

hitherto almost unknown, and in the present instance demanded special attention, those specimens which had been hardened in absolute alcohol proved specially favourable; also those portions which had been preserved in a relatively large volume of spirit of the usual strength had to some extent retained their original structure, better when voluminous or very compact than when thin and loose in structure.

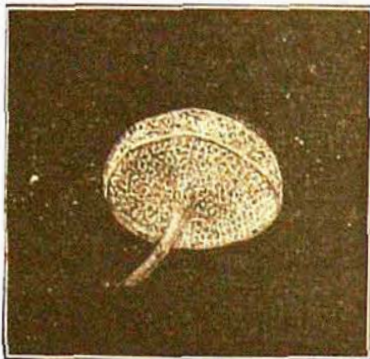


FIG. 159.—*Cautophacus elegans*, n. gen. et sp., a representative of the Asconematidae.

penetrated into the body of another. But in those cases in which several individuals had been preserved in the same vessel it was afterwards found that the microscopic siliceous

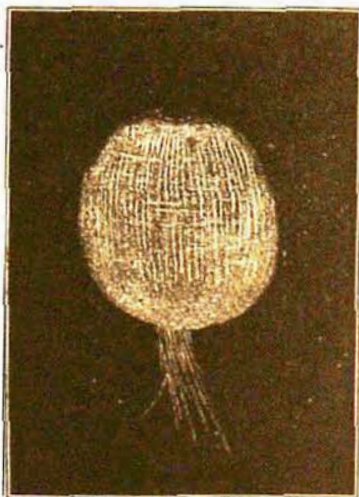


FIG. 160.—*Hyalonema elegans*, n. sp., a representative of the Hyalonematidae.

spicules, which are so important for diagnostic purposes, had, in consequence of their lying loosely scattered in the soft parts, become separated from one sponge and embedded in another lying either beside or beneath it. Obviously such intruding strangers, which may be only too easily mistaken for natives, materially increase the difficulty of fixing the character of the species or the determination of a solitary portion, especially when new and hitherto unknown forms are being treated of, whose characteristic spicules must be determined for the first time. It is true this danger of error is materially diminished by comparative examination of the various portions of the same sponge, or better still of several specimens of the same species if they are to be had, but even then there remain quite a sufficient number of instances in which a certain conclusion can be drawn only by the preparation of numerous fine sections, in which the disposition of the spicules in question will decide whether they are really in their normal situation.

“The investigation began by a careful separation and arrangement of all the specimens; these were then placed according to the order of the dredging stations, and then one by one, thoroughly studied both with respect to their coarser as well as to their microscopic structure. The numerous preparations, drawings, and notes which were accumulated by this last difficult and tedious task form the foundation of the whole work. It was desirable not only to establish the characters of the various species, but, as far as possible, to discover the general plan of organisation of this curious and little known group of animals. Only by the application of various oftentimes very complicated