

concave on the upper, side, the peripheral margin being curved somewhat upwards. The convex basal (inferior) face as well as the concave free (superior) face are two parallel thin white plates, composed of small *Globigerina* shells cemented together by a scarce maltha. The medullar or intermediate plate enclosed between these two parallel dermal or cortical plates is somewhat thicker than these, but much softer; it is composed of numerous small shells and fragments of *Globigerina* imbedded in a clear maltha, and of a very remarkable canal-system. The structure of this latter became evident, after having dissolved the calcareous mass of the pseudo-skeleton by hydrochloric acid. Then appeared a flat saccular or pouch-shaped central cavity, divided into irregular chambers by mesodermal septa (figs. 1C, 1D, *g*). From the upper face of this central sac arise numerous lobate diverticles, which are beset with groups of flagello-chambers (*k*). These open by small pores into inhalent canals (*i*), which descend vertically from the upper face. From the periphery of the sac arise numerous excurrent canals, which open into a few peripheral exhalent main canals, and these open free on the peripheral elevated margin by oscula (*o*). About ten or twelve such peripheral oscula could be recognised as larger openings, probably prolonged in the living sponge into prominent oscular tubes or chimneys.

The circulation of the water in *Psammia plakina* is evidently the same as in the similar *Plakina monolopha*, the water entering by the inhalent pores of the concave upper face of the disc, issuing by the exhalent oscula of the margin. Very remarkable is the large simple gastral cavity, or the paragaster (fig. 1C, *g*). This is divided in the following species into numerous chambers, probably due to the development of the symbiotic Spongoxenia (absent in *Psammia plakina*).

In the middle portion of the discoidal body, in that portion of the mesodermal maltha surrounding the basal flagello-chambers, are visible single scattered eggs, some of which are in segmentation (Pl. VII. figs. 1C, 1D, *e*). Although badly preserved, the egg-cells and their large clear nuclei were distinct. Their disposition is also similar to that in *Plakina monolopha*.

*Psammia globigerina*, n. sp. (Pl. VII. figs. 2A–2D).

*Habitat*.—Tropical Pacific, Station 220; March 11, 1875; lat. 0° 42' S., long. 147° 0' E.; depth, 1100 fathoms; bottom, *Globigerina* ooze.

Sponge discoidal, subcircular, composed of two parallel hard cortical plates and a soft medullar substance between them, the former being composed almost entirely of *Globigerina* shells, the latter of maltha, with the canal-system and a network of symbiotic Spongoxenæ. Exhalent oscula on the peripheral margin. Gastral cavity chambered.