

note that there is good reason for thinking that at times all of these may be parasitic. Two of them, *F. fasciata* and *F. tornata*, are tropical or subtropical forms, appearing to replace respectively the northern *fomentaria* and *applanata*. Of *F. tornata* little is known, though said to be common on deciduous wood and widely spread throughout the tropics; Petch (37) reports that "as a rule it is merely saprophytic (in Ceylon) but several instances have been noted in which it is a wound parasite", notably on *Acacia decurrens*. A form from Nicaragua and Panama standing very close to *tornata*, if indeed distinct, has been differentiated as *F. Lionnetii*. Fawcett (16) has reported that *F. fasciata* is frequently a parasite of orange trees and water oaks in Florida; it also occurs on dead wood. *F. lobata*, a species found from New York to Iowa and south, but so far not recorded for Ontario, occurs on diseased trunks of certain deciduous trees, especially the white oak, as well as perhaps more commonly on dead deciduous wood. Of it Murrill (30) says, "Facts thus far collected indicate that *F. lobata* is a southern form and confined to a much more restricted area than *F. megaloma*, while within this area it is often abundant and quite destructive to the oak, its favorite host." *F. fomentaria* (recently elevated to a new genus, *Elfungiella*, by Murrill on account of the hyaline character of its spores) very abundant in Canada and the United States, especially on birch and beech and sometimes maple and poplar, is regarded as a parasite by American pathologists. It also is native to temperate Europe, where it has long been regarded as a parasite on the hardwoods. Thus, whatever we may consider *Fomes applanatus* to be, there is a general uniformity of opinion that the species commonly grouped with it are to be classed as wound parasites. A return will be made to this subject later on in this paper, but an account will first be given of cultural studies and of the biology of the spore.

III. SPORE STUDIES.

My investigations on the spores have revealed many features of interest, especially in connection with their organization and their discharge. I have found no spores of any kind produced by the mycelium either in nature or in cultures, nor are there any references to such elsewhere in the literature. Some observers have claimed that there are conidia growing on the upper surface of the pileus (referred to here in the section entitled "Secondary Spores" but so far as my observations go there are none but basidiospores and these are borne only on the walls of the pores where they regularly belong