

COMMENTS ON A SERPULID, *ROTULARIA CALLOSA* (STOLICZKA), AND
DESCRIPTION OF A NEW SPECIES FROM THE UPPER CRETACEOUS
OF TRICHINOPOLY DIST. S. INDIA

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ABSTRACT

Morphological variations of a large number of specimens representing *Rotularia callosa* (Stoliczka), a serpulid, are studied and found that instead of splitting this species into two or more subspecies, it would be appropriate to put them in one single species. Also, *R. teraniensis*, a new species is described here.

INTRODUCTION

The serpulid fauna from the Upper Cretaceous rock formations of Trichinopoly dist., S. India was described in detail by Chiplonkar & Tapaswi in 1973a and 1973b. Specimens representing *Rotularia callosa* (Stoliczka) in the then collection were only six. But recently we have collected nearly 400 specimens of this species and a detailed study of this extensive collection has revealed that there is gradation in h/l ratio and apical angles. *R. teraniensis* a new species is also described here from these rock formations. For classification Regenhardt's (1961) scheme is followed here.

REMARKS

Rotularia (Tectorotularia) callosa (Stoliczka) was described in detail by Chiplonkar & Tapaswi (1973b, p. 206 pl. XI, Fig. 9). This species is now represented in our collection by nearly 400 specimens from Utatur, Trichinopoly and Ariyalur groups. At first instance one may suspect the presence of two or more subspecies within this species. But after subjecting them to close scrutiny it can be seen that there is a gradation in h/l ratio and apical angle. The former ratio varies from 0.36 to 0.93 and the latter from 45° to 130°. The diameter of the tube varies from 0.2 cm to 0.4 cm, and that of the specimen from 1 cm to 2 cm. The umbilicus varies from nearly flat to fairly deep. This variation in the morphology is neither restricted in space nor in time. Any form may occur in any of the groups, i.e., there is no definite pattern of their occurrence laterally nor vertically. All these variations are clearly indicated in the accompanying illustrations. This variation is also noticed in sinistral as well as dextral coils.

This species is also reported by Yabe & Nagao (1928,

p. 80, pl. 16, figs. 14 & 15) from *Trigonia* sandstone (Cretaceous) of Hokkaido, Japan. But it is not represented by a large number of specimens showing wide variations in morphology, as is known from the South Indian Cretaceous deposits.

It may be mentioned here that Chiplonkar & Tapaswi (1973b, p. 211) have remarked about the validity of three species of the serpulid, *Burtinella* from these beds. On the basis of h/l ratio and apical angle we find three different Cretaceous species viz., *B. concava* (Sow.), *B. solarioides* Wanner and *B. phillipsii* (Roemer) in literature. They have at that time stated that more extensive material perhaps may throw light on the morphological features of these species and help us to decide whether or not they could be assignable to a single species.

From the foregoing discussion, it can be remarked that considering the wide range of variation in morphology of *Rotularia (Tectorotularia) callosa* it would be erroneous to split this species into two or more subspecies or even different species. The species is distributed in these rock formations irrespective of any group or lithological unit. It occurs in Utatur clays, Trichinopoly earthy limestone and coarse grained calcareous sandstone from Ariyalur, thus also indicating its tolerance to the environmental changes then prevailing.

SYSTEMATIC DESCRIPTION

- Family* Serpulidae BUREMEISTER, 1837
Subfamily Spirorbinae CHAMBERLIN
Tribe Rotulariae REGENHARDT, 1961
Genus *Rotularia* DEFRANCE, 1827
Subgenus *Tectorotularia* REGENHARDT, 1961
Rotularia (Tectorotularia) teraniensis sp. nov.
(Pl. II—7, 8 & 9)

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Material : Six specimens ; *Holotype* No. MACS G 694 ; *Paratype* Nos. MACS G 691 to MACS G 693, MACS G 695 & MACS G 696

Description : The diameter of the tube varies from 0.25 to 0.3 cm. The tube is circular to sub-circular in cross-section and spirally and closely coiled in a right-handed manner. The coil is uniwhorled and appears narrowly elliptical in side view. Externally the tube carries three prominent keels at the periphery ; also the tube is wrinkled with intermittent narrow gaps in wrinkling, and appears to form a band tightly coiled along the suture on the upper surface and along the umbilicus on the under surface. After completing the one whorl, though specimens are broken at that place, there is clear indication that the tube gets detached almost tangentially to the coil at this place.

Dimensions : h/l ratio Apical angle Diameter of coil
0.5 to 0.6 110° to 125° 1.1 to 1.4 cm

Remarks : As compared to *R. (T.) callosa* (Stoliczka) (Chiplonkar & Tapaswi, 1973 b, p. 206, p. XI, Fig. 9 ; also *vide supra*) this species is uniwhorled, has greater apical angle, bottom more convex and a smaller h/l ratio. Also this species is a much smaller sized one.

Occurrence : Brownish clays from Utatur group near Terani.

Repository : All the types figured here are preserved

in the Museum of the Dept. of Geology and Palaeontology, M.A.C.S. Research Institute Poona 4.

Etymology : The species is named after the locality of its occurrence i.e., Terani.

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EXPLANATION OF PLATES

PLATE I

All Figures × 1.25

Rotularia (Tectorotularia) callosa (Stoliczka)

1. A, B, C & D : Apical view of medium height specimens
Plesiotype Nos. MACS G 698, 697, 699 & 700 respectively
2. A, B, C, & D : Side view of the same
3. A, B, C & D : Apical view of the dwarf specimens
Plesiotype Nos. MACS G 702, 703, 701 & 704 respectively
4. A, B, C & D : Side view of the same
5. A, B, C, D & E : Apical view of the tall specimens
Plesiotype Nos. MACS G 710, 705, 712, 711 & 713 respectively
6. A, B, C, D & E : Side view of the same

PLATE II

All Figures × 1.25

Rotularia (Tectorotularia) callosa (Stoliczka)

1. A, B, C & D : Apical view of sinistrally coiled specimens
Plesiotype Nos. MACS G 717, 716, 714 & 715 respectively
2. A, B, C, & D : Side view of the same
3. A, B, C, & D : Bottom view showing umbilicus from nearly flat to fairly deep progressively from 'A' to 'D'
Plesiotype Nos. MACS G 709, 705, 713 & 703 respectively

4. A, B & C : Side view showing variation in height
Plesiotype Nos. MACS G 705, 698 & 701
respectively
5. A, B, C & D : Apical view of juvenile specimens
Plesiotype Nos. MACS G 708, 706, 707 & 709
respectively
6. A, B, C & D : Side view of the same

Rotularia (Tectorotularia) teraniensis sp. nov.

7. A, B, C, D & E : Apical view
Holotype No. MACS G 694 (Fig.7 D).
Paratypes Nos. MACSG 695, 691 696 692 respectively
8. A, B, C, D & E : Bottom view of the same showing variation in diameter and depth of umbilicus
9. A, B, C, D & E : Side view of the same

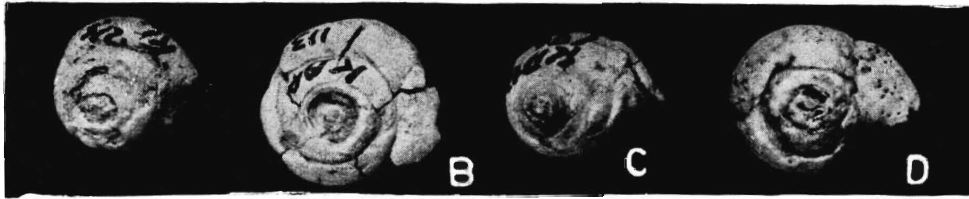


Fig.1

Fig.2

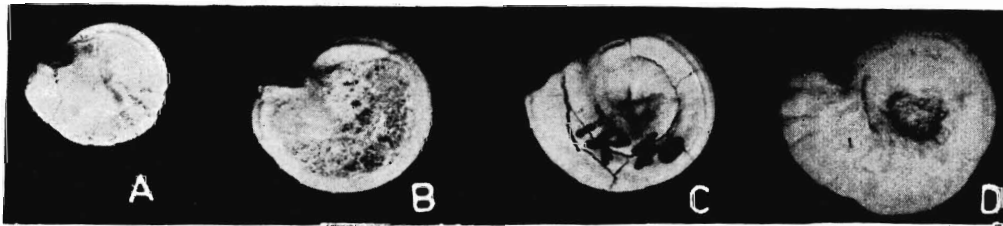


Fig.3

Fig.4



Fig.5



Fig.6



Fig.7

Fig.8



Fig.9