

A Stone-Age Human and a Fossil Rhinoceros from the Turkana District, East Africa that are in the Colombo Museum

By

P. E. P. DERANIYAGALA, D.Sc. (Hony.) Ceylon University and Vidyodaya University,
M.A. (Cambridge), A.M. (Harvard)

(With three plates and two text figures)

In 1947 the National Museums of Ceylon participated in the University of California's African Expedition and for the aid so rendered in personnel and in finance, it received a part of the paleontological collection secured by the expedition. Some of this had been worked out and published in *Spolia Zeylanica*, Vol. 25(1948) and elsewhere and the present paper is a continuation of this work. I am grateful to Dr. Bryan Patterson of Harvard for showing me skulls of a male and two females of *Turkanotherium acutirostratus* secured from Lake Rudolf by the Harvard expedition in 1962 when I visited Harvard in January 1965.

HOMINIDAE

Homo palestinus turkanus Deraniyagala

Plate 1

Homo palestinus turkanus Deraniyagala 1948, *Spolia Zeylanica*, Vol. 25, Pt. 2, pp. 10-16, pl. III, text fig. 1

The graves of this race were discovered by the present writer in the area around the base of Moruaret hill between Lodwar and Lake Rudolf in the Turkana district of Kenya in 1948. After photographing a skull in situ (Plate II, fig. 3) he left for Ceylon and unfortunately that particular specimen was not plaster jacketed and collected. However two other skeletons or parts of skeletons were secured and these were sent to the Colombo Museum about ten years later. The heavy jolting during transit had broken up the fragile bones into numerous fragments which had shifted about so much within the large quantity of loose sand encased within the plaster jacket that only a few parts of one specimen could be reassembled. They however reveal various characters of these humans. The description of the holotype which is F 59.2.30 in the Colombo Museum is as follows:—

Skull—The calva is represented by the more or less complete frontal and the lower part of the left parietal which suffice to indicate that it was dolichocephalic. The thickness of the frontal at the bregma is 9 mm and it possesses a diffuse median ridge posteriorly, (Pl. 1).

The cranial vault also appears to be relatively low.

Each of the openings of the two frontal sinuses are 14 × 14mm. (Pl. I, fig. 2). The dimensions of the right half of the mandible (Pl. I, figs. 3. and 4.) as compared with those of a modern Sinhalese are as follows:—

	<i>H.p. turkanus</i>	<i>Sinhalese</i>
Coronoid to condyle	41	37
Width of ascending ramus at mandibular foramen..	33	31
Mandibular notch to gonion	45	42
Depth of body under M ₃	26	24
Depth of body under M ₂	25	22
Depth of body at mental foramen.. .. .	30	30

	<i>H.p. turkanus</i>	<i>Sinhalese</i>
Mental foramen to coronoid tip	67	67
Mental foramen to condyle tip	92	88
Length of $M_1 + M_2 + M_3$	33	30
Bi-lateral jaw width at M_1	15	15
Bi-lateral jaw width at M_2	16	16
Bi-lateral jaw width at M_3	17	15
Mandibular foramen to base of M_3	19	17
Top of mandibular foramen to mandibular notch	17	17
Gonion to mandibular foramen	18	19
Length of M_2	12	12
Breadth of M_2	11	9
Length of M_3	12	11
Breadth of M_3	11	9
Glabella to bregma	111	99
Glabella to posterior of left parietal	178	157
Distance between supraorbital notches	46	47
Thickness of frontal at bregma	9	5
Minimum anterior width of frontal	94	95
Maximum posterior width of frontal	112	115
Thickness at nasion	26	26

Trevor's mean measurements for U. S. Negro crania published in *Leech*, Vol. XXVIII, pp. 131-138 (1958) are here compared with those of *Homo palestinus turkanus* in table 1 below.

Table 1

A comparison of the dimensions of *Homo palestinus turkanus* together with the mean figures for American Negroes in mm. is as follows :—

	<i>H.p. turkanus</i>	<i>U. S. Negro</i>	<i>U.S. Negroes</i>
Minimum frontal width	94	97.0	92.0
Maximum frontal width	112	138.6	135.6
Frontal chord	111	112.4	107.8
Frontal arc	—	128.2	123.4
Orbital width	—	45.4	43.5
Frontal index or			
Minimum frontal width $\times 100$	83	70	68
Maximum frontal width			

Dentition

The original specimen figured in *Spolia Zeylanica*, Vol. 25 indicated an edge to edge bite. As the teeth of the present specimen are mostly broken off or loose only a few characters are now mentioned.

The inner upper incisor is somewhat shovel shaped, the worn surface being crescentic and there are elongate digitate thickenings of the cingulum upon the lingual surface. These are not visible in the illustration (Pl. 1, fig. 3). The last lower molar possesses five cusps forming a dryopithecus pattern (Pl. 1, figs. 4 and 5, Pl. 2, fig. 2).

Limbs

Fragments of three limb bones gave the following dimensions :—

The Ulna

- (a) The distal half of the *ulna* 230 mm long with the articulating surface of the caput missing was as follows :—

The antero-posterior thickness of the shaft at mid length is 20 mm.

The bi-lateral diameter at mid length is 18 mm. and the greatest width at damaged distal end is 46 mm.

The Tibia

- (b) Total length of fragment is 190 mm. The antero-posterior diameter near the distal end is 32 mm. Its bi-lateral diameter at distal end is 23 mm. Antero-posterior diameter at mid length is 28 mm. The bi-lateral diameter is 20mm. The index is 71 i.e. Mesocnemic.

The Femur

- (c) The *femur* known from a fragment of the proximal half with the caput missing is 250 mm. long. The diameters of the shaft near its distal end are 25 mm. antero-posteriorly and 29 mm. bi-laterally. The index is 86. 2 i.e. Eurymeric.

Horizon

In the grouped graves at the foot of Moruaret Hill (Map 1 : 5000,000 Moroto. E. A. F. No. 1570 H.) in the Turkana district, half way between Lodwar and Lake Rudolf in East Africa. The stone implements in the vicinity appear to be a mixture of a Turkana phase of the Wilton Culture comprising flakes, lunates and points of jasper, chalcedony and flint, mixed with developed Levalloisian artefacts (Fig. 1).

The fact that the skeleton that I excavated was in volcanic ash suggests that volcanic activity was prevalent at a not very distant date prior to this burial, while the location of these graves far above the present lake level suggests that the burials had occurred when that water level was much higher than at present, possibly during the "Makalian" pluvial.

These facts when taken into consideration together with the relationship of the skull itself and the contemporary human lithic culture suggests a mesolithic age for these burials.

After I had returned to Ceylon, Master Sergeant James Houle of the U. S. Marine Corps wrote to me stating that excavation of the second grave selected by me revealed that "the body was in the familiar folded fashion. The head was to the east, the knees drawn up. Hands were together and under the skull. It was fossilized, but the ground immediately around the skeleton was much darker than the other sandstone".

It was James Houle who discovered the third skeleton which he states was "about 300 yards east of the camp in the old river terrace. I was going after a gazelle and saw a small portion of the skull exposed. A few finger bones were exposed as were the knee bones. We went after him and found some crescents with him". Regarding this skeleton Dr. H. B. S. Cooke the geologist informed me that there were "four artefacts in a small group near the pelvic region" and he considered them "Magosian or early Wilton and thus Mesolithic rather than Neolithic."

The above described scanty material reveals that in these humans—

1. The two frontal sinuses are sub-equal.

2. The frontal bone displays a rudimentary diffuse external median ridge which is most marked posteriorly.
3. The frontal bone is 9 mm thick at the bregma. The frontal index is 83.
4. The skull is probably dolichocephalic with a somewhat low calvarium.
5. The base of the coronoid is long antero-posteriorly.
6. The sigmoid notch is shallow.
7. The horizontal mandibular body is relatively thick under the second and third molars.
8. The ulna, so far as can be judged, is somewhat curved.
9. The tibia is probably mesocnemic and the femur eurymeric, but these two indices and the shape of the ulna cannot be regarded as being absolutely correct, owing to the fragmentary nature of the material.
10. The darkened ground around the skeleton suggests that it is no older than the mesolithic.

Rhinocerotoides

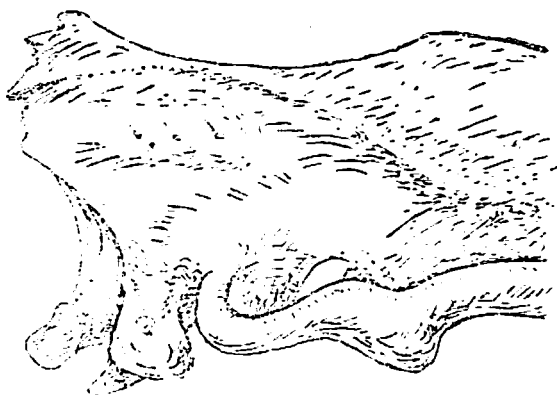


Fig 1.—Top and right side of back of skull of *Turkanatherium acutirostratus* showing the three lateral pits.

See pl. III., figs. 2 and 3.

Turkanatheriinae Deraniyagala

Turkanatheriinae Deraniyagala 1951, *Spol. Zeylan.*, Vol. 26, pt. 2, type genus *Turkanatherium* Deraniyagala (ibid.)

Brachydont with no incisors or canines, and with four upper premolars; the molars are longer than wide and lack the crista, the ectoloph is compressed and slants inwards posteriorly, with the anterior end recurved labially and the posterior one bifurcate; the tooth line is thereby rendered noticeably serrate along the labial aspect. Nasals slender, but do not reach as far anteriorly as the premaxillaries which are edentulous. Lateral distance from nasal cleft to orbit is contained 5.3 times in total skull length, the length of the preorbital area of skull is contained 2½ times in total skull length; a median crest extends along the posterior half of the cranium and contains 3 or 4 cavities on each side (fig. 1) which evidently gave attachment to a horny covering in the living animal (Vide fig. in Deraniyagala, 1956). Slenderly built browsing, rhinoceroses from the Pliocene deposits of Africa which are intermediate between the *Paraceratheriinae* Osborn of Europe and *Teleocerotinae* Hay of Europe and North America. Females hornless; male with a single slender horn anteriorly above nasal aperture. (fig. 2.)

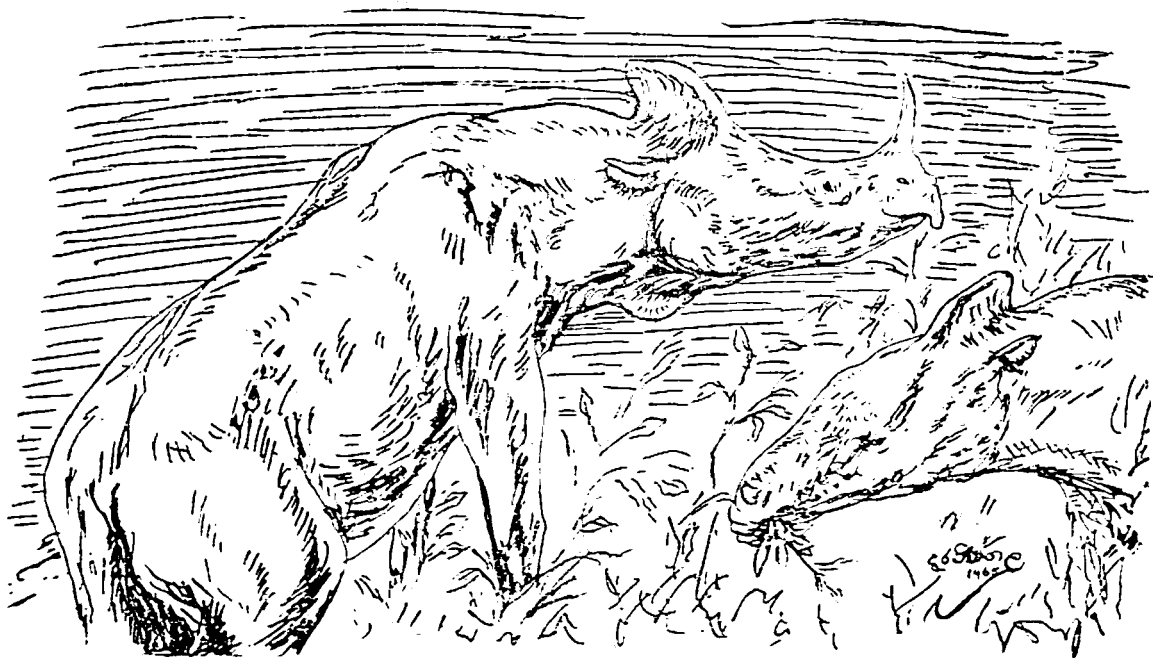


Fig. 2.—*Turkanatherium acutirostratus*. Male and female

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Turkanatherium Deraniyagala

Turkanatherium Deraniyagala 1951 *Proc. Ceylon Assoc. of Sci.* 7th Ann. Congress, Vol. 2, p. 24; 1951, *Spol. Zeylan.* Vol. 26, pt. 2, p. 133; 1953. *Spol. Zeylan.* Vol. 27, pt. 1, p. 13 and 3 pls. Genotype *Turkanatherium acutirostratus* Deraniyagala 1951 Holotype is Colombo Museum No. F58.17.24

Aceratherium Hooijer, 1963, *Koninklijk Museum voor Midden-Afrika-Terruren, Belgie Annalen Series 3, Geological Sciences*, No. 46, pp. 43-44, pls. VI, VII and VIII.

For generic characters see those of the sub-family above and the illustrations in Deraniyagala 1953 and 1959. Type *Turkanatherium acutirostratus* Deraniyagala

Turkanatherium acutirostratus Deraniyagala

Turkanatherium acutirostratus Deraniyagala 1951 *Proc. Ceylon Assoc. of Science, 7th Ann. Congress, Vol 2, p. 24*. Holotype in Colombo Museum, type loc. near Moruaret Hill, Lake Rudolf, E. Africa. 1951, *Spol. Zeylan.* Vol. 26, pt. 2, pp. 133-135, pl. 1 and 1953, *Spol. Zeylan.* Vol. 27, pt. 1, pp. 13, 14 pls. 3. 1954 Hopwood et Hollywood. 1959 *Kurzberichte aus der Wissenschaft. Heft 5* pp. 200-201 abd 5.

Aceratherium acutirostratus Hooijer, 1963 *Koninklijk Museum voor Midden-Afrika-Terruren, Belgie Annalen, Series 3, Geological Sciences*, No. 46, pp. 43-44, pls. VI, VII and VIII.

The holotype of *Turkanatherium acutirostratus* Deraniyagala was discovered in East Africa in the fluvial *Turkana* bed near Moruaret Hill, 20 miles north east of Lodwar and 26 miles west of Lake Rudolf about 90 feet above the present lake level at latitude 4° north, longitude 36° East. Evidence has been adduced to support the view that this bed is of middle or upper Pliocene age and not Miocene (Deraniyagala, 1955, p. 15).

Fossils secured from Miocene deposits 500 miles to the south west of Moruaret Hill and which lie between the lakes Albert and Edward in the Congo portion of the Semliki valley in the area traversed by the Sinda river at latitude 1° North, longitude 30° East have also been assigned to this species (Hooijer 1963). This identification however is open to question for the above and the other reasons which are given below:—

(1) *Turkanatherium* is of the Pliocene and not of Miocene age (Deraniyagala, 1955) whereas the teeth from lake Albert are from Miocene beds (Hooijer, 1963).

(2) As the area around lake Rudolf is mostly flat and 1,200 to 300 feet above sea level with desert scrub whereas that around lake Albert is at 4,500 to 6,000 feet above sea level and comprises tropical rain forest with some grassland and low trees to the east, the two animals might well have occupied different types of terrain even during the Miocene and Pliocene. The close resemblance of teeth to each other in two different species is no guarantee that they are cogenetic as has been seen in Pleistocene elephants such as *Palaeoloxodon*, *Hypselephas*, and *Elephas* (Deraniyagala 1955).

(3) The metacones or posterior ends of the ectolophs of the molars of *Turkanotherium* are more bifurcate and different to those figured by Hooijer. The anterior ends of the ectolophs are also more compressed and recurved labially, thereby imparting to the tooth row a characteristic serrated labial outline (Deraniyagala 1955).

(4) There is a tendency for the enamel of the labial surface of the ectoloph to show a rudimentary crenulation which is only noticeable when light is reflected on to the teeth from the correct direction (Deraniyagala, 1953, plate 1).

(5) Parts of a hornless aceratheriid possessing incisors had been secured by L. S. B. Leakey from the Miocene beds of Rusinga Island prior to 1953 (Deraniyagala, 1953) and the fact that Hooijer's specimens comprise a P⁴, M¹; and M³ and two large blade-like, compressed, upper incisors suggests that all these teeth belong to the above mentioned nameless aceratheriid that possessed incisors for which the tentative name of *Aceratherium leakei* sp. nov. is here suggested, the cotypes being the teeth figured by Hooijer (1963) in his Plate VI, figs. I. 23, Pl. VII, figs. 1, 3, 2, 4, 5, 8 and Pl. VIII; figs. 2, 4, 5, 6.

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Explanation of Plates

Plate I.—Frontal and right mandible of Holotype of *Homo palestinus turkanus* Deraniyagala, that are in the Colombo Museum. Number F 59.2.30.

Fig. 1.—Frontal bone; dorsi-frontal view of exterior.

Fig. 2.—Frontal bone, internal or cerebral aspect.

Fig. 3.—Lingual view of upper first incisor tooth.

Fig. 4.—Occlusal view of left half of mandible.

Fig. 5.—Occlusal view of last lower molar.

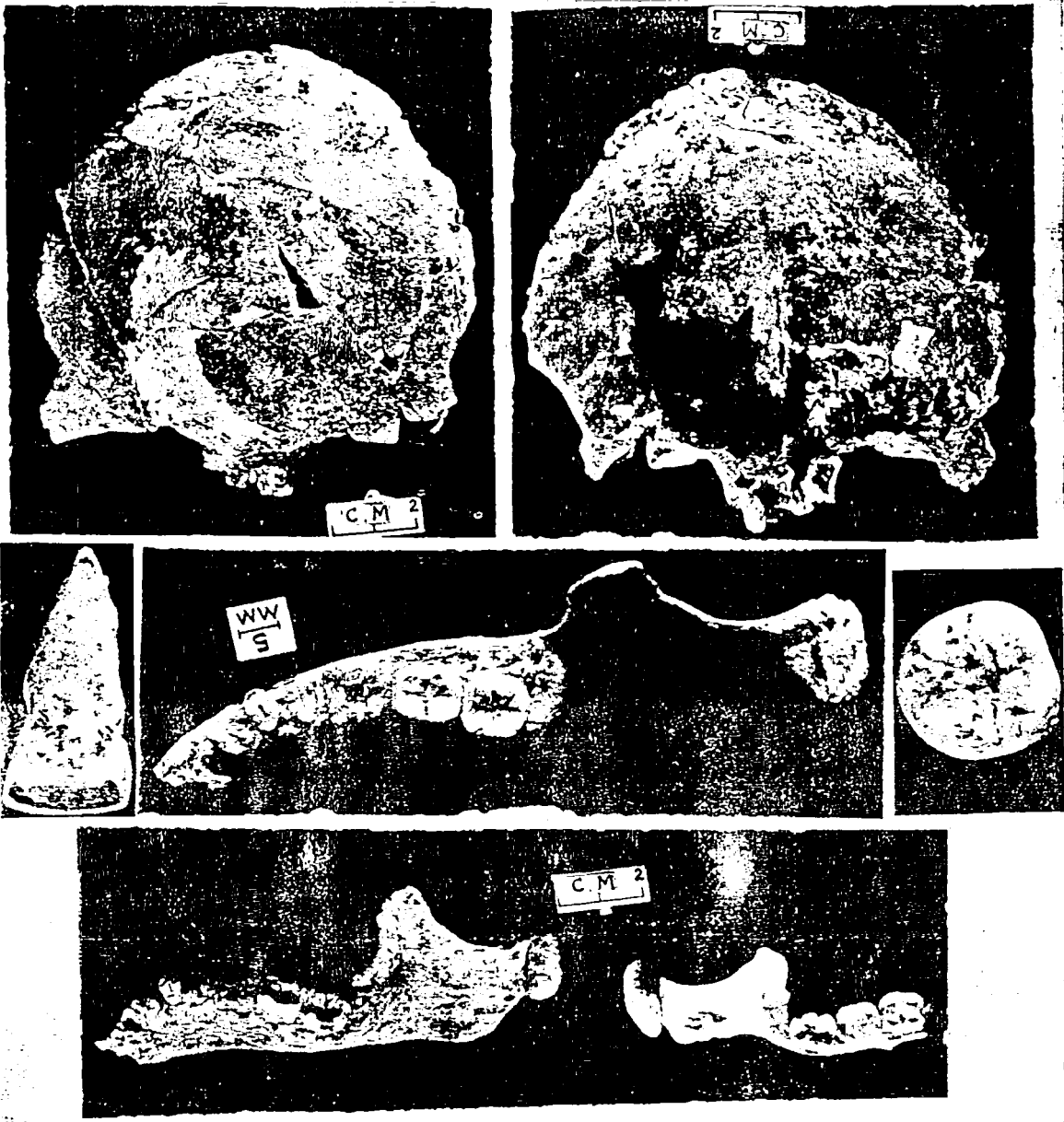
Fig. 6.—Mandible of *H. p. turkanus* compared with that of a recent *Homo sapiens* (fig. 7).

Plate II The graves of *Homo palestinus turkanus* at Moruaret Hill, near Lake Rudolf. Fig. 1. shows four graves; fig. 2 is a close up view of a grave; fig. 3 a skull exposed by excavation; fig. 4 parts of a skeleton.

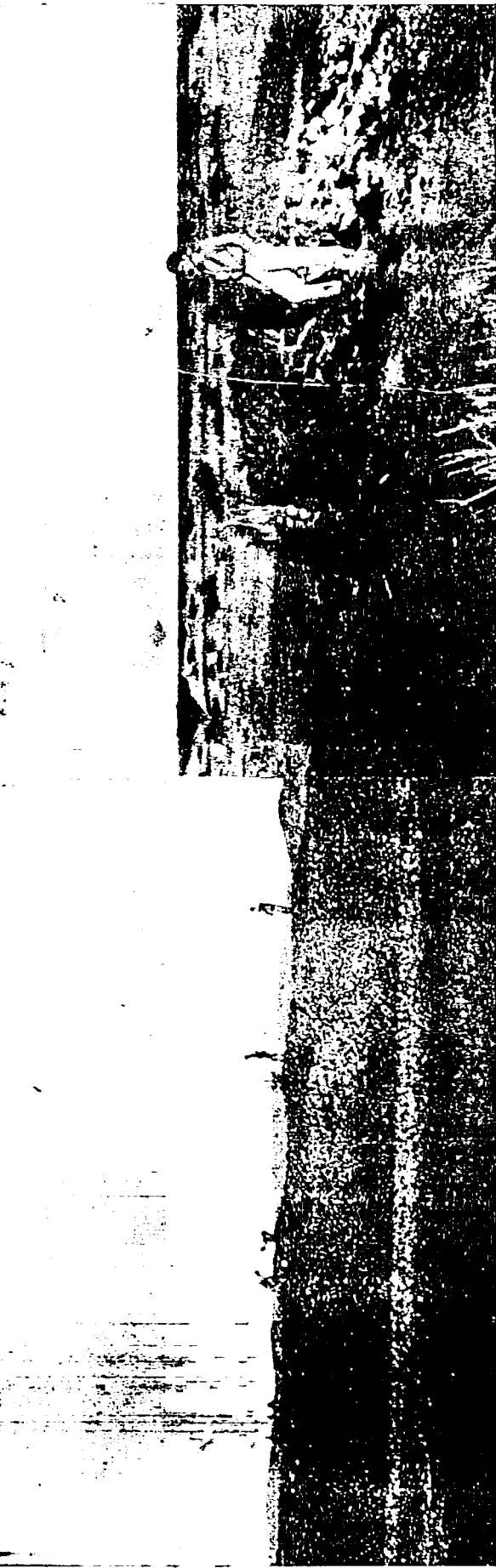
Plate III—The Holotype of *Turkanotherium acutirostratus* Deraniyagala, that is in the Colombo Museum. A female. Figs. 2 and 3.

1

2



The frontal bone, mandible and teeth of *Homo palestinus turkanus*



1

2



3

4

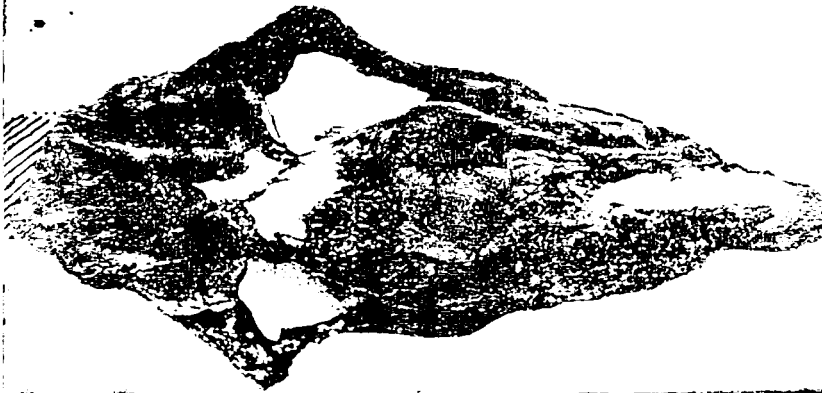
Figures 1 and 2 are graves of *Homo pedestinus turkicus*. The left side of a skull exposed by excavation is shown in Fig. 3.



1



2



3



4

The holotype of *Turkanatherium acutirostratus* shown in figs. 2 and 3 is compared with the skull of the living black rhinoceros of Africa shown in figs. 1 and 4. Note the pits in the right parietal in fig. 3. See text fig. 1.