

The family *Castanellida* represents a common and widely distributed group of *PHÆODARIA*, which possess a very simple and uniform shell, viz., a simple lattice-sphere with radial spines and one simple mouth. It may therefore be easily confounded with the *Coscinommida*, or those *Sphæroidea* in which the shell is also a simple lattice-sphere armed with radial spines (*Astrosphærida simplicia*, p. 209). Indeed the shell of both groups is very similar, and differs in one important point only; the *Castanellida* constantly possess one larger opening in the shell-wall, the shell-mouth, which is either smooth or armed with a corona of teeth; in the *Coscinommida*, however, such a mouth is never present. The living specimens of both groups, and those shells in which the soft body is preserved, are very easily distinguished, since the shell encloses in the *Coscinommida* the central capsule and the transparent calymma only, whilst the latter, besides, in the *Castanellida* contains a voluminous dark brown or green mass of phæodella, the characteristic phæodium. A closer examination of the central capsule reveals in all *Castanellida* the typical operculum, the astropyle, with the proboscis of the *PHÆODARIA*, which is never present in any *Sphæroidea*.

The *Castanellida* are easily distinguished also from those similar *PHÆODARIA* in which the shell is also a lattice-sphere; the lattice-work is constantly quite simple, as in the similar *Coscinommida*, never composed of separated tangential pieces (as in the *Aulosphærida*), or of porcellanous structure, with basal circles of pores (as in the *Circoporida*), or of diatomaceous structure (as in the *Challengerida*). The gigantic *Orosphærida*, which also in part possess a simple lattice-sphere, differ from the *Castanellida* in the absence of the peculiar shell-mouth.

Though the *Castanellida* belong to the most common *PHÆODARIA*, and though the number of individuals, floating on the surface of the tropical seas, is extraordinarily great, their variety of forms is very small; the six genera distinguished in the following system differ only in very slight characters, and the majority of the species are very similar, and often hardly distinguishable. The seven species figured in Pl. 113 exhibit the most striking differences which I could distinguish among all the species observed. The shell usually has the characteristic appearance of a chestnut, a sphere covered with very numerous short radial spines or bristles. In the majority of species a certain number of longer thin radial spines is scattered over the surface; these are usually simple, rarely branched. The mouth of the shell, corresponding to the proboscis of the central capsule, and placed in the same radius, is either a quite simple larger opening with a smooth margin (figs. 3, 5, 7) or is armed with a corona of teeth (figs. 1, 6).

The size of the shell varies between 0·2 and 0·8 mm., and is usually between 0·3 and 0·5 mm. Its form is in the majority of species a geometrical sphere; rarely it is somewhat irregular, slightly ellipsoidal (prolonged in the axis of the mouth and proboscis), or polyhedral (by conical protuberances from the bases of the radial spines).