AUTUMN COLLECTIONS OF THE BASIDIOMYCETES AND THE LEAF-INHABITING FUNGI OF SANFORD (RIVER) WOODLOT OF MICHIGAN STATE COLLEGE

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by

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TABLE OF CONTENTS AND OUTLINE

THE WOODLOT

The Sanford woodlot of Michigan State College, usually called the River woodlot, is located in Township 4 North and Range 1 West in Ingham County, Michigan. It is approximately one quarter of a mile East and a little South from the central campus of the college. This 55-acre woodlot is bordered on the North by the Red Cedar River, on the South and West by open fields, and on the East by the Pinetum, a three-acre plot of white pines owned by the college. The woodlot is about 2640 feet long in an east-west direction, about 760 feet wide on the east end, about 690 feet wide on the west end, and about 1155 feet across in the widest portion, which is near the middle.

The principal type of soil found in the woodlot is sandy loam. The reaction of the soil ranges from Ph 5 to Ph 7.5 (37). A thick layer of humus, which arises by the decay of leaves, twigs, and herbaceous stems of the plant flora, covers most of the area.

There are about five noticeable low areas or drains in the woodlot. One low spot near the southeast corner generally contains some water. About 150 feet west from this low place is a low mucky area. Near the northwest corner the ground is comparatively low but not so low as these first mentioned places. Along the river for about the eastern half of the length of the woodlot the land

is low, and a drain from this empties into the river. There is another drain in the woodlot from the south side all the way across the woodlot to the river. This drain is about one-third the way across the plot from the west end.

The woodlot is a maple-beech type of climax forest. Some of the other common types of trees which may be found include oak, ash, elm, tulip-tree, willow, and sycamore. The forest is open with patches of such shrubs as dogwood, elder, currant, and arrow-wood. Some vines such as grape and green brier are also present. The forest flora is typical for hardwood forests of this state, and such herbs as violet, sedge, liverleaf, spring beauty, Solomon's seal, false Solomon's seal, buttercup, wild ginger, bishop's cap, and anemone are a few of the common flowers which grow in the woodlot.

COLLECTING AND PRESERVING SPECIMENS

The collection of fungi for this problem was started on September 17, 1940. The plan followed was to collect all of the fungi possible in the fall, make careful notes as to their appearance, substratum, habitat, and the like, dry them out, and identify the specimens during the winter term. In collecting, an attempt was made to go over the woods systematically. At first circuits around the edges of the woodlot were made, then circuits a little inside of this and so on until the whole woodlot had been gone over. This plan was followed a number of times, for by the time the woodlot had been completely gone over, other fungi had come out and also there was the likelihood of getting specimens overlooked the first time. On October 1, 1940, and October 17, 1940, some collections were made from the campus and are included. On October 31, 1940, and on November 4, 1940, collections from the Pinetum were made and are included. All types of fungi found and also some Mycetozoa (slime molds) were collected. Only certain groups, which will be pointed out later, are included in this work.

In collecting and preserving specimens it is quite important to make careful notes when the fungi are fresh (27). The fungi that were parasitic on leaves, stems, or flower parts were preserved by pressing the host material.

The hard fungi, such as the polypores and certain Ascomycetes, were dried over a plant oven with electric coils, but notes were taken as to colors and sizes when fresh. The fleshy fungi like the Pezizales and Gasteromycetes were dried, but notes were taken before drying. Fungi like the agarics require more exact information than the preceding groups. It is very helpful in later work to make sketches showing the appearance of young and fully grown specimens and also of longitudinal sections showing the shape of the gills, the degree and mode of attachment of the gills to the stipe, the shape of the stipe and whether it is hollow or not, the presence or absence of an incurved margin of the pileus in young specimens, the presence or absence of an evanescent or permanent annulus. Notes as to the presence or absence of scales on the stipe or pileus and as to colors of all parts in young and mature specimens are almost a necessity for identification. It is very important also to know whether the pileus becomes water-soaked if a drop of water is put on it, whether the gills exude latex when broken and, if present, what color it is, and whether the pileus or stipe is viscid. Since spore color is the first criterion for separation, spore prints were made where the color could not be ascertained otherwise. After all of these

notes were taken, these specimens were dried. Each specimen except those of the leaf and stem parasites was placed in a box with some insecticide, Paradow (para-dichlorophenol), for future study. Notes as to the habitat, the substratum, the date of collection, the prevalence, habit of growth (solitary, gregarious, scattered, or caespitose), and any striking characteristic are very useful in identification.

The conditions for fungus growth were especially favorable in the fall of 1940. The fungi grew so thickly and luxuriantly that with some specimens as careful notes as possible were not made, even though explicit directions had already been given. That is one lesson to be appreciated in later work.

MATERIALS AND METHODS

Almost all of the mounts made for microscopic study were made in lactophenol. There were some exceptions, for with some of the leaf parasites a strong potassium hydroxide solution and ethyl alcohol were used for mounting the materials. In some instances water was used to mount the spores or other materials; this was true in the Gasteromycetes. Lactophenol has some advantages over water as a mounting medium. The material to be studied can be placed on the slide with lactophenol, covered by a cover glass, and heated gently to remove air which may be in or around the material for study; slides made in this fashion can be kept for one or two months or even longer for reference; and lactophenol acts as a clearing agent in some instances. With the gill fungi, lactophenol was very excellent for mounting a portion of a gill, heating to remove air, and then using for study. Most all spore measurements cited in this work were made from lactophenolic mounts.

THE GROUPS INCLUDED

The fungi included in this work are the Basidiomycetes and such members of other classes as are parasitic on or in leaves or herbaceous stems of the Spermatophytes. Members of the other groups were collected and preserved but are not included for the lack of time. The orders in which there are no representatives listed will be denoted in the following outline to the orders of the fungi by an asterisk (*) immediately after the order name. The arrangement of the keys is entirely artificial and arbitrary and no attempt is made to keep plants in a natural arrangement in the keys. The keys are mostly dichotomous, but in some instances more than two choices are possible. The keys in this paper are in part original and are in part patterned after the keys in certain books and publications (3, 6, 7, 8, 9, 10, 15, 21, 27, 33, 34, 36).

The author citations which follow the genus, species, and variety names are taken from the various books and publications used in the identification. For example, the author citations for the Gasteromycetes are taken from Coker's book (33), and for the Agaricaceae, Kauffman's book (27) with the exception that modern usage makes Agaricus preferable to Psalliota for one of the genus names.

An Outline of the Orders of the Fungi

1. Mycelium lacking, non-filamentous fungi ----------Order Chytridiales *

1. Mycelium present, forming the vegetative part of the plant---------- 2

2. Mycelium usually non-septate--Class Phycomycetes p. 8

2. Mycelium septate---------- 3

3. Spores not borne on a differentiated mycelium, not in asci or on basidia; perfect stage unknown ----------Class Fungi Imperfecti p.13

3. Spores usually borne in or on a differentiated mycelium---------- 4

4. Spores borne in asci, usually eight in an ascus ----------Class Ascomycetes p. 9

4. Spores borne on a basidium, usually four on a basidium---------- 5

5. Basidia arranged so as to form a hymenium; basidia arise from dicaryon mycelium; mainly saprophytes ----------Class Basidiomycetes p. 12

5. Basidia not forming a hymenium; spores borne on septate or non-septate basidia which arise from resting spores (teliospores); parasites ----------Class Teliosporeae p. 11

PHYCOMYCETES

6. Gametes or gametangia unequal, resulting in heterogamous sexual reproduction with the oospore escaping or lying in the oogonium; zoospores generally formed; cell walls usually contain cellulose----------Subclass Oomycetes 7

6. Gametangia mostly equal resulting in isogamous sexual reproduction with the zygospore generally occupying the cavities of both gametangia; zoospores not formed; cell walls do not ordinarily contain cellulose-------Subclass Zygomycetes 9

7. Both gametes or only male gamete motile; fertilization tube lacking; zoospores motile with one posterior flagellum; cell wall not giving cellulose reaction with chloriodide of zinc until after treatment with KOH solution ----------Order Monoblepharidales *

7. Motile gametes ordinarily not formed; male gametes discharged into oosphere through a fertilization tube put out by the antheridium. Zoospores motile with two flagella either anterior or lateral; cell wall giving cellulose reaction immediately upon treatment with chloriodide of zinc---------- 8

8. Forms typically aquatic and chiefly saprophytic; sporangia not deciduous, freeing endogenous zoospores; oogonium forming one to many oospheres----------Order Saprolegniales *

8. Forms typically terrestrial and chiefly internal parasites of land plants; sporangia deciduous and wind disseminated; in some cases freeing endogenous zoospores, in others germinating directly by a germ tube-----Order Peronosporales *

9. Forms mostly saprophytic; mycelium very extensive, non-septate or septate in older aerial hyphae; zygospores borne on aerial mycelium; asexual reproductive cells various and representing steps from a many-spored, persistent, dehiscent sporangium to a one-spored, deciduous, and indehiscent sporangium called a conidium; conidia not shot away----------Order Mucorales *

9. Forms mostly parasitic in insects; mycelium not very extensive, at first coenocytic but becoming septate or falling apart into hyphal bodies; zygospores borne within host; asexual reproduction by conidia which are shot away at maturity ----------Order Entomophthorales *

ASCOMYCETES

10. Asci formed singly as a direct result of karyogamy; no ascocarp developed, but asci may sometimes be closely aggregated---------- 11

10. Asci borne in ascocarps---------- 12

11. Zygote usually forms a single ascus; mycelium sometimes lacking; most saprophytic ----------Order Saccharomycetales *

11. Hyphal cells produce superficial asci in which the ascospores are borne; mycelium present; parasitic ----------Order Taphrinales *

12. Minute parasites on insects or arachnids; mycelium reduced to a small number of cells at the base of the ascocarp----------Order Laboulbeniales *

12. If parasitic, rarely on insects; mycelium well developed---------- 13

13. Asci borne in typical or reduced perithecia------ 14

13. Asci borne in apothecia---------- 22

14. Fungi living in association with algae to form lichens----------Order Pyrenulales *

14. Fungi not forming lichens---------- 15

15. Stroma present; asci borne in cavities (locules) without differentiated perithecial walls------- 16

15. Stroma present or absent; ascigerous cavities surrounded by perithecial walls---------- 19

16. One ascus produced in each cavity---------- 17

16. More than one ascus produced in each cavity; stroma pseudoparenchymatous throughout ----------Order Dothideales p. 15

17. Stroma pseudoparenchymatous in the lower portion with a hard, firm upper portion ----------Order Hemisphaeriales *

17. Stroma not as above---------- 18

18. Stroma firm throughout; ascus spherical, asci widely separated from each other by a large mass of fungus tissue---------Order Myriangiales *

18. Stroma with a firm outer layer resembling a typical perithecium; ascus rarely, if ever, spherical, asci may be separated rather widely or separating tissue may be rather thin--Order Pseudosphaeriales *

19. Ostiole typically lacking; perithecia remaining closed or opening by an apical tear or split------20

19. Ostiole present----------21

20. Asci produced throughout interior of perithecium; mostly saprophytic----------Order Aspergillales *

20. Asci borne in tufts or hymenial layers, sometimes singly, in specific portions of the perithecium ----------Order Erysiphales p. 15

21. Perithecia dark colored, leathery or brittle ----------Order Sphaeriales *

21. Perithecia light colored, fleshy---Order Hypocreales *

22. Fungi living in association with algae to form lichens----------Order Lecanorales *

22. Fungi not forming lichens---------- 23

23. Apothecia reduced in size and elongated, often boat-shaped; opening by a long narrow slit ----------Order Hysteriales *

23. Apothecia not elongated or boat-shaped; not opening by a slit---------- 24

24. Ascocarps epigeic, at least at maturity; hymenium usually exposed before maturity of spores ----------Order Pezizales *

24. Ascocarp hypogeic, remaining closed--Order Tuberales *

TELIOSPOREAE

25. Teliospores usually forming black powdery masses within host tissue; parasitic but not obligately so; basidium septate or non-septate usually bearing sessile basidiospores; basidiospores usually capable of budding----------Order Ustilaginales *

25. Teliospores usually not forming powdery masses, may be borne in groups as sori; often many spore forms produced; obligately parasitic; basidium divided transversely into four cells, each cell producing basidiospores on sterigmata; basidiospores not budding ----------Order Uredinales p. 18

BASIDIOMYCETES

26. Hymenium concealed within the fruit-body until spores are mature------Subclass Gasteromycetes 30

26. Hymenium exposed---------- 27

27. Basidia undivided---------- 29

27. Basidia divided into four cells---------- 28

28. Basidia divided into four cells by vertical walls----------Order Tremellales p. 20

28. Basidia divided into four cells by transverse walls----------Order Auriculariales *

29. Basidia clavate or sub-cylindrical ----------Order Agaricales p. 21

29. Basidia forked, with two stout branches ----------Order Dacryomycetales *

30. Plants emerging at maturity from a soft volva; spores borne in a slimy brown bad-smelling liquid at the top of a stalk or net of several columns----------Order Phallales p. 65

30. Not as above---------- 31

31. Plants small, shaped like cups or varying to spherical; basidia produced in peridioles ----------Order Nidulariales p. 62

31. Not producing peridioles---------- 32

32. Peridium without a distinct outer layer that falls away or splits; capillitium not present among spores; spore-fruits subterranean or emerging at maturity----------Order Hymenogastrales p. 61

32. Peridium with a distinct outer coat which falls away or splits at maturity; true capillitium present among spores---Order Lycoperdales p. 63

FUNGI IMPERFECTI

33. No spores produced-------Order Mycelia Sterilia *

33. Spores produced---------- 34

34. Spores usually borne on scattered conidiophores ----------Order Moniliales *

34. Spores borne in clusters or groups---------- 35

35. Spores borne within an acervulus ----------Order Melanconiales p. 69

35. Spores borne within a pycnidium-Order Sphaeropsidales p. 66

SPHAERIALES

In the following key to the families of the Sphaeriales, the families in which there are no specimens included are indicated by an asterisk (*) immediately following the family name. The key is in part original and is in part patterned after that by Martin (3).

(1). Perithecia superficial or partly immersed---------(2)

(1). Perithecia immersed in substratum or stroma with only the mouth or neck projecting----------(9)

(2). Stroma lacking----------(3)

(2). Stroma present----------(7)

(3). Perithecial walls thin----------(4)

(3). Perithecial walls thick and hard----------(6)

(4). Perithecia light-brown; often a neck is developed ----------Family Melanosporaceae *

(4). Perithecia darker; no neck developed----------(5)

(5). Perithecia naked or almost naked; asci expel spores forcibly----------Family Fimetariaceae *

(5). Perithecia covered with long hairs, especially around the ostiole-------Family Chaetomiaceae *

(6). Perithecia with simple ostioles or with low papillae----------Family Sphaeriaceae *

(6). Perithecia with longer ostiolar papillae or with long necks----------Family Ceratostomataceae *

(7). Perithecia superficial, at least at maturity ----------Family Cucurbitariaceae *

(7). Perithecia partly sunken in the substratum, persistently with the upper part free------(8)

(8). Perithecia open by circular ostioles ----------Family Amphisphaeriaceae *

(8). Perithecia open by compressed elongated slits ----------Family Lophiostomataceae *

(9). Stroma lacking; perithecia immersed in substratum----------(10)

(9). Stroma present----------(12)

(10). Perithecia subepidermal, opening by papillate ostioles; asci not thickened apically-------(11)

(10). Perithecia sunken, long necks projecting above the surface; asci with thickened apices traversed at maturity by a pore ----------Family Gnomoniaceae p. 15

(11). Paraphyses not present-Family Mycosphaerellaceae *

(11). Paraphyses present----------Family Pleosporaceae *

(12). Asci with short evanescent stalks; at maturity asci are free, forming a loose central mass; stroma not entirely of fungal structure ----------Family Diaporthaceae *

(12). Asci with long persistent stalks----------(13)

(13). Stroma effused or isolated, not wholly of fungal structure; ascospores mostly yellowish, allantoid; paraphyses mostly evanescent
----------Family Allantosphaeriaceae *

(13). Stroma rounded or upright, wholly of fungal elements; ascospores large, dark; paraphyses persistent
----------Family Xylariaceae *

GNOMONIACEAE

Only one species of this family was collected.

1. Gnomonia ulmea (Schw.) Thüm.
Place of collection: northwest entrance to the woodlot.
Date of collection: September 18, 1940.
Occurrence: frequent.
Host: Ulmus americana L.
Part of host attacked: leaves.

DOTHIDEALES

(1). Stroma arising subepidermally or subcuticularly, but covered by host tissues at maturity
----------Family Phyllachoraceae p.15

PHYLLACHORACEAE

Only one species of this family was collected.

2. Phyllachora graminis (Pers.) Nke.
Place of collection: near northeast corner of the woodlot.
Date of collection: October 22, 1940.
Occurrence: frequent.
Host: Elymus sp.
Part of host attacked: leaf blades and leaf sheaths.
Habitat: in frondose woods.

ERYSIPHALES

In the following key to the families of the Erysiphales, the families in which there are no specimens included are

indicated by an asterisk immediately following the family name.

(1). Forms parasitic on the epiphyllous mycelium of Meliola and other fungi, tropical ----------Family Trichothyriaceae *

(1). Forms, if parasitic, not on fungi----------(2)

(2). Mycelium white----------Family Erysiphaceae p. 16

(2). Mycelium dark colored----------(3)

(3). Mycelium of cylindrical cells; perithecial walls composed of polygonal cells, which do not become gelatinous----------Family Meliolaceae *

(3). Mycelium often of swollen cells constricted at the septa; perithecial walls composed of parallel, laterally adhering hyphae, which often become gelatinous----------(4)

(4). Perithecial wall dissolves at maturity exposing the enclosed asci---------Family Englerulaceae *

(4). Perithecial wall not dissolving, may be gelatinous----------Family Capnodiaceae *

Key to the Genera of Erysiphaceae Collected

A. Appendages of the perithecium branched more or less dichotomously at the apex------Microsphaera p. 16

A. Appendages unbranched (simple)---------- B.

B. Appendages recurved (uncinate) at the tip ----------Uncinula p. 17

B. Appendages not recurved, more or less straight ----------Erysiphe p. 18

MICROSPHAERA Lev.

a. Tips on some or all of the ultimate branches of the appendages recurved----------b

a. Tips not recurved; apex of appendages with very short primary and secondary branches more or less digitate----------3. M. grossulariae (Wallr.) Lev.

b. Tips of ultimate branches of the appendages not all regularly and distinctly recurved ----------4. M. alni var. lonicerae DC.

b. Tips all regularly and distinctly recurved; appendages regularly dichotomous at the apices ----------5. M. alni (Wallr.) Wint.

3. Microsphaera grossulariae (Wallr.) Lev.
Place of collection: south side of the Pinetum.
Date of collection: October 31, 1940.
Occurrence: infrequent.
Habitat: on small shrub in the Pinetum.
Host: Sambucus racemosa L.
Part of host attacked: leaves.

4. Microsphaera alni var. lonicerae DC.
Place of collection: south side of the Pinetum.
Date of collection: October 31, 1940.
Occurrence: infrequent.
Habitat: on small shrub in the Pinetum.
Host: Lonicera sp.
Part of host attacked: leaves.

5. Microsphaera alni (Wallr.) Wint.
Place of collection: south side of Administration Building on Michigan State College campus.
Date of collection: October 17, 1940.
Occurrence: frequent.
Habitat: on shrub protected by a building.
Host: Syringa sp.
Part of host attacked: leaves.

UNCINULA Lev.

a. Appendages colored for half their length or more, mostly exceeding the diameter of the perithecium; on grape----------6. U. necator (Schwein.) Burr.

a. Appendages not colored; not exceeding the diameter of the perithecium; on maple ----------7. U. circinata Cooke and Peck

6. Uncinula necator (Schwein.) Burr.
Place of collection: west entrance of the Pinetum.
Date of collection: October 31, 1940.
Occurrence: infrequent.
Habitat: on a vine in Pinetum; on dead leaves on ground also.
Host: Vitis sp.
Part of host attacked: leaves.

7. Uncinula circinata Cooke and Peck
Place of collection: west central area of the woodlot.
Date of collection: October 8, 1940.
Occurrence: frequent.
Habitat: on small maple trees surrounded by large trees.
Host: Acer saccharum Marsh.
Part of host attacked: leaves.

ERYSIPHE Hedw. f.; DC. (emend Lev.)

a. Perithecia 80-140 micr. in diameter; ascospores 2 per ascus----------8. E. cichoracearum DC.

8. Erysiphe cichoracearum DC.
Place of collection: scattered variously in the woodlot.
Dates of collections: October 27, 31, November 4, 1940.
Occurrence: frequent.
Habitat: on herbaceous plants in frondose woods.
Hosts: Aster cordifolius L., Hydrophyllum sp., Helianthus sp.
Part of host attacked: leaves.

UREDINALES

(1). Teliospores sessile, single or grouped within host tissue or united laterally into layers or columns ----------Family Melampsoraceae p. 18

(1). Teliospores pedicellate or sessile, free or fascicled but not united laterally except when borne on a compound stalk----------Family Pucciniaceae p. 20

MELAMPSORACEAE

A. Teliospores 1-celled, compressed laterally into crusts, of one cell thickness; aecia with rudimentary peridium or none; teliospore wall colored ----------Melampsora p. 19

A. Teliospores 1-celled, catenulate, adhering laterally; aecia with a peridium----------B.

B. Telia erumpent, long filiform; urediniospores pedicellate; teliospores catenulate--------Cronartium p. 19

B. Telia indehiscent, forming cushion-like masses; urediniospores catenulate; teliospores imperfectly catenulate with gelatinous walls-Coleosporium p. 19

MELAMPSORA Cast.

a. Host of the genus Salix; urediniospores 17-24 micr. long----------9. M. bigelowii Thüm

9. Melampsora bigelowii Thüm
Place of collection: on river bank in Pinetum.
Date of collection: October 31, 1940.
Occurrence: infrequent.
Host: Salix sp.
Part of host attacked: leaves.

CRONARTIUM Fries

a. Telial and aecial host ligneous; aecial stage on Pinus Strobus L.------10. C. ribicola Fischer

10. Cronartium ribicola Fischer
Place of collection: small peninsula into river from the woodlot.
Date of collection: October 15, 1940.
Occurrence: infrequent.
Habitat: in frondose woods.
Host: Ribes americanum Mill.
Part of host attacked: leaves.

COLEOSPORIUM Lev.

a. Urediniospores ellipsoid, strongly verrucose; telia hypophyllous, reddish-orange when fresh ----------11. C. solidaginis (Schw.) Thüm.

11. Coleosporium solidaginis (Schw.) Thüm.
Place of collection: various places in the woodlot.
Dates of collections: September 18, October 15, 22, 1940.
Occurrence: frequent.
Habitat: in frondose woods.
Hosts: Aster cordifolius L., Solidago sp.
Part of host attacked: leaves.

PUCCINIACEAE

A. Teliospores 2-celled, the pedicels long and gelatinous; aecia cornute; uredinia wanting
----------Gymnosporangium p. 20

GYMNOSPORANGIUM Hedw.

a. Telia on globoid gall-like excrescenes; aeciospores globoid, 15-19 x 18-25 micr., walls finely verrucose
----------12. G. globosum Farl.

12. Gymnosporangium globosum Farl.
Place of collection: on campus near weather bureau.
Date of collection: October 17, 1940.
Occurrence: frequent.
Host: Crataegus sp.
Part of host attacked: leaves.

TREMELLALES

The family in which there are no representative included in this work is indicated by an asterisk (*).

(1). Basidia borne exposed on the fruit-body (gymnocarpous); widely distributed
----------Family Tremellaceae p. 20

(1). Basidia borne enclosed within the fruit-body (angiocarpous); tropical inhabitants
----------Family Hyaloriaceae *

TREMELLACEAE

A. Texture gelatinous; shrinking on drying, reviving when moistened; plants without a central body of different texture----------Exidia p. 20

A. Texture as above; plants containing several small seed-like bodies, which become conspicuous on drying----------Naematelia p. 21

EXIDIA Fries

a. Plant dark, black, with small scattered papillae on exposed surface; drying into a thin black membrane----------13. E. glandulosa (Bull.) Fr.

13. Exidia glandulosa (Bull.) Fr.
Place of collection: central area of the woodlot.
Date of collection: October 15, 1940.
Habit: spreading masses over the surface of substratum.
Habitat: on the bark of frondose logs.
Occurrence: infrequent.

NAEMATELIA Fries

a. Growing on deciduous wood; dull ochraceous or smoky clay; spores white, elongated--14. N.nucleata (Schw.) Fr.

14. Naematelia nucleata (Schw.) Fr.
Place of collection: central area of the woodlot.
Dates of collections: September 25, October 15, 1940.
Habit: spreading or convoluted masses over the surface of substratum.
Habitat: on the bark of oak logs.
Occurrence: frequent.

AGARICALES

In the following key to the families of the Agaricales, the families in which there are no specimens included are indicated by an asterisk (*) immediately following the family name.

(1). Hymenophore not differentiated; basidia scattered on a loose subiculum of hyphae; parasites of higher plants----------Family Exobasidiaceae *

(1). Hymenophore differentiated; basidia borne in a hymenium---------- (2)

(2). Hymenophore smooth, that is not forming special branches as tubes, gills or teeth-Family Thelephoraceae p. 22

(2). Hymenophore not smooth, forming special branches--(3)

(3). Hymenium on all sides of upright, clavate, or coralloid branched portions of the spore-fruit----------Family Clavariaceae p. 24

(3). Hymenium not on all sides of the spore-fruit, generally confined to the lower surface---------(4)

(4). Hymenophore in the form of wrinkles, warts, spines, or tooth-like plates----------Family Hydnaceae p. 25

(4). Hymenophore in the form of gills (lamellae) ----------Family Agaricaceae p. 35

(4). Hymenophore poroid, pitted, or reticulated; basidiocarp at maturity woody, tough, or membranous, rarely subfleshy-Family Polyporaceae p. 27

(4). Not as above in all respects---------- (5)

(5). Hymenophore poroid, pores easily separable from pileus and from each other; basidiocarp at maturity soft, fleshy, putrescent--Family Boletaceae p. 34

(5). Hymenophore with separate (though closely crowded), pendent, hollow tubes; basidiocarp fleshy ----------Family Fistulinaceae *

THELEPHORACEAE

A. Plants growing on wood, shelf-like or petal-like, usually imbricated----------Stereum p. 22

A. Plants growing on wood, entirely resupinate; hymenium with specialized cystidia mixed with the basidia----------Peniophora p. 23

STEREUM Pers.

a. Pyriform vesicular organ present in trama, subhymenium, or hymenium; hair-like cystidia present ----------15. S. rugosiusculum Berk. and Curtis

a. Vesicular organs not present; no cystidia present; pileus strigose-hirsute, 2 cm. broad ----------16. S. hirsutum (Willdenow) Fries

15. Stereum rugosiusculum Berk. and Curtis
Place of collection: near west entrance to the woodlot.
Date of collection: September 18, 1940.
Habitat: on decaying stump in frondose woods.
Habit: imbricately caespitose.
Occurrence: infrequent.
The spores in this specimen were few and immature, but other characteristics agree.

16. Stereum hirsutum (Wildenow) Fries (?)
Place of collection: central area of the woodlot.
Date of collection: September 25, 1940.
Habitat: on oak logs in frondose woods.
Habit: imbricately caespitose.
Occurrence: infrequent.
The descriptions given by Burt (13) for S. hirsutum and S. fasciatum are so similar that it is very difficult to distinguish the species. S. fasciatum is described as being 2-7 cm. in diameter, and S. hirsutum is 1-2 cm.

long and up to 2 cm. broad. This specimen is 1-3 cm. long and 1½ cm. broad; hence it is called S. hirsutum. It also lacks the dark marginal band on the pileus which is sometimes present on S. fasciatum.

17. Stereum sp.

Place of collection: central area of the woodlot.
Date of collection: October 1, 1940.
Habitat: on logs in frondose woods.
Habit: gregarious to sub-caespitose.
Occurrence: infrequent.

This specimen could not be placed definitely in any species but it fits into the group of central-stemmed species as described by Burt (13). A description of the plant is given.

Pileus petaloid to infundibuliform, attached by a very short stipe, either centrally or obliquely at the side or sessile. Pilei vary from slightly caespitose to solitary, and have a range in size from 4-6 mm. broad to 4-8 mm. long. Margin of the pileus very much incised to lobed. The sterile surface of the pileus brownish-buff, obscurely zonate and fibrillose to slightly scaly. Hymenial surface smooth, brownish-buff. Few capitate cystidia are present in the hymenium. Spores hyaline, smooth, slightly curved or flattened on one side, 2.8-3.5 x 7-10 micr. Pileus 375 micr. thick in section.

PENIOPHORA Cooke

Only one specimen of this genus was collected.

18. Peniophora sp.

Place of collection: central area of the woodlot.
Date of collection: October 31, 1940.
Habitat: on dead limbs and twigs of maple.
Habit: spreading, over the surface of maple stems.
Occurrence: infrequent.

This fungus does not agree with the description for any species of this genus given by Burt (13) or Coker (14). A description of the fungus is given.

Fructifications broadly effused and entirely resupinate, pinkish to whitish in color, not separable from the substratum but cracking in age. The margin thin, white fibrillose, and tightly adherent to the substratum. Cystidia pointed to obtuse, encrusted,

7-8 x 36 micr. Few antler-like paraphyses present in the hymenium. Spores smooth, hyaline, 2.3-3 x 7-10 micr. The fructifications single, then confluent, at length spreading over surface of the substratum 2-3 x 20-30 cm.

CLAVARIACEAE

A. Plants club-shaped or cylindrical or much branched in a coral-like manner, branches or clubs not hair-like on drying; neither hymenium nor growing tips tomentose----------Clavaria p. 24

CLAVARIA Vaillant

a. Plants simple or slightly branched, about 1-1.5 cm. high; caespitose; growing on soil or humus ----------19. C. helveola Pers.

a. Plants branched and bulky, branches numerous, about 4-8 cm. high; plants grouped together; growing on wood----------20. C. stricta Pers.

19. Clavaria helveola Pers.
Place of collection: near the river in the woodlot.
Date of collection: September 28, 1940.
Habitat: on humus soil around base of elm tree.
Habit: caespitose clusters.
Occurrence: infrequent.

20. Clavaria stricta Pers.
Place of collection: along the west side and center of the woodlot.
Dates of collections: September 19, 21, 1940.
Habitat: on decaying wood in frondose woods.
Habit: in colonies or clusters.
Occurrence: frequent.

The plants collected on September 19, 1940, were typical for C. stricta, but the ones collected on September 21, 1940, could not be placed definitely into any species. From C. stricta, they differ in that the plants are more fleshy than described by Coker (15), and in that the ultimate branches do not terminate in small teeth. From C. flava, they differ in being white rather than yellow and growing on wood rather than soil. The plants appear similar

to C. botrytis but differ in being more branched and in not rooting. The spores of all of these species are so nearly the same in size and appearance that they cannot be used in the determination.

HYDNACEAE

A. Fructification resupinate, thin; teeth or spines conspicuous, long, slender, usually terete; spores variable; no cystidia----------Oxydontia p. 25

A. Fructification stipitate, richly branched, soft, fleshy; spores spherical or subspherical; gloeocystidia usually present---------Hericium p. 26

A. Fructification laterally substipitate or sessile, reflexed or rarely entirely resupinate; subfleshy to coriaceous; spores smooth ----------Steccherinum p. 26

OXYDONTIA Miller

a. Fructification strongly adnate to substratum; mycelial strands absent; context compact-------- b.

a. Fructification with a loose, floccose layer next to the substratum; mycelial strands present, running over the substratum; spores smooth, hyaline, 3.5-5 x 7-12 micr. ----------21. O. Himantia (Schw.) Miller

b. Fructification bright yellow in color; strong odor when fresh; spores 3-4.5 x 5-6 micr.; on pomaceous hosts----------22. O. setosa (Pers.) Miller

b. Fructification darker yellow to brown; odor not strong; spores 1.5-2.5 x 3-5 micr.; on wood of various species-----23. O. stenodon (Pers.) Miller

21. Oxydontia Himantia (Schw.) Miller
Place of collection: central area of the woodlot.
Date of collection: September 25, 1940.
Habitat: on a log in frondose woods.
Habit: resupinate on the substratum.
Occurrence: frequent.

22. Oxydontia setosa (Pers.) Miller
Place of collection: along the river and about midway from west side in the woodlot.
Date of collection: September 27, 1940.
Habitat: on logs in frondose woods.
Habit: resupinate on the substratum.
Occurrence: frequent.
This specimen is apparently younger and more delicate than that described by Miller (18), but agrees in other respects. The host is probably Amelanchier.

23. Oxydontia stenodon (Pers.) Miller
Place of collection: west edge of the woodlot.
Date of collection: September 19, 1940.
Habitat: on large branches of frondose wood.
Habit: resupinate on the substratum.
Occurrence: infrequent.

HERICIUM Pers.

Only one specimen in this genus was collected, H. coralloides (Scop.) Pers.

24. Hericium coralloides (Scop.) Pers.
Place of collection: near west entrance and along the river in the woodlot.
Dates of collections: September 18, 27, 1940.
Habitat: on stumps and beech tree in frondose woods.
Habit: large branching clusters on host.
Occurrence: very common.

STECCHERINUM Gray

a. Pileus strongly tomentose; color light grayish-brown; flesh dry----------25. S. Rhois (Schw.) Banker

25. Steccherinum Rhois (Schw.) Banker
Place of collection: central area of the woodlot.
Date of collection: November 18, 1940.
Habitat: on a log in frondose woods.
Habit: sessile by a constricted base, sometimes confluent.
Occurrence: infrequent.

POLYPORACEAE

A. Fruiting body entirely r esupinate, never reflexed; poroid----------Poria p. 27

A. Fruiting body normally pileate, often effused-reflexed, sometimes varying to resupinate---- B

B. Fruiting body perennial, the tubes arranged in layers----------Fomes p. 28

B. Fruiting body annual---------- C

C. Hymenium typically daedaloid; tramal tissue not distinct from the context--------Daedalea p. 28

C. Hymenium not distinctly poroid, the pores reduced to shallow pits separated by narrow ridges or reticulations----------Merulius p. 28

C. Hymenium distinctly poroid or irpiciform------- D

D. Tubes mostly shallow and marginal; hymenium hydnoid or irpiciform at a very early stage ----------Irpiciporus p. 29

D. Tubes normally poroid, sometimes irpiciform from the rupture of the dissepiments at maturity ----------Polyporus p. 29

PORIA Pers.

a. Hymenium cream-colored, becoming grayish flesh-colored upon drying; plant forming large sheets on hardwood logs, frequently separating itself from the substratum ----------26. P. undata (Pers.) Bres.

26. Poria undata (Pers.) Bres.
Place of collection: west edge and central area of the woodlot.
Dates of collections: September 19, October 8, 1940.
Habitat: on logs in frondose woods.
Habit: forming large resupinate sheets.
Occurrence: frequent.

FOMES (Fries) Gill.

a. Context dark brown, punky to soft corky; fruiting body truly perennial; encrusted; spores 4-5 x 5-7 micr.--------27. F. applanatus (Pers.) Gill.

27. Fomes applanatus (Pers.) Gill.
Elfvingia megaloma (Lev.) Murr.
Place of collection: various places in the woodlot.
Dates of collections: September 18, 19, October 31, November 18, 1940.
Habitat: on living and on dead deciduous trees and logs.
Habit: sessile; solitary or in groups.
Occurrence: Very common.

DAEDALEA (Pers.) Fries

a. Surface of pileus villous or hirsute; tubes daedaloid at first, soon breaking up to form teeth, remaining daedaloid at the margin
----------28. D. unicolor (Bull.) Fries

28. Daedalea unicolor (Bull.) Fries
Cerrena unicolor (Bull.) Murr.
Place of collection: various places in the woodlot.
Dates of collections: September 19, October 8, November 18, 1940.
Habitat: on logs and stumps of deciduous trees.
Habit: sessile or effused-reflexed.
Occurrence: frequent.

MERULIUS (Haller) Fries

a. Fructification effused-reflexed when best developed, sometimes resupinate; fleshy-tremellose
----------29. M. tremellosus Schrader

a. Fructification always resupinate, drying white; hymenium becoming poroid--------30. M. albus Burt.

29. Merulius tremellosus Schrader
Place of collection: on west side and central area of the woodlot.
Dates of collections: September 19, 25, October 31, 1940.
Habitat: on logs and stumps of deciduous trees.
Habit: resupinate, then free or reflexed.
Occurrence: frequent.

30. Merulius albus Burt (?)
Place of collection: on east side and central area of the woodlot.
Dates of collections: October 31, November 18, 1940.
Habitat: on twigs of dead deciduous trees.
Habit: resupinate, effused.
Occurrence: infrequent.

These specimens resemble Burt's description (20), but the fungus adheres tightly to the bark and resembles a young Poria which it possibly is. These specimens are growing on wood of deciduous trees, but Burt described M. albus as growing on pine.

IRPICIPORUS Murrill

a. Teeth 1 cm. or more long; pileus usually large and thick-----31. I. mollis (Berk. and Curt.) Murrill

a. Teeth less than 0.5 cm. long; pileus thin and shortly reflexed----------32. I. lacteus (Fries) Murrill

31. Irpiciporus mollis (Berk. and Curt.) Murrill
Irpex mollis Berk. and Curt.
Place of collection: near river in the woodlot.
Date of collection: September 28, 1940.
Habitat: on a log in frondose woods.
Habit: sessile to effused-reflexed.
Occurrence: infrequent.

32. Irpiciporus lacteus (Fries) Murrill
Irpex tulipifera (Schw.) Fries
Polyporus tulipiferus (Schw.) Overh.
Place of collection: central area of the woodlot.
Date of collection: October 27, 1940.
Habitat: on a log in frondose woods.
Habit: resupinate to shortly reflexed.
Occurrence: infrequent.

In both of the foregoing specimens, the names are as listed by Murrill (22). Synonyms are listed according to Overholts (23) and Lowe (21). This seemed best since there is some misunderstanding in regard to the genus Irpex. Some mycologists include Irpex in the Hydnaceae; others, in the Polyporaceae.

POLYPORUS (Mich.) Fries

a. Fruiting body stipitate---------- b

a. Fruiting body sessile or effused-reflexed, rarely resupinate---------- c

b. Stipe central, black at base, rooting; pileus brown, rough, spores 6-8 x 12-15 micr., terrestrial----------33. P. radicatus Schw.

b. Stipe central or excentric, not black at base, not rooting; pileus hispid to glabrous; spores 2.5 x 8-9.5 micr.; lignicolous ----------34. P. brumalis (Pers.) Fries

c. Context white---------- d

c. Context brown to dark brown---------- k

d. Pileus coriaceous (Polystictus type)---------- e

d. Pileus corky or fleshy-tough, when fresh--------- j

e. Context 1 mm. or less thick---------- f

e. Context more than 1 mm. thick---------- h

f. Dissepiments often breaking up to form teeth-like projections; cystidia present; pore surface often violet tinted------35. P. pargamenus Fries

f. Dissepiments never breaking up to form teeth; cystidia absent---------- g

g. Surface distinctly zonate with many multicolored zones, villous or velvety ----------36. P. versicolor (L.) Fries

g. Surface white, rarely marked with brownish concentric zones; pileus usually bearing a sterile, cup-shaped structure at the base ----------37. P. conchifer (Schw.) Fries

h. Surface hirsute or tomentose; dissepiments usually thick and entire------38. P. hirsutus (Wulf.) Fries

h. Surface tomentose to velvety or villous or nearly glabrous, dissepiments usually thin and becoming dentate---------- i

i. Spores allantoid; pileus thin, narrowly effused-reflexed; pores 4-6 per mm. ----------39. P. semipileatus Peck

i. Spores cylindrical to cylindric-ellipsoid; pileus thick, sessile or effused-reflexed, often odorous; pores 3-4 per mm.-40. P. fragrans Peck

j. Fruiting body mostly resupinate; pileus up to 1.5 cm. broad; context less than 4 mm. thick ----------39. P. semipileatus Peck

j. Fruiting body sessile or effused-reflexed; pileus more than 1.5 cm. broad; context usually more than 4 mm. thick; surface with a thin pellicle that becomes more evident on drying ----------41. P. albellus Peck

k. Setae present---------- l

k. Setae absent---------- m

l. Pores 5-8 per mm.; setae abundant; margin narrowly sterile below-----42. P. gilvus (Schw.) Fries

l. Pores 4-5 per mm.; setae usually rare; margin fertile below; pileus sometimes radiately rugose----------43. P. radiatus (Sow.) Fries

m. Surface of the pileus strigose-tomentose to nearly glabrous; cystidia present, brown; spores ellipsoid to ovoid, 4-5 x 6-8 micr.; mouths of tubes yellowish brown to rusty brown ----------44. P. Schweinitzii Fries

m. Surface minutely hispid or velvety-tomentose to glabrous, with dark bands; cystidia absent; spores allantoid, 1-2 x 5-7 micr.; mouths of tubes white to pallid, when fresh, darker where bruised or on drying ----------45. P. resinosus (Schrad.) Fries

33. Polyporus radicatus Schw.
Scutiger radicatus (Schw.) Murrill

Place of collection: east central area of the woodlot.
Date of collection: September 25, 1940.
Habitat: on the ground in frondose woods.
Habit: gregarious.
Occurrence: infrequent.

34. Polyporus brumalis (Pers.) Fries
Polyporus Polyporus (Retz.) Murrill
Place of collection: west and east sides of the woodlot.
Dates of collections: September 18, 25, 1940.
Habitat: on stumps and logs in frondose woods.
Habit: gregarious.
Occurrence: frequent.

35. Polyporus pargamenus Fries
Coriolus prolificans (Fries) Murrill
Polystictus pargamenus (Fries) Sacc.
Place of collection: west and east sides of the woodlot.
Dates of collections: September 19, 21, November 18, 1940.
Habitat: on logs and dead branches in frondose woods.
Habit: sessile to effused-reflexed, imbricated.
Occurrence: frequent.

36. Polyporus versicolor (L) Fries
Coriolus versicolor (L.) Quél.
Polystictus versicolor (L.) Sacc.
Place of collection: various places in the woodlot.
Dates of collections: September 18, 25, October 1, November 18, 1940.
Habitat: on stumps and logs in frondose woods.
Habit: sessile or effused-reflexed, imbricated.
Occurrence: very common.

37. Polyporus conchifer (Schw.) Fries
Poronidulus conchifer (Schw.) Murrill
Polystictus conchifer (Schw.) Sacc.
Place of collection: various places in the woodlot.
Dates of collections: September 19, 21, November 18, 1940.
Habitat: on dead branches of elm.
Habit: substipitate to sessile, often imbricated.
Occurrence: very common.

38. Polyporus hirsutus (Wulf.) Fries
Coriolus nigromarginatus (Schw.) Murrill
Polystictus hirsutus (Wulf.) Sacc.
Places of collection: central area of the woodlot.
Date of collection: October 31, 1940.
Habitat: on a beech log in frondose woods.
Habit: sessile or effused-reflexed, often imbricated.
Occurrence: infrequent.

39. Polyporus semipileatus Peck
Tyromyces semipileatus (Peck) Murrill
Place of collection: west edge of the woodlot.
Date of collection: September 19, 1940.
Habitat: on a decaying log in frondose woods.
Habit: effused-reflexed, usually largely resupinate.
Occurrence: infrequent.

40. Polyporus fragrans Peck
Polyporus fumosus (Pers.) Fries
Bjerkandera fragrans (Peck) Murrill
Place of collection: various places in the woodlot.
Dates of collections: September 19, October 1, 22, 31, November 4, 18, 1940.
Habitat: on logs and stumps in frondose woods.
Habit: sessile or effused-reflexed, often imbricated.
Occurrence: very common

41. Polyporus albellus Peck
Tyromyces chioneus (Fries) Karst.
Place of collection: near river and central area in the woods.
Dates of collections: September 28, October 1, 27, 1940.
Habitat: on logs and stumps in frondose woods.
Habit: sessile, dimidiate.
Occurrence: frequent.

42. Polyporus gilvus (Schw.) Fries
Hapalopilus gilvus (Schw.) Murrill
Place of collection: east side and central area of the woodlot.
Dates of collections: October 8, November 4, 1940.
Habitat: on logs and stumps in frondose woods.
Habit: sessile or effused-reflexed or resupinate.
Occurrence: frequent.
One of the specimens collected was entirely resupinate.

43. Polyporus radiatus (Sow.) Fries
Inonotus radiatus (Sow.) Karst.
Place of collection: central area of the woodlot.
Date of collection: September 19, 1940.
Habitat: on stump in frondose woods.
Habit: sessile, dimidiate.
Occurrence: infrequent.

44. Polyporus Schweinitzii Fries
Phaeolus sistotremoides (Alb. and Schw.) Murrill
Place of collection: in the Pinetum.
Date of collection: November 4, 1940.
Habitat: around base of pine stump.
Habit: stipitate or sessile.
Occurrence: frequent.

45. Polyporus resinosus (Schrad.) Fries
Ischnoderma fuliginosa (Scop.) Murrill
Place of collection: near river and central area of woodlot, near sawmill.
Dates of collections: September 27, October 8, 31, 1940.
Habitat: on logs and stumps in frondose woods.
Habit: sessile or effused-reflexed, often imbricated.
Occurrence: frequent.

46. Polyporus sp.
Place of collection: near west entrance to the woodlot.
Date of collection: September 18, 1940.
Habitat: on the ground in frondose woods.
Habit: stipitate, solitary.
Occurrence: infrequent.

This fungus seems to be very closely related, if indeed it is not, Polyporus fagicola as described by Lowe (21). The spore size, surface of cap, and general habit agree with that species. It disagrees with the description in that the context is too thick, tubes yellow, stipe not hispid, and grows on the ground. According to the description P. fagicola occurs only on beech wood.

BOLETACEAE

A. Tubes yellow, not arranged in radiating rows; spores yellowish-brown; stipe neither glandular-dotted nor annulate----------Ceriomyces p. 34

CERIOMYCES Batt.

a. Pileus subtomentose; flesh usually spongy and drying readily; tubes yellow; mouths large and angular ----------47. C. subtomentosus (L.) Murrill

47. Ceriomyces subtomentosus (L.) Murrill
Boletus subtomentosus L.
Place of collection: central area of the woodlot.
Date of collection: September 19, 1940.
Habitat: on the ground in frondose woods.
Habit: gregarious.
Occurrence: infrequent.

Key to the Genera of Agaricaceae Collected

A. Spores white in mass---------- B

A. Spores ochraceous, cinnamon or rusty-yellow in mass- P

A. Spores fleshy-color to pink or salmon color in mass- S

A. Spores purple-brown in mass---------- U

A. Spores black in mass---------- X

B. Gills of a waxy consistency----------Hygrophorus p. 37

B. Gills not truly waxy---------- C

C. Fruit-body soft and fleshy, decaying----------D

C. Fruit-body toughish, woody, or corky; thin plants, shrivel on drying, revive when moistened--------- O

D. Gills thick on edge, decurrent and forked dichotomously----------Cantharellus p. 38

D. Gills thin, not forked dichotomously---------- E

E. Trama of fruit-body of two kinds of tissue, that is both globular and filamentous cells; spores globose, echinulate---------- F

E. Trama filamentous throughout---------- G

F. With milky juice----------Lactarius p. 38

F. Without milky juice----------Russula p. 39

G. Stem excentric, sometimes only slightly so, lateral, or wanting----------Pleurotus p. 39

G. Stem central---------- H

H. Gills free---------- I

H. Gills adnexed---------- J

I. Volva and annulus present----------Amanita p. 41

I. Annulus only present----------Lepiota p. 43

J. Annulus only present----------Armillaria p. 44

J. Neither annulus nor volva present---------- K

K. Stem fleshy or fibrous, sometimes outer rind subcartilaginous---------- L

K. Stem cartilaginous mostly throughout---------- M

L. Gills decurrent or broadly adnate, not sinuate at the stem----------Clitocybe p. 45

L. Gills at length sinuate or emarginate at stem; mostly large plants on the ground-Tricholoma p. 46

M. Gills decurrent, pileus umbilicate-----Omphalia p. 47

M. Gills not decurrent---------- N

N. Fruit-body small; pileus thin tending to remain unexpanded and bell-shaped----------Mycena p. 48

N. Fruit-body small,medium, or large; pileus usually expanded when mature, somewhat fleshy ----------Collybia p. 51

O. Fruit-body usually small, toughish, thin, not woody; trama fleshy membranous-----Marasmius p. 53

O. Fruit-body larger; stem wanting, plant fleshy-leathery; edge of gills split lengthwise ----------Schizophyllum p. 54

P. Inner veil cobweb-like, cortinate; gills dusted dark cinnamon brown, terrestrial ----------Cortinarius p. 54

P. Inner veil membranous, fibrous, or floccose----- Q

Q. Annulus present----------Pholiota p. 55

Q. Annulus not present---------- R

R. Gills at length yellow, yellow-rusty; lignicolous; pileus often viscid, spores elliptical or oval, mostly smooth----------Flammula p. 55

R. Gills alutaceous to sordid brown; terrestrial; pileus fibrillose, silky or innately scaly; spores often angular----------Inocybe p. 57

S. Stem lateral or lacking; on wood-Claudopus p. 57

S. Stem central---------- T

T. Gills at length sinuate----------Entoloma p. 58

T. Gills decurrent or broadly adnate-Clitopilus p. 58

U. Annulus present; veil distinct---------- V

U. Annulus and volva absent---------- W

V. Gills free----------Agaricus p. 59

V. Gills attached to stipe----------Stropharia p. 59

W. Veil present, remaining attached to margin of pileus, rarely forming an annulus; stem fleshy ----------Hypholoma p. 59

W. Veil, if at first present, quickly evanescent or none at all; stem cartilaginous and slender ----------Psilocybe p. 60

X. Spores black; gills deliquescing into a black mass when mature----------Coprinus p. 60

HYGROPHORUS Fr.

a. Plant white, changing color on drying; stem solid; gills adnate to decurrent ----------48. H. eburneus var. unicolor Pk.

a. Plant yellow; stem hollow; gills at length emarginate----------49. H. chlorophanus Fr.

48. Hygrophorus eburneus var. unicolor Pk.
Place of collection: near northwest entrance to the woodlot.
Date of collection: September 18, 1940.
Habitat: on the ground in frondose woods.
Habit: gregarious.
Occurrence: infrequent.

This differs from the description given by Kauffman (27) in that the plants are small. The

pileus is 1-2 cm. broad and the stipe, 4 cm. long. The description in Kauffman is pileus 3-7 cm. broad; stipe 4-7 cm. long. Plant was typical in other respects.

49. Hygrophorus chlorophanus Fr.
Place of collection: north side of the woodlot.
Date of collection: October 22, 1940.
Habitat: low, moist soil in frondose woods.
Habit: gregarious.
Occurrence: infrequent.

The spores in this specimen measured 3.5-5 x 8.6-11 micr., while in Kauffman (27) the measurements are 4-5 x 6-8 micr. The plant agrees in other characters.

CANTHARELLUS Fr.

a. Pileus purplish-flesh color, soon greenish-yellow; gills flesh color to pale purplish umber ----------50. C. clavatus Fr.

a. Whole plant cinnamon-red, fading ----------51. C. cinnabarinus Schw.

50. Cantharellus clavatus Fr.
Place of collection: near center of college woodlot.
Date of collection: October 8, 1940.
Habitat: on the ground in frondose woods.
Habit: gregarious.
Occurrence: infrequent.

The spore size of this specimen is 5-5.7 x 8.6 micr., but that as given in Kauffman (27) is 4-5 x 10-12 micr. The plant agrees in other respects.

51. Cantharellus cinnabarinus Schw.
Place of collection: near center of college woodlot.
Date of collection: October 27, 1940.
Habitat: on the ground in frondose woods.
Habit: gregarious.
Occurrence: infrequent.

LACTARIUS Fr.

a. Plant white soon spotted-stained; pileus viscid. ----------52. L. controversus Fr.

52. Lactarius controversus Fr.
Place of collection: near west entrance to the woodlot.
Date of collection: September 18, 1940.
Habitat: on low ground in frondose woods.
Habit: gregarious.
Occurrence: infrequent.

RUSSULA Fr.

a. Gills unequal, alternately long and short; flesh thick, at length incarnate or rusty-reddish ----------53. R. compacta Frost and Peck

a. Gills mostly equal, sometimes shorter ones scattered promiscuously---------- b

b. Pileus reddish-purple, at length depressed, even; flesh thick----------54. R. mariae Pk.

b. Pileus deep rosy-red or blood red, convex to expanded, striate; flesh thin--55. R. tenuiceps Kauff.

53. Russula compacta Frost and Peck
Place of collection: Pinetum of the college.
Date of collection: October 31, 1940.
Habitat: on the ground in white pine woods.
Habit: gregarious.
Occurrence: infrequent.

54. Russula mariae Pk.
Place of collection: on west side of the woodlot.
Date of collection: September 19, 1940.
Habitat: on the ground in frondose woods.
Habit: gregarious.
Occurrence: infrequent.

55. Russula tenuiceps Kauff.
Place of collection: near west entrance to the woodlot.
Date of collection: September 18, 1940.
Habitat: on the ground in frondose woods.
Habit: gregarious.
Occurrence: infrequent.

PLEUROTUS Fr.

a. Stem excentric sometimes only slightly so; plants medium to large in size---------- b

a. Stem none, pileus sessile---------- d

b. Plants large, on elms; gills emarginate or sinuate ----------56. P. ulmarius Fr.

b. Gills adnate, adnate-decurrent, or long-decurrent---------- c

c. Stem stout, short or lacking; flesh thick ----------57. P. ostreatus Fr.

c. Stem slender, 2-5 mm. thick; flesh thin -------58. P. fimbriatus Fr. var. regularis Kauff.

d. Pileus viscid, smoky yellowish green, dimidiate; flesh thick; spores oblong----59. P. serotinus Fr.

d. Pileus not viscid, whitish to brown or reddish-brown, wedge-shaped to spathulate; flesh thin; spores globose----------60. P. petaloides Fr.

56. Pleurotus ulmarius Fr.
Place of collection: near southeast corner of the woodlot.
Date of collection: November 4, 1940.
Habitat: on dead branch of elm tree.
Habit: caespitose.
Occurrence: infrequent.

57. Pleurotus ostreatus Fr.
Place of collection: near southeast corner of the woodlot.
Date of collection: November 4, 1940.
Habitat: on a large dead beech stump.
Habit: imbricately caespitose in large clusters.
Occurrence: infrequent.

58. Pleurotus fimbriatus Fr. var. regularis Kauff.
Place of collection: central area of the woodlot.
Date of collection: September 25, 1940.
Habitat: on a dead log in frondose woods.
Habit: gregarious to subcaespitose.
Occurrence: infrequent.

59. Pleurotus serotinus Fr.
Place of collection: west side of the woodlot.
Date of collection: October 22, 1940.
Habitat: on dead logs and stumps in frondose woods.
Habit: imbricately caespitose, laterally connate, or solitary.
Occurrence: frequent.

60. Pleurotus petaloides Fr.
Place of collection: on west edge of the woodlot.
Date of collection: September 19, 1940.
Habitat: on decaying logs and stumps in frondose woods.
Habit: imbricately caespitose.
Occurrence: infrequent.

61. Pleurotus sp.
Place of collection: near center of the woodlot.
Date of collection: October 8, 1940.
Habitat: on a log in frondose woods.
Habit: solitary.
Occurrence: infrequent.

Because the spores in this specimen were immature, the plant could not be placed definitely in any species. The pileus is snow-white, glabrous, dimidiate in shape 2.5-4.5 cm., and has an entire margin. Gills are white, very thin, and extend all the way from the margin of the pileus to the point of attachment of the pileus to substratum. Upon drying the gills become yellowish-white. No stem is present. The immature spores present are still attached to the basidia by way of the sterigmata and are elliptical-oblong in shape, measuring 2-3 micr.

AMANITA Fr.

a. Base of stem, or bulb, provided with a distinct, membranous, loose, cup-like sheath, or rarely with a shallow cup---------- b

a. Base of stem or bulb without a cup-like, free margined volva. Pileus large; stem stout, provided with concentric rings or scales above the bulb ----------62. A. muscaria Fr.

b. Pileus yellow, striate on margin; volva entire ----------63. A. caesarea Scop.

b. Pileus pure white; bulb rounded below---------- c

c. Plant rather stout; basidia 4-spored; volva large ----------64. A. verna Bull.

c. Plant slender; basidia 2-spored; otherwise like A. verna----------65. A. bisporiger Atk.

62. Amanita muscaria Fr.
Place of collection: very near northwest entrance to the woodlot.
Date of collection: September 17, 1940.
Habitat: on the ground in frondose woods.
Habit: gregarious in a roughly formed fairy ring.
Occurrence: frequent.

63. Amanita caesarea Scop.
Place of collection: north edge of the woodlot.
Date of collection: September 21, 1940.
Habitat: on the ground in frondose woods.
Habit: solitary.
Occurrence: rare.

The pileus of this specimen is 4 cm. broad; the stipe is 8-9 cm. long, but is very slender, not being over 4 mm. in diameter at any point. The description as given by Atkinson (25) for A. caesarea on the points mentioned are pileus, 5-10 cm. broad; plant, 12-20 cm. high; stipe 6-10 mm. in diameter. Since other characteristics fit in with the description, there is no doubt that this specimen is A. caesarea, even though it is small and very slender.

64. Amanita verna Bull.
Place of collection: very near west entrance to the woodlot.
Date of collection: September 17, 1940.
Habitat: on the ground in frondose woods.
Habit: solitary.
Occurrence: infrequent.

65. Amanita bisporiger Atk.
Place of collection: north side of the woodlot.
Date of collection: September 21, 1940.
Habitat: on the ground in frondose woods.
Habit: solitary.
Occurrence: infrequent.

LEPIOTA Fr.

a. Pileus viscid; whitish, 5-10 cm. broad ----------66. L. fischeri Kauff.

a. Pileus not viscid---------- b

b. Stem clothed with a floccose, squamose, or filamentous sheath; spores 4-5 micr. long-----67. L. asperula Atk.

b. Stem without evident sheath, but provided with a small, deciduous annulus; spores 6-7 micr. long ----------68. L. cristata Fr.

b. Stem provided with a thick, persistent annulus, which in age often becomes movable; spores 7-9 micr. long ----------69. L. naucina Fr.

66. Lepiota fischeri Kauff.
Place of collection: central area of the woodlot.
Date of collection: September 25, 1940.
Habitat: on the ground in low frondose woods.
Habit: gregarious.
Occurrence: infrequent.

67. Lepiota asperula Atk.
Place of collection: north part of the woodlot.
Date of collection: September 21, 1940.
Habitat: on the ground in frondose woods.
Habit: gregarious.
Occurrence: rare.

68. Lepiota cristata Fr.
Place of collection: near west entrance to the woodlot.
Date of collection: September 18, 1940.
Habitat: on the ground in frondose woods.
Habit: gregarious.
Occurrence: infrequent.

69. Lepiota naucina Fr. (?)
Place of collection: west edge of the woodlot.
Date of collection: September 19, 1940.
Habitat: on the ground in frondose woods.
Habit: gregarious.
Occurrence: infrequent.

Since there were no spores present in my specimen, it seems best to place the name here with a question

mark. The habitat as given in Kauffman (27) does not include woody areas for this species.

70. Lepiota sp.
Place of collection: west edge of the woodlot.
Date of collection: September 19, 1940.
Habitat: on the ground in frondose woods.
Habit: gregarious to solitary.
Occurrence: infrequent.

This fungus could not be placed in any described species, even though it has very distinct characteristics. In Kauffman (27) this specimen would key down best to L. caloceps Atk., but this specimen did not agree with the description of the species as to the scales on the pileus and stipe. In Kauffman's publication on the genus Lepiota (28) the specimen would key down best to L. asperula, but again this specimen did not agree in the characters listed above. It seems best then to give a description of the specimen and not include it in any species.

The pileus is 3-8 cm. broad, white with numerous dark brown projections from the surface which are especially numerous at the center. These projections are made up of tufts of fibrils which seem to come together to form a dark brown point. The fibrils composing a tuft arise in such a way as to make little square patches over the surface of the pileus. The gills are brownish, free, and are thin on edge. The stipe is 7 cm. long, 10 mm. in diameter, and has numerous tawny fibrils attached to it. The stem is provided with an indistinct, evanescent, superior annulus. The spores are elliptic-oblong, 2.2-3 x 4.2-5.7 micr.

ARMILLARIA Fr.

a. Pileus and stem not viscid, honey-colored; in caespitose clusters about stumps; gills adnate to subdecurrent----------71. A. mellea Fr.

a. Pileus bright yellow; otherwise like the above ----------72. A. mellea var. flava Fr.

71. Armillaria mellea Fr.
Place of collection: near west entrance to the woodlot.
Date of collection: September 18, 1940.
Habitat: in large clusters at base of stumps and trees and around logs.
Habit: large caespitose clusters.
Occurrence: frequent.

72. Armillaria mellea var. flava Fr.
Place of collection: north side of woodlot, near river.
Date of collection: September 28, 1940.
Habitat: around base of trees and stumps.
Habit: caespitose.
Occurrence: frequent.

73. Armillaria sp.
Place of collection: near center of the woodlot.
Date of collection: September 19, 1940.
Habitat: on the ground in frondose woods.
Habit: gregarious to solitary.
Occurrence: infrequent.

No mature spores were found in this specimen; hence it seems best not to place this specimen under any species but rather to describe it. The pileus is tan with tufts of fibrils scattered over it; it is 2-5 cm. broad. The gills are white, changing to tan upon drying, and adnate-decurrent with the stipe. The tough stem is 4-5 cm. long, concolorous with the pileus, and has a superior annulus.

CLITOCYBE Fr.

a. Stipe 2-6 cm. thick; pileus very large, ochraceous tan, obtuse; gills soon dingy yellowish ----------74. C. maxima Fr.

a. Stipe not as stout---------- b

b. Pileus funnel-form or deeply concave at maturity, buff-white----------75. C. catina Fr.

b. Pileus umbilicate, dingy-white to pale tan; on pine needles on the ground-----76. C. pinophila Pk.

74. Clitocybe maxima Fr.
Place of collection: near center of the woodlot.
Date of collection: September 19, 1940.
Habitat: on the ground in frondose woods.
Habit: gregarious.
Occurrence: infrequent.

75. Clitocybe catina Fr.
Place of collection: near the river in the woodlot.
Date of collection: September 27, 1940.
Habitat: on the ground in frondose woods.
Habit: scattered.
Occurrence: infrequent.

On September 21, 1940, a collection was made near the same place, and the collection seemed to be an immature form of this same species, but in the absence of spores and with a small size one cannot be definite.

76. Clitocybe pinophila Pk.
Place of collection: Pinetum of the college.
Date of collection: October 31, 1940,
Habitat: on beds of white pine needles.
Habit: gregarious.
Occurrence: frequent.

77. Clitocybe sp.
Place of collection: near the river in the woodlot.
Date of collection: September 28, 1940.
Habitat: on the ground in frondose woods.
Habit: gregarious.
Occurrence: infrequent.

This fungus is closely related C. gigantea, C. maxima and that group of the Clitocybes, but it differs from each sufficiently as to make one doubtful as to its identity. A description of this fungus is given.

The pileus is snow-white and smooth and is 4-6 cm. in diameter. The gills are white and are decurrent down the stipe. The stipe is 5 cm. long and is distinctly bulbous at the base, being 3 cm. in diameter at the base, and tapering upward until it is 1 cm. in diameter at the point of attachment to the stipe. The spores are elliptical, smooth, and white, and measure 2.8 x 4.5-7 micr.

TRICHOLOMA Fr.

78. Tricholoma terreum Fr. (?)
Place of collection: Pinetum of the college.
Date of collection: November 4, 1940.
Habitat: on the ground in white pine needles.
Habit: gregarious.
Occurrence: frequent.

This specimen differs from the description of T. terreum as given by Kauffman (27) in having a pro-

nounced umbo, having sterile cells, 8-9 x 30-35 micr., and in having broader spores, 4.3 x 5.7-7 micr. This differs from T. acre in not having an acrid taste. From both of these plants it differs in its slender stipe.

79. Tricholoma sp.
Place of collection: central area of the woodlot.
Date of collection: September 25, 1940.
Habitat: on the ground in frondose woods.
Habit: gregarious.
Occurrence: infrequent.

This fungus does not fit the description of any Tricholomas given by Kauffman (27); hence only a description of this fungus is given without any attempt to place it in any definite species.

The pileus is brownish white, 5-7 cm. broad, and has a slightly incurved margin. Gills are white and attached to the stipe. Stipe is 6 cm. long, white and broader at the top and darker at the narrowed base. The stipe is 1.5 cm. broad at top. Spores are white, elliptical, and smooth, 2.9 - 4.3 x 5.7-7 micr.

OMPHALIA Fr.

a. Pileus yellowish, orange, or reddish; stem date brown----------80. O. campanella Fr.

80. Omphalia campanella Fr.
Place of collection: central area of the woodlot.
Date of collection: September 25, 1940.
Habitat: on wood and debris on ground in frondose woods.
Habit: caespitose.
Occurrence: frequent.

81. Omphalia sp.
Place of collection: west side of the woodlot.
Date of collection: September 19, 1940.
Habitat: on the ground in frondose woods.
Habit: solitary.
Occurrence: infrequent.

This plant is very close to Omphalia olivaria Pk. The spores are immature and are all attached to the sterigmata. In this state they are white and are

4-5.7 x 7 micr. The cap is yellow-white, 1-2 cm. broad, but has only a small, if any, umbilicus, and this, along with the immature spores, is why it cannot be placed definitely. The gills are distant and decurrent down the stipe. The stipe is 3.5 cm. long and is tan in color.

82. Omphalia sp. (?)
Place of collection: near east entrance to the woodlot.
Date of collection: October 31, 1940.
Habitat: on a stump of a broad-leaved tree.
Habit: caespitose.
Occurrence: infrequent.

In the absence of mature spores, it is questionable as to whether this is an Omphalia. A description of the fungus is given without attempting to name the species.

The pileus is black, 0.5-1.5 cm. broad; some expanded and others incurved. All of the plants are young and immature. The cap in some of the older specimens is slightly umbilicate. The gills are white and are attached to a white stipe, which is 1-2.5 cm. long.

MYCENA Fr.

a. Stem viscid; pileus convex, umbilicate; gills at length decurrent----------83. M. vulgaris Fr.

a. Stem not viscid---------- b

b. Stem inserted by the naked base on the bark of a living oak tree----------84. M. corticola Fr.

b. Stem attached by a villose or fibrillose more or less rooting base---------- c

c. Gills remaining clear white-------85. M. immaculata Pk.

c. Gills tending to ashy, fuscous, or flesh tints in age; stem firm, rigid---------- d

d. Gills assuming an incarnate tinge in age; stipe rufous-brown downwards; odor and cystidia lacking ----------86. M. galericulata Fr.

d. Gills usually cinerescent in age---------- e

e. Odor nitrous; pileus white to pearl-gray; cystidia abundant on sides of gills ----------87. M. polygramma Fr. var. albida Kauff.

e. Odor not nitrous; pileus dark ashy to gray; cystidia few----------88. M. parabolica Fr.

83. Mycena vulgaris Fr.
Place of collection: near the center of the woodlot.
Date of collection: September 25, 1940.
Habitat: on logs in frondose woods.
Habit: caespitose.
Occurrence: frequent.

84. Mycena corticola Fr.
Place of collection: near west entrance to the woodlot.
Date of collection: September 18, 1940.
Habitat: on the bark of living oak trees.
Habit: thickly scattered over the trunks.
Occurrence: frequent.

85. Mycena immaculata Pk.
Place of collection: low area near river in the woodlot.
Date of collection: September 27, 1940.
Habitat: water-soaked wood covered with moist soil.
Habit: solitary to gregarious.
Occurrence: infrequent.

86. Mycena galericulata Fr.
Place of collection: near the center of the woodlot.
Date of collection: October 8, 1940.
Habitat: on a rotting stump in the woodlot.
Habit: very caespitose, stipes often connate at bases.
Occurrence: frequent.

87. Mycena polygramma Fr. var. albida Kauff.
Place of collection: near the center of the woodlot.
Date of collection: September 25, 1940.
Habitat: decaying wood in frondose woods.
Habit: caespitose.
Occurrence: frequent.

88. Mycena parabolica Fr.
Place of collection: in the Pinetum.
Date of collection: October 31, 1940.
Habitat: around decaying stumps in white pine woods.
Habit: densely caespitose.
Occurrence: frequent.
Three collections were made of this fungus on the same day, two from white pine woods and one from the

hardwood woodlot, and were thought to be different species. However, all specimens agree with the description in Kauffman (27) except in the following respects: one of the specimens from Pinetum has a smaller size and smaller spore size than the other two, which are typical. This same specimen is not as companulate as the other two. One of the larger specimens has numerous fusiform-acuminate cystidia present.

89. Mycena sp.
Place of collection: near west entrance to the woodlot.
Date of collection: September 18, 1940.
Habitat: dead log in the ground in frondose woods.
Habit: gregarious or scattered.
Occurrence: infrequent.

Since there were no mature spores, it seems best to give a description of this fungus without attempting to place it in any species. Pileus brownish white, 1-1.5 cm. broad, striate, campanulate; gills white, slightly attached at center, thin on edge; stipe 10-14 cm. long and very slender.

90. Mycena sp.
Place of collection: near west entrance to the woodlot.
Date of collection: September 18, 1940.
Habitat: on the ground in frondose woods.
Habit: gregarious.
Occurrence: infrequent.

Since no mature spores were present, this fungus is only placed in the Filipes groups, and a description of the fungus is given. The pileus is brown, unexpanded but not truly campanulate, 1-2 cm. broad; gills brown and adnate to the stipe; cystidia numerous; stipe 1-2 cm. long, white and hollow.

91. Mycena sp.
Place of collection: south side of the woodlot.
Date of collection: September 21, 1940.
Habitat: on leaf-mold in frondose woods.
Habit: caespitose.
Occurrence: infrequent.

By the keys in Kauffman (27), this fungus would be Mycena inclinata Fr., but the description does not fit this specimen. The specimen is not placed in any species definitely but is very near that species. The pileus is tan, somewhat campanulate with a prominent

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umbo, 1-2 cm. broad. Gills white and slightly attached to the stipe. Spores elliptical, 2.9-4.2 x 5.7 micr. Stipe tan, 5-6 cm. long, tapering upward, hollow, white myceloid at the base.

92. Mycena sp.
Place of collection: near the river in the woodlot.
Date of collection: September 27, 1940.
Habitat: on decaying logs, stumps, etc. in frondose woods.
Habit: densely caespitose.
Occurrence: infrequent.

No mature spores were present; hence the specimen is not placed in any definite species, but a description is listed. Pileus brown, smooth, striate, conico-campanulate with a prominent umbo, 1-1.5 cm. wide; gills whitish and slightly attached to stipe; stipe is hollow, 3 cm. long, 5 mm. in diameter, whitish-black, white strigose to myceloid at the base.

COLLYBIA Fr.

a. Stem velvety or tomentose---------- b

a. Stem glabrous (sometimes minutely scurfy)---------- c

b. Stem with a dense, tawny-brown to blackish, velvety covering; pileus viscid; caespitose ----------93. C. velutipes Fr.

b. Stem with a close white tomentum; pileus whitish with a rufescent disk----------94. C. hariolarum Fr.

c. Stem deeply rooting---------- d

c. Stem not rooting; pileus subumbilicate, innately fibrillose----------95. C. abundans Pk.

d. Pileus viscid, grayish brown or almost white, 3-10 cm. broad; gills pure white; stem glabrous ----------96. C. radicata Fr.

d. Same as above, except stem is minutely scurfy ----------97. C. radicata Fr. var. furfuracea Pk.

d. Typical for C. radicata Fr. except in size; cap 1-3 cm. broad--------98. C. radicata Fr. var. pusilla Pk.

93. Collybia velutipes Fr.
Place of collection: near west entrance to the woodlot.
Dates of collections: September 18, October 8, 1940.
Habitat: on decaying stumps in frondose woods.
Habit: caespitose.
Occurrence: frequent.

94. Collybia hariolarum Fr.
Place of collection: near center of the woodlot.
Date of collection: September 25, 1940.
Habitat: on leaf mold of frondose woods.
Habit: gregarious.
Occurrence: infrequent.

95. Collybia abundans Pk.
Place of collection: near east entrance to the woodlot.
Date of collection: October 31, 1940.
Habitat: on logs in frondose woods.
Habit: densely caespitose.
Occurrence: infrequent.
Spores were immature in this specimen, but the other characteristics fit so well that the fungus is placed in this species.

96. Collybia radicata Fr.
Place of collection: near west entrance to the woodlot.
Date of collection: September 17, 19, 1940.
Habitat: on the ground in frondose woods.
Habit: gregarious to solitary.
Occurrence: very common.

97. Collybia radicata Fr. var. furfuracea Pk.
Place of collection: central area of the woodlot.
Date of collection: September 25, 1940.
Habitat: on the ground around stumps and logs in frondose woods.
Habit: gregarious to solitary.
Occurrence: infrequent.

98. Collybia radicata Fr. var. pusilla Pk.
Place of collection: near west entrance to the woodlot.
Date of collection: September 18, 1940.
Habitat: on the ground in frondose woods.
Habit: gregarious to solitary.
Occurrence: infrequent.

99. Collybia sp.
Place of collection: near center of the woodlot.
Date of collection: October 27, 1940.
Habitat: on logs in frondose woods.
Habit: solitary.
Occurrence: infrequent.

With only two plants to study, it seems best to name only the genus. Since it has some properties of a Marasmius and a Mycena as well as a Collybia, one is made to wonder truly whether it is a Collybia. A description is given. Pileus brownish, somewhat unexpanded to convex, radiating from the center outward, 1.5-2 cm. broad; gills white but worm eaten, somewhat attached; stipe slender, hollow, 2-2.5 cm. long, concolorous with the cap.

MARASMIUS Fr.

a. Plant glandular-pubescent, white; gills arcuate-decurrent----------100. M. resinosus Sacc.

a. Plant glabrous; gills attached to a free collar-- b

b. Umbilicus white, elsewhere pileus is darker; stem black; pileus 2-6 mm. broad
----------101. M. capillaris Morg.

b. Umbilicus darker, pileus white; stem black; pileus 4-10 mm. broad----------102. M. rotula Fr.

100. Marasmius resinosus Sacc.
Place of collection: central area of the woodlot.
Date of collection: September 25, 1940.
Habitat: on sticks, twigs, etc., in frondose woods.
Habit: gregarious to subcaespitose.
Occurrence: frequent.

101. Marasmius capillaris Morg.
Place of collection: central area of the woodlot.
Date of collection: September 25, 1940.
Habitat: on leaves of oak and beech in woods.
Habit: gregarious.
Occurrence: frequent.

102. Marasmius rotula Fr.
Place of collection: central area of the woodlot.
Date of collection: September 25, 1940.
Habitat: on sticks and leaves in frondose woods.
Habit: gregarious to subcaespitose.
Occurrence: frequent.

103. Marasmius sp.
Place of collection: central area of the woodlot.
Date of collection: September 25, 1940.
Habitat: on oak leaves in frondose woods.
Habit: solitary.
Occurrence: infrequent.
Since there are no spores in this specimen and only one plant was found, this fungus was not placed in a definite species, but a description is given. Pileus 8 mm. broad, rusty-cinnamon colored, deeply striate, rugose, slightly umbonate; gills yellow-white, distant, adnate to stipe; stipe 3.5 cm. long, black and shiny at base, lighter at apex, attached to substratum by white strigose mycelial growth.

SCHIZOPHYLLUM Fr.

a. Gills split on edge, inner side of split tomentose, pileus 1-3 cm. broad, tomentose ----------104. Schizophyllum commune Fr.

104. Schizophyllum commune Fr.
Place of collection: scattered over the woodlot.
Dates of collections: September 25, 27, November 18, 1940.
Habitat: on dead branches or trunks of frondose trees.
Habit: scattered to gregarious.
Occurrence: very common.

CORTINARIUS Fr.

a. Pileus not viscid, tawny rufescent to red-brick; stem marked by cinnabar-red zones; gills pale brown----------105. C. armillatus Fr.

105. Cortinarius armillatus Fr.
Place of collection: south edge of the woodlot.
Date of collection: September 21, 1940.
Habitat: on the ground in frondose woods.
Habit: gregarious.
Occurrence: infrequent.
This specimen differs from the description in Kauffman in the absence of scales on the apex, slightly larger size, cinnamon-brown color, rings being somewhat faint.

106. Cortinarius sp.
Place of collection: near west entrance to the woodlot.
Date of collection: September 18, 1940.
Habitat: on the ground in frondose woods.
Habit: gregarious.
Occurrence: infrequent.
This fungus could not be placed in any described species of Cortinarius in Kauffman; hence a description is given. Pileus brown, glabrous, 3-7 cm. broad; gills brown with white edge, crowded, emarginate at the stipe; stipe brownish-white, stuffed becoming hollow, 4-5 cm. long; spores 7-8.6 x 11.4-12.9 micr. Sterile cells present.

PHOLIOTA Fr.

a. Gills at first yellowish, broad, adnate and subtriangular behind; annulus thin, persistent ----------107. P. unicolor (Fl.D.) Fr.

a. Gills never with yellowish tints, narrow, adnate to decurrent; annulus fugacious ----------108. P. marginata (Batsch.) Fr.

107. Pholiota unicolor (Fl.D.) Fr.
Place of collection: central area of the woodlot.
Date of collection: October 1, 1940.
Habitat: on logs in frondose woods.
Habit: caespitose.
Occurrence: infrequent.

108. Pholiota marginata (Batsch.) Fr.
Place of collection: near east entrance to the woodlot.
Date of collection: November 18, 1940.
Habitat: on a decaying log in frondose woods.
Habit: gregarious to subcaespitose.
Occurrence: infrequent.

FLAMMULA Fr.

a. Pileus viscid---------- b

a. Pileus not viscid; plant antimony-yellow, taste distinctly bitter---------109. F. flavidella Murrill

b. Pileus 6-12 cm. broad; flesh white-110. F. lubrica Fr.

b. Pileus 2-5 cm. broad; flesh yellow-111. F. spumosa Fr.

109. Flammula flavidella Murrill
Place of collection: near west entrance to the woodlot.
Date of collection: September 18, 1940.
Habitat: on dead stumps and logs in frondose woods.
Habit: caespitose.
Occurrence: infrequent.

The description of this species is in an article by Kauffman on Flammula and Paxillus in the American Journal of Botany (29).

110. Flammula lubrica Fr.
Place of collection: low place near the river in the woodlot.
Date of collection: September 21, 1940.
Habitat: on the cut end of a watersoaked log in frondose woods.
Habit: gregarious.
Occurrence: infrequent.

111. Flammula spumosa Fr.
Place of collection: near the river in the woodlot.
Date of collection: September 21, 1940.
Habitat: on the ground in frondose woods.
Habit: gregarious.
Occurrence: infrequent.

The base of the stipe in this specimen is not characteristic. In Kauffman the stipe is described as being sordid rusty-fulvous toward the base, but in this specimen the stipe is yellow all over or slightly lighter at the base. Other characteristics agree.

112. Flammula sp.
Place of collection: near the river in the woodlot.
Date of collection: September 21, 1940.
Habitat: on the ground in frondose woods.
Habit: solitary.
Occurrence: infrequent.

Since there were no spores present, it seemed best to give only a description of this fungus without placing it in any definite species. The pileus is yellowish-brown, striate, slightly viscid, 1.5-2.5 cm. broad; gills are yellowish-brown and decurrent; the stipe is 4-4.5 cm. long, slender, hollow, brown with some small yellow patches near the apex.

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a. Cys

b. Pil

b. Pil

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INOCYBE Fr.

a. Cystidia present on sides of gills, apex crystallate-- b

a. Cystidia not present on sides of gills, sterile cells present; pileus ochraceous-brownish, center covered with white silky fibrils----113. I. lanatodisca Kauff.

b. Pileus fibrillose-scaly, not rimose; stem 1-2 cm. long, hollow----------114. I. flocculosa Berk.

b. Pileus silky-fibrillose, at length rimose; stem 2-5 cm. long, solid----------115. I. eutheloides Pk.

113. Inocybe lanatodisca Kauff.
Place of collection: near west entrance to the woodlot.
Date of collection: September 18, 1940.
Habitat: on the ground in frondose woods.
Habit: gregarious.
Occurrence: infrequent.

114. Inocybe flocculosa Berk.
Place of collection: near west entrance to the woodlot.
Date of collection: September 18, 1940.
Habitat: on the ground in frondose woods.
Habit: solitary.
Occurrence: infrequent.

115. Inocybe eutheloides Pk.
Place of collection: near west entrance to the woodlot.
Date of collection: September 18, 1940.
Habitat: on the ground in frondose woods.
Habit: gregarious.
Occurrence: infrequent.

CLAUDOPUS Smith

a. Pileus medium to large, yellowish; gills orange yellow----------116. C. nidulans Fr.

116. Claudopus nidulans Fr.
Place of collection: near west entrance to the woodlot.
Date of collection: September 18, 1940.
Habitat: on dead trees and stumps in frondose woods.
Habit: imbricately caespitose.
Occurrence: infrequent.

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ENTOLOMA Fr.

a. Pileus superficially silky-fibrillose, glabrescent, ashy or ashy-brown--------117. E. peckianum Burt.

a. Pileus glabrous, hygrophanous---------- b

b. Pileus dark brown; gills gray at first; stem grayish-brown----------118. E. sericeum Fr.

b. Pileus grayish-brown; gills white or pallid at first; stem pure shining white ----------119. E. sericatum Britz.

117. Entoloma peckianum Burt.
Place of collection: near west entrance to the woodlot.
Date of collection: September 18, 1940.
Habitat: on the ground in frondose woods.
Habit: gregarious to solitary.
Occurrence: infrequent.
This differs from the typical plant as described by Kauffman (27) in not having conspicuous brownish-gray fibrils and in having a flat pileus rather than a campanulate or convex, expanded pileus.

118. Entoloma sericeum Fr.
Place of collection: on west edge of the woodlot.
Date of collection: September 19, 1940.
Habitat: on low, moist ground in frondose woods.
Habit: gregarious.
Occurrence: infrequent.

119. Entoloma sericatum Britz.
Place of collection: central area of the woodlot.
Date of collection: September 27, 1940.
Habitat: on the ground in frondose woods.
Habit: gregarious.
Occurrence: infrequent.

CLITOPILUS Fr.

a. Spores angular; pileus 5-10 cm. broad, grayish-brown, often abortive ----------120. C. abortivus B. and C.

120. Clitopilus abortivus B. and C.
Place of collection: east central area of the woodlot.
Date of collection: September 19, 1940.
Habitat: on ground covered with leaf mold in frondose woods.
Habit: gregarious to subcaespitose.
Occurrence: infrequent.
Both the upright and abortive forms were collected.

AGARICUS Linn.

a. Pileus dotted with brown scales which are more dense toward the center; annulus large, superior, double ----------121. A. placomyces Pk.

121. Agaricus placomyces Pk.
Place of collection: south side of the woodlot.
Date of collection: September 21, 1940.
Habitat: on the ground in frondose woods.
Habit: solitary.
Occurrence: infrequent.

STROPHARIA Fr.

a. Pileus thick, green, viscid; on debris in woods ----------122. S. aeruginosa Fr.

122. Stropharia aeruginosa Fr.
Place of collection: central area of the woodlot.
Date of collection: September 19, 1940.
Habitat: on debris in frondose woods.
Habit: solitary.
Occurrence: infrequent.

HYPHOLOMA Fr.

a. Pileus firm, compact, dark brick-red, especially on disk; caespitose--------123. H. sublateritium Fr.

a. Pileus rather fragile, when moist watery dark brown; caespitose around stumps---124. H. hydrophilum Fr.

123. Hypholoma sublateritium Fr.
Place of collection: various places over woodlot.
Dates of collections: September 18, 25, October 1, 31, 1940.
Habitat: base of trees or stumps and on logs in frondose woods.
Habit: very caespitose, forming large clusters.
Occurrence: very common

124. Hypholoma hydrophilum Fr.
Place of collection: south side of the woodlot.
Date of collection: September 21, 1940.
Habitat: at the base of stumps in frondose woods.
Habit: caespitose.
Occurrence: infrequent.

PSILOCYBE Fr.

a. Spores small, 6-7 micr. long; cystidia none, sterile cells present; stem rigid-cartilaginous when dry ----------125. P. cernua Fr.

a. Spores larger, 10-12 micr. long; cystidia present; stem slender and fragile-------126. P. murcida Fr.

125. Psilocybe cernua Fr.
Place of collection: east entrance of the woodlot.
Dates of collections: September 21 and October 31, 1940.
Habitat: on a decaying stump in frondose woods.
Habit: densely caespitose.
Occurrence: frequent.
The sterile cells on the edges of the gills are larger than described by Kauffman (27), and the apices are crystallate.

126. Psilocybe murcida Fr.
Place of collection: central area of the woodlot.
Date of collection: October 8, 1940.
Habitat: on the ground in frondose woods.
Habit: solitary.
Occurrence: infrequent.

COPRINUS Pers.

a. Pileus cylindrical with cuticle torn into distinct scales; ring formed from free margin of the veil; spores 15-17 micr. long-------127. C. comatus Fr.

a. Pileus not at length cylindrical; not volvate; spores less than 14 micr. long---------- b

b. Pileus when young covered with minute glistening particles; spores 7-8 micr. long ----------128. C. micaceus Fr.

b. Pileus without glistening particles, often squamulose or fibrillose; spores 11-12 micr. long ----------129. C. atramentarius Fr.

127. Coprinus comatus Fr.
Place of collection: on Michigan State College campus east of chemistry building.
Date of collection: October 1, 1940.
Habitat: on the lawn.
Habit: gregarious to subcaespitose.
Occurrence: very common.

128. Coprinus micaceus Fr.
Place of collection: near west entrance to the woodlot.
Date of collection: September 18, 1940.
Habitat: around stumps in frondose woods.
Habit: caespitose.
Occurrence: frequent.

129. Coprinus atramentarius Fr.
Place of collection: central area of the woodlot.
Date of collection: September 25, 1940.
Habitat: on the ground in frondose woods.
Habit: caespitose.
Occurrence: frequent.

HYMENOGASTRALES

The families in which there are no representatives included in this work are indicated by an asterisk (*) immediately following the family name.

(1). Hymenium lacking or indistinct; hymenial cavities largely filled with mycelium bearing scattered tufts of basidia; gleba powdery at maturity; peridium thick, rupturing irregularly or by lobes----------Family Sclerodermataceae p. 62

(1). Hymenium present, lining cavities of gleba; gleba fleshy or waxy---------- (2)

(2). Columella reaching nearly or quite to the top of the spore-fruit and joining with the peridium; tramal plates arising from columella or apical portion of the peridium, branching; peridium dehiscent----------Family Hysterangiaceae *

(2). Columella lacking or rudimentary; peridium indehiscent---------- (3)

(3). Differentiation of hynenial cavities begins near the center of the spore-fruit and extends in all directions toward the peridium ----------Family Rhizopogonaceae *

(3).

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(3). Differentiation of hymenial cavities begins at the top of the spore-fruit, progressing downward----------Family Hymenogastraceae *

SCLERODERMATACEAE

A. Gleba at maturity a flocculent or powdery mass containing the spores---------Scleroderma p. 62

SCLERODERMA Pers.

a. Plants small (2-5.5 cm. in diameter); peridium leather or bay color, surface mostly smooth, sometimes delicately cracked; spores not reticulated, strongly spinulose
----------130. S. cepa (Vaill.) Pers.

a. As before in size; peridium light brown or yellow brown, covered with small, dark brown scales; spores not reticulated, asperulate
----------131. S. lycoperdoides Schw.

130. Scleroderma cepa (Vaill.) Pers.
Place of collection: south edge of the woodlot.
Date of collection: September 21, 1940.
Habitat: on the ground in frondose woods.
Habit: gregarious.
Occurrence: infrequent.

131. Scleroderma lycoperdoides Schw.
Place of collection: near river in the woodlot.
Date of collection: September 28, 1940.
Habitat: on leaf mold in frondose woods.
Habit: solitary to gregarious.
Occurrence: infrequent.

NIDULARIALES

The family in which there are no representatives included in this work is indicated by an asterisk (*).

(1). Several peridioles produced in each spore-fruit
----------Family Nidulariaceae p. 63

(1). One peridiole produced in each spore-fruit and forcibly expelled-----Family Sphaerobolaceae *

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A. C

B. P

E. P

NIDULARIACEAE

A. Peridioles attached to the cups by cords (funiculi), peridioles whitish from the thick white tunica; peridium cup-shaped; wall composed of a single layer----------Crucibulum p. 63

CRUCIBULUM Tul.

There is only one species in this genus.

132. Crucibulum vulgare Tul.
Place of collection: by the bridge over the small drain near the west entrance in the woodlot.
Date of collection: September 25, 1940.
Habitat: on a decaying board in frondose woods.
Habit: gregarious on the wood.
Occurrence: infrequent.

LYCOPERDALES

The family in which there are no representatives included in this work is indicated by an asterisk (*).

(1). Spore-fruits round to ovoid or pyriform, epigaeous or epixylous; no true stipe formed ----------Family Lycoperdaceae p. 63

(1). Spore-fruits subterranean, but pushed from the soil at maturity by the elongation of a definite stipe----------Family Tylostomataceae *

LYCOPERDACEAE

A. Outer peridium splitting at maturity into star-like rays from above downward, remaining attached to the inner peridium at the base; inner peridium with a single apical mouth----------Geaster p. 64

A. Outer peridium scaling off in flakes or particles, or wearing off by degrees or persistent--------- B

B. Peridium opening by a definite mouth ----------Lycoperdon p. 64

B. Peridium irregularly ruptured by the scaling off of fragments above----------Calvatia p. 65

GEASTER Mich.

a. Peristome not truly sulcate, irregularly wrinkled or crumpled; outer layer tending to peel off in flakes----------133. G. Morganii Lloyd

133. Geaster Morganii Lloyd
Place of collection: central area of the woodlot.
Date of collection: September 25, 1940.
Habitat: on leaf mold in frondose woods.
Habit: gregarious.
Occurrence: infrequent.

LYCOPERDON Tourn.

a. Growing on dead wood; spore-mass olive-brown, brown, or gray-brown; plants pyriform ----------134. L. pyriformeSchaeff.

a. Growing on the ground or rotting leaves---------- b

b. Spore-mass with a purplish tint, brown, or gray-brown; cortex of minute, soft granules and spicules----------135. L. umbrinum Pers.

b. Spore-mass olive-brown---------- c

c. Plants small (rarely up to 2 cm. in diameter); subgleba scanty; spores globose ----------136. L. pusillum Batsch.

c. Plants medium (rarely below 2 cm. in diameter); subgleba well developed, chambered; cortex of stout, terete spines, mingled with shorter wart-like ones ----------137. L. gemmatum Batsch.

134. Lycoperdon pyriforme Schaeff.
Place of collection: various places in the woodlot.
Dates of collections: September 25, October 8, 27, 31, 1940.
Habitat: on dead stumps and logs in frondose woods.
Habit: caespitose.
Occurrence: very common.

135. Lycoperdon umbrinum Pers.
Place of collection: near center and south edge of the woodlot.
Dates of collections: September 21, October 8, 1940.
Habitat: gregarious to subcaespitose.
Habit: on ground and leaf mold in frondose woods.
Occurrence: frequent.

136. Lycoperdon pusillum Batsch.
Place of collection: west central area of the woodlot.
Date of collection: September 19, 1940.
Habitat: on the ground in frondose woods.
Habit: gregarious.
Occurrence: infrequent.
The plants collected average a little larger than normal for this species.

137. Lycoperdon gemmatum Batsch.
Place of collection: central area of the woodlot.
Date of collection: October 8, 1940.
Habitat: on the ground in frondose woods.
Habit: solitary.
Occurrence: infrequent.

CALVATIA Fries

a. Plants very large, almost entirely filled with gleba; gleba greenish yellow; sterile base almost absent; spores mostly smooth
----------138. C. maxima (Schaeff.) Morgan

138. Calvatia maxima (Schaeff.) Morgan
Places of collections: near river and east entrance to the woodlot.
Dates of collections: September 28, October 31, 1940.
Habitat: on ground and leaf mold in frondose woods.
Habit: gregarious.
Occurrence: frequent.

PHALLALES

The family in which there are no representatives included in this work is indicated by an asterisk (*).

(1). Gleba borne on the inner side of the receptacle
----------Family Clathraceae *

(1). Gleba borne on the outer surface of the receptacle----------Family Phallaceae p. 65

PHALLACEAE

Only one representative of this family was collected and it was in the "egg" state; hence it could not be

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A. p

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identified.

139. One of the Phallaceae
Place of collection: central area of the woodlot.
Date of collection: September 25, 1940.
Habitat: on the ground in frondose woods.
Habit: solitary.
Occurrence: rare.
The specimen was spherical, white, about 2.5 cm. in diameter, and had the consistency of flesh when fresh. To the lower side a long (6 cm.), slender, branched root was attached.

SPHAEROPSIDALES

In the following key to the families of the Sphaeropsidales the families in which there are no specimens included are indicated by an asterisk (*).

(1). Pycnidia more or less globose---------- (2)

(1). Pycnidia not globose when mature---------- (3)

(2). Pycnidia tough, leathery or brittle, dark colored----------Family Sphaeropsidaceae p. 66

(2). Pycnidia fleshy or waxy, light colored ----------Family Zythiaceae *

(3). Pycnidia dimidiate, black ----------Family Leptostromataceae *

(3). Pycnidia at length cup or saucer-shaped ----------Family Excipulaceae *

SPHAEROPSIDACEAE

A. Pycnidia with long, dark, septate bristles; conidia cylindric-fusoid, often curved---Vermicularia p. 67

A. Pycnidia without bristles; conidia not as above--- B

B. Conidia filiform, usually septate, often curved ----------Septoria p. 67

B. Conidia not filiform, not spetate (1-celled), less than 15 micr. in length; pycnidia on leaves
----------Phyllosticta p. 68

VERMICULARIA Fries

140 Vermicularia sp.
Place of collection: central area of the woodlot near road.
Date of collection: October 15, 1940.
Occurrence: infrequent.
Habitat: host plant on the ground in open frondose woods.
Host: Amphicarpa monoica (L.) Ell.
Part of plant attacked: leaflets modified to form tendrils.

In the specimen collected there were no mature spores. Since the pycnidia were black and covered with long, dark, bristles, it seems quite evident that the fungus is Vermicularia.

SEPTORIA Fries

a. Pycnidia amphigenous, black, 100-130 micr. in diameter; on leaves of Steironema---141. S. conspicua E. and M.

a. Pycnidia epiphyllous, brown, 50 micr. in diameter; on leaves of Prenanthes (Nabalus)
----------142. S. nabali B. and C.

141. Septoria conspicua E. and M.
Place of collection: northeast corner of woodlot, near river.
Date of collection: October 15, 1940.
Occurrence: infrequent.
Habitat: host on the ground in open frondose woods.
Host: Steironema ciliatum (L.) Raf.
Part of host attacked: leaves.

142. Septoria nabali B. and C.
Place of collection: north side of woodlot, near river.
Date of collection: October 15, 1940.
Occurrence: infrequent.
Habitat: host in frondose woods.
Host: Prenanthes (Nabalus) sp.
Part of host attacked: leaves.

PHYLLOSTICTA Pers.

a. Fungus on herbaceous hosts---------- b.

a. Fungus on woody hosts, trees, shrubs, or vines----- c.

b. Spores 2 micr. or more broad; spots circular in form, deciduous, leaving holes in the leaves
143. P. decidua Ellis and Kellerm.

b. Spores less than 2 micr. broad, bacteroid; spots variable, not deciduous
----------144. P. Cornuti Ellis and Kellerm.

c. Affecting vines, on Vitaceae; spores small, bacteroid, less than 1 micr. broad------145. P. spermoides Peck

c. Affecting trees---------- d.

d. On Oleaceae; pycnidia numerous, restricted to the under side of the leaf
----------146. P. viridis Ellis and Kellerm.

d. On Aceraceae; pycnidia amphigenous
----------147. P. minutella Bubak and Dearness

143. Phyllosticta decidua Ellis and Kellerm.
Place of collection: north side of woodlot, near river.
Date of collection: October 15, 1940.
Occurrence: infrequent.
Habitat: host on low ground in frondose woods.
Host: Lycopus uniflorus Michx.
Part of host attacked: leaves.

144. Phyllosticta Cornuti Ellis and Kellerm.
Place of collection: near east entrance to the woodlot.
Date of collection: October 15, 1940.
Occurrence: infrequent.
Habitat: host on low ground in frondose woods.
Host: Asclepias sp.
Part of host attacked: leaves (dead and brown when collected).

145. Phyllosticta spermoides Peck
Place of collection: near west entrance to Pinetum.
Date of collection: October 31, 1940.
Occurrence: infrequent.
Habitat: host on ground at the edge of the Pinetum.
Host: Vitis sp.
Part of host attacked: leaves.

146. Phyllosticta viridis Ellis and Kellerm.
Place of collection: central area of the woodlot.
Date of collection: October 8, 1940.
Occurrence: frequent.
Habitat: on small trees surrounded by larger trees.
Host: Fraxinus sp.
Part of host attacked: leaves.

147. Phyllosticta minutella Bubak and Dearness
Place of collection: central area of the woodlot.
Date of collection: October 8, 1940.
Occurrence: infrequent.
Host: Acer saccharum Marsh
Part of host attacked: leaves.

MELANCONIALES

There is only one family in this order, Melanconiaceae, and only one specimen, which belongs in this group, was collected.

148. Gloeosporium sp.
Place of collection: near east entrance to the woodlot.
Date of collection: October 15, 1940.
Occurrence: infrequent.
Habitat: on dead herbaceous stem without leaves.
Part of host attacked: stem.
The fungus occurred on an unidentified stem of a dead herb. Numerous acervuli which range in color from brown to black were thickly clustered over certain areas. No spores were observed. No setae are present on the margin of the acervuli.

TABULAR SUMMARY

In the following table the families in which representatives are included and the number of such representatives are listed. This is not indicative of the number of fungi growing in this region for the groups listed, for it would be an impossibility to collect all of the different species of fungi growing in a particular locality in one season. This is a representative autumn collection, however, of the leaf-inhabiting fungi and Basidiomycetes of the River woodlot of Michigan State College.

Family	Number of Representatives
Gnomoniaceae	1
Phyllachoraceae	1
Erysiphaceae	6
Melampsoraceae	3
Pucciniaceae	1
Tremellaceae	2
Thelephoraceae	4
Clavariaceae	2
Hydnaceae	5
Polyporaceae	21
Boletaceae	1
Agaricaceae	82
Sclerodermataceae	2

Family (Cont'd.)	Number of Representatives (Cont'd.)
Nidulariaceae	1
Lycoperdaceae	6
Phallaceae	1
Sphaeropsidaceae	8
Melanconiaceae	1
Total	148

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