Leuconia rudifera, n. sp. (Pl. VII. figs. 3*a*-3*c*).

There are in the Challenger collection only some fragments of this interesting species; they seem to belong to two specimens: in one case the walls are 5 mm. thick, in the other not above 3 mm. One fragment bears an osculum fringed with fine linear acerate spicules. Both the surfaces are rough. With regard to its spiculation, the species is intimately allied to *Leuconia typica*, but is distinguished from it, as well as from all other Leuconidæ, by its remarkable minute verticillate acerate spicules (Pl. VII. fig. 3‴).

Skeleton.—The skeleton consists of gastric verticillate acerate, of gastric quadriradiate, of parenchymal triradiate, of dermal triradiate, and of acerate spicules of three different kinds.

Gastric quadriradiate spicules (occasionally to be found also in the walls of the larger exhalent canals).—All rays of the same diameter (0·015 mm.); basal ray usually undulating, rarely longer than 0·2 mm., like lateral rays sometimes sharply, sometimes bluntly pointed; lateral rays either straight or slightly curved, each forming with basal ray an angle varying from 100° to 105°, length not exceeding 0·36 mm.; apical ray curved, tapering from the base to a sharp point, not longer than 0·1 mm., not seldom rather thinner than facial rays.

Verticillate acerate spicules.—I call these spicules acerate, for the transitional stages between them and the common spindle-shaped acerate form can be easily found; these intermediate stages are to be seen on Pl. VII. figs. 3*a*–3*a*‴, and it is evident that the three larger teeth on the free end of these spicules are homologous with the smaller teeth on their middle part. Cylindrical in their free half, which projects from the inner surface, these acerate spicules seem to be flat in their more extended half, situated in the parenchyma; they reach 0·064 mm. in length, and 0·0008 mm. and 0·0014 mm. in diameter.

Triradiate spicules of the parenchyma.—Very inconstant in their outlines, either regular, or sagittal, or irregular. The typical fundamental form can be characterised as follows:—regular; rays tapering from the base to sharp points, 0·35 mm. in length, with a diameter of 0·034 mm. Such triradiate spicules are really to be found, but usually they undergo more or less considerable modifications, either in the direction of a sagittal differentiation, the basal ray growing rather longer than the lateral, and its angles varying from 120° to 110°, or in the direction of an irregular differentiation, all the rays or all the angles growing more or less unequal. In most cases the rays are sharp-pointed.

Dermal triradiate spicules.—All rays of the same diameter, the proportion between their length and thickness varying from 17:1 to 23:1; basal ray straight, tapering from the base to an approximately sharp point, forming with each lateral ray an angle of about 115°, length not exceeding 0·35 mm.; lateral rays curved, often undulating, usually of the length of basal ray, sometimes rather shorter or longer. In two cases I could discern in the dermal triradiate spicules an incipient apical ray.