

Sedimenti marini profondi e Nannofossili calcarei nello studio delle variazioni climatiche

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ISPRA

Istituto Superiore per la Protezione
e la Ricerca Ambientale



PARTE II

Nannoplancton calcareo e nannofossili calcarei: tassonomia e biostratigrafia

OUTLINE

- **caratteristiche morfologiche e terminologia**
- **biostratigrafia e schemi biostratigrafici**
- **utilità della biostratigrafia a nannofossili: esempi applicativi**

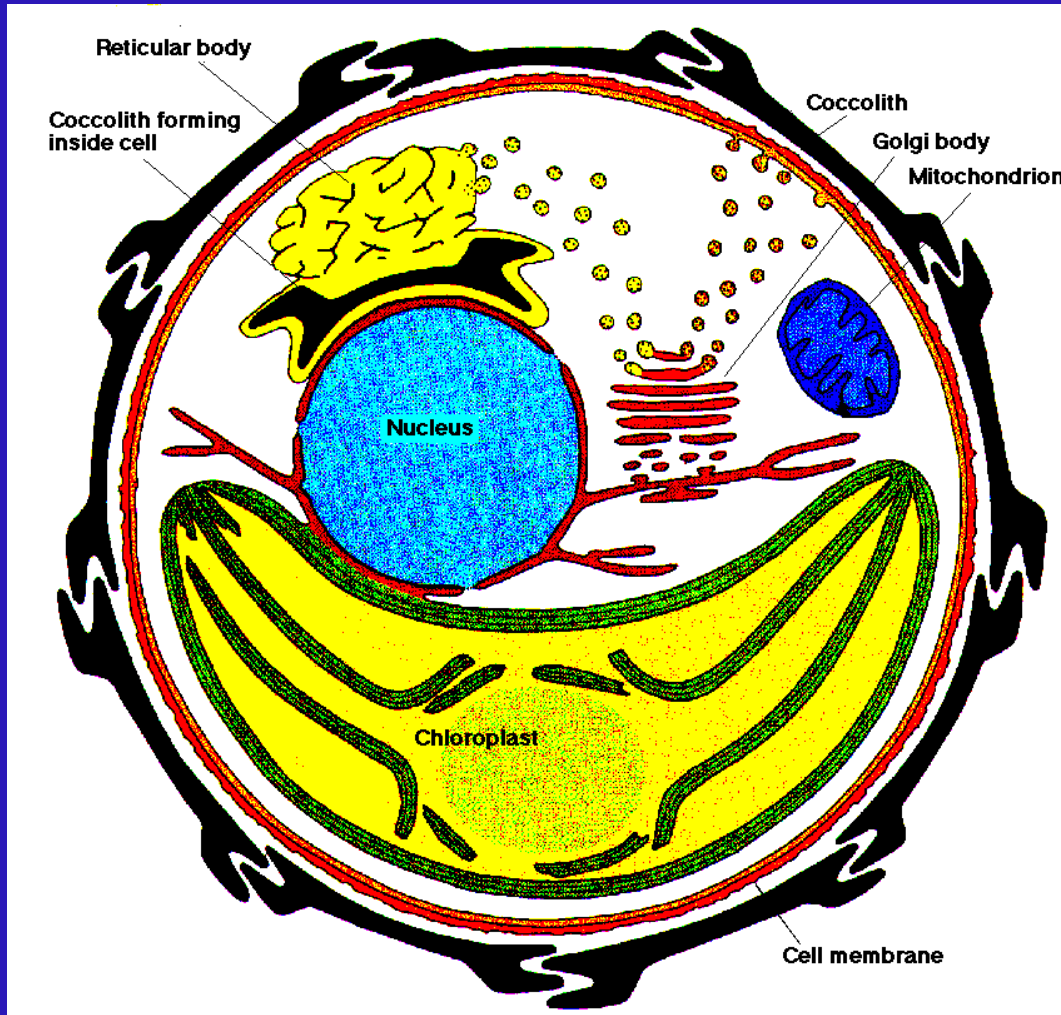
NANNOFOSSILI CALCAREI

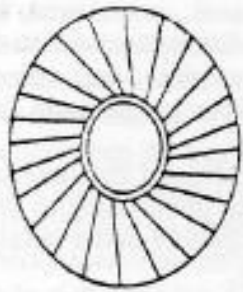
- COCCOLITI (Nannoplancton calcareo)



COCCOLITOFORIDI (alghe unicellulari)

- NANNOLITI (forme differenziate di origine incerta)

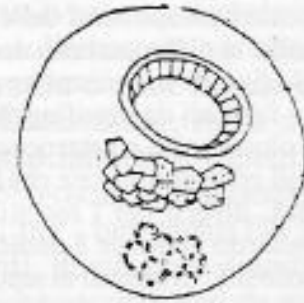




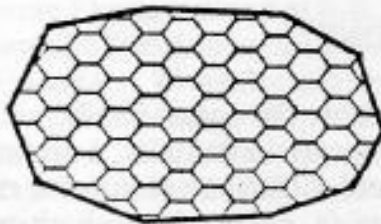
a



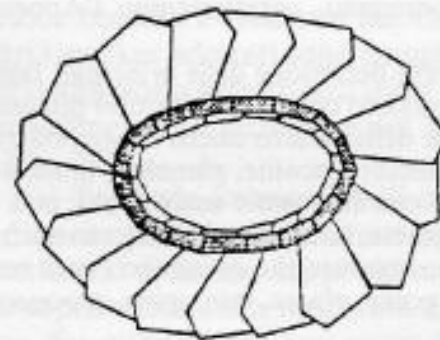
b



c

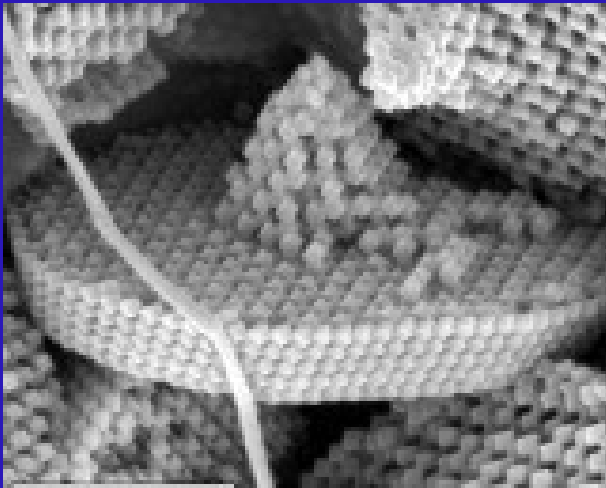


d

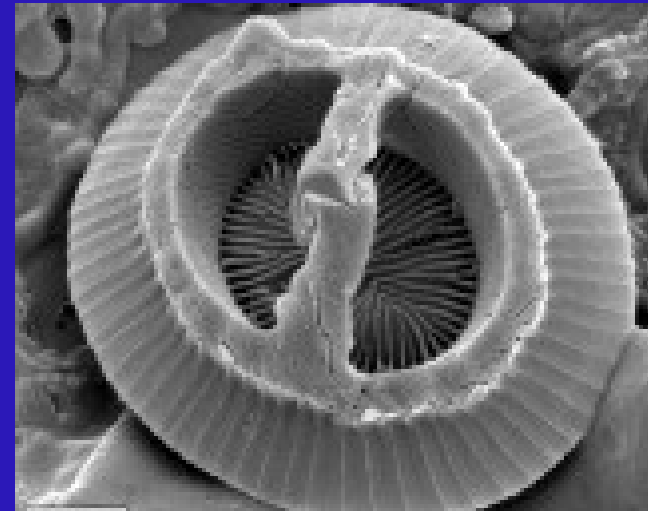


e

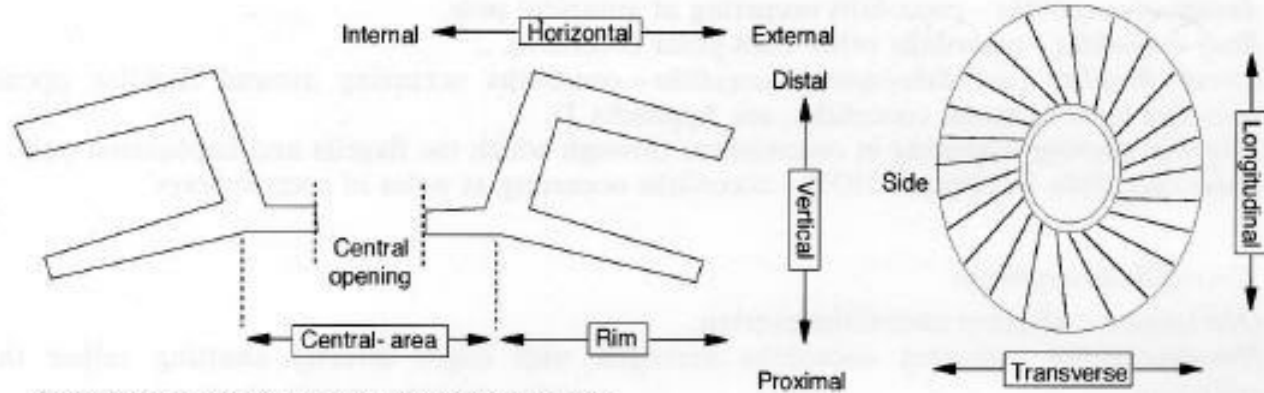
Fig. 1 - a) Coccolite; b) nannolite; c) thoracosferide; d) olococcolite; e) eterococcolite. (da J. Young, INA Terminology workshop final document, 1992; FARINACCI, 1971)



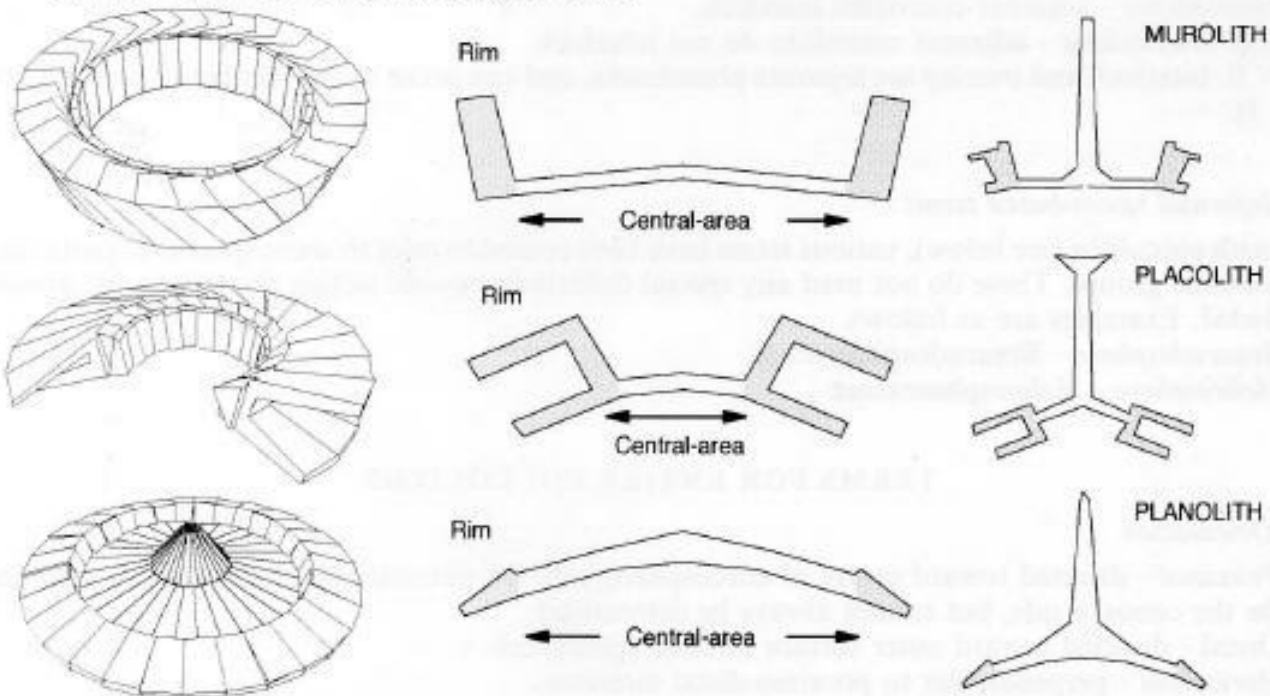
Olococcolite



Eterococcolite

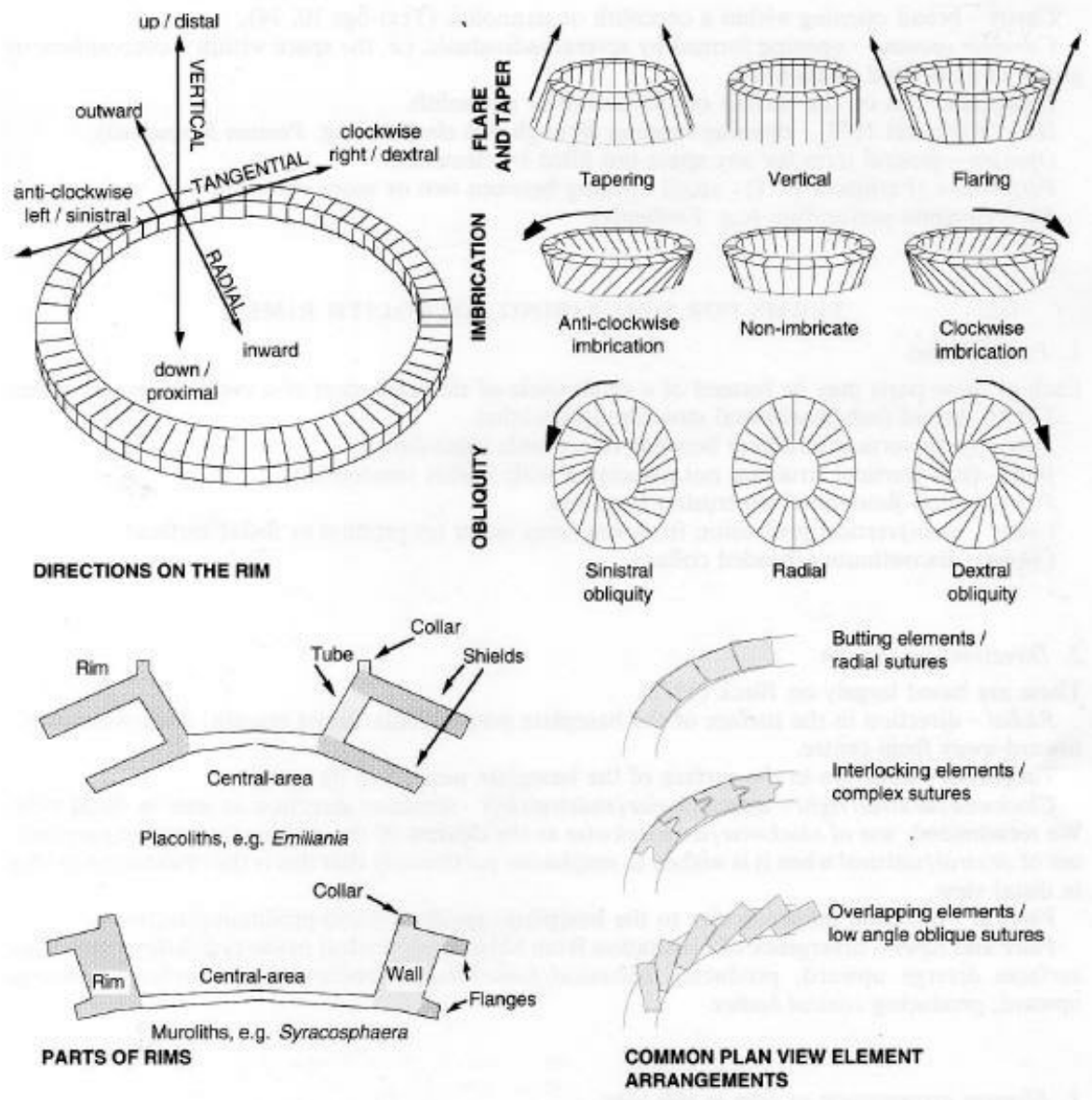


ORIENTATION AND CENTRAL-AREA RIM DIVISION

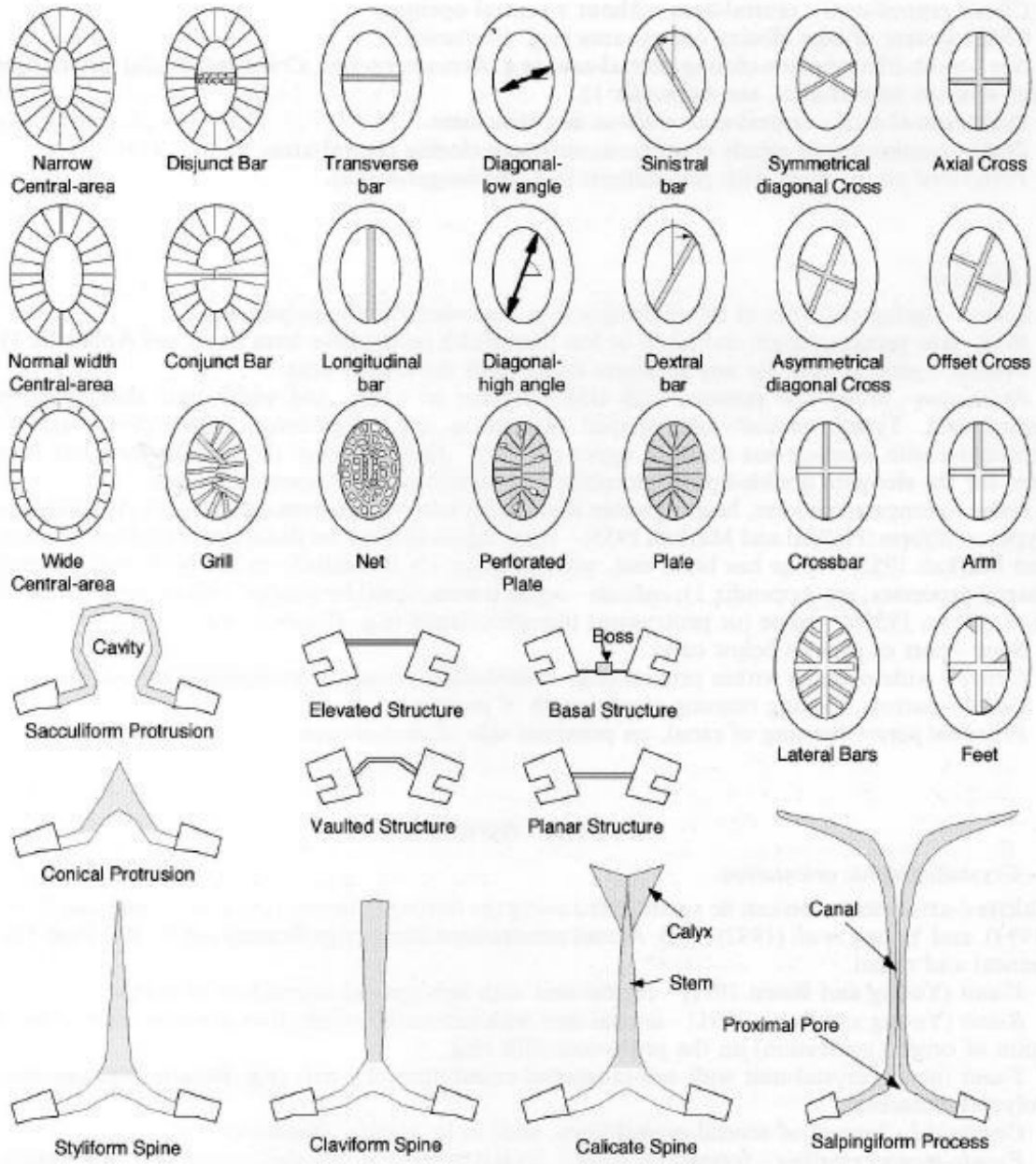


HETEROCOCCOLITH SHAPES IN PROFILE

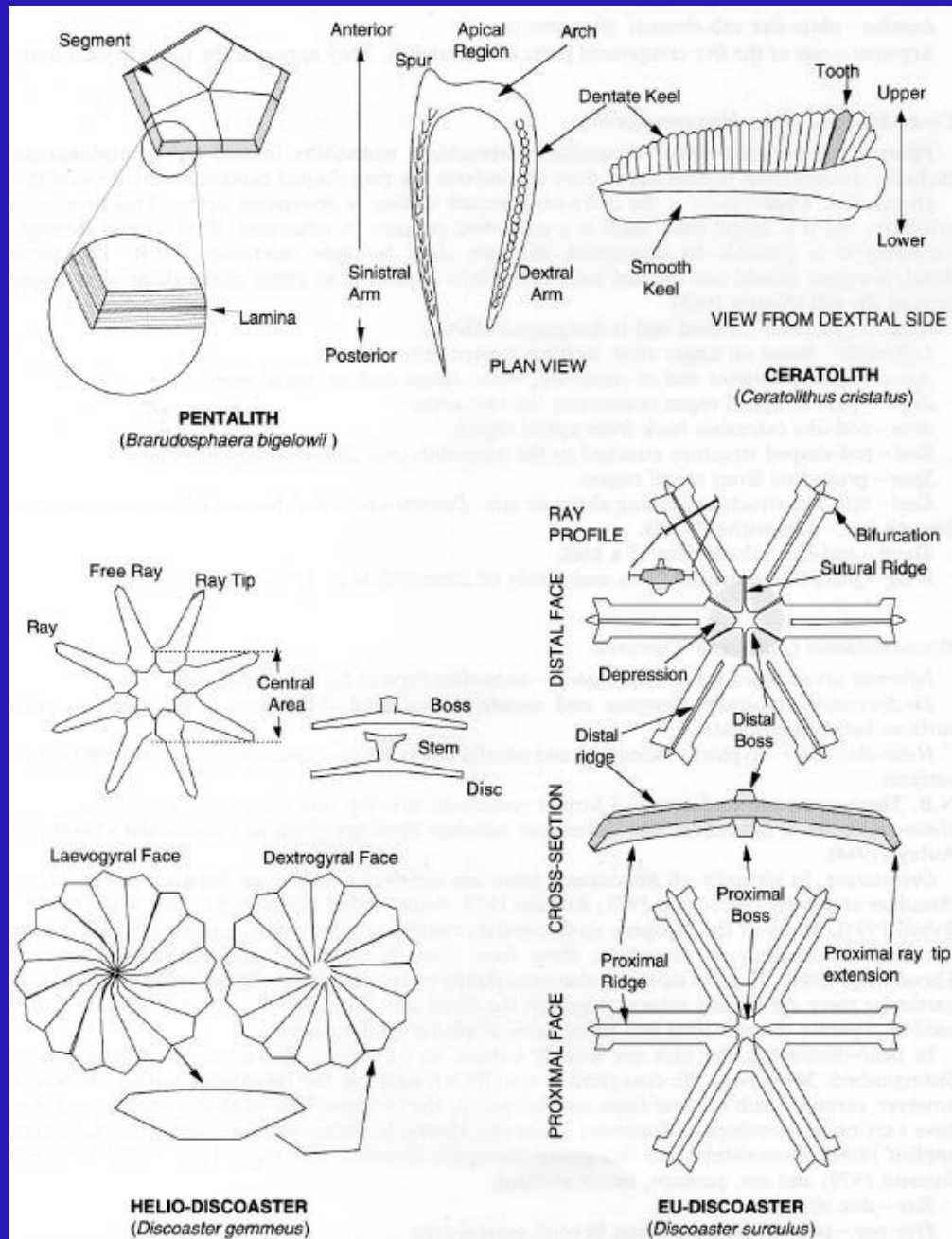
TEXT-FIG. 2. Coccolith orientation, basic parts and shape in profile.



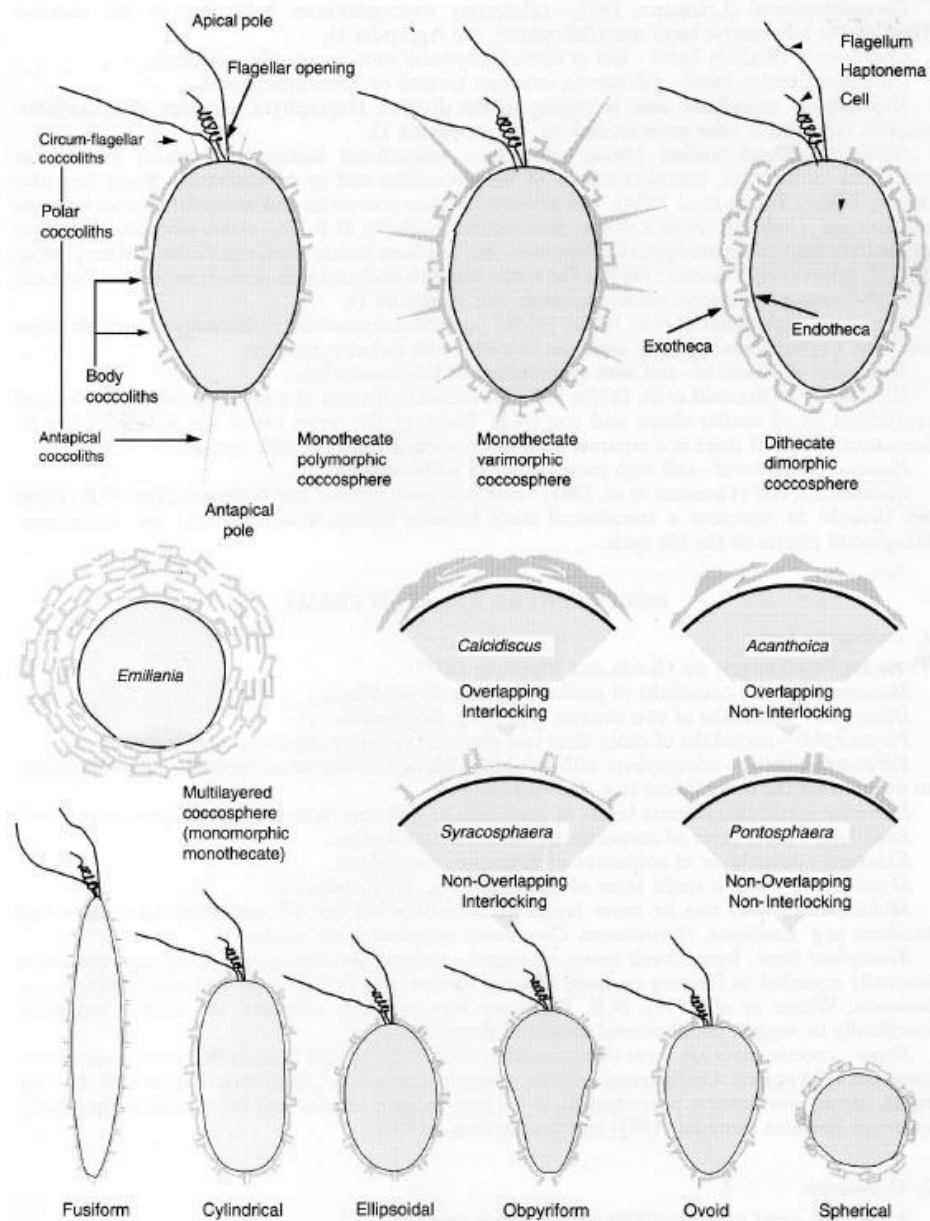
TEXT-FIG. 5. Terms for describing rim structures.



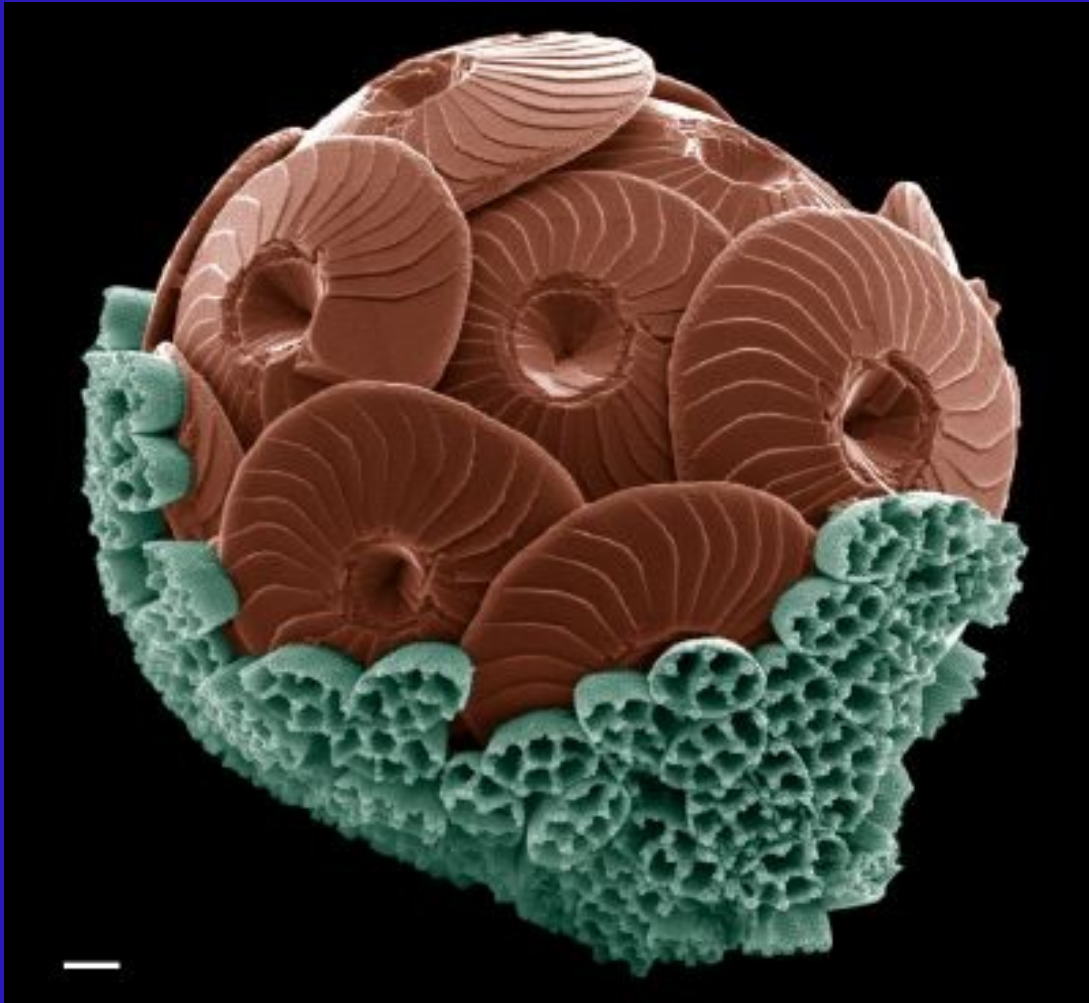
TEXT-FIG. 7. Central area structures.



TEXT-FIG. 11. Special terms applied to Braarudosphaeraeae, Ceratolithaceae and Discoasteraceae. N.B. The terms applied to the description of heterococcoliths may also, where appropriate, be applied to these groups, and vice versa.



TEXT-FIG. 1. Coccosphere related terms.



http://www.nhm.ac.uk/hosted_sites/ina/



<http://tolweb.org>

Inom:
 Lambert,
 Rev. Micropalaeol.
 28:255-264
 1986

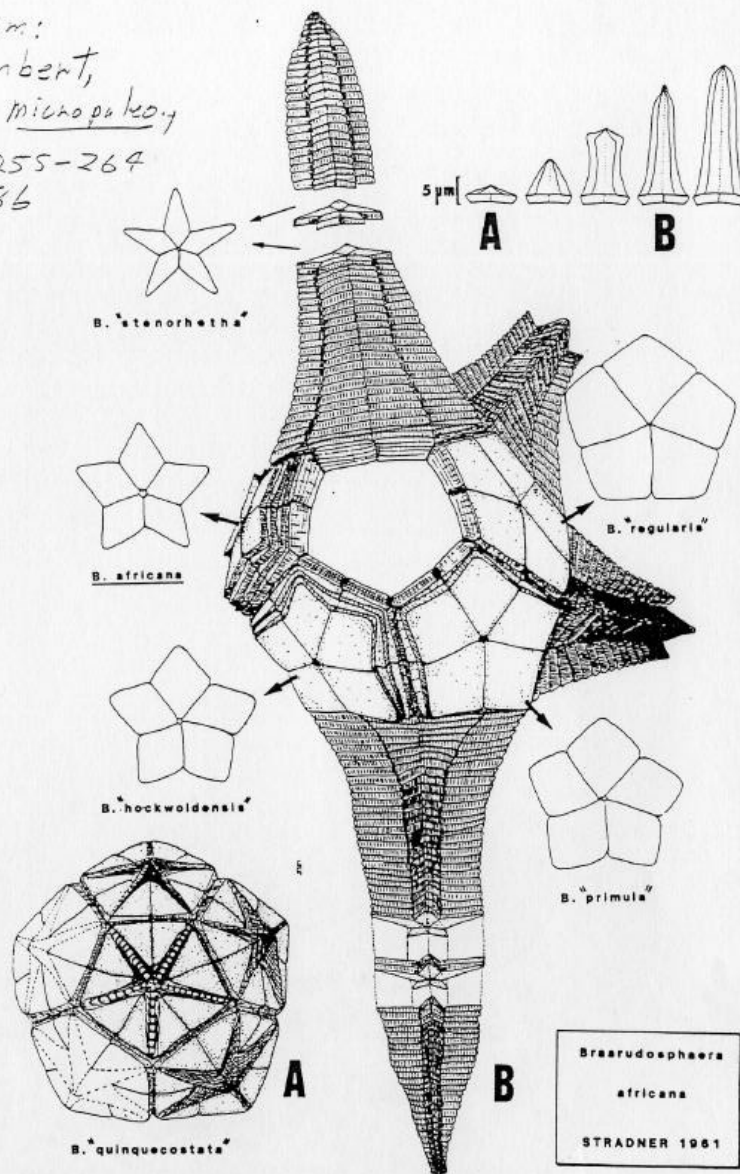
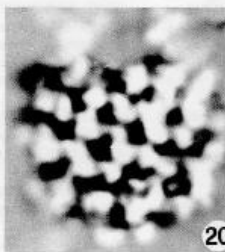
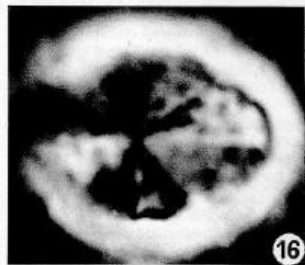
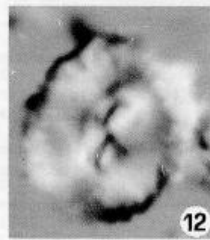
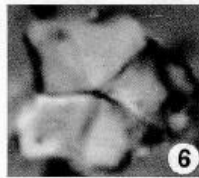
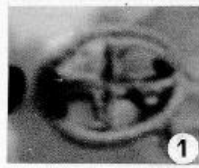
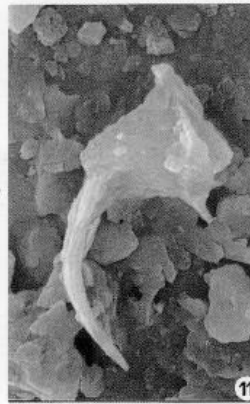
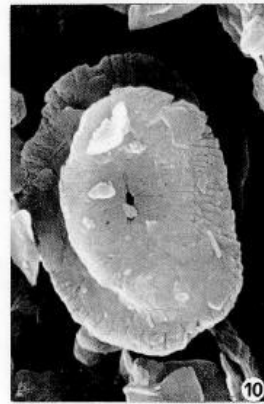
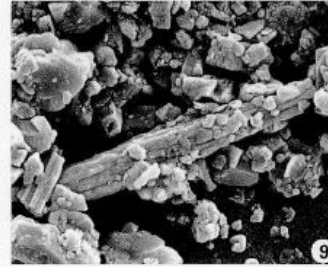
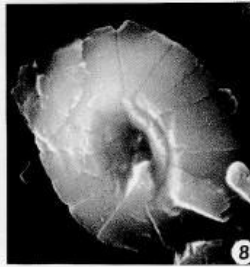
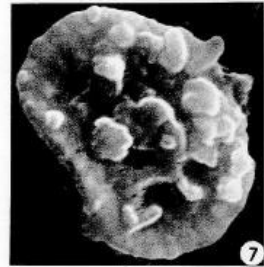
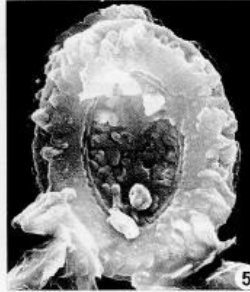
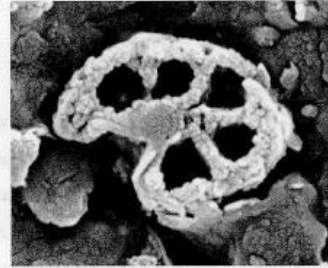
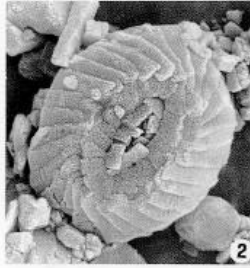
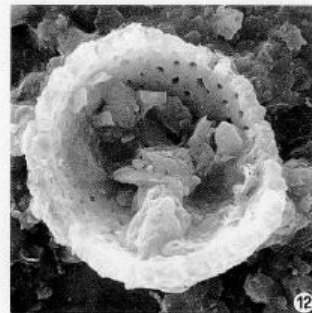
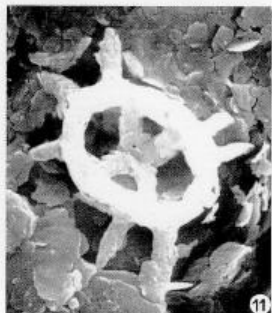
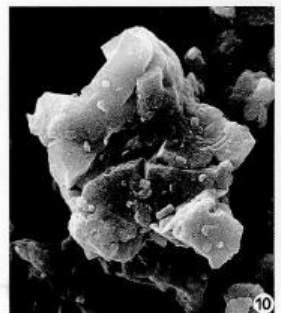
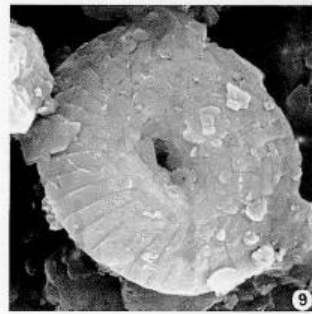
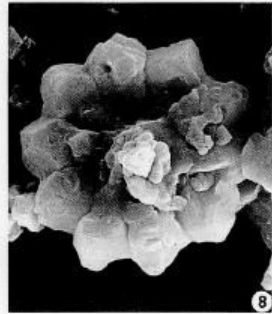
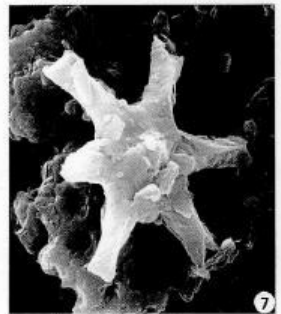
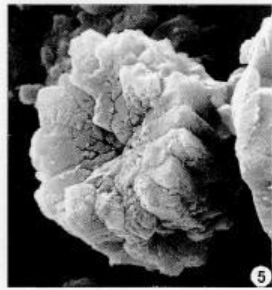
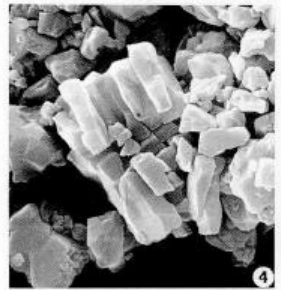
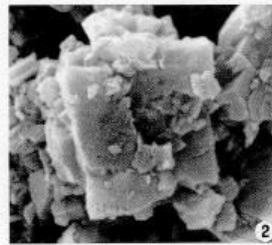
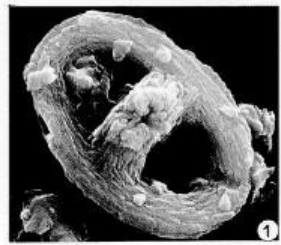


FIG. 1. — Reconstitution de *Braarudosphaera africana*. 2 coques sont représentées, correspondant chacune à un type de cône. A) coque possédant des cônes extrêmement courts (dans la littérature, le cône entier a été nommé par Hill *B. quinquecostata*). B) coque possédant des cônes assez longs. L'« écorché » graduel des cônes permet de mieux comprendre la superposition, au sein du même cône, des pentalithes successifs portant chacun un nom d'« espèce » différent.

Reconstitution of *Braarudosphaera africana*. Two coccospheres are represented, each corresponding to one type of cone. A) Coccospheres made of extremely short cones (in literature the entire cone has been called *B. quinquecostata* by Hill). B) Coccospheres made of relatively large cones. The gradual "dissection" of the cones enables a better knowledge of the superposition of the successive pentaliths, each bearing a different "species" name.

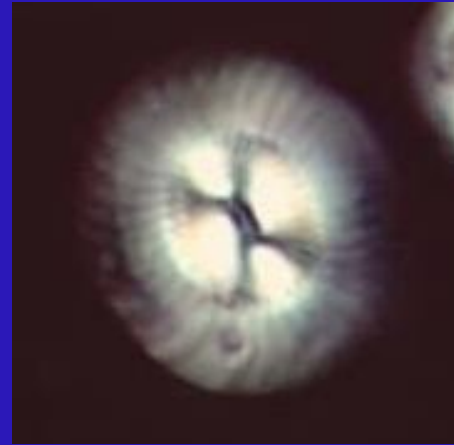






PLACOLITI

CENOZOICO

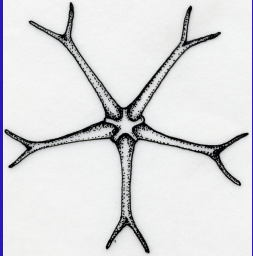


MESOZOICO

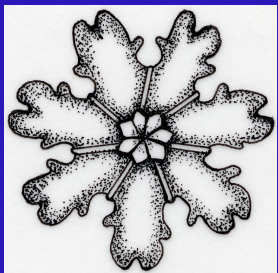
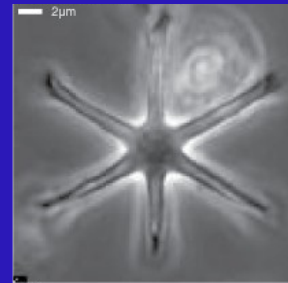
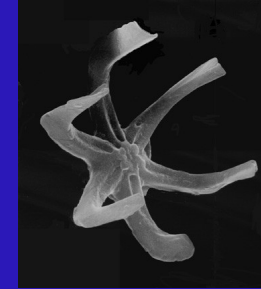
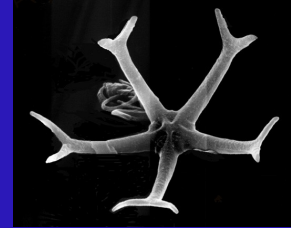


DISCOASTERIDS (ASTEROLITHS)

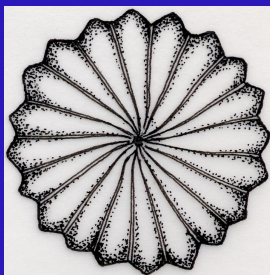
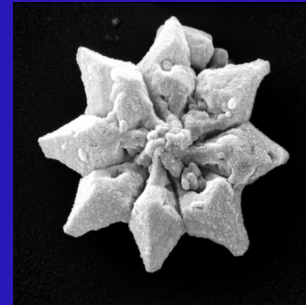
genus *Discoaster*



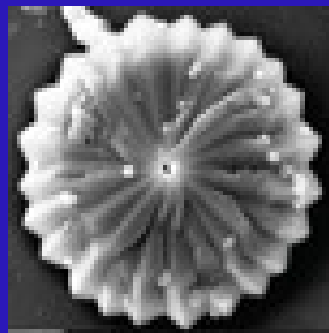
“star-shaped”
“asterisc-shaped”



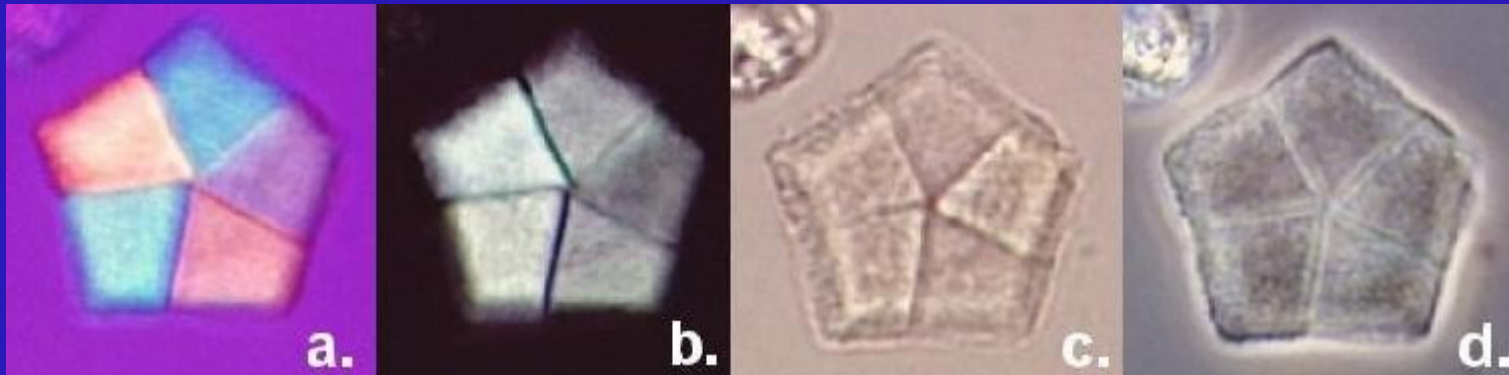
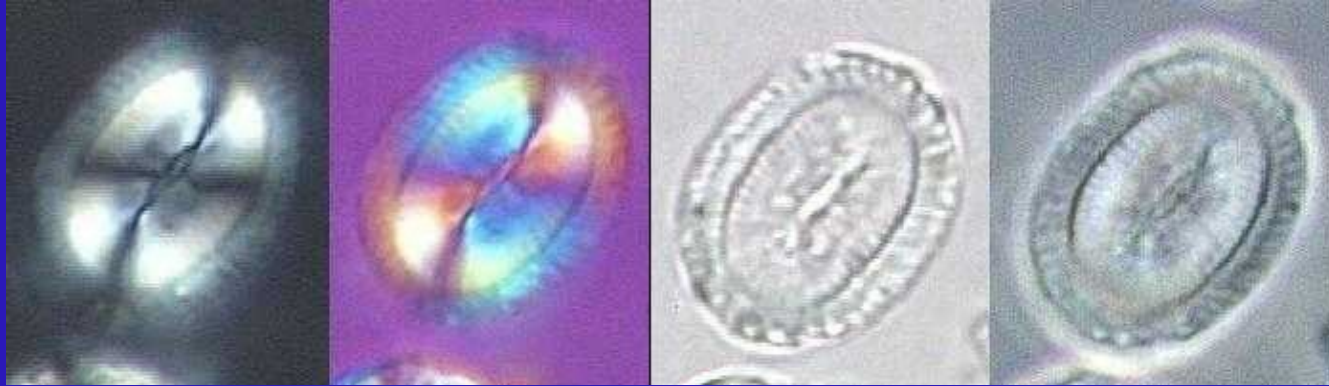
“flower-shaped”

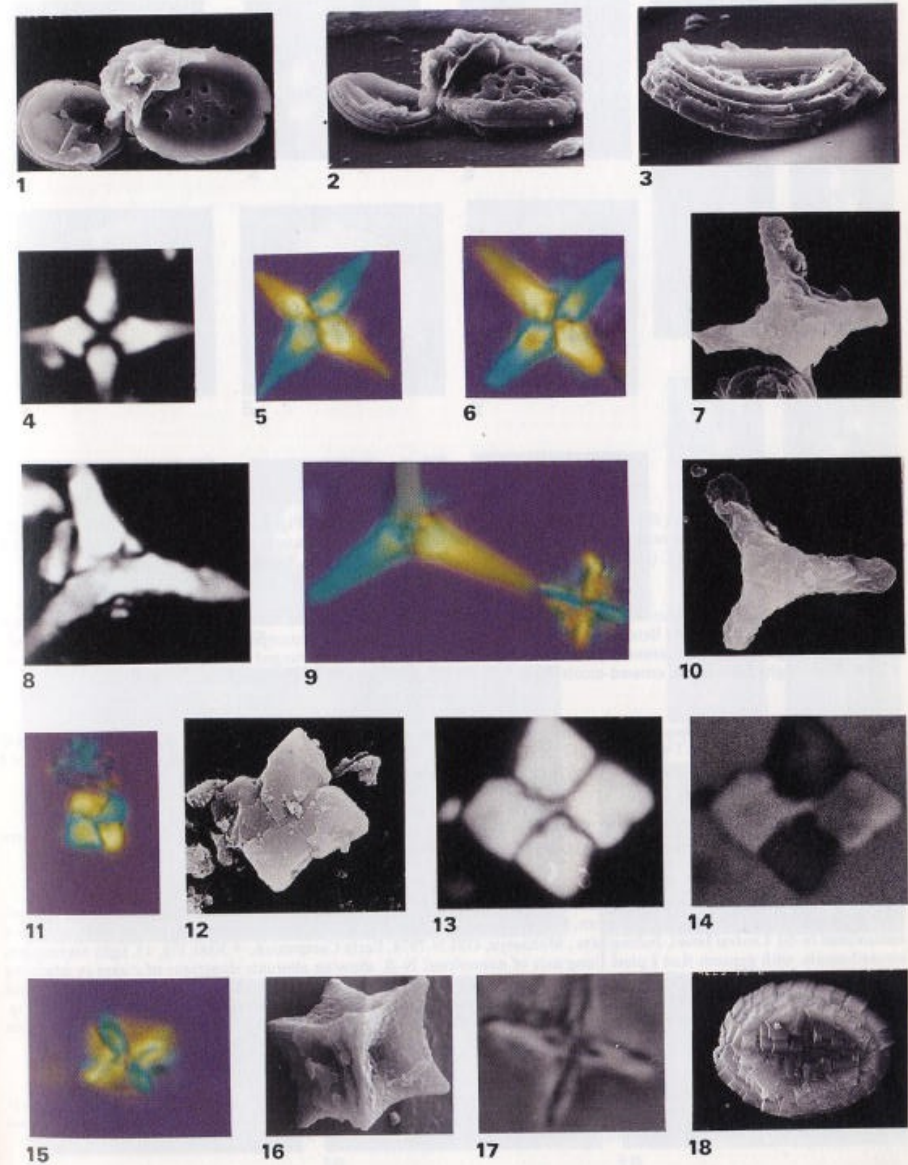
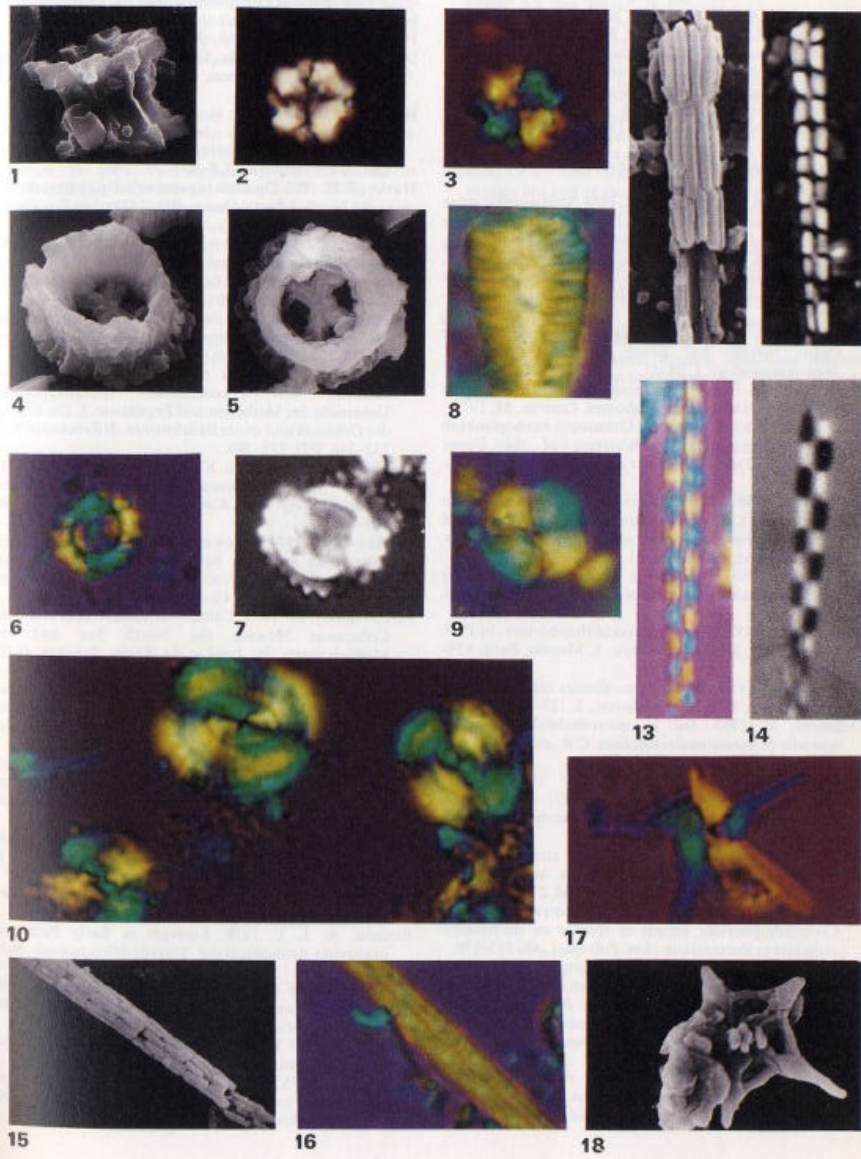


“rosette-shaped”



CARATTERISTICHE OTTICHE





From Moshkovitz, S. and K. Osmond, 1989: The optical properties and microcrystallography of Arkhangelkiellaceae and some other calcareous nannofossils in the Late Cretaceous. In: Crux, J.A. and S.E. van Heck (eds) *Nannofossils and their applications*. Ellis Horwood, Chichester, pp 76-97