

with very short principals, and comparatively strong and long divergent terminals, which vary in number from two to four, though they are generally three (Pl. LVII. fig. 8). By the extreme shortening of the principals, these terminal rays are often drawn so near to the central node, which is usually thickened in such cases, that the whole spicule appears as a many-rayed star round the central node. Were there not countless transitional forms of hexasters with six distinct principals, leading up to the many-rayed stellate form, there might be real doubt as to the nature of the latter. As it is, however, the stars can be without difficulty traced back to the triaxial type. I observed the isolated occurrence of discohexasters with short principal rays, and with a varying number of long terminals. As figured on Pl. LVII. figs. 9, 10, 11, their resemblance to similar structures in *Acanthascus grossularia* is evident.

As to the dermal skeleton, I have observed some smooth hypodermal oxyptacts of medium size, and numerous smaller dermal pentacts, with straight, rough rays which are conically pointed at their extremities, or else rounded off and even truncated. In the latter form there is an almost constant occurrence of a small boss or elevation representing the undeveloped sixth distal ray. On the other hand, I have never observed any cruciate tetracts. On the inner gastral surface numerous hexacts occur, with straight, rough rays, similar to the above-described dermal pentacts.

The marked resemblance in form, structure, and skeleton between the basal portion of this form, and the corresponding part of *Acanthascus grossularia*, seems to justify the assumption that the upper portions must also have been like one another. We would therefore expect the presence of oblique projecting pleural oxydiacts and a simple oscular margin.

### 3. *Acanthascus cactus*, n. sp. (Pl. LVII. figs. 1-7).

Among the dried specimens of Japanese sponges which Dr. Döderlein brought with him from Enosima, there was a pear-shaped, somewhat laterally compressed, thick-walled form, figured in Pl. LVII. fig. 1. This Hexactinellid resembles a sack or beaker in form, is 9 cm. long by 5 cm. broad, and 4 cm. thick. By its narrower end directly, and also by means of several basal projections, 3 to 4 mm. in diameter, the sponge is attached to a firm substratum. The superior aperture of the simple gastral cavity, which is about 3 cm. in width, is surrounded by a somewhat sharp-edged smooth margin. On the lower end also, between the basal attaching protrusions, there is an irregularly contoured aperture about 8 mm. in diameter, but possibly the result of subsequent damage.

The external surface of the body is beset with conical elevations varying in height up to 8 mm. They are largest in the middle of the sponge, and decrease in height towards the oscular margin. They occur at intervals of 1 to 2 cm., and bear on their