

BIOLOGICAL REMAINS FROM THE SUKET SHALE FORMATION, VINDHYAN SUPERGROUP

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ABSTRACT

Ramapuraea gen. nov., a, new jelly fish and three new finds of fossils *Tawuia*, *Allatheca* and *Coleolella* are described for the first time from the Suket Shale Formation, Ramapura, Madhaya Pradesh.

INTRODUCTION

In recent years diversified biological remains, ichnofossils and organosedimentary structures have been reported from the Precambrian and Cambrian rocks of India. The present paper deals with a new medusoid remain, two calcite body fossils of uncertain affinities and *Tawuia* Hofmann from the Suket Shale Formation of Vindhyan Supergroup around Ramapura, M. P.

MATERIAL AND METHOD

The material was collected from the Chittor-Jhalarpatan Vindhyan Tract. Area of collection is now submerged under the reservoir water (for geological details and locality map, see MAITHY & SHUKLA, 1977). The stratigraphic succession of the Vindhyan sediments exposed in this area is detailed below:

Kaimur Group	—	Kaimur Sandstone
Semri Group	—	{ Suket Shales Nimbahera Limestone and Shales Khorl Malan Sandstone

The material is a hard fine grained shale, either pink or greyish-black. According to radiometric dates, the age of the bed is ± 1000 my (CRAWFORD & COMPOSTON, 1970). These remains have been recorded either in surface examination of rocks under incident light in a low power stereoscopic binocular or by isolating biota from the rocks by different methods as detailed below.

The shales were repeatedly washed in running water. Afterwards burnt in alcohol to remove surface contamination, and then subjected to undermentioned treatment for the isolation of biota.

(1) Rock was first pulverised in Ultrasonic separator, then boiled in solution of sodium bicarbonate or sodium hydroxide until the final distingration of rock into fine pieces was attained. The digested residue was washed in water to remove traces of chemical and then examined. The organised structures were picked up with the help of brush.

(2) Shales were pulverised in water by repeated heating upto 250°C in oven and later by quick cooling in ice chamber of the fridge. The organised structures were picked up after floating disintegrated rock matrix in water with the help of brush.

DESCRIPTION

Ramapuraea gen. nov.

Generic diagnosis—Circular to subcircular impressions, either solitary or in group, central opening area and outerzone well demarcated; central zone \pm circular with globular structures; outer zone flat to raised may, have numerous closely spaced radial thickenings from outer edge of central zone to margin; margin entire or fimbriated.

Gerotype—*Ramapuraea vindhyanensis* sp. nov.

Comparison—In its gross morphology the form compares to medusoid remains *Protolyella* Torrel and *Ediacaria* Sprigg. Both of them differ due to their large size. Moreover, *Protolyella* also differs in the presence of deep central area. Other medusoid remains *Brooksella* Walcott, *Dactyloidites* Hall and *Kriklandia* Caster, are much larger and with distinct lobate margin. *Atollites* Mass, *Actinophyllum* Philips and *Lorenzina* Gabelli are larger forms with few non-forking radiating canals.

Reports of jelly fish are common in the sediments of Ediacarian time (600 my). However, upto now only few Jelly fishes are known from the Precambrian rocks. ALF (1969) has reported jelly fish-like impression from reddish, fine-grained, shallow-water sandstones of the Precambrian of Unkar Group (Bass Formation) of the Grand Canyon area and HOFMANN (1971) recorded Cyclomedusoid-like form from the Handrynian St. John's Group in southeastern Newfoundland. Recently SISODIYA (1982) reported an impression of jelly fish in Nimbahera Limestone, Semri Group from Mandisar District. It differs from *Ramapuraea* gen. nov. in having six distinct radial ridges from the central opening area.

Ramapuraea vindhyanensis sp. nov.

Pl. 1, Figs. 1-3.

Diagnosis—Carbonised impressions, either circular or subcircular in outline measuring 3-6 mm, commonly solitary or found in group of two to three specimens placed closely. Two distinct zones central and outer-marked; central area circular in outline measuring $\pm 1/3$ of overall body dimension with 4-6 globular to trapizoidal structures; outer area raised in middle; several closely spaced fine dichotomising radial thickenings preserved; margin irregular or fimbriated.

Holotype—27341, Birbal Sahni Institute of Palaeobotany, Lucknow.

Locality—Ramapura, Madhya Pradesh.

Horizon—Suket Shale Formation, Semri Group.

Tawuia Hofmann, 1979

Tawuia dalensis Hofmann, 1979

Pl. 1, Fig. 4.

Description—Rod-like structure, straight or curved, parallel-sided, entire with rounded ends surface smooth, no opening observed. The specimens measure maximum 0.83 cm in length and 0.2 cm in breadth.

Comparison—The present specimens compare with *Tawuia dalensis* Hofmann (1979) recorded from the Little Dal Group, Mackenzie Mountain, northwestern Canada (1100-880 my). *Tawuia* cf. *dalensis* has recently been recorded by RULIN AND PEIJU (1980) from the Sinian Subertanem in the western Yanshan Ranges, China.

Allatheca Missarzhevskii, 1969

Allatheca sp.

Pl. 1, Figs. 5-8.

Circular to subcircular calcite body, measuring 200-500 μm , top raised and bottom flattened, surface smooth to reticulate; reticulation pronounced and raised.

Comparison—The Vindhyan specimens resemble *Allatheca* sp. figured by MISSARZHEVSKII (1969, pl. 11, figs. 11 & 15) from the Tommotian Stage, which he considered to be the remain of Hyolithids.

Coleolella Missarzhevskii, 1969.

Coleolella billingsi Missarehevskii, 1969

Pl. 1, Fig. 9.

Ring-like calcite fossils, measuring upto 530 μm in dimension, central hallow area $\pm 450 \mu\text{m}$ and the broder $\pm 30 \mu\text{m}$ broad, surface smooth to rugose.

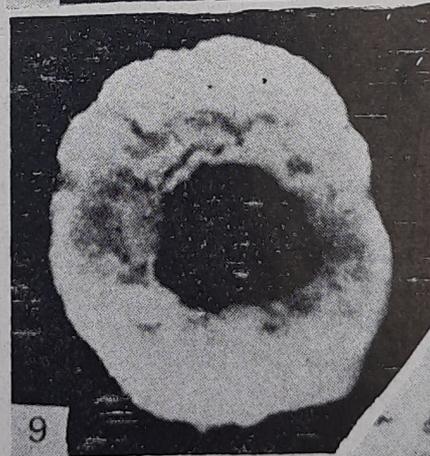
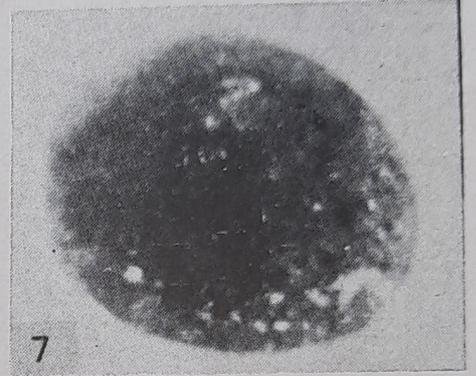
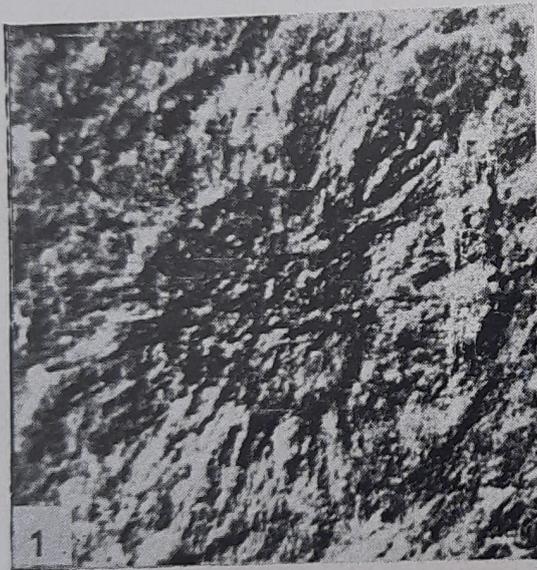
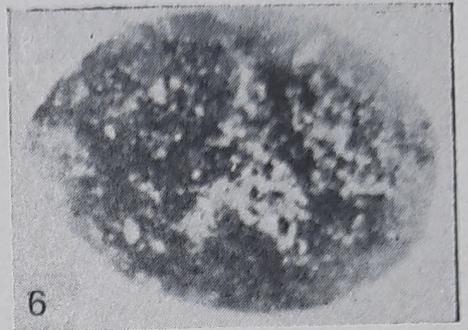
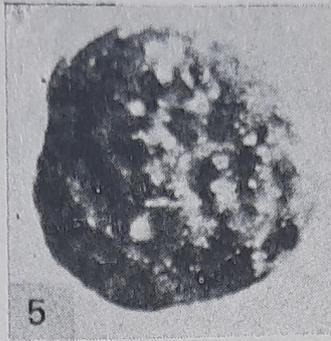
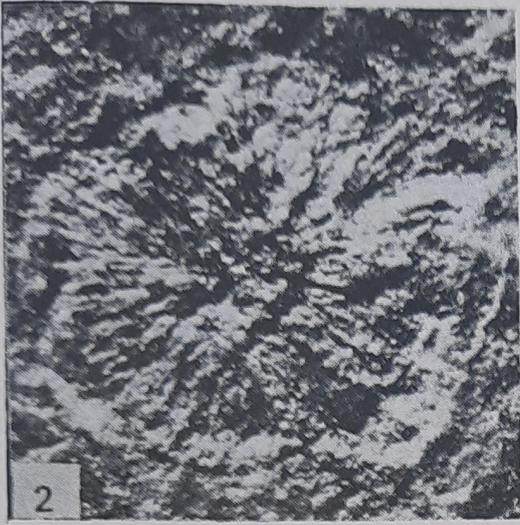
Comparison—Similar looking specimens have been figured by MISSARZHEVSKII (1969, pl. 7, figs. 3, 15 & 16) as the operculum of *Coleolella billingsi* from the Tommotian Stage, who considered them to be remains of calcitic tubular shells belonging to the order Polychaeta.

DISCUSSION

Uptill now remains of microscopic algae and acritarch were known from the Vindhyan Supergroup. *Chuar*, archaeocyatha, annelid and arthropod remains are the other known megascopic life. The present record of Medusoid remain, *Tawuia* and animal fossils of uncertain affinities suggests that during Vindhyan times the life was highly diversified.

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EXPLANATION OF PLATE 1

(All figured specimens are preserved in the Museum of the Birbal Sahni Institute of Palaeobotany vide Statement No. 440).

1. *Ramapuraea vindhyanensis* gen. et sp. nov.; Holotype, Sp. No. 27341, $\times 10$.
2. Another specimen of *R. vindhyanensis*; Sp. No. 27399 $\times 10$.
3. A portion of the specimen in fig. 2 enlarged to show raised ridges and grooves in the marginal area; $\times 25$.
4. *Taxonia dalensis* Hofmann; Sp. No. 25277; $\times 12$.
- 5-8. *Allatheca* sp.; Slide no. 8001; $\times 100$.
9. *Coleolella billingsi* Missarzhevskii; Slide No. 8001; $\times 35$.