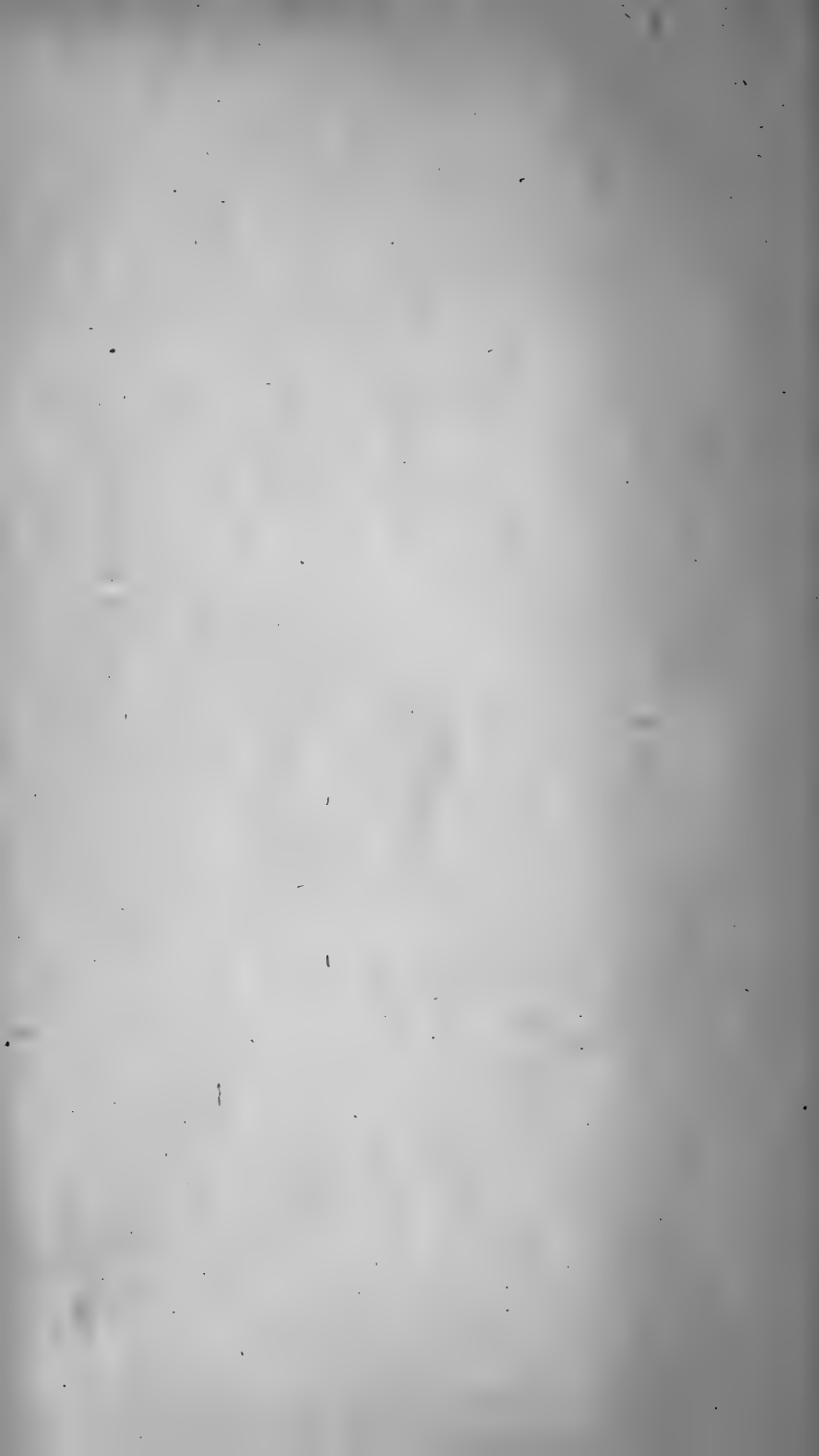


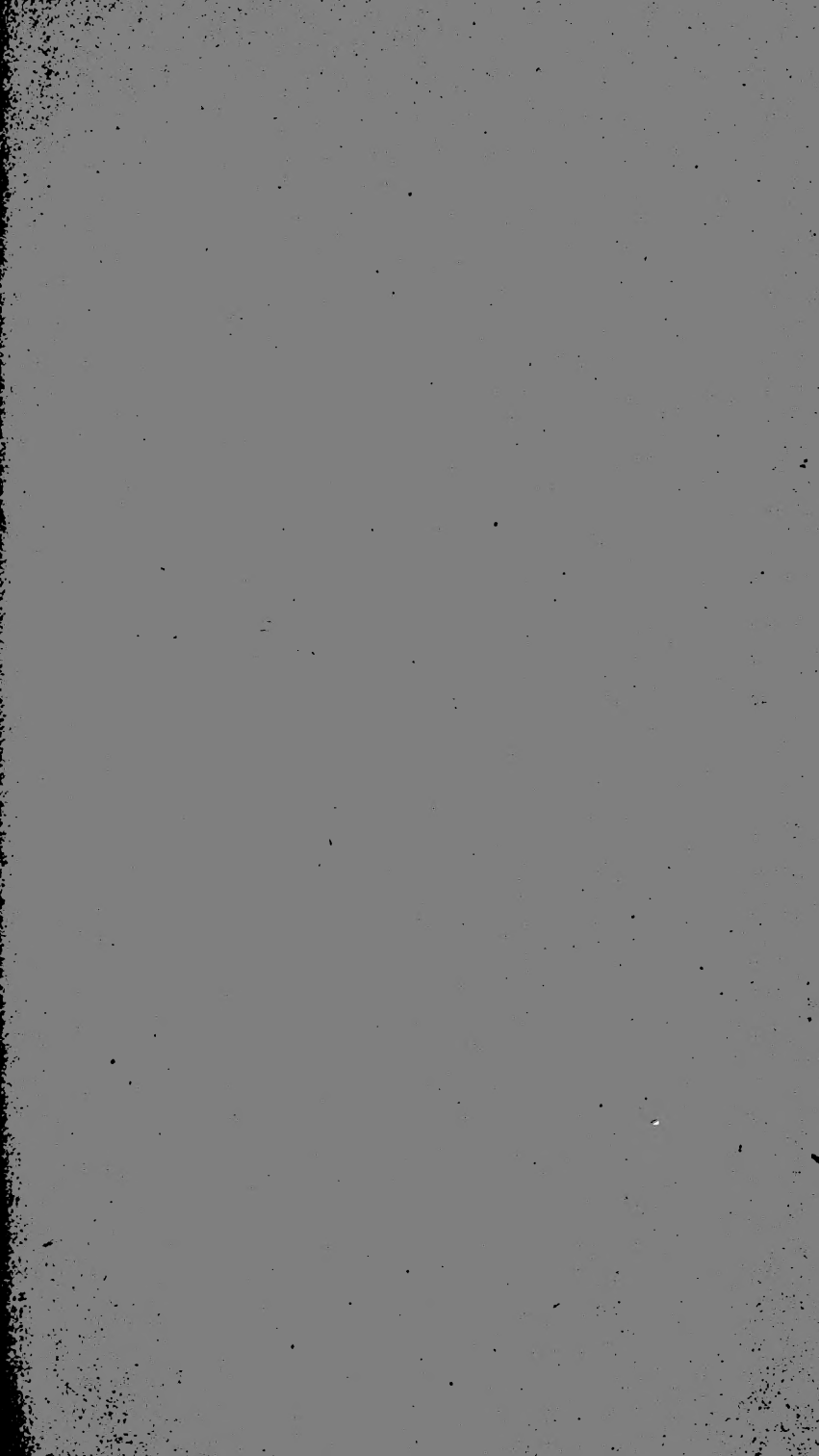
EQUUS CABALLUS.

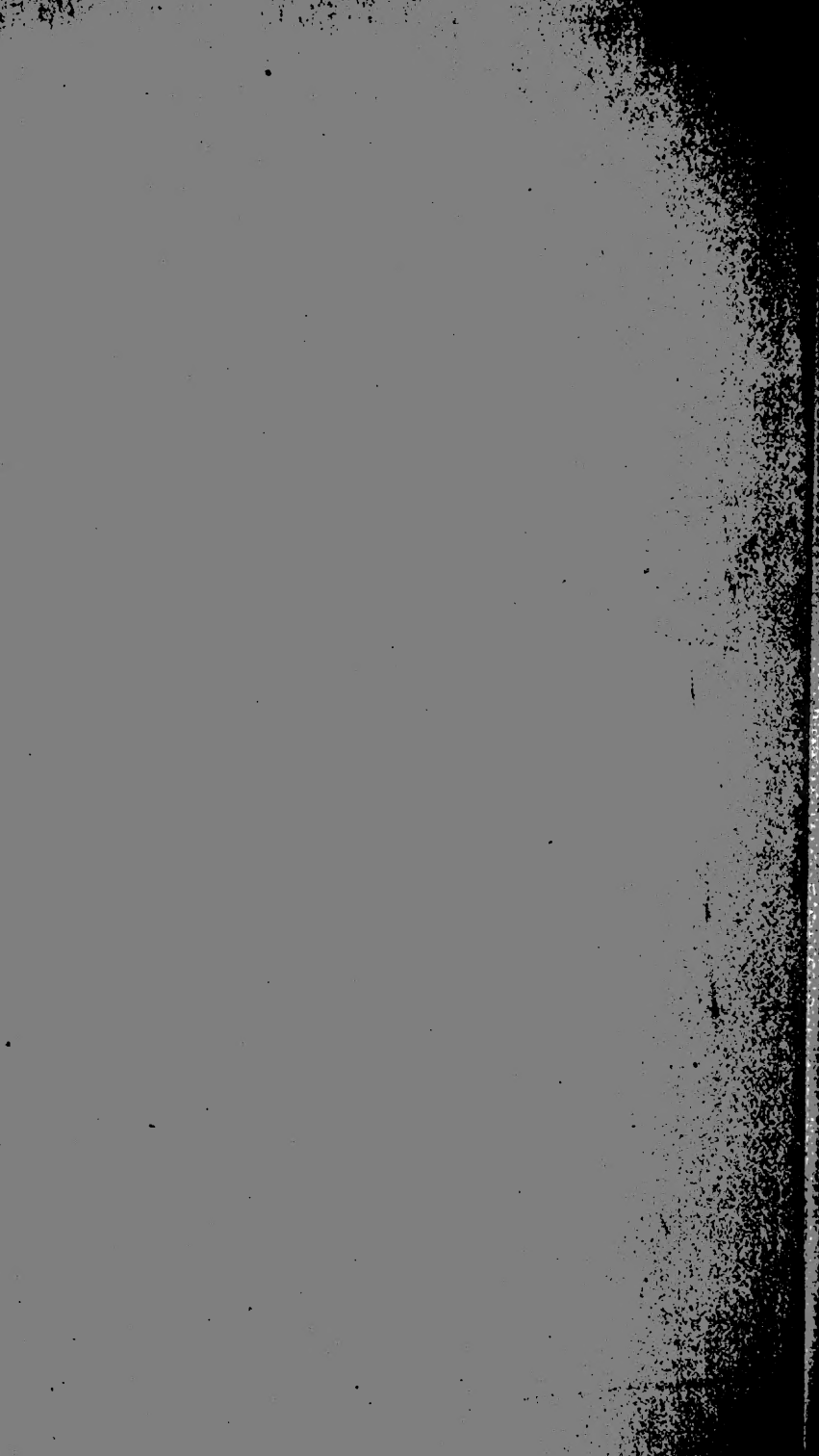












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