XXVII.—*Descriptions and Figures of Deep-Sea Sponges and their Spicules, from the Atlantic Ocean, dredged up on board H.M.S. 'Porcupine,' chiefly in* 1869 (*concluded*). By H. J. Carter, F.R.S. &c.

[Continued from p. 240.]

*Hymeraphia vermiculata*, Bk., var. *erecta*, n. sp. (Pl. XII. fig. 4, and Pl. XV. fig. 26, *a*, *b*.)

General form short, cylindrical, angular, club-shaped, becoming massive, lobed and lobulated, or compressed and expanding flabellately. Colour now yellowish white. Surface hirsute, even, reticulo-pitted, more or less furrowed; dermal structure reticulate. Pores in the sarcode tympanizing the interstices of the dermal reticulation. Vents scattered here and there on the surface. Internal structure consisting of fasciculi branching and subdividing obliquely from a central axis amidst the sarcode, which again is traversed by the branches of the excretory canal-system, that terminate for the most part in the furrows of the surface, which in their natural state are converted into canals by the dermal sarcode. Colour internally the same as that of the surface, or perhaps a little deeper. Spicules of one kind only, viz. skeleton-; no flesh-spicules. Skeleton-spicules of two forms, viz.:—1, very large, long and acuate, smooth, sharp-pointed, slightly curved towards the fixed end, which is the widest part of the spicule, but not inflated, 100- by 3½-1800ths inch (Pl. XV. fig. 26, *a*); 2, subskeleton-, a much smaller spicule, vermiculate, acerate, acuate, or cylindrical and obtuse at the ends, 45- by 1-1800th inch (fig. 26, *b*). The large acuates at their fixed ends are imbedded in a mass of interwoven vermiculates, which thus form fasciculi round them (Pl. XII. fig. 4, *a*, *b*), while their

* *Astacoides*, Guérin, Revue Zool. 1839, p. 109; *Paranephrops*, White, in Gray's Zool. Misc. 1842, p. 78, and Dieffenbach's 'New Zealand,' 1843, ii. p. 267.

pointed ends, projecting externally, give the hirsute appearance to the dermal sarcode, where the points are so arranged in linear network as to present the reticulo-pitted aspect above mentioned. Size of sponge extending from a thin lamina up to 3 inches in height, varying in thickness with the form taken by the sponge.

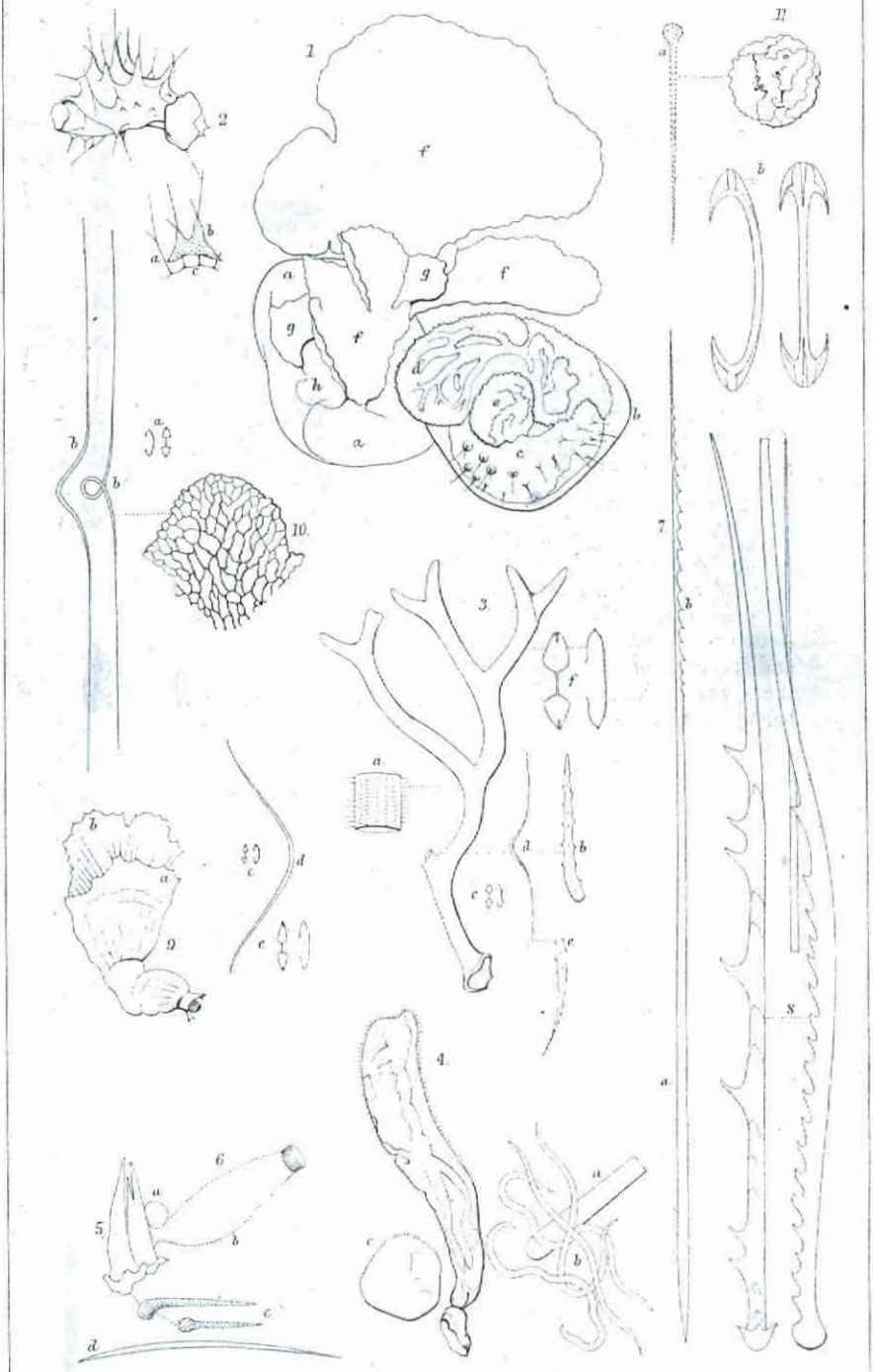
*Hab.* Marine, attached individually to little pebbles.

*Loc.* Atlantic Ocean, between the north of Scotland, the Shetland and the Färöe Islands, in depths varying from 114 to 640 fathoms.

*Obs.* In form this species only differs from *H. vermiculata*, Bk. (which is thin, laminiform, and incrusting, fig. 4, *c*), in being erect or vertical, but in nothing else, further than that the spicules appear to be a little larger and the vermiculates a little less vermicular in *H. erecta*. In structure, both consist of large acuate spicules, whose pointed ends for the most part project externally, and are tied together internally by a mass of the vermiculates; while the less degree of vermiculation of the latter in *H. erecta*, as well as the tendency to a flabellate form, seems to point out a transition of the latter to *Phakellia ventilabrum*, where the interlacing spicules still retain a little vermiculation, until it is lost altogether in *P. infundibuliformis*, where the shape of the acuate remains, but that of the undulating or vermicular spicule has passed into a simply curved acerate, which curve, it should be also remembered, approaches in form to that of a 'bend' in the centre, ending with *Axinella*. Thus we have a group of sponges extending from the lowest form, viz. *Hymeraphia vermiculata*, to *Axinella*, which may hereafter be found serviceable in dividing the group Multiformia of my suborder Axinellida in the order Echinonemata. *Hymeraphia vermiculata* bears a similar relation to *Phakellia ventilabrum* that *Microciona atrosanguinea* does to *Halichondria plumosa*.

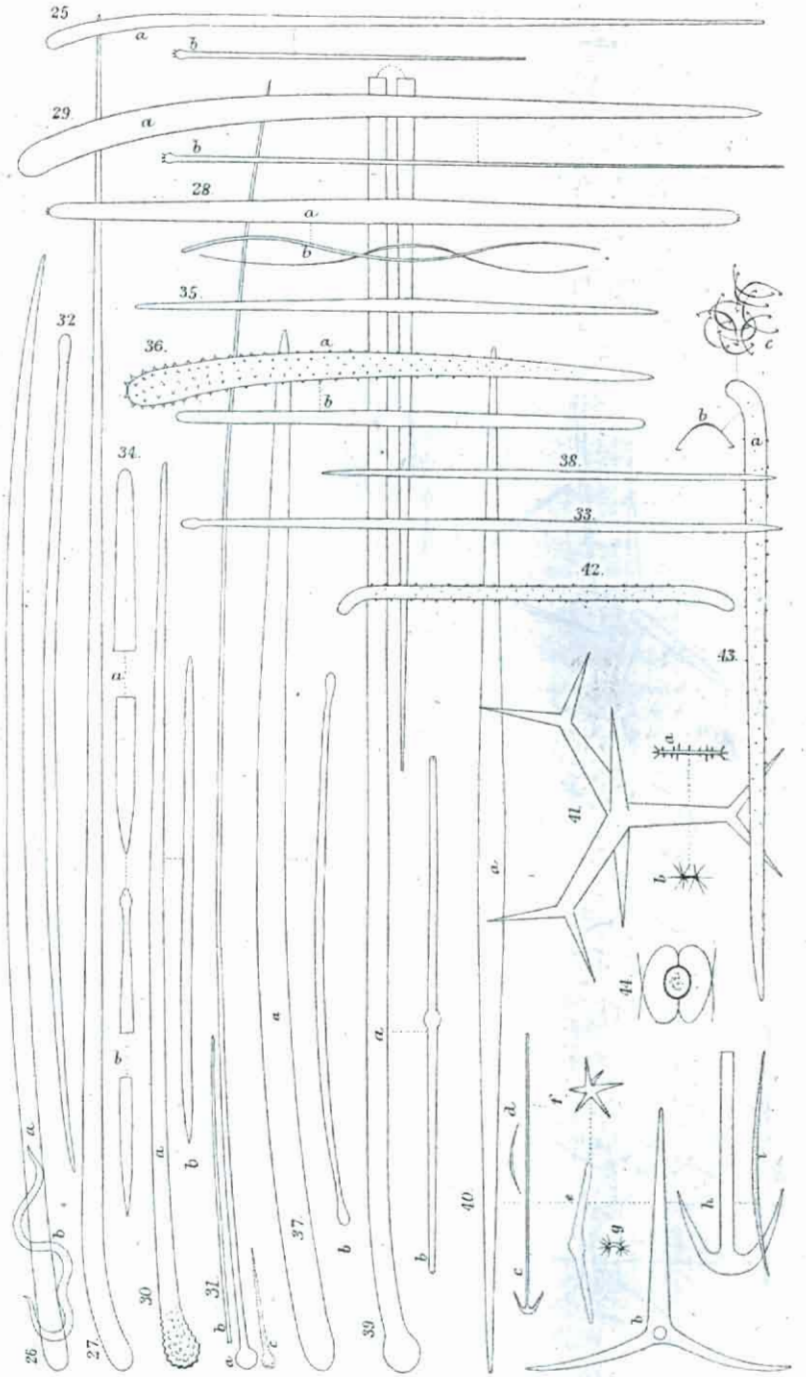
*H. erecta* is present in several jars, especially in No. 65, whose depth is 345 fathoms, about 40 miles N.W. of the Shetland Islands; and *H. vermiculata* is almost always found in company with it. Fragments of *Phakellia ventilabrum* and *P. infundibuliformis* also come from the same localities. At station 51 portions of *Geodia*, *Stelletta*, and *Reniera fibulata*, Sdt., were dredged up with it; and at 65, *Geodia*, *Tisiphonia*, *Donatia lyncurium*, *Trichostemma hemisphæricum*, Sars, *Polymastia brevis*, Bk., and *Phakellia ventilabrum*.

Both *Axinella mastophora*, Sdt., and *Auletta sycinularia*, Sdt. (Atlantisch. Spongienf. pp. 45 and 61, and Taf. iv. figs. 5 and 14 respectively), appear, from the form of their spicules and hirsute surfaces, to be allied to *H. erecta*.




H.I.C. del.

Mintern Bros. lith.

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