extremity of the root-cell and separated from it by a wall (*Pl. XXIII, figs. 31–33, 37, 38*). A multicellular holdfast results from the division and branching of the primary root-cell and of the oldest cell of the disk (*Pl. XXIII, figs. 34, 36*), and is further strengthened by a few corticating rhizoidal filaments. In mature *Callithamnion Baileyi* Harv. the intracuticular rhizoids are more numerous. They arise from the lower angles of the central cells or from the basal cells of the branches. Thence they descend through the walls of the monosiphonous frond to the holdfast, where they branch freely and spread out in various directions, forming, with the filaments arising from the cells of the primary disk, a flat circular holdfast (*Pl. XXIII, figs. 35, 39*).

The carpospores of *Spyridia filamentosa* (Wulf.) Harv. germinate very readily. The mucilaginous secretion, by which the spores are first fastened to the substratum, can hardly be distinguished from the wall of the spore (*Pl. XXII, fig. 11*). The spore first forms two unequal cells, the smaller of which becomes the primary root-cell, the larger divides by parallel walls so as to form a short filament (*Pl. XXII, figs. 12–14*). As a rule, no long primary rhizoid is formed, but occasional exceptions are found (*Pl. XXII, fig. 18*). Though variations may occur (*Pl. XXII, fig. 15*), the first corticating cells are usually cut off from the upper angles of the central cells before the formation of the discoidal holdfast begins (*Pl. XXII, fig. 16*). Sooner or later, however, the primary root-cell divides in several planes parallel to the longer axis of the spore, and thus produces a flat multicellular disk, the cells of which are separated by walls (*Pl. XXII, figs. 15, 17, 19, 20, 21*). At first the primary disk is but slightly lobed, but the cells soon give rise to short filamentous outgrowths, which branch pseudo-dichotomously (*Pl. XXII, figs. 21, 22*). Rarely a lateral disk springs from the primary root-cell, which is then prolonged into a filament (*Pl. XXII, fig. 23*). The cells of the primary holdfast continue to divide, and with them are combined rhizoidal filaments, which have their origin in the corticating cells of the lower nodes of the frond and grow through the cell-walls to the substratum (*Pl. XXII, figs. 24, 25*). Free filamentous