2. *Orthotriæne* and *Calthrops* of the usual characters; actines or cladi frequently rounded off into short rods or tubercles; rhabdome of triæne 0·5 mm. long; cladi 0·464 by 0·045 mm.

II. Microscleres. 3. *Microxea*, straight or curved, sharply pointed, surface roughened; 0·136 by 0·005 mm.

4. *Metaster*, very numerous, of every variety of form, passing into plesiasters of four actines, in which the actines may attain a length of 0·02 mm.; those with a straight or once-curved shaft, and more numerous spines spirally arranged, are about 0·0237 in total length, and the spines are about 0·008 mm. long.

Colour.—Yellowish or greyish-white.

Habitat.—Station 236, June 5, 1875; lat. 34° 58′ N., long. 139° 29′ E.; depth, 775 fathoms; bottom, green mud; bottom temperature, 37°·6. Trawled.

Remarks.—Three small fragments of this sponge, all from the same station, are the only specimens obtained. The largest fragment is 20 mm. broad by 20 mm. wide. Its distinction from *Pœcillastra laminaris* rests not only on the greater thinness of its sponge-wall, but also on the absence both of a marginal fringe of hispid spicules and of spirasters.

The canals cross the wall transversely, those of one side alternating with those of the other; they are comparatively wide, but largely filled up by collenchyme, which crosses them in irregular vela.

The flagellated chambers are about 0·0237 by 0·0316 mm. to 0·0316 by 0·0473 mm. in diameter.

The abnormal forms of the calthrops are very numerous; it may be reduced to tri-, di-, or monactinose forms, the monactine or style frequently becoming spherically enlarged (tylostyle) at the end from which the lost actine has disappeared; the diactinose or rhabdus form is frequently swollen in the middle about the actinal origin; on the other hand, additional actines may be abnormally present; there may be five—four in one plane directed along two rectangular axes and the fifth at right angles to them,—or six, of which five may lie in one plane. These various forms resemble those of the plesiasters in *Thenea*, but while the plesiasters chiefly afford instances of reduction, the modifications of the calthrops are produced by increase as well as decrease in the number of actines. Given a spicule liable to vary, and under the action of the tensions existing in the sponge actines will be suppressed or developed in accordance with the tensions, and thus similar forms may be evolved from different starting points.

The orthotriænes are most abundant at the upper margin of the sponge, where they lie close together, with the cladi tangential to the surface, and the rhabdome descending at right angles to it into the interior, in the manner usual with triæne spicules.