

“As one of the most important results of the carrying out of these detailed investigations, the fact has been established that the Hexactinellida, which were first clearly marked off and characterised by Oscar Schmidt in 1870, form a division of the siliceous sponges, definitely bounded on all sides, whose members are intimately united by a common plan of structure. The subclass Hexactinellida is, however, principally characterised by the triaxial or six-rayed type, which underlies the forms of its spicules, and also by the close agreement of the organisation of its soft parts. In no single instance was I ever in doubt whether I had before me a Hexactinellid or not: for even when many isolated spicules and the several parts of a connected trabecular skeleton did not show the typical Hexactinellid structure without further investigation, yet on careful examination this could be demonstrated, and spicules were found showing either the usual six-rayed form or an easily recognisable derivative from it. As Oscar Schmidt was the first to point out, the determination of the axial-relations of the central canal is of special importance; by means of studying it in every connected trabecular skeleton the individual six-rayed spicules, already partially united, are always easily recognised; even in the case of many highly modified isolated needles, the central canal gives a clue to the derivation from the typical six-rayed form. However great the number of forms of the spicules in the Hexactinellida may be, yet there are fundamentally but few principles of modification which have been carried out. These are—(1) unequal elongation of the individual rays, in which may be found all degrees of shortening, even to complete atrophy of one or more rays; (2) division of the rays into two or more branches; (3) flexion of the rays or their branches; (4) unequal thickening of the rays or their branches, which may lead to the development of swellings of various forms, hooks, teeth, or the not infrequent terminal knobs or toothed plates.

“As in the case of the skeleton, so also in the general structure of the soft parts, a predominant principle might be recognised. In all Hexactinellids, that surface (usually the outer) which serves for the ingress of water, is covered by a thin perforated skin or membrane (which is supported by a special system of regularly arranged spicules), accord-

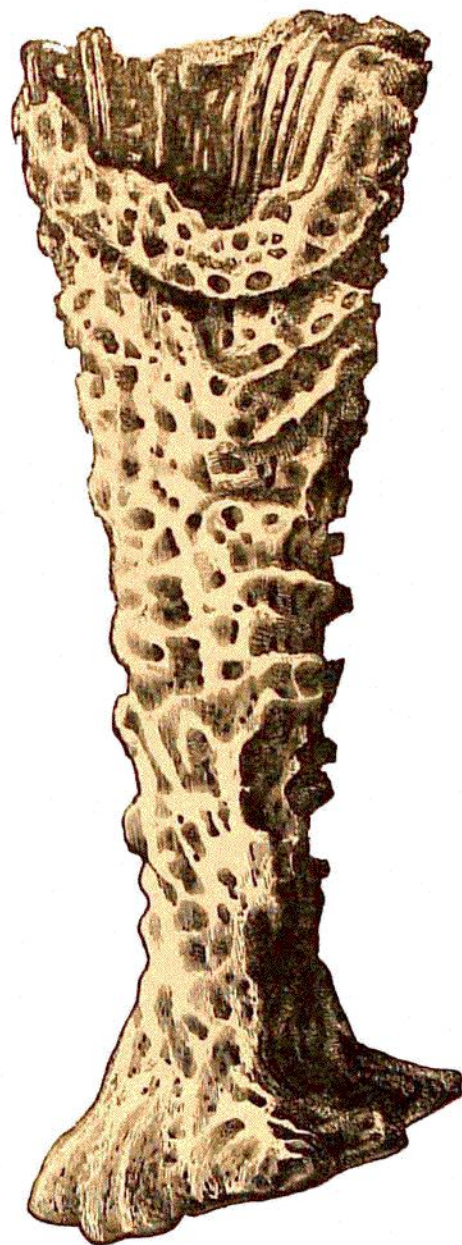


FIG. 165.—*Leptopyella decora*, Wyv. Thoms. (natural size), a representative of the Euretidae.