XIV.—*An Erroneous Echinodermal Identification.* Corrected by W. B. Benham, D.Sc., F.R.S., Otago University, New Zealand.

Nearly thirty years ago, some specimens of a sea-urchin were received from Stewart Island, New Zealand, at the Otago University Museum, and were identified by the late Capt. Hutton as "*Salmacis globator*, Agassiz," and briefly described in the Trans. N. Z. Inst. xi. p. 306.

I was receutly engaged in identifying specimens of Echinoderms handed to me by Mr. Edgar Waite, who had collected them during an experimental trawling-trip off the New Zealand coast, and having read Mr. Farquhar's note in the current volume of the 'Transactions N. Z. Institute' (xxxiv. p. 130), wherein he suggests that our "*Salmacis*" may probably belong to Bell's species *S. alexandri* (P. Z. S. 1880, p. 431), I proceeded to look into the matter, with the result that I find that our New Zealand urchin does not belong to the genus *Salmacis*, nor even to the family Temnopleuridæ, but is a member of the family Echinidæ. In fact, it is a species of *Pseudechinus*, Mortensen, 1903, of which the genotype is *P. albocinctus*, Hutton (Cat. Ech. N. Z. 1872), which he later regarded as a synonym of *Echinus magellanicus*, Philippi (Trans. N. Z. Inst. ix. p. 362).

Although I have not been able to refer to Mortensen's work, yet the diagnosis of this given in Bronn's 'Class. und Ordn. d. Thier-reichs,' by Otto Hamann, enabled me to place it in that genus at once—not only by the arrangement of the pores, but also by the character of the "globiferous pedicellariæ."

Pseudechinus huttoni, sp. n.

(= *Salmacis globator*, Hutton, non Agassiz.)

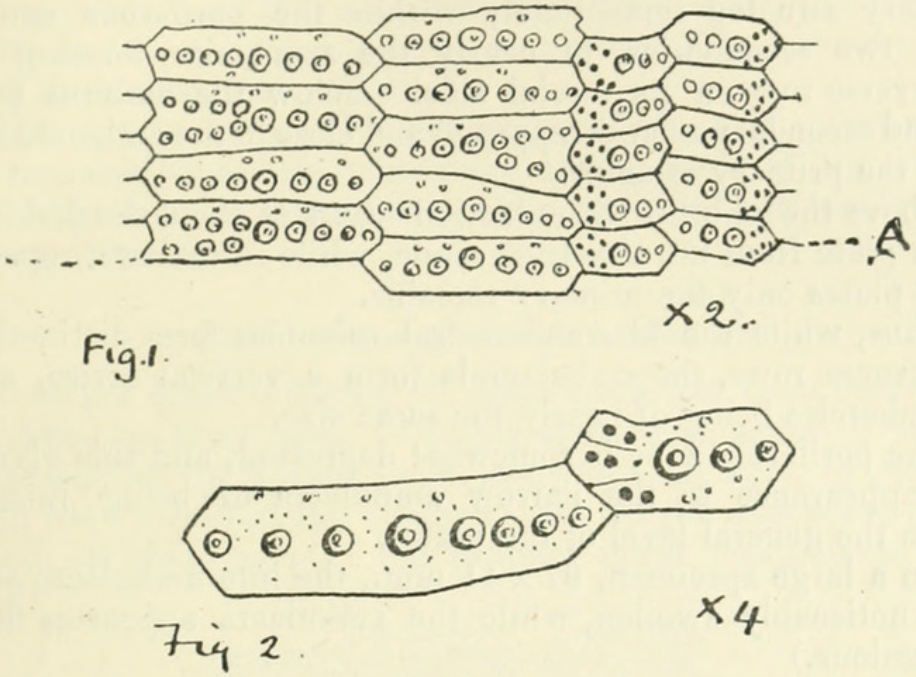
"The test is white with pink tubercles; the integument pale brownish yellow. The spines in the upper portion are reddish purple with white tips; on the lower portion they are white, getting yellow towards the base" (Hutt. Tr. xi. p. 307).

The specimens thus briefly described by Hutton are still mounted on a tablet and labelled in his handwriting; they are two in number, one with spines, the other denuded.

The former measures 52 mm. in diameter and 35 mm. in height; the latter 42 and 34 respectively.

In the latter the interambulacrum at the ambitus measures

18 mm., the ambulacrum 9 mm., and the poriferous zone 1·5 mm. The tubercles are nearly all of the same size, and arranged in transverse rows occupying the entire width of the plate, usually a single row in each plate, and are pinkish orange in colour.



Pseudechinus huttoni.

Fig. 1.—Portions of ambulacrum and interambulacrum, showing arrangement of tubercles at the ambitus (A) and immediately above. × 2.

Fig. 2.—An ambulacral and an interambulacral plate. × 4.

The form is more or less globular, with a slight tendency for the apical region to be subconically elevated; at the same time I have specimens which are distinctly depressed, so as to be somewhat bun-shaped.

Interambulacrum.—In each plate the tubercle situated in the middle of the plate is rather larger than the rest, and may be termed a primary; on each side of this are three slightly smaller ones, which may be termed secondaries. In some instances a fourth secondary occurs near the external (ambulacral) margin—so that at the ambitus there are usually seven tubercles in a row, less usually eight.

In about every alternate plate this row is duplicated on the ambulacral side of the primary.

Near the abactinal region the number of tubercles decreases rather suddenly: the upper five or six plates bearing less than seven; the topmost having only one or two secondaries in addition to the primary.

Above the chief row is a short imperfect and irregular row of quite small tubercles (tertiaries)—about six at the ambitus and below it, irregularly spaced, but rapidly diminishing above to three, two, and one. The miliaries are not at all well marked and are few in number.

Ambulacrum.—Each ambulacral plate carries a single primary situated immediately within the poriferous zone, with two secondaries, of nearly the same size, forming a transverse row on its mesial side. Below the ambitus the second secondary soon disappears, and close to the actinostome only the primary remains.

Above the ambitus the reduction occurs at about the fifth or sixth plate from the abactinal circle, while in the two uppermost plates only the primary remains.

Thus, while the interambulacral tubercles form distinctly transverse rows, the ambulacrals form a vertical series, all the tubercles being of nearly the same size.

The poriferous zone is somewhat depressed, and this gives the appearance to the narrow ambulacra of being raised above the general level of the plates.

(In a large specimen, 67 × 41 mm., the interambulacra are very noticeably swollen, while the ambulacra appear as flat depressions.)

As Mortensen's diagnosis of the genus states, each ambulacral plate bears three couples of pores, which are arranged in a slightly zigzag line—the inner pore of the middle couple being vertically below the outer pore of the upper couple, while the outer pore of the lower couple is vertically below the inner pore of the upper couple.

The spines are short, the longest 5 mm. in length—fine, pointed, grooved and coloured as described by Hutton (though in other specimens they are uniformly white).

In the apical ring the oculars are excluded from the periproct ; the madreporite is prominent ; the genital pores large ; and a row of secondary tubercles occurs near the apical margin of each of these plates.

The actinostome is nearly circular, the notches being very slight, wide, and shallow.

In addition to these two specimens which served for Hutton's brief description, and one of which serves as type of the new species, I have received several others, the largest of which is 70 mm. by 50 mm. Some of them are paler than the type, the spines being a dirty white, but all have the tubercles pinkish orange. In the larger ones the number of tubercles at ambitus is 9–10 in a transverse row, and the

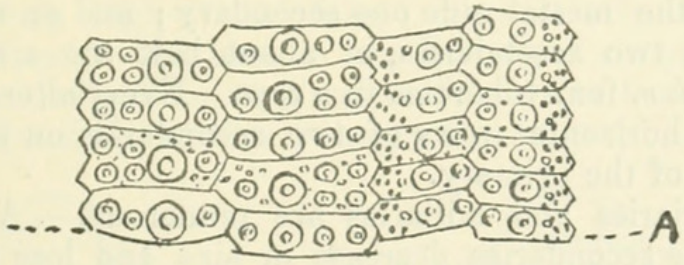
difference in size between "primary" and "secondary" is scarcely recognizable.

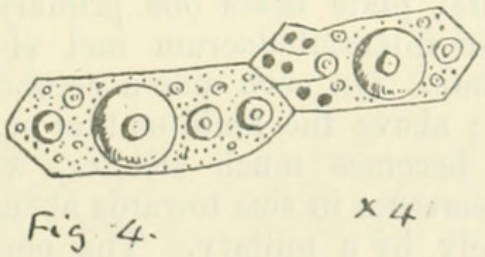
In others from Cromarty, Preservation Inlet, N.Z., which are white, though the size is about the same as the type (46 × 35 mm.), the number of tubercles is less; for in the interambulacrum only five tubercles occur in a transverse row, at the ambitus, and this soon becomes three above and below; while on the ambulacrals two occur at ambitus, but only one over the greater part of test.

This species is readily distinguished from *P. albocinctus* by the small size and transverse arrangement of the many tubercles on the interambulacral plates, as well as by the colour of the test.

Pseudechinus albocinctus, Hutton.

I do not know whether *P. albocinctus* has been described in detail by Mortensen. But my specimens, some of which were labelled by Hutton (as *E. magellanicus*), agree in general with the above, but the tubercles are larger and fewer; the colour of shell purple; the primary more conspicuous than





Pseudechinus albocinctus.

Fig. 3.—Portions of ambulacrum and interambulacrum at the ambitus (A) and immediately above it. × 2.

Fig. 4.—An ambulacral and an interambulacral plate. × 4.

in *P. huttoni*. The miliaries are larger and more numerous, while in the ambulacrum there are only two tubercles at ambitus, &c.

A specimen labelled by Hutton, denuded of spines, measures 34 mm. in diameter, 22 mm. in height. The interambulacrum, at the ambitus, measures 12 mm., the ambulacrum 8 mm., and the poriferous zone 1·5 mm.

Hutton's account of the type in the Colonial Museum, Wellington, will be found in 'Catalogue of the Echinodermata of New Zealand,' 1872, p. 12. As this publication may not be widely accessible I quote it :—

"Height $\frac{3}{5}$ of the diameter; pores forming a rather irregular zigzag row of single pairs; ambulacral plates with one primary tubercle; interambulacral with three on the lower half, but near the apex with one central tubercle surrounded by smaller ones on the edge of the plate; ambulacra narrow; tubercles moderate; spines tapering, longitudinally grooved; grooves much broader than the ridges. Shell brownish purple; spines reddish purple, broadly tipped with white.

"Diameter 1 inch."

It may be as well to give details of this co-type now before me. Each interambulacral plate at the ambitus bears one primary, of a diameter nearly equal to the height of the plate; on the mesial side one secondary; and on the ambulacral side two secondaries, of about half the size of the primary: *i. e.* four tubercles in a row. Every alternate plate bears two horizontal rows of two secondaries on the ambulacral side of the primary.

The tertiaries and miliaries are numerous. Above the ambitus the secondaries decrease in size and lose the linear arrangement, so that near the abactinal ring each plate bears only one primary.

Each ambulacral plate bears one primary, rather smaller than that in the interambulacrum and situate about the middle of the plate. On each side a secondary, the mesial being the larger; above the ambitus that on the side of the poriferous zone becomes much smaller, while the other secondary also decreases in size towards abactinal ring, to be replaced ultimately by a miliary. The pores are arranged much as in *P. huttoni*.

I have other specimens of larger size than this, the greatest being 50 mm. diameter × 30 mm. high. They all agree in colour of test and spines, though the extent of the white tip varies, and the colour of the base is rather red than reddish purple.

The general form is that of a depressed spheroid.

Dunedin,
November 6, 1907.