are distinctly indicated by the presence of an angle in the middle of the spicule (fig. 29, 10) ; by straightening out of this angle we reach a monaxonid but diactinellid condition—the diactinellid oxeate, with the organic centre of the spicule in the middle (fig. 29, 11). By rounding off of both ends this form passes into the *strongylote* (fig. 29, 17), then if both ends become enlarged into knobs it is said to be *tylote* (fig. 29, 18). If one end only is rounded off, which apparently usually takes place by suppression of one ray, while the other remains sharp, the spicule is termed *stylote* (fig. 29, 12). It is now monactinellid as well as monaxonid. If the blunt end of the style enlarges to form a knob we have the *tylostyle* (fig. 29, 13). *Acanthoxeates* (fig. 29, 16), *acanthostyles* and *acanthotylostyles* (fig. 29, 14) are formed by the development of spines on the surface of the spicule. The development of large recurved spines at the apex of a tylostyle gives us the *dadotylote* or grapnel spicule (fig. 29, 15), which simulates an anatriaene. By enlargement of the spiny base of an acanthotylostyle and suppression of the shaft we get forms which simulate astrose microscleres and may be called *pseudasters* (fig. 29, 14*a*, 14*b*). Pseudasters may also be developed by shortening up of acanthoxeates, accompanied by enlargement of the spines (e.g. *Spongillinae*, fig. 29, 16*a*). The *exotyle* appears to have been formed by enlargement of the outer end of a radially placed oxeate at the surface of the sponge. By ramification of both ends of a diactinal megasclere we get the *monocrepid desma* (fig. 29, 20), characteristic of certain Lithistids and closely simu­lating the tetracrepid desma. By ramification of one end of a strongylote spicule we may get a *dadostrongyle* (fig. 29, 19).

*Diactinal Series of Microscleres.—*The starting-point of this series is the primitive angulate, diactinal oxeate (fig. 29, 10). This has given rise to long hair-like forms or *rhaphides* (fig. 29, 28), short hair-like forms associated in bundles and called *trichodragmata* (fig. 29, 29), bow-shaped forms or *toxa* (fig. 29, 34), and C- and S-shaped forms or *sigmata* (fig. 29, 30). From the sigmata may be derived the *diancistra* (fig. 29, 33), shaped like pocket-knives with a blade half open at each end, and the wonderful series of *chelae* (fig. 29, 31, 32), in which each end branches into a number of sharply recurved teeth. These chelae are characteristic of the family *Desmacidonidae,* and exhibit great variations in detail, while each particular form is remarkably constant in the species in which it occurs. The most curious and aberrant are those of *Melonanchora* (fig. 30. *D* and *Guitarra.* In *isochelae* the two ends of the spicule are equal, in *anisochelae* they are unequal.

*Astrose or Polyactinal Series of Microscleres.—*For the beginning of this series we must go back to the primitive tetract. Reduction in size, sometimes accompanied by increase in the number of rays, has given rise to the *oxyaster* (fig. 29, 26), with sharp rays and no conspicuous centrum. The development of a distinct centrum from which numerous rays come off gives us the *spheraster* (fig. 29, 22). In the *sterraster* (fig. 26, *g, h),* characteristic of the family *Geodiidae,* numerous slender rays become fused together side by side to form a solid ball. In the *spiraster* (fig. 29, 24) the centrum appears to have become elongated and twisted into a spiral. The ravs of the aster may terminate in knobs as in the *chiaster* (fig. 29, 25), or they may become branched (fig. 29, 27).

*1 Arrangement of the Skeleton in the Tetraxonida,—*The most primi­tive type of skeleton arrangement in this group was probably very similar to that which we still find in *Plakina* or *Dercitopsis,* but without any special dermal spicules, the skeleton consisting exclu­sively of small isolated tetracts irregularly scattered through the mesogloea between the chambers. We may call this the scattered or diffuse type of skeleton. With the development of an ectosome —whether thin dermal membrane or thick cortex—a special dermal skeleton arose. Sometimes this consists of small specially differ­entiated dermal spicules—candelabra in *Plakina,* oxeates in *Dercitopsis*—but a much more important series of modifications was initiated by the development of the triaenes. The cladi of these spicules are commonly extended in or beneath the ectosome and form a very efficient dermal skeleton, while the shafts are directed centripetally through the choanosome. In the genus *Discodermia* the discotnaenes form a continuous dermal armour of siliceous plates. When anatriaenes and protriaenes are developed their cladi commonly project beyond the surface of the sponge and render it more or less strongly hispid, thus forming a protection from the attacks of enemies. The shafts of the triaenes, though greatly reduced in *Discodermia,* usually become very much hypertrophied and may be grouped together in bundles, often associated with oxeate spicules. These spicules, or bundles of spicules, now form the principal part of the skeleton, and inasmuch as they radiate from the interior towards the surface of the sponge we distinguish this as the radiate type of skeleton. The skeleton of the vast majority of Tetraxonida is either actually radiate in structure or derived from the radiate type by further modification. In many Stellettidae, for example (fig. 31), we have a typical radiate skeleton in which a large number of the spicules retain the primitive tetrac- tinellid form, though associated with oxeates, while in *Tethya* the skeleton is arranged in a similar manner but only monaxonid spicules are present. From the radiate we pass to the reticulate type of