

黄海楯海胆一新属*

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1975年4月,我所崔玉珩同志从黄海北部水深72米处采泥时,采得两个带两碎片的小的楯海胆标本。通过作者仔细研究鉴定认为:这小的楯海胆代表一个新属,现将这个新属描述如下:

中华扣海胆(新属) *Sinaechinocyamus* new genus

鉴别特征 小形种,壳低平,边缘薄,轮廓为不规则的圆形;口面平,反口面稍拱起;顶系明显在前方,具4个生殖孔;瓣短,末端开口;孔对不相连;瓣板全部是简单的初级板;后区间步带不连续,前对间步带稍连续;间步带顶端和顶系相接处为一对小板;围肛部显然上缘位;口面步带沟不明显;耳状骨愈合;内隔壁简单;反口面大棘棒状;小棘稍呈冠状,顶端有点扩大和倾斜。

科位未定。

讨论 这异常小的楯海胆介于豆海胆(Fibulariids)和盘海胆(Scutellids)之间,亲缘关系很难确定;其外貌和简单的内隔壁很象豆海胆,但间步带顶端和顶系相接处却和盘海胆一样为一对小板,而不和豆海胆一样为一大板。因此,不能确定它属于这两个科的哪一科,故暂时放在“位置未定”为好。

起初,考虑到这个小的楯海胆会不会是其他已知相近种的幼小个体,通过较深入研究,证明它并非这样,而是一个真的小形种。除了这两个标本外,作者过去曾看过15个来自相同地区,几乎同样大小的标本,并发现所有标本生殖孔都已呈现(最小标本长仅3毫米),生殖腺已很发达。除尖豆海胆 *Fibularia acuta* Yoshiwara 外,据了解,在黄海没有其他楯海胆存在。所以,这小的楯海胆不可能是其他已知相近种的幼小个体。

所有标本均由采泥器从泥沙底采到,并非拖网拖到。说明这小的楯海胆是穴居生活方式,而且钻得比较深。由于它的个体小和隐蔽习性,所以容易被忽略,以至这个新属迄今未被发现。

现代生存的楯海胆,肛门上缘位的种类很少。两个化石属 *Eoscutum* Lambert 和 *Kewia* Nisiyama 具上缘位的肛门和这个新属似乎相似。但化石标本保存均很差,细微结构不详,很难把这个新属置于化石属中。

模式种 中华扣海胆 *Sinaechinocyamus planus*

中华扣海胆(新属,新种) *Sinaechinocyamus planus* n. g. & n. sp.

(图版 I:1—4)

正模描述 壳低平;长7毫米,宽6.5毫米,高1.2毫米。轮廓不是规则的圆形,长

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度稍大于宽度。壳前端略尖,后端增宽,最宽处在后对间步带。壳的轮廓在后对步带向内弯进,故后面不成对的间步带变得稍微突出。壳的边缘平而薄,从壳缘向顶系逐渐拱起。

顶系显然位于前方,具4个生殖孔。约有15个水孔在顶板前部。瓣不很发达,每列瓣具8—9对管足孔;瓣长约1.2毫米,前方不成对瓣显然开放,且略短于成对瓣;管足孔小,孔列接近平行,成对瓣仅稍微有点会聚。瓣板全部为简单的初级板。孔对斜排,无沟相连。瓣的孔间带狭于有孔带,具少数不规则排列疣。围肛部显然上缘位,长卵形,盖5个不规则的裸出板(图1)。步带在赤道部仅略宽于间步带。

口面平,围口部位于中央,圆,不内凹,直径约1毫米。靠近口部各步带中线有5个大孔,各孔窝藏一个完全包在孔内的球棘(sphaeridium)。在围口部边缘,各步带具有3个小的近口突出(图2)。紧接侧突出之下,可以看到两个小的不明显口管足孔。口面步带沟不明显,仅在后对步带中线能见到低陷的痕迹。

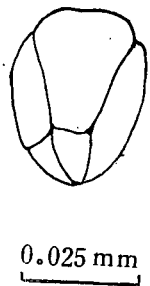


图1 中华扣海胆 *Sinaechinocyamus planus* 围肛部

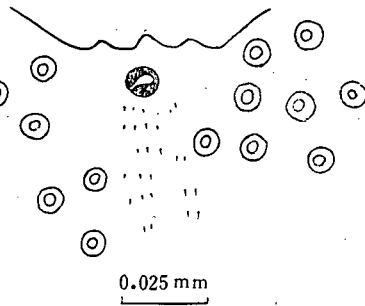


图2 中华扣海胆 *Sinaechinocyamus planus* 围口部的一个步带

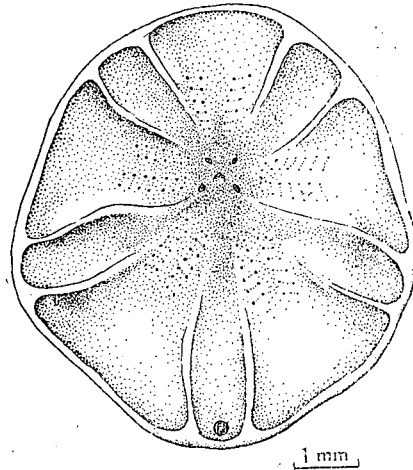


图3 中华扣海胆 *Sinaechinocyamus planus* 壳的切面(示内隔壁)

间步带顶端和顶系相接处为一对小板。在口面,后面三个间步带不连续,在间步带中线被扩大的步带板隔断,但前对间步带则稍连续。内部结构为5对不发达的放射状简单内隔壁,从壳缘延伸还不到口部(图3)。耳状骨愈合成单个,位于间步带。

大疣细小,散布不规则。细疣不规则地散布于大疣之间。在口面可以模糊地看到小的玻璃疣。反口面大棘呈棒状(图4:1);壳缘棘很发达(图4:2),特别是后缘大棘很特殊,长而且顶端成稍尖锐的单尖(图4:3)。细棘很小,稍呈冠状,顶端扩大,稍倾斜(图4:4)。叉棘很少,只检出一个普通的双瓣叉棘。酒精标本带绿色,刷净光壳带白色。

讨论 现代生存的楯海胆,肛门上缘位的种类很少。现在分布于日本的灰掘穴海胆 *Scaphechinus griseus* Mertensen 和中华扣海胆在肛门位置上相似,但在结构上不同。前者系一盘海胆,具有复杂的内支持骨骼和步带沟;后者只有简单的内隔壁和不明显的步带沟。此外,灰掘穴海胆是一大形种,体长一般为57—62毫米,生殖孔在体长23毫米的标

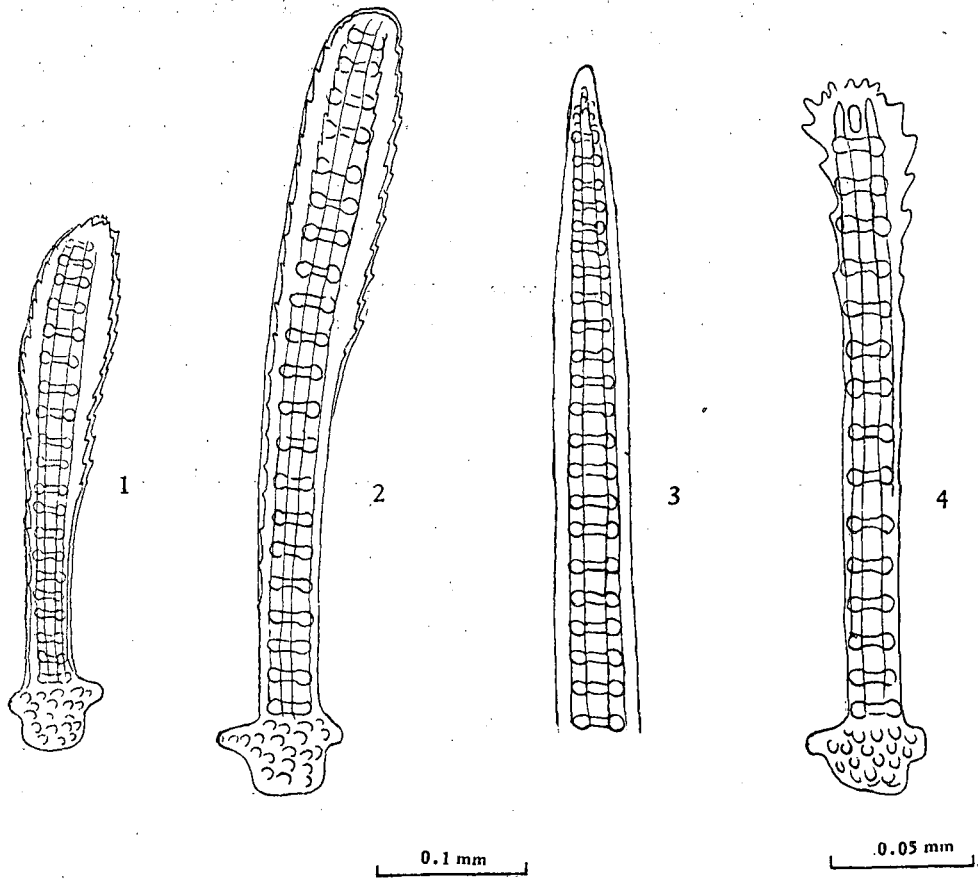


图4 中华扣海胆 *Sinaechinocyamus planus* 的棘

1.反口面大棘; 2.边缘棘; 3.后缘棘外半截; 4.细棘。

本上仍未显现 (Mortensen, 1948)。所以,我们的新种和灰掘穴海胆根本不同,也不可能是它的幼小个体。

模式标本产地 黄海北部,北纬37度50分,东经124度,水深72米,泥沙底。1975年4月22日。

正模标本 登记号 IOAS-E00931

副模标本 登记号 IOAS-E00932

正模和付模均保存在中国科学院海洋研究所标本室。

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A NEW GENUS OF CLYPEASTEROID SEA-URCHIN FROM HUANG HAI*

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ABSTRACT

In April 1975, through the kindness of my colleague Comrade Cui Yuheng, a couple of specimens with two other fragments of specimens of small clypeasteroid sea-urchin were sent to me for identification. They were obtained by the grab in the northern Huang Hai (Yellow Sea) at a depth of 72 meters. Careful examination showed that this small clypeasteroid sea-urchin represents a new genus, the description of which is given below.

Sinaechinocyamus new genus

Diagnosis Size small; test low, flattened; edge thin; outline not regularly round; oral side flat, aboral slightly arched; apical system distinctly anterior, with four genital pores; petals short, open; pore-pairs not conjugate; plates of petals all simple primary plates; interambulacrum of posterior area discontinuous, but anterior pairs slightly continuous; interambulacrum terminated adapically by pair of small plates; periproct distinctly supramarginal; oral ambulacral furrows indistinct; auricles fused; internal partition walls simple; aboral primary spines clubshaped; miliary spines slightly crown-shaped, somewhat widened and oblique at the point.

Family Uncertain

Remarks Concerning the affinities of this remarkable small clypeasteroid sea-urchin, there is some uncertainty. The position of this new genus is so intermediate between the fibulariids and scutellids that I cannot decide to which of the two families it belongs. Its general appearances and simple internal partition walls are

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rather like the fibulariids, but on the other hand, the interambulacra seem to terminate adapically in two small plates as in the scutellids, not in a single large plates as in the fibulariids. Its position is therefore uncertain. I think better to leave this genus "incertae sedis".

At first, I thought whether this small clypeasteroid sea-urchin may be a juvenile of other known allied species, but further investigation proved it is not at all so, but a real pygmy. Besides the two specimens, I had seen fifteen specimens of nearly the same size in the past, which are dredged also in the same region. I found that the genital pores appeared in all the specimens (the smallest only 3 mm in length), and the gonads are well developed. Except for the *Fibularia acuta* Yoshimura which I know there are no other clypeasteroids existing in the Huang Hai. So it is impossible that this small clypeasteroid sea-urchin is a young of other known allied species.

All the specimens were obtained by the grab, and not by the trawl net from muddy sand bottom. It reveals that this small sea-urchin is living buried more or less deeply in the ground. Owing to their small size and secretive habit, they are easily overlooked. The small size and secretive habit probably are the reason why this new genus is not hitherto discovered.

Two fossil genera *Eoscutum* Lambert and *Kewia* Nisiyama having supramarginal periproct seem to resemble this new genus, but the specimens of fossils are in a poor condition, such that detailed structures are not distinct. It is difficult for me to place this new genus in genera of fossils.

Type-species *Sinaechinocyamus planus*

***Sinaechinocyamus planus* new species**

(Pl. 1, figs. 1—4.)

Description of holotype: The test is low, flattened; length 7 mm; breadth 6.5 mm; height 1.2 mm. The outline is not regularly round, with length slightly greater than breadth. The anterior end of the test is slightly pointed, and the posterior end is widened. The largest breadth is in the posterior paired interambulacra. In the posterior paired ambulacra the outline of the test is somewhat reenteringly curved to the effect that the posterior unpaired interambulacrum becomes slightly prominent. The edge of the test is flat and thin; from the edge towards the apical system is very gently rising.

The apical system is distinctly anterior, with four genital pores; there are a number of hydropores, c. 15 scattered over the anterior part of the apical plate. The petals are not well developed, each series with 8—9 pore-pairs, about 1.2 mm in length, the anterior unpaired petal is distinctly open, and slightly shorter than the paired petals; the pores are small, the pore-series nearly parallel, distally only very slightly converging. The plates of petals are all primary plates. The pore-pairs are not conjugate and placed obliquely. The interporiferous zone of the petal is narrower than the poriferous, and carries a few of irregularly arranged tubercles. The periproct is distinctly supramarginal, which is elongate oval in shape, and covered by five irregularly naked plates (fig. 1). At the ambitus the ambulacra are only a little wider than interambulacra.

The oral side is flat; peristome is central in position, round, not sunken; about 1 mm in diameter. Adorally there are five large pores in each ambulacral midline; each pore harbors a single sphaeridium, which is almost completely enclosed inside. Close to the edge of the peristome each ambulacrum is provided with three small indistinctly adoral projections (fig. 2). Immediately below the lateral projections, two small pores of buccal tube feet may be seen. The ambulacral furrows of the oral side are indistinct, only in the midline of posterior paired ambulacra with a trace of depression.

The interambulacra are terminated adapically by a pair of small plates; on the oral side the posterior three interambulacra are discontinuous; and interrupted by the widened ambulacral plates in the interambulacral midline; the anterior paired interambulacra are slightly continuous. The internal structure is simple, consisting of 5 pairs of internal radiating partition walls, which are not developed, extending scarcely from margin to mouth (fig. 3). The auricles are fused into a single piece situated on the interambulacrum.

The primary tubercles are very fine and spread without any order. The miliary tubercles are scattered irregularly among the primaries. Small glossy tubercles may be seen faintly on the oral side. The primary spines of the aboral side are club-shaped (fig. 4:1); the spines along the edge of the test are well developed (fig. 4:2), especially in the posterior end, they are quite specialized terminating in a simple somewhat sharp point (fig. 4:3). The miliary spines are rather small slightly crown-shaped somewhat widened and slightly oblique at the point (fig. 4:4). The pedicellariae are very scarce only a single of usual bivalve type is detected. Colour of alcoholic specimens are greenish, cleaned test is whitish.

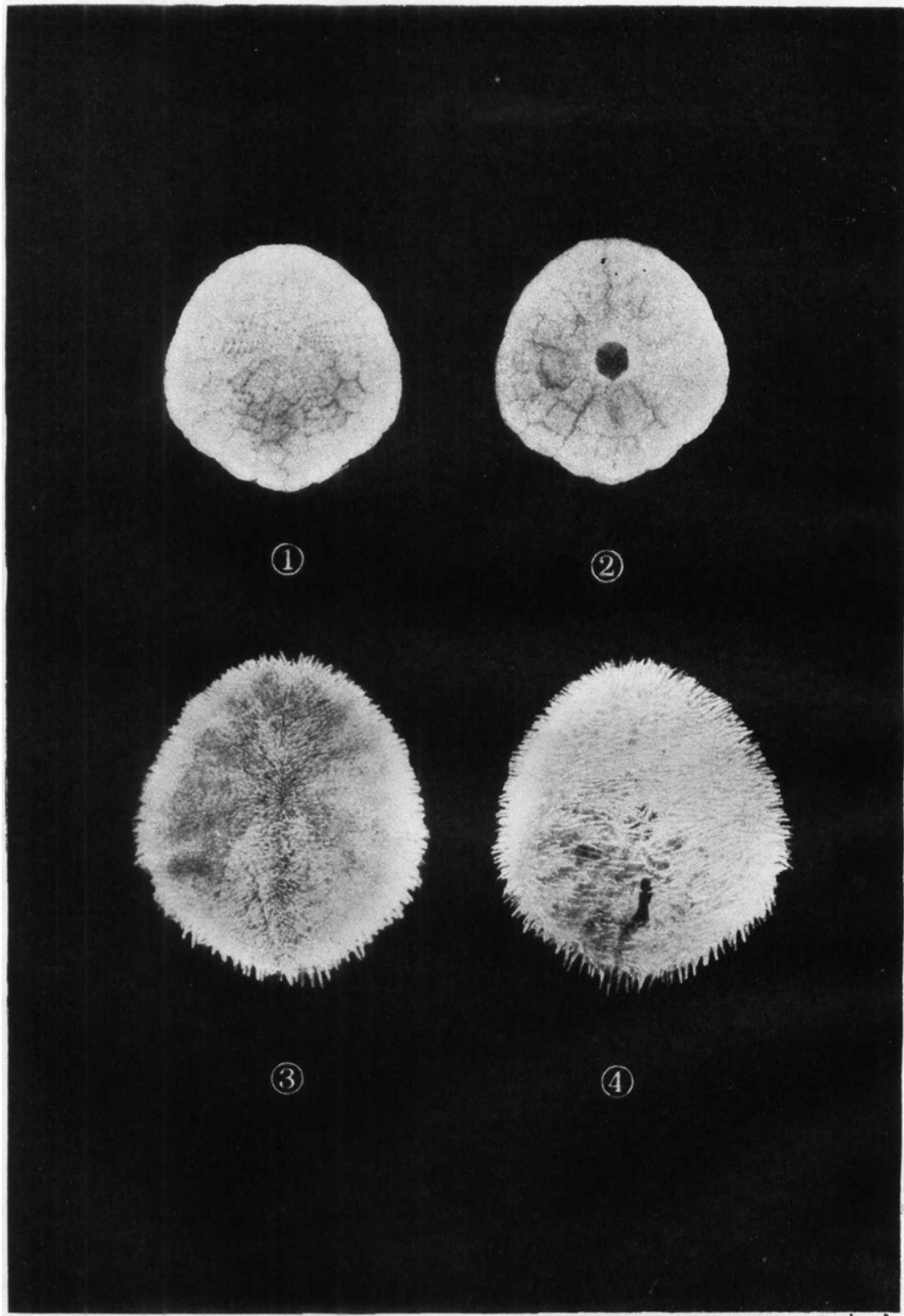
Remarks Among the clypeasteroids the living species having supramarginal periproct are very rare. A living species *Scaphechinus griseus* Mortensen distributed in Japan resembles *Sinaechinocyamus planus* in the position of the periproct but not in detailed structures. The former species is a scutellid provided with complex internal supports and ambulacral furrows. The latter species is provided with simple internal supports and indistinct ambulacral furrows. So *Sinaechinocyamus planus* is essentially different from *Scaphechinus griseus*. Again *S. griseus* is a species of large size generally 57—62 mm in length; the genital pores have not yet appeared in a specimen 23 mm long. (Mortensen, 1948). It is impossible that the present new species is the young of *S. griseus*.

Type-locality Northern Huang Hai, 37°50' N., 124° E., 72 meters, muddy sand bottom, 22 April, 1975.

Holotype IOAS, Neg. No. E00931.

Paratypes IOAS, Neg. No. E00932.

Both holotype and paratypes are deposited in the Institute of Oceanology, Academia Sinica.



中华栉海胆 *Sinuechinocyanus planus*

1. 正模, 反口面; 2. 正模, 口面; 3. 付模, 反口面; 4. 付模, 口面。

注: 图版照片均×5