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PRESENCE OF SMALL GEPHYROCAPSA IN LATE MIOCENE DIATOMACEOUS LEVELS (S. AGATA FOSSILI FORMATION, SERRAVALLE SCRIVIA, ALESSANDRIA, ITALY)

CONTENTS

Key words: Spongolites with Diatoms, Calcareous Nannoplankton, Small Gephyrocapsa, Biostratigraphy, Late Miocene, Serravalle Scrivia, Piedmont, Italy.

ABSTRACT

The presence of small *Gephyrocapsa* spp. is reported from miocenic diatomaceous levels within the upper part of the S. Agata Fossili Fm., outcropping at Cappella Montei, near Serravalle Scrivia (Alessandria).

These diatomaceous levels are characterized by a rich assemblage with siliceous elements (diatoms, sponge spicules, radiolarians), planktic and benthic foraminifers, calcareous nannoplankton.

RIASSUNTO

Viene segnalato il ritrovamento di piccole *Gephyrocapsa* spp. in livelli diatomitici miocenici della parte alta della Formazione di S. Agata Fossili in località Cappella Montei, Serravalle Scrivia, Alessandria.

Questi livelli diatomitici sono caratterizzati da una ricca associazione ad elementi silicei (diatomee, spicole di spugna, radiolari), foraminiferi planctonici e bentonici, nannoplancton calcareo.

INTRODUCTION

The aim of this short note, supporting the poster presented at the INA Meeting in Florence, is to point out the founding of small *Gephyrocapsa* spp. and of probable *Gephyrocapsa* sp. in Late Miocene diatomaceous levels.

Greater details on said levels are reported in BONCI *et al.* (in press).

SHORT DESCRIPTION OF THE SUCCESSION

A siliceous biogenic episode, *i.e.* spongolithic levels with diatoms, was found in the upper part

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of the Cappella Montei Section (near Serravalle Scrivia, Alessandria) (Fig. 1) within the S. Agata Fossili Marls Fm. In these levels benthic and planktic foraminifers and calcareous nannoplankton are also present.

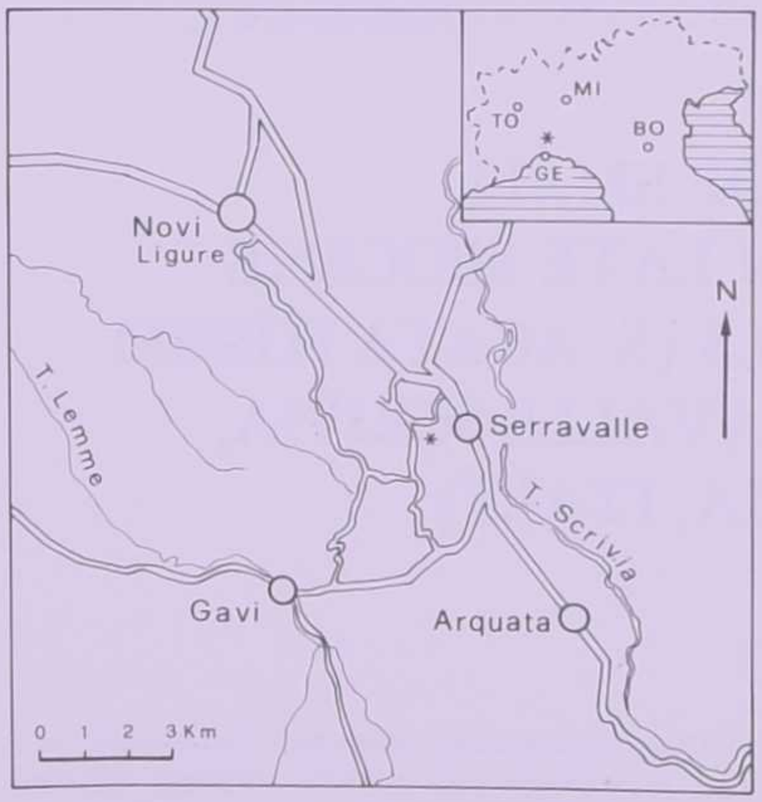

FIG. 1 - Location map of the Cappella Montei Section.

The studied assemblages, which are assigned to Late Miocene allow recognition of three intervals with distinctive characters (Fig. 2):

A - mainly marls (samples 10 - 15; thickness m 3.60) - This interval is characterized by a typical Tortonian assemblage (Pl. 1, figs. 1, 2, 3) with planktic and benthic foraminifers, ostracods, echinoids spines, mollusc fragments, rare bryozoans and otholiths, calcareous nannoplankton.

B - sandy marls (samples 16-18; thickness m 2.60) overlain by spongolithic levels (samples 19-29; thickness m 7.20) - The basal levels of this interval are characterized by the appearance of fish scales and by a change in the foraminifers assemblage: quantitative general decrease, definite prevalence of *Bolivinidae* and *Buliminidae* in the benthos (Pl. 1, fig. 4) and decrease in size of the planktic forms (sample 17). In sample 18 (Pl. 1, figs. 5, 6) the first sponge spicules and radiolarians occur, but the greatest abundance of diatoms and other siliceous organisms (silicoflagellates, ebridians, dinophyceans, archeomonadaceans) occurs only in the sample 20 (Pl. 1, figs. 8, 9, 12). Concerning the calcareous nannoplankton, we have noted a slight decrease in size and the appearance of the Prinsiaceans (samples 19 and 24) with a few small *Gephyrocapsa* sp. (Pl. 1, figs. 7, 10, 11); the discoaster abundance (Pl. 1, fig. 13) increases with the appearance of the siliceous elements.

C - marly-silty levels (samples 30-31; thickness m. 0.50) - The siliceous organisms and the fish scales abruptly disappear: only sponge spicules are still present in the sample 30. The benthic foraminifers show a strong change: appearance of frequent Miliolids (Pl. 1, fig. 14) and of agglutinated foraminifers. A relatively less reduced size is the only change in the planktic Foraminifers. On the contrary calcareous nannoplankton returns to normal size, but the discoasters disappear. Of interest is the appearance of characteristic species assigned to the *Gephyrocapsa* group (Pl. 1, fig. 15).

BIOSTRATIGRAPHIC EVENTS

The events characterizing the diatomaceous levels of this succession are the following:

— sudden appearance of siliceous elements;

— relative depauperation of the foraminifers with size reduction;

— marked prevalence, among the benthic foraminifers, of *Bolivinidae* and *Buliminidae*, with appearance of *Bulimina echinata, Bolivina dentellata*, etc. For lack of planktic markers, the first appearance of *Bulimina echinata* is assuming a peculiar stratigraphic value to assign the diatomaceous levels to the Messinian, as in other Mediterranean areas (COLALONGO *et al.*, 1979; BONCI *et al.*, in press);

— the samples of the upper part of the section contain, among the nannoplankton, few specimens, characterized by a marked bridge, that can be assigned to the *Gephyrocapsa* group.

DISCUSSION

The finding of specimens of *Gephyrocapsa* in Late Miocene levels deserves attention; it requires further thorough investigations from the Authors and it needs moreover informations and indications from other researches on possible similar findings.

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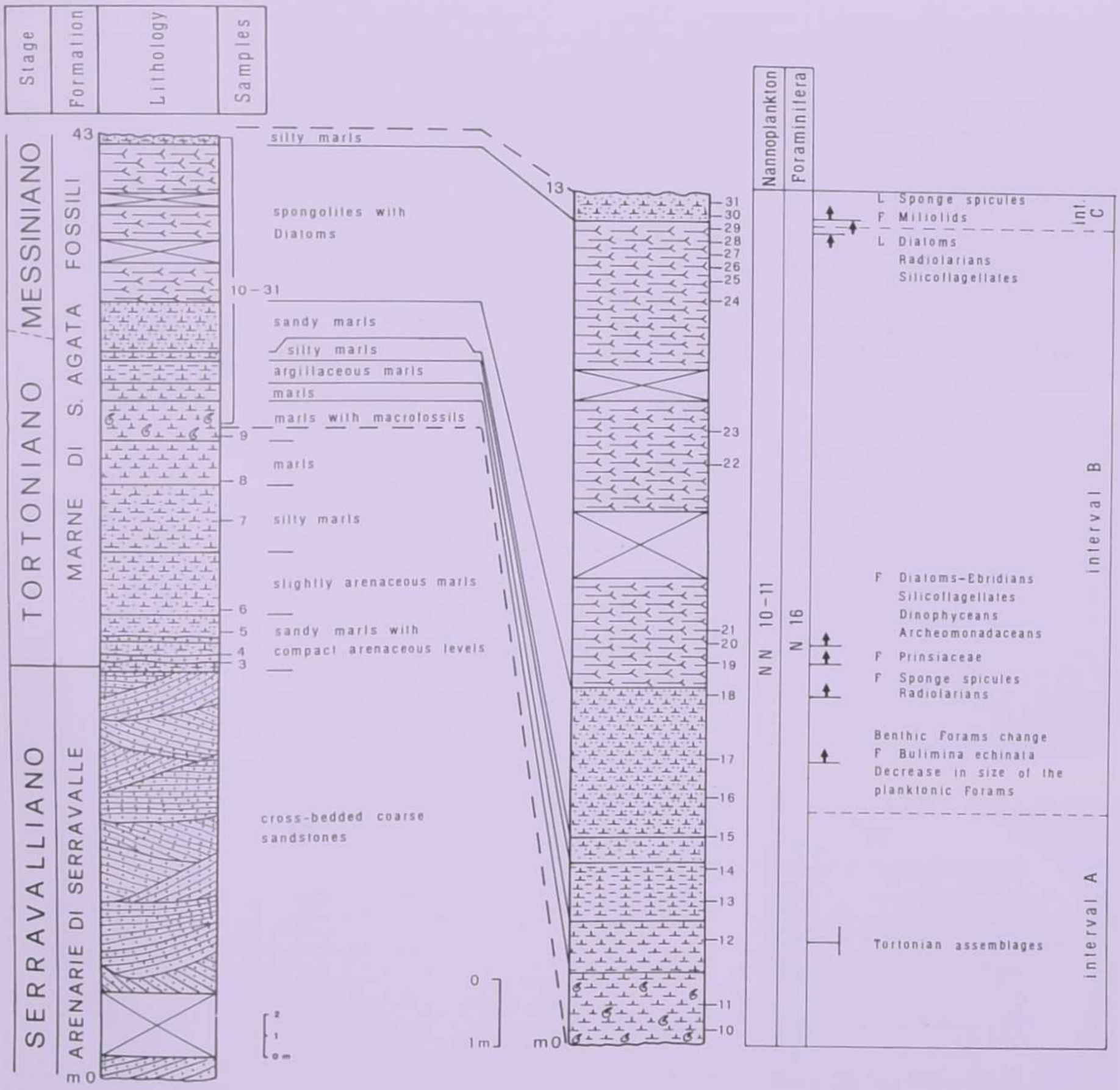

FIG. 2 - Stratigraphic column, lithology and biostratigraphic events of the Cappella Montei Section. F(= first), L (= last).

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EXPLANATION OF PLATE I

FIG. 1 - Benthic Foraminifers assemblage, interval A.

FIG. 2 - *Dictyococcites* sp., interval A.

FIG. 3 - *Cyclococcolithina* sp., interval A.

FIG. 4 - Benthic Foraminifers assemblage, interval B.

FIG. 5 - Dichotriaene sponge spicule, interval B.

FIG. 6 - Radiolarian, fam. *Actinommidae*, interval B.

FIG. 7 - *Gephyrocapsa* sp., interval B.

FIG. 8 - *Paralia sulcata* (EHR.) CLEVE, interval B.

FIG. 9 - *Coscinodiscus marginatus* EHR., interval B.

FIG. 10 - *Gephyrocapsa* sp., interval B.

FIG. 11 - *Gephyrocapsa* sp., interval B.

FIG. 12 - *Mesocena circula* (EHR.) EHR., interval B.

FIG. 13 - *Discoaster* sp., interval B.

FIG. 14 - Benthic Foraminifers assemblage with Miliolids, interval C.

FIG. 15 - *Gephyrocapsa* group, interval C.

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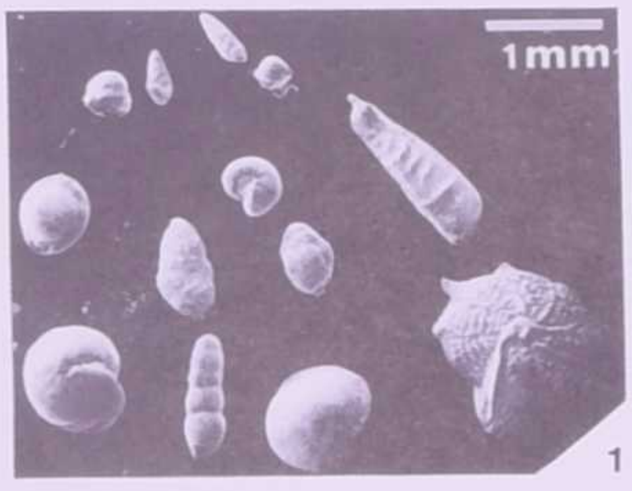
PLATE I



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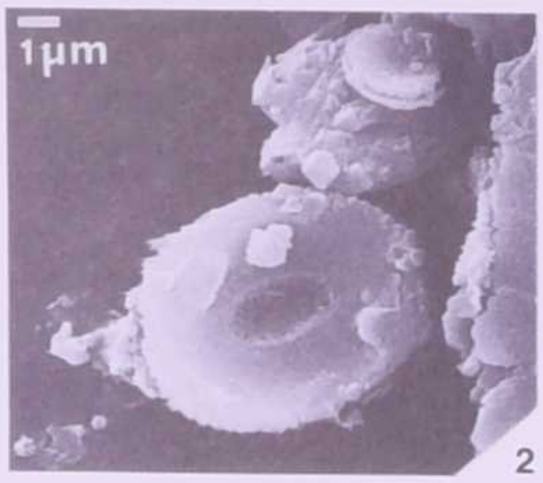

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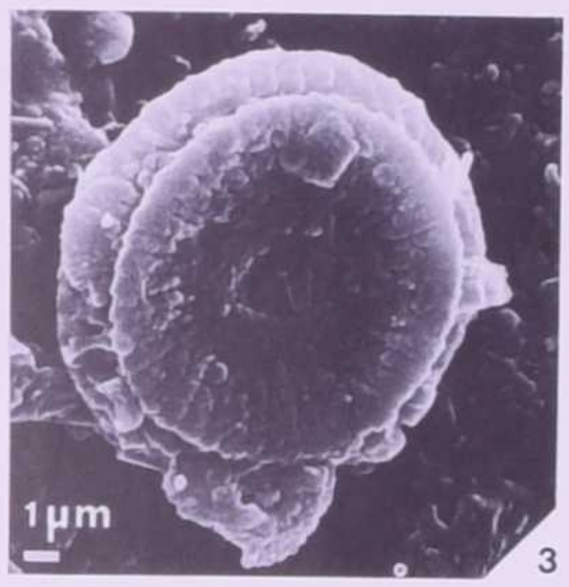

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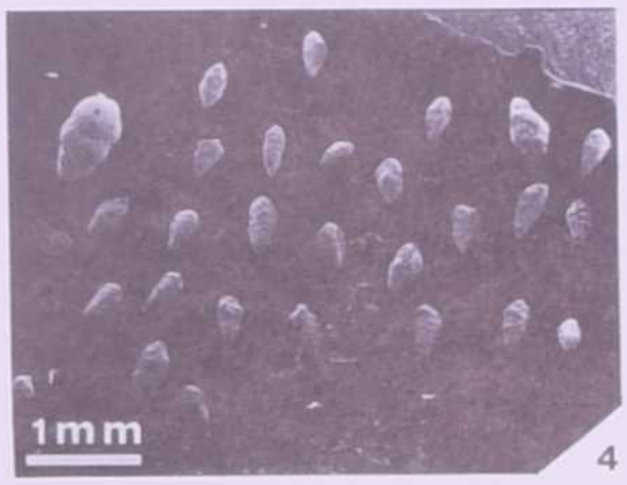

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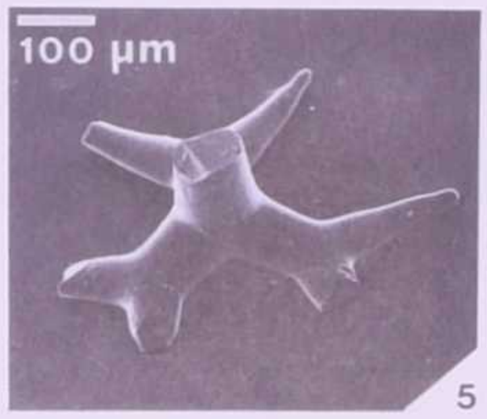

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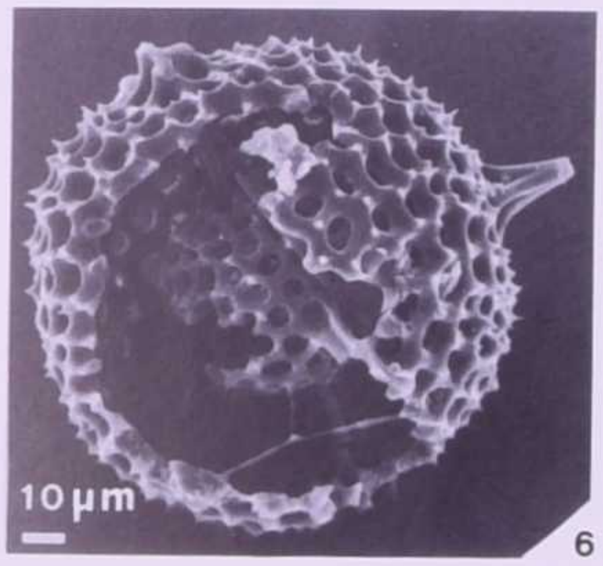

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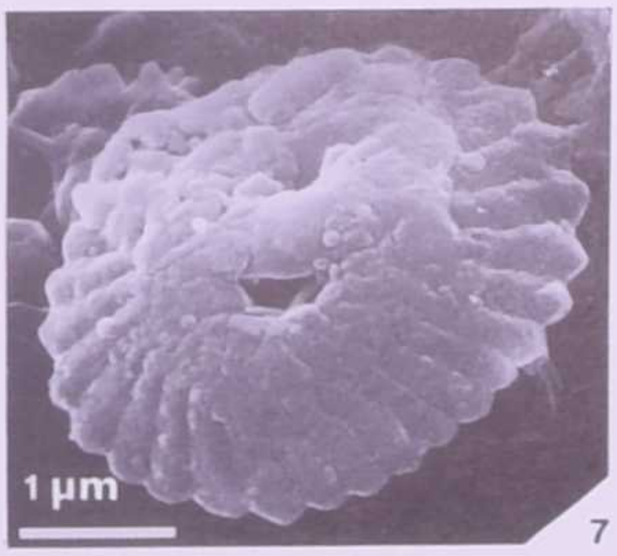

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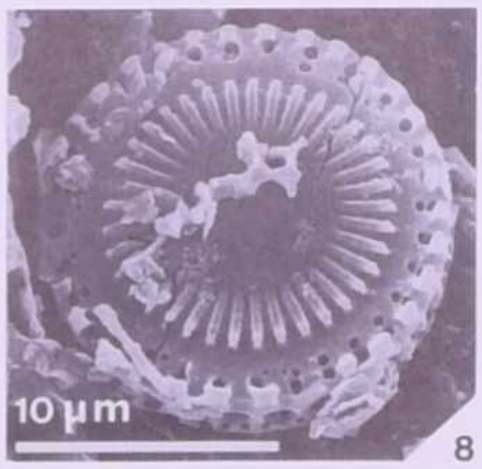

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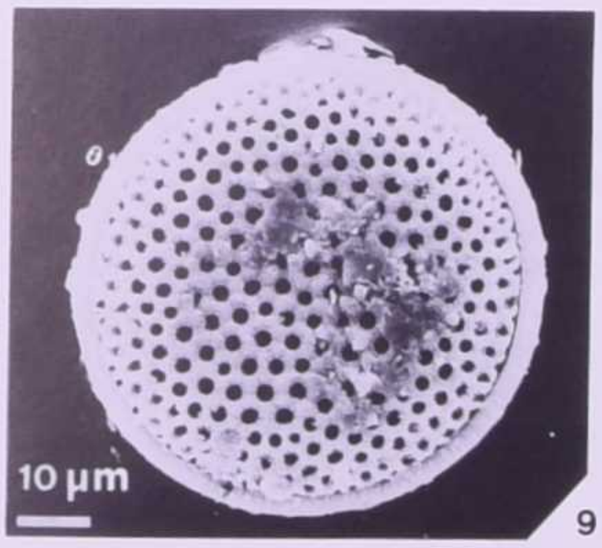

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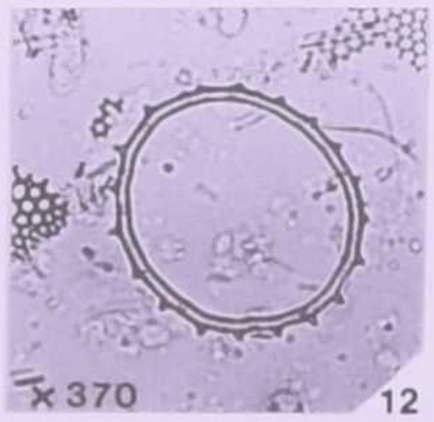

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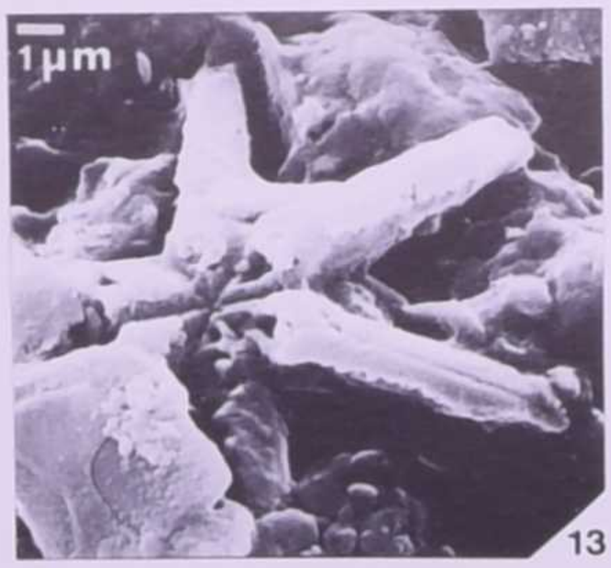

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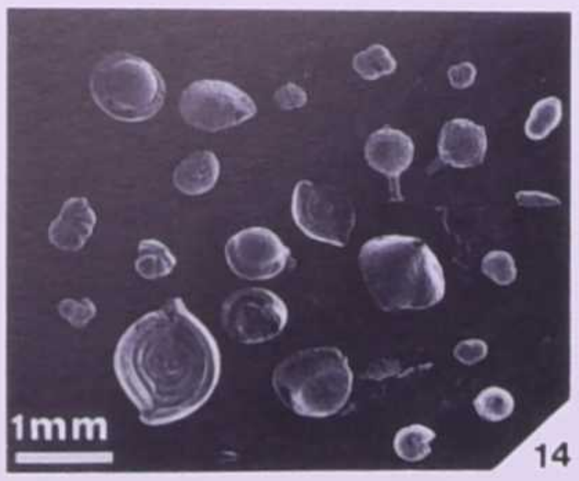

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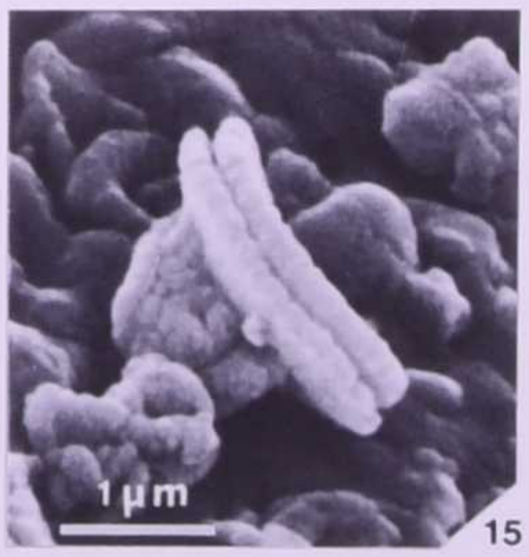

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