

French (*i.e.*, about 4ft. 1 English), while Harris gives 4ft. 6, but Harris's dimensions are generally exaggerated.

Distribution.—The quagga, now without doubt extinct, formerly ranged over the plains of the Orange Free State and the northern and central parts of the Colony; apparently it never extended north of the Vaal River or east of the Kei; it was very numerous still in the days of Harris and Gordon Cumming, and apparently soon after that became rare in the Colony, where it probably was finally exterminated about 1860; Bryden states that the last survivors in the Colony of which he has definite information, were shot at or near Tygerberg in the Aberdeen district in 1858. There is no doubt that they survived a good many years later in the Orange Free State (probably till 1878 at least), but it is difficult to obtain any accurate information on the subject, as in so many cases this and Burchell's zebra are confused together, especially as they were both known under the name of quagga.

The last living quagga in the Zoological Gardens in London was one presented by Sir George Grey in 1858; it survived for six years, dying in June 1864, and it is now mounted for exhibition in the British Museum; a very young foal, preserved in the South African Museum, came from Beaufort West, and was presented by Mr. A. Dale before 1862, when Mr. Layard's catalogue was published. Other specimens of this now extinct form can be seen in the Edinburgh and Tring Museums, in England, and in the Paris, Berlin, Frankfort, Mainz, Basle and Berne Museums on the continent.

History and Habits.—As in so many other cases our earliest authentic knowledge of this animal is due to Colonel Gordon's sketches and descriptions transmitted to Allard, and subsequently reprinted by Buffon.

Before that, however, a living specimen belonging to the Prince of Wales was figured by Edwards in 1751 as the female of the mountain zebra, and the species is also noted by Masson, the botanist, who travelled through the country in 1772; Gmelin's name was founded on Edwards' figure. Among modern authors the best account of this interesting species is to be found in Bryden's works.

Like Burchell's zebra the quagga was essentially an animal of the plains, associating in herds of twenty to thirty individuals, and almost always accompanied by black wildebeest and ostrich, though in the Free State, where both it and Burchell's zebra were found, they were never known to mix.

Sclater

Cuvier states that one observed by him in captivity was not fierce but somewhat "méchant" and obstinate, and that on occasions it would use its heels and teeth. A Mr. Sheriff Parkins drove a pair of quaggas at one time early in the century in a phaeton, and was often seen in Hyde Park.

Family RHINOCEROTIDAE.

Genus RHINOCEROS.

Type.

- Rhinoceros, *Linnaeus, Syst. Nat.* 12th ed. i, 104 (1766)...*R. unicornis.*
- Atelodus, Pomel, Cat. Vert. Foss. bassin superieur de la Loire, p. 78 (1853)*.....*R. elatus.*
- Rhinaster, Gray, Proc. Zool. Soc. 1867, p. 1,024*.....*R. bicornis.*
- Ceratotherium, Gray, Proc. Zool. Soc. 1867, p. 1,027*...*R. simus.*

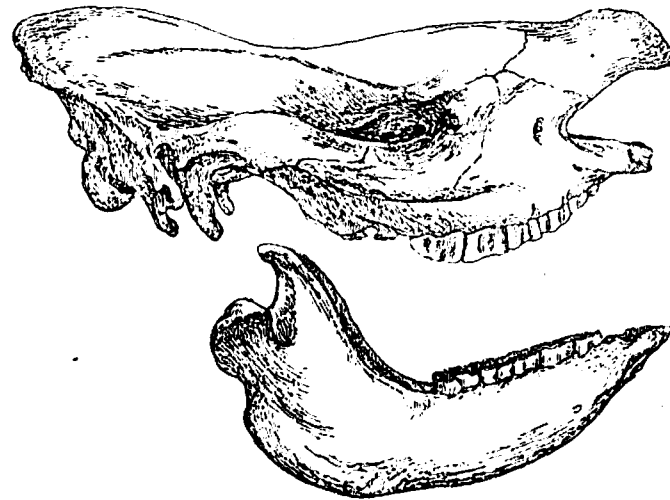


FIG. 75.—Skull of *Rhinoceros simus* (½ nat. size).

This genus contains all the still surviving representatives of the family, and the following are the distinguishing characters.

Animals of large size and of very clumsy build with naked bodies, hairs being found only on the ears and tail; eyes very

1274

small: horns composed of a solid mass of epidermic cells, somewhat resembling hairs, but growing from a cluster of free dermic papillae instead of as in true hairs from a sunken follicle; the horns are not in any way attached to the underlying skull, nor does any bony matter take part in their composition; they are one or two in number, and of a more or less conical shape springing from the median line of the skull.



FIG. 76.—Left posterior upper premolar of *Rhinoceros simus* ($\frac{2}{3}$ nat. size).

Limbs stout and of moderate length with three well developed toes, each provided with a broad rounded hoof. Skull of large size, elevated posteriorly into a transverse occipital crest; temporal and orbital fossae confluent with no post-orbital process or bar separating them; nasal bones large and stout, co-ossified together and separated from the premaxillae by a wide fissure.

Dentition i. $\frac{2}{2}$ to $\frac{0}{0}$, c. $\frac{0}{1}$ to $\frac{0}{0}$ pm. $\frac{4}{4}$, m. $\frac{3}{3}$ = 28 to 38; incisors and canines variable in number, often absent, premolars and molars in a continuous series, and resembling one another in general plan, except that the anterior one is considerably smaller and often deciduous; upper molars with a straight outer edge and a doubly incurved inner edge, so as to form two transverse ridges with a deep valley between; ridges of the lower molars crescentic in shape.

The existing species of the genus are confined to Southern Asia and Africa, and fall naturally into three groups, often considered by zoologists to be worthy of generic separation. These are—

(1) Rhinocerotine group, containing the two one-horned rhinoceroses found in southern India, Burma and the larger Malayan Islands.

(2) Ceratorhine group, comprising the two double-horned species from Assam, Burma, and the Malayan countries.

(3) Atelodino group, containing the two-horned rhinoceroses, found only in Africa, distinguished by their comparatively smooth skin, by their thick rounded and truncated nasal bones, and by the absence of incisors and canine teeth in the adults.

In the middle and later portions of the Tertiary epochs rhinoceroses were spread over the rest of the Old World, even within the arctic and subarctic regions, where roamed the woolly rhinoceros (*R. antiquitatis*), considered to be closely allied to the white rhinoceros; hitherto no fossil species have been found in South Africa.

Key of the South African Species.

- A. Larger; with a straight upper lip *R. simus*, p. 299.
 B. Smaller; the upper lips provided with a median prolongation or proboscis *R. bicornis*, p. 303.

90. *Rhinoceros simus*. THE WHITE OR SQUARE-LIPPED RHINOCEROS.

Rhinoceros simus, Burchell, *Bull. Soc. Philom. Paris*, p. 96 (1817);
A. Smith, S. Afr. Quart. Journ. ii, p. 179 (1834); *id. Illustr. Zool. S. Afr. Mamm.* pl. xix (1839); Drummond, *Proc. Zool. Soc.* 1876, p. 109; Buckley, *Proc. Zool. Soc.* 1876, p. 280; Selous, *Proc. Zool. Soc.* 1881, p. 725 [distribution]; P. L. Sclater, *Proc. Zool. Soc.* 1886, p. 143, pl. xvi, fig. 1 [comparison of two species]; Millais, *Proc. Zool. Soc.* 1893, p. 614; Coryndon, *Proc. Zool. Soc.* 1894, p. 329, pl. xviii.

Rhinoceros oswellii, Gray, *Proc. Zool. Soc.* 1853, p. 46 [fig. of horns].
Ceratotherium simum, Gray, *Proc. Zool. Soc.* 1867, p. 1027.

LITERATURE.—Parsons, *Phil. Trans.* (1743) pl. iii, fig. 6, horn figured; Barrow (1801), i, p. 395, supposed occurrence in Namaqualand; Campbell (1822) p. 294, figures head of one shot at "Mashow" in Bechuanaland; Burchell (1822), ii, p. 75, allusion to discovery; Harris (1838) pp. 148, 163, 211, notes on habits and shooting on the Marico and Limpopo Rivers; Harris (1840), figured on pl. xix; Delagorgue (1847), i, p. 368, plentiful in Zululand; Cumming (1855), i, pp. 248, 338, account of habits and shooting in 1844, with plate of female and young; Andersson (1856), p. 387, recognises and distinguishes the two species, and gives account of habits and distribution; Livingstone (1857), p. 71, notes the straight-horned variety near Lake Ngami; Baldwin (1863), pp. 128, 189, in Amatongaland and Marico in 1856 and 1857; Grout (1863), p. 295, Zulu name; Baines (1864), p. 394, gives a description and measurements of an example killed near Lake Ngami; Selous (1881), p. 81, note on its activity in hill country; Selous (1893), p. 158 account of shooting specimen the head of which is now in

the South African Museum; Nicolls and Eglington (1892), p. 64, pl. ix, fig. 33, note on approaching extinction; Bryden (1893), p. 490, on past and present distribution; Lydekker (1893), p. 389, description and notes; Oswell in *Badminton Big Game*, (1894) i. p. 43, notes on the varieties of the white rhinoceros; Ward (1896), p. 288, horn measurements; Bryden (1897), p. 181, chapter on the natural history; Selous (1899a), p. 52, range, habits and history.

VERNACULAR NAMES.—Witte Rhenoster of Dutch hunters; Umkombe of Zulus (Grout); Umhofo of Matabele (Selous); Mahohu (Smith); Chukuru (Selous) of Bechuanas; Kuabaoba of Bechuanas (Bryden) applied to the variety with the anterior straight horn.

Description.—Larger than the other species, in fact the largest of all land-animals after the elephant, hairless, except for a fringe along the edge of the ear and for the tail bristles; colour not perceptibly lighter than the other species, being a slaty grey black; head very long and massive; upper lip straight all round with no trace of a proboscis; nostril an elongated slit parallel to the mouth; ears longer and more pointed than in the other species, springing from a closed cylinder about three inches long; tail much as in *R. bicornis*, but with only the last quarter provided with wiry bristles.

Female rather smaller than the male, and with two mammae.

The anterior horn is situated on the nasal bones, it is usually longer and more slender than in the other species and curved gently backwards, the upper part of the front being usually partially flattened by friction against the ground; the posterior horn is as a rule short, straight, conical and somewhat laterally flattened; both horns, however, vary a good deal in length and direction, and examples with the anterior horn straight and directed forwards were formerly separated as a distinct species. The skull (see fig. 75, p. 297), is altogether larger than in the other species, and the portion behind the orbit is drawn out, so that the angle formed at the occipital crest between the parietal and occipital regions is a very acute one; the front portion, too, of the mandible is much more depressed and spatulated.

Dimensions.—Of a mounted male; head and body 13 ft. 1; tail 26.0; height at shoulder 6 ft. 1.5; Selous gives 6 ft. 6 for an individual measured by him; ear from notch 9.0; ear to nose-tip 35.0; a skull of a male measures 30.5 in extreme length from the occipital crest to the tips of the nasals, 27.0 from the condyle to the premaxillae, and 13.4 in the greatest width.

The horns of the mounted example measure 35.0 and 7.0 respectively, the largest single horn recorded, 62.5, was obtained by the late Roualeyn Gordon Cumming, and is now in the possession of Colonel W. Gordon Cumming; a pair belonging to Mr. Selous measures 37.4 and 17.8 respectively.

History and Variation.—The square-lipped rhinoceros was met with first of all by Burchell, during his stay in Bechuanaland, though only incidentally alluded to in his account of his journey. In his paper in the *Journal of the Philomathic Society of Paris*, he speaks of meeting with it first at about the 26th degree of south latitude, but gives no exact details.

Campbell, one of the early Bechuanaland missionaries, also figures the head of an example brought to him when at Kuruman; the figure is an exceedingly grotesque one, though obviously intended for this species.

Subsequently Harris, Cumming, Andersson and Baldwin, shot very large numbers, until about ten years ago it became exceedingly rare. We owe the greater part of our knowledge of the habits of this now nearly extinct species to Selous, to whom, too, the credit belongs, of having shown, without doubt, that there are only two distinct species of rhinoceros in South Africa. A curious variety considered by Gray to be a distinct species, and named by him *Rhinoceros oswellii*, is distinguished by possessing a straight anterior horn projecting forward at an acute angle, but this is now acknowledged to be merely an accidental variation.

Distribution.—The square-lipped rhinoceros has never been found south of the Orange River or north of the Zambesi; it was first discovered by Burchell in Bechuanaland, but even in Smith's time (1835), it was driven northwards from the Kuruman neighbourhood, and during the seventies and early eighties, it was practically exterminated in Ngamiland, Matabeleland and Mashonaland, where it had formerly been exceedingly common. The male head preserved in the South African Museum was obtained by Mr. Selous in 1882, between the Bembesi and Sebakwi Rivers, halfway between Bulawayo and Salisbury; Coryndon states that fifteen were shot in Matabeleland in 1886, and he himself shot an old female in 1892, and two males in 1893, the two latter being now in the British and Tring Museums; finally in 1895, Mr. Arthur Eyre shot a fine male north of the Ayrshire mine near Mazoe, in north-east Mashonaland; this specimen was purchased by Mr. Rhodes and presented by him to the South African Museum, where the mounted skin and skeleton are now exhibited.

