

- * *Agrostis scabra montana*, Tuckerm.
- Calamagrostis Canadensis*, Beauv.
- * “ *acuminata*, Gray.
- * *Lycopodium annotinum pungens*, Spreng.
- * “ *Selago*, L.

One could not expect, in so short a time, to make more than a preliminary reconnaissance of the flora of the mountain, and this report of my collecting trip is written with a hope that it may form a starting point for further notes upon the flora of Moosilauke. Anyone finding unrecorded species upon the mountain should, if possible, send specimens of them to the herbarium at Dartmouth College, which most fully represents that interesting region.

RUTLAND, VERMONT.

NOTES ON A SPECIES OF *CYATHUS* COMMON IN LAWNS AT MIDDLEBURY, VERMONT.

FLORENCE M. ANDREWS.

(Plate 17.)

ONE species of *Cyathus* has been frequently found in Middlebury, growing on newly-seeded lawns. Without close examination of the specimens, they might be referred to *Cyathus vernicosus* (Bull.) De Cand., which is reported to be very common in the United States; but by careful examination and comparison with the excellent figures of *Cyathus vernicosus* in Tulasne's Monographie des Nidulariées¹ and with a fine set of European specimens of *Cyathus vernicosus* collected in Hungary by Dr. Hollos, which agree well with Tulasne's figures and descriptions, it seems evident that the Middlebury specimens are not *Cyathus vernicosus*. Instead they are *Cyathus Lesueurii* Tul., a species originally collected near New Orleans, of which the original description with full notes and careful figures is given in Tulasne's Monograph.

Apparently *Cyathus Lesueurii* has been but rarely found since its original discovery, as may be inferred from the few references which are given to it in literature. It was reported by Berkeley and Curtis in Notices North American Fungi as collected by Wright in Connecticut, and a collection from South Carolina was distributed by Ravenel in his F. Am. Exs. No. 474.

¹ Ann. d. Science. nat. 3d Serie (Bot.), 1844, pp. 81 and 79, Pl. 5.

The common name for any *Cyathus* is "Bird's Nest fungus" because of the resemblance to a diminutive bird's nest and eggs when one looks down upon the peridium containing the sporangiola. The peridium has a small elongated base and gradually increases in size toward the top (Fig. 5). While immature, it is closed at the top, but when the sporangiola are fully developed it opens by a deciduous lid called the epiphragm. The outer surface is covered with coarse fibers but the inner surface is smooth and shining. The sporangiola are disc-like in shape and are attached to the peridium by funiculi (Fig. 7). The wall of a sporangium is tough and composed of two layers joined together by interwoven hyphae which also extend into the layers (Fig. 3). The spores are borne on basidia to be found only in the interior of each sporangium.

A translation of Tulasne's original description of *Cyathus Lesueurii* is as follows :

CYATHUS LESUEURII Tul. — "Peridium thin, membranaceous, gray becoming pale; the outside beset with scattered fibres, sometimes converging at their tips, or free of fibres; the inside of peridium glabrous; not striated or ciliated at the margin; with a very short limb immediately cut off, sometimes none; sporangiola discoid, dark, even, having a very tough and thick covering; hymenial layer thin, spores thick."

There are two forms described, the major and minor forms.

"Form major, — Peridium campanulate and with an elongated stipe, sporangiola and spores thicker: spores 28–32 μ . long by 22–24 μ . wide."

"Form minor, — Peridium sessile, becoming white, with smaller sporangiola and spores. Spores 22 μ . long by 17–19 μ . wide."

The spores taken from the specimens found on the Middlebury College campus measured 29.6 x 25.9 μ .; while specimens taken from a lawn in the village had spores measuring 29.8 x 27.7 μ . (Fig. 1). These specimens from Middlebury agree well in general character with the description and are doubtless the major form of *Cyathus Lesueurii* Tul.

The spores of the *Lesueurii* from the South Carolina collection in Ravenel's F. Am. Exs. No. 474, I found to be of the same shape and to measure 26 x 22 μ .

Another species of *Cyathus* from the United States has been described, namely, *Cyathus stercoreus* (Schw.) De. Ton. which resembles in many respects *Cyathus Lesueurii* Tul. The description of *Cyathus stercoreus* given by Schweinitz is the following: —

NIDULARIA STERCOREA Schw. — “ Peridia are obconical and somewhat scattered. Exterior of peridium strigose-hirsute, becoming canescent, finally bare and brown; margin fimbriate. Inner surface of peridium glabrous, not plicate-striate, reddish-chestnut, somewhat shining, becoming blackish toward the bottom. Sporangiola dark, smooth, somewhat large. Peridium one half the size of that of *Nidularia striata* with which it is allied.”

I examined a section of the sporangiolum of *Cyathus stercoreus* made by Dr. Burt from the original collection in Herb. Schweinitz. The spores were the same shape but smaller than those of *C. Lesueurii*, measuring $15.8 \times 18.7 \mu$ (Fig. 2). This is perhaps the same as the minor form of *C. Lesueurii*.

I have studied specimens from several collections, referred to *Cyathus vernicosus* (Bull.) De Cand. The peridium of the *C. vernicosus* is more expanded at the top, and the outer surface is not covered with coarse fibres (Fig. 8). The spores are very much smaller than in *Cyathus Lesueurii*, obtuse at one end and pointed at the other (Fig. 4). In the specimen from Hungary the spores are $11 \times 7 \mu$. In a specimen from Ravenel's F. Am. Exs. No. 473 and in one from Canada, the spores had the same shape and measurement.

A single collection of *C. vernicosus* has been made in Middlebury, Vt. The specimens were growing abundantly and vigorously in a greenhouse, on soil taken from the garden. The spores were the right shape and had very nearly the same measurement as those from Hungary.

The wall of the sporangiolum of *C. vernicosus* and of *C. Lesueurii* (Fig. 3) measure about the same in thickness, but the wall of *C. stercoreus* (Fig. 6) is much thicker.

In conclusion *Cyathus Lesueurii* (Fig. 5) may be readily distinguished from *Cyathus vernicosus* (Fig. 8) by the difference in shape of the peridia; by the coarse fibers which are present on the peridium of *C. Lesueurii*, and chiefly by the difference in shape and size of the spores. Both *C. Lesueurii* Tul. and *C. vernicosus* (Bull.) De Cand. can be distinguished from *Cyathus striatus* (Huds.) Hoffm., also found in this country, by the absence of the striated peridium.

MIDDLEBURY COLLEGE, MIDDLEBURY, VT.

EXPLANATION OF PLATE 17. — Fig. 1, spores of *Cyathus Lesueurii*, x 600; Fig. 2, spores of *Cyathus stercoreus*, x 600; Fig. 3, wall of sporangiolum of *C. Lesueurii*, x 100; Fig. 4, spores of *Cyathus vernicosus*, x 600; Fig. 5, peridium of *C. Lesueurii*, x 4; Fig. 6, wall of sporangiolum of *C. stercoreus*, x 100; Fig. 7, semi-peridium of *C. Lesueurii*, x 4; Fig. 8, peridium of *C. vernicosus*, x 3.7.