

fellows by fibrillar fusiform cells to form a special layer—the sterrastral layer of the cortex. Considering the large size of the sterraster and the important part it plays in contributing to the skeleton of the sponge the sterraster might claim to be classed among the megascleres.

II. MEGASCLERES.

Two types of skeleton may be distinguished in the Tetractinellida, the radiate and the irregular. The irregular is met with in *Placinastrella copiosa*, F. E. S., the genus *Pacillastra* and its allies, in the Pachastrellidæ, and the Lithistida; but in all cases, triænes, when present, lie near the surface of the sponge orientated as in the radiate type, *i.e.*, with the cladome tangential to the surface and the rhabdome directed radially inwards; this is the nearest approach to regularity found in this group. In the choanosome of the Pachastrellidæ and *Placinastrella* the calthrops are scattered without order, though sometimes the actines tend to lie tangentially to the walls of the canals; in some species of Pachastrellidæ long slender rhabdi are present, and these often run in fibre-like tracts, which near the surface of the sponge are directed at right angles to it; one actine of a calthrops also may frequently be observed directed in parallelism with the rhabdi of such fibres. In *Pacillastra*, groups of oxeas arranged in parallelism and calthrops with one actine parallel to the oxeas form the greater part of the skeleton; the spicule “drift” takes two chief directions, one more or less parallel to the chief direction of growth, lying in a plane parallel to the face of the plate-like sponge and running more or less parallel to its lateral margins, and the other transverse to this, directed at right angles to the face of the wall.

In the Lithistida the general arrangement of the spicules recalls that of the Pachastrellidæ, but the calthrops of the Pachastrellidæ is replaced by its representative, the desma, and by the union of desmas a more or less rigid network results.

The radiate type is that which prevails in the Choristida: it occurs throughout the Tetillidæ and the genus *Thenea*, and in most of the Euastrosa and Sterrastrosa. In young sponges of this type the spicules lie in radial sheaves between the incurrent invaginations of the choanosome; the rhabdomes of the triænes extend from centre to circumference, as do the associated rhabdi, and the cladomes of the triænes extend immediately beneath the external epithelium.

As growth proceeds the spicules increase in length, but not rapidly enough to keep pace with the tracts of tissue in which they lie; fresh spicules therefore make their appearance at the centrifugal ends of those first formed, and thus the spicule sheaf becomes elongated into a spicular fibre; when the fibre remains short compared with the length of the spicules it will still be occasionally referred to a spicule sheaf. In the Tetillidæ the radial sheaves or fibres are in some species crossed more or less transversely by loosely scattered oxeas.

By the projection of the radial spicules beyond the surface of the sponge a general