

TERTIARY HYSTRICHOSPHERIDS FROM INDIA : ON A NEW GENUS *MATHUROSPHAERA**

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INTRODUCTION

DURING the palynological study of some deep wells drilled through the Tertiary sequence in Western India (Cambay Basin), the authors came across an interesting form hitherto unknown. After looking through the literature it has been found to represent a new genus.

Following is the diagnosis of the genus and type species :

Genus *MATHUROSPHAERA* Nov.

Diagnosis : Body mostly spherical, covered with rounded to angular (mostly pentagonal to hexagonal) fields without ledges and processes originating from all over the body.

Holotype : Slide No. H-14; 101.2; 29.2 Wild M 20, Figs. 1 and 2.

Type locality : Cambay Deep well No. 15, 1525-30 mts.

Horizon : Oligocene

Depository : Palynology Laboratory, Oil & Natural Gas Commission.

GENOTYPE : *M. RAJIVI*

Diagnosis : Body spherical, densely granulate, covered with mostly pentagonal to hexagonal fields (4 to 6 sided, occasionally rounded)

about 5.6-11 μ wide. General body brown in colour. Fields prominently observed on the surface but the angular sides are not raised which is characteristically present in *Cymatiosphaera* species. Processes originating from all over the body. Each process is light coloured, simple, solid, somewhat hair-like, stiff or supple. Measurements : Body ca. 45 μ diam; Processes ca 7-12 μ long.

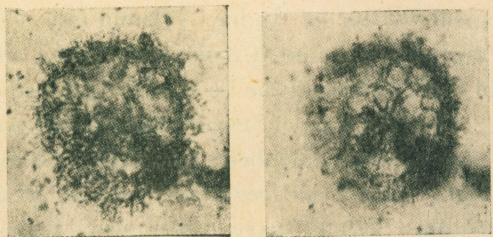
COMPARISONS

The genus is at present known from a single individual recovered in one of the Cambay Deep wells (No. 15) in the uppermost pre-Miocene horizon (Oligocene). This form is peculiar in having pentagonal to hexagonal fields all over the body reminding the *Hystriosphera* (Wetzel) Deflandre, type of organisation without any girdle-like structure and at the same time being studded with very fine, simple, hair-like, solid processes. This genus shows resemblance to another genus *Cymatiosphaera* (Wetzel) Deflandre (1954) in having a spherical, granulated body and external surface being divided into polygonal fields but differs remarkably in not having these polygonal fields in the form of ledges (main characteristic feature of the new genus) and in having numerous, small, solid, hair-like translucent processes arising from all over the body. The

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peculiar combination of processes which are almost characteristically present in the family-Hystrichosphaeridae, and the pentagonal to hexagonal fields comparable to *Cymatiosphaera* belonging to the family Pterospermopsidae, provides the genus a distinctive position. However, the paucity of more individuals and more species stand in the way of giving at present any clear cut affinities of this genus.



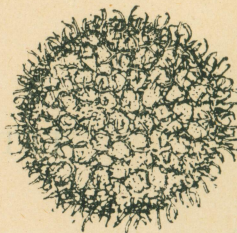
a

b

TEXT-FIG. 1—*Mathurosphaera rajivi* $\times 500$

- a. An individual focussed to show a granulated body, densely covered all over by thin, hair-like processes.
- b. Same individual as above focussed to show polygonal fields.

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TEXT-FIG. 2—Sketch showing a complete individual of *Mathurosphaera rajivi* with polygonal granulated fields and hair-like processes all over the body.

and the latter for giving permission to publish and read the article at the International Conference on Palynology, U. S. A.

REFERENCES

- DEFIANDRE, G., 1954. Systematique des hystrichosphaerides: Sur l'acception du genre *Cymatiosphaera*, O. Wetzel, C. R. Acad. Sci., Paris, 239, 1064-1066.
- DEFIANDRE, G., AND COOKSON, J. C., 1955. Fossil microplankton from Australian late Mesozoic and Tertiary sediments. *Aust. Jour. Marine and Fresh water Res.*, 6 (2), 242-313.
- SARJEANT, W. A. S., 1959. Microplankton from the Cornbrash of Yorkshire, *Geol. Mag.* 96, 329-46.
- SARJEANT, W. A. S., 1961. Microplankton from the Kellaways Rock and Oxford Clay of Yorkshire-*Palaeontology*, 4 (1), 90-118.
- WETZEL, O. 1933. Die in organischer Substanz erhalten Mikrofossilien des Baltischen Kreidefeuersteins. *Palaeontographica A.* 78. 1-104.