

中国南部角海星科一新种—— 四棘美丽海星*

廖玉麟

(中国科学院海洋研究所, 青岛)

提要 中国科学院海洋研究所于一九六〇年二月十七日在中国南部沿岸海域采集的海星类中, 有一个大的海星标本, 经研究鉴定, 系美丽海星属 *Calliaster* Gray, 1840 的一个新种, 本文对它进行了描述。新种不同于本属的其它种, 在于它有四个亚步带棘, 故命名为四棘美丽海星 *Calliaster quadrispinus* sp. nov.。描述如下。

角海星科 GONIASTERIDAE Forbes, 1841

四棘美丽海星 *Calliaster quadrispinus* sp. nov. (图 1, 2; 图版 I: 1, 2)

模式标本 全模 (IOAS—E998), 南海, 20°30'N, 113°30'E, 水深 88m, 沙底, 于 1960 年 2 月 17 日采集。

描述 辐径 R 为 84mm, 间辐径 r 为 38mm, $R = 2.2r$; 腕宽在第三上缘板为 30mm, 在第八上缘板为 18mm。

体沉重、厚, 在腕间中央两缘板的高度为 14mm。盘很大, 中央稍鼓起, 靠近间辐部边缘略下陷。腕逐渐变细, 钝粗, 末端稍膨大。

反口面盖裸出的近圆形板, 其中带棘者较大且突出, 余者平滑; 所有板均围有一行近乎截形的颗粒, 且与板面齐平。由首级辐板和基板包围的顶区, 有两圈大小不等的小板包围大中央板, 其棘脱落, 仅留圆形大痕迹。

首级辐板、基板和一或两个辐板均较大而鼓起, 且各具一个结实、粗壮、竖立的大棘, 长 3—5mm。此棘连续出现于首级辐板后的 3—6 块中央辐板上, 故各辐区的临近部有一行纵棘, 但在远端部棘常缺。靠近腕基部中侧行的少数板上也有棘, 但较小。

上缘板数为 11, 很大, 膨胀, 光滑而裸出, 宽约为长的三倍。各板具 3 个或 4 个钝棘, 少数有 5 个, 排列成一横行。所有板均围有一行同反口面板相似的颗粒。最后 3 个上缘板同相对者连接。端板大, 呈亚球形, 具 3 或 4 个疣状棘。

下缘板和上缘板数目相当, 但腕末端板稍长。第一到第三板各有两个(少数一个)排成横行的棘; 从第四到第七板, 各板外侧角均有一簇 4 或 5 个、甚至 6 个粗大的棘(图 1); 最后两个板的棘减为两个或 3 个。所有板均裸出, 周围有一行或两行同上缘板相似的颗粒。

口面间辐板为不等四边形, 排列为 3 个“Λ”字形, 相邻侧步带板的最内一行板延伸至第三下缘板。各板周围均有一行颗粒; 颗粒也出现在靠近间辐部边缘的小板板面上。除

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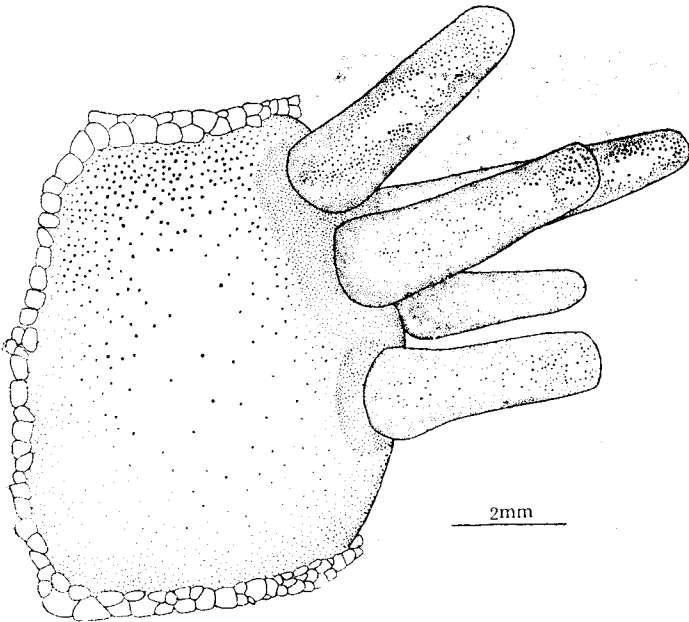


图1 第七下缘板

Fig. 1 Seventh inferomarginal plate

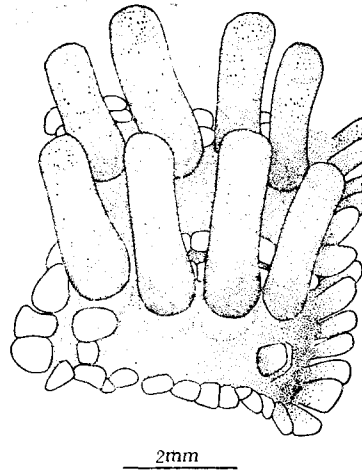


图2 第十二—十三侧步带板

Fig. 2 Twelfth—thirteenth
adambulacral plates

小板外,各板均有一个钝的中央大棘。

侧步带板长方形,宽比长大得多,各板有一行7个或8个排列为栉状的沟棘;棘钝,顶端圆,稍侧扁,等长,但近口的一个棘最小;板口面有一行4个很粗壮的亚步带大棘,与步带沟成直角排列,且同其它板的亚步带棘沿着沟的两侧,排列为平行的四纵行。有些板近口侧有一个竖立的扁铲形小叉棘,同最内的一个亚步带棘并列。各板周围均有正常的颗粒,有时颗粒且出现在板面上,特别是在内侧亚步带棘基部周围尤其明显(图2)。

口板藏于口深部,其轮廓及饰物难以看到。筛板大,鼓起,直径约5mm,位于从盘中心到缘板内缘的三分之一处。

保存于酒精中的标本上面为浅橄榄绿色,下面略带黄色。

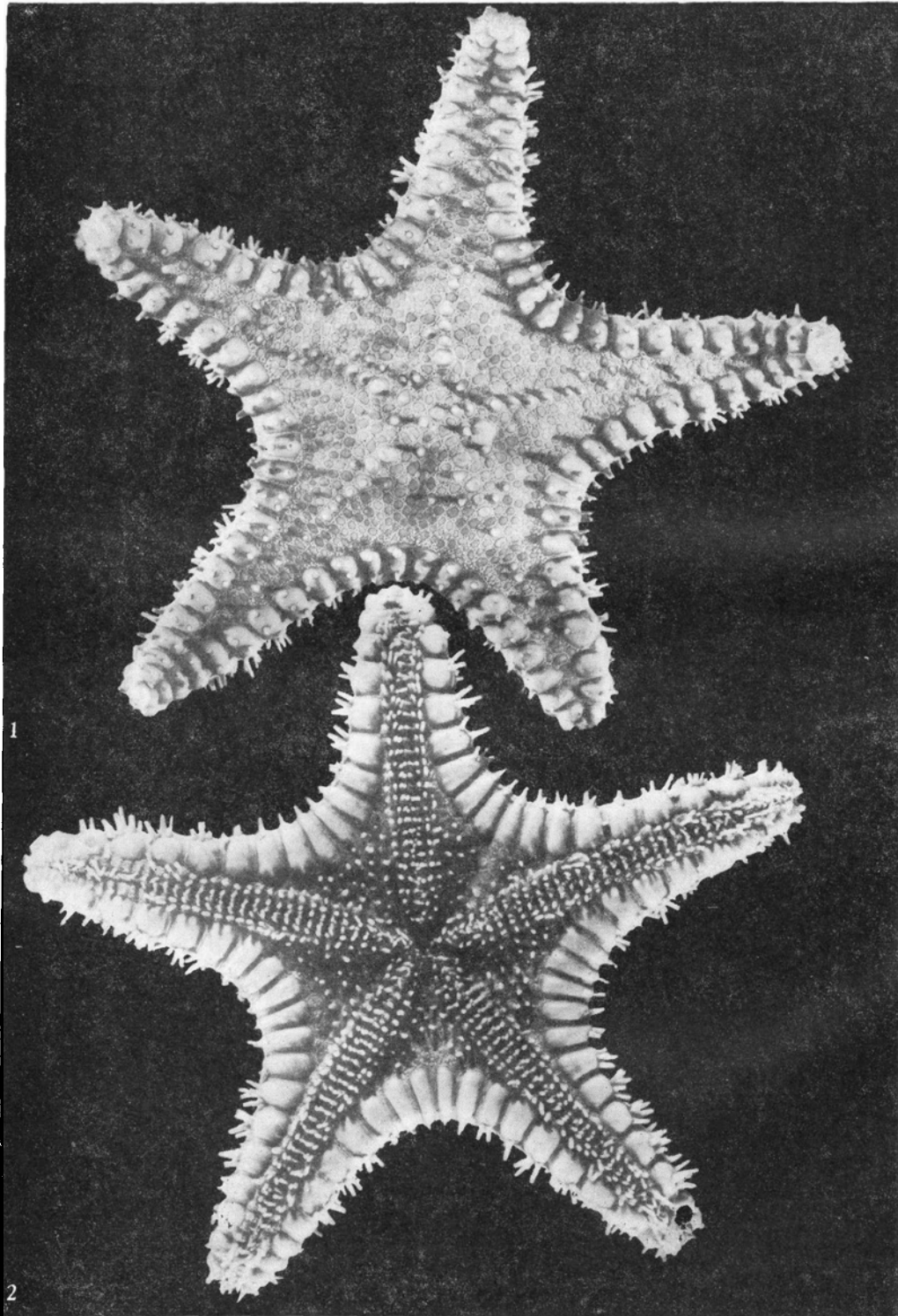
讨论 根据反口面板,缘板结构,及侧步带板的饰物,这个海星隶属于美丽海星属(*Calliaster*)是无疑的。据 Doederlein (1922) 和 Clark & Courtman-Stock (1976) 的记述,美丽海星属除乳突美丽海星 *Calliaster mamifer* Alcock 具一个亚步带棘外,所有已知种均具两个亚步带棘,没有具四个亚步带棘的种。新种具有四个亚步带棘,很易同本属其它种区别开。它可能代表一个孤立型。四棘美丽海星的近似种可能是柴氏美丽海星 *Calliaster childreni* Gray, 在中国也已发现,但作者没有采到。幸而作者有一对非常清晰的柴氏美丽海星模式标本照片¹⁾,同四棘美丽海星全模标本比较,乍一看,它们的反口面外观很相似,但两者的口面却显然不同:柴氏美丽海星具两个亚步带棘,无叉棘;四棘

1) 由英国博物馆 (British Museum) 的克拉克博士 (A. M. Clark) 提供照片,特此志谢。

美丽海星具四个亚步带棘,且具叉棘。

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四棘美丽海星 *Calliaster quadrispinus* sp. nov.

1. 全模,反口面; 2. 全模,口面($\times 3/4$)。

**CALLIASTER QUADRISPINUS, A NEW SPECIES OF THE
FAMILY GONIASTERIDAE (ASTEROIDEA)
FROM SOUTHERN CHINA***

Liao Yulin

(Institute of Oceanology, Academia Sinica, Qingdao)

ABSTRACT

Among the sea-stars collected by the Institute of Oceanology, Academia Sinica, there was a single very large and handsome specimen representing a new species of the genus *Calliaster* Gray. The following is a description for this new species.

Family GONIASTERIDAE Forbes, 1841

Calliaster quadrispinus sp. nov. (Pl. 1:1, 2)

Holotype (IOAS-E00998) South China Sea, 20°30'N, 113°30'E, 88 m depth, sandy bottom, Feb. 17, 1960.

Description R 84 mm, r 38 mm, $R/r=2.2/1$; breadth of arm at third superomarginal plate, 30 mm, at eighth, 18 mm.

Body heavy and thick, height of combined marginal plates at middle of interbrachium, 14 mm. Disk rather large, slightly tumid in centre, more or less depressed near interradial margins. Arms tapering, blunt, slightly clavate at the tip. Interbrachial arcs widely rounded.

Abactinal surface of disk covered with bare, subcircular plates, of which the plates with spine large and convex, the others smooth; all surrounded by a peripheral series of subtruncate granules, flush with the surface. Apical area, enclosed by the primary radials and basals, contains small plates of different sizes in two circles surrounding the larger central plate, of which the spine is lost, only a large circular scar remained. Primary radials and basals, as well as 1 or 2 other radials more or less convex and large, each armed with an upright, rigid, robust and blunt spine, 3—5 mm long; it is repeated on 3 to 6 succeeding plates of the median series, thus making a longitudinal row of spines on the proximal portion of each radial area, but on the distal portion these are often lacking. Occasionally, a few plates of medio-lateral series near the arm base also bear a similar but shorter spine.

Superomarginals number 11, massive, bare and tumid, much wider than long, about three times as broad as long. Each plate bears 3 or 4, rarely 5 stout spines, in a transverse series. All plates surrounded by a peripheral series of elongate granules, similar to those of abactinal plates. Last 3 superomarginals contact with their opposites. Terminal plates large, subglobular, with 3 or 4 tuberculate spines.

Inferomarginals correspond to the superomarginals, except towards the tip of arm, where they become a little longer. On the first two or three plates there are two (rarely one) spines in a transverse series; from the fourth to seventh plates each with a cluster of 4 or 5, even 6

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rather large spines, *c.* 4 mm long, at the outer corner of the plate, thus making a characteristic appearance (fig. 1); on the last two plates the spines reduced the number to 2 or 3. All plates are bare and surrounded by one or two peripheral series of granules, similar to those of superomarginals.

Actinal intermediate plates unequally 4-sided, in 3 chevrons, the inner series adjacent to the adambulacrals reaching to the third superomarginal plate. All plates are surrounded by a series of marginal granules, which also occur on the surface of the small plates near the interradial margins. Each plate, excepting the small ones carries a large, blunt central spine, similar to those of the inferomarginals.

Adambulacrals rectangular, much wider than long; each with a comb of 7 or 8 blunt, round-tipped, slightly compressed furrow spines, which are subequal, the adoral one the smallest; on the actinal surface are 4 large, stout subambulacral spines in a row at right angles to the furrow, with the subambulacral spines of other plates, they arranged in four distinct longitudinal parallel series along either side of the furrow. On some plates a small spatulate pedicellaria stands at the adoral end of plate and apposed with the innermost subambulacral spine. All plates are surrounded by the usual marginal granules, a number of these occur on the face of plates, particularly around base of the inner subambulacral spine (fig. 2).

Oral plates hidden in the deep part of the mouth, their outline and armature cannot be seen. Madreporite large, tumid, about 5 mm in diameter, situated about one-third the distance from centre to inner edge of marginal plates. Colour in alcohol, light greenish-olive above, yellowish below.

Remarks On the basis of the structure of abactinal and marginal plates and the armature of adambulacrals, there can be no doubt that this beautiful seastar falls within the genus *Calliaster* Gray. According to Doederlein (1922), and Clark & Coutman-Stock (1976), all the known species of the genus *Calliaster* have two stout subambulacral spines with the exception of *C. mammifer* Alcock, which has only one subambulacral spine. There are no species having four subambulacral spines. The possession of four subambulacral spines readily distinguishes this new species from all the other forms in the genus *Calliaster*. It may represent a somewhat isolated type. Perhaps the nearest species to *C. quadripinus* is *C. childreni* Gray, which also found from China, but I failed to find it. Thanks to Dr. A. M. Clark of British Museum, a couple of excellent photograph of the type of *childreni* is at hand for comparison with the holotype of *quadripinus*. At a glance they are similar in the appearance of abactinal surface, but in the actinal surface the difference between them is very striking. In *childreni* the number of subambulacral spines is two and the pedicellaria is absent; in *quadripinus* there are four subambulacral spines and the pedicellaria is present.