igate in the frail barks that serve for ferries, and the inlets are usually infested with both sharks and "'gators." The best collecting ground is usually within 300 yards of the coast line. The ordinary guide books state that "there is nothing of interest below Lake Worth," but one who has seen the country below from a botanical standpoint says "there is nothing above Lake Worth." Botanically this is doubtless the most interesting region of all Florida. The part between Lake Worth and Miami has so far as we know never been trodden by a botanist. Around Miami and on the neighboring Keys have been found most of the remaining tropical ferns of Florida, viz.: *Polypodium Swartzii*, *Asplenium serratum*, *A. dentatum*, *Nephrolepis acuta*, *Pteris longifolia*, *Tænitis lanceolata* and *Aneimia adiantifolia*.

Some additions to the state flora from Putnam county. By Lucien M. Underwood.

While the higher flora of Indiana seems to be fairly well known, it is surprising to find so little on record regarding the lower cryptogams of the state. Except a short paper on "The Mildews of Indiana,"* a few bulletins from the experiment station relating to some injurious fungi, a short list of mosses and lichens from Richmond,† and a few scattering notes in the *Botanical Gazette*, nothing has been placed on record, which, however, is far from saying that nothing has been done in this direction. It is a question whether as teachers of botany we have not swung the pendulum too far in training our students to become expert section-cutters and discriminating histologists and have thereby left out of their course that *cultural* feature of botany that comes only from bringing them in direct contact with nature. I plead for considerable field work as an invaluable adjunct to laboratory instruction. In a year's study of botany a student ought to become fairly proficient in the manipulation of the microscope and at the same time learn how and where plants grow (and especially the less conspicuous plants), and where their position is in the system, thus gaining a love for nature as well as a knowledge of the methods of manipulation. Botany ought to be a *cultural* study as well as a purely *technical* one. When we

*J. N. Rose, *Botanical Gazette*, XI, 60-23 (1886).

†Mary P. Haines, 8th, 9th and 10th Ann. Reports, Geol. Survey, 235-239 (1879).

consider the tendency of botanical instruction for the past ten years, it is not surprising that the younger generation of botanists do not know how to collect, and when turned loose in some highly interesting botanical field find, to the sorrow of those who want something of them, that their eyes are trained only for an immersion lens and not at all for learning the richness of the flora about them.

While the season since our advent to the state has been exceedingly dry and therefore unfavorable to the development of fungi, we have in three or four short excursions in the immediate vicinity of Greencastle, secured sufficient material to show a rich cryptogamic flora. A few of the more interesting discoveries will be noted and exhibited:

1. On the sandstone rocks at Fern, a rare moss, *Eustichia Norvegica*, is found in great abundance covering many square rods of the rock wall. It was first reported by Sullivant in 1846 from Lancaster, Ohio, and distributed in his *Musci Alleghanienses* as no. 188. Rau has reported it from Pennsylvania and Mrs. Britton found it in fruit for the first time in the Dalles of the Wisconsin in July, 1883. Its sterile states have been figured by Sullivant* and its fruit by Mrs. Britton†. This Indiana station makes the fourth in the fourth state.

2. On clay banks at Fern we have found a hepatic new to America, *Fossombronia cristata*, Lindb.‡ In Europe it has frequently been confounded with *F. pusilla* and is possibly the plant reported under that name by Sullivant in one of the earlier issues of Gray's Manual. Of the true *pusilla* we have seen no American specimens in fruit, and *Fossombronia* is one of the few genera of the *Jungermaniaceæ* in which the exospore is sufficiently differentiated to furnish satisfactory specific characters. *F. cristata* is easily recognized by the confluent crests of its spores. Its known range hitherto includes Finland, Sweden, Germany, France and England.

3. *Trametes ambigua* (Berk.) Fr. This is not an an uncommon species in the vicinity of Greencastle and Fern. It was first described by Berkley§ from specimens collected by Lea in the vicinity of Cincinnati, and has since been reported from Ohio by Morgan, from Kansas by Cragin, and from Missouri by Demetrio, through whom it was distributed by Ellis in N. A. Fungi under the original name *Dædalia ambigua* (no. 1593.)

4. *Hydnum stratosum* Berk. has been found once under a rotten log near

*Mem, Amer. Acad. n. s. III, t. I (1846.)
†Bull. Torrey Bot. Club. X, 99 (1883.)
‡Notiser pro Fauna et Flora Fennica, XIII, 388 (1874).
§*Dædalea ambigua* Berk. Decades of Fungi, n. 83 (1846).

Greencastle. It was first reported from the vicinity of Cincinnati by Lea in 1845,* and afterward by Morgan. We found it in 1889 near Syracuse, N. Y. This makes the third station known to us. The species when fully mature is unlike any other species of *Hydnum* in the stratification of the spines.

5. *Cordyceps capitata* Fr. We have found one specimen of this species in rich woods at Fern. It belongs to a group of fungi that are usually parasites either on living animals like the "caterpillar fungus" of New Zealand, or on living pupæ of insects like *C. militaris*, or on truffles like the present species. This species is usually reported as growing in pine woods, but we found it last year at Cambridge, Mass., growing under oaks on *Elaphomyces granulatus* which is the usual host on which it has been reported from North Carolina by Curtiss and from New York by Peck. The present specimen seems to be saprophytic, growing from a nidus of decaying matter. It was found of course under deciduous trees.

6. *Phallus Ravenelii* B. & C.† seems to be the common stink-horn of this vicinity. It was originally reported from South Carolina and we found it once at Cambridge, Mass. Under a rotten log at Fern we found its mycelial strands a ramifying network which extended ten feet or more, giving rise to fifteen or twenty fruits in various stages of development. In addition to these fruits there were irregular swellings on the mycelial strands in great abundance; the larger ones were hollow, the smaller solid. They suggest *sclerotia* which so far as we know have never been reported among phalloids. As the specimens were collected in November, it would seem that the plant was making an effort to store up nutriment in these tuber-like bodies for the necessities of the following season.

Besides *Phallus Ravenelli*, which is easily recognized by its rudimentary veil, its thin pileus, and its mild fragrance (?), we have found two other *Phalli* in this vicinity. *P. duplicatus* we have found once. An enormous specimen ten inches in height and with a large bell-like veil fully four inches across is evidently the plant that was referred by Morgan‡ to *P. Daemonum*. That its odor was diabolical we can fully testify. Although Fischer has combined all the indusiate forms with *Phallus duplicatus* and refers then to the genus *Dictyophora*, we have certainly a distinct species in this specimen; whether it should bear the name *P. Daemonum* or not is another question to be settled later.

* *loc. cit.* n. 86.
†Grevilla, II, 33 (1873). Fischer refers it to *Ithyphallus*.
‡Jour. Cin. Soc. Nat. Hist. XI, 145 (1889).