

1. *Freyella pennata*, n. sp. (Pl. CXI. figs. 1-4).

Rays ten.  $R = 200$  to  $240$  mm.;  $r = 11$  mm.  $R > 20 r$ . Breadth of a ray at the base, 6 mm.; at the widest part of the ovarial expansion 10 to 11 mm., this latter dimension being situated at about 15 mm. from the place of junction with the disk; midway between the base and the extremity the breadth of the ray is 4.5 mm.

Rays of great length, delicate, subcarinately cylindrical (or, perhaps, more correctly, subtriangular and truncate along the median line), slightly constricted at the base and narrow for a short distance scarcely equal to twice the breadth and then expanding rather abruptly into a fusiform ovarial inflation, which gradually contracts and the ray from thence tapers regularly to the extremity.

The disk is small, elevated rather abruptly above the level of the rays at their base, with the abactinal surface subplane and undulating. The small narrow portion of the ray which intervenes between the disk and the ovarial swelling is cylindrical, and a longitudinal section through the median radial line would exhibit a rather deep concavity between the disk and the swelling, the descent being more rapid near the former than the latter. The lateral wall of the disk in the interbrachial arcs is vertical. The disk and the basal portion of the rays for some distance beyond the ovarial swelling are covered with a fleshy membrane through which protrude a number of very minute, delicate, uniform, pointed spinelets, so small that the spiniferous membrane as a whole only presents an appearance to the naked eye suggestive of a rather coarse velvet pile. When examined microscopically the membrane is found to be underlaid by a pavement of thin, delicate, irregularly suboval, imbricating calcareous plates, each of which bears from two to four small, cylindrical, tapering, pointed spinelets 0.6 to 0.8 mm. in length and a few small crossed pedicellariæ (about six or eight). The spinelets, which are of very simple structure and built up of not more than three or four outer rods, with scalariform dissepiments, are enclosed in a membranous sheath, the thickness of the invested spine being about 0.133 mm., and the thickness of the calcareous spine alone about 0.066 mm. near the base. The pedicellariæ, which are sessile and of the characteristic form found on *Brisingidæ* generally, are very small, a closed pedicellaria not measuring more than 0.135 mm., from the base to the apex of the valves. The pavement plates are of extreme delicacy, presenting a single layer of extremely fine calcareous network, the meshes having a diameter of about 0.022 mm., and rarely a few are slightly larger. This spiniferous, plate-paved membrane extends uninterruptedly and uniformly over the disk and along the basal portion of the rays for a distance of about 50 mm. from their attachment to the disk, in fact as far as the generative organs reach. From this point an exceedingly delicate membrane without plates covers the ray up to the extremity. This membrane is so fine and transparent that the ambulacral ossicles of the ray are clearly visible through it, indeed its presence is not at first sight detected, and the rays have the superficial appearance of being denuded of membrane beyond the point where the spiniferous membrane of the ovarial regions