

foramina for the emission of pseudopodia, and often provided with spine-like projections. The *Polycystina* are best known as occurring in the so-called "Infusorial Earth" of Barbadoes. This is a Tertiary deposit, and consists largely of the shells of *Polycystina*. They have not as yet been detected in any Palæozoic formation, but they are known to occur in the Mesozoic series.

III.—SPONGIDA.

The Sponges may be defined as *Rhizopoda* composed of numerous amœbiform masses of sarcode united into a composite mass, which is traversed by canals opening on the surface, and is almost always supported by an internal skeleton or framework of horny fibres or of calcareous or siliceous spicula.

The only portion of the Sponges with which the palæontologist is concerned, is the skeleton. Whatever the nature of this skeleton may be, it is so arranged that its parts surround two sets of apertures which open on the surface of the sponge, and which are connected with one another by a system of canals ramifying in its deeper portions. Of the apertures which penetrate the substance of the sponge in every direction, one set consists of large chimney-like openings, which are called "oscula," or "exhalant apertures." There may be only a single osculum, or many may be present. The other set consists of very much smaller openings, which are always very numerous, and which are termed the "pores," or "inhalant apertures." The pores and oscula are connected by a system of canals excavated in the substance of the sponge, and a constant circulation of water can be kept up through the whole mass, the former serving for the incoming currents, the latter for the outgoing.

The Sponges are divided into three groups according to the nature of the skeleton: 1. *Keratosa*, comprising the ordinary sponges of commerce, in which the skeleton is composed of a horny substance called "keratode;" 2. *Calcareæ*, or *Calci-spongiæ*, in which the skeleton is composed of carbonate of lime; and 3. *Siliceæ*, or *Vitrea*, in which the skeleton is composed of flint or silex.

The Horny Sponges, from the nature of their skeleton, are not certainly known as fossils; but traces of their past existence are said to have been obtained in the form of the spicules with which the horny skeleton is sometimes furnished. The Calcareous and Siliceous Sponges are both well represented in a fossil condition, though the true nature of some of the more