spicules, and their apical ray, the free end of which only exceptionally projects from the inner surface, piercing the parenchyma in a centripetal direction.

Gastric quadriradiate spicules.—All more or less regular; facial rays straight, smooth, tapering from the base to approximately sharp points, 0·06 mm. long, diameter varying from 0·006 mm. to 0·008 mm.; apical ray either straight or curved, often irregularly bent, sharply pointed; length inconstant, reaching 0·08 mm.

Minute quadriradiate and triradiate spicules of the parenchyma.—Quadriradiate just of the same form and dimensions as those of the gastric surface, not numerous; triradiate still smaller, their rays rarely exceeding 0·025 mm. in length, and 0·002 mm. in diameter; some of them are regular, their straight and smooth rays tapering from the base to sharp points; but such regular triradiate forms are extremely rare; most present only two rays, forming an angle varying from 120° to 160°, the basal ray having become rudimentary, and being represented only by a small process at the crossing of the lateral rays.

Quadriradiate spicules of the parenchyma and cortex.—Both of the same form and the same very inconstant dimensions, the length of their rays varying from 0·3 mm. to 1 mm., and even more. Regular; rays smooth, tapering from the base to sharp points, usually ten times as long as thick.

Dermal triradiate spicules.—Like the quadriradiate just described, regular, but more inconstant with respect to the proportion of the length of their rays to their thickness; this proportion varies from 10:1 to 16:1. Rays smooth, of conical or cylindrical form, bluntly pointed; average length, 0·6 mm.

Colour.—Yellowish.

Habitat.—Station 163 A, June 3, 1874; off Port Jackson, Australia; depth, 30 to 35 fathoms; rock.

Leucetta vera, n. sp. (Pl. VIII. figs. 7–10).

The specimen representing this species in the Challenger collection is of tubular form, about 40 mm. long and 7 mm. broad in its superior half, the inferior half presenting a kind of peduncle 3 mm. in diameter; the peduncle does not, however, differ anatomically from the superior part of the animal. The osculum is surrounded by a low collar; the outer surface is smooth, the inner slightly roughened by the apical rays of the gastric quadriradiate spicules. The thickness of the wall differs in different parts of the body, varying from 1 to 2·6 mm.; that of the cortex is more constant (0·4 mm. to 0·5 mm.). The structure of the canal system is very peculiar, the differences in the size and form of the flagellated chambers being in no other case so striking as here. In the peduncle and in the gastric half of the superior part of the body the flagellated chambers are, although very variable in size, at least all more or less regularly round. On the contrary, near the cortex they are elongated, cylindrical, very similar to the radial tubes of the Syconidæ, and, following their course, the inhalent canals become elongated and tubular also (fig. 7). The exhalent canals—occasionally also the inhalent—are in their turn characterised by