

Varieties of the Triæne.

1. *Anatriæne* (anchor of Carter) (Fig. X., *n*).—The cladi of the triæne are directed backwards soon after diverging from the origin.

2. *Protriæne* (porrecto-ternate spicule of Bowerbank) (Fig. X., *m*).—The cladi are directed forwards, making an angle of less than 45° , with the axis of the rhabdome produced.

3. *Plagiotriæne* (Fig. X., *k*).—The cladi are directed forwards, making an angle of about 45° , with the axis of the rhabdome produced.

4. *Orthotriæne* (Fig. X., *l*).—The cladi make an angle of between 50° and 90° , with the axis of the rhabdome produced. Usually the angle approaches 90° .

5. *Dichotriæne* (Fig. XI., *a*).—The cladi of a plagiotriæne or an orthotriæne are dichotomous. The protocladi are almost always directed forwards making an angle of less than 90° with the axis of the rhabdome produced, *i.e.*, the dichotriæne usually arises from a plagiotriæne. In some few cases the protocladi are so highly porrectate as to suggest a protriæne origin.

6. *Trichotriæne* (Pl. XXXI. fig. 10, *a*).—A plagiotriæne or orthotriæne in which the cladi have become trifurcate.

7. *Phyllotriæne* (Pl. XXXII. figs. 8, 9).—The cladi of an orthotriæne, or dichotriæne, or trichotriæne may increase at the lateral margins in the plane of the cladome, and thus acquire a broadly expanded or lamellar form; the margins of the foliate cladi thus produced are usually undulating or more or less divided. The phyllotriæne is only met with in the Lithistida.

8. *Discotriæne* (Pl. XXXI. fig. 5).—The cladome is a disc in which separate cladi are not distinguishable; and the axial rods representing them extend but a short distance from the cladal origin. This spicule like the preceding occurs only in the Lithistida. The phyllotriæne and the discotriæne are of great interest as furnishing the best evidence of the mode of evolution of the Lithistid desma; in the dichotriæne as in all normal spicules the axial rods of the cladi extend close up to the termination of the cladi, in the phyllotriæne they terminate at a distance from the ends of the cladi, greater or less as the case may be, in the discotriæne they terminate much nearer the origin, extending but a very short distance into the cladome, sometimes not more than 0.004 mm. Past the termination of the axial rods the disc grows by concentric additions to its margin, free from the control of the cladal axes. While the cladome thus follows the same course of growth as the desma of the choanosome, the rhabdome usually retains the normal spicular character, so that the discotriæne combines in itself the characters of the desma and the ordinary spicule. The essential character of the desma would thus appear to arise from emancipation from the control of the axial rods, which govern the growth of all other megascleres.