

*PUNJABITHERIUM* gen. nov.

AN EXTINCT RHINOCEROTID OF THE SIWALIKS,  
PUNJAB, INDIA

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The discovery of a new rhinocerotid skull, containing two incisors, from the lower bed of the Upper Siwaliks, furnishes sufficient data to establish a new genus. Establishing a new genus, for want of definite evidence as to the presence of the incisors, has been a long-pending problem. Comparison has been made with related genera, and conflicting opinions of earlier workers have been discussed.

INTRODUCTION

Baker and Durand collected a rhinocerotid skull (Brit. Mus. No. 3661, Falconer 1868) in the vicinity of the Jamuna River (30° 80'; 77° 40') and some partial skulls and rami were collected by Falconer and Cautley (1847) from the same locality, and referred these fossils to *Rhinoceros platyrhinus*. Not even a single tooth of this rhinoceros was unearthed from the Siwaliks of the Salt Range and adjacent areas. Perhaps this is why Lydekker (1881) remarked that this species may be confined to 'the typical Siwaliks near the Ganges and Jamuna'. The skull collected by Baker and Durand did not contain the premaxillae, and naturally there was no definite evidence of the presence or absence of the incisors.

Although it was suggested that *Rhinoceros platyrhinus* F. and C. might have been the ancestor of *Coelodonta antiquitatis* (Blumenbach) or might have been related to *Rhinoceros deccanensis* Lyd. (Matthew 1929), yet such characters as the absence of the nasal septum, and the presence of complex molar structures, two horn-pads and the union of the postglenoid and posttympanic processes of the squamosals below the external auditory meatus in *R. platyrhinus*, do not wholly agree with the characters of other genera of Rhinocerotidae. Consequently, Lydekker (1881), Matthew (1929, 1931) and Colbert (1935) agreed in favour of referring it to a separate genus, or at least to a subgenus. The discovery of the present skull in which two incisors are present provides adequate data for assigning the specimen to a new genus, herein named

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*Punjabitherium*, which name would now be applicable also to the fossil remains originally referred to *Rhinoceros platyrhinus*.

*Description*

Order	PERISSODACTYLA Owen, 1848
Family	<b>Rhinocerotidae</b> Gray, 1910
Subfamily	RHINOCERINAE
Genus	<i>Punjabitherium</i> gen. nov.

*Punjabitherium platyrhinum* (Falconer et Cautley)

Pl. VI, figs. 1-4

*Rhinoceros platyrhinus*, Falconer and Cautley 1847, Pl. 72, figs. 1-7; Pl. 75, figs. 9-12.

*Dicerorhinus platyrhinus*, Pilgrim 1910, p. 201.

*Coelodonta platyrhinus*, Matthew 1929, pp. 444, 534-535.

*Coelodonta platyrhinus*, Colbert 1935, pp. 178-179.

*Diagnosis*—A large bicorn rhinocerotid; skull without nasal septum; postglenoid and posttympanic processes of the squamosals united below the external auditory meatus; inclination of occiput backward; premaxilla with two incisors; cheek teeth hypsodont with well-developed crochet and crista.

*Locality*—A little over 3 kilometres north-east of Gurha Village (about 11 kilometres NNW of Chandigarh), No. A/559 (Geol. Dept., Panjab Univ., Chandigarh).

*Horizon*—Upper Siwaliks, near the base of the Pinjor stage.

*Collected by*—Ehsanullah Khan.

*State of preservation*—The skull is well preserved except for the upper part of occiput, tip of the nasals and teeth (only last molars are present). The skull is slightly pressed from right to left.

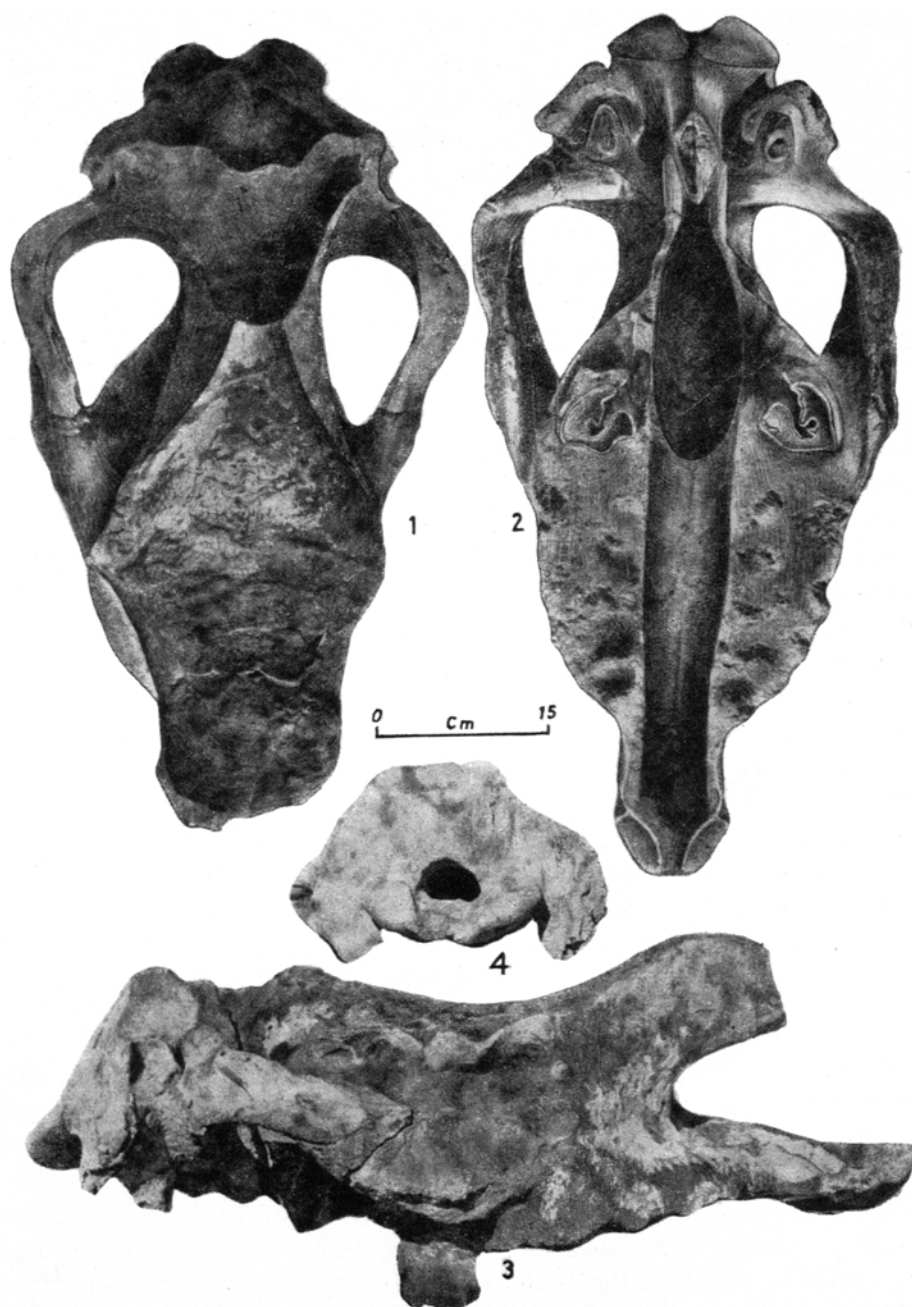
*Lectotype*—Brit. Mus. No. 33662, a battered skull.

*Neotype*—Brit. Mus. No. 36661, a nearly complete skull.

COMPARISON WITH TYPE (NEOTYPE) SPECIMEN

The sutures are obliterated, since the skull belongs to an old individual. Therefore, the individual bones cannot be compared and described precisely. However, a thorough comparative study of the present skull with the neotype reveals the following differences:

In the cast of the neotype specimen (No. C. 64, in the Geological Survey of India, Calcutta) a prominent ridge joins the anterior and posterior elevated rough surfaces, which are the platforms for the attachment of the horns. This ridge and posterior elevated surface are not traceable in the present skull, perhaps due to compression. Also, the skull is narrower in the occipital region and, in general, broader and shorter than the neotype; the former belongs to an old individual and the latter (neotype) to a young one.



FIGS. 1 to 4. *Punjabitherium platyhinum*. Pinjor stage, Punjab, India. Panj. Univ. No. A,559. 1, top view of the skull (photograph retouched); 2, palatal view of the same (photograph retouched); 3, lateral view of the same; 4, occipital view of the same.

## COMPARISON WITH OTHER GENERA

*Punjabitherium* differs from *Dicerorhinus* in its complex cheek teeth structures and union of postglenoid and posttympanic processes of the squamosal below the external auditory meatus; from *Coelodonta* in the absence of the supporting nasal septum; from *Diceros* and *Ceratotherium* in the well-developed premaxillae with two incisors.

TABLE I

*Comparison: Measurements in Millimetres*

	Present skull No. A/559	Lyd, 1881, p. 49 Neotype, C 64	Lyd, 1881, p. 49 Cotype and Paratype
Length from inferior border of foramen magnum to tip of premaxillae ..	762.00	749.30(29.5)	---
Greatest width across zygomae ..	396.20	373.40(14.7)	---
Length of six molars .. ..	297.20	317.50(12.5)	---
Interval between outer surface of penultimate molars .. ..	248.90	213.40(8.4)	---
Height of occiput from inferior margin of foramen magnum .. ..	---	304.80(12.0)	304.80(12.0)
Width of occiput above .. ..	---	218.40(8.6)	213.40(8.4)
Width of occiput below .. ..	279.40	337.80(13.3)	335.30(13.2)
Height of foramen magnum .. ..	60.90	63.50(2.5)	63.50(2.5)
Width of foramen magnum .. ..	50.80	53.30(2.1)	50.80(2.0)
Interval between external angles of occipital condyles .. ..	147.30	152.40(6.0)	134.60(5.3)
Extreme length of cranium following curves of upper surface .. ..	685.80	838.20(33.0)	---
Greatest width at orbits .. ..	278.80	264.20(10.4)	269.20(10.6)
Width of nasals .. ..	137.20	152.40(6.0)	---
Length of $i^1$ .. ..	55.90	---	---
Width of $i^1$ .. ..	30.50	---	---
Length of $i^2$ .. ..	15.20	---	---
Width of $i^2$ .. ..	12.70	---	---

Even if there is doubt about the presence of a second horn-pad, the greater length and width of the skull of *Punjabitherium* clearly distinguish it from the three species of *Rhinoceros*: *R. sivalensis*, *R. palaeindicus* and *R. unicornis*.

## REMARKS

The differences in the dimensions of the skull and the type (neotype) is due to the difference in sex and age. The skull belongs to an old female individual and the type one (neotype) is of a young male.

## DISCUSSION

Lydekker (1881) distinguished *Rhinoceros platyrhinus* from *Dicerorhinus sumatrensis* by the union of postglenoid and posttympanic processes of the squamosals below the external meatus, whereas Pilgrim (1910) recognized *Rhinoceros platyrhinus* as *Dicerorhinus platyrhinus* without giving any reason, Matthew (1929) recognized this species as of *Dicerorhinus*, but later (1929), on the characters of the cheek teeth, preferred to change this decision. He (1929) compares the characters of *R. platyrhinus* with those of other related genera but does not commit himself definitely. Colbert (1935) states that in *R. platyrhinus* F. and C., the postglenoid and posttympanic processes of the squamosals are separate and the external auditory meatus opens below. However, close observations reveal that in the present skull assigned to *Punjabitherium* these processes are not completely fused together as in *Rhinoceros sondaicus*, but they are certainly united (Pl. VI, fig. 3); nor are they separate as in *Dicerorhinus sumatrensis*.

Remains of *R. sivalensis*, *R. palaeindicus* and *P. platyrhinum* are found in the Pinjors, but it does seem reasonable that more than one species of the same genus may exist simultaneously in the same environment of a particular place. It is, therefore, probable that *R. sivalensis* and *R. palaeindicus* are synonymous, since they are almost of the same dimension, and the variation in the structure of the cheek teeth and the shape of skull may be attributed to age or sex, whereas considerably greater length and width of the skull (a feature which does not lie within the limit of species variation even after considering the age and sex), and the presence of two horn-pads, provide adequate data for recognizing *Punjabitherium* as a distinct genus.

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