Gastric quadriradiate spicules.—Regular, facial rays straight, smooth, tapering from the base to approximately sharp points, their average length being 0·15 mm., and their diameter 0·01–0·013 mm.; apical ray of the same diameter, sharp-pointed, either straight or curved, often irregularly bent; sometimes very short, rudimentary, usually 0·2–0·25 mm. long.

Triradiate spicules of the parenchyma.—The greater part of these consists of spicules not differing from the quadriradiate ones just described, except in the absence of the fourth ray; amongst them are scattered here and there much larger triradiate spicules, which differ from them only in size. The rays of these larger triradiate forms sometimes exceed 1 mm. in length, the proportion between the length and thickness varying from 10:1 to 12:1; they are connected with the smaller triradiate variety by intermediate stages.

Dermal and subdermal triradiate spicules.—In the variety *homoraphis* these do not differ, either in their size or in their form, from the smaller triradiate ones of the parenchyma; in the variety *heteroraphis* they remain of the same size, but become sagittal and irregular. Their typical modifications are represented on Pl. VII. fig. 8. They form in this variety also the skeleton of the collar; the fragment of the var. *homoraphis* I possess has its oscular part broken off.

Colour.—Greyish.

Habitat.—Station 135, October 1873; Island of Tristan da Cunha; depth, 60 fathoms; rock, shells.

Leucetta, Hæckel.

Leuconidæ, the skeleton of whose strongly developed cortex is quite different from that of the parenchyma.

Leucetta imperfecta, n. sp. (Pl. VII. figs. 9*a*–9*e*).

This species, like the following, *Leucetta vera*, is represented in the Challenger collection by a single specimen, which is bare-mouthed, of tubular, elongated, cylindrical form, 35 mm. long and 5 mm. in diameter, the thickness of the wall being 1·25 mm., that of the cortex 0·35 mm. Both the surfaces are rather rough. The characteristic peculiarities of the species consist in the form of its pigmy triradiate, and in the presence in the parenchyma of large quadriradiate spicules, not differing either in size or in form from those of the cortex; these last are not numerous, but they are there, and most of them having just the same disposition as the large subgastric quadriradiate spicules in *Leucilla amphora*, H. (Kalkschwämme, iii. pl. xxiv. fig. 8), the species may be regarded as a connecting link between the genera *Leucetta* and *Leucilla*.

Skeleton.—The skeleton consists of minute gastric quadriradiate, of minute triradiate and quadriradiate and of large quadriradiate spicules of the parenchyma; of cortical triradiate spicules lying in several layers parallel to the outer surface, and of cortical quadriradiate spicules, their facial rays lying in the cortex parallel to the cortical triradiate