

Genus 25.—**BREFELDIA** Rostafinski Versuch, 8 (1873). Aethalium pulvinate, consisting of subcylindrical, somewhat branched and confluent sporangia, rising from a base of spongy barren tissue, which is continued, chiefly among the lower portions of the sporangia, in irregular folds; imperfect sporangium-walls and central columellae sometimes present. Capillitium of numerous horizontal threads, uniting at the surface of the adjacent sporangia to form many-chambered vesicles.

1. **B. maxima** Rost. Versuch, 8 (1873). Plasmodium creamy white. Aethalium pulvinate, 2 to 30 cm. across, 5 to 10 mm. thick, purplish-brown, composed of elongated branching sporangia 0.3 to 0.5 mm. diam., extending upwards from the spongy basal tissue which is continued among them as irregularly branching purple-brown membranous folds; distinct rigid columellae often present. Capillitium consisting of numerous threads radiating from near the central part of the sporangium, but free from the columella; each thread expands at the boundary of the sporangium into a many-chambered vesicle, which is continued into a corresponding radial thread of the adjoining sporangium; the proximal ends of the threads are connected in clusters of three or four by a fragile membrane; the vesicles are of firm texture, often containing a spore in several of the chambers, occasionally coalescing in fewer or greater numbers to form vertical scalariform strands. Spores purplish-brown, minutely spinulose, 9 to 12 μ diam.—Rost. Mon., p. 213; Mass. Mon., 91; Macbr. N. Am. Slime-Moulds, 110. *Dermodium inquinans* Fr. Symb. Gast. 9 (1817) ? *Reticularia maxima* Fr. Syst. Orb. Veg., i. 147 (1825). *Licea perreptans* Berk. in Gard. Chron., 1848, 451.

Pl. 136.—*d.* subdiagrammatic view of portions of four columnar sporangia from an aethalium; each sporangium has a central columella, and is clothed on the surface with numerous vesicles, from which short capillitium threads pass into the adjacent sporangia; at *x.* is seen a scalariform strand, formed by vertical union of a row of vesicles; *e.* capillitium threads and vesicles; *f.* spores (England).

The complex structure of the capillitium is difficult to follow in the lower part of an aethalium; towards the surface the sporangia are often separated from each other by narrow intervals. The sides of the sporangia are then seen to glitter with the numberless vesicles of the capillitium. The threads penetrate the adjacent sporangia to the distance of 0.07 to 0.1 mm., or about half the radius. The entire length of the threads, including the central vesicle, is 0.15 to 0.23 mm. The mass of spores in the central part of the sporangium is not traversed by any threads. In the lower strata the threads are sometimes attached at each extremity to folds of the membrane arising from the spongy base; the rigid collumellae, throughout the upper part at least, appear to be free from the capillitium. The plasmodia are sometimes very large, and may wander from the place of emergence to mature into aethalia one or two feet in length. In the field this species often shows considerable resemblance to the confluent form of a *Stemonitis*, a genus to which *Brefeldia* appears to be nearly allied.