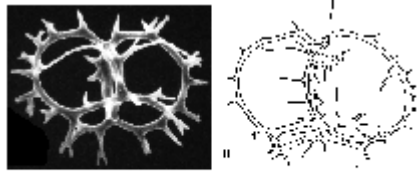


## Order Nassellaria

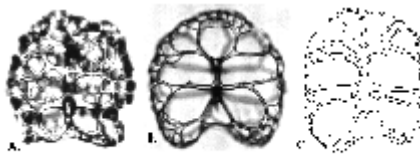
### Family Spyridae



*Acanthodesmia viniculata*

Figure 15.96.

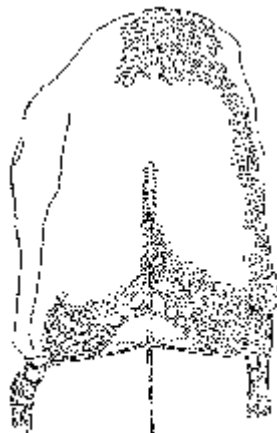
***Acanthodesmia viniculata*** (Muller) (Figure 2C; [15.96](#)) [= *Giraffospyris angulata*]. Shell composed of a D-shaped sagittal ring, a basal ring and a frontal ring (see Figure 3C). Breadth of frontal ring: ca. 140-180  $\mu\text{m}$ . Ref: [Petrushevskaya \(1971a\)](#), [Nigrini and Moore \(1979\)](#).



*Amphispyris reticulata*

Figure 15.95.

***Amphispyris reticulata*** (Ehrenberg) ([Figure 15.95](#)) [= *Liriospyris reticulata*, ? *Tholospyris procera*]. From the D-shaped sagittal ring 6 pairs of bars arise which branch and anastomose forming the latticed lateral walls of the shell. Breadth of shell: ca. 230  $\mu\text{m}$ . Ref: [Nigrini and Moore \(1979\)](#).



*Cephalospyris clathrobursa*

Figure 15.102.

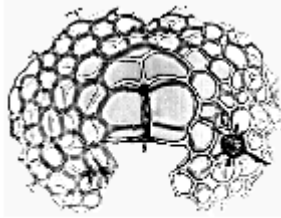
***Cephalospyris clathrobursa*** Haeckel ([Figure 15.102](#)). Sub-ovoid shell with very delicate, thin wall and very small pores; main lateral spines extend as three-bladed or hollow and perforated feet. Shell height: ca. 200  $\mu\text{m}$ . Ref: [Petrushevskaya \(1971a\)](#).



*Lophospyris pentagona pentagona*

Figure 15.97.

***Lophospyris pentagona pentagona*** (Ehrenberg) ([Figure 15.97](#)) [= *Lophospyris quadriforis*, *Lophospyris pentagona*]. Bars arising from sagittal, basal and frontal rings define large, very regular, polygonal pores. Skeletal bars and spines sharply three-bladed. Breadth of shell: ca 150  $\mu\text{m}$ . Ref: [Petrushevskaya \(1971a\)](#).



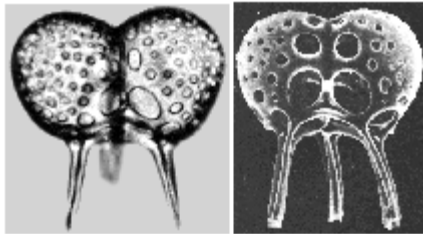
*Nephrospyris renilla*

Figure 15.99.

***Nephrospyris renilla*** Haeckel ([Figure 15.99](#))

[=*Nephrodictyum renilla*]. The front and back of the sagittal ring produce branches that fork and anastomose distally; the two sets of lattice plates thus formed are not interconnected laterally. Breadth of shell: ca. 200  $\mu\text{m}$ .

Ref: [Petrushevskaya \(1971a\)](#), [Goll \(1972\)](#).



A.

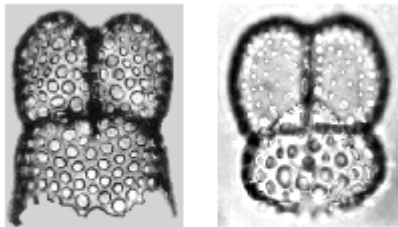
B.

*Phormospyris stabilis scaphipes*

Figure 15.93.

***Phormospyris stabilis scaphipes*** (Haeckel) ([Figure 15.93](#)).

Bi-lobulate, sagittally constricted, thin walled skeleton with three conspicuous feet protruding from basal ring. Breadth of shell: ca 80  $\mu\text{m}$ . Ref: [Goll \(1976\)](#).



A.

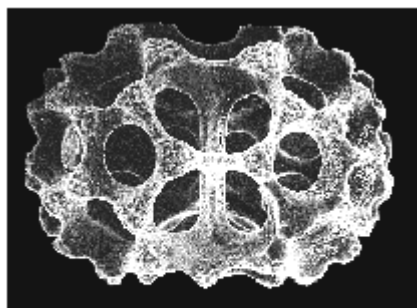
B.

*Phormospyris stabilis stabilis*

Figure 15.100.

***Phormospyris stabilis stabilis*** (Goll) ([Figure 15.100](#)).

Cephalis thin-walled, bilobulate, separated by a conspicuous annular constriction from the conical thorax. Thorax open or closed. Both segments with regular, circular pores. Breadth of shell: ca 110  $\mu\text{m}$ . Ref: [Goll \(1976\)](#).

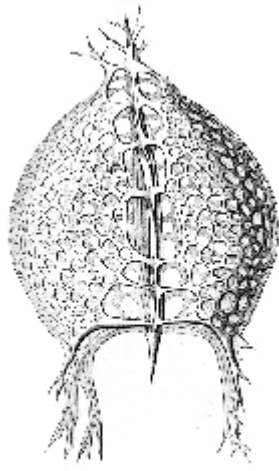


*Tholospyris anthophora*

Figure 15.98.

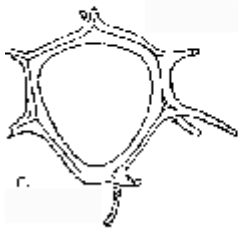
***Tholospyris anthophora*** (Haeckel) ([Figure 15.98](#)).

Oval-shaped sagittally constricted skeleton with very heavy bars and circular pores. Shell breadth: ca. 140  $\mu\text{m}$ . Ref: [Goll \(1969, 1972\)](#).



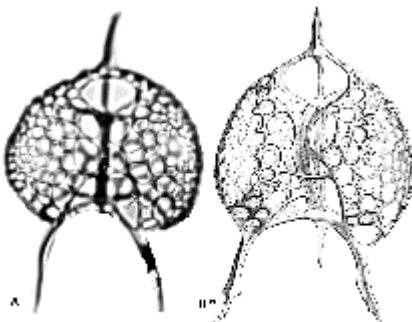
*Tholospyris ramosa*\*  
Figure 15.91.\*

***Tholospyris ramosa*** (Haeckel) ([Figure 15.91](#)) [= *Androspyris ramosa*]. Shell pear-shaped, sagittally constricted, with a well-developed galea and three feet whose distal ends can be spatulated or forked. Shell height: ca. 180  $\mu\text{m}$ . Ref: [Takahashi \(1991\)](#).



*Tholospyris* spp. group  
Figure 15.103.

***Tholospyris* spp. group** ([Figure 15.103](#)). Rings of variable size and form very common in most warm water materials; most of these are probably juvenile representatives of various Sphyridae.



*Tholospyris tripodiscus*  
Figure 15.92.

***Tholospyris tripodiscus*** Haeckel ([Figure 15.92](#)). Generally similar to *T. ramosa*, but with conspicuously larger pores on both sides of the sagittal ring and at the base of the galea; feet usually unbranched. Shell height: ca. 150  $\mu\text{m}$ . Ref: [Petrushevskaya \(1971a\)](#).



A.

B.

C.

*Triceraspyris antarctica*

**Figure 15.94.**

***Triceraspyris antarctica*** (Haecker) ([Figure 15.94](#)) [= *Triospyris antarctica*, *Phormospyris stabilis antarctica*]. Heavy bilobulated cephalis with irregularly distributed circular pores and three massive, simple or branched feet at the base; rudiments of thoracic lattice often present between feet. Shell breadth: ca. 100  $\mu\text{m}$ . Ref: [Petrushevskaya \(1967\)](#).



A.

B.

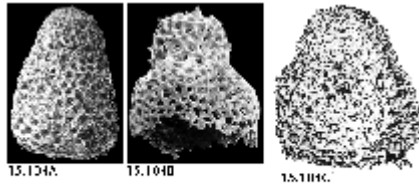
*Zygoircus productus*

**Figure 15.101.**

***Zygoircus productus*** (Hertwig) ([Figure 15.101](#)). Pear-shaped or D-shaped, spiny, three-bladed sagittal ring. Major diameter: 90-140  $\mu\text{m}$ . Ref: [Petrushevskaya \(1971a\)](#).

## Order Nassellaria

### Family Plagoniidae

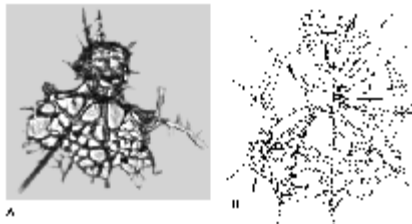


*Antarctissa* spp. group?

Figure 15.104C.

***Antarctissa*** spp. group? (Figure 3D, [15.104](#))

[=?*Antarctissa strelkovi*, ?*Antarctissa longa*]. Shell outline triangular to oval, cephalis partly submerged into thorax. Shell-wall thick. *A. strelkovi* (Figure 3D) and *A. longa* differ from *A. denticulata* by having thinner and spinier shell-walls. Shell height: 100-160  $\mu\text{m}$ . Ref: [Petrushevskaya \(1967\)](#).



*Arachnocorys circumtexta*

Figure 15.110.

***Arachnocorys circumtexta*** Haeckel ([Figure 15.110](#)).

Spherical cephalis provided with numerous spines; those directed upwards are interconnected by a spider web-like lattice of very thin bars; the ones directed toward the base support an incipient thorax formed by a coarser lattice with irregular pores, with several very large pores located in the neck area. Overall shell height: ca. 140  $\mu\text{m}$ . Ref: [Petrushevskaya \(1971a\)](#).

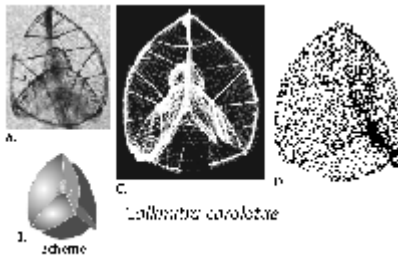


Figure 15.123.

***Callimitra carolotae*** Haeckel ([Figure 15.123](#)). The small, dome-shaped cephalis is provided with very long apical (directed upwards), dorsal and main lateral spines (directed down and sideways) interconnected by a delicate meshwork which forms three basal plates and three lateral plates. Overall shell height: ca. 200  $\mu\text{m}$ . Ref: [Haeckel \(1887\)](#).



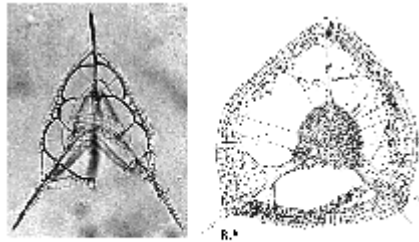
*Clathrocanium coarctatum*

Figure 15.114.

***Clathrocanium coarctatum*** Ehrenberg ([Figure 15.114](#)).

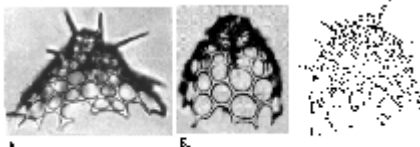
Cephalis with a large, three-bladed apical horn which may have lateral thread-like, anastomosing pojections. The dorsal and two main lateral spines, directed down and sideways, are joined by narrow lattice plates which form a small thorax. Overall shell height: ca. 100  $\mu\text{m}$ . Ref: [Petrushevskaya \(1971a\)](#).





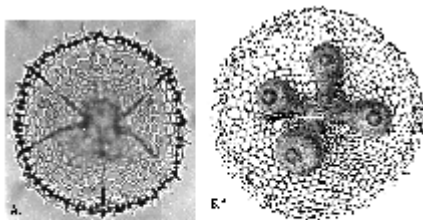
*Clathrocorys teuscheri*  
Figure 15.112.

***Clathrocorys teuscheri*** Haeckel (Figure 2G; [15.112](#)). Similar to *C. coarctatum*, except that the apical, dorsal and main lateral spines are joined by a well-developed lattice. Overall shell height: ca. 150-190  $\mu\text{m}$ . Ref: [Petrushevskaya \(1971a\)](#).



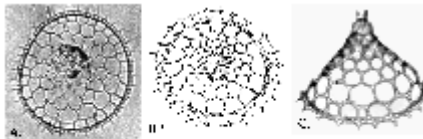
*Helotholus histicosa*  
Figure 15.113.

***Helotholus histicosa*** Jorgensen ([Figure 15.113](#)). Spiny, dome-shaped shell. Cephalis merging smoothly with thorax; thorax with large and irregular pores, without defined termination. Maximum shell width: ca. 100-120  $\mu\text{m}$ . Ref: [Petrushevskaya \(1971a\)](#).



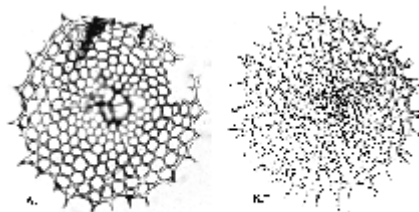
*Lampromitra coronata*  
Figure 15.115.

***Lampromitra coronata*** Haeckel ([Figure 15.115](#)). Shell in the shape of a Chinese peasant hat. Thorax with subregular circular pores increasing in size slightly towards the base, with a well defined peristome of a row of small pores and minute spines. Shell diameter: ca. 200  $\mu\text{m}$ . Ref: [Petrushevskaya \(1971a\)](#).



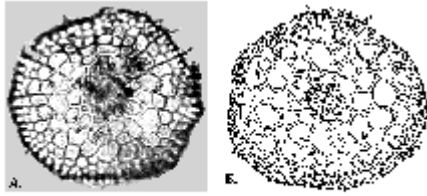
*Lampromitra danaes*  
Figure 15.116.

***Lampromitra danaes*** (Haeckel) ([Figure 15.116](#)) [= *Corocalyptra danaes*]. Overall shell-shape similar to *L. coronata*. Pores on thorax regular, polygonal, strongly increasing in size toward its base. Rim of thorax represented by a very regular row of small, rectangular pores followed immediately by one of much larger pores. Shell diameter: ca. 180  $\mu\text{m}$ . Ref: [Haeckel \(1887\)](#), as *Clathrocyclas danaes*.



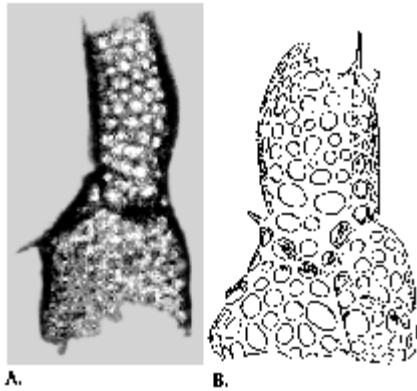
*Lampromitra quadricuspis*  
Figure 15.117.

***Lampromitra quadricuspis*** Haeckel ([Figure 15.117](#)). Generally similar to *L. coronata*, except that cephalis is more elongate, pores on thorax are larger and its termination is ragged. Shell diameter: 120-350  $\mu\text{m}$ . Ref: [Benson \(1966\)](#).



*Lampromitra schultzei*  
Figure 15.118.

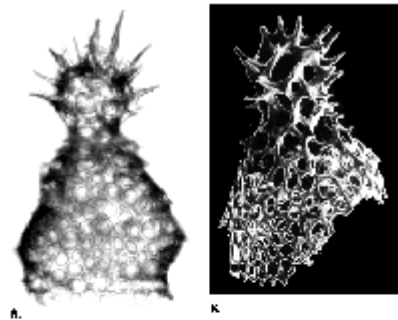
***Lampromitra schultzei*** (Haeckel) ([Figure 15.118](#)). Similar to *L. coronata*, except that pores on thorax are considerably larger and less regular. Peristome with two-three rows of regularly aligned, small, subrectangular pores. Shell diameter: ca. 100  $\mu\text{m}$ . Ref: [Boltovskoy and Riedel \(1980\)](#).



*Lophophaena butschlii*

Figure 15.108.

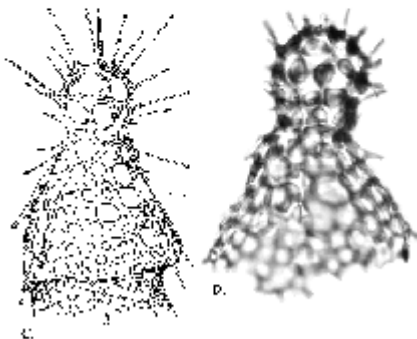
***Lophophaena butschlii*** (Haeckel) ([Figure 15.108](#)). Elongated cephalis, the top of which is usually unfinished, short conical thorax. Overall shell height: ca. 100  $\mu\text{m}$ . Ref: [Petrushevskaya \(1971a\)](#).



A.

B.

***Lophophaena hispida*** (Ehrenberg) (Figure 3I; [15.109](#)). Cephalis spherical, with very large pores and many long, thin spines. Thorax conical, its pores decreasing in size toward the base; sometimes an incipient abdomen present. Overall shell height: ca. 150  $\mu\text{m}$ . Ref: [Petrushevskaya \(1971a\)](#).

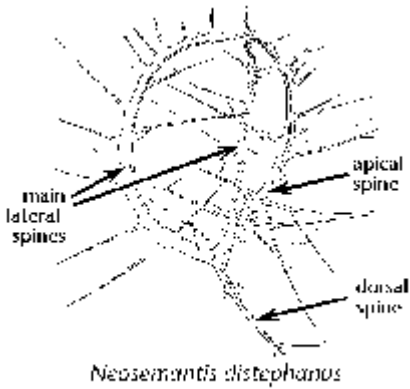


C.

D.

*Lophophaena hispida*

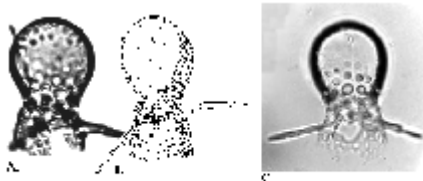
Figure 15.109.



*Neosemantis distephanus*

Figure 15.120.

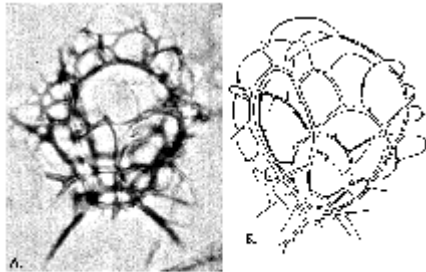
***Neosemantis distephanus*** (Haeckel) ([Figure 15.120](#)). Skeleton composed of an oval or pyriform ring (fused main lateral spines) both poles of which are connected by a third bar (the apical spine); from its base protrudes the dorsal spine. All skeletal elements very spiny. Major ring diameter: 70-80  $\mu\text{m}$ . Ref: [Petrushevskaya \(1971a\)](#).



*Peromelissa phalacra*

Figure 15.107.

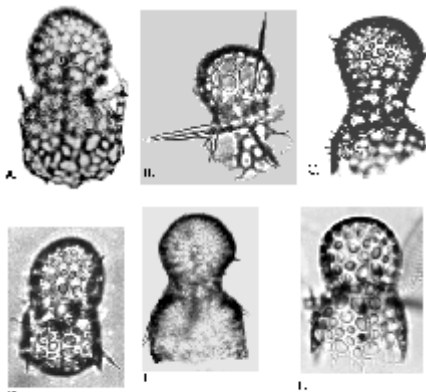
***Peromelissa phalacra*** (Haeckel) ([Figure 15.107](#)) [= *Psilomelissa phalacra*, *Lithomelissa monoceras*]. Oval cephalis whose upper part is unperforated or has very few, very small pores. The dorsal and main lateral spines emerge in the neck region as large, three-bladed appendages. Overall shell height: ca. 100  $\mu\text{m}$ . Ref: [Petrushevskaya \(1971a\)](#).



*Phormacantha hystrix*

Figure 15.111.

***Phormacantha hystrix*** (Jorgensen) ([Figure 15.111](#)). Cephalis composed of a loose network of arches defining large, irregular pores. Thorax absent. Shell height: 60-70  $\mu\text{m}$ . Ref: [Petrushevskaya \(1971a\)](#).

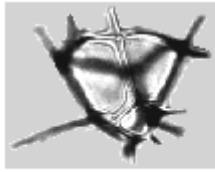


Plagoniidae group

Figure 15.105.

**Plagoniidae group** ([Figure 15.105](#)). Includes many generally similar forms with a latticed cephalis and with or without a rudimentary thorax. The systematics of these sometimes extremely abundant forms is confused, and they are generally ignored in most surveys. They include species cited under a variety of generic names, such as *Amphiplecta*, *Arachnocorallium*, *Arachnocorys*, *Ceratocyrtilis*, *Dimelissa*, *Lophophaena*, *Lophophaenoma*, *Micromelissa*, *Peromelissa*, *Psilomelissa*, etc.





A

*Pseudocubus obeliscus*

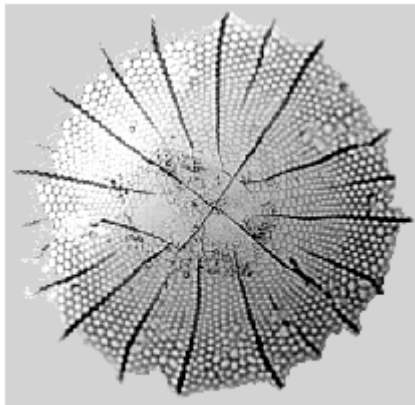
B

**Figure 15.122.**

***Pseudocubus obeliscus*** Haeckel ([Figure 15.122](#)).

Skeleton represented by the sharply three-bladed edges of a 4-sided, truncated pyramid. Shell height: ca. 40  $\mu\text{m}$ .

Ref: [Petrushevskaya \(1971a\)](#).



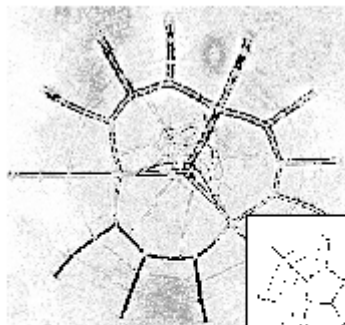
*Sethophormis aurelia*

**Figure 15.121.**

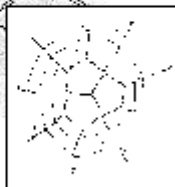
***Sethophormis aurelia*** Haeckel (Figure 3F; [15.121](#)).

Shell in the form of a Chinese peasant hat; cephalis cupola-shaped; thorax with a very delicate, lace-like meshwork of irregular pores decreasing in size toward the periphery and many radial sinuous ribs. Shell diameter: 150-200  $\mu\text{m}$ .

Ref: [Petrushevskaya \(1971a\)](#).



A



B

*Sethophormis rotula*

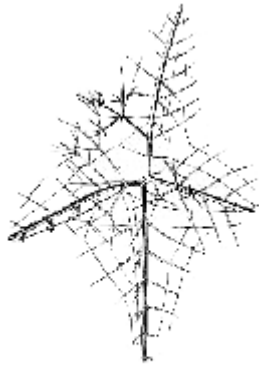
**Figure 15.124.**

***Sethophormis rotula*** (Haeckel) ([Figure 15.124](#)).

Central part of spider web-like skeleton is an hexagonal ring whose vertices support 6 radiating spines; three additional radial spines (dorsal and two main lateral) merge in center of hexagon. All spines produce rather regularly spaced anastomosing lateral branches.

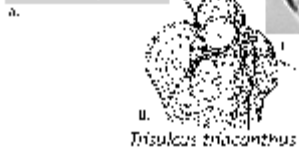
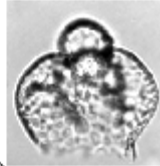
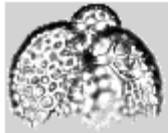
Diameter of central hexagon: ca. 40  $\mu\text{m}$ . Ref:

[Petrushevskaya \(1971a\)](#).



*Tetraplecta  
pinigera*  
Figure 15.119.

***Tetraplecta pinigera*** Haeckel ([Figure 15.119](#)). Skeleton reduced to four equidistant three-bladed spines arising from a common central point; spines produce thin lateral branches which can anastomose forming a delicate, irregular web. Length of each spine: 25-30  $\mu\text{m}$ . Ref: [Haeckel \(1887\)](#).

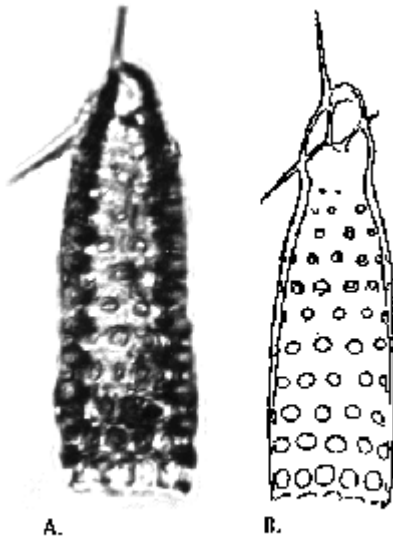


*Trisulcus triacanthus*  
Figure 15.106.

***Trisulcus triacanthus*** Popofsky ([Figure 15.106](#)). Small, sparsely perforated cephalis sitting on top of a conspicuously three-lobulated thorax, lobes are most evident in the uppermost part, disappearing gradually toward the base. Shell height: ca. 60  $\mu\text{m}$ . Ref: [Petrushevskaya \(1971a\)](#).

## Order Nassellaria

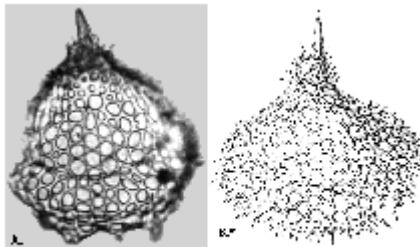
### Family Theoperidae



*Artostrobus annulatus*

Figure 15.125.

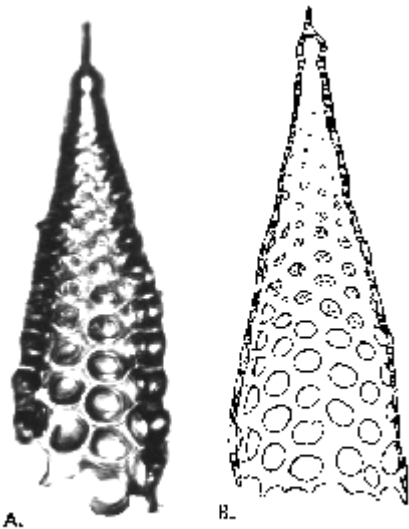
***Artostrobus annulatus*** (Bailey) ([Figure 15.125](#)). Cephalis cup-shaped, poreless, with a thin apical horn. Thorax cylindrical, with circular (proximally) to subrectangular (distally) pores in transverse rows, increasing in size toward the base. Shell height: up to 160  $\mu\text{m}$ . Ref: [Riedel \(1958\)](#), [Petrushevskaya \(1967\)](#).



*Clathrocyclas cassiopeiae*

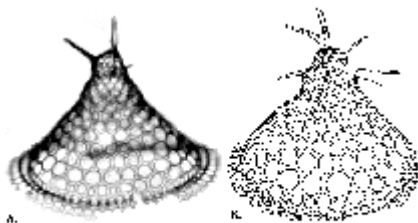
Figure 15.126.

***Clathrocyclas cassiopeiae*** Haeckel ([Figure 15.126](#)). Small cephalis with a stout apical horn and many smaller spines. Thorax large, campanulate, with irregular pores. Abdomen short, truncated, with ragged, spiny termination. Shell height: 100-200  $\mu\text{m}$ . Ref: [Haeckel \(1887\)](#).



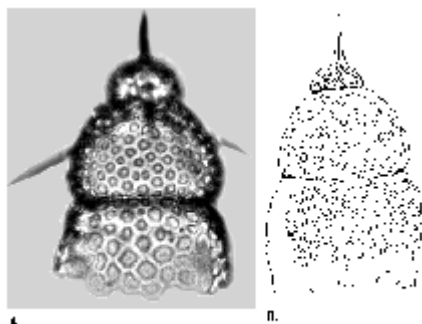
*Cornutella profunda*  
Figure 15.127.

***Cornutella profunda*** Ehrenberg ([Figure 15.127](#)).  
Narrow, bilocular conical shell with very small subspherical poreless cephalis with or without apical horn. Pores on thorax circular, increasing in size toward the base. Shell height: 120-230  $\mu\text{m}$ . Ref: [Riedel \(1958\)](#), [Nigrini \(1967\)](#).



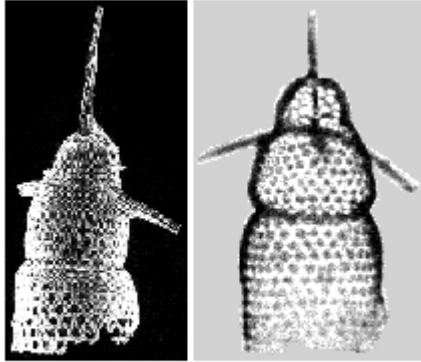
*Corocalyptra cervus*  
Figure 15.128.

***Corocalyptra cervus*** (Ehrenberg) ([Figure 15.128](#)).  
Cephalis with a large apical horn, often forked distally. Thorax large, campanulate, with regular, polygonal pores in transversal rows increasing in size distally. Abdomen restricted to a narrow brim with several rows of small pores. Shell height: 100-200  $\mu\text{m}$ . Ref: [Benson \(1966\)](#).



*Corocalyptra columba*  
Figure 15.132.

***Corocalyptra columba*** (Haeckel) ([Figure 15.132](#)).  
Subspherical cephalis partly submerged into cupola-shaped thorax, provided with a large apical horn. Thorax with three small wings. Abdomen cylindrical. Shell height: ca. 100-120  $\mu\text{m}$ . Ref: [Haeckel \(1887\)](#), as *Pterocorys columba*.



A  
B  
*Corocalyptra kruegeri*

Figure 15.136.

***Corocalyptra kruegeri*** Popofsky ([Figure 15.136](#)). Generally similar to *C. columba*; cephalis larger, thorax and abdomen cylindrical. Shell height: ca. 80 µm. Ref: [Popofsky \(1913\)](#).

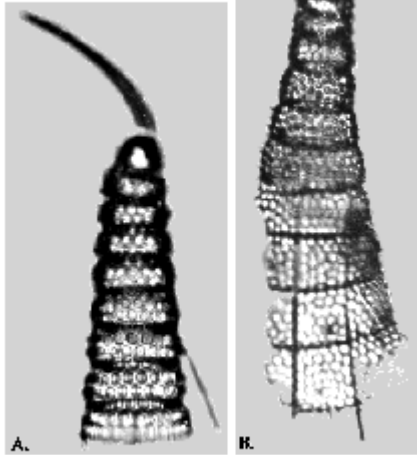


A  
B  
C  
*Cycladophora davisiana*

Figure 15.131.

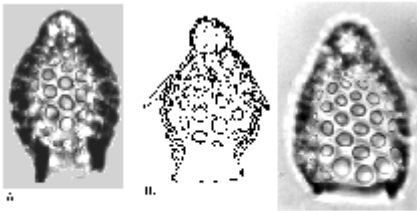
***Cycladophora davisiana*** (Ehrenberg) ([Figure 15.131](#)) [= *Theocalyptra davisiana*, ?*Artostrobos jorgenseni*]. Shell conical to campanulate. Cephalis subspherical, sparsely perforated, usually with two spines. Thorax conical to cylindrical, with circular (proximally) to quadrate (distally) pores increasing in size toward the base. Abdomen, when present, flared out, wider than thorax, with quadrate pores. [Petrushevskaya \(1967\)](#) described three subspecies of this form, of which *C. davisiana* (Ehrenberg) *davisiana* Petrushevskaya (Figure 15.131b) and *C. davisiana* (Ehr.) *cornutoides* (Petrushevskaya) (Figure 15.131c) are often used in current literature (the last one is probably synonymous with *Artostrobos jorgenseni*). Shell height: ca. 100 µm. Ref: [Riedel \(1958\)](#), [Petrushevskaya \(1967\)](#), [Bjørklund and Ciesielski \(1994\)](#).





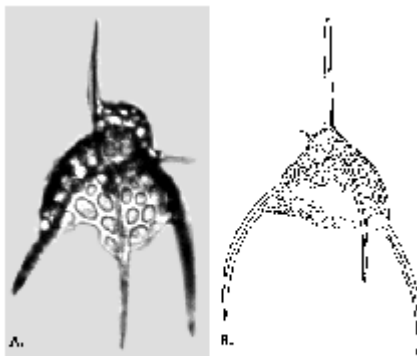
*Cyrtopera laguncula*  
Figure 15.151.

***Cyrtopera laguncula*** Haeckel (Figure 30; [15.151](#)) [= *Cyrtolagena laguncula*, *Stichopera pectinata*]. Very typical multisegmented shell with conical outline and clearly marked constrictions; last segment may be open or closed. Shell height: 150-250  $\mu\text{m}$ . Ref: [Petrushevskaya \(1971a\)](#).



*Dictyocephalus papillosus*  
Figure 15.135.

***Dictyocephalus papillosus*** (Ehrenberg) (Figure 15.135) [= *Carpocanarium papillosum*]. Two-segmented, thick-walled shell. Cephalis spherical. Thorax oval, with circular, usually framed pores, with three short wings, ending in a narrowed, poreless peristome. Shell height: 70-90  $\mu\text{m}$ . Ref: [Petrushevskaya \(1967\)](#).



*Dictyophimus gracilipes*  
Figure 15.142.

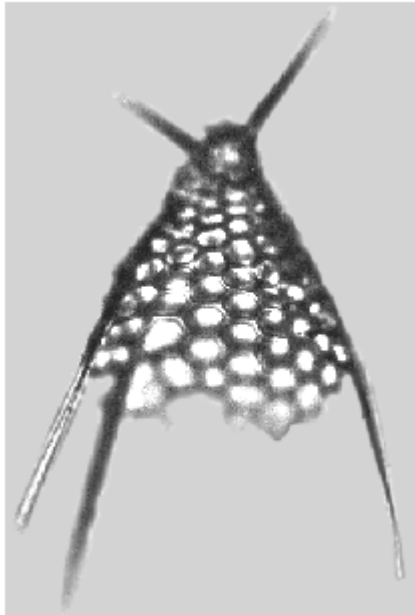
***Dictyophimus gracilipes*** Bailey (Figure 15.142) [= *Pseudodictyophimus gracilipes*, *Dictyophimus clevei*]. Cephalis partly submerged into thorax, bears a large apical horn. Thorax pyramidal or conical, mouth open or closed, with three conspicuous legs (dorsal and lateral spines). Shell height (without feet): 55-90  $\mu\text{m}$ . Ref: [Petrushevskaya \(1971a\)](#).



*Dictyophimus hirundo*.

Figure 15.140.

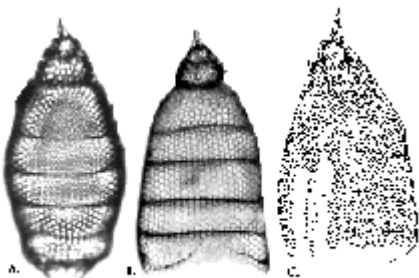
***Dictyophimus hirundo*** (Haeckel) ([Figure 15.140](#)) [= *Pterocorys hirundo*]. Cephalis, globular, sometimes spiny, with a stout, three-bladed apical horn. Thorax truncate-conical to campanulate, spiny, with large circular pores and three ribs which extend into massive, divergent feet. Highly variable species (species group?). Shell height (without feet): 50-100  $\mu\text{m}$ . [Riedel \(1958\)](#), [Nigrini and Moore \(1979\)](#).



*Dictyophimus infabricatus*

Figure 15.143.

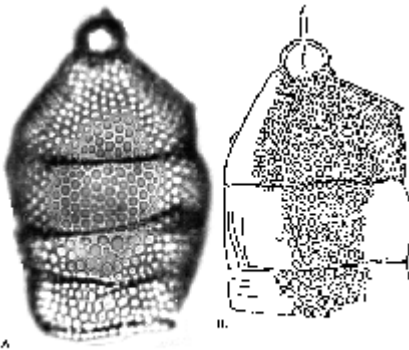
***Dictyophimus infabricatus*** Nigrini (Figure 3Q; [15.143](#)). Similar to *D. hirundo*, but shell is thinner and pores are larger; cephalis usually with two horns (apical and vertical spines), feet are smaller. Shell height (without feet): 90-200  $\mu\text{m}$ . Ref: [Nigrini and Moore \(1979\)](#).



*Eucyrtidium acuminatum*.

Figure 15.137.

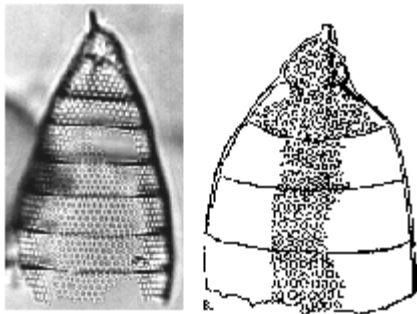
***Eucyrtidium acuminatum*** (Ehrenberg) ([Figure 15.137](#)) [= ? *Eucyrtidium hexagonatum*]. Small subspherical cephalis with apical horn. Thorax small, inflated, thick-walled. Abdomen and four-five post-abdominal segments thin-walled, with pores arranged in longitudinal rows. Shell height: 120-200  $\mu\text{m}$ . *Eucyrtidium hexagonatum* Haeckel is closely related to this species; according to [Nigrini \(1967\)](#) it can be distinguished from *E. acuminatum* by the sharp change in contour at the lumbar stricture. Ref: [Nigrini and Moore \(1979\)](#).



*Eucyrtidium anomalum*

Figure 15.138.

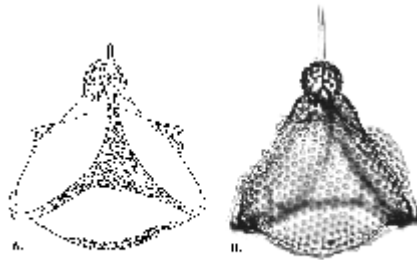
***Eucyrtidium anomalum*** (Haeckel) ([Figure 15.138](#)). Cephalis spherical, partly submerged into the large, assymetric, conical, thin-walled thorax. Abdomen and two-three postabdominal segments thin-walled, with pores in longitudinal rows. Maximum shell width: 80-100  $\mu$ m. Ref: [Petrushevskaya \(1971a\)](#).



*Eucyrtidium hexastichum*

Figure 15.139.

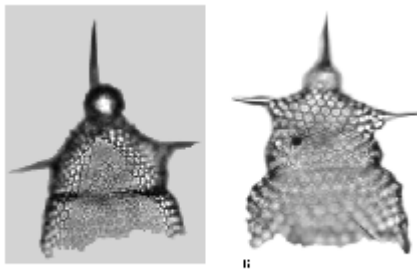
***Eucyrtidium hexastichum*** (Haeckel) ([Figure 15.139](#)). Cylindrical or conical shell with up to 9-10 segments, thin-walled, with pores arranged in transversal rows. Maximum shell width: 65-80  $\mu$ m. Ref: [Petrushevskaya \(1971a\)](#).



*Lipmanella bombus*

Figure 15.133.

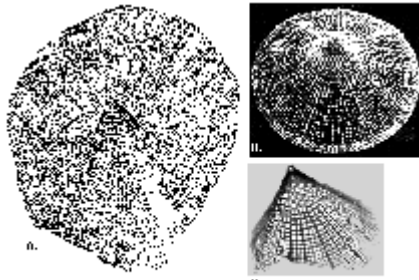
***Lipmanella bombus*** (Haeckel) ([Figure 15.133](#)) [= *Dictyoceras* cf. *pyramidale*]. Very characteristic thorax where the dorsal and main lateral spines, which project down and sideways, are surmounted by latticed keels; these keels define the three slightly concave sides of the pyramidal thorax. Maximum shell width: 80-150  $\mu$ m. Ref: [Benson \(1966\)](#), [Petrushevskaya \(1971a\)](#).



*Lipmanella dictyoceras*

Figure 15.134.

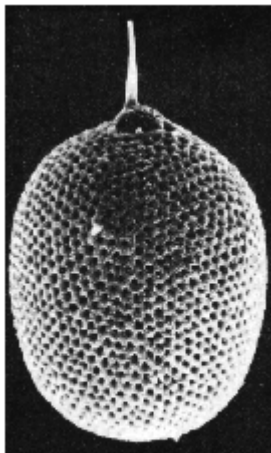
***Lipmanella dictyoceras*** (Haeckel) (Figure 3R, [15.134](#)) [= *Lipmanella virchowii*, *Dictyoceras virchowii*, *Dictyoceras neglectum*]. Cephalis large, hemispherical, with a conspicuous apical horn. Thorax thin-walled, conical-inflated, with three wings (dorsal and main lateral spines). Abdomen absent or rudimentary. Shell height: 90-130  $\mu$ m. Ref: [Petrushevskaya \(1971a\)](#).



*Litharachnium tentorium*

Figure 15.148.

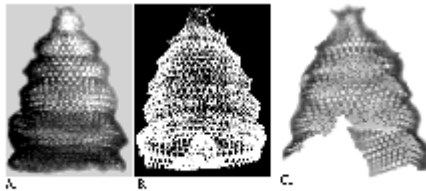
***Litharachnium tentorium*** Haeckel ([Figure 15.148](#)). Two-segmented, very characteristic shell. Cephalis very small, spherical, hyaline. Thorax conical proximally, flaring rapidly outward distally and, in complete specimens, ending in a gently curved brim. Diameter of fully-grown shells: up to 1 mm. Ref: [Benson \(1966\)](#), [Petrushevskaya \(1971a\)](#).



*Lithopera bacca*

Figure 15.129.

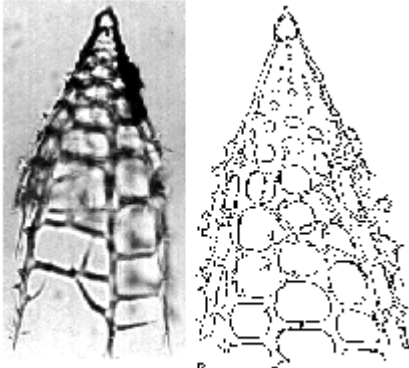
***Lithopera bacca*** Ehrenberg ([Figure 15.129](#)). Spherical, often rough cephalis with an eccentrically located apical horn partly submerged into an oval thorax with closed mouth. Pores on thorax regularly arranged. Shell height: 120-140  $\mu\text{m}$ . Ref: [Benson \(1966\)](#).



*Lithostrobos hexagonalis*

Figure 15.141.

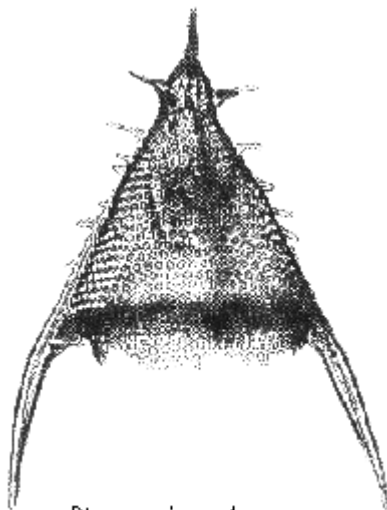
***Lithostrobos hexagonalis*** Haeckel ([Figure 15.141](#)). Multisegmented, subconical shell with 5-9 joints with well marked strictures and angular shoulders. Pores very regular, subpolygonal, in transverse rows. Shell height: 120-300  $\mu\text{m}$ . Ref: [Benson \(1966\)](#).



A. *Perypyramis circumtexta*  
B.

Figure 15.130.

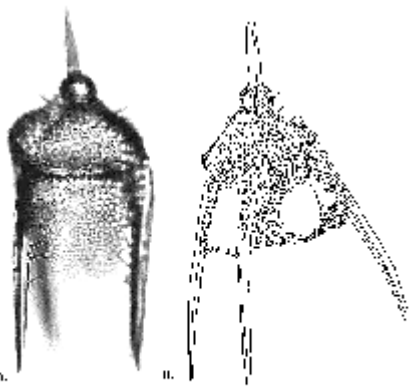
***Perypyramis circumtexta*** Haeckel ([Figure 15.130](#)) [=?*Plectopyramis dodecomma*]. Cephalis very small, ovate, hyaline. Thorax large, conical, with ca. 10 well defined longitudinal rows of subquadrate pores rapidly increasing in size toward the base. Pores are usually not aligned transversely. The form described as *Plectopyramis dodecomma* Haeckel differs from *P. circumtexta* in that pores are aligned transversely as well as longitudinally. *Bathropyramis woodringi* is also similar to the above, but has thicker longitudinal bars and aligned horizontal (transverse) bars. Shell height: 100-300  $\mu\text{m}$ . Ref: [Riedel \(1958\)](#), [Nigrini and Moore \(1979\)](#).



*Pterocanium elegans*

Figure 15.147.

***Pterocanium elegans*** (Haeckel) ([Figure 15.147](#)). Cephalis relatively small, with two large horns (apical and vertical spines). Thorax a large, thin-walled, three-sided pyramid with small, very regular subcircular pores and thin bars; edges of pyramid continue as three strong three-bladed legs. Abdomen cylindrical, may be rudimentary. Shell height (without horns): 180-260  $\mu\text{m}$ . Ref: [Benson \(1966\)](#), as *Pterocanium* cf. *elegans*.

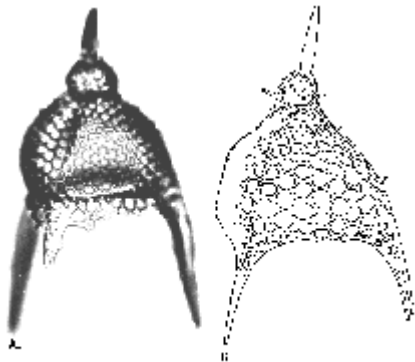


A. *Pterocanium praetextum*  
B.

Figure 15.146.

***Pterocanium praetextum*** (Ehrenberg) group? ([Figure 15.146](#)). Similar to *P. trilobum*, from which it sometimes is difficult to separate; differs by having a thorax with more pronounced, angular shoulders, and often a better developed abdomen. Shell height (without horn and feet): 100-120  $\mu\text{m}$ . Ref: [Petrushevskaya \(1971a\)](#).

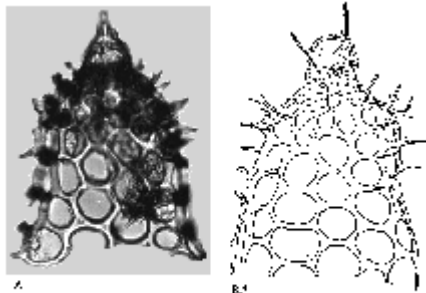




*Pterocanium trilobum*

Figure 15.145.

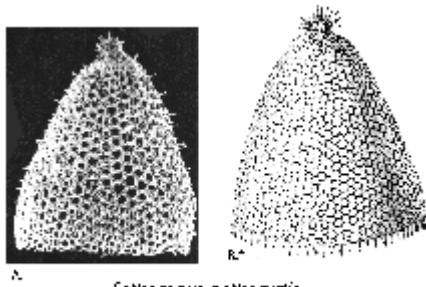
***Pterocanium trilobum*** (Haeckel) (Figure 3H; [15.145](#)). Cephalis relatively small, with a stout apical horn. Thorax an inflated tetrahedron with regularly arranged circular pores, with three ribs extending into stout, three-bladed, slightly curved feet. Abdomen, when present, rudimentary. Shell height (without horn and feet): 100-120  $\mu\text{m}$ . Ref: [Nigrini and Moore \(1979\)](#).



*Pterocyrtidium dogieli*

Figure 15.144.

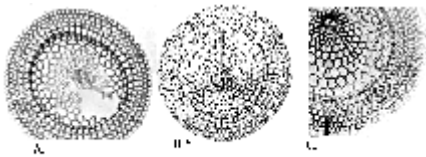
***Pterocyrtidium dogieli*** Petrushevskaya ([Figure 15.144](#)) [= *Sethoconus dogieli*]. Cephalis hemispherical, almost poreless, thick-walled. Thorax cylindrical, thorny, with very large, irregular, subcircular pores. Shell height: ca. 140  $\mu\text{m}$ . Ref: [Petrushevskaya \(1971a\)](#).



*Sethoconus anthocytis*

Figure 15.150.

***Sethoconus anthocytis*** Haeckel ([Figure 15.150](#)) [= *Conarachnium polyacanthum*, *Lophocorys polyacantha*]. Cephalis spherical, spiny. Thorax clearly differentiated from cephalis, very large, conical, spiny, with large, regular, subpolygonal pores approximately in longitudinal rows; termination ragged. Shell height: 200-300  $\mu\text{m}$ . Ref: [Haeckel \(1887\)](#).



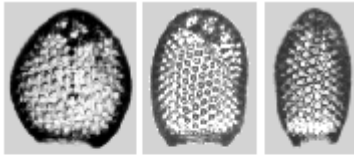
*Theopilium tricostatum*

Figure 15.149.

***Theopilium tricostatum*** (Haeckel) ([Figure 15.149](#)) [= ? *Theocalyptra gegenbauri*]. Chinese peasant hat-like shell with a small cephalis. Thorax widely open, with small, regularly arranged pores, circular proximally and becoming larger and more polygonal distally, with three conspicuous symmetrical ribs (dorsal and main lateral spines). Abdominal brim flat, with 5-8 rows of very regular, quadrangular pores. Shell diameter: 130-300  $\mu\text{m}$ . Ref: [Haeckel \(1887\)](#), [Benson \(1966\)](#).

## Order Nassellaria

### Family Carpodaniidae



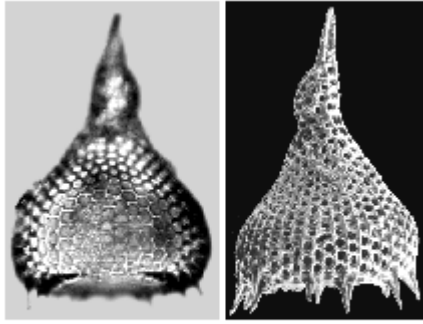
*Carpodanium* spp.  
**Figure 15.170.**

***Carpodanium*** spp. (Figure 3E, [15.170](#))

[=*Carpodanistrum* spp.]. Shell outline subspherical to oval. Cephalis indistinguishable from thorax, included within its upper part. Peristome poreless, smooth or provided with teeth. Height of shell: 80-130  $\mu\text{m}$ . Ref: [Nigrini and Moore \(1979\)](#).

## Order Nassellaria

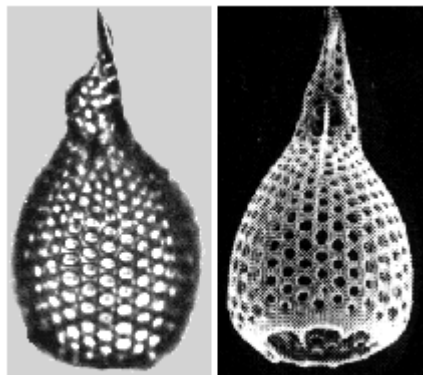
### Family Pterocorythidae



*Anthocyrtidium ophirensis*

Figure 15.152.

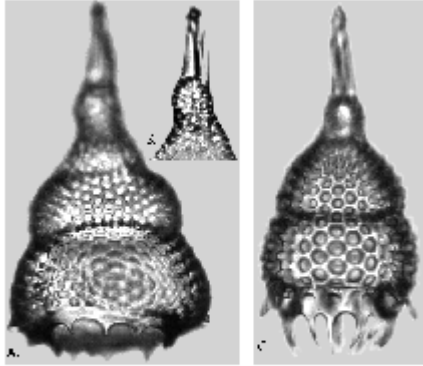
***Anthocyrtidium ophirensis*** (Ehrenberg) ([Figure 15.152](#)). Cephalis elongate with a large three-bladed apical horn. Thorax campanulate, with circular, regular pores arranged hexagonally; peristome distinct, constricted, may bear terminal teeth. Abdomen absent. Maximum breadth of thorax: 90-140  $\mu\text{m}$ . Ref: [Nigrini and Moore \(1979\)](#).



*Anthocyrtidium zanguibaricum*

Figure 15.153.

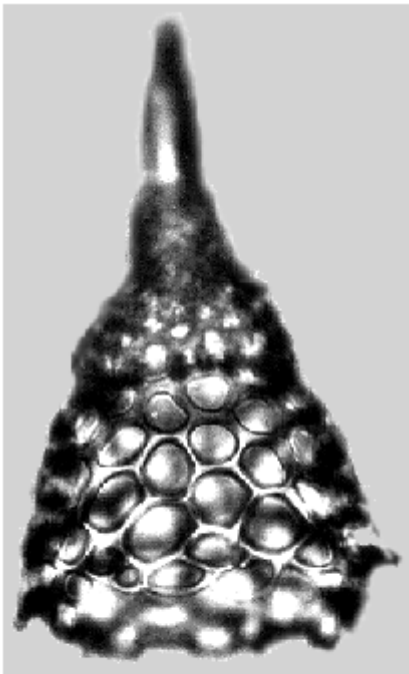
***Anthocyrtidium zanguibaricum*** (Ehrenberg) ([Figure 15.153](#)). Similar to *A. ophirensis*, but apical horn is smaller, thorax less campanulate, narrower, and terminal teeth smaller or absent. Maximum breadth of thorax: 60-80  $\mu\text{m}$ . Ref: [Nigrini and Moore \(1979\)](#).



*Lamprocyclus maritalis* group?

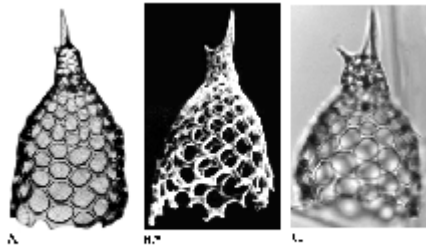
**Figure 15.158.**

***Lamprocyclus maritalis*** group? Haeckel (Figure 3P; [15.158](#)). Massive shell; cephalis oval, with a large apical horn. Thorax cupola-shaped, with regular, circular, framed pores. Abdomen separated by a conspicuous lumbar stricture, inflated, with larger, regularly arranged, framed pores, usually with a well-defined poreless perstome with teeth. *L. m. maritalis* Haeckel differs from *L. m. Haeckel polypora* Nigrini in having a less inflated abdomen. Maximum breadth of abdomen: 100-140  $\mu\text{m}$ . Ref: [Nigrini and Moore \(1979\)](#).



*Lamprocyrtis  
hannai*  
**Figure 15.154.**

***Lamprocyrtis hannai*** Campbell and Clark ([Figure 15.154](#)) [= *Lamprocyrtis hannai*, *Lamprocyclus junonis*]. Cephalis elongate, with a large three-bladed apical horn. Thorax campanulate, thick-walled, with subregular, circular pores. Abdomen truncate-conical, with large, subregular, circular pores and usually with terminal and/or subterminal teeth. Maximum breadth of abdomen: 90-150  $\mu\text{m}$ . Ref: [Nigrini and Moore \(1979\)](#).



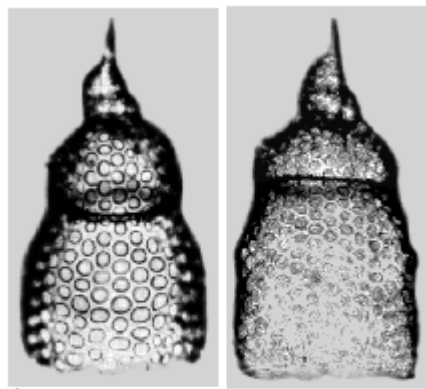
*Lamprocyrtis nigrinae*  
Figure 15.157.

***Lamprocyrtis nigrinae*** (Caulet) ([Figure 15.157](#)) [= *Conarachnium nigrinae*, *Lamprocyrtis haysi*]. Cephalis elongated, usually open proximally, with a large three-bladed horn. Thorax campanulate, thin-walled, with large, subregular, circular pores increasing in size distally; peristome absent or weakly developed. No abdomen. Maximum breadth of thorax: ca. 90  $\mu\text{m}$ . Ref: [Nigrini and Moore \(1979\)](#).



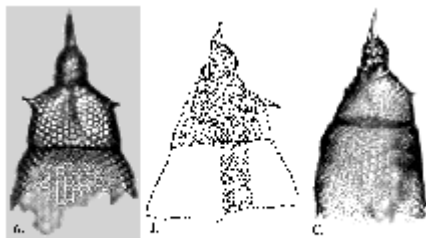
*Pterocorys hertwigii*  
Figure 15.155.

***Pterocorys hertwigii*** (Haeckel) ([Figure 15.155](#)) [= *Theoconus hertwigii*, *Phormocyrtis fatuosa*]. Cephalis oval, horned. Thorax campanulate. Abdomen conical, with ragged termination. Thorax and abdomen thin-walled, with regular circular pores in longitudinal rows, with several continuous or interrupted longitudinal poreless ribs. Total shell height (excluding horn): 120-200  $\mu\text{m}$ . Ref: [Caulet and Nigrini \(1988\)](#).



*Pterocorys minythorax*  
Figure 15.156.

***Pterocorys minythorax*** (Nigrini) ([Figure 15.156](#)) [= *Theoconus minythorax*]. Cephalis subspherical, horned. Thorax small, campanulate. Abdomen comparatively large, cylindrical, slightly flared, with ragged termination. Pores on thorax and abdomen regular, circular. Total shell height (excluding horn): 120-200  $\mu\text{m}$ . Ref: [Caulet and Nigrini \(1988\)](#).



*Pterocorys zancleus*  
Figure 15.159.

***Pterocorys zancleus*** (Muller) ([Figure 15.159](#)) [= *Theoconus zancleus*, ?*Pterocorys sabae*, ?*Pterocorys campanula*]. Cephalis subcircular, horned. Thorax a truncated cone, with three small wings. Abdomen cylindrical or conical, slightly flared. Total shell height (excluding horn): 100-230  $\mu\text{m}$ . Ref: [Benson \(1966\)](#), [Petrushevskaya \(1971a\)](#).





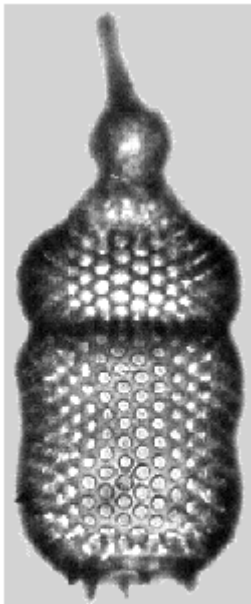
*Pteroscenium pinnatum*  
Figure 15.162.

***Pteroscenium pinnatum*** Haeckel ([Figure 15.162](#)) [= *Verticillata hexacantha*]. Campanulate one-segmented shell with delicate lattice of small, circular pores. Top of cephalis extends into a large, proximally perforated, three-bladed horn; base is prolonged into three stout, perforated, slightly bent feet. Total shell height (including horn and feet): 220-280  $\mu\text{m}$ . Cephalis does not seem to be agree with the family-level diagnosis; probably a plagoniid. Ref: [Haeckel \(1887\)](#), [Benson \(1966\)](#).



*Stichopilium bicornis*  
Figure 15.161.

***Stichopilium bicornis*** Haeckel ([Figure 15.161](#)). Cephalis cap-shaped, with two stout, three-bladed horns. Thorax pyramidal (proximally) to cylindrical (distally), with three conspicuous wings. One or two cylindrical post-thoracic segments. Thorax and subsequent joints with small, circular, regularly arranged pores. Although this species has traditionally been ascribed to the Pterocorythidae, its cephalis does not seem to be divided into lobes, and is therefore probably a theoperid. Ref: [Haeckel \(1887\)](#), [Benson \(1966\)](#).

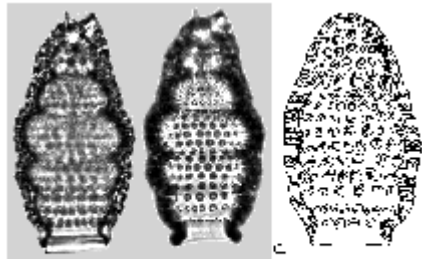


*Theocorythium trachelium*  
Figure 15.160.

***Theocorythium trachelium*** (Ehrenberg) ([Figure 15.160](#)) [= *Calocyclus amicae*, *Lamprocyclus trachelius*, *Lamprocyclus cranoides*]. Cephalis spherical, with a prominent, three-bladed apical horn. Thorax campanulate, inflated. Abdomen cylindrical, with a slight medial constriction; peristome differentiated, toothed. Pores on post-cephalic segments circular, regularly arranged. Total shell height (without horn): 150-200  $\mu\text{m}$ . Ref: [Petrushevskaya \(1971a\)](#).

## Order Nassellaria

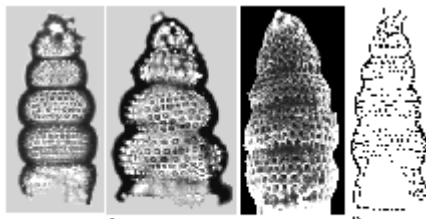
### Family Artostrobiidae



A. B. C.  
*Botryostrobus aquilonaris*

Figure 15.164.

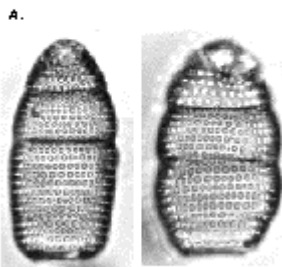
***Botryostrobus aquilonaris*** (Bailey) ([Figure 15.164](#)) [= *Lithocampe aquilonaris*]. Very thick-walled, spindle-shaped skeleton with 6 poorly defined joints, of which the fourth is the broadest. Poreless peristome usually present. Shell height: 100-150  $\mu\text{m}$ . Ref: [Nigrini and Moore \(1979\)](#).



A. B. C. D.  
*Botryostrobus auritus/australis*

Figure 15.168.

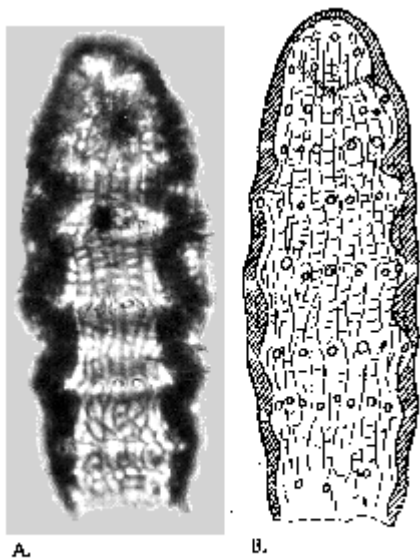
***Botryostrobus auritus/australis*** (Ehrenberg) (Figure 3J; [15.168](#)). [= *Lithostrobus seriatus*]. Multisegmented cylindrical shell of variable wall-thickness. Cephalis subspherical, apical tube and apical spine usually visible. Thorax and post-thoracic segments inflated, separated by conspicuous strictures, with three-five transverse rows of pores. Shell height: 110-200  $\mu\text{m}$ . Ref: [Boltovskoy and Vrba \(1989\)](#).



C. D.  
*Phormostichoartus corbula*

Figure 15.163.

***Phormostichoartus corbula*** (Harting) ([Figure 15.163](#)) [= *Lithocampe multiseriata*, *Siphocampe corbula*]. Four-segmented shells. Cephalis and thorax fused, thick-walled. Abdomen short, cylindrical. Last segment usually three-four times longer than previous, both with circular pores arranged regularly in transverse rows. Shell height: 130-170  $\mu\text{m}$ . Ref: [Nigrini and Moore \(1979\)](#).



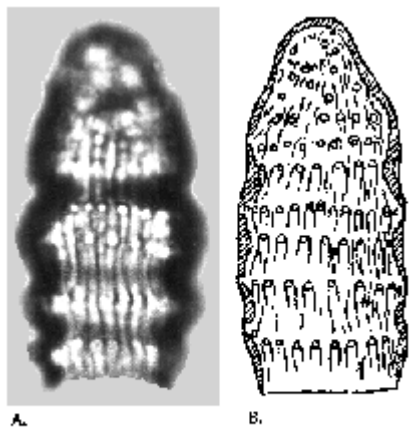
A.

B.

*Siphocampe arachnea*

Figure 15.167.

***Siphocampe arachnea*** (Ehrenberg) ([Figure 15.167](#)) [= *Lithomitra arachnea*]. Cylindrical shell with three-eight joints, with four transverse rows of small, circular pores on the thorax and one on each subsequent segment. Surface covered with a typical net of irregular longitudinal and transverse ridges. Shell height: ca. 60-90  $\mu\text{m}$ . Ref: [Petrushevskaya \(1967\)](#).



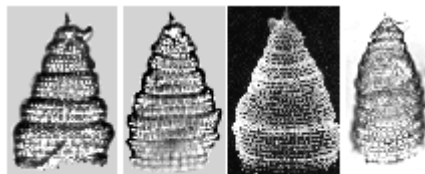
A.

B.

*Siphocampe lineata*

Figure 15.169.

***Siphocampe lineata*** (Ehrenberg) ([Figure 15.169](#)) [= *Lithomitra lineata*, *Lithomitra nodosaria*, *Siphocampe nodosaria*]. Very similar to *S. arachnea*, except that surface ornamentation is restricted to longitudinal, sinuous ridges. Shell height: ca. 80-110  $\mu\text{m}$ . Ref: [Petrushevskaya \(1967\)](#).



A.

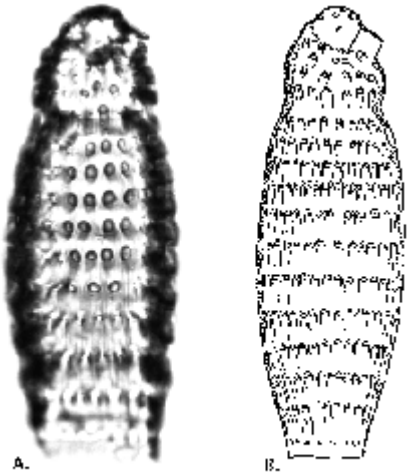
B.

C.

D.

*Spirocyrtis scalaris*  
Figure 15.166.

***Spirocyrtis scalaris*** Haeckel group? ([Figure 15.166](#)) [= *Spyrocyrtis scalaris/cornutella*]. Thin-walled shell composed of up to 8 joints with a typically angular outline increasing step-wise in width toward the base. Pores on post-thoracic segments quadrangular, arranged in very regular transverse rows. Shell height: 100-200  $\mu\text{m}$ . Ref: [Nigrini \(1967\)](#), [Petrushevskaya \(1971a\)](#).



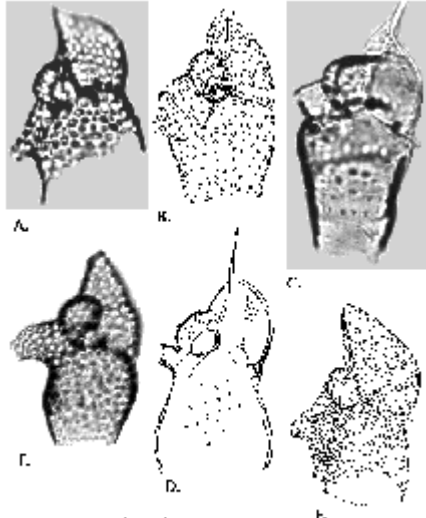
A. *Tricolocampe cylindrica*

Figure 15.165.

***Tricolocampe cylindrica*** Haeckel ([Figure 15.165](#)) [= *Siphocampium cylindrica*]. Cephalis and thorax fused, separated from rest of shell by a conspicuous lumbar constriction. Abdomen and postabdominal section cylindrical to spindle-shaped, without external constrictions, with several very regularly arranged transverse rows of small, circular pores. Shell height: ca. 90  $\mu\text{m}$ . Ref: [Benson \(1966\)](#), [Pterushevskaya \(1971a\)](#).

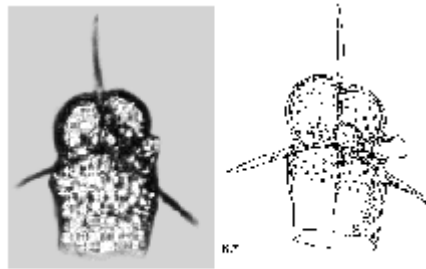
## Order Nassellaria

### Family Cannobotryidae



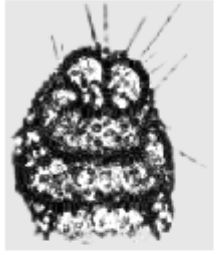
*Acrobotrys* spp.  
Figure 15.171.

***Acrobotrys*** spp. (Figure 3M, 3N; [15.171](#)). Several poorly defined Cannobotryidae of variable construction (e.g., *Acrobotrys* sp. A, B, C in Petrushevskaya 1965; *Acrobotrys* cf. *disolenia* in Benson 1966; *Acrobotrys* sp. A and B, Cannobotryid sp. A in [Boltovskoy and Riedel 1987](#); etc.).



*Botryocephalina armata*  
Figure 15.173.

***Botryocephalina armata*** Petrushevskaya ([Figure 15.173](#)). Main part of cephalis represented by two laterally fused hemispherical chambers of almost equal size (cephalic and antecephalic); with a long apical spine. Thorax cylindrical, its distal section can be poreless. Shell height: ca. 50  $\mu\text{m}$ . Ref: [Petrushevskaya \(1965\)](#).



***Botryocyrtis scutum*** (Harting) ([Figure 15.172](#))  
 [=?*Botryocyrtis caput-serpentis*, ?*Botryocyrtis quinaria*]. Large, multilobed cephalis. Thorax very short, cylindrical. Abdomen longer. Sometimes one post-abdominal segment. Entire shell, and especially its upper section, enclosed in a thick, spongy mantle. Shell height: 80-130  $\mu\text{m}$ . Ref: [Nigrini and Moore \(1979\)](#).

A.

B.



C.

D.

*Botryocyrtis scutum*

**Figure 15.172.**



A.

B.

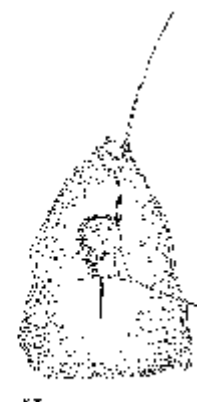
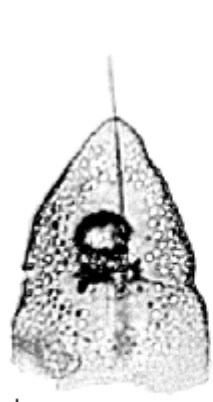
C.

D.

*Botryopyle dictyocephalus*

**Figure 15.174.**

***Botryopyle dictyocephalus*** Haeckel ([Figure 15.174](#)). Cephalis chiefly composed of a large, ovoid, thin-walled antecephalic chamber, and a much smaller, spherical, thick-walled eucephalic chamber. Cervical constriction absent. Thorax cylindrical, with ragged termination or distally narrowing into a short, poreless tube. Shell height: ca. 100  $\mu\text{m}$ . Ref: [Petrushevskaya \(1965\)](#).



A.

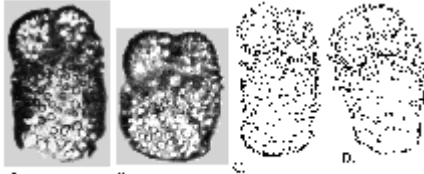
B.

*Centrobotrys thermophila*

**Figure 15.175.**

***Centrobotrys thermophila*** Petrushevskaya ([Figure 15.175](#)). Shell is a laterally compressed, very thin walled, pored cone, within which the spherical, thick-walled eucephalic chamber is enclosed. Shell height: ca. 100  $\mu\text{m}$ . Ref: [Petrushevskaya \(1965\)](#).





B. *Saccospyris antarctica*

Figure 15.176.

***Saccospyris antarctica*** Haecker ([Figure 15.176](#)).

Cephalis tri-lobulated, with the cephalic and antecephalic chambers much larger than the postcephalic one, and approximately equal in size. Thorax cylindrical, with a closed mouth in fully-grown specimens. Shell thick-walled, surface rough. Shell height: 110-160  $\mu\text{m}$ . Ref. : [Petrushevskaya \(1965\)](#).