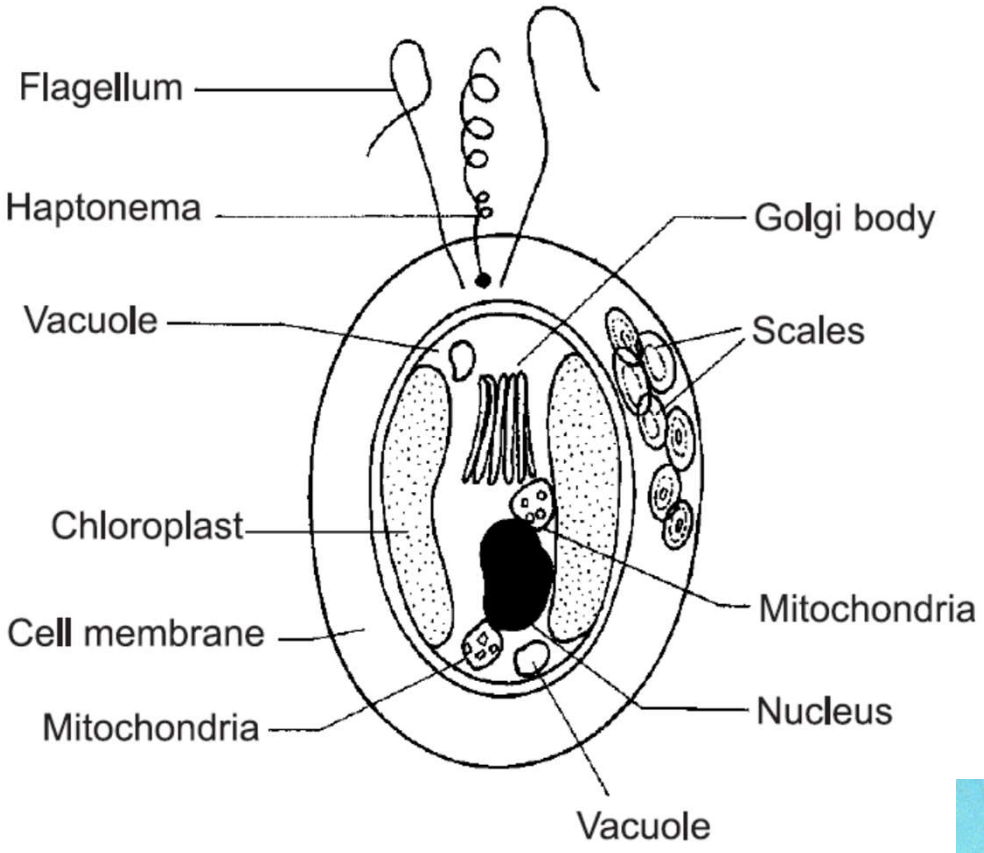
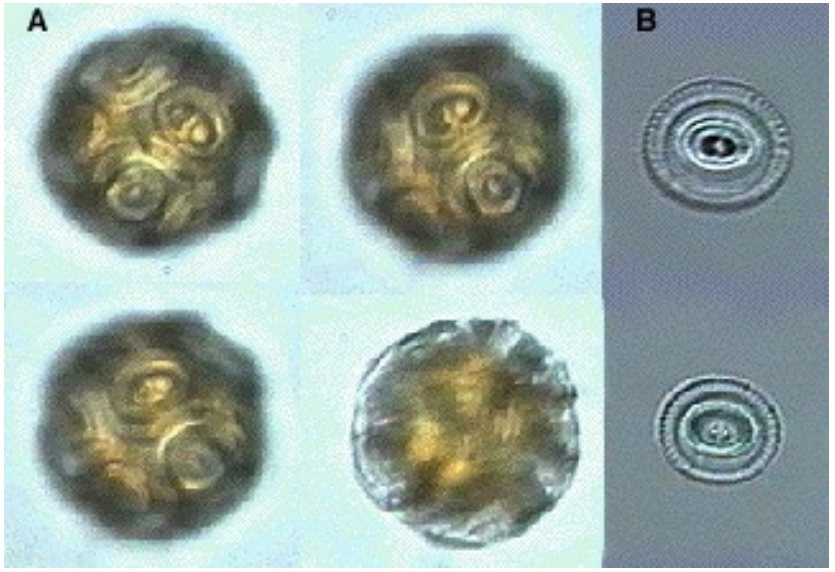
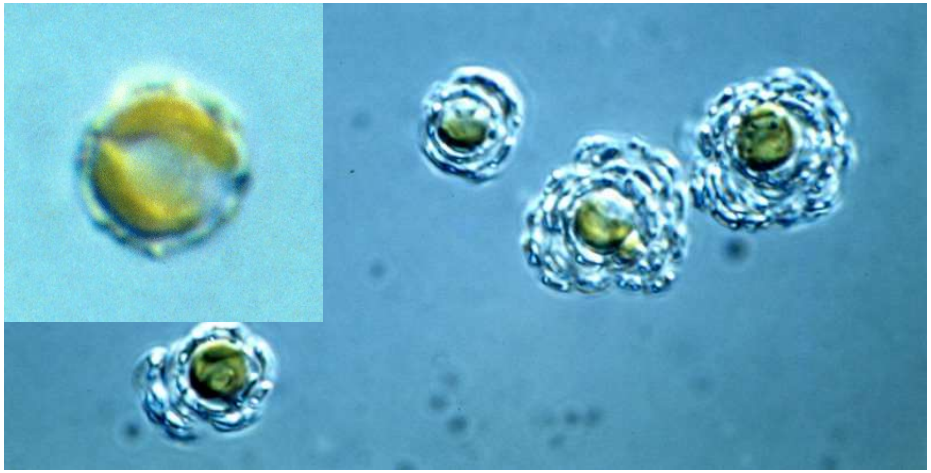


Coccolithus



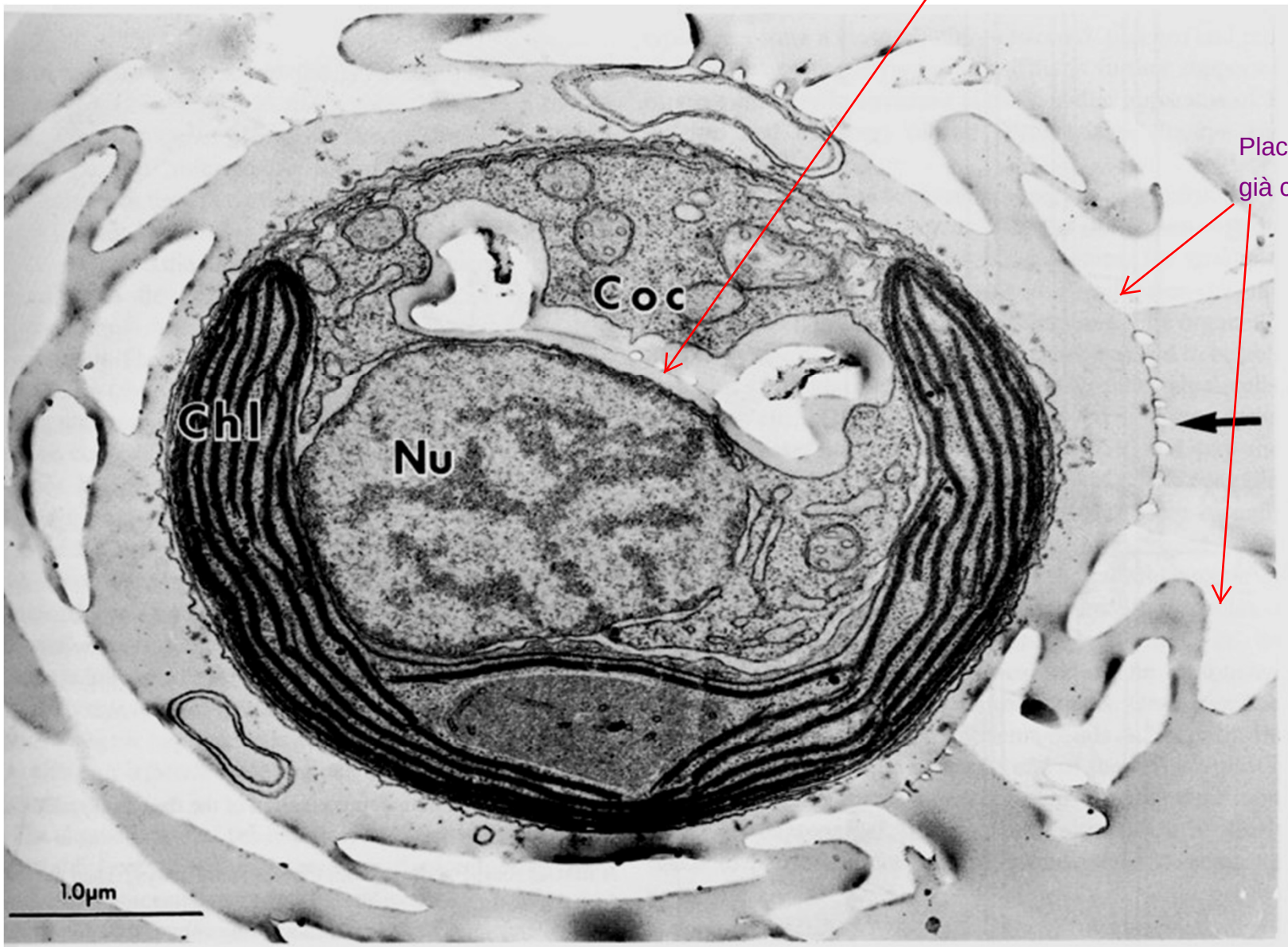


Emiliania

Sfere formate da centinaia di placchette di CaCO3.
Quando l'organisme muore, le placchette (dimensione circa 40-50 um) si disperdono.
Sono molto comuni non appena sotto la superficie del mare. nella zona fotica.
Sono phytoplankton (plankton fotosintetico).
Rilasciano ossigeno tramte la fotosintesi.
Sono organismi fondamentali anche per la produzione di ossigeno.
Sono FONDAMENTALI per la ricerca del cambiamento climatico (il CO2 si dissolve in acqua e diventa più acida)
Preziosissima biozionazione data dai coccoliti. per la loro alta velocità evoluzionale, sono facili da trovare e sono abbondanti.

Placchetta che si sta calcificando

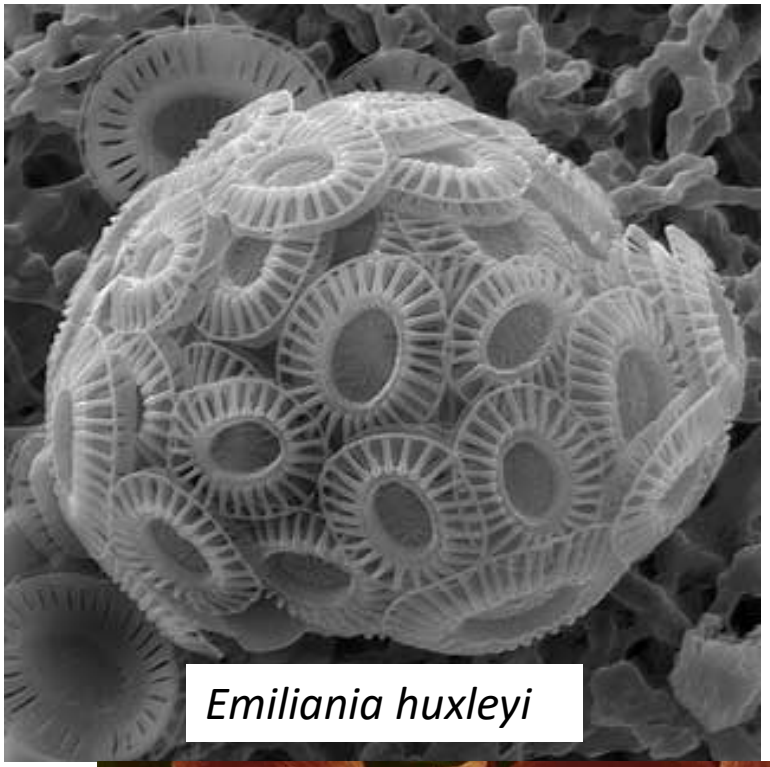
Placchette
già calcificate



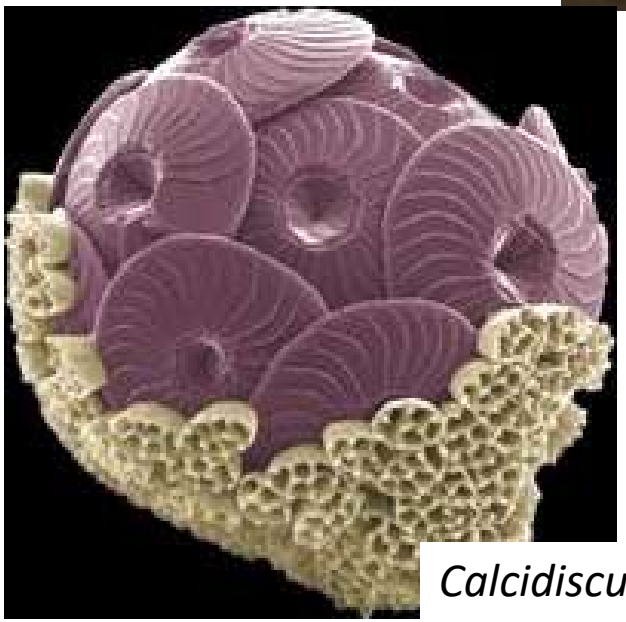
Emiliania huxleyi
Section of a cell show the production of a single intracellular and many extra cellular coccoliths (Coc). Note the lack of organic body scales.

Coccoliti attuali

Gephyrocapsa oceanica



Emiliania huxleyi



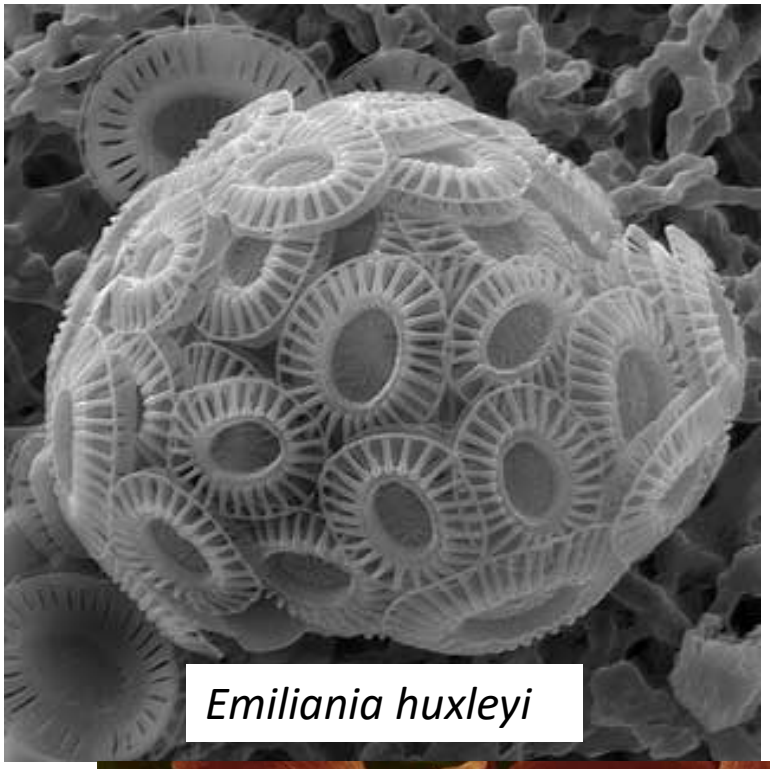
Calcidiscus leptoporus

Discosphaera tubifera

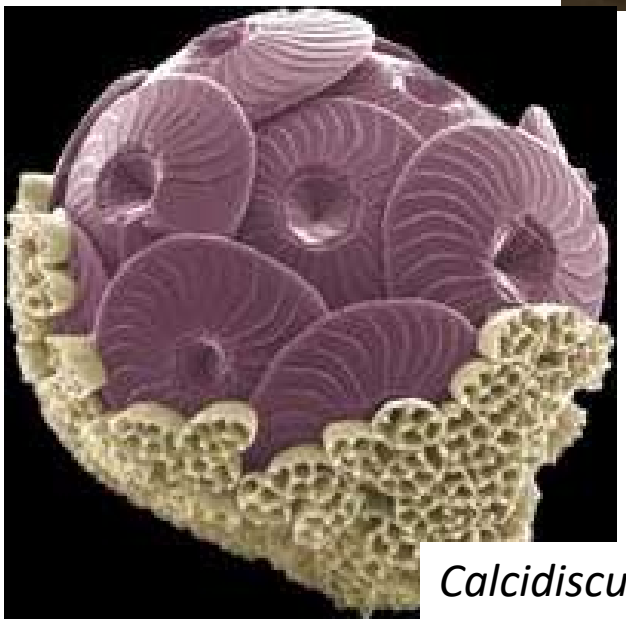
BA2102 [RM] © www.visualphotos.com

Sfere a "trombetta"

Gephyrocapsa oceanica



Emiliania huxleyi

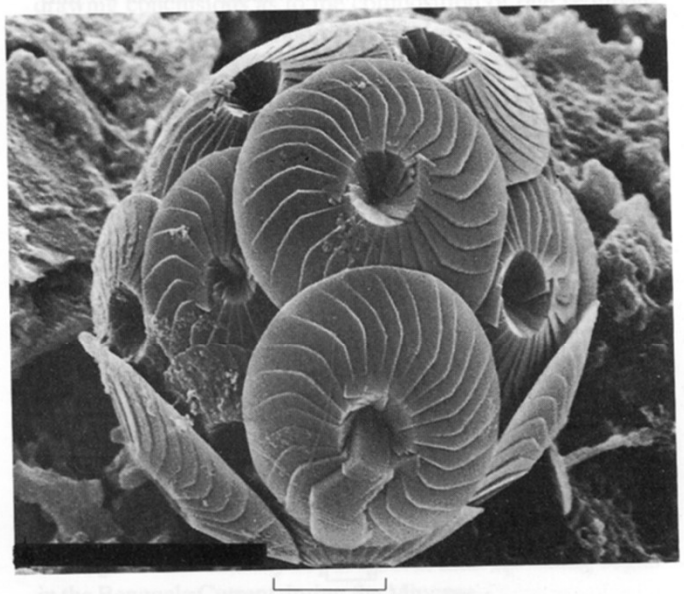


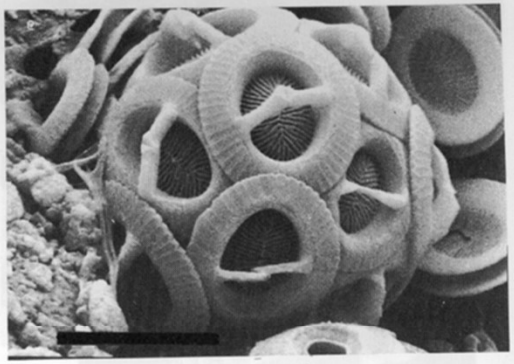
Calcidiscus leptoporus

Discosphaera tubifera

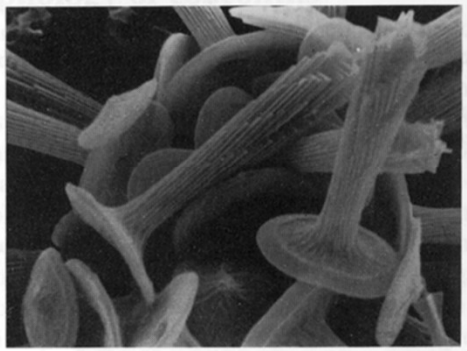
Altri coccoliti attuali

Coccosphere of *Coccolithus pelagicus*. Central area is open and spanned by a short bridge. Crystal elements of the distal shields override one another. Scale bar = 6 µm.





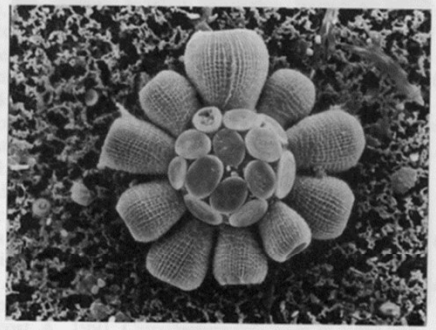
Coccosphere of *Gephyrocapsa oceanica*. A net-like structure fills the central area of each placolith, and a promin bridge spans the central area. Scale bar = 2 µm.



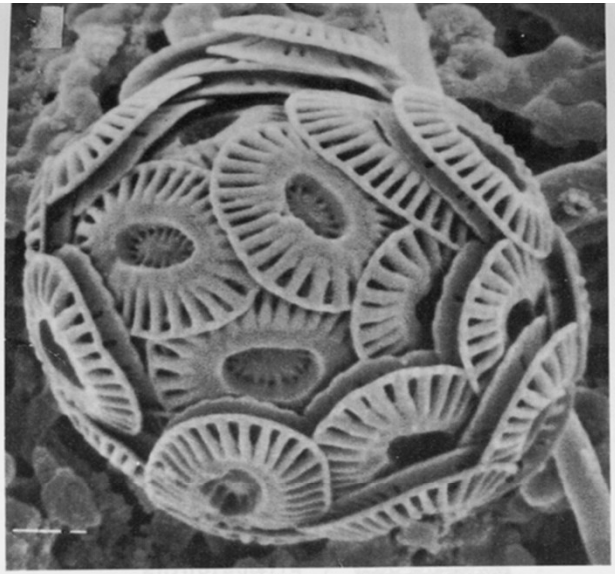
Prominent central process of *Rhabdosphera clavige* Scale bar = 2 µm. Photo courtesy of J. Alcober, University o Valencia.

and 13). Most heterococcoliths also have a distinctive or closed 'central area' (Figs. 7 and 8) from which shiel ments radiate outward. The elements of a shield tend to near the central area in order to fit better around a circu elliptical center, whereas they tend to expand towards th cumference, giving them a 'petal-like' appearance crowding together of elements often causes overridin imbrication of adjacent elements (e.g., Fig. 7). ' 'pores', 'crosses', 'bridges' 'crossbars' and other stru commonly occur in the central area of a shield (Fig. "central process" (also called a "spine" or "knob") times projects upward from a coccolith (e.g., Fig. 10).

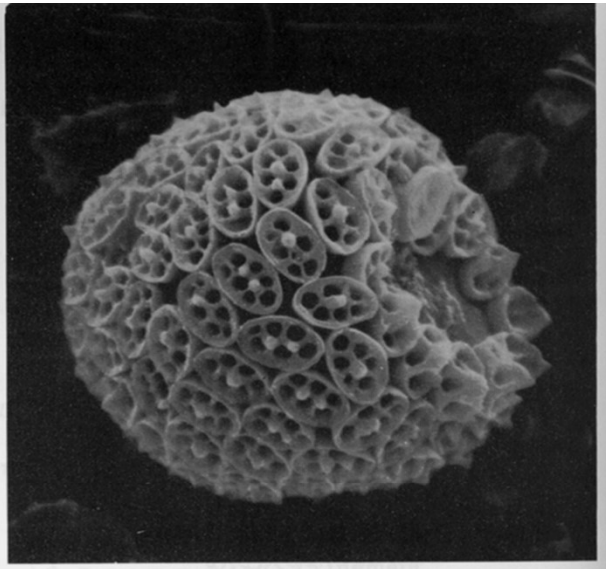
Coccosphere of *Discosphaera tubifera*, constructed of cyrtoliths . Note that the proximal plates of adjacent cyrtoliths overlap. Scale bar = 3 µm.



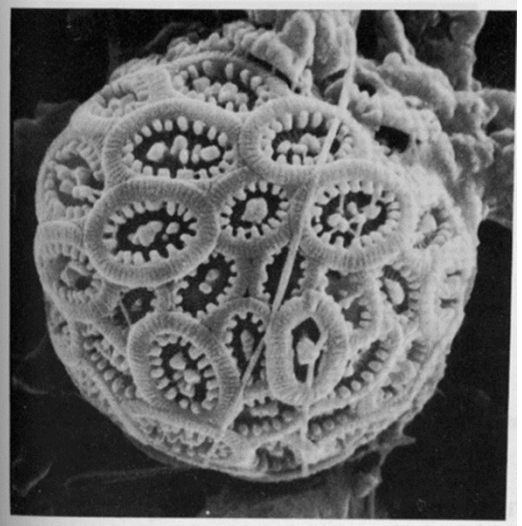
Coccosphere of *Scyphosphaera apsteinii*. This species is dimorphic, showing both lopadoliths of *S. apsteinii* and cribriliths of *Pontosphaera* cf. *P. japonica* on the same coccosphere. Scale bar = 10 µm. Photo courtesy of J. Alcober, University of Valencia.



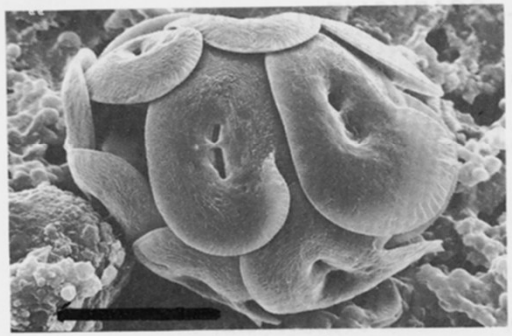
Coccosphere of *Emiliania huxleyi*, formed by layers of interlocking placoliths. Both distal and proximal shields of placoliths can be seen at the sides of the coccosphere. Scale bar = 2 µm. Reproduced with permission from Nishida, S. (1979), *Atlas of Pacific Nannoplanktons*. Micropaleontol. Soc. of Osaka.



Coccosphere of *Homozygosphaera vercellii*, with abutting calyptroliths. Scale bar = 2 µm. Photo courtesy of J. Alcober, University of Valencia.

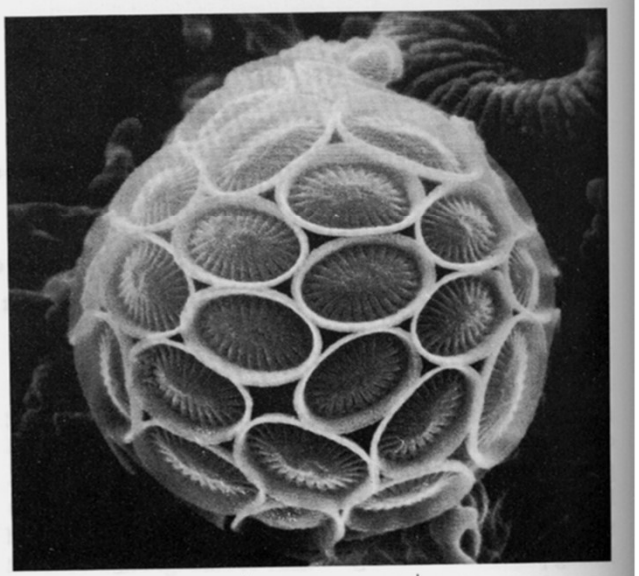


Coccosphere of *Syracosphaera molischii*, with overlapping caneoliths. Scale bar = 2 µm.

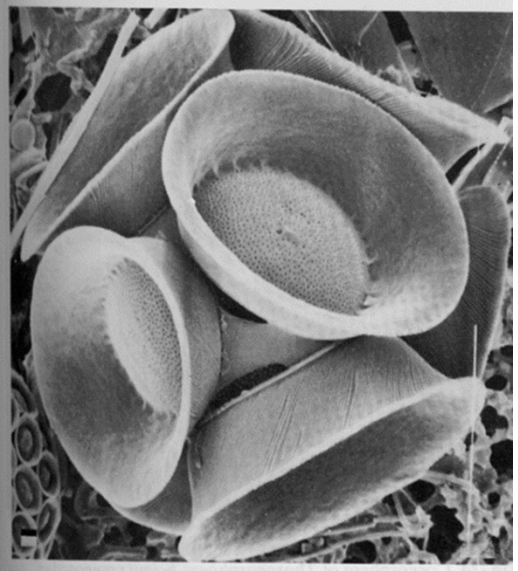


Coccosphere of *Helicosphaera carteri* with interlocking lopadoliths. Scale bar = 5 µm.

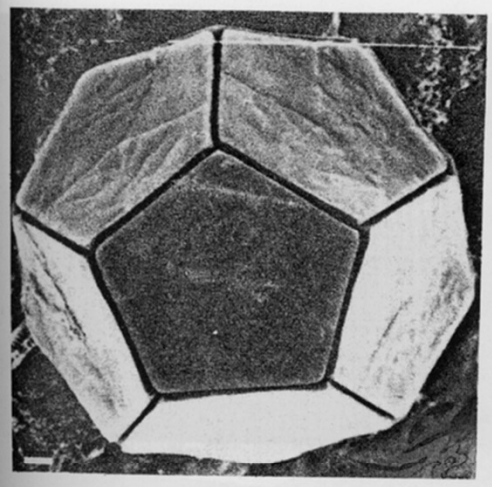
ments fit together in a jigsaw fashion to form the spherical or elongated genus *Thoracosphaera* (traditionally studied with the calcareous nannoplankton, although now known to be a calcareous dinoflagellate – see chapter 6. Some of the prisms



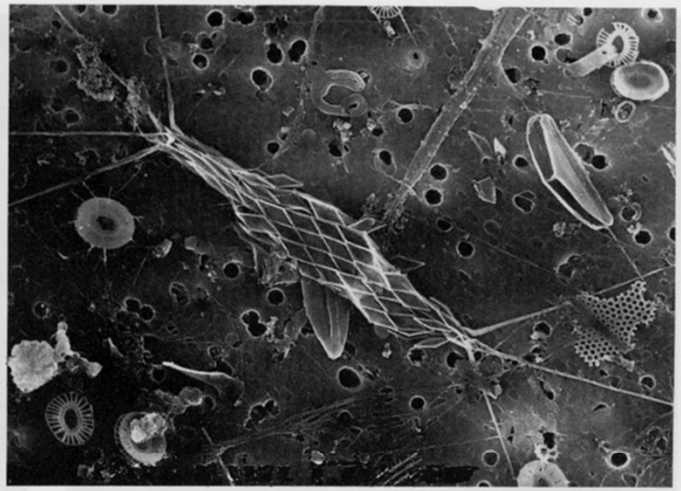
Coccosphere of *Syracosphaera anthos*, constructed of closely packed caneoliths. Scale bar = 2 µm.



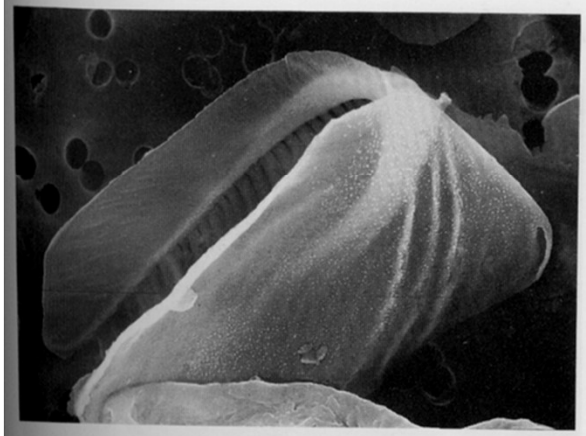
Coccosphere of *Pontosphaera syracusana*, contructed of cribriliths. Scale bar = 2 µm. Reproduced with permission from Nishida, S. (1979), *Atlas of Pacific Nannoplanktons*. Micropaleontol. Soc. of Osaka.



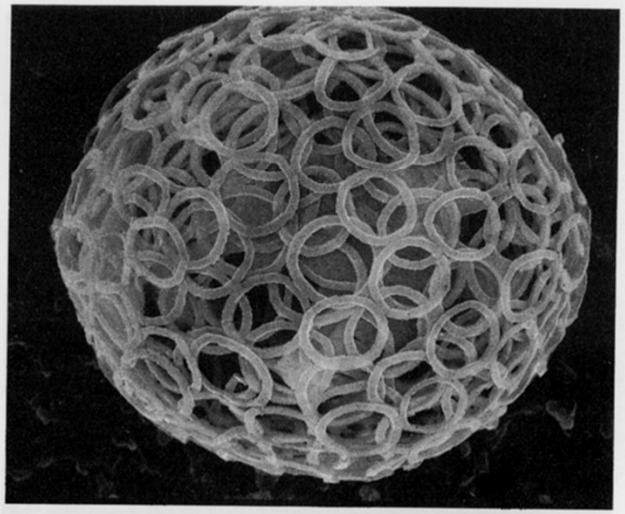
Braarudosphaera bigelowii
known range: Jurassic - Recent
known distribution: Pac (NE); Atl (N,C); Med



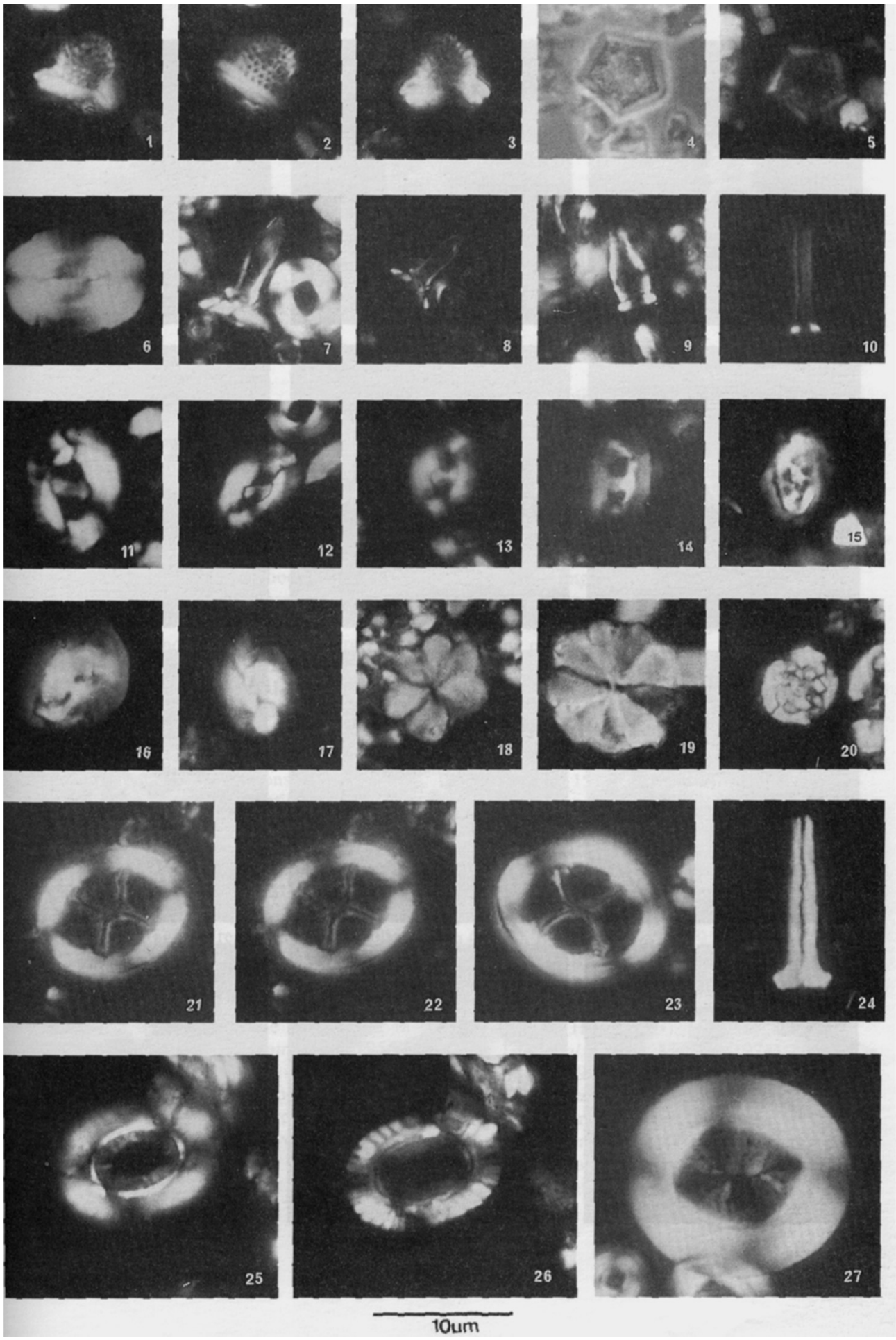
Calciosolenia murrayi
known range: Living
known distribution: Pac (NE,C); Atl (N) Car



Ceratolithus cristatus var. *telesmus*
known range: Pleistocene - Recent
known distribution: Pac (NE,C); Atl (N,C); Med



Ceratolithus cristatus var. *cristatus*
known range: Pleistocene - Recent
known distribution: Pac (NE,C); Atl (N,C); Med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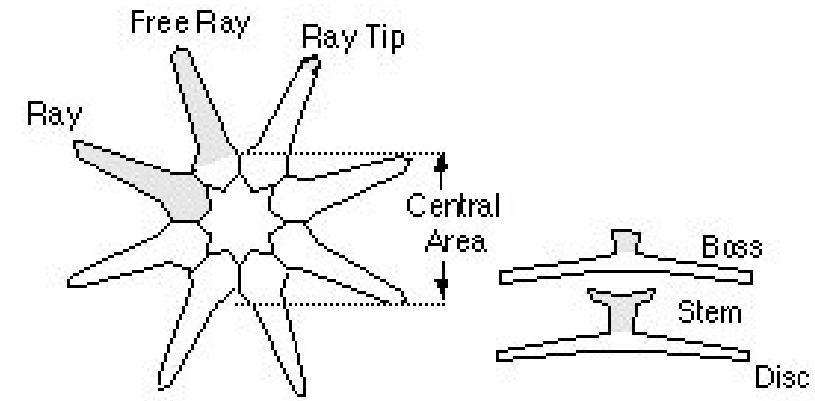
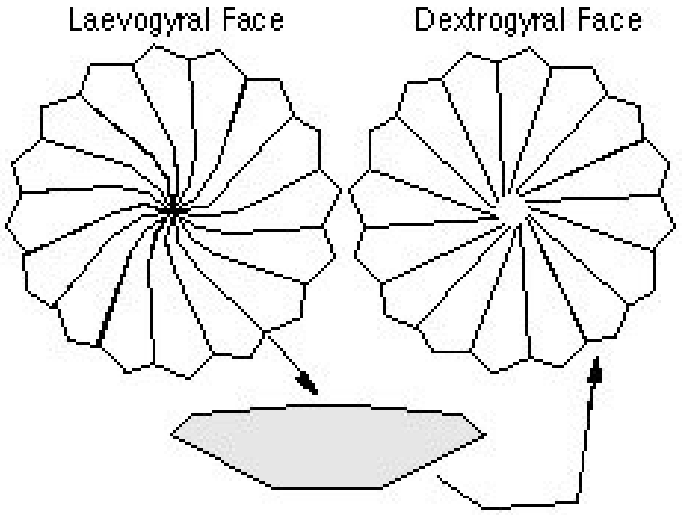
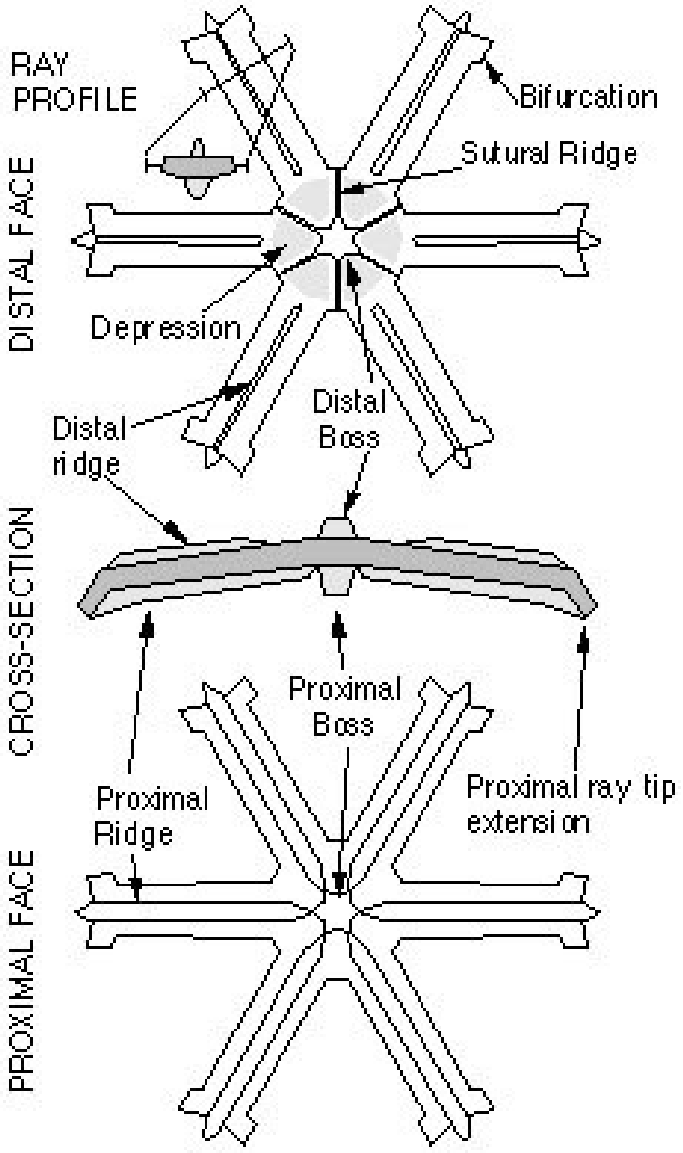
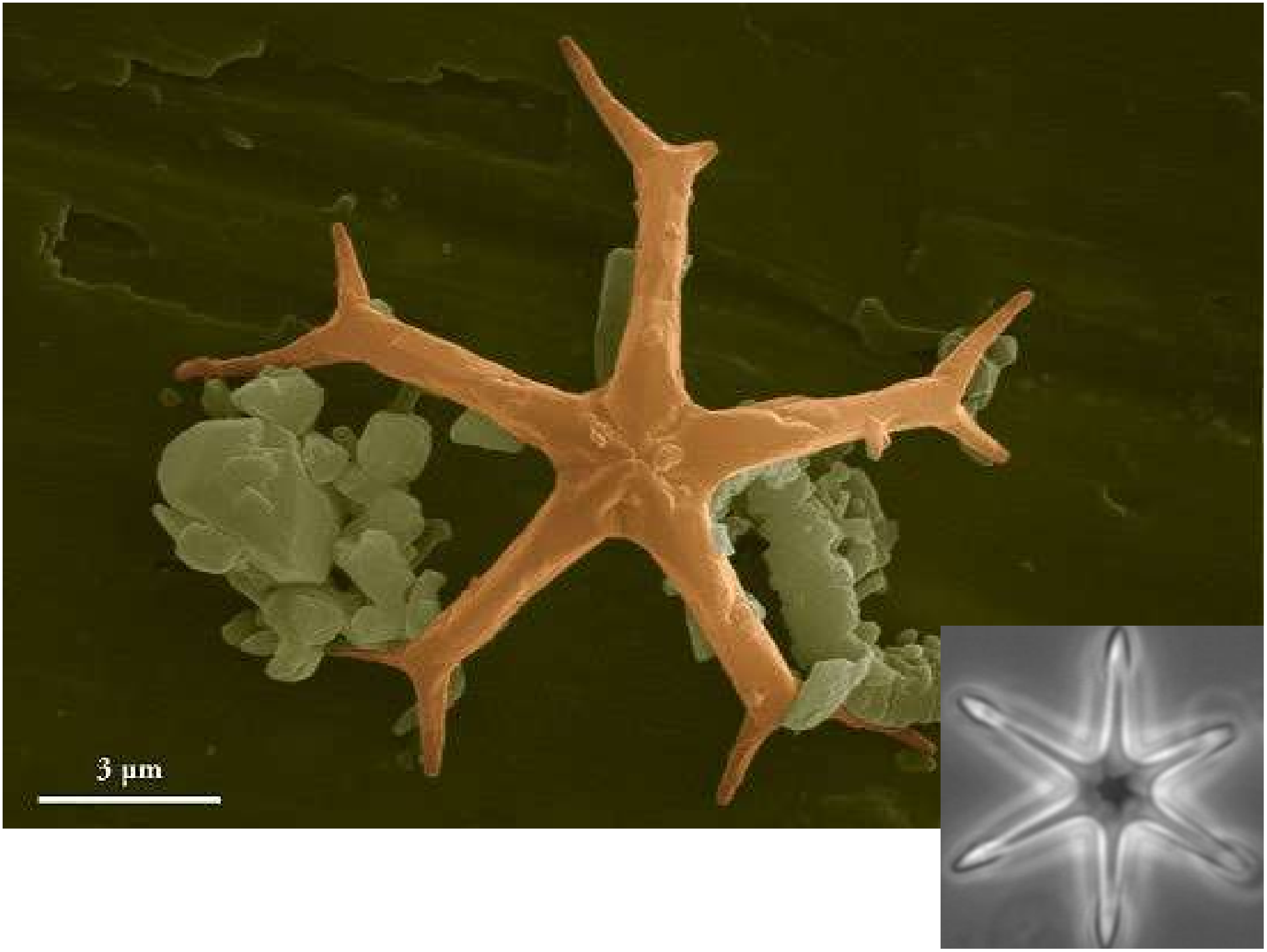




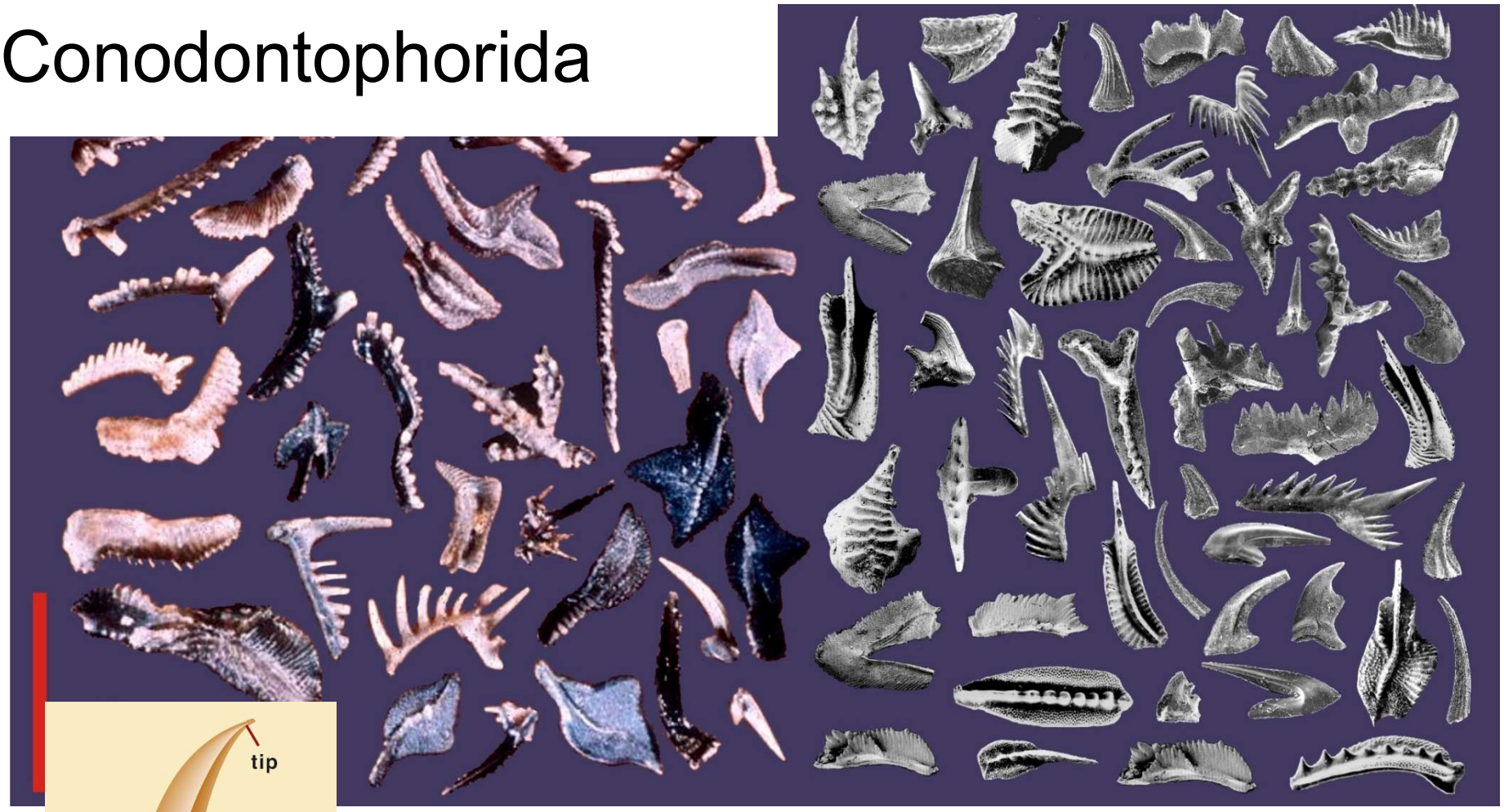
HELIO-DISCOASTER
(*Discoaster germanicus*)

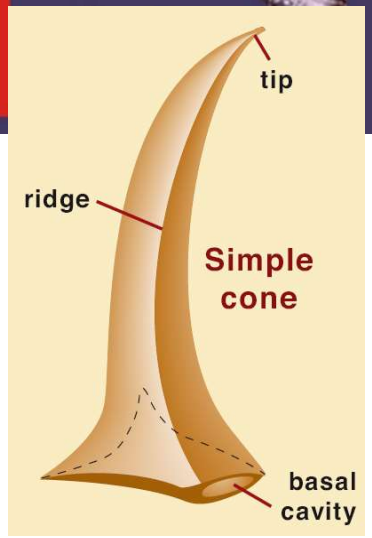


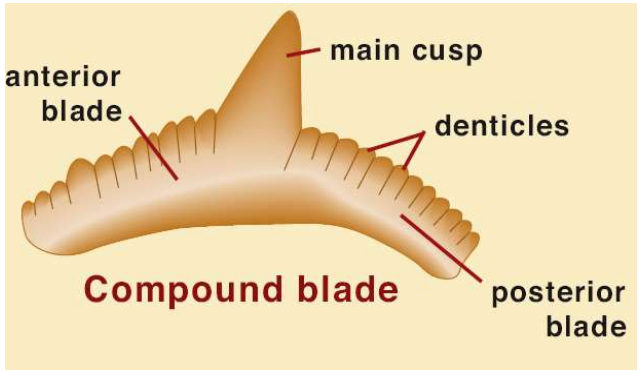
EU-DISCOASTER
(*Discoaster surculus*)

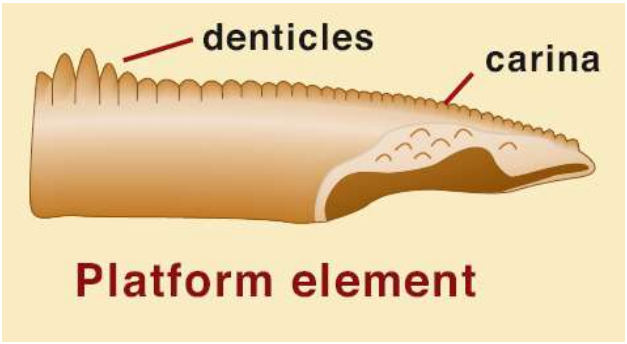

3 µm

Conodontophorida









CONODONTI E PARATASSONOMIA

Considerati per molto tempo dei “problematica”.
Interpretati come resti di pesci, vermi, molluschi e artropodi.

Erano certamente dei predatori.

Classe Conodontophorida — Cambriano- Triassico superiore

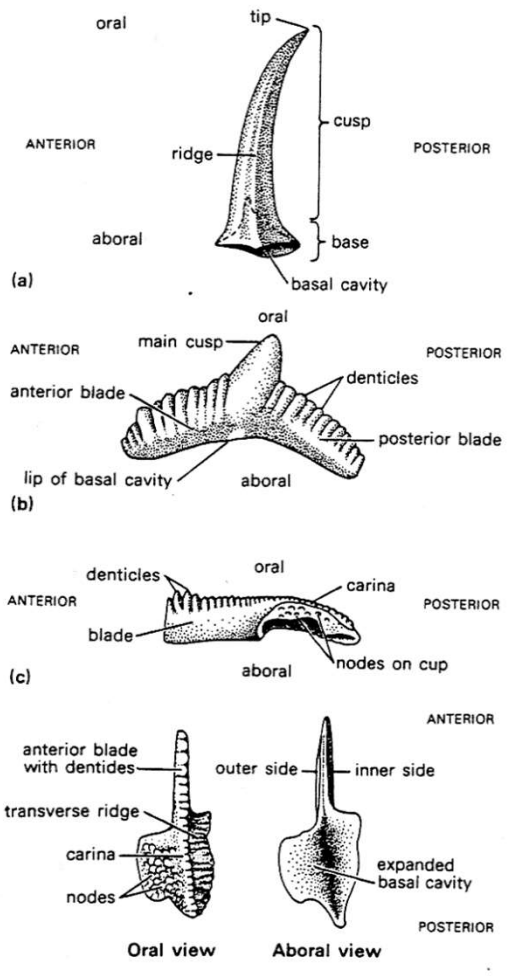
I Conodonti vengono rinvenuti ovunque nel mondo in sediment marini con più frequenze in ambienti di acque poco profonde .
Esistevano forme nektoniche e probabilmente anche forme bentoniche

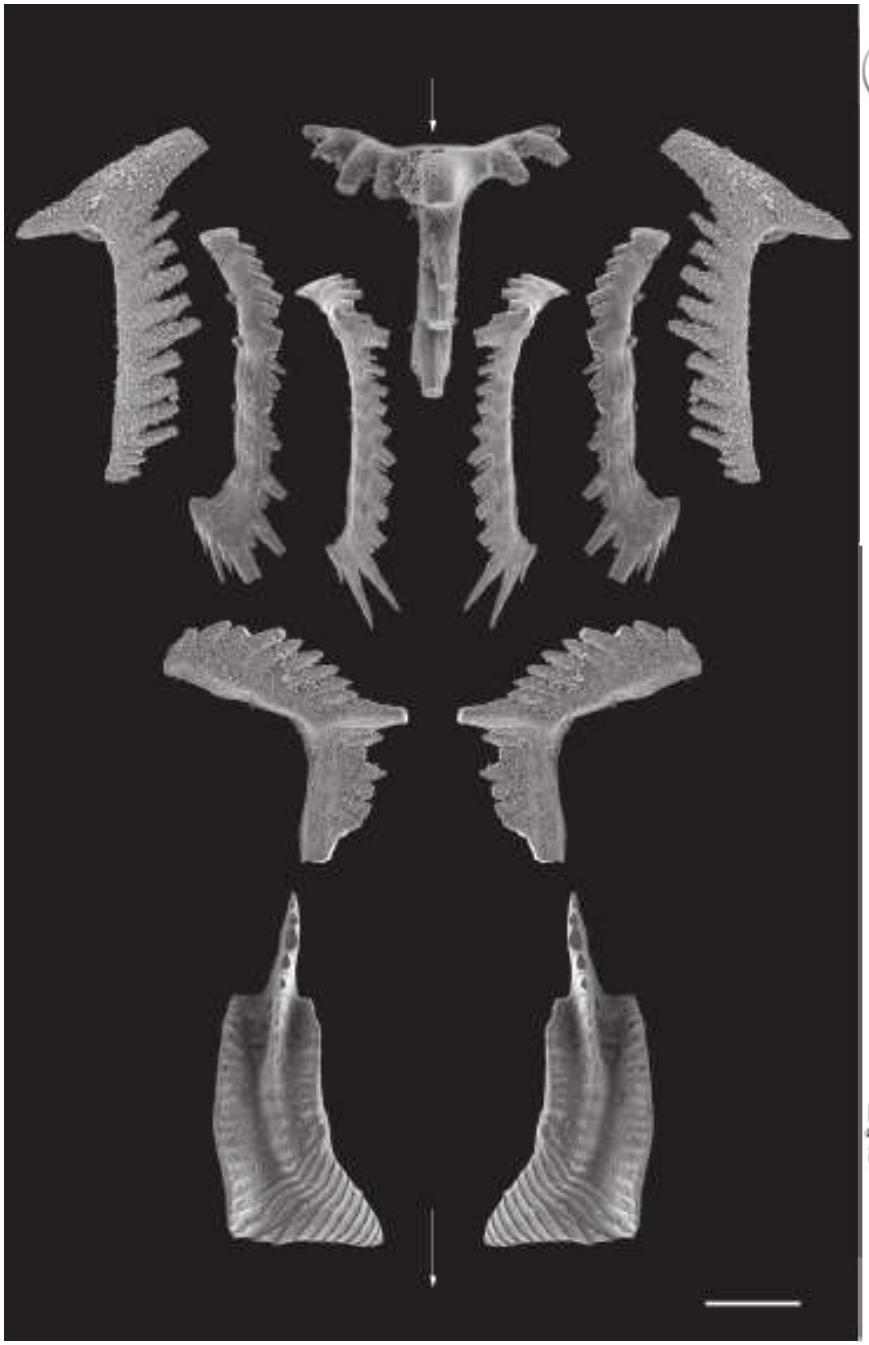
Sono importanti indicatori biostratigrafici per tutta la loro distribuzione stratigraica.

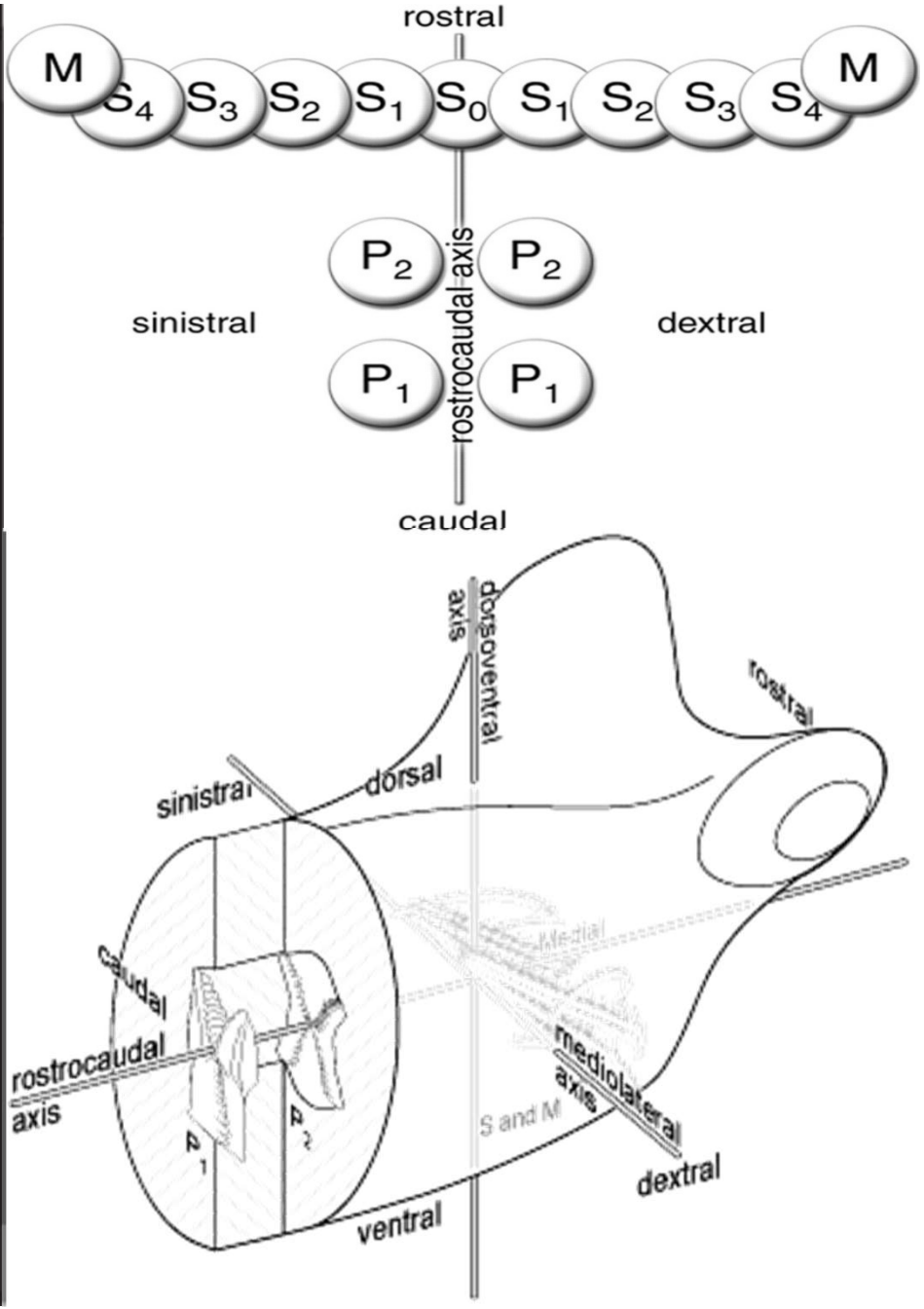
Single teeth Conodonts

Cuspidate Conodonts

Platform Conodonts






rostral
M
S4
S3
S2
S1
S0
S1
S2
S3
S4
M
P2
P2
sinistral
rostrocaudal axis
dextral
P1
P1
caudal
dorsoventral axis
rostral
sinistral
dorsal
Medial
caudal
rostrocaudal axis
mediolateral axis
S and M
P1
P2
ventral
dextral

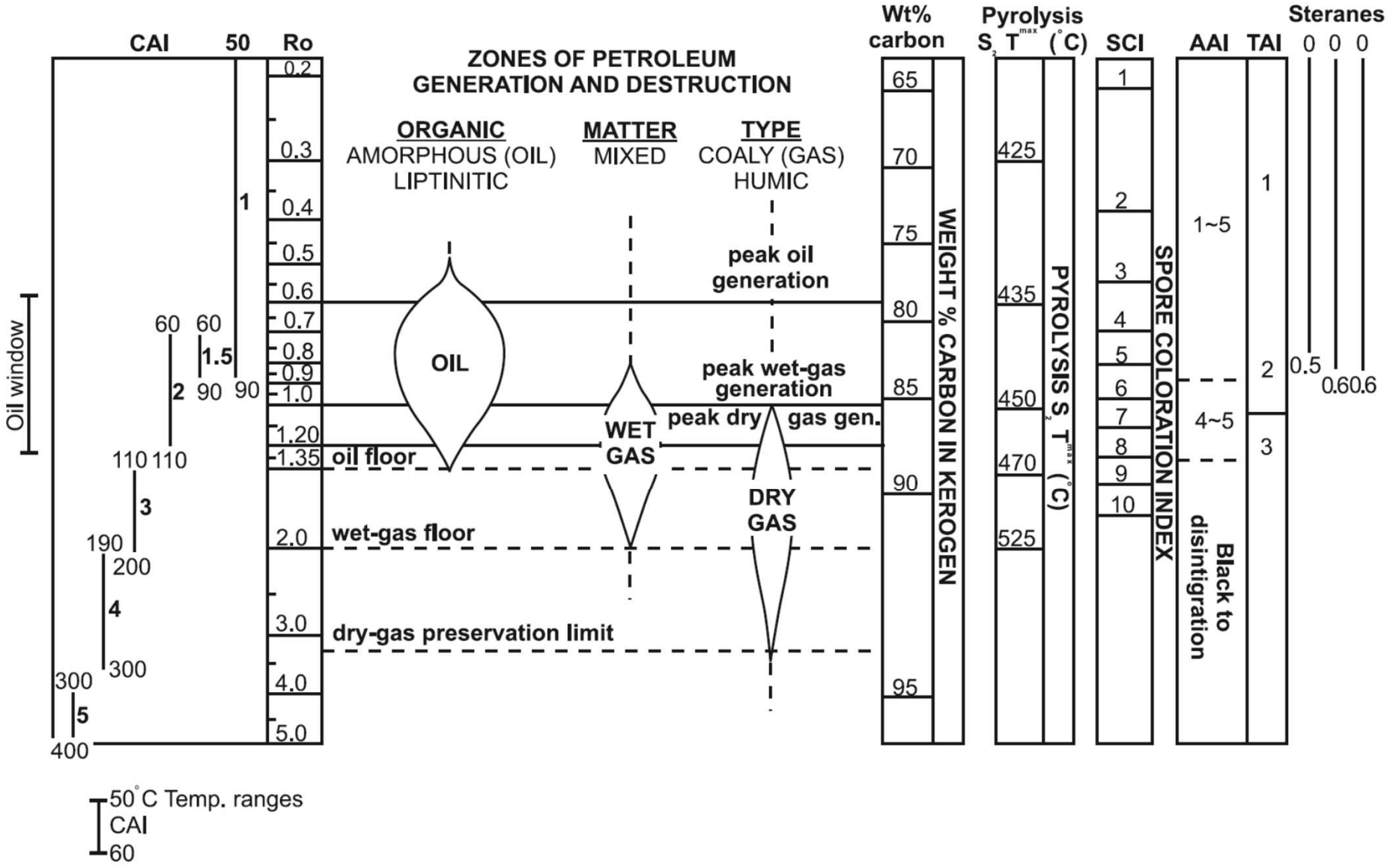
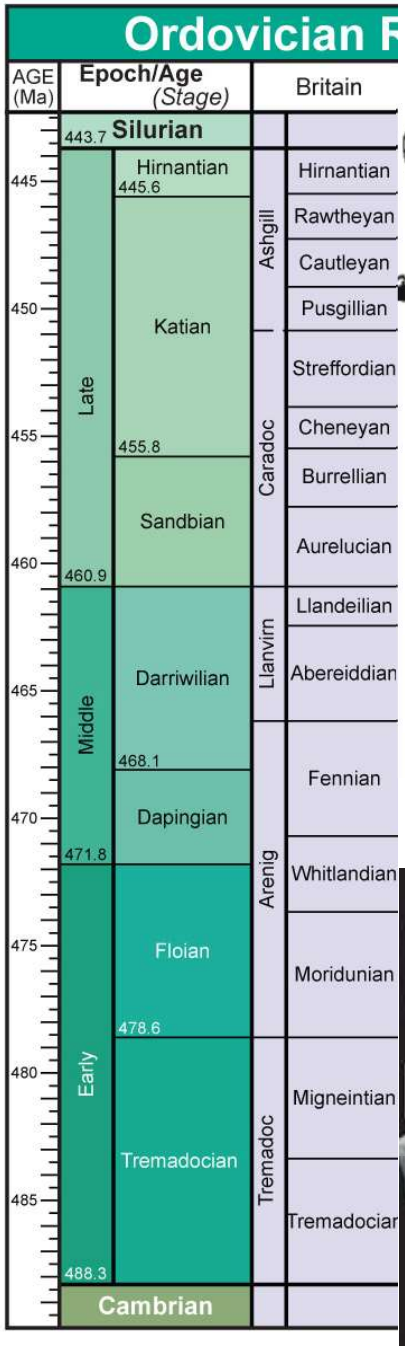
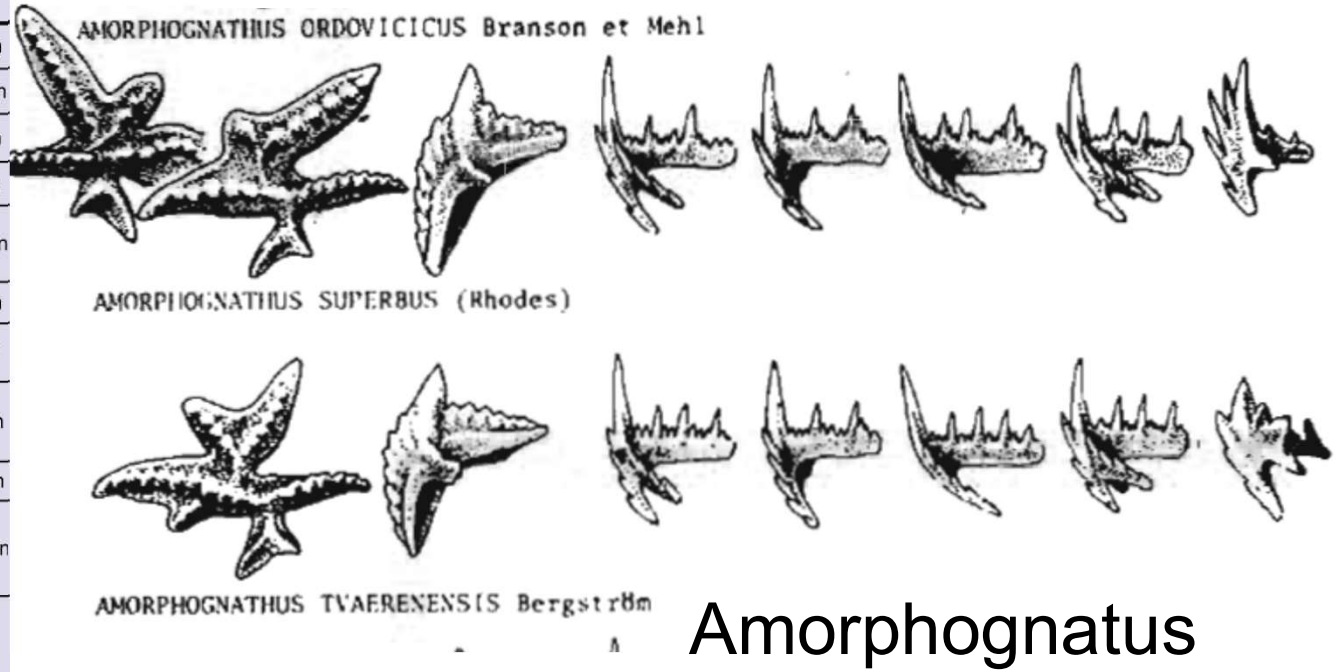
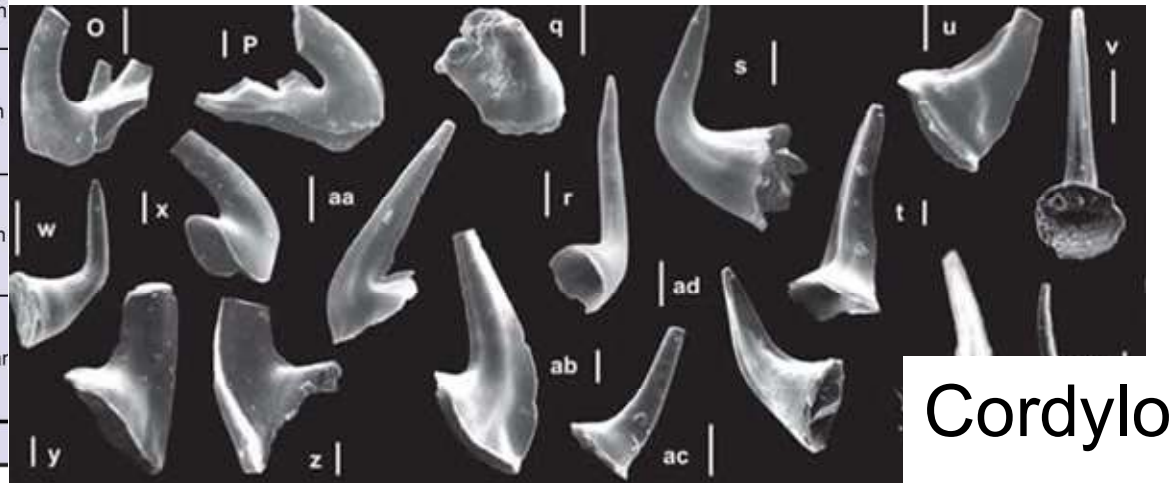


Fig. 5.1 Comparision of the main indicators of thermal maturity with the zones of petroleum generation and destruction. AAI, acritarch alteration index; CAI, conodont colour alteration index; SCI, spore coloration index; TAI, thermal alteration index.

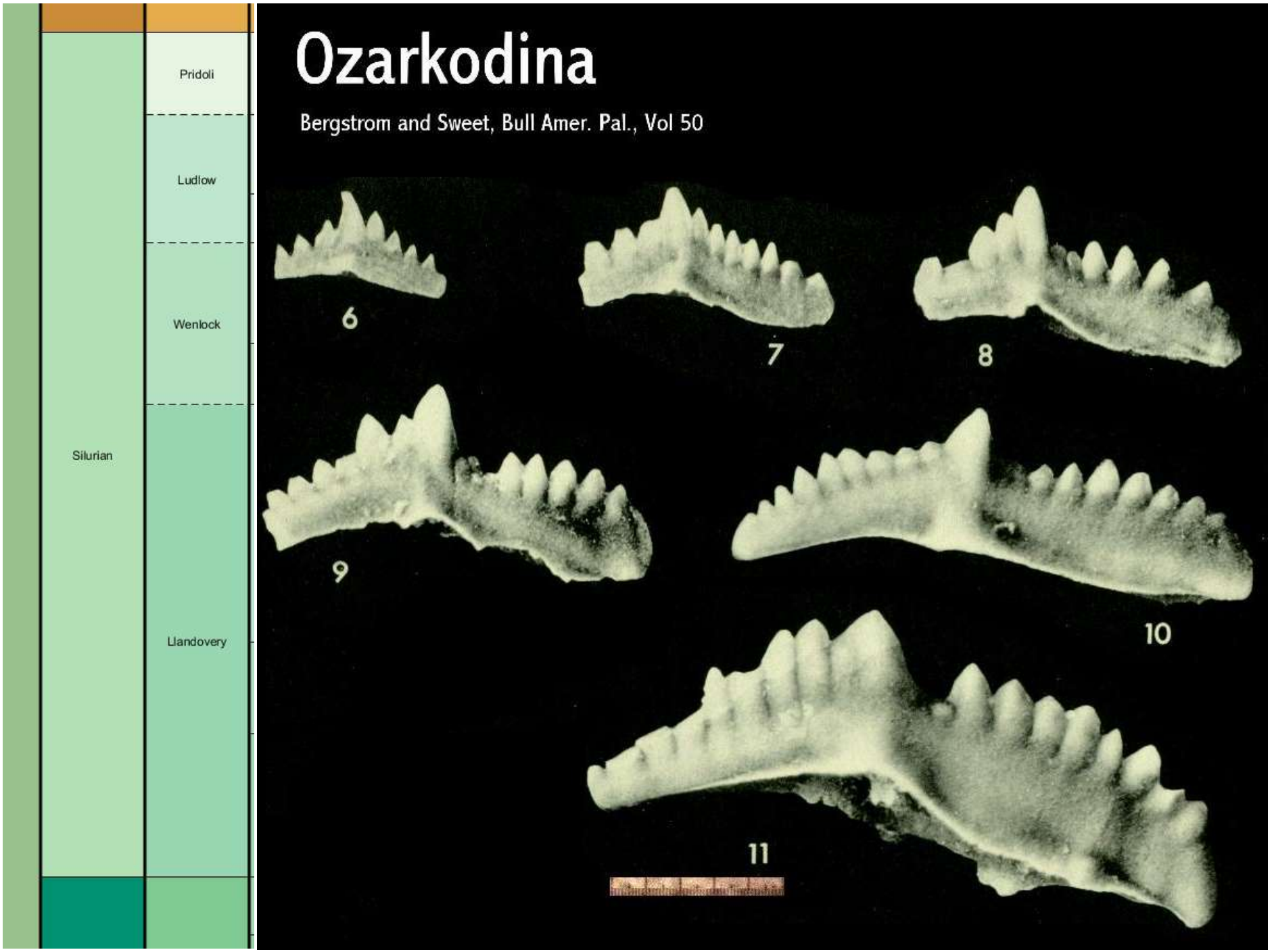




Amorphognatus



Cordylodus


Pridoli
Ludlow
Wenlock
Silurian
Llandovery
Ozarkodina
Bergstrom and Sweet, Bull Amer. Pal., Vol 50
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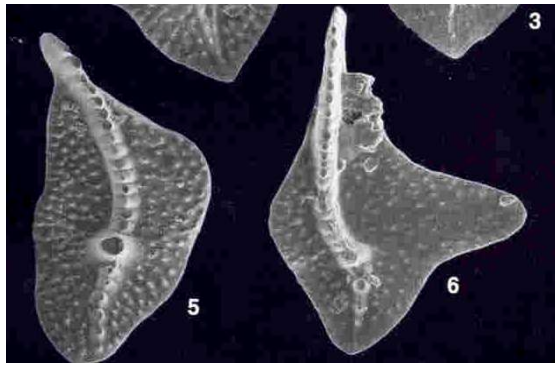
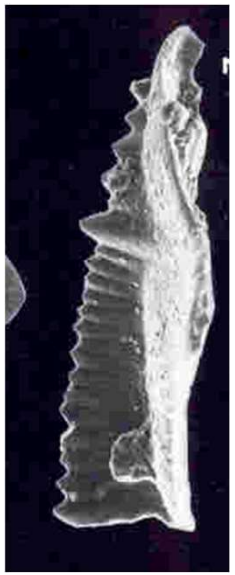
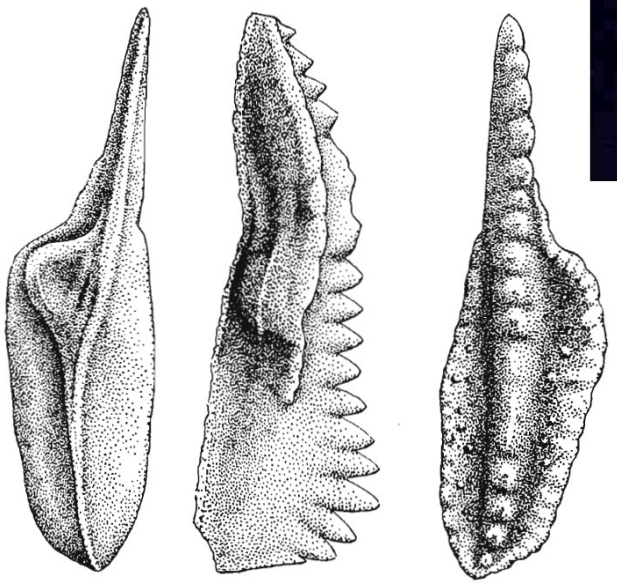
ERA	PERIOD	EPOCH
LATE PALAEOZOIC	DEVONIAN	LATE
		MID
		EARLY





Palmatolepis



Polygnathus

Ozarkodina

PERIOD | SE

CARBONIFEROUS

PENNSYLVANIAN

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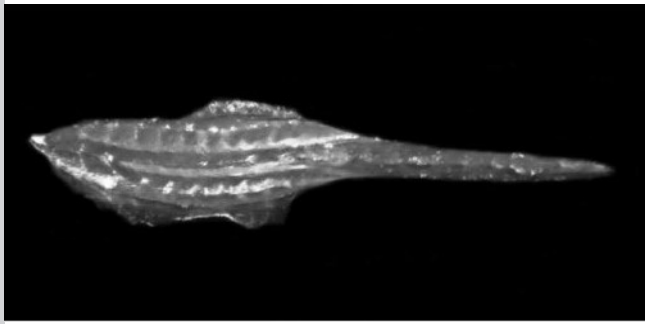
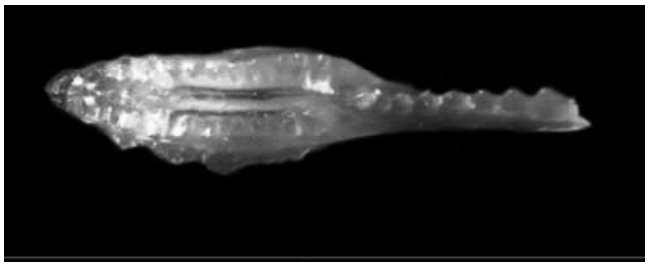
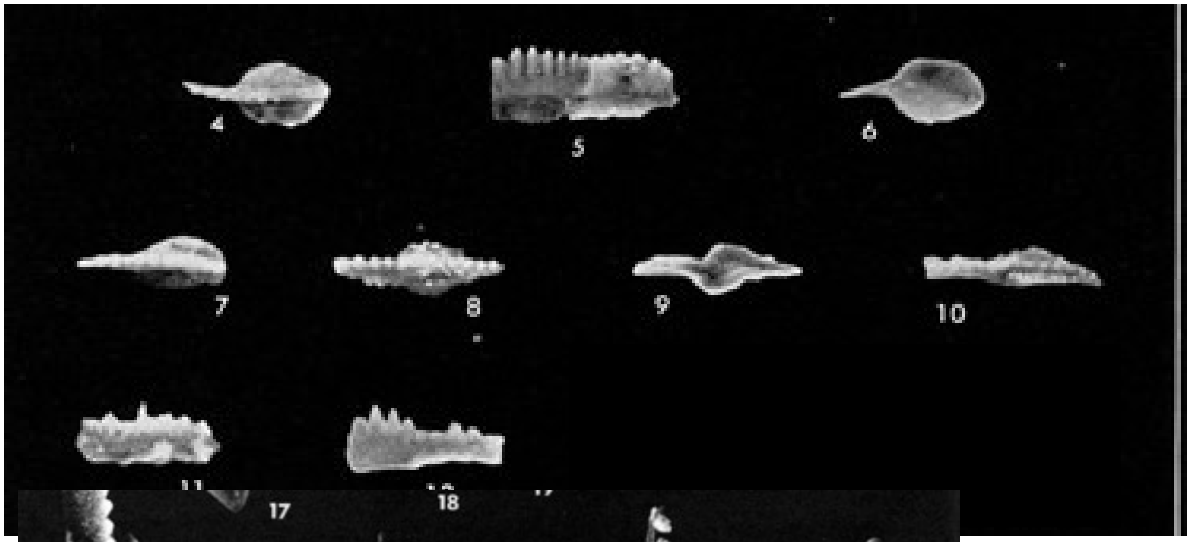
Conodontophorida

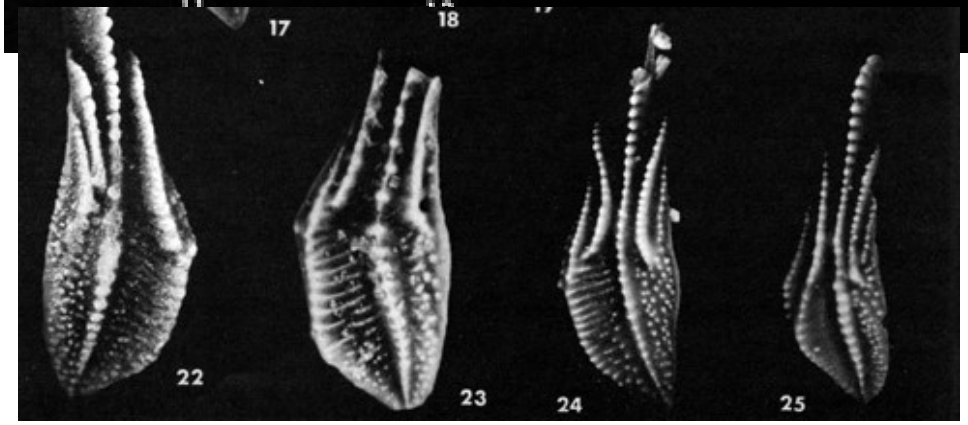




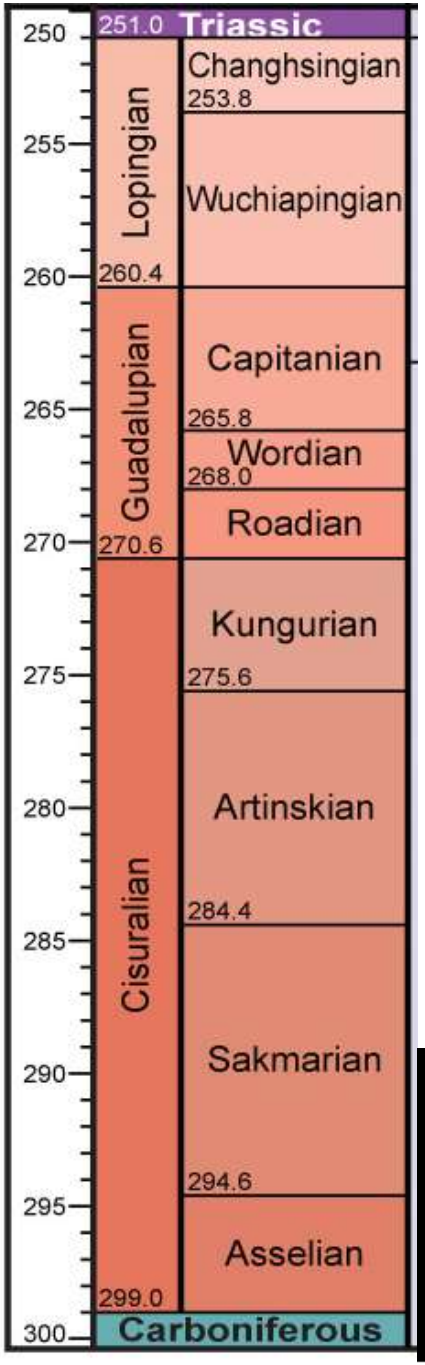
Streptognathodus



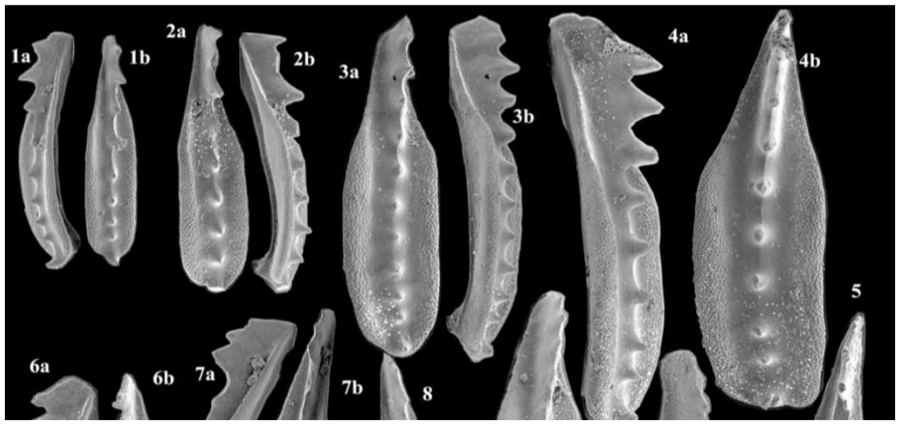
Gnathodus



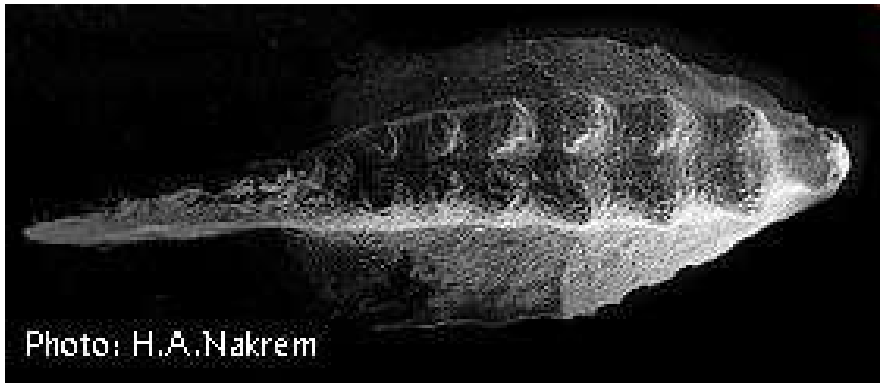
Siphonodella



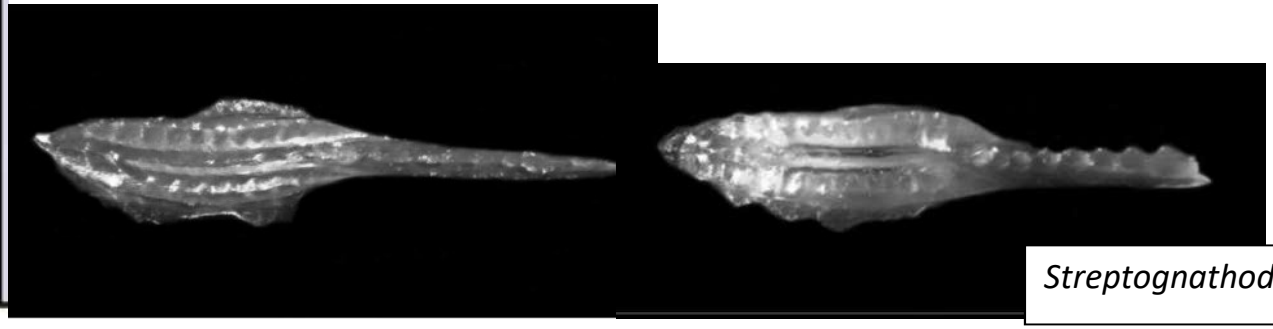
Conodontophorida



Clarkina

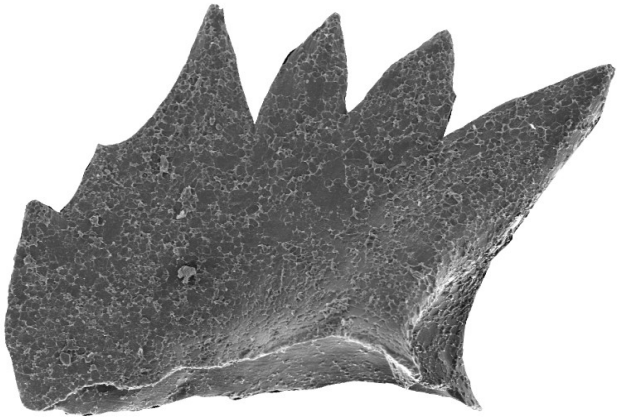


Neostreptognathodus

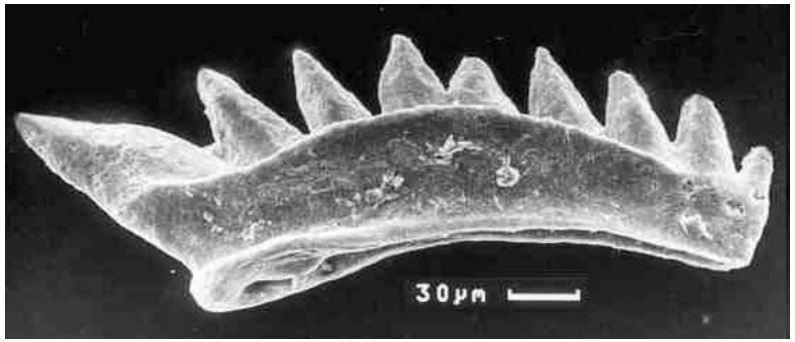


Streptognathodus

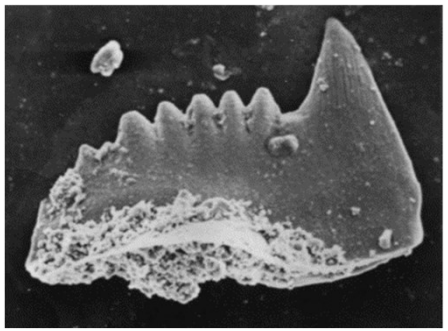
	series	stage
TRIASSIC	UPPER	Rhaetian
		Norian
		Carnian
	MIDDLE	Ladinian
		Anisian
	LOWER	Olenekian
		Induan



Misikella



Neogondolella



Hindeodus parvus