

A NEW SPECIES OF THE GENUS *HEXAPROTODON* FROM THE
DHOKWAZIRA, DISTRICT JHELMUM, PUNJAB, PAKISTAN

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Abstract: A well preserved skull is described from the Dhokwazira. In general the skull appears to be smaller in size as compared to those referred to *Hexaprotodon sivalensis*. The most distinguishing feature is the size of P¹, which is much smaller as compared to that of *H. sivalensis*. On the basis of these features the species under study is regarded as a new species and the name *H. dhokwazirensis* is being proposed which is after the name of the type locality.

Key words: Genus *Hexaprotodon*, Dhokwazira.

INTRODUCTION

The term *Hexaprotodon* was introduced by Falconer and Cautley (1836) as a subgenus of *Hippopotamus*. The main distinguishing feature of this was considered to be the number of incisors. There are six incisors in *Hexaprotodon* as compared to four in typical *Hippopotamus*. Lydekker (1884) did not accept this and placed *Hexaprotodon* as a synonym of *Hippopotamus*. Later authors, Matthew (1929), Colbert (1935), Simpson (1945), Deraniyagala (1969) and Nanda (1978) contradicted this view of Lydekker (1884) and gave a generic rank to the term *Hexaprotodon*. Uptil now two species of this genus are known from the Siwaliks. These are *H. iravaticus* and *H. sivalensis*. According to Colbert (1937) Siwalik Hippos range from Middle to Upper Siwaliks. But the recent studies of Siwalik hippos (Sarwar and Akhtar, 1992) have shown that they were even present in the Lower Siwaliks. The specimen under study has been collected from Pinjor beds of the Upper Siwaliks. A comparison with the known species of the genus *Hexaprotodon* has shown that the specimen under study represents a new species of the genus. The name *H. dhokwazirensis* has been assigned to this new species. The specimen under study has been given the number with prefix P.M.N.H. (Pakistan Museum of Natural History, Islamabad). Measurements are given in millimeters.

SYSTEMATIC ACCOUNT

Order:	ARTIODACTYLA (Owen)
Suborder:	SUIFORMES (Jaekel)
Infraorder:	ANCODONTA (Matthew)
Superfamily:	ANTHRACOTHERIOIDEA (Gill)
Family:	HIPPOPOTAMIDAE (Gray)
Genus:	<i>HEXAPROTODON</i> (Falconer and Caurley)

Hexaprotodon dhokwazirensis, new species (Fig. 1).

<i>Type:</i>	P.M.N.H. No. 87/114, a slightly damaged skull.
<i>Hypodigm:</i>	The type only.
<i>Locality:</i>	Dhokwazira, district Jhelum, Punjab, Pakistan.
<i>Horizon:</i>	Upper Swilaiks.
<i>Diagnosis:</i>	A Hexaprotodon smaller than <i>Hexaprotodon sivalensis</i> and with relatively small P ¹ .

DISCUSSION

The specimen under study is a skull broken into two parts horizontally, so that the palatal part is separate from the top though both parts fit into each other. The canines of both sides and the incisors of the right side are represented by their alveoli. Among the cheek teeth the left P⁴ is well preserved and the rest are damaged to varying degrees. However, they clearly indicate their diagnostic features.

As is typical of the genus, the tooth rows are curved, they converge posteriorly and diverge anteriorly. The width of palate at P¹ is 106mm and at M¹ it is 66mm, which is typical of the genus and compares favourably with the figures given by Colbert (1935) and Hooijer (1950). As stated above, there are three alveoli of the incisors on the right side, the left side is damaged in this part of the skull. From the alveoli I² appears to be the largest one. The greater diameter of I¹ - I³ are 17mm, 21mm and 19mm, respectively. Between I³ and canine there is a diastema of 40mm. The same figure for *H. sivalensis*, described by Colbert (1935) is approximately 68mm as measured from the diagram. Similarly, for *H. sivalensis soloensis*, described by Hooijer (1950) it is 52mm. Thus, it appears that this diastema is relatively short in this species.

The canine is represented by its alveoli which shows the typical features of *Hexaprotodon*. It is broad anteriorly and narrow posteriorly. In its middle there is a longitudinal groove as in *H. sivalensis*. Like the latter it is longer than broad; these figures being 52mm x 40mm approximately. Between the canine and P¹ there is a diastema which is approximately 12mm. In *H. sivalensis* it varies between 22mm and 40mm (Hooijer, 1950). According to Colbert (1935) it varies between 28mm and 40mm. Thus, this diastema is, relatively, very short as compared to that of *H. sivalensis* even, about which Colbert (1935) says, "The canine premolar diastema is very short."

The most distinguishing feature is the size of P¹, which is much smaller as compared to that of *H. sivalensis*. The length x width of this tooth, which is represented by the base of the crown on right side is 25mm x 21mm. The same figure for *H. sivalensis*, (Am. Mus. No. 19776), described by Colbert (1935) are 44 x 28, as measured from the diagram. The length x width of P² and P³ are approximately 38 x 28mm and 35 x 28mm respectively. These are represented by the bases of their crowns. P⁴ of left side is relatively better preserved; it is damaged slightly on the labial side. Its length x width is 30 x 30mm approximately. It has two cusps, one on the lingual and

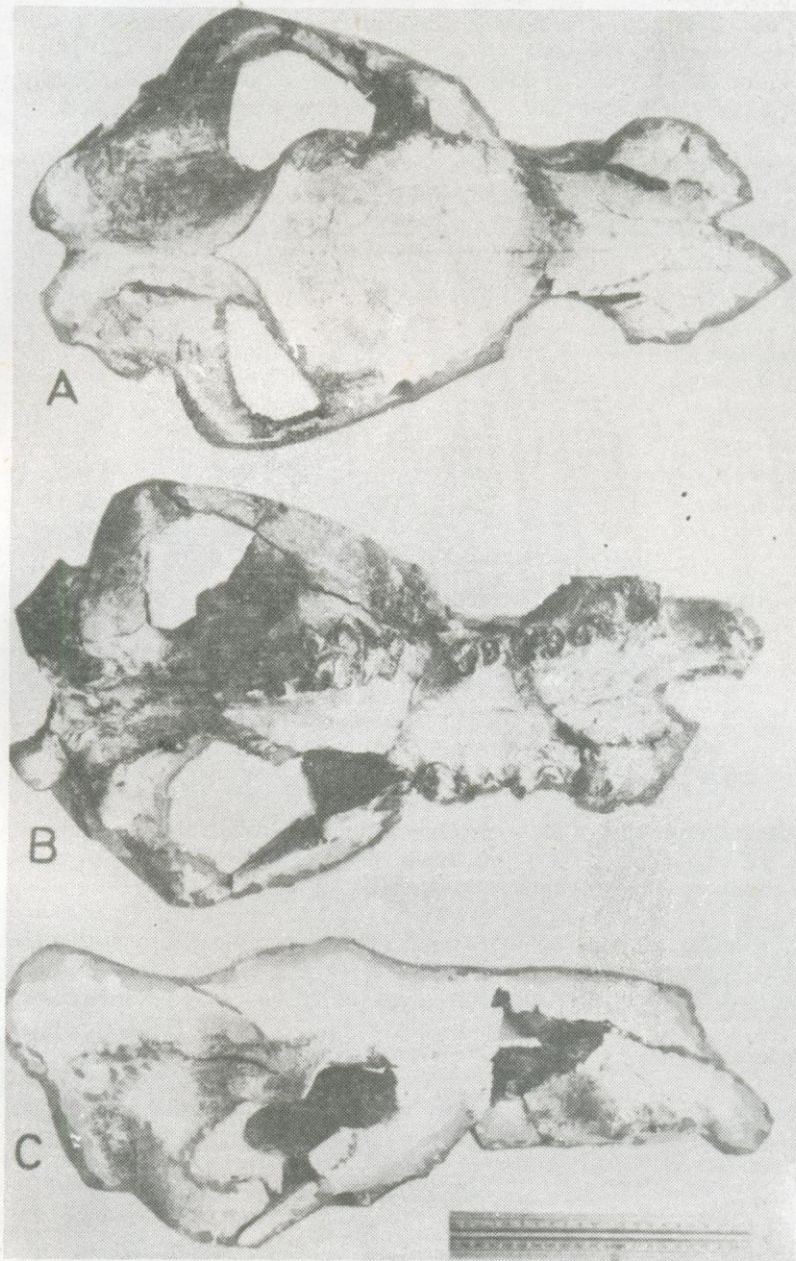


Fig. 1 A skull of *Hexaprotodon dhokwazirensis*. A, top view; B, palatal view; C, lateral view.

other on the labial side. The latter is damaged. The tooth is encircled by a cingulum. The molars, which are damaged, are present on the right side only. M^1 is the smallest and M^2 is the largest tooth. A distinct feature of M^1 is that it is narrow anteriorly and broad posteriorly. The same feature is visible, to some extent in M^2 as well.

Table I: Measurements (in mm) of the specimen under study and those of *H. sivalensis* described by Colbert (1935) and Hooijer

	Specimen under	Colbert's specimens	Hooijer's specimens
Total length of skull	500+	600-610	-
Preorbital length	280	330-335	314-340
Postorbital length	220	260-280	228-275
Height x length of orbit	60 x 62	-	57-65 x 55-73
Width of condyles	110	120-140	120-147
Width of occiput	210	220-263	224-263
Width of zygomatic arches	340	332-339	325-390
Width of palate at P^1	106	104-125	104-125
Width of palate at M^1	66	47-60	47-62
Height of occiput	190	165-185	164-188

+ approximate.

On the posterior part of the ventral side behind the palate two longitudinal ridges of palatine and pterygoid are very prominent. Behind these there are the auditory bullae which are rather short and compressed laterally.

In general the skull appears to be smaller in size as compared to those referred to *H. sivalensis*. However, it is relatively broader as seen in the Table I. The name *H. dhokwazirensis*, new species, has been assigned to this new form of the genus.

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