slender spicules of various kinds, large reticulated as well as more exquisite minute Radiolarians, but with hardly a trace of a sponge-spicule.

The specimen is accompanied by a light greyish and somewhat friable tube composed of a hyaline, brittle chitinous basis coated with debris of Diatoms, Radiolarians, and other constituents of the ooze. The most striking difference between the tube and the foregoing food is the presence of larger and more complete Radiolarians, and fragments of minute masonry apparently pertaining to arenaceous Foraminifera.

Externally the body-wall has a somewhat thin coating of hypoderm under the cuticle, the only region in which the thickness is marked being the ventral median line. This increase in the depth of the hypoderm extends across the gap between the longitudinal muscles, and indeed over the inner angle of each of the latter. The circular muscular coat is well developed, and forms as a rule a firm belt inside the nerve-area, but at intervals (Pl. XXXVIIIA. fig. 1) the area is bounded externally by the main bulk of the fibres of this coat, while laterally an accession of fibres from the oblique partly encloses it. This change in the relations of the cords to the circular coat is noteworthy. The longitudinal ventral muscles are pointed internally, and show a short inner and a long outer division.

Pista mirabilis, n. sp. (Pl. LI. figs. 1, 2; Pl. XXVIIA. fig. 34; Pl. XXXVIIIA. fig. 2).

Habitat.—Procured at Station 320 (off the mouth of the Rio de la Plata), February 14, 1876; lat. 37° 17′ S., long. 53° 52′ W.; depth, 600 fathoms; bottom temperature 37°·2, surface temperature 67°·5; sea-bottom, green sand.

A species inhabiting remarkable leathery tubes. Its length is about 58 mm., and its diameter anteriorly is rather more than 2 mm.

On removal from the tube the body presents a dull flesh colour or pale madder-brown hue, and the greatly developed cephalic tentacles are of the same tint. On comparing the anterior region with that in *Pista cristata* certain differences are apparent; thus the foliaceous lamella of the third segment, instead of forming an elongated process stretching from the base of the second branchia nearly to the ventral scute, and regularly diminishing from above downward as in *Pista cristata*, forms a prominent tongue-shaped process behind the single branchial column, and directed forward. Moreover, this process runs into the fold immediately in front of the first hook-row, a narrow ridge devoid of the lamella, observed in *Pista cristata*, intervening between it and the great suboral plait. The single pair of branchiæ, which are inserted in front of the tongue-shaped lamella, would appear to correspond with the first pair in the British form, and therefore belong to the second segment. The pedicle of the branchia is long, stout, and transversely corrugated, and the terminal tuft of branches is comparatively small. No tendency to a