

present they should diverge from each other at three equal angles, or two at least should be equal, hence the preponderance of regular and sagittal microtriads amongst the triactinose asters; if four actines are present then they should make angles of 90° with each other or be directed as normals to the faces of a tetrahedron, and such we find to be the case; if six are present they might be variously arranged, but we should expect to find them frequently directed along three rectangular axes, as we so generally do. In certain cases, as amongst more or less closely adjacent spherical flagellated chambers, the tensions due to the presence of these spherical surfaces will be so directed as to distinctly favour the calthrope form, and thus in *Placina*, which possesses but little mesoderm, and in which consequently the chambers are crowded together, the calthrope is the prevailing form of microsclere. The Hexactinellids do not fall within the province of this Report and therefore will not be considered. While the asters of the Theneidæ clearly indicate the supersession of the influence of intracellular tensions by those of tissues or of the organism, there are asters in other families of which this cannot be said; thus the minute chiasters of the Stellettidæ, and other minute forms of both the Euastrosa and the Sterrastrosa, are only slightly affected by extracellular tensions, but as these pass into larger varieties the same influences are brought to bear as in the Theneidæ, and large asters with definitely directed actines as in that family result. The aster which attains the largest size of all microscleres is the sterraster; this commences in many of the Geodiidæ as a perfectly spherical sclere, with an infinite number of equal and similar actines of hair-like fineness, obviously developed under the action of radial tensions in a spheroidal scleroblast, which persists and can be observed up to the almost completed growth of the sclere; the circum-nuclear protoplasm is in this case inactive so far as the secretion of silica is concerned, and thus the position of the nucleus is always indicated by a hilum. The uniform growth of the sterraster along an infinite number of radii is to some extent perhaps connected with the abundant mesoderm which characterises the sponges in which it is produced, and to the fact that it completes its growth within the choanosome; but even in this spicule the influence of extracellular tensions is made manifest, for it is only the smaller forms which are almost perfectly spherical, in the larger the sclere is invariably ellipsoidal. Again in one group of the Sterrastrosa, the Erylina, the influence of the extrinsic tensions produces still further changes in the general form of the sclere, the actines in the equatorial plane being immensely overdeveloped compared with those in other directions, and thus a lenticular sterraster is produced; a still further change in form arises by the disproportionate growth of the actines along one of the equatorial axes, by which the lens becomes converted into a somewhat fusiform lozenge, which thus resembles a rhabdus in general form, while it retains the sterrastral structure. That this transformation is connected with lines of stress in the organism is suggested by the fact that the euasters are correspondingly modified, most of them suffering a reduction in the number of the actines, by which