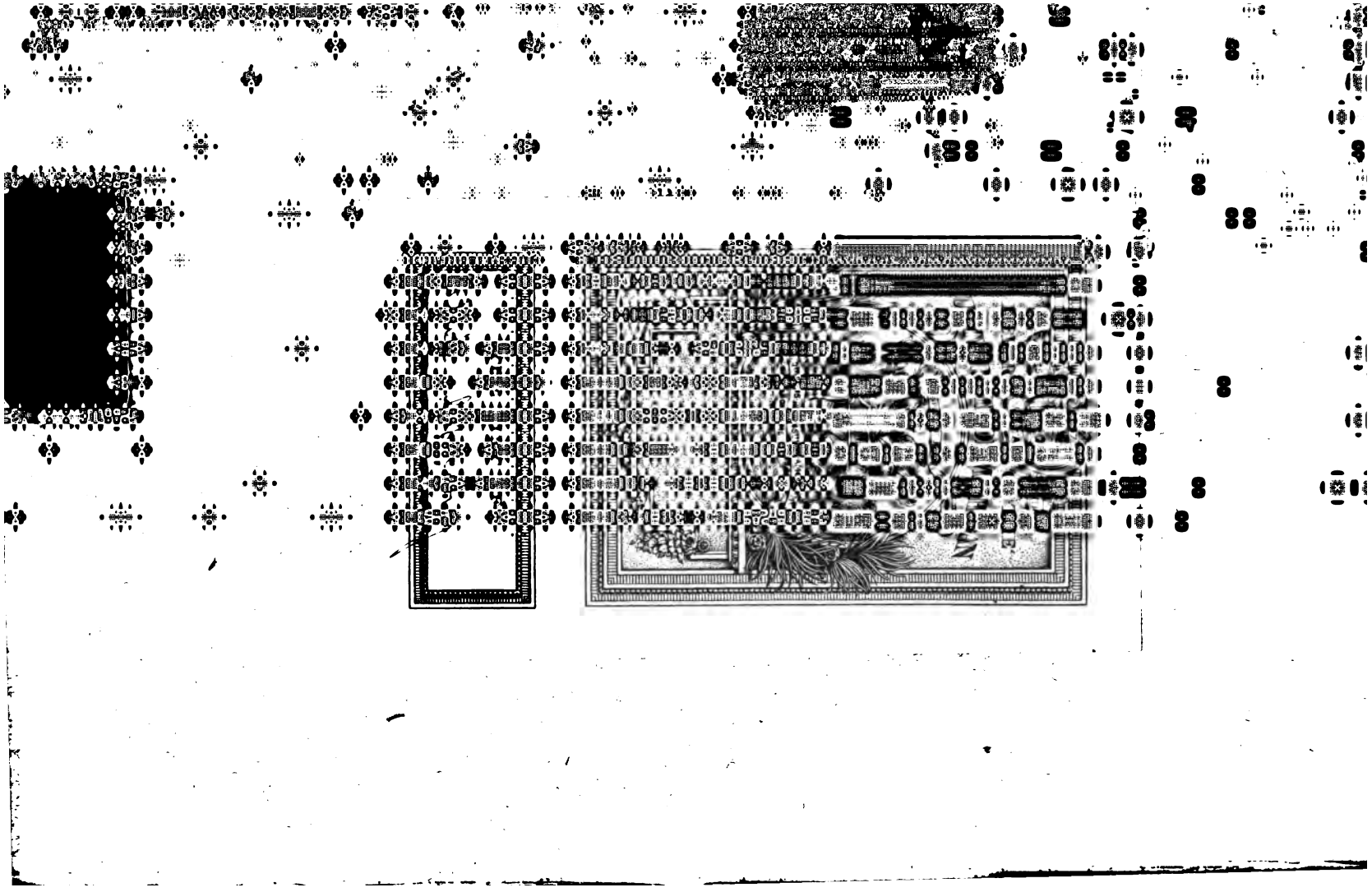

State of Connecticut
State Geological and Natural History Survey
BULLETIN NO. 3

A PRELIMINARY REPORT
ON THE
HYMENIALES OF CONNECTICUT

By
EDWARD ALBERT WHITE, B.S.
Professor of Botany, Forestry, and Landscape Architecture, Connecticut Agricultural College

State of Connecticut

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Preface.

For several years, work along the line of investigations in fleshy and woody fungi has been carried on in many states, but little has ever been reported on Connecticut species. The establishment of the State Geological and Natural History Survey has made possible the contributing of some knowledge regarding fleshy and woody fungi of this state, and for this purpose the following preliminary report on the Hymeniales of Connecticut has been prepared.

The aim in the preparation of this report has not been to prepare original keys, monographs of different groups, or technical descriptions of species; the time since the organization of the Survey has been too short for such original work; but the aim has been to compile as far as possible a complete and accurate list of native species, together with notes regarding the characteristics of the genera. To make the report more comprehensible, technical terms have been avoided when it has been possible to do so without detriment to accuracy of description.

The collecting this year has been done largely in the vicinity of Mansfield, representing the northeastern section of the state, from which section two hundred and seventy-five species, included in fifty-five genera, are reported. Four hundred and twenty-five numbers were collected.

The writer fortunately has had access to several excellent collections previously made in various sections of the state, making possible a much more complete list of native species.

These collections are Mr. C. C. Hanmer's of East Hartford, representing the species found in central Connecticut; that of Dr. L. M. Underwood, Professor of Botany, Columbia University, New York City, whose collection made in Goshen represents the western Connecticut species; and that of Dr. G. P. Clinton, Botanist of the Connecticut Experiment Station at New Haven, representing the species of southwestern Connecticut.

From Mr. Hanmer's collection have been listed one hun-

dred and eighty species, included in fifty genera; from Dr. Underwood's, eighty species, in twenty-seven genera; and from Dr. Clinton's, thirty-four species, in twenty-two genera. The species found in the different sections of the state are the same in many cases, as is shown in the list appended. The total number of different species listed is three hundred and seventy-five, included in sixty-five different genera.

The mushrooms collected under the writer's supervision have been carefully dried, pressed, and preserved, forming the basis of a state herbarium of fleshy and woody fungi. The number of each specimen in this herbarium is inserted with the species reported, and thus the plant may be easily referred to. A card catalogue accompanies this herbarium.

The specimens in the other collections mentioned are also carefully and systematically preserved and are accessible: Mr. Hanmer's private collection at East Hartford, Dr. Underwood's in the cryptogamic herbarium of Columbia University, and Dr. Clinton's in the herbarium of the Connecticut Experiment Station.

Saccardo's "Sylloge Fungorum" has been adopted as a basis for nomenclature.

Every effort has been made to have correctly named all specimens collected, and men who have had long experience in determining species have very willingly aided in the work. Nearly all specimens have been submitted for accuracy of determination to Professor G. F. Atkinson of the Department of Botany, Cornell University, and to Dr. C. H. Peck, the New York State Botanist. Mr. C. H. Kauffman of the University of Michigan has very kindly identified many specimens of Cortinarius. Mr. I. W. Patterson, a student at the Connecticut Agricultural College, has assisted greatly in collecting, drying, pressing, and classifying specimens. The services of all of these gentlemen are greatly appreciated. We are indebted to the libraries of the Massachusetts Agricultural College and of the Connecticut Experiment Station for the loan of scientific literature.

The writer wishes especially to express his appreciation of the assistance of Dr. Charles Thom, Mycologist for the United States Department of Agriculture in dairy investigations at

the Storrs Experiment Station. Dr. Thom has aided much in the determination of species and in manuscript reading. Mr. C. C. Hanmer of East Hartford has also shown a deep interest in the work, and has heartily coöperated in every way possible.

The writer spent several weeks in the laboratories of Professors Atkinson, Peck, and Underwood, studying their type specimens and consulting the excellent American and foreign literature in their libraries.

The photographs for illustration were taken by the writer from specimens collected in Mansfield during the past summer, with the exception of Plates III and VI, which were loaned by the Connecticut Experiment Station, and Plates V, VII, XII, XXIV, XXV, and XXVI, loaned by Professor G. F. Atkinson, and for these additions the writer feels deeply grateful. The keys which are used have been largely compiled and revised to suit Connecticut genera.

As it has not been possible to prepare original monographs of any of the genera, this report is to be regarded as preliminary to further investigations. It would be highly desirable, in the event of the State Geological and Natural History Survey being continued for a number of years, if each year additions were made to the list already published, and some group or groups monographed. Reports of this nature would rapidly increase the literature of the Connecticut species of fleshy and woody fungi.

Contents.

HYMENIALES (*Hymenomycetineae*).

HYMENIUM OR MEMBRANE FUNGI.

The Hymeniales are members of a large class of Fungi whose reproductive bodies, or spores, arise from cells of definite shape, known as *basidia.* Because of these basidial cells these fungi are classed as BASIDIOMYCETES. These basidia are microscopic, and are usually more or less club-shaped, with lateral branches, known as *sterigmata,* extending from the larger end. Within the basidia two nuclei unite, and, upon subsequent division, each portion of the divided nucleus passes through the sterigmata into a developing basidiospore.

In Hymeniales, the *sterigmata* are usually four in number on each basidium, but in some species there may be two, six, or eight, each bearing at the tip the reproductive body or *spore.* These spores, upon germination, reproduce the particular species of fungi upon which they were borne.

In the higher orders of Basidiomycetes, as in Hymeniales, these basidia are borne upon a more or less conspicuous fruiting-body, or sporophore, which constitutes the visible portion of what is commonly spoken of as the mushroom, or fleshy fungus. The older writers did not include in Basidiomycetes the lower orders, such as Ustilaginales and Uredinales, because of the absence of the complex fruit-body, but careful research by later scientists has proved the development of the spore from the union of the nuclei of the basidia; this fact has seemed to some writers to justify their classification as lower forms of Basidiomycetes.

Because of the varying methods of nuclear fusion in the basidial cells, their subsequent division and subdivision, and the further development of the sporophore, or fruit-body, this class is sometimes divided into four sub-classes: HEMIBASIDIOMYCETES, ÆCIDIOMYCETES, PROTOBASIDIOMYCETES, and EUBASIDIOMYCETES. In Hemibasidiomycetes are included such plants as the wheat and corn smuts, and in Æcidiomycetes the various rusts affecting agricultural crops. The Pro-

tobasidiomycetes and Eubasidiomycetes are considered the true Basidiomycetes; the first sub-class including Auriculariales (Auriculariineæ) and Tremellales (Tremellineæ); the second sub-class including Dacryomycetales (Dacryomycetineæ), Exobasidiales (Exobasidiineæ), and Hymeniales (Hymenomycetineæ). The Auriculariales include plants of a gelatinous or cartilaginous consistency, and are more or less ear-shaped; the Tremellales are jelly-like when moist, becoming hard, tough, and horny when dry. The first order of Eubasidiomycetes includes such plants as Guepinia; the second order includes azalea apples and other plants which are parasitic in the tissues of living plants, often deforming them; the third order, Hymeniales, constitutes the subject of this report.

The following key to the families of Hymeniales is adopted, with a few changes in the phraseology and in the system of notation, from Engler and Prantl's " Die Natürlichen Pflanzenfamilien."

Plants mold-like, or spider-web-like, consisting of interwoven hyphæ; basidia clustered...HYPOCHNACEÆ

Plants of firmly interwoven hyphæ; fruiting-surface consisting of basidia arranged in a palisade-like manner 1

1. Fruiting-surface smooth, only slightly roughened or wrinkled in some places..... 2

Fruiting-surface uneven, with prominent elevations in the form of warts, spines, folds, tubes, etc..... 3

2. Fruit-body mostly of membranaceous, leathery, or woody consistency, funnel-form, capitate or branched .....THELEPHORACEÆ

Plants mostly fleshy, rarely of a cartilaginous or leathery consistency, upright, club-shaped, capitate or branched .....CLAVARIACEÆ

3. Fruiting-surface with warts, interrupted folds, spines, or crested warts or plates.....HYDNACEÆ

Fruiting-surface of other shapes..... 4

4. Fruiting-surface with regular tubes, or with folds or more or less leaf-like plates, which partly or completely unite by running together irregularly in a honey-combed manner, or are united into labyrinthiform passages .....POLYPORACEÆ

Fruiting-surface of prominent folds (gills), or with evident leaf-like expansions or plates, which are free or regularly forked, or are united by running together irregularly only at the base or point of attachment to the pileus.....AGARICACEÆ

AGARICACEÆ Fries. GILL-BEARING FUNGI.

This family contains by far the largest number of species of mushrooms. They are distinguished by a more or less flattened *pileus,* or *cap,* which may become convex, bell-shaped, or funnel-shaped; the *stem,* or *stipe,* is generally attached to the center, or nearly so, of the under side of the pileus; or the point of attachment may be at one side, when the pileus becomes shelving; the stem may be absent and the pileus attached directly to the mycelium (sessile).

The spore-bearing surface is usually on the under side of the pileus, and consists of radiating gills, prominent folds, or veins. Microscopical examination shows these fruiting-surfaces to be covered with peculiar reproductive cells, or basidia. From each of these basidia, one-celled spores, usually four in number, are produced.

CHARACTERISTICS OF MUSHROOMS.

In order that the various parts of a mushroom may be clearly understood, the following explanation is given.

The fleshy fruit-body of the Agaricaceæ is known as the *pileus,* or cap. Microscopical examination shows it to differ considerably from the fruit-bodies of the higher plants. There is no cellular tissue, but the structure is composed of interwoven hollow tubes, technically termed *hyphæ.* These *hyphæ* serve to conduct the food substances from the basal threads, which resemble the hyphæ, to the more highly specialized reproductive cells, the basidia. These hyphal threads which run through the center of the fruit-body, stem, cap, and gills, constitute what is technically known as the *trama.* When these hyphal threads approach the outer part of the gills, certain specialized cells arise which are spoken of as the *subhymenial layer,* and from these cells the reproductive cells, or basidia, develop. The basidia, placed closely side by side, con-

stitute the *hymenium,* from which the name Hymeniales is derived.

Certain other cells are frequently found among the basidia, which resemble them closely, but lack the sterigmata and spores; these are sterile basidia, termed *paraphyses.* Still other cells are found in the species of the Agaricaceæ, which project beyond the basidia. These cells are usually large, inflated, and in some species contain coloring matter which gives the gills characteristic colorings; these are the *cystidia.* These cystidia sometimes secrete moisture, which collects in drops on their tips.

The caps of the different species have characteristics which distinguish them from each other. Frequently the thick-walled threads which constitute the outer surface of the cap are filled with coloring matter which gives to species characteristic colorings. The green and red tints of *Russula,* the violet shades in many species of *Cortinarius,* and the distinctive colors of the different species of *Amanita* are due to this fact. These thick-walled, hyphal threads are termed the *cortex,* or *cuticle.* In many species, these threads excrete viscid or slimy substances which are peculiarities of species. In many species of *Cortinarius* it is necessary to know the viscidity of the specimen before it can be placed in its proper group. In some cases the outside, cortical layer of the hyphal threads ceases to grow as the cap increases in size; consequently it becomes torn into fine hairs, fibers, or scales of various sizes. The abundant scales of *Pholiota squarrosoides* arise from this source, as do the scales and tomentum on many other species.

The gills are the folds, or plates, on the lower surface of the cap, which radiate in various ways from the stem to the margin of the cap.

For accurate determination of genera and species, the technical terms descriptive of the gills, employed by most scientific writers, must be carefully studied and understood. These terms are so frequently met with in text-books that detailed definitions are hardly necessary in this report.

Upon the character and shape of the stem depend many of the distinguishing features in the identification of species.

In the larger number of Agarics, the stem is situated in the

center of the cap, giving these species an umbrella-like shape; but in some species the stem is attached at the side of the cap, when it is said to be *eccentric*. If the stem is entirely absent, the cap is *sessile*.

In some genera, the stem is fleshy and in others it is cartilaginous. The fleshy stems are usually more or less fibrous and somewhat spongy when broken, while the cartilaginous stems snap readily when bent, resembling somewhat the breaking of a pipestem. The outer surface of the stem is often covered with hairs or scales which arise from similar causes as those on the surface of the cap. The interior of stems varies much, being often solid throughout, but frequently hollow or stuffed with pithy substances. In shape, the stems vary in the different species; often they are large and bulbous at the base as in many species of *Amanita* and *Cortinarius;* sometimes they are cylindrical throughout, and again they taper decidedly, either toward the apex or toward the base. All of these characteristics need to be carefully considered in noting the distinct features in each specimen collected, for no two specimens are alike in every respect, even of the same species.

The *veil* and the resulting *volva,* or cup, and the *annulus,* or ring, are peculiar to certain Agarics, and need to be carefully observed, for the nature and location of these parts indicate frequently the edibility or non-edibility of the species.

In the young stage, the mushrooms exist as small knobs, or "buttons," of mycelium on the substratum. At this stage, the margin of the cap lies closely against the stem, and in some genera, as *Collybia* and *Mycena,* the margins simply expand, never having been united to the stem by any special structure. In other genera, like *Agaricus* or *Amanita,* the margins of the cap are closely united to the outer layer of the stem by a more or less compact net-work of fibers, termed the *veil.* This veil remains firm for a time, but after a while the expansion of the cap causes it to rupture. After the veil is ruptured, a part persists for a time on the cap, giving it various margins, and a part remains on the stem in the form of a ring, or, as it is technically termed, the *annulus.* The remnants on the cap and stem vary as to the length of time they remain. The more delicate the veil the more quickly it disappears, and it is

seldom found on certain species at maturity. On other species, the veil is well developed and persists both on the margin of the pileus and on the stipe for a considerable length of time. In many species of *Amanita, Agaricus,* and *Lepiota,* this persistent ring remains, while in some species of *Cortinarius* the delicate membrane quickly disappears. In *Lepiota procera* the ring is quite thick and persistent and easily movable on the stem. In some species of *Amanita,* this membrane makes a delicate curtain which completely covers the hymenial layers on the gills, and which drops around the stem, when ruptured from the margin of the cap. This veil is usually spoken of as the *partial veil.*

The genus *Amanita* possesses both a veil and a volva. A layer of fungus threads completely surrounds the fruit-body in the immature mushroom, forming what is known as the *volva,* or, as it is sometimes called, the *universal veil.* As the stem lengthens and the cap expands, this universal veil ruptures in various ways according to the species. In this rupturing, a more or less well defined " cup " is left at the base of the stem, differing in various species. In some cases, the universal veil becomes torn, and persists on the cortex of the cap in differently shaped " warts " of floccose scales. In *Amanita,* for example, the remnants of the ruptured outer veil are white, floccose, rather compact scales, which may disappear entirely in the mature plant, while in *Amanita solitaria,* the scales are found to be thick and conical, but easily rubbed off, and in *Amanita cæsarea,* frequently no indications of the ruptured veil can be found on the surface of the pileus.

The vegetative portion of the mushroom is seldom seen by the casual observer. A mass of hyphal threads composing the reproductive or fruiting body is the part noticed, the vegetative portions being hidden beneath decaying leaves, or ramifying within the cell structure of the host plant.

Key for the Analysis of Connecticut Genera of Agaricaceæ.

The Agaricaceæ are subdivided into five divisions: these divisions depending upon the color of the spores when deposited upon an opaque surface. After collecting, place the mushrooms, gills down, on opaque paper for a while, and an

abundance of spores will accumulate, making possible the following divisions:

1. *White Spores.* Spores pure white, with an occasional slight tinge of yellow or pink.

2. *Ochre Spores.* Spores yellow-brown or rust color.

3. *Rosy Spores.* Spores pink or some shade of pink.

4. *Brown Spores.* Spores dark brown or purple-brown.

5. *Black Spores.* Spores black, showing no tinge of brown or purple.

*Key to the White-Spored Group.**

	Margin of the gills acute	1
	Margin of the gills longitudinally split or grooved	17
1.	Mushrooms soon decaying or shrivelling	2
	Mushrooms leathery, woody or corky, rigid when dry	15
2.	Gills not attached to the stem; ring, volva or both present on the stem	3
	Gills attached to the stem but not extending down it (adnate or adnexed)	4
	Gills attached to the stem and extending down it (decurrent)	10
3.	Volva and ring present	*Amanita*
	Volva present; ring absent	*Amanitopsis*
	Volva absent; ring present	*Lepiota*
4.	Volva absent; ring present	*Armillaria*
	Volva and ring absent	5
5.	Plants tough, membranaceous or leathery, drying quickly but reviving when moistened	*Marasmius*
	Plants fleshy	6
6.	Cap and gills very crisp and brittle	9
	Cap and gills not crisp and brittle	7
7.	Gills attached to the stem by a small, sudden curve (sinuate),	*Tricholoma*
	Gills not sinuate	8
8.	Margin of cap inrolled when young	*Collybia*
	Margin of cap straight against the stem when young; cap slender, bell-shaped	*Mycena*

* Genera not reported from Connecticut are omitted from these keys.

9. Juice of plant milky.....some species of *Lactarius*
Juice of plant not milky.....*Russula*
10. Stem attached at one side of the center of the cap (eccentric), or at its margin (lateral); growing on wood .....*Pleurotus*
Stem central 11
11. Cap and gills very crisp and brittle; juice of plant milky .....some species of *Lactarius*
Cap and gills waxy..... 12
Cap more or less firm and fleshy..... 13
12. Plants parasitic on other fungi; gills blunt.....*Nyctalis*
Plants not parasitic on other fungi; margin of gills thin, but thickened at union with cap....*Hygrophorus*
13. Gills thick and fold-like, margins blunt.....*Cantharellus*
Gills thin, margins acute..... 14
14. Fresh stems breaking with clean, sharp ends...*Omphalia*
Fresh stems breaking with fibrous, ragged ends.*Clitocybe*
15. Plants leathery in texture; gills extending down the stem (decurrent); plants reviving when moistened 16
Plants woody or corky in texture; stem absent..*Lenzites*
16. Margin of gills toothed.....*Lentinus*
Margin of gills not toothed.....*Panus*
17. Margin of gills split into two, revolute; growing on wood.....*Schizophyllum*
Margin of gills somewhat crisped, gills resembling folds or wrinkles.....*Trogia*

Key to the Ochre-Spored Group.

Gills not separating easily from the cap..... 1
Gills separating easily from the cap.....*Paxillus*
1. Young plants covered by a cobwebby veil; ring fragile when present.....*Cortinarius*
Plants not covered by a cobwebby veil..... 2
2. Ring present on the stem.....*Pholiota*
Ring absent from the stem..... 3
3. Stem attached at one side of the cap or absent.*Crepidotus*
Stem central..... 4
4. Gills dissolving into a mucilaginous condition at maturity; cap thin, soft and pliable.....*Bolbitius*
Gills not dissolving at maturity..... 5

5. Gills with a small, sudden curve where joined to the stem (sinuate); cap usually covered with minute scales or fibers; stem fleshy, fibrous on the outside ..... *Inocybe*
Gills not sinuate 6
6. Stem fleshy, fibrous; cap fleshy; gills joined squarely to the stem (adnate), or running down stem (decurrent) ..... *Flammula*
Stem brittle or cartilaginous 7
7. Margin of cap inrolled in young plant ..... *Naucoria*
Margin of cap straight against the stem in young plant ..... *Galera*

Key to the Rosy-Spored Group.

Gills not attached to the stem (free) 1
Gills slightly attached to the stem (adnate or adnexed) 2
Gills attached and running down the stem (decurrent) 3
1. Ring absent; volva present ..... *Volvaria*
Ring and volva absent ..... *Pluteus*
2. Stem brittle; gills soon separating from stem ... *Leptonia*
Stem not brittle; gills with a small, sudden curve near the stem (sinuate) ..... *Entoloma*
3. Stem at one side of the cap, minute or absent .. *Claudopus*
Stem central 4
4. Stem fibrous; margin of cap inrolled when young .. *Clitopilus*
Stem brittle; cap with a central depression ..... *Eccilia*

Key to the Brown-Spored Group.

Gills attached to the stem (adnate, adnexed, or decurrent) 1
Gills not attached to the stem (free) ..... *Agaricus*
1. Ring present; volva absent ..... *Stropharia*
Ring and volva absent, but veil remains attached to the margin of the cap ..... *Hypholoma*
Ring, volva and veil absent ..... *Psilocybe*

Key to the Black-Spored Group.

Gills more or less dissolving at maturity.....*Coprinus*
Gills not dissolving at maturity..... 1
1. Substance of fruit-body waxy.....*Gomphidius*
Substance of fruit-body fleshy and fibrous..... 2
2. Margin of cap striate; gills not variegated...*Psathyrella*
Margin of cap not striate; gills somewhat variegated 3
3. Ring present on the stem.....*Anellaria*
Ring absent, but veil often present.....*Panæolus*

AMANITA Pers.

A name given to some esculent fungi by Galen, perhaps from Mount Amanus.

The young plant in all species of *Amanita* is covered with a universal veil, as explained in the characteristics of mushrooms. As the cap expands, this veil ruptures, leaving a more or less well-defined margin on the stem, which is technically termed the volva.

The partial veil in the immature specimen extends from the stem to the margin of the pileus, enclosing the gills, and when ruptured falls around the stem in a veil-like ring. The persistency of this ring varies in the different species. The pileus is fleshy, convex, expanding with age. It separates easily from the stem, and differs from it considerably in substance. The stems are long and usually taper somewhat towards the top. The gills are not attached to the stem; spores white.

The Amanitas are nearly always found growing on the ground, usually in open woods, but are seldom found in open fields and pastures. They possess perhaps the most striking characteristics of any of the fleshy fungi, and when once learned they are seldom mistaken for other genera. The pure white form of *A. phalloides* is sure to attract the attention of even the most inexperienced collector, and its seeming purity appeals to persons seeking varieties adapted for table use. Nevertheless it contains the most violent of the poisons found in the whole group of fleshy fungi.

The colors of *Amanita* vary from pure white, through the various tints of orange, crimson, and scarlet to the dull red

and brown tints. Because of a few species which contain deadly poison, the whole group is viewed with suspicion by the amateur collector, yet many of them are listed as edible. However, it is unsafe to class any specimens of *Amanita* in the edible list, unless one is positively sure of the botanical characteristics of each individual specimen. It is better to adhere very closely to edible species which cannot be mistaken for non-edible, than to be less cautious. The amateur collector should make a careful botanical study of this group before venturing far in his search for edible fungi. The variations in each species should be carefully noted so there may be no mistaking their identity.

Frequently it is said that all poisonous forms possess a cup-like volva at the base of the stem, but this cannot be depended upon as a reliable means of identification, for often the universal veil ruptures in such a manner that few remnants are left on the stem.

In this locality the Amanitas are seldom found in any quantity before June 15th, and are very abundant from that date until the early autumn frosts. They seem especially plentiful in the chestnut sprout-lands of the state.

McIlvaine reports twenty-seven species as occurring in the United States. Eleven were collected in Tolland County during the past summer, and one in Hartford County.

Amanita bisporiger Atk. (two-spored).
Mansfield, Aug. (89).
A new species, the description of which will soon be published by Professor Atkinson.

Amanita candida Pk. (shining white).
South Windsor, *Hanmer;* Goshen, *Underwood;* Mansfield, July, Aug. (296). Edible (McI.).

Amanita cæsarea Scop. (imperial).
Mansfield, July (79). Edible qualities uncertain.

Amanita flavo-conia Atk. (*flavus,* yellow; *conus,* cone; in allusion to color and shape of cap).
Mansfield, Aug. (87).

Amanita Frostiana Pk.
Mansfield, July (183). Poisonous.

Amanita muscaria Linn. (*musca,* a fly). Fly Amanita.
Goshen, *Underwood;* Mansfield, July, Aug. (276). Poisonous. Plate I.

Amanita muscaria Linn., var. **alba** Pk. White Fly Amanita.
Mansfield, July, Aug. (92). Poisonous.

Amanita phalloides Fr. (phallus-like).
Goshen, *Underwood;* Mansfield, July, Aug. (171). Poisonous.
Variable in color from white to dark brown. Plate II.

Amanita rubescens Fr. (becoming red).
Mansfield, Aug. (83). Edible (McI.).

Amanita strobiliformis Vitt. (having shape of a pine cone).
Rockville, *Hanmer.* Edible (Pk.).

Amanita verna Fr. (vernal).
Mansfield, July (166). Poisonous.
Resembles white form of *A. phalloides* closely, but differs in the manner of rupturing the universal veil, at base of stem.

Amanita velatipes Atk. (*velatus,* veiled; *pes,* foot; veiled stem).
Mansfield, July.

AMANITOPSIS Roz.

ἀμανῖται, Amanita; ὄψις, appearance; resembling Amanita.

Like *Amanita,* the young plants of *Amanitopsis* are covered with a universal veil, which, when ruptured, leaves remnants upon the surface of the cap and at the base of the stem. The plants of this genus, therefore, possess a volva, or cup, at the base of the stem, but the ring on the upper part of the stem is absent. In this way they are distinguished from *Amanita.* Formerly these plants were included with the Amanitas, but the closely sheathing volva and the absence of a ring, place them in a separate genus. All species of *Amanitopsis* thus far determined are reported edible, but some species so closely resemble poisonous Amanitas that extremely careful examination should be made, to be certain that no trace of a ring is present on the stem.

A. vaginata is the most common species in this vicinity, and is usually found in open woods, growing among the leaf-

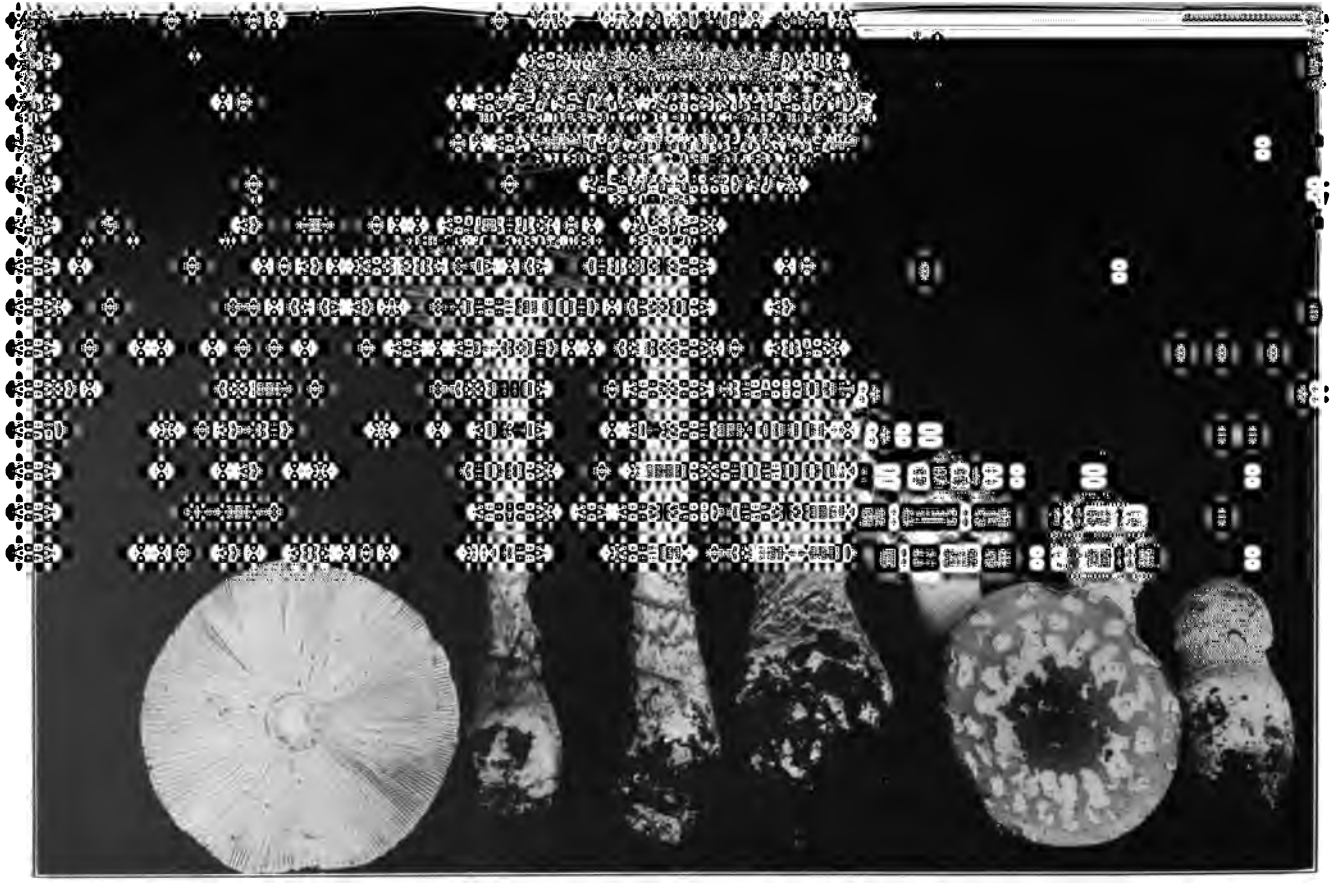
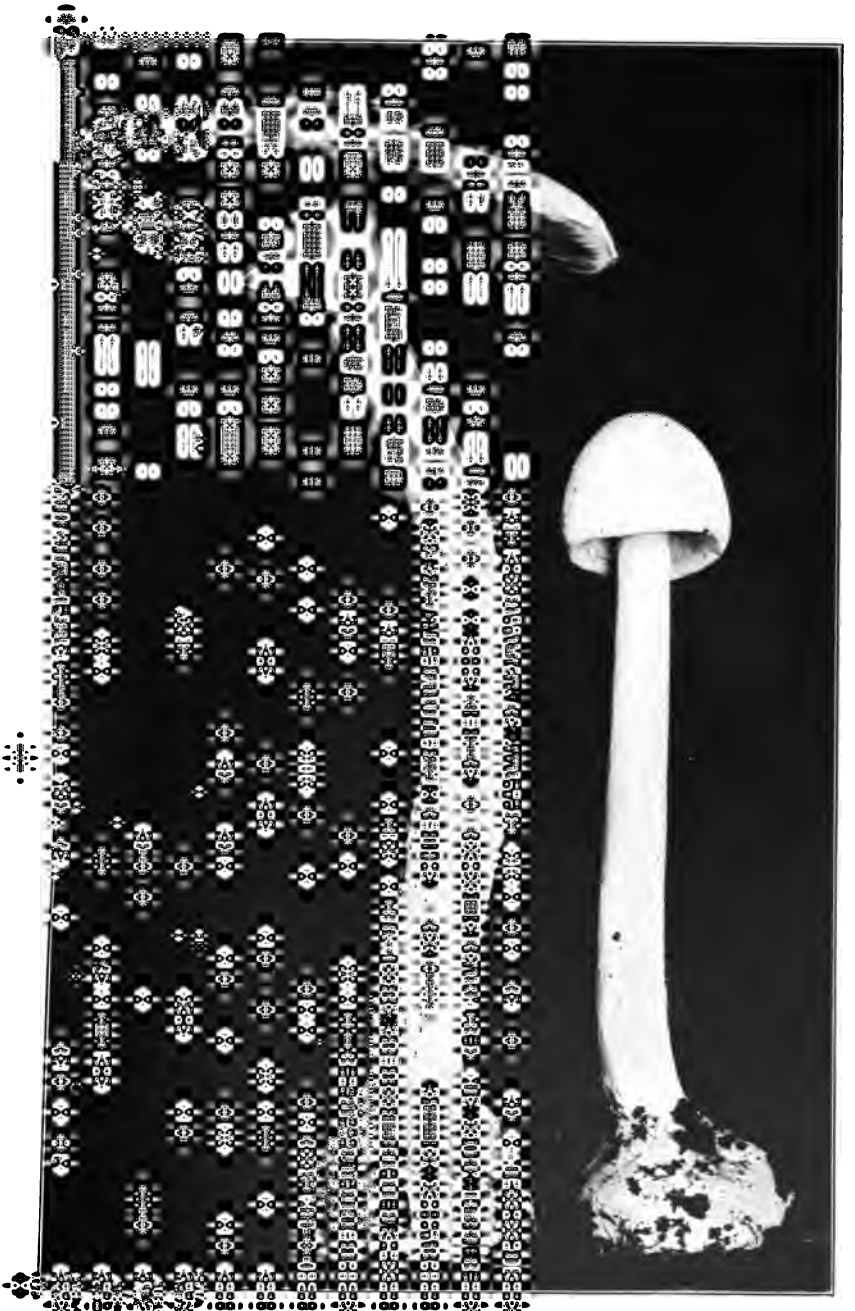


PLATE I. *Amanita muscaria.* Fly Amanita. (Reduced one-third.)
Cap blood-red at first, soon orange and becoming pale, whitening when old, covered with thick, angular warts; ring very soft, torn; stem bulbous at base and marginate with concentric scales; spores white.



Amanita. (Natural size.)
rown, viscid in moist weather;
distinct volva, or with a narrow
tire.

mold. Its characteristic sheathing volva and deeply striate pileus distinguish it from other species. *A. volvata* is also quite abundant.

Ten species of American *Amanitopsis* have been reported. Four are reported in Connecticut.

Amanitopsis farinosa Schw. (mealy).
Mansfield, July (78).

Amanitopsis strangulata (Fr.) Roz. (choked).
East Hartford, Rainbow, *Hanmer.*

Amanitopsis vaginata (Bull.) Roz. (having a sheath).
Mansfield, July, Aug. (147); East Hartford, *Hanmer.*

Amanitopsis vaginata (Bull.) Roz., var. **livida.** Pers. (livid).
Mansfield, July (88).

Amanitopsis volvata (Pk.) Sacc. (having a volva).
Mansfield, July, Aug. (259); Suffield, Sept.

LEPIOTA Fr.

λεπίς, a scale.

This genus is distinguished from *Amanita* and *Amanitopsis,* by the absence of a definite volva. These plants have a more or less persistent ring on the stem, but the volva is not present. The cap is generally scaly from the rupturing of the cuticle and the remains of the veil. The gills are not attached to the stem, but are joined to a cartilaginous collar which surrounds the stem. The substance of the stem is different from that of the cap, and the two are joined in a socket-like manner, so that the cap is easily separated from the stem. The ring in some species is easily movable on the stem when the specimens are mature. Many species are edible.

The Lepiotas are more frequently found in gardens, hotbeds and lawns, than in the woodlands. *L. procera* is sometimes found in thin chestnut sprout-land, or where the timber growth is young. The white spores, absent volva, scaly cap, and somewhat movable ring on the stem easily distinguish this species.

Lepiota Americana Pk.
East Hartford, *Hanmer;* New Haven, *Clinton.* Edible (Pk.).

Lepiota asperula Atk. (slightly rough).
East Hartford, *Hanmer.*

Lepiota clypeolaria Bull. (shield-shaped).
Manchester, *Hanmer.*

Lepiota cristata A. & S. (crested).
South Windsor, *Hanmer;* New Haven, *Clinton;* Mansfield, July (154). Edible (Pk.).

Lepiota farinosa Pk. (mealy).
South Windsor, *Hanmer.* Edible (Pk.).

Lepiota granulosa Batsch. (granular).
South Windsor, *Hanmer.*

Lepiota illinita Fr. (smeared over).
Mansfield, Aug. (231). Edible (McI.).

Lepiota metulæspora B. & Br. (having obelisk-shaped spores).
Mansfield, July, Aug. (214).

Lepiota naucinoides Pk.
East Hartford, *Hanmer.* Edible (Pk.).

Lepiota procera Scop. (tall). Parasol Mushroom.
East Hartford, *Hanmer;* Goshen, *Underwood;* New Haven, *Clinton;* Mansfield, July, Aug. (95). Edible (McI.). Plate III.

ARMILLARIA Fr.

Armilla, a ring.

This is a small genus which closely resembles some species of *Amanita* and *Lepiota,* but differs by having the gills attached to the stem. The substance of the stem and pileus is also similar and continuous, while in the other genera the stem and cap easily separate. In *A. mellea* the cap is honey-colored or somewhat brown with dark scales. The inner veil is present and forms a distinct ring on the stem. Often the plants are found attached to the roots of living trees, and are considered harmful parasites. The plants are clustered, and the bases are connected by a rope-like strand of mycelium.

Armillaria mellea Vahl. (honey-colored).
Goshen, *Underwood;* New Haven, *Clinton;* Mansfield, July (164). Edible (Atk.). Plate IV.

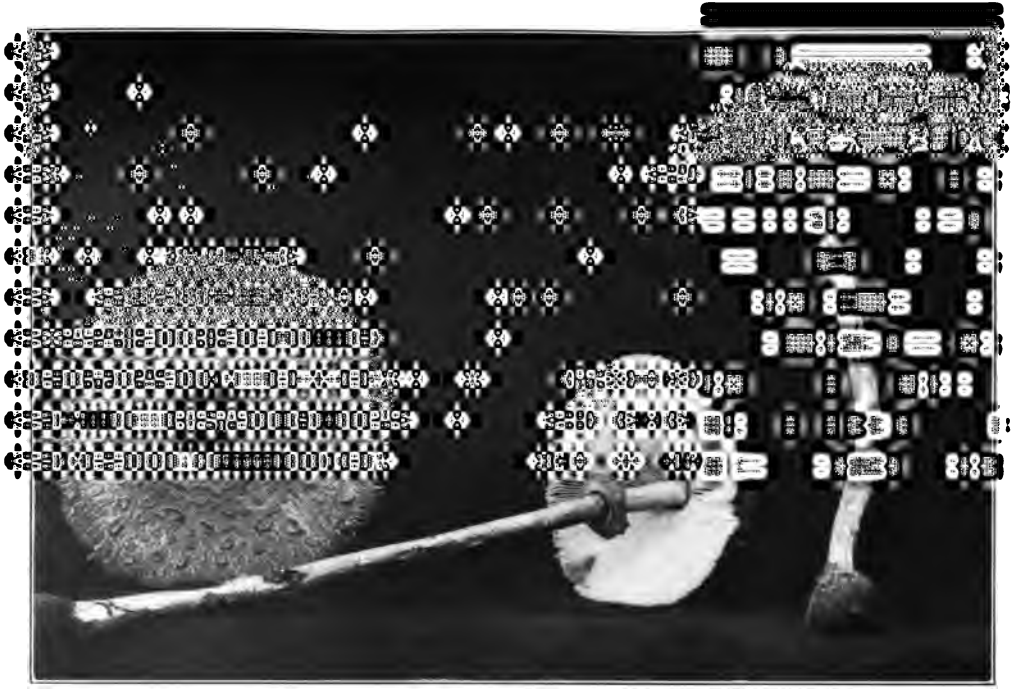
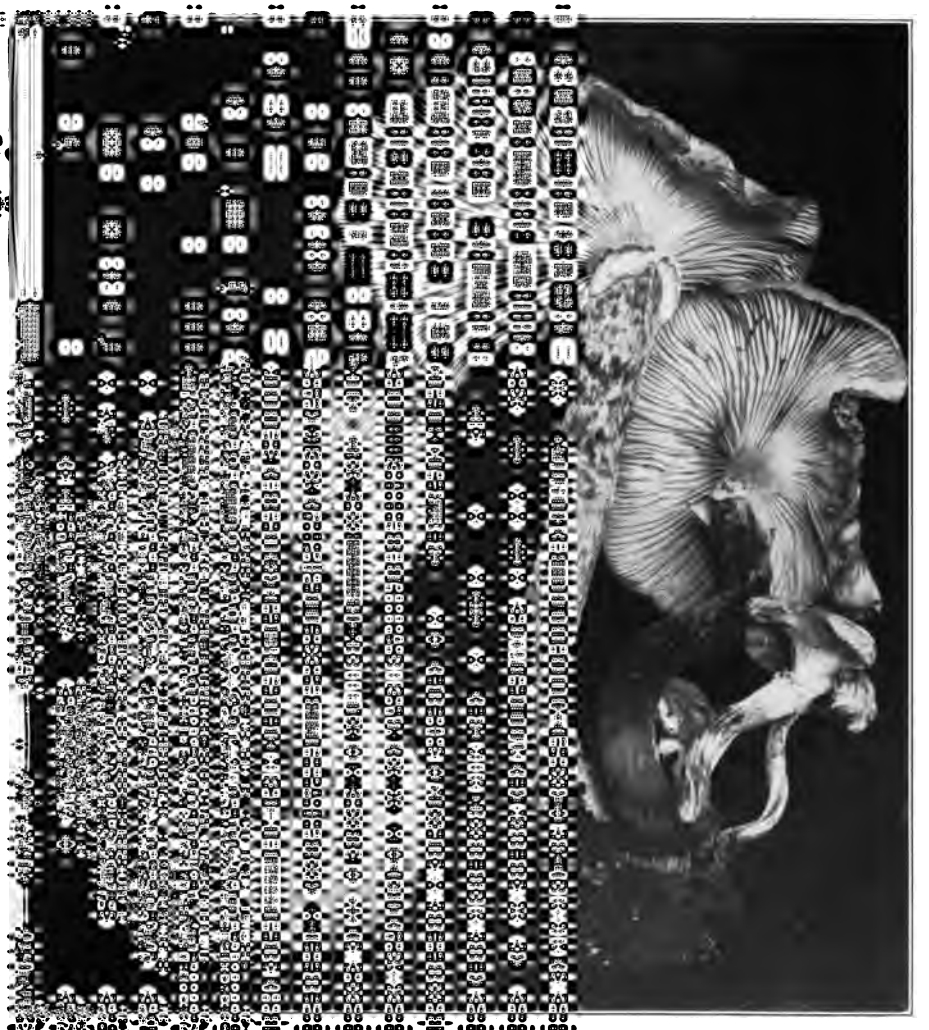


PLATE III. *Lepiota procera.* Parasol Mushroom. (Reduced.)
Cap variable in color, usually some shade of brown, covered with brown scales; stem variable in length, often tall, tubular; ring thick, firm, movable.



Armillaria. (Natural size.)
ish hairs, sometimes glabrous;

MARASMIUS Fr.

μαραίνω, to become completely dry.

The species of *Marasmius* are small plants which resemble *Mycena* and *Collybia,* but which differ from these groups in having properties which enable them to revive after drying, if moisture is applied; in many instances they resume their normal form. The cap is tough, thin, and more or less regular in shape. The gills are thin also and pliant. The stem is somewhat brittle and of a different substance from the pileus.

The members of this group are very numerous in the woods and fields, but possess little food value, because they are usually small. Several have a strong flavor of garlic. The species most plentiful during the past season were *M. oreades,* the "fairy-ring mushroom," *M. rotula* and *M. cohærens.* The plants are found on decaying leaves, rotten wood, and on the ground.

Marasmius cohærens (Fr.) Bres. (holding together).
Mansfield, July, Aug. (189).
Synonymous with *Mycena cohærens* Fr., *Collybia lachnophylla* Berk., *Collybia spinulifera* Pk.

Marasmius elongatipes Pk. (long-stemmed).
Mansfield, June(24).

Marasmius oreades Fr. (mountain nymphs). Fairy-Ring Mushroom.
Goshen, *Underwood;* New Haven, *Clinton;* Mansfield, Aug. (210). Edible (Pk.).

Marasmius retiphyllus Atk. (*rete,* net; *phyllon,* leaf; referring to the netted gills).
Mansfield, July, Aug. (205).

Marasmius rotula (Scop.) Fr. (wheel).
Mansfield, June (3).

Marasmius scorodonius Fr. (garlic-smelling).
Mansfield, June, July; Suffield, Aug. (4). Used for flavoring (Cooke).

Marasmius semihirtipes Pk. (having stem half-hairy).
Mansfield, June, July (9).

Marasmius varicosus Fr. (varicose).
Mansfield, June, July (51).

TRICHOLOMA Fr.

θρίξ, a hair; λῶμα, a fringe.

The veil is wholly wanting in most species of *Tricholoma,* therefore the ring and volva on the stem are absent. In some few species a minute veil is manifest by cobwebby down on the margin of the pileus. In this genus the gills are joined to the stem, and are more or less strongly notched at the point of union. The pileus is fleshy, and similar in substance to the short, stout stem.

The species are usually found in moist woodland, growing on the ground among decaying leaves, but occasionally they occur in open pastures. Many are edible, but some few species are said to be poisonous.

Tricholoma albi-flavidum Pk. (yellow-white).
South Windsor, *Hanmer;* Mansfield, July (68).

Tricholoma album Schæff. (white).
Mansfield, July (85). Taste bitter (Pk.).

Tricholoma equestre Linn. (*eques,* knight).
South Windsor, *Hanmer.* Edible (Pk.).

Tricholoma personatum Fr. (masked).
Manchester, *Hanmer.* Edible (Atk.). Plate V.

Tricholoma portentosum Fr. (portentous).
East Hartford, *Hanmer.* Edible (McI.).

Tricholoma rutilans Schæff. (reddish).
South Windsor, *Hanmer;* Mansfield, Aug. (226). Edible (McI.).

Tricholoma sejunctum Sow. (disjoined).
South Glastonbury, *Hanmer.*

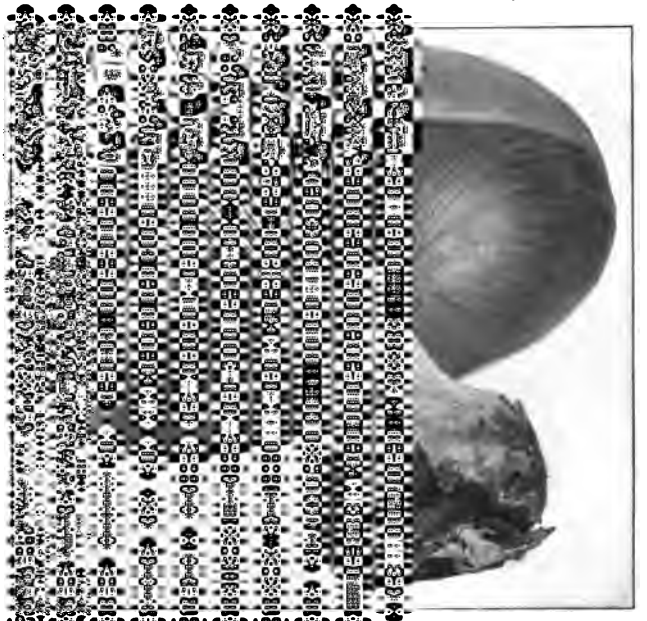
Tricholoma transmutans Pk. (changing).
Rainbow, *Hanmer.* Edible (Pk.).

Tricholoma terreum Schæff. (earthen).
Rainbow, *Hanmer.* Edible (Pk.).

COLLYBIA Fr.

κόλλυβος, a coin.

The cap is fleshy and usually thin, and in the young plant the margin is inrolled, thus differing from *Mycena* which this genus resembles.



Masked Tricholoma.
ger.)
tinged with lilac or
what bulbous.

Rooted Collybia. (Reduced.)

ades, sometimes almost white,
stem tapering upward; root

The stem is rather brittle on the outside, but is frequently stuffed with fibers within. The ring and volva are wanting from the stem, and the gills are mostly attached to it.

This genus also strongly resembles *Marasmius,* but the plants lack the leathery consistency, and do not revive when once dried.

They are abundant throughout the entire season, growing on stumps, logs, decaying leaves, in soil, in woodlands and open fields.

Many of the fleshy species are desirable for food, and fortunately are abundant and have a long season of growth. Many of the more fleshy species are often infested with larvæ, and need careful examination before preparing for the table. None of the species as yet reported have been found poisonous.

Collybia acervata Fr. (heaped).
East Hartford, *Hanmer;* Mansfield, July (124). Edible (McI.).

Collybia butyracea Bull. (butter-like).
Mansfield, July (64).

Collybia confluens Pers. (flowing together).
Mansfield, July (82).

Collybia dryophila Bull. (oak-loving).
East Hartford, *Hanmer;* Mansfield, July (10).

Collybia esculenta Wulf. (esculent).
East Hartford, July, *Hanmer.* The best edible *Collybia* (Cooke).

Collybia lacerata Lasch. (torn).
East Hartford, *Hanmer.*

Collybia maculata A. & S. (spotted).
East Hartford, Sept., *Hanmer.*

Collybia platyphylla Fr. (πλατύς, broad; φύλλον, leaf; referring to the broad gills).
East Hartford, May, *Hanmer;* New Haven, *Clinton;* Mansfield, June (47). Edible (McI.).

Collybia radicata Relh. (rooted).
East Hartford, Aug., *Hanmer;* New Haven, *Clinton;* Mansfield, July (151). Edible (Curtis). Plate VI.

Collybia strictipes Pk. (short-stemmed).
Mansfield, June (53).

Collybia velutipes Curt. (having a velvety stem).
East Hartford, Sept., *Hanmer;* Mansfield, May (345).
Collybia zonata Pk. (zoned).
Bolton, July, *Hanmer.*

MYCENA Fr.

μύκης, a fungus.

This genus is composed mostly of delicate plants growing on wood, decaying stumps, among decaying leaves, and on the ground.

The cap is more or less conical, and in the immature plant the margin lies flat against the stem, in contrast with the incurved margin of *Collybia.* The stem is frequently long and slender, it snaps easily when bent, and is usually hollow. In some species a colored or watery juice exudes from the stem when it is broken. The gills are attached to the stem. Spores white.

Mycena occurs abundantly in woodlands and occasionally in grasslands. The plants promise little food value because of their small size and thin substance.

Their smallness makes the determination of species rather difficult. A few, however, have characteristic odors which aid in establishing their identity.

Mycena cyanothrix Atk. (blue-haired).
Mansfield, June (26). Plate VII.
Mycena epipterygia Scop. (ἐπί, upon; πτερύγιον, little wing).
Mansfield, July, Aug. (230).
Mycena galericulata Scop. (*galericulum,* a small peaked cap).
Mansfield, June (6).
Mycena hæmatopa Pers. (bloody-stemmed, referring to juice).
Mansfield, July, Aug. (65).
Mycena pelianthina Fr. (πελιός, livid; ἄνθος, flower).
Mansfield, Aug. (261).
Mycena vulgaris Pers. (common).
Mansfield, Aug. (5).

Blue-haired Mycena.

pale and whitish in age,
with blue hairs at base.

LACTARIUS Fr.

Lac, milk; milk producing.

This group resembles *Russula* in some respects, but is easily distinguished by the abundance of milky juice which exudes from all parts of the plant when it is broken. The cap is rigid, somewhat sunken in the center, and often marked on its surface with concentric zones. The stem is stout, solid, and frequently marked with peculiar blotches. The gills are attached to the stem, and often extend down it in decurrent lines. The species are determined largely by their characteristic coloring, taste, and nature of milk. The colors vary greatly, and the taste in many species is peppery and acrid. These qualities, however, disappear in cooking, and many of the peppery species are classed among esculent mushrooms. The color of the milk in most species is white, but it often changes rapidly when exposed to the air. For example, in *L. theiogalus* the milk quickly changes to a sulphur yellow. In *L. indigo* the color of the milk is a deep indigo blue. These characteristics must be carefully noted when the fresh specimens are collected, otherwise their determination becomes difficult.

Many members of this group are desirable for their food value. The writer has enjoyed many meals of *L. volemus,* and *L. deliciosus. L. corrugis* is said to be equally desirable, but it does not occur in Mansfield in sufficient quantities to be of much value. They are remarkably free from larvæ of all kinds. Nearly all species grow on the ground and occur abundantly. During August of the past season, the woods in the vicinity of Mansfield contained immense quantities of *L. deceptivus. L. volemus* was also plentiful throughout the season.

Lactarius aquifluus Pk. (watery).

South Windsor, *Hanmer.* Edibility uncertain.

Lactarius blennius Fr. (slimy).

South Windsor, *Hanmer.* Edibility uncertain.

Lactarius camphoratus (Bull.) Fr. (having an odor of camphor).

East Hartford, South Windsor, *Hanmer.*

Lactarius chrysorrheus Fr. (flowing with gold).
Mansfield, Aug.(258).

Lactarius corrugis Pk. (wrinkled).
Rockville, *Hanmer;* Goshen, *Underwood;* Mansfield, Aug. (244).

Lactarius chelidonium Pk. (referring to the Celandine, a flowering plant with yellow acrid juice).
Goshen, *Underwood;* Mansfield.

Lactarius deceptivus Pk. (deceitful).
Goshen, *Underwood;* Mansfield, Aug. (319). Plate VIII.

Lactarius deliciosus (L.) Fr. (delicious).
Goshen, *Underwood;* Mansfield, July (298).

Lactarius fuliginosus Fr. (sooty).
Mansfield, Aug. (202).

Lactarius fumosus Pk. (smoky).
Mansfield, July (188).

Lactarius griseus Pk. (gray).
Mansfield, Aug. (198).

Lactarius hygrophoroides B. & C. (resembling *Hygrophorus*).
East Hartford, South Windsor, *Hanmer.*

Lactarius indigo (Schw.) Fr. (blue).
Goshen, *Underwood;* Mansfield, Aug. (321).

Lactarius luteolus Pk. (yellowish).
South Windsor, *Hanmer.*

Lactarius lignyotus Fr. (λιγνύς, a smoke).
East Hartford, *Hanmer.* Edible (McI.).

Lactarius pallidus (Pers.) Fr. (pale).
Manchester, *Hanmer.* Edible (Cooke).

Lactarius pergamenus (Schw.) Fr. (*pergamena,* parchment).
South Windsor, *Hanmer.* Edible (Cooke).

Lactarius piperatus (Scop.) Fr. (peppery).
East Hartford, *Hanmer;* Mansfield, July (90). Plate IX.

Lactarius pyrogalus (Bull.) Fr. (πῦρ, fire; γάλα, milk).
Goshen, *Underwood.*

Lactarius subdulcis (Bull.) Fr. (sweetish).
Goshen, *Underwood;* Mansfield, July (41).

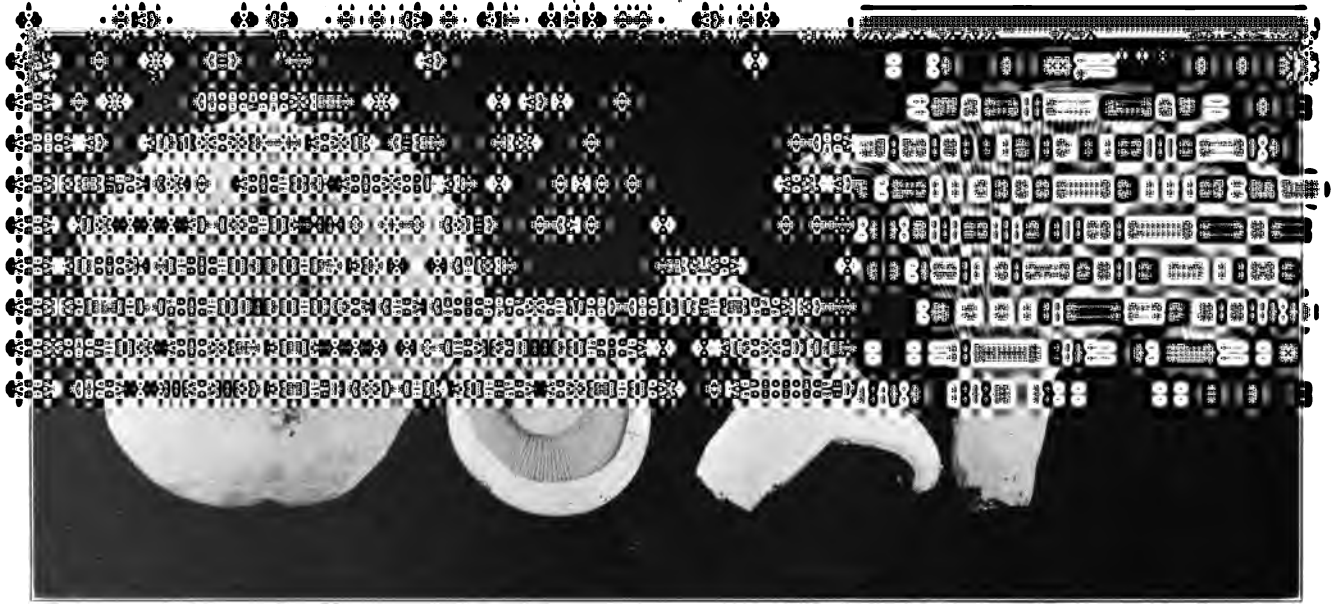


PLATE VIII. *Lactarius deceptivus*. Deceptive Lactarius. (Reduced one-third.)
Cap white or tinged with yellow, slightly tomentose or glabrous, except on the margin, which is at first inrolled and clothed with a dense, soft, woolly covering; gills broad, distant.

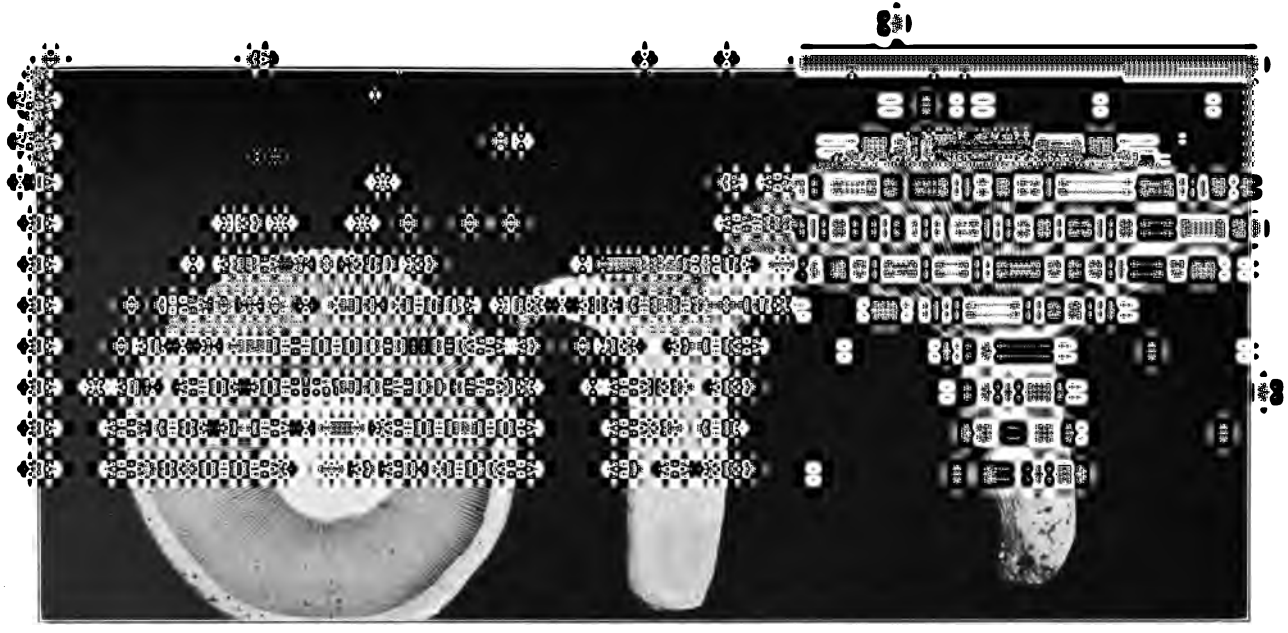


PLATE IX. *Lactarius piperatus*. Peppery Lactarius. (Reduced one-third.)
Cap white, funnel-shaped at maturity ; gills crowded ; milk white, unchangeable, very acrid.

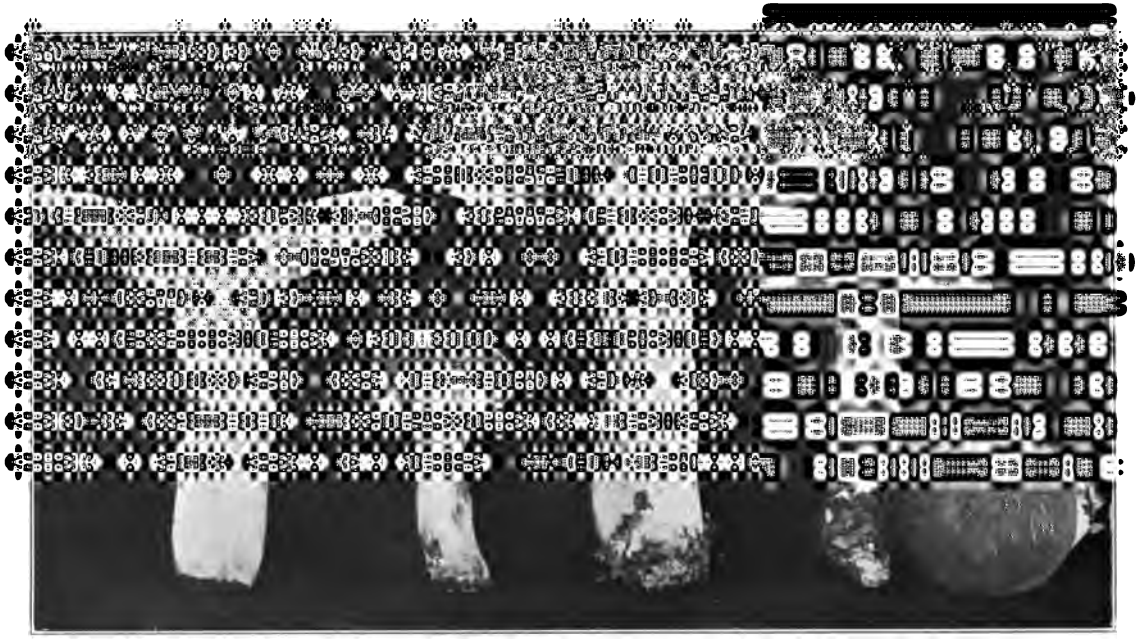


PLATE X. *Lactarius volemus*. Orange brown Lactarius. (Reduced one-third.)
Cap golden-tawny or brownish-orange, somewhat depressed at maturity, glabrous; gills close; milk copious, white, slightly acrid.

Lactarius subpurpureus Pk. (purplish).
Goshen, *Underwood.*

Lactarius theiogalus (Bull.) Fr. (*θεῖον*, brimstone; *γάλα*, milk).
Goshen, *Underwood;* Mansfield, Aug. (315).

Lactarius torminosus (Schæff.) Fr. (producing gripes).
Goshen, *Underwood.*

Lactarius trivialis Fr. (common).
Goshen, *Underwood;* Mansfield, July (157).

Lactarius vellereus Fr. (fleecy).
Mansfield, July (91).

Lactarius volemus Fr. (*volema,* a large pear).
Goshen, *Underwood;* Mansfield, July (141). Edible (Fr.). Plate X.

RUSSULA Pers.

Russulus, reddish.

The variations in coloring in the species of Russula make their determination difficult, but the distinct generic characteristics seldom allow them to be confused with other genera. The cap is regular, with a more or less prominent depression, and somewhat rigid. The tissue constituting the cap and gills is composed of large cells which easily separate, giving this tissue a more or less mealy appearance when crushed. The stem is short, stout, brittle, very smooth without and spongy within. The veil is wholly lacking, so there are no indications of a ring or volva on the stem. The spores, when viewed under a microscope, are roughened or warty, and are white or of a yellowish tint when collected on a dark surface.

The species of *Russula* resemble closely *Lactarius,* but lack the milky juice. They occur abundantly during the summer, and until the severe frosts of autumn they are found in nearly every woodland. All species grow on the ground. Many species are reported edible, but the one considered the most desirable for food is *R. virescens,* the "green russula."

All edible species must be in a perfectly fresh condition when cooked, or the taste is strong and offensive. Many species have a characteristic taste and some a characteristic odor,

so their identity is revealed at once. When *R. fœtens* is once known it is rarely forgotten, and the strong, acrid taste of *R. emetica* makes a lasting impression on the collector.

Russula aurata (With.) Fr. (*aurum,* gold).
Mansfield, Aug. (305).

Russula adusta (Pers.) Fr. (scorched).
Manchester, *Hanmer.*

Russula atropurpurea Pk. (dark purple).
South Windsor, *Hanmer.*

Russula brevipes Pk. (short-stemmed).
Bolton, *Hanmer.*

Russula citrina Gillet (citron-colored).
Mansfield, July (115).

Russula compacta Frost (close-grained).
South Windsor, *Hanmer.*

Russula depallens Fr. (becoming pallid).
Mansfield, July (72).

Russula flavida Pk. (yellow).
Rockville, *Hanmer.*

Russula fœtens (Pers.) Fr. (stinking).
Mansfield, July, Aug. (172). Plate XI.

Russula furcata (Pers.) Fr. (forked).
Mansfield, July (141).

Russula lepida Fr. (elegant).
Mansfield, Aug. (313).

Russula roseipes (Secr.) Bres. (red-stemmed).
Mansfield, Aug. (328).

Russula sanguinea (Bull.) Fr. (blood-red).
Mansfield, July (77).

Russula virescens (Schæff.) Fr. (becoming green).
Mansfield, July (35). Edible (Pk.).

PLEUROTUS Fr.

πλευρά, a rib.

The pileus, or cap, is irregular, more or less fleshy, and in some species becomes membranaceous but never woody. The stem is fleshy and of the same consistency as the pileus; in many species it is not distinct from it. The stem is attached

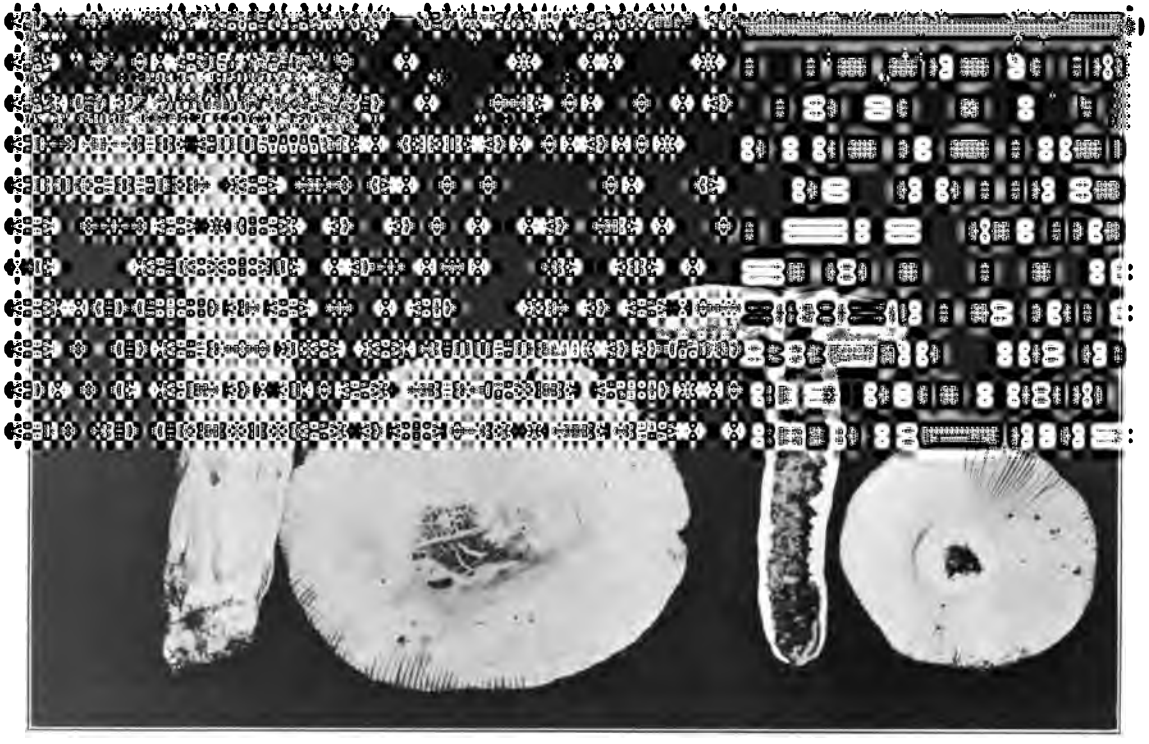


PLATE XI. *Russula fœtens.* Stinking Russula. (Reduced one-third.)
Cap dingy yellow, becoming pale, viscid in moist weather, margin deeply striate; stem stout, stuffed, then hollow; taste acrid.

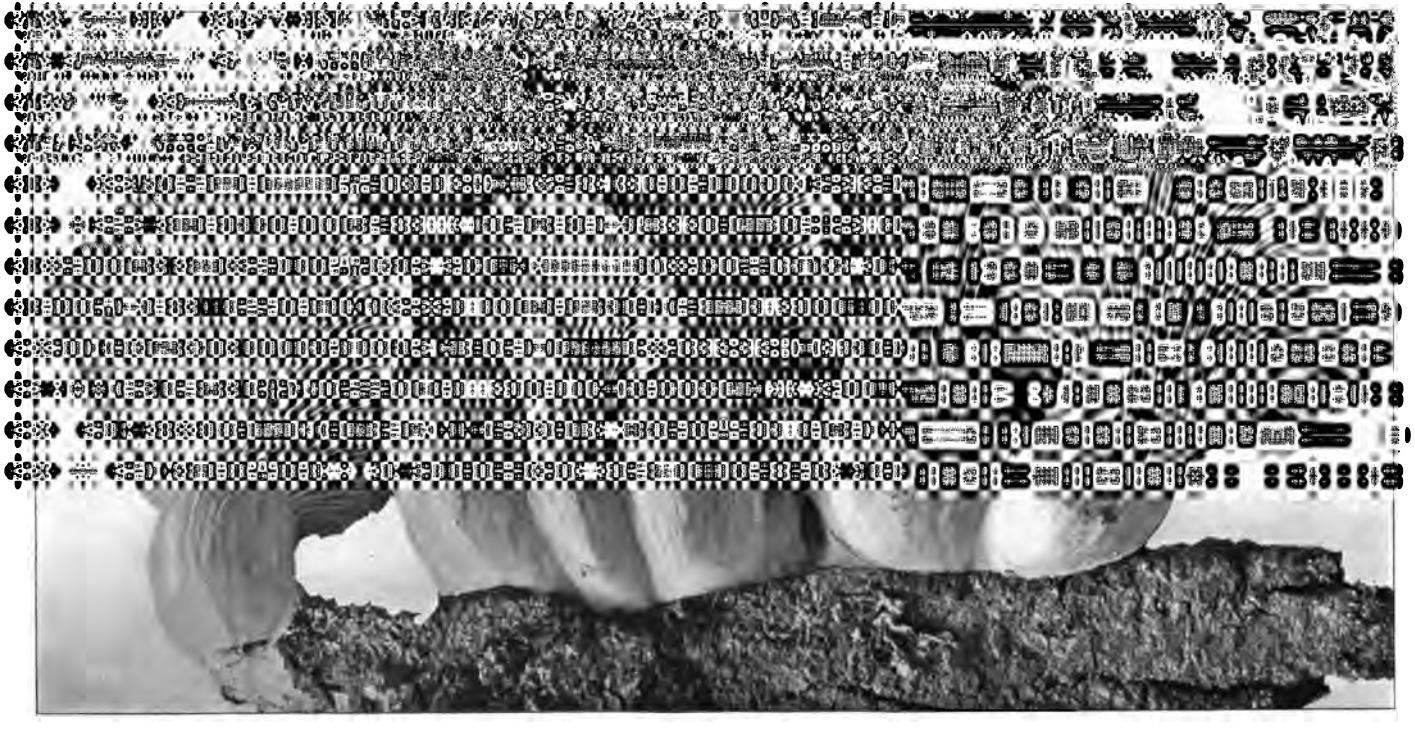


PLATE XII. *Pleurotus ostreatus*. Oyster Pleurotus. (Natural size, often larger.)
Cap white to dark gray, often yellowish at maturity ; gills extending down the stem, connected by veins.

at one side of the center, at one edge of the pileus, or in some species it is lacking; the pileus being then attached directly to the substratum.

When the stem is present, the gills usually extend down it for a greater or less distance.

This group is usually found growing on wood either dead or alive. It contains many edible species. The well known oyster pleurotus and elm pleurotus are among the most desirable of these species. As in *Collybia,* these mushrooms are very frequently infested with larvæ.

Pleurotus lignatilis Fr. (woody).
Mansfield, July (81).

Pleurotus ostreatus Jacq. (oyster-like).
East Hartford, *Hanmer;* Mansfield, Aug. (217). Edible (Pk.). Plate XII.

Pleurotus petaloides Bull. (like a petal of a flower).
Mansfield, July (158). Edible (Cooke).

Pleurotus sapidus Kalchb. (savory).
South Windsor, *Hanmer;* Mansfield, Nov. (366). Edible (Pk.).

Pleurotus serotinus Schr. (late).
South Windsor, *Hanmer.*

Pleurotus ulmarius Bull. (pertaining to the elm).
East Hartford, *Hanmer.* Edible (Atk.).

NYCTALIS Fr.

νύξ, night; from inhabiting dark places.

This is a small genus of mushrooms, but interesting from the fact that the only American species is found living upon decaying mushrooms of other genera. Some of the species of *Russula* seem the most frequent host-plant. The cap is white or grayish white, fleshy; stem short; gills blunt, distinct, thick, and juicy.

Nyctalis asterophora Fr. (star-bearing; from the star-shaped bodies in the dust on the pileus).
South Windsor, *Hanmer;* Goshen, *Underwood.*

HYGROPHORUS Fr.

ὑγρός, moist; φορέω, to bear.

This genus includes many species which are highly colored and quickly attract the eye of the amateur collector, but the species, as a rule, are difficult for the beginner to determine.

The plants must be studied while fresh, for many distinguishing characters disappear upon drying. The pileus is rather fleshy and generally moist or viscid. The gills are, perhaps, the most distinguishing feature about this group of plants. They are very sharp or acute at the edges and are gradually thickened as they approach the pileus, making a distinct V-shaped appearance when a cross section is made. They also have a peculiar, watery appearance, and are of a waxy consistency. Usually the gills are attached to the stem and extend down it in decurrent lines, frequently branching considerably.

Hygrophorus caprinus (Scop.) Fr. (*caper*, goat).
Mansfield, Aug. (274.)

Hygrophorus calophyllus Karst. (having beautiful leaves).
Rainbow, *Hanmer.*

Hygrophorus ceraceus (Wulf.) Fr. (waxy).
Rainbow, *Hanmer;* Mansfield, Aug. (254).

Hygrophorus chlorophanus Fr. (greenish yellow).
Mansfield, June (23).

Hygrophorus conicus (Scop.) Fr. (conical).
Mansfield, July (130). Plate XIII.

Hygrophorus coccineus (Schæff.) Fr. (scarlet).
Rainbow, *Hanmer.* Edible (Cooke, Pk.).

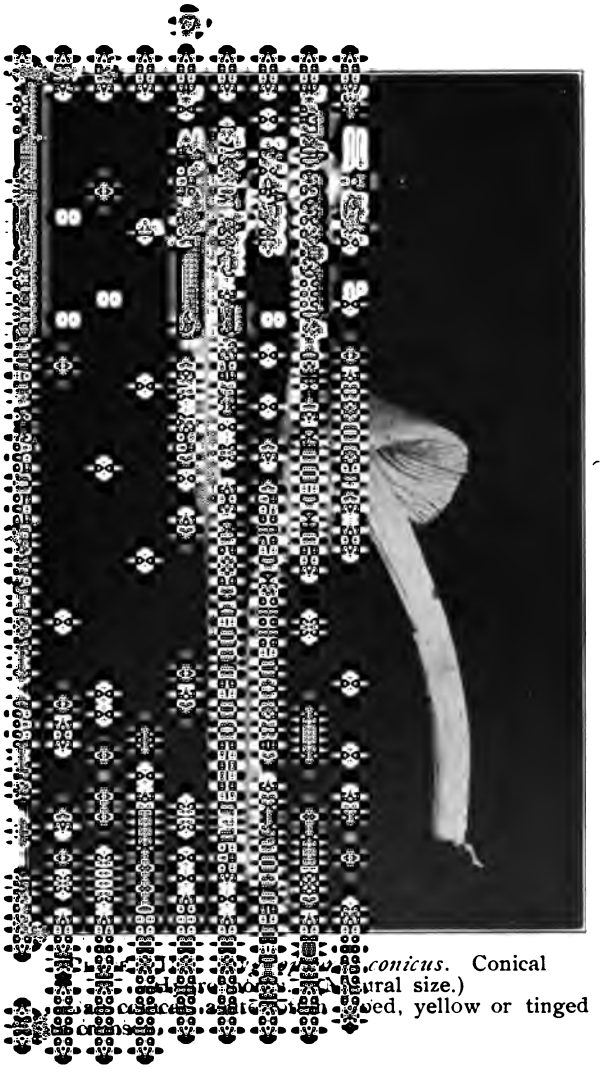
Hygrophorus erubescens Fr. (becoming red).
Rainbow, *Hanmer.* Edible (Cooke).

Hygrophorus Lauræ Morgan.
Manchester, *Hanmer.*

Hygrophorus miniatus Fr. (red).
Mansfield, June (35). Edible (Pk.).

Hygrophorus miniatus Fr. var. **lutescens** (yellowish).
Mansfield, July (109).

Hygrophorus nitidus B. & C. (shining).
Mansfield, July (175). Edible (McI.).



conicus. Conical
ural size.)
ed, yellow or tinged

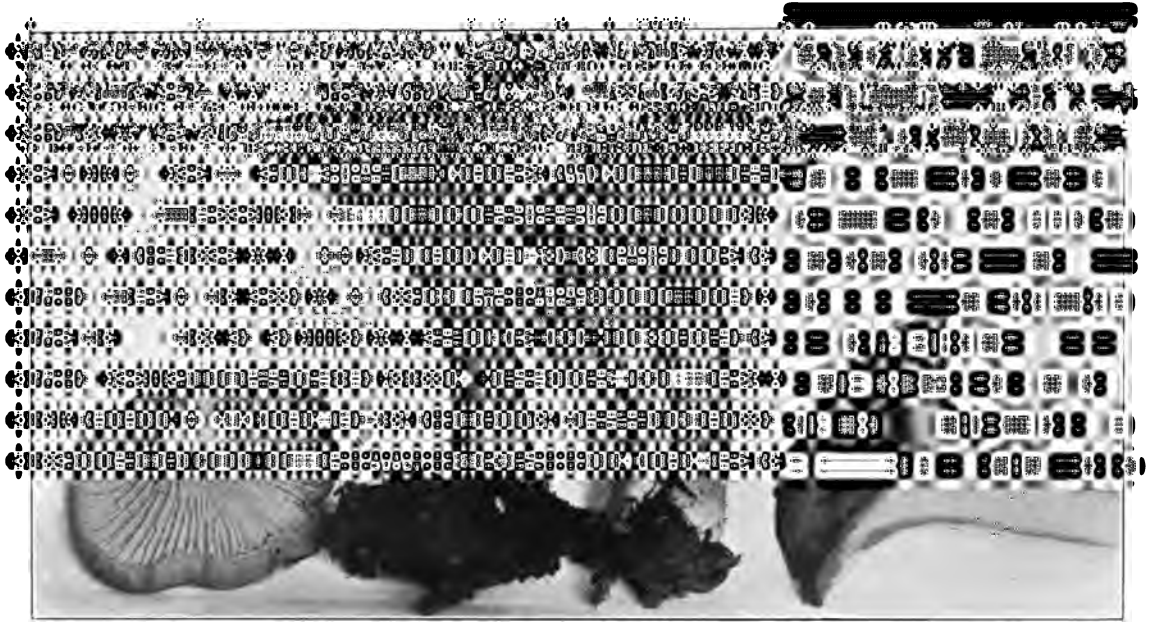


PLATE XIV. *Cantharellus cibarius* Chantarelle. (Natural size)
Cap egg-yellow, slightly depressed, fleshy ; gills thick, distant, more or less branching.

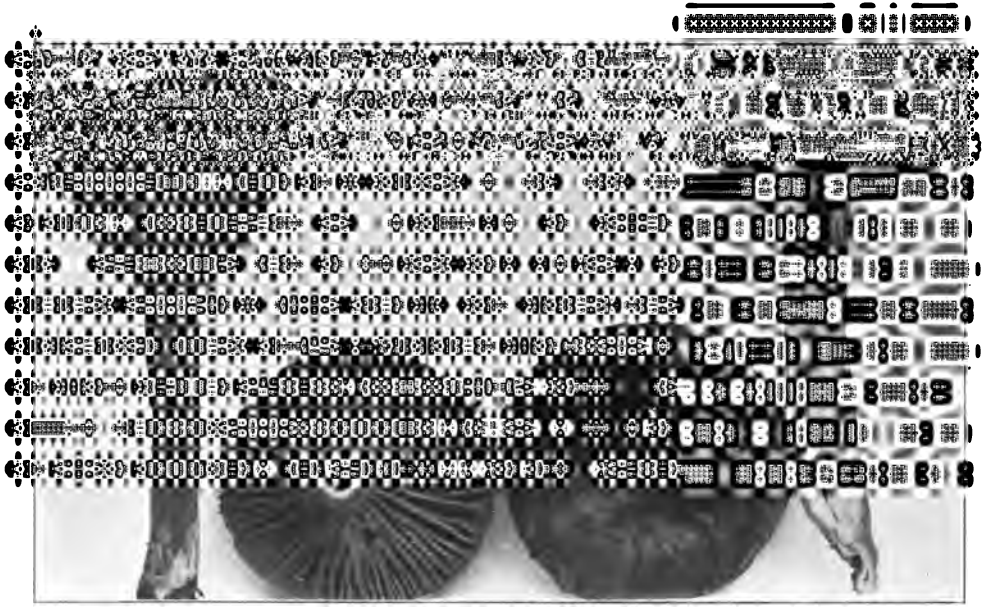


PLATE XV. *Cantharellus infundibuliformis*. Funnel-form Cantharellus. (Natural size.)
Cap smoky-yellow at first, then pale yellow, floccose; gills thick, dichotomously branched; stem glabrous, yellow.

Hygrophorus pratensis (Pers.) Fr. (pertaining to a meadow).
Mansfield, July (108). Edible (Cooke).
Hygrophorus puniceus Fr. (purplish red).
East Windsor, *Hanmer.* Edible (Cooke).
Hygrophorus virgineus (Wulf.) Fr. (*virgo,* a virgin).
Rainbow, *Hanmer.* Edible (Cooke).

CANTHARELLUS Adanson.

Cantharus, a cup; from form of cap.

The members of this genus are more or less funnel-shaped at maturity, or at least quite deeply depressed in the center. The pileus is fleshy with a rather thick, blunt margin. The characteristic feature of the genus is the blunt gills, which are usually narrow, and in many species they resemble veins or wrinkles. They frequently branch and join by net-like veins. The number of Connecticut species is not large, and their characteristic features are so distinct that their identification is not as difficult as in many genera. Several are considered excellent for the table. *Cantharellus cibarius* is thought the most desirable species. It is widely distributed and is found abundantly.

Cantharellus brevipes Pk. (short-stemmed).
Rainbow, *Hanmer.* Edible (McI.).
Cantharellus cibarius Fr. (edible).
Mansfield, Aug. (218). Edible (Pk.). Plate XIV.
Cantharellus cinnabarinus Schw. (having the color of dragon's-blood).
Goshen, *Underwood;* Mansfield, July (232).
Cantharellus dichotomus Pk. (dividing by pairs).
East Hartford, *Hanmer.*
Cantharellus floccosus Schw. (woolly).
Mansfield, Aug. (224).
Cantharellus infundibuliformis (Scop.) Fr. (funnel-form).
Mansfield, Aug. (94). Plate XV.
Cantharellus lutescens Fr. (yellowish).
Manchester, *Hanmer.*

Cantharellus rosellus Pk. (rosy).
South Windsor, *Hanmer.*

OMPHALIA Fr.

ὀμφαλός, navel.

These plants strongly resemble *Mycena* and *Collybia,* but differ from them by having a brittle stem, with the gills running down it, and by the pileus being more or less depressed in the center, frequently becoming funnel-form. They are usually found growing on wood, especially rotten stumps in swamps and damp localities. The most common species in eastern Connecticut is *O. campanella,* which occurs in immense numbers. The specimens photographed for illustration grew on a rotten stump in a swamp in Mansfield. This is the only species thus far reported in Connecticut.

Omphalia campanella Batsch. (bell-shaped).
East Hartford, *Hanmer;* Mansfield, Aug. (134). Plate XVI.

CLITOCYBE Fr.

κλιτύς, slope; κυβή, head.

This group contains a large number of species whose individual characteristics vary so much that their identification is puzzling even to the experienced collector. It belongs to the white-spored series of Agaricaceæ, and in all species the ring and volva are absent. The pileus is generally fleshy, thicker in the center and narrowed toward the margin. The stem is similar to the pileus in consistency, is somewhat hollow, and is held by fibers on the outside so that it does not break easily when twisted or bent.

The gills are joined squarely to the stem (adnate), or in many species extend down the stem (decurrent). They occur usually growing on the ground, and frequently are found in large groups. *C. illudens* is often found grouped in large numbers about the bases of stumps of old trees, and *C. odora* is equally abundant in decaying leaves. This latter species is interesting because of its fragrance, which resembles that of water-lilies.

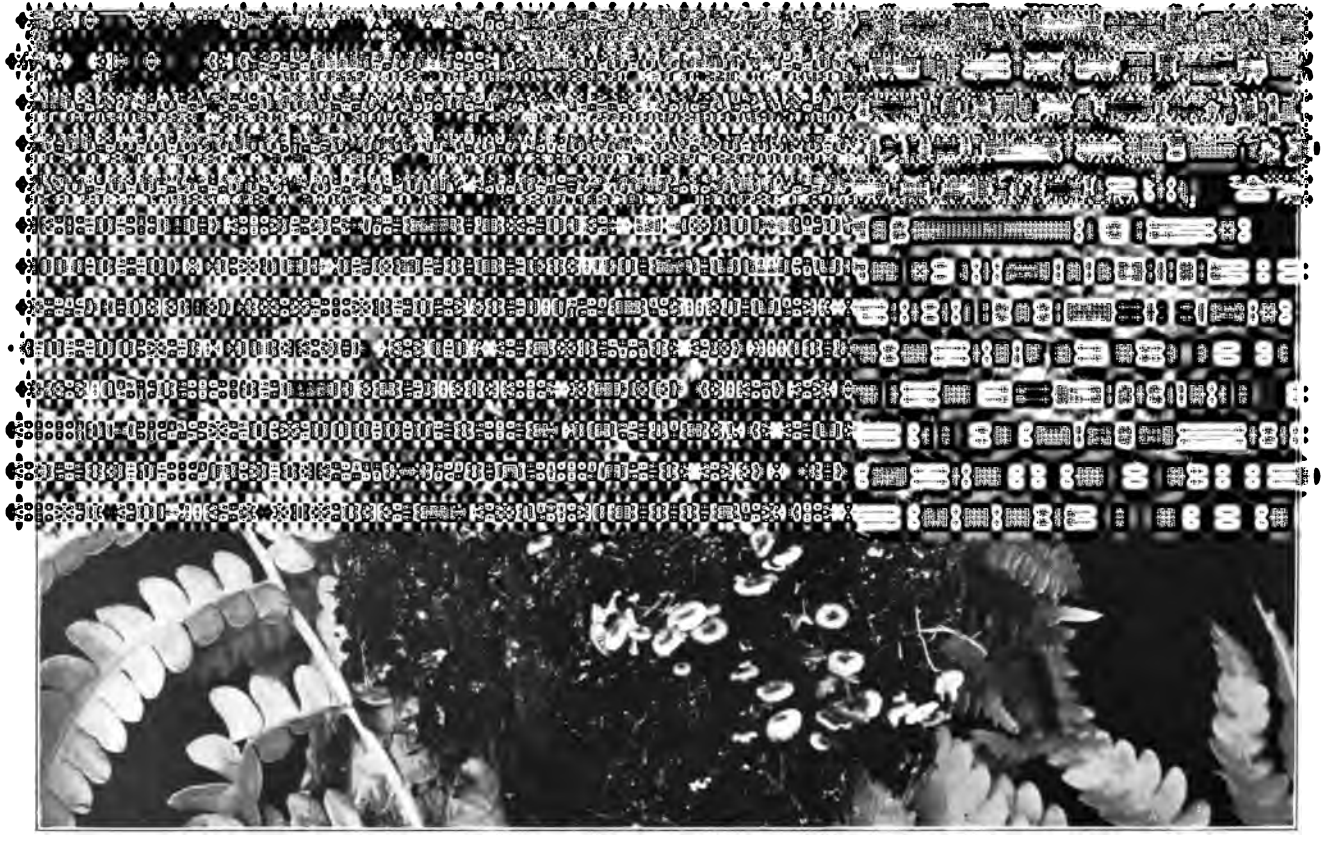


PLATE XVI. *Omphalia campanella.* Bell-shaped Omphalia. (Natural size.)
Cap thin, rusty yellow, striate ; stem hollow, brown.

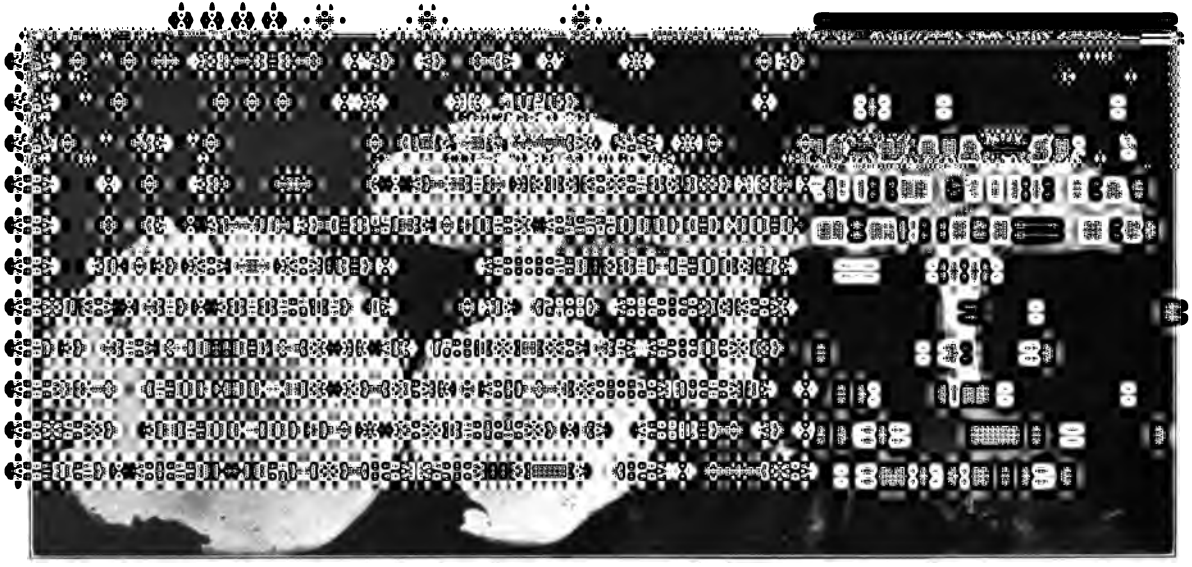


PLATE XVII. *Clitocybe odora*. Fragrant Clitocybe. (Natural size.)
Cap pale dingy green.

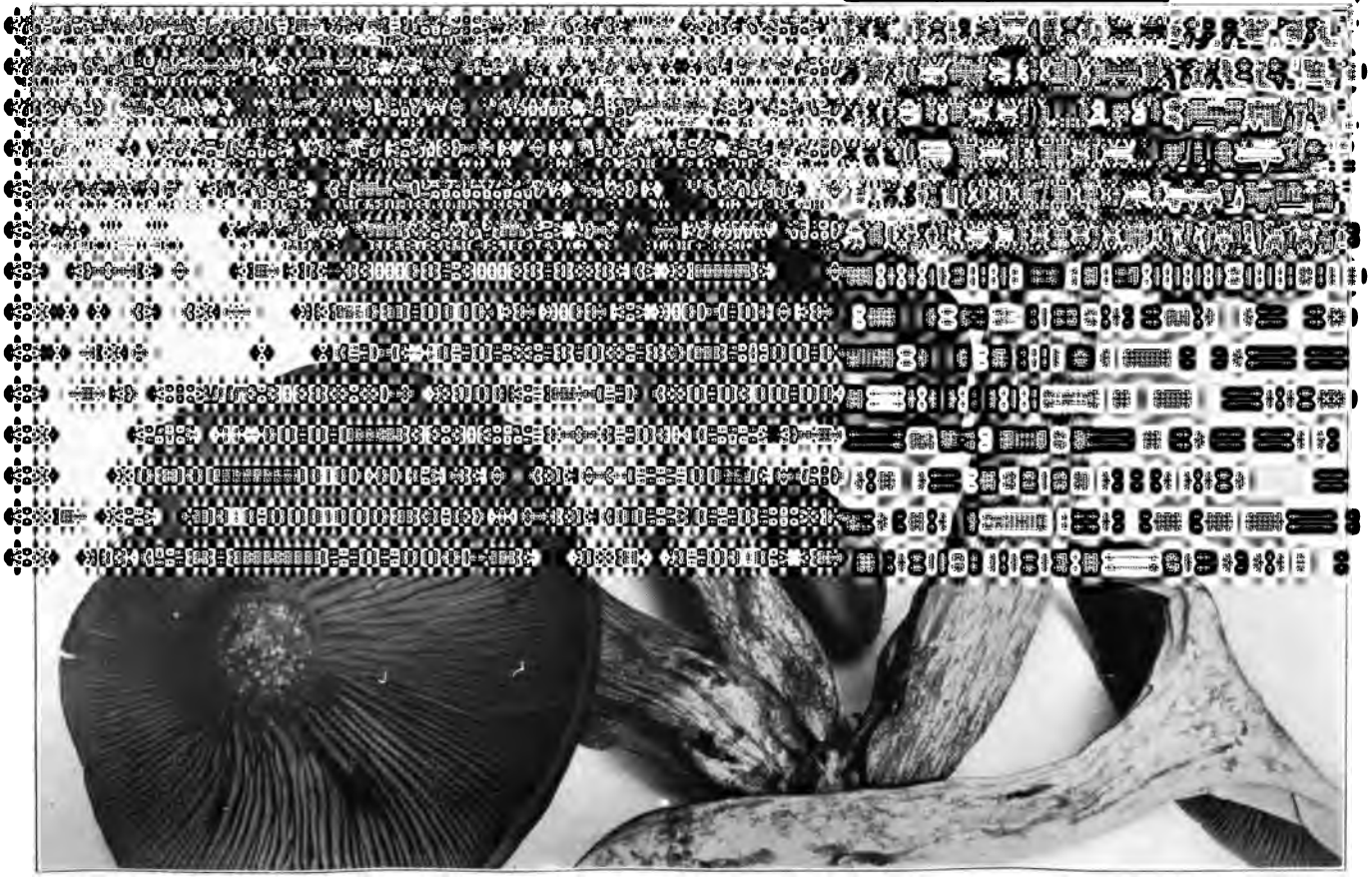


PLATE XVIII. *Clitocybe illudens*. Phosphorescent Clitocybe. (Reduced one-third.)
Cap fleshy, convex, smooth, deep yellow; gills unequally decurrent.

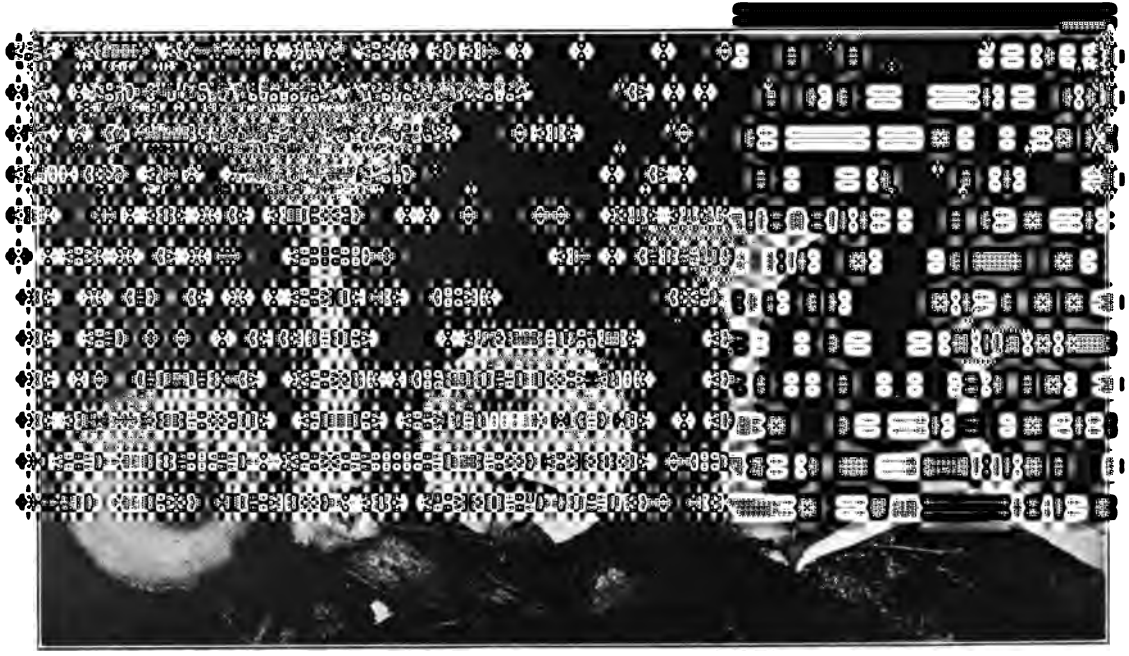


PLATE XIX. *Clitocybe infundibuliformis.* Funnel-form Clitocybe. (Reduced one-third.)
Cap pale-red, tinged with buff, sometimes becoming pale with age; gills close, thin, whitish; stem usually tapering from base upward.

Clitocybe amethystina Bolt. (amethystine).
East Hartford, Manchester, *Hanmer.*

Clitocybe clavipes Pers. (club-footed).
East Hartford, *Hanmer.*

Clitocybe odora Bull. (fragrant).
Mansfield, Aug. (275). Plate XVII.

Clitocybe illudens Sch. (mocking).
Mansfield, July (159). Not edible (Atk.). Plate XVIII.

Clitocybe infundibuliformis Sch. (funnel-form).
Mansfield, Aug. (197). Plate XIX.

Clitocybe ochro-purpurea Berk. (ochreous purple).
Mansfield, Aug. (326).

Clitocybe trullissata Ellis. (scoop-shaped).
East Hartford, *Hanmer.*

Clitocybe laccata Scop. (made of lac, a resinous substance).
Mansfield, June (77).
Synonymous with *Laccaria laccata.*

LENZITES.

After Lenz, a German botanist.

In *Lenzites,* the substance of the pileus is leathery and corky. It is usually horizontal, more or less zoned, and resembles several genera belonging to the Polyporaceæ, with which it is commonly classed. The gills are leathery and tough, unequal, simple or branched. All species grow on wood.

Lenzites betulina (L.) Fr. (pertaining to the birch).
East Hartford, *Hanmer;* Goshen, *Underwood;* New Haven, *Clinton.*

Lenzites flaccida (Bull.) Fr. (flaccid).
East Hartford, *Hanmer;* Mansfield, Feb. (342).

Lenzites sepiaria Fr. (*sepes,* a fence or hedge).
= **Sesia hirsuta** (Schæff.) Murrill.
South Windsor, *Hanmer;* New Haven, *Clinton.*

Lenzites vialis Pk. (roadside).
= **Sesia pallido-fulva** (Berk.) Murrill.
Goshen, *Underwood.*

LENTINUS Fr.

Lentus, tough or pliant.

The pileus, or cap, of these plants is fleshy and leathery in consistency, becoming very tough and hard at maturity. The gills are of the same general character, and thin on the margins, which are toothed. The gills extend down the stem in more or less decurrent lines.

The stem in the different species is attached in various ways to the pileus. It may be central, or attached at one side of the center (eccentric), or it may be attached at one edge of the pileus (lateral), giving it a shelving appearance. Several species are exceedingly injurious to wood; the mycelium, or vegetative portion of the plant, inhabits the woody tissue, and in many different ways brings about destruction of the cell structure, causing decay. *L. lepideus* is usually found on railroad ties and is destructive to them.

Lentinus chrysopeplus B. & C. (golden-cloaked).
Mansfield, June (52).

Lentinus Lecomtei Fr.
Mansfield, June (1).

Lentinus lepideus Fr. (scaly).
East Hartford, *Hanmer;* Mansfield, July (238).

Lentinus tigrinus (Bull.) Fr. (tiger-spotted).
East Hartford, *Hanmer.*

Lentinus vulpinus Fr. (hairy like a fox).
Mansfield, July (237).

PANUS Fr.

The name of a fungus growing on trees, described by Pliny.

This group very closely resembles *Lentinus,* and by many authors the species are classed in that genus. The general characters are the same, but the margins of the gills are entire, thus differing from the toothed margins of the gills of *Lentinus.*

Panus farinaceus Schum. (mealy).
East Hartford, *Hanmer.*

Panus rudis Fr. (rough).
South Windsor, *Hanmer.*

Panus stipticus (Bull.) Fr. (astringent).
Mansfield, Aug. (220).

Panus salicinus Pk. (pertaining to the willow).
New Haven, *Clinton.*

Panus torulosus Fr. (*torulus,* a tuft of hair).
Mansfield, June (21).

SCHIZOPHYLLUM Fr.

σχίζω, to split; φύλλον, a leaf; referring to the split gills.

This group is separated easily from the other white-spored Agarics by the peculiar split gills, their dense, white, woolly covering, and general revolute appearance. Only one species is found in this locality. The appearance of the plant, especially when growing in abundance upon a log, is very attractive, and once learned it is rarely forgotten. The pileus is small, thin, and covered with a dense, hairy coat. It is variously attached to the substratum, generally at the side (lateral), or it may be attached at or near the center of the top. If collected during the winter months and placed under a bell-jar in a warm room, the pileus quickly expands.

Schizophyllum commune Fr. (common).
Mansfield, Oct. (203).
Synonymous with *Schizophyllum alneum* Schr.

TROGIA Fr.

After Trog, a Swiss botanist.

This small genus contains but one species reported from Connecticut. It is commonly found on decaying logs and branches, and is distinguished by the characteristic vein-like gills, which are somewhat curled.

Trogia crispa (Pers.) Fr. (crisped or curled).
Goshen, *Underwood;* Mansfield (225).

PAXILLUS Fr.

Paxillus, a small stake.

In *Paxillus,* the gills and pileus are easily separable, and the gills are so intricately connected by veins that many of the species closely resemble those in Polyporaceæ.

When the stem is present, the gills usually extend down it (decurrent), and the edges are entire and acute. The pileus is fleshy, inrolled in the immature specimens, and more or less viscid on the surface. The spores are ochre-colored. These plants are found singly or in tufts, growing on wood or on the ground.

Paxillus aurantiacus Ellis (orange-colored).
Mansfield, July (234).

Paxillus atro-tomentosus (Batsch) Fr. (having black down).
South Windsor, Rainbow, *Hanmer.*

Paxillus involutus (Batsch) Fr. (involute).
Mansfield, July (118). Edible.

Paxillus panuoides Fr.
East Hartford, *Hanmer;* Mansfield, July (200).

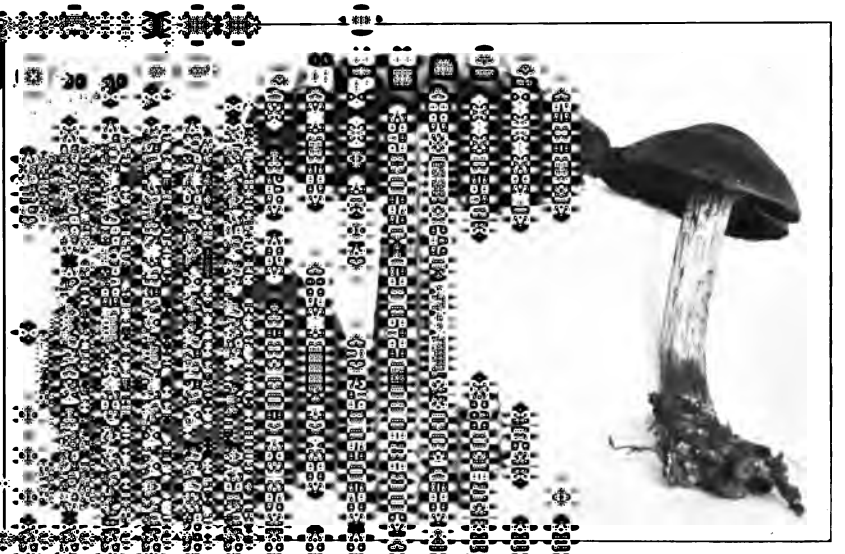
CORTINARIUS Fr.

Cortina, a veil.

This genus contains plants puzzling to the amateur collector, and difficult of determination even by the more experienced. Because of the peculiar nature of the plant it is necessary to have specimens in all stages of development, otherwise the identification is almost impossible. When young, the plants are covered with a cobwebby veil which is distinct from the cuticle of the cap, but in the more mature specimens this veil entirely disappears, except in some species where a fragile ring is perceptible upon the stem, or minute particles may be seen on the surface and margin of the pileus. The plants are mostly fleshy throughout, and are variously colored; many have beautiful violet tints, but the majority are yellow or brown.

The gills in the mature specimens are usually densely powdered with spores. The number of species is large, and many are found only in the fall, for they seem adapted to a cooler season of the year, although some are found during the early summer.

The specimens collected by Mr. C. C. Hanmer and the writer were sent to Mr. C. H. Kauffman of the Department of Botany, Ann Arbor, Michigan, for identification. Mr. Kauff-



guineus. Cinnamon-
hird.)
glabrous when mature.

man has made a special study of this genus, and his opinion regarding the accuracy of determination of species is valuable.

Cortinarius armillatus Fr. (ringed).
Rainbow, *Hanmer.*

Cortinarius bolaris (Pers.) Fr. (*bolus,* a clod of red clay; allusion to color).
Mansfield, Aug. (308).

Cortinarius collinitus (Pers.) Fr. (besmeared; referring to glutinous surface).
Hartford, *Hanmer;* Mansfield, Aug. (184).

Cortinarius corrugatus Pk. (corrugated).
East Hartford, South Windsor, Rainbow, *Hanmer;* Mansfield, Aug. (285).

Cortinarius cinnabarinus Fr. (having the color of dragon's blood).
Mansfield, July (136).

Cortinarius cinnamomeus (L.) Fr. (cinnamon-colored) var. **semi-sanguineus.**
East Hartford, South Windsor, *Hanmer;* Mansfield, July. Plate XX.

Cortinarius iodes B. & C. (violet).
East Hartford, *Hanmer.*

Cortinarius lilacinus Pk. (lilac-colored).
Mansfield, Aug. (178).

Cortinarius turbinatus (Bull.) Fr. (top-shaped).
Rockville, *Hanmer.*

PHOLIOTA Fr.

φολίς, a scale.

The members of the genus Pholiota are fleshy both in cap and stem, and the substance of the two is similar. The volva, or cup, is absent from the base of the stem, but a distinct ring is persistent near the top, and in immature specimens the gills are covered by the partial veil. The color of the spores serves to separate the genus from *Armillaria* of the white-spored group and *Stropharia* of the brown-spored group. The spores of *Pholiota* are a rusty-red with a yellow tinge when collected in quantity, and in some species are light red.

The gills are closely joined to the stem, and are often rusty-brown in mature specimens because of an accumulation of spores upon them. They resemble some of the species of *Cortinarius* of this same group, but the ring is stouter and more persistent. The species of *Cortinarius* have a fine cobweb-like veil surrounding the immature plants, which ruptures with growth, often leaving a delicate ring on the stem, which quickly disappears.

Pholiotas are found on tree trunks, old stumps, decaying wood of all kinds, as well as on the ground. Several are edible, and the writer has found *Pholiota squarrosoides* to have an especially fine flavor. Several species which have been tested have been found bitter and tough.

Pholiota æruginosa Pk. (*ærugo,* verdigris).
East Hartford, *Hanmer.*

Pholiota curvipes Fr. (curve-stemmed).
Mansfield, July (45).

Pholiota caperata Pers. (wrinkled).
East Hartford, *Hanmer.*

Pholiota præcox Pers. (early).
East Hartford, *Hanmer;* Mansfield, June (15).

Pholiota squarrosa Müll. (scurfy).
East Hartford, *Hanmer;* New Haven, *Clinton.* Edible (Curtis).

Pholiota squarrosoides Pk. (resembling the species *squarrosa*).
Mansfield, Aug. (269). Edible (McI.). Plate XXI.

CREPIDOTUS Fr.

κρηπίς, a boot.

The species of this genus are usually found growing on decaying stumps and fallen logs in woodland swamps and other damp, shady places. In their habit of growth and general appearance they strongly resemble *Pleurotus,* but are usually smaller and differ in the ochre color of the spores.

Crepidotus applanatus Pers. (made level).
Mansfield, July (146).

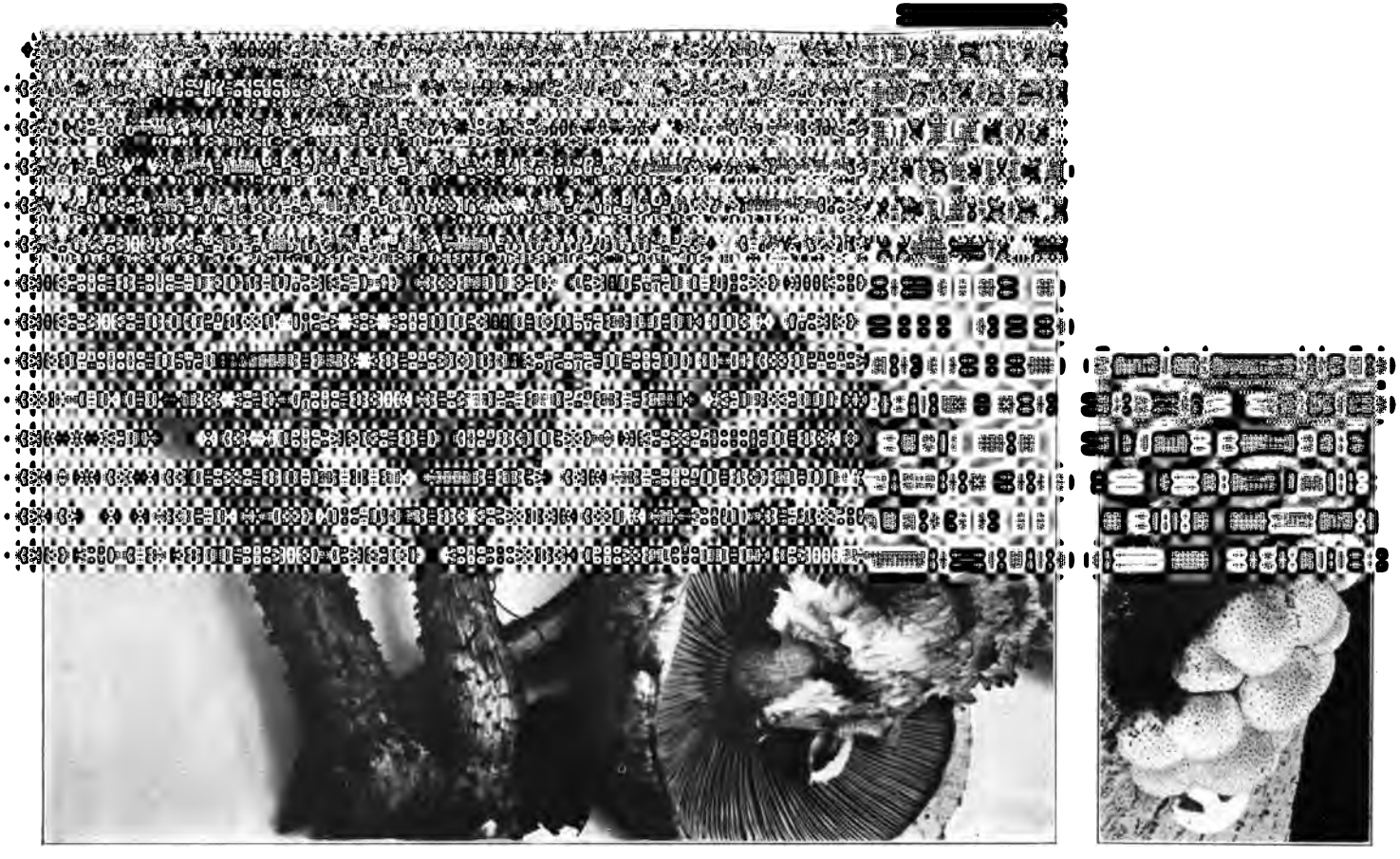


PLATE XXI. *Pholiota squarrosoides.* Viscid-scurfy Pholiota. (Natural size.)
Cap fleshy, viscid when moist, densely covered with erect, tawny scales; gills white at first, then cinnamon color; ring thick, floccose; stem rough with thick scurfy scales.

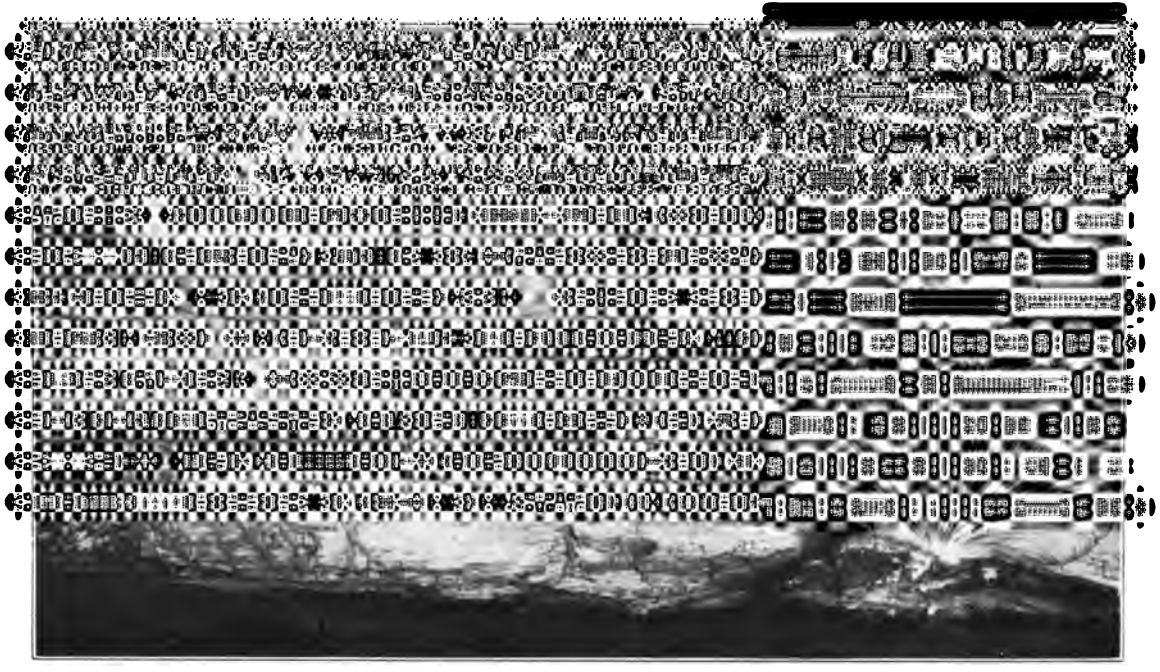


PLATE XXII. *Crepidotus malachius.* (Natural size.)
Cap gray; stem short.

Crepidotus crocophyllus Berk. (κρόκος, saffron; φύλλον, leaf; referring to color of gills).
Mansfield, July (127).

Crepidotus malachius B. & C. (mallow-colored).
Mansfield, Aug. (96). Plate XXII.

Crepidotus dorsalus Pk. (*dorsum,* back).
Mansfield, July (126).

BOLBITIUS Fr.

βόλβιτον, dung; referring to place of growth.

This small genus is interesting because of a peculiarity of the gills, which dissolve as the plant reaches maturity, but do not deliquesce into a watery substance, as do the species of *Coprinus.* The cap is fragile, yellowish in color, and usually very mucilaginous in consistency, especially in moist weather.

As the generic name signifies, these plants usually grow on dung, but are sometimes found growing on decaying leaves. *B. variicolor* was found abundantly under shrubs which had been heavily manured the previous fall.

The spores are of a rusty-red color, and collect in large numbers upon the mature gills. But two species are reported.

Bolbitius fragilis (L.) Fr. (fragile).
East Hartford, *Hanmer.*

Bolbitius variicolor Atk. (variously colored).
Mansfield, May (22).

INOCYBE Fr.

ἴς, fiber; κυβή, head; fibrous cap.

The surface of the cap of the plants in this genus is more or less thickly coated with fine hairs or fibrils, the remnants of a universal veil. The gills are joined to the stem by a small, abrupt curve, but in some species they are joined squarely to the stem, and they may also extend down it, thus becoming decurrent. Only one number was identified during the past season.

Inocybe lanuginosa Bull. (downy).
Mansfield, July (133).

FLAMMULA Fr.

Flamma, a flame.

The generic name of this group signifies the brilliant coloring of the pileus of many of the species. The plants are fleshy throughout, and the gills are variously attached to the stem, but are never free from it. The spores are yellow with a brown tinge. The majority of these plants grow on wood, but a few are found on the ground.

Flammula alnicola Fr. (inhabiting alders).
East Hartford, *Hanmer.*

Flammula flavida Pers. (light yellow).
East Hartford, *Hanmer.*

Flammula fusus Batsch. (spindle-shaped).
Mansfield, July (196).

Flammula hybrida Fr. (hybrid).
South Windsor, *Hanmer.*

Flammula magna Pk. (large).
East Hartford, *Hanmer.*

NAUCORIA Fr.

Naucum, a nut-shell.

The Naucorias are small plants with a more or less fleshy cap, which is cone-shaped or convex when young, becoming expanded when old. The margin of the young cap is always rolled, which distinguishes the genus from *Galera.* The gills are usually free from the stem, but in some few species are attached, though they never run down it. *N. semi-orbicularis* is the only species yet reported, and grows abundantly on the lawns in this vicinity. The spores are of a brown rust color. In form *N. semi-orbicularis* closely resembles *Stropharia semiglobata* of the brown-spored group; but, aside from the difference in color of the spores, the ring on the stem of *S. semiglobata* distinguishes it.

Naucoria semi-orbicularis Bull. (half-round).
East Hartford, *Hanmer;* Mansfield, June. Edible (Atk.).

GALERA Fr.

Galerus, a cap.

The cap, or pileus, is more or less membranaceous in character, and resembles *Mycena* of the white-spored group. When young the margin of the pileus lies flat against the stem, and is not incurved as in *Naucoria.* The stem is brittle, hollow, and fragile. Two of the few species were collected.

Galera hypnorum Batsch. (*hypnum,* moss).
Mansfield, *Thom.*

Galera tenera Schæff. (tender).
Mansfield, June (16).

VOLVARIA Fr.

Volva, a wrapper.

The plants of this genus somewhat resemble *Amanita* of the white-spored group. When the plants are young, they are covered by a universal veil which bursts as the plants develop, leaving a distinct, persistent volva, or cup, at the base of the stem. The stem separates easily from the pileus, and the gills are not attached to the stem. Growing on stumps commonly, sometimes in soil. Ring entirely absent.

Volvaria bombycina (Pers.) Fr. (silken).
East Hartford, *Hanmer.* Edible (Curtis).

PLUTEUS Fr.

Pluteus, a shield; from conical shape of the pileus.

The relationship between this genus and *Volvaria* is very marked. They resemble each other in all respects except the volva. The species are generally found growing on decaying logs or stumps of trees. *P. cervinus* is plentiful throughout the season, and somewhat resembles *Collybia platyphylla* in habit of growth and coloring; but in *P. cervinus* the gills are closer together, and the plant lacks the general coarseness which is characteristic of *C. platyphylla.*

P. cervinus is edible; but, like many of the fleshy forms, is frequently infested by larvæ, and needs careful examination before being prepared for the table. This species varies con-

siderably in general characters; some writers recognize several distinct varieties.

Pluteus admirabilis Pk. (admirable).
Mansfield, July (116). Edible (McI.).

Pluteus cervinus Schæff. (*cervus*, a deer).
Mansfield, July (20, 225). Edible (McI.). Plate XXIII.

Pluteus cervinus Schæff. var. **albipes** (white-stemmed).
South Windsor, *Hanmer.*

Pluteus umbrosus Pers. (shady; from the dark color).
South Windsor, *Hanmer.*

LEPTONIA Fr.

λεπτός, slender.

The Leptonias are generally found growing on the ground in dry pastures, but may be found in mossy swamps, and are distinguished by their slender habit of growth, thin pileus depressed in the center, margin inrolled when the plant is young, and the brittle character of the stem.

They belong to the rosy-spored group, and many species are brilliantly colored.

Leptonia formosa Fr. (handsome).
Mansfield, July (145).

ENTOLOMA Fr.

ἐντός, within; λῶμα, a fringe.

This genus is a suspicious one as regards poisonous characters, and the species should not be collected and eaten indiscriminately. The fungi are fleshy throughout, the volva and ring are absent from the stem, and in many other respects the species resemble *Tricholoma.* The color of the spores when collected in quantity serves, however, to identify the genus as belonging to the rosy-spored group. The spores when examined under a microscope are distinctly angular. The gills are attached to the stem by a sudden curve (sinuate), which fact separates this genus from the other rosy-spored genera. The determination of species is difficult even for the experienced

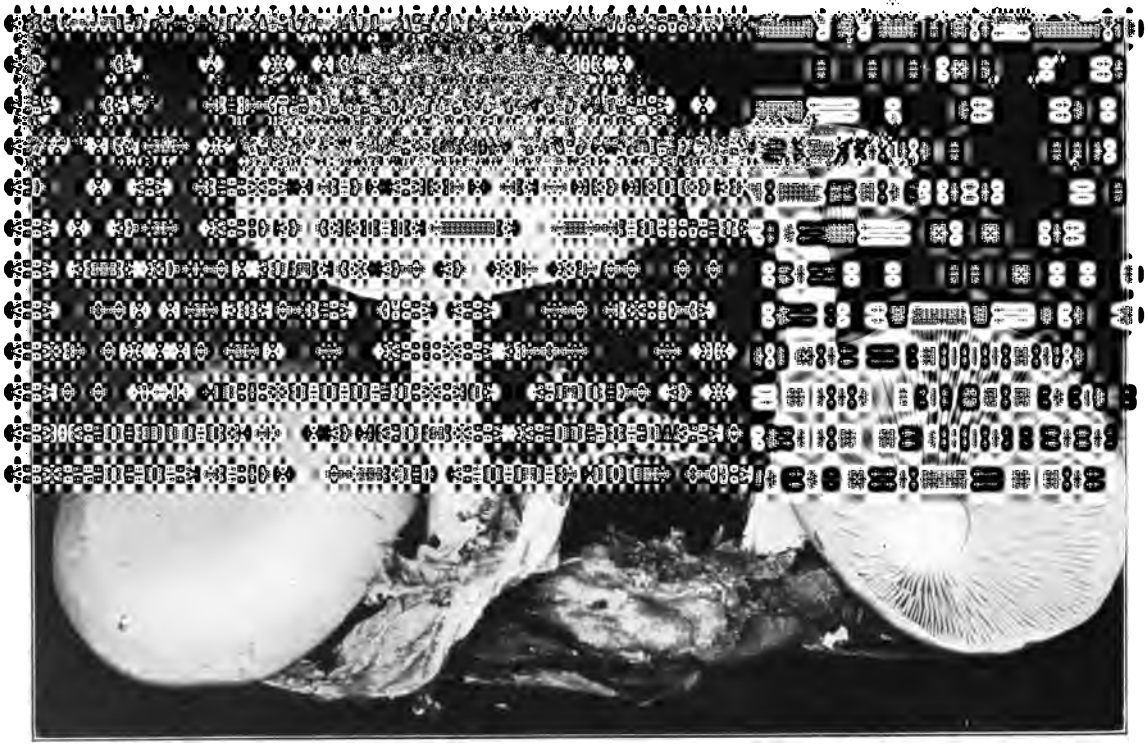


PLATE XXIII. *Pluteus cervinus*. Fawn-colored Pluteus. (Reduced one-third.)
Cap light gray, yellowish or grayish brown ; gills broad, somewhat crowded ; spores rose-colored.

collector, and careful notes need to be made regarding the color and viscidity of the cap, and other evanescent characters of the plant, before accurate determination is possible.

Entoloma grande Pk. (large).
Mansfield, July (162).

Entoloma Grayanum Pk.
Mansfield, July (161).

Entoloma rhodopolium Fr. (rosy-gray).
South Windsor, *Hanmer.*

Entoloma strictius Pk. (constricted).
South Windsor, *Hanmer;* Mansfield, July (58).

CLITOPILUS Fr.

κλιτύς, declivity; πῖλος, cap; referring to the depression in cap.

The cap in *Clitopilus* is usually depressed, and in this respect resembles *Eccilia,* but the stem is less brittle, being more fleshy and fibrous in substance.

The species grow on the ground. McIlvaine says, "Some of the best of edible kinds are within this genus; a few are unpleasant raw, none poisonous." The attachment of the gills to the stem should be carefully noted, so that the genus be not confused with *Entoloma* of this same rosy-spored group. In the latter genus the gills are sinuate, and in *Clitopilus* they are more or less squarely joined to the stem or run down it.

Clitopilus abortivus B. & C. (abortive).
New Haven, *Clinton.*

Clitopilus micropus Pk. (short-stemmed).
East Hartford, *Hanmer.*

Clitopilus noveboracensis Pk. (New York Clitopilus) var. **tomentosipes** Pk. (downy-stemmed).
East Hartford, *Hanmer.*

Clitopilus noveboracensis Pk. var. **umbilicatus** Pk.
East Hartford, *Hanmer.*

Clitopilus Orcella Bull.
Mansfield, Aug. (216). Edible (McI.).

Clitopilus popinalis Fr. (belonging to a cook-shop; referring to its edible qualities).
Mansfield, Aug. (262).

Clitopilus tardus Pk. (late).
East Hartford, Jan., greenhouse, *Hanmer.*
Clitopilus unitinctus Pk. (one-colored).
East Hartford, *Hanmer.*

ECCILIA Fr.

ἔγκοιλος, hollowed out.

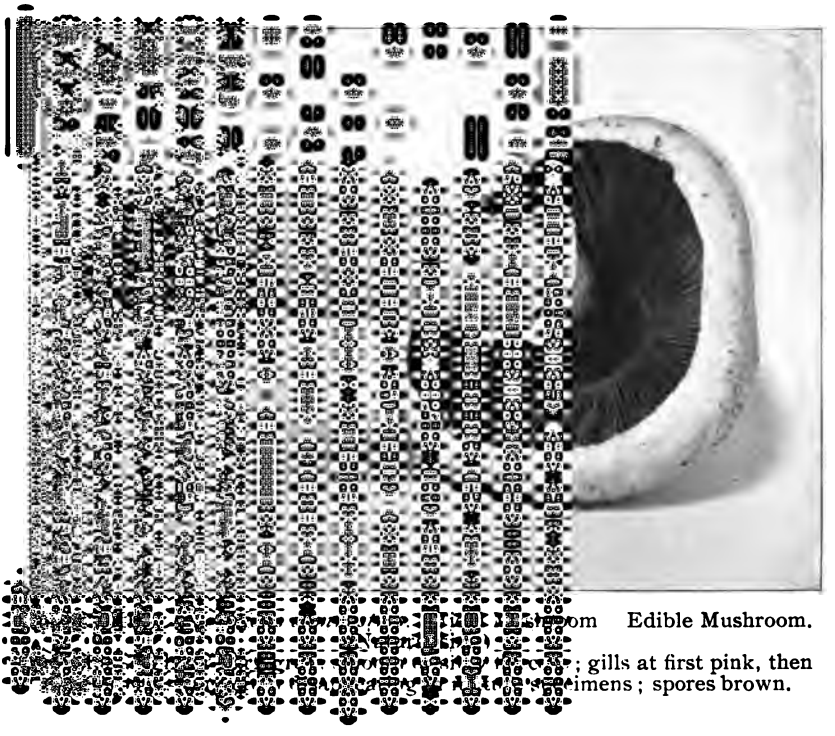
This small genus has characters similar to those of *Omphalia* of the white-spored group. The pileus is depressed in the center, and when young the margin is inrolled. The stem is brittle as in *Entoloma,* but the gills differ by extending down the stem (decurrent).

Eccilia carneo-grisea B. and Br. (grayish flesh-colored).
East Hartford, *Hanmer.*

AGARICUS Linn.

Ἀγαρικόν, a name for a fungus.

This genus is one of the most interesting in the Agaricaceæ because of the economic importance of many of the species. It contains some of the best known species, and their marked characters prevent their being confused with poisonous or harmful mushrooms. The entire plant is more or less fleshy, and the stem has a distinct ring; in some species it disappears as the plant matures, but in the young plant it is quite distinct, and is formed by the rupturing of the veil, which at first encloses the gills. The gills are free from the stem, which easily distinguishes the genus from *Stropharia,* and the abundance of brown spores which are formed on the under surface of the gills in mature plants, together with the presence of a ring upon the stem, prevent its confusion with other genera. The species strongly resemble some of the Lepiotas of the white-spored group. As far as known, no species are poisonous. *A. campestris* occurs in considerable quantities in the vicinity of Mansfield, and its long season of growth makes it a valuable species. It is one of the most familiar species, and nearly every one, even the most inexperienced collector, is familiar with " those toadstools which are pink or brown on the under side." This common field or pas-



Edible Mushroom.

; gills at first pink, then
imens ; spores brown.

ture mushroom varies much in its size and coloring, but the principal distinguishing characters remain the same. This is the species ordinarily cultivated. All members of the genus grow on the ground, and by far the larger number grow in open, cultivated fields or meadows, but some are found in the woods.

Agaricus abruptus Pk. (abrupt, referring to the abrupt termination of stem).

Manchester, *Hanmer;* Mansfield, Aug. (201).

Agaricus arvensis Schæff. (belonging to cultivated ground). Plowed-land Mushroom. Edible (Pk.).

East Hartford, *Hanmer.*

Agaricus campestris L. (*campus,* a field).

New Haven, *Clinton;* Mansfield, Aug. Edible. Plate XXIV.

Agaricus placomyces Pk. (a flat fungus).

East Hartford, *Hanmer.* Edible (Miller).

Agaricus Rodmanii Pk.

East Hartford, *Hanmer.* Edible (Pk).

STROPHARIA Fr.

στρόφιον, a belt; referring to the ring.

This genus is separated from *Agaricus* by the attachment of the gills to the stem. When young the plants are covered by a partial veil, which leaves a distinct ring on the stem when it bursts. The cap and stem are fleshy, and the plants are considered edible by some writers and poisonous by others. Growing on the ground or on dung.

Stropharia semi-globata Batsch. (hemispherical).

Mansfield, June (13).

Stropharia stercoraria Fr. (pertaining to dung).

East Hartford, *Hanmer.*

HYPHOLOMA Fr.

ὕφος, a web; λῶμα, a fringe.

Hypholoma is quite easily separated from the other genera of the brown-spored group, by the veil which covers the gills

in the young specimens, the remnants of which remain attached to the margin of the cap in the matured plants. The whole plant has a fleshy consistency, and many species are edible. The plants are found more abundantly as winter approaches, and the writer has collected them during November after the most severe frosts. The plants grow singly or in groups, but more frequently they are thickly clustered on the surface of decaying logs or stumps.

Hypholoma appendiculatum Bull. (provided with a small appendage).
Mansfield, June (2).

Hypholoma fasciculare Huds. (*fasciculus,* a small bundle).
North Bloomfield, *Hanmer.*

Hypholoma perplexum Pk. (perplexing).
East Hartford, *Hanmer.*

Hypholoma sublateritium Schæff. (almost brick-colored).
Mansfield, Oct. Plate XXV.

Hypholoma rugocephalum Atk. (having a wrinkled head).
Rainbow, *Hanmer.*

PSILOCYBE Fr.

ψιλός, naked; κυβή, head.

This small genus is distinguished by the absence of the veil which occurs in the other genera of the brown-spored group. In the young plants, the margins of the pileus are inrolled. The stem is more cartilaginous than in other genera.

Psilocybe fœnisecii Pers. (*fœnisicia,* mown hay).
East Hartford, *Hanmer.*

COPRINUS Pers.

κόπρος, dung; referring to the place of growth.

The distinguishing characters of this genus are so evident that the plants cannot be confounded with other genera, even by the most inexperienced collector. The plants are common on lawns and on decaying manure, but are sometimes found on decaying stumps and logs. The caps spring up quickly and disappear just as rapidly. Some of the more fragile spe-

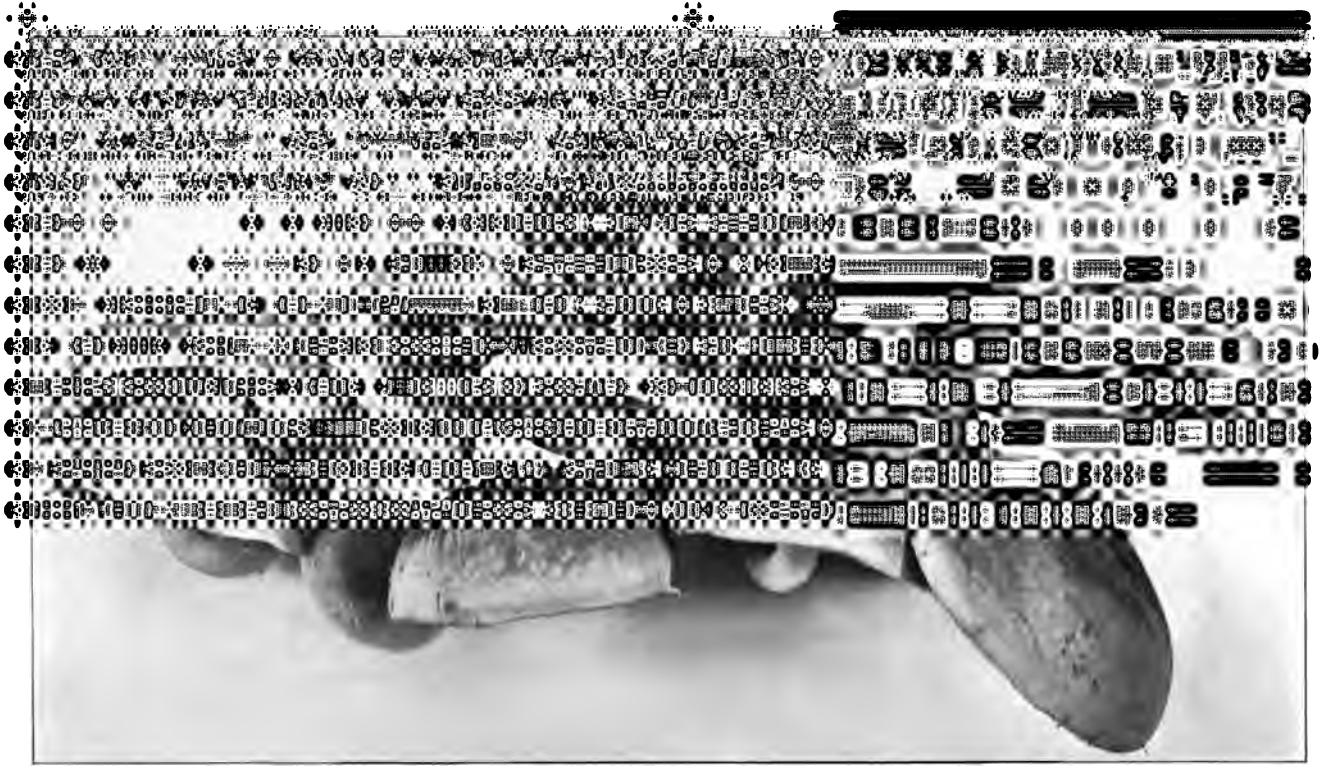


PLATE XXV. *Hypholoma sublatertium.* Brick-top Hypholoma. (Natural size, often larger.)
Cap brick-red or tawny; stem floccose-scaly.

-mane Mushroom.

when young, expanding
pink, finally dark purple
urity.

cies last for only a very short time. Several times during collecting trips, species of this genus have been gathered, and before reaching the laboratory they have almost entirely dissolved into a black fluid. This fluid is colored by the abundance of inky-black spores which are formed on the mature gills.

The plants vary from minute forms found on manure heaps to the "shaggy mane" which often grows to a considerable size. The species are usually clustered and occur in considerable quantities where found.

In July of the past summer, the writer found a very rotten maple stump with several large clumps of *C. atramentarius* growing at its base. Knocking the stump to pieces the interior was found crowded with well developed caps. These were cooked and were very tender and deliciously flavored. The plants mature so quickly, especially in moist weather, that it is necessary to keep a careful watch for them if they are to be gathered while fresh.

Coprinus atramentarius (Bull.) Fr. (inky).
Mansfield, July. Edible (Atk.).

Coprinus comatus Fr. (hairy).
East Hartford, *Hanmer;* New Haven, *Clinton.* Edible (Atk.). Plate XXVI.

Coprinus micaceus (Bull.) Fr. (granular).
Mansfield, Aug. (314). Edible (McI.).

Coprinus plicatilis Fr. (folded).
East Hartford, *Hanmer.*

GOMPHIDIUS Fr.

γόμφος, a peg.

Gomphidius includes a small number of species which possess marked characteristics. The color of the spores, however, is often misleading. Atkinson says, "The spores in some species are blackish, and for this reason the genus has been placed by many with the black-spored Agarics, while its true relationship is probably with the genus *Hygrophorus* or *Paxillus.*"

When the plants are young, they are covered by a gluti-

nous, universal veil, which gives them a slimy appearance. The gills are soft and mucilaginous in consistency, and extend down the stem, prominently decurrent. But one species is reported.

Gomphidius rhodoxanthus Schw. (yellowish-red).
South Windsor, *Hanmer.*

PSATHYRELLA Fr.

ψαθυρός, fragile.

In *Psathyrella* the pileus is very thin, membranaceous and striate. The gills are not spotted as in *Panæolus* and *Anellaria,* and at maturity become black by the accumulation of spores upon their surface. *P. disseminata* was found in immense quantities in the greenhouses of A. N. Pierson at Cromwell, Connecticut.

Psathyrella disseminata Pers. (*dissemino,* to scatter; widely spread).
Cromwell, March.

ANELLARIA Karst.

Anellus, a little ring.

The relationship between this genus and *Panæolus* is very close, but in the latter genus the ring is wanting, while in *Anellaria* it is either persistently present or forms a zone around the stem.

Anellaria separata (L.) Karst. (distinct, separate).
East Hartford, *Hanmer.*

PANÆOLUS Fr.

παναίολος, variegated.

This genus has distinct characters, and when once determined it is not easily confused with other genera. It lacks the dissolving qualities of *Coprinus* and the ringed stem of *Anellaria,* but possesses a veil which often remains on the margin of the pileus. McIlvaine says, "*Panæolus* in its entirety has a precise-looking membership. If the gills were cut from cardboard and fixed by machinery, they could not be more

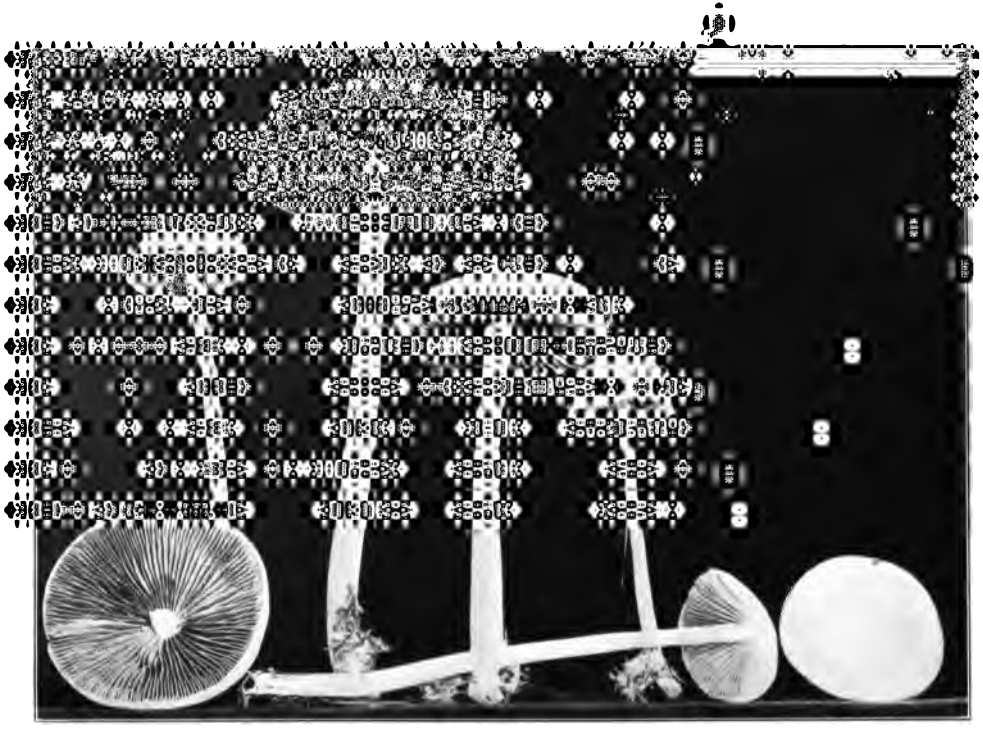


PLATE XXVII. *Panæolus solidipes.* Solid-stemmed Panæolus. (Reduced one-third.)
Cap white ; stem smooth, white, solid ; spores very black.

correct. Some of the species are among the earliest arrivals at toadstool lawn parties, and some are the last to leave."

During the past season *P. retirugus* was exceedingly abundant in the flower beds on the campus at the Connecticut Agricultural College, and could be collected almost any day throughout the entire season. *P. solidipes* is an attractive looking plant. Its large size, pure white color, and symmetrical shape give it a pleasing individuality.

Panæolus campanulatus Linn. (bell-shape).
Mansfield, June (17).

Panæolus retirugus Fr. (*rete,* a net; *ruga,* a wrinkle).
Mansfield, June (14).

Panæolus solidipes Pk. (solid-stemmed).
Mansfield, July (229). Plate XXVII.

POLYPORACEÆ Fr. *Tube-bearing Fungi.*

The Polyporaceæ are in most cases easily distinguished from members of other families by the characteristic spore-bearing surface, which is composed of more or less regular, distinct tubes, with conspicuous or inconspicuous mouths.

The substance of the fruit-body in some genera is similar to the fruit-body of the Agaricaceæ, but the spores are produced within pores on the lower surface of the cap. In some genera these pore-bearing surfaces are variously convoluted and ridged so that they resemble the gill-bearing Agarics; in other genera they are more or less torn, somewhat resembling genera of Hydnaceæ. The family is a large one, and contains many edible species, especially in the *Boletus* group, but, as in many of the Agaricaceæ, they are frequently too badly infested by larvæ to be used for food.

The plants are found abundantly in all sections of the state, growing on trees either in a parasitic or saprophytic manner, and many, especially the fleshy forms, are found on the ground, in decaying leaves or other vegetable substances.

The plants vary much in their consistency, some being fleshy, others leathery or woody. Some are annuals, others are perennials, adding new layers of growth each year. In many species of *Fomes,* the new spore-bearing surface grows

directly over the growth of the previous year, and distinct zones of annual growth are thus formed.

Some members of this family form thin plates of spore-bearing bodies over the surface of logs, or decaying wood, and resemble the other species so slightly that they are frequently not recognized by the inexperienced collector as fungi of the same family. Examples of this manner of growth may be found in *Trametes,* and such plants are spoken of as *resupinate* forms, which means that the spore-bearing surface lies upon its back, the pores always pointing outward, then downward. No classification based upon the color of the spores has yet been made, but the divisions depend principally upon the texture of the cap and the arrangement of the pores.

Dr. W. A. Murrill of the New York Botanical Gardens, Bronx Park, New York City, has done much research work in this group, especially in the genera *Polyporus, Fomes,* and *Polystictus,* and the results of his investigations may be found in the publications of the Torrey Botanical Club. Dr. Murrill very kindly identified specimens collected by Mr. C. C. Hanmer. As the nomenclature adopted in this report is that of Saccardo's "Sylloge Fungorum," the writer considered it better to follow a uniform system, but the nomenclature of Dr. Murrill is appended wherever his determination varies from the Saccardo list.

Key for the Analysis of Connecticut Genera of Polyporaceæ.

Pores free from each other though standing closely side by side, and appearing as though joined. . *Fistulina*
Pores more or less closely united..... 1
1. Pores easily separable from the cap..... 2
Pores not easily separable from the cap..... 4
2. Cap covered with large scales..... *Strobilomyces*
Cap not covered with large scales..... 3
3. Pores in radiating lines, tubes often adhering to cap *Boletinus*
Pores not in radiating lines..... *Boletus*
4. Pores large at first, radiating from a central stem or lateral attachment; substance of cap tough and leathery..... *Favolus*

Pores gill-like in concentric circles.....*Cyclomyces*
Pores glutinous.....*Glœoporus*
Pores small and round..... 5
5. Pores immersed in flesh of cap, of uneven depth.... 6
Pores not immersed in flesh of cap, not of uneven depth 8
6. Pores in intricate and serpentine lines..... 7
Pores not in intricate and serpentine lines; substance of the cap corky; cap often lying upon its back.... *Trametes*
7. Lines deep and distinct; plants corky.....*Dædalea*
Lines shallow; plants somewhat gelatinous.....*Merulius*
8. Substance of fruit-body in distinct annual layers (stratose), woody.....*Fomes*
Substance of fruit-body not in distinct annual layers. 9
9. Plants membranaceous or leathery.....*Polystictus*
Plants fleshy and tough, often becoming woody.... *Polyporus*

FISTULINA Bull.

Fistula, a pipe.

This genus is a small one with but one species reported from Connecticut. Its characteristics are very marked, so the plants are not easily confused with other genera. The tubes, or pores, are separate or distinct, but are thickly crowded on the under side of the cap, having the appearance of being united.

F. hepatica, the beefsteak mushroom, is considered edible; but its strong, acid taste makes it objectionable to many. During the past season the plants were found abundantly on chestnut stumps in the vicinity of Mansfield. They are dark red in color, and when young are very soft and juicy. From a short lateral stem the fruiting-body expands into a broad, fleshy cap which becomes very moist and sticky in wet weather.

Fistulina hepatica Fr. (resembling the liver).
Mansfield, Aug. (257).

STROBILOMYCES Berk.

στρόβιλος, a pine cone; μύκης, a fungus.

This genus resembles *Boletus,* but is easily distinguished by the large, rough scales which cover the top of the cap and thickly clothe the stem, also by stronger adhesion between the pores and the cap. The plants receive their generic name from a fancied resemblance to a pine cone. They are inconspicuous in their habitat, and are frequently overlooked by a casual observer, because of the dark colored caps with many brown tints which closely resemble the colors of fallen leaves. *S. strobilaceus* was frequently found during the past season, being by no means rare in the vicinity of Mansfield.

Strobilomyces strobilaceus (Scop.) Berk. (cone-like).
Goshen, *Underwood;* New Haven, *Clinton;* Mansfield, Aug. (311).

BOLETINUS Kalchb.

A diminutive of *Boletus.*

This genus strongly resembles *Boletus,* but the pores do not as easily separate from the substance of the cap, and they are larger, more angular, and radiate from the stem. The plants are fleshy throughout. They are found growing on the ground in open fields, in swamps and woods. Some species occur quite abundantly in Mansfield. They are especially plentiful during rainy weather, and their season of growth is long. *B. porosus* was frequently collected from under apple trees growing on the campus of the Connecticut Agricultural College. Their appearance was attractive, and they have been pronounced edible, but a strong disagreeable odor repelled any desire to prepare them for food.

Boletinus pictus Pk. (painted).
Mansfield, Aug. (307).
Boletinus porosus (Berk.) Pk. (porous).
Mansfield, Aug. (213). Plate XXVIII.

BOLETUS Dill.

βωλίτης, a name given edible fungi.

Boletus comprises the largest number of fleshy species of any of the genera of Polyporaceæ. The generic characters

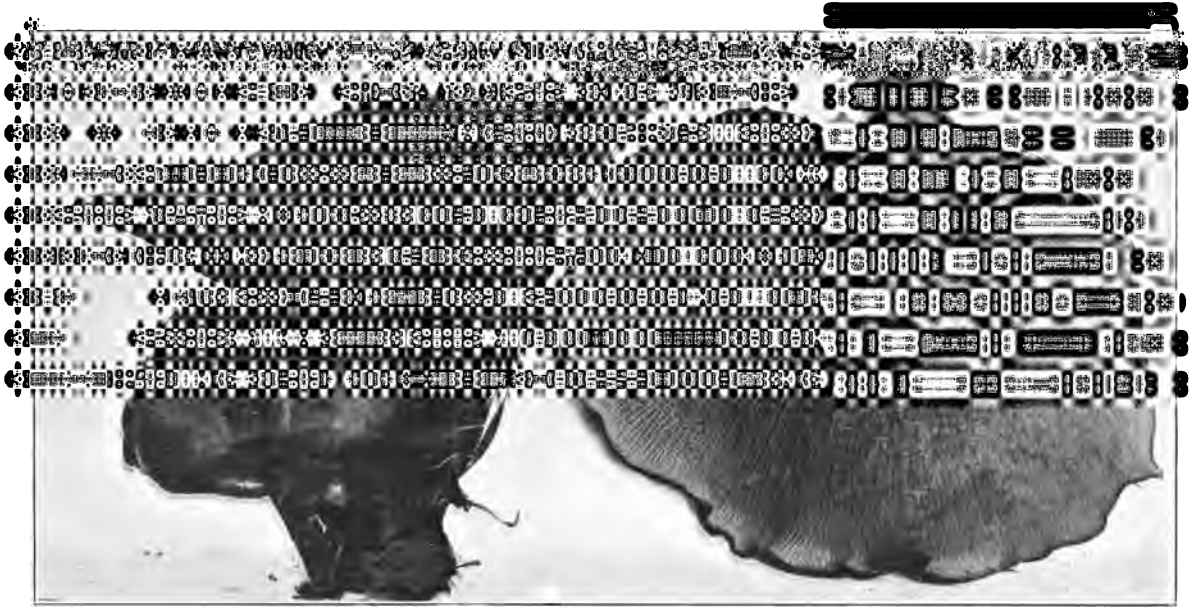


PLATE XXVIII. *Boletinus porosus*. Eccentric-stemmed Boletinus. (Reduced one-half.)
Cap fleshy, chestnut-colored, viscid when moist; flesh yellow; pores large, angular.

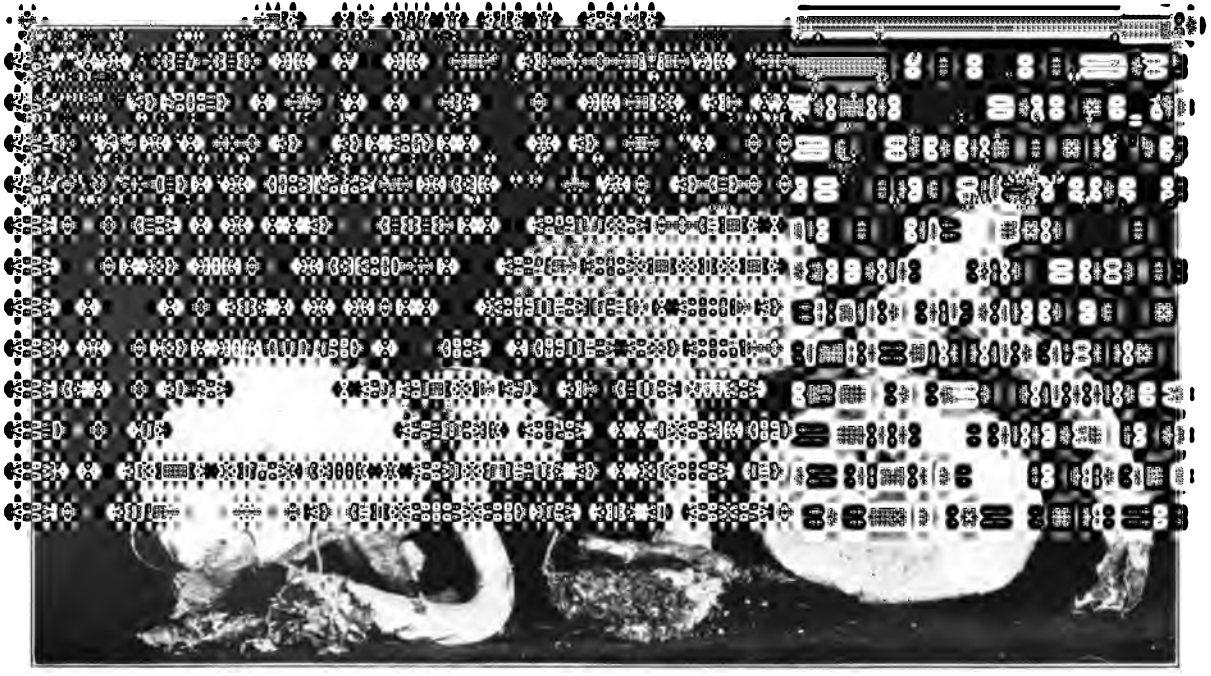


PLATE XXIX. *Boletus Americanus.* American Boletus. (Reduced one-third.)
Cap thin, very viscid when moist, slightly tomentose on margin when young; flesh pale yellow, pinkish-grey on exposure to air; tubes rather large, angular; stem slender.

are quite distinct, but the varying specific characters are so confusing that the plants are exceedingly difficult to classify. Dr. C. H. Peck has probably done more careful work on this genus than has any other American mycologist, and his illustrations and keys, published in "Reports of the New York State Botanist," are valuable. Anyone especially interested in mushrooms should have his reports, for his long experience with the fleshy and woody fungi has given him a standing foremost among mycology students. The writer considers it fortunate that he was enabled to have Dr. Peck examine the specimens collected for the Survey herbarium. No doubtful species have been reported.

The greater number of the plants in the genus grow on the ground, mostly in woods, and occur in large numbers, especially during damp weather. The caps and stems are fleshy, quickly decaying, and are frequently attacked by larvæ. They are eagerly devoured by cattle, and the writer spent an interesting hour feeding the different species to a herd of cattle. They eagerly devoured them all, even the intensely bitter *B. felleus,* at the same time positively refusing the peppery *Lactarius.*

Many of the species exhibit characteristic changes in coloring when the flesh is wounded, and these characters are of valuable assistance in their identification.

The genus is so large that it might easily furnish material for a complete report, therefore only the most striking characters are noted.

Boletus affinis Pk. (related).
Mansfield, July (260).

Boletus albellus Pk. (whitish).
South Windsor, *Hanmer.*

Boletus albus Pk. (white).
Goshen, *Underwood.*

Boletus Americanus Pk.
Goshen, *Underwood;* Mansfield July, Aug. (130, 50).
Plate XXIX.

Boletus æstivalis (Paul.) Fr. (summer).
Mansfield, July (279).

Boletus auriporus Pk. (golden-pored).
Goshen, *Underwood;* Mansfield, July, Aug. (252).
Boletus bicolor Pk. (two-colored).
Goshen, *Underwood;* Mansfield, July, Aug. (253). Plate XXX.
Boletus brevipes Pk. (short-stemmed).
Goshen, *Underwood.*
Boletus calopus Fr. (beautiful-stemmed).
Goshen, *Underwood;* Mansfield, July (148).
Boletus castaneus Bull. (chestnut-colored).
Mansfield, July (155).
Boletus chrysenteron Fr. (having golden entrails).
Goshen, *Underwood;* Mansfield, July (54).
Boletus chrysenteron Fr. var. **albo-carneus** Pk. (whitish flesh-colored).
Manchester, *Hanmer.*
Boletus chrysenteron Fr. var. **deformans** Pk. (ill-shaped).
East Hartford, *Hanmer.*
Boletus chromapes Frost. (yellow-stemmed).
Mansfield, July (112). Plate XXXI.
Boletus cyanescens Bull. (bluish).
Goshen, *Underwood;* Mansfield, July (295).
Boletus edulis Bull. (edible).
Goshen, *Hanmer;* Mansfield, July (181).
Boletus eximius Pk. (select).
Rockville, Manchester, *Hanmer;* Mansfield, July, Aug. (177, 138).
Boletus felleus Bull. (bitter).
Goshen, *Underwood;* Mansfield, Aug. (300). Plate XXXII.
Boletus firmus Frost. (firm).
Mansfield, July (173).
Boletus flavidus Fr. (light yellowish).
Mansfield, July (117).
Boletus Frostii Russell.
Goshen, *Underwood;* Mansfield, July (163, 170).
Boletus gracilis Pk. (slender).
South Windsor, *Hanmer;* Mansfield, July (212).

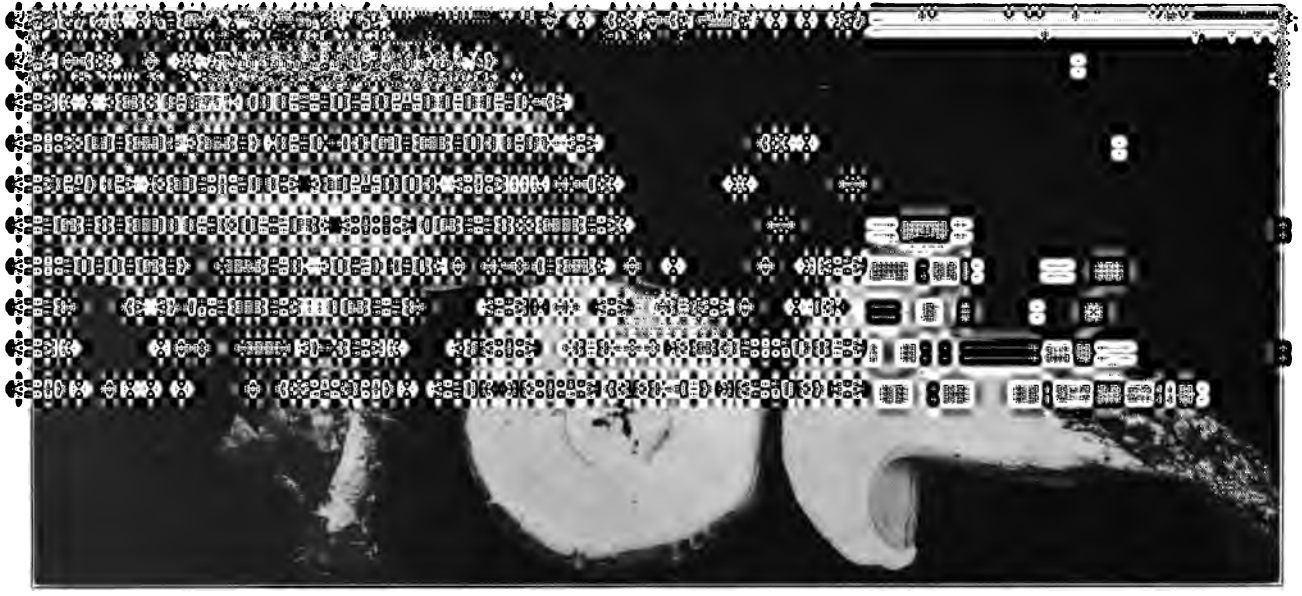
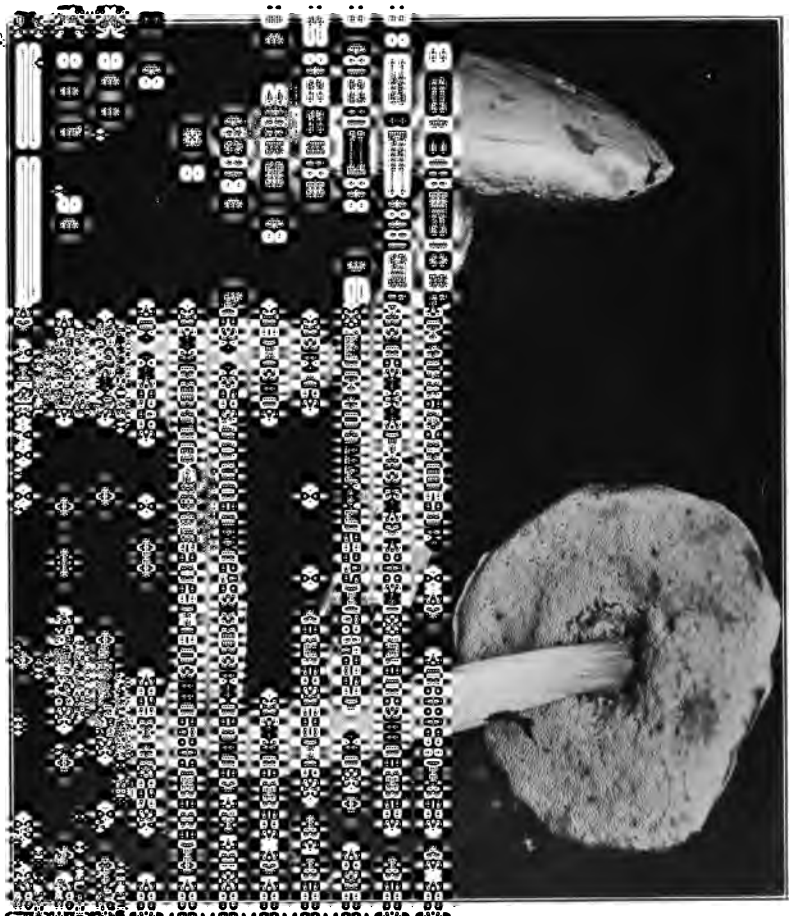


PLATE XXX. *Boletus bicolor*. Two-colored Boletus. (Reduced one-third.)
Cap glabrous, dark-red; flesh yellow, not changing color where wounded; tubes bright-yellow, slowly changing to blue where wounded, mouths small, angular; stem red, generally yellow at top.



w-stemmed Boletus. (Reduced

sh white, unchangeable; tubes

hite or whitish, becoming brown;

ase, both without and within.

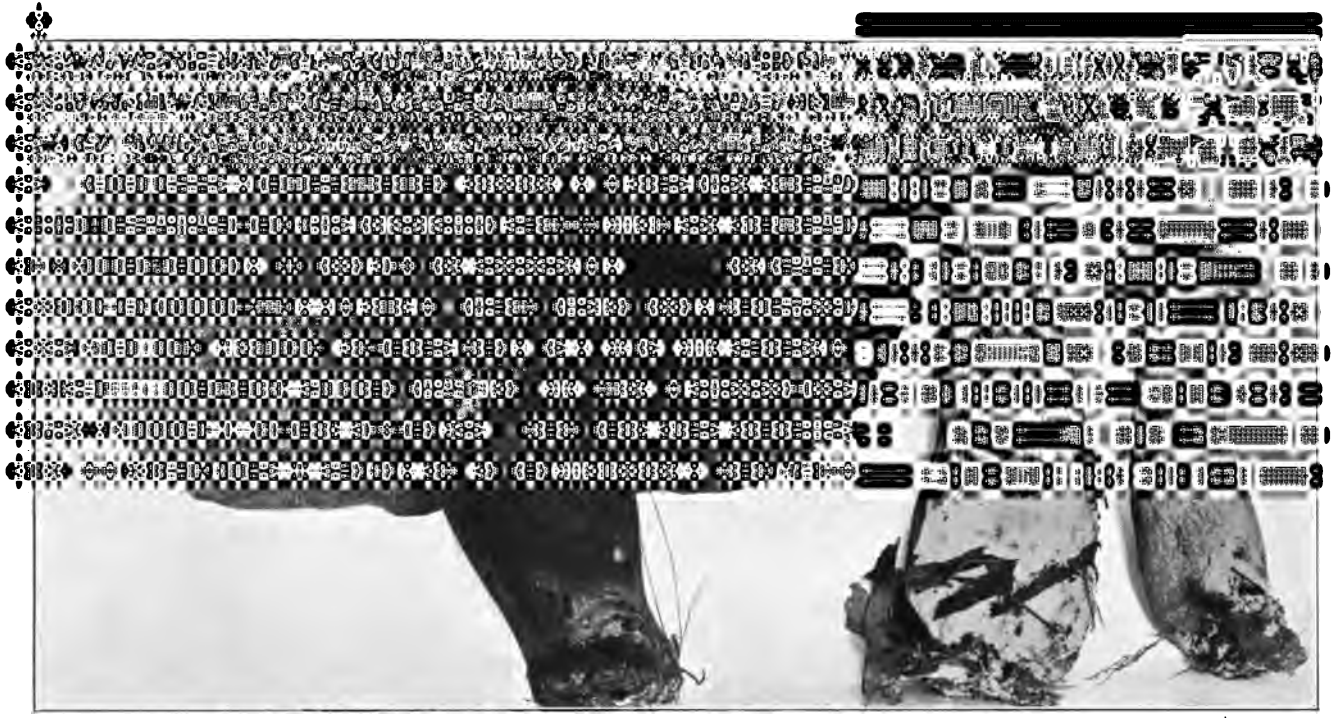
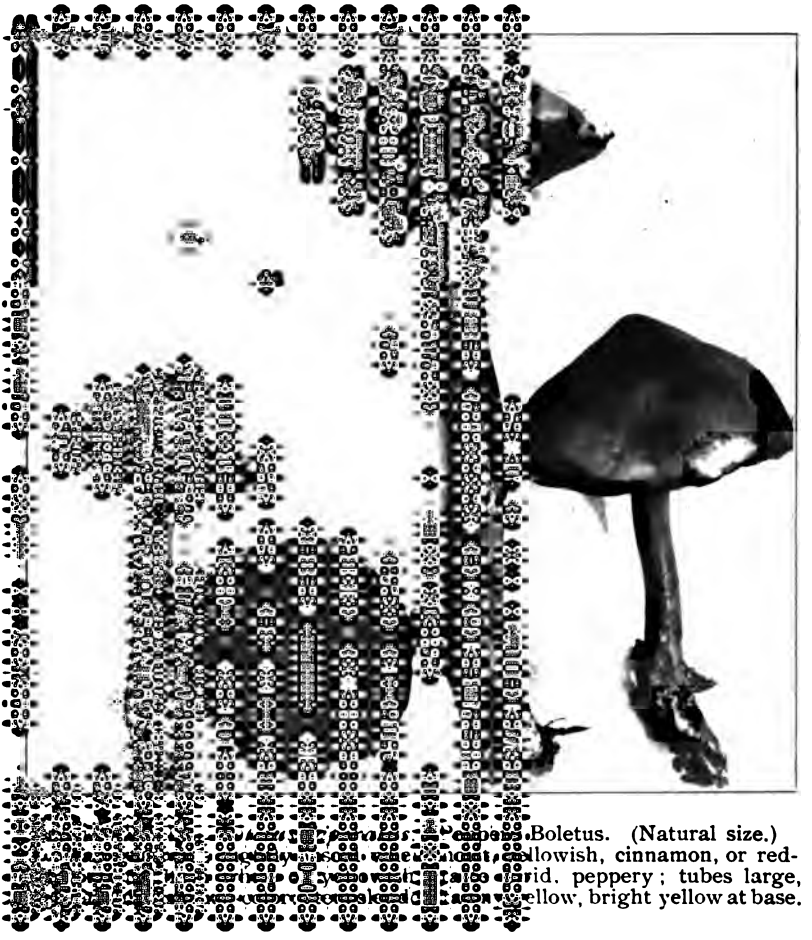


PLATE XXXII. *Boletus felleus*. Bitter Boletus. (Reduced one-half.)
Cap glabrous, variable in color, grayish-brown, reddish-brown, chestnut or pale yellow, variable in size; flesh white; taste bitter; tubes depressed around the stem, their mouths angular, white, becoming flesh-colored.



Boletus. (Natural size.)
llowish, cinnamon, or red-
rid, peppery; tubes large,
ellow, bright yellow at base.

Boletus granulatus L. (granulated).
Rainbow, South Windsor, *Hanmer;* Goshen, *Underwood.*

Boletus griseus Frost. (gray).
Mansfield, Aug. (304).

Boletus indecisus Pk. (undecided).
Mansfield, July (169).

Boletus luridus Schæff. (lurid).
Mansfield, June (37, 97).

Boletus miniato-olivaceus Frost. (reddish-olive).
Mansfield, July (137).

Boletus mutabilis Morgan. (changeable).
Mansfield, June (73).

Boletus ornatipes Pk. (ornate-stemmed).
Goshen, *Underwood;* Mansfield, July (143).

Boletus pallidus Frost. (pale).
Manchester, *Hanmer.*

Boletus parasiticus Bull. (parasitic).
Hartford, *Hanmer.*

Boletus Peckii Frost. (after C. H. Peck).
Manchester, *Hanmer;* Mansfield, Aug. (299).

Boletus piperatus Bull. (peppery).
Manchester, *Hanmer;* Mansfield, Aug. (215). Plate XXXIII.

Boletus punctipes Pk. (dotted-stemmed).
South Glastonbury, *Hanmer.*

Boletus purpureus Fr. (purple).
Mansfield, July, Aug. (123, 176).

Boletus Roxanæ Frost.
Mansfield, July (242).

Boletus Russellii Frost.
Mansfield, Aug. (277).

Boletus scaber Fr. (rough).
Mansfield, June (28).

Boletus scaber Fr. var. **alutaceus** (*aluta,* a soft leather).
Mansfield, Aug. (317).

Boletus scaber Fr. var. **areolatus** (*areola,* a little area, referring to the cuticle cracking into small squares).
Manchester, *Hanmer.*

Boletus scaber Fr. var. **mutabilis** (changeable).
Mansfield, July, Aug. (132, 263).
Boletus scaber Fr. var. **niveus** (snowy).
South Windsor, *Hanmer.*
Boletus scaber Fr. var. **olivaceus** (olive-colored).
Mansfield, Aug. (373).
Boletus scaber Fr. var. **testaceus** (brick-colored).
Mansfield, June (27).
Boletus speciosus Frost. (handsome).
Manchester, *Hanmer.*
Boletus striæpes Secr. (having a striate stem).
Mansfield, July (195).
Boletus subaureus Pk. (almost golden).
South Windsor, Manchester, *Hanmer.*
Boletus subglabripes Pk. (having the stem somewhat glabrous).
Rockville, *Hanmer;* Mansfield, Aug. (327).
Boletus subluteus L. (yellowish).
East Hartford, *Hanmer.*
Boletus subtomentosus L. (somewhat downy).
Goshen, *Underwood;* Mansfield, June, July, Aug. (70, 325).
Boletus subvelutipes Pk. (having a somewhat velvety stem.
Mansfield, July (140).
Boletus vermiculosus Pk. (wormy).
Mansfield, July (293).
Boletus vermiculosus Pk. var. **Spraguei.**
Manchester, *Hanmer.*
Boletus versipellis Fr. (changing its skin or aspect).
Mansfield, July (306).

FAVOLUS Fr.

Favus, honeycomb.

The plants of this small genus are frequently found on decaying trees. The large-mouthed, radiating pores give the under surface of the cap a peculiar honeycombed appearance. The substance of the cap is tough and leathery in texture.

Favolus canadensis Klotz.
= **Hexagona alveolaris** (D. & C.) Murrill.
Goshen, *Underwood;* New Haven, *Clinton;* Mansfield, July (119).

CYCLOMYCES Kunz & Fr.

κύκλος, a circle; μύκης, fungus.

The characters of this genus are distinct from other Polyporaceæ. The cap is fleshy, leathery, or membranaceous, and upon the lower surface are the plate-like bodies which resemble the gills of Agaricaceæ, but which are composed of minute pores. These pore-bodies are borne in concentric circles, giving the lower surface a peculiar appearance. *C. Greenii* is the only species reported, and this is not uncommon in Connecticut.

Cyclomyces Greenii Berk.
= **Cycloporus Greenii** (Berk.) Murrill.
Goshen, *Underwood;* Mansfield, July (270).

GLŒOPORUS Mont.

γλοιός, gluten; πόρος, pore.

The plants of this genus have a leathery or woody cap and a trembling, gelatinous, spore-bearing surface which is somewhat elastic. The pores are round.

Glœoporus conchoides Mont. (shell-like).
East Hartford, *Hanmer.*

TRAMETES Fr.

Trama; the generic distinction depending on the trama.

The characteristic difference between *Trametes* and other genera in this family is the unequal depth of the tubes, or pores, which are sunken into the flesh of the cap. It differs from *Dædalea* by having the pores more distinct and not arranged in serpentine lines. The plants grow on wood, and are woody or corky in texture, becoming hard with age.

Trametes cinnabarina (Jacq.) Fr. (having the color of dragon's-blood).

= **Pycnoporus cinnabarinus.**
East Hartford, *Hanmer.*

Trametes odora Fr. (scented).
East Hartford, *Hanmer.*

Trametes sepium Berk. (*σήπω*, to become rotten).
Poquonock, *Hanmer.*

DÆDALEA Pers.

δαιδάλεος, curiously wrought.

The plants belonging to this genus are found growing on wood, many being especially abundant upon decaying stumps. The peculiar, convoluted appearance of the under surface of the cap is due to the serpentine formation of the pore structure. These pores are rather deep, and the lines somewhat distant. The pore substance is not unlike the cap substance, both being corky in texture. *D. quercina* is perhaps the most common species and occurs abundantly on decaying stumps, especially oak. The distinct character of the pores always identifies it at a glance. The substance of the cap is very closely united with that of the fungus tissue within the wood, and the plant is removed from the host with difficulty. Some few species are attached to the feeding substance by the back of the cap (resupinate), that is, the back of the cap lies flat against the log, the pore surface pointing outward.

Dædalea confragosa Pers. (rough, rugged).
East Hartford, *Hanmer;* Goshen, *Underwood;* New Haven, *Clinton.* Plate XXXIV, at the right.
Mansfield, Feb. (361).

Dædalea quercina (L.) Pers. (pertaining to the oak).
Goshen, *Underwood;* New Haven, *Clinton;* Mansfield, Mar. (363). Plate XXXIV, at the left.

Dædalea unicolor (Bull.) Fr. (one-colored).
Goshen, *Underwood;* New Haven, *Clinton;* Mansfield, Mar. (360).

MERULIUS Fr.

Merula, a blackbird; probably from the color of the fungus.

Merulius is a small genus whose species are somewhat

ak Dædalea.
Rough Dædalea.

applanatus.
half.)
smoky Fomes.
brown, recent
woody.

gelatinous in substance. The pore surface consists of serpentine lines, but these lines are much more shallow than in *Dædalea,* appearing as small pits. The plants are usually attached to the substratum by the back of the cap (resupinate).

Merulius lachrymans Fr. (weeping; referring to the watery drops on the pileus).
East Hartford, *Hanmer;* New Haven, *Clinton.*

Merulius tremellosus Sch. (resembling *Tremella*).
New Haven, *Clinton.*

FOMES Fr.

Fomes, tinder.

The plants of this genus are separated from other genera of the Polyporaceæ by the hard and woody texture of the cap, even in the young plants. This cap is covered by a hard, rigid cuticle which is not zoned, but the plants are perennial growers, adding a new layer of tissue over that of the preceding year, making them distinctly *stratose.* In other words, the substance of the cap is composed of layers of mycelium and spore-bearing tissue. These layers may be seen if a cross section be made. As the new mycelial tissue spreads over the old, the latter dies, so that only the new growth is the living substance of the plant.

The species of *Fomes* are classed by the older writers in the genus *Polyporus.*

Fomes annosus (Fr.) Cooke. (aged).
East Hartford, *Hanmer.*

Fomes applanatus (Pers.) Fr. (*plano,* to level).
East Hartford, *Hanmer;* Mansfield, April. Plate XXXV; the upper specimen.

Fomes fomentarius (L.) Fr. (smoky).
= **Elfvingia fomentaria** (L.) Murrill.
Mansfield, March (350). Plate XXXV; the lower specimens.

Fomes igniarius (L.) Fr. (fiery).
= **Pyropolyporus igniarius** (L.) Murrill.
Goshen, *Underwood;* Mansfield, May (351).

Fomes lucidus (Leys.) Fr. (shining).
= **Ganoderma,** various species, Murrill.
East Hartford *Hanmer;* Mansfield, June; New Haven, *Clinton.*

Fomes roseus (A. & S.) Fr. (rose-colored).
East Hartford, *Hanmer;* Goshen, *Underwood.*

Fomes salicinus (Pers.) Fr. (pertaining to the willow).
= **Pyropolyporus conchatus** (Pers.) Murrill.
Goshen, *Underwood.*

POLYSTICTUS Fr.

πολύς, many; στικτός, punctate.

In this genus, the cap is leathery, membranaceous, rather spongy, and with a thin cuticle. The tubes run to an equal depth in the substance of the cap; this fact separates the genus from *Trametes,* which it strongly resembles. The substance of the cap is never fleshy or woody, and not stratose, thus making it unlike *Polyporus* or *Fomes.*

The pileus is usually zoned, frequently velvety, but may be rough with stiff hairs. The stem may be central, lateral, or absent. The plants are classed by the older writers with *Polyporus.*

Polystictus cinnamomeus Jacq. (cinnamon-colored).
= **Coltricia cinnamomea** (Jacq.) Murrill.
East Hartford, *Hanmer;* Goshen, *Underwood.*

Polystictus cinnabarinus (Jacq.) Fr. (having color of dragon's-blood).
Goshen, *Underwood;* New Haven, *Clinton;* Mansfield, May (352).

Polystictus conchifer Schw. (shell-bearing).
= **Poronidulus conchifer** (Schw.) Murrill.
East Hartford, *Hanmer;* New Haven, *Clinton;* Mansfield, May (356).

Polystictus hirsutus Fr. (hairy).
Goshen, *Underwood;* New Haven, *Clinton;* Mansfield, May (357).

Polystictus perennis (Linn.) Fr. (perennial).
= **Coltricia perennis** (Linn.) Murrill.
East Hartford, *Hanmer.*

Variegated Polystictus.

[illegible] leathery, thin, velvety ;
[illegible] colored.

Birch Polyporus.

smooth ; pores minute.

Polystictus pergamenus Fr. (*pergamena,* parchment).
East Hartford, *Hanmer;* Mansfield, June (359).

Polystictus velutinus Fr. (velvety).
Goshen, *Underwood.*

Polystictus versicolor (Linn.) Fr. (changeable in color).
East Hartford, *Hanmer;* Goshen, *Underwood;* Mansfield, June (355); New Haven, *Clinton.* Plate XXXVI.

Polystictus zonatus Fr. (zoned).
Mansfield, Mar. (358).

POLYPORUS Fr.

πολύς, many; πόρος, pore.

These plants have a more or less fleshy texture when young, becoming harder with age. The genus is distinguished from *Fomes* by its lack of stratose layers of tubes within the cap. The pileus is not zoned, and it has a thicker flesh than the species of *Polystictus.*

The members of this genus are numerous, and are varied in their habit of growth. In some species the stem is central, but more often it is attached at one side of the cap (lateral), and sometimes it is wanting, the plants becoming sessile.

The species are commonly found growing on wood, in nearly all sections of the state, and are decidedly varied in their individual colors, shapes, and general habits of growth. *P. betulina* is so abundant upon grey birch trees that it is familiar to the most inexperienced collector.

Polyporus adustus (Willd.) Fr. (scorched).
= **Bjerkanderma adusta** Murrill.
East Hartford, *Hanmer;* Mansfield, May (353).

Polyporus Berkeleyi Fr.
= **Grifola Berkeleyi** (Fr.) Murrill.
East Hartford, *Hanmer.*

Polyporus betulinus Fr. (pertaining to the birch).
= **Piptoporus suberosus** (L.) Murrill.
East Hartford, *Hanmer;* New Haven, *Clinton;* Mansfield, Mar. (354). Plate XXXVII.

Polyporus brumalis (Pers.) Fr. (belonging to winter).
= **Polyporus Polyporus** (Retz.) Murrill.
East Hartford, *Hanmer;* Mansfield, May (19).

Polyporus cæsius (Schrad.) Fr. (bluish-gray).
Goshen, *Underwood.*

Polyporus chioneus Fr. (snow-white).
East Hartford, *Hanmer.*

Polyporus elegans (Bull.) Fr. (elegant).
East Hartford, *Hanmer;* Goshen, *Underwood;* Mansfield, July (36).

Polyporus fragrans Peck. (fragrant).
East Hartford, *Hanmer.*

Polyporus frondosus Fr. (leafy).
= **Grifola frondosa** (Dicks.) (S. F. Gray) Murrill.
Mansfield, Aug. (370).

Polyporus galactinus Berk. (milky-white).
East Hartford, *Hanmer.*

Polyporus gilvus Schw. (pale yellow).
= **Hapalopilus gilvus** (Schw.) Murrill.
East Hartford, *Hanmer.*

Polyporus hispidus (Bull.) Fr. (hispid).
= **Inonotus hirsutus** (Scop.) Murrill.
East Hartford, *Hanmer;* New Haven, *Clinton;* Mansfield, Apr. (368).

Polyporus leucomelas (Pers.) Fr. (λευκός, white; μελάς, black; allusion to change of color).
New Haven, *Clinton;* Mansfield, Aug. (337).

Polyporus rutilans (Pers.) Fr. (reddish).
= **Hapalopilus rutilans** (Pers.) Murrill.
East Hartford, *Hanmer.*

Polyporus Schweinitzii Fr.
= **Romellia sistotremoides** (A. & S.) Murrill.
East Hartford, *Hanmer;* Goshen, *Underwood.*

Polyporus semipileatus Peck. (half-capped).
East Hartford, *Hanmer.*

Polyporus sulphureus (Bull.) Fr. (sulphur-yellow).
= **Lætiporus speciosus** (Batarr.) Murrill.
Goshen, *Underwood;* Mansfield, July (369).

Polyporus squamosus (Huds.) Fr. (scaly).
East Hartford, *Hanmer;* Tolland, July (368).

HYDNACEÆ Fr. *Spine-bearing Fungi.*

The members of this family are easily recognized because of the distinct, spiny, spore-bearing surface of the cap; yet their varying generic and specific characters are puzzling to the amateur collector. The plants vary widely in their habits of growth; some are found growing in a shelving position from trunks of trees, thus resembling certain Polyporaceæ; others grow on the ground, closely resembling Agaricaceæ; still others attach themselves very closely to the bark of trees, in the peculiar way described in the family characteristic of Polyporaceæ, as resupinate. In these resupinate forms, only the spiny, spore-bearing surface is visible; the spines always growing directly towards the ground, which distinguishes the group from the Clavariaceæ in which the spiny projections are vertical.

Most of the species have the typical mushroom form; that is, they have a more or less expanded cap, with a central, well defined stem; but in some species the stem is wanting, and the caps are attached directly to the substratum (sessile).

A few species are edible, but as a rule the plants are tough and leathery in consistency.

There are several distinct genera in this family, but only two are reported.

Key for the analysis of Connecticut Genera of Hydnaceæ.

Spines springing from folds or ridges which may branch irregularly; cap thin, spread out over the surface of the wood (resupinate).....*Irpex*

Spines springing from an even surface, distinct at base; cap fleshy; stem central, attached at one side of the cap, or absent; plants often resupinate.....*Hydnum*

IRPEX Fr.

Irpex, a harrow.

The plants of this genus are all resupinate, that is, they spread themselves over logs, the teeth extending outward and downward. The spines are less sharply pointed and awl-shaped than in *Hydnum,* and are more or less connected at the

base into ridges, which somewhat resemble the convolutions of the fruiting-surface of *Dædalea.* The substance of the fruit-body is leathery.

Irpex cinnamomeus Fr. (cinnamon-colored).
Goshen, *Underwood.*

Irpex lacteus Fr. (milk-white).
East Hartford, *Hanmer;* Goshen, *Underwood.*

Irpex mollis B. & C. (soft).
Mansfield, May (347).

HYDNUM Linn.

ὕδνον, a kind of fungus.

In *Hydnum,* the fruiting-surface consists of distinct spines which are often somewhat branched at the tips. They vary greatly in form, and the species are difficult of determination because of a lack of technical American literature upon this group. They grow on the ground or upon wood, usually in woodlands. They are especially frequent as fall approaches, and many of the earth-growing species are overlooked by the collector because of their resemblance in color to fallen leaves. Several of the wood-growing plants are beautifully tufted into coral forms, thus resembling Clavariaceæ, but their spines always point downward, never upward as do the Clavarias.

Many species are listed as edible.

Hydnum adustum Schw. (scorched).
East Hartford, *Hanmer;* Goshen, *Underwood;* Mansfield, July, Aug. (165, 324).

Hydnum albidum Pk. (white).
Mansfield, Aug. (309).

Hydnum albo-nigrum Pk. (*albus,* white; *niger,* black; allusion to change of color).
South Windsor, *Hanmer;* Mansfield, July (219).

Hydnum aurantiacum A. & S. (orange-colored).
Ledyard, *Hanmer;* Mansfield, Aug. (338).

Hydnum caput-ursi Fr. (bear's head).
South Windsor, *Hanmer.* Edible (Curtis).

Hydnum compactum Pers. (compact).
Goshen, *Underwood.*

Northern Hydnum.

ry crowded, slender, equal.

Hydnum coralloides (coral-like).
East Hartford, *Hanmer.* Edible (Curtis).
Hydnum ferrugineum (Scop.) Fr. (rust-colored).
Rockville, *Hanmer.* Edible (McI.).
Hydnum graveolens Del. (strong-smelling).
Ledyard, *Hanmer.*
Hydnum imbricatum L. (imbricated).
North Glastonbury, *Hanmer;* Mansfield, Aug. (45). Edible (Curtis).
Hydnum ochraceum Pers. (ochre-yellow).
Poquonock, *Hanmer.*
Hydnum repandum L. (bent backward).
East Hartford, *Hanmer;* Mansfield, July (239). Edible (Curtis).
Hydnum rufescens Pers. (reddish).
Mansfield, July (160). Edible (Curtis).
Hydnum scabrosum Fr. (rough).
Mansfield, Aug. (231).
Hydnum scrobiculatum Fr. (*scrobiculus,* a little trench; from the slightly pitted cap).
Rainbow, *Hanmer.*
Hydnum septentrionale Fr. (northern).
South Windsor, *Hanmer;* Mansfield, Aug. Plate XXXVIII.
Hydnum squamosum Schæff. (scaly).
Mansfield, July (247).
Hydnum umbilicatum Pk. (umbilicate).
Rainbow, *Hanmer.*
Hydnum vellereum Pk. (fleecy).
Mansfield, Aug. (310).
Hydnum zonatum Batsch. (zoned).
Mansfield, June (100).

THELEPHORACEÆ Pers.

This family contains plants similar in appearance to other families described, but they are generally distinguished by a perfectly plane fruiting-surface. In some few genera, however, this surface may be radiately wrinkled, or velvety from minutely projecting cystidia. The reproductive spores are borne as in other families.

Key for the analysis of Connecticut Genera of Thelephoraceæ.

Spores colored, substance of plant leathery, dry and fibrous, fruiting-surface wrinkled.....*Thelephora*
Spores colorless..... 1
1. Fruiting-surface minutely velvety, with rigid, smooth, colored, projecting cystidia....*Hymenochæte*
Fruiting-surface smooth..... 2
2. Plants funnel-shaped or cup-shaped..... 3
Plants not funnel-shaped or cup-shaped..... 4
3. Plants large, funnel-shaped, substance fleshy or membranaceous .....*Craterellus*
Plants small, cup-shaped, substance thin.....*Cyphella*
4. Surface of cap velvety, fruiting-surface not cracked in drying.....*Stereum*
Plants smooth throughout, waxy, polished, entirely resupinate, fruiting-surface cracked when dry.. *Corticium*

THELEPHORA Ehrh.

θηλή, a teat; φορέω, to bear.

In this genus, the substance of the fruit-body is dry and fibrous, somewhat leathery in texture, and lacks a distinct cuticle. The fruiting-surface is slightly wrinkled and bears colored, minutely warted spores. Many species are soft and elastic but never gelatinous.

Thelephora anthocephala (ἄνθος, flower; κεφαλή, head).
Goshen, *Underwood.*

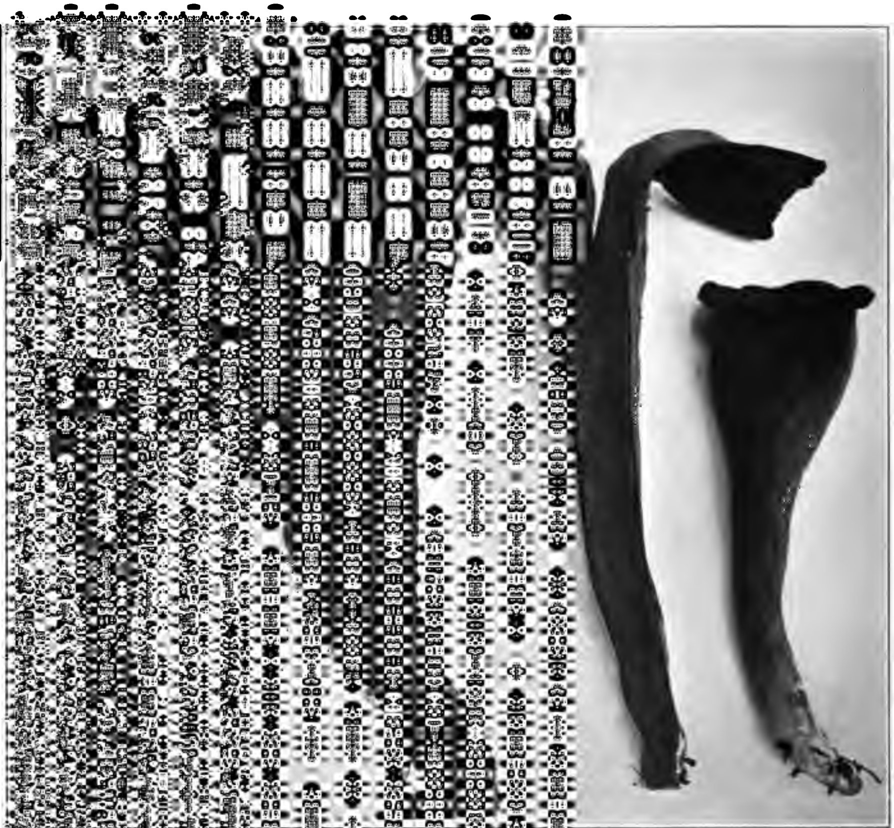
Thelephora intybacea Pers. (resembling chicory).
Hartford, *Hanmer.*

Thelephora pallida Pers. (pale).
Waterbury, *Hanmer.*

Thelephora palmata (Scop.) Fr. (palmate).
Glastonbury, *Hanmer.*

Thelephora radiata Fr. (radiated).
East Hartford, *Hanmer.*

Thelephora terrestris Ehrh. (pertaining to the earth).
East Hartford, South Windsor, *Hanmer.*



[illegible] Cornucopia Craterellus. (Natural size.)
[illegible] funnel-shaped, mouth wavy,
[illegible] surface slightly uneven.

HYMENOCHÆTE Lev.

ὑμήν, membrane; χαίτη, a bristle.

In Hymenochæte, the cap may be attached to the substratum by a central stem, at one side, or upon its back (resupinate). The distinguishing character of the genus is the velvety or bristly appearance of the fruiting-surface, due to smooth, projecting, thick-walled cells (cystidia or setæ).

Only one species was collected during the past season, but this was found abundantly upon decaying chestnut stumps.

Hymenochæte rubiginosa (Schr.) Lev. (rusty).
Mansfield, May (344).

CRATERELLUS Fr.

Crater, a bowl.

Craterellus very closely resembles *Cantharellus* of the Agaricaceæ family, but is distinguished by a smooth fruiting-surface, while in *Cantharellus* the fruiting-surface is composed of thick blunt gills. The plants are very common in the autumn. They are funnel-shaped, and of a fleshy, waxy, or membranaceous consistency.

Craterellus cantharellus (Schw.) Fr. (a small vase).
New Haven, *Clinton.*

Craterellus conucopioides (L.) Pers. (resembling a horn of plenty).
Mansfield, Aug. (245). Plate XXXIX.

CYPHELLA Fr.

κύφελλον, an ear-like depression.

The plants of this genus are small, cup-like, and resemble *Peziza* of the Discomycetes. Some species are similar to *Corticium,* but are distinguished by being attached to the substratum at a central point, and not by the whole sterile surface. Then, too, the fruiting-surface has a tendency to turn downward away from the light, while in *Corticium* it turns towards the light.

Cyphella muscigena (Pers.) Fr. (growing on moss).
South Windsor, *Hanmer.*

STEREUM Pers.

στερεός, solid, hard.

Stereum is distinguished by the smooth, plane, fruiting-surface and the velvety or hairy upper surface of the cap.

In some species the plants have a well-defined central stem, in others the side of the cap is attached to the substratum, while in still others the cap lies upon its back (resupinate).

Stereum complicatum Fr. (complicated).
Mansfield, July (364).

Stereum fasciatum Schw. (bundled).
East Hartford, *Hanmer.*

Stereum gausapatum Fr. (*gausapa,* a shaggy woolen cloth).
East Hartford, *Hanmer.*

Stereum hirsutum (W.) Fr. (hairy).
New Haven, *Clinton.*

Stereum sericeum Schw. (silky).
Bolton, *Hanmer;* Mansfield, Aug. (365).

CORTICIUM Fr.

Cortex, bark or rind.

These plants are always resupinate, the caps lying upon their backs, closely attached to the surface of the bark of logs. The edges are frequently free and curl outward. The fruiting-surface is perfectly smooth and often polished. When dry, the fruiting-surface is often cracked, due to the contraction of the mycelial tissue of the cap. The genus, in many ways, resembles *Stereum,* but the latter genus is often shelving, the surface of the cap velvety, and the fruiting-surface uncracked when dry.

Corticium incarnatum (Pers.) Fr. (flesh-colored).
Goshen, *Underwood.*

Corticium salicinum Fr. (pertaining to the willow).
Goshen, *Underwood;* New Haven, Clinton.

Corticium vagum B. & C. (uncertain) var. **Solani.**
New Haven, *Clinton.*

CLAVARIACEÆ. *Coral Fungi.*

This is a family very unlike most families of mushrooms. There is no distinct cap; but, true to their name, the plants resemble coral formations. The substance of the plants is similar throughout, and the spores are borne over their entire upper surface. They are upright growers, and are frequently variously branched, but may be simple and club-shaped. They have striking characters not easily mistaken. The majority of the species are edible, though some are tough and leathery.

The plants are very common and occur abundantly throughout the season. They grow mostly in soil or in decaying leaves, but some few species grow on decaying wood. They are distinguished from the coral forms of Hydnaceæ by their upright habit of growth, the tips of the branches pointing away from the earth, while in Hydnaceæ the spines point downward. Some of the branched forms resemble certain species of Thelephoraceæ, but in Thelephoraceæ the tips of the branches are more or less flattened or blunt and bear no fruiting-bodies, while in Clavariaceæ the tips of the branches are acute and fertile.

The fruiting cells are not unlike those of Agaricaceæ and other Hymeniales. Over the entire surface of the fruit-body, the club-shaped basidia may be found by microscopical examination, and from these cells sterigmata arise, each bearing at its tip the basidiospore, or reproductive body.

Saccardo lists nine genera in this family, but only two are reported from Connecticut.

Key for the analysis of Connecticut Genera of Clavariaceæ.

Plants fleshy, simple or branched.....*Clavaria*
Plants leathery, branched, tomentose.....*Lachnocladium*

CLAVARIA Vaill.

Clava, a club.

The plants in this genus are more or less fleshy in consistency. They may be variously branched, but in many species they are simple and club-shaped. The branches are typically round, and are acute at the tips. The species are diffi-

cult to determine. The plants vary in their colorings; some are white, others red, yellow, or violet, and these colors, with the color of the spores, form a basis for the determination of the species. The spores are white, ochre-colored, or cinnamon.

Clavaria aurea Schæff. (golden).
Mansfield, July (61).

Clavaria cinerea Bull. (ashy).
East Hartford, *Hanmer;* Mansfield, Aug. (256).

Clavaria flava Schæff. (yellow).
Mansfield, June, Aug. (30, 250). Plate XL.

Clavaria fusiformis Sow. (spindle-shaped).
Waterford, *Hanmer*; Goshen, *Underwood.*

Clavaria Schäfferi Sacc.
Mansfield, July, *Hanmer.*

Clavaria pyxidata Pers. (box-like).
South Glastonbury, Bolton, *Hanmer;* Mansfield, July (186).

Clavaria pulchra Peck. (beautiful).
East Hartford, *Hanmer.*

Clavaria rugosa Bull. (wrinkled).
Rainbow, *Hanmer.*

Clavaria vermicularis (Scop.) Fr. (wormy).
Rainbow, *Hanmer.*

LACHNOCLADIUM Lev.

λάχνος, fleece; κλάδος branch.

These plants are distinguished from *Clavaria* by the somewhat leathery tissue of the fruit-body. This tissue is sometimes brittle and cartilaginous. The plants are more or less branched, and are found growing on the ground or on wood. They are frequently covered with a close, soft pubescence.

Lachnocladium Micheneri B. & C.
East Hartford, *Hanmer.*

Lachnocladium odoratum Atk. (odorous).
Mansfield.
A new species, soon to be described by Professor Atkinson.

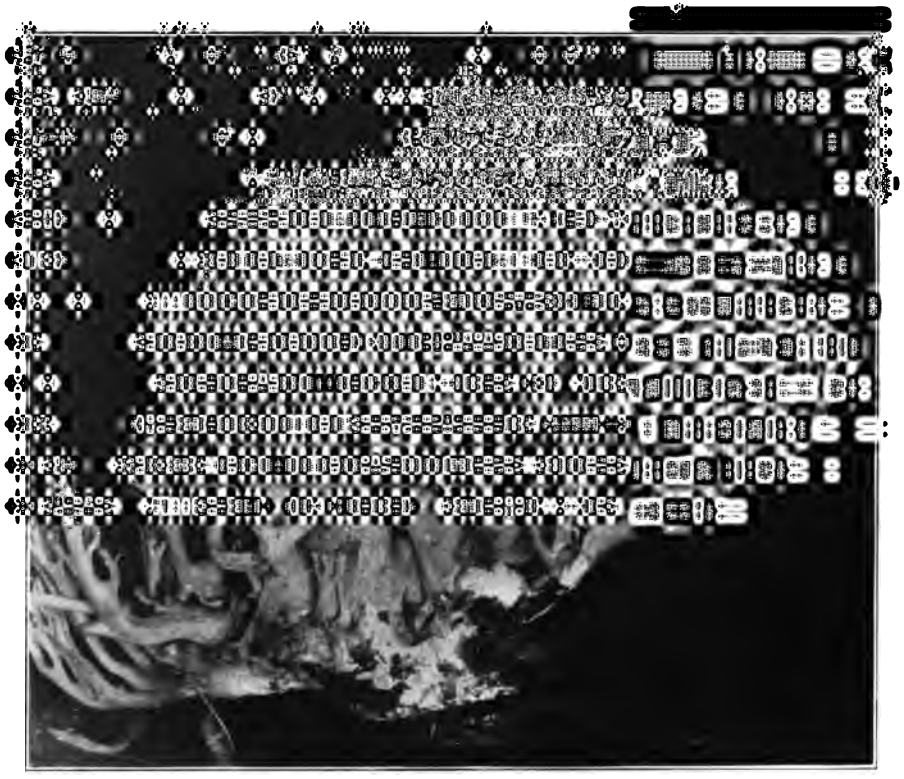


PLATE XL. *Clavaria flava.* Yellow Clavaria. (Reduced one-third, often larger.)
Branches very numerous, fragile, yellow, tips toothed ; stem thick, fleshy, white, much branched ; flesh white ; spores white.

HYPOCHNACEÆ.

The plants of this family are mold-like or spider-web-like in substance, and lack the close, membranaceous character of other families. The tufts of basidia are placed closely side by side over the surface of the mycelial tissue.

No plants belonging to this family have been reported.

General Index.

Index to Species.