

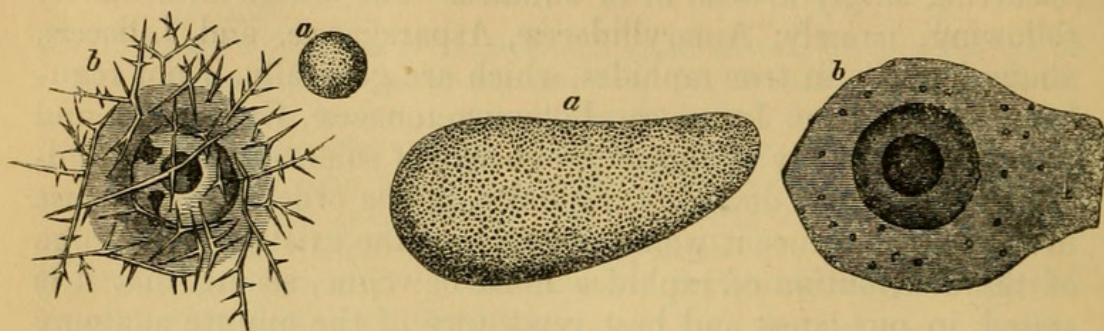
VI.—On two Oceanic Species of Protozoans related to the Sponges. By JAMES D. DANA*.

THE *Sphærozoum* figured below (fig. 1 *a*) was collected by the writer in the Pacific, near latitude 30° N. and longitude 178° W., during a calm, on the 26th of May, 1841.

Fig. 1 *a* represents the gelatinous globule of natural size. The ocean's waters were filled with this species and another represented in fig. 2 *a*. The minute dots covering the globule, one of which is magnified in fig. 1 *b*, were closely crowded, as shown in fig. 1 *a*. In this respect the species differs widely

Fig. 1.

Fig. 2.



from the figure of a species by T. H. Huxley in the 'Annals and Magazine of Natural History,' viii. 433, pl. 16; and as it hence appears to be distinct, the writer has named it *Sphærozoum orientale*. About the dots, or ocelliform spots (zooids), the spicules (supposed to be siliceous) were very numerous and much branched, as in fig. 1 *b*. The general mass had an exceedingly faint bluish tinge; the centre circle of the ocelliform spots was of the same tint, while the ring around was of a very faint ochreous shade. The globules represented on the ocelliform spots in fig. 1 *b* were yellow.

The other species (fig. 2 *a*) had the same general colour, and similar ocelliform spots as to form, colour, and numbers, without the spicules. Figure 2 *b* represents one of the ocelliform spots; the dots in the surrounding mass correspond to minute yellow globules or cells. This species is included with the *Sphærozoum* under the genus *Thalassicolla* of Huxley. This name has been since restricted to Huxley's *T. nucleata*, and the name *Collo-sphæra* applied to forms much like fig. 2, by Müller. The mass was less firm to the touch than that of the preceding. A fuller examination of this and the related species is required to decide whether the one here figured is new or not.

Both of the species had the power of motion by a movement like expansion and contraction, and also the power of sinking and rising at will in the water. No external opening could be distinguished.

* From the American Journal of Science and Arts, May 1863.

As the species are probably related to the Sponges, as suggested by Huxley, they have considerable interest, and especially the *Sphærozoa*, which, like most Sponges, seem to have the power of secreting silica. The extent to which the ocean, over an area of many square leagues, was crowded with them, suggests that such floating Sponges may have been, in past time, of geological importance as one of the sources of silica for the flint or hornstone and siliceous petrifications of ancient limestones and other rocks.

These species received from the author but a partial study, as those of another class (oceanic Crustaceans) were engaging his attention at the time. The above figures and descriptions are from coloured drawings made on the spot, and from the notes accompanying them.

VII.—On the Animals of *Raphaulus*, *Spiraculum*, and other tube-bearing Cyclostomacea. By WILLIAM T. BLANFORD, A.R.S.M., F.G.S.

No one can have examined carefully a collection of the operculated land-shells of India and South-eastern Asia without remarking the peculiar shelly processes of the peristome or suture which characterize several of the genera. Two principal forms of these processes may be distinguished, viz. (1) sutural tubes, either open at both ends or closed at one extremity, as in the genera *Raphaulus*, *Spiraculum*, *Opisthoporus*, *Alycaeus*, &c.; or, (2) incisions in the peristome—simple, as in *Pupina*, *Registoma*, &c., or accompanied by expansions of the outer lip, as in *Pterocyclos* and *Rhiostoma*. So far as I am aware, no soft parts have hitherto been observed, in the animals of any of the above genera, corresponding to the peculiarities of their shelly coverings. During the past two or three years, I have examined carefully the animals of species belonging to the majority of the above-named forms; and in two instances I have ascertained the existence of an organization to which the processes of the shell are adapted, these two cases being in the genera *Raphaulus* and *Spiraculum*, which, although by no means nearly allied, agree in possessing a sutural tube opening both internally and externally.

By the kindness of Baron F. v. Richthofen, I had, some time since, an opportunity of examining the animals of several specimens of the rare *Raphaulus chrysalis*, Pfr., from Moulmein in Burma. The sutural tube in this species opens internally, a short distance from the peristome, by a small longitudinal slit, and then passes outside the suture to the aperture, where it is deflected upwards, and runs vertically for 2 or 3 millimetres on



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