

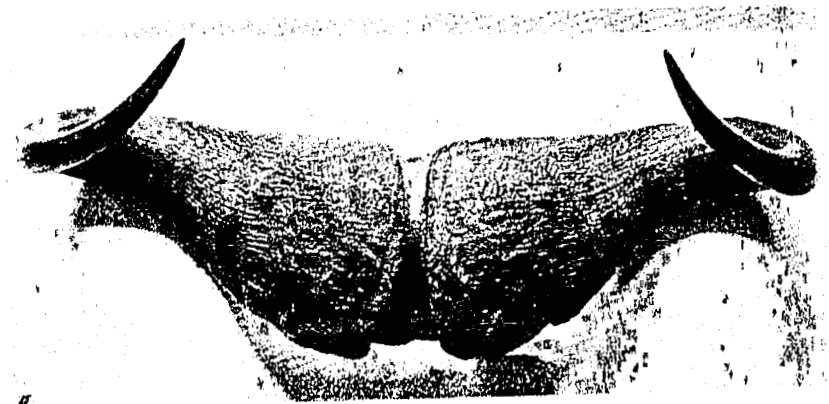
THE GAME ANIMALS OF AFRICA

BY

R. LYDEKKER

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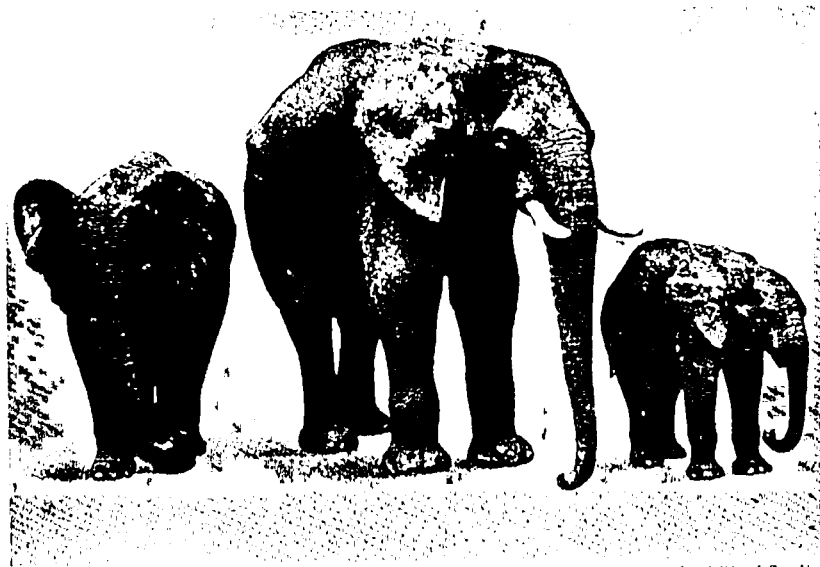
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districts, except, maybe, a few herds still lingering in the Gadabursi country, now reserved for the Aden garrison. There is thus practically no elephant-shooting north of the waterless plateau of the Haud or in the Haud itself, while in the south-eastern Haud and the coast-country east of Berbera there never were elephants.

"In the rugged gorges descending from the Abyssinian highlands to Ogaden, as well as near the headwaters of the Webbe Shebeley and Juba rivers, elephants are, however, still numerous, although they are in the Abyssinian sphere of influence. A few herds, it is believed, also wander down the river-valleys to the Marehan district, far to the south-east of Berbera, reached by crossing the broadest part of the Haud.

"The Somali elephant is a mountain-dweller, and although bulls attain a height of about 10 feet 6 inches at the shoulder, the tusks are small compared with those from East Africa. From 35 to 70 lb. a pair, and a length of from 4 to 5 feet for each tusk, are about the average weight and measurement, though much larger tusks are occasionally obtained."

Remarkable abnormalities are occasionally exhibited by African elephant-tusks. Examples of these are exhibited in the British Museum, where two specimens are twisted into a corkscrew-like shape, while a third is perfectly straight.



Modelled in the Rowland Ward Studios.

FIG. 1.—Group of Addo Bush and Knysna Elephants in the British Museum.

THE BLACK RHINOCEROS

(*Rhinoceros [Diceros] bicornis*)

Zwart Rhinaster, CAPE DUTCH; *Upejana*, ZULU AND MATABILI; *Mojane*, SWAZI AND MATONGA; *Borele* AND *Keitloa*, BECHUANA; *Upelepi*, BASUTO; *Chipamberi*, ON THE LOWER ZAMBESI; *Munyi*, NDOROBO; *Fava*, SWAHILI; *Wil*, SOMALI; *Aurarissi*, ABYSSINIAN; *Muin*, MASAI; *Nyiee*, KINDOROBO; *Tema*, NUNGWE.

(PLATE i, fig. 1)

Rhinoceroses, the horse tribe, and tapirs are the sole existing representatives of a group of hoofed, or ungulate, mammals known as the Perissodactyla ("odd-hoofed"): so named from the fact that in each foot the toe corresponding to the middle finger or toe of the human hand or foot is symmetrical in itself and larger than any of the others. In the case of the horse tribe this toe alone exists in a functional condition.

Bulky, big-headed, and short-limbed animals, rhinoceroses have three toes to each foot, and one or two horns in the middle line of the head. Such horns consist of a solid mass of closely packed vertical fibres, with a slight hollow at the base, resting upon a corresponding prominence on the bones of the skull, from which it can readily be detached with a knife. Teeth, of a characteristic type, may or may not be present in the front of the jaws: but seven pairs of cheek-teeth are constantly developed, and have a distinctive and easily recognised pattern, their crowns being comparatively low and broad, with two bold transverse crests springing from an outer wall, and between them an open valley. The large and massive head has a concave profile, with the somewhat tubular ears set far back, and the eyes small; while the upper lip is generally pointed and prehensile. Each toe bears a hoof-like nail of great breadth. The tail is thin and of medium length, with a small terminal tuft; and the skin, which may be divided into several partially distinct shields by deep folds, is of great thickness, and either nearly naked, or more or less sparsely covered with coarse hair.

At the present day the group is restricted to Africa and the warmer parts of Asia, although in former times it was represented in Europe and North America.

The two African species, which are two-horned, differ from their Asiatic relatives by the absence of front teeth, and of distinct foldings in their skin.

The black species is characterised by its sharply pointed and prehensile upper lip, the rounded tip of the nasal bones of the skull, and the comparative lowness and simple structure of the crowns of the upper cheek-teeth, which, in correlation with bough-eating habits, wear into a ridged surface. The nostrils are small and rounded, and the eye is situated behind the line of the axis of the second horn. In height bulls stand from about 5 feet 6 to 5 feet 8 inches at the shoulder. Great variation occurs in the proportionate lengths of the two horns, although the front one, especially in cows, is generally the longer. The second horn is always more or less compressed and dagger-shaped. In bulls the front horn, which rarely exceeds 42 inches in length,¹ is comparatively stout, although not with a very broad and squared base; in cows it is more slender and generally larger, not infrequently curving backwards in scimitar fashion. It was on slender horns of this latter type from East Africa that the so-called Holmwood's rhinoceros was named.

The range of the black rhinoceros formerly extended from the Cape to Somaliland, Abyssinia, and the Sudan, and thence to the drier parts of Central and West Africa.

The black rhinoceros of East Africa has been regarded as representing three local races distinct from the Cape or typical animal, namely, *R. bicornis holmwoodi*, founded on abnormally slender horns, from Kenya Colony or Tanganyika Territory, now regarded as identical with the typical *bicornis*; *R. bicornis somaliensis* from Somaliland, eastern Kenya Colony, and southern Abyssinia; and *R. bicornis cucullatus* from Abyssinia. The typical race, originally described from Cape Colony, is now quite extinct in the Colony, and is only found in a few localities south of Zambesi. It appears to have been exterminated in Cape Colony and the Orange River Colony by the year 1853. North of the Zambesi it extends up through north-east Rhodesia, Nyasaland, and Tanganyika Territory as far as the headwaters of the northern Guaso Nyiro and west bank of Lake Rudolf, across northern Uganda to the Nile. It is not found in the more tropical parts of Uganda or the Congo, but spreads westwards as far as northern Nigeria. In Kenya Colony the eastern limit of the range is the south bank of the Tana river. To the north of the Tana and east of Lake Rudolf its place is taken by the Somali race, which extends

¹ The record lengths are 53½ inches (front horn) and 27 inches (rear horn).

northwards into southern Abyssinia. This latter form, *R. b. somaliensis*, typically from Somaliland, is distinguished from the typical *bicornis* by its smaller size and rather flatter skull, the occipital region being less pronounced. Further, the general colour is stated to be rather lighter, and the ear-fringes shorter. The horns of the two races are similar. The race named *R. bicornis cucullatus*, described in the year 1835, is very little known; the type locality is Abyssinia, and it may eventually prove to be identical with the Somali race which extends into the southern part of Abyssinia.

The following notes on this species in South-East Africa are condensed from material supplied by Mr. F. Vaughan Kirby:

"Although naturally timid, and certainly not dangerously aggressive, the black rhinoceros is of uncertain temper, and when wounded and encountered at close quarters will charge fiercely, while occasionally it is as vindictive as a buffalo. It has three characteristic cries: a succession of deep grunts, uttered apparently by the male alone and at certain seasons; a loud snort, sounded when the animal is about to charge or when suddenly alarmed; and the shrill squeal of a moribund individual.

"Some years ago keitloas were far more numerous in Central South Africa than at the present day. In 1900 there were probably not a dozen remaining even in the most remote parts of the north-east Transvaal, where once they abounded, and only two or three in the Matamiri bush, and a few in the Libombo range near Oliphant's River Poort. In the broken country south of the Zambesi and east of the Victoria Falls, and in parts of the Barue and Chiringoma districts of Portuguese East Africa, they were, however, still fairly numerous, and there were a few in Matabililand, Mashonaland, and Amatongaland. In 1894 they were abundant in Portuguese Northern Zambesia, south-east of Tete, and in 1896 common in the interior of Mozambique.

"The black rhinoceros lies up during the heat of the day in dense patches of scrub or grass-jungle, or under the shade of a solitary bush or tree in the open, though it may often be found out in the open, unsheltered from the sun's burning rays. In hot weather these animals move towards their watering-places, often far distant, at sunset, drinking between 6 and 8 P.M.; and at such times they make a maze of tracks in the sand as they wander from pool to pool. After drinking, they set out in a straight line for their feeding-grounds, where they browse throughout the night: making full allowance for this, it is difficult to know how they support their huge bulk on the poor

food afforded in many localities by the sparse scrubby bush. In cold weather, and during the dry season, they often commence to feed immediately on waking, not visiting the water till midnight or later, this being their only drink for the day; but in hot weather they pay a second visit to the water at dawn, when, if a mud-hole is to be found, they also wallow, a process essential to such tick-infested creatures. After this they seek their mid-day resting-place, seldom moving much after 9 or 10 A.M., except in the wet season, when they may be seen browsing throughout the day. They feed entirely upon the astringent leaves of various shrubs and bushes, roots, and the leaves and twigs of the thorny acacias; and when eating, they make a loud champing noise with their jaws. Rhinoceroses almost invariably lie with their tails to the wind, and, when disturbed, start off at a slinging trot up-wind, with their tails twisted over their backs; but, if suddenly alarmed or closely pursued, they break into a gallop with which only a good horse can keep up, and which may be maintained for a long distance. Although they usually run up-wind, yet when wounded or conscious of pursuit they pursue the opposite direction. I have seen a calf about fourteen days old on October 28, and one on November 2 about a month old, while a friend shot a cow in October accompanied by a four or five-months-old calf. Apparently the calves are usually born at the end of the rainy season, the period of gestation being probably sixteen or eighteen months. These animals are in best condition in the autumn, when the flesh, although coarse, is well flavoured."

Mr. A. H. Neumann, in recording his experiences in Kenya Colony, observes that in "East Africa the black rhinoceros seems to become smaller as we go north, an adult bull from Naivasha standing 5 feet 5 inches in height, and measuring in length 12 feet 1 inch, exclusive of the tail; while one from the Seya river stood 5 feet 3 inches, and measured 10 feet in length; and a third from Lake Rudolf stood only 4 feet 9 inches, with a length of 9 feet. In the vast majority the horns are short, under a foot in length, any over 18 inches being uncommon, while a length of 30 inches or upwards is extremely rare.

"In some places rhinoceroses are very common; so much so that one may often see many in one day, where the country is sufficiently open, while merely travelling through. They do not, like elephants, confine themselves to thick bush; nor, except where much persecuted by natives, are they careful to conceal themselves during the daytime. Moreover, though probably in the aggregate less numerous than elephants, they live scattered over the country in pairs or singly, some-

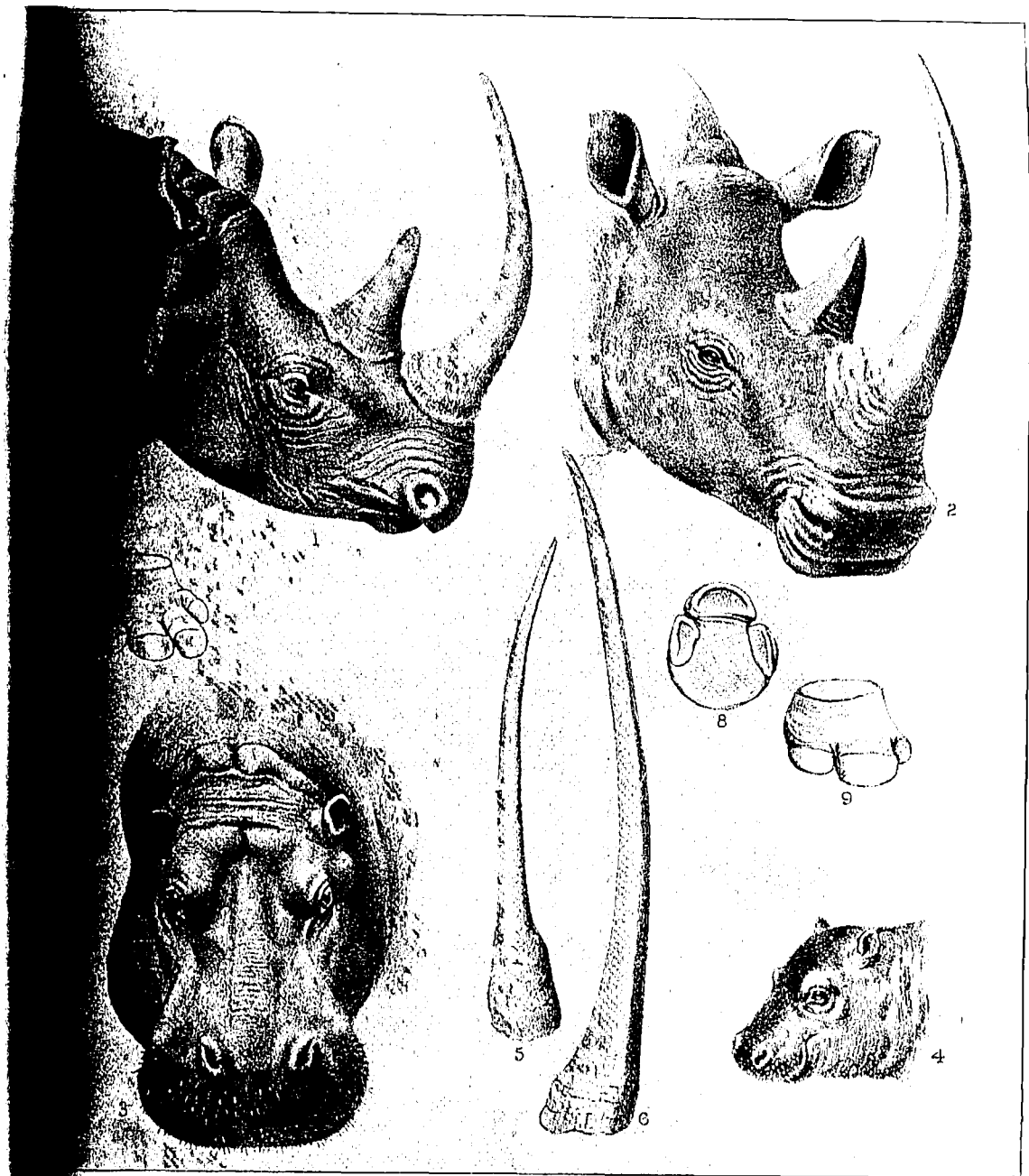


PLATE 1

1. Black Rhinoceros.
2. White Rhinoceros.

3. Hippopotamus.
4. Pigmy Hippopotamus.
8, 9. Foot of Rhinoceros.

5, 6. White Rhinoceros Horns.
7. Foot of Hippopotamus.

times three, and rarely four being found together, but never more; and since they keep pretty much, as a rule, to the particular area forming their own haunts, and do not migrate from one district to another, after the fashion of elephants, they are more in evidence than the latter.

"It is a mistake to suppose that rhinoceroses have any tendency to sub-aquatic habits. A wet climate disagrees with them, and during the rains they are always in poor condition, and generally have sores on their bodies. This appears to be the reason that there are so few rhinoceroses in West Central Africa, and that they are scarce in those parts of East Africa where the rainfall is greatest. The dry barren wastes of Kenya Colony seem to suit them best; and there they are equally at home in the dense scrub, such as that which borders the Tana river, where they are very numerous, and in the open arid plains of Masailand or Laikipia. They are also sometimes met with in the forests, on the slopes of the principal mountains and ranges. On the other hand, in Uganda, Usoga, and Kavirondo, bordering the Victoria Nyanza, where the climate is moister, there are, so far as I am aware, no rhinoceroses; and they are also absent from the neighbourhood of the sea-coast. As rhinoceroses must drink nightly or daily (I have many times watched one drink in broad daylight), they are never seen any very great distance from water; and the sight of one of these animals is a sign that water is to be found somewhere within a distance of not more than some 8 or 10 miles. As rolling in the dust is a favourite habit, these animals generally approximate in colour to the soil of the country they inhabit; so that in one district they appear almost white, and in another red or nearly black, as the case may be.

"Rhinoceroses wander and feed all night, and, where not much disturbed, during a good part of the day, although during the hottest hours they commonly sleep, sometimes under a tree, at other times in the open. Where much harassed by natives they are, however, seldom or never seen abroad by daylight, hiding themselves in the densest thickets, so that only the spoor made during their nightly rambles betrays the fact of their presence.

"Although the black rhinoceros does not eat grass, in open country its food consists to a great extent of plants that grow among the grass on the plains, and it may thus be seen apparently grazing. During periods of drought these animals wander far over the uplands in search of food, coming down during the night to slake their thirst at some pool left in the bed of a watercourse many miles distant, to which their well-worn paths converge. As has often been pointed out, they are intensely stupid, and marvellously blind, so that they may often be

approached even on a bare plain with little trouble, up-wind. It is this stupidity and blindness which make them a source of danger to passing caravans; for, should the wind be blowing from them, when unaccompanied by rhinoceros-birds, they frequently remain unconscious of the approach of a caravan until it is close to them, when, being suddenly confronted with a long line of porters, they will sometimes charge straight through, apparently under the impression that there is no other way of escape. On the other hand, they are very keen-scented, and if the wind be blowing in their direction they start off at a quick trot as soon as the taint reaches them. It is only when wounded that a rhinoceros gallops.

"As the result of my experience, under ordinary circumstances and with proper caution, there is not very much risk in shooting rhinoceroses, the danger not being comparable in any way with that attending the pursuit of the elephant. At the same time, there is always a possibility that one may charge, and there is accordingly a certain amount of excitement in the sport; instances not being rare of men having been badly injured by these beasts. If a rhinoceros charge home, he is generally not difficult to dodge, and when dodged he commonly goes right on. When suddenly disturbed, in his first rush he makes a great puffing and snorting, particularly disconcerting in thick covert when the beast is hidden and it is impossible to tell which way he is coming.

"The Ndorobo, who kill them with their large assegais, or trap them in the same manner as elephants, have far less fear of rhinoceroses than of elephants; and as a consequence it is rare to see a rhinoceros in country much frequented by tribes of these people, who have much skill and courage in elephant-hunting. The same remark applies to Swahilis, many of whom think nothing of shooting a 'faro', though they would not dream of attacking an elephant. The Wasanya, who stand in the same relationship to the Galas as the Ndorobo do to the Masai, used to kill both rhinoceroses and elephants with their powerful bows and arrows; while, owing to the aid of poison, the puny weapons of the Wakamba are occasionally capable of making one of these monsters bite the dust."

According to Mr. A. H. Straker, the black rhinoceros in Somaliland is subject to considerable variation in the matter both of bodily size and the length and number of its horns. One specimen killed by this gentleman had three horns; in another the length of the front horn was 29 and that of the back horn 12 inches; while in a third these two dimensions were respectively 17 and 18 inches. Some

years ago rhinoceroses were still fairly numerous on the south side of the Haud, especially between Milmil and Imi, and also south of the Webbe Shebele. In Somaliland these animals have a great partiality for the giant euphorbias (commonly miscalled cactuses), which they uproot, and then chew the stems. Their hides are much prized by the Somalis for shields, from fifteen to twenty of which can be cut from a single skin.

Rhinoceroses with three, or even more, horns have been killed in other parts of East Africa, and recently there has been placed on exhibition in the galleries of the National History Museum a fine three-horned specimen shot in north-east Rhodesia by Mr. C. L. Austin

THE WHITE OR BURCHELL'S RHINOCEROS

(*Rhinoceros [Diceros] simus*)

Vit Rhinaster, CAPE DUTCH; *Chukuru*, BECHUANA; *Umhofo*, MATABILI; *Abu Garn* AND *Um Girin*, SUDANI; *Mirer*, DINKA.

(PLATE i, fig. 2)

The third largest of living land animals, being exceeded in this respect only by the African and the Indian elephant, the white rhinoceros was long supposed to be confined to Africa south of the Zambesi, where it is now on the point of extermination. Some years ago a skull of this species was, however, brought by Major A. Gibbons from the Lado enclave, about five degrees north of the equator, where the animal is now known to exist in small numbers, although nowhere abundant. South of the Zambesi a few still exist in the game reserves of Zululand, and it is possible that one or two others may inhabit some of the wilder areas of Rhodesia.

Why it was called white rhinoceros by the Boers (unless indeed its representatives in the old days were really paler in some districts than the black rhinoceros) remains a mystery. Nevertheless, this is the most convenient and best-known designation for this mighty animal.

Attaining a shoulder height of about 5 feet 6 inches, the white rhinoceros is distinguishable at a glance from the other African species by its broad, abruptly truncated muzzle, which is non-prehensile; correlated with which is the squared extremity of the nasal bones of

the skull. The front horn of the male has a remarkably broad and squared base; while the second horn lacks the compressed form so often seen in the black species. The horns of cows are longer and more slender, the record length of the front one being 62½ inches. The nostril is larger and more slit-like than in the black species; the situation of the eye is well behind the line of the axis of the second horn; the ear is taller, more tubular, and more pointed at the tip. The shape of the upper cheek-teeth, as compared with those of the black rhinoceros, are taller and show a more complicated pattern on their surfaces, which are horizontal throughout, in place of ridged, admitting of a mill-like, in place of a champing, action. This is in connection with the grazing habit, distinctive of the present species. In grazing, the head is carried low, in consequence of which the tips of the horns as curve forwards are worn to a smooth facet in consequence of being pushed along the ground. A specimen obtained in Bechuanaland by F. C. Selous, and now in the British Museum, has horns 37½ inches (front horn) and 17½ inches (rear horn); the latter dimension is the record for the southern white rhinoceros. The second horn is generally a good deal smaller than the front one, and may be reduced to a mere boss, or even, as in the undermentioned specimen, practically absent.

Among a collection of, mostly anthropological, photographs made in Bechuanaland by Mr. Ernest Héritte, Consul-General of France at the Cape of Good Hope, and presented in 1906 by Colonel A. G. Anson to the British Museum (Natural History), is one of a freshly killed white rhinoceros, which is of considerable interest. At least two of the older writers on African natural history refer to a native belief in the existence of single-horned rhinoceroses. In 1838 Sir Andrew Smith, for instance, in *Illustrations of the Zoology of South Africa* (vol. i., description Plate i.), alludes to the existence of such a belief; but it is somewhat difficult to determine whether the accounts referred to are founded on fact or are of purely fictitious origin. Again, in 1848, a French writer, M. F. Fresnel, contributed a paper to the *Comptes Rendus* of the Paris Academy of Sciences (vol. xxvi, p. 281) entitled "Sur l'existence d'une espèce unicorne de rhinocéros dans la partie tropicale de l'Afrique". The reports alluded to in this communication relate to the Lake Chad district and the White Nile, but there is the same difficulty as in the case of the other accounts in deciding as to what value should be attached to them. If based on fact, they probably refer to the northern race of the white rhinoceros, specimens of which, as pointed out by Sir Andrew Smith in the work cited, two specimens, now in the British Museum, were brought from the neighbour-

hood of Lake Chad by Messrs. Denham and Clapperton in the first quarter of last century.

In regard to the variation in the length of the posterior horn in specimens of the white rhinoceros which came under his own observation, F. C. Selous states in the account reproduced below that this appendage may range from a horn of a couple of feet in length to a mere hump two or three inches high. The animal represented in Mr. Héritte's photograph may accordingly be regarded as representing the extreme stage in the degeneration of the second horn, and is in no wise entitled to recognition as a distinct race, still less a species.

Early in 1908 Major P. H. G. Powell-Cotton presented to the British Museum the skull and horns of a male white rhinoceros killed by himself in the Lado district. The skull indicates an immature animal, the last upper molar tooth on each side not having yet come into use, while the last pre-molar has not been replaced by its permanent successor. On contrasting this specimen with skulls of the typical southern race of *Rhinoceros simus* the differences between them appear comparatively slight, considering the distance separating the haunts of the two forms.

The late Mr. Lydekker described this Lado white rhinoceros [*Field*, Feb. 22, 1908, vol. cxi. p. 319] under the name *Rhinoceros simus cottoni*. In the original description importance is given to the fact that the Lado skull was broader across the nasal region than in the skulls of the typical form. This difference has, however, since been shown to be a sexual character, and of no systematic value. The skulls of the northern race differ in being rather flatter above, owing to the occipital crest not being so well developed as it is in the southern form. The teeth are also rather smaller in size. In general dimensions the two animals are practically the same, and the horns present no characters by which they can be satisfactorily distinguished from one another. In the typical specimen of *R. simus cottoni* the front horn has a very solid base and curves strongly backwards, its total length being 30½ inches. The record front horn length for the northern race is 41 inches, while several specimens are known which measure from 35 to 40 inches in length. *R. simus cottoni* is more widely distributed than was formerly thought to be the case, specimens having been shot as far south as the Belgian Congo.

Dr. Christy, in his recent book entitled *Big Game and Pygmies*, gives the following details concerning the distribution of the white rhinoceros: "In the British Sudan comparatively few individuals

now survive. I should fancy that those along the left bank of the Bahr-el-Jebel Nile can scarcely exceed a score. Farther westward along the Nile-Congo Divide, from about Yei in western Mongalla to a point in the Bahr-el-Ghazal some distance north-west of Tembura, they are more numerous. In the Meridi and Yambio districts in 1916 I came upon them many times during my long rounds in the bush. The fact that I saw two or three animals with horns of what seemed to me extraordinary length is perhaps evidence that there at least they are not molested. . . . On the Congo side of the Divide, up to and beyond the Franco-Belgian boundary at the Mbomu river, I found the white rhinoceros much more common than anywhere on the British side. . . . As I tramped through the recently burnt-off bush north of Aba I observed, scattered here and there, quite a number of rhino skulls bleaching in the sun. . . .

"Westward of Aba, and more or less throughout the whole of the Upper Wele district, I have met with the animals themselves, or their extraordinary private middens, almost daily. . . ."

The two horns in the Museum referred to above as having been brought from the Lake Chad district in the early part of last century by Messrs. Denham and Clapperton, although of small size, doubtless belong to *R. simus cottoni*.

The following excellent account of the habits and distribution of this species in South Africa is abbreviated and slightly modified from one furnished by F. C. Selous:

"In central and eastern South Africa the white rhinoceros is unknown to the north of the Zambesi, as it is north of the 17th parallel of south latitude in the more westerly portions of the country. To the south of that line it was, however, abundant a century ago all over South Africa north of the Orange river, except in waterless or mountainous districts. In 1812 Dr. W. B. Burchell first met with this species in the Batlapin district not far from the present mission-station of Kuruman. Probably its range once extended even farther south, although I doubt whether it was ever an inhabitant of the country lying immediately north or south of the Orange river below its junction with the Vaal, as those districts are very arid and produce little grass. At any rate, all the rhinoceroses met with south of the Orange river by the earlier South African travellers, including Burchell, seem to have been of the black species. Whether the Boers when they first entered the country now known as the Orange River Colony, in 1836, met with the white rhinoceros is not definitely known, although they probably did, as I have had places pointed out to me north of the

Vaal river, on the open grassy plains of the southern Transvaal, where specimens were seen by the early Dutch pioneers; and as the pasture to the south is good, and the Vaal river fordable at many points during the dry season, there is no reason why some individuals should not have crossed at certain times of the year. In the north-west of the Transvaal the white rhinoceros was very abundant, Sir Cornwallis Harris mentioning that on one occasion in 1836, as he was travelling through the Magaliesberg district, eighty were seen during the day's march, while on his way from the Limpopo to a hill half a mile distant no fewer than twenty-two were counted, of which, in self-defence, four were killed. Harris also mentions that Sir Andrew Smith, when travelling about the same time through the country some two degrees north of Magaliesberg, encountered during a single day's march with his bullock-waggons, without wandering any great distance on either side of the track, between 100 and 150 rhinoceroses, half of which were probably of the present species. Between 1840 and 1850 travellers report having found the white rhinoceros abundant wherever there was water to the north and west of the Limpopo between Secheli's country and Lake Ngami. Gordon Cumming saw great numbers, and mentions having observed on one occasion upwards of a dozen on a patch of young grass, though he speaks of such a sight as being unusual.

"During one short hunting-trip in 1847 or 1848 Messrs. Oswell and Vardon are credited with having killed no less than eighty-nine rhinoceroses, the majority of which were probably of this species. During his travels between 1850 and 1854 Mr. C. J. Andersson also found these rhinoceroses very numerous in the district lying west and north-west of Lake Ngami, and writes of having killed nearly sixty head of this species during one season. He also mentions the fact of nine of these animals having been killed in one day by a single European near Walfish Bay.

"In 1871, the date of my first visit to South Africa, the range of the white rhinoceros had been much reduced, but these animals were still numerous in the uninhabited districts of Matabililand, Mashonaland, Gazaland, and Zululand, as well as in some portions of the eastern and south-eastern Transvaal. In August 1872 I first saw its fresh tracks near Mangwe, about 60 miles south-west of Bulawayo, and a month later met with the white rhinoceros farther to the north-west. At that time it was still numerous in this part of the country; and while elephant-hunting during the last three months of the year between the Gwelo and Umniati rivers I saw white rhinoceroses almost daily,

sometimes as many as six or eight in one day. In 1873 I found them abundant to the south of the mountainous tract of country extending eastwards from the Victoria Falls to the junction of the Gwai and Tchanganis rivers. In the following year, when hunting on the south bank of the Chobi, white rhinoceroses were not uncommon; but in 1877, during several months spent in the same district, only the tracks of two were seen; while in 1879, during eight months' hunting on and between the Botlitli, Mababi, Machabi, Sunta, and upper Chobi rivers, not even the spoor was seen, and the bushmen said there was no white rhinoceros left. In July 1884, however, while I was camped near the reed-bed in which the Mababi river loses itself, some natives came on a white rhinoceros crossing the foot-path on its way back from the pool where it had been drinking. From the fact that it came to drink in the middle of the day, this animal must have been very thirsty, and had probably come from some 'vley' in the desert-country to the south which had recently dried up. Although I followed its tracks for a long way, I never either heard or saw anything of it; and it probably went down the Tamalakan towards the Botlitli. This is the last white rhinoceros of which I heard in western South Africa.

"In the country to the north-east of Matabililand, between the Sebakwe and the Manyami rivers, white rhinoceroses were still fairly numerous in 1878, when I once saw five together; and it was not till after 1880 that their numbers were seriously reduced. About that time rhinoceros-horns—of all sorts and sizes—increased in value; and as ivory was scarce in South Africa, the traders in Matabililand employed natives to shoot rhinoceroses for the sake of their horns and hides.

"One trader alone supplied 400 Matabili native hunters with guns and ammunition, and between 1880 and 1884 his store always contained piles of rhinoceros-horns, although they were constantly being sold to other traders and carried south to Kimberley on their way to England. What caused this demand for rhinoceros-horn from 1880 to 1885 I am unaware; but whatever it may have been, it sounded the death-knell of white and black rhinoceros alike in all the country that came within reach of these Matabili hunters. The Manyami river was, however, looked upon as the boundary of Lo Bengula's dominions to the north-east, so that none of his people dared hunt in small parties much to the east of the lower Umfuli river, and it thus came to pass that the white rhinoceroses inhabiting a small tract of country between the Angwa and the Manyami, though they were occasionally killed by the natives of the surrounding districts, were not

systematically slaughtered like their brethren to the west of the Umfuli river. In 1886 two Boer hunters, Karl Weyand and Jan Engelbrecht, shot ten white rhinoceroses in this tract, while five more were killed the same year by some Fingo hunters resident in Matabililand. A few escaped, of which in the following year I saw the tracks of two or three, but did not come across any of the animals themselves, though one of my waggon-drivers shot a big bull.

"When on my way from Matabililand to the Manyami river in 1882, I shot a bull and a cow, letting their calf go. Neither had good horns, but I kept the skull and head-skin of the bull, which are now in the South African Museum at Cape Town. These were the last white rhinoceroses I saw alive.

"In August 1892 Messrs. R. T. Coryndon and A. Eyre, when about 100 miles north-west of Salisbury, came suddenly on a family of white rhinoceroses, bull, cow, and calf. The two former, although wounded, escaped, but the calf was killed by a stray bullet. While following the wounded animals the next day Messrs. Coryndon and Eyre came on a cow, accompanied by a half-grown and a very young calf. The cow was shot and the small calf captured alive; but it was found impossible to transport the skin and skeleton of the cow. In 1893 Mr. Coryndon, in the same part of the country, was fortunate enough to come upon two bulls, which he shot, and preserved the skins and skeletons of both. One of these specimens is in the British Museum (Natural History), and the other in the Tring Museum. In 1895 Mr. Eyre obtained another bull in the same part of Mashonaland, which was bought by Mr. Cecil Rhodes and presented to the South African Museum at Cape Town.

"Although it was known that a few white rhinoceroses survived in northern Mashonaland, it was generally believed that by 1890 the species had become extinct in every other part of South Africa. In 1894 a few of these animals were, however, discovered in a corner of Zululand, of which six are said to have been shot during that year. The skin and skeleton of one of these, a bull, are in the Museum at Pretoria. In 1899 a few still survived in one small district of Zululand, whilst perhaps a dozen others were scattered over the Mahobohobo forests between the Angwa and Manyami rivers in north-eastern Mashonaland.

"In habits white rhinoceroses are of a rather sluggish disposition, spending the greater part of the day sleeping in some shady place, either standing, or more usually lying down, in which latter position they look like enormous pigs. In the afternoon, as the sun gets low,

they wake up and commence to feed towards the water; and I have so often seen them drinking at sunset, both during the cool season and in the hot weather which precedes the rainy season, that I fancy it was their usual habit to drink before dark, when they had no reason to fear attack. In south-western Africa, where there are few running rivers, all the rhinoceroses, which during the rains were scattered over an enormous area, collected towards the end of the dry season round the few permanent springs, and they probably learned that it was unsafe to drink until after dark.

"Of all animals, except, perhaps, the elephant, the white rhinoceros was the easiest to approach unobserved, if the wind was favourable, and there were no rhinoceros-birds present to give warning of danger. Apart from any obstruction caused by the position of the horns, his vision was bad; and I remember to have walked to within 30 or 40 yards of white rhinoceroses upon several occasions without attracting their attention, although apparently in full view. They seemed, however, quick of hearing, as the breaking of a small twig or any other slight noise immediately attracted their attention; and their sense of smell was also acute. When accompanied by rhinoceros-birds, they could not be approached closely, as the birds always gave the alarm by screeching and running about their heads in an agitated manner. When white rhinoceroses got the wind of a human being, even if several hundred yards distant, they always decamped. They start off at a trot, which is so swift that I never saw a man on foot able to keep up with one. If pursued on horseback, they break from their trot into a gallop, and maintain for a considerable distance a speed perfectly astonishing in animals of their huge size and ungainly appearance. A white rhinoceros was easier to shoot from horseback than one of the black species, as the latter animal is not only swifter, but has the habit of constantly swerving as one ranges alongside, and never offering anything but its hind-quarters, whereas one could gallop a little wide of and in front of a white rhinoceros, and thus get a good chance of shooting it through the lungs or heart as it came broadside past.

"A shot through the upper part of the heart of a white rhinoceros was soon fatal; while, as the lungs are remarkably large, one shot through both lungs also usually proved fatal. If, however, wounded in one lung, or shot too far back, it was little use following a white rhinoceros, as I found that if it did not succumb to its wounds within a short distance, it was likely to travel many miles before dying or coming to a halt. With a broken hind-leg, neither white nor black rhinoceroses can run; but I have seen one of each species travel a mile

with a broken shoulder, going off first at a gallop on the three sound legs, and then slowing down to a halting kind of trot.

"When feeding, white rhinoceroses hold their mouths near the ground, as they eat nothing but grass, which at certain seasons of the year is very short. They also hold their heads low at all other times; and whether walking, trotting, or galloping, the great square nose was always close to the ground, and if the animal carried a straight horn over $2\frac{1}{2}$ feet in length, or one slightly bent forward, as is sometimes the case, the point got worn flat in front by constant contact with the ground. The calf always walked in front of its mother, who apparently guided it with the point of her horn, which seemed to rest on the calf's hind-quarters, as was observed by Gordon Cumming, who gave a good illustration of this mode of procedure in his work on South African hunting. As already mentioned, the white rhinoceros was sluggish; while as a general rule it was the reverse of vicious, as the small number of accidents which occurred during the extermination of this once numerous species in South Africa sufficiently proves. It is true that Oswald had one of his horses transfixed by the horn of one of these animals, while an elephant-hunter was severely injured by a white rhinoceros in Mashonaland about forty years ago. These, however, are but exceptions to the rule that, speaking generally, the white rhinoceros was a harmless and inoffensive animal.

"The individual differences between white rhinoceroses are very great, the front horns of bulls measuring from 18 to 40 inches in length, and those of cows from 24 to 60 inches, or even more. As a rule, the front horn curves slightly backwards, but is often straight and sometimes bent slightly forwards, and sometimes strongly curved backwards. The second horn varies from a mere hump 3 or 4 inches in height to a couple of feet in length. In South Africa I have seen two very long horns, one measuring 54 and the other 52 inches; and in 1872 I shot a cow with a horn which was strongly bent backwards, and measured 45 inches over the curve. About the same time three other cows were shot by Griqua hunters close to my camp with horns over 3 feet in length; and in July 1880 one of my waggon-drivers shot a bull of which the front horn measured $37\frac{3}{8}$ inches in length, with a circumference of over 27 inches, and the second horn $17\frac{7}{8}$ inches. The skull and horns are in my own collection.

"The flesh of the white rhinoceros was considered by Dutch and English hunters to be superior to that of any other game animal in South Africa; the part in greatest favour being the hump, situated in front of the withers. This was cut off whole and roasted in the skin

in a hole dug in the ground. Towards the end of the rainy season, in



FIG. 2.—Front Horns of Female White Rhinoceros, brought home by Gordon Cumming.

February and March, white rhinoceroses became excessively fat, and

greater part of the body there was a layer over 1 inch in thickness, while the whole belly was covered with fat 2 inches thick. The fat was soft and oily, well flavoured, and excellent for culinary purposes.

"The species was apparently a slow breeder, for although I have often seen cows accompanied by calves at least three-quarters as large as themselves, and probably several years old, very few of these had a second calf with them. Once I saw a cow with two three-parts-grown calves, both about the same size, and presumably twins; such, I imagine, were very rare. Small calves were almost impossible to drive away from their mother's carcass, and would charge most viciously at anything that approached, just as will a very young elephant.

"In colour the white rhinoceros was a neutral grey. It is true that when standing in open ground on a winter's morning, with the sun shining full upon them, they looked very white; and since the Boers must first have encountered these animals on the open grass plains in the neighbourhood of the Vaal river, this may have induced them to bestow upon the species a name which appears inappropriate. Cornwallis Harris refers to the white rhinoceros as varying in colour, but being usually dirty brownish white. All I have seen appeared about the same colour—a uniform grey, with no suspicion of brown or white.

"White rhinoceroses usually associated in pairs or families, a bull and cow living together with one or perhaps two calves, one of which would be quite large. When these rhinoceroses were numerous, several pairs or families were, no doubt, often attracted to the same piece of pasture, and when feeding near together would have presented the appearance of a herd; but, had such a herd been watched, I expect it would have been seen to break up and divide into families of three or four on leaving the feeding-grounds.

"As these rhinoceroses feed exclusively on grass, open valleys or thin forest-country with good pasturage between the trees, as in Mashonaland, were essential to their existence. Like the rest of their kind, they were inquisitive creatures: and on one occasion a full-grown individual, evidently attracted by the light of the fires, walked straight up to my camp at night, and was only driven away by fire-brands being thrown at its head."

GRÉVY'S ZEBRA

(*Equus [Dolichohippus] grevyi*)

Fer'ò, SOMALI; Kanka, NDOROBO

(PLATE ii, fig. 4)

With Grévy's zebra of Abyssinia, Somaliland, and the Lake Rudolf district, we come to the first representative of the horse-tribe, or *Equidae*, in which are included not only the wild horse and its domesticated relatives, but zebras and asses. Although both belong to the same suborder—the Perissodactyla—the members of the horse tribe differ from rhinoceroses almost as much as nearly allied animals can. The horse and its relations are cut out for speed and mostly for a life in open plains, where their colouring, which is often of a comparatively brilliant type, is specially adapted to render them as nearly invisible as possible. In place of the short, thick, three-toed limbs of the rhinoceroses, their legs are long and slender, each terminating in a single toe, which is protected by a firm and rounded hoof. Incisor teeth, adapted for nipping grass, together with relatively small tusks, or canines, in those of stallions, occupy the fore-part of both jaws; and the cheek-teeth have very tall, squared, prismatic crowns, with the hollows between the enamel-covered columns of ivory completely filled up by the substance known as cement. When worn, the crown-surfaces present a very characteristic pattern. The body is completely covered with hair; the neck is maned; the tail, which is long, may be either covered with long hair throughout, or tufted at the end with the same; and peculiar hard callosities are present on the inner sides of either the fore, or both pairs of limbs. The family is now confined, in a wild state, to the Old World, the striped species being restricted to Africa.

In place of wallowing in mud, like rhinoceroses, asses and zebras are fond of rolling in sand or dust. Grévy's zebra, which is the most northerly representative of the striped group, is markedly different in many respects from both the typical zebra and the quaggas. The arrangement of the stripes on the hind-quarters is altogether unique; the callosities on the fore-legs are as small as in the horse; and, as in that species, the mane extends on to the withers, while the large, broad, and thickly-haired ears are different from those of all other members of