

slices fairly thick. I then found that the cladi diverge from the rhabdome at about a right angle, and that the spicule is usually orientated, with the rhabdome radial and the cladi tangential in position with respect to the sponge; so that the spicule appears to be an orthotriæne with a remarkably short rhabdome, situated more deeply within the ectosome than is usually the case with this spicule. Fortunately I observed in several instances, lying close by the side of the fully formed spicule, smaller examples representing it at a very early stage. These are always plagiotriænes in which the relative length of the cladi and rhabdome is normal, *i.e.*, the rhabdome is considerably longer than the cladi, *e.g.*, in one instance, the rhabdome measured 0.065 mm., and the cladi 0.026 mm. in length. These pass into the adult by a general growth, involving both rhabdome and cladi, but the latter increase at a far greater rate than the former; so that in the fully formed spicule they attain a considerably greater length. The young spicules probably arise from a scleroblast budded off by that of the adult, with which they are associated, towards the completion of its growth.

The supposed calthrops which makes such a startling appearance in *Tetilla* is thus nothing more than an interesting modification of an ordinary triæne; and not a persistent tetraxon. In other sponges, such as *Pæcillastra* (*Normania*), in which an apparent calthrops occurs in the choanosome, it is equally possible that it is not derived from a microcalthrops, but from a triæne; and furthermore, as the calthrops of the Pachastrellidæ is almost certainly descended from that of *Pæcillastra*, a triæne origin may likewise possibly be ascribed to it.

In some cases it appeared to me that when oxeas occurred lying tangentially in the ectosome, the young triænes were displaced from their normal position, the rhabdome having a tangential position; if so we have a still further approach to the conditions under which the calthrops occurs in *Pæcillastra*, and further, the apparent short rhabdome of the adult orthotriænes in the *Tetilla* may in some cases be really a cladus turned out of the tangential into the radial position by a rotation of the whole spicule. These cases may, however, possibly be explicable as artificially produced in the process of cutting.

The microscleres, both microxeas and sigmaspires, are scattered generally throughout the sponge.

Tetilla sp.

Sponge small, ovate, free, surface pilose, spicules projecting obliquely from the surface, and chiefly towards the base; ectosome a fibro-vesicular collenchyma about 0.02 to 0.047 mm. thick. Choanosome with a richly-developed collenchymatous mesoderm, which forms a somewhat thick layer about the walls of the chief canals, and is