[From the 43d Report of the New York State Museum of Natural History.]

ANNUAL REPORT

OF THE

STATE BOTANIST

OF THE

State of New York. 1889.

Made to the Regents of the University, Pursuant to Chapter 355, of the Laws of 1883.

By CHARLES H. PECK.

ALBANY:
JAMES B. LYON, STATE PRINTER.
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STATE OF NEW YORK.

No. 61.

IN SENATE,

MARCH 21, 1890.

ANNUAL REPORT OF THE STATE BOTANIST.

OFFICE OF THE STATE BOTANIST,
ALBANY, *March* 21, 1890.

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

I have the honor to present to you my annual report for the year 1889.

Very respectfully.

CHARLES H. PECK.

REPORT OF THE BOTANIST.

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

GENTLEMEN.—I have the honor of communicating to you the following report:

Specimens of plants for the State Herbarium have been collected by the Botanist during the past season in the counties of Albany, Broome, Clinton, Columbia, Essex, Franklin, Greene, Kings, Oneida, Rensselaer, Saratoga, Schenectady, St. Lawrence, Suffolk, Ulster and Washington.

Specimens contributed by correspondents were collected in the counties of Essex, Onondaga, Orleans, Queens, Schoharie and Tompkins.

Specimens representing 229 species of plants have been added to the Herbarium during the past year, of which 207 were collected by the Botanist and 21 were contributed. Of the former, 84 are new to the Herbarium; of the latter, 21. The number of species represented in the Herbarium has therefore been increased by 105. Among these are 37 species of fungi considered new to science and hereinafter described as new species. A list of the species of which specimens have been added to the Herbarium is marked A.

23 persons have contributed specimens. Among the contributions are many extra-limital species not included in the foregoing enumeration. A list of the contributors and of their respective contributions is marked B.

A record of species not before reported, together with locality and habitat, and descriptions of such as are deemed new to science, is marked C.

Remarks concerning species previously reported, a record of new localities of rare plants and descriptions of new varieties will be found in a subdivision marked D.

Descriptions of New York species of Armillaria and remarks concerning them will be found under E.

The unusually wet character of the season now ended has afforded an excellent opportunity to observe the influence of rainy weather in promoting the growth of fungi. The prevailing temperature has not been high and there has been an almost conspicuous absence of thunder showers, yet rain storms have been frequent and sometimes copious, and cloudy, wet weather has been of long continuance. Under such influences the abundance and destructiveness of the parasitic fungi has been remarkable.

Monilia fructigena, a fungus which attacks apples, pears, peaches and plums, even while hanging on the trees, and breaks out upon their surface in small grayish or yellowish gray tufts, has rarely, if ever, been more abundant and destructive. It is such a pest to peaches that, in regions where they are generally cultivated, it has received the common name of "peach rot." But it is no less dangerous to plums in districts where their cultivation is general, and it might with equal reason be called "plum-rot" in such places. The diseased fruit often remains on the tree during the winter and becomes the source of infection to the next crop. This danger might be greatly lessened if the affected fruit could be gathered and burned or deeply buried in fall or early spring.

A currant-leaf fungus, *Glœosporium ribis*, has also been excessively virulent. In some localities currant leaves have been so severely attacked by it that their vigor was destroyed and they fell to the ground long before the usual time. In my own garden the currant bushes were as destitute of foliage in August as they usually are in November. This fungus does not attack the fruit, but when it is abundant on the foliage, which it covers with brownish or discolored spots, it must necessarily weaken the plants and diminish the succeeding crop of currants.

Glœosporium lagenarium is a fungus generically related to the preceding species. Its attacks upon muskmelons and watermelons have, in some instances, been very severe. It not only causes spots on the fruit, thereby spoiling it, but it has also attacked the foliage, causing spots on it and finally killing it and the vines.

Glœosporium Lindemuthianum is another species which commonly attacks the pods of some varieties of wax beans, producing discolored spots on them and injuring their market value. This year it has been quite aggressive and, in some instances, attacked varieties that were formerly free from it.

Squashes also have suffered unusually from a species of mold, *Rhopalomyces Cucurbitarum*, which invades the blossoms and young fruit and induces rapid decay in the latter.

The downy mildew of the grape, *Peronospora viticola*, has been unusually virulent in its attacks and remarkably luxuriant in its development upon some varieties of the grape. Few species of the cultivated fruits and vegetables of our gardens have wholly escaped the ravages of their respective fungous parasites.

The potato-rot fungus, *Peronospora infestans*, has been active in both garden and field, and has not been at all behind other species in its destructive energy. It was my purpose to make, in my own garden, a thorough trial of the Bordeaux mixture as a preventive of this disease. But the fungus made its appearance so much earlier than usual that the leaves were considerably spotted by it before the first spraying was made and consequently some spores were perfected and scattered before any treatment was given. Notwithstanding this and the tendency of the frequent rains to wash the mixture from the foliage, the plants treated with two applications maintained a green and comparatively healthy foliage much longer than those that were not sprayed. Wishing to see the result of planting diseased tubers, a dozen hills of such were placed on one side of a small experimental plat. By the side of this row three others of equal length were planted with sound tubers. The plants from the diseased tubers grew much more feebly than those from the sound tubers, and the fungus first appeared on the lower leaves of this row. It soon appeared on the adjoining rows but the discolored spots were less in number the more remote the row was from the source of infection. All the spotted leaves were then picked from the vines to see if the progress of the disease might thereby be checked. But it immediately appeared again and then the whole plat was sprayed with the Bordeaux mixture. This gave a very decided check to the progress of the disease. 11 days later, which was July fifteenth, the spraying was repeated. The foliage at this time was in excellent condition, looking green and healthy. An absence of two weeks then intervened. In the meantime heavy rains had fallen and washed much of the mixture from the foliage, and on my return I found the fungus had renewed the attack and made such headway that it was useless to continue the experiment. But enough had been

shown to indicate that if the foliage of the potato plant is kept whitened with the Bordeaux mixture it can be kept free from the fungus.

To try the effect of deep planting on the productive power of the potato, a trench about a foot deep was dug and 12 tubers planted in it about a foot apart. These were covered about four inches deep. At the same time 12 tubers were planted about four inches deep in a row by the side of the trench. As the plants in the trench grew, soil was, from time to time, thrown into the trench till it was filled. In all other respects the two experiment rows received the same treatment. The plants in the trench were more productive than those planted in the ordinary way, yielding 198 tubers weighing 19½ pounds; the others yielding 155 tubers weighing 14 pounds. But the trench system proved superior not only in its greater production, but also in its better protection. Among the tubers dug from the 12 hills in the trench, four were found affected by rot, and these all occurred in two hills. But among those dug from the 12 hills planted in the usual way, 37 affected ones were found, nearly every hill furnishing some. Thus it is evident that deep planting is a protection against rot. The spores produced by the fungus on the leaves are the cause of the mischief in the tuber. They fall to the ground and are washed down through the soil to the tubers by the rain. They do not so easily reach the tubers when they are covered by a thick layer of earth as when they lie near the surface. It also follows that a very compact soil affords greater protection than a loose porous one, though it is not as favorable to production. In a part of the garden the soil was of such a character that the heavy rains had made it very firm and compact. It was scarcely possible to dig the tubers with the implements ordinarily used for this purpose because of the hardness of the soil. Although the vines here had been badly affected and speedily killed by the fungus no rotten tubers were found. The spores, which must have been very plentiful here, were prevented from reaching the tubers by the hard and compact condition of the soil over them. These two examples indicate the way in which the germs of the disease chiefly reach the tubers. Any practical method of preventing them from being washed down through the soil to the tubers will solve the problem of saving them from this infection. But it is far better to strive to pre-

vent the infection of the foliage, for in an early attack, like that of the past season, the foliage might be destroyed before the tubers were mature. In such a case the crop would be inferior in quantity and quality even if the tubers should remain unaffected. Thorough spraying with the Bordeaux mixture promises to do this if commenced before the fungus makes its appearance and repeated as often as it is washed off by rains.

Thinking that the great windfall in the Adirondack wilderness, where, about 45 years ago, a tornado swept through the forest and prostrated the trees, would be a good locality in which to study the action of wood-destroying fungi and obtain specimens of them, that place was visited. But two agencies had intervened to prevent the realization of my expectations. Forest fires had run through the windfall and consumed all the smaller material and so much time had elapsed since the death of the trees that what the fire had left had passed beyond its period of usefulness as a habitat for wood-loving fungi. Young trees, chiefly poplar, have grown all along in the track of the wind-storm. This wood is now so useful in furnishing material for pulp that the strip of land devastated by the storm is by no means destitute of value.

It was at this time that a peculiar appearance of the oat-fields in St. Lawrence county attracted my attention. The foliage of the plants presented a singular admixture of green, dead-brown and reddish hues, strongly suggestive of that of a "rust-struck" field. But upon examination no rust fungus could be found. Many of the leaves were either wholly or in their upper-half dead and discolored. On these dead parts were a few scattered tufts of a very minute fungus somewhat resembling the common *Cladosporium herbarum*. No other fungus was found upon them and no description has been found corresponding to the characters of this one. It has, therefore, been figured and described in this report as a new species of Fusicladium, to which genus it appears to belong. It is not improbable that it inhabits the leaves of some of our northern native grasses and has escaped from them to the oat-fields. It is so minute and so obscure in its character that it has probably been overlooked till now, but having escaped to the oat-fields, and having been stimulated by the favoring character of the season to an unusually abundant development, its existence could no longer be concealed. Its effect on the

foliage is so destructive that it must greatly diminish the yield of this grain in places where it abounds, for no plant can do its best work with half its foliage dead and discolored. It is probable that in an ordinarily dry season its attacks will be much less severe.

Not only have the parasitic fungi manifested great activity, but also the saprophytic, as has been indicated by the abundant and vigorous growth of those species that are found upon stumps, dead branches and prostrate trunks in and about our woodlands. A letter to me from P. H. Dudley, C. E., who is making a study of this subject, with especial reference to its practical and economic aspect, has such a direct bearing upon this subject and records observations of such practical value, that I have, with his permission, appended a copy of it to this report. It is marked F.

Very respectfully submitted.

CHAS. H. PECK.

ALBANY, *December* 10, 1889.

(A.)

PLANTS ADDED TO THE HERBARIUM.

New to the Herbarium.

Thlaspi arvense *L.*
Hesperis matronalis *L.*
Prunus avium *L.*
Trapa natans *L.*
Lacnanthes tinctoria *Ell.*
Setaria Italica *Kunth.*
Cynodon dactylon *Pers.*
Amanita nitida *Fr.*
Tricholoma sejunctum *Sow.*
T. grave *Pk.*
Clitocybe multiceps *Pk.*
C. catinus *Fr.*
Clitopilus stilbocephalus *B. & Br.*
Coprinus Brassicæ *Pk.*
Cortinarius glutinosus *Pk.*
C. annulatus *Pk.*
C. luteus *Pk.*
C. paludosus *Pk.*
Lactarius subinsulsus *Pk.*
L. mutabilis *Pk.*
Russula brevipes *Pk.*
R. pectinata *Fr.*
Marasmius fœtidus *Fr.*
M. albiceps *Pk.*
Polyporous cæsarius *Fr.*
P. hispidus *Fr.*
Poria aurea *Pk.*
P. latemarginata *D. & M.*
Hydnum stratosum *Berk.*
H. pallidum *C. & E.*
H. acutum *Pers.*
Irpex rimosus *Pk.*
Corticium mutatum *Pk.*
C. Berkeleyi *Cke.*
C. subaurantiacum *Pk.*
C. basale *Pk.*
Peniophora unicolor *Pk.*
Clavaria similis *Pk.*
Ditiola conformis *Karst.*
Mutinus bovinus *Morg.*
Geaster fimbriatus *Fr.*
Scleroderma Geaster *Fr.*
Enteridium Rozeanum *Wing.*
Cribraria violacea *Rex.*
Comatricha longa *Pk.*
C. subcæspitosa *Pk.*
Plasmodiophora Brassicæ *Wor.*
Phyllosticta bicolor *Pk.*
P. Prini *Pk.*
P. Silenes *Pk.*
P. Caricis *Sacc.*
Phoma allantella *Pk.*
P. Candollei *Sacc.*
Haplosporella Ailanthi *E. & E.*
Diplodia Æsculi *Lev.*
Leptostroma Polygonati *Lasch.*
Septoria Helianthi *E. & K.*
S. thecicola *B. & Br.*
Cytospora orthospora *B. & C.*
Glœosporium leptospermum *Pk.*
Melanconium magnum *Berk.*
Puccinia obscura *Schrœt.*
P. Eleocharidis *Arthur.*
P. mammillata *Schrœt.*
P. Malvacearum *Mont.*
Ustilago Austro-Americana *Speg.*
Doassansia Alismatis *Corn.*
Plasmopara Viburni *Pk.*
Sporotrichum cohærens *Schw.*
S. cinereum *Pk.*
Coniosporium Fairmani *Sacc.*
C. culmigenum *Berk.*
C. Polytrichi *Pk.*
Torula convoluta *Harz.*
Echinobotryum atrum *Cd.*
Stachybotrys elongata *Pk.*
Zygodesmus muricatus *E. & E.*
Dematium parasiticum *Pk.*
Fusicladium destruens *Pk.*
Cercospora Apocyni *E. & K.*
C. granuliformis *E. & H.*
Sporodesmium antiquum *Cd.*
Stilbum Spraguei *B. & C.*
Isaria aranearum *Schw.*
Tubercularia carpogena *Pk.*
Fusarium Sclerodermatis *Pk.*
Epicoccum purpurascens *Ehren.*
Underwoodia columnaris *Pk.*
Lachnella cerina *Phil.*
Tapesia Rosæ *Phil.*
Helotium mycetophilum *Pk.*
Cenangium rubiginosum *Cke.*

Coronophora gregaria *Fckl.*
Hæmatomyces faginea *Pk.*
Barya parasitica *Fckl.*
Hypoxylon effusum *Nits.*
Eutypa flavovirescens *Tul.*
Eutypella longirostris *Pk.*
Anthostoma microsporum *Karst.*
Didymosporium effusum *Schw.*
Cryptosporella hypodermia *Sacc.*
Leptosphæria dumetorum *Niessl.*
Herpotrichia rhodomphalia *Sacc.*
Lophiotrema auctum *Sacc.*

Not new to the Herbarium.

Ranunculus bulbosus *L.*
R. repens *L.*
Brasenia peltata *Pursh.*
Capsella Bursa-pastoris *Mœnch.*
Cardamine hirsuta *L.*
Helianthemum Canadense *Mx.*
Lechea major *Mx.*
L. thymifolia *Pursh.*
Linum Virginianum *L.*
L. usitatissimum *L.*
Rhus Toxicodendron *L.*
Trifolium hybridum *L.*
Desmodium rotundifolium *DC.*
Lupinus perennis *L.*
Rubus neglectus *Pk.*
Rosa Carolina *L.*
Amelanchier Canadensis *T. & G.*
Lythrum alatum *Pursh.*
Carum Carui *L.*
Cicuta bulbifera *L.*
Cryptotænia Canadensis *DC.*
Levisticum officinale *Koch.*
Sium cicutæfolium *Gmel.*
Aster diffusus *Ait.*
A. multiflorus *Ait.*
A. cordifolius *L.*
A. ericoides *L.*
A. Novi Belgii *L.*
A. puniceus *L.*
A. undulatus *L.*
A. vimineus *Lam.*
Solidago puberula *Nutt.*
S. Elliottii *T. & G.*
S. speciosa *Nutt.*
S. nemoralis *Ait.*
Achillea millefolium *L.*
Artemisia caudata *Mx.*
Sonchus arvensis *L.*
Rudbeckia laciniata *L.*
R. triloba *L.*
Lobelia Kalmii *L.*
L. inflata *L.*
Plantago lanceolata *L.*
Polygonum dumetorum *L.*
Celtis occidentalis *L.*
Physalis viscosa *L.*
Carya amara *Nutt.*
Juglans cinerea *L.*
Asparagus officinalis *L.*
Potamogeton zosterifolius *Schum.*
Juncus acuminatus *Mx.*
J. Canadensis *J. Gay.*
J. effusus *L.*
J. filiformis *L.*
J. scirpoides *Lam.*
Carex blanda *Dew.*
C. rosea *Schk.*
Bromus ciliatus *L.*
B. racemosus *L.*
Andropogon macrourus *Mx.*
Botrychium matricariæfolium *A.Br.*
Amanita solitaria *Bull.*
Armillaria mellea *Vahl.*
A. nardosmia *Ellis.*
Tricholoma variegatum *Scop.*
Clitocybe laccata *Scop.*
Collybia radicata *Belh.*
C. hariolorum *DC.*
C. tuberosa *Bull.*
Mycena corticola *Schum.*
Omphalia chrysophylla *Fr.*
O. striipilea *Fr.*
Pleurotus striatulus *Fr.*
Clitopilus Noveboracensis *Pk.*
Inocybe rimosa *Bull.*
Galera hypnorum *Batsch.*
Coprinus fimetarius *Fr.*
C. micaceus *Fr.*
C. plicatilis *Fr.*
Hygrophorus ceraceus *Fr.*
Lactarius fuliginosus *Fr.*
Russula nigricans *Fr.*
R. sordida *Pk.*
R. heterophylla *Fr.*
R. crustosa *Pk.*
R. fragilis *Fr.*
Marasmius erythropus *Fr.*
Lentinus lepideus *Fr.*

Lentinus strigosus *Schw.*
L. umbilicatus *Pk.*
Strobilomyces strobilaceus *Berk.*
Polyporus griseus *Pk.*
P. perennis *Fr.*
P. circinatus *Fr.*
P. chioneus *Fr.*
P. connatus *Fr.*
P. glomeratus *Pk.*
P. balsameus *Pk.*
P. versicolor *Fr.*
Poria vaporaria *Fr.*
P. mutans *Pk.*
P. attenuata *Pk.*
Dædalea confragosa *Pers.*
Trametes sepium *Berk.*
Merulius lacrymans *Fr.*
Solenia fasciculata *Pers.*
Hydnum repandum *L.*
H. aurantiacum *A. & S.*
H. subfuscum *Pk.*
Irpex paradoxus *Fr.*
Stereum sanguinolentum *Fr.*
S. rugosum *Fr.*
S. ochraceoflavum *Schw.*
S. acerinum *Pers.*
Hymenochæte tabacina *Lev.*
Clavaria botrytes *Pers.*
Tremella foliacea *Pers.*
Exidia glandulosa *Fr.*
Lycoperdon constellatum *Fr.*
Scleroderma vulgare *Fr.*
S. Bovista *Fr.*
Stemonitis Morgani *Pk.*
Siphoptychium Casparyi *Rost.*
Ustilago segetum *Dittm.*

(B.)

CONTRIBUTORS AND THEIR CONTRIBUTIONS.

Mrs. D. B. Fitch, Norwich, N. Y.

Viola sagittata *Ait.*
Flœrkia proserpinacoides *Willd.*
Trillium erectum *L.*
Erythronium albidum *Nutt.*

L. F. Ward, Washington, D. C.

Hieracium prælatum *Vill.*

A. G. Grinnan, M. D., Madison Mills, Va.

Calostoma Berkeleyi *Massee.*

Prof. L. M. Underwood, Syracuse, N. Y.

Clitopilus stilbocephalus *B. & Br.*
Hydnum stratosum *Berk.*
Peniophora unicolor *Pk.*
Underwoodia columnaris *Pk.*
Eutypella longirostris *Pk.*

C. E. Fairman, M. D., Lyndonville, N. Y.

Diplodia Æsculi *Lev.*
Zygodesmus muricatus *E. & E.*
Tapesia Rosæ *Phil.*
Haplosporella Ailanthi *E. & E.*
Lophiotrema auctum *Sacc.*
Puccinia Malvacearum *Mont.*
Eutypa flavovirescens *Tul.*
Diatrype albopruinata *Schw.*
Leptosphaeria dumetorum *Niessl.*
Coniosporium Fairmani *Sacc.*
C. culmigenum *Berk.*
Æcidium Lysimachiæ *Wallr.*

F. E. Emery, Geneva, N. Y.

Puccinia Malvacearum *Mont.*

Prof. J. A. Lintner, Albany, N. Y.

Uncinula macrospora *Pk.*
Fuligo varians *Sommerf.*

W. A. Setchell, Cambridge, Mass.

Doassansia Alismatis *Corn.*
D. Sagittariæ *Schrœt.*
D. occulta *Corn.*
Tolysporium bullatum *Schrœt.*
Entyloma Compositarum *Farl.*

Prof. J. C. Smock, Albany, N. Y.

Placodium elegans *Lk.*
Theloschistes concolor *Dicks.*

J. Dearness, London, Canada.

Teucrium botrytis *L.*
Botrytis geniculata *Cd.*
Libertella acerina *West.*
L. faginea *Desm.*

W. T. Swingle, Manhattan, Kansas.

Ustilago provincialis *K. & S.*

Prof. B. D. Halsted, New Brunswick, N. J.

Synchytrium Vaccinii *Thom.*
Peronospora Cubensis *B. & C.*

Harold Wingate, Philadelphia, Pa.

Orcadella operculata *Wing.*
Comatricha longa *Pk.*

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

Siphoptychium Casparyi *Rost.*
Physarum lividum *Rost.*
Stemonitis dictyospora *Rost.*
Comatricha longa *Pk.*
Cribraria violacea *Rex.*

Prof. H. J. Weber, Lincoln, Neb.

Puccinia vexans *Farl.*

Wm. Herbst, M. D., Trexlertown, Pa.

Pholiota æruginosa *Pk.*
Clitocybe multiceps *Pk.*
Polyporus lucidus *Leys.*

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

Puccinia mammillata *Schrœt.*
Ustilago Austro-Americana *Speg.*
Sporodesmium antiquum *Cd.*
Echinobotryum atrum *Cd.*
Hypoxylon effusum *Nits.*
Comatricha longa *Pk.*

P. H. Dudley, New York, N. Y.

Merulius lacrymans *Fr.*
Polyporus lucidus *Leys.*
Polyporus hispidus *Fr.*

S. M. Tracy, Agricultural College, Miss.

Phragmidium Fragariastri *Schrœt.*
P. subcorticium *Wint.*
Puccinia caulicola *T. & G.*
P. Sporoboli *Arth.*
P. Galiorum *Lk.*
P. Hieracii *Mart.*
P. Andropogonis *Schw.*
P. Helianthi *Schw.*
P. Silphii *Schw.*
P. Malvastri *Pk.*
P. lateripes *B. & R.*
P. heterospora *B. & C.*
P. Violæ *DC.*
Uromyces Spermacoces *Wint.*
U. Sparganii *C. & P.*
U. Terebinthi *Wint.*
Uromyces Trifolii *DC.*
U. Œnotheræ *Burr.*
U. Lespedezæ *Pk.*
U. Hyperici *Curt.*
U. appendiculatus *Lev.*
U. Euphorbiæ *C. & P.*
Ustilago sphærogena *Burr.*
Uredo Artemisiæ *Rab.*
Coleosporium Rubi *E. & M.*
Melampsora salicina *Lev.*
Rœstelia aurantiaca *Pk.*
Æcidium Clematidis *DC.*
Æ. Psoraleæ *Pk.*
Æ. Sii *Fckl.*
Peridermium orientale *Cke.*
Synchytrium fulgens *Schrœt.*

Cystopus cubicus *Lev.*
Peronospora Halstedii *Farl.*
Microstroma leucosporum *Mont.*
Cylindrosporium Heraclei *E. & E.*
Cercospora Diospyri *Thum.*
C. sordida *Sacc.*
C. clavata *Ger.*
C. Heliotropii *E. & E.*
Cerebella Andropogonis *Ces.*
Piggotia Fraxini *B. & C.*
Sphæropsis Menispermi *Pk.*
Sphaerotheca Castagnei *Lev.*
Uncinula macrospora *Pk.*
Erysiphe graminis *DC.*
Capnodium puccinioides *E. & E.*
Phleospora Ulmi *Wallr.*
Phyllachora Ulmi *Fckl.*
Hypocrea Hypoxylon *Schw.*

F. W. Anderson, Great Falls, Mont.

Phragmidium Potentillæ *Wint.*
P. subcorticium *Wint.*
Puccinia Saxifragæ *Schlect.*
P. Asteris *Duby.*
P. Tanaceti *DC.*
P. Malvastri *Pk.*
P. Troximontis *Pk.*
P. intermixta *Pk.*
P. variolaris *Hark.*
P. Polygoni-amphibii *Pers.*
P. hysteriiformis *Pk.*
P. Menthæ *Pers.*
P. Caricis *Reb.*
P. Giliæ *Hark.*
P. Rubigo-vera *DC.*
P. Phragmitis *Schum.*
P. graminis *Pers.*
Uromyces Eriogoni *E. & H.*
U. Junci *Schw.*
U. Trifolii *DC.*
U. Spragueæ *Hark.*
Ustilago Caricis *Fckl.*
U. Montaniensis *E. & H.*
Melampsora Lini *Tul.*
M. populina *Lev.*
M. salicina *Lev.*
Uredo Oxytropidis *Pk.*
Coleosporium Sonchi-arvensis *Lev.*
Cronartium Asclepiadeum *Kze.*
Æcidium gaurinum *Pk.*
Æ. monoicum *Pk.*
Æ. Clematidis *DC.*
Æ. Chrysopsidis *E. & A.*
Æ. Ligustici *E. & E.*
Æ. Asteratum *Schw.*
Sporodesmium tabacinum *E. & E.*
Coniothyrium concentricum *Desm.*
Cladosporium Typharum *Desm.*
Helminthosporium subcuticulare *E. & E.*
Ramularia lactea *Sacc.*
Didymaria Clematidis *C. & H.*
Cystopus Bliti *Biv.*
C. candidus *Lev.*
C. cubicus *Str.*
Phyllactinia suffulta *Reb.*
Sphærotheca Castagnei *Lev.*
Uncinula adunca *Lev.*
Erysiphe graminis *DC.*
E. sepulta *E. & E.*
E. communis *Wallr.*
E. Cichoracearum *DC.*
Nectria Ribis *Rab.*
Rhytisma salicinum *Fr.*
Leptosphaeria Typhæ *Karst.*

Prof. W. R. Dudley, Ithaca, N. Y.

Acer sacch. var. nigrum Gr.
Ulmus racemosa *Thomas.*

E. J. Forster, M. D., Boston, Mass.

Lepiota farinosa Pk.

Mrs. P. H. Dudley, New York, N. Y.

Fruit of passion flower, Passiflora edulis. An alga from the hot springs of Arkansas. Collected by Mrs. L. E. Holden.

(C.)

PLANTS NOT BEFORE REPORTED.

Hesperis matronalis, *L.*

Roadside, near Feurabush, Albany county. May. This plant is sometimes cultivated for ornament and escapes from cultivation and becomes naturalized in some places. Buffalo. *David F. Day.*

Prunus avium, *L.*

Ravines and hillsides. Near Catskill. May. Also reported by Professor Dudley as frequent about Ithaca, and especially abundant on both shores of Cayuga lake. An introduced plant which has escaped from cultivation.

Trapa natans, *L.*

This curious aquatic has been introduced, but is well established in Sander's lake, near Schenectady.

Aster vimineus, *Lam.*

This species is not rare in moist, sandy soil in the eastern part of Long Island. It is variable in aspect, the branches being either horizontal or somewhat ascending, and having the flowers either crowded or racemous.

Lacnanthes tinctoria, *Ell.*

Near Manor, Suffolk county. August. This plant is named in the list of those mentioned by Dr. Torrey in the Flora of New York, Vol. II, p. 522, as likely to occur on Long Island. Its occurrence in this place has verified his prediction.

Cynodon dactylon, *Pers.*

Vacant lots in Long Island city. September. This is considered a valuable grass in some of the southern States, but it is very persistent and eradicated with some difficulty. As it prefers a warmer climate it will probably not prove troublesome on Long Island.

Amanita nitida, *Fr.*

Menands, Albany county. Our plant is more slender than the typical form and has smaller, but more numerous, warts, but in other respects it exhibits the characters of this species.

Tricholoma sejunctum, *Sow.*

Mixed woods. Manor and Quogue. September. This species is not uncommon in sandy soil on Long Island, though in Europe it

occurs chiefly in gravelly soil. With us it varies considerably in the color of the pileus, which may be either white or pale yellow, tinged with green or brown. It is often irregular or deformed and frequently destitute of an umbo. The fibrils are either brown or blackish. The bitter taste is sometimes absent.

Tricholoma grave, *n. sp.*

[Plate 1. Figs. 5 to 8.]

Pileus at first hemispherical, then broadly convex, compact, glabrous, grayish-tawny and somewhat spotted when moist, paler when dry, the margin paler, involute, often irregular, clothed with a minute appressed grayish-white tomentum or silkiness, flesh grayish-white; lamellæ subdistant, rounded behind or sinuate, adnexed, at first whitish, then pale ochraceous-tawny; stem stout, compact, solid, subsquamulose or furfuraceous, abruptly attenuated at the base, penetrating the soil deeply, grayish-white; spores broadly elliptical, .0003 in. long, .0002 broad.

Pileus 5 to 8 in. broad; stem 3 to 4 in. long, 1 to 1.5 in. thick.

Mixed woods of pine and oak. Manor. September.

This species is remarkable for its great size and weight. It is apparently allied to *Tricholoma colossus*, from which it is separated by the absence of any viscidity of the pileus, the radicating character of the base of the stem and by the flesh not assuming a reddish color. By its moist pileus it appears to belong to the Spongiosi rather than to the Limacini among which *T. colossus* is placed.

Clitocybe multiceps, *n. sp.*

Pileus fleshy, thin except on the disk, firm, convex, slightly moist in wet weather, whitish, grayish or yellowish-gray, flesh white, taste mild; lamellæ close, adnate or slightly decurrent, whitish; stems densely cæspitose, equal or slightly thickened at the base, solid or stuffed, firm, elastic, slightly pruinose at the apex, whitish; spores globose, .0002 to .0003 in. broad.

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

Open places, grassy ground, etc. Albany and Sandlake. June and October. This species forms dense tufts often composed of many individuals. In this respect it is related to such species as *Clitocybe tumulosa, C. aggregata* and *C. illudens*. From the crowding together of many individuals the pileus is often irregular. Sometimes the disk is brownish and occasionally slightly silky. The lamellæ are sometimes slightly sinuate, thus indicating a relationship to the

species of Tricholoma. The taste, though mild, is somewhat oily and unpleasant. The plants appear in wet, rainy weather, either early in the season or in autumn. Specimens have been sent to me from Massachusetts by R. K. Macadam and Professor Farlow, and from Pennsylvania by Dr. W. Herbst.

Clitocybe catinus, *Fr.*

Ray Brook, Adirondack mountains. August. The pileus is at first white, but in wet whether it becomes pallid or discolored with age. The plants were found growing among pieces of bark of arbor vitæ lying on the ground.

Clitopilus stilbocephalus, *B. & Br.*

Syracuse. October. *Prof. L. M. Underwood.* The specimens apparently belong to the variety represented in Cooke's Illustrations, plate 599.

Coprinus Brassicæ, *n. sp.*

[Plate 2. Figs. 9 to 14.]

Pileus membranous, at first ovate or conical, then broadly convex, squamulose, finely striate to the disk, white becoming grayish-brown, the margin generally splitting and becoming recurved; lamellæ narrow, crowded, reaching the stem, brown with a slight ferruginous tint; stem slender, glabrous, hollow, slightly thickened at the base, white; spores elliptical, brown, .0003 in. long, .0002 broad.

Pileus 4 to 5 lines broad; stem 8 to 10 lines long.

Decaying stems of cabbage, *Brassica oleracea.* Menands. August.

The species is easily known by its squamulose pileus and its brown lamellæ and spores. It is related by these to such species as *C. phœosporus, C. Friesii and C. tigrinellus.*

Cortinarius (Phlegmacium) glutinosus, *n. sp.*

Pileus convex, glutinous, brownish-ochraceous, the margin narrowly involute, flesh yellowish; lamellæ adnexed, olivaceous; stem solid, thickened at the base, scarcely bulbous, whitish or pallid; spores subglobose or broadly elliptical, .0003 in. long, .00025 to .0003 broad.

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

Mossy ground under hobble bushes, *Viburnum lantanoides.* Sevey. Adirondack mountains. July.

The dull ochraceous pileus, olivaceous lamellæ and pallid stem are the prominent features of the species. The margin of the pileus is sometimes rimose. In drying the color changes to a chestnut hue.

Cortinarius (Inoloma) annulatus, *n. sp.*

[Plate 2. Figs. 1 to 4.]

Pileus broadly convex, dry, villose-squamulose, yellow, flesh yellowish; lamellæ rather broad, subdistant, adnexed, yellow; stem solid, bulbous, somewhat peronate by the yellow fibrillose annular-terminated veil; spores broadly elliptical or subglobose, .0003 in. long.

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

Thin woods. Whitehall. August.

The whole plant is yellow inclining to ochraceous. It has the odor of radishes. The squamules of the pileus are pointed and erect on the disk, and often darker colored there. The species is allied to *C. tophaceus* and *C. callisteus*, from which it is separated by its persistently annulate stem and more yellow color.

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

Pileus conical or convex, unpolished, yellow, often darker on the disk, flesh yellow; lamellæ adnexed, yellow; stem equal, long, solid, silky fibrillose, yellow; spores subglobose or broadly elliptical, .0003 n. long, nearly as broad.

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

Mossy ground in woods. Sevey. July.

Closely related to *C. cinnamomeus*, but differing in its stouter stem and nearly uniform yellow color.

Cortinarius (Telamonia) paludosus, *n. sp.*

Pileus conical or convex, ferruginous when moist, buff-yellow or pale ochraceous when dry, flesh yellowish; lamellæ broad, subdistant, adnate, saffron-yellow; stem long, equal, flexuous, solid, peronate and subannulate by the fibrillose yellow veil; spores .0003 to .00035 in. long, .0002 broad.

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

Mossy ground in swamps. Rainbow, Franklin county. August.

Lactarius subinsulsus, *n. sp.*

Pileus firm, convex or nearly plane, umbilicate, viscid, azonate, glabrous, whitish or pallid, the margin at first slightly tomentose, soon naked, milk white, tardily acrid; lamellæ narrow, crowded, adnate or decurrent, whitish; stem short, hollow, whitish, not spotted; spores subglobose, .0003 to .00035 in. long, .0003 broad.

Pileus 2 to 4 in. broad; stem 1 to 1.5 in. long, 6 to 8 lines thick.

Pine groves. Rainbow. August.

The species is allied to *L. insulsus*, from which it is distinct by its zoneless pileus, tomentose young margin and tardily acrid taste. The stem is without spots and obscurely rugulose-reticulated, as in some species of Russula. The tomentose young margin puts the species among the Tricholomoidei near *L. pubescens*.

Lactarius mutabilis, *n. sp.*

[Plate 1. Figs. 1 to 4.]

Pileus thin, convex or nearly plane, zonate when moist, reddish-brown, the disk and zones darker, zoneless when dry, flesh colored like the pileus, milk sparse, white, taste mild; lamellæ narrow, close, adnate, whitish, with a yellowish or cream-colored tint when old; stem equal or tapering upward, stuffed or spongy within, glabrous, colored like the pileus; spores subglobose, rough, .0003 in. broad.

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

Low, damp places. Selkirk and Yaphank. June and September.

The species is allied to *L. subdulcis*, from which the larger size and zonate pileus separate it. The zones disappear in the dry plant, and this change in the marking of the pileus suggests the specific name. They appear to be formed by concentric series of more or less confluent spots and are suggestive of such species as *L. deliciosus* and *L. subpurpureus*.

Russula brevipes, *n. sp.*

[Plate 2. Figs. 5 to 8.]

Pileus at first convex and umbilicate, then infundibuliform, dry, glabrous or slightly villose on the margin, white, sometimes varied with reddish-brown stains, flesh whitish, taste mild, slowly becoming slightly acrid; lamellæ thin, close, adnate or slightly rounded behind, white; stem very short, solid, white; spores globose, verruculose, .0004 to .0005 in. in diameter.

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

Sandy soil in pine woods. Quogue. September.

This species is related to *Russula delica*, but is easily distinguished by its short stem and crowded lamellæ. The pileus also is not shining and the taste is tardily somewhat acrid. From *Lactarius exsuccus* it is separated by the character of the lamellæ and the very short stem which is about as broad as it is long. The spores also are larger than in that species. The lamellæ in the young plant are sometimes studded with drops of water. They are not clearly decurrent. Some of them are forked at the base. The pileus is but slightly raised above the surface of the ground and is generally soiled by adhering dirt and often marked by rusty or fuscous stains. The plants grew in old roads in the woods where the soil had been trodden and compacted.

Russula pectinata, *Fr.*

Grassy or mossy ground in thin woods or groves. Menands and Cemetery, Albany county. July.

Marasmius fœtidus, *Fr.*

On fallen twigs, leaves, etc. Manor. September. In our plant the pileus is rufescent. The stem also is rufescent above, brown below. The species is easily known by its strong odor.

Marasmius albiceps, *n. sp.*

[Plate 2. Figs. 15 to 18.]

Pileus membranous, either convex or campanulate, glabrous, white; lamellæ broad, distant, adnate or arcuate-decurrent, white; stem corneous, setiform, glabrous, black, paler at the apex, attached to the matrix by radiating brown hairs or fibres; spores obovate or subelliptical, .00025 to 0003 in. long, about half as broad, usually containing a shining nucleus.

Pileus about 2 lines broad; stem 8 to 15 lines long.

Among fallen leaves in mixed woods. Manor. September. In shape the pileus often approaches that of *Omphalia fibula.* In the larger specimens the lamellæ are strongly decurrent as in that species.

Polyporus cæsarius, *Fr.*

The specimens which I have referred to this species have a striking resemblance to faded specimens of *Polyporus sulphureus,* but in addition to the paler pileus the pores are white and more unequal. The spores, also, are smaller than those of *P. sulphureus,* though I can not tell if they agree with the spores of the European *P. cæsarius,* for I have been able to find no description which gives their dimensions. Our specimens were found at the base of an oak stump, near Manor. September.

Polyporus hispidus, *Fr.*

Oak trunk. Quogue. September. But a single, rather old specimen was found. It is evidently a rare species with us, though said to be more plentiful farther south.

Poria late-marginata, *D. & M.*

Prostrate trunk of wild red cherry, *Prunus Pennsylvanica.* South Ballston.

Poria aurea, *n. sp.*

Effused, forming patches several inches in extent, 2 to 3 lines thick, separable from the matrix, golden yellow; subiculum thin, sub-gelatin-

ous, the young margin byssoid or fimbriate, greenish-yellow, soon disappearing; pores small, subrotund, elongated, the dissepiments thin, rather soft; spores minute, subelliptical, .00016 to .0002 in. long, .00008 to .00012 broad.

Decaying wood of maple, *Acer saccharinum*. Sevey. July.

Apparently closely related to *Poria xantha*, but separable from the matrix and remarkable for its somewhat gelatinous subiculum. It is an attractive species.

Hydnum stratosum, *Berk.*

Lower side of an old log. Syracuse. *Underwood.*

This is a very singular species. The subiculum appears as if formed of a coarse brown tow-like tomentum, while the aculei appear in two or three strata one above another. They are connected at the base by slender branches or processes similar to themselves in color and texture.

Hydnum pallidum, *C. & E.*

Dead branches of oak, *Quercus alba*. Manor. September. At first small suborbicular patches appear with distant aculei, but with age these patches become confluent and the aculei longer and more numerous. The subiculum, when dry, becomes rimose as in species of Corticium. The spores in our specimens are minute, elliptical, .0002 in. long, .0001 to .00012 broad.

Hydnum acutum, *Pers.*

Decaying wood of deciduous trees. Sevey. July.

The species of Persoon has been regarded as having doubtful value by some European authors. Our plant agrees tolerably well with his description. It forms irregular, scarcely noticeable spots, one or two inches broad. The subiculum is scarcely more than a slight mealiness or prinnosity, with a somewhat indefinite margin. It is subcinereous when moist, whitish or pallid when dry. The aculei are very distant, acute or setiform, rather rigid but scarcely visible to the naked eye. The spores are subglobose, slightly angular, .00016 to .0002 in. in diameter.

Irpex rimosus, *n. sp.*

Resupinate, at first suborbicular, then confluent, forming irregular patches, thin, whitish or pallid, becoming rimose-areolate, the margin more or less free or slightly reflexed; hymenium, at first subporous or dædaloid, the dissepiments soon prolonged into aculei which are either subulate compressed or incised, and at length fasciculate from the cracking of the subiculum.

Bark of birch, *Betula lutea*. Catskill mountains. September.

Corticium mutatum, *n. sp.*

Effused, forming irregular extended patches; hymenium tumid when moist, centrally tuberculose, with more or less evident radiating folds toward the margin, much thinner when dry, nearly even, rimose, dingy yellowish inclining to cream color or slightly tinged with flesh color, the margin byssoid or subfimbriate, white; spores oblong, colorless, straight or slightly curved, .0006 to .0007 in. long, .00016 to .0002 broad.

Dead bark of poplar *Populus tremuloides*. Sevey. July.

The species is related to *Corticium lævе*, but differs in its color and in the character of its spores. It is remarkable for the difference between the fresh moist specimens and the dry ones. In the former the hymenium is so uneven that it is suggestive of Phlebia, but in the latter the folds and tubercules have disappeared and the hymenium has become rimose, revealing the white subiculum in the chinks. This change is suggestive of the specific name.

Corticium Berkeleyi, *Cke.*

Decaying wood of willow, *Salix alba*. Copake. June.

The specimens have been identified by comparison only, as I have seen no description of this species. They are to this extent doubtful.

Corticium subaurantiacum, *n. sp.*

Effused, soft, thin, the tomentose subiculum and margin bright orange; hymenium even, grayish-yellow or orange tinted, having a pruinose appearance, sometimes slightly rimose when dry; spores subelliptical, .0003 in. long, .0002 broad.

Dead bark of spruce, *Picea nigra*. Rainbow. August.

It bears some resemblance to *Merulius subaurantiacus*, but there are no folds in the hymenium.

Corticium basale, *n. sp.*

Effused, closely adnate, tough, at first whitish, the hymenium becoming brown with a waxy appearance, the broad margin dingy-white.

Base of living trees. Whitehall. August.

It follows the inequalities of the bark from which it is inseparable. It is remarkable for its waxy appearance, but very tenacious substance. It was found on the bases of ash, *Fraxinus Americana* and basswood, *Tilia Americana*. The specimens were sterile.

Peniophora unicolor, *n. sp.*

Effused, thin, membranous, soft, subseparable, even, subpulverulent, pale ochraceous, the margin and subiculum concolorous with or a

little paler than the hymenium, sometimes extending in brancing string-like fibers; metuloids sparse, subcylindrical, obtuse, rough, .0016 in. long, .0003 broad.

Decaying wood. Syracuse. September. *Underwood.*

The specimens are imperfect, being destitute of spores, but the species is apparently quite distinct by the characters given.

Clavaria similis, *n. sp.*

Cæspitose, subtenacious, slender, three to four times dichotomously branched, pallid, the ultimate ramuli short, obtuse, the axils rounded; spores subglobose, .00025 in. in diameter, mycelium white.

Plant 1 to 2 in. high. Woods. Plattsburgh. August.

This scarcely differs from *Clavaria muscoides*, except in its paler color and in the obtuse tips of the ultimate ramuli.

Ditiola conformis, *Karst.*

Decaying wood of birch, *Betula lutea.* Catskill mountains. September.

Mutinus bovinus, *Morg.*

Sandy soil. Manor. September. The spores are the same as in *Mutinus Ravenelii*, to which this plant appears to be too closely related.

Geaster fimbriatus, *Fr.*

Ground in woods. Whitehall. August.

This is the twelfth species of Geaster that has been found in our State. Most of the species are quite rare and some have been found but once.

Scleroderma Geaster, *Fr.*

Sandy soil. Manor. September.

Enteridium Rozeanum, *Wing.*

Decaying wood. North Greenbush. This is *Reticularia? Rozeana* Rost. It resembles *Reticularia Lycoperdon* externally and has sometimes been confused with it.

Cribraria violacea, *Rex.*

Bark of balsam fir. Adirondack mountains. *G. A. Rex.*

Comatricha longa, *n. sp.*

[Plate 3. Figs. 1 to 5.]

Stems growing from a shining membranous hypothallus, closely gregarious, penetrating the peridia as a columella, capillary, black;

peridia narrowly cylindrical, generally elongated, six to twenty lines long, often flexuous, very fugacious, grayish-black; capillitium rising from the columella, its branches generally somewhat reticulately connected near their base and forming a few large meshes, externally divided into slender, sharp-pointed, divergent, spine-like branchlets, with free apices, blackish; spores globose, even, .0003 to .00035 in. in diameter.

Bark of willow, *Salix Babylonica*. Flatbush. September. *Rev. J. L. Zabriskie.*

In the color of the spores and capillitium as seen in mass this plant resembles *Stemonitis fusca*. In size also it equals or exceeds that species. But in the character of the capillitium it is quite peculiar. Sometimes its branches, which grow in an alternate manner from the sides of the columella, are two or three times forked and entirely free, but usually they are somewhat connected with each other near the columella, but have their ultimate ramuli wholly free. By this character it differs considerably from other species of the genus, but scarcely enough, it seems to me, to warrant its generic separation. The columella generally passes through the capillitium nearly or quite to its apex, but sometimes in very long specimens it is lost above in the few large meshes. Fine specimens of this remarkable species have been sent me from Philadelphia, Pa., where it is not rare, by Messrs. Stevenson, Rex and Wingate. Specimens from the last gentleman are quite two inches long.

Comatricha subcæspitosa, *n. sp.*

[Plate 3, Figs. 6 to 9.]

Stems subcæspitose or loosely clustered, thickened at the base, black, about half the length of the sporangia, extending through the capillitium as a columella; peridia ovate-oblong, obtuse, fugacious; capillitium growing from the columella, reticulately connected and also forming a superficial net with coarse meshes, blackish; spores globose, even, blackish-brown, .0004 to .00045 in. in diameter.

Decorticated wood of hemlock, *Tsuga Canadensis*. Sandlake. July.

This species resembles *Stemonitis fusca* in color. In size it approaches *Comatricha typhina*. Its capillitium is variously connected, and appears to combine the reticulation of Comatricha and Stemonitis, but on account of the net work not being wholly parallel to the walls of the peridium it is placed in Comatricha. The plants are mostly collected in small groups or loose clusters of two to ten individuals. Its coarser meshes and larger spores distinguish it from *C. typhina.*

Plasmodiophora Brassicæ, *Wor.*

Roots of cabbage, *Brassica oleracea.* Menands. October.

This fungus causes swellings or excrescences in the roots of the host plant. These swellings have received the common name "club-root." Cabbages attacked by this disease fail to perfect their heads. The affected roots should be taken from the ground and burned in order to destroy the fungous spores they contain. It has been recommended that the ground should not again be planted with cabbages or other plants of the Mustard family until after the lapse of two or three years, in order that the germs of this disease, which may be in the soil, may have time to perish. In the meantime other crops may occupy the land.

Phyllosticta bicolor, *n. sp.*

Spots rather large, two to six lines broad, irregular, at first brown, then centrally whitish, with a broad brown margin, brown beneath; perithecia epiphyllous, occupying the whitish or central part of the spots, minute, .004 to .005 in. broad, black; spores minute, oblong, colorless, .0002 to .00025 in. long, .00008 to .0001 broad.

Living leaves of thimbleberry, *Rubus odoratus.* Whitehall. August.

Phyllosticta Prini, *n. sp.*

Spots small, suborbicular, white or grayish above, brownish beneath; perithecia small, .007 in. broad, epiphyllous, depressed, black; spores elliptical or oblong, .0003 to .0005 in. long, .00016 broad.

Living leaves of winterberry, *Ilex verticillata.* Catskill mountains. September.

Phyllosticta Silenes, *n. sp.*

Spots large, sometimes occupying half the leaf, pallid; perithecia amphigenous or hypophyllous, minute, punctiform, black; .004 to .005 in. broad; spores oblong or cylindrical, colorless; .0004 to .0005 in. long, .00015 to .0002 broad.

Living leaves of sleepy catchfly, *Silene antirrhina.* Copake Iron Works. June.

Phyllosticta Caricis, *Sacc.*

Living leaves of Pennsylvanian sedge, *Carex Pennsylvanica.* Catskill mountains. September.

Phoma allantella, *n. sp.*

Perithecia subglobose, subsuperficial, .007 to .008 in. broad, black; spores minute, allantoid, .00016 to .0002 in. long, about half as broad.

Whitened decorticated wood of oak, *Quercus rubra.* Catskill mountains. September.

Phoma Candollei, *Sacc.*

Leaves of box, *Buxus sempervirens.* Patchogue. August.

Haplosporella Ailanthi, *E. & E.*

Dead bark of *Ailanthus glandulosus.* Lyndonville. May. *C. E. Fairman.*

Diplodia Æsculi, *Lev.*

Dead bark of horse chestnut, *Æsculus Hippocastanum.* Lyndonville. *Fairman.*

Leptostroma Polygonati, *Lasch.*

Dead stems of giant Solomon's seal, *Polygonatum giganteum.* Menands. May.

Didymosporium effusum, *Schw.*

Dead bark of slippery elm, *Ulmus fulva.* Copake Iron Works. June.

Our plant differs somewhat from the type, and may be designated as

Var. *distinctum.* Heaps rotund, erumpent, distinct; spores oblong, oblong-ovate or elliptical, uniseptate, rarely biseptate, colored, .0014 to .0018 in. long, .0006 to .0008 broad, oozing out and staining the matrix.

Septoria Helianthi, *E & K.*

Living leaves of sunflower, *Helianthus annuus.* Rainbow. August.

Our plant is a variety in which the perithecia are amphigenous and the spots by confluence are very large and irregular.

Septoria thecicola, *B. & Br.*

Capsules and pedicels of moss, *Polytrichum juniperinum.* Sevey. July.

Cytospora orthospora, *B. & C.*

Dead branches of clammy locust, *Robinia viscosa.* Sandlake. June.

Melanconium magnum, *Berk.*

Dead bark of sugar maple, *Acer saccharinum.* Stark, St. Lawrence county. July.

Puccinia Eleocharidis, *Arthur.*

Living stems of *Eleocharis palustris.* Shore of Lake Champlain near Plattsburgh. August.

Puccinia mammillata, *Schræt.*

Living leaves of hedge bindweed, *Polygonum dumetorum.* Flatbush. October. *Zabriskie.*

Puccinia Malvacearum, *Mont.*

Living leaves of hollyhock, *Malva sylvestris.* Geneva. May. *F. E. Emery.* Lyndonville, *C. E. Fairman.* This fungus causes a disease in hollyhocks that has sometimes been so severe in Europe as to prevent the cultivation of these flowers.

Puccinia obscura, *Schræt.*

Living leaves and stems of field rush, *Luzula campestris.* Menands. May.

Our specimens do not fully agree with the description of the European fungus, but the agreement morphologically is so close that it does not seem advisable at present to separate our plant specifically. According to Plowright, "the teleutospores are not formed until August or September," but in our specimens they occur in May, and are intermingled with the uredospores, occurring in the same sorus with them. Mesospores were not seen. The name *Puccinia obscura* var. *vernalis* is proposed for this fungus, as it will indicate the principal character wherein it differs from the European plant. The teleutospores are not more highly colored than the uredospores, though this may be due to their young condition.

Ustilago Austro-Americana, *Speg.*

Living leaves and spikes of Pennsylvanian knotweed, *Polygonum Pennsylvanicum.* Flatbush. September. *Zabriskie.*

"The spores ooze out in tendrils sometimes six lines long." This is the fourth species of smut that has been found on species of Polygonum in our State.

Doassansia Alismatis, *Cornu.*

Living leaves of water plantain, *Alisma Plantago* var. *Americana.* Sharon Springs. July. *W. A. Setchell.*

Plasmopara Viburni, *n. sp.*

Spots irregular, somewhat indefinite, more or less confluent along the principal veins of the leaves, brown or reddish-brown; hyphæ hypophyllous, sparse, inconspicuous, bearing two to four short, nearly horizontal and mostly alternate branches near the top, the ultimate ramuli terminating in two or three sterigmata or subulate points; conidia terminal on the branches, subglobose, ovate or broadly elliptical, nearly colorless, generally .0006 to .0008 in. long, .0005 to .0006 broad, occasionally .0012 to 0016 in. long.

Living leaves of arrow wood, *Viburnum dentatum.* Baiting Hollow Station, Long Island. September.

This fungus is very closely allied to *Plasmopara viticola*, B. & De T. *Peronospora viticola* of most authors, of which it may prove to be only a variety. It is much smaller than that plant and does not form dense downy tufts or patches, but is so scattered and sparse in its mode of growth as to be not easily visible to the naked eye. Conidia of monstrous size are not rare, but oöspores were not seen. Its habit of following the veins of the leaf is peculiar.

Sporotrichum cohærens, *Schw.*

On an old wooden pail in a cellar. Menands. September.

Sporotrichum cinereum, *n. sp.*

Patches oblong, effused, pulverulent, cinereous; hyphæ very slender, .00015 in. broad, branched, crispate-flexuous, denticulate; spores abundant, globose, .00012 to .00016 in. in diameter.

Wood of apple tree. Manor. September.

Coniosporium Fairmani, *Sacc.*

Dried shell of Hubbard squash. Lyndonville. *Fairman.*

Coniosporium culmigenum, *Berk.*

Dead stems of motherwort, *Leonurus cardiaca.* Lyndonville. *Fairman.*

The spores in these specimens are smaller than in the type. The specimens are labeled var. *minor.*

Coniosporium Polytrichi, *n. sp.*

Heaps of spores minute, .003 to .004 in. broad, closely gregarious, superficial, black; spores globose, granulose, black, .00065 to 0008 in. in diameter.

Capsules of moss, *Polytrichum juniperinum.* Sevey. July.

Torula convoluta, *Harz.*

Decaying tubers of potato, *Solanum tuberosum.* Menands. April.

Echinobotryum atrum, *Cd.*

Decaying tubers of potato. Menands. April. Flatbush. *Zabriskie.*

Stachybotrys elongata, *n. sp.*

[Plate 3. Figs. 10 to 13.]

Hyphæ elongated, intricately branched, sparingly septate, minutely roughened, forming brown tomentose cushion-shaped tufts one to three lines in diameter, the fertile branches terminated by a capitate cluster of spores borne upon more or less elongated sporophores,

which are mostly thickened or bulbous at the base; spores globose, colored, .00025 to .0003 in. in diameter.

Dead branches of maple, *Acer rubrum*. Manor. September.

The pulvinate tufts resemble those of *Streptothrix atra*, but are paler in color.

Zygodesmus muricatus, *E. & E.*

Decaying wood. Lyndonville. May. *Fairman.*

Dematium parasiticum, *n. sp.*

[Plate 3. Figs. 14 to 18.]

Fertile hyphæ erect, simple or slightly branched, septate, colored, bearing catenulate spores at their tips and on their sides; spores subelliptical or limoniform, mostly pointed at one or both ends, colored, .0004 to .0005 in. long, .0002 to .00025 in. broad.

Parasitic on some Hydnum, apparently *H. carbonarium*. Rainbow. August.

The parasite gives a smoky-black hue to the Hydnum.

Fusicladium destruens, *n. sp.*

[Plate 3. Figs. 19 to 22.]

Hyphæ rather short, .0008 to .002 in. long, fasciculate, continuous or with one or two septa near the base, colored, forming small olive-green tufts or patches; spores acrogenous, simple or occasionally uniseptate, sometimes slightly catenulate, elliptical or oblong, colored, .0003 to .0008 in. long, .0002 to .0003 broad. Living leaves of oats, *Avena sativa*. Sevey. July.

In the affected plants, the apical part of the leaf first shows symptoms of disease. The tissues die and the color changes to rusty-red or dead-brown. This change goes on till the whole leaf is involved. Soon the minute and inconspicuous tufts of the fungus appear. In the southern part of St. Lawrence county, which was visited by the writer the past summer, scarcely a field of oats was free from this disease. So prevalent was it, that the general color of the fields was changed thereby, and it was the opinion of the owners that their oats were "rusting" badly. Upon close examination, however, no "rust" was to be found. In its stead the discoloration of the leaves and the fungus now described appeared. It is, apparently, a very injurious and destructive fungus. The mycelium is pale and provided with numerous conspicuous septa.

Cercospora granuliformis, *E. and H.*

Living leaves of violets, *Viola blanda*. Sevey. July.

Cercospora Apocyni, *E. and K.*

Living leaves of Indian hemp, *Apocynum cannabinum.* Whitehall. August. The hyaline character of the hyphæ indicate that the species belongs rather to Cercosporella.

Sporodesmium antiquum, *Cd.*

Decaying wood. Flatbush. September. *Zabriskie.*

Macrosporium Polytrichi, *n. sp.*

Hyphæ erect, septate, somewhat nodulose, colored, .003 to .004 in. long, .0002 broad, forming continuous olive-green patches; spores extremely variable, elliptical, oblong or clavate, colored, 2 to 9 septate, with or without longitudinal septa, .0008 to .0024 in. long, .0003 to .0006 broad.

Capsules of moss *Polytrichum juniperinum.* Sevey. July.

Stilbum Spraguei, *B. & C.*

Dead stems of cabbage, *Brassica oleracea.* Menands. August.

The spores in our plant are elliptical, .00025 in. long. The receptacle becomes bay-red or chestnut color in drying.

Isaria aranearum, *Schw.*

On a dead spider. Manor. September.

Our plant does not agree rigidly with the description of *I. aranearum,* but the differences appear too slight to warrant its separation. The club is paler with scarcely any incarnate tint. The spores are very minute, .00012 to .00016 in. long, about half as wide.

Tubercularia carpogena, *n. sp.*

Receptacle minute, depressed, glabrous, subsuperficial, red; spores oblong or subfusiform, straight or slightly curved, .0004 to .0005 .in long, pointed at each end, produced on slender branched sporophores.

Ripe fruit of blackberry, *Rubus villosus.* Menands. August.

This appears at first sight like a minute species of Peziza or Mollisia. It discolors the affected drupes, making them red like itself. It is therefore easily overlooked.

Fusarium Sclerodermatis, *n. sp.*

Sporodochia minute, convex, reddish-yellow or orange; sporophores somewhat branched, about as long as the spores; spores simple or with two or three obscure septa, slightly curved, very acute at each end, .0012 to .0018 in. long, .00016 broad.

On the peridium of *Scleroderma vulgaris.* Manor. September.

Glœosporium leptospermum, *n. sp.*

Spots yellowish, small, irregular, subindeterminate; acervuli amphigenous, small, rotund, oblong or irregular, erumpent, brown or blackish; spores subcylindrical, slightly pointed, straight, colorless, .0008 to .001 in. long, .00016 broad.

Living fronds of *Pteris aquilina.* Sevey. July.

By its slender spores, this species approaches the genus Cylindrosporium.

Epicoccum purpurascens, *Ehren.*

Rind of decaying squashes. Menands. November.

Underwoodia, *gen. nov.*

Receptacle fleshy, more or less elongated, columnar or stem-like, externally uneven sulcate-costate or lacunose, everywhere ascigerous, internally excavated, lacunosely fistulose or containing several longitudinal cavities; asci eight-spored, paraphysate.

A genus of Helvellaceæ, allied to Helvella. It is as if the stem of *Helvella crispa* should be deprived of its pileus and entirely covered with an adnate hymenium, thus becoming a stemless receptacle; or as if the receptacle of a Morchella were greatly elongated and stemless.

Dedicated to Professor L. M. Underwood.

Underwoodia columnaris, *n. sp.*

[Plate 4. Figs. 1 to 4.]

Receptacle columnar, straight or slightly curved above, externally somewhat sulcate-costate or lacunosely uneven, whitish or brownish, within white, containing several longitudinal cavities, stemless; asci cylindrical, .007 to .008 in. long .0006 broad; spores elliptical verruculose, .0008 to .0009 in. long, .0005 broad, colorless, containing a single large nucleus.

Plant 4 to 6 inches high, 8 to 12 lines broad.

Among fallen leaves. Kirkville, Onondaga county. July.

Three specimens of this singular fungus were found by *Professor J. T. Fischer.* To facilitate their preservation by drying they were divided longitudinally. Halves of two of them were sent to me by Professor Underwood and from this material and from accompanying notes and sketches I have drawn up the description and figure. It is evidently a rare as well as a remarkable fungus.

Lachnella cerina, *Phil.*

Decaying wood of birch, *Betula lutea.* Cascadeville, Adirondack mountains. September.

Tapesia Rosæ, *Phil.*

Dead stems of wild rose. Lyndonville. May. *Fairman.*

Helotium mycetophilum, *n. sp.*

Receptacles gregarious, minute, .01 to .014 in. broad, sessile or with a very short stem, plane or convex, scarcely margined, yellowish externally, the hymenium orange; asci oblanceolate, .003 in. long, .0004 broad, paraphyses filiform; spores oblong-elliptical, simple, the endochrome sometimes divided, .0006 to .0007 in. long, about half as broad.

On old *Polyporous fomentarius.* Rainbow. August.

Much smaller than *H. citrinum* and distinguished from it by its larger spores and orange-colored hymenium. Also distinct from *H. episphæricum* by the character of the spores.

Cenangium rubiginosum, *Cke.*

Dead twigs of water beech, *Carpinus Americana.* Mechanicville. July.

Coronophora gregaria, *Fckl.*

Dead branches of mountain ash, *Pyrus Americana.* Cascadeville. July.

Hæmatomyces faginea, *n. sp.*

[Plate 4. Figs. 5 to 7.]

Tremelloid, cerebriform, one to two inches in diameter, gyrose-lobate, glabrous, shining, raisin color without and within; asci nearly cylindrical, eight-spored, .0024 in. long, .0003 broad; paraphyses slender, very slightly thickened above; spores generally uniseriate, narrowly elliptical, colorless, .0003 in. long, .00015 to .0002 broad.

Dead trunks of beech, *Fagus ferruginea.* Rainbow. August.

The plants are nearly as thick as they are broad and appear as if composed of several confluent individuals. The color resembles somewhat that of a ripe Catawba grape though darker. Without examination of the spores the plant might easily be taken for a species of Tremella. It shrinks very much in drying and is then very hard.

Barya parasitica, *Fckl.*

[Plate 4. Figs. 13 to 17.]

Parasitic on a sphæriaceous fungus, *Bertia moriformis*, on decaying wood of beech. Catskill mountains. September.

Our plant differs in some respects from Fuckel's figure and description of the species, yet it is apparently only a variety and not specifically distinct. The perithecia are crowded together in dense tufts or clusters and sometimes taper above into a rather long neck. The

asci and spores are far more slender and somewhat longer than those of the European plant as represented by Fuckel's figure and description. The globose termination of the ascus is at the apex, not at the base as Fuckel has it. Because of these differences I have given a figure of our plant and designated it as variety *cæspitosa.*

Hypoxylon effusum, *Nits.*

Decaying chestnut wood. Flatbush. September. *Zabriskie.* The smaller spores distinguish this species from *H. serpens.*

Eutypa flavovirescens, *Tul.*

Dead branches. Lyndonville. May. *Fairman.*

Eutypella longirostris, *n. sp.*

[Plate 4. Figs. 8 to 12.]

Stroma suborbicular, convex, formed of the slightly changed substance of the bark, whitish, covered by a black crust, often somewhat confluent in series; perithecia minute, globose, few or many in a stroma; ostiola elongated, fasciculately crowded, straight or flexuous, often fully one line long, radiately sulcate at the apex and sometimes sulcate on the sides also, black; asci clavate, pedicellate, the sporiferous part .0007 to .0009 in. long, .00016 broad; spores minute, curved, .0002 to .00025 in. long.

Bark of elm, *Ulmus Americana.* Sandlake. *Peck.* Syracuse. *Underwood.*

This is easily distinguished from the allied species by its very long ostiola and its very short asci and spores.

Anthostoma microsporum, *Karst.*

Dead bark of alder, *Alnus incana.* West Albany. May.

Cryptosporella hypodermia, *Sacc.*

Dead branches of slippery elm, *Ulmus fulva.* Copake Iron Works. June.

Leptosphæria dumetorum, *Niessl.*

Dead branches of cultivated honeysuckle. Lyndonville. May. *Fairman.*

Herpotrichia rhodomphalia, *Sacc.*

Decaying wood of locust, *Robinia Pseudacacia.* Yaphank. September.

Lophiotrema auctum, *Sacc.*

Dead stems of wild rose. Lyndonville. June. *Fairman.*

The three following species are extra-limital and are not yet to be included in the New York flora. Being considered new species it is desirable that descriptions of them should be published.

Lepiota farinosa, *n. sp.*

Pileus thin, rather tough, flexible, at first globose or ovate, then campanulate or convex, covered with a soft dense white floccose-farinose veil which soon ruptures, forming irregular, easily detersible scales, more persistent and sometimes brownish on the disk, flesh white, unchangeable; lamellæ close, free, white, minutely floccose on the edge; stem equal or slightly tapering upward, somewhat thickened at the base, slightly farinose, often becoming glabrous, hollow or with a cottony pith above, solid at the base, white, pallid or straw-colored, the annulus lacerated, somewhat appendiculate on the margin of the pileus, evanescent; spores subovate, .0004 to .0005 in. long, .0003 broad. Pileus 1.5 to 2.5 in. broad; stem 2 to 3 in. long, 2 to 4 lines thick.

Mushroom beds in a conservatory. Boston, Mass. March. Communicated by *E. J. Forster.*

This species is related to *L. cepæstipes,* from which it may be distinguished by its pileus which is not plicate on the margin and by its larger spores. It is edible. It is very distinct from *Amanita farinosa.*

Pholiota æruginosa, *n. sp.*

Pileus hemispherical or convex, obtuse, glabrous, greenish, becoming tinged with brown, sometimes slightly rimose-areolate, flesh pale or whitish, tinged with green; lamellæ broad, rounded behind, adnexed, pale ochraceous when young, becoming bright ferruginous or orange ferruginous; stem solid, glabrous or slightly fibrillose, somewhat sulcate-striate, colored like the pileus, sometimes curved, flexuous or cæspitose; annulus slight, lacerated, evanescent; spores copious, bright ferruginous, subelliptical, .0003 to .00035 in. long, .00016 to .0002 broad.

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

Decaying railroad ties of oak. Trexlertown, Pennsylvania. October. *William Herbst.*

This species is remarkable for its greenish color and for its abundant bright colored spores, which sometimes fall upon and completely cover the surface of the lower pilei in a tuft. It is easily distinguished from *Stropharia æruginosa* by its solid stem, dry pileus and bright ferruginous lamellæ and spores. It belongs to the Section Ægeritini.

Phellorina Californica, *n. sp.*

Peridium subobconic, thin, even or slightly rimose-areolate, 9 to 12 lines high, 12 to 18 lines broad at the top, whitish becoming rusty-ochraceous, the vertex convex; stem nearly equal, solid but softer

within, clothed with a whitish bark, colored like the peridium with which it is continuous, 2.5 to 3 in. long, 4 to 5 lines thick; capillitium sparse; spores globose, ochraceo-ferruginous, .00025 to .0003 in. in diameter.

Mohave desert, California. *S. B.* and *W. F. Parish.* Communicated by *C. G. Pringle.*

Two specimens were collected in May, 1882. These were sent me in the dried state, but did not show the mode of dehiscence; but all the characters seen indicate that the plant is a Phellorina, differing from the published species in its obconic peridium and in the color of the spores. In *P. inquinans* these are described as golden yellow; in *P. erythrospora* and *P. squamosa* as brick-red. The peridium in all these is described as depressed-globose; but in our specimens it is more nearly the shape of a rather broad wine-glass. There are fragments of a whitish bark remaining on the stem, and appearances of a thinner one on the peridium. Where the bark has fallen the dry stem is sulcate-striate and rusty-ochraceous. Subglobose colorless cells, considerably larger than the spores, are intermingled with them. They are probably free basidia.

(D.)

REMARKS AND OBSERVATIONS.

Ranunculus repens, *L.*

A form of this species was found many years ago growing on the banks of the Erie canal between Rome and Oriskany. It was described in Beck's Botany under the name *Ranunculus Clintonii.* It is yet found in this locality, and also occurs by the roadside just at the southeastern limits of Rome.

A double-flowered form is sometimes seen in flower gardens and occasionally escapes from cultivation. It has been found in the streets of Bergen, Genesee county, and by the side of the railroad at Union Church, Albany county. In the latter case its origin can be traced to a neighboring flower garden.

Cardamine hirsuta, *L.*

A tall, leafy and very glabrous form. Menands. July.

Rhus Toxicodendron, *L.*

The entire-leaved variety occurs at Yaphank, Long Island. It has been reported to me as comparatively harmless so far as poisonous quality is concerned, and my experience in handling it was entirely without harm.

Trifolium hybridum, *L.*

A white-flowered form. Whitney's Point. June.

Lythrum alatum, *Pursh.*

This western plant is well established at Selkirk, Albany county.

Sium cicutæfolium, *Gmel.*

Var. *brevifolium.* Leaflets lanceolate or linear-lanceolate, one inch or less in length. Cedar Lake, St. Lawrence county.

Carum carui, *L.*

A form with pinkish-tinted flowers. Feurabush, Albany county. Also near East Bloomfield, Ontario county.

Diodia teres, *Walt.*

Manor, L. I. This plant is apparently a recent introduction in this locality. It occurs also on Staten Island.

Solidago nemoralis, *Ait.*

This species is quite variable. A form was found near Yaphank in which the panicle is greatly elongated, being a foot or more in length. It is leafy below and in this respect simulates *S. caesia.*

Solidago puberula, *Nutt.*

This golden-rod is quite common on the eastern part of Long Island. Its general appearance, except in the color of the flowers, is quite similar to that of *S. bicolor.* It also occurs on the Shawangunk and Catskill mountains and is very abundant in the Rainbow lake region of the Adirondacks. In this locality it is less puberulent and flowers about a month earlier than on Long Island.

Solidago speciosa, *Nutt.*

Var. *angustata* was found on Long Island, near Baiting Hollow station. Its narrow virgate panicle appears at first sight quite similar to that of *S. puberula.*

Achillea millefolium, *L.*

Near Colton, St. Lawrence county. The form with red ray flowers, which give it an ornamental appearance.

Plantago lanceolata, *L.*

A singular form with compound ovate spikes. Whitney's Point.

Potamogeton zosteræfolius, *Schum.*

Cedar lake, St. Lawrence county. July.

Juncus effusus, *L.*

A form with distinctly striate scapes and densely crowded panicles, but the pods scarcely pointed. It is, therefore, intermediate between the typical form and the variety *conglomeratus*. Rainbow. August. *Juncus filiformis* occurs in the same locality.

Juncus acuminatus, *Mx.*

Wet ground. Selkirk. July. The variety *legitimus* with heads of numerous flowers.

Juncus scirpoides, *Lam.*

A few plants of the variety *macrostemon* of this, with us, rare species were found in wet sandy soil near Yaphank. September.

Botrychium matricariæfolium, *A. Br.*

Ray Brook, Essex county. Both this species and the allied *B. lanceolatum* are now known to occur in the Adirondack region.

Clitocybe laccata, *Scop.*

This is an exceedingly variable species, and it might be well to designate some of the strongly marked variations by name. Variety *pallidifolia*. Lamellæ whitish or pallid, decurrent. Selkirk.

Omphalia striipilea, *Fr.*

Var. *albogrisea*. Pileus pale gray. Prostrate trunks of maple, *Acer saccharinum*. Rainbow. August.

Coprinus micaceus, *Fr.*

The pileus is sometimes sprinkled with more or less persistent squamules. The micaceous particles are not always clearly discernible on it.

Coprinus fimetarius, *Fr.*

Of this very variable species there is a small form growing on decayed wood in woods. It has the spores rather smaller than in the type, they being .0004 to .00045 in. long, .0003 broad. It might be designated var. *silvicola*.

Cortinarius croceus, *Schæff.*

Most authors consider this a variety of the very variable *C. cinnamomeus*. The form of it mentioned by Fries as having the stem and lamellæ olivaceous occurs in sphagnous swamps between Rainbow lake and Jones' pond.

Lactarius fuliginosus, *Fr.*

A form with the pileus colored like that of *Lactarius lignyotus*, but with the lamellæ much closer than in that species was found in a swamp near Sevey. July.

Hygrophorus Cantharellus, *Schw.*

This is very common in the Adirondack region and is also very variable in color. In wet weather it is plentiful in groves of poplar, especially where there is an undergrowth of brakes, *Pteris aquilina.*

Var. *flava.* Pileus and stem pale yellow; lamellæ arcuate, strongly decurrent.

Var. *flavipes.* Pileus red or reddish; stem yellow.

Var. *flaviceps.* Pileus yellow; stem red or reddish.

Hygrophorus miniatus, *Fr.*

This species is also common in the Adirondack region and often has the pileus one to two inches broad. It sometimes grows in circles and is frequently cæspitose, in which case the stem is apt to be compressed or irregular. Its bright colors render it very attractive. The pileus is often minutely squamulose or roughened with a yellowish scurf. The lamellæ are yellowish, or yellow tinged with red.

Lentinus strigosus, *Schw.*

This species was described from specimens that grew on trunks of the tulip tree. It is not rare with us, growing on stumps, trunks and branches of birch, oak and other deciduous trees. It was found this season growing on trunks of balsam fir at Ray Brook, Essex county.

Boletus speciosus, *Frost.*

Var. *brunneus.* Pileus brown; otherwise like the type. Sevey. July.

Polyporus perennis, *Fr.*

The pileus sometimes becomes whitish or grayish-white with age. Sevey. July.

Polyporus sulphureus, *Fr.*

This showy species occurs on both hard and soft wood. It sometimes protrudes from dead spots in standing living trees, especially of oak, chestnut and cherry. The yellowish milk or juice is not always present.

Polystictus versicolor, *Fr.*

Var. *fumosiporus.* Pores smoky-brown; otherwise as in the type. Catskill mountains. September.

Poria mutans, *Pk.*

Var. *tenuis.* Very thin, tender, the margin often wide and downy. Bark and wood of spruce, *Picea nigra.* Sevey. July.

The species appears to differ from *P. cruentata* Mont. in having the pores and subiculum of one uniform yellowish or subochraceous color, which changes where bruised or in drying to a dull red or subincarnate hue.

Solenia fasciculata, *Pers.*

On old pilei of *Polyporus piceinus*. Sevey. July.

Stemonitis Morgani, *Pk.*

Fine large specimens of this species were found on an alder trunk, near Catskill. June.

Septoria Violæ, *West.*

Var. *oligocarpa*. Spots small, white; perithecia few, black. Living leaves of *Viola blanda*. Sevey. July.

Geoglossum luteum, *Pk.*

Var. *fumosum*. Club smoky yellow, less compressed; stem dingy, scarcely squamulose.

Mossy banks, Adirondack mountains. August.

Cenangium balsameum, *Pk.*

Var. *abietinum*. Receptacles smaller than in the type, externally clothed with a yellowish-green pulverulence when young, naked and black when old; spores subclavate.

Dead branches of hemlock, *Tsuga Canadensis*. Whitehall. August. *Gelatinosporium abietinum* was associated with it.

Sphærotheca pruinosa, *C. & P.*

The typical form was found on leaves of *Rhus glabra*. Specimens have now been found on living leaves of the staghorn sumach, *Rhus typhina*. In these the mycelium is a little more dense. Plattsburgh. August.

(E.)

NEW YORK SPECIES OF ARMILLARIA.

Armillaria, *Fr.*

Hymenophorum continuous with the stem. No universal veil; partial veil forming an annulus, sometimes only indicated by the scales which adorn the stem and terminate above in the form of a ring. Spores white.

This genus is separated from Amanita and Lepiota by the absence of a universal veil and by the lamellæ which are attached to the stem. The three sections, in which the species were grouped by Fries, closely correspond respectively to the three genera Tricholoma,

Clitocybe and Collybia. From these they are distinguished by the presence of an annulus. They are also separated from Pholiota and Stropharia by their white spores.

Our species are few, and with one exception very rare. Three have been found in New York; eight in the United States. Most of the species grow on the ground; some on both wood and ground.

The name Armillaria is derived from the Latin *armilla*, a bracelet, and has reference to the annulus or ring that encircles the stem.

SYNOPSIS OF THE SPECIES.

Pileus wholly white, glabrous ..... A. ponderosa.
Pileus not wholly white or not glabrous..... 1
1 Pileus adorned with dark spots, margin even..... A. nardosmia.
1 Pileus adorned with hairy squamules, margin striate.... A. mellea.

Armillaria ponderosa, *Pk.*

HEAVY ARMILLARIA.

Report 26, p. 50. *Agaricus magnivelaris*, Rep. 29, p. 66.

Pileus thick, compact, convex or subcampanulate, smooth, white or yellowish, flesh white, the naked margin strongly involute, the slightly viscid veil persistent; lamellæ crowded, narrow, slightly emarginate, white inclining to cream color; stem stout, subequal, firm, solid, coated by the veil, colored like the pileus, white and furfuraceous above the annulus; spores nearly globose, .00016 in. in diameter.

Pileus 4 to 6 in. broad; stem 3 to 5 in. long, about 1 in. thick. Ground in woods. Columbia county. October.

The veil conceals the young lamellæ for a long time, and finally becomes lacerated and adheres in shreds or fragments to the stem and the margin of the pileus. This species has not been found since its discovery in 1872. In the Twenty-ninth report its name was changed to *Agaricus magnivelaris*, that it might not conflict with *Agaricus ponderosus* of Persoon; but as that is manifestly a species of Tricholoma, the giving of generic value to the subgenera of Fries permits the restoration of the original name to this species.

Armillaria nardosmia, *Ellis.*

NARD-SMELLING ARMILLARIA.

Torr. Bull. Vol. VI, p. 75. *Agaricus rhagadiosus*. Report 33, p. 18.

Pileus fleshy, firm, thick and compact on the disk, thin toward the margin, whitish variegated with brown spots, with a thick, tough and separable cuticle, flesh white; lamellæ crowded, subventricose,

slightly emarginate, whitish; stem solid, fibrous, not bulbous, sheathed below by the brown velvety veil, the annulus narrow, spreading, uneven on the edge; spores subglobose, .00025 in. in diameter.

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

Ground in woods, Suffolk county. September.

This species is perhaps not specifically distinct from the European *Armillaria rhagadiosa*, to which it was referred in the Thirty-third Report, and with the description of which it agrees very closely, but that species is said to grow on trunks of trees, and to have the lamellæ decurrent. This I find only solitary on the ground, with lamellæ merely adnate or subdecurrent and with spores subglobose and about .00025 in. in diameter. No description of the European plant, so far as seen by me, gives the character or dimensions of its spores. Mr. Ellis remarks that the fresh plant has an aromatic odor like spikenard. *A. rhagadiosa* is also said to have a strong aromatic odor.

Armillaria mellea, *Vahl.*

HONEY-COLORED ARMILLARIA.

Hym. Europ. p. 44. Syl. Fung., Vol. V, p. 80.

Pileus fleshy, rather thin except on the disk, at first hemispherical or subconical, then convex or nearly plane, adorned with numerous hairy squamules, mostly striate on the margin, pale-yellowish, dingy-yellowish or honey-color or reddish-brown, flesh whitish, taste unpleasant; lamellæ subdistant, adnate or decurrent, whitish or pallid, often with rufescent spots when old; stem equal or slightly thickened at the base, stuffed or hollow when old, sometimes floccose-squamose, externally fibrous, pallid or brownish; spores .0003 to .0004 in. long, .0002 to .00025 broad.

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

Ground and decaying wood. Common. Late summer and autumn.

This species, like many others that are plentiful and have a wide geographical range, is extremely variable. In its mode of growth it is either solitary gregarious or cæspitose. It occurs both on the ground and on decaying wood of various trees, in woods and in cleared lands. It is especially abundant in recent clearings in hilly and mountainous districts, where it often forms large tufts composed of many individuals closely crowded together, growing especially about stumps and prostrate trunks. It is sometimes very small, having a pileus scarcely more than an inch broad, and a stem but an inch or two long. Again, it is of monstrous

size, especially when solitary. Tufts a foot or more in diameter are not at all uncommon. I have seen them so abundant in the Adirondack region that they might easily have been gathered by the bushel.

The pileus is generally adorned with numerous rather small or minute hairy tufts or scales, which are mostly brown or blackish and more dense on the disk than toward the margin. Sometimes they are so crowded on the disk, especially in young plants, that they give a blackish or darker hue to that part of the pileus. In some forms of the species these hairy scales are wanting or they disappear with age, especially in wet weather, thus leaving the pileus glabrous. The margin of the pileus is normally striate, but forms occur in which it is even. *Armillaria laricina* Bolt, has a glabrous pileus with even margin, but it is regarded by Fries as a mere variety of this species, and the figure of *A. mellea*, as given in Berkeley's Outlines, table 4, indicates the correctness of this view. Occasionally the disk is somewhat prominent or subumbonate. In young specimens and in wet weather the pileus is frequently found moist or subhygrophanous. In color it varies from almost white, through intermediate shades, to a dark reddish-brown. The lamellæ are sometimes clearly emarginate, sometimes broadly adnate or even decurrent. They are generally whitish or more or less tinged with yellow. When old they are sometimes stained with brownish-red spots and dusted with the white spores. The stem varies considerably in color. It often assumes a brown or livid-brown color, especially toward the base or when old. Externally it is rather firm and fibrous, but within it is paler, spongy or even hollow. It is sometimes adorned with pale floccose scales, but these are apt to disappear with age. The veil is usually well developed and membranous, and in the mature plant encircles the stem like a spreading collar, but sometimes it is very thin, soon lacerated and somewhat evanescent. Occasionally it is of a webby character as in Cortinarius, and it is then more or less fugacious. Thus it is possible to find specimens of this species with the stem destitute of an annulus much to the disgust and perplexity of young students of mycology. In young plants the veil often entirely conceals the lamellæ. It is generally white or whitish, but sometimes it is stained about the edges with greenish yellow or olivaceous. The tomentum at the base of the stem also presents, in some specimens, the same hue.

Abnormal forms of the species sometimes occur. An abortive form consists of whitish irregular subglobose masses of cellular matter without any distinction of stem pileus or lamellæ. This corresponds

to the abortive form of *Clitopilus abortivus*. It grows in company with the normal form. This fungus is regarded as destructive to the wood in which its mycelium lives.

Authors disagree as to its edible qualities. Badham says that it is a nauseous disagreeable fungus, however cooked, and that it is so repugnant to our notions of the savory that few would make a second attempt or get dangerously far in a first dish. Letellier says that all authors have indicated this mushroom as dangerous.

Richon and Rosé say that its taste is styptic and the acridity does not entirely disappear in cooking. The species is edible, but its quality is very indifferent. According to Vittadini it is preserved in vinegar, salt and oil for use in winter and its acridity is lost in cooking.

Gillet says that it has for a long time passed as poisonous and that modern botanists still disagree as to its properties, but in reality it is harmless, though it has an acrid disagreeable taste which disappears in cooking.

Stevenson says it is edible but tough.

Cordier says it is edible and loses its acridity in cooking, but the stems are tough and not used.

Dr. Curtis classes it with the edible species.

I have myself eaten it at different times, both fried and stewed, and always without harm. Though not unpleasant to my taste at the time of eating, it afterwards leaves an unpleasant burning sensation in the throat which lasts a short time.

It is not improbable that such a variable plant may differ somewhat in its properties in different localities and according to its different habitats. Its toughness also may vary according to the age of the specimens and the rapidity of their growth. These differences may account in part for the different estimate which has been made of it. Tastes also differ in different individuals. In my own case, only the pilei of young or barely mature specimens were used.

In the Adirondack region I have seen large tufts of this species without pilei. Some animal of considerable size, probably deer, had eaten the pilei, and recognizing the toughness and unfitness of the stems had left them standing where they grew.

SYNOPSIS OF THE UNITED STATES SPECIES OF ARMILLARIA.

Pileus white or whitish 1
Pileus some other color 4
1. Pileus viscid ..... A. mucida.
1. Pileus not viscid 2

2. Pileus adorned with blackish scales..... A. ramentacea.
2. Pileus variegated with brown spots..... A. nardosmia.
2. Pileus without spots or scales 3
3. Annulus broad, persistent ..... A. ponderosa.
3. Annulus narrow, deciduous..... A. constricta.
4. Pileus glabrous..... 5
4. Pileus adorned with hairy squamules..... A. mellea.
5. Stem bulbous ..... A. bulbiger
5. Stem not bulbous..... A. robusta.

(F.)

NEW YORK, *December* 9, 1889.

CHAS. H. PECK, *State Botanist:*

MY DEAR SIR.—The growth of fungi on railroad ties, bridge, car and station timbers was unusually prolific the past season, with its large rainfall. Therefore a corresponding increase in the rate of decay, the effects of which will be more apparent next year. The fruiting of *Lentinus lepideus* Fr., on ties of yellow pine, *Pinus palustris*, Mill. in main-line tracks was so conspicuous in September, 1889, as to be noticeable from the trains. Pilei six to eight inches in diameter were frequent, while four in a cluster of smaller diameter, springing from the same mycelium, seemed to be a common mode of growth, this unusually wet season. One pileus in a place is the usual manner of growth in the railroad tracks in an ordinary season. The resinous matter in yellow pine in its natural state does not seem to check the growth of this fungus.

Agaricus campanella Batsch. was found on white cedar, *Chamæcyparis sphæroidea* Spack. fruiting from May to October. White Oak, *Quercus alba* L. frequently showed *Polyporus applanatus* Fr. in fruit, while *Polyporus versicolor* Fr. was very abundant. The absence of fungi in fruit upon ties of chestnut, *Castanea vulgaris* var. *Americana* A. D. C. was as striking as its frequency was on other woods. It is a well-known fact that chestnut ties last longer where the ground is damp, than where it is dry. It will be important to observe next year whether the excessive rain of this season has retarded or increased the usual rate of decay in ties of chestnut. One fact is established now; that the wood has been softened by the rain and the abrasion under the rails increased. On the railroad bridges the fungus *Lenzites sepiaria* Fr. has been abundant and destructive. Under the station platforms and the planking of the walks the development of mycelium, generally without fruiting, has been more abundant than usual. It has not, however, set men to thinking as it should, and the

replanking has been done as of old, that is, in the best manner to promote the growth of a new crop of fungi to destroy the planks in a year or two. The season has been so favorable to the growth of mycelium that unseasoned timbers, used for the construction of freight cars, though dressed and framed, but closely piled in the shop one or two weeks, awaiting erection, would show traces of a developing mycelium. The strength of the pieces would not be impaired in so short a time, and little notice would be taken of the presence of the mycelium. If the timber finally seasons the mycelium becomes inert and will not revive till moisture reaches it. This would again start decay. If the unseasoned wood is painted and the moisture retained, the mycelium will continue to grow, causing partial or complete decay in the wood. This was clearly shown in the examination of several hundred freight cars undergoing repairs. Internal growth of fungi had taken place in heavy timbers which were thereby weakened and so quickly failed in service. A general impression prevails that timbers only need protection from external decay. Careful microscopical study reveals the fact that nearly every stick of timber contains in the crevices or on the surface a sufficient number of spores or traces of mycelium to induce decay when painted, unless the wood is well seasoned or properly treated. In New York city, timbers have been put in houses and other buildings and covered with tar or tarred paper, which caused their decay in three to four years. Notably, an apartment house was so badly injured by the development of fungi in the large timbers covered by tarred paper, that it had to be taken down in the fourth year of its use. Buildings eight to eleven stories high, in which every floor will be heated to seventy degrees or more in the winter, furnish a temperature sufficient for the growth of the most destructive fungi for the entire year. Unless the timbers are seasoned or properly treated, the fungi will grow and cause the decay of the wood. These fungi have so long been considered the accompaniment of the decay of the wood, instead of the *cause* thereof, that by the majority of the users of wood the true functions of the fungi are not understood.

In view of the fact that the State finds it necessary to take active measures to preserve our rapidly decreasing forests, it seems to me it might with propriety take active measures to call attention to the destruction caused by fungi in timber and so check what is now a great and unnecessary waste. Many of the means of doing this are simple and inexpensive, as stated in my letter of December 5, 1887.

As an illustration of simple and effective measures, I will give an example: When I was chief engineer of the Valley Railway of Ohio,

I built some extensive trestles. This was in 1873. Before doing so I examined a number of trestles near Cleveland, Ohio, built of 10 by 12 or 12 by 12 timbers, the life of which did not exceed seven or eight years. In examining them I found that while the large timbers were sound upon the outside, internally they were all decayed. The small timbers, 6 by 8, used for braces and of the same kind of wood, were sound. *The small size enabled them to season in the structure.* This was an important fact, so I made all of my timbers small, using more of them to give the proper factor of safety. One of those trestles is in use now, 1889. In this case one of the three essentials requisite for the growth of fungi was eliminated, namely, the moisture in the interior. Decay could not, therefore, take place. The first step to be taken in this important matter has already been, in great measure, done by you, namely, the collection of specimens and the classification of the species of fungi. This, supplemented by a series of specimens showing how the wood is destroyed, would form the basis of one of the most important and economic departments of the State Museum. The second step would be the dissemination of this knowledge to the railroad companies and other consumers of wood.

Yours truly.

P. H. DUDLEY.

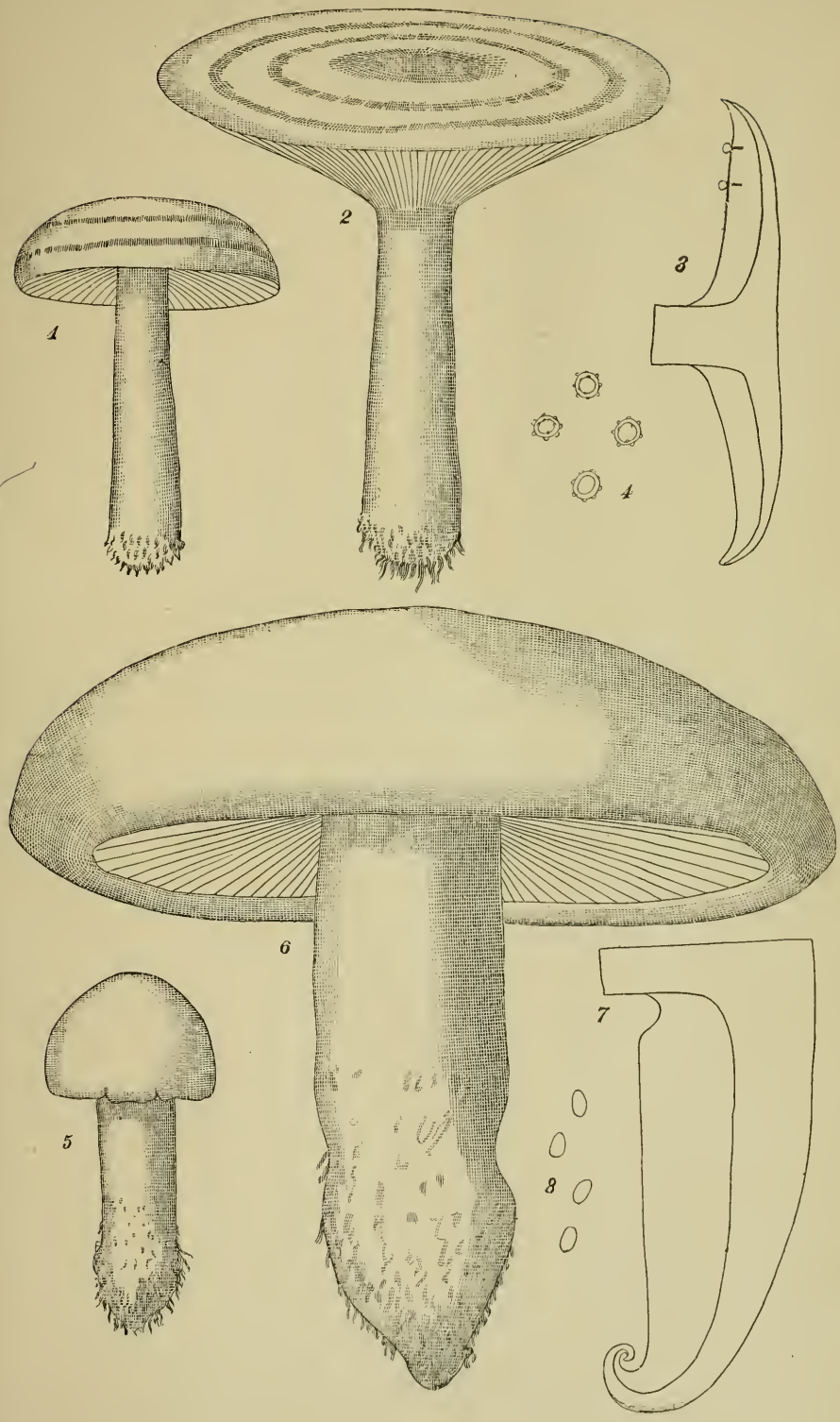
EXPLANATION OF PLATE 1.

LACTARIUS MUTABILIS, *Peck.*

Fig. 1. An immature plant.
Fig. 2. A mature plant.
Fig. 3. Vertical section of a pileus and upper part of its stem.
Fig. 4. Four spores x 400.

TRICHOLOMA GRAVE, *Peck.*

Fig. 5. An immature plant.
Fig. 6. A mature plant.
Fig. 7. Vertical section of one-half a pileus.
Fig. 8. Four spores x 400.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EXPLANATION OF PLATE 2.

CORTINARIUS ANNULATUS, *Peck.*

Fig. 1. An immature plant.
Fig. 2. A mature plant.
Fig. 3. Vertical section of a pileus and upper part of its stem.
Fig. 4. Four spores x 400.

RUSSULA BREVIPES, *Peck.*

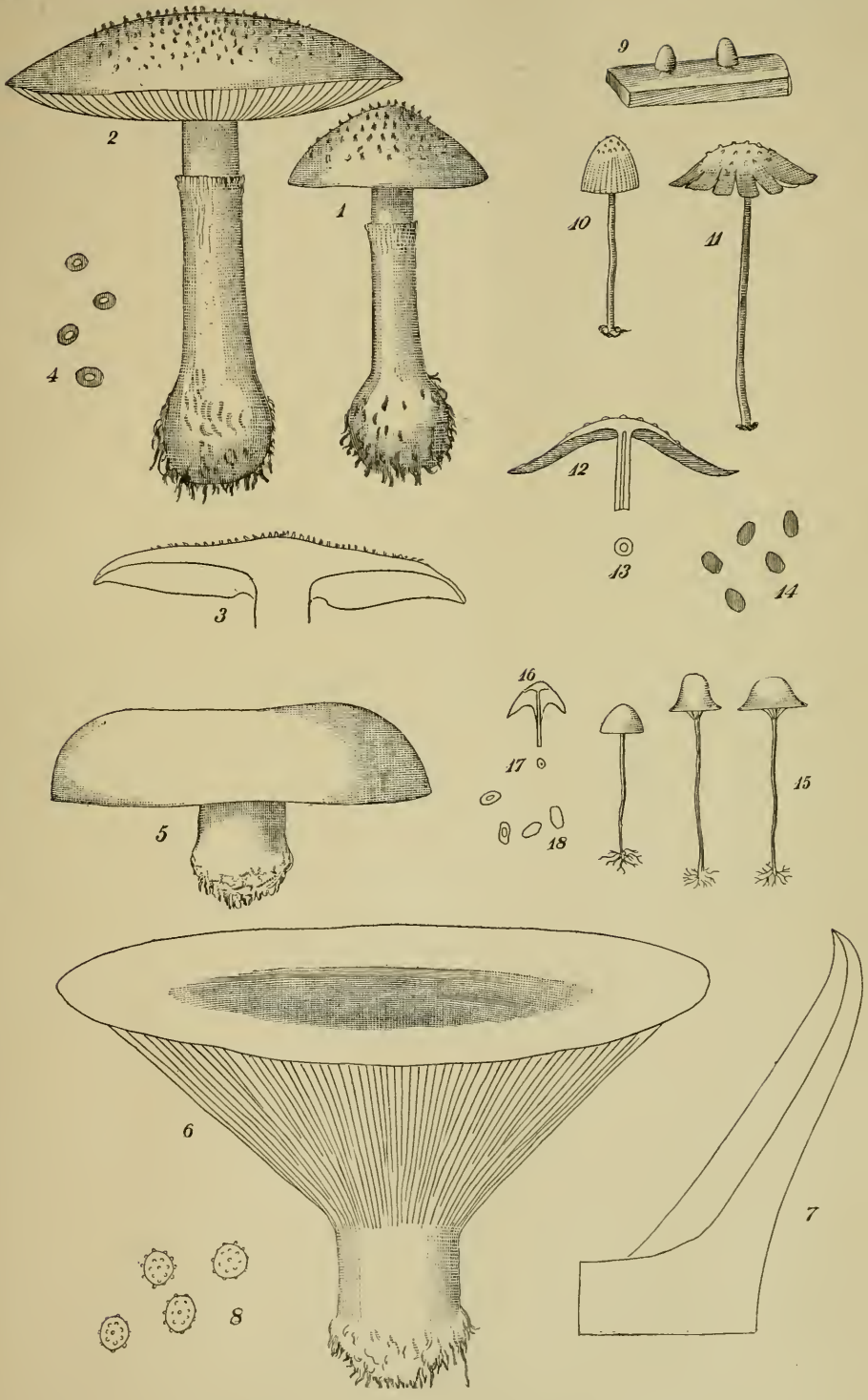
Fig. 5. An immature plant.
Fig. 6. A mature plant.
Fig. 7. Vertical section of half a pileus.
Fig. 8. Four spores x 400.

COPRINUS BRASSICÆ, *Peck.*

Fig. 9. Fragment of stem bearing two very young plants.
Fig. 10. A plant with the pileus unexpanded.
Fig. 11. A plant with the pileus expanded.
Fig. 12. Vertical section of a pileus and upper part of its stem enlarged.
Fig. 13. Transverse section of a stem enlarged.
Fig. 14. Five spores x 400.

MARASMIUS ALBICEPS, *Peck.*

Fig. 15. Three plants showing different forms of the pileus.
Fig. 16. Vertical section of a pileus and upper part of its stem.
Fig. 17. Transverse section of stem.
Fig. 18. Four spores x 400.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EXPLANATION OF PLATE 3.

COMATRICHA LONGA, *Peck.*

Fig. 1. Piece of wood bearing a tuft of the plants.
Fig. 2. Upper part of a columella and capillitium enlarged.
Fig. 3. Lower part of a stem and fragment of hypothallus enlarged.
Fig. 4. Small fragment of the columella and capillitum x 400.
Fig. 5. Four spores x 400.

COMATRICHA SUBCÆSPITOSA, *Peck.*

Fig. 6. Piece of wood bearing four clusters of the plants.
Fig. 7. A plant after its spores have fallen, enlarged.
Fig. 8. Small fragment of the capillitium x 400.
Fig. 9. Four spores x 400.

STACHYBOTRYS ELONGATA, *Peck.*

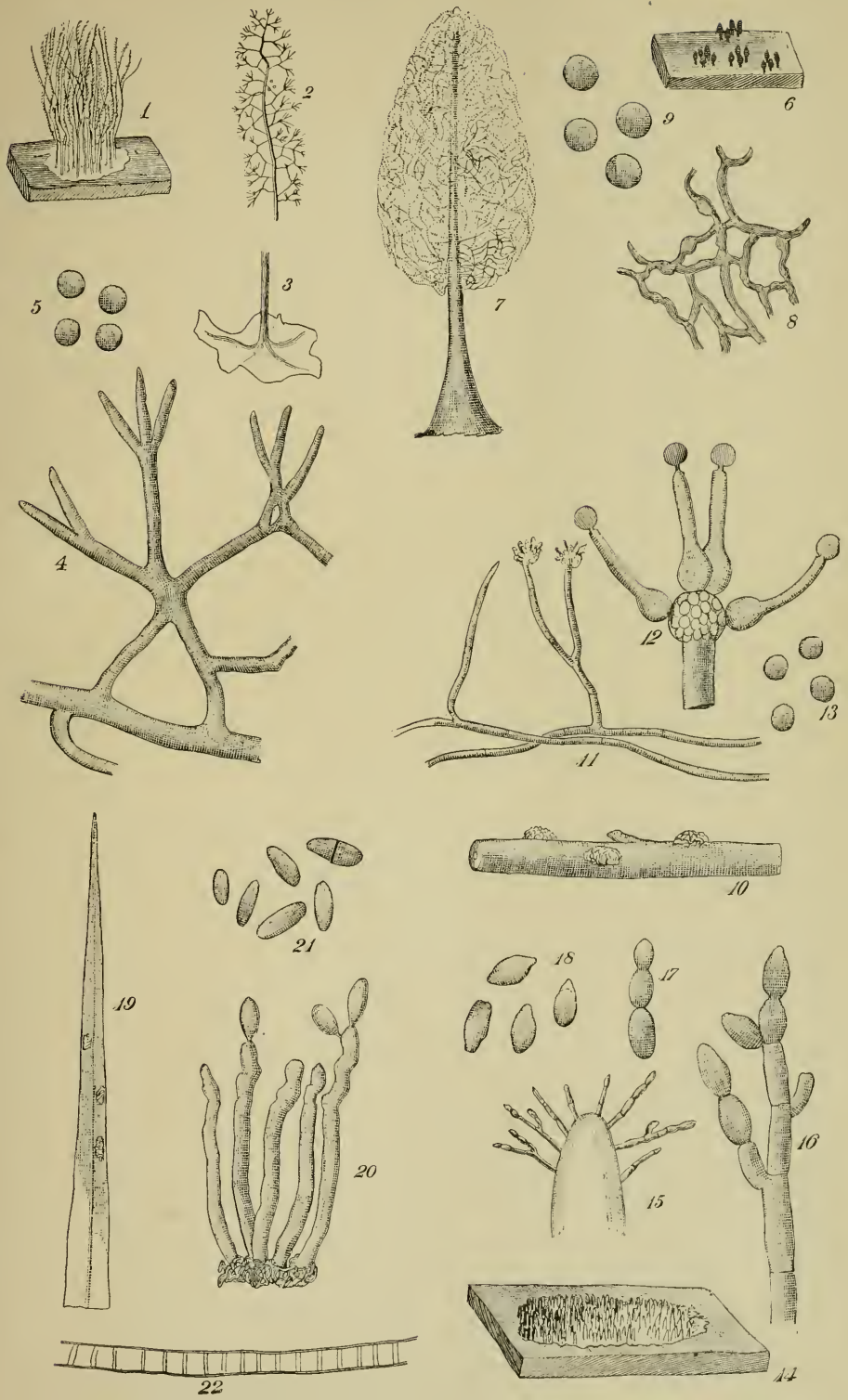
Fig. 10. Piece of branch bearing three tufts of the plants.
Fig. 11. Fragments of hyphæ, one bearing two heads of spores, enlarged.
Fig. 12. Apex of a fertile hypha partly denuded, four sporophores with their spores remaining x 400.
Fig. 13. Four spores x 400.

DEMATIUM PARASITICUM, *Peck.*

Fig. 14. Piece of wood bearing the Hydnum, a part of whose aculei are blackened by the parasite.
Fig. 15. An aculeus with eight hyphæ of the parasite, enlarged.
Fig. 16. A hypha bearing five spores x 400.
Fig. 17. A chain of three spores x 400.
Fig. 18. Four spores x 400.

FUSICLADIUM DESTRUENS, *Peck.*

Fig. 19. Upper part of a leaf bearing three clusters of the fungus.
Fig. 20. Five hyphæ, two of them bearing spores x 400.
Fig. 21. Six spores x 400.
Fig. 22. A fragment of mycelium x 400.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EXPLANATION OF PLATE 4.

UNDERWOODIA COLUMNARIS, *Peck.*

Fig. 1. A mature plant.
Fig. 2. Transverse section of a plant.
Fig. 3. A paraphysis and an ascus with its spores x 400.
Fig. 4. Three spores x 400.

HEMATOMYCES FAGINEA, *Peck.*

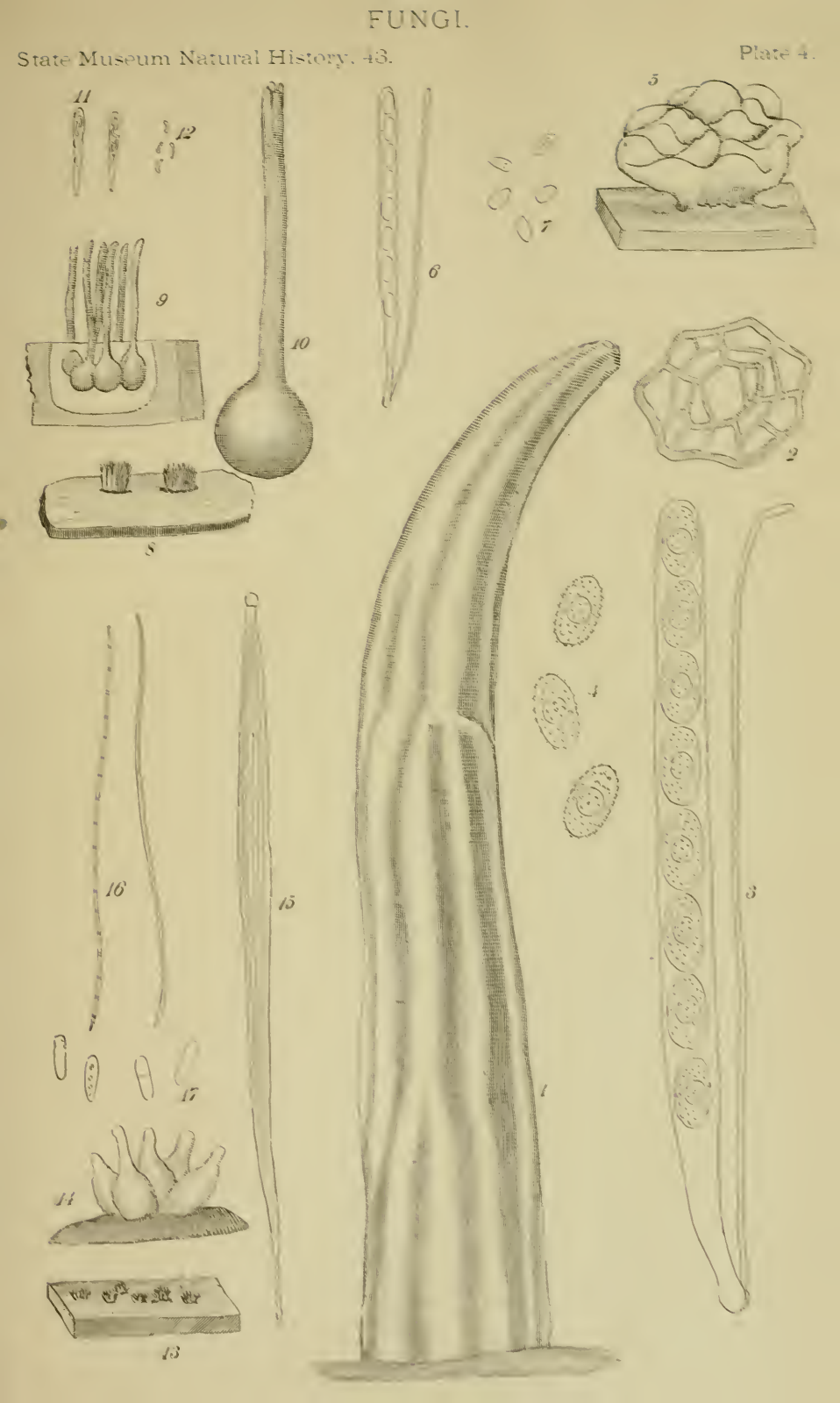
Fig. 5. Piece of wood bearing the fungus.
Fig. 6. A paraphysis and an ascus with its spores x 400.
Fig. 7. Five spores x 400.

EUTYPELLA LONGIROSTRIS, *Peck.*

Fig. 8. Piece of bark bearing two clusters of the fungus.
Fig. 9. Vertical section through a cluster, enlarged.
Fig. 10. A perithecium and its ostiolum, enlarged.
Fig. 11. Two asci with their spores x 400.
Fig. 12. Four spores x 400.

BARYA PARASITICA *Fckl.* VAR. CESPITOSA *Peck.*

Fig. 13. Piece of wood bearing six clusters of the fungus.
Fig. 14. A cluster of five perithecia, enlarged.
Fig. 15. An ascus with its spores x 400.
Fig. 16. Two spores x 400.
Fig. 17. Four conidia x 400.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