

above and on the sides by belts of granules alternately raised and sunken. In the former, the granules are larger and more distinct, and are more or less regularly arranged in four rows, whereof two at tip of arm bear minute, simple hooks, which, however, are soon rubbed off. In the latter, the granules are minute and arranged as a smooth pavement, in which appear many oblong holes or depressions. On its under surface the arm is covered by a cross wrinkled, calcified skin, on which are scattered granules. Disk flat and angular, with re-entering curves in the interbrachial spaces; the radial shields, whose outlines are vaguely defined, are broad, and run nearly or quite to the centre. The upper surface is covered by a smooth pavement of small, soldered grains, among which appear small oblong depressions, and on whose surface are scattered a few large, smooth tubercles. The interbrachial spaces below are covered by a clump of large, coarse grains; at the inner end of each of these spaces is a deep, transverse hollow, at either extremity of which is a short, genital opening. Between the mouth slit and the lower margin of disk there are no tentacle scales; but, beyond, each pore has four, rarely five, stout, smooth, peg-like scales, lying side by side, and nearly as long as an arm joint; nearer tip of arm there are but three. Colour in alcohol, reddish-brown, the disk tubercles and clumps of grains about mouth being darker.

Station 194.—September 29, 1874; lat. $4^{\circ} 33' S.$, long. $129^{\circ} 58' E.$; 200 fathoms; volcanic detritus.

Astroschema.

Astroschema, Örst. & Ltk., Vid. Meddel., 1856.

Disk very small, slightly arched, divided into radiating lobes by the radial shields, and covered by a granulated skin. Large strong teeth in a single vertical row, as among Ophiurans. No mouth papillæ or tooth papillæ. Arms simple, very long and slender, and covered by a granulated skin, which completely hides underlying parts; their under side is almost covered by the side arm plates (Pl. XLIV. fig. 4, *i*), which bear two slightly rough, cylindrical tentacle scales (or arm spines), and are continued upwards by a row of narrow plates (*j*) homologous with upper arm plates, and covering the sides and top of the arm. Under arm plate small and shield shaped (*h*). Two small genital openings in each interbrachial space, slanting or nearly vertical, and placed at the outer corners.

The skeleton of *Astroschema* is marked by compactness and solidity, the mouth frames are especially (fig. 1, *f*) strong, simple, and destitute of wings. At their inner angle is a piece (*v'*) which has been homologised as the first under arm plate. In this case it resembles the peristomial plate which is not represented in the drawing. A small, short jaw (*c*) supports a little plate (*e*), and this carries the large teeth (*d''*). Outside the mouth frames is seen the first free arm bone, solid, simple, and discoid, whose outer and inner faces (figs. 2, 3) show the true hour-glass joint. More strongly made even than the preceding parts are the radial shield (*l*) and genital plate (*o*). To the latter is soldered a rudimentary genital scale (*n*). Above the simple under arm plate (fig. 5, *i*) come the pieces of the