

4. A plagiotriæne, with a very much reduced rhabdome; this spicule, which has been met with in one species only, is very similar to a calthrops (*Tetilla merguiensis*, Carter).

5. Anatriænes; a somal form of this spicule can sometimes be distinguished from a radical form,—in the latter the cladome is usually grapnel-like, in the former hastate.

6. Reductions of both the protriænes and the anatriænes are far from infrequent, one or two of the cladi being suppressed, thus anadiænes, prodiænes, and monænes result.

Microscleres are usually present, though not always, and sometimes they are of more than one form; if there is but a single form it is invariably a sigmaspire, if more than one, one of them is a sigmaspire. In two species the sigmaspire is spined (*Tetilla japonica*, Lampe, and *Craniella atropurpurea*, Carter); in one it is centrotylote (*Tetilla geniculata*, Marenzeller). The additional forms of microscleres are toxaspises, which occur in *Chrotella macellata* as the special microscleres of the cortex, those of the choanosome remaining as unmodified sigmaspires; microstrongyles of variously curved forms, which occur in *Tetilla stipitata*, Carter, and microxeas, *Tetilla australiensis*, Carter. Minute globules are associated with the sigmaspires in several species both of *Tetilla* and *Craniella*.

The number of different forms of megascleres present in the same species differs greatly; in some, e.g., *Tetilla sandalina*, only oxeas and protriænes may occur, in others nearly all the forms which have been enumerated as occurring within the group. The somal megascleres are more or less closely associated together in bundles or fibres, which generally, if not always, radiate from a spicular centre or so-called nucleus, which is excentrically situated within the Sponge, from this they diverge in a more or less spiral course to the exterior. The cladomes of the triænes do not attain their full growth till they reach or enter the ectosome. In some species of *Tetilla* the interspaces between the radial fibres are crossed by loosely scattered oxeas, not aggregated into fibres.

The cortical megascleres, which are always oxeas, may be loosely and irregularly scattered through the cortex or more or less radially arranged (*Craniella*).

*The Ectosome.*—In the simplest forms, such as *Tetilla sandalina*, there is a total absence of cortex, and the ectosome is a mere investing membrane, the choanosome with its flagellated chambers sometimes extending close up to the outer epithelium. From this stage the gradual evolution of the cortex is traceable in different directions, in *Tetilla leptoderma* and *Tetilla grandis* the ectosome is developed as a thin layer of fibro-vesicular collenchyma; in *Chrotella simplex* this increases in thickness and becomes extensively excavated by intercortical cavities; corresponding with this advance we find a slightly greater development of fusiform cells in the inner layer of what may now be termed the cortex; in *Craniella*, which completes the series in this direction, the inner layer of the cortex is clearly differentiated from the outer, the latter persisting as a collenchymatous tissue excavated by intercortical cavities, the former—converted into a fibrous tissue by the rich development within it of fusiform cells—