

3. Note on the Development of a Holothurian Spicule.

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eingeg. 11. März 1894.

During the last summer I obtained a pinkish white Holothurian by means of a long line for bottom fish from a depth of about 300 fathoms at the west side of Ōshima (Vries Island), a volcanic island near the mouth of the Tōkyō Bay. From the lack of the literature on the subject I can not identify the species.

As I examined its spicules I found two kinds of them. One (fig. *a*) is small, flat, irregularly round in outline and scattered all over

the body. The other kind (figs. *b, c*) is found on the dorsal processes.

It is large, round, convex above and wheel-shaped. The nave of the wheel is large, flat and over its large central hole a χ shaped piece is attached, dividing the hole into four smaller ones. The spokes are short, cylindrical, twelve in number. To the outer rim and on the concave side of the wheel, twelve scale-like processes are attached, alternating with the

twelve spokes and turned towards the centre. These wheel-shaped spicules were found in various stages of development.

The spicule which I found in the most rudimentary condition was a small rod with two horns at both the ends (fig. *d*). The distal end of each of these horns is next expanded into a small trapezoidal sheet (fig. *e*). The trapezoidal sheet is joined to the horn almost perpendicularly at the middle point of its broader side. The upper and the slanting sides of the trapezoid are gently concave. These sheets are laterally expanded on its broader side and joined together (fig. *f*). At the point where two trapezoidal sheets unite, a tooth is produced. Thus a dodecagon with its sides a little curved inwards and with four

Fig. 1.

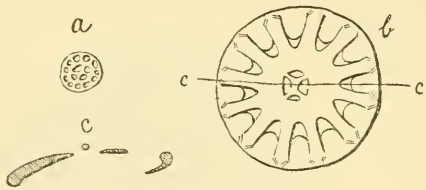
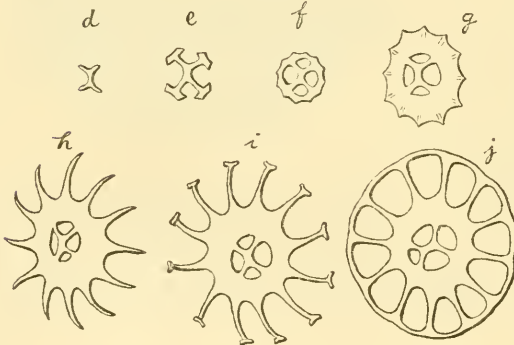


Fig. 2.



holes at its central portion is produced. The dodecagon grows centrifugally and at the radius through each tooth it is thickened like a rille (fig. *g*). This is the central disc or the nave of the wheel.

Those radially thickened ribs are next produced into long conical processes which are a little curved downwards (fig. *h*). They are the spokes of the wheel. When the spokes attain a certain length, about equal to the length of the radius of the nave, they give rise to a pair of lateral horns at their distal ends (fig. *i*). These horns grow, unite together and form the outer rim of the wheel (fig. *j*). The outer rim as well as the spokes of the wheel become gradually consolidated, and a scale-like process is produced from the outer rim inwards, between every two spokes, on the concave side of the wheel. These scales are turned a little obliquely downwards. Thus the wheel-shaped spicules is completed gradually from the centre.

Tōkyō, Jan. 29, 1894.

4. *Cricetus nigricans* Brdt. in Ost-Bulgarien und Dagestan.

Von Prof. Dr. A. Nehring in Berlin.

eingeg. 15. März 1894.

In einer kürzlich erschienenen Arbeit von V. Vávra: ein Beitrag zur Kenntnis der Süßwasserfauna von Bulgarien (Sitzgsber. d. k. böhm. Ges. d. Wissensch., math.-nat. Cl. 1893) findet sich p. 4 folgende Notiz¹: »Mein Freund, Herr K. Polák in Prag, hat vor kurzer Zeit aus der Umgebung von Schumla in Bulgarien zwei Exemplare von *Cricetus nigricans* Brdt. bekommen, die auf dem großen Steppengebiete der dortigen Gegend Herr F. Milde auf der Jagd erbeutet hatte. Diese Art war bisher nur aus dem Kaukasus und Abchasien bekannt.«

Letztere Bemerkung ist nicht ganz zutreffend, da schon im Jahre 1870 Alfred Newton einen Artikel über das Vorkommen des *Cricetus nigricans* Brdt. in Bulgarien, unter Beigabe einer sehr schönen Abbildung, veröffentlicht hat. Siehe A. Newton, on *Cricetus nigricans* as a European Species, nebst Pl. 26, in P. Z. S. London 1870, p. 331 f. Vgl. meine Abhandlung »über pleistocaene Hamster-Reste aus Mittel- und West-Europa« im Jahrb. d. k. k. geolog. Reichsanstalt in Wien, 1893, 43. Bd., p. 182, wo auch auf das Vorkommen dieser Species in Persien und Kleinasien hingewiesen ist.

Das von Newton beschriebene Exemplar gehört der Universität in Cambridge²; dasselbe wurde am 27. April 1869 in einem Kornfelde

¹ Herr P. Matschie, Assistent am hiesigen Museum für Naturkunde, war so freundlich, mich auf obige Notiz aufmerksam zu machen.

² Genau genommen ist nur der Balg des betreffenden Exemplars nach Cambridge gekommen.

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