Further notes on the fern flora of Ohio

LEWIS S. HOPKINS

In order to bring it up to date, some corrections and additions to the Fern Flora of Ohio* are necessary. Of *Botrychium lunaria* L. it was said; "reported from Lake Co." This species was so given in a checklist issued by the Ohio State University. In the new Gray's Manual it is credited to "northern Ohio." However, there are no authentic specimens to verify the report, so that for the present, at least, it must be excluded.

BOTRYCHIUM DISSECTUM Spr. This species occurs sparingly throughout the state. Intermediate forms occur quite often.

OSMUNDA CINNAMOMEA AURICULATA Hopkins. Although of no great significance, this form is included since it was collected at Thompson's Ledges, Geauga Co., in August 1911.

ADIANTUM PEDATUM LACINIATUM Hopkins is a cut-leaved variety of the common maidenhair, found in Wayne Co.

CYSTOPTERIS FRAGILIS CRISTATA Hopkins occurs at Woodworth's Glen, Portage Co.

DRYOPTERIS CLINTONIANA (D. C. Eaton) Dowell was given as occurring only in Wayne County. It has since been collected by the writer in Geauga County. There is a possibility that some of the Geauga County specimens may be *D. cristata* × *Goldiana* R. C. Benedict. However, further study will be necessary to determine this point.

DRYOPTERIS CLINTONIANA × SPINULOSA R. C. Benedict occurs sparingly at Fox Lake and Brown's Lake,

* The Fern Flora of Ohio. Fern Bulletin **15**: 1. Ja 1907.

both in Wayne County. I have collected it at each place.

It is quite likely that other *Dryopteris* hybrids will be found in the northern part of the state within the next few years.

DRYOPTERIS CRISTATA × INTERMEDIA Dowell [*Dryopteris Boothii* (Tuckerm.) Underw.] has been collected rather plentifully by the writer in Wayne and Geauga counties. It probably occurs in other northern counties as well.

DRYOPTERIS CRISTATA × SPINULOSA (Milde) C. Chr. occurs plentifully at Brown's Lake, Wayne Co., where it has been repeatedly collected by the writer.

DRYOPTERIS DILATATA (Hoffm.) Gray. Of this species Schaffner* says: "The form *D. spinulosa dilatata* (Hoffm.) Unde., with broadly ovate or triangular-ovate, commonly three-pinnate leaves has been found by Hopkins in Tuscarawas county."

However, this is not true *D. dilatata* and it is my own belief that this species does not occur in the state.

DRYOPTERIS INTERMEDIA × MARGINALIS R. C. Benedict. A single plant was found at Brown's Lake, Wayne Co., from which two fruiting fronds were secured. The plant itself was sent to Mr. H. G. Rugg at Hanover, N. H.

DRYOPTERIS MARGINALIS ELEGANS J. Robinson was first collected in Mahoning County by E. W. Vickers. I have collected it in Wayne County. In Ohio, at least, it is a very pretty form and is well worthy of its name. It probably occurs throughout the state.

EQUISETUM PRATENSE Ehrh. The occurrence of this species is extremely doubtful as the specimens which have been so named are probably to be referred to another species.

EQUISETUM SYLVATICUM L. occurs plentifully at one

* Schaffner, J. H. Proc. Ohio Acad. Sci. **5**: 286. 5 Ja. 1910.

station, near Burton, Geauga Co., in addition to Auglaize and Wood counties, as previously listed.

EQUISETUM FLUVIATILE L. is "not common but to be found in most parts of the state in suitable habitats." I have collected it at Navarre, Stark Co., and at Wooster, Wayne Co., where a fine colony is to be found only a few rods from the B. & O. railroad station.

EQUISETUM LAEVIGATUM A. Br. is referred to as "general but apparently not common in Ohio." The only place where I have found it is within the city limits of Massillon, Stark Co., where it is to be found along the canal banks north of Main Street.

EQUISETUM HIEMALE L. While the specific form itself may occur in the state, I have seen no material that could be properly classified as such. The varieties *intermedium* A. A. Eaton and *affine* (Engelm.) A. A. Eaton are probably general in their distribution throughout the state.

LYCOPODIUM INUNDATUM L. was the victim of one of the accidental discoveries more often read about than occurring. While I was exploring Woodworth's Glen, Portage Co., some two or three years ago in company with some friends, the little valley which we were ascending narrowed down abruptly, the walls became almost perpendicular, and the little stream which occupied the entire bed of the tiny canyon was in places two or three feet deep. Clearly it was a case of wading the stream for some distance or missing the exploration of a most inviting little canyon. I chose the former while my companions went around. With shoes removed and trousers rolled up to the high-water mark of my boyhood days, I proceeded to have a delightful wading party all of my own. After more than an hour of this juvenile but highly exhilarating performance I returned to the starting point and sat down on a bowlder to replace my shoes. Only the botanist knows the thrill of pleasure

experienced when I perceived within a few inches of my shoes a small colony of the bog clubmoss growing upon a damp moss-covered bowlder. The fruiting plants, two or three in number, were collected and subsequently sent to the State Herbarium at Columbus. So far as is known, this is the only authentic record of its occurrence in the state. A visit to the same place last August revealed the fact that the entire colony had been completely obliterated by the floods occasioned by the heavy rainfall of the preceding spring and summer.

LYCOPODIUM SELAGO L. A plant referred to this species was described in the April number of this publication. As to whether or not it is *L. selago* depends upon one's point of view. According to the revised Gray's Manual the fundamental difference between *L. selago* and *L. lucidulum* is that in the former the leaves are uniform in length while the latter has the "leaves in zones, alternately longer and shorter." The plant in question has zones in which both kinds of leaves are of the same length; also on the same stem zones of alternately longer and shorter leaves; it also has some sporophylls longer than some vegetative leaves, a characteristic which, so far as I know, never occurs in *L. lucidulum*. If we adopt this view it might be *L. selago* or *L. lucidulum*, neither one, or a hybrid between the two.

Prof. Schaffner* regards *L. porophilum* as entitled to a specific rank and would make the fundamental difference between it, *L. lucidulum*, and *L. selago* depend upon the method of branching. Since a single specimen of the plant under discussion shows practically all of his three methods of branching, it again might with equal justice be called either or neither with the same suggestion of hybridity.

* Ohio Nat. **12**: 499. 1912.

Lloyd and Underwood* make the distinction between *L. selago* and *L. lucidulum* depend upon the fact that the former has hollow leaf bases while the latter does not. So far as I have been able to find out, all descriptions of *L. selago* say that it has hollow leaf bases while all are equally well agreed that no other *Lycopodium* has such a characteristic.

Therefore, since the Dundee specimen has hollow leaf bases, I have chosen to call it *L. selago* and shall continue to do so until convinced of my error.

In connection with the identification of this plant it may not be out of place to state that before it was published as *L. selago* live specimens were sent to three of the largest institutions in the United States and that all were uniformly too busy to venture an opinion as to its identity.

MARSILEA QUADRIFOLIA L. is "occasionally cultivated and found as a waif in Franklin Co."

SELAGINELLA RUPESTRIS (L.) Spring. I have collected this in the gorge of Paint Creek in the extreme eastern edge of Highland County. It has also been collected in Licking, Fairfield, and Hocking counties.

SELAGINELLA APUS (L.) Spring occurs in Lake and Trumbull counties.

PEABODY HIGH SCHOOL,
PITTSBURGH, PA.

Outings for Onondaga moonwort and slender cliffbrake

H. E. RANSIER

It was toward the close of a busy day of botanizing in the fall of 1908, showing a visiting enthusiast and Fern Society member the wonders of the Scolopendrium

* Bull. Torrey Club **27**: 149. 1900.