

Genus 6. *Plumarella*, Gray.

*Plumarella*, Gray, Cat. Lithophytes Brit. Mus., 1870, p. 36.

*Plumarella*, Studer, Monatsber. d. k. preuss. Akad. d. Wiss. Berlin, 1870, p. 648.

The genus *Plumarella* was established by Gray for *Gorgonia penna*, Lamk., a Primnoid from the neighbourhood of New Holland. The diagnosis runs, "Coral fan-shaped, forked, expanded, branchlets pinnate, opposite or alternate. Bark thin. Cells elongate, clavate, incurved, alternate, in two rows on each side of the stem. Axis continuous, stony."

Studer (*loc. cit.*) expanded the diagnosis in order to include in the genus *Plumarella hilgendorfi*, Stud., from Japan. This latter, however, on comparison with the greatly increased material now at command, must be relegated to *Thouarella*, and thus *Plumarella* is referred to in the sense used by Gray.

If we consider *Gorgonia penna*, Lamk., as the type of the genus, and as represented by a magnificent specimen in the Museum of the Jardin des Plantes in Paris, then we may include in the same genus several more species; thus *Primnoa pourtalesii*, Verrill, recently described by Verrill,<sup>1</sup> and a new species obtained by the Challenger, may be included. *Cricogorgia ramea*, figured by Milne-Edwards<sup>2</sup> but not described, seems to be identical with Lamarck's *Gorgonia penna*.

The stem is upright, greatly ramified in one plane, so that the whole colony acquires a fan-like appearance. The expression "forked" used by Gray regarding the stem is not correct. The stem does not undergo a dichotomous forking, but is produced continually, only it gives off occasionally from two sides lateral branches, which may attain the strength of the main stem, and at the point of departure of the branch from the main stem this latter generally undergoes a twist in the opposite direction. The same takes place with the twigs of the branches, and the impression of a dichotomy may thereby arise. The main stem, as well as the stouter branches, are always flattened in the same plane as that of the expansion of their twigs. The axis is brittle, calcareous; it first becomes softer and horny in the thinner twigs, yet it always maintains a relatively strong rigidity. Branches come off from two sides of the main stem in an ascending series, generally alternating; they are partly thin, rod-like, simple, partly strong, with flattened axis and branched. They run parallel to one another. The branches give off lateral twigs again in like manner, which are sometimes simple, sometimes again give off thinner twigs. The last twigs are thin, rod-like structures. The calyces are generally small, cylindrical, and arise in alternating series from the branches and twigs, generally at relatively great distances from one another. The calyx scales are thin, cycloid, with central nucleus, the prominences small, smooth, the edge finely toothed. The operculum

<sup>1</sup> Bull. Mus. Comp. Zool., vol. xi. No. 7, 1883, p. 28.

<sup>2</sup> Hist. Nat. des Coralliaires, Atlas, pl. B. 2, fig. 6.