

folds attached to the muscular bands, this thin lamina is loose and hangs in bags or depressions.

“In the bottom of each of these depressions is a slight three-cornered elevation (Pl. X. fig. 2), at the tip of which a perforation or aperture may possibly be present; but in the specimen examined such could not be made out. At the tip of each small elevation were seen only three minute closely apposed villous folds of the membrane, between which no aperture could be detected. The central horizontal opaque white membrane is merely a thickened part of the general membrane, which is spread over the muscular meshwork, and reaches to the tips of the large conical processes. It is probably respiratory in function, and represents a gill.

“The membrane was observed to be attached to the inner surface of the test-wall at the intervals between the conical processes; but the specimen was too much injured to allow of the investigation of the extent and manner of its attachment within the conical processes. It appeared to be attached laterally on either side to the inner walls of these processes, and is probably reflected so as to line their cavities. No normal perforated gill could be discovered in any part of this membrane; but probably the central thickened portion has a respiratory function, and possibly the eight small elevations may prove to be openings. No reflection of the membrane over the inner surfaces of the upper and lower walls of the test was observed.

“The membrane was composed of an irregular mesh of fibrous tissue with numerous rounded gland-like cells, and numerous nerves proceeding to the radial muscular bands.

“The mouth lies in the anterior part of the thickened portion of the membrane above described, and at a short distance behind the inhalent aperture. Behind it is the endostyle. The mouth is a simple oval aperture, encircled by a few sphincter muscular threads. It leads directly into the digestive tract, which is embedded in a compact nucleiform mass, which is seen conspicuously through the transparent test on viewing the animal from beneath. The nucleus lies entirely beneath the horizontal membrane, which is attached round the margin of the mouth. The exact arrangement of the viscera inside the nucleus was not determined. A short tubular rectum projects from the anterior and inferior extremity of the nucleus.

“Posteriorly to this, on the inferior surface, is a well-developed ovary, and behind this, again, the testis. The ovary is a racemose gland, whilst the testis is composed of short cæcal tubes. In minute structure these organs agree closely with the testis and ovaries of other Ascidians.

“Between the mouth and rectum, in the middle line, lies the heart-shaped nerve ganglion, immediately beneath which is a spherical body, which had the appearance of a thin-walled sac full of a milky fluid. The wall of this sac is composed of a layer of cells of rectangular outline, from the inner surface of which fine hair-like processes