

difficult when they all occur associated in the same sponge, to distinguish in every case one variety from the other.

4. *Amphiaster* (Fig. XII., *t*).—The actines form a whorl at each extremity of the axis, which is straight. The direction of the axis is frequently continued by a single actine at each end.

5. *Sanidaster* ($\sigma\hat{\alpha}\nu\acute{\iota}\varsigma$, $\acute{\iota}\delta\omicron\varsigma$, $\acute{\eta}$, a cross, or rather a plank to which offenders were nailed as to a cross) (Fig. XII., *a*).—A slender rod-like axis bearing spines at intervals along its whole length, those from the sides are directed from it at right angles, those at the ends diverge from it obliquely. The spines may or may not be spirally arranged. This spicule appears to arise as a modification of the euaster, while the amphiaster is more usually a modified spiraster.

Section (*b*) *Euasters*.

In the euasters the actines always proceed from a common centre, about which a concentric deposition of silica may take place, producing a larger or smaller centrum. The prefix "eu" is only used in a general sense, there are so many varieties of this form of aster that the place it would occupy is needed for other more specific prefixes.

1. *Chiaster* (from the Greek letter χ , to which some forms present a fanciful resemblance). A minute aster with very slender cylindrical actines, terminally tylote or not, or truncate (Fig. XII., *y*).¹

2. *Pycnaster*.—A minute aster with short conical strongylate actines. This is always a small aster and might be regarded as a variety of the chiaster (Fig. XII., *λ*).

3. *Oxyaster*.—An aster with a small centrum or none, and conical oxate actines (Fig. XII., *δ*).

4. *Spheraster*.—An aster in which the centrum is large, *i.e.*, with a diameter equal to or exceeding one-third of the length of the actines (Fig. XII., *θ*).

5. *Sterraster* (Fig. XII., π , ρ).—An aster with exceedingly numerous actines which become soldered together by subsequently deposited silica, which extends almost as far as their extremities, forming a kind of centrum. In form the sterraster varies considerably; it may be spherical, ellipsoidal (oblately or prolately) disciform, lozenge-shaped, or lath-shaped with rounded ends. As a rule, to which there are several exceptions, the actines are expanded at their extremities and produced into from four to six recurved spines, which serve for the attachment of fusiform cells (myocytes or inocytes) by which they are united into a continuous layer. Over an oval area on one side a

¹ I at first assigned this name to a small aster with no centrum, and few actines, and those terminally tylote; the whole spicule being not altogether unlike a Greek χ . Subsequently, however, I found this variety passing into another with very numerous actines, and sometimes with an obviously developed centrum, without losing its general character, and, finally, I found it represented by forms in which the terminal tylus, which I had thought characteristic, is absent; thus I have had to extend the application of the term till its original meaning has quite disappeared.