

One of the tissues in question is located in the sieve portion of the vascular bundles of the stem, the pulvini, the petioles and the veins. The cells which compose it are very like the sieve cells, but larger, with more or less oblique end walls on which is a single large pit whose closing membrane is traversed by numerous protoplasmic threads. The contents of these cells seems to be a glucoside or some similar body. A nucleus is always present. Another part of the system consists of the sensitive parenchyma of the pulvinus, which is in connection with the collenchyma which surrounds the vascular bundle. There is no direct protoplasmic connection between the protoplasts of the collenchyma and those of the conducting tissue of the bundle.

In the latter part of the work the author discusses the physiology of the sensitive tissue at length. So close and continuous is his discussion that it is not possible to summarize it satisfactorily. While there are still obscure points and some things "hard to be understood," the theory is certainly more satisfactory and open to fewer objections than the present ones.

The name of the publisher, Engelmann, is sufficient guarantee of the excellence of the typography and beauty of the plates.

Cretaceous plants.²

The author presents here a preliminary report upon a collection of fossil plants made by himself and Prof. Lester F. Ward at Martha's Vineyard during the summer 1889. The age of the formation in which these fossils occurred has finally been stated to be Cretaceous, and probably Middle-Cretaceous. Seven or eight species are enumerated and figured, concerning the identification of which a few remarks may be made. As to the figured leaves of *Liriodendron*, it is rather doubtful whether they belong to this genus or not. They agree quite well with figures of similar leaves supposed to belong to this genus, given by other authors, but it seems to have been overlooked that this form of leaf is more characteristic of quite different genera, as for instance *Eucalyptus*, of which several species show the same shape of leaves. They have been found together with some remains of undoubted *Eucalyptus*, and this circumstance seems to speak in favor of the supposition that they should belong to this genus. The author has, however, figured a leaf (fig. 8 on the plate) which he has identified as *Eucalyptus*, but it is very poorly preserved, so that the identification is not without question. When the author calls fruit of *Eucalyptus* "a nut," it is to be pointed out that the fruit of this genus is a capsule, and it is not easy to understand what the author means by his expression "nut with operculum" in the explanation of the plate. These figured remains, supposed to belong to *Eucalyptus*, are not "fruits," but flowerbuds. It is a well-known fact that the calyx in several genera of the *Myrtaceæ* is coherent at the apex, and that it falls off

² DAVID WHITE.—On Cretaceous Plants from Martha's Vineyard, with one plate. (From *American Journal of Science*, Vol. XXXIX, 1890.)

like a cap before anthesis, and the author ought to have read the description of similar remains given by Heer in his "Flora fossilis arctica," Vol. VI, pars II, p. 19, where he says: "Ein becherförmiges Körperchen, das lebhaft an die Blüthenknospen von Eucalyptus erinnert." The figured leaves of *Andromeda* and *Myrsine* are so defective that their identification seems rather hazardous.—THEO. HOLM.

Minor Notices.

THE APPEARANCE of Part II of Farlow and Seymour's provisional host-index of the fungi of the United States will be warmly welcomed by the large and ever increasing number of students in this field of botany. This part includes the Gamopetalæ and Apetalæ, and the remainder of the work is promised in November, for which third part botanists are urgently requested to report errors or omissions in the parts already issued. The value and accuracy of the work need no commendation when one remembers the unrivaled facilities at the command of the authors. A glance through the well-printed pages also demonstrates the appalling amount of synonymy that a mycologist is compelled to face.

DR. CHAS. E. FAIRMAN has issued a paper on the fungi of western New York, being the first of a set of contributions to the mycology of that region that the author proposes to issue. He has been collecting for several years in Orleans county, and has collected over 425 species. The present paper gives a general discussion of the fungi of his region, and lists 30 species (with two plates) as representing the new species and varieties which he has added to the mycologic flora of western New York.

AN INTERESTING paper on the "History of Botany," read by Dr. T. J. W. Burgess before the Hamilton Association of Canada, has been printed in pamphlet form.

DR. N. L. BRITTON has laid botanists under obligation to him by preparing so complete a list of state and local floras of the U. S. and Brit. Amer. as the one just issued as "Contributions from the Herbarium of Columbia College, no. 14." So many of these lists are ephemeral or buried out of sight that it is a great boon to have them all together in one handy pamphlet.

MR. THEODORE HOLM, of the U. S. National Museum, has published an interesting paper on "The leaves of *Liriodendron*," appearing in the Proc. U. S. Nat. Museum. The great variability of the leaves of *Liriodendron* is well known, but Mr. Holm detects a certain regularity in the midst of all this variation, dependent upon position. He discusses the subject fully, with the help of 6 excellent plates, in the preparation of which the author is a master, and then applies his results in the consideration of fossil forms. It is just such studies that must be of immense service to paleobotany.

THE REPORT of the chief of the section of vegetable pathology for