

As I have already said, the most remarkable new forms are referable to the group which seems to be, in a sense special to deep water, the Hexactinellidæ. I have already (p. 70) briefly described one of the most abundant and singular forms belonging to this order, *Holtenia carpenteri*; and all the others, though running through most remarkable variations in form and general appearance, agree with *Holtenia* in essential structure. In the Hexactinellidæ all the spicules, so far as we know, are formed on the hexaradiate plan; that is to say, there is a primary axis, which may be long or short, and at one point four secondary rays cross this central shaft at right angles. Very often one-half of the central shaft is absent or is represented by a slight rounded boss, and in that case we have a spicule with a cross-shaped head, a very favourite form in the manufacture, defence, and ornament of the surface layer of these sponges; and often the secondary rays are undeveloped: but if that be so,—as in the long fibres of the whisp of *Hyalonema*,—in young spicules and in others which are slightly abnormal, four little elevations near the middle of the spicule, which contain four secondary branches of the central canal, maintain the permanence of the type. In many of the Hexactinellidæ the spicules are all distinct, and combined, as in *Holtenia*, by a small quantity of nearly transparent sarcodæ; but in others, as in ‘Venus’s flower-basket,’ and the nearly equally beautiful genera *Iphiteon*, *Aphrocallistes*, and *Farrea*, the spicules run together and make a continuous silicious network. When this is the case the sponge may be boiled in nitric acid, and all the organic matter and