

A new fossil crab from Garo Hills, Meghalaya

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AND

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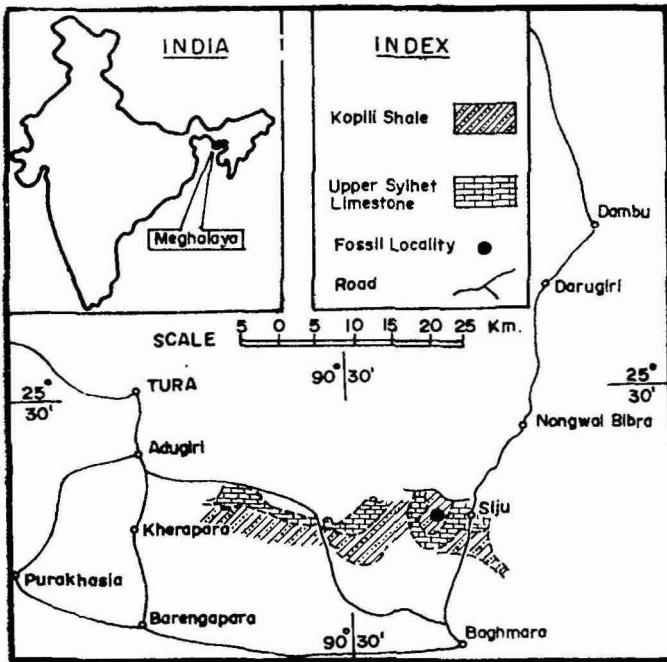
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Abstract

A new species of decapoda crustacea, *Neptunus sijuensis* n. sp. is described from Kopili Shales (Upper Eocene) of Garo Hills, Meghalaya. *Neptunus* has not been recorded from India earlier than Burdigalian (Lower Miocene).

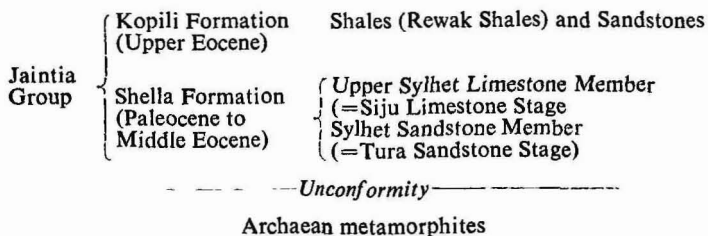
Introduction

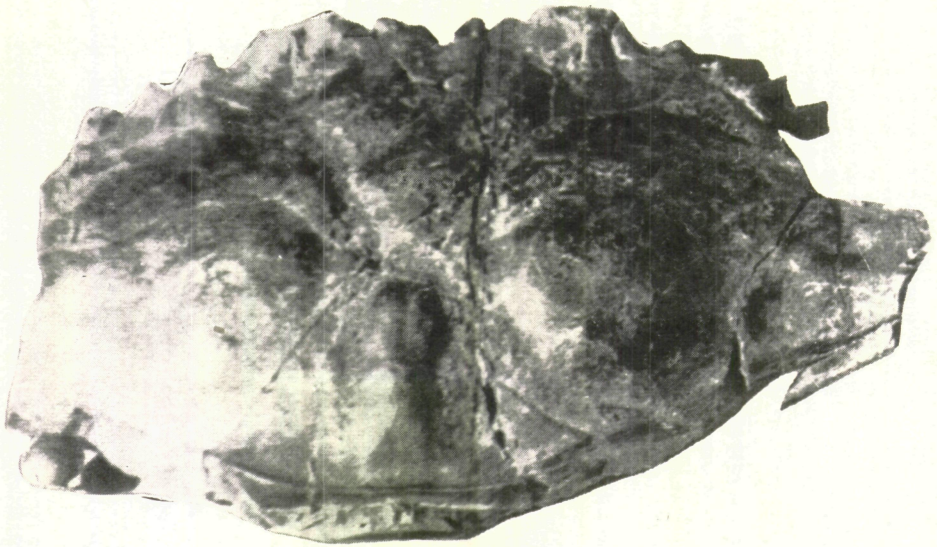
During the course of investigation for phosphorite in Garo Hills, Meghalaya, the second author collected some specimens of fossil crabs from Kopili Shales. The fossils were found to occur in friable, yellowish brown to dark laminated shales exposed about 5 km west of Siju (Text fig. 1) mostly in the form of fragments comprising parts of carapace and appendages.



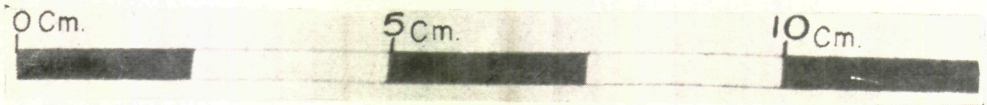
Text Figure 1.
Map showing location
of fossil crab

The geological succession in the area is as follows :





1



2

Neptunus sijuensis sp. nov.

1. Dorsal view, Nat. size.

2. Ventral view, Nat. size.

Systematic Description

Order : DECAPODA
 Infra-order : BRACHYURA
 Family : PROTUNIDAE Bana, 1952
 Genus : *Neptunus* de Haan, 1839
Neptunus sijuensis sp. nov.
 (Pl. I, Figs. 1-2)

Diagnosis : Large protunid crab with a transversely ovate and convex carapace. Cardiac region with an elevated median lobe having a V-shaped ridge with terminal tubercles.

Description : The carapace is convex, with breadth exceeding length by about one half giving it a transversely ovate shape. The upper surface of the carapace is finely granulated with patches of coarser granules on gastric and epibranchial lobes and the anterolateral border. The regions of the carapace are distinctly marked with well-defined sulci. The protogastric lobes are less developed. The meso and meta-gastric lobes are continuous and together form a small raised shield-like structure in the middle. The cardiac region has an elevated, cylindrical, median lobe which gradually slopes posteriorly. The anterior half of the lobe is provided with a V-shaped ridge having a tubercle at each end; the anteriorly placed tubercles are more prominent, rounded and appear to be spinose whereas the posterior tubercle is small and pointed. The mesobranchial and metabranchial lobes are equally tumid and confluent having a sharply pointed tubercle nearly in the middle of the line joining the two lobes. The epibranchial line extends from the costal spine (not preserved in the specimens) towards the middle of the gastric lobe forming a flexuous curve between epibranchial and mesobranchial where it also becomes less distinct.

The frontal margin is nearly straight. Anterior spines are depressed and six in number. The anterolateral spines are alternating large and small and appear to be eight. Costal spines are imperfectly preserved and seem to be long and strong. The sternum is roundedly ovate with seven plates separated by distinct but shallow grooves. The abdomen is long and wide, triangular and its greatest length is nearly half of the length of the carapace. Excepting the last two, the rest of the segments are united with thin raised sutures.

The forelimb is long and strong. Propodos is nearly prismatic and its surface is covered with coarse rounded granules. The external surface is marked with four longitudinal ridges, the median ones converge near the base of the carpus; on the internal surface only three ridges are present, two on the sides and one medially. The claw is not preserved. The surface of the carpus is smooth, marked with ridges and short spines. Merus is long with two prominent spines on the upper border, one near its joint with ischium and the other near the base of the carpus.

Measurements (in mm)

		<i>Length</i>	<i>Width</i>
Carapace	—	85	150 (approx.)
Abdomen	—	43	30
Merus	—	45	21
Propods	—	62	31

Material : Holotype : An almost complete carapace, G.S.I, Type No. 19447

Paratype : One partially preserved forelimb G.S.I. Type No. 19548.

Repository : Geological Survey of India, Calcutta.

Locality: 5 km west of Siju (90°38' : 25°18'), Garo Hills, Meghalaya (India).

Horizon: Kopili (Rewak) Shale, Upper Eocene.

Etymology: The new species has been named after the locality Siju.

Remarks: The shapes of the carapace, disposition of the lobes and spines, the shapes and the character of sternum, abdomen and forelimb, undoubtedly suggest that the present specimen bears close generic identity with *Neptunus*. A comparison with *Neptunus pelagicus*, a free swimming crab of the Indian Ocean, shows that the living species possesses proportionately longer and strong chelate. Besides, it has also a narrow abdomen. Comparing with known fossil species of *Neptunus* from India, *Neptunus sijuensis* resembles closely with *N. wynneanus* Stoliczka, which has a very similar sternum but differs in detail of the regions of the carapace and also abdomen. The present specimen also differs from *N. sindiensis* Stoliczka, which is referred to us *Scylla sindiensis* by Glaessner, 1933), in the shape and disposition of the region of the carapace. The sternum in *N. sindiensis* is not roundedly ovate but long and narrow. Judging by the size of the carapace, *Neptunus arabicus* Woodward referred to as *Charybdis* by Glaessner (1933), is a smaller species but with relatively larger orbits. The most marked character of *Neptunus sijuensis* which distinguishes it from other known species of *Neptunus* is its cardiac region with a median elevated lobe having a V-shaped ridge with prominent terminal tubercles.

The distribution of fossil species of *Neptunus* from the Indian sub-continent (Sastry and Mathur, 1970) is as follows:

<i>N. arabicus</i>	Woodward	1905	Pliocene?	Mekran coast, Baluchistan.
<i>N. wynneanus</i>	Stoliczka	1971	Burdigalian	Pipar, Kutch dist., Gujarat.
<i>Neptunus</i> sp.			Miocene	Thyetmo, Burma
<i>Neptunus</i> sp. indet			Miocene	Hethab, Bhawnagar dist., Gujarat.
<i>N. sindiensis</i>	Stoliczka	1871	Burdigalian	Laki Hills, Sind, Pakistan.
<i>Neptunus</i> sp.			Miocene	Wagot Cheropadi, Kutch dist., Gujarat.

It may be mentioned that Sastry and Mathur (1970, p. 19) commenting on the distribution of fossil crabs in the Tertiary of Kutch have noted that *Scylla* and *Neptunus*, both genera, occur in Oligocene but none of them comes from Eocene. In this context, the present record of *Neptunus sijuensis* from Kopili Shales of Upper Eocene is of considerable palaeontological interest.

The living species of *Neptunus* are free swimming crabs commonly inhabiting the Indian Ocean. The Kopili Shales from which *N. sijuensis* has been collected are considered to be shallow-water deposits.

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