

The Extinct and Living Subfamilies of African Rhinocerotidae

By

P. E. P. DERANIYAGALA,

Director of National Museums, Ceylon

(With three plates)

Africa possesses two subfamilies of Rhinocerotidae, one comprising that continent's extinct and hornless species, the other its horned forms, both extinct and living. Two extinct monotypic genera are the only ones recorded from Africa, but a third one yet unnamed is the extinct rhinoceros with incisors that occurs in the fossil deposits of Rusinga island and in the fossiliferous Mio-Pliocene beds near Lake Victoria. Since it is not definitely known whether it is absolutely devoid of horns and as it is under study by others, it will be omitted from this paper.

(A) The sub-family *Turkanatheriinae* are hornless and known from a single named species. They are slenderly built, browsing forms with low crowned teeth that form a more serrate labial margin along the tooth line, than do other African rhinoceroses. However the skull of *Turkantherium acutirostratus* Deraniyagala (Pl. 2 fig. a) presents a striking superficial resemblance to that of the black rhinoceros *Diceros* (Pl. 2 fig. b) in lateral view, for both display a concave dorsi-cranial outline and the distance from the nasal cleft to the eye socket is long, whereas in most aceratherine rhinoceroses and in the living white rhinoceros *Ceratotherium* it is short. Characters in the fossil skull are (1) its slenderness especially of the nasals; (2) the compressed lambdoid crest with three or four pits on each side of the cranium (Pl. 1 fig. b; Pl. 2 fig. c); (3) the elongate but edentulous premaxillaries; (4) the large occipital condyle (Pl. 3 figs. b, d); (5) the narrow concave and elevated occiput (Pl. 3 fig. b); (6) the low crowned cheek teeth with 4 premolars, absence of crista, a straight protoloph and no canines or incisors (Pl. 1 fig. c and Pl. 2 fig. d).

(B) The subfamily *Dicerotinae* possess horns and are represented by the extinct *Serengeticeros* Dietrich, from the lower Pleistocene of the Serengeti plains of Tanganyika. Its molars are more compressed than in any of the other African rhinoceroses, namely the living *Diceros* Gray, or black rhinoceros which occurs in the upper Pleistocene deposits of Africa, and the living *Ceratotherium* Gray or white rhinoceros which possess a similar fossil horizon. *Ceratotherium* differs from both *Diceros* and *Turkantherium* in the relative brevity of its distance from the nasal cleft to the eye. Its upper molars are more hypsodont than in the other species, and are also much narrower than long, the crista is strong and fuses with the crochet, and the protocone is bent until parallel with the ectoloph. The name of *Turkana beds* is here suggested for fluvatile deposits containing this rhinoceros. They are grey tuff conglomerate above the red tuff at Moruaret Hill, West Turkana, 20 miles north-east of Lodwar and 26 miles west of Lake Rudolf, East Africa, lying at about 90 feet above the present lake level and contain various minerals worn into pebbles. Since these are not depressed the deposit cannot be lacustrine. For a further description of the faunal assemblage see Deraniyagala 1951.

The African representatives of the family Rhinocerotidae can be grouped as follows:—

Family Rhinocerotidae in Africa

(a) Subfamily Turkanatheriinae (hornless)—

1. Genus *Turkanatherium* Deraniyagala, no incisors (Middle or Upper Pliocene, Turkana deposits west of Lake Rudolf).
2. Genus unnamed, with incisors (Upper Miocene or Lower Pliocene of Rusinga Island). This genus is under study by L. S. B. Leakey *et alii*.

(b) Subfamily Dicerotinae (with two horns)—

1. Genus *Serengeticerus* Dietrich (Lower Pleistocene, Serongeti plains).
2. Genus *Ceratotherium* Gray (upper Pleistocene to Recent).
3. Genus *Diceros* Gray (Upper Pleistocene to Recent).

References to Literature

DERANIYAGALA, P. E. P.—

1951—A hornless Rhinoceros from the Mio-Pliocene Deposits of E. Africa, *Spolia Zeylanica*, Vol. 26, pt. 11, pp. 133-137, pl. 1.

DIETRICH, W. O.—

1942—Zur Entwicklungsmechanik des Gibisses der Afrikanischen Nashorner *Sonderdruck aus dem Zentralblatt f. Min. etc. Jahrg. Abt. B. Nr. 10*, pp. 297-300.

SIMPSON, G. G.—

1945—A Classification of Mammals. *Bull. Am. Mus. N. H.*, Vol. 85.

Explanation of Plates

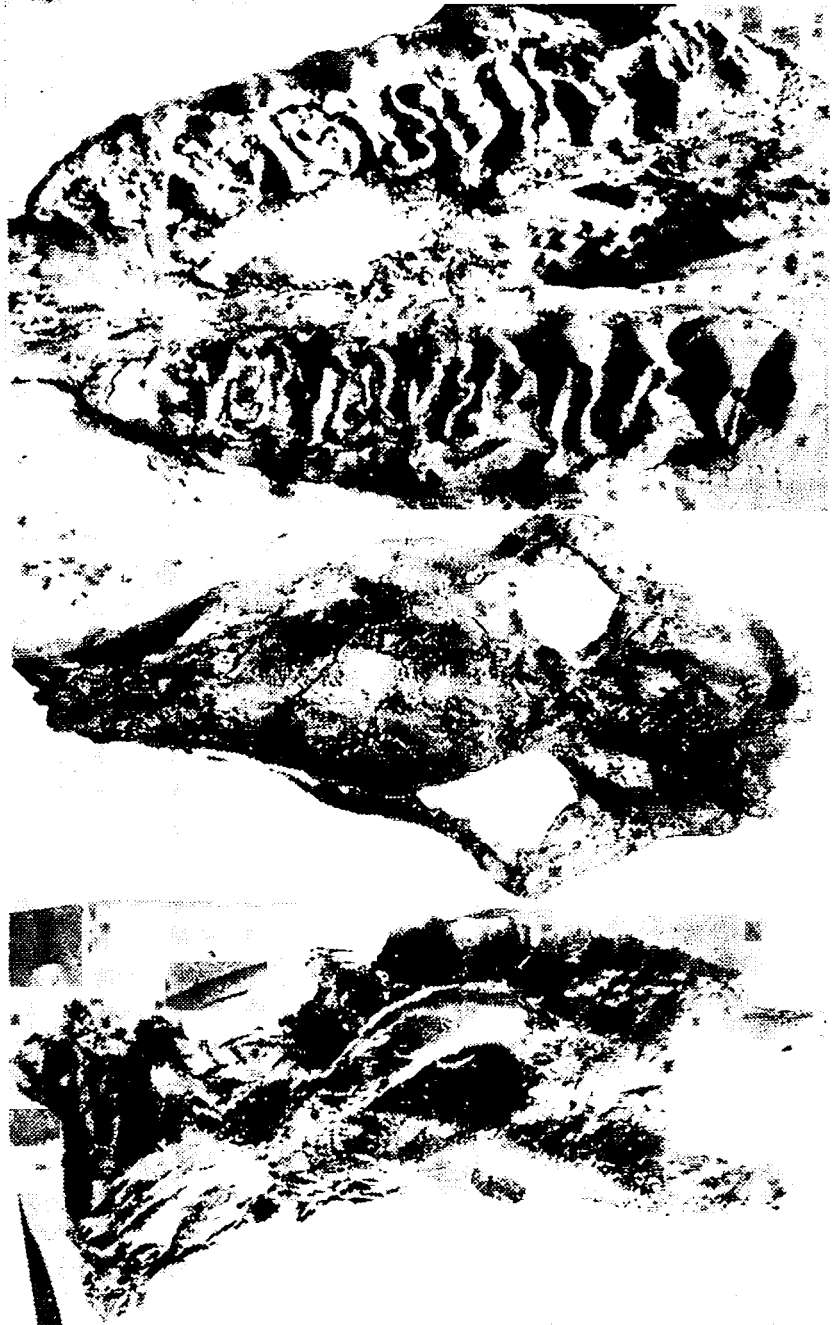
Plate 1—Skull of *Turkanatherium acutirostratus* Deraniyagala—

- (a) in norma lateralis, left side; note the brachyodont cheek teeth and distance from orbit to nasal notch;
- (b) in norma dorsalis;
- (c) plate showing dentition; note that the protocone is almost at right angles to the ectoloph and that there is no crista.

Plate 2—A comparison of the skulls of *Diceros bicornis* (Linné) figs. (a) and (d) and of *Turkanatherium acutirostratus* Deraniyagala figs. (b) and (c) in norma lateralis (right side) and norma dorsalis. Note the slender but elongate nasals and premaxillaries, brachyodont dentition, the maxillaries that are visible on either side of the nasals in dorsal view, and the carinate lambdoid crest of *Turkanatherium*. Compare the heavy wide nasals occluding the maxillaries from dorsal view, reduced premaxillaries, the relatively higher teeth, and wide flat top to the skull of *Diceros*.

Plate 3—Occiput and palate of *Diceros bicornis* (Linné) (figs. a and c) and of *Turkanatherium acutirostratus* Deraniyagala (figs. b and d). Note the low occiput and relatively smaller occipital condyle of *Diceros* (fig. a) compared with the high occiput and large condyle of *Turkanatherium* (fig. b). In the palates note the more anteriorly elongated choanal aperture, the anteriorly sloping zygomatic arch, the more elongate skull and the more crenulate line made by the ectoloph of the cheek teeth, of *Turkanatherium* (fig. d).

Tyrkmedethrium neithosimus Deraniyagala
a in norma lateralis, left side, b in norma dorsalis, c palate and dentition.



[PLATE I]



a



b



c



d

Skulls of *Turknoetherium* Deraniyazala *b* and *c* and *Diceros* Gray *a* and *d* compared.



Occiput and palate in skulls of *Turkanotherium* Deraniyagala *b, d*, and *Diceros* Gray *a, c*, compared.