

very little value can be given to the character that the septa of the Rugosa are generally of two sizes.

As regards the fourth point, it must be conceded that tabulæ are more characteristic of the Rugosa as a whole than they are of the Astræids, though exceptions occur on both sides; for while there are Rugosa which are destitute of tabulæ, there are also Astræids which possess them. It is moreover a very doubtful point as to what value should be placed on the presence or absence of these structures, considering the high degree of development to which they attain in other and widely distinct Aporose Madreporaria.

As regards the fifth and last point, it must be stated that the absence of a true cœnenchyma in the compound coralla, and the increase by calicular gemmation are as sharply characteristic of some of the most highly developed of the Astræids (as for instance, the forms of the genus *Prionastræa*) as of the Rugosa.

Thus, as the result of the foregoing considerations, there is not a single characteristic of the old group Rugosa which will essentially separate its forms from the more typical Astræids; and a direct expression is given to this fact by placing the families of the old Rugosa (except the family Cyathaxonidæ, which has been placed under the subsection Turbinolida) with the family Astræidæ, under the subsection Astræida.

An extremely interesting comparison of a typical recent Astræid with a Cyathophyllid may be made by selecting specimens of *Prionastræa favosa* (= *Madrepora favosa*, Ell. and Sol.) and the compound form of *Cyathophyllum helianthoides*, Goldf. In the former the calicles are large, being about 30 mm. in diameter, and deep, about 10 to 15 mm; the walls are simple, and excessively thin above, and in transverse section are seen to be very slightly developed and vesiculate; the septa are numerous, often about 48, and subequal, projecting nearly evenly to the centre, where their innermost teeth give rise to a false columella; and the dissepiments are very abundant, oblique and vesiculate. In *Cyathophyllum helianthoides* the foregoing characters are almost identical, but the dissepiments are placed higher, leaving but a small extent of septa free exteriorly, and at the centre give place or give rise to slightly developed tabulæ.

This comparison, indeed, brings to light not only the essential relation between the two types, and the close affinities of the families to which they belong, but points to the most constant difference which will serve to distinguish the Astræidæ and the Cyathophyllidæ, while the generally prevailing hexamerous arrangement of the septa in the former will serve still further to limit them—characters in both cases, it must be confessed, of doubtful value.

The relation of the form *Moseleya latistellata* to the Astræidæ, as exemplified in *Prionastræa favosa*, Ell. and Sol., is equally striking and suggestive. In *Moseleya latistellata* the calicles are as large as or larger than those of *Prionastræa favosa*; the septa are much more numerous, markedly of unequal sizes, often continuous from calicle to calicle, and give no indication of hexamerous arrangement, while in a simple young form,