

我国西沙群岛放射虫十一新种*

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放射虫大多栖息在大洋环流和热带海域。我国西沙群岛水域受热带太平洋水系的影响,其上层水具高温高盐特性,显然适宜放射虫的繁殖生长。对其邻近海域过去已有不少学者作过调查,例如 Ehrenberg (1854) 和 Haeckel (1887) 对菲律宾近海的放射虫作过调查研究,近年来 Ling et al (1967), Renz (1974) 等人也在菲律宾近海、爪哇海沟、马里亚纳海沟等水域作过调查,发表了不少种类,但对西沙群岛海域的放射虫类尚未见有报道。作者对中国科学院海洋研究所和南海海洋研究所 1974、1975 年采获的标本进行初步整理鉴定,发现种类相当丰富,仅泡沫虫目和罩笼虫目已发现有 11 个新种。

这些新种多数采自 0—200 米的上层水域,大多为稀有种,就其分布区域与适温、适盐范围来看,这些种类均属暖水大洋性种。

种类描述

泡沫虫目 Order SPUMELLARIA

光滑球虫科 Family Liosphaeridae Haeckel, 1881

编枝球虫属 Genus *Plegmosphaera* Haeckel, 1881

1. 卵形编枝球虫(新种) *Plegmosphaera ovata* sp. nov. (图版 I:4)

海绵格孔壳呈长卵形,壳壁平滑,壳孔多角形,排列不规则。壳的长轴与短轴之比约为 2:1。

字源 ovatus-a-um (Latin adj.) = oval (ovate)

标本测量(微米) 正模标本 IOAS-R511 长轴 195、短轴 120。

模式标本采集地 17°16'6"N, 111°59'0"E。

新种与 *Plegmosphaera lepticali* Renz (1976, p. 115, pl. 1, fig. 14) 相似,但后者壳形瘦长,格孔较大,长轴与短轴之比为 3:1。

胶球虫科 Family Collosphaeridae Müller, 1858

胶球虫属 Genus *Collosphaera* Müller, 1855

2. 薄板胶球虫(新种) *Collosphaera planca* sp. nov. (图版 I: 7—10)

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Collosphaera sp. Riedel & Sanfilippo, 1971, p. 1586, pl. 1A, fig. 9.

壳呈不规则的球形,具圆的或近多角形的大孔,横跨赤道约 1—2 孔。孔间桁十分宽扁,薄板状。

字源 planca (Latin f.)=board

标本测量(微米) 正模标本 IOAS-R512 壳直径 105,壳孔直径 20—75,孔间桁宽 20。副模标本 IOAS-R513—515 壳直径 105,120,100;壳孔直径 20—85;孔间桁宽 20。

模式标本采集地 16°51'2"N,112°28'6"E。

新种与 *Collosphaera macropora* Popofsky (1917, p. 247, pl. 14, figs. 2a—c) 十分相似,但后者壳较大,壳孔较多(横跨赤道约 3—5 孔)。

Riedel & Sanfilippo (1971) 记录了西太平洋热带区新生代中新世翅袋篮虫带 (*Dorcadospyrus alata* zone) 地层中的胶球虫未定种 (*Collosphaera* spp.), 其中 pl. 1A, fig. 9 与本新种相似。若以壳壁的孔数与我们的标本比较, fig. 9 的孔数较少(横跨赤道仅 2 孔),我们的标本孔数较多(横跨赤道 2—3 孔)。根据孔的形状、孔间桁的宽度和壳的大小等特征来看,两者没有多大差别。虽然 Riedel & Sanfilippo 的标本取自中新世地层,但已知新生代放射虫许多是活化石,它们与现生的放射虫形态无大差别,因此我们认为他们的未定种与我们标本系同种,故将其置于本新种之下。

管球虫属 Genus *Siphonosphaera* Müller, 1858

3. 网管球虫(新种) *Siphonosphaera arkys* sp. nov.(图版 II: 3, 4)

壳呈球形,壳壁布满形状多变、大小不一的多角形小孔,故使整个壳壁呈交织的网状。壳壁向外生出短的小管,横跨赤道约有 7—10 个;小管壁薄、平滑,管口呈类圆形,大小不一。小管口领截平。

字源 arkys (Greek f.)=net

标本测量(微米) 正模标本 IOAS-R516 壳直径 225,小管直径(最小到最大) 20—40、高 15。

模式标本采集地 16°08'0" N,111°14'3"E。

本种与系管球虫 *Siphonosphaera tenera* Brandt (1885, p. 266, pl. 7, figs. 38, 39, 48a,b) 相似,但后者壳孔少,分布稀疏,并呈椭圆形。

三轴球虫科 Family Cubosphaeridae Haeckel, 1881 emend. Campbell, 1954

六枪虫属 Genus *Hexacontium* Haeckel, 1881

4. 小枝六枪虫(新种) *Hexacontium sarmentum* sp. nov. (图版 I:5, 6)

皮壳厚,壳孔类圆形,大小不一,排列较规则,横跨赤道约 12—14 孔。孔缘形成六角形框架,于框架的每个节点上生出辅针,辅针末端重复分叉。外髓壳较薄,结构与皮壳相似。三壳直径之比约为 1:3:12。6 根放射梁贯穿外髓壳和皮壳成为 6 根骨针。放射梁及骨针均为 3 片棱柱状,骨针末端削尖。

字源 sarmentum (Latin n.)=twigs

标本测量(微米) 正模标本 IOAS-R517 皮壳直径 180,外髓壳直径 50,内髓壳直径 20;皮壳孔径 10—25;骨针长 240、基部宽 20。

模式标本采集地 16°0'0"N, 112°0'0"E。

新种外形与 *Hexacontium axotrias* Haeckel (1887, p. 192, pl. 24, fig. 3) 相似, 但后者壳平滑, 不具辅针。

星球虫科 Family Astrosphaeridae Haeckel, 1881

光眼虫属 Genus *Actinomma* Haeckel, 1862

5. 多刺光眼虫(新种) *Actinomma multispinula* sp. nov. (图版 I:3)。

外皮壳壁较厚, 具大小相等、排列规则的六角形框架的圆孔。自框架的每个节点表面上生出刚毛状放射针。三壳直径之比为 1:2:6。壳间的放射梁瘦细, 数目少。

字源 multi-(Latin prefix)=many + spinula(Latin f. dim)=thorn

标本测量(微米) 正模标本 IOAS-R518 外壳直径 100, 中壳直径 38, 内壳直径 20; 外壳孔径 6; 孔间桁宽 4; 骨针长 25。

模式标本采集地 17°15'0"N, 112°04'0"E。

新种与 *Actinomma spinigerum* Stöhr (1880, p.92, pl. 2, fig. 10) 相似, 但后者壳孔及壳表放射针较多, 孔间桁较细。

海胆虫属 Genus *Echinomma* Haeckel, 1881

6. 果形海胆虫(新种) *Echinomma frugifera* sp. nov. (图版 II:1, 2)

壳由两髓壳和一皮壳构成。皮壳壁十分厚, 具规则排列的类圆形孔, 孔的直径与孔间桁同宽; 孔缘形成六角形框架, 框架的角端生出刚毛状辅针, 针长约为孔直径的 4—5 倍。壳具 10 根左右粗壮的角锥状放射针, 针长与壳半径相等, 针基部宽约相当于壳孔宽。内、外髓壳网球形, 但内髓壳网孔较大, 由少数瘦弱的放射梁使之与皮壳相连。

字源 frugifer-era-erum (Latin adj.)=fruitful

标本测量(微米) 正模标本 IOAS-R519 皮壳直径 120, 外髓壳直径 40, 内髓壳直径 18; 皮壳孔径 16; 主针长 60, 辅针长 40。

模式标本采集地 16°51'2"N, 112°28'6"E。

新种与 *Echinomma aculeatum* (Stöhr) Haeckel (1887, p. 258) 相似, 但后者主针较多(约 20 根), 并呈三面角锥形。

圆顶虫科 Family Tholonidae Haeckel, 1881

小双顶虫属 Genus *Amphitholonium* Haeckel, 1887

7. 门孔小双顶虫(新种) *Amphitholonium pylonium* sp. nov. (图版 II:9, 10)

外皮壳呈椭圆形、平滑, 与三节内壳的壳节大小变化不相应, 具一小门孔, 此门孔具编织状领。中央室有较高于两圆顶的拱顶。外皮壳结构精细, 具不规则类圆形孔。内壳壁厚, 具亚规则排列、带有六角形框架的圆孔。放射梁约 20—30 根, 由髓壳中央生出并向外延伸成为小骨针。

字源 pylon (Greek)=gate

标本测量(微米) 正模标本 IOAS-R520 壳直径 110; 外皮壳孔径 4, 内皮壳孔径 5—10; 口孔直径 34, 口孔领高 15。

模式标本采集地 16°08'0"N, 111°14'3"E。

新种与三体小双顶虫 *Amphitholonium tricolonium* Haeckel (1887, p. 669, pl. 10, fig. 7) 相似, 但后者没有小门孔和小骨针。

本新种我们主要按其内部结构归入圆顶虫科, 但也看到这个种的皮壳有构造完整的门孔 (pylone), 故亦兼有孔球虫科 (Sphaeropylidae) 的特征。按孔球虫科为 Dreyer 于 1889 年创立, 并据其特征列于星球虫科 (Astrosphaeridae) 之后, 其后 Campbell (1954) 将它修订并降格为星球虫科的一个亚科。据 Haeckel (1887) 的分类系统, 星球虫科与圆顶虫科的亲缘关系相距较远, 并分属不同的亚目, 前者属于圆球虫亚目, 而后者隶于篓虫亚目, 因此采到这样兼具两个亚目的结构特征的标本, 对于研究其亲缘关系和系统进化来说是很有意义的, 可惜仅采到一个标本, 故只能引起注意, 工作尚有待以后进行。

罩笼虫目 Order NASELLARIA

三足壶虫科 Family Tripocalpidae Haeckel, 1887

小袋虫属 Genus *Peridium* Haeckel, 1881

8. 分枝小袋虫(新种) *Peridium ramosum* sp. nov. (图版 I: 1, 2)

壳呈亚球形, 平滑, 具不规则类圆形孔。基板有 4 个大孔。顶角斜生, 后枕位, 角身十分小(已折断)。三个主足与两个次生足同形, 大小相近。足呈三片棱柱状, 棱缘具小棘。垂直针短瘦, 自壳前方生出, 约为足长的三分之一。各足之间有小桁相连。

字源 ramosus-a-um (Latin adj.)=having many branches, branching

标本测量(微米) 正模标本 IOAS-R521 壳直径 25, 足长 90—240, 垂直针长 88。

模式标本采集地 16°10'6"N, 112°33'7"E。

新种与 *Peridium spinipes* Haeckel (1887, p. 1154, pl. 53, fig. 9.) 相似, 但后者足较短, 无垂直针。

本新种形态特殊, 主要表征是: 足特别长并带小棘, 头很小, 这与属内相邻的种类形态殊相迥异, 并容易与三足壶虫科 Tripocalpidae 的 *Euscinium* 或 *cladoscenum* 属的种类相混, 但它没有内柱 (internal columella), 使之可以区别于该两属。

三肋笼虫科 Family Tripocyrtidae Haeckel, 1887

美帽虫属 Genus *Lampromitra* Haeckel, 1881

9. 娇美帽虫(新种) *Lampromitra amabilis* sp. nov. (图版 II: 5—7)

Sethophormis sp. aff. *S. pentalactis* Haeckel, Renz, 1974, pl. 16, fig. 1.

壳呈扁平圆锥状, 表面平滑, 具浅的领缢, 将壳分为头、胸两部。两节壳长之比为 2:3, 宽之比为 1:6。头呈半球形, 具一小的后头棘。头壁孔圆形, 大小几近相等, 排列亚规则。胸部角锥形, 具三根埋于胸壁的肋, 胸部孔大, 六角形或几呈鳞片形, 排列不规则, 孔间桁

细弱, 故使胸壁呈网状结构; 胸部口缘具一轮小而密的类圆形孔, 并具两轮短针排成的花冠。

字源 amabilis, e(Latin adj.)=lovable, charming

标本测量(微米) 正模标本 IOAS-R522 头长 30、宽 30、胸长 40、宽 180。

模式标本采集地 16°28'0"N, 111°15'0"E。

新种外形与 *Lampromitra coronata* Haeckel (1887, p.1214, pl. 60, fig. 7) 相似, 但后者胸部具较小、较密、亚规则排列的六角形孔; 口缘具一小多角形孔的边缘环和一个三轮短针花冠。

Renz (1974) 于帝汶海槽 (Timor Trough) 采到一种标本, 鉴定为 *Sethophormis* sp. aff. *S. pentalactis* Haeckel, 其标本 (照片) 的头部结构、胸肋数目和口缘结构均与本种相似, 区别仅是他的标本胸壁孔呈圆形, 桁条节点呈凹三角形, 但这种差异非常小, 我们认为与本新种系同种, 故将其置本新种名下。

足篮虫科 Family Podocyrtae Haeckel, 1887

小帽虫属 Genus *Pteropilium* Haeckel, 1881

10. 封底小帽虫(新种) *Pteropilium clausum* sp. nov. (图版 II:8)

壳形秀丽, 具两深缢。头呈半球形, 具多角形框架的圆形开孔和一个具不规则类圆形孔的棱柱形顶角。头角比头稍长。胸部为三面角锥体。位于三格孔侧翼之间有三个大的圆孔, 且有不规则多角形网孔的蛛网状构造覆盖着圆孔表面并被覆着头部。垂直针向前生出, 形成一个类似新葡萄虫属 (*Neobotrys*) 的头管。腹部宽短、半球形, 具大小不一 (近胸部者较大)、分布不规则的类圆形小孔, 口端为一格孔板所封闭。

字源 clausus-a-um (Latin)=a locked place

标本测量(微米) 正模标本 IOAS-R523 三节壳(头、胸、腹)长为 25、60、25, 宽为 40、100、65。

模式标本采集地 16°30'0"N, 112°0'0"E。

新种与 *Pteropilium clathrocanium* Haeckel (1887, p.1327, pl. 64, fig. 7) 十分相似, 但后者腹部开孔。

据 Haeckel 记述足篮虫科下分两亚科, 即: 小帽虫亚科 Theopilinae 和袋虫亚科 Theoperine, 前者壳的腹部开口, 后者腹部封闭。新种的特征与 *Pteropilium clathrocanium* Haeckel (1887, p. 1327, pl. 64, fig.7) 相似, 应置于小帽虫亚科, 但却因腹口封闭使之与该亚科定义不符。由此看来, 其分类地位和 Haeckel 两亚科的划分法似有再研究的必要, 因仅获一标本, 故暂纳入小帽虫亚科小帽虫属 (*Pteropilium*)。

网铃虫属 Genus *Dictyocodon* Haeckel, 1881

11. 怪网铃虫(新种) *Dictyocodon phasmatos* sp. nov. (图版 II:11)

Dictyocodon palladius Haeckel, Renz 1974, p. 790, pl. 16, fig. 1.

壳具消散的颌, 但有清楚的腰缢。三节壳长度之比为 1:7:3, 宽之比为 1:7:7。头很小, 具两个大的三叶片角锥形的角, 角为头长的三倍。胸部上半呈三面角锥状体, 下半部

缢缩,具三个拱起膨胀分散的格孔翼,翼的顶端向下延长成为一实心骨针。腹部大、膨胀,并逐渐扩大。腹口有许多(约 12 以上)垂直的格孔状足。全壳骨骼网十分精细,似金属网,由十分小的、排列规则的六角形孔构成。

字源 phasma (Latin n.)=an apparition

标本测量(微米) 正模标本 IOAS-R524 三节壳(头、胸、腹)之长为 25、180、60,宽为 30、220、210。

模式标本采集地 15°46'6"N,112°0'0"E。

新种与 *Dictyocodon palladius* Haeckel (1887, p. 1335, pl.71, figs. 12, 13) 相似,但后者的侧翼完全格孔状,并从胸部延至腹部。

Renz (1974) 于印度尼西亚帝汶海槽 (Timor Trough) 沉积岩中找到一种标本,他鉴定为 *Dictyocodon palladium* Haeckel, 根据这一标本的图来看,与我们的新种特征(如侧翼末端的实心骨针,头部结构等)基本相同,而与 Haeckel 的 *D. palladium* 相距较远,因此,我们将他所定的种置于本新种名下。

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DESCRIPTION OF 11 NEW SPECIES OF RADIOLARIA FROM THE XISHA ISLANDS, GUANGDONG PROVINCE, CHINA*

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ABSTRACT

The present paper deals with the radiolaria collected from the Xisha Islands by the Institute of Oceanology and the South China Sea Institute of Oceanology, Academia Sinica during 1974—1975. Eleven new species belonging to 11 genera in 8 families are described.

Description of New Species

Family Liosphaeridae Haeckel, 1881

Genus *Plegmosphaera* Haeckel, 1881

1. *Plegmosphaera ovata* sp. nov. (pl. I: 4)

Shell hollow, spongy, oval. Wall smooth, formed of a lattice plate with irregular polygonal meshes. Ratio of axes about 2:1.

Dimensions Holotype IOAS-R511 major axis of the shell 195 μ ; minor axis 120 μ .

This new species is very similar to *Plegmosphaera lepticali* Renz (1976, p. 115, pl. 1, fig. 14) but the latter has a more slender shell, its ratio of long and short axes being about 3:1.

Family Collosphaeridae Müller, 1858

Genus *Collosphaera* Müller, 1855

2. *Collosphaera planca* sp. nov. (pl. I: 7—10)

Shell irregular, spherical, with round or nearly polygonal large pores, about 1—2 pores across the equator, with very broad, board-like bars.

Dimensions Holotype IOAS-R512 diameter of the shell 105 μ pores 20—75 μ , breadth of the bars, 20 μ .

This new species is very similar to *Collosphaera macropora* Popofsky (1917, p. 247, pl. 14, figs. 2a—c), but the latter is of larger size and has more pores (about 3—5 across the equator).

Genus *Siphonosphaera* Müller, 1858

3. *Siphonosphaera arkys* sp. nov. (pl. II: 3, 4)

Shell spherical, with polygonal pores of different size and shape, distributed all

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over the surface, imparting a reticulate appearance. Wall gives rise to about 7—10 thin-walled, smooth, short tubules which extend across the meridian. Pores of the tubes roundish, of different sizes, outer mouth of the tubes truncated.

Dimensions Holotype IOAS-R515 diameter of the shell 225 μ , of the tubuli (from smallest to largest) 20—40 μ , height of the tubuli 15 μ .

This new species is similar to *Siphonosphaera tenera* Brandt (1885, p. 266, pl. 7, fig. 38, 39, 49a—b), but the shell wall of the latter has smaller ellipsoid pores which are fewer in number and sparsely distributed.

Family Cubosphaeridae Haeckel, 1881

emend. Campbell, 1954

Genus *Hexacontium* Haeckel, 1881

4. *Hexacontium sarmentum* sp. nov. (pl. I: 5, 6)

Cortical shell thick-walled. Pores roundish, of different sizes, irregularly distributed, about 12—14 across the equator. Edge of their pores forms hexagonal frames, from each nodal-point of which arises radial by-spines repeatedly branched at the tip. Outer medullary shells rather thin, similar in structure to the cortical shells. From the inner medullary shell, six radial beams pierce through the outer medullary shell and the cortical shell and extend out into six spines. Radial beams and spines with tapered ends. 3-blade-prismatic.

Dimensions Holotype IOAS-R517 diameter of the cortical shell 180 μ ; outer medullary shell 50 μ ; inner 20 μ ; pores of the cortical shell 10—25 μ ; length of the spine 240 μ ; basal breadth 0.02 μ .

This new species is similar to *Hexacontium axotrias* Haeckel (1887, p. 192, pl. 24, fig. 3), but the shell of the latter is smooth and radial by-spines are absent.

Family Astrosphaeridae Haeckel, 1881

Genus *Actinomma* Haeckel, 1862

5. *Actinomma multispinula* sp. nov. (pl. I:3)

Cortical shell thick-walled, with regular, circular, hexagonally framed pores of the same size. At each nodalpoint of the surface arises bristle-shaped radial spines. Radial proportion of the three spheres = 1:2:6. Thin radial beams few in number between them.

Dimensions Holotype IOAS-R518 diameter of the outer sphere 100 μ ; middle 38 μ ; inner 20 μ ; cortical pores 6 μ ; bars 4 μ ; length of the spines 25 μ .

This new species resembles *Actinomma spinigerum* Stöhr (1880, p. 92, pl. 2, fig. 10), but the latter has a greater number of pores, radial spines and has smaller bars.

Genus *Echinomma* Haeckel, 1881

6. *Echinomma frugifera* sp. nov. (pl. II: 1, 2)

Shell composed of two medullary shells and one cortical shell. Cortical shell very thick walled, with regular, roundish pores. Diameter of the pore is of the same breadth

as the bars. From all the hexagon-corners arise thin, bristle-shaped radial by-spines, 4—5 times as long as the diameter of the pores. About ten strong pyramidal main spines as long as the radius of the shell and as broad at the base as one mesh. Inner and outer medullary shells are approximately spherical network, but the mesh of inner medullary shell is a little larger. Both of the shells are connected to cortical shell by a few slender radial beams.

Dimensions Holotype IOAS-R519 diameter of the cortical shell 120 μ , outer medullary shell 40 μ , inner 18 μ , diameter of the pore of the cortical shell 16 μ , length of the main spines 60 μ , of the by-spines 40 μ .

This new species resembles *Echinomma aculeatum* (Stöhr) (Haeckel, 1887, p. 258), but the latter has a greater number of main spines (about twenty) which are three-sided pyramidal.

Family Tholonidae Haeckel, 1887

Genus *Amphitholonium* Haeckel, 1887

7. *Amphitholonium pylonium* sp. nov. (pl. II: 9, 10)

Outer cortical shell elliptical, smooth, not articulated, at a varying distance from the three-jointed inner shell, with a small pylone which has textural collar; central chamber more highly-vaulted than both cupolas. Network of the outer shell delicate, with irregular, roundish pores. Pores of the thick-walled inner shell subregular, circular, with hexagonal frames. Radial beams, about twenty to thirty, arise from the center of the medullary shell and prolonged outside into small spines.

Dimensions Holotype IOAS-R510 diameter of the shell 110 μ ; pores of the cortical shell 4 μ , inner 5—10 μ , pylone 34 μ ; collar height of the pylone 15 μ .

This new species is similar to *Amphitholonium tricolonium* Haeckel (1887, p. 669, pl. 10, fig. 7), but in the latter, pylone and small spines are absent.

Family Tripocalpidae Haeckel, 1887

Genus *Peridium* Haeckel, 1881

8. *Peridium ramosum* sp. nov. (pl. I: 1, 2)

Shell subspherical, very small, smooth, with irregular, roundish pores. Basal plate with four large pores. Horn oblique, occipital, very small (broken off). Three primary feet and two secondary feet of the same form and size, connected with small bars, all of which are 3-blade-prismatic shaped. Edge of each blade with many small spines. Vertical spine arising from the front of the shell, slender and short, 1/3 the length of feet.

Dimensions Holotype IOAS-R521 diameter of the shell 25 μ ; length of the feet 90—240 μ ; vertical spine, 88 μ .

This new species is similar to *Peridium spinipes* Haeckel (1887, p. 1154, pl. 53, fig. 9), but in the latter, the feet are shorter and the vertical spine is absent.

Family Tripocyrtyidae Haeckel, 1887

Genus *Lampromitra* Haeckel, 1881

9. *Lampromitra amabilis* sp. nov. (pl. II: 5—7)

Shell flat, conical, smooth and with slight collar stricture dividing the shell into cephalis and thorax. Length ratio of two joints is 2:3, breadth ratio is 1:6. Cephalis hemispherical, with a small occipital spine; pores circular, subregular in arrangement, nearly of same size. Thorax conical, with three thoracic ribs. Thoracic pores large, hexagonal or somewhat squamiform, irregularly arranged. Bars delicate, imparting a reticulate appearance to thoracic wall. Peristome with a whorl of narrowly spaced roundish pores and double coronal of short spines.

Dimensions Holotype IOAS-R522, Cephalis long 30 μ , broad 30 μ ; thorax long 40 μ , broad 180 μ .

This new species is similar to *Lampromitra coronata* Haeckel (1887, p. 1214, pl. 60, fig. 7), but the latter has small, dense, subregular, hexagonal meshes. Furthermore, the peristome of the thorax has a marginal ring of smaller polygonal meshes and a triple coronal of short spines.

Family Podocyrtidae Haeckel, 1887

Genus *Pteropilium* Haeckel, 1881

10. *Pteropilium clausum* sp. nov. (pl. II: 8)

Shell very delicate, with two deep strictures. Cephalis hemispherical with circular, polygonally-framed pores, and a prismatic horn with irregular roundish pores. Horn a little longer than cephalis. Thorax, triangular pyramid with three large ovate holes located among the three latticed lateral wings. Some cobweb-shaped structures with irregular polygonal pores cover these large holes and cover the entire cephalis. Vertical spine extends to the front, forming *Neobotrys*-like cephalic tubule. Abdomen short and broad, hemispherical, its distal mouth closed by a lattice-plate. Abdominal pores small, irregular and of various sizes (those nearer to the thorax being larger).

Dimensions Holotype IOAS-R523 length of the three joints (cephalis, thorax, abdomen) 25 μ , 60 μ , 25 μ , breadth 40 μ , 100 μ , 65 μ .

This new species is similar to *Pteropilium clathrocanium* Haeckel (1887, p. 1327, pl. 64, fig. 7), but the abdominal mouth of the latter is open.

Genus *Dictyocodon* Haeckel, 1881

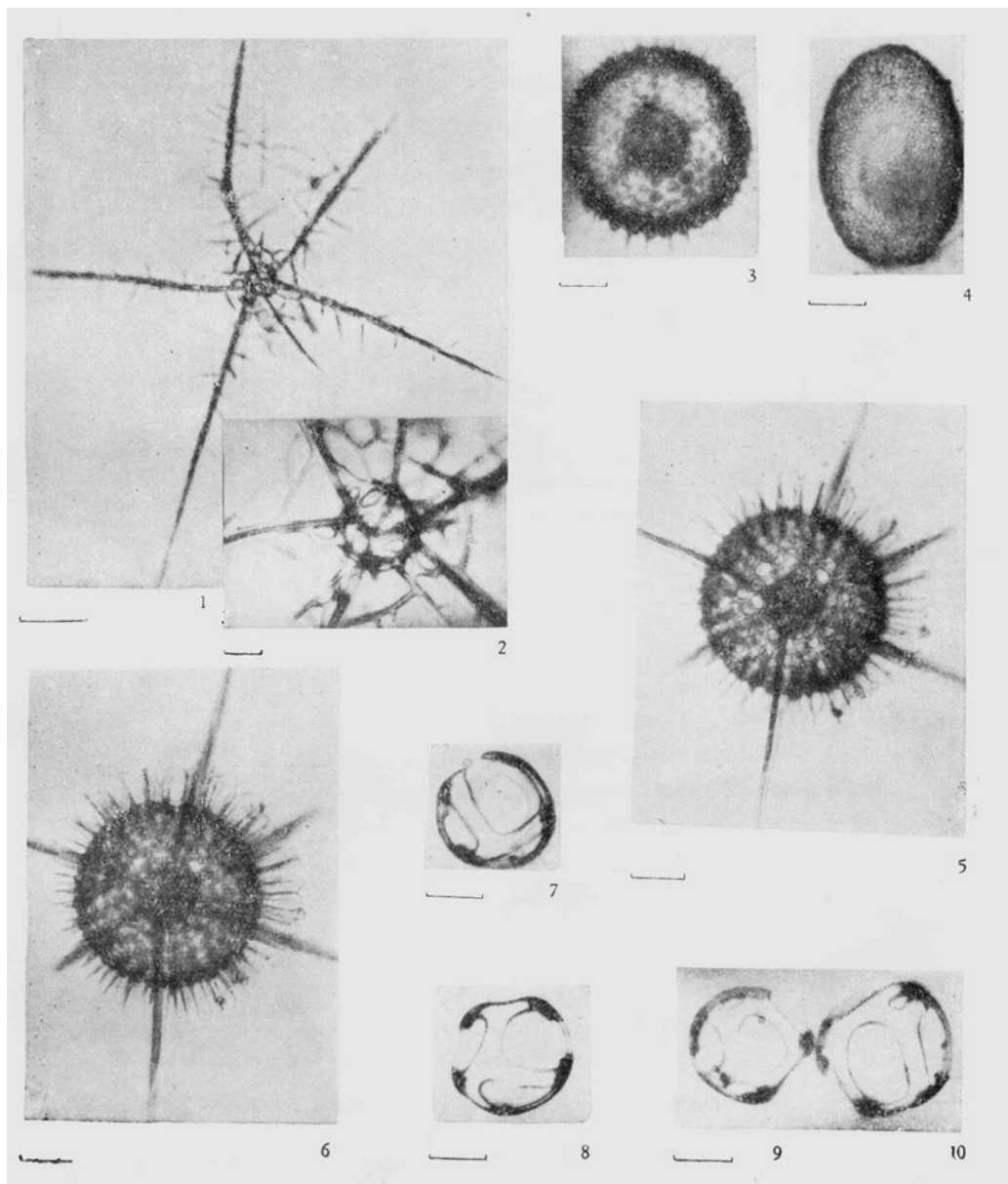
11. *Dictyocodon phasmatos* sp. nov. (pl. II: 11)

Dictyocodon palladius Haeckel, Renz 1974, p. 790, pl. 16, fig. 1.

Shell with evanescent collar, but distinct lumbar stricture. Length of three joints 1:9:3, breadth 1:9:10. Cephalis very small, with two large 3-blade-pyramidal horns three times its length. Upper half of thorax, three-sided pyramidal, constructed at lower half, with three slightly vaulted swellings and three divergent lattice-wings, the apex of each wing prolonged downwards into a solid spine. Abdomen large, inflated and gradually dilated; mouth with many (generally over twelve) vertical fenestrated feet. The skeletal network of the whole shell is very delicate, like fine gauze, composed of very small, regularly arranged, hexagonal pores.

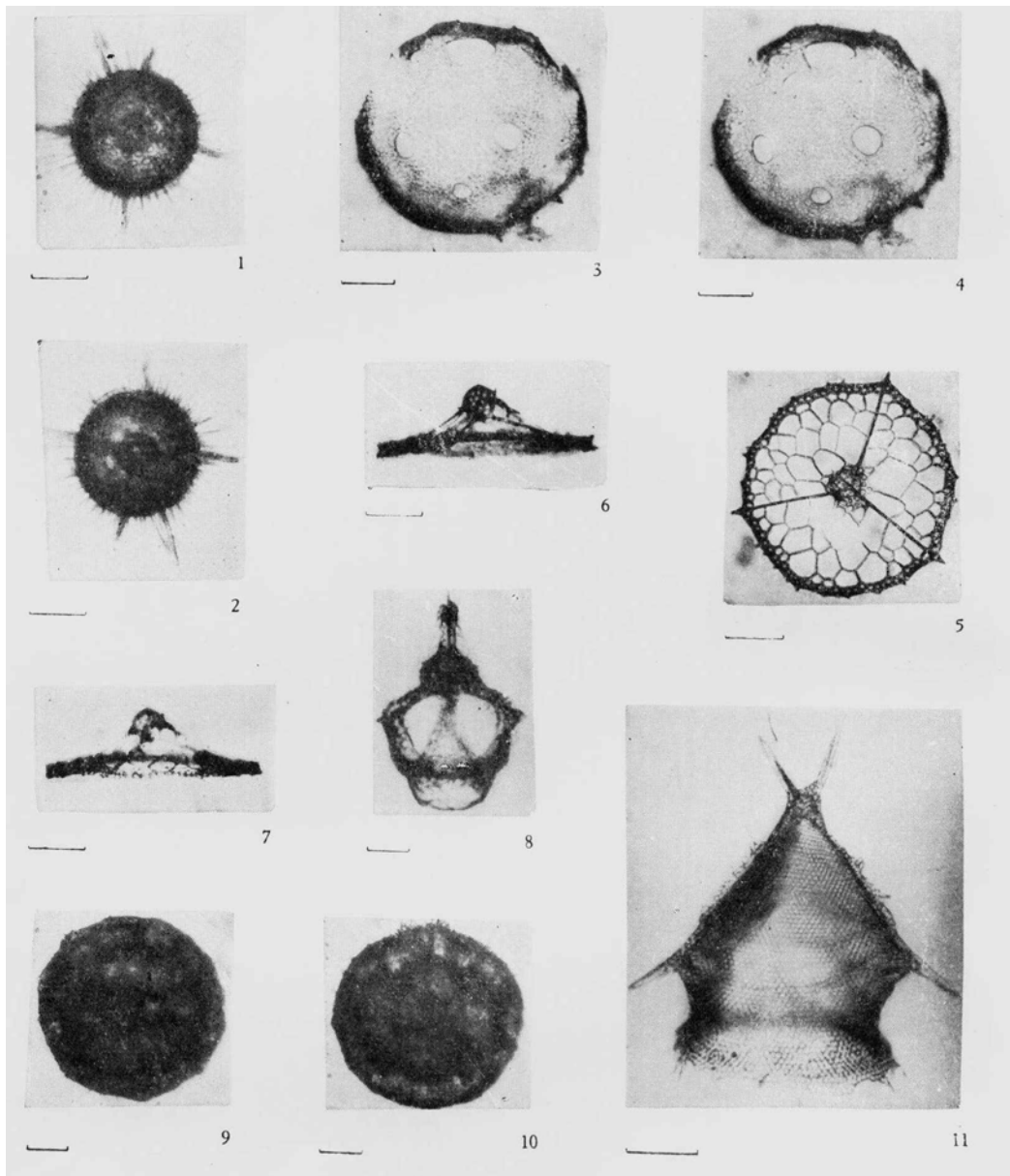
Dimensions Holotype IOAS-R524 length of the three joints (cephalis, thorax, abdomen) 25 μ , 180 μ , 60 μ ; breadth 30 μ , 220 μ , 210 μ .

This new species is similar to *Dictyocodon palladius* Haeckel (1887, p. 1335, pl. 71, figs. 12, 13), but the lateral wings of the latter (completely fenestrated) are prolonged from the thorax to the abdomen.



(比例尺: 2=10 μ , 3 = 25 μ , 其余=50 μ)

- 1, 2. 分枝小袋虫(新种) *Peridium ramosum* sp. nov. 正模标本 IOAS-R521 外形。
1. 底面观; 2. 顶面观, 示头部结构(放大)。
3. 多刺光眼虫(新种) *Actinomma multispinula* sp. nov. 正模标本 IOAS-R518 外形。
4. 卵形编枝球虫(新种) *Plegmosphaera ovata* sp. nov. 正模标本 IOAS-R511 外形。
- 5, 6. 小枝六枪虫(新种) *Hexacoentium sarmentum* sp. nov. 正模标本 IOAS-R517 外形。
5. 壳表面观; 6. 示中心结构。
- 7—10. 薄板胶球虫(新种) *Collosphaera planca* sp. nov.
8. 正模标本 IOAS-R512 外形;
7, 9, 10. 副模标本 IOAS-R513—515 外形。



(比例尺: 8, 9, 10=25 μ , 其余=50 μ)

- 1, 2. 果形海胆虫(新种) *Echinomma frugijera* sp. nov. 正模标本 IOAS-R519 外形。
1. 壳表面观; 2. 中心结构。
- 3, 4. 网管球虫(新种) *Siphonosphaera arkys* sp. nov. 正模标本 IOAS-R516 外形。
3. 焦平面落在赤道轴上, 可以看到向外突出的小管的口领;
4. 壳表面观。
- 5-7. 娇美帽虫(新种) *Lampromitra amabilis* sp. nov. 正模标本 IOAS-R522 外形。
5. 顶面观;
6. 侧面观, 示头部结构, 可见到一枕位斜生的头棘;
7. 侧面观, 示口缘短针形成之花冠。
8. 封底小帽虫(新种) *Pteropilium clausum* sp. nov. 正模标本 IOAS-R523 外形。
- 9, 10. 门孔小双顶虫(新种) *Amphitholonium pylonium* sp. nov.
正模标本 IOAS-R520 外形。
9. 侧面观壳呈同心圆状;
10. 顶面观, 示皮壳下方的门孔结构及箱形结构之髓壳。
11. 怪网铃虫(新种) *Dictyocodon phasmatos* sp. nov. 正模标本 IOAS-R524 外形。