

III.—*Some Remarks upon Sphæria (Gibbera) morbosa (Schw.).*

By CHARLES B. PLOWRIGHT.

THE March number of the Journal contains a paper by Mr. Thomas Taylor, Microscopist of the United States Department of Agriculture, upon "Certain Fungi Parasitic upon Plants," a subject of great interest not only to mycologists, but also to the scientific public at large. The two species treated of are the *Sphæria morbosa*, Schweinitz, which infests the living branches of plum and cherry trees in the United States, causing them to be covered by unsightly and destructive swellings, and ultimately causing the death of the affected branch. The other fungus (*Erysiphe Tuckeri*) is the parasite which, in some of its earlier stages, produces the too well known vine disease. Of it in the ascigerous condition we have seen no specimens, and therefore offer no remarks, but would only suggest that Fückel, in his 'Symbolæ Mycologicæ,' places it in the genus *Sphærotheca*, as a variety of *S. Castagnei*, and that it would be desirable in future observations to bear this in mind, with a view of ascertaining the correctness or otherwise of Fückel's view.

With regard to the *Sphæria morbosa*, the perusal of Mr. Taylor's paper has suggested the following considerations, which may be of interest to your readers. In the Quekett Journal for October, 1872, are "Some Notes on the Black Knot," by Mr. C. H. Peck, in which are detailed a series of observations on the life history of this plant. Mr. Peck finds the mycelium of it may be detected in the month of November by the swellings its presence produces in the bark of the young twigs. As this swelling increases, cracks appear in the cuticle which expose the inner bark. If a portion of the inner bark thus exposed be now examined, "slender jointed filaments may be seen, which have insinuated themselves between the bark cells." During winter these swellings remain quiescent, but in spring they enlarge, and by the end of May patches having a dark-green velvet-like surface make their appearance upon them. On examination, these dark-green patches prove to be an assemblage of cladosporeid threads, bearing oval triseptate conidia. In course of time the perithecia appear in and amongst the conidia, but it is not until after the lapse of a considerable time—several months—that perfect ascigerous fructification is produced, namely, during the following winter and spring.

Mr. Taylor informs us that the asci measure about  $\frac{1}{1000}$ th inch in diameter by  $\frac{7}{1000}$ th inch in length, and that he has "counted as many as ten sporidia in one ascus." See Plate XCVI., where figures C and U represent asci containing each ten sporidia.

Now the very fact of a *Sphæria* having asci containing ten

sporidia would render it a very interesting species, independently of its manner of growth, &c. As far as our personal knowledge goes, we cannot recall any species having this character. The vast majority of these plants having octosporous asci; in a few instances, such as *Dothidea tetraspora*, B. and Br.; *Valsa tetratrupha*, B. and Br.; *Valsa salicella*, Fr., &c., the asci are tetrasporous, while, upon the other hand, some species of the genus *Hypocrea*, such as *H. rufa*, *gelatinosa*, *delicatula*, &c., have sixteen, and in a few instances furnished by the genera *Torrubia* and *Diatrypella*, and by *Sphæria ditopa*, Fr., &c., the number of sporidia is unlimited.

Being fortunately in the possession of two specimens of *Sphæria morbosa*, one communicated by Mr. Peck, and the other by Mr. Gerard, we examined them with a view of testing the accuracy of Mr. Taylor's observations. One of our specimens exhibits the conidial stage described by Mr. Peck *ut ante*, but in it the asci are barren. The other specimen, from Sandlake, N.Y., contains asci, paraphyses, and sporidia. The asci are not of uniform size, but those we examined measured  $\cdot 0005$  inch by  $\cdot 003$  inch. The sporidia measure  $\cdot 001$  by  $\cdot 0003$  inch, are hyaline, with a pale-yellow tinge, flask-shaped, uniseptate, biseriate, and very much crowded in the asci, so as to make it a matter of considerable difficulty to count them; but whenever we succeeded in so doing, we always found the number to be eight.

*Sphæria morbosa* bears a considerable resemblance to *Cucurbitaria cupularis*, Fr.,\* but its parasitic habit, upon the bark of living branches, clearly indicates its affinity with such plants as *Gibbera vaccini*, Fr., in which genus we think it should be placed.

TERRINGTON ST. CLEMENT'S.

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#### IV.—*The Amœban, Actinophryan, and Diffflugian Rhizopods.*

By G. C. WALLICH, M.D., F.L.S., &c.

IN last November's number of the 'Monthly Microscopical Journal,' and the number for this month (April), notices have appeared regarding alleged new discoveries and observations on certain Rhizopods published by Professor Leidy in recent issues of 'Silliman's Journal.' As I derive my present information on this head altogether from these notices and one other journal to which I shall have occasion immediately to refer, it is not my wish at present to enter further into the questions raised than I am about to do. Enough has been written, however, to warrant the conclusion that

\* 'Sphæriacei Britannici,' No. 57.