Extr. 38th Report Regents

REPORT OF THE BOTANIST.

To the Honorable the Board of Regents of the University of the State of New York:

GENTLEMEN — I have the honor to communicate to you the following statement of the work of the Botanist during the past year:

The investigation of our State flora and the collection and preparation of specimens to properly represent it in the State Herbarium, a work which had been partly interrupted for two years, has been fully renewed and actively prosecuted during the collecting season. Specimens were collected in the counties of Essex, Warren, Fulton, Lewis, Saratoga, Albany and Rensselaer. Of the collected specimens, those representing one hundred and ninety-two species have been prepared, mounted and added to the Herbarium. One hundred and sixteen of these, of which a considerable number are species of fungi not before published, were not previously represented therein. The remainder are species now more completely and satisfactorily illustrated in their different forms and varieties or by more perfect specimens.

Specimens of about one hundred and forty species of plants, mostly fungi, have been contributed by various botanists and correspondents. Of these there are two species of this State new to the Herbarium and not among my collections of the past season. These added to the number already given make a total of one hundred and eighteen added species. A list of their names is marked A. Also a list of contributors and their respective contributions is given and marked B.

Notices of plants not before reported, together with a record of the localities where they were found, also descriptions of such as are deemed new species are in a part of the report marked C. These descriptions, in nearly all cases, have been drawn up with the fresh plant before me. The microscope has been taken with me on my collecting trips, and the microscopical details studied at the time of collecting, in order to insure greater accuracy.

A record of observations on species not new to our flora has been made and is marked D. It contains remarks upon any matters of interest in connection with the variation, distribution, locality or habitat of the species.

A descriptive manual of our Hymenomycetous or fleshy fungi, among which are the mushrooms and mushroom-like Agarics, is greatly needed. The number of those desirous of becoming acquainted with our native species of these plants is constantly increasing, but a proper and convenient manual for their study and identification is wanting. Accidents from the use of poisonous kinds for food, by those, who, ignorant of the true characters of the species, have mistaken them for the edible mushroom occur from time to time. These accidents might readily be avoided by a better and more common acquaintance with the characteristic features of our edible species and their less valuable associates. As a step in this direction monographs of the different genera represented in our

flora were commenced in the thirty-third report and continued in subsequent ones. For the present report a monograph has been prepared of our species of Lactarius, or milky-juice fungi, and also one of the genus (subgenus of Fries) Pluteus.

The genus Lactarius is a large one, at present represented in our State by forty species. Some of these rank as edible, others as poisonous. While the genus as such is easily recognized and accurately separated from all other genera, some of the species that compose it approach each other so closely and vary so considerably that without clear and explicit descriptions they are liable to be confused and their discrimination unsatisfactory. In this monograph it has been the design to make the specific descriptions so complete and at the same time to give such prominence to the distinguishing characters, that no difficulty need be experienced in the identification of our species. The spore characters are also given, a part of the description that is sometimes of great importance, and yet one that has generally been omitted by authors. A synoptical table has been prepared, by means of which, with good fresh specimens, it is believed, the name of any species described in the monograph may be easily and quickly ascertained. These monographs constitute a part of the report marked E. The revision of our specimens of Sphæriaceous fungi, which was commenced last year, has been continued and completed. This revision, as was explained in my preceding report, was necessary in order to bring the arrangement and nomenclature of our species into harmony with the recent Saccardoan system, which, from present indications, is destined to supersede the old Friesian system.

It is desirable, not only that our Agarics and other fleshy Hymenomycetous fungi, which so generally shrivel and change color in drying, should be illustrated by sketches of the fresh plant colored according to nature, but also that magnified drawings of the microscopic characters of the smaller and minute fungi should be made and accompany the specimens in the Herbarium. A considerable number of such sketches were made the past season, at the time the specimens were collected. From these I have prepared three plates of figures designed to illustrate, as far as possible, the characters of the new species described in the following pages

Thanks are hereby rendered to those botanists who have kindly aided me in the prosecution of my labors, both by the contribution of specimens and of information.

Most respectfully submitted,

CHAS. H. PECK.

ALBANY, *December* 31, 1884.

A.

PLANTS ADDED TO THE HERBARIUM.

New to the Herbarium.

Ipomæa purpurea, *L.*
Populus dilatata, *L.*
Listera convallarioides, *Hook.*
Molinia cærulea, *Mœnch.*
Festuca rubra, *L.*
Agaricus clypeolarius, *Bull.*
A. terræolens, *Pk.*
A. vexans, *Pk.*
A. purpureofuscus, *Pk.*
A immaculatus, *Pk.*
A. discopus, *Lev.*
A. hiemalis, *Osbeck.*
A scyphoides, *Fr.*
A. jubatus, *Fr.*
A. unitinctus, *Pk.*
A. atrides, *Lasch.*
A. comosus v. albus, *Pk.*
A villosus, *Fr.*
A. umboninotus, *Pk.*
A. maritimoides, *Pk.*
A. comatellus, *Pk.*
A. subexilis, *Pk.*
A. sordidulus, *Pk.*
A. parvifructus, *Pk.*
A. cærulipes, *Pk.*
A. madeodiscus, *Pk.*
Coprinus lagopus, *Fr.*
Cortinarius aureifolius, *Pk.*
C. multiformis, *Fr.*
C decoloratus, *Fr.*
Hygrophorus purpurascens, *Fr.*
Lactarius varius, *Pk.*
L. hysginus, *Fr.*
L. paludinellus, *Pk.*
Russula basifurcata, *Pk.*
Lentinus suavissimus, *Fr.*
Boletus sulphureus, *Fr.*
B. versipellis, *Fr.*
Polyporus abortivus, *Pk.*
P. epileucus, *Fr.*
P. crispellus, *Pk.*
P. lætificus, *Pk.*
P. fimbriatellus, *Pk.*
P. ornatus, *Pk.*
P. odorus, *Pk.*
P. subacidus, *Pk.*
P. griseoalbus, *Pk.*
Merulius fugax, *Fr.*
M. subaurantiacus, *Pk.*
Geaster striatus, *DC.*
Coniothyrium valsoideum, *Pk.*
Phoma Phytolaccæ, *B. & C.*
P. elevatum, *Pk.*
P. Pruni, *Pk.*
P. albifructum, *Pk.*
Sphæropsis alnicola, *Cke.*
Sphæropsis ribicola, *C. & E.*
Diplodia pinea, *Kx.*
Sphærographium hystricinum, *Sacc.*
S. lantanoidis, *Pk.*
Appendicularia entomophila, *Pk.*
Gelatinosporium fulvum, *Pk.*
Phyllosticta Podophylli, *West.*
P. Labruscæ, *Thum.*
P. Epigææ, *Pk.*
P. lantanoidis, *Pk.*
Ascochyta Cassandræ, *Pk.*
A. colorata, *Pk.*
Marsonia Quercus, *Pk.*
Pestalozzia monochætoidea, *S. & E.*
Stagonospora Smilacis, *Sacc.*
Glœosporium Salicis, *Wint.*
G. Ribis, *Cast.*
Septoria alnicola, *Cke.*
S. Ribis, *Desm*
S. Lysimachiæ, *West.*
S. Dentariæ, *Pk.*
S. Dalibardæ. *Pk.*
S. Diervillæ, *Pk.*
S. fumosa, *Pk.*
S. punicei, *Pk*
S. Trillii, *Pk.*
Rhabdospora subgrisea, *Pk.*
Hadrotrichum lineare, *Pk.*
Ramularia multiplex, *Pk.*
R. Prini, *Pk.*
R. Diervillæ, *Pk.*
R. Oxalidis, *Farl.*
Cylindrosporium veratrinum, *S. & W.*
Ovularia moniloides, *E. & M.*
Peronospora Arthuri, *Farl.*
P. Halstedii, *Farl.*
P. Potentillæ, *DeBy.*
Entyloma Saniculæ, *Pk.*
Cercospora Violæ, *Sacc.*
C. Majanthemi, *Fckl.*
C. Cephalanthi, *E. & K.*
C. Comari, *Pk.*
Cenangium balsameum, *Pk.*
Sphærotheca pannosa, *Lev.*
Asterina nuda, *Pk.*
Capnodium Citri, *B. & D.*
Valsa Friesii, *Fckl.*
V. cornina, *Pk.*
V. leucostomoides, *Pk.*
V. opulifoliæ, *Pk.*
Diatrypella Frostii, *Pk.*
Sphærella conigena, *Pk.*
Didymosphæria Typhæ, *Pk.*
Venturia Cassandræ, *Pk.*
Diaporthe Wibbei, *Nits.*
D. cylindrospora, *Pk.*

Leptosphæria eutypoides, *Pk.*
L. Corallorhizæ, *Pk.*
L. lycopodiicola, *Pk.*
Metasphæria Myricæ, *Pk.*
Mazzantia sepium, *S. & P.*
Sphærulina sambucina, *Pk.*
Cryptospora Caryæ, *Pk.*

Not New to the Herbarium.

Ranunculus repens, *L.*
Nuphar advena, *Ait.*
Caulophyllum thalictroides, *Mx.*
Podophyllum peltatum, *L.*
Capsella Bursa-pastoris, *Mœnch.*
Viola pubescens, *Ait.*
V. rostrata, *Pursh.*
V. can. v. sylvestris, *Regel.*
Hypericum ellipticum, *Hook.*
Acer dasycarpum, *Ehrh.*
Geranium maculatum, *L.*
Rhus typhina, *L.*
Rubus hispidus, *L.*
Rosa setigera, *Mx.*
Fragaria Virginiana, *Ehrh.*
Prunus serotina, *Ehrh.*
Aralia hispida, *Mx.*
A. nudicaulis, *L.*
Sambucus pubens, *Mx.*
Cornus sericea, *L.*
C. stolonifera, *Mx.*
Fedia umbilicata, *Mx.*
Tussilago Farfara, *L.*
Senecio aureus, *L.*
Tanacetum vulgare, *L.*
Vaccinium Pennsylvanicum, *Lam.*
Chiogenes hispidula, *T. & G.*
Amarantus blitoides, *Wats.*
Quercus palustris, *Du Roi.*
Alnus incana, *Willd.*
A. serrulata, *Ait.*
Salix fragilis, *L.*
Symplocarpus fœtidus, *Salisb.*
Corallorhiza multiflora, *Nutt.*
Uvularia perfoliata, *L.*
U. grandiflora, *Sm.*
Trillium grandiflorum, *Salisb.*
Juncus marginatus, *Rostk.*
Carex stipata, *Muhl.*
Carex grisea, *Wahl.*
C. laxiflora, *Lam.*
C. umbellata, *Schk.*
Holcus lanatus, *L.*
Agrostis vulgaris, *With.*
Glyceria fluitans, *R. Br.*
G. elongata, *Trin.*
Danthonia spicata, *Beauv.*
D. compressa, *Aust.*
Panicum dichotomum, *L.*
Bromus ciliatus, *L.*
Aira cæspitosa, *L.*
Millium effusum, *L.*
Lycopodium complanatum, *L.*
Agaricus muscarius, *L.*
A. naucinoides, *Pk.*
A. transmutans, *Pk.*
A. radicatus, *Relh.*
A. maculatus, *A. & S.*
A. stipitarius, *Fr.*
A. clavicularis, *Fr.*
A. atrocæruleus, *Fr.*
A. strictior, *Pk.*
A. rhodopolius, *Fr.*
A. præcox, *Pers.*
A. subochraceus, *Pk.*
A. Hypnorum, *Batsch.*
A. Rodmani, *Pk*
A. arvensis, *Schæff.*
Coprinus atramentarius, *Bull.*
Cortinarius porphyropus, *A. & S.*
Marasmius anomalus, *Pk.*
M. androsaceus, *L.*
Panus lævis, *B. & C.*
Schizophyllum commune, *Fr.*
Boletus Clintonianus, *Pk.*
Polyporus lucidus, *Leys.*
P. undosus, *Pk.*

B.

CONTRIBUTORS AND THEIR CONTRIBUTIONS.

Mrs. S. M. Rust, Syracuse, N. Y.

Trillium grandiflorum. *Salisb.*

Mrs. L. L. Goodrich, Syracuse, N. Y.

Trillium grandiflorum. *Salisb.*

Prof. N. L. Britton, New York, N. Y.

Juncus trifidus, *L.*

Prof. O. C. Willis, White Plains, N. Y.

Ledum latifolium, *Ait.*
Andromeda polifolia, *L.*

Prof. W. G. Farlow, Cambridge, Mass.

Phoma Amelanchieris, *Farl.*
Coleosporium Senecionis, *Wint.*
Cylindrosporium Gei, *Farl.*
Entyloma Lobeliæ, *Farl.*
Ramularia Oxalidis, *Farl.*
Peronospora Halstedii, *Farl.*
Stictis Tsugæ, *Farl.*
Phyllachora Wittrockii, *Sacc.*

Rev. J. L. Zabriskie, Nyack, N. Y.

Rhus typhina, *L.*
Quercus palustris, *Du Roi.*
Juncus marginatus, *Rostk.*
Appendicularia entomophila, *Pk.*

Harold Wingate, Philadelphia, Pa.

Chondrioderma Michelii, *Lib.* v sessile, *Rostf.*

Geo. A. Rex, M. D., Philadelphia, Pa.

Trichia chrysosperma, *Bull.*
Comatricha longa, *Pk.*
Physarella mirabilis, *Pk.*

E. A. Burt, Albany, N. Y.

Hydrangea arborescens, *L.*
Carex stram v. festucacea, *Gr.*
Carex Houghtonii, *Torr.*

H. C. Gordinier, Troy, N. Y.

Aster ptarmicoides, *T. & G.*
Fedia radiata, *Mx.*
Trillium grandiflorum, *Salisb.*
Liparis Lœselii, *Rich.*

Romeyn B. Hough, Lowville, N. Y.

Listera convallarioides, *Hook.*
Liparis Lœselii, *Rich.*
Habenaria obtusata, *Rich.*
H. rotundifolia, *Rich.*

D. Byron Waite, Springwater, N. Y.

Castilleia coccinea, *Spreng.*

J. D. Greenslete, Broadalbin, N. Y.

Polygonatum biflorum, *Ell.*
Orontium aquaticum, *L.*

H. Andrews, Albany, N. Y.

Potamogeton Robbinsii, *Oakes.*

John D. Parsons, Albany, N. Y.

Lycoperdon giganteum, *Batsch.*

D. A. A. Nichols, Dunkirk, N. Y.

Uncinula spiralis, *B & C.*

T. F. Allen, M. D., New York, N. Y.

Nitella tenuissima, *Kutz.*
N. glomerulifera, *A. Br.*
N. opaca, *Ag.*
N. minuta, *Allen.*
Tolypella comosa, *Allen.*
Tolypella fimbriata, *Allen.*
T. intertexta, *Allen.*
Chara sejuncta, *A. Br.*
C. hydropitys, *A. Br.*
C. gymnopus, *A. Br.*

Prof. L. Lesquereux, Columbus, O.

* Polyporus lucidus, *Leys.?*
* Polyporus applanatus, *Fr.?*

* These are monstrous growths from abandoned coal mines, and therefore their specific identification is uncertain.

F. S. Earle, Cobden, Ill.

Septoria Bromi, *Sacc.*
S. Pentstemonis, *E. & E.*
S. asciculosa, *E. & E.*
S. podophyllina, *Pk.*
Glœosporium Potentillæ, *Ouds.*
Phyllosticta Fraxini, *E. & W.*
P. pyrorum, *Cke.*
Sporidesmium Fumago, *Cke.*
Æcidium Epilobii, *DC.*
Cercospora sordida, *Sacc.*
C. Persicæ, *Sacc.*
C. fuscovirens, *Sacc.*
Entyloma Lobeliæ, *Farl.*
E. Physalidis, *Wint.*
Peronospora Arthuri, *Farl.*
Microsphæra Platani, *Howe.*
Phyllactinia suffulta, *Sacc.*
Dimerosporium pulchrum, *Sacc.*

Hon. G. W. Clinton, Albany, N. Y.

Lentinus lepideus, *Fr.*
Rhabdospora subgrisea, *Pk.*
Polyporus squamosus, *Fr.*
P. applanatus, *Fr.*

J. B. Ellis, Newfield, N. J.

Polyporus oblectans, *Berk.*
Irpex coriaceus, *B. & R.*
Phlebia zonata, *B. & C.*
Thelephora cæspitulans, *Schw.*
Stereum subpileatum, *B. & C.*
Hymenochæte scabriseta, *Cke.*
Peniophora flavido-alba, *Cke.*
Physarella mirabilis, *Pk.*
Septoria Helianthi, *E. & K.*
S. Specularіæ, *B. & C.*
Pestalozzia Myricæ, *E. & M.*
Pestalozziella subsessilis, *S. & E.*
Stilbospora fenestrata, *E. & E.*
Puccinia nigrescens, *Pk.*
P. splendens, *Vize.*
P. mirabilissima, *Pk.*
P. asperior, *E. & E.*
P. Angelicæ, *E. & E.*
Triphragmium echinatum, *Lev.*
Ustilago Vilfæ, *Wint.*
U. lineata, *Cke.*
Sorosporium Ellisii, *Wint.*
Peridermium orientale, *Cke.*
Æcidium porosum, *Pk.*
Æ. Xanthoxyli, *Pk.*
Æcidium Æsculi, *E. & E.*
Æ. Collinsiæ, *E. & E.*
Æ. Ceanothi, *E. & E.*
Ramularia Celastri, *E. & M.*
Peronospora Sicyicola, *Trel.*
P. Halstedii, *Farl.*
Cenangium asterinosporum, *E. & E.*
Pecillum Americanum, *Cke.*
Pilacre Petersii, *B. & Br.*
Saccardia Martini, *E. & S.*
Valsa sordida, *Nits.*
V. cercophora, *Ell.*
Cucurbitaria Coremæ, *E. & E.*
Diatrypella deusta, *E. & M.*
Didymosphæria cupula, *Ell.*
Trabutia quercina, *S. & R.*
Hypoxylon pruinatum, *Kl.*
Diaporthe Conradii, *Ell.*
D. densissima, *Ell.*
Venturia pezizoides, *S. & E.*
Massaria sudans, *B. & C.*
Leptosphæria Xerophyli, *Ell.*
Linospora ferruginea, *E. & M.*
Microthyrium Juniperi, *Desm.*

H. W. Harkness, M. D., San Francisco, Cal.

Hymenula aciculosa, *E. & H.*
Octaviania rosea, *Hark.*
Gautiera monticola, *Hark.*
Splanchnomyces Behrii, *Hark.*
Septoria Hosackiæ, *Hark.*
S. Lupini, *Hark.*
Marsonia Neilliæ, *Hark*
Glœosporium Pteridis, *Hark.*
Septoglœum Fraxini, *Hark.*
S. maculans, *Hark.*
S. Nuttallii, *Hark.*
Harknessia longipes, *Hark.*
Pestalozzia corynoidea, *Hark.*
P. anomala, *Hark.*
Pestalozzia Moorei, *Hark.*
Puccinia anachoreta, *Hark.*
P. evadens, *Hark.*
P. variolans, *Hark.*
P. melanconioides, *E. & H.*
P. digitata, *E. & H*
Uromyces Nevadensis, *Hark.*
U. Spragueæ, *Hark.*
U. Eriogoni, *E. & H.*
Morthiera Mespili, *Fckl.*
Melanconium magnum, *Berk.*
Rhytisma Andromedæ, *Fr.*
Lophodermium petiolicolum, *Fckl.*

Aug. F Fœrste, Granville, Ohio.

Secotium Warnei, *Pk.*

C.

PLANTS NOT BEFORE REPORTED.

Ipomœa purpurea, *Lam.*

Along railroads and in waste places. West Albany. It is commonly cultivated as an ornamental plant and for the sake of shade. It continues to reproduce itself from year to year and spreads readily by seed.

Populus dilatata, *Ait.*

Sandy soil beyond West Albany. This tree, formerly introduced for ornament, produces only staminate flowers with us, and therefore does not propagate itself by seed. But it spreads freely by its roots, and having once obtained a foothold it does not often yield its ground unless compelled to do so by man. In the station whence our specimens were taken, there is a grove of thrifty young trees at a considerable distance from any dwelling, but they are probably the descendants of trees planted there many years ago, perhaps in front of some dwelling, all traces of which have long since disappeared.

Listera convallarioides, *Hook.*

Turin, Lewis county. *Romeyn B. Hough.* The three North American species of this genus have now all been found in our State, but they are all rare with us.

Festuca rubra, *L.*

Wet ground. Caroga, Fulton county. July. This was formerly considered a variety of *F. ovina*, sheep's fescue, but it is now generally classed as a distinct species. It is said to be indigenous about Lake Superior and northward, but has probably been introduced in the locality here mentioned. It was found in a clearing recently made, and could not have occupied the station many years. According to Professor F. L. Scribner, our specimens correspond to the variety *fallax*, which is common in Europe.

Molinia cærulea, *Mœnch.*

Wet ground. Caroga. July. A grass introduced from Europe, and perhaps not yet fully established here. It was found growing with the preceding species, and with several of our native grasses, and was apparently well able to take care of itself. It forms dense tufts, and has an erect, somewhat rigid appearance.

Tolypella comosa, *Allen.*

Seneca lake. *T. F. Allen.*

Tolypella fimbriata, *Allen.*

Lake Ontario. *Allen.*

Tolypella intertexta, *Allen.*

Seneca lake. *Allen.*

Chara hydropitys, *A. Br.* v. genuina, *A. Br.*

Saranac river. Aug. *Paul Allen.*

Agaricus clypeolarius, *Bull.*

Copses and thin woods. Karner. Oct. This species was reported in the Twenty-third Museum report, but erroneously, as the specimens were afterward found to belong to *A. metulæsporus*, a species which closely resembles this in external characters. The specimens now under consideration are believed to belong to the true *A. clypeolarius.* The spores in them are much smaller than those of *A. metulæsporus.* In many cases the spores furnish important characters for distinguishing species of Agarics, and it is to be regretted that European mycologists have so generally neglected them in their descriptions.

Agaricus (Tricholoma) terræolens, *n. sp.*

Pileus thin, convex or nearly plane, slightly silky fibrillose, whitish with a brownish or grayish brown slightly prominent disk, lamellæ sub-distant, emarginate, white, stem equal, slightly silky, shining, stuffed or hollow, white; spores subglobose or broadly elliptical, .00025 to .0003 in. long, .0002 to .00025 broad; flesh white, taste and odor strong, unpleasant and earthy.

Plant 1 to 2 inches high, pileus 10 to 15 lines broad, stem about 2 lines thick.

Under ground hemlock, *Taxus Canadensis.* South Ballston, Saratoga county. Sept.

The species belongs to the section SERICELLA, and is closely related to *A. inamœnus*, from which it is separated by its smaller size, less distant lamellæ, stuffed or hollow stem and different odor. Nor do I find the stem radicating or the disk tinged with yellow as in that species. Fries compares the odor of *A. inamœnus* to that of *Geranium Robertianum*, but the odor of our plant is decidedly earthy, resembling that of vegetable mold or mossy rocks. Its taste is similar to its odor, and remains in the mouth and throat a long time.

Agaricus (Mycena) immaculatus, *n. sp.*

Pileus membranaceous, conical or sub-hemispherical, glabrous, slightly striate on the margin, pure white; lamellæ moderately broad, distant, adnate or uncinate-decurrent, white; stem slender, pellucid, white, glabrous, generally villose strigose at the base, and slightly thickened at the apex; spores oblong or cylindrical, .0003 to .00035 in. long, .00012 broad.

Plant 8 to 18 lines high, pileus 2 to 4 lines high and broad, stem scarcely .5 line thick.

Among moss and fallen leaves and on naked ground. Adirondack mountains. June.

The species belongs to the section ADONIDEÆ and is related in size

and color to *A. lacteus*, from which I have separated it on account of the decurrent toothed lamellæ and the longer spores. The striations of the pileus are also more distinctly visible in our plant when dried than they are when it is fresh.

Agaricus (Mycena) vexans, *n. sp.*

Pileus membranous, conical sub-campanulate or convex, rather distantly striate, blackish-brown, sometimes slightly pruinose; lamellæ subdistant, ascending, adnate or uncinate-adnate, slightly venose-connected, at first white, becoming grayish or smoky white, the edge paler; stem slender, rather tenacious, hollow, glabrous, colored like the pileus, somewhat floccose-villose at the base; spores sub-elliptical, .0003 to .00035 in. long, .0002 to .00025 broad; odor slight, alkaline.

Plant scattered or gregarious, not cæspitose, 2 to 2.5 inches high, pileus 4 to 6 lines high and broad, stem scarcely 1 line thick.

Ground in thin woods and open places. Adirondack mountains. June.

I have placed this species in the section FILIPEDES, although the slightly venose interspaces ally it to the RIGIDIPEDES, and the alkaline odor shows a relationship to the FRAGILIPEDES. It appears to be closely related to *A. uranius*, from which it may be distinguished by its larger size, different color and pileus not expallent. The pileus is not hygrophanous, and is striate even in the dried state. The lamellæ in the dried plants are brownish, with the edge nearly white.

Agaricus (Mycena) purpureofuscus, *n. sp.*

Pileus membranous, campanulate or convex, obtuse, glabrous, striate, purplish-brown; lamellæ ascending, lanceolate, subdistant, adnate, white or whitish, purplish-brown on the edge; stem slender, even, hollow, glabrous, with white hairs at the base, colored like the pileus or a little paler; spores sub-globose or broadly elliptical, .00025 to .0003 in. long, .00025 broad.

Plant 1 to 3 inches high, pileus 4 to 8 lines broad, stem scarcely 1 line thick.

Mossy prostrate trunks of spruce trees in woods. Caroga. July.

This species belongs to the section CALODONTES, and is so closely related to *A. rubromarginatus*, that it is with some hesitation that I have separated it. Because of its darker color and the absence of the hygrophanous character of that species, it has seemed best to keep it distinct. Its even, not striated, stem forbids its reference to *A. atromarginatus*.

Agaricus discopus, *Lev.*

Base of dead fern stems. Sandlake and Karner. Sept. and Oct.

The bulb at the base of the stem in our specimens is not as distinct as in the published figures of the species, but in other respects the specific characters are present.

Agaricus hiemalis, *Osbeck.*

Prostrate trunk of spruce, *Abies nigra*. Adirondack mountains. June.

The specimens agree very well with the description of the species, but they appear to have occurred out of season.

Agaricus scyphoides, *Fr.*

Bare soil and on decaying wood. South Ballston. Aug.

Agaricus jubatus, *Fr.*

Damp ground in thin woods. West Albany. Sept.

The specimens were few in number and not fully developed. The pileus was conical, and clothed with a short, close, velvety pubescence, and the stem was solid. In these respects the specimens do not agree well with the description of the species, although bearing a striking resemblance to the figure of the species in Mycological Illustrations. We have, therefore, for the present, referred them to this species.

Agaricus (Clitopilus) unitinctus, *n. sp.*

Pileus thin, flexible, convex or nearly plane, centrally depressed, glabrous, subshining, sometimes concentrically rivulose, grayish-brown; lamellæ narrow, moderately close, adnate or slightly decurrent, colored like the pileus; stem slender, straight or flexuous, subtenacious, equal, stuffed, slightly pruinose, grayish-brown, with a close, white mycelioid tomentum at the base, and white, root-like fibres of mycelium penetrating the soil; spores elliptical, .0003 in. long, .0002 broad; flesh whitish or grayish-white, odor almost none, taste mild.

Plant 1 to 2 inches high, pileus 6 to 12 lines broad, stem about 1 line thick.

Thin pine woods. Karner. Oct.

The species is apparently related to *A. cicatrisatus.*

Agaricus atrides, *Lasch.*

Damp ground in woods. Caroga. July.

This species differs from *A. serrulatus* by its decurrent lamellæ, and from *A. Watsoni* by its darker color and blackish denticulations on the edge of the lamellæ.

Agaricus villosus, *Fr.*

Prostrate trunks of poplars. West Albany. Aug.

Our specimens are pale-yellow or buff, becoming darker with age. In other respects they correspond to the characters of the species.

Agaricus comosus, *Fr.*, var. albus, *Pk.*

Trunks of horsechestnut. Albany. Oct.

Two specimens only were found. These were white, becoming tinged with yellow in drying. The typical form of the species is tawny. From *A. destruens*, with which our specimens agree more closely in color, the viscidity of the pileus will separate them. The spores are ferruginous, .0003 to .00035 in. long, .0002 to .00025 broad.

Agaricus (Inocybe) umboninotus, *n. sp.*

Pileus broadly campanulate or expanded, prominently umbonate, rimose-fibrillose, dark-brown; lamellæ at first whitish, then ferruginous-brown; stem equal or slightly thickened at the base, solid, fibrillose, paler than the pileus, pruinose at the apex; spores nodulose, .0003 to .00035 in. broad.

Plant 1 5 to 2 inches high, pileus 6 to 10 lines broad, stem 1 to 2 lines thick.

Mossy ground in woods. Caroga. July.

Its spores separate it from *A. rimosus*, and its prominent umbo from *A. asterosporus*.

Agaricus (Inocybe) maritimoides, *n. sp.*

Pileus subconical or convex, dry, obtuse, densely squamulose with small erect or squamose-fibrillose scales, fibrillose on the margin, dark-brown; lamellæ close, rounded behind and adnexed, ventricose, whitish, becoming brownish-ochraceous; stem equal, solid, fibrillose, paler than the pileus; spores irregular, angular, brownish-ochraceous, .0003 to .00035 in. long, .0002 to .00025 broad.

Plant about 1 inch high, pileus 6 to 12 lines broad, stem 2 lines thick.

Thin woods. Karner. Oct.

Apparently related to *A. maritimus*, but not hygrophanous. The spores are slightly angular, resembling in shape those of species of Entoloma and other Hyporrhodii, but are scarcely nodulose.

Agaricus (Inocybe) comatellus, *n. sp.*

Plate 2, figs. 5-8.

Pileus submembranous, convex or expanded, clothed with whitish or gray hairs, fimbriate on the margin; lamellæ subdistant, adnexed, pale-tawny; stem equal, solid, flexuous, pallid or reddish-brown, a little darker above, slightly mealy or pruinose-hairy, with a white mycelium at the base, spores subelliptical, even, .0003 to .0004 in. long, .0002 to .00025 broad.

Plant 6 to 12 lines high, pileus 2 to 4 lines broad, stem scarcely half a line thick.

Sticks and bark buried under fallen leaves. Caroga. July.

A small species remarkable for the hairy covering of the pileus. This is sufficiently dense to give to the pileus a whitish or pale-gray appearance. The species is apparently related to *A. tricholoma*, A. & S., and *A. strigiceps*, Fr.

Agaricus (Inocybe) subexilis, *n. sp.*

Pileus thin, convex or subcampanulate, then expanded, umbonate, fibrillose on the margin, at first pale chestnut color, then yellowish or subochraceous, lamellæ narrow, rather close, rounded behind, subventricose, whitish, becoming dull-ochraceous; stem equal, solid, flexuous, minutely pruinose, finely striate under a lens, pinkish, then yellowish; spores subglobose, nodulose, about .0003 in. in diameter.

Plant 8 to 12 lines high, pileus 3 to 5 lines broad; stem about .5 line thick.

Damp, mossy ground, in woods. Caroga. July.

A very small species, related to *A. paludinellus*, from which it differs in its smaller size, shape of the spores and brighter colors of the pileus.

Agaricus (Hebeloma) sordidulus, *n. sp.*

Pileus thin, rather firm, convex, viscid when moist, dingy brownish-red or tawny-brown, paler or whitish on the margin, flesh white, with a radish-like odor; lamellæ broad, close, rounded behind, slightly adnexed, pallid, then brownish-ochraceous; stem short, equal, stuffed or hollow, slightly fibrillose, white, pruinose at the apex; spores subelliptical, .0005 to .00055 in. long, .00025 to .00028 broad.

Sandy soil, in open places. Karner. Oct.

Plant about 1 inch high, pileus 8 to 15 lines broad, stem 1.5 to 2 lines thick.

A small species, belonging to the section PUSILLI.

Agaricus (Hebeloma) parvifructus, *n. sp.*

Pileus convex, then expanded, slightly viscid, dingy-white, becoming grayish-brown or pale-chestnut colored with age, often paler on the margin; lamellæ broad, moderately close, slightly emarginate, at first white, then brownish-ochraceous; stem equal, silky-fibrillose, solid, whitish, stained with ferruginose or brown toward the base, pruinose and substriate at the apex; spores brownish-ochraceous, .00025 to .00028 in. long, .00016 to .00018 broad; veil white, arachnoid.

Plant three to four inches high, pileus two to three inches broad, stem three to five lines thick.

Sandy soil in pine woods. West Albany. Oct.

The spores of this plant are smaller than usual in species of this subgenus, and this character has suggested the specific name. The lamellæ are at first concealed by the copious, webby filaments of the veil. The species belongs to the section INDUSIATI.

Agaricus (Hypholoma) madeodiscus, *n. sp.*

Pileus thin, convex, becoming nearly plane, hygrophanous, pale chestnut or reddish brown when moist, grayish-tawny or pale-ochraceous and rugose on the disk when dry, the margin, when young, slightly silky-fibrillose; lamellæ close, slightly emarginate, whitish, then brown; stem equal or slightly thickened at the base, hollow, white, sub-silky; spores brown, elliptical, .00035 to .0004 in. long, .00025 broad.

Plant 2 to 3 inches high, pileus 1 to 2 inches broad, stem 2 to 3 lines thick.

Decaying wood in wet places. Adirondack mountains. June.

This species differs from *A. appendiculatus*, its nearest ally, by its larger size, less rugose pileus and larger spores. Also, it is unlike that species in parting with the moisture of the margin of the pileus first, the disk retaining it some time, a character which is suggestive of the specific name. I have not seen the plant growing in tufts. The veil is whitish and very delicate, and at first conceals the lamellæ from view. It at length adheres in fragments to the margin of the pileus.

Agaricus (Psilocybe) cærulipes, *n. sp.*

Pileus thin, subcampanulate, then convex and obtuse or obtusely umbonate, glabrous, hygrophanous, slightly viscid, watery brown and striatulate on the margin when moist, yellowish or subochraceous when dry, the disk sometimes brownish; lamellæ at first ascending, close, adnate, grayish-tawny, becoming ferruginous-brown, whitish on the edge; stem slender, equal, flexuous, tenacious, hollow or containing a separable pith, slightly fibrillose, pruinose at the apex, bluish, sometimes whitish at the apex; spores elliptical, .0003 to .0004 in. long, .00016 to .0002 broad.

Plant single or cæspitose, 1 to 1.5 in. high, pileus 5 to 10 lines broad, stem scarcely 1 line thick.

Decaying wood. South Ballston. Aug.

The species is easily recognized by the peculiar blue color of the stem. Sometimes the pileus also assumes a blue color where bruised.

Corprinus lagopus, *Fr.*

Decaying wood and vegetable mold in woods. South Ballston. Sept.

Cortinarius multiformis, *Fr.*

Pine woods. Karner. Oct.

Cortinarius decoloratus, *Fr.*

Pine woods. Karner. Oct.

Cortinarius (Dermocybe) aureifolius, *n. sp.*

Pileus convex, then plane or slightly depressed, densely fibrillose-tomentose, sometimes slightly squamulose, especially on the disk, cinnamon-brown; lamellæ rather broad, moderately close, subventricose, rounded behind, adnexed, yellow, becoming yellowish-cinnamon, stem short, solid, equal, fibrillose, yellow, brownish within; spores oblong, .00045 to .0005 in. long, .00016 to .0002 broad; flesh of the pileus yellow or pallid, odor like that of radishes.

Plant gregarious, 1 to 1.5 in. high, pileus 8 to 15 lines broad, stem 2 to 3 lines thick.

Sandy soil in thin pine woods. Karner. Oct.

The species resembles *C cinnamomeus* in color, but its short stem, longer spores and different habit easily distinguish it. Its general appearance is similar to that of some species of Inocybe.

Hygrophorus purpurascens, *Fr.*

Sandy soil under pine trees. Karner. Oct.

In our specimens the pileus is fibrillose rather than squamulose, the stem is slightly mealy at the apex, not roughened with purplish squamules, and there is a webby veil which, in the young plant, conceals the lamellæ and forms a slight but evanescent annulus. Should these differences between our specimens and the species to which we have referred them be constant, it may be necessary to separate our plant as a distinct species.

Lactarius hysginus, *Fr*

Mossy ground in woods and swamps. Caroga and Sandlake. July and Aug.

Lactarius varius, *Pk.*

Sandy soil. West Albany and Karner. Sept. and Oct.

Lactarius paludinellus, *Pk.*

Sphagnous marshes. Sandlake. Aug. For the descriptions of this and the preceding species of Lactarius see the article on the New York species of Lactarius.

Russula basifurcata, *n. sp.*

Pileus firm, convex, umbilicate, becoming somewhat funnel form, glabrous, slightly viscid when moist, the thin pellicle scarcely separable except on the margin, dingy-white, sometimes tinged with yellow or reddish-yellow, the margin nearly even; lamellæ rather close, narrowed toward the base, adnate or slightly emarginate, many of them forked near the base, a few short ones intermingled, white becoming yellowish; stem firm, solid, becoming spongy within, white; spores elliptical, pale yellow, uninucleate or shining, .00035 in. long, .00025 broad; flesh white, taste mild, then bitterish.

Pileus 2 to 3 inches broad, stem 8 to 12 lines long, 5 to 6 lines thick.

Dry hard ground in paths and wood roads. Caroga. July.

This species belongs to the section FRAGILES, but in some respects it closely resembles pale forms of *R. furcata*, from which it is separated by the absence of any silky micor and by the yellowish color and elliptical shape of the spores and by the yellowish hue of the lamellæ.

Lentinus suavissimus, *Fr.*

Dead willows, *Salix discolor*. Caroga. July. The strong but agreeable odor, resembling that of melilot, and the lamellæ crisped and anastomosing at the base readily distinguish this species, which is apparently very rare with us.

Boletus sulphureus, *Fr.*

Thin woods. Caroga. July.

But a single specimen was found and this does not fully agree with the description, but it is for the present placed here.

Boletus versipellis, *Fr.*

Sandy soil. West Albany and Karner. Oct.

This species so closely resembles some forms of *B. scaber* that it is not surprising that Persoon regarded it as a variety of that species. The reddish color, dry pileus and appendiculate margin are the most available distinguishing characters of the species. It is apparently quite rare.

Polyporus abortivus, *Pk.*

Buried sticks and decomposing vegetable matter. South Ballston. Aug. and Sept.

This species is remarkable for the abundance of its spores. It is so deformed and apparently imperfect in its development that such fruitfulness would scarcely be expected. The pileus, when sufficiently developed to be recognizable, is of a reddish or alutaceous color.

Polyporus epileucus, *Fr.* var. candidus, *Pk.*

Decaying prostrate trunks of hemlock, *Abies canadensis.* Osceola, Lewis county. Aug.

Pileus snowy-white, scrupose, scarcely villose, somewhat fibrous within and slightly zonate toward the margin; pores plane or convex.

Our specimens, while not agreeing fully with the published characters of *P. epileucus*, approximate so closely to them that we have characterized this form as a variety.

Polyporus crispellus, *n. sp.*

Pileus thin, fleshy, laterally elongated, undulate or subcrispate on the margin, radiate-rugose, subglabrous, whitish varied with brownish zones, flesh white, marked by a few linear hyaline or slightly colored zones; pores short, about equal in length to the thickness of the pileus, minute, subrotund, white, the thin dissepiments more or less dentate.

Pileus 8 to 12 lines broad, extending laterally 1 to 4 inches.

Prostrate trunks of hemlock. Osceola. Aug.

Closely allied to *P. destructor*, but distinguished by its zonate pileus and short pores. It is also apparently thinner and more undulate than that species.

Polyporus (Physisporus) lætificus, *n. sp.*

Effused, thin, tender, not readily separable from the matrix, bright orange with a subtomentose yellowish margin; tubes short, often oblique minute, subrotund, the dissepiments thick, obtuse.

Decaying wood. South Ballston. Aug.

The fungus forms patches two or three inches long, following the inequalities of the surface. In the dried state the pores appear like little ruptured vesicles as in *P. vesiculosus*, B. & C. The species appears to approach *P. fulgens*, Rost., which has the margin white fibrillose and the pores acute.

Polyporus (Physisporus) griseoalbus, *n. sp.*

Effused, thin, tender, adnate, uneven, scarcely margined, indeterminate, grayish-white, with a thin pulverulent subiculum; pores very minute, subrotund, often oblique.

Soft decaying wood of deciduous trees. Osceola. July.

The pores are sometimes collected in little heaps or tubercles as in *P. molluscus* and *P. Vaillantii.* In the dried state they are slightly tinged with creamy yellow.

Polyporus (Physisporus) fimbriatellus, *n. sp.*

Widely effused, thin, tenacious, separable from the matrix, with a thin white fimbriate margin and a white subiculum, running into rhizomor-

phoid branching strings of mycelium or forming a somewhat reticulate fimbriate membrane ; pores minute, subrotund, equal, whitish inclining to cream color.

Under side of prostrate trunks of maple, forming extensive patches on the wood and bark. Osceola. Aug.

By its rhizomorphoid mycelium this species is related to *P. Vaillantii*, but the pores are smaller and not collected in heaps as in that species. By reason of its tenacious substance it is readily separable even from an irregular matrix

Polyporus (Physisporus) ornatus, *n. sp.*

Effused, 1 to 2 lines thick, somewhat tenacious, adnate or inseparable from the matrix, white, the surface slightly undulate or uneven, the margin definite, studded with drops of moisture when fresh, spotted with dot-like depressions when dry ; pores subrotund, minute, unequal, often oblique.

Decaying prostrate trunks of deciduous trees. Osceola. Aug.

This species is at once distinguished by its adnate subiculum and its peculiarly spotted margin. The spots are watery white in the fresh state and each one is covered by a drop of moisture. In the dried plant the place previously occupied by the drop of moisture becomes a small depression in the subiculum.

Polyporus (Physisporus) odorus, *n. sp.*

Effused, 2 to 3 lines thick, even, firm but brittle, moist, separable from the matrix, white, sometimes stained with reddish-yellow on the abrupt, rather thick, slightly fimbriate margin ; pores very minute, rather long, equal, entire, white, arising from a thin but distinct subiculum ; odor strong, disagreeable.

Under surface of decorticated prostrate trunks of spruce. Osceola. Aug.

It forms patches several inches broad and sometimes more than a foot long. It is distinguished from *P. vulgaris* by being separable from the matrix, moist, having longer pores and a strong odor. From the next following species it may be known by its smaller pores, more brittle texture and its different odor.

Polyporus (Physisporus) subacidus, *n. sp.*

Effused, separable from the matrix, tenacious, flexible, uneven, determinate, the margin downy, narrow, pure white ; pores small, subrotund, 1 to 3 lines long, often oblique. whitish inclining to dingy-yellowish pale tan color or dull cream color, the dissepiments thin, more or less dentate ; odor strong, subacid.

Prostrate trunks and decaying wood of various trees, hemlock, spruce, birch, etc. Osceola. July.

This species is not rare, but it has probably been confused with its allies. It forms extensive patches, sometimes several feet in length. It adheres somewhat closely to the matrix, but its texture is so tough that it is generally easy to strip it from its supporting substance. It is apparently closely related to *P. medulla-panis*, but the description of that

species gives the pores as medium size and entire, and makes no mention of any odor, in consequence of which we have thought our plant distinct. It is, however, extremely variable.

Var. *tenuis* is very thin, scarcely a line thick, with short pores and the surface nearly even. It occurs on the smooth decorticated trunks of hemlock.

Var. *tuberculosus* has the surface more or less roughened by unequal prominent tubercles, which are either scattered or clustered. They appear to be a monstrous development of the mycelium on the surface of the pores.

Var. *stalactiticus* incrusts mosses and therefore has the surface very uneven with numerous and unequal porous protuberances. It most often occurs on prostrate mossy trunks of birches.

Var. *vesiculosus* (*P. vesiculosus*, B. & C.) has shallow scattered pores as if formed from ruptured vesicles.

Specimens of this Polyporus, unless dried under pressure, shrink and roll up in unmanageable shapes. They often contain considerable moisture when collected, and if put in press in this condition they are liable to become brown or blackish in drying. Specimens collected in a dry time or in dry situations retain their characters best. The thinner forms, if partly dried before they are put in press, sometimes retain their color and characters well. When growing on bark the patches are sometimes interrupted and irregular, in which case the margin is broader than usual and well defined.

Merulius (Resupinati) subaurantiacus, *n. sp.*

Effused, membranous, tender, very soft, separable from the matrix, pale orange color, the subiculum soft, silky-tomentose, whitish and pale orange ; hymenium gyrose-plicate and dentate, becoming paler with age ; spores broadly elliptical, .00025 in. long, .0002 broad.

Soft decayed wood of hemlock. Osceola. Aug.

The species is distinguished by its soft tomentose texture and its orange hues. It is closely related to *M. aureus* but is at once distinct by its orange, not golden, color. The subiculum is composed of a stratum of whitish filaments next the matrix and another of orange color next the hymenium. Hence the margin in young plants is generally whitish. In mature ones the whole becomes orange colored. Notwithstanding the tender substance the membrane is separable from the matrix and pieces three or four inches in extent are thus obtainable.

Merulius fugax, *Fr.*

Soft decayed wood of deciduous trees. Osceola. Aug.

This has the tender, soft and delicate texture of the preceding species, but it is at first of a pure white color. Soon the hymenium assumes a creamy or yellowish hue and the folds appear, but there is often a wide margin destitute of them. In drying, the folds mostly collapse and disappear and the hymenium often becomes tinged with incarnate or flesh color. The wood on which it usually grows is so much decayed that it easily crumbles to pieces. Nevertheless the plant is separable from its matrix.

The spores are oblong, .0003 in. long, .0001 broad.

Geaster striatus, *DC.*

Sandy soil. Karner. Sept.

When the external peridium first opens and expands the inner peridium appears to be globose and sessile, but as the plant matures and dries the inner peridium is seen to be narrowed below and raised on a short pedicel.

Phyllosticta Labruscæ, *Thum.*

Living leaves of grapevines, *Vitis Labrusca.* Highland Mills, Orange county. July.

This differs from *P. viticola* in its more numerous, larger and more prominent perithecia and in its larger spores.

Phyllosticta Epigææ, *n. sp.*

Spots large, irregular, brown or reddish-brown ; perithecia minute .0045 to .0055 in. broad, covered by the epidermis, erumpent, epiphyllous, black; spores elliptical, colorless. .0003 in. long, .00016 broad.

Living leaves of trailing arbutus, *Epigæa repens.* Caroga. July.

Phyllosticta lantanoidis, *n. sp.*

Spots rather large, suborbicular, cinereous, sometimes with a brown margin ; perithecia minute, .004 in. broad, slightly prominent, epiphyllous, black; spores elliptical, colorless, binucleate, .00025 to .0003 in. long, .00016 broad.

Living leaves of hobble bush, *Viburnum lantanoides.* Caroga. July.

This differs from *P. tinea* Sacc. in the larger size and binucleate character of the spores.

Phyllosticta Podophylli, *Winter.*

Living leaves of mandrake, *Podophyllum peltatum.* Albany. June.

Externally this resembles *Ascospora Podophylli* Curt., but the spores are very different.

Ascochyta Cassandræ, *n. sp.*

Spots suborbicular or irregular, reddish-brown or grayish with a reddish-brown margin; perithecia epiphyllous, minute, erumpent, blackish; spores oblong-fusiform, acute at each end, uniseptate, colorless, .0004 to .00065 in. long, .00012 to .00016 broad.

Living leaves of leather-leaf, *Cassandra calyculata.* Adirondack mountains. June and July.

Ascochyta colorata, *n. sp.*

Plate 2, figs. 9 and 10.

Spots indefinite, often confluent, red with a brownish center, paler on the lower surface ; perithecia minute, .004 to .005 in. broad, black ; spores oblong, somewhat pointed at one or both ends, straight or curved, slightly constricted in the middle, obscurely uniseptate, colorless, .0007 to .001 in. long, .0003 to 00035 broad.

Living leaves of strawberry, *Fragaria Virginiana.* West Albany. Aug.

This differs from *A. Fragariæ* Sacc. in the color of the spots and in the size and character of the spores.

Phoma Phytolaccæ, *B. & C.*

Dead stems of poke weed, *Phytolacca decandra*. Albany. June.

In our specimens the spores are a little longer than the dimensions given in the description of the species and the perithecia are sometimes slightly compressed or subhysteriiform.

Phoma elevatum, *n. sp.*

Perithecia numerous, small, rotund, oval or hysteriiform, sunk in the matrix but occupying small elevations or ridges, black; spores ovate or subelliptical, colorless, .0003 in. long, .00016 broad.

Decorticated wood of deciduous trees. Adirondack mountains. June.

The marked feature of the species and one suggestive of the name is the position of the perithecia. Each one occupies a minute ridge or pustular elevation of the wood.

Phoma Pruni, *n. sp.*

Perithecia small, slightly prominent, subconical, at first covered by the epidermis, then erumpent, black; spores oblong-elliptical or subfusiform, binucleate, hyaline, .00035 to .00045 in. long, .00012 to .00016 broad, supported on equally long or longer sporophores.

Dead branches of choke cherry, *Prunus Virginiana*. Karner. June.

Phoma albifructum, *n. sp.*

Perithecia numerous, large, .02 to .03 in. broad, conical or subhemispherical, sometimes irregular and two or three confluent, erumpent, black; spores oblong-fusiform, acute at each end, two to four-nucleate, colorless, .00065 to .00085 in. long, .0002 to .00025 broad, oozing out and forming a white globule.

Dead bark of maple, *Acer rubrum*. Karner. June.

The perithecia and spores are unusually large for a Phoma and would seem to justify Prof Saccardo's proposed genus Macrophoma.

Sphæropsis ribicola, *C. & E.*

Dead stems of *Ribes floridum*. Bethlehem, Albany county. May.

Sphæropsis alnicola, *n. sp.*

Perithecia numerous, .0014 to .002 in. broad, prominent, hemispherical, erumpent, sometimes confluent, forming black patches; spores oblong, colored, .0006 to .00095 in. long, .00035 to .0004 broad.

Dead branches of alder. West Albany. Apr.

S. Alni C. & E. has smaller spores and inhabits living branches.

Appendicularia, *gen. nov.*

Plate 3, figs. 1-4.

Perithecium thin, delicate, rostrate, supported on a filamentous pedicel and accompanied by an appendage at its base. Entomophilous.

This genus has been formed to receive the single species here described. Its name is suggested by the appendicular organ at the base of the perithecium and supported with it by the common pedicel.

Appendicularia entomophila, *n. sp.*

Perithecia oval, brown, .0045 to .0055 in. long, .0035 to .004 broad, tapering abruptly above into a long, pale, somewhat pointed, straight or slightly curved rostrum .008 to .0095 in. long and about one-tenth as broad, supported below by a pale pedicel .012 to .013 in. long, about one-tenth as broad; pedicel two-septate, slightly thickened at the apex and bearing on one side, at the base of the perithecium, an oblong appendage about .0016 in. long; spores narrowly fusiform, pointed at each end, septate near the middle, colorless, .0012 to .0018 in. long, about one-tenth as broad, escaping at the apex of the rostrum.

On small flies, *Drosophila nigricornis*, Nyack, Rockland county. March. *Rev. J. L. Zabriskie.*

Specimens of this minute but interesting fungus, beautifully mounted on microscopic slides, were sent me by Mr. Zabriskie, who discovered them on small flies in his cellar in March last. He writes that they appeared during the first warm days of Spring, but disappeared upon the return of colder weather a few days later. The fungus grows upon almost any part of the body, the head, thorax, abdominal rings and occasionally on the costæ of the wings, but most frequently on the legs. Attached to one leg sent me are seven well-developed specimens of the fungus and one or two imperfect ones. The whole fungus is about one-fortieth of an inch long, or less than one-third of a line. It would not, therefore, be readily seen by the untrained naked eye of an observer. The perithecium, which is of a beautiful amber-brown color in the mounted specimens, appears like an enlargement of the central part of the fungus, its long rostrum or beak extending above it nearly as far as its pedicel does below it. The pedicel has one septum a little below the perithecium and another a little below the middle. At the apex it is slightly thickened, which gives it a somewhat clavate shape, and this enlargement is obscurely marked by short transverse and longitudinal septa or wrinkles. On one side, at the base of the perithecium is the singular erect appendage, the office of which is involved in obscurity. It is even and glabrous on the side next the perithecium, but elsewhere it is roughened by short ascending projections or serrations.

The affinities of the fungus are not clear. The non-ascigerous perithecium, the long, slender rostrum and the free spores oozing out at its apex indicate a relationship to species of Sphæronema (a genus of imperfect fungi), but the delicate texture and filamentous pedicel are very unlike any thing in that genus. Possibly its true relationship may be with the Saprolegniæ, but for our present purpose it is placed with the imperfect fungi.

Sphærographium hystricinum, *Sacc.*

Plate 8, figs. 5–7.

Dead stems of *Viburnum nudum*. Caroga. July.

This is *Sphæronema hystricinum*, Ellis, and is possibly a condition of some species of Cenangium.

Sphærographium lantanoidis, *n. sp.*

Perithecia minute, terete or subconical, truncate at the apex, black; spores subfiliform, curved or flexuous, slightly narrowed toward each

end, colorless, sometimes multinucleate, .0016 to .0025 in. long, oozing out and forming a whitish globule

Dead stems of *Viburnum lantanoides*. Adirondack mountains. June.

Gelatinosporium fulvum, *n. sp.*

Perithecia cæspitose, crowded, erumpent, externally pulverulent, pale-tawny, opening at the apex when moist and revealing the white spore-mass within ; spores elongated, curved, gradually tapering toward each end, colorless, .003 in. long.

Dead branches of birch, *Betula lutea*. Caroga. July.

This is the third species of this genus that has its habitat on birch.

Coniothyrium valsoideum, *n. sp.*

Perithecia cæspitose, crowded, erumpent, surrounded by the laciniæ of the ruptured epidermis, subglobose or angular from mutual pressure, black ; spores numerous, subglobose or ovate, colored, .0002 to .00025 in. long, nearly as broad.

Dead branches of alder. West Albany. Apr.

Septoria Ribis, *Desm.*

Living leaves of fetid currant, *Ribes prostratum*. Adirondack mountains. June.

Septoria alnicola, *Cke.*

Living leaves of alder, *Alnus incana*. Caroga. July.

Septoria Lysimachiæ, *West.*

Living leaves of *Lysimachia ciliata*. Osceola. Aug.

Septoria Dalibardæ, *n. sp.*

Spots small, whitish or cinereous, with a reddish-brown margin, perithecia minute, epiphyllous, few, black ; spores filiform, nearly straight, .0015 to .002 in. long.

Living leaves of *Dalibarda repens*. Caroga. July.

This species closely resembles *S. Waldsteiniæ*, but the spores are much longer than in that species.

Septoria Dentariæ, *n. sp.*

Spots large, suborbicular, indefinite, greenish, perithecia minute, numerous, slightly prominent, epiphyllous, black ; spores filiform, nearly straight, .0008 to .0012 in. long, oozing out in yellowish or amber-colored tendrils or masses.

Living or languishing leaves of pepper-root, *Dentaria diphylla*. Adirondack mountains. June.

Septoria punicei, *n. sp.*

Spots two to four lines broad, indefinite, blackish-brown above, brown or reddish-brown below, perithecia hypophyllous ; spores very long, flexuous, filiform, white in the mass, .004 to .0045 in. long.

Living leaves of *Aster puniceus*. Caroga. July.

The species is well marked by its very long and very white spores.

Septoria Trillii, *Pk.*

Living leaves of *Trillium erectum.* Adirondack mountains. June.

Septoria fumosa, *n. sp.*

Spots angular or irregular, often confluent, smoky-brown or grayish-brown with a darker margin; perithecia epiphyllous, .0025 to .003 in. broad, black; spores filiform; .0012 to .002 in. long.

Living or languishing leaves of *Solidago Canadensis.* Albany. June.

The spores are shorter than those of *S. Virgaureæ.*

Septoria Diervillæ, *n. sp.*

Spots suborbicular, whitish or cinereous, with a oroad indefinite brown or purplish-brown margin; perithecia epiphyllous, minute, black; spores filiform, curved or flexuous, very slender, .001 to .0016 in. long.

Living or languishing leaves of *Diervilla trifida.* Adirondack mountains. June.

The spots, which are at first brown or purplish-brown, at length become paler and arid in the center, and on this central part the perithecia appear.

Rhabdospora subgrisea, *n. sp.*

Perithecia numerous, punctiform, depressed, black, covered by the epidermis, generally forming long, indefinite, grayish-brown spots; spores filiform, straight or curved, .0012 to .0025 in. long.

Dead stems and galls of various species of Solidago. Albany. *G. W. Clinton.* West Albany. Apr. and May.

Diplodia pinea, *Kx.*

Dead bark of pine, *Pinus Strobus.* West Albany. May.

In our specimens the spores are .0008 to .0014 in. long and .0005 to .0007 broad, which is somewhat less than the dimensions given in the description. Our plant is, therefore, distinguished as variety *corticola.*

Staganospora Smilacis, *Sacc.*

Living leaves of *Smilax herbacea.* Albany. *G. W. Clinton.* West Albany. May.

The spots closely resemble those of *Sphæropsis smilacina*, Pk., *Phoma smilacina*, Sacc., which may be an immature or imperfectly developed form of the same species. It is *Ascochyta Smilacis,* E. & M.

Glœosporium Ribis, *Cast.*

Living or languishing leaves of fetid currant, *Ribes prostratum.* Adirondack mountains. June.

In our specimens the spores are a little longer than in our European specimens and longer than the dimensions given in some of the descriptions, but I see no other difference

Glœosporium Salicis, *West.*

Languishing leaves of *Salix longifolia.* North Greenbush. Sept.

Our specimens have the spores either simple or two or three-nucleate

and generally a little thicker toward one end. In size they are .0006 to .0009 in. long, .0003 to .0004 broad. Fuckel considers the species as the stylosporous condition of *Trochila Salicis*, Tul. It is very unlike *Glœosporium salicinium*, Pk., which is rather a Septoglœum, though the septa are obscure.

Marsonia Quercus, *n. sp.*

Spots angular or suborbicular, whitish or reddish-gray, definite, nucleus hypophyllous; spores oblong or subcylindrical, straight or curved, slightly constricted in the middle, obscurely uniseptate, colorless, .0005 to .0006 in. long, .0001 to .00016 broad, oozing out and forming a reddish or reddish-amber colored tendril or mass.

Living leaves of *Quercus ilicifolia*. Karner. Aug.

Pestalozzia monochætoidea, *S. & E.*

Dead stems of nine-bark, *Spiræa opulifolia*. West Albany. Apr.

Ramularia Diervillæ, *n. sp.*

Plate 1, figs. 16-18.

Spots suborbicular, whitish or cinereous with a dark-brown margin, definite; flocci amphigenous, minute, tufted; spores cylindrical, colorless, .0005 to .001 in. long, .00008 to .00016 broad.

Living leaves of *Diervilla trifida* Adirondack mountains. June.

Ramularia multiplex, *n. sp.*

Spots large, sometimes occupying the whole leaf, red or greenish-yellow, becoming brown when old, the lower surface, and sometimes both surfaces, frosted by the fungus; flocci and spores whitish or subcinereous, the latter very variable, subglobose elliptical, oblong or cylindrical, .00016 to .002 in. long, .00016 to .0002 broad, sometimes catenulate.

Living leaves of cranberry, *Vaccinium Oxycoccus*. Caroga. July.

Ramularia Prini, *n. sp.*

Plate 1, figs. 19-21.

Spots small, suborbicular, cinereous or whitish, with a brown margin, definite: spores hypophyllous, oblong or subfusiform, colorless, .0005 to .0009 in. long, .00016 to .0002 broad.

Living leaves of *Ilex verticillata*. Caroga. July.

The spores are tufted, but so minute that they are scarcely visible to the naked eye. This and the two preceding species are referred to the genus Ramularia with some hesitation. The hyphæ are minute and obscure, and I have seen no septate spores, but in other respects they appear to belong here. The next species, which rarely has uniseptate spores, forms a connecting link between these and the succeeding one.

Ramularia Oxalidis, *Farl.*

Plate 1, figs. 13-15.

Living leaves of wood sorrel, *Oxalis acetosella*. Adirondack mountains. June.

Cylindrosporium veratrinum, *S. & W.*

Plate 1, figs. 10–12.

Living leaves of Indian poke, *Veratrum viride.* Adirondack mountains. June.

This fungus appears to me to be ambiguous, between the genera Cylindrosporium and Ramularia. Distinct, though short hyphæ are present; and the spores are very long and clearly septate, in violation of the generic character of Cylindrosporium. The fungus is sometimes either associated with or followed by oblong black spots or patches, which are sometimes confluent, and which bear minute black perithecia containing oblong or cylindrical spore-like bodies about .0002 in. long.

Ovularia moniloides, *E. & M.*

Plate 2, figs. 1–4.

Living leaves and dead branches and aments of sweet gale, *Myrica Gale.* Adirondack mountains. June.

A very variable species. Sometimes the spots are few and scattered, again they are numerous, small or large, and often confluent, occupying nearly the whole leaf. Sometimes the fungus extends to the branches, both dead and living, which it surrounds with its white flocculent patches.

Peronospora Arthuri, *Farl.*

Living leaves of evening primrose, *Œnothera biennis.* Albany. June.

Peronospora Halstedii, *Farl.*

Living leaves of *Ambrosia trifida.* North Greenbush. Sept.

This often grows upon the spots occupied by *Protomyces polysporus.*

Peronospora Potentillæ, *De By.*

Living leaves of purple avens, *Geum rivale.* Adirondack mountains. June.

Entyloma Saniculæ, *n. sp.*

Plate 1, figs. 7–9.

Spots numerous, small, close or subconfluent, orbicular or subangular, varying in color from whitish or greenish to brown or reddish-brown; conidia amphigenous, filiform or linear, straight or curved, colorless, .0012 to .0024 in. long, .00008 to .0001 broad. Sometimes plurinucleate; spores subglobose, .00055 to .00065 in. broad.

Living leaves of sanicle, *Sanicula Marilandica.* North Greenbush. May.

The very long slender conidia are a distinguishing feature in this species.

Cercospora Violæ, *Sacc.*

Living leaves of violets, *Viola blanda.* Osceola. Aug.

In our specimens the spores are shorter than the dimensions given for the type, from which it is probable that they are a variety. They are .003 to .004 in. long, but pluriseptate as in the typical specimens.

Cercospora Cephalanthi, *E. & K.*

Living leaves of *Cephalanthes occidentalis.* Karner. Aug.

Cercospora Comari, *n. sp.*

Plate 1, figs. 1-3.

Spots irregular, indefinite, sometimes confluent, reddish-brown; flocci minutely tufted, amphigenous, slender, flexuous, colored, .005 to .0065 in. long, .0002 broad; spores clavate, obscurely two to three septate, slightly colored, .002 to .003 in. long, .0003 broad in the widest part.

Living leaves of *Potentilla palustris* (Comarum palustre). Karner. July.

Cercospora Majanthemi, *Fckl.*

Living leaves of two-leaved Solomon's Seal, *Majanthemum bifolium.* Caroga. July.

Our specimens vary a little from the description of the species to which we have referred them, but they are probably only an American variety of the species. The spots are margined with red or brownish-red and the spores are nucleate, but I have not seen them septate. They appear to rise from a minute reddish or pink-colored tubercle.

Hadrotrichum lineare, *n. sp.*

Plate 1, figs. 4-6.

Flocci amphigenous, densely cæspitose, subflexuous, black, forming oblong or linear black sori; spores terminal, ovate, oblong-ovate or oblong-pyriform, colored, .00065 to .0011 in. long, .00045 to .00055 broad, sometimes becoming constricted in the middle.

Living and dead leaves of *Calamagrostis Canadensis.* Adirondack mountains. June.

I have referred this fungus provisionally to the genus Hadrotrichum, although it does not rigidly agree with the description of that genus, in which the flocci are characterized as short. In our plant they are .002 to .003 in. long. By their tufted mode of growth they appear to deviate from the allied genus Monotospora. The spores, so far as observed, do not become definitely uniseptate, though in a few instances the endochrome seemed to be divided and the spores constricted in the middle as if about to multiply by division. They are colored, but are slightly paler than the flocci. These form definite linear or oblong sori or patches which are often parallel and sometimes repeatedly interrupted and look like a series of dots. At first sight they might be mistaken for some species of Puccinia.

Cenangium balsameum, *n. sp.*

Receptacle single or cæspitose, sessile, erumpent, externally black or blackish, greenish-yellow within, disk plane or convex, blackish bay-red or greenish-yellow when moist, black and somewhat uneven when dry; asci clavate, .004 to .0055 in. long, .0005 to .0006 broad; spores oblong or subfusiform, sometimes slightly curved, simple, greenish-yellow, .0008 to .0012 in. long, about .0003 broad.

Dead branches of balsam, *Abies balsamea.* Caroga. July.

This has probably been confused with *C. ferruginosum*, which it somewhat resembles, but the spores are much larger than the dimensions ascribed to the pores of that species, and larger than the spores in the specimens of that species in Mycotheca Universalis.

Sphærotheca pannosa, *Lev.*

Living leaves of wild rose, *Rosa parviflora* Ehrh. West Albany. Aug.

Microsphæria Nemopanthis, *n. sp.*

Mycelium arachnoid, thin, amphigenous; appendages few, five to twelve, equal to or a little longer than the diameter of the perithecia, terminally four or five times dichotomous, colored, sometimes forked near the base, the ultimate ramuli recurved; asci about four; spores six to eight.

Living leaves of *Nemopanthes Canadensis.* Karner. Sept.

The species is apparently allied to *M. Berberidis*, from which it is separated because of its fewer asci and colored appendages.

Capnodium Citri, *B. & D.*

On oranges, Albany. Not ascigerous. Introduced with the fruit which it inhabits.

Asterina nuda, *n. sp.*

Plate 2, figs. 11–15.

Perithecia numerous, closely gregarious or crowded, superficial and naked or with a few short obscure radiating filaments at the base, globose or subdepressed, .003 to .004 in. broad, black; asci oblong or subcylindrical, .0016 in. long, .0005 broad; spores crowded or biseriate, oblong, uniseptate, colorless, .0004 to .0005 in. long, .0002 to .00025 broad.

Dead leaves of balsam fir, *Abies balsamea.* Adirondack mountains. June.

Externally this species resembles *Sacidium Pini*, but its fruit is very different. The perithecia are generally arranged in three linear patches, one along the middle of the upper surface of the leaf and two on the lower surface, one on each side of the midvein. They are less numerous on the upper surface than on the lower, and are sometimes entirely absent there. The radiating mycelioid filaments are not always present, and but for the superficial perithecia the species might easily be referred to the genus Sphærella. The bilocular colorless spores indicate the section Asterella.

Valsa pauperata, *C. & F.*

Dead bark of maple, *Acer rubrum.* Karner. June.

In our specimens it is not uncommon to find a half dozen perithecia in one pustule, although in the typical form there are but two or three. A whitish or pale-grayish pulverulent disk often exists, which is at length obliterated by the black ostiola. The spores are .00064 to .0008 in. long, .0002 to .00025 broad, which is somewhat larger than the dimensions given in the description of *V. pauperata*, nevertheless we think our specimens are only a form or perhaps a variety of that species. The pustules are often arranged in long flexuous lines as in the type.

Valsa cornina, *n. sp.*

Pustules small, scattered, at first covered by the epidermis, which is at length longitudinally ruptured; perithecia two to five in a pustule,

nestling in the inner bark, black, the ostiola scarcely exerted; asci clavate, blunt, .002 to .0024 in. long; spores collected in the upper part of the ascus, allantoid, .0006 to .0007 in. long, .00016 broad.

Dead branches of *Cornus paniculata*. Albany. Apr.

I have distinguished this species from others growing on Cornus, because of its different habit and larger spores.

Valsa Friesii, *Fckl.*

Dead bark of *Abies balsamea*. Adirondack mountains. June.

Valsa opulifoliæ, *n. sp.*

Pustules subconical or subhemispherical, erumpent; perithecia five to twenty in a pustule, nestling in the inner bark, crowded, often angular from mutual pressure, ostiola crowded, black, obliterating the grayish disk; asci subclavate, the sporiferous part .0012 to .0016 in. long, .00025 to .0003 broad; spores allantoid, crowded above, uniseriate below, .0004 to .0005 in. long, .00008 to .0001 broad.

Dead branches of *Spiræa opulifolia*. West Albany. Apr.

The species is apparently related to *V. pustulata* Aw., but the crowded ostiola are central on the disk. When the epidermis is torn away the pustules appear much like those of *V. colliculus* Wormsk.

Valsa leucostomoides, *n. sp.*

Pustules numerous, minute, covered by the epidermis which is pierced by the orbicular white or grayish disk; perithecia two to six or more in a pustule, the ostiola punctiform, black, dotting the disk; asci clavate or subfusiform, .0016 to .002 in. long, .00035 to .0004 broad; spores crowded, allantoid, colorless, .0005 to .00065 in. long, .00016 to .0002 broad.

Dead branches of sugar maple, *Acer saccharinum*. Helderberg mountains. May.

The very small size of the pustules and the minute white pulverulent disk give to this species an external appearance resembling that of *V. leucostoma* Fr., but there is no circumscribing black line and the species is apparently quite distinct and easily known by this character.

Diatrypella Frostii, *Pk.*

Dead stems of wild hazel-nut, *Corylus Americana*. West Albany Nov.

Diaporthe Wibbei, *Nits.*

Dead branches of sweet gale, *Myrica Gale*. Adirondack mountains. June.

The species is placed in the section Tetrastaga, but in our specimens there is no circumscribing black line. The spores are a little broader than the dimensions given in the description, being .0002 to .00025 in broad, and they sometimes terminate in a slight bristle-like point. In other respects the specimens agree well with the specific characters.

Diaporthe cylindrospora, *n. sp.*

Pustules valsoid, somewhat prominent, erumpent, scattered; perithecia numerous, fifteen to thirty or more, crowded, covered by the thin blackened surface of the inner bark, the ostiola rather long, crowded, exserted, about equalling the surrounding elevated epidermis, black; asci narrow, subfusiform, .0018 to .0022 in. long, .00025 to .0003 broad; pores subcylindrical, crowded or biseriate, quadrinucleate, colorless, .0005 to .00065 in. long, .00012 to .00016 broad.

Dead branches of wild bird cherry, *Prunus Pennsylvanica.* Adirondack mountains. June.

I have not been able to detect any distinctly septate spores, yet in every other respect this fungus evidently belongs to this genus, and I have thought best to refer it here for the present.

Didymosphæria Typhæ, *n. sp.*

Perithecia minute, punctiform, subglobose, covered by the epidermis, which is pierced by the scarcely papillate ostiolum; asci cylindrical, .0025 to .0035 in. long, .0003 to .0004 broad; spores oblong or elliptical, uniseriate, uniseptate, not at all or but slightly constricted at the septum, colored, .0004 to .0006 in. long, .0002 to .00025 broad; paraphyses filiform.

Base of dead leaves of *Typha latifolia.* Guilderland, Albany county. May.

Sphærella conigena, *n. sp.*

Perithecia small, scattered or gregarious, slightly prominent, erumpent, black; asci subcylindrical, .0025 to .0035 in. long, about .0005 broad; spores crowded, oblong-clavate, constricted at the septum, .0004 to .0005 in. long, .00016 to .0002 broad, the cells unequal, the lower one tapering downward, narrower than the subglobose or elliptical upper one.

Fallen cones of hemlock, *Abies Canadensis.* Helderberg mountains. May.

It differs from *S. Pinsapo* in its longer asci, and longer and differently shaped spores, as well as in its habitat. A similar, if not the same, species occurs on cones of *Thuja occidentalis* in the same locality, but owing to the immaturity of the fruit it is still in doubt.

Venturia Cassandræ, *n. sp.*

Plate 3, figs. 11–14.

Spots reddish-brown or brownish, sometimes with a grayish center; perithecia on one or both surfaces, minute, .0028 to .0032 in. broad, black, with a few short, straight, diverging black setæ above, .0012 to .0016 in. long; asci oblong, gradually and slightly narrowed above, .0016 to .0018 in. long, .0003 to .0004 broad; spores biseriate, oblong, quadrinucleate, .0005 in. long, .0002 broad.

Living leaves of *Cassandra calyculata.* Caroga. July.

The perithecia sometimes occur on the upper surface of the leaf, but oftener on the lower. They are so small that they are scarcely visible to the naked eye. Sometimes they emerge from beneath the scales of the leaf, and then they appear erumpent, although in reality they are superficial.

Leptosphæria Corallorhizæ, *n. sp.*

Plate 2, figs. 20–23.

Perithecia numerous, minute, .004 to .005 in. broad, erumpent, black, with a minute ostiolum; asci cylindrical, sessile, .002 to .003 in. long, .0003 to .00035 broad; spores crowded or biseriate, subfusiform, triseptate, slightly constricted at the middle septum, yellowish-brown, .0008 to .001 in. long, .00016 to .0002 broad.

Dead stems of *Corallorhiza multiflora*. Caroga. July.

Leptosphæria eutypoides, *n. sp.*

Perithecia numerous, closely gregarious, .01 to .011 in. broad, hemispherical or depressed, at first covered by the epidermis, then naked, black, ostiola papilliform; asci clavate or subcylindrical, .004 to .0045 in. long, .0005 to .00065 broad; spores ovate or oblong, straight or slightly curved, triseptate, usually constricted at the septa, yellowish-brown, .0008 to .0009 in. long, .0003 to .0004 broad, paraphyses filiform.

Dead stems of large herbs, as *Chenopodium album*. Albany. May.

The matrix becomes blackened, which, with the nearly uniform distribution of the numerous perithecia, is suggestive of the appearance of some species of Eutypa.

Leptosphæria lycopodiicola, *n. sp.*

Plate 2, figs. 16–19.

Perithecia small, .005 to .006 in. broad, sphæroid or elliptical, erumpent, black; asci subcylindrical, nearly sessile, .0025 to .003 in. long, .0003 to .0004 broad; spores oblong or subfusiform, slightly colored, three to five-septate, .0008 to .001 in. long, .00016 to .0002 broad.

Dead peduncles of *Lycopodium clavatum*. Adirondack mountains. June.

The perithecia are associated with a minutely tufted, blackish Cladosporium. Some of them are laterally compressed. The covering epidermis generally ruptures longitudinally. The spores are much more narrow in this than in *L. Crepini* and *L. Marcyensis*, both of which inhabit species of Lycopodium.

Metasphæria Myricæ, *n. sp.*

Plate 2, figs. 24–27.

Perithecia numerous, broadly conical, .016 to .021 in broad, covered by the thin closely-adhering epidermis, black, white within, ostiola pertuse; asci clavate, obtuse, .004 to .005 in. long, .0006 to .0008 broad; spores crowded or biseriate, oblong or subfusiform, straight or slightly curved, at first uniseptate, quadrinucleate, strongly constricted at the middle septum, finally triseptate, colorless, .0012 to .0016 in. long, .0004 to .0005 broad; the paraphyses numerous, conglutinate.

Dead branches of *Myrica Gale* lying partly in water. Caroga. July.

The epidermis is so closely adherent that the perithecia appear as if superficial or merely innate at the base. The nuclei of the spores are large. Spores with three septa are rare, but this may be due to the immature condition of the specimens.

Sphærulina sambucina, *n. sp.*

Perithecia minute, numerous, closely gregarious, unequal and irregular, orbicular, oblong or even flexuous, covered by the epidermis, erumpent, opening by a pore or a narrow chink, black, asci clavate or subcylindrical, .003 to .005 in. long, about 0005 broad, aparaphysate; spores crowded or biseriate, oblong-clavate, constricted at the middle septum, five to seven-septate, colorless, .0009 to .0012 in. long, .0003 to .00035 broad, the lower half more narrow than the upper.

Dead branches of elder, *Sambucus Canadensis.* West Albany. May.

This is apparently related to *S. intermixta,* and, like that species, it is remarkable for its anomalous and irregular perithecia, but it is distinguished from it by its longer asci and longer spores, strongly constricted in the middle, and with more numerous septa.

Cryptospora Caryæ, *n. sp.*

Plate 2, figs. 28–31.

Pustules scattered, covered by the epidermis, erumpent, circumscribed by a black line or at length covered by a black crust beneath the epidermis, perithecia four to twelve in a pustule, globose or angulated by mutual pressure; ostiola crowded, rather prominent, subglobose, even, black; asci subclavate, .004 to .005 in. long, .0005 to .0006 broad, spores crowded or biseriate, subcylindrical, slightly narrowed toward one or both ends, granular within, at length spuriously three to five-septate by the division of the endochrome, colorless, .0016 to .0024 in. long, .00025 to .00032 broad.

Dead branches of hickory, *Carya alba.* Knowersville. May.

The epidermis is loosened over the pustules and is generally ruptured in longitudinal chinks. When it is removed the blackened pustules are conspicuous. The spores are sometimes constricted in the middle.

Mazzantia sepium, *Sacc. & Penz.*

Dead stems of *Calystegia Sepium.* North Greenbush. May.

The spores in our specimens are a little larger than in the typical form and trinucleate.

D.

REMARKS AND OBSERVATIONS.

CAULOPHYLLUM THALICTROIDES, *L.*

A form occurs on the Helderberg mountains which bears two panicles, or clusters of flowers. One is much smaller than the other, and is usually about three flowered.

VIOLA CUCULLATA, *Ait.*

The variety with peduncles, much longer than the petioles (var. *longipes*), is common in wet places in the Adirondack region. It blossoms there about the middle of June.

HYPERICUM ELLIPTICUM, *Hook.*

A small form with stems eight to twelve inches high, and leaves erect and appressed, was found in wet places by the roadside in Caroga. This position of the leaves gives a peculiar aspect to the plants.

RHUS TYPHINA, *L.*

The form with laciniate leaves has been found near Nyack, Rockland county, by *Rev. J. L. Zabriskie.*

ROSA SETIGERA, *Mx.*

Low ground near West Albany. Introduced from the West.

RUBUS HISPIDUS, *L.*

Common in Caroga and not infrequent with five-foliate leaves on the young stems.

FEDIA RADIATA, *Mx.*

Wynantskill, Rensselaer county. *H. C. Gordinier.* This is a form with smooth fruit.

ARALIA NUDICAULIS, *L.*

A form with no leaf but with the scape bearing four to six umbels at the apex and a branch near or below the middle. This branch is terminated by a single umbel, and probably represents the usual leaf.

ARALIA HISPIDA, *Mx.*

This sometimes grows with great vigor in the Adirondack region. A specimen was found in Caroga, more than three feet high and bearing upwards of forty umbels, the large central and terminal one being two and a half inches in diameter.

CUPHEA VISCOSISSIMA, *Jacq.*

This plant appears to be gradually extending its range northward in the Hudson river valley. It has occurred in the vicinity of Pine Plains and at Salt Point, Dutchess county, and the past season it was detected near Catskill by Judge *Clinton.* On the authority of Drs. Stevenson and Knieskern it was reported in the State Flora as an inhabitant of the "northern part of the State;" but I suspect this is a mistake.

TUSSILAGO FARFARA, *L.*

Abundant on clay banks about Albany and Troy. In rare instances the leaves appear while the plant is yet in flower. The rays assume a reddish hue with age and the scapes become elongated.

HIERACIUM AURANTIACUM, *L.*

This plant has become well established in many parts of the State and is still spreading. The past season it was observed in Fulton county, where it had evidently escaped from a flower garden to the roadside.

VACCINIUM PENNSYLVANICUM, *Lam.* var. NIGRUM.

Caroga, where it was growing sparingly with the ordinary form of the species.

CASTILLEIA COCCINEA, *Spreng.*

The usual habitat, ascribed to this species in the manuals, is wet meadows and sandy low grounds. In Springwater, Livingston county,

and in Canadice, Ontario county, it was found by Mr. *D. Byron Waite* growing on the "tops and sides of bare dry and sterile hills, and where low shrubs and moss abound."

HYDRANGEA ARBORESCENS, *L.*

Wellsburg, Chemung county. *E. A. Burt.*

POTAMOGETON ROBBINSII, *Oakes.*

Hudson river near Rhinebeck. *H. Andrews.* The plants were sterile as usual.

HABENARIA ROTUNDIFOLIA, *Rich.*

Turin, Lewis county. July. *R. B. Hough.* This is the second locality in the State for this rare plant. Mr. Hough informs me that it is difficult to obtain perfect specimens of this plant, most of the flowers being injured, apparently by some insect.

TRILLIUM GRANDIFLORUM, *Salisb.* V. VARIEGATUM.

This interesting variety or form has the leaves petiolate and the petals variegated with green, which is usually in the form of a broad longitudinal stripe through the middle. It was discovered in dense woods near Jamesville, Onondaga county, by members of the Syracuse Botanical Club, and specimens were contributed to the Herbarium by Mrs. *L. L. Goodrich* and Mrs. *S. M. Rust.* It has also been found on Goat Island by Hon. *G. W. Clinton*. In the Jamesville locality it was associated with *Trillium erectum* and typical *T. grandiflorum.* In one specimen communicated by Mrs. Goodrich the petioles originate near the ground, the stem being very short. They are about three and a half inches long and the peduncle is five inches long. In other specimens these parts are less elongated and the form appears to be merged into the type. The specimens indicate a coincidence between the petioles, peduncles and green color of the petals. Generally the longer petioles are accompanied by longer peduncles and broader green stripes on the petals. This coincidence between form and color is remarkable.

JUNCUS TRIFIDUS, *L.*

Sam's Point, Shawangunk mountains. Prof. *N. L. Britton.* Probably this is the most southern station for this Juncus in our State. It occurs at Lake Mohunk and also on the high summits of the Adirondack mountains.

SCIRPUS POLYPHYLLUS, *Vahl.*

Catskill. *G. W. Clinton.* A rare species in our State.

SCIRPUS SYLVATICUS, *L.*

Wet places about half a mile south-east of Loudonville.

GLYCERIA FLUITANS, *L.*

Caroga lake. The form with long flat linear floating leaves, suggestive of the specific name, is not rare in the lakes of the Adirondack region, but it is not always fertile.

AIRA CÆSPITOSA, *L.*

Wet ground. Caroga. It was growing in company with *A. flexuosa* which usually inhabits dry, rocky, sterile hills.

MILLIUM EFFUSUM, *L.*

A tall glaucous-leaved form, is plentiful in woods in the Boreas river valley in Minerva, Essex county.

PELLÆA GRACILIS, *Hook.*

About the entrance of a limestone cavern, Minerva. The presence of limestone appears to be a necessity to this rare little fern. Although there are many localities in the Adirondack region which seem favorable to its growth, I have never observed it there except in the immediate vicinity of limestone, and as this is in limited quantity and scattered stations, this fern occupies there very isolated and limited localities. In the station mentioned it was in company with *Aspidium aculeatum* Sw. v. *Braunii.*

WOODWARDIA VIRGINICA, *Sm.*

Abundant in a marsh near Karner.

AGARICUS STIPITARIUS, *Fr.* v. SETIPES.

Stem elongated, straight, very slender, three to four inches long, scarcely as thick as a knitting needle. Caroga. July. Specimens of this species revive on the application of moisture, thus indicating a close relationship to species of Marasmius.

AGARICUS CLAVICULARIS, *Fr.*

This species is quite variable with us. Three or four forms or varieties were found growing under balsam trees in one locality in Caroga. Var. *albus* is wholly white. Var. *cinereus* has the pileus and stem pale cinereus; this is the most common. Var. *filipes* has the pileus small, two or three lines broad, and the stem very slender or filiform. When moist the stem is viscid, and in taking it from its place of growth the fingers are liable to slip from their grasp before the plant yields from its attachment to the ground, but when dry it is taken without difficulty. The pileus is not viscid, and by this character the species may be distinguished from *A. vulgaris.*

AGARICUS LEAIANUS, *Berk.*

This beautiful Agaric is common in the woods of all our hilly or mountainous districts, growing most frequently on dead trunks of beech, but often on those of other deciduous trees. In a single instance it was found growing on decaying wood of hemlock.

AGARICUS FIBULA V. CONICUS.

This singular variety has the pileus conical, not umbilicate, sometimes papillate. Mossy prostrate trunks in woods. Caroga. July.

AGARICUS ATROCÆRULEUS, *Fr.*

I have not yet found the plant with blue colors. It is brownish with us and villose with grayish densely tufted hairs, sometimes inclining to a cervine hue. On poplars. Karner. Sept.

AGARICUS RHODOPOLIUS, *Fr.* V. UMBILICATUS.

Pileus convex, umbilicate, 1 to 2 inches broad; lamellæ subdecurrent; stem elongated, slender, containing a small cavity. Karner. Sept. A slender variety growing with the ordinary form, but appearing quite unlike it.

TROGIA CRISPA, *Fr.* V. VARIEGATA.

Pileus and lamellæ variegated with bluish or greenish-blue stains. Sandlake. Sept.

BOLETUS VISCOSUS, *Frost.*

This name is antedated by *B. viscosus* Ventur., and if the Frostian species is a good one, it will be necessary to give it another name. It cannot be called *B. Frostii*, as there is already a species bearing that designation. Mr. Frost's plant is manifestly very near *B. granulatus* and may possibly be a variety of that species, although the two, as they occur with us, are readily distinguishable. They appear to have been united by European mycologists. The distinguishing characters are found in the color, glutinosity, glandular dots or sugary granules of the tubes and stem and in the comparative length of the stem. In Frost's plant the pileus is at first dark-chestnut color and covered with a thick tough gluten, appearing, as the author remarks, as if it "was enveloped in slime," but it becomes yellowish, tawny-yellow or reddish-yellow and less glutinous with age. The glandular dots are usually entirely absent from the mouths of the tubes and from the stem, but when present they are very minute and inconspicuous and occur chiefly at the top of the stem. This is very short, varying from one-half to one inch in length, so that "the pileus seems to rest upon the ground." In *B. granulatus*, the young pileus is much paler, though variable in color, and is less glutinous. It does not become conspicuously paler with age and the glandular dots or granulations, which suggest the name of the species, are readily seen on the tube mouths and stem. They usually dot the stem from top to base, though sometimes they are more conspicuous on the upper part. The stem is generally one to two inches long. This plant appears from midsummer to the end of the season, but I have only seen Frost's plant in late autumn. It is quite possible that the two plants run together, but from the character of the differences noted it seems to me to be best at present to keep them distinct, and for convenience of reference I would designate the Frostian species as *Boletus brevipes*, in allusion to its short stem. It grows in sandy soil under pine trees. Karner. Oct.

BOLETUS SCABER, *Fr.* V. NIVEUS.

Swamps. Karner. Oct. This is a beautiful variety, easily recognized by the white color of the pileus. This, however, becomes tinged with livid-blue or greenish-blue when old.

BOLETUS GRACILIS, *Pk.* V. LÆVIPES.

Stem destitute of reticulations. Otherwise like the tpyical form of the species. South Ballston. Sept.

POLYPORUS SULPHUREUS, *Fr.*

The young growing plant sometimes exudes a pale-yellow or sulphur-colored juice when cut or broken.

POLYPORUS VOLVATUS, *Pk.*

This is occasionally found on balsam trunks, *Abies balsamea.* Adirondack mountains. June.

POLYPORUS CONGLOMERATUS, *Pk.*

Prostrate trunks of beech. Osceola. Aug.

LYCOPERDON GIGANTEUM, *Batsch.*

A specimen of the obconic form mentioned by Fries was found near Coeymans, Albany county, by Mr. *John D. Parsons.*

MORTHIERA MESPILI, *Fckl.*

Living leaves of *Amelanchier Canadensis.* Caroga. July.

PUCCINIA CALTHÆ, *Lk.*

This species, which is rare in our State, was found in a wooded swamp in Caroga. July.

UROCYSTIS POMPHOLYGODES, *Schl.*

On *Thalictrum anemonoides.* Albany. *G. W. Clinton.*

CYSTOPUS CUBICUS, *De By.*

Radical leaves of *Senecio aureus.* Adirondack mountains. June. This species inhabits various species of compositæ, but does not appear to have been before found on Senecio.

GLOMERULARIA CORNI, *Pk.*

Hitherto found only on *Cornus Canadensis*, but now on *Lonicera ciliata* also. Adirondack mountains. June.

LOPHIOTREMA SPIRÆÆ, *Sacc.* V. ADULTUM.

This has the spores nine to eleven-septate. In the type they are seven-septate. West Albany. Apr.

DIAPORTHE SPICULOSA, *Nits.*

A form occurs on dead branches of *Spiræa opulifolia* without a limiting black line in the matrix. The perithecia are sunk in the wood, the surface of which becomes blackened.

HYPODERMA NERVISEQUUM, *Fr.*

Fertile specimens were found on balsam leaves in Caroga. July.

LOPHODERMIUM PETIOLICOLUM, *Fckl.* V. ACERINUM.

Perithecia narrowly elliptical or oblong; asci subclavate, .0025 to .003 in long, .0008 to .00035 broad; spores filiform, considerably shorter than the ascus. Fallen petioles of *Acer saccharinum.* Caroga. July.

E.

NEW YORK SPECIES OF LACTARIUS.

LACTARIUS, *Fr.*

[Galorrheus, Fr. Lactifluus, Hoffm.]

Hymenophorum fleshy, vesiculose, continuous with the fleshy stem; lamellæ unequal, adnate or decurrent, acute on the edge, exuding a milky or colored juice when wounded; volva and annulus none; spores globose or broadly elliptical, white or yellowish.

The peculiar character of this genus, and one which gives to it its name, is the milky juice which pervades the flesh and especially the lamellæ of the species. It is generally white, like milk, but in some species it quickly changes color on exposure to the air, and in a few it is always colored. In some instances it is colorless or watery, but such plants are regarded by Fries as degenerate or abnormal from growing in very wet places. In very old specimens, or in very dry weather, the milk is often more scant than usual, and it sometimes fails entirely. Its presence may generally be ascertained by cutting or breaking the pileus or the lamellæ. It is better to seek it in the latter, inasmuch as it generally flows more freely from them, especially in small species, than from the pileus and stem. In some species of Mycena a similar milky or colored juice exists, especially in the stem, but these are abundantly distinct from the Lactarii by their small size, campanulate pileus and slender, hollow, cartilaginous stem. In the genus Russula the size, shape and texture of the species is the same as in Lactarius, but the milky juice is wanting, though the acrid taste may be present, so that the presence of the milk and the fleshy stem is sufficient to distinguish these plants from all other Agaricini.

The pileus is fleshy in all the species, but in some it is thin. Even when thick and compact its texture is brittle, so that it is easily broken. It is variegated in many species by more highly-colored concentric bands or zones, a character always wanting in the allied species of Russula. The margin of the pileus is at first inflexed or involute, and the pileus itself more or less convex, but with advancing age the margin becomes spreading or elevated, and then the pileus, being depressed in the center, presents an obconic or funnel shape. Sometimes the pileus is convex, but umbilicate or centrally depressed with its earliest appearance, in other instances it is broadly convex or nearly plane, and furnished with a small umbo or papilla.

The lamellæ are at first adnate, but by the change in the shape of the pileus, which comes from its expansion and the elevation of the margin, they become more or less decurrent. It is not uncommon to find them branched or forked, especially near the inner extremity. In color they are generally white or whitish, but this is often varied by yellowish or reddish tints as they become mature. They often change color where cut or bruised, even when the milk remains unchangeable. In some species they become pruinose or dusted by the spores when old, in others they remain naked.

The stem in many species is short and comparatively thick, in others its length equals or exceeds the diameter of the pileus. It may be equal in diameter throughout its entire length, or become gradually narrower either toward the apex or toward the base. In some species it is always solid or merely becomes spongy within when old, in others it may be either spongy within or hollow, and that too in different individuals of the same species. When it is stuffed in the young plant it is likely to be hollow in the old. In many of the species individuals sometimes occur in which it is eccentric.

The spores are globose or broadly elliptical, and more or less rough or echinulate, and they vary but little in size in the different species. Still by their slight variations in size and color they sometimes afford good specific characters, and should by no means be neglected in the study of the species.

The taste of the milk and flesh in many species is very acrid, or hot and biting like that of Cayenne pepper; in others it is mild or but tardily and slightly acrid. This character is of great utility in distinguishing the species, and it is necessary to observe it by actually tasting, but not swallowing the milk or flesh, if we would satisfactorily identify our specimens.

Several of the species are edible, others are affirmed by authors to be poisonous. In some instances authors do not agree in respect to the quality of the species, for while one affirms, for example, that *L. insulsus* and *L. piperatus* are edible, another declares them to be poisonous. It is most prudent to avoid the use of such acrid species, for although their acridity is dispelled or destroyed by cooking, they are said by Gillet to be indigestible, and only acceptable to the strongest stomachs.

Most of the Lactarii grow on the ground, a few on decaying wood. They are found in deep woods and swamps and in grassy grounds and open places. They occur in Summer and Autumn, and are most abundant in warm, showery weather. The species have been arranged by Fries in groups, depending partly on the color and quality of the milk and partly on the naked or pruinose character of the lamellæ. This latter character does not appear to me to be sufficiently constant and obvious to be satisfactory. I have, therefore, made the color of the milk the only basis of the primary grouping of our species.

Synopsis of the Species.

	Milk at first bright-colored, unchangeable	1
	Milk at first white, changing color on exposure to the air	2
	Milk white or whitish, unchangeable	7
1	Young lamellæ and milk indigo-blue	Indigo.
1	Young lamellæ and milk dark-red	subpurpureus.
1	Young lamellæ and milk orange-red	deliciosus.
1	Young lamellæ and milk saffron-yellow	Chelidonium.
	2 Milk becoming pinkish-red	3
	2 Milk becoming yellow	4
	2 Milk becoming lilac-color	uvidus.
3	Pileus dingy-gray or buff-gray (partly)	fuliginosus.
3	Pileus dingy-brown (partly)	lignyotus.
	4 Margin of the mature pileus glabrous	5
	4 Margin of the mature pileus tomentose-hairy	6
5	Pileus distinctly spotted, taste acrid	chrysorheus.
5	Pileus not distinctly spotted, taste tardily acrid	theiogalus.
	6 Stem spotted	scrobiculatus.
	6 Stem not spotted	cilicioides.
7	Pileus viscid when moist	8
7	Pileus not viscid	13
	8 Margin of the pileus distinctly tomentose-hairy	torminosus.
	8 Margin of the pileus glabrous or nearly so	9
9	Pileus greenish-brown or yellowish-brown, tinged with green	sordidus.
9	Pileus some other color, glabrous and viscid	10
10	Pileus some shade of red or yellow	11
10	Pileus some other color	12

11 Pileus reddish, generally zoneless.....hysginus.
11 Pileus ochraceous, zoneless.....affinis.
11 Pileus yellow or yellowish-white, zonate.....insulsus.
12 Stem paler than the pileus.....trivialis.
12 Stem colored like the pileus.....cinereus.
13 Pileus minutely tomentose, pubescent or squamulose..... 14
13 Pileus glabrous or merely pruinose..... 21
14 Pileus rugose-reticulated, velvety-pubescent.....corrugis.
14 Pileus not rugose-reticulated..... 15
15 Pileus some shade of gray or brown..... 16
15 Pileus some shade of red or yellow..... 18
15 Pileus white or whitish..... 20
16 Plant inodorous..... 17
16 Plant odorous.....glyciosmus.
17 Pileus about one inch broad, becoming paler with age.....griseus.
17 Pileus more than one inch broad, not expallent (partly)..plumbeus.
18 Lamellæ distant (partly).....hygrophoroides.
18 Lamellæ close..... 19
19 Pileus less than two inches broad, milk white.....alpinus.
19 Pileus two inches or more broad, milk watery (or white).....helvus.
20 Surface of the pileus persistently velvety-tomentose..vellereus.
20 Margin of the pileus cottony-tomentose when young (partly) deceptivus.
21 Pileus white or whitish..... 22
21 Pileus some other color..... 24
22 Lamellæ distant or subdistant..... 23
22 Lamellæ crowded, dichotomous.....piperatus.
23 Stem more than four lines thick, young pileus umbilicate (partly) deceptivus.
23 Stem not more than four lines thick, pileus never umbilicate..albidus.
24 Pileus some shade of gray or brown..... 25
24 Pileus some shade of red or yellow..... 31
25 Wounds of the lamellæ becoming pinkish-red..... 26
25 Wounds of the lamellæ not becoming pinkish-red..... 27
26 Pileus dingy-gray or buff-gray (partly).....fuliginosus.
26 Pileus dingy-brown (partly).....lignyotus.
27 Wounds of the lamellæ becoming sordid-greenish..... 28
27 Wounds of the lamellæ not becoming sordid-greenish..... 29
28 Plant growing on the ground.....varius.
28 Plant growing on decaying wood.....parvus.
29 Taste mild.....Gerardii.
29 Taste acrid..... 30
30 Pileus dry, zoneless (partly).....plumbeus.
30 Pileus moist, generally zonate.....pyrogalus.
31 Lamellæ distant (partly).....hygrophoroides.
31 Lamellæ close or subdistant..... 32
32 Taste acrid..... 33
32 Taste mild or slightly acrid..... 34
33 Pileus bay-red, flesh pinkish.....rufus.
33 Pileus yellowish-red, flesh white.....platyphyllus.

34 Stem more than four lines thick.....volemus.
34 Stem less than four lines thick..... 35
35 Plant odorous.....camphoratus.
35 Plant inodorous..... 36
36 Pileus some shade of red, not becoming paler with age ..subdulcis.
36 Pileus brown or brownish, becoming paler with age...paludinellus.

*Milk at first bright-colored, unchangeable.**

This group corresponds to the tribe DAPETES of Fries. In Europe there are but two species belonging to it; in our State there are four, one of which, *L. deliciosus*, is common to this country and Europe. There is much similarity in our species, their most obvious differences being in color. The pileus in all is glabrous, slightly viscid when moist, more or less zonate when young and moist, but becoming paler and less clearly zonate with age. The stem is hollow, at least when old, and often adorned with spots of the same color as the milk. The color of the milk pervades the whole plant, but it is less bright and clear except in the spots and the young lamellæ. Bruises or wounds of the lamellæ are apt to become greenish, and old plants are often stained with this hue. The spores in all are yellowish, and the taste is mild or slowly and moderately acrid. Probably all are edible, but only *L. deliciosus* has been tested.

Lactarius Indigo, *Schw.*

Blue Lactarius.

Pileus at first umbilicate with the margin involute, then depressed or infundibuliform, *indigo-blue with a silvery-gray lustre*, zonate, especially on the margin, sometimes spotted, becoming paler and less distinctly zonate with age or in drying; lamellæ close, *indigo-blue*, becoming yellowish and sometimes greenish with age; stem short, nearly equal, hollow, often spotted with blue, colored like the pileus; spores subglobose, .0003 to .00035 in. long; milk *dark blue.*

Pileus 2 to 5 inches broad, stem 1 to 2 inches long, 6 to 10 lines thick.

Dry places, especially under or near pine trees. Not rare but seldom abundant. July to September.

Lactarius subpurpureus, *Peck.*

Purplish Lactarius.

Pileus at first convex, then nearly plane or subinfundibuliform, more or less spotted and zonate when young and moist, *dark-red with a grayish lustre;* lamellæ close, *dark-red*, becoming less clear and sometimes greenish-stained with age; stem equal or slightly tapering upward, soon hollow, often spotted with red, colored like the pileus, sometimes hairy at the base; spores subglobose, .00035 to .0004 in., milk *dark-red.*

Pileus 2 to 3 in. broad, stem 1.5 to 3 in. long, 3 to 5 lines thick.

Damp or mossy ground in woods and swamps. July and August.

At once known by the peculiar dark-red or purplish hue of the milk, which color also appears in the spots of the stem and in a more subdued tone in the whole plant. The color of the pileus lamellæ and stem is

* Badham says that the milk of *L. deliciosus* changes to a green color, but I have not observed such a change.

modified by grayish and yellowish hues. In age and dryness the zones are less clear, and dried specimens can scarcely be distinguished from *L. deliciosus.*

Lactarius deliciosus, *Fr.*

Delicious Lactarius.

Agaricus deliciosus L.

Pileus at first convex and subumbilicate, then nearly plane or subinfundibuliform, *yellowish-orange or grayish-orange* varied by brighter spots and zones, fading to grayish-yellow when old or dry; lamellæ close, *orange-colored* with paler reflections, less clear and often greenish-stained with age; stem nearly equal, stuffed or hollow, often spotted, colored like the pileus, sometimes hairy at the base; spores subglobose, .0003 to .0004 in.; milk *orange-colored.*

Pileus 2 to 5 in. broad, stem 2 to 4 in long, 4 to 8 lines thick.

Woods and open places, but especially in mossy swamps. Common. July to September. Edible.

This is the most common species of its group. It grows both in wet and in dry places, and in acerose, frondose or mixed woods. It has an excellent reputation as an edible fungus. Badham says it is one of the best of fungi and that its flesh is firm, juicy, sapid and nutritious. One writer pronounces it the most delicious mushroom known. The best method of cooking is said to be, to bake three-fourths of an hour in a close covered dish, having seasoned it with pepper, salt and butter.

Badham states that the milk turns green on exposure to the air. Wounds of the flesh and lamellæ often do, but I have not observed this change in the color of the milk.

Lactarius Chelidonium, *Peck.*

Celandine Lactarius.

Pileus at first convex, then nearly plane and umbilicate or centrally depressed, *grayish-yellow or tawny*, at length varied with bluish and greenish stains, often with a few narrow zones on the margin, lamellæ *narrow*, close, sometimes forked, anastomosing or wavy at the base, *grayish-yellow;* stem short, subequal, hollow, colored like the pileus; spores globose, .0003 in.; milk sparse, *saffron-yellow;* taste mild.

Pileus 2 to 3 in. broad, stem 1 to 1.5 in. long, 4 to 6 lines thick.

Sandy soil, under or near pine trees. Saratoga and Bethlehem.

The milk of this species resembles in color the juice of celandine, *Chelidonium majus.* It is paler than that of *L. deliciosus.* By this character and by the dull color of the pileus, the narrow lamellæ, short stem and its fondness for dry situations, it may be separated from the other species. Wounds of the flesh are at first stained with the color of the milk, then with blue, finally with green. A saffron color is sometimes attributed to the milk of *L. deliciosus*, which may indicate that this species has been confused with that, or that the relationship of the two plants is a closer one than we have assigned to them.

Milk at first white, changing color on exposure to the air.

In this group, wounds of the lamellæ and flesh generally assume the changed color of the milk after a brief exposure to the air.

Lactarius uvidus, *Fr.*

Moist Lactarius.

Pileus at first convex, then nearly plane or centrally depressed, *glabrous, viscid*, whitish, grayish-brown or livid-brown, generally with a slight tinge of pink, sometimes obscurely zonate or marked with darker spots, either with or without a small umbo; lamellæ rather narrow, thin, close, white or yellowish, becoming *lilac where cut or bruised;* stem equal or slightly tapering upward, stuffed or hollow, glabrous, viscid, whitish or pallid ; spores globose or broadly elliptical, *yellowish*, 00035 to .00045 in.; milk white, *changing to lilac*, taste acrid.

Var. *magnus*. Plant large, pileus obscurely zonate or marked with darker spots more or less concentrically arranged.

Pileus 1 to 2 in. broad, stem 1.5 to 3 in. long, 3 to 6 lines thick.

Wet mossy places in woods and swamps. Adirondack mountains and Sandlake. July and August.

This species is not very common. It is readily recognized by the lilac color assumed by the milk and the wounds of the flesh and lamellæ. The variety occurs in Vermont where it was observed by Mr. A P. Morgan.

Lactarius chrysorheus, *Fr.*

Yellow-milk Lactarius.

Agaricus zonarius, Bolt.

Pileus convex, umbilicate or centrally depressed, becoming infundibuliform, glabrous, *yellowish*, sometimes tinged with flesh-color, *adorned with bright-colored zones and spots*, the margin at first involute and pruinose-tomentose· lamellæ thin, close, adnate or decurrent, yellowish, some of them forked; stem equal, glabrous, hollow, white or colored like the pileus, sometimes spotted ; spores subglobose, .0003 to .00035 in.; milk white, *becoming yellow*, taste acrid.

Pileus 1 to 3 in. broad, stem 8 to 15 lines long, 3 to 5 lines thick.

Thin woods or open places. Bethlehem and Sandlake. July and August. Not common.

Fries describes this species as having a dry pileus, but in our specimens it appeared to be slightly viscid when moist. The milk in the European plant is said to change color quickly, in ours the change takes place slowly. The spots of the pileus are usually small and numerous and sometimes concentrically arranged. They, as well as the zones, have a golden-yellow or pale-orange hue. They, together with the color of the pileus, distinguish this species from the next, and the change in the color of the milk separates it from *L. insulsus*. The plant described in the Twenty-third Report under this name belongs to the next species.

Lactarius theiogalus, *Fr.*

Sulphur-milk Lactarius.

Agaricus theiogalus, Bull.

Pileus fleshy, thin, convex, then depressed, even, *glabrous*, viscid, *tawny-reddish;* lamellæ adnate or decurrent, close, pallid or reddish ;

stem stuffed or hollow, even, colored like the pileus; spores *yellowish, inclining to pale flesh-color,* subglobose, .0003 to .00035 in.; milk white, *changing to sulphur-yellow,* taste tardily acrid, bitterish.

Pileus 2 to 5 in. broad, stem 1 to 3 in. long, 4 to 10 lines thick.

Woods and groves. Common. July to October.

Our plant does not fully accord with the description of the species as given by Fries. The pileus is moderately thick and compact, varying from convex or nearly plane and umbilicate to depressed or infundibuliform, slightly viscid when moist, zoneless or obscurely zonate, varying in color from pale grayish-red to tawny-red or brick-red, there being a mixture of gray yellow and red not easily defined. Gillet describes the pileus as "tawny-red, clear brick-red, bistre-red or orange-yellow diversely shaded." It somewhat resembles *L. torminosus* in color, but the glabrous margin and changeable milk distinguish it. The surface of the pileus has a minutely uneven or unpolished appearance, but it is smooth to the touch. The lamellæ are sometimes forked near the stem, whitish tinged with creamy-yellow or flesh color, and they often become stained with reddish-brown when old or bruised. The stem is generally paler than the pileus. It is commonly hollow, though sometimes stuffed or spongy within. Rarely it is spotted or stained with reddish-brown. When the flesh is cut or broken it soon assumes the pale-yellow color of the exposed milk. The taste is tardily or moderately acrid, or somewhat woody and bitterish. Its less acrid taste, unspotted and more reddish pileus, distinguish it from the preceding species. According to Gillet it is pronounced edible by some authors, poisonous by others. Cordier says that the pileus is dry, that the stem is almost always stuffed, and that it passes for poisonous, but that Letellier has eaten it more than once without inconvenience.

Lactarius resimus, *Fr.*

Recurved Lactarius.

Pileus convex and umbilicate, then infundibuliform, even, glabrous, viscid, zoneless, *whitish or pallid*, the margin at first *involute*, *white-tomentose*, at length spreading, naked; lamellæ decurrent, whitish; stem even or obsoletely spotted, villose, hollow, thick; milk *quickly changing to sulphur-yellow*, taste acrid

Var. *regalis.* (*L. regalis*, Peck.) Pileus yellowish-white, the margin glabrous; stem glabrous; spores globose, .0003 in.

Pileus 4 to 6 in. broad, stem 2 to 3 in long, 8 to 12 lines thick.

Woods. Croghan. September. Rare.

Our plant, which has been observed but once, has the margin of the pileus and the stem glabrous, but it can scarcely be more than a variety of the species, and as such we have subjoined it.

Lactarius scrobiculatus, *Fr.*

Spotted-stemmed Lactarius.

Agaricus scrobiculatus, Scop. *Agaricus theiogalus*, A. & S.

Pileus convex, then nearly plane or centrally depressed, viscid when moist, zoneless or slightly zonate, *reddish-yellow or subochraceous*, the margin at first involute, then spreading, *tomentose hairy;* lamellæ thin,

close, adnate or slightly decurrent, whitish or yellowish; stem equal, stout, hollow, colored like the pileus, adorned by *suborbicular depressed spots of a brighter color;* spores *white*, .0003 to .00035 in.; milk white, *changing to sulphur-yellow,* taste acrid.

Pileus 3 to 6 in. broad, stem 1.5 to 3 in. long, 6 to 12 lines thick.

Wet, mossy ground in woods. Caroga. July. Rare.

This Lactarius is similar to the preceding in size and shape, and like that, it sometimes has the margin naked when old, but it is distinguished by its distinctly-spotted stem and more highly-colored pileus. Its color approaches that of *L. theiogalus*, but its generally hairy margin, together with its spotted stem and more acrid taste, will distinguish it from that species. It is not deemed edible.

Lactarius cilicioides, *Fr.*

Tomentose Lactarius.

Agaricus tomentosus, Otto. *Agaricus crinitus*, Schæff.

Pileus broadly convex or nearly plane, umbilicate or centrally depressed, occasionally subinfundibuliform, soft, *covered with long matted hairs or tomentum*, the center sometimes becoming naked with age, *zoneless*, viscid when moist, white reddish-buff or dingy-incarnate; lamellæ rather narrow, thin, close, adnate or slightly decurrent, some of them forked, white, or tinged with yellow or incarnate; stem short, equal or tapering downward, pruinose, stuffed or hollow, *not spotted,* white or whitish; spores *white*, .00025 to .0003 in.; milk white, sparse, slowly changing to pale yellow, taste acrid.

Var. *albus.* Pileus at first white, flesh white, stem short, milk very sparse or almost none.

Pileus 1.5 to 4 in. broad, stem .5 to 1.5 in. long, 3 to 6 lines thick.

Woods and open places, especially under or near pine trees. Forestburgh, Karner, West Albany and Greig. September and October.

The tomentose Lactarius is distinguished from all our other species by its conspicuously woolly pileus. It is this character that gives name to the plant. The hairs or fibrils are long and intricately matted, and so viscid in wet weather that fragments of leaves, sticks and dirt are often found adhering to them. The variety, which is found especially on sandy soil near pine trees, is white when young, but with age it is apt to become stained with a dirty-yellow or rusty-yellow hue, especially in the center. The milk is very sparse and sometimes wanting. The stem is so short that the pileus appears to rest on the ground. In the form which grows in woods the stem is longer, and the pileus approaches the next species in color. Fries describes the stem as two to three inches long and one inch thick, but I have seen no specimens with stems so large. The plant occurs in autumn, and sometimes several successive crops appear in the same locality in one season. It is sometimes subcæspitose.

Milk white or whitish, unchangeable.

* Pileus viscid when moist.

Lactarius torminosus, *Fr.*

Colic Lactarius. Woolly Lactarius.

Agaricus torminosus, Schæff. *A. necator*, Bull. *A. piperatus*, L. *A. barbatus*, Retz.

Pileus convex, then depressed, viscid when young or moist, yellowish-red or pale-ochraceous tinged with red or flesh color, often varied with zones or spots, the at first involute *margin persistently tomentose-hairy;* lamellæ thin, close, narrow, whitish, often tinged with yellow or flesh color; stem equal or slightly tapering downward, hollow, sometimes spotted, whitish; spores subglobose or broadly elliptical, .00035 to .0004 in., milk white, taste acrid.

Pileus 2 to 4 in. broad, stem 1.5 to 3 in. long, 4 to 8 lines thick.

Woods. Adirondack mountains and Sandlake. August.

This species differs from all the preceding by its unchangeable milk, and from all the following by the coarse tomentum or hairs of the margin of the pileus. Badham says that it is acrid and poisonous, and Gillet declares it to be deleterious and even dangerous, and that in the raw state it is a very strong drastic purgative. On the other hand Cordier states that almost all authors agree in saying that it is eaten with impunity, and that Letellier has eaten it more than once without inconvenience.

Lactarius sordidus, *Peck.*

Pileus thick, firm, convex and centrally depressed, then nearly plane or subinfundibuliform, *subglabrous*, slightly viscid when moist, *soon dry, pale yellowish-brown, tinged with sordid green*, often darker in the center; lamellæ narrow, close, white or yellowish; stem short, firm, equal or slightly tapering upward, hollow, colored like the pileus, generally spotted; spores .0003 to .00035 in.; milk white, taste acrid.

Pileus 2 to 4 in. broad, stem 1 to 2 in. long, 4 to 8 lines thick.

Woods and open places, especially under spruce and balsam trees. Adirondack mountains and Sandlake. August and September.

This species appears to resemble *L. turpis* Fr. in color, but that species differs, according to the description of Fries, in having the margin of the pileus at first villose or tomentose, the stem stuffed, attenuated downward, not spotted, and the pileus covered with a tenacious gluten. Like it, our plant has a sordid, forbidding appearance. It sometimes appears to be adorned with a few obscure fibrils or to be slightly scabrous or hairy.

Lactarius trivialis, *Fr.*

Common Lactarius.

Pileus convex, then nearly plane, umbilicate or centrally depressed, glabrous, viscid, sometimes zonate, leaden-gray, livid-cinereous or pale brown, often with a pink or lilac tint, the thin inflexed margin at first with a grayish pruinosity; lamellæ rather narrow, close, thin, adnate, sometimes forked, whitish, becoming pallid or creamy-yellow, with *dingy-greenish stains where wounded;* stem equal or slightly tapering upward, long or short, glabrous, rarely spotted, hollow, whitish, often tinged with yellow or gray, *paler than the pileus;* spores *yellowish*, .0003 to .0004 in.; milk *whitish or pale cream color*, taste acrid.

Var. *maculatus* Pileus zonate or spotted and zonate, stem sometimes spotted.

Var. *gracilis.* Pileus small, 1 to 2 in. broad, stem equal to or longer than the diameter of the pileus, often tapering upward.

Pileus 1 to 6 in. broad, stem 1 to 5 in. long, 3 to 10 lines thick.

Woods and open places Sandlake, Albany and Adirondack mountains. July to September.

A variable species. Some forms of our plant exhibit the characters attributed to the European fungus, others do not; but these forms all run together in such a way as to leave scarcely a doubt of their specific unity. I have therefore merely distinguished two of these forms as varieties. In all the forms the pileus is sometimes zonate, and in one it is spotted, though Fries describes the pileus as "azonate" and the stem as "immaculate." In the variety *maculatus* a zonate pileus and spotted stem are sometimes united in the same plant. This form occurred in low woods in Gansevoort. The plants were large and the stem long. The variety *gracilis* was found in woods in Greig, and is so small and slender that it appears like a distinct species, yet exhibits the essential specific characters. The thin pellicle of the pileus is separable and the whitish flesh has a dingy or grayish hue immediately beneath it. The plant is sometimes cæspitose.

Lactarius hysginus, *Fr.*

Reddish Lactarius.

Agaricus vietus, Krombh.

Pileus rigid, at first convex, then nearly plane, umbilicate or slightly depressed, even, viscid, zoneless or rarely obscurely zonate, *reddish-incarnate, tan-color* or *brownish-red,* becoming paler with age, the thin margin inflexed; lamellæ close, adnate or subdecurrent, whitish, becoming yellowish or cream colored; stem equal, glabrous, stuffed or hollow, colored like the pileus, or a little paler, sometimes spotted; spores subglobose, *whitish on black paper, yellowish on white paper,* .00035 to .0004 in.; milk white, taste acrid.

Pileus 2 to 3 in. broad, stem 1 to 2 in. long, 4 to 8 lines thick.

Woods. Sandlake and Caroga. July and August. Not common.

The reddish hue of the pileus distinguishes this species from its allies. The gluten or viscidity of the pileus in our specimens was rather tenacious and persistent.

Lactarius affinis, *Peck.*

Related Lactarius.

Pileus convex and centrally depressed, glabrous, viscid, *zoneless, ochraceous-yellow;* lamellæ rather broad, subdistant, whitish or creamy-yellow, some of them forked; stem equal, glabrous, stuffed or hollow, colored like the pileus, often spotted; spores .00035 to .00045 in.; milk white, taste acrid.

Pileus 2 to 4 in. broad, stem 1 to 2 in. long, 6 to 12 lines thick.

Pastures and copses. Catskill mountains. October. Rare.

I have observed this species but once. Mr. Morgan has found a stout form of it in Vermont. In his specimens the stem is conspicuously spotted, in the New York specimens sparingly. The species is

closely related to *L. insulsus*, but apparently distinct by its darker color, broader, looser lamellæ and zoneless pileus. It appears to be intermediate between that species and *L. hysginus*.

Lactarius insulsus, *Fr.*

Unsavory Lactarius.

Agaricus flexuosus, Secr.

Pileus convex and umbilicate, then infundibuliform, glabrous, viscid, *more or less zonate, yellowish*, the margin naked; lamellæ thin, close adnate or decurrent, some of them forked at the base, whitish or pallid; stem equal or slightly tapering downward, stuffed or hollow, whitish or yellowish, generally spotted; spores .0003 to .00035 in.; milk white, taste acrid.

Pileus 2 to 4 in. broad, stem 1 to 2 in. long, 4 to 6 lines thick.

Thin woods and open, grassy places. Greenbush and Sandlake. July and August.

Our plant has the pileus pale yellow or straw color, and sometimes nearly white, but European forms have been described as having it orange-yellow and brick-red. It is generally, though often obscurely, zonate. The zones are ordinarily more distinct near the margin, where they are occasionally very narrow and close. The milk in the Greenbush specimens had a thin, somewhat watery appearance. Authors differ in their estimate of its qualities, some affirming that it is edible, others that it is poisonous It is classed as edible in the Curtis Catalogue, and Cordier says that it appears to be edible.

Lactarius cinereus, *Peck.*

Cinereous Lactarius.

Pileus thin, nearly plane and *umbilicate or subinfundibuliform, glabrous, viscid, pale gray or cinereous*, the disk sometimes darker colored; lamellæ narrow, close, white; stem equal or slightly tapering upward, stuffed, sometimes tomentose at the base, *colored like the pileus;* spores *white*, .00028 to .0003 in.; milk white, taste acrid.

Pileus 1 to 2 in. broad, stem 1 to 3 in. long, 3 to 4 lines thick.

Woods. Sandlake and Greig. August and September.

The species is evidently closely allied to *L. vietus* Fr., but I have never seen the pileus umbonate or expallent, nor the milk become gray, characters attributed to that species. In our plant the viscid pellicle is separable. In shape and size it resembles *L. trivialis* v. *gracilis*, but its paler usually umbilicate pileus, concolorous stem and white spores separate it. Mr. Morgan finds, in Vermont, a somewhat larger form with the pileus sometimes zonate.

** Pileus not viscid

† *Pileus minutely tomentose or squamulose*

Lactarius griseus, *Peck.*

Gray Lactarius.

Pileus thin, nearly plane, broadly umbilicate or centrally depressed, sometimes infundibuliform, generally with a small umbo or papilla,

minutely squamulose tomentose, gray or brownish-gray, becoming paler with age; lamellæ thin, close, adnate or slightly decurrent, whitish or yellowish; stem slender, equal or slightly tapering upward, rather fragile, stuffed or hollow, generally villose or tomentose at the base, paler than or colored like the pileus, spores .0003 to .00035 in.; milk white, taste subacrid.

Pileus 6 to 18 lines broad, stem 1 to 2 in. long, 1 to 3 lines thick.

Woods and swamps on much decayed wood and mossy ground. Common. July to September.

The relationship of this species is with *L. mammosus* Fr., from which it differs in its lamellæ, which do not become ferruginous, and in its stem which is not pubescent, though it generally has long coarse tomentose hairs at its base. Its habitat also is peculiar, being much decayed mossy prostrate trunks or damp mossy vegetable mold in woods and swamps. It bears some resemblance to *L. cinereus* in form and color, but it is generally smaller, and easily distinguished by its dry tomentulose pileus.

Lactarius glyciosmus,

Fragrant Lactarius. Scented Lactarius.

Pileus thin, convex nearly plane or depressed, often with a small umbo or papilla, *minutely squamulose*, cinereous, grayish-brown or smoky-brown, sometimes tinged with pink, the margin even or slightly and distinctly striate; lamellæ narrow, close, adnate or decurrent, whitish or yellowish; stem equal, glabrous or obsoletely pubescent, stuffed, rarely hollow, whitish or colored like the pileus; spores .0003 to .00035 in., milk white, taste acrid and unpleasant, sometimes bitterish, odor *aromatic*.

Pileus 6 to 18 lines broad, stem 6 to 18 lines long, 1 to 3 lines thick.

Woods and open places on the ground and on decaying wood Adirondack mountains, West Albany and Karner. September and October.

The distinctive characters of the species are its small size, squamulose pileus and agreeable odor. This is described by European authors as spirituous or like that of alcohol, but to me it resembles rather that of dry melilot and is not much unlike that of *L. camphoratus*. The American plant, so far as observed, does not have the red hues ascribed to the European.

Lactarius alpinus, *Peck*.

Alpine Lactarius.

Pileus thin, convex or nearly plane, sometimes centrally depressed, occasionally with a small umbo or papilla, tomentose or squamulose, *tawny-ochraceous;* lamellæ close, adnate or decurrent, yellowish; stem equal or slightly tapering upward, glabrous, solid or stuffed, paler than or colored like the pileus; spores .0003 to .00035 in.; milk *white*, taste acrid.

Pileus 8 to 18 lines broad, stem 12 to 18 lines long, 2 to 3 lines thick

Summit of Haystack mountain and Karner. August. Rare.

Apparently allied to *L. helvus* Fr., but so much smaller that I can scarcely think it the same species and have for the present kept it distinct. The plants resemble *L. subdulcis* in size and somewhat in color,

but differ in their squamulose pileus. The specific name proves to be inappropriate, as the species has been found in a much lower region than that of its original discovery.

Lactarius helvus, *Fr.*

Pale-red Lactarius.

Pileus fleshy, *fragile*, convex, then plane or depressed, subumbonate, dry, *silky or floccose-squamulose* and rivulose, *pale-testaceous*, becoming paler; lamellæ decurrent, thin, close, whitish-ochraceous; stem stuffed or hollow, *pruinose-pubescent;* milk sparse, subacrid, white.

Var. *aquifluus*. *L. aquifluus* Peck. Milk sparse, *watery*, taste mild or subacrid, spores .0003 to .00035 in.; odor weak in the fresh plant, more decided in the dried specimens, aromatic and agreeable.

Pileus 2 to 6 in. broad, stem 3 to 6 in. long, 4 to 10 lines thick.

Mossy ground in swamps and marshes. Adirondack mountains, Sandlake and Karner. July and August.

Our specimens agree so closely with the description of *L. helvus*, as given by Fries, and of which a translation is here given, that we have referred them to that species, distinguishing them merely as a variety on account of the watery milk. Fries regards such a milk as belonging to a degenerate or abnormal state of the species, and the result of too much moisture. But unless *L. alpinus*, shall prove to be a dwarf form of *L. helvus*, only this form of the species has been detected within our limits and indeed in this country. It scarcely seems probable that a species would occur constantly and repeatedly, in various widely separated localities, in a degenerate condition only. It would seem probable that occasionally, in a dry time or in a more dry locality, it would revert to its normal condition. But this has not yet been observed to happen in our plant, therefore we have preferred to consider it a variety. The milk sometimes presents a slightly turbid appearance, less clear than water. The pileus becomes quite fragile when old, and the thin margin is then spreading and sometimes flexuous. The color is a grayish-red or pale tawny-red. The stem is nearly equal, but in young plants it is often narrowed toward the apex. It is glabrous or pruinose and soon hollow, often a little paler than the pileus and slightly striate at the apex from the decurrent lamellæ. The flesh is tinged with pink or a pale pinkish-gray. The plant is sometimes cæspitose.

Lactarius vellerius, *Fr.*

Fleecy Lactarius.

Agaricus Listeri Sow. *A. piperatus* Poll.

Pileus compact, at first convex and umbilicate, then expanded and centrally depressed or subinfundibuliform, the *whole surface minutely velvety-tomentose, soft to the touch*, white or whitish, the margin at first involute, then reflexed; lamellæ *distant or subdistant*, adnate or decurrent, sometimes forked, whitish becoming yellowish or cream-colored; stem firm, solid, equal or tapering downward, *pruinose-pubescent,* white; spores white, *nearly smooth*, .0003 to .00035 in.; milk white, taste acrid.

Pileus 2 to 5 in. broad, stem .5 to 2 in. long, 6 to 16 lines thick.

Woods and open places. Common. July to September.

The soft downy tomentum which is characteristic of this species and which covers the whole pileus gives it a pruinose appearance when viewed from a little distance. The stem is generally short and is sometimes broader than long. The lamellæ vary in width from two to four lines and are generally about equal in width to the thickness of the pileus. They become stained where bruised. The milk, which is sometimes quite abundant in wet weather, exudes from wounds and dries into cream-colored gummy granules. The taste is very acrid. Cordier states that it is poisonous according to some authors, edible according to Leveille.

Lactarius deceptivus, *Peck.*

Deceptive Lactarius.

Pileus compact, at first convex and umbilicate, then expanded and centrally depressed or subinfundibuliform, *obsoletely tomentose or glabrous* except on the margin, white or whitish, often varied with yellowish or sordid stains, the margin at first involute and *clothed with a dense, soft or cottony tomentum*, then spreading or elevated and more or less fibrillose; lamellæ rather broad, distant or subdistant, adnate or decurrent, some of them forked, whitish, becoming cream colored; stem equal or narrowed downward, solid, pruinose-pubescent, white; spores white, .00035 to .0005 in.; milk white, taste acrid.

Pileus 3 to 5 in. broad, stem 1 to 3 in. long, 8 to 18 lines thick.

Woods and open places, especially under hemlock trees. Common. July to September.

This plant appears to have been confused with *L. vellereus*, which it closely resembles, but from which it appears to me to be quite distinct, both in the character of the tomentum of the pileus and in its decidedly larger and rougher spores. The young pileus is clothed with a thin, silky tomentum, which, on the involute margin, is quite thick, but very soft and cottony, and sometimes striated with parallel impressions, produced by previous pressure against the edges of the lamellæ. In the mature plant the pileus appears nearly or quite glabrous, or is merely shaggy fibrillose on the margin. Sometimes the cuticle seems to be slightly rimose, and the surface then has a kind of scaly appearance. The lamellæ are as broad and distant as in *L. vellereus*, but the stem is generally a little longer in the present species than it is in that. The glabrous form of this species was referred to *L. piperatus* in the Twenty-third Report. An experiment of its edible qualities was made without any evil consequences. The acridity was destroyed by cooking.

†† *Pileus glabrous or merely pruinose or pruinose-pubescent, not squamulose.*

Lactarius piperatus, *Fr.*

Peppery Lactarius.

Agaricus piperatus, Scop. *A. acris*, Bull. *A. Listeri*, Krombh.

Pileus compact, at first convex and umbilicate, then expanded and centrally depressed or infundibuliform, even, *glabrous*, white; lamellæ *narrow, crowded, dichotomous*, adnate or decurrent, white or cream colored; stem equal or slightly tapering downward, solid, glabrous,

white ; spores white, nearly smooth, .00025 to .0003 in.; milk white, abundant. taste very acrid.

Pileus 1.5 to 4 in. broad, stem .5 to 2 in. long, 5 to 10 lines thick.

Thin woods, pastures and grassy places. Common. July to September.

The glabrous or sometimes merely pruinose pileus, the crowded and frequently forked narrow lamellæ separate this species from the other white ones. The lamellæ are one to two lines broad, their width being less than the thickness of the flesh of the pileus. The stem is either very short or quite long, according to the place of growth, it being longer when growing in woods among fallen leaves than when growing in open grassy places. In the summer of 1883 this and the two preceding species were abundant in the town of Sandlake, and all grew in the same locality. By a little practice they were readily distinguishable, even without a close inspection.

Most authors agree in attributing edible qualities to this species, notwithstanding its intense acridity. Badham says that he has frequently eaten it, and that according to Berkeley it is preserved for winter use by pickling in salt and vinegar. Cordier says that it is an agreeable aliment and is eaten in many countries, and that cows eat it with avidity, but that it renders their milk and butter nauseous. Fries says it is edible, and it is so classed in Curtis' Catalogue. Gillet states that although it does not constitute an agreeable article of food, it is eaten in some parts of France, and that the Russians make frequent use of it.

Lactarius albidus, *Peck.*

White Lactarius.

Pileus *thin*, plane or slightly depressed, glabrous, dry, white ; lamellæ *subdistant*, adnate or slightly decurrent, white, the *interspaces venose ;* stem equal, solid, glabrous, white ; spores white, .0003 to .00035 in.; milk white, taste acrid.

Pileus 1.5 to 3 in. broad, stem 1 to 2 in. long, 3 to 5 lines thick.

Thin woods. Karner. September. Very rare.

This Lactarius has been observed but once, and then but few specimens were seen, yet it appears to be distinct from all our other white species in its thin pileus, subdistant lamellæ, venose interspaces and rather slender stem. Except in color, it has some similarity to the next species.

Lactarius varius, *n. sp.*

Variable Lactarius.

Pileus thin, convex or nearly plane, umbilicate or centrally depressed, sometimes with a minute umbo or papilla, *glabrous*, even or obscurely roughened, submoist, zoneless or rarely narrowly zonate on the margin, *gray or brown, often tinged with lilac*, lamellæ close, adnate or subdecurrent, whitish or cream colored, becoming dingy-greenish where wounded ; stem equal, elastic, glabrous, solid or spongy within, paler than or colored like the pileus ; spores white, .0003 to .00035 in.; milk white, taste tardily acrid, *odor none*, flesh white.

Pileus 1 to 2.5 in. broad, stem 1 to 2.5 in. long, 2 to 4 lines thick.

Thin woods and moist places. West Albany and Karner. September.

A very variable species. The prevailing color of the pileus is gray or lead-gray. but it is often lilac-brown. Its surface has a moist and shining appearance, but it is sometimes seen under a lens to be roughened by minute pits or depressions, in which case it presents silvery or sparkling reflections as if micaceously atomate. It often grows with *L. glyciosmus* from which it is distinguished by its glabrous pileus and lack of odor. It also approaches *L. plumbeus*, but differs from it in its smaller size, paler color, moist appearance and larger spores. Wounds of the lamellæ assume a hue similar to that seen under similar circumstances in *L. trivialis*.

Lactarius parvus, *Peck.*

Small Lactarius.

Pileus nearly plane or depressed, *even*, glabrous, *zoneless*, reddish-brown or lilac-brown, *becoming paler with age*, lamellæ narrow, crowded, white or yellowish, becoming dingy-greenish where wounded; stem equal or slightly tapering upward, often curved, stuffed, whitish ; spores globose, white, .0003 to .0004 in.; milk white, taste acrid.

Pileus 6 to 12 lines broad, stem 6 to 12 lines long, 1 to 2 thick.

Old stumps and prostrate trunks in woods. Sandlake, Osceola and Greig. August and September.

This small species is closely allied to *L. varius*, of which it might be considered a mere variety. It differs in being smaller, in having the pileus constantly even, zoneless, destitute of an umbo or central papilla and in growing paler with age. I have only found it growing on decaying wood. When growing on the sides of stumps and prostrate trunks, the stem is often curved and sometimes eccentric.

Lactarius plumbeus, *Fr.*

Lead-colored Lactarius.

Agaricus plumbeus, Bull.

"Pileus compact, convex, then infundibuliform, dry, unpolished *fuliginous or brownish-black;* lamellæ crowded, white or yellowish; stem solid, equal, thick ; milk white, acrid, *unchangeable*," spores .00025 to .0003 in.

Pileus 2 to 5 in. broad, stem 1.5 to 3 in. long, 3 to 6 lines thick.

The specimens which I have referred to this species were found in the Catskill mountains several years ago, growing in hemlock woods, under spruce and balsam trees. I have not met with the species since. The pileus in the larger specimens had a minutely tomentose appearance, but in the dried specimens this has disappeared. They also varied in color from blackish-brown to pinkish-brown and grayish-brown, but they can scarcely be more than a mere form or variety of the species the description of which, as given by Fries, I have quoted. In the Handbook the pileus is described as dark fuliginous gray or brown, and Gillet describes it as black-brown, dark fuliginous or lead-color, and adds that the plant is poisonous and the milk very acrid and burning. Cordier says that the flesh is white and the taste bitter and disagreeable.

Lactarius pyrogalus, *Fr.*

Caustic Lactarius.

Agaricus pyrogalus, Bull. *A. rusticanus*, Scop.

Pileus broadly convex, plane or slightly depressed, sometimes umbilicate, glabrous, even, *submoist*, *generally zonate*, livid-cinereous, grayish-brown or lilac-brown; lamellæ thin, *distant or subdistant*, adnate or subdecurrent, *yellowish;* stem equal or slightly tapering downward, glabrous, stuffed or hollow, paler than or colored like the pileus; spores globose, *yellowish*, .0003 to .00035 in.; milk white, taste acrid.

Pileus 1.5 to 2.5 in. broad, stem 1 to 1.5 in. long, 2 to 4 lines thick.

Thin woods and open places. Sandlake, Greenbush and Karner. August to October.

The zonate pileus, distant lamellæ and yellowish spores separate this species from its allies. The milk is copious and very acrid and the species is regarded as poisonous. Cordier states that the milk is mild in young plants, acrid in mature ones.

Lactarius fuliginosus, *Fr.*

Dingy Lactarius.

Agaricus azonites, Bull. *A. plinthogalus*, Otto. *L. fumosus*, Pk.

Pileus firm becoming soft, convex plane or slightly depressed, even, *dry*, zoneless, *dingy-cinereous or buff-gray*, appearing as if covered with a dingy pruinosity, the margin sometimes wavy or lobed; lamellæ adnate or subdecurrent, subdistant, whitish, then yellowish, becoming *stained with pink-red or salmon color where wounded;* stem equal or slightly tapering downwards, firm, stuffed, colored like the pileus; spores globose, *yellowish*, .0003 to .0004 in.; milk white, taste tardily and sometimes slightly acrid.

Pileus 1 to 2.5 in. broad, stem 1 to 2 in. long, 3 to 5 lines thick.

Thin woods and open grassy places. Greenbush and Sandlake. July and August.

The pileus, in this species, has a peculiar dingy or smoky hue which is suggestive of the specific name. The color is a pale-cinereous or yellowish-gray compared by some authors to the color of coffee and milk. This and the yellowish color of the spores, the tardily acrid taste and the pinkish hue of the wounds of the lamellæ and flesh characterize the species. Both Fries and Gillet state that the milk, as well as wounds of the flesh, changes to a pinkish or saffron hue on exposure to the air. This would transfer the place of the species to our second group, for which we have made provision in the synoptical table. But we have failed to verify this character in our plant, and consequently it was formerly supposed to be distinct from the European, and was published under the name *Lactarius fumosus*. But inasmuch as the European plant has also been described as having white unchangeable milk, and since our plant agrees in every other respect with the description given by Fries, it is quite probable that the species may vary in this respect and we have therefore referred our plant to it. Cordier states that according to Barla and Reveil this species is poisonous.

Lactarius lignyotus, *Fr.*

Sooty Lactarius.

Pileus broadly convex plane or slightly depressed, dry, with or without a small umbo, generally rugose-wrinkled, *dark-brown, appearing subpulverulent or as if suffused with a dingy pruinosity*, the margin sometimes crenately lobed and distinctly plicate; lamellæ moderately close or subdistant, adnate, white or yellowish, *slowly changing to pinkish-red or salmon color where wounded;* stem equal or abruptly narrowed at the apex, even, glabrous, stuffed, colored like the pileus, sometimes plicate at the top; spores globose, *yellowish*, .00035 to .00045 in.; milk white, taste mild or tardily and slightly acrid.

Var. *tenuipes.* Pileus about 1 inch broad, stem slender, 2 to 3 in. long and about two lines thick.

Pileus 1 to 4 in. broad, stem 1 to 3 in. long, 2 to 6 lines thick.

Wet or mossy ground in woods and swamps. Adirondack mountains and Sandlake. July and August. Not rare in hilly and mountainous districts.

The sooty Lactarius is closely related to the preceding species with which it was formly united by Fries as a variety, but from which it may be distinguished by its larger size. darker color and generally rugose-wrinkled pileus. Wounds of the flesh and lamellæ slowly change color as in that species, and, according to the description given by Fries, the milk also undergoes a similar change, but I have not been able to verify this in the American plant. According to the description of *L. subtomentosus,* B. & R., the milk in that plant changes from white to yellowish and the taste is acrid. In the Twenty-third Report our plant was erroneously referred to that species.

Lactarius Gerardii, *Peck.*

Gerard's Lactarius.

Pileus broadly convex plane or slightly depressed, dry, generally rugose-wrinkled, with or without a small umbo or papilla, *dingy-brown*, the thin spreading margin sometimes flexuous lobed or irregular; lamellæ *distant*, adnate or decurrent, *white or whitish*, the interspaces generally uneven; stem subequal, stuffed or hollow, colored like the pileus; spores globose, *white*, .00035 to .00045 in.; milk white, *unchangeable*, taste *mild.*

Pileus 1.5 to 4 in. broad, stem 1 to 2 in. long, 3 to 6 lines thick.

Woods and open places. Poughkeepsie. *W. R. Gerard.* Greenbush, Sandlake and Croghan. July to September.

This Lactarius closely resembles the sooty Lactarius in color, but differs from it in its more distant lamellæ, white spores and constantly mild taste. Wounds of the flesh and lamellæ do not become pinkish-red as in that plant. From the next species its darker color, hollow stem and more globose rougher spores separate it.

Lactarius hygrophoroides, *B. & C.*

Hygrophorus-like Lactarius. Distant-gilled Lactarius.

Lactarius distans, Pk.

Pileus firm, convex or nearly plane, umbilicate or slightly depressed, rarely infundibuliform, glabrous or sometimes with a minute velvety

pubescence or tomentum, dry, sometimes rugose-wrinkled and often becoming rimose-areolate, *yellowish-tawny or brownish-orange;* lamellæ *distant*, adnate or subdecurrent, white or cream-color, the interspaces uneven or venose; stem short, equal or tapering downward, *solid*, glabrous or merely pruinose, colored like the pileus; spores subglobose or broadly elliptical, *nearly smooth*, .00035 to .00045 in.; milk white, taste mild.

Pileus 1 to 4 in. broad, stem .5 to 1 in. long, 4 to 8 lines thick.

Grassy ground and borders of woods. Albany, Greenbush and Sandlake. July and August.

This plant has almost exactly the color of *L. volemus*, but differs from it in its distant lamellæ, short stem, less copious milk and less globose spores. Its flesh is white, with a thickness about equal to the breadth of the lamellæ. It is probably edible, but has not yet been tested. The typical *L. hygrophoroides* is described as having the pileus yellowish-red and pulverulent, and the lamellæ luteous. It is also represented as a small plant; but our specimens, while not fully agreeing with this description, approach so closely to it in some of their forms that they doubtless belong to the same species. We have therefore extended the description so that it may include our plant. In wet weather the pileus sometimes becomes funnel-form by the elevation of the margin.

Lactarius volemus, *Fr.*

Orange Lactarius. Orange-brown Lactarius.

Agaricus testaceus, A. & S. *A. ruber*, Secr.

Pileus firm, convex nearly plane or centrally depressed, rarely infundibuliform, sometimes with a small umbo, generally even, *glabrous*, dry, *golden-tawny or brownish-orange*, sometimes darker in the center, often becoming rimose-areolate; lamellæ *close*, adnate or subdecurrent, white or yellowish, becoming sordid or brownish where bruised or wounded; stem subequal, variable in length, firm, solid, glabrous or merely pruinose, colored like the pileus, sometimes a little paler; spores *globose*, white, .00035 to .00045 in.; milk *copious*, white, taste acrid.

Var. *subrugosus*. Pileus rugose-reticulated on the margin.

Pileus 2 to 5 in. broad, stem 1 to 4 in. long, 4 to 10 lines thick.

Thin woods and open places. Common. July to September. Edible.

The color of the pileus is a peculiar mixture of red and yellow, sometimes shaded with brown. It is generally free from the attacks of insects, and this, with its beautiful and nearly uniform color, makes it an attractive species. It is nearly as celebrated as *L. deliciosus* for its edible qualities. Cordier says "it is one of the most agreeable fungi to eat." Its flesh is firm but brittle, white or yellowish. Its milk is very abundant and its taste mild or slightly astringent. In drying, the specimens sometimes emit a disagreeable odor. We have followed Fries and other continental mycologists in writing the specific name "volemus." Some English authors have it "volemum." The variety connects this species with the next.

Lactarius corrugis, *Peck.*

Corrugated Lactarius.

Pileus firm, convex, then nearly plane or centrally depressed, *rugose reticulated*, covered with a *velvety pruinosity or pubescence*, *dark*

reddish-brown or chestnut color, fading with age to tawny-brown; lamellæ close, dark cream color or subcinnamon, *becoming paler* when old, sordid or brownish where bruised or wounded , stem equal, solid, glabrous or merely pruinose, paler than but similar in color to the pileus ; spores subglobose, .0004 to .0005 in., milk copious, white, taste mild.

Pileus 3 to 5 in. broad, stem 3 to 5 in. long, 6 to 12 lines thick.

Thin woods. Sandlake, Gansevoort and Brewerton. August and September.

This curious Lactarius is related to *L. volemus*, from which it may be separated by its darker colors and its corrugated pileus. The flexuous reticulated rugæ present an appearance similar to that of the hymenium of a Merulius. The pileus is everywhere pruinose-pubescent and the lamellæ bear numerous spine-like or acicular cystidia or spicules, .0016 to .002 in. long. These are so numerous on and near the edges of the lamellæ that they give them a pubescent appearance.

Lactarius platyphyllus, *Peck.*

Broad-gilled Lactarius.

Pileus depressed or subinfundibuliform, glabrous, zoneless, *yellowish-incarnate or yellowish-red*, the decurved or spreading margin sometimes wavy or flexuous ; lamellæ *broad*, subdistant, yellowish ; stem equal, stout, *hollow*, paler than or colored like the pileus ; spores subglobose or broadly elliptical, .00035 to .00045 in.; milk white, taste acrid.

Pileus 4 to 8 in. broad, stem 3 to 5 in. long, 6 to 12 lines thick. Woods. North Elba. August.

This large species is apparently very rare. It has been observed but once, and then in dry weather, so that it was not positively ascertained whether the pileus may not be viscid when moist. Its real position is, therefore, uncertain. The lamellæ are four or five lines broad and the flesh is white or whitish.

Lactarius rufus, *Fr.*

Red Lactarius.

Agaricus rufus, Scop.

Pileus convex and centrally depressed, then infundibuliform, generally with a small umbo, glabrous, sometimes slightly floccose or pubescent when young, especially on the margin, zoneless, *bay-red or brownish-red*, shining; lamellæ narrow or moderately broad, sometimes forked, close, subdecurrent, yellowish or reddish : stem nearly equal, firm, stuffed, paler than or colored like the pileus ; spores white, .0003 to 0004 in.; milk white, taste very acrid.

Pileus 2 to 4 in. broad, stem 2 to 4 in. long, 3 to 5 lines thick.

Low woods and swamps. North Elba. August. Rare.

The red Lactarius is known by its rather large size, dark-red pileus and intensely acrid taste. It has been found but once in our State. The flesh is pinkish and the stem sometimes pruinose. It is designated by authors as very poisonous and extremely poisonous. Cordier even says that worms never attack it.

Lactarius camphoratus, *Fr.*

Camphor Lactarius.

Agaricus camphoratus, Bull.

Pileus thin, convex, then nearly plane or depressed, generally with a small umbo or papilla, glabrous, *bay-red or brownish-red*, sometimes zonate, the spreading margin occasionally wavy or flexuous; lamellæ narrow, thin, close, yellowish or dull reddish; stem subequal, glabrous, stuffed or hollow, colored like the pileus; spores globose, white, .0003 to .00035 in.; milk white, taste *mild*, odor *agreeable, aromatic*.

Pileus .5 to 1.5 in. broad, stem 1 to 2 in. long, 2 to 3 lines thick.

Swamps and wet places, also in woods. Sandlake and Adirondack mountains. July to September.

This plant resembles the preceding species in color, but it differs from it decidedly in size and in taste. The European plant is described as subzonate, but I have seen no zonate specimens. The color of the lamellæ, when old, resembles that of the pileus, though they are paler. The odor is not like that of camphor, as the name would seem to imply. To me it resembles that of dried *Cyperus inflexus* or dried melilot. It is often weak in the fresh plant, but becomes more distinct in the dried specimens, which retain it a long time. Gillet gives the species as edible.

Lactarius subdulcis, *Fr.*

Sweet Lactarius. Sweetish Lactarius.

Agaricus subdulcis, Bull.

Pileus thin, convex, then plane or subinfundibuliform, with or without a small umbo or papilla, glabrous, even, zoneless, moist or dry, tawny-red, cinnamon-red or brownish-red, the margin sometimes wavy or flexuous; lamellæ rather narrow, thin, close, whitish, sometimes tinged with red; stem equal or slightly tapering upward, slender, glabrous, sometimes villous at the base, stuffed or hollow, paler than or colored like the pileus; spores globose, white, .0003 to .00035 in.; milk white, taste mild or tardily and slightly acrid, sometimes woody or bitterish and unpleasant, flesh whitish, pinkish or reddish-gray, odor *none*.

Pileus .5 to 2 in. broad, stem 1 to 2.5 in long 1 to 3 lines thick.

Fields, copses, woods, swamps and wet places. July to October. Very common.

This species grows in almost every variety of soil and locality. It may be found in showery weather on dry, rocky soil, on bare ground or among mosses or fallen leaves. In drier weather it is still plentiful in swamps and wet, shaded places, and in sphagnous marshes. It sometimes grows on decaying wood. It is also as variable as it is common. Gillet has described the following varieties.

Var. *cinnamomeus*. Pileus cinnamon-red, subshining; stem stuffed, then hollow; taste mild, becoming slightly acrid or bitter.

Var. *rufus*. Pileus dull chestnut-red, becoming more concave; stem spongy; taste mild.

Var. *badius*. Pileus bay-red, shining as if varnished, with an obtuse disk and an inflexed, elegently crenulate margin, stem very glabrous, hollow.

The first and second varieties have occurred within our limits. The first also has the stem elastic and furnished with a whitish or grayish tomentum or strigose villosity at the base, when growing among moss in swamps. A form occurred in Sandlake, in which some of the specimens were proliferous. The umbo had developed into a minute pileus. With us the prevailing color of the pileus is yellowish-red or cinnamon-red. Sometimes the color is almost the same as that of *L. volemus* and *L. hygrophoroides*, and again it is a tan color or a bay red, as in *L. camphoratus*, from which such specimens are scarcely separable, except by their lack of odor. In young plants the pileus usually has a moist appearance, which is sometimes retained in maturity. Cordier pronounces the species edible, and says that he has tested it several times without inconvenience.

Lactarius paludinellus, *n. sp*

Little marsh Lactarius.

Pileus thin, plane or slightly depressed, striatulate on the margin, glabrous, generally with a small blackish umbo or papilla, at first *dingy brown, becoming paler with age;* lamellæ moderately close, adnate or slightly decurrent, cream colored; stem nearly equal, stuffed or hollow, glabrous, with a white strigose-villosity at the base, paler than or colored like the pileus; spores .0003 to .00035 in.; milk white, taste mild.

Pileus 6 to 12 lines broad, stem 10 to 18 lines long, 1.5 to 2 thick.

Among sphagnum, in shaded marshes. Sandlake. August.

A small and rare species, related to but distinct from *L. sublucis* by its brownish expellent pileus and striatulate margin.

NEW YORK SPECIES OF PLUTEUS.

PLUTEUS, *Fr.*

Hymenophorum distinct from the fleshy or fleshy-fibrous stem, lamellæ rounded behind, free, at first crowded, white or yellowish, then flesh-colored; annulus and volva none.

The Plutei, in the pink-spored series of Agarics, correspond very nearly in structure to the Lepiotæ in the white-spored series. They differ from the Lepiotæ in having no annulus; and by its absence they are distinguished from the Annulariæ of their own series, and by the absence of a volva, from the Volvariæ. By their free lamellæ they are readily separated from all other pink-spored Agarics. The species are generally of medium or moderately small size. Nearly all inhabit decaying wood in groves or in the shades of forests, but the common Fawn Agaric, *P. cervinus,* is often found on old stumps in open situations where it is exposed to the full light of the sun. The pileus may be floccose-fibrillose, pruinose-pulverulent or glabrous, and by these characters Fries has separated the species into three groups. In some species the central part of the pileus is more or less rugose-wrinkled or uneven. The lamellæ are at first compactly crowded (cohærent) very

much as in some species of Coprini, and in some species they are apt to become moist or almost deliquescent, especially in damp weather. Their color is generally white or yellowish-white when young, but they soon asssume the salmon hue of the spores. They generally yield these readily and in great abundance. The spores, in our species, are even, with a single exception, and generally subglobose or broadly elliptical.

None of the species are very abundant with us and none are classed as edible.

Synopsis of the Species.

Pileus glabrous 1
Pileus not glabrous 2
2 Pileus white 3
2 Pileus not white 5
3 The margin not surpassing the lamellæ 4
3 The thin margin surpassing the lamellæ ..... sterilomarginatus.
4 Stem glabrous or merely fibrillose (partly) ..... cervinus.
4 Stem pubescent or subtomentose ..... tomentosulus.
5 Pileus even or rarely with short marginal striations 6
5 Pileus with long marginal striations ..... longistriatus.
6 Pileus fibrillose or villose on the disk 7
6 Pileus pulverulent pruinose or granulose 8
7 Lamellæ concolorous on the edge (partly) ..... cervinus.
7 Lamellæ darker-colored on the edge ..... umbrosus.
8 Stem velvety-pubescent ..... granularis.
8 Stem glabrous ..... nanus.
1 Pileus even (partly) ..... cervinus.
1 Pileus striate on the margin ..... leoninus.
1 Pileus rugose-reticulate on the disk ..... admirabilis.

Pluteus cervinus, *Schæff.*

Fawn-colored Agaric. Fawn Pluteus.

Pileus fleshy, at first campanulate, then convex or expanded, *even, glabrous, generally becoming fibrillose or slightly floccose-villose* on the disk, occasionally rimose, variable in color; lamellæ broad, somewhat ventricose, at first whitish, then flesh-colored; stem equal or slightly tapering upward, firm. solid, fibrillose or subglabrous, variable in color; spores broadly elliptical, .00025 to. 00032 in. long, .0002 to .00025 broad.

Plant 2 to 6 inches high, pileus 2 to 4 broad, stem 3 to 6 lines thick.

Decaying wood in groves, borders of woods and open places.

This species, with us, is very common and very variable, yet it is not abundant. Usually but one or two specimens are found at a time It grows especially on or about old stumps and prostrate trunks and may be found in wet weather from May to October.

The typical form has the pileus and stem of a dingy or brown color and adorned with blackish fibrils, but specimens occur with the pileus white, yellowish, cinereous, grayish-brown or blackish-brown. I have never seen it of a true cervine color. It is sometimes quite glabrous and smooth to the touch and in wet weather it is even slightly viscid. It also occurs somewhat floccose-villose on the disk, and the disk, though usually plane or obtuse, is occasionally slightly prominent or subumbonate. The form with the surface of the pileus longitudinally rimose or chinky is probably

due to meteorological conditions. The lamellæ, though at first crowded, become more lax with the expansion of the pileus. They are generally a little broader toward the marginal than toward the inner extremity. Their tendency to deliquesce is often shown by their wetting the paper on which the pileus has been placed for the purpose of catching the spores. The stem is usually somewhat fibrous and striated but forms occur in which it is even and glabrous. When growing from the sides of stumps and prostrate trunks it is apt to be curved. Two forms deserve varietal distinction.

Var. *albus.* Pileus and stem white or whitish.

Var. *albipes.* Pileus cinereous yellowish or brown; stem white or whitish, destitute of blackish fibrils.

In Europe there are three or four forms which have been designated as species under the names *A. rigens, A. patricius, A. eximius* and *A. petasatus*, but Fries gives them as varieties or subspecies of *A. cervinus*, though admitting that they are easily distinguished. None of these have occurred in our State. *A. atricapillus,* Batsch., *A. latus,* Bolt., *A. Pluteus,* Pers., and *A. Neesii,* Kl., are given as synonyms of *A. cervinus.*

Pluteus umbrosus, *Pers.*

Shade-loving Agaric. Brown Pluteus.

Pileus fleshy, at first campanulate, then convex or expanded, *rugose wrinkled* and more or less villose on the disk, fimbriate on the margin, *blackish-brown;* lamellæ broad, somewhat ventricose, at first whitish, then flesh-colored, *blackish-brown and fimbriate or denticulate on the edge;* stem solid, colored like or paler than the pileus, fibrillose or villose-squamose; spores elliptical, .0003 in. long, .0002 broad.

Decaying wood and stumps, especially of pine, both in shaded and open places. Not rare.

This is similar in size and general appearance to the preceding species, from which it is readily distinguished by the rugose-villose disk of ths pileus and the dark brown edge of the lamellæ. The color of the pileue is usually darker than in that species. I have not seen it with the margin fimbriate, though this is a prominent character of the species in Europe.

Pluteus granularis, *Peck.*

Granular Pluteus.

Pileus convex or nearly plane, subumbonate, *rugose-wrinkled, granulose or granulose-villose,* varying in color from yellow to brown; lamellæ rather broad, crowded, ventricose, whitish, then flesh-colored; stem equal, solid, colored like the pileus, often paler at the top, *velvety-pubescent,* rarely squamulose; spores subglobose or broadly elliptical, .00025 to .0003 in. long, .0002 to .00025 broad.

Plant 1.5 to 3 inches high, pileus 1 to 2 inches broad, stem 1 to 2 lines thick.

Decaying wood and prostrate trunks in woods. Hilly and mountainous districts. June to September.

The species is closely related to the two preceding, but is readily distinguished from them by the peculiar vesture of the pileus and stem.

The granules are so minute and so close that they form a sort of plush on the pileus, more dense on the disk and radiating wrinkles than elsewhere. The clothing of the stem is finer, and has a velvety-pubescent appearance, but in some instances it breaks up into small scales or squamules. The color of the pileus and stem is usually some shade of yellow or brown, but occasionally a grayish hue predominates. The darker color of the granules imparts a dingy or smoky tinge to the general color. The disk is often darker than the rest of the pileus.

Pluteus nanus, *Pers.*

Dwarf Agaric. Mealy Pluteus.

Pileus somewhat fleshy, thin, convex or nearly plane, obtuse, rugulose, *pulverulent or dingy-pruinose, brown;* lamellæ close, ventricose, white or yellowish, then flesh-colored; stem equal, solid, firm, striate, *glabrous*, white or yellowish; spores subglobose, .0002 to .00025 in. long.

Plant about 1 inch high, pileus 6 to 12 lines broad, stem 1 line thick.

Decaying wood and sticks. Not common nor abundant when it does occur. July to September.

The small size, dingy-mealy or pulverulent pileus and small subglobose spores are characteristic of this species. Small specimens sometimes have the margin of the pileus slightly striate. Large specimens may be distinguished from small forms of the preceding species by the glabrous stem. The European variety *lutescens*, which has the stem and lamellæ yellowish, has not yet been observed in our State. *Agaricus pyrrhospermus*, Bull. is given as a synonym.

Pluteus tomentosulus, *Peck.*

Woolly Agaric.

Pileus thin, convex or nearly plane, subumbonate, *minutely villose or squamulose-tomentose*, white; lamellæ rather broad, rounded behind, crowded, white then flesh-colored; stem equal, solid, striate, *slightly pubescent or subtomentose*, white; spores subglobose or broadly elliptical, .00025 to .00032 in. long, .00025 broad, generally containing a single large nucleus.

Plant 2 to 5 inches high, pileus 1 to 3 inches broad, stem 2 to 4 lines thick.

Decaying wood and prostrate trunks. Catskill mountains and Ganse-voort. July and August.

This rare but beautiful species appears to be the American analogue of the European. *P. pellitus*, Pers., which differs in its silky pileus and glabrous stem. The entire plant, when young, is pure white, but with advancing age the lamellæ assume the usual pinkish hue and the margin of the pileus is sometimes tinged with the same color.

Pluteus sterilomarginatus, *Peck.*

Sterile-margined Agaric.

Pileus thin, broadly convex or expanded, with a minute close-pressed tomentum, pinkish-white, the thin *margin extending beyond the lamellæ;* lamellæ close, subventricose, minutely eroded on the edge, tapering

toward the outer extremity, pale flesh-colored ; stem short, equal, solid, glabrous, straight or curved, whitish ; spores *subglobose, angular*, .00025 in. broad, usually containing a single central nucleus.

Plant about 1 inch high, pileus 6 to 12 lines broad, stem .5 to 1 line thick.

Decaying trunks and sticks in woods. Portville. September.

This rare species has been found but once. It is much smaller and more delicate than the preceding, and easily distinguished by its thin margin projecting beyond the lamellæ and by the character of the spores. The pileus sometimes cracks in areas, and then it has the appearance of being coated with a thin, scaly paste.

Pluteus longistriatus, *Peck.*

Striated Pluteus.

Pileus thin, convex or expanded, dry, *striate to the disk, cinereous or whitish*, the disk often darker than the margin and minutely squamulose or hairy ; lamellæ broad, ventricose, white, then flesh-colored ; stem equal, glabrous, white ; spores globose, .0003 in. broad.

Plant about 2 inches high, pileus 1 to 1.5 broad, stem about 1 line thick.

Decaying wood. Albany. July.

This species is well marked by the long striations of the pileus. It was discovered in one of the streets of Albany in 1876, but has not been observed since that time. The spores at first sight appear globose, but there is a depression on one side that gives them an orbicular or saucer shape.

Pluteus leoninus, *Schæff.*

Lion-colored Agaric. Yellow Pluteus.

Pileus thin, campanulate, then convex or expanded, *even*, glabrous, moist or subhygrophanous, striate on the margin, yellow or reddish-yellow ; lamellæ rather broad, rounded behind, yellowish or yellowish on the edge, then flesh-colored ; stem equal, *solid*, slightly striate, white or yellowish , spores broadly elliptical, .00028 to .00032 in. long, .00025 broad.

Plant about 2 inches high, pileus 1 to 2 inches broad, stem 2 to 3 lines thick.

Decaying wood in forests. Adirondack mountains. August

This is a very rare species in our State. Its glabrous pileus and yellowish color distinguish it from all the foregoing species, its even pileus and solid stem, from the next following species.

Pluteus admirabilis, *Peck.*

Admirable Pluteus.

Pileus thin, convex or expanded, generally broadly umbonate, glabrous, *rugose-reticulated*, moist or hygrophanous, striatulate on the margin when moist, often obscurely striate when dry, yellow or brown ; lamellæ close, broad, rounded behind, ventricose, whitish or yellowish, then flesh-colored ; stem slender, glabrous, *hollow*, equal or slightly

thickened at the base, yellow or yellowish-white, with a white mycelium; spores subglobose or broadly elliptical, .00025 to .0003 in. long, .00025 broad.

Var. *fuscus.* Pileus brown or yellowish-brown.

Plant 1 to 2 inches high, pileus 6 to 10 lines broad, stem .5 o t 1 line thick.

Decaying wood and prostrate trunks in forests. Common in hilly and mountainous districts. July to September.

This beautiful Pluteus is closely related to *P. chrysophlebius,* B. & R., a southern species, which, according to the description, has the veins of the pileus darker colored than the rest of the surface and the stem enlarged above and hairy at the base, characters not shown by our plant. It is also similar to the European *P. chrysophæus,* Schæff., but according to Fries that species is larger and has a more even pileus, which is constantly cinnamon-colored. The variety, which grows with the typical form, sometimes on the same prostrate trunk with it, differs only in color, and forms a connecting link between this species and the European, *P. phlebophorus,* Ditm., from which it is scarcely distinguishable, except by its smaller size, hygrophanous character and striatulate margin. Indeed all the species, together with *P. leoninus,* Schæff., differ from each other by such slight characters that their separation is unsatisfactory. It is quite possible that when the range of their variations is more fully investigated they will be found to constitute a single comprehensive and very variable species. In our plant small young specimens sometimes have the stem solid, but when fully developed it is hollow, though the cavity is small. This character, with its small size, distinguishes it from *P. leoninus.*

EXPLANATION OF PLATE I.

CERCOSPORA COMARI, *Peck.*

Fig. 1. A leaflet spotted by the fungus.
Fig. 2. A tuft of four flocci, two of them bearing spores, x 400.
Fig. 3. Two spores, x 400.

HADROTRICHUM LINEARE, *Peck.*

Fig. 4. Upper part of a leaf bearing linear patches of the fungus.
Fig. 5. A tuft of five flocci, two of them bearing spores, x 400.
Fig. 6. Five spores, x 400.

ENTYLOMA SANICULÆ, *Peck.*

Fig. 7. A leaflet spotted by the fungus.
Fig. 8. Five spores, x 400.
Fig. 9. Four conidia, x 400.

CYLINDROSPORIUM VERATRINUM, *S. & W.*

Fig. 10. Upper part of a leaf bearing linear patches of the fungus.
Fig. 11. A tuft of four flocci, two of them bearing spores, x 400.
Fig. 12. Two spores, x 400.

RAMULARIA OXALIDIS, *Farl.*

Fig. 13. A leaflet spotted by the fungus.
Fig. 14. A tuft of four flocci, two of them bearing spores, x 400.
Fig. 15. Five spores, x 400.

RAMULARIA DIERVILLÆ, *Peck.*

Fig. 16. Upper part of a leaf spotted by the fungus.
Fig. 17. A tuft of four flocci, two of them bearing spores, x 400.
Fig. 18. Six spores, two of them united end to end, x 400.

RAMULARIA PRINI, *Peck.*

Fig. 19. A leaf spotted by the fungus.
Fig. 20. A tuft of four flocci, two of them bearing spores, x 400.
Fig. 21. Five spores, x 400.

Weed, Parsons & Co. Albany, N.Y.

EXPLANATION OF PLATE II.

Ovularia moniloides, *E. & M.*

Fig. 1. A leaf spotted by the fungus.
Fig. 2. A branchlet with the central part frosted by the fungus.
Fig. 3. A tuft of four flocci, two of them bearing spores, x 400.
Fig. 4. Seven spores, x 400.

Agaricus (Inocybe) comatellus, *Peck.*

Fig. 5. Four plants of usual size.
Fig. 6. Vertical section of a pileus and the upper part of its stem.
Fig. 7. A cystidium, x 400.
Fig. 8. Five spores, x 400.

Ascochyta colorata, *Peck.*

Fig. 9. A leaflet spotted by the fungus.
Fig. 10. Five spores, x 400.

Asterina nuda, *Peck.*

Fig. 11. Tip of a branchlet with three fungus bearing leaves.
Fig. 12. A leaf showing the fungus on the lower surface, magnified.
Fig. 13. A leaf showing the fungus on the upper surface, magnified.
Fig. 14. An ascus containing spores, x 400.
Fig. 15. Four spores, x 400.

Leptosphæria lycopodiicola, *Peck.*

Fig. 16. Piece of a branch bearing the fungus.
Fig. 17. A perithecium and its matrix, magnified.
Fig. 18. Two paraphyses and an ascus containing spores, x 400.
Fig. 19. Four spores, x 400.

Leptosphæria Corallorhizæ, *Peck.*

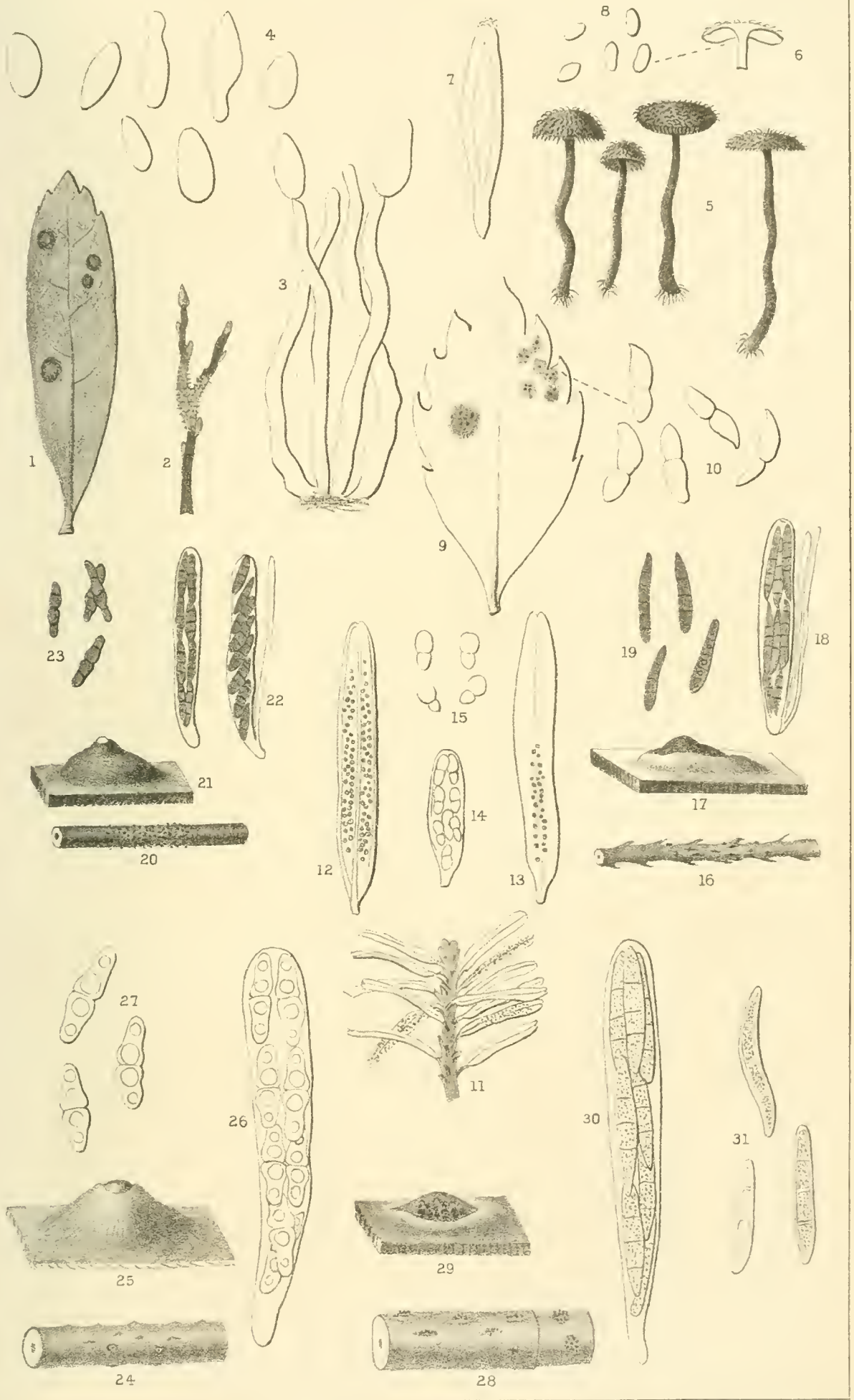
Fig. 20. Piece of a stem, bearing the fungus.
Fig. 21. A perithecium and its matrix, magnified.
Fig. 22. A paraphysis and two asci containing spores, x 400.
Fig. 23. Four spores, x 400.

Metasphæria Myricæ, *Peck.*

Fig. 24. Piece of a branch bearing the fungus.
Fig. 25. A perithecium and its matrix, magnified.
Fig. 26. An ascus containing spores, x 400.
Fig. 27. Three spores, x 400.

Cryptospora Caryæ, *Peck.*

Fig. 28. Piece of a branch bearing the fungus.
Fig. 29. A pustule and its matrix, magnified.
Fig. 30. An ascus containing spores, x 400.
Fig. 31. Three spores, x 400.


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31

EXPLANATION OF PLATE III.

APPENDICULARIA ENTOMOPHILA, *Peck.*

Fig. 1. Leg of a fly bearing the fungus, magnified.
Fig. 2. A perithecium and its appendages more highly magnified.
Fig. 3. Tip of the perithecial rostrum with spores escaping from its apex, x 400.
Fig. 4. Three spores, x 400.

SPHÆROGRAPHIUM HYSTRICINUM, *Sacc.*

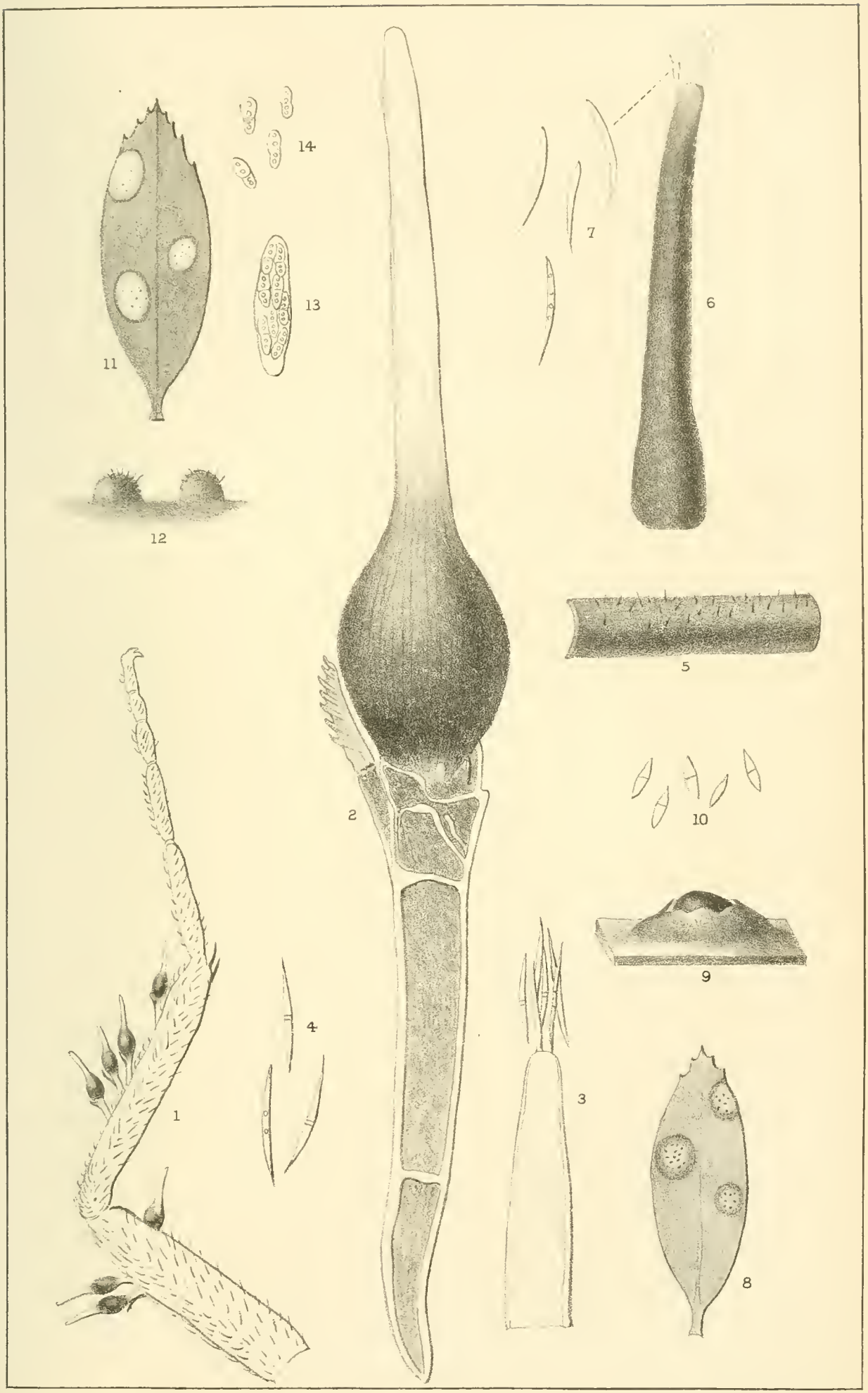
Fig. 5. Piece of bark bearing the fungus.
Fig. 6. A perithecium with spores escaping from its apex, magnified.
Fig. 7. Four spores, x 400.

ASCOCHYTA CASSANDRÆ, *Peck.*

Fig. 8. A leaf spotted by the fungus.
Fig. 9. A perithecium and its matrix, magnified.
Fig. 10. Five spores, x 400.

VENTURIA CASSANDRÆ, *Peck.*

Fig. 11. A leaf spotted by the fungus.
Fig. 12. Two perithecia, magnified.
Fig. 13. An ascus containing spores, x 400.
Fig. 14. Four spores, x 400.



Weed, Parsons & Co. Albany, N.Y.