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# New York State Museum

FREDERICK J. H. MERRILL Director

CHARLES H. PECK State Botanist

Bulletin 54

BOTANY 5

## REPORT OF THE STATE BOTANIST 1901

BY

CHARLES H. PECK M.A.

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## REPORT OF THE STATE BOTANIST 1901

*To the Regents of the University of the State of New York*

I have the honor of submitting to you the report of work done in the botanical department of the state museum during the year 1901.

Specimens of plants for the herbarium have been collected in the counties of Albany, Essex, Franklin, Rensselaer, Warren and Washington. Specimens have been received from correspondents, either as contributions or for identification, that were collected in the counties of Albany, Columbia, Chautauqua, Essex, Franklin, Herkimer, Monroe, Oneida, Onondaga, Ontario, Schoharie, St Lawrence, Warren and Washington. The number of species of which specimens have been collected and added to the herbarium is 374. Of these, 57 were not before represented in it. Of the newly represented species, 37 are found in the collections of the botanist, 20 in those of his correspondents, and of the whole number, 16 are considered new to science and are described as such in the following pages. All of these are fungi and with one exception belong to the collections of the botanist. Specimens of the remaining 317 species make the representation of these species more complete and satisfactory. Of these, 282 belong to the collections of the botanist and 35 to those of his correspondents. A list of the names of the added species is marked A.

The number of those who have contributed specimens for the herbarium or for identification is 34. Of these, 14 have sent extralimital specimens. A list of the names of the contributors and of their respective contributions is marked B.

A record of species not before reported, with notes concerning them, time and place of collecting the specimens and descriptions of new species is marked **C**.

A part of the report containing remarks on previously recorded species and descriptions of new varieties is marked **D**.

The investigation of our edible species of mushrooms has been continued. Of those whose edible qualities have been tried, 11 species have been thought worthy of addition to the list of edible fungi. Descriptions of these may be found in a part of the report marked **E**. Colored figures of these and also of seven of the new species have been prepared.

At the request of the director of the state museum a botanical exhibit was prepared for the Pan-American exposition at Buffalo. But little time was given for the preparation of this exhibit, yet specimens were selected from material on hand that should fairly represent the herbarium, and the principal divisions and groups of plants that constitute our state flora. Seed-bearing or flowering plants, ferns and fern allies, mosses, lichens, marine algae and fungi were all represented by specimens of one or more species. So far as possible, specimens were selected that have more or less economic importance and therefore popular interest, because of some utility of the plants themselves or of some of their products, or because of some injurious character either as troublesome weeds or harmful or destructive parasites or saprophytes. Among the parasitic fungi the smuts were represented by several species because they are so injurious to our crops of cereals. Among saprophytic fungi those destructive to wood and also those valued for their edibility were specially represented. The specimens placed on exhibition have been safely returned to the herbarium, but those of the seed-bearing plants have suffered a little deterioration in appearance because of their long exposure to strong light. Their green color has faded.

The herbarium has been moved from the capitol to geological hall where it has a place far more suitable, more commodious, better lighted, more convenient for botanical work and more accessible to the public. Thanks are due to all who have aided in bringing about this change. It is very desirable that it may not again be necessary to store any part of it where it may not



be under the immediate control of the botanist in charge. Such a condition of things, as in the present case, is very likely to result in injury to or loss of specimens. Some of the stored specimens were destroyed by insects, some by moisture, having been placed apparently where they became wet by a leak in the roof. A glass case containing puff balls was broken and its contents spoiled or destroyed, and two boxes, one containing specimens and the other mushroom models, could not be found.

The room in geological hall which has been assigned to the botanical department is on the second floor in the southern extension of the building. It is divided into two parts, the front part being used as a show room and containing the sections of the trunks of our trees arranged in wall cases, and photographs and thin sections of the wood of the trees exhibited in swinging frames supported by upright standards. It is expected also to contain table cases in which will be exhibited specimens of our edible and poisonous mushrooms and other plants or parts or products of plants that may have such importance or economic value as to be of special public interest. The rear part of the room contains the office of the botanist, the library, the herbarium and duplicate specimens together with specimens of extralimital species. It will also be used in part as a botanical workroom.

Several species of thorn recently described, having been reported as occurring at Crown Point, that locality was visited late in May with the purpose of collecting flowering specimens for the herbarium. The thorn shrubs and small trees were found in abundance along the northern and western shores of the promontory, and about the ruins of the old fort. Their leaves were generally badly infested by plant lice, a condition which it is said is repeated every year. The cockspur thorn is the prevailing species and was in better condition than the others. The large fruited thorn, *Crataegus punctata*, the long spined thorn, *C. macracantha*, the Champlain thorn, *C. champlainensis*, Pringle's thorn, *C. pringlei*, and the pruinose fruited thorn, *C. pruinosa*, were found there.

The last three are additions to the previously known species of our flora. The red seeded dandelion, *Taraxacum ery-*

*throspermum*, and the flickweed, *Sophia sophia*, were also found there and are additions to our flora.

In July a trip was made to North Elba, specially to visit Mt Clinton and the southeastern cliffs of Mt Wallface. Mt Clinton is the most southern of the three prominent peaks in the Mt McIntyre range and so far as known to me had never been visited by any botanist. Its open summit was found to be less extensive than had been anticipated and it furnished no additions to our flora. The alpine juniper, *Juniperus communis alpina*, was found there in greater abundance than on the higher summit of Mt McIntyre and was fruiting sparingly. The dwarf paper birch, *Betula papyracea minor*, was also abundant and fruiting freely though only 2 or 3 feet high. The arbor vitae, *Thuja occidentalis*, in a dwarf irregular form ascends to the open summit of the mountain.

On the southeastern cliffs of Mt Wallface the twisted whitlow-grass, *Draba incana arabisans*, was found in abundance in fruiting condition. It probably flowers here in June. Fine fruiting specimens of the spiked wood-rush were associated with it. This had been previously discovered on the top of Mt Wallface. This mountain is at present the only locality known to me in our state where these two plants are found.

In August, Bolton and the surrounding region on the west shore of Lake George was explored botanically and found to be prolific in fungi. Showers had been frequent and weather conditions were favorable to the growth of mushrooms. In this visit and a subsequent one in September, which was extended northward to Hague, many species of fungi were added to the list of New York plants and several were tried and found worthy of addition to our list of edible mushrooms.

Respectfully submitted

CHARLES H. PECK

*State botanist*

*Albany, 17 Dec. 1901*

## A

## PLANTS ADDED TO THE HERBARIUM

*New to the herbarium*

- |                                   |  |
|-----------------------------------|--|
| Conringia orientalis (L.) Dumort. | Cortinarius violaceo-cinereus (Pers.)<br>Fr. |
| Geum vernum T. & G.               | Boletus multipunctus Pk.                     |
| Crataegus champlainensis Sarg.    | Fistulina pallida B. & R.                    |
| C. pringlei Sarg.                 | Poria myceliosa Pk.                          |
| C. holmesiana Ashe                | Hydnum umbilicatum Pk.                       |
| C. pruinosa Wend.                 | Thelephora exigua Pk.                        |
| Vernonia gigantea (Walt.) Britton | T. multipartita Schw.                        |
| Antennaria parl. arnoglossa Fern. | Corticium portentosum B. & C.                |
| Centaurea jacea L.                | C. arachnoideum Berk.                        |
| Lactuca morssii Robins.           | Peniophora parasitica Burt                   |
| Taraxacum erythrospermum Andrz.   | P. affinis Burt                              |
| Hedeoma hispida Pursh             | Asterostroma bicolor E. & E.                 |
| Panicularia laxa Scribn.          | Clavaria bicolor Pk.                         |
| Mylia anomala (Hook.) S. F. Gray  | Phallo-gaster saccatus Morg.                 |
| Scapania irrigua (Nees) Dumort.   | Cyathus lesueurii Tul.                       |
| Cetraria aurescens Tuckerm.       | Didymium fairmani Sacc.                      |
| Stereocaulon denudatum Fl.        | Physarella multiplicata Macb.                |
| Endocarpon fluviatile DC.         | Empusa grylli Fresen.                        |
| Pannaria leucosticta Tuckerm.     | Marsonia pyriformis (Riess) Sacc.            |
| Leptota adnatifolia Pk.           | Septoria polygonana Thum.                    |
| Tricholoma rimosum Pk.            | Chalara paradoxa (Seynes) Sacc.              |
| Clitocybe regularis Pk.           | Colletotrichum antirrhini Stewart            |
| C. subconcaua Pk.                 | C. rudbeckii Pk.                             |
| Pleurotus minutus Pk.             | Helvella adhaerens Pk.                       |
| Lactarius foetidus Pk.            | Lachnella corticalis (Pers.) Fr.             |
| Hygrophorus glutinosus Pk.        | Anthostoma dryophilum (Curr.)<br>Sacc.       |
| Volvaria speciosa Fr.             | Mycenastrum spinulosum Pk.                   |
| V. hypopithys Fr.                 |  |
| Cortinarius submarginalls Pk.     |  |
| C. obliquus Pk.                   |  |

*Not new to the herbarium*

- |                                  |                                |
|----------------------------------|--------------------------------|
| Clematis virginiana L.           | Dentaria laciniata Muhl.       |
| Trollius laxus Salisb.           | D. maxima Nutt.                |
| Ranunculus bulbosus L.           | Draba incana arabisans Mx.     |
| Hepatica acuta (Pursh) Britton   | Xanthoxylum americanum (Mill.) |
| Berberis vulgaris L.             | Rhus copallina L.              |
| Podophyllum peltatum L.          | Vaccaria vaccaria (L.) Britton |
| Castalia tuberosa (Paine) Greene | Lychnis flos-cuculli L.        |
| Arabis hirsuta (L.) Scop.        | Malva sylvestris L.            |

- Amorpha fruticosa* L.  
*Meibomia paniculata* (L.) Kuntze  
*Vicia tetrasperma* (L.) Moench  
*Cassia marylandica* L.  
*Polygala viridescens* L.  
*Spiraea salic. latifolia* Ait.  
*Potentilla arguta* Pursh  
*Rubus strigosus* Mx.  
*Crataegus macracantha* Lodd.  
*C. modesta* Sarg.  
*Ludwigia alternifolia* L.  
*Chamaenerion angustifolium* (L.) Scop.  
*Onagra biennis* (L.) Scop.  
*Ilex verticillata* (L.) Gray  
*Viburnum pauciflorum* Pylaie  
*Galium verum* L.  
*Valerianella chenopodifolia* (Pursh) DC.  
*Aster vimineus* Lam.  
*A. lateriflorus* (L.) Britton  
*Solidago juncea* Ait.  
*S. caesia* L.  
*Galinsoga parviflora* Cav.  
*Antennaria neodioica* Greene  
*Lactuca spicata* (Lam.) Hitch.  
*L. spl. integrifolia* (Gr.) Hitch.  
*Onopordon acanthium* L.  
*Rudbeckia triloba* L.  
*Gaylussacia resinosa* (Ait.) T. & G.  
*Kalmia angustifolia* L.  
*Lysimachia terrestris* (L.) B. S. P.  
*Conopholis americana* (L.) Wallr.  
*Dianthera americana* L.  
*Cuscuta epithymum* Murr.  
*Scrophularia leporella* Bickn.  
*Pentstemon pentstemon* (L.) Britton  
*Solanum carolinense* L.  
*Tetragonanthus deflexus* (Sm.) Kuntze  
*Monarda fistulosa* L.  
*Euphorbia platyphylla* L.  
*Myosotis verna* Nutt.  
*Chenopodium anthelminticum* L.  
*Betula pap. minor* Tuckerm.
- Hickoria minima* (Marsh.) Britton  
*Juniperus com. alpina* Gaud.  
*Potamogeton lonchites* Tuckerm.  
*P. obtusifolius* M. & K.  
*Gyrostachys gracilis* (Bigel.) Kuntze  
*G. romanzoffiana* (Cham.) MacM.  
*Streptopus amplexifolius* (L.) DC.  
*Clintonia borealis* (Ait.) Raf.  
*Juncoides spicatum* (L.) Kuntze  
*Eleocharis ovata* (Roth) R. & S.  
*E. diandra* Wright  
*Eriophorum virginicum* L.  
*Scirpus peckii* Britton  
*S. rubrotinctus* Fern.  
*S. atrocinctus* Fern.  
*Rhynchospora glomerata* (L.) Vahl  
*Fimbristylis autumnalis* (L.) R. & S.  
*Hemicarpha micrantha* (Vahl) Britton  
*Panicum dichotomum* L.  
*Agrostis alba* L.  
*Poa flava* L.  
*Panicularia canadensis* (Mx.) Kuntze  
*Muhlenbergia mexicana* (L.) Trin.  
*Homalocenchrus oryzoides* (L.) Poll.  
*Dryopteris noveboracensis* (L.) Gray  
*D. spin. dilatata* (Hoffm.) Underw.  
*Woodsia obtusa* Torr.  
*Botrychium lanceolatum* Angst.  
*B. matricariaefolium* A. Br.  
*B. obliquum* Muhl.  
*B. dissectum* Spreng.  
*Equisetum lit. gracile* Milde  
*Lycopodium annotinum* L.  
*L. tristachyum* Pursh  
*Sphagnum pylaesii* Brid.  
*Dicranum elongatum* Schwaegr.  
*Tetraphis pellucida* Hedw.  
*Hedwigia ciliata* Ehrh.  
*Polytrichum strictum* Banks.  
*Riccia fluitans* L.  
*Marchantia polymorpha* L.  
*Theloschistes parietinus* (L.) Norm.

- Cetraria islandica* (L.) Ach.  
 C.        *nivalis* Ach.  
*Baeomyces aeruginosus* (Scop.) DC.  
*Stereocaulon paschale* (L.) Fr.  
*Cladonia deformis* (L.) Hoffm.  
 C.        *crystalata* Tuckerm.  
 C.        *cornucopioides* (L.) Fr.  
 C.        *uncialis* (L.) Fr.  
 C.        *rangiferina* (L.) Hoffm.  
*Calicium subtile* Pers.  
*Amanita phalloides* Fr.  
 A.        *frostiana* Pk.  
 A.        *spreta* Pk.  
 A.        *musc. formosa* (G. & R.) Fr.  
*Amanitopsis volvata* (Pk.) Sacc.  
 A.        *vaginata* (Bull.) Roze  
*Lepiota friesii* Lasch.  
 L.        *acutesquamosa* Weinm.  
 L.        *felina* Pers.  
 L.        *granulosa* Batsch  
 L.        *rugosoreticulata* Lorin.  
 L.        *crystalata* Pk.  
 L.        *illinita* Fr.  
*Tricholoma russula* (Schaeff.) Fr.  
 T.        *rutilans* (Schaeff.) Fr.  
 T.        *variegatum* (Scop.) Fr.  
 T.        *tricolor* Pk.  
 T.        *peckii* Howe  
 T.        *fallax* Pk.  
 T.        *alboflavum* Pk.  
 T.        *fuliginum* Pk.  
 T.        *album* (Schaeff.) Fr.  
*Clitocybe anisaria* Pk.  
 C.        *dealbata* Sow.  
 C.        *infundibuliformis* (Schaeff.)  
 C.        *adirondackensis* Pk.  
 C.        *laccata* (Scop.) Fr.  
 C.        *ochropurpurea* Berk.  
*Collybia radicata* (Relh.) Fr.  
 C.        *platyphylla* Fr.  
 C.        *maculata* (A. & S.) Fr.  
 C.        *butyracea* (Bull.) Fr.  
 C.        *dryophila* (Bull.) Fr.  
 C.        *esculentoides* Pk.  
 C.        *velutipes* (Curt.) Fr.  
*Collybia confluens* (Pers.) Fr.  
*Mycena immaculata* Pk.  
 M.        *galericulata* (Scop.) Fr.  
 M.        *pseudopura* Cke.  
*Omphalia umbellifera* (L.) Fr.  
 O.        *atratooides* Pk.  
 O.        *fibula* (Bull.) Fr.  
 O.        *swartzii* Fr.  
 O.        *camp. sparsa* Pk.  
*Hygrophorus laurae* Morg.  
 H.        *pratensis* (Pers.) Fr.  
 H.        *chlorophanus* Fr.  
 H.        *nitidus* B. & C.  
*Lactarius cilicioides* Fr.  
 L.        *indigo* (Schw.) Fr.  
 L.        *chelidonium* Pk.  
 L.        *subpurpureus* Pk.  
 L.        *aquifolius* Pk.  
 L.        *theiogalus* (Bull.) Fr.  
 L.        *chrysorrhoeus* Fr.  
 L.        *pyrogalus* (Bull.) Fr.  
 L.        *alpinus* Pk.  
 L.        *camphoratus* (Bull.) Fr.  
*Russula decolorans* Fr.  
 R.        *rugulosa* Pk.  
*Cantharellus floccosus* Schw.  
 C.        *umbonatus* Fr.  
 C.        *lutescens* Fr.  
*Nyctalis asterophora* Fr.  
*Marasmius peronatus* Fr.  
 M.        *subnudus* (Ellis) Pk.  
 M.        *semihirtipes* Pk.  
 M.        *spongiosus* B. & C.  
 M.        *impudicus* Fr.  
*Lentinus ursinus* Fr.  
 L.        *lepidus* Fr.  
*Panus stipticus* (Bull.) Fr.  
*Lenzites bet. radiatus* Pk.  
 L.        *sepiaria* Fr.  
 L.        *vialis* Pk.  
*Entoloma sinuatum* Fr.  
 E.        *sericeum* (Bull.) Fr.  
*Clitopilus micropus* Pk.  
 C.        *abortivus* B. & C.  
*Pholiota squarrosa* Mull.

- Pholiota praecox Pers.*  
*Inocybe infelix Pk.*  
 I.       *geophylla Sow.*  
*Stropharia aeruginosa (Curt.) Fr.*  
*Hypholoma incertum Pk.*  
 H.       *aggre. sericeum Pk.*  
*Cortinarius berlesianus Sacc.*  
 C.       *.sublateritius Pk.*  
*Boletinus pictus Pk.*  
*Boletus bicolor Pk.*  
 B.       *chrys. deformatus Pk.*  
 B.       *pallidus Frost*  
 B.       *variipes Pk.*  
 B.       *eximius Pk.*  
 B.       *ornatipes Pk.*  
 B.       *felleus Bull.*  
 B.       *cyanescens Bull.*  
*Fistulina hepatica Fr.*  
*Polyporus ovinus (Schaeff.) Fr.*  
 P.       *poripes Fr.*  
 P.       *confluens (A. & S.) Fr.*  
 P.       *resinosus (Schrad.) Fr.*  
 P.       *chioneus Fr.*  
 P.       *adustus (Willd.) Fr.*  
 P.       *gilvus Schw.*  
*Gloeoporus conchoides Mont.*  
*Fomes lucidus (Leys) Fr.*  
 F.       *applanatus (Pers.) Wallr.*  
 F.       *fomentarius (L.) Fr.*  
 F.       *roseus (A. & S.) Fr.*  
 F.       *conchatus (Pers.) Fr.*  
*Polystictus radiatus Fr.*  
 P.       *hirsutus Fr.*  
 P.       *pergamenus Fr.*  
 P.       *pseudopergamenus*  
           (Thum.)  
*Poria subacida Pk.*  
 P.       *mutans Pk.*  
*Trametes trogii Berk.*  
 T.       *sepium Berk.*  
 T.       *serialis Fr.*  
 T.       *cinnabarina (Jacq.) Fr.*  
*Daedalea confragosa Pers.*  
 D.       *unicolor Fr.*  
*Cyclomyces greenii Berk.*
- Caldesiella ferruginosa (Fr.) Sacc.*  
*Hydnum scrobiculatum Fr.*  
 H.       *zonatum Batsch*  
 H.       *vellereum Pk.*  
 H.       *septentrionale Fr.*  
*Irpex lacteus Fr.*  
 I.       *ambiguus Pk.*  
*Mucronella min. conferta Pk.*  
*Craterellus lutescens (Pers.) Fr.*  
 C.       *cornucopioides (L.) Pers.*  
 C.       *cantharellus (Schw.) Fr.*  
*Thelephora caryophyllea (Schaeff.)*  
           *Pers.*  
*Stereum fasciatum Schw.*  
 S.       *complicatum Fr.*  
*Hymenochaete tabacina (Sow.) Lev.*  
*Corticium evolvens Fr.*  
 C.       *alutaceum (Schrad.)*  
 C.       *investiens (Schw.)*  
 C.       *lilacino-fuscum B. & C.*  
*Guepinia spathularia (Schw.) Fr.*  
*Clavaria flava Schaeff.*  
 C.       *cristata Pers.*  
 C.       *gracilis Pers.*  
 C.       *pyxidata Pers.*  
 C.       *circinans Pk.*  
 C.       *pinophila Pk.*  
 C.       *aurea Schaeff.*  
 C.       *pulchra Pk.*  
*Physalacria inflata (Schw.) Pk.*  
*Phallus ravenelii B. & C.*  
*Cyathus striatus (Huds.) Hoffm.*  
*Bovista plumbea Pers.*  
*Scleroderma vulgare Hornem.*  
 S.       *verrucosum (Bull.) Pers.*  
*Calvatia cyathiformis (Bosc.)*  
*Lycoperdon gemmatum Batsch*  
 L.       *pyriforme Schaeff.*  
 L.       *subincarnatum Pk.*  
 L.       *cruciatum Rost.*  
 L.       *frostii Pk.*  
 L.       *curtisii Berk.*  
*Fuligo ovata (Schaeff.) Macb.*  
*Tubifera ferruginosa (Batsch) Macb.*  
*Reticularia lycoperdon Bull.*  
*Spumaria alba (Bull.) DC.*

- Physarum compressum* A. & S.  
*Tilmadoche viridis* (Bull.) Sacc.  
*Diachaea leucopoda* (Bull.) R.  
 D.           *subsessilis* Pk.  
*Didymium melanospermum* (Pers.)  
     *Macb.*  
*Stemonitis fusca* (Roth) R.  
 S.           *smithii* Macb.  
*Comatricha stemonitis* (Scop.) Shel-  
     *don*  
 C.           *aequalis* Pk.  
*Didydidum cancellatum* (Batsch)  
*Lachnobolus globosus* (Schw.) R.  
*Arcyria cinerea* (Bull.) Pers.  
 A.           *denudata* (L.) Sheldon  
 A.           *nutans* (Bull.) Grev.  
*Hemitrichia vesparium* (Batsch)  
*Trichia favoginea* (Batsch) Pers.  
*Uredo polypodii* (Pers.) DC.  
*Coleosporium solidaginis* (Schw.)  
*Melampsora farinosa* (Pers.) Schroet.
- Ustilago zeae* (Beckm.) Ung.  
 U.           *utriculosa* (Nees) Tul.  
 U.           *anomala* Kze.  
*Septoria irregularis* Pk.  
 S.           *acerina* Pk.  
*Pilacre faginea* (Fr.) B. & Br.  
*Monilia fructigena* Pers.  
*Ramularia tulasnei* Sacc.  
*Glomerularia corni* Pk.  
*Spathularia crispa* Pk.  
 S.           *clavata* (Schaeff.)  
*Leotia lubrica* (Scop.) Fr.  
*Helvella infula* Schaeff.  
 H.           *gracilis* Pk.  
*Vibrissea truncorum* (A. & S.)  
*Lachnella citrina* Pk.  
*Dasyscypha bicolor* (Bull.) Fckl.  
*Phyllachora pteridis* (Reb.) Fckl.  
*Rhizisma acerinum* (Pers.) Fr.  
*Hypoxylon perforatum* Schw.

## B

## CONTRIBUTORS AND THEIR CONTRIBUTIONS

Mrs N. L. Britton, New York

- Gymnostomum rupestre* Schwaegr.  
*Seligeria doniana* (Sw.) All.  
*Dicranella heteromalla* Schp.  
*Dicranum fulvum* Hook.  
 D.           *flagellare* Hedw.  
*Didymodon rubellus* B. & S.  
 D.           *riparius* Aust.  
*Grimmia apocarpa* Hedw.  
*Hedwigia ciliata* Ehrh.  
*Amphoridium lapponicum* Schp.  
*Drummondia clavellata* Hook.  
*Ulota hutchinsiae* Schp.  
*Tetraphis pellucida* Hedw.  
*Bartramia pomiformis* Hedw.  
*Philonotis fontana* Brid.  
*Bryum roseum* Schreb.  
*Webera albicans* Schp.  
*Mnium affine* Bland.  
 M.           *punctatum* Hedw.  
 M.           *elatum* B. & S.  
 M.           *spinulosum* B. & S.  
*Pogonatum alpinum* Roehl.
- Diphyscium foliosum* Mohr.  
*Fontinalis antip. gigantea* Sull.  
*Leptodon trich. immersus* Sull.  
*Homalia jamesii* Schp.  
*Myurella careyana* Sull.  
*Anomodon rostratus* Schp.  
 A.           *attenuatus* Hueben.  
 A.           *viticulosus* H. & T.  
*Cylindrothecium cladorrhizans* Schp.  
*Climacium americanum* Brid.  
*Hypnum delicatulum* L.  
 H.           *ruscifforme* Weis.  
 H.           *pulchellum* Dicks.  
 H.           *reptile* Mx.  
 H.           *imponens* Hedw.  
 H.           *haldanianum* Grev.  
 H.           *eugyrium* Schp.  
 H.           *brevirostre* Ehrh.  
 H.           *triquetrum* L.  
 H.           *radicale* Bv.  
*Cetraria islandica* (L.) Ach.  
*Mitruula phalloides* (Bull.) Chau.

- Mrs M. A. Knickerbocker, Douglaston**  
*Centaurea jacea L.* | *Galium verum L.*
- Miss Emma S. Thomas, Schoharie**  
*Lepiota acutesquamosa Weinm.* | *Lycoperdon pyriforme Schaeff.*
- Miss Harriet A. Edwards, Port Henry**  
*Botrychium virginianum (L.) Sw.*
- Mrs G. M. Dallas, Philadelphia Pa.**  
*Thelephora caespitulans Schw.*
- Mrs T. B. Bishop, San Francisco Cal.**  
*Xerophyllum tenax Nutt.*
- Miss M. L. Overacker, Syracuse**  
*Podophyllum peltatum L.* | *Lythrum salicaria L.*  
*Viola striata Ait.* | *Stropharia aeruginosa (Curt.)*  
*Crepis virens L.*
- Miss N. L. Marshall, New York**  
*Volvaria hypopithys Fr.*
- E. A. Burt, Middlebury Vt.**  
*Poria subtilis (Schröd.) Bres.* | *Dacryomyces deliquescens (Bull.)*  
*Corticium sulphureum Pers.* | *Dub.*  
*Peniophora parasitica Burt* | *Grandinia granulosa Fr.*  
*Asterostroma bicolor E. & E.*
- M. L. Fernald, Cambridge Mass.**  
*Carex atlantica Bailey* | *Carex elachycarpa Fern.*
- B. D. Gilbert, Clayville**  
*Botrychium dissectum Spreng.* | *Lycopodium tristachyum Pursh*
- C. G. Lloyd, Cincinnati O.**  
*Calostoma cinnabarinum Desv.* | *Lycoperdon glabellum Pk.*  
*Geaster coliformis (Dicks.) Pers.*
- G. B. Fessenden, Boston Mass.**  
*Pluteolus coprophilus Pk.*
- F. C. Stewart, Geneva**  
*Colletotrichum antirrhini Stewart* | *Marsonia pyriformis (Riess) Sacc.*  
**C.** *rudbeckiae Pk.*
- S. H. Burnham, Vaughns**  
*Hepatica acuta (Pursh) Britton*
- E. B. Sterling, Trenton N. J.**  
*Phallogaster saccatus Morg.* | *Morchella angusticeps Pk.*
- J. J. Hastings, Albany**  
*Clitocybe multiceps Pk.* | *Hypholoma incertum Pk.*  
*Pholiota praecox Pers.*



E. B. Conger, Peninsula O.

*Erythronium albidum Nutt.*

H. L. Clapp, Roxbury Mass.

*Hygrophorus ventricosus B. & Br.*

J. B. Ellis, Newfield N. J.

*Phyllosticta limitata fructigena Ellis*

F. S. Boughton, Pittsford

*Polyporus morgani Frost*

*Fistulina pallida B. & R.*

*Lycoperdon frostii Pk.*

A. P. Hitchcock, New Lebanon

*Boletus felleus Bull.*

Rev. J. M. Bates, Callaway Neb.

*Tylostoma campestre Morg.*

*Catastoma subterraneum Pk.*

T. *peculatum White*

*Geaster campestris Morg.*

Simon Davis, Boston Mass.

*Armillaria nardosmia Ellis*

*Rhizopogon rubescens Tul.*

*Hygrophorus sordidus Pk.*

*Scleroderma verrucosum (Bull.)*

H. *pallidus Pk.*

*Pers.*

*Russula ventricosipes Pk.*

W. F. Badé, Bethlehem Pa.

*Anychia dichotoma Mx.*

C. S. Banks, Manila, Philippine islands

*Aquilegia canadensis L.*

*Asarum canadense L.*

*Trifolium repens L.*

*Eriophorum polystachyon L.*

*Potentilla canadensis L.*

*Carex sterilis Willd.*

*Geum rivale L.*

*Onoclea sensibilis L.*

*Hamamelis virginiana L.*

*Adiantum pedatum L.*

*Zizia aurea (L.) Koch*

*Asplenium platyneuron L.*

*Rumex acetosella L.*

*Dryopteris acrostichoides (Mx.)*

*Cypripedium hirsutum Mill.*

F. J. Braendle, Washington D. C.

*Polyporus lacteus Fr.*

*Clavaria grandis Pk.*

J. V. Haberer, Utica

*Ranunculus bulbosus L.*

*Opulaster opulifolius (L.) Kuntze*

*Trollius laxus Salisb.*

*Polygala viridescens L.*

*Arabis hirsuta (L.) Scop.*

*Floerkea proserpinacoides Willd.*

A. *laevigata (Muhl.) Poir.*

*Sarothra gentianoides L.*

*Conringia orientalis (L.) Dumort.*

*Galium mollugo L.*

*Dentaria laciniata Muhl.*

*Valerianella chenopodifolia (Pursh)*

D. *maxima Nutt.*

DC.

*Vaccaria vaccaria (L.) Britton*

*Vernonia gigantea (Walt.)*

*Geum vernum T. & G.*

*Hieracium praealtum Vill.*

- Rhododendron maximum L.  
 Lysimachia quadrifolia L.  
 Tetragonanthus deflexus (Sm.)  
*Kuntze*  
 Monarda fistulosa L.  
 Hedeoma hispida Pursh  
 Koellia virginiana (L.) MacM.  
 Pentstemon pentstemon (L.) Britton  
 Dianthera americana L.  
 Scirpus sylvaticus L.  
 S. rubrotinctus Fern.  
 Eriophorum virg. album Gray  
 Rhynchospora glomerata (L.) Vahl
- Hemicarpha micrantha (Vahl) Britton  
 Fimbristylis autumnalis (L.) R. & S.  
 Eleocharis diandra Wright  
 E. vigens (Bailey)  
 Botrychium lanceolatum Angst.  
 B. matricariaefolium A. Br.  
 B. obliquum Muhl.  
 B. tern. intermedium  
*Eaton*  
 Equisetum lit. gracile Milde  
 Lycopodium inundatum L.

## H. H. Hume, Lake City Fla.

- Exobasidium peckii Halst.  
 Entomosporium maculatum Lev.  
 Pyricularia grisea (Cke.) Sacc.  
 Sorosporium everhartii E. & G.  
 Puccinia graminis Pers.  
 P. fuirenae Cke.  
 P. hydrocotyles (Mont.) Cke.  
 P. hieracii (Schum.) Mart.  
 Ravenelia glanduliformis B. & C.  
 Uromyces elegans (B. & C.) Lagh.  
 U. caladii (Schw.) Farl.  
 U. spermacoces (Schw.)  
*Thum.*  
 U. graminicola Burrill  
 U. hedydari paniculati  
 (Schw.)  
 Ustilago floridana E. & E.  
 Caeoma nitens Schw.  
 Scolecotrichum caricae E. & E.  
 Thecapsora vacciniiorum B. & C.  
 Phyllosticta nerii West.  
 P. roberti B. & J.  
 P. phaseolina Sacc.  
 P. ipomaeae E. & K.  
 P. phomiformis Sacc.  
 P. vaccinii Earle  
 P. caryae Pk.  
 P. curtisii (Sacc.) E. & E.  
 P. livida E. & E.  
 P. acericola C. & E.  
 Pestalozzia palmarum Cke.  
 P. crataegi E. & E.  
 Septoria oenotherae West.  
 S. lycopersici Speng.  
 S. drummondii E. & E.
- Graphiola phoenicis (Moug.) Poit.  
 Macrosporium asimini Hume  
 M. solani E. & M.  
 Helminthosporium ravenelii B. & C.  
 Peronospora gonolobii Lagh.  
 Plasmopara cubensis (B. & C.) Hume  
 Cystopus candidus (Pers.) Lev.  
 C. ipomaeae-panduratae  
 (Schw.)  
 Exoascus varius Atk.  
 Cercospora petersii (B. & C.) Atk.  
 C. flagellaris E. & M.  
 C. hamamelidis E. & E.  
 C. phyllitidis Hume  
 C. hibisci T. & E.  
 C. vignae E. & E.  
 C. callicarpae Cke.  
 C. hydrocotyles E. & E.  
 C. ricinella S. & B.  
 C. apii Fres.  
 C. beticola Sacc.  
 C. catalpae Wint.  
 Sphaerostilbe coccophila Tul.  
 Meliola palmicola Wint.  
 Asterina inquinans E. & E.  
 Taphrina caerulescens (D. & M.)  
 Phyllactinia suffulta (Reb.) Sacc.  
 Uncinula clintonii Pk.  
 Microsphaera quercina (Schw.) Burr.  
 M. calocladophora Atk.  
 Sphaeria andropogicola Schw.  
 Rhytisma vaccinii Earle  
 Linospora ferruginea E. & M.  
 Phyllachora cyperi Rehm.  
 Pheospora mori Sacc.

## Mrs Carolyn W. Harris, Brooklyn

- |                                    |                                  |
|------------------------------------|----------------------------------|
| Usnea barbata (L.) Fr.             | Parmelia saxatilis (L.) Fr.      |
| U. barb. florida Fr.               | P. sax. sulcata Nyl.             |
| U. barb. rubiginosa Mx.            | P. sax. panniformis (Ach.)       |
| U. longissima Ach.                 | P. caperata (L.) Ach.            |
| Alectoria jub. chalybeiformis Ach. | P. conspersa (Ehrh.) Ach.        |
| Ramalina calic. fastigiata Fr.     | P. borrieri Turn.                |
| R. calic. farinacea Schaer.        | P. physodes (L.) Ach.            |
| Evernia prunastri (L.) Ach.        | P. tiliacea (Hoffm.) Fl.         |
| Cetraria ciliaris Ach.             | Physcia stellaris (L.) Tuckm.    |
| C. lacunosa Ach.                   | P. aquila (Ach.) Nyl.            |
| C. aurescens Tuckm.                | Theloschistes polycarpus (Ehrh.) |
| Sticta pulmonaria (L.) Ach.        | Tuckm.                           |
| S. amplissima (Scop.) Mass.        | Pannaria lanuginosa (Ach.)       |
| Peltigera aphthosa (L.) Hoffm.     | P. leucosticta Tuckm.            |
| P. canina (L.) Hoffm.              | Leptogium pulchellum (Ach.) Nyl. |
| P. polydactyla (Neck.) Hoffm.      | L. lacerum (Sw.) Fr.             |
| P. rufescens (Neck.) Hoffm.        | L. tremelloides (L.) Fr.         |
| P. pulverulenta (Tayl.) Nyl.       | Collema flaccidum Ach.           |
| Umbilicaria dillenii Tuckm.        | Stereocaulon paschale (L.) Fr.   |
| U. vellea (L.) Nyl.                | Cladonia squamosa Hoffm.         |
| U. muhlenbergii (Ach.)             | C. furc. racemosa Fl.            |
| Tuckm.                             | Endocarpon fluviatile DC.        |
| U. pustulata (L.) Hoffm.           | E. min. complicatum              |
| Pyxine soredata Fr.                | Schaer.                          |
| Solorina saccata (L.) Nyl.         | E. min. aquaticum Schaer.        |
| Parmelia perlata (L.) Ach.         |                                  |

## Mrs E. Watrous, New York

Cortinariu violaceo-cinereus (Pers.) Fr.

## Mrs E. C. Anthony, Gouverneur

Uredo polypodii (Pers.) DC.

## M. S. Baxter, Rochester

Graphiola phoenicis (Moug.) Poit.

## George E. Morris, Waltham Mass.

- |                                    |                                   |
|------------------------------------|-----------------------------------|
| Tricholoma peckii Howe             | Cordyceps ophioglossoides (Ehrh.) |
| Mycena strobilinoidea Pk.          | Lk.                               |
| Hygrophorus pudorinus Fr.          | Helvella crispa (Scop.) Fr.       |
| Cortinariu sanguineus (Wulf.) Fr.  | H. ephippium Lev.                 |
| Boletus parasiticus Bull.          | H. macropus brevis Pk.            |
| Mutinus ravenelii (B. & C.) Fisch. | Geoglossum farlowi Cke.           |
| Calvatia elata (Mass.) Morg.       | G. peckianum Cke.                 |
| Hypoxylon howeanum Pk.             | Bulgaria rufa Schw.               |
| Cordyceps capitata (Holmsk.) Lk.   |                                   |

## SPECIES NOT BEFORE REPORTED

## C

*Thalictrum occidentale* Gray

Shore of Lake Champlain near Port Henry. The leaves of this plant bear some resemblance to those of *Thalictrum dioicum*, but in stature and time of flowering it suggests *T. purpurascens* to which it was doubtfully referred in a former report.

*Conringia orientalis* (L.) Dumort.

Along the N. Y. C. railroad near Utica. J. V. Haberer. This is an introduced plant having a tendency in some places to become a troublesome weed.

*Sophia sophia* (L.) Britton

Thin soil in rocky places. About the ruins of the old fort on Crown Point. May. This is *Sisymbrium sophia* L.

*Geum vernum* T. & G.

Mohawk flats. Deerfield, Oneida co. Abundant in a meadow near a little lake on the north side of Mohawk river about a mile below Utica. It may have been introduced from the west. It is distinguished from closely related species by its stalked receptacle. June. J. V. Haberer.

*Crataegus champlainensis* Sarg.

Crown Point and near North Albany. May and June. The species of *Crataegus* have recently been made the subject of special investigation by some of the botanists in this country. The result has been the recognition of many species previously overlooked or confused with other known forms. Good specific characters have been found in parts of the plant formerly disregarded or considered unreliable in the identification of species.

*Crataegus pringlei* Sarg.

Crown Point and near North Albany. May and June. This species may be recognized by the peculiar habit of its foliage.

The mature leaves, by the deflection of their margins, have a drooping appearance, the upper surface being convex, the lower concave. This is shown to some extent in the dried specimens in the herbarium. The leaves do not flatten fully in the plant press but present folds or wrinkles when dried.

*Crataegus modesta* Sarg.

Dry hills and slaty knolls. Near North Albany and Lansingburg. June. The specimens which we have referred to this species meet the description fairly well but the plant is quite variable. On dry clayey hillocks north of Albany it has a straggling starved appearance, bears small leaves and few or no thorns. On slaty knolls north of Lansingburg it is more thrifty, has larger leaves which are often somewhat three lobed by reason of the greater development of the basal lobes, and it bears more numerous thorns which are sometimes 2 inches long. It flowers a little later than the two preceding species and is also later in ripening its fruit. It is a rather small shrub, usually 4 to 6 feet high.

*Crataegus holmesiana* Ashe

Near North Albany and Lansingburg, also in Sandlake where it is the prevailing species. May. The number of stamens varies from 5 to 8, and serves when the plant is in blossom as a distinctive mark of the species. The fruit ripens early in September and has an agreeable flavor.

*Crataegus pruinosa* Wend.

Crown Point, North Albany and Lansingburg. The pruinosity of the fully grown fruit is a convenient mark for the recognition of this species.

*Vernonia gigantea* (Walt.) Britton

Stony, hilly pastures. New Hartford, Oneida co. September. J. V. Haberer.

*Antennaria parlinii* arnoglossa Fern.

Pastures. Crown Point. May.

*Centaurea jacea* L.

Douglaston, Queens co. August. Mrs M. A. Knickerbocker. It has also been reported from Deerfield by Dr Haberer but I have seen no specimens from that locality. The plant is sometimes cultivated for ornament and has escaped from cultivation.

*Arctium minus* Schk.

Near Loon lake station. July. This was formerly considered a variety of *A. lappa*.

*Lactuca morssii* Robins.

Clearings and waste places. North Elba and Loon lake station. July. In general appearance this species resembles *L. canadensis* and *L. leucophaea*. From the former it may be distinguished by its purplish or violet colored flowers and the shorter beaked achenia, from the latter by its snowy white pappus.

*Hedeoma hispida* Pursh

Thin naked soil covering rocks. Little Falls. June. Probably introduced from the west. J. V. Haberer.

*Panicularia laxa* Scribn.

Margin of a pond near Loon lake station. July. The specimens have the small few-flowered spikelets of this species but the upper sheaths do not overlap as in the typical form.

*Myia anomala* (Hook.) S. F. Gray

Marshes. West Fort Ann. November. S. H. Burnham.

*Scapania irrigua* (Nees) Dumort.

Marshes. West Fort Ann. October. S. H. Burnham.

*Stereocaulon denudatum* Fl.

Bare rocks. Mt Marcy, Mt McIntyre and Mt Wallace. July. All the specimens are sterile.

*Endocarpon fluviatile* DC.

Near Chilson lake. June. Mrs C. W. Harris.

*Cetraria aurescens* Tuckm.

Bark of pine, *Pinus strobus*. Near Chilson lake. June.  
Mrs C. W. Harris.

*Pannaria leucosticta* Tuckm.

Granitic rocks. Near Chilson lake. July. Mrs Harris.

*Lepiota adnatifolia* n. sp.

Pileus thin except in the center, broadly convex or nearly plane, minutely granulose or squamulose, isabelline, alutaceous or reddish ferruginous, the margin usually appendiculate with fragments of the veil, flesh white; lamellae thin, moderately close, adnate, white; stem short, generally slightly thickened at the base, solid when young but sometimes becoming stuffed or hollow with age, glabrous or slightly squamulose below the small often evanescent ring, pallid or subrufescent; spores minute, .0002-.00024 of an inch long, .00016-.0002 broad.

Pileus 1-2.5 inches broad; stem 1-1.5 inches long, 2-4 lines thick. Ground under pine trees. Bolton and Hague, Warren co. September.

The color ornamentation and size are nearly the same as in *L. granulosa*, from which it differs in its slight veil, larger spores and specially in its adnate lamellae. By this character some species of *Lepiota* show an affinity with the genus *Armillaria*. Our four species having this character may be indicated by the subjoined synoptic table.

Plant growing on the ground	1
Plant growing on decaying wood	<i>L. granulosa</i>
1 Plant having a disagreeable odor	<i>L. rugosoreticulata</i>
1 Plant inodorous	2
2 Stem 1-2 lines thick, pileus generally umbonate	<i>L. amiantina</i>
2 Stem 2-4 lines thick, pileus not umbonate.	<i>L. adnatifolia</i>

*Tricholoma rimosum* n. sp.

Pileus fleshy, convex becoming nearly plane, often split on the margin, glabrous, hygrophanous, watery brown and shining

when moist, paler when dry, flesh colored like the pileus when moist, whitish when dry, taste farinaceous; lamellae thin, narrow, very close, rounded behind, adnexed, uneven on the edge, whitish or subcinereous; stem nearly equal, silky-fibrillose, hollow, whitish; spores elliptic, .0003-.00035 of an inch long, .00016-.0002 broad.

Pileus 1-1.5 inches broad; stem 1-2 inches long, 1.5-2.5 lines thick. Woods. Bolton. September.

This species is related to *T. humile* from which it may be distinguished by its smaller size, hollow silky fibrillose stem, the rimose margin of the pileus and its farinaceous taste.

*Clitocybe regularis* n. sp.

PLATE K, FIG. 1-7

Pileus thin, flexible, broadly convex becoming nearly plane, often slightly depressed in the center, orbicular, regular, whitish when moist, white when dry, flesh white, taste mild; lamellae thin, narrow, crowded, decurrent, whitish; stem firm, equal, glabrous, solid, rarely with a very small cavity, whitish, spongy thickened at the base; spores minute, .0002 of an inch long, .0001-.00012 broad.

Pileus 1-2.5 inches broad; stem about 1 inch long, 1.5-2.5 lines thick. Among fallen leaves in woods. Bolton. August.

This species is related to *C. tornata*, from which it differs in its thin flexible moist pileus, its distinctly decurrent lamellae and in its solid stem with the spongy mass of mycelioid tomentum at the base.

*Clitocybe subconca* n. sp.

PLATE K, FIG. 8-13

Pileus thin, convex, deeply umbilicate, glabrous, hygrophanous, brownish or reddish brown and usually striatulate on the decurved margin when moist, whitish when dry; lamellae arcuate, decurrent, close, pallid or subcinereous; stem equal, firm, solid or stuffed, sometimes with a small cavity, slightly fibrillose, colored like the pileus; spores minute, .0002-.00024 of an inch long, .00012-.00016 broad.



Pileus 1-2 inches broad; stem 1-2 inches long, 1.5-2 lines thick. Pine woods. Bolton. August.

Closely related to *C. concava* from which it may be separated by its much smaller spores and paler color. The decurved margin of the pileus is even, not wavy as in that species. It is also allied to *C. cyathiformis* and *C. expallens*, from both of which its smaller spores and deeply umbilicate pileus separate it. It is without any distinctive odor.

*Pleurotus minutus* n. sp.

Pileus minute, reniform or suborbicular, at first resupinate, sometimes becoming reflexed with age, often slightly depressed in the center; flocculose pruinose, white, the margin involute; lamellae unequal, very narrow, distant, decurrent, white or whitish; stem short, eccentric, curved, pruinose, whitish with a white mycelioid tomentum at the base.

Pileus 1-2 lines broad; stem about 1 line long. Much decayed wood of birch. Near Loon lake. July.

The very small size, narrow distant decurrent lamellae and pruinose pileus and stem are the prominent characters of this minute species. The specimens are sterile.

*Lactarius foetidus* n. sp.

Pileus fleshy, firm, nearly plane or centrally depressed, minutely downy or velvety, pale yellow or buff, becoming brownish where bruised, flesh whitish, milk white, taste mild, odor fetid; lamellae subdistant, adnate or slightly decurrent, yellowish white, becoming reddish brown where wounded or bruised; stem short, equal, solid, glabrous, whitish; spores broadly elliptic or subglobose, .00024-.00032 of an inch long, nearly as broad.

Pileus 2-3 inches broad; stem 1-2 inches long, 4-6 lines thick. Low damp ground in woods. Snyders, Rensselaer co. August.

The fetid disagreeable odor and buff color of the pileus are distinguishing characters of this rare species. The downy surface of the dry pileus is soft to the touch, like that of *L. vellereus*.

**Hygrophorus glutinosus** n. sp.

Pileus fleshy, firm, convex, glutinous, white, sometimes tinged with yellow by the drying of the gluten, the margin involute, flesh white; lamellae subdistant, adnate, white; stem equal, solid, white, floccose tomentose and glutinous below the glutinous annulus, studded above with glandular drops of moisture which in drying form reddish dots; spores .0003-.0004 of an inch long, .0002-.00024 broad.

Pileus 1-2 inches broad; stem about 1 inch long, 3-4 lines thick.

In the fresh plant the lower part of the stem appears to be coated with a floccose tomentum smeared with gluten, in the dried plant the gluten assumes an orange yellow or bright straw color and the tomentum disappears. The species differs from *H. gliocyclus* in its adnate lamellae and from *H. eburneus* in its solid stem with reddish points at the top.

**Volvaria speciosa** Fr.

Westfield, Chautauqua co. June. E. B. Sterling.

**Volvaria hypopithys** Fr.

Lake Placid. September. Miss N. L. Marshall.

**Cortinarius submarginalis** n. sp.

PLATE L, FIG. 6-10

Pileus fleshy, firm, convex becoming nearly plane, or concave by the elevation of the margin, viscid when moist, yellowish brown, generally a little paler on the rather definite and commonly fibrillose margin, flesh whitish; lamellae thin, close, adnate, creamy yellow when young, soon cinnamon; stem rather long, equal or slightly thickened at the base, solid, silky fibrillose, slightly viscid, whitish or pallid; spores subelliptic, .0004-.0005 of an inch long, .0002-.00024 broad.

Pileus 2-4 inches broad; stem 3-6 inches long, 4-6 lines thick. Low moist places in woods. Bolton. August.

The margin of the pileus is generally paler than the rest and separated from it by a definite line. It is from 3-6 lines broad.

and is sometimes curved upward and conspicuously fibrillose. This difference between the margin and the rest of the pileus is not clearly shown in the dried specimens. The species belongs in the section Myxadium.

**Cortinarius obliquus n. sp.**

PLATE I, FIG. 1-5

Pileus rather thin, broadly convex or nearly plane, dry, silky fibrillose, white or grayish, generally with a slight violaceous tint, flesh whitish; lamellae thin, close, adnate or slightly rounded behind, minutely crenulate on the edge and obscurely transversely striate on the sides, deep violet becoming cinnamon brown with age; stem equal, solid, shining, silky fibrillose, whitish tinged with violet, violet within, with an abrupt flattened oblique bulb at the base; spores elliptic, uninucleate, .0003 of an inch long, .0002 broad.

Pileus 2-3 inches broad; stem 2-3 inches long, 3-5 lines thick. Among fallen leaves in woods. Bolton. August.

This species is well marked by the white or grayish white pileus, the deep violet or almost amethystine color of the young lamellae and the oblique flattened bulb of the stem. It belongs to the section Inoloma. *C. albidus* Pk. has an oblique bulb at the base of the stem and a white pileus but it belongs to the section Phlegmacium as its pileus is viscid. Its young lamellae are also white.

**Cortinarius violaceo-cinereus (Pers.) Fr.**

Pine woods. Hague, Warren co. June. Mrs E. Watrous. A large cespitose form. A scattered or gregarious form occurs in woods near Bolton. September. In *Systema mycologicum* and in *Epicrasis*, Fries gives *C. violaceo-cinereus* as the name of the species, but in *Hymenomyces Europaei* he changed the form of the name to *C. cinereo-violaceus* without giving any reason for the change. This name has been adopted in *Sylloge*, but we have retained the older form.

**Boletus multipunctus n. sp.**

PLATE K, FIG. 19-22

Pileus fleshy, convex or nearly plane, dry, brownish ocher, sometimes with a slight reddish tint, the central part adorned with many minute slightly darker areolate spots or dots, flesh whitish, taste mild; tubes small, adnate or depressed about the stem, ventricose in the mass, the mouths subrotund, at first whitish, becoming greenish yellow; stem equal or tapering upward, pallid, solid, fibrous striate; spores dark olive green, oblong, .00045-.0006 of an inch long, .00016-.0002 broad.

Pileus 3-5 inches broad; stem 3-5 inches long, 4-8 lines thick. In woods. Bolton. August.

The species belongs to the section Edules. It was not found in sufficient quantity for testing its edibility but it is probably edible.

**Fistulina pallida B. & R.**

Pittsford, Monroe co. July. F. S. Boughton. These specimens correspond to the description of *F. pallida* except in their larger size. They are distinct from *F. firma* Pk. in their darker color and decurrent tubes.

**Poria myceliosa n. sp.**

Subiculum membranaceous, separable from the matrix, connected with white branching strands of mycelium which permeate the soft decayed wood, or with radiating ribs which run through the broad sterile fimbriate white margin; pores very short, subrotund angular or subflexuous, the dissepiments thin, acute, dentate or slightly lacerate, pale yellow; spores minute, subglobose, .00008-.00012 of an inch broad. Round Lake, Saratoga co. August.

This fungus forms patches several inches in extent on much decayed wood of hemlock. It follows the inequalities of the surface on which it grows. It is scarcely more than half a line thick. The pores develop from the center toward the margin and at first are mere concavities in the subiculum. The species is apparently related to *P. tenuis* Schw., from which it

differs in habitat, color and the prominent mycelial strands. In this last character it bears some resemblance to *P. vaillantii* (DC.) Fr.

*Hydnum umbilicatum* n. sp.

PLATE K, FIG. 14-18

Pileus fleshy, convex, glabrous, umbilicate, reddish buff or burnt sienna color, flesh white, taste mild; aculei plane in the mass, fragile, nearly equal, a little paler than the pileus; stem nearly equal, glabrous, solid, whitish; spores globose, .0003-.0004 of an inch in diameter.

Pileus 6-18 lines broad; stem 1-1.5 inches long, 2-4 lines thick. Among fallen leaves in woods. Hague. September.

This species is related to *H. repandum* and *H. rufescens*, from both of which it is easily separated by its small but usually deep and distinct umbilicus. Sometimes a definite line separates the paler margin from the more highly colored center of the pileus. In the last report it was mentioned as a form of *H. rufescens*.

*Thelephora multipartita* Schw.

Grassy ground under trees. Bolton. August. This species is variable in size, in the number of divisions of the pileus and consequently in its general appearance. It is related to *T. anthocephala* and *T. caryophylla*, but the upper surface of the pileus or of its component parts is usually paler than in these species.

*Thelephora exigua* n. sp.

Pileus very thin, submembranaceous, tubaeform or infundibuliform, faintly radiately fibrous striate, slightly lacerate on the margin, pale alutaceous; hymenium even or faintly striate, pruinously pubescent, pallid; stem slender, solid, pruinously pubescent, brownish; spores elliptic, .00016 of an inch long, about half as broad.

Pileus 1.5-3 lines broad; stem 2-3 lines long. Vegetable mold. Westport, Essex co. October.

This minute species may be separated from *T. ravenelii* Berk. and *T. regularis* Schw. by its smaller size and by the minute pubescence of its hymenium and stem.

***Corticium portentosum* B. & C.**

Decorticated wood of spruce. North Elba. July.

***Corticium arachnoideum* Berk.**

Decorticated wood of pine. Bolton. September.

***Peniophora affinis* Burt *in litt.***

Bark of dogwood, *Cornus florida*. East Schodack. August. Closely allied to *P. laevis* (Fr.) Burt.

***Peniophora parasitica* Burt *in litt.***

Under side of branches of juniper, *Juniperus communis*, lying on the ground. Hague. September.

***Asterostroma bicolor* E. & E.**

Decaying wood of spruce. Floodwood, Franklin co. August. E. A. Burt.

***Sebacina calcea* (Pers.) Bres.**

Under side of dead spruce branches. Hague. September.

***Clavaria bicolor* n. sp.**

Small, 8-12 lines high, gregarious; stem slender, .5-1 line thick, straight or flexuous, solid, tomentose, pale yellow, divided above into two or more short, orange colored compressed branches which are themselves once or twice dichotomously divided, tips acute, concolorous.

Under pine trees. Bolton. September.

The rather tough tomentose stem indicates an affinity to the genus *Lachnocladium*.

***Phallogaster saccatus* Morg.**

Decaying wood. Westfield, Chautauqua co. June. E. B. Sterling.

***Cyathus lesueurii* Tul.**

Lyndonville, Orleans co. C. E. Fairman. Also in Bethlehem, Albany co. In our specimens there are small cavities in the

interior of the peridium near its base in each of which a sporangiole rests. The funiculus is short, but when moist it can be stretched to a great length. This species may be distinguished from *C. vernicosus* by the less spreading margin of the open peridium and by its much larger spores.

*Craterium minimum* B. & C.

Dead sticks and leaves. West Albany. *C. cylindricum* Massee is a synonym.

*Craterium minutum* (Leers) Fr.

On mosses. East Berne, Albany co. August.

*Didymium fairmani* Sacc.

On foliage of two leaved Solomon's seal, *Unifolium canadense*. Ridgeway, Orleans co. C. E. Fairman. Closely allied to *D. melanospermum*, from which it differs in its rather smaller peridium and spores. The typical form is sessile, but specimens sometimes occur with a short slender stem.

*Physarella multiplicata* Macb. *in litt.*

Spreading over ground and living plants. Menands, Albany co. June. The white plasmodium spreads over anything in its way and the mature fungus develops from it in 24 hours in very warm weather.

*Empusa grylli* Fresen.

It attacks and kills grasshoppers. Surfaces on which the dead bodies of the grasshoppers rest become whitened by the pyriform conidia of the fungus shed from the bodies of the insects.

*Marsonia pyriformis* (Riess) Sacc.

Upper surface of leaves of silver poplar, *Populus alba*. Penn Yan. September. F. C. Stewart.

*Septoria polygonina* Thum.

Living leaves of the fringed black bindweed, *Polygonum cilinode*. Near Loon lake. July. In our specimens the

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spots on the leaves have not the violaceous margin attributed to the typical form of the species and they are generally marked by a few elevated lines or ridges. Their color is usually reddish brown rather than ochroleucous. The difference in the host plants is probably the cause of the difference in the spots.

***Chalara paradoxa* (Seynes) Sacc.**

Decaying pineapple. Menands. June. The inner flesh of the affected fruit is blackened by the fungus.

***Colletotrichum antirrhini* Stewart**

Living stems and leaves of great snapdragon, *Antirrhinum majus*. Geneva. September. F. C. Stewart.

***Colletotrichum rudbeckiae* n. sp.**

Pustules minute, numerous, closely gregarious, round or hysteriiform, black, at first covered by the epidermis, then erumpent; setae few, black; spores straight or slightly curved, acute, hyaline, .0005-.0006 of an inch long, .00016 broad. Dead stems of cultivated cone flower, *Rudbeckia laciniata*. Geneva. July. F. C. Stewart.

***Helvella adhaerens* n. sp.**

PLATE L, FIG. 11-15

Pileus thin, irregular, deflexed, whitish or smoky white, becoming brownish with age or in drying, the lower margin attached to the stem, even and whitish beneath; stem slender, even, solid, pruinose downy, smoky white or brownish, the upper part concealed by the deflexed pileus and smaller than the lower exposed part; asci cylindrical, 8 spored; spores elliptic, often uninucleate, .0007-.0008 of an inch long, .0005 broad; paraphyses filiform, hyaline, thickened or subclavate at the top.

Ground in woods. Bolton and Hague. August and September. Related to *H. elastica*, from which it is easily distinguished by having the deflexed margin of the pileus attached to the stem. When young and fresh the whole plant is whitish or dingy white, but it is apt to become brownish with age or in drying.



*Lachnella corticalis* (Pers.) Fr.

Dry naked bark or among mosses on the base of living aspens, *Populus tremuloides*. North Elba. July.

*Orbilina luteo-rubella* (Nyl.) Karst.

Damp decaying wood, specially of deciduous trees. North Elba. July. A common species, usually becoming more highly colored in drying.

*Anthostoma dryophilum* (Curr.) Sacc.

Dead branches of chestnut. Lyndonville, Orleans co. C. E. Fairman.

*Mycenastrum spinulosum* Pk.

Grassy ground about the ruins of the old fort on Crown Point. September. Three young specimens and two fragments of an old specimen were found. This material is scarcely sufficient for a satisfactory identification of the species, but the peculiar threads of the capillitium and the character of the spores indicate this species. The locality, however, is very distant from that of the original specimens. It is desirable that mature specimens in good condition may yet be found.

## D

## REMARKS AND OBSERVATIONS

*Hepatica acuta* (Pursh) Britton

Vaughns, Washington co. April. S. H. Burnham. The specimens represent a variety in which each of the three lobes of the leaf is itself three lobed.

*Castalia tuberosa* (Paine) Greene

Abundant in the sloughs and still waters about Fort Ann, Washington co. In deep water the leaves float on the surface, but in shallow water they stand erect above the surface, supported by their stout firm petioles.

*Draba incana arabisans* (Mx.) Wats.

Precipices of Mt Wallace. This is the only locality in the state, so far as known to me, where this plant is found. It flowers in June or early in July. Specimens collected July 19 were past flowering.

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**Meibomia paniculata (L.) Kuntze**

In rocky places at Bolton a form occurs in which the midrib and, to some extent, the principal veins are bordered by a pale stripe.

**Viburnum pauciflorum Pylaie**

In our state this species is apparently limited to the Adirondack region and is scarce even there. It occurs sparingly along some of the cool shaded streams that flow down the steep rocky sides of Mt Marcy, Mt McIntyre and Mt Clinton. It is in flower in the latter part of June, but the fruit is not ripe before August.

**Ludwigia alternifolia L.**

Abundant in a swampy place about a mile west of Menands. The persistent colored foliaceous lobes of the calyx give it the appearance of being in flower late in the season, even when its fruit is mature.

**Chamaenerion angustifolium (L.) Scop.**

A pale flowered form occurs near Loon lake. It is intermediate between the common form and the white flowered form.

**Galinsoga parviflora hispida DC.**

Waste places. Bolton. August. Escaped from cultivation. More hairy or hispid than the common form and having the pappus narrowed above into a bristle. The upper part of the branches and specially the peduncles are glandular hairy in our specimens. These characters and the coarsely toothed margin of the thicker leaves give the plant a peculiar appearance and would seem to make it worthy of specific distinction.

**Rudbeckia triloba L.**

East Schodack, Rensselaer co. August. Neither the *Manual* nor the *Illustrated flora* credits this species to New York, but it has been found growing wild in Dutchess and Ulster counties. The station in Rensselaer co. is the most northern one in which I have found it.

**Gaylussacia resinosa glaucocarpa Robinson**

Fort Ann, Washington co. and Glen lake, Warren co. August. S. H. Burnham.

***Euphorbia platyphylla* L.**

Rare. On the east shore of Bulwagga bay southeast of Port Henry. September.

***Betula papyracea minor* Tuckerm.**

Plentiful and fertile on the open summit of Mt Clinton.

***Juniperus communis alpina* Gaud.**

The alpine juniper is more abundant on Mt Clinton than on the higher summit of its near neighbor, Mt McIntyre. It bears fruit sparingly here. The arbor vitae, *Thuja occidentalis*, ascends to the open summit of this mountain, but the trees are small and unthrifty.

***Potamogeton lonchites* Tuckerm.**

Small but fertile plants of this pond weed and of *P. obtusifolius*, occur in shallow water in a small pond near Loon lake station.

***Juncoides spicatum* (L.) Kuntze**

The spiked wood rush was found growing on the top of Mt Wallace in 1898. This remained the only known station for it in our state till this year. In July fine fruiting specimens of it were found growing near the base of the cliffs on the western side of Indian pass near its southern end. In these specimens the lowest fruit cluster is 1 or 2 lines distant from the rest.

***Eleocharis diandra* Wright**

This beautiful spike rush has generally been treated as a mere form of the ovoid spike rush, *E. ovata*, but a fine series of specimens collected on the shore of Onocida lake by Dr Haberer and contributed by him to the herbarium leads me to keep it distinct.

***Scirpus peckii* Britton**

A station for this rare bulrush was discovered in July near Loon lake in Franklin co.

***Scirpus rubrotinctus confertus* Fern.**

Swampy places near Loon lake. July. This variety was found growing with the typical form, which is not rare in the Adirondack region.

*Scirpus atrocinctus brachypodus* Fern.

Swampy or wet places. North Elba and near Loon lake. This bulrush also grows in company with the typical form and clearly passes into it by intergrading forms. July.

*Homalocenchrus oryzoides* (L.) Poll.

Low ground on the shore of Lake George at Hague. A form in which all the panicles are included in the leaf sheaths, except in occasional specimens in which the terminal panicle is exerted. September.

*Agrostis alba* L.

Specimens of this common and useful grass were collected near Loon lake. In them the glumes of nearly all the flowers of the panicle are elongated to three or four times their usual size. This gives the grass a singular appearance. These flowers are sterile. A similar form of *A. alba vulgaris* is already represented in the herbarium.

*Poa flava* L.

This grass usually grows in low wet ground or in marshy places, but a slender form with small two or three flowered spikelets scarcely more than 1 line long occurs in the Adirondack region growing on rocky ledges. Specimens were collected on the cliffs of Mt Wallface in July.

*Equisetum littorale gracile* Milde

Gravelly inundated shore of Oneida lake. June. J. V. Haberer.

*Lycopodium annotinum* L.

A slender form of this species is found in Indian pass, approaching variety *pungens* in character but having the leaves more distant and spreading. It is intermediate between the variety and the common form.

*Lycopodium clavatum monostachyon* Hook.

Rocky places. North Elba. July. Growing with the common form.

*Woodsia obtusa angusta* Pk.

Rocky places in the Highlands. Specimens of this variety were collected many years ago on Crow's Nest mountain between

Cornwall and West Point. In his *List of North American Pteridophytes*, Mr B. D. Gilbert, to whom specimens were sent, has recognized this variety and published a description of it under the name here given. This variety is represented on the sheet placed in the herbarium by Dr Torrey to illustrate the species, but no locality is recorded for it. The broader or common form is represented by specimens from Rensselaer and Warren counties.

*Amanita phalloides striatula* n. var.

Pileus thin, nearly plane, slightly striate on the margin, white; stem long, slender, slightly sheathed at the base by the remains of the ruptured volva. Bolton. August.

This amanita departs so distinctly from the character of *A. phalloides* in having the margin somewhat striate, that it would seem at first thought best to separate it as a distinct species, but that is such a variable species and this is so closely allied, differing only in the striate margin from small forms of *A. phalloides verna*, it seems best to regard it as a mere variety. The pileus is 1-2 inches broad and the stem 3-5 inches long and 2-3 lines thick, with a small bulb at the base. The annulus is well developed and the spores are globose and of the same size as in the typical form of the species.

*Amanita muscaria formosa* (G. & R.) Fr.

If we regard the beautiful amanita as a mere variety of the fly amanita it may be said to be the prevailing representative of the species in the eastern and northern parts of the state. It was very abundant the past season about Lake George. Its pileus is generally pale yellow or citrine color and its warts are also pale and easily removable. Sometimes specimens occur which are red or orange in the center of the pileus. It is apparently less poisonous than the true fly amanita, or else some persons are not easily affected by it. An instance was recently reported to me in which one person by mistake cooked and ate two caps of it without experiencing any ill results. This is the third person who has made a similar report to me.

Still the relationship is so close between this variety and the true fly amanita that I would not advise any one to experiment with it as food.

**Tricholoma peckii** Howe

This species agrees very closely with the description given by Fries of *Armillaria aurantia*, from which it scarcely differs except in the character of the ornamentation of the stem and in the absence of any semblance or form of an annulus. In our plant the scales of the stem are very small and not verrucose nor concentrically arranged as indicated by the Friesian description and figure of *A. aurantia* in *Icones Hymenomycetum*. Fries himself says that there is no distinct annulus present in *A. aurantia*, but the scales of the stem definitely and concentrically ceasing 2-3 lines from the top of the stem afford an annular zone. It seems strange that on such slight evidence as this he should place the species in the genus *Armillaria* while its alliance with the genus *Tricholoma* is much more strongly indicated by other characters. In our plant there is a slight downy pruinosity on the margin of the pileus in the young state, which is good evidence of its relationship to the genus *Tricholoma*, but it is possible that this character is not present in the European plant, for I find no mention made of it in the descriptions of *A. aurantia*. The viscid pileus and the change of color assumed by the lamellae with advancing age in our plant point so clearly to an intimate alliance with such species as *T. flavobrunneum*, *T. albobrunneum*, *T. ustalis*, and *T. stans*, that stronger evidence than any we have yet seen in it would be necessary to induce us to disregard this alliance and place it in *Armillaria*. It is perhaps worthy of note that while designating the European plant, which he considers the same as the *Agaricus aurantius* of Schaeffer, as an *Armillaria*, Fries, in the work already mentioned, has actually placed both the description and the figure of it among the descriptions and figures of species of the genus *Tricholoma*, and he himself says that the species is ambiguous between *Armillaria* and

**Tricholoma.** We do not think there is any ambiguity about the proper place for the American plant. Schaeffer describes his plant as having the pileus striate with filaments, and the stem also as striate with filaments, destitute of a veil but having a spurious annulus. His figure supports this description and also indicates the presence of concentrically arranged squamules on the stem. Gillet says that the plant has an incomplete annulus and his figure of the species, like that of Schaeffer, indicates one formed by the abrupt termination of the scaly surface of the stem. He also attributes a strong nauseous odor and an acrid and bitter taste to the plant, but says nothing of the farinaceous odor and taste which is so evident in our plant. These discrepancies between the European plant and the American lead us to keep our plant separate, though it may be only a variety.

**Tricholoma fallax Pk.**

In *Illustrations of British fungi* 8:1151 this species is figured with white lamellae. I have never seen the American plant with white lamellae, not even when young. They are yellow when young inclining to ochraceous as they become older. In the moist plant they are a little paler than the pileus, but when dry they have nearly the same color.

**Collybia confluens campanulata n. var.**

Pileus campanulate, 1-3 inches broad; lamellae and stem whitish or subcinereous. Growing in circles under pine trees. Bolton. September.

This variety is remarkable for the large size and persistently campanulate form of its pileus and for its habit of growing in clusters which stand in arcs of circles. The clusters are often so compact that the pilei are crowded and very irregular in consequence.

Another variety was found in small quantity near Bolton in August. In it the stem and lamellae are clear white. I would call it variety *niveipes*.

*Omphalia campanella sparsa* n. var.

Pileus convex, with a small umbilicus; lamellae yellow, decurrent, rather broad, subdistant, interspaces veiny; stem long, slender, equal, straight, glabrous, with a copious tawny tomentum at the base and sometimes a slight tawny mealiness at the top, hollow, black or brownish black.

Scattered or loosely gregarious. Among fallen leaves and sticks under pine trees. Bolton. August. Several varieties of this species have already been described but this corresponds to none of them. In its habitat and mode of growth it approaches varieties *badipe*s and *papillata*, from the former of which it differs in the color and character of both pileus and stem, and from the latter in the shape of the pileus. The small umbilicus is not deep and it sometimes contains a small blackish papilla. The pileus is 4-6 lines broad and the stem 1-2 inches long but scarcely more than half a line thick.

*Nyctalis asterophora* Fr.

This fungus with us is nearly always affected by what seems to be a parasitic fungus which covers the pileus with a pulverulent coat of tawny brown or cervine stellate spores. This appears to prevent in some cases the development of the lamellae and consequently of its own spores. But the form having lamellae does sometimes occur. Such specimens were found near Bolton in August. When young the pileus is white and its margin involute. It has a farinaceous taste and odor. The stem also is at first white externally, but brown within. It is stuffed or hollow. The lamellae are rather distant and narrow. Such specimens sometimes become pulverulent and discolored after collection and before they can be dried.

*Lentinus ursinus* Fr.

This species varies beyond the limits assigned to it in the description. Specimens were found growing on an old prostrate birch trunk, *Betula lutea*, near Bolton, that were from 2-4 inches broad. When young the pileus is convex with an involute margin, glabrous and whitish, but with advancing



age a fuscous tomentum appears about the base and sometimes extends till it covers the whole surface. The flesh is rather thick, tough and flexible, and has a hot peppery taste. The edges of the lamellae are dentate rather than lacerate. Sometimes the pilei are clustered or imbricated.

*Lenzites betulina radiata* n. var.

Pileus thin, about 1 line thick, 1.5-3 inches broad, coriaceous, velvety hairy, narrowly multizonate, beautifully radiate striate, brown, substance white; lamellae unequal, occasionally forked, not anastomosing, smoky white or brownish. Dead trunks of beech. Hague. September.

The radiate striate appearance of the surface of the pileus is due to a linear arrangement of minute tufts of hairs radiating from the base to the margin. In the description of the species the lamellae are said to anastomose, but in this variety they do not, and in most American specimens that I have seen and that have been referred to this species, the lamellae are simple or occasionally branched. The species must be very variable if reliance is to be placed on the illustrations of it by European authors. Schaeffer's table 57 represents a thin nearly plane pale form with lamellae irregularly branched and slightly anastomosing, Berkeley's *Outlines* t. 15 f. 3 shows a thick triquetrous form with lamellae abundantly anastomosing, and Cooke's *Illustrations of British fungi* t. 1145 A indicates a thin brown zonate hairy pileus with white lamellae sparingly forked but not anastomosing. This corresponds well to our common American form except in the white color of the lamellae.

*Hypholoma aggregatum sericeum* n. var.

About old stumps in woods. North Bolton. September. This variety differs from the typical form of the species in its larger size and in having the pileus silky fibrillose and destitute of spots or scales. For a more full description see the part of this report devoted to edible fungi.

***Boletus chrysenteron deformatus* n. var.**

Pileus small, scarcely more than an inch or an inch and a half broad, very irregular, brick red or tawny red; stem very short, often irregular, ventricose or tapering downward.

Bare earth on sloping banks by roadside. Bolton. August. The stem is but little longer than broad, and the pileus scarcely rises above the surface of the earth.

***Cyclomyces greenii* Berk.**

In 1872 a single specimen of this rare fungus was found in Sterling, Cayuga co. A second specimen of it was found in September of the present year near Bolton, Warren co. This specimen is peculiar in having two stems but one pileus.

***Mucronella minutissima conferta* n. var.**

Aculei very numerous, crowded and forming continuous patches. Otherwise as in the typical form. Decaying wood of birch, *Betula lutea*. Near Loon lake. July.

**E****EDIBLE FUNGI*****Tricholoma russula* (Schaeff.) Fr.****REDDISH TRICHOLOMA****PLATE 77, FIG. 1-5**

Pileus fleshy, firm, convex becoming nearly plane or sometimes concave above by the elevation of the margin, viscid when moist, often minutely squamulose spotted in the center, slightly floccose pruinose on the margin when young, pale pink or rosy red, flesh white, taste mild; lamellae thin, moderately close, slightly rounded behind, white usually becoming reddish spotted with age or where wounded; stem firm, solid, white, often with reddish stains toward the base; spores white, .00025-.0003 of an inch long, .00016 broad.

The reddish tricholoma is a pretty mushroom. Its cap with us is usually a pale pink or rosy red, though the European plant is sometimes figured with a much brighter color and the typical form is described by Schaeffer as pale purple. He also describes and figures his plant as having the cap finely punctate or dotted.

but I have seen no American specimens showing this character fully. The dots in our plant are generally limited to the central part of the surface of the cap, and sometimes they are wanting entirely in the young plant. The reddish color is similar to that seen in some species of *Russula* and is suggestive of the specific name of this mushroom. It may be distinguished from similarly colored species of the genus *Russula* by the downy pruinosity of the margin of the cap in the young plant, by the different texture of its flesh and the different shape of its spores. The color of the cap of the European plant is said to be varied sometimes with yellow spots but I have seen no such variation in the American plant. The cap being viscid when moist is often soiled by adhering particles of dirt, fragments of twigs or fallen leaves.

The gills are white but sometimes become spotted with reddish hues when old or bruised. They are slightly excavated or notched on the edge at the end next the stem. The stem is short in proportion to the size of the mushroom, solid, and commonly white, specially in the young plant, but when old it is often more or less varied with reddish stains. It is sometimes slightly adorned with flocculent particles or scales near the top.

The cap is 2-5 inches broad; the stem 1-2 inches long and 5-8 lines thick. The plants are found late in the season growing in thin woods either singly or in tufts. When growing in tufts the caps are often irregular from mutual pressure. From my own experience in eating this mushroom I am prepared to indorse Mr McIlvaine's words concerning it. "It is an excellent fungus, meaty, easily cooked and of fine flavor."

*Hygrophorus lauræ* Morg.

LAURA'S HYGROPHORUS

PLATE 77, FIG. 6-14

Pileus fleshy, firm, convex becoming nearly plane or centrally depressed, sometimes umbonate, glutinous, white, usually clouded with brown, tawny brown or reddish brown in the center, flesh white; lamellae distant, decurrent, white; stem equal or tapering downward, solid, glutinous, roughened at the top

with scaly points, white or yellowish white; spores white, elliptic, .00025-.0003 of an inch long, .00016-.0002 broad.

This hygrophorus is a beautiful mushroom when fresh but its cap and gills change color in drying, by which it loses much of its beauty. Both cap and stem are smeared with a viscid substance or gluten that makes it unpleasant to handle. In the typical form the cap is white except in the center where it has a reddish or brownish tinge which sometimes spreads faintly toward the margin, but there is a variety in which the cap is entirely white or only faintly tinged with yellow. We have named this variety *unicolor*. Sometimes the center is slightly prominent or umbonate and the margin is irregular or wavy. The gills are decurrent and rather wide apart. They are white when fresh, but like the cap they become brown or reddish brown in drying. The stem is white or nearly so, solid, commonly tapering to a point at the base but sometimes nearly equal in all its parts. Its viscidness makes it difficult to pull the plant from its place of growth with the fingers.

The cap is 1-4 inches broad; the stem 1-4 inches long and 2-6 lines thick. This mushroom grows among fallen leaves in woods and appears during August and September. It appears to be peculiar to this country. It is related to the ivory hygrophorus and the goat moth hygrophorus of Europe but from the former it differs in its solid stem, elliptic spores and change of color in drying and from the latter by the absence of odor. I have eaten the white form only, but give a figure of the other also.

*Clitopilus abortivus* B. & C.

ABORTIVE CLITOPILUS

PLATE 78, FIG. 13-19

Pileus fleshy, firm, convex nearly plane or sometimes slightly depressed in the center, regular or occasionally irregular on the margin, dry, clothed at first with a minute silky tomentum, becoming smooth with age, gray or grayish brown, flesh white, taste and odor subfarinaceous; lamellae thin, close, adnate or strongly decurrent, whitish or pale gray when young, becoming salmon

colored with age; stem nearly equal, solid, minutely flocculose or fibrous striate, colored like or a little paler than the pileus; spores angular, uninucleate, salmon color, .00035-.0004 of an inch long, .00025-.0003 broad.

The abortive clitopilus takes this name because it is usually found growing with an imperfectly developed subglobose form in which there is no distinction of cap, stem or gills. It is simply an irregularly rounded mass of cellular tissue of a whitish color, originally described as a subglobose umbilicate downy mass. It is not always umbilicate nor is the surface always downy. It grows singly or in clusters of two or more.

The well developed form is generally a clean neat appearing mushroom but one of a very modest unattractive grayish colored cap and stem and with gills similarly colored when young, but becoming salmon hued when mature. The flesh is white and has a farinaceous taste and odor though the last is not always distinct unless the flesh is broken. The surface of the cap is usually coated when young by a minute silky flocculence but with advancing age this disappears or becomes scarcely visible. The gills are often very decidedly decurrent in old or fully expanded plants but only slightly so in young plants. When young they have a pale grayish color but with advancing age they assume the salmon color of the spores. They are closely placed to each other and not all of equal length. The stem is nearly equal in diameter in all its parts, solid, minutely flocculose or downy and sometimes slightly fibrous. Its color is similar to that of the cap though it is often paler.

The cap is 2-4 inches broad; stem 1.5-3 inches long and 3-6 lines thick. The species is commonly gregarious in its mode of growth, but sometimes it is single, sometimes tufted. It grows on the ground and on much decayed wood, either in woods or in open places and may be found from August to October.

When taken in good condition and properly cooked it is an excellent mushroom. If stewed gently for a short time it is less agreeable than if thoroughly cooked or fried in butter. The abortive form is also edible and is thought by some to be even better than the ordinary form.

**Clitopilus micropus Pk.**

## SHORT STEMMED OLITOPILUS

## PLATE 78, FIG. 1-12

Pileus thin, fragile, convex or centrally depressed, umbilicate, silky, gray, often with one or two narrow zones on the margin, taste and odor farinaceous; lamellae narrow, close, adnate or slightly decurrent, gray becoming salmon color with age; stem short, solid or with a slight cavity, often slightly thickened at the top, pruinose, gray, with a white mycelioid tomentum at the base; spores angular, uninucleate, salmon color, .0003-.0004 of an inch long, .00025-.0003 broad.

The short stemmed clitopilus is a small mushroom and not very plentiful and for these reasons it is not very important as an edible species, but it sometimes occurs in such abundance as to make it possible to obtain a sufficient number for the table. Its color is similar to that of the preceding species but in size it is much less. Its cap is thin and tender, broadly convex or centrally depressed. It is umbilicate and has a silky surface which is sometimes marked with one or two narrow zones near the margin. The gills are rather narrow and closely placed, broadly attached to the stem or slightly decurrent, and gray when young becoming salmon color when mature. The stem is short even when growing among fallen leaves or in grassy places, it is usually solid but in large or old specimens it is sometimes hollow. Its color is similar to that of the cap but it is slightly pruinose above and with a white tomentum at the base. In large and irregular specimens it is sometimes eccentric.

The cap is 6-16 lines broad; the stem is generally less than an inch long and is 1-2 lines thick. The mushrooms are found among fallen leaves in thin woods or in open grassy places and occur from July to September. They have a farinaceous or mealy flavor which is destroyed by cooking.

**Pholiota squarrosa** Mull.

## SCALY PHOLIOTA

## PLATE 79, FIG. 1-7

Pileus fleshy, firm, convex or nearly plane, dry, adorned with floccose tawny spreading or recurved scales, tawny, paler or yellowish on the margin, flesh whitish; lamellae thin, close, emarginate, adnexed, whitish becoming pale olivaceous, finally brownish ferruginous; stem rather long, firm, nearly equal, adorned with revolute scales, stuffed or hollow, tawny ferruginous, paler above when young, whitish above the commonly lacinate annulus; spores brownish ferruginous, elliptic, .00025-.0003 of an inch long, .00016-.0002 broad.

The scaly pholiota is not a very common mushroom but it is attractive in appearance. It is closely related to the sharp scale pholiota which it resembles in general appearance but from which it differs in its dry, not viscid, cap, in its scales which are flat instead of terete and not prominent and erect on the disk as in that species, and in its larger spores. The European plant is represented both by Schaeffer and by Bulliard as sometimes having a prominent and rather pointed elevation or umbo in the center of the cap, but I have not seen such a form here. In the American plant the young plant is almost hemispheric becoming convex or nearly plane with age. Its margin is paler than the center, fading to a yellowish color. The gills are thin and closely placed side by side. At the stem end they are more or less excavated on the edge. In the very young plant they are concealed by the veil and the incurved margin of the cap. They are then whitish but after exposure they became tinged with pale yellowish green and finally they assume a dull rusty brown hue. The stem is rather long, firm and scaly like the cap. It is stuffed or hollow, rusty tawny and furnished with an imperfect ragged collar near the top. This is at the upper termination of the scaly part and above it the stem is smooth and whitish. The cap is 2-4 inches broad; the stem is 3-5 inches long and 4-6 lines thick. The plants grow on old stumps and prostrate trunks of trees in woods, often

forming dense tufts. In such cases the caps are apt to be irregular and the stems narrower toward the base. They occur in August and September.

***Hypholoma aggregatum sericeum* Pk.**

SILKY TUFTED HYPHOLOMA

PLATE 79, FIG. 8-14

Pileus fleshy, thin, oval when young, soon becoming campanulate or convex, silky fibrillose, white becoming grayish white with age, flesh white, taste mild; lamellae thin, close, adnate or slightly rounded behind, concealed by the veil in the young plant and then white, brown with a purplish tint when mature; stem long, flexuous, hollow, striate at the top, white; spores purplish brown, elliptic, .0003 of an inch long, .00016 broad.

The silky tufted hypholoma is so closely related to the tufted hypholoma, *Hypholoma aggregatum* Pk., that it is considered a mere variety of it. It differs from it in its larger size, in the entire absence of scales or spots from its cap and in the broader attachment of its gills to the stem. It is also related to the European forest hypholoma, *Hypholoma silvestre* Gill., from which it differs in the color of the cap and in the absence from the cap of the broad brown or blackish scales of that species. It has some points of resemblance to Candolle's hypholoma, *H. candolleanum*, and to the dingy white hypholoma, *H. leucotephrum*, but it is to be kept separate from these because it is not hygrophorous.

The cap is quite white when young, but with advancing age it assumes a more dingy or grayish hue and gradually becomes more broadly convex. Its surface is furnished with white silky fibrils which are suggestive of its varietal name. The margin is often wavy or irregular because of its crowded mode of growth and before maturity it is usually appendiculate with fragments of the veil. The flesh is white but when the cap is cut through vertically a narrow watery streak may sometimes be seen along the part next the gills. The gills are concealed at first by the copious white flocculent or webby veil. They are



then white, but after exposure they soon become brownish and finally assume the color of the spores, which is brown tinged with purple. They are not at all or only slightly rounded at the stem and the edges in the mature plant often remain white. The stems are rather long and flexuous, hollow, white, marked with short parallel longitudinal lines at the top and sometimes with reddish stains at the base.

The cap is 1.5-3.5 inches broad; the stem 3-5 inches long and 2-5 lines thick. The plants grow singly or in tufts about old stumps and appear in September. They are very good as an edible mushroom. The typical form has also been found to be edible by one of my correspondents but I have had no opportunity to try it.

*Boletus bicolor* Pk.

TWO COLORED BOLETUS

PLATE 81, FIG. 6-11

Pileus convex, firm, becoming softer with age, dry, glabrous or merely pruinose tomentose, dark red becoming paler and sometimes spotted or stained with yellow when old, flesh yellow, not at all or but slightly changing to blue where wounded, taste mild; tubes nearly plane in the mass, adnate, short and yellow when young, longer and ochraceous when mature, their mouths small, angular or subrotund, slowly and slightly changing to blue where wounded; stem nearly equal, firm, solid, dark red, usually yellow at the top; spores pale ochraceous brown, narrowly elliptic or subfusiform, .0004-.0005 of an inch long, .00016-.0002 broad.

The two colored boletus has the cap and stem dark red or Indian red and the tubes and flesh yellow, which is suggestive of the name applied to it. The cap becomes paler in color and softer in texture as it becomes older, and it often becomes yellowish on the margin and spotted or stained with yellow elsewhere. The surface sometimes cracks in small areas revealing the yellow flesh beneath. The tubes are at first short and bright yellow but they become longer and assume ochraceous hues as they grow older. The mouths are small and the dis-

dissepiments slowly assume a blue color where wounded. The stem varies in length but it is generally nearly equal in thickness in all its parts. It is colored like the cap except at the top where it is generally yellow like the tubes. It is solid as in most boleti and by this character it may be distinguished from the closely related European *Boletus barlae*.

The cap is 2-4 inches broad; the stem 1-3 inches long and 4-6 lines thick. This boletus grows in thin woods or open places and seems to prefer localities where chestnut trees grow. It may be found from July to September. When properly cooked it is tender and has a fine flavor and merits a place among first class mushrooms.

### *Boletus pallidus* Frost

PALE BOLETUS

PLATE 81, FIG. 1-5

Pileus fleshy, convex becoming nearly plane or slightly concave above by the elevation of the margin, soft, dry, glabrous, whitish, grayish or brownish, sometimes tinged with red, flesh white; tubes nearly plane in the mass when young, adnate or slightly depressed around the stem, pale yellow or whitish, usually tinged with green, becoming darker with age, their mouths small, subrotund, the dissepiments assuming bluish hues where wounded; stem commonly rather long, straight or flexuous, solid, equal or slightly thickened at the base, glabrous, whitish, sometimes streaked with brown and tinged with red within; spores pale ochraceous brown tinged with green, subfusiform, .0004-.0005 of an inch long, .0002-.00025 broad.

The pale boletus or pallid boletus is appropriately named. Its cap and stem are not a clear white but just enough shaded with brown to suggest the term pale. Whitish, dingy white, smoky white, grayish or grayish white are expressive of its varying hues. There is sometimes a slight reddish tint in the cap. Its color is apt to become darker in drying. Its surface is dry and smooth or nearly so and the cuticle is sometimes marked by fine cracks, specially on the margin. These reveal the white flesh beneath. The tubes generally form a nearly

plane surface below, but sometimes this is distinctly concave in the young plant and convex in the mature one. They are often slightly depressed around the stem and then their mouths in the depressed part are usually a little larger than elsewhere. Their color is a very pale yellow or greenish yellow and they change to bluish where wounded or bruised. The stem is generally rather long and flexuous though sometimes it is short and straight. It is solid, smooth and whitish, but sometimes streaked with brown and tinged with red within.

The cap is 2-4 inches broad; the stem 2-5 inches long and 3-8 lines thick. The plants inhabit thin woods, groves and open places, and may be found from July to September. This is an excellent boletus for the table, is easily recognized and generally free from the attacks of insect larvae. This and the preceding species, together with the red cracked boletus, *B. chryseron*, show how unreliable is the rule that directs the avoidance of all boleti whose flesh or tubes change to blue where wounded.

***Boletus ornatipes* Pk.**

ORNATE STEMMED BOLETUS

PLATE 80, FIG. 1-5

Pileus fleshy, firm, hemispheric becoming convex or nearly plane, minutely tomentose or glabrous, gray, grayish brown or yellowish brown, flesh yellow; tubes nearly plane in the mass when young, convex when old, adnate or slightly depressed around the stem, golden yellow, their mouths small, subrotund; stem equal or nearly so, solid, firm, distinctly and beautifully reticulated, yellow without and within; spores ochraceous brown, oblong or subfusiform, .00045-.00055 of an inch long; .00016-.0002 broad.

The attractive characters of the ornate stemmed boletus and those by which it may readily be recognized are the beautifully reticulated yellow stem, yellow tubes and clean dry grayish or brownish cap. The cap is hemispheric in the young plant, broadly convex or nearly plane in the mature one. It is dry

and smooth or nearly so and variable in color. The prevailing colors are gray and brown variously blended and often intermingled with yellow. It may be brown when young fading to grayish brown or yellowish brown when mature. The flesh is yellow but this also varies in depth of hue. The tubes sometimes form a plane surface beneath the cap but sometimes those around the stem are a little shorter than the rest thereby forming a depression in the surface. They have a clear yellow color which becomes darker with age. They do not assume blue tints where bruised or wounded. The stem is usually of equal thickness throughout. It is solid and reticulated with a network of ridges from top to bottom. Its color both externally and internally is yellow.

The cap is 2-5 inches broad; the stem 2-4 inches long and 4 to 6 lines thick. This boletus grows in thin woods or in open places. It is sometimes found on earth banks by roadsides. It appears during July and August. It is clean, sound and well flavored.

***Boletus eximius* Pk.**

SELECT BOLETUS

PLATE 80, FIG. 6-12

Pileus fleshy, very compact and globose or hemispheric when young, becoming softer and somewhat paler with age, dry, glabrous or nearly so, purplish brown or chocolate color, flesh brittle, gray or purplish gray varied with darker dots, taste mild; tubes in the young plant short stuffed or closed, concave or nearly plane in the mass, colored nearly like the pileus, becoming longer and sometimes convex in the mass when older, adnate, their mouths minute, rotund; stem equal or nearly so, sometimes slightly ventricose, solid, scurfy, colored like or a little paler than the pileus, purplish gray within; spores brownish ferruginous, oblong, .00045-.0006 of an inch long, .00016-.00025 broad.

The select boletus is a large robust species nearly of one color throughout, quite constant in its characters and easily recognized. It has a purplish brown or chocolate color which

sometimes becomes a little paler with age. The flesh has a grayish hue tinged with purple and in the cap varied with darker dots. It is very firm and brittle when young, but becomes softer with age. It is so peculiar in color and so unlike any of our other species that it is easily recognized and needs no extended description.

The cap is 3-10 inches broad; the stem 2-4 inches long and 6-15 lines thick. It grows in woods or their borders and appears in July and August. It is one of the best edible species but unfortunately it is not abundant. Its large size however, may compensate to some extent for its deficiency in numbers. Sometimes a single large specimen is found growing entirely alone.

***Bovista plumbea* Pers.**

LEAD COLORED BOVISTA

PLATE 81, FIG. 12-19

Peridium globose or nearly so, 6-14 lines in diameter, smooth, double, the exterior coat fragile, separable from the inner, breaking up and falling away at maturity, white when young, the inner thin, papery but tough, smooth, plumbeous when old, paler when first exposed, rarely becoming blackish with age, mouth apical, small; threads of the capillitium branched, free, the ultimate branches long, slender, gradually tapering to a point, purplish brown; spores brown or purplish brown, sub-globose, .0002-.00025 of an inch long, nearly or quite as broad, their pedicels slender, hyaline, persistent, two to three times as long as the spores.

The lead colored bovista is a small globular puffball found growing on the ground in grassy places or in pastures. It appears both in autumn and in spring or early summer. It varies in size from half an inch to one inch in diameter. When young it is white both externally and internally, and while in this condition it is available for food. It should be discarded if the flesh has begun to lose its white color. As it approaches maturity the exterior coat is easily broken and removable in flakes or fragments. Its removal reveals the pale papery but

tough and flexible inner membrane or peridium. With advancing age this assumes a dull grayish blue or leaden hue and opens by a small aperture at the top for the escape of the spores. Any sudden pressure applied to it at this time will cause the ejection of a mass of its spores in little smokelike puffs as in other puffballs. Occasionally old specimens are found in which the inner peridium is almost black. The small size, peculiar color and distinctly double coat of the immature plant are characters which make this bovista easily recognizable. Its flavor is much more agreeable than that of many of the small species of the genus Lycoperdon.

### EXPLANATION OF PLATES

#### PLATE K

#### *Clitocybe regularis* Pk.

##### REGULAR CLITOCYBE

FIG.

- 1 Immature plant
- 2 Mature plant with convex cap
- 3 Mature plant with nearly plane cap
- 4 Vertical section of an immature plant
- 5 Vertical section of the upper part of a mature plant
- 6 Transverse section of a stem of a mature plant
- 7 Four spores  $\times$  400

#### *Clitocybe subconca* Pk.

##### SUBCONCAVE CLITOCYBE

- 8 Plant with the cap moist
- 9, 10 Two plants with caps dry
- 11 Vertical section of the upper part of a plant
- 12 Transverse section of a stem
- 13 Four spores  $\times$  400

#### *Hydnum umbilicatum* Pk.

##### UMBILICATE HYDNUM

- 14 Immature plant showing the upper surface of the cap
- 15, 16 Two mature plants showing both surfaces of the cap
- 17 Vertical section of the upper part of a plant
- 18 Four spores  $\times$  400

**Boletus multipunctus** Pk.

FIG.

## MANY DOTTED BOLETUS

- 19 Plant with a convex cap
- 20 Plant with the cap nearly plane
- 21 Vertical section of the upper part of a plant
- 22 Four spores  $\times 400$

## PLATE L

**Cortinarius obliquus** Pk.

## OBLIQUE BULBED CORTINARIUS

- 1 Immature plant
- 2 Mature plant
- 3 Vertical section of the upper part of an immature plant
- 4 Vertical section of the upper part of a mature plant
- 5 Four spores  $\times 400$

**Cortinarius submarginalis** Pk.

## SUBMARGINED CORTINARIUS

- 6 Immature plant
- 7 Mature plant
- 8 Vertical section of the upper part of an immature plant
- 9 Vertical section of the upper part of a mature plant
- 10 Four spores  $\times 400$

**Helvella adhaerens** Pk.

## ADHERING MARGINED HELVELLA

- 11 Small pale plant
- 12 Large plant of darker color
- 13 Vertical section of a plant
- 14 A paraphysis and an ascus containing spores  $\times 400$
- 15 Four spores  $\times 400$

## PLATE 77

**Tricholoma russula** (Schaeff.) Fr.

## REDDISH TRICHOLOMA

- 1 Immature plant
- 2 Mature plant with convex cap
- 3 Mature plant with cap nearly plane
- 4 Vertical section of the upper part of a plant
- 5 Four spores  $\times 400$

**Hygrophorus laurae** Morg.

## LAURA'S HYGROPHORUS

- FIG.  
 6 Immature plant  
 7 Mature plant with umbonate cap  
 8 Mature plant with cap nearly plane  
 9 Plant showing the colors assumed in drying  
 10 Vertical section of the upper part of an immature plant  
 11 Vertical section of the upper part of a mature plant  
 12 Four spores  $\times 400$   
*var. unicolor*  
 13 Immature plant  
 14 Mature plant

## PLATE 78

**Clitopilus micropus** Pk. -

## SHORT STEMMED CLITOPILUS

- 1 Immature plant  
 2 Immature plant with the margin of the cap slightly zoned  
 3-6 Mature plants with caps differing in form  
 7 Mature plant with lobed cap and eccentric stem  
 8 Vertical section of the upper part of an immature plant  
 9 Vertical section of the upper part of a mature plant with solid stem  
 10 Vertical section of the upper part of a mature plant with hollow stem  
 11 Transverse section of a hollow stem  
 12 Four spores  $\times 400$

**Clitopilus abortivus** B. & C.

## ABORTIVE CLITOPILUS

- 13 Immature plant  
 14 Mature plant with convex cap  
 15 Mature plant with the cap centrally depressed  
 16 Vertical section of the upper part of an immature plant  
 17 Vertical section of the upper part of a mature plant  
 18 Four spores  $\times 400$   
 19 Two abortive plants



## PLATE 79

*Pholiota squarrosa* Mull.

## SCALY PHOLIOTA

FIG.

- 1 Cluster of three young plants
- 2 Immature plant
- 3 Mature plant
- 4 Vertical section of the upper part of an immature plant
- 5 Vertical section of the upper part of a mature plant
- 6 Transverse section of a stem
- 7 Four spores  $\times 400$

*Hypholoma aggregatum sericeum* Pk.

## SILKY HYPHOLOMA

- 8 Cluster of four young plants
- 9 Immature plant
- 10 Mature plant
- 11 Vertical section of the upper part of an immature plant
- 12 Vertical section of the upper part of a mature plant
- 13 Transverse section of a stem
- 14 Four spores  $\times 400$

## PLATE 80

*Boletus ornatipes* Pk.

## ORNATE STEMMED BOLETUS

- 1 Immature plant
- 2 Mature plant with convex cap
- 3 Mature plant with cap more expanded
- 4 Vertical section of the upper part of a plant
- 5 Four spores  $\times 400$

*Boletus eximius* Pk.

## SELECT BOLETUS

- 6 Immature plant
- 7 Mature plant with convex cap
- 8 Mature plant with cap more expanded
- 9 Mature plant of larger size
- 10 Vertical section of the upper part of an immature plant
- 11 Vertical section of the upper part of a mature plant
- 12 Four spores  $\times 400$

## PLATE 81

**Boletus pallidus** Frost

## PALE BOLETUS

FIG.

- 1 Immature plant
- 2 Mature plant with convex cap
- 3 Mature plant with cap more expanded
- 4 Vertical section of the upper part of a plant
- 5 Four spores  $\times 400$

**Boletus bicolor** Pk.

## TWO COLORED BOLETUS

- 6 Young plant
- 7 Immature plant
- 8 Mature plant
- 9 Vertical section of the upper part of an immature plant
- 10 Vertical section of the upper part of a mature plant
- 11 Four spores  $\times 400$

**Bovista plumbea** Pers.

## LEAD COLORED BOVISTA

- 12, 13 Immature plants differing in size
- 14 Plant nearly mature showing inner coat in three places
- 15 Mature plant with part of outer coat remaining at the base
- 16 Mature plant with outer coat wholly gone
- 17 Small mature plant with inner coat nearly black
- 18 Part of a branching thread of the capillitium  $\times 400$
- 19 Four spores and their pedicels  $\times 400$



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