

Astrorhiza limicola, Sandahl (Pl. XIX. figs. 1-4).

Astrorhiza limicola, Sandahl, 1857, Ofvers. af Kongl. Vetenskaps-Akad. Förhandl., vol. xiv. p. 299, pl. iii. figs. 5, 6.

Astrodiscus arenaceus, Schulze, 1874, II. Jahresberichte d. Kom. Untersuch. d. deutsch. Meere, p. 113, pl. ii. fig. 10, a.-e.

Haeckelina gigantea, Bessels, 1874, Jenaische Zeitschr., vol. ix. p. 265, pl. xiv.

Astrorhiza limicola, Norman, 1876, Proc. Roy. Soc., vol. xxv. p. 213.

„ „ Brady, 1879, Quart. Journ. Micr. Sci., vol. xix. N. S., p. 43.

Test compressed, irregularly stellate; consisting of a central disk, with peripheral tubular arms, radiating in one plane. Arms 8 to 15 in number, irregular in form, slender; very variable in length, sometimes longer than the diameter of the disk; often divided at the end into a number of little tubular branches. Walls thick, composed of indiscriminate mud with more or less distinct chitinous lining; exterior rough, internal surface smooth. Colour greyish-brown, sometimes marked with yellowish-brown spots. Diameter of the disk about $\frac{1}{3}$ th inch (5 mm.); the entire test, including the rays, often measuring $\frac{1}{2}$ inch (12 or 13 mm.) or more.

There can be no doubt as to the particular organism for which the name *Astrorhiza limicola* was intended by Dr. Sandahl; the figures of the test, as well as the terms of the description, accord accurately with the form familiar to naturalists who have dredged in shallow water on our own coast, or elsewhere in northern temperate latitudes.

The most characteristic feature of the species is the peculiar structure of the investment. It is not sandy, like that of the deep-sea varieties with which it has been frequently confounded, but the exterior is composed of mud, taken apparently without any selection from the miry bottom on which the animal lives. Within this layer of mud, which though tolerably firm is not incorporated by any inorganic cement, is a sort of chitinous envelope which lines the whole test and imparts a smooth surface to the interior. The muddy coating of the arms is thinner than that of the body of the test, and the small tubular processes into which the extremities are divided have so little extraneous covering that they shrivel and crumble away on being taken out of fluid, and are seldom seen in dried specimens.

The proportionate dimensions of the disk and the rays vary considerably. In Sandahl's drawing the disk is of about the same diameter as in the specimen represented in fig. 1, but the length of the rays is only about one-fourth the diameter of the disk. They are relatively broad, the ends are round and open, and long granular pseudopodia are shown issuing directly from them.

Dr. Bessels, who has studied living specimens obtained upon the coast of the New England States of North America, gives a drawing (*loc. cit.*) of a specimen of very similar proportions to fig. 1, but the disposition of the rays is rather more regular, and some of them have divided ends. The same author has also an interesting figure of a