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1878-1887

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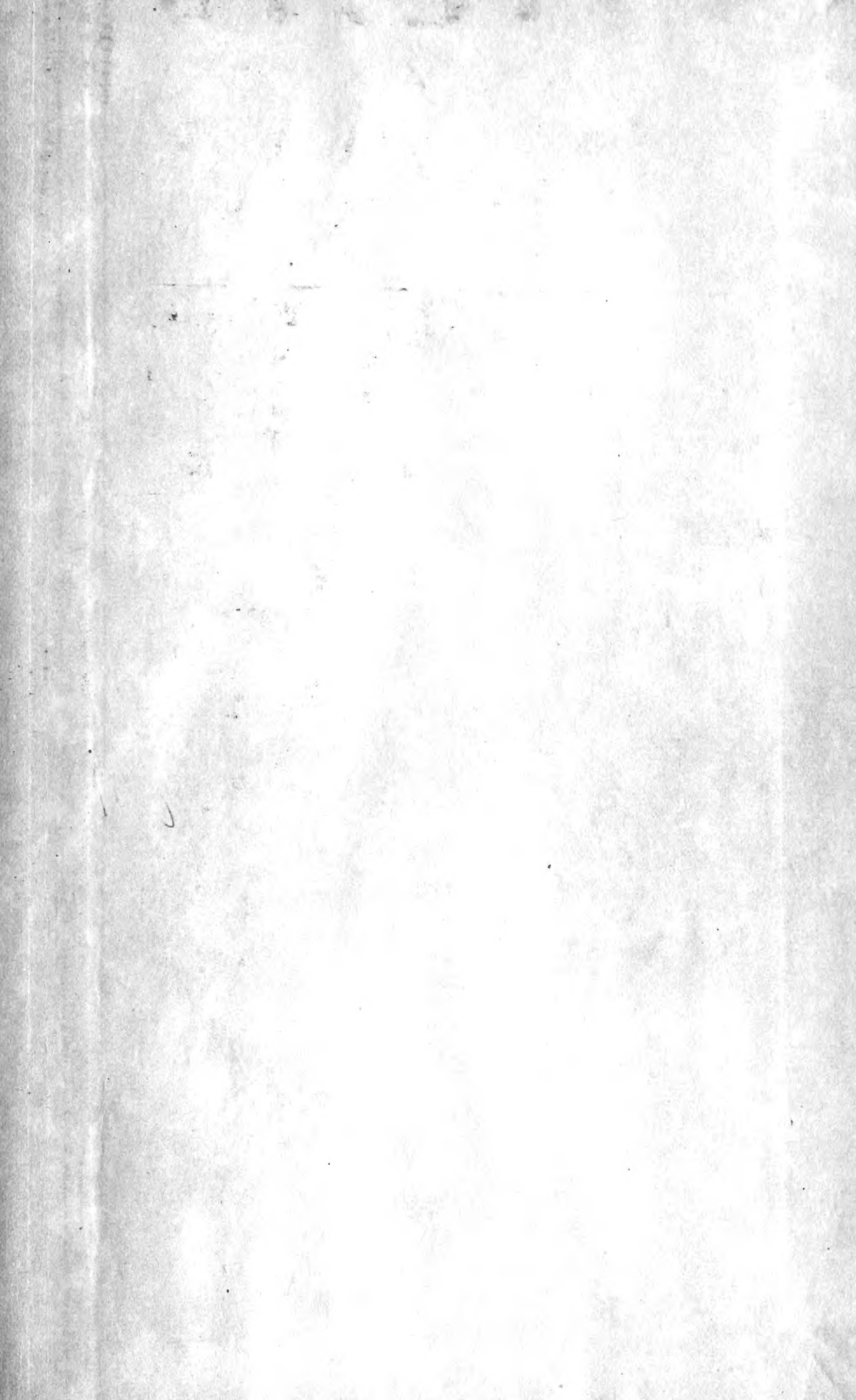
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REPORTS OF THE
STATE BOTANIST OF
THE STATE OF
NEW YORK

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P E C K

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Extracted from the Regent's Reports on the State
Museum 32 - 41.

XR
.E 569
1878-1887

1878
Extra 32nd Regents Report.

REPORT OF THE BOTANIST.

for year 1878

S. B. WOOLWORTH, LL. D., *Secretary of the Board of Regents of the University:*

SIR — Since the date of my last report, specimens of two hundred and thirteen species of plants have been mounted and placed in the Herbarium, of which one hundred and forty-six were not before represented therein. A list of these is marked (1).

Specimens have been collected in the counties of Albany, Hamilton, Montgomery, Onondaga, Oswego, Rensselaer, Saratoga, Schoharie and Ulster. These represent *one hundred and sixty-six species* new to the Herbarium, one hundred and sixty-two of which are fungi. Of these seventy-five are regarded as new or previously undescribed species. A list of plants collected is marked (2).

Specimens of fourteen New York species, new to the Herbarium, and not among my collections of the past season, have been furnished by correspondents. These, added to those collected, make the whole number of additions *one hundred and eighty*. There are, besides, a considerable number of extra-limital contributions. A list of the contributors and their contributions is marked (3).

New species, with their descriptions, and previously unreported species, are given in a section marked (4).

New stations of rare plants, remarks and observations are given in a section marked (5).

The general fruitfulness of the past season extended to the domain of fungi. Toward the end of summer the frequent showers and warm weather brought out these lowly plants in great abundance. In some localities species of Lycoperdon, commonly known as "Puff-balls," were very plentiful. One correspondent, in speaking of the Engraved puff-ball, *L. caelatum*, and the Cup-shaped puff-ball, *L. cyathiforme*, says: "Of these we have freely eaten for several weeks. They are most excellent. Within the limits of our town more than a ton of them rotted on the ground." The number of species of puff-balls now known to inhabit our State is sixteen. The published descriptions of these are scattered and not always accessible. In some instances the descriptions are very imperfect and unsatisfactory, and technical terms are employed in them, which, without explanation, are scarcely intelligible to persons unaccustomed to the language of scientific description. These facts, together with the importance of these fungi as an article of food, and the desirability of bringing them more into public notice and of enabling people generally to recognize the species, if they wish, have induced me to prepare a monograph of our New York species, in which the descriptions have been rewritten and the more technical terms fully explained. Copious remarks have been added to the descriptions, and the principal distinctive features of the species have been specially mentioned. The monograph on the genus Lycoperdon is marked (6). By its aid, it is thought, that any person, whether botanist or not, will be able to identify our species.

Specimens of puff-balls, when sliced and pressed, as they sometimes are, and mounted on herbarium sheets in the usual manner, lose much of their natural beauty and often have their distinctive specific characters impaired. I have,

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therefore, collected and preserved a series of specimens in paper boxes. By this method of preservation the natural colors, shape and other characters are all retained as well as it is possible to preserve them in the dried state. With such specimens for study and comparison, clear ideas of the specific characters can be obtained, and all difficulty in the identification of the species is avoided.

(1.)

PLANTS MOUNTED.

Not new to the Herbarium.

- | | |
|---|--|
| Thalictrum purpurascens <i>L.</i> | Lemna perpusilla <i>Torr.</i> |
| Spergularia rub. v. campestris <i>Gr.</i> | Potamogeton Oakesianus <i>Robbins.</i> |
| Rhus aromatica <i>Ait.</i> | Sagittaria het. v. augustifolia. |
| R. typhina <i>L.</i> | Habenaria leucophæa <i>Gr.</i> |
| Medicago lupulina <i>L.</i> | Trillium erythrocarpum <i>Mx.</i> |
| Amphicarpæa monoica <i>Nutt.</i> | T. erectum <i>L.</i> |
| Gleditschia triacanthus <i>L.</i> | Lilium Canadense <i>L.</i> |
| Robinia Pseudacacia <i>L.</i> | Scirpus Eri. v. cyperinus <i>Gr.</i> |
| Potentilla recta <i>L.</i> | Eleocharis palustris <i>R. Br.</i> |
| Cratægus tomentosa <i>L.</i> | E. melanocarpa <i>Torr.</i> |
| Ribes prostratum <i>L'Her.</i> | Carex str. v. aperta <i>Gr.</i> |
| Penthorum sedoides <i>L.</i> | Triticum caninum <i>L.</i> |
| Sanicula Marilandica <i>L.</i> | Poa trivialis <i>L.</i> |
| Pastinica sativa <i>L.</i> | Glyceria aquatica <i>Sm.</i> |
| Aster cordifolius <i>L.</i> | G. Canadensis <i>Trin.</i> |
| Xanthium spinosum <i>L.</i> | Calamagrostis Pickeringii <i>Gr.</i> |
| Arctostaphylos Uva-ursi <i>Spreng.</i> | Poa laxa <i>Hænke.</i> |
| Vaccinium corymbosum <i>L.</i> | P. alsodes <i>Gr.</i> |
| Utricularia gibba <i>L.</i> | P. compressa <i>L.</i> |
| Verbena bracteosa <i>Mx.</i> | Brachyelytrum aristatum <i>Bv.</i> |
| Lithospermum arvense <i>L.</i> | Dicksonia punctilobula <i>Kze.</i> |
| Fraxinus pubescens <i>Lam.</i> | Polypodium vulgare <i>L.</i> |
| Montelia tamariscina <i>Nutt.</i> | Aspidium spinulosum <i>Sw.</i> |
| Polygonum Hydropiper <i>L.</i> | A. acrostichoides <i>Sw.</i> |
| Ulmus Americana <i>L.</i> | A. crist. v. Clintonianum. |
| U. fulva <i>Mx.</i> | Cystopteris fragilis <i>Bernh.</i> |
| Ostrya Virginica <i>Willd.</i> | Onoclea sens. v. obtusilobata. |
| Alnus viridis <i>DC.</i> | Scolopendrium vulgare <i>Sm.</i> |
| A. serrulata <i>Ait.</i> | Asplenium Rutamuraria <i>L.</i> |
| A. incana <i>Willd.</i> | Botrychium Lunaria <i>Sw.</i> |
| Betula populifolia <i>Ait.</i> | B. simplex <i>Hitch.</i> |
| Arisæma triphyllum <i>Torr.</i> | B. lanceolatum <i>Angst.</i> |
| A. Dracontium <i>L.</i> | B. Virg. v. gracile. |
| Lemna minor <i>L.</i> | |

New to the Herbarium.

- | | |
|-------------------------------------|------------------------------------|
| Solidago humilis <i>Pursh.</i> | Muscari racemosum <i>L.</i> |
| Utricularia subulata <i>L.</i> | Pogonia affinis <i>Aust.</i> |
| Salix purpurea <i>L.</i> | Eleocharis tricostata <i>Torr.</i> |
| Pinus mitis <i>Mx.</i> | Hypnum rusciforme <i>Weis.</i> |
| Potamogeton lonchitis <i>Tuckm.</i> | Calicium curtum <i>T. & B.</i> |

Calicium brunneolum Ach.
Arthonia polymorpha Ach.
Graphis eulectra Tuckerm.
Sirosiphon tomentosum Kutz.
Chlorostylium cataractarum Kutz.
Agaricus cristatellus Pk.
A. fumescens Pk.
A. pinophilus Pk.
A. rubromarginatus Fr.
A. radicatellus Pk.
A. chrysophyllus Fr.
A. abscondens Pk.
A. septicus Fr.
A. albogriseus Pk.
A. micropus Pk.
A. undulatellus Pk.
A. rhodocalyx Lasch.
A. vermifluus Pk.
A. limonellus Pk.
A. squarrosoides Pk.
A. mycenoides Fr.
A. paludinellus Pk.
A. lentiformis Pk.
A. hymenocephalus Pk.
A. camptopus Pk.
Coprinus rotundosporus Pk.
C. macrosporus Pk.
Cortinarius Copakensis Pk.
C. lapidophilus Fk.
Marasmius calopus Fr.
Boletus Satanus Lenz.
Polyporus pallidus Schultz.
P. induratus Pk.
P. subiculosus Pk.
P. semitinctus Pk.
Hydnum sulphurellum Pk.
Mucronella calva A. & S.
M. aggregata Fr.
Solenia villosa Fr.
Craterellus dubius Pk.
Cyphella sulphurea Batsch.
Stereum sanguinolentum A. & S.
Clavaria fumigata Pk.
C. corynoides Pk.
Tremella lutescens Pers.
Guepinia Peziza Tul.
Hymenula olivacea Pk.
Physarum inæqualis Pk.
P. ornatum Pk.
P. atrorubrum Pk.
P. psittacinum Dittm.
Badhamia affinis Rost.
Didymium eximium Pk.
D. angulatum Pk.

Chondrioderma difforme Pers.
Diachæa subsessilis Pk.
Comatricha Friesiana De By.
C. pulchella Bab.
Lamproderma violaceum Fr.
Arcyria pomiformis Rost.
Oligonema brevifila Pk.
Trichia inconspicua Rost.
Lycogala flavofuscum Ehrh.
Sacidium Pini Fr.
Septoria Verbascicola B. & C.
S. Waldsteiniae P. & C.
Phyllosticta Lonicerae Desm.
Vermicularia trichella Grev.
V. albomaculata Schw.
Melanconium Americanum P. & C.
Sporidesmium sicynum Thum.
Phragmidium bulbosum Schl.
Uromyces polymorphus P. & C.
U. Trifolii Fckl.
Ustilago Salvei B. & Br.
Massospora cicadina Pk.
Isaria limonipes Pk.
Stilbum flavipes Pk.
S. rigidum Pers.
Sporocybe abietina Pk.
Helminthosporium Hydropiperis Thum.
H. interseminatum B. & C.
Cladosporium Graminum Lk.
Botryosporium pulchrum Berk.
Polyactis vulgaris Lk.
Aspergillus flavus Lk.
Peronospora pygmæa Ung.
Peronospora simplex Pk.
Mucor ramosus Bull.
M. caninus Pers.
Peziza Acetabulum L.
P. succosa Berk.
P. vulcanalis Pk.
P. gallinacea Pk.
P. sulphurea Pers.
P. viridicoma Pk.
P. Osmundæ C. & E.
P. umbrorum Fckl.
P. planodiscus P. & C.
P. brunneola Desm.
Helotium albopunctum Pk.
H. phyllophilum Pk.
Hæmatomyces orbicularis Pk.
Patellaria olivacea Batsch.
Dermatea carnea C. & E.
D. phyllophila Pk.
D. Xanthoxyli Pk.
Tympanis acerina Pk.

Cenangium *Cassandræ* *Pk.*
 C. *pezizoides* *Pk.*
 Rhytisma *maximum* *Fr.*
 Phacidium *brunneolum* *Pk.*
 Hysterium *hyalospermum* *Ger.*
 Triblidium *morbidum* *Pk.*
 Hypoderma *Corni* *Fr.*
 H. *nervisequum* *DC.*
 Hypocrea *viridis* *Tode.*
 Hypoxylon *xanthocreas* *B. & C.*
 Diatrype *asterostoma* *B. & C.*
 Dothidea *Epilobii* *Fr.*
 Valsa *Xanthoxyli* *Pk.*
 V. *translucens* *De Not.*

Massaria *gigaspora* *Desm.*
 Lophiostoma *prominens* *Pk.*
 L. *seelesta* *C. & E.*
 Sphæria *pulchriseta* *Pk.*
 S. *curvicolla* *Pk.*
 S. *sorghophila* *Pk.*
 S. *fimiseda* *C. & D.*
 S. *phellogena* *B. & C.*
 S. *cladosporiosa* *Schw.*
 S. *Marciensis* *Pk.*
 S. *Crepini* *West.*
 S. *Typhæ* *Schw.*
 S. *Gnomon* *Tode.*
 Venturia *Dickiei* *De Not.*

(2.)

PLANTS COLLECTED.

Plantago Rugelii *Decaisne.*
Zygnema insigne *Hassal.*
Chantransia violacea *Ktz.*
Gleotrichia Pisum *Thuret.*
Agaricus spretus *Pk.*
 A. *impolitoides* *Pk.*
 A. *alboides* *Pk.*
 A. *patuloides* *Pk.*
 A. *subhirtus* *Pk.*
 A. *dealbatus* *Sow.*
 A. *leptolomus* *Pk.*
 A. *odorus* *Bull.*
 A. *anisarius* *Pk.*
 A. *hygrophoroides* *Pk.*
 A. *lentinoides* *Pk.*
 A. *atratooides* *Pk.*
 A. *cremoraceus* *Pk.*
 A. *luteopallens* *Pk.*
 A. *Epichysium* *Pers.*
 A. *tomentosulus* *Pk.*
 A. *umbrosus* *Pers.*
 A. *dysthales* *Pk.*
 A. *muricatus* *Fr.*
 A. *carbonarius* *Fr.*
 A. *sapineus* *Fr.*
 A. *aquatilis* *Fr.*
 A. *eutheloides* *Pk.*
 A. *nodulosporus* *Pk.*
 A. *infelix* *Pk.*
 A. *trechisporus* *Berk.*
 A. *Artemisiæ* *Pass.*
 A. *modestus* *Pk.*

Cortinarius iodes *B. & C.*
 C. *cærulescens* *Fr.*
 C. *amarus* *Pk.*
 C. *crystallinus* *Fr.*
 C. *opimus* *Fr.*
 C. *furfurellus* *Pk.*
 C. *bivelus* *Fr.*
 C. *armeniacus* *Fr.*
Lactarius pubescens *Fr.*
 L. *corrugis* *Pk.*
Russula nigricans *Fr.*
 R. *compacta* *Frost.*
 R. *delica* *Fr.*
 R. *olivascens* *Fr.*
 R. *flavida* *Frost.*
Hygrophorus lividoälbis *Fr.*
Marasmius archyropus *Pers.*
Boletus punctipes *Pk.*
 B. *sensibilis* *Pk.*
 B. *Roxanæ* *Frost.*
 B. *rubinellus* *Pk.*
Polyporus circinatus *Fr.*
 P. *parvulus* *Klotzsch.*
 P. *simillimus* *Pk.*
 P. *Morgani* *Frost.*
 P. *cuticularis* *Bull.*
 P. *chrysoloma* *Fr.*
 P. *molluscus* *Fr.*
Trametes Trogii *Berk.*
Hydnum alutaceum *Fr.*
Craterellus Cantharellus *Schw.*
 C. *clavatus* *Fr.*

- Corticium subrepandum *B. & Ck.*
 Thelephora radiata *Holmsk.*
 Clavaria formosa *Pers.*
 C. fastigiata *L.*
 C. corrugata *Karst.*
 C. flaccida *Fr.*
 Pterula divaricata *Pk.*
 Tremella subcarnosa *Pk.*
 Dacrymyces conglobatus *Pk.*
 Phallus Ravenelii *B. & C.*
 Geaster Capensis *Thum.*
 Melanogaster variegatus *Tul.*
 Rhizopogon rubescens *Tul.*
 Enerthenema papillata *Pers.*
 Cribraria vulgaris *Schrad.*
 Depazea juglandina *Fr.*
 Vermicularia compacta *C. & E.*
 Septoria Populi *Desm.*
 S. Canadensis *Pk.*
 Sphæropsis cornina *Pk.*
 S. typhina *Pk.*
 S. Peckiana *Thum.*
 Synchytrium Anemones *DC.*
 Protomyces conglomeratus *Pk.*
 Puccinia Scirpi *Lk.*
 Torula anomala *Pk.*
 Acrospermum album *Pk.*
 Isaria fulvipes *Pk.*
 Tubercularia hirtissima *Pk.*
 T. floccosa *Lk.*
 Periconia albiceps *Pk.*
 Septosporium velutinum *C. & E.*
 Helminthosporium obovatum *Berk.*
 Cladosporium compactum *B. & C.*
 Heterosporium Ornithogali *Kl.*
 Fusielladium dendriticum *Wallr.*
 Polyactis cinerea *Berk.*
 Oidium destruens *Pk.*
 Ramularia effusa *Pk.*
 R. albomaculata *Pk.*
 R. lineola *Pk.*
 R. Fragariæ *Pk.*
 R. Norvegicæ *Pk.*
 R. Plantaginis *Pk.*
 R. variabilis *Fckl.*
 R. angustata *Pk.*
 Cercospora Rosæcola *Pass.*
 C. Apii *Fres.*
 Glomerularia Corni *Pk.*
 Peronospora Ficariæ *De By.*
 P. Corydalis *De By.*
 Peronospora gangliformis *Berk.*
 Sporotrichum larvatum *Pk.*
 S. sulphureum *Grev.*
 S. alutaceum *Schw.*
 Spondylocladium tenellum *Pk.*
 Penicillium bicolor *Fr.*
 Acremonium flexuosum *Pk.*
 Sepedonium cervinum *Dittm.*
 S. brunneum *Pk.*
 Morchella angusticeps *Pk.*
 Gyromitra curtipes *Fr.*
 Geoglossum irregulare *Pk.*
 Peziza euplecta *Ck.*
 P. melastoma *Sow.*
 P. apiculata *Ck.*
 P. tetraönalis *Pk.*
 P. humosoides *Pk.*
 P. longipila *Pk.*
 P. aurata *Fckl.*
 P. melaleuca *Fr.*
 P. urticina *Pk.*
 P. Typhæ *Pk.*
 P. enterochroma *Pk.*
 Helotium palustre *Pk.*
 H. fraternum *Pk.*
 H. lutescens *Fr.*
 H. vibrisseoides *Pk.*
 Dermatea minuta *Pk.*
 Patellaria pusilla *Pk.*
 Bulgaria bicolor *Pk.*
 B. deligata *Pk.*
 Hypomyces luteövirens *Fr.*
 Exoascus Pruni *Fckl.*
 Taphrina aurea *Fr.*
 Hypoxylon udum *Fr.*
 Dothidea reticulata *Fr.*
 Diatrype verrucoides *Pk.*
 Valsa pulviniceps *Pk.*
 V. Sorbi *Fr.*
 Lophiostoma bicuspidata *Ck.*
 Sphæria squamulata *Schw.*
 S. albidostoma *Pk.*
 S. subiculata *Schw.*
 S. intricata *Pk.*
 S. scopula *C. & P.*
 S. subdenudata *Pk.*
 S. livida *Fr.*
 S. humulina *Pk.*
 S. clavarilna *Pk.*
 Sphærella Peckii *Spegaz.*
 S. septorioides *Pk.*

(3.)

CONTRIBUTORS AND THEIR CONTRIBUTIONS.

REV. H. WIBBE, Oswego, N. Y.

Listera australis *Lindl.* | Botrychium simplex *Hitch.*

Prof. P. A. PUISSANT, Troy, N. Y.

Solidago Virgaurea *L.* |

ADDISON BROWN, New York City, N. Y.

Lepidium Draba <i>L.</i>		Asperugo procumbens <i>L.</i>
L. ruderale <i>L.</i>		Matricaria Chamomilla <i>L.</i>
Thlaspi arvense <i>L.</i>		Aster memorialis <i>Ait.</i>
Alliaria officinalis <i>DC.</i>		

E. S. MILLER, Wading River, N. Y.

Glaucium luteum *Scop.* | Hypericum adpressum *Barton.*

N. L. BRITTON, New Dorp, N. Y.

Pinus mitis *Mx.* | Pinus inops *Ait.*

H. A. WARNE, Oneida, N. Y.

Cynophallus caninus *Fr.* |

L. M. UNDERWOOD, Syracuse, N. Y.

Zygadenus glaucus *Nutt.* |

Hon. G. W. CLINTON, Buffalo, N. Y.

Aster Novæ-Angliæ <i>L.</i>		Verticillium lateritium <i>Ehr.</i>
A. ericoides <i>L.</i>		Sporotrichum virescens <i>Lk.</i>
Gentiana puberula <i>Mx.</i>		Peziza Sphærella <i>P. & C.</i>
Hydnum cinnabarinum <i>Schw.</i>		Helotium Sarmentorum <i>Fr.</i>
H. fuscoâtrum <i>Fr.</i>		Sphæria pulviscula <i>Curr.</i>
Clathrus cancellatus <i>L.</i>		S. infectoria <i>Fckl.</i>
Sphæropsis pulchrispora <i>P. & C.</i>		Grandinia membranacea <i>P. & C.</i>
Tubercularia subdiaphana <i>Schw.</i>		

W. DOOLITTLE, Medusa, N. Y.

Lycoperdon giganteum *Batsch.* |

S. H. WRIGHT, M. D., Penn Yan, N. Y.

Potamageton crispus <i>L.</i>		Ulmus racemosa <i>Thomas.</i>
Desmodium nudiflorum <i>DC.</i>		Polygonum amphibium <i>L.</i>
Aster puniceus <i>L.</i>		P. Hartwrightii <i>Gr.</i>

A. P. MORGAN, Dayton, Ohio.

Agaricus Morgani *Pk.* | Polyporus Morgani *Frost.*

Prof. A. M. JOHNSON, Minneapolis, Minn.

Polyporus tomentosus-querinus *Johns.* |

H. W. RAVENAL, Aiken, S. C.

Lentinus Lecomtei *Fr.* | Lycoperdon leprosum *B. & Rav.*
Phallus rubicundus *Bosc.* |

C. F. AUSTIN, Closter, N. J.

Micromitrium Austinii *Sulliv.* | Agaricus chlorinosmus *Pk.*

M. S. BEBB, Fountaindale, Ill.

Salix petiolaris *Smith.* |

W. C. STEVENSON, JR., Philadelphia, Pa.

Trametes suaveolens *Fr.* | Polyporus cuticularis *Fr.*

W. F. BUNDY, Sauk City, Wis.

Podaxon Warnei *Pk.* |

Prof. W. G. FARLOW, Cambridge, Mass.

Synchytrium Myo. v. Potentillæ.	Podisoma Ellisii <i>Berk.</i>
S. papillatum <i>Far.</i>	Uromyces Junci <i>Schw.</i>
Peronospora Ficariæ <i>Tul.</i>	U. Dactylidis <i>Othh.</i>
P. obducens <i>Schroet.</i>	Puccinia Epil. v. Proserpinaceæ.
P. Potentillæ <i>De By.</i>	Taphrina aurea <i>Fr.</i>
P. nivea <i>Ung.</i>	T. alnitorqua <i>Tul.</i>
Ramularia macrospora <i>Fres.</i>	Ascomyces deformans <i>Berk.</i>
Cenangium pythium <i>B. & C.</i> †	Dothidea vorax <i>B. & C.</i>

E. A. RAU, Bethlehem, Pa.

Puccinia Grindeliæ <i>Pk.</i>	Uromyces sanguineus <i>Pk.</i>
P. Kuhnii <i>Schw.</i>	U. Brandegei <i>Pk.</i>
P. cladophila <i>Pk.</i>	U. simulans <i>Pk.</i>
Accidium gracilens <i>Pk.</i>	U. plumbarius <i>Pk.</i>

J. B. ELLIS, Newfield, N. J.

Trametes suaveolens <i>Fr.</i>	Peziza fuscidula <i>C. & E.</i>
Polyporus volvatus <i>Pk.</i>	P. regalis <i>C. & E.</i>
Uromyces Junci <i>Schw.</i>	P. pulverulenta <i>Lib.</i>
Helicosporium olivaceum <i>Pk.</i>	P. atrocineria <i>Ck.</i>
H. ellipticum <i>Pk.</i>	P. Pinastri <i>C. & P.</i>
H. lilacinum <i>Ellis.</i>	Meliola amphitricha <i>Fr.</i>
Diplodia ilicicola <i>Desm.</i>	Lophiostoma cyclopeum <i>Ellis.</i>
Vermicularia compacta <i>C. & E.</i>	Sphæria barbirostris <i>Duf.</i>
Hymenula æruginosa <i>C. & E.</i>	S. Eriophora <i>Ck.</i>
Corticium subrepandum <i>B. & Cke.</i>	S. soluta <i>C. & E.</i>
Septosporium prælongum <i>Sacc.</i>	S. distributa <i>C. & E.</i>
Cercospora grisea <i>C. & E.</i>	S. Desmodii <i>Pk.</i>
Polyactis streptothrix <i>C. & E.</i>	S. Ogilviensis <i>B. & Br.</i>
Chætostroma olivaceum <i>C. & E.</i>	

(4.)

PLANTS NOT BEFORE REPORTED.

GLAUCIUM LUTEUM *Scop.*Shore of Fort Pond Bay, Montauk Point. *E. S. Miller.*ALLIARIA OFFICINALE *DC.*Hunter's Point, Westchester County. *Addison Brown.*HYPERICUM ADPRESSUM *Bart.*Between Sag Harbor and East Hampton. *Miller.*ASTER NEMORALIS *Ait.*Long island and Hitchings Pond, Adirondack Mountains. *Brown.*PLANTAGO RUGELII *Decaisne.*Not uncommon about Albany, but often confused with *Plantago major.*GENTIANA PUBERULA *Mx.*Buffalo *G. W. Clinton.*POTAMOGETON CRISPUS *L.*Keuka Lake, Yates County. *S. H. Wright.*CHANTRANSIA VIOLACEA *Ktz.*

Wet rocks in rapid streams. Sprakers. June.

This alga forms soft mats or cushions of a dark-red or purplish color on rocks kept wet by rapidly flowing water.

ZYGNEMA INSIGNE *Hassel.*

Standing water in ditches. North Greenbush. June.

GLÆOTRICHIA PISUM *Thuret.*

Floating and submerged leaves of water plants. Brewerton. Sept.

MICROMITRIUM AUSTINII *Sulliv.*Ground. Rockland County. *C. F. Austin.*AGARICUS (AMANITA) SPRETUS *n. sp.*

Pileus subovate, then convex or expanded, smooth or adorned with a few fragments of the volva, substrate on the margin, whitish or pale-brown; lamellæ close, reaching the stem, white; stem equal, smooth, annulate, stuffed or hollow, whitish, finely striate at the top from the decurrent lines of the lamellæ, not bulbous at the base, but the volva rather large, loose, subochreate; spores elliptical, generally with a single large nucleus, .0004'-.0005' long, .00025'-.0003' broad.

Plant 4-6' high, pileus 3'-5' broad, stem 4''-6'' thick.

Ground in open places. Sandlake and Gansevoort. Aug.

This species belongs to the Phalloidean section, and is related to *A. porphyrius* and *A. recutitus*. The margin of the pileus is generally clearly, though sometimes obsoletely, striate. The absence of a bulbous base separates it from *A. mappa*.

AGARICUS (TRICHOLOMA) IMPOLITOIDES *n. sp.*

Pileus convex, then expanded, obtuse, dry, fibrillose-tomentose, becoming squamose on the disk, sometimes distantly striate on the margin, whitish, the disk usually brownish; lamellæ close, emarginate, whitish; stem equal, solid, slightly fibrillose, white; spores elliptical, .00025' long, .0002' broad; flesh white, taste farinaceous.

Plant 3'-4' high, pileus 2'-3' broad, stem 3''-5'' thick.

Ground in woods. Gansevoort. Aug.

This plant is closely related to *A. impolitus*, but I do not find the stem squamose nor the taste salty or peppery as in that species. It sometimes grows in circles. The scaly disk at first sight is suggestive of species of *Lepiota*.

AGARICUS (TRICHOLOMA) ALBOIDES *n. sp.*

Pileus compact, firm, convex, glabrous, white, the disk tinged with yellow or brown; lamellæ crowded, rounded behind, subfree, white; stem nearly equal, solid, firm, squamulose at the apex, white; spores subelliptical, .0002'- .00025' long, .00016' broad; taste at first bitter, then very acrid, odor strong, earthy or subfetid.

Plant 3'-4' high, pileus 2-3' broad, stem 3'-6' thick.

Ground in woods. Brewerton. Sept.

This species is very near to *A. albus*, but its compact pileus, peppery taste and strong odor seem to require its separation. The stem sometimes penetrates the earth quite deeply.

AGARICUS (CLITOCYBE) SUBHIRTUS *n. sp.*

Pileus convex or expanded, sometimes slightly depressed, at first tomentose-hairy and pale-yellow or buff colored, then nearly glabrous and whitish, the margin incurved; lamellæ close, adnate or decurrent, whitish or pale yellow; stem subequal, stuffed or hollow, whitish; spores subglobose, or broadly elliptical, .00025' long.

Plant 1'-3' high, pileus 1'-3' broad, stem 2''-4'' thick.

Ground in woods. Brewerton. Sept.

The species is apparently related to *A. subalutaceus*. The pileus becomes smoother and paler with age. The spores sometimes present an irregular form.

AGARICUS (CLITOCYBE) PATULOIDES *n. sp.*

Pileus compact, convex or expanded, glabrous, the cuticle sometimes breaking up into small appressed scales, whitish or pale-yellow, the margin incurved; lamellæ thin, crowded, decurrent and reticulately connected in thin lines; stem equal, solid, firm, glabrous, whitish; spores subglobose or broadly elliptical, .00025-.0003' long; flesh pure white.

Plant gregarious or circinating, 2-4' high, pileus 1-4' broad, stem 4''-10'' thick.

In groves and open woods. Brewerton. Sept.

The reticulations of the narrowly decurrent lamellæ at the top of the stem indicate a relationship with *A. patulus*, but it appears to be a *Clitocybe*, not a *Tricholoma*, and therefore must be distinct.

AGARICUS DEALBATUS *Sow.*

Grassy pastures. Brewerton. Sept.

AGARICUS ODORUS *Bull.*

Ground in woods. Gansevoort. Aug.

In our specimens the lamellæ are close and white, and the pileus loses its green color with age.

AGARICUS (CLITOCYBE) ANISARIUS *n. sp.*

Pileus convex, then expanded, greenish-gray with the margin incurved, then grayish or whitish, adorned with minute innate fibrils, slightly pruinose and substriate on the margin; lamellæ adnate or decurrent, narrow, crowded, white; stem subequal, firm, hollow, whitish; spores subelliptical, .00025' long; odor weak but pleasant, anise-like.

Plant 2'-4' high, pileus 1.5'-3' broad, stem 2''-3'' thick.

Ground in woods. Gansevoort. Aug.

This is closely related to *A. connexus*, from which it is easily separated by the hollow stem.

AGARICUS (CLITOCYBE) LEPTOLOMUS *n. sp.*

Pileus thin, plane or infundibuliform, umbilicate, hygrophanous, smooth, creamy-white when moist, white when dry, the margin very thin; lamellæ thin, narrow, crowded, some of them forked, decurrent, white; stem equal, smooth, generally curved or flexuous, stuffed, colored like the pileus, white-villous at the base; spores very minute, subelliptical, .00012' long.

Plant gregarious or subcæspitose 2'-3' high, pileus about 2' broad, stem 1''-2'' thick.

Decaying prostrate trunks in woods. Indian Lake. Aug.

The width of the lamellæ is about equal to the thickness of the flesh of the pileus. They taper gradually toward each end, where they are very narrow. The species may be distinguished from *A. truncicola* by its hygrophanous umbilicate pileus. The stem is sometimes eccentric.

AGARICUS (COLLYBIA) CREMORACEUS *n. sp.*

Pileus thin, submembranaceous, convex or campanulate, obtuse, dry, slightly silky, dingy cream color, the margin sometimes wavy; lamellæ broad, ascending, ventricose, with a decurrent tooth, whitish; stem slender, slightly silky, stuffed or hollow, pallid or subconcolorous; spores broadly elliptical or subglobose, .00025' long, .0002' broad.

Plant 1.5'-2' high, pileus 6''-12'' broad, stem about 1'' thick.

Ground in woods. Gansevoort. Aug.

AGARICUS (COLLYBIA) HYGROPHOROIDES *n. sp.* (Plate II, figs. 21-24.)

Pileus subconical, then convex or expanded, smooth, hygrophanous, reddish or yellowish-red when moist, paler when dry; lamellæ sub-distant, rounded behind or deeply emarginate, eroded on the edge, whitish; stem nearly equal, striate, stuffed or hollow, whitish; spores subelliptical, .0002'-00025' long, .00016' broad.

Plant subcæspitose, 2'-3' high, pileus 1'-1.5' broad, stem 2''-3'' thick.

Decaying half-buried wood. Knowersville. May.

At first sight the young pileus is suggestive of the pileus of *Hygrophorus conicus*, both in shape and color. When dry the color is pallid or subochraceous.

AGARICUS (COLLYBIA) LENTINOIDES *n. sp.*

Pileus thin, convex, obtuse, smooth, hygrophanous, reddish-brown or chestnut color when moist, reddish-alutaceous when dry; lamellæ narrow, close, adnexed, serrate on the edge, white; stem equal, substriate, slightly pruinose at the apex, white.

Plant about 2' high, pileus 6''-10'' broad, stem 1'' thick.

Ground in wooded swamps. Root, Montgomery County. June.

The serrated lamellæ and white substriated stem will serve to distinguish this species from *A. dryophilus*.

AGARICUS (COLLYBIA) ATRATOIDES *n. sp.*

Pileus thin, convex, subumbilicate, glabrous, hygrophanous, blackish-brown when moist, grayish-brown and shining when dry; lamellæ rather broad, adnate, subdistant, grayish-white, often venulose-connected and transversely marked above with slender veins; stem equal, hollow, smooth, grayish-brown, with a whitish tomentum at the base; spores nearly globose, about .0002' across.

Plant gregarious or subcæspitose, about 1' high, pileus 6''-10'' broad, stem .5''-1'' thick.

Decaying mossy sticks and logs in woods. Gansevoort. Aug.

The species belongs to the section *Tephrophanae*, and is apparently related to *A. atratus*.

AGARICUS (MYCENA) LUTEOPALLENS *n. sp.*

Pileus thin, convex, smooth, striatulate on the margin when moist, bright yellow, becoming paler when dry; lamellæ moderately close, subarcuate, yellow; stem equal or slightly tapering upward, smooth, hollow, yellow, with yellow hairs and fibrils at the base.

Plant single or cæspitose, 2' high, pileus 3''-6'' broad, stem about 1'' thick.

Among fallen leaves in woods. Adirondack Mountains. Aug.

This species may be distinguished from *Hygrophorus parvulus* by its subcæspitose habit, and the yellow hairs at the base of the stem.

AGARICUS EPICHYSIUM *Pers.*

Decaying prostrate trunks of trees. Indian Lake. Aug.

AGARICUS (PLUTEUS) TOMENTOSULUS *n. sp.*

Pileus thin, convex or expanded, subumbonate, dry, minutely squamulose-tomentose, white, sometimes pinkish on the margin; lamellæ rather broad, rounded behind, free, crowded, white, then flesh-colored; stem equal, solid, striate, slightly pubescent or subtomentose, white; spores subglobose, .0003' in diameter, generally containing a single large nucleus.

Plant 2'-5' high, pileus 1'-3' broad, stem 2"-4" thick.

Decaying wood. Catskill Mountains and Gansevoort. July and August.

AGARICUS UMBROSUS *Pers.*

Decaying wood. Indian Lake. Aug.

AGARICUS (ENTOLOMA) DYSTHALES *n. sp.*

Pileus submembranaceous, subconical, then convex or expanded, obtuse, striate, furfuraceous or squamulose, lurid-brown, becoming paler with age; lamellæ broad, subdistant, ventricose, brown or grayish-brown, then flesh-colored; stem equal, hollow, slender, tomentose-squamulose, brownish; spores irregularly oblong-elliptical, .0006'-.00065' long, about half as broad, usually containing a single large nucleus.

Plant about 2' high, pileus 3"-6" broad, stem about 1" thick.

Damp ground in woods. Catskill Mountains. July.

The species belongs to the section Leptonidei. It has a peculiar starved deformed appearance, whence the specific name. To the naked eye the pileus appears to be clothed with minute branny scales, but under a lens these are seen to be jointed matted filaments which form a kind of thin squamulose tomentum. In some specimens it is more dense than in others, both on the pileus and stem. The general outline of the spores is narrowly elliptical, but they are somewhat pointed at the base and they also have the angular projections, which are generally present on the spores of species of *Entoloma*. The adornment of the pileus and stem indicates an affinity with *A. jubatus*, but our plant is much smaller than that and is very different in its habit.

AGARICUS MURICATUS *Fr.*

Decaying wood of deciduous trees. Carlisle and Indian Lake. June and August.

AGARICUS TRECHISPORUS *Berk.*

Ground in woods. Brewerton. Sept.

Only a single specimen was found. The pileus is nearly white and the plant odorless, but in other respects it agrees well with the description of the species to which we have referred it.

AGARICUS (INOCYBE) NODULOSPORUS *n. sp.*

Pileus thin, hemispherical or convex, obtuse, floccose-squamose, dark cervine-brown or umber color, the scales of the disk usually erect; lamellæ rounded behind, adnexed, ventricose, pallid, then ferruginous-cinnamon, white and minutely toothed on the margin; stem equal, solid, tomentose-squamulose, colored like the pileus; spores rough, .0003'-.00035' long.

Plant about 1' high, pileus 4"-8" broad, stem scarcely 1" thick.

Decaying wood in woods. Gansevoort. Aug.

This species agrees very closely with the description of *A. lanuginosus*, to which I should have referred it but for the rough spores. It is smaller than *A. stellatosporus*, of a paler color and a more soft and woolly appearance. Both belong to the section Squarrosi.

AGARICUS (INOCYBE) EUTHELOIDES *n. sp.*

Pileus thin, conic or campanulate, then expanded, distinctly umbonate, silky-fibrillose, subrimose, varying in color from grayish-cervine to chestnut-brown, the disk sometimes squamulose; lamellæ moderately close, rather broad, ventricose, narrowed or rounded behind, adnexed, whitish, then ferruginous-brown, white and denticulate on the edge; stem equal, subflexuous, solid, whitish-fibrillose, pallid; spores even, uninucleate, gibbous or unequally elliptical, .00035'-.0004' long; flesh of the pileus white.

Plant 1'-2' high, pileus 6'-12' broad, stem 1''-2'' thick.

Ground in woods. Brewerton. Sept.

The species seems to be closely related to *A. eutheles*, from which it differs in the character of the lamellæ, which are rather abruptly and strongly narrowed behind, in the absence of a farinaceous odor and in the character of the spores. The stem is paler than the pileus, sometimes being nearly white. The species belongs to the section *Rimosi*.

AGARICUS (INOCYBE) INFELIX *n. sp.*

Pileus campanulate, convex or expanded, subumbonate, fibrillose-squamulose, grayish-brown or umber; lamellæ close, emarginate, ventricose, rather broad, whitish, then ferruginous-brown; stem equal, solid, pallid or whitish, sometimes darker toward the base, silky fibrillose, white and pruinose at the top; spores oblong. .0004'-.0005' long, about .0002' broad; flesh of the pileus white, odor none.

Plant 1'-2' high, pileus 6'-12' broad, stem 1''-2'' thick.

Sterile mossy ground in open places. Indian Lake. Aug.

The species belongs to the section *Lacери*. In wet weather the pileus becomes more lacerated than in dry. It generally becomes paler with age. A small form occurs in which the pileus is scarcely umbonate and 4''-6'' broad, with the stem about half an inch high. The oblong spores afford a ready character by which to separate this species from the preceding.

AGARICUS SAPINEUS *Fr.*

Decaying prostrate trunks. Brewerton. Sept.

AGARICUS CARBONARIUS *Fr.*

Burnt ground. Sandlake. May.

AGARICUS AQUATILIS *Fr.*

In wet moss along rivulets. Catskill Mountains. July.

AGARICUS FLAVIDUS *Schæff.*

Decaying wood. Indian Lake. Aug.

AGARICUS ARTEMISIÆ *Pass.*

Damp ground in woods. Brewerton. Sept.

AGARICUS (HYPHOLOMA) MODESTUS *n. sp.*

Pileus thin, convex or subconical, then expanded, rarely slightly umbonate, hygrophanous, reddish-brown or pale chestnut-colored when moist, dingy or

ochraceous-brown when dry, smooth, the margin whitened when young by the flocculent evanescent veil, sometimes striate; lamellæ plane, broad, adnate or slightly emarginate, usually with a decurrent tooth, grayish or clouded, becoming purplish-brown, the edge white; stem equal, rather firm, hollow, fibrillose, brownish; spores purple-brown, broadly ovate, compressed, .00025'-.0003' long.

Plant gregarious, about 1' high, pileus 4"-10" broad, stem about 1" thick.

Bark and branches lying on the ground in woods. Adirondack Mountains. Aug.

The species belongs to the section *Appendiculati*. In drying the disk changes its color first.

CORTINARIUS CÆRULESCENS Fr.

Ground in woods and groves. Brewerton. Sept.

Our specimens were violet rather than blue, but they were not very young and may have lost some of their original color.

CORTINARIUS CRYSTALLINUS Fr.

Mossy ground in low woods. Sandlake. Oct.

The specimens are much smaller than the dimensions given in the description, and the habitat is different, but they agree very well with the figures of the species.

CORTINARIUS (PHLEGMACIUM) AMARUS n. sp.

Pileus convex or expanded, often irregular, smooth, glutinous in wet weather, yellow, the disk sometimes tinged with red, pale-yellow when dry, the margin whitish; lamellæ close, rounded behind, whitish, then ochraceous-cinnamon; stem soft, tapering upward, solid, whitish, at first clothed with white silky fibrils; flesh white, taste very bitter.

Plant gregarious or subcæspitose, 1'-2 high, pileus about 1' broad, stem 2'-4" thick.

Ground under spruce and balsam trees. Adirondack Mountains. Aug.

In wet weather the stem is sometimes viscid, apparently from the gluten of the pileus running down upon it.

CORTINARIUS IODES B. & C.

Ground in woods. Sandlake. Aug.

This is a small but beautiful species, the pileus, lamellæ and stem being of a bright-violet or purplish-violet hue. The spores are subelliptical, generally uninucleate, .0004' long, .00025' broad.

CORTINARIUS OPIMUS Fr.

Ground in woods. Catskill Mountains. July.

CORTINARIUS BIVELUS Fr.

In woods about the margin of swamps. Center. Sept.

The margin is often whitish with superficial fibrils which sometimes form a continuous zone and sometimes are collected in patches

CORTINARIUS (TELAMONIA) FURFURELLUS *n. sp.*

Pileus thin, convex, furfureaceous with minute squamules, hygrophanous, watery-tawny when moist, pale ochraceous when dry; lamellæ broad, thick, distant, adnate or slightly emarginate, tawny-yellow, then cinnamon; stem equal, peronate, colored like the pileus, with a slight annulus near the top; spores subelliptical, minutely rough, .0003–.0004' long, .00025' broad.

Plant 1'–2' high, pileus 1'–2' broad, stem 2''–4'' thick.

Moist ground in open places. Gansevoort. Aug.

CORTINARIUS ARMENIACUS *Fr.*

Ground in woods. Gansevoort. Aug.

HYGROPHORUS LIVIDOALBUS *Fr.*

Ground in woods. Brewerton. Sept.

LACTARIUS PUBESCENS *Fr.*

Ground in open woods. Sandlake and Gansevoort. Aug.

Our specimens have the margin of the pileus obsoletely pubescent, and generally narrowly zonate. The stem is white, and either equal or tapering downward; it is sometimes spotted, but I have not seen it with incarnate tints. In other respects they agree so well with the description of *L. pubescens*, that I have concluded to refer them to that species.

LACTARIUS CORRUGIS *n. sp.*

Pileus fleshy, compact, firm, convex, then expanded or centrally depressed, meruloid or corrugated with gyrose-reticulate wrinkles, dark reddish-brown or chestnut-colored, becoming paler with age, suffused as if with a slight pruinosity; lamellæ close, dark creamy-yellow or sub-cinnamon, becoming paler, often distilling drops of moisture, sordid or brownish where bruised; stem equal, solid, firm, paler than the pileus, sub-pruinose; spores large, subglobose, .00045–.0005' in diameter, intermixed with small acicular points or spicules, .0016–.002' long; flesh whitish or cream-colored, milk copious, white, mild.

Plant 4'–6' high, pileus 3'–5' broad, stem 6''–12'' thick.

Ground in woods. Sandlake, Gansevoort and Brewerton. August and September.

This remarkable species is related to *L. volvens*. It is, however, of a darker color, and the surface of the pileus is very uneven from the presence of rugæ or folds, which present an appearance much like that of the hymenium of some species of *Merulius*. The spicules of the lamellæ too are a peculiar feature. They are so numerous that under a lens they give a pubescent appearance to the edge of the lamellæ.

RUSSULA NIGRICANS *Bull.*

Ground in woods. Gansevoort and Brewerton. Aug. and Sept.

Our specimens agree with the description in every respect except that the lamellæ are not distant.

RUSSULA DELICA *Fr.*

Ground in woods. Center and Brewerton.

This very closely resembles *Lactarius vellereus*, from which it may be distinguished by its mild taste, and the absence of a milky juice. From the juiceless variety of *L. vellereus* its mild taste alone furnishes a separating character.

RUSSULA COMPACTA *Frost MS.*

Pileus fleshy, compact, convex, sometimes centrally depressed, dry, whitish, sometimes tinged or spotted with reddish or yellowish hues, becoming dingy or reddish alutaceous when old or dry, the margin thin but even; lamellæ broad, sub-distant, unequal, a few of them forked, nearly free, white, becoming brown when bruised or dried; stem equal, firm, rather short, solid, white, changing color like the pileus; spores subglobose, nearly smooth, .00035' in diameter; flesh whitish or subalutaceous, taste mild, odor when drying very disagreeable

Plant 2-4' high, pileus 3'-5' broad, stem 8'-12'' thick.

Ground in open woods. Sandlake and Brewerton. Aug. and Sept.

Our specimens do not fully agree with Mr. Frost's manuscript description, but they approach so near an agreement that we have not thought best to separate them. The pileus is sometimes split on the margin. The change of color in the pileus and stem is nearly the same, but the lamellæ become darker than either. The disagreeable odor is retained a long time by the dried specimens. The species belongs to the section *Compactæ*.

RUSSULA OLIVASCENS *Fr.*

Ground in woods. Gansevoort. Aug.

RUSSULA FLAVIDA *Frost MS.*

Pileus fleshy, convex, slightly depressed in the center, not polished, yellow, the margin at first even, then slightly striate-tuberculate; lamellæ nearly entire, venose-connected, white, then cinereous or yellowish; stem firm, solid, yellow, sometimes white at the top; spores yellow, subglobose, .00025-.0003' in diameter; flesh white, taste mild.

Plant 2'-3' high, pileus 2'-3' broad, stem 4''-6'' thick.

Ground in woods. Sandlake. Aug.

MARASMIUS ARCHYROPUS *Pers.*

Ground in woods and swamps. Albany, Adirondack Mountains, etc. This is one of our most common species. It was formerly confused with *M. velutipes*. The latter is generally smaller and has the pileus darker colored and usually with a slight umbilicus. The stem is more slender and its velvety covering inclining to a tawny or subochraceous hue. Both species occur in our State.

BOLETUS PUNCTIPES *n. sp.*

Pileus convex or expanded, glutinous in wet weather, yellow, the thin margin at first minutely grayish-pulverulent, at length recurved; tubes short, nearly plane, adnate, small, subrotund, at first brownish, then sordid-yellow;

stem firm, thickened at the base, glandular-dotted, exannulate, solid, rhubarb-yellow; spores .00035'–0004' long, .00016' broad, flesh yellowish, inclining to grayish in the stem.

Plant 2'–4' high, pileus 2'–3' broad, stem 3'–5' thick.

Ground in woods. Gansevoort. Aug.

This species belongs to the section *Viscipelles*. It is related to such species as *B. albus*, *B. granulatus*, etc. Its rhubarb-colored stem thickened at the base and the brownish color of the young hymenium are its distinguishing features.

BOLETUS RUBINELLUS *n. sp.* (Plate II, figs. 18–20.)

Pileus at first broadly conical or subconvex, then expanded, subtomentose, red, becoming paler with age; tubes convex, adnate or somewhat depressed around the stem, rather large, subrotund, pinkish-red, then sordid-yellow; stem equal, smooth, yellow with reddish stains; spores oblong, .0005'–.0006' long, .00016' broad; flesh of both pileus and stem bright-yellow.

Plant about 2' high, pileus 1'–2' broad, stem 1'–2" thick.

Ground in woods. Gansevoort. Aug.

The species belongs to the section *Subtomentosi*, and is apparently related to *B. rubinus*.

BOLETUS SENSIBILIS *n. sp.*

Pileus at first firm, convex, pruinose-tomentose, brick-red, then expanded, paler or ochraceous-red, glabrous, soft; tubes at first plane or concave, bright-yellow, then tinged with green, finally sordid-yellow, small, subrotund; stem firm, smooth, lemon-yellow, narrowed at the top when young, and sometimes slightly cribose from the decurrent walls of the tubes, often stained with red or rhubarb-color; spores greenish-brown, .0005' long, .00016' broad; flesh of the pileus pale-yellow, of the stem brighter colored and marbled, both flesh and tubes quickly changing to blue when wounded.

Plant scattered or caespitose, 4'–6' high, pileus 3'–8' broad, stem 6'–12" thick.

Ground in woods. Gansevoort. Aug.

The species belongs to the section *Subpruinosi*. The specific name is suggested by the ease and rapidity with which the change of color is produced. Merely handling the specimens produces the blue color where they are pressed by the fingers. The species seems near *B. miniato-olivaceus*, but the difference in the color of the pileus and in the character of the stem and its susceptibility to change of color seem to require its separation.

BOLETUS ROXANÆ *Frost.*

Ground in woods. Sandlake. Aug.

The margin of the pileus in our specimens is conspicuously involute when young. The stem is sometimes yellow at the top. The species belongs to the section *Edules*.

POLYPORUS PARVULUS *Klotsch (P. connatus Schw.).*

Burnt ground. Brewerton. Sept.

Either a closely related species or else a variety of this one sometimes occurs on shaded banks by roadsides. It has the large pores and spores of

P. parvulus, but the ferruginous or tawny color of *P. perennis*. I have seen only poor deformed specimens, and for the present prefer to consider it a variety of the above under the name *P. parvulus* var. *deformatus*.

POLYPORUS SIMILLIMUS *n. sp.*

Pileus thin, coriaceous, convex or expanded, umbilicate, zonate, cinereous-brown or livid-chestnut color, slightly silky-tomentose and radiately-fibrillose; pores minute, angular, not at all or but slightly decurrent, cinnamon-color, the dissepiments thin, acute, toothed or lacerated; stem slender, equal, sometimes slightly bulbous at the base, slightly velvety-tomentose, brownish; spores elliptical, usually uninucleate, .00025'-.0003' long, .0002' broad.

Plant about 1' high, pileus 6"-12' broad.

Burnt ground. Brewerton. Sept.

This plant occurred in company with the preceding species, and was at first taken to be a mere variety of it. Looking at the upper surface of the pileus alone it is not possible to separate one species from the other. But there is such a marked difference in the size of the pores and in the length of the spores that it scarcely seems right to lump the two together as one species. The spores are scarcely as large as in *P. splendens* and *P. perennis*, and they sometimes exhibit a slight incarnate tinge. In all the four species mentioned the pilei are sometimes confluent and sometimes have the margin fimbriate. *P. pictus*, another closely related species, but one which has not yet occurred with us, may be distinguished from the others by its glabrous stem.

The prominent characters of our four species may be expressed as follows:

Pileus plane or convex, umbilicate, opake.	
Pores large, rather long, scarcely decurrent.....	<i>P. parvulus</i> <i>Klotsch.</i>
Pores small, rather long, scarcely decurrent.....	<i>P. simillimus</i> <i>Pk.</i>
Pileus plane or convex, umbilicate, shining, pores small, scarcely decurrent.....	<i>P. splendens</i> <i>Pk.</i>
Pileus plane or infundibuliform, opake, pores short, small, decurrent.....	<i>P. perennis</i> <i>Fr.</i>

POLYPORUS CIRCINATUS *Fr.*

Ground in the borders of woods. Brewerton. Sept.

POLYPORUS MORGANI *Frost MS.*

Pileus fleshy, plane or convex, hairy-tomentulose, subsquamulose, reddish or brownish, the margin thin; pores short, medium size, subrotund, decurrent, white; stem subequal, elastic, solid, radicate, the subterranean portion black or blackish-brown, the exposed part whitish or pallid, inclining to tawny, velvety or somewhat reticulated, central or eccentric; spores oval, pointed at one end, .0005' long, .0003' broad; flesh white.

Plant 3'-5' high, pileus 3'-4' broad, stem 3'-5' thick.

Ground in woods. Buffalo *Clinton.* Brewerton. Sept.

This species is evidently closely allied to *P. radicans* Schw., and *P. melanopus* Fr., but it is in some respects quite diverse from the figure and description of the latter species. The stem sometimes penetrates the earth to a considerable depth, and is quite probably attached to decaying roots or buried pieces of wood. The flesh of the pileus is sometimes quite thick.

The species is very rare, but variable. The Brewerton specimens have the stem central and decidedly velvety, and it may be advisable to separate them as *P. Morgani* var. *velutipes*.

POLYPORUS CUTICULARIS *Bull.*

Old hickory stumps. Brewerton. Sept.

I have seen no specimens with blackened pileus nor with a fimbriate margin. In other respects our plant agrees essentially with the description of the species.

POLYPORUS CHRYSOLOMA *Fr.*

Decaying wood in shaded places. Gansevoort. Aug.

POLYPORUS MOLLUSCUS *Fr.*

Decaying wood. Brewerton. Sept.

TRAMETES TROGII *Berk.*

Decaying trunks of poplar, *Populus monilifera*. Albany. Sept.

HYDNUM FUSCOÄTRUM *Fr.*

Decaying wood. Buffalo. Clinton.

HYDNUM CINNABARINUM *Schw.*

Under side of a decaying pine log in woods. Tonawanda. Clinton.

HYDNUM ALUTACEUM *Fr.*

Decaying wood and bark. Adirondack Mountains. Aug.

GRANDINIA MEMBRANACEA *P. & C., n. sp.*

Effused, thin, membranaceous, whitish or subalutaceous, sometimes slightly tinged with greenish-yellow or olivaceous; granules numerous, crowded, unequal; spores broadly elliptical or subglobose, slightly rough, .00025'-.0003' long.

Much decayed wood, leaves, etc. Tonawanda. Oct. Clinton.

Apparently allied to *G. papillosa*.

CRATERELLUS CANTHARELLUS *Schw.*

Ground in bushy places. Sandlake. Aug.

This was placed by Schweinitz in the genus *Thelephora*, section *Craterellæ*. Our specimens are quite as large as the ordinary form of *Cantharellus cibarius*, which they so closely resemble that they might easily be mistaken for a deformed condition of it. They are not quite as bright-colored as the *cantharellus*, and sometimes have a slight reddish tint. The margin is generally more lobed and irregular than in *C. cibarius*, and the spores, though yellowish as in that species, have a slight incarnate tint.

CRATERELLUS CLAVATUS *Pers.*

Ground in woods. Brewerton. Sept.

The resemblance of this is with *Clavaria pistillaris*.

The five species now known to occur in our State may be tabulated as follows:

Stem hollow or pervious to the base:

Hymenium and stem yellow, spores .0004'-.0005' long... C. lutescens *Pers.*

Hymenium and stem subcinereous or brown.

Pileus tubiform, spores .0005'-.0007' long..... C. cornucopioides *L.*

Pileus expanded or funnelform, spores .00025'-.0003' long..... C. dubius *Pk.*

Stem solid:

Hymenium and stem similarly colored, spores .0003' long, C. Cantharellus *Schw.*

Hymenium darker than the stem, spores .0004'-.0005' long..... C. clavatus *Pers.*

CORTICIUM POLYPOROIDEUM *B. & C.*

Decaying wood. Buffalo. Clinton.

CORTICIUM SUBREPANDUM *B. & Cke.*

Dead branches. Center. Sept.

THELEPHORA RADIATA *Holmsk.*

Ground under pine trees. Center and Providence. Aug. and Sept.

CLAVARIA FASTIGIATA *L.*

Among mosses and under pine trees. Adirondack Mountains and Gansevoort. Aug.

CLAVARIA FORMOSA *Pers.*

Ground in woods. Sandlake and Gansevoort. Aug.

CLAVARIA CORRUGATA *Karst.*

Ground in pine woods. West Albany. Sept.

CLAVARIA FLACCIDA *Fr.*

Ground in woods, also under spruce trees. Sandlake, Center and Adirondack Mountains. Common.

A form sometimes occurs with the tips of the branchlets white.

PTERULA DIVARICATA *n. sp.*

Tufts lax, whitish or rufescent, about one inch high; stems slender, irregularly branched; branches widely diverging, slender and gradually tapering to a long slender subulate point.

Among fallen leaves and on half-buried decaying wood. South Corinth, Saratoga County. Aug.

The lax habit and slender widely diverging branches distinguish this species from its allies.

TREMELLA SUBCARNOSA *n. sp.*

Small, tufted, compressed, irregular, wavy or contorted, subcarnose, whitish or pinkish-alutaceous, brownish-incarnate and more or less glaucous when dry; spores obovate, pointed at the base, .0002'-.0003' long, .00016' broad.

Tufts 2'-4" high and broad.

Decaying wood of deciduous trees. Carlisle, Schoharie County. June.

The affinities of this species are doubtful. It is provisionally referred to the genus *Tremella*, although the central portion of the substance is fleshy rather than gelatinous. The external portion, however, is gelatinous and the plants revive upon the application of moisture, and are then somewhat tremeloid, though not very tenacious. Usually two or more are clustered together and form beautiful little rosettes.

DACRYMYCES CONGLOBATUS *n. sp.* (Plate I, figs. 1-4.)

Scattered, sessile, even, pezizoid, about one line broad, with the thin margin incurved, pink-red, paler within, dark-red when dry, with the margin plicate-lobed; threads slender, branched, minutely rough; spores collected in subglobose tufts at the tips of the branches, oblong, obtuse, curved, sometimes nucleate, .0003'-.0004' long.

Bark of arbor-vitæ, *Thuja occidentalis*. Adirondack Mountains. July.

Our plant does not well agree with the generic character of the *Dacrymyces* in its fruit, but its external appearance is so similar to other species of the genus that it seems best for the present to place it here. The specific name has reference to the arrangement of the spores.

MELANOGASTER VARIEGATUS *Tul.*

Ground in shaded roads in woods. Sandlake. Aug.

RHIZOPOGON RUBESCENS *Tul.*

Sandy soil. Center. Sept.

CYNOPHALLUS CANINUS *Fr.*

Ground about an old stump. Oneida. *H. A. Warne.*

This species is described as odorless, yet according to Mr. Warne these specimens had a very disagreeable odor.

PHALLUS RAVENELII *B. & C.*

Ground in woods. Thurman. Oct.

The description of this species is very imperfect. The specimens were identified by comparison with Mr. Ravenel's notes which he kindly submitted to my inspection. The stem is four or five inches long, the denuded pileus is porous, the pores or cavities of the under or inner surface being larger than the others and giving a somewhat reticulate-pitted or cellular appearance, and there is a short veil at the top of the stem, but concealed beneath the pileus.

The following synoptical tables will exhibit the prominent distinctive features of the species of *Phallus* of this State and the United States, so far as I am able to get them from the published descriptions and the specimens at my command:

New York Species of Phallus.

Denuded pileus reticulate with coarse deep pits or cells.

Veil exposed, reticulate with small perforations.....

Veil none.....

Denuded pileus porous, veil not perforate, concealed.....

P. Dæmonum *Rumph.*

P. impudicus *L.*

P. Ravenelii *B. & C.*

United States Species of *Phallus*.

Denuded pileus reticulate with coarse deep pits or cells.

Veil exposed.

Large and reticulate with large perforations. *P. indusiatus* *Vent.*Smaller and reticulate with small perforations *P. Dæmonum* *Rumph.*Smaller and plicate *P. duplicatus* *Bosc.*Veil none *P. impudicus* *L.*

Denuded pileus even or merely porous.

Veil short, concealed beneath the pileus. *P. Ravenelii* *B. & C.*Veil none *P. rubicundus* *Bosc.*CLATHRUS CANCELLATUS *L.*Buffalo. *Clinton.*GEASTER CAPENSIS *Thum.*

Ground in woods. Sterling, Cayuga County. Aug.

ENERTHENEMA PAPILLATA *Pers.*

Decaying hemlock wood. Catskill Mountains. July.

CRIBRARIA VULGARIS *Schrad.*

Decaying wood. Catskill Mountains. July.

ACROSPERMUM ALBUM *n. sp.*

White, subfusiform, subcompressed, pointed at the apex, narrowed below into a short terete stem-like base; spores numerous, elongated, filiform.

Dead stems of spikenard, *Aralia racemosa*. Catskill Mountains. July.This is about the size of *A. compressum*, but is at once distinguished from that species by its white color.SPHÆROPSIS PECKIANA *Thum.*

Dead grape vines. Albany. May.

SPHÆROPSIS PULCHRISPORA *P. & C., n. sp.*

Perithecia small, scattered, slightly prominent, covered by the epidermis, black; spores oblong or cylindrical, obtuse, straight or curved, three to five-nucleate, hyaline, .0006'-.0008' long, .0002'-.00025' broad.

Dead stems of *Polygonum*. Buffalo. Oct. *Clinton.*SPHÆROPSIS TYPHINA *n. sp.*

Perithecia scattered, subconical, slightly prominent, often compressed, black; spores fusiform, pointed at each extremity, colored, .0006' long, .00016' broad.

Dead leaves of *Typha latifolia*. Sprakers. June.

The fusiform pointed spores are a noticeable character in this species.

SPHÆROPSIS CORNINA *n. sp.*

Perithecia numerous, not crowded, minute, nearly covered by the stellately ruptured epidermis, black, mouth large; spores oblong, obtuse, hyaline, .0012'-.0016' long, .0005'-.00055' broad.

Dead branches of green osier, *Cornus circinata*. Sprakers. June.
The species is allied to *S. Pennsylvanica*, but the spores are considerably larger than in that species.

DEPAZEA JUGLANDINA *Fr.*

Living leaves of butternut, *Juglans cinerea*. Albany. Aug.
The perithecia occur on greenish-gray or brown spots which are sometimes large and confluent.

SEPTORIA ALBANIENSIS *Thum.*

Living leaves of the shining willow, *Salix lucida*. Sandlake. Aug.

SEPTORIA CANADENSIS *n. sp.*

Spots large, sometimes confluent, pallid or subalutaceous, surrounded by a darker purplish border; perithecia epiphyllous, small, scattered, black; spores filiform, nearly straight, .001'-.0015' long.

Living leaves of dwarf cornel, *Cornus Canadensis*. Sandlake. May.

VERMICULARIA COMPACTA *C. & E.*

Dead stems of raspberry, *Rubus strigosus*. Green Island. June.
This form is referred to var. *Ruborum*.

TORULA RAMOSA *n. sp.*

Effused, thin, black, threads septate, bearing terminal and lateral strings of globose colored spores, .0003 in diameter, one or two of the lower ones sometimes elliptical or pyriform.

Decaying pine wood. North Greenbush. Sept.

SEPTOSPORIUM VELUTINUM *C. & E.*

Bark of maple and wood of hornbeam. Copake and Mechanicsville. Oct.
Two forms occur, one effused and the other tufted.

PUCCINIA SCIRPI *Lk.*

Culms of *Scirpus cæspitosus*. Mount Marcy. July.

SYNCHYTRIUM ANEMONES *DC.*

Living stems and leaves of *Anemone nemorosa*. West Albany. April.

PROTOMYCES CONGLOMERATUS *n. sp.*

Spores imbedded in the tissues of the stems, large, globose, colored, .0016'-.002' in diameter, collected together in groups or clusters and forming small protuberances or tubercles on the dry stems.

Stems of the common saltwort, *Salicornia herbacea*. Syracuse. Sept.

This species is remarkable for the large size of the spores and their clustered mode of growth.

ISARIA FULVIPES *n. sp.*

Scattered or rarely cæspitose, clavate, one or two lines high; club whitish or cinereous, farinose, obtuse; stem short, orange-tawny or bright ochraceous;

spores minute, ovate or subelliptical, about .0091 long, interspersed among short threads which often bear short widely diverging processes.

Dead stems of herbs. North Greenbush. June.

It may be separated from *I. clavata* and other similar species by its bright-colored stem.

TUBERCULARIA HIRTISSIMA *n. sp.*

Tubercles small, one-half to one line broad, orbicular, depressed, yellow or pale orange, clothed with long wooly hairs, which usually conceal them; spores elongated, cylindrical, colorless, .0008' long, about one-sixth as broad.

Fallen ash leaves, *Fraxinus sambucifolia*. South Corinth. Aug.

This species is remarkable both for its hairy investment and its elongated spores.

TUBERCULARIA SUBDIAPHANA *Schw.*

Dead stems of grape vines. Buffalo. *Clinton*.

TUBERCULARIA FLOCCOSA *Lk.*

Dead branches of sumach, *Rhus typhina*. Catskill Mountains. July.

PERICONIA ALBICEPS *n. sp.* (Plate I, figs. 8-11.)

Stems short, .02'-.03' high, equal or slightly tapering upwards, black, head white, subglobose; spores oblong or subfusiform, colorless, .0003'-.0006' long.

Dead stems of snake-head, *Chelone glabra*. Sandlake. May.

It sometimes occurs in great abundance, surrounding the stems on all sides nearly their entire length.

HELMINTHOSPORIUM OBOVATUM *Berk.*

Decaying chestnut wood. Copake. Oct.

CLADOSPORIUM COMPACTUM *B. & C.*

Dead or languishing leaves of rye. Carlisle. June.

At first sight this might be taken for some small *Sphæria*, so well do the small black compact tufts simulate sphaeriaceous perithecia. The spores vary in length from .001'-.0016'. They sometimes equal the flocci in length, and in shape are either elliptical, obovate or oblanceolate.

HETEROSPORIUM ORNITHOGALI *Klotsch.*

Dead or languishing leaves of garlic, *Allium vineale*. North Greenbush. May.

FUSICLADIUM DENDRITICUM *Wallr.*

On apples. Catskill Mountains. July.

This attacks the apples while yet on the tree, and forms orbicular brown or greenish-brown velvety spots on them. It also occurs on the leaves.

CERCOSPORA ROSÆCOLA *Pass.*

Living rose leaves. Albany. June.

CERCOSPORA APII *Fres.*

Living parsnip leaves. Richmondville. Sept.

PERONOSPORA FICARIA *Tul.*

Living leaves of crowfoot, *Ranunculus recurvatus*. Center. April.

PERONOSPORA CORYDALIS *De By.*

Living leaves of squirrel-corn, *Dicentra Canadensis*. Helderberg Mountains. May.

This form varies somewhat from the European form on leaves of *Corydalis*, but perhaps not sufficiently to warrant its separation as a species. It usually occupies the whole lower surface of the leaves.

PERONOSPORA GANGLIFORMIS *Berk.*

Living leaves of milkweed, *Mulgedium leucophæum*. Central Bridge and Catskill Mountains. June and July.

VERTICILLIUM LATERITIUM *Ehr.*

Decaying wood. Buffalo. Oct. Clinton.

POLYACTIS CINEREA *Berk.*

Dead stems of herbs. Greenbush. May.

The fungus was found growing from a black Sclerotium.

PENICILLIUM BICOLOR *Fr.*

Decaying fungi, leaves, etc. Sandlake. Aug.

SPONDYLOCLADIUM TENELLUM *n. sp.*

Patches thin, effused, subolivaceous; flocci somewhat tufted, erect, slender, simple or rarely branched, septate, brown, .006–.014' high; spores in verticels of two to four at the septa, oblong, simple, pale, .00045'–.0005' long, .00016'–.0002' broad.

Dead stems of stone root, *Collinsonia Canadensis*. North Greenbush. October.

This species is distinguished from *S. fumosum* by its simple spores and the olivaceous hue of the patches, which to the naked eye appear like a thin floccose tomentum.

OIDIUM DESTRUENS *n. sp.*

Effused on large brown spots, odorous, whitish or pale cinereous; flocci of two kinds, the sterile spreading, much branched, closely appressed to the matrix, the fertile erect or decumbent, somewhat branched, forming moniliform strings of spores; spores unequal in size and variable in shape, elliptical subglobose or angular, sometimes with an apiculus at each end, .0002'–.0006' long.

Living leaves of *Amelanchier Canadensis* and *Prunus serotina*. Center and Sandlake. May and June.

This fungus quickly destroys the vitality of the leaves it attacks, but fortunately its ravages are not extensive, only a few leaves on a tree being

attacked. Usually a large brown spot is produced by the fungus in the center of the leaf, the margin of the leaf remaining green. The affected leaves soon shrivel and wither. In the case of the cherry leaves scarcely any green margin was left, and so rapid was the spread of the fungus that nearly the entire leaf was discolored while it yet remained soft and flexible. A peculiar and decided odor is diffused either by the affected leaves or the fungus. This odor is perceptible in the dried specimens for a long time. The leaves of the shad-bush are attacked along the midvein and veins. Sometimes the unripe fruit is also attacked, the fungus causing it to rot quickly. Its destructive character has suggested the specific name.

RAMULARIA EFFUSA *n. sp.*

Hypophyllous, effused, whitish; spores very variable, globose, obovate, elliptical, oblong or cylindrical, .00016–.0011' long, about .0002 broad, occasionally uniseptate.

Living leaves of black huckleberry, *Gaylussacia resinosa*. Center. July.

This species seems to be intermediate between *Oidium* and *Ramularia*. It occupies the whole lower surface of the leaves, and often affects all the leaves on a branch. The same or a similar species occurs on leaves of *Cassandra calyculata*.

RAMULARIA VARIABILIS *Fekl.*

Living leaves of mullein, *Verbascum Thapsus*. Catskill Mountains. July.

The spots are rather small in proportion to the size of the leaf, and when fertile are beautifully frosted on both sides by the fungus.

RAMULARIA ALBOMACULATA *n. sp.*

Spots suborbicular, two to three lines in diameter, sometimes confluent, pale yellowish-green on the upper surface, whitened by the fungus on the lower surface, at length becoming purplish or brown; spores oblong or elliptical, generally binucleate, .0003'–.0004' long, .00016' broad.

Living leaves of hickory, *Carya alba*. Albany and Greenbush. June and July.

The spots are sometimes limited by the veinlets of the leaf and consequently angular. The fungus is thus far limited to the lower surface. In some instances there appeared to be creeping filaments indicating an intimate affinity with *Oidium*.

RAMULARIA ANGUSTATA *n. sp.*

Spots small, orbicular, sometimes confluent, pale greenish-yellow, frosted beneath by the fungus; floeci minute; spores narrowly fusiform or subcylindrical, .0003–.0004 long, about .0001' broad, often containing two or three nucleoli.

Living leaves of pinxter plant, *Azalea nudiflora*. Central Bridge and Carlisle. June.

The specific name has reference to the very narrow spores.

RAMULARIA NORVEGICÆ *n. sp.*

Spots irregular, often confluent, brown or reddish-brown; flocci tufted, short, blunt; spores narrow, oblong or cylindrical, straight, .0005'-.0012' long, .00015' broad, the longer ones sometimes uniseptate.

Living leaves of Norwegian cinquefoil, *Potentilla Norvegica*. West Albany. June.

RAMULARIA FRAGARÆ *n. sp.* (Plate II, figs. 15-17.)

Spots small, suborbicular, arid, whitish surrounded by a purplish boarder; flocci short, tufted; spores cylindrical, straight or slightly curved, .0008'-.0012' long.

Living leaves of the common strawberry, *Fragaria Virginiana*. Knowersville, Center and Carlisle. May and June.

The spots are often sterile, so that it is sometimes difficult to find the spore-bearing fungus.

RAMULARIA LINEOLA *n. sp.*

Spots suborbicular, sometimes confluent, brown, adorned with fine concentric lines; flocci obscure, tufted, hypophyllous; spores slender, cylindrical, obtuse, often uniseptate, .0005'-.0008' long.

Living leaves of dandelion, *Taraxacum Dens-leonis*. Greenbush. July. The fungus is extremely minute and scarcely visible to the naked eye.

RAMULARIA PLANTAGINIS *n. sp.*

Spots suborbicular, sometimes confluent, brown; flocci tufted, amphigenous; spores oblong or cylindrical, obtuse, .0008'-.0016' long, .0002'-.00025' broad, sometimes uniseptate.

Living leaves of English plantain, *Piantago lanceolata*. Carlisle. June.

GLOMERULARIA *gen. nov.*

Flocci short; spores adhering together in masses.

This is a genus of Hyphomycetes, order Mucedines, and is apparently allied to the genus Ramularia, from which it is distinct not only by the shape of the spores, but also by their peculiar habit of adhering together in heaps or masses. Although but the single species here described is known to me, it is so unlike any other fungus with which I am acquainted that I am compelled to make a genus for it.

GLOMERULARIA CORNI *n. sp.* (Plate II, figs. 10-14.)

Spots orbicular, sometimes confluent, brown, surrounded by a purplish margin; flocci short, obscure, hypophyllous, bearing irregular suboval masses of white spores; spores globose, rough, .0004'-.0005' in diameter, the masses .0012'-.0016' long, .0008'-.001' broad, usually containing about six spores each.

Living leaves of dwarf cornel, *Cornus Canadensis*. Catskill and Adirondack Mountains. July.

In the small spots the whole under surface is whitened by the masses of spores, in the large ones the spore masses form marginal bands or patches.

SPOROTRICHUM SULFUREUM *Grev.*

Fallen oak leaves. North Greenbush. June.

SPOROTRICHUM VIRESCENS *Lk.*

Decaying wood. Buffalo. *Clinton.*

SPOROTRICHUM ALUTACEUM *Schw.*

Decaying elm wood. Bethlehem. Oct.

SPOROTRICHUM LARVATUM *n. sp.*

Tufts confluent, dense, soft, white or yellowish, coating the whole matrix; threads very slender, simple or branched; spores abundant, minute, globose, .00008–.00012' in diameter.

Dead larvæ under alder bushes. Adirondack Mountains. July.

This species is remarkable for its peculiar habitat. In some specimens nearly the whole mass of flocci appears to have been transformed into spores, in which cases the surface is quite pulverulent.

ACREMONIUM FLEXUOSUM *n. sp.* (Plate I, figs. 16–18.)

Effused, thin, soft, woolly, white, sometimes tinged with yellow or cream-color; threads branched, the branches widely diverging, sometimes opposite, narrowed and flexuous toward the tips and armed with alternate pointed spicules; spores oval or elliptical, colorless, .0005–.0008' long, .0003'–.0005' broad.

Decaying wood. Griffins, Delaware County. Sept.

Apparently allied to *A. album*, but distinct from it by the flexuous terminal portions of the branches and their alternate pointed teeth or spicules.

SEPEDONIUM CERVINUM *Dittm.*

Parasitic on *Peziza macropus*. Brewerton. Sept.

In the typical form the spores are said to be yellowish-brown. In our specimens they are of a dull flesh color, globose, rough, .0005'–.0006' in diameter, with a short blunt appendage. It seems to be worthy of separation as a variety at least, and may be called *S. cervinum* var. *subincarnatum*.

SEPEDONIUM BRUNNEUM *n. sp.*

Effused, pulverulent, brown; spores globose, rough, .0008'–.001' in diameter.

Decaying fungi. Gansevoort. Aug.

The snuff-brown color and large spores destitute of an appendage are the distinctive features of this species.

MORCHELLA ANGUSTICEPS *n. sp.* (Plate I, figs. 19–21.)

Pileus oblong-conical and subobtuse or narrowly conical and acute, adnate to the stem, one to two inches high, and about half as broad at the base; ribs longitudinal, here and there anastomosing or connected by transverse veins; stem subequal, hollow, whitish, furfuraceous without and within, even or rarely

rough with irregular longitudinal furrows; asci cylindrical; spores elliptical, whitish tinged with ochre, .0008'-.001' long, .0005'-.0007' broad; paraphyses short, clavate, with one or two septa near the base.

Sandy soil in the borders of woods and in open places. West Albany and Center. April and May.

Two forms occur, one with the pileus oblong-conical, rather obtuse, often tipped with a slight umbo or papilla, and with a diameter a little surpassing that of the stem from which the base is separated by a slight groove; the other with the pileus narrowly conical, rather acute, scarcely exceeding the stem in diameter, and without any separating groove. The stem and fruit are alike in both forms. The stem is usually about equal in length to the pileus. The species is related to *M. conica* and *M. elata*, but may be separated from both by the size of the spores and the character of the paraphyses. In our plant I have never seen these as long as the asci. Large forms appear also to approach *M. rimosipes*, but that species has the margin of the pileus more free, the stem proportionately longer, and the paraphyses as long as the asci, if we may rely upon the figure of it. Our plant is edible.

GYROMITRA CURTIPES *Fr.*

Wet banks. Knowersville. May. Also Buffalo. *Clinton.*

The spores in our specimens are often trinucleate, the central nucleus being the largest. The species may be separated from *G. esculenta* by its paler color, shorter stem and different spores.

GEOGLOSSUM IRREGULARE *n. sp.* (Plate I, figs. 5-7.)

Glabrous, yellow, solid, fleshy, soft but rather tough, clavate; club sub-compressed, obtuse, irregular, often lobed, curved or twisted, tapering below into the short, paler or whitish solid distinct stem; asci cylindrical, often two or three united together at the base; spores uniseriate, elliptical, colorless, .0003'-.0004' long, .0002' broad; flesh white.

Plant 1'-2' high. Damp mossy ground in woods. Sandlake. Oct.

This species is allied to *G. luteum*, from which its irregular club and glabrous stem readily distinguish it. *Mitrula crispata*, of which we have seen no authentic specimens, is said to have similar spores; but if that species is properly referred to the genus *Mitrula*, it must be different from our plant, which is a true *Geoglossum*, agreeing fully with the description of that genus, but not agreeing with the published characters of the genus *Mitrula*, for the club is neither "ovate," "capitate" nor "inflated." This species, with *G. luteum*, *G. rufum* and *G. pistillare*, forms a natural group of closely related and clearly congeneric forms.

PEZIZA EUPLECTA *Ck.*

Shaded banks in ravines. Knowersville. May.

Our specimens vary somewhat from the characters expressed by the figure and description of this species, but scarcely enough to warrant their separation.

PEZIZA MELASTOMA *Sow.*

Mossy sticks on the ground. Catskill Mountains. July.

Our specimens are black without and within, and do not show any rubiginous color or orange-colored granules, but in other respects they agree with the description of the species.

PEZIZA APICULATA *Ck.*

Decaying wood. Stamford, Delaware County Sept.

The specimens differ from the type in being blackish-brown, in having the tips of the spores colored and in their habitat. Possibly they should constitute a distinct species, but the agreement with the description is so good in other respects, that for the present I have concluded to refer them to this species.

PEZIZA (HUMARIA) TETRAONALIS *n. sp.*

Cups sessile, one to two lines broad, externally cinereous, the margin sometimes wavy or flexous, the disk blackish or blackish-brown; asci cylindrical, truncate at the apex; spores uniseriate, elliptical, smooth, colorless, .0006'-.0007' long, .0003' broad.

Partridge dung. Catskill Mountains. July.

This plant is about equal in size to *P. gallinacea*, which also has the same habitat, but its darker disk and longer spores require its separation. It does not harmonize well in color with other species of *Humaria*. It is a rare species with us

PEZIZA (HUMARIA) HUMOSOIDES *n. sp.*

Cups small, scarcely more than half a line broad, sessile, scattered or crowded, orange inclining to vinous-red, the disk plane or slightly convex, scarcely margined; asci short, cylindrical or clavate; spores crowded, elliptical, smooth, .0008'-.001' long, .0005' broad; paraphyses filiform, slightly thickened at the apex.

Dung of some wild animal. Catskill Mountains. July.

The cups are attached to the matrix by a few whitish filaments. The peculiar habitat and small size indicate its distinctness from *P. humosa*.

PEZIZA (DASYSCYPHÆ) LONGIPILA *n. sp.*

Cups gregarious, small, .014-.02' broad, narrowed below into a short stem, hirsute with long septate brown hairs; disk whitish, when dry concealed by the hairs of the margin; asci cylindrical; spores oblong, hyaline, straight or slightly curved, .00033' long, .00012' broad.

Dead stems of *Eupatorium maculatum*. Adirondack Mountains. July.

PEZIZA (DASYSCYPHÆ) URTICINA *n. sp.*

Cups minute, .007-.014' broad, sessile, subglobose and hyaline when moist, with the mouth contracted, whitish when dry, pulverulent-hairy; asci subfusiform; spores crowded or biseriata, fusiform, .0004'-.0005' long; paraphyses filiform.

Dead stems of nettle, *Urtica Canadensis*. Catskill Mountains. July.

The species is apparently near *P. translucida*. The hairs in our plant are appressed and arranged in such a manner that when moist the cups appear somewhat longitudinally striate. When dry the disk is generally concealed. The plants are so small that to the naked eye they appear like mere white grains.

PEZIZA AURATA *Fckl.*

Decaying wood and bark. Catskill Mountains. July.

PEZIZA MELALEUCA *Fr.*

Decaying wood. Summit. Sept.

The plant of Fries is regarded by some as a *Patellaria*. Our specimens, though agreeing tolerably well with the description of *P. melaleuca*, clearly belong to the genus *Peziza*. There is therefore some doubt concerning their identity, but for the present we thus refer them. It is to be regretted that the description of *P. melaleuca* makes no mention of the fruit, otherwise all doubt might be removed.

PEZIZA (MOLLISIA) TYPHÆ *n. sp.*

Cups scattered, small, .008'-.014' broad, sessile, nearly plane, black, the disk dingy-whitish; asci subcylindrical, short, .0012'-.0016' long; spores minute, sublanceolate, .0003' long.

Dead leaves of *Typha latifolia*. Carlisle June.

PEZIZA (MOLLISIA) SPHÆRELLA *P. & C., n. sp.*

Cups minute, .005'-.0055' broad, spheriform or subglobose, sessile, glabrous, black, at first closed, then opening by a small poriform mouth; asci subcylindrical, .0012'-.0014' long; spores crowded or biseriata, oblong, usually binucleate, .0004'-.0005' long; paraphyses filiform.

Dead stems of red clover, *Trifolium pratense*. Buffalo. Oct. Clinton. At first sight the plants might be taken for some small black *Sphæria*.

PEZIZA (MOLLISIA) ENTEROCHROMA *n. sp.*

Cups scattered or gregarious, at first cylindrical or clavate, then expanded, plane, about one line broad, subtremelloid, scarcely margined, supported on a short stem, yellowish, becoming reddish-brown or chestnut-colored when dry; asci cylindrical; spores fusiform, yellowish, .0008-.001' long, .00025'-.0003' broad; paraphyses filiform, thickened at the tips.

Fallen twigs of arbor-vitæ, *Thuja occidentalis*. Adirondack Mountains. July.

This species belongs to the subsection *Claviformes*, or perhaps better to the modern genus *Ombrophila*, being allied to *O. subaurea*, from which it differs in its color and larger spores. When dry the cups become quite concave. When crushed and moistened the flesh is greenish-yellow.

HELOTIUM LUTESCENS *Fr.*

Fallen spruce branches. Summit. Sept.

HELOTIUM FRATERNUM *n. sp.* (Plate I, figs. 12-15.)

Cups stipitate, plane or slightly concave, .5-1' broad; disk pallid or yellowish, becoming more concave and dull red in drying, externally paler; stem about equal in length to the diameter of the cup; asci clavate or cylindrical; spores crowded, cylindrical or subfusiform, .00065'-.0008' long; paraphyses filiform, numerous, scarcely thickened at the tips; flesh rather thick and firm.

Petioles of fallen maple leaves. Adirondack Mountains. July.

This species is closely related to *H. gracile* and *H. fastidiosum*, which relationship suggests the specific name. It imitates the latter species in its habitat, but I have not found it except on the petioles and occasionally the midveins of maple leaves.

HELOTIUM PALUSTRE *n. sp.*

Cups stipitate, plane or slightly convex, pallid or whitish; stem 3''-6'' long, slightly thickened at the base; asci subclavate; spores oblong, .0004'- .0005' long.

Fallen leaves in wet places. Sandlake. May.

In the dried specimens the hymenium assumes a dark reddish-brown or chestnut color. The stem is long in proportion to the size of the cup.

HELOTIUM VIBRISSEOIDES *n. sp.* (Plate II, figs. 7-9.)

Cups sessile, 1-2'' broad, immarginate, externally blackish or blackish-green, the disk plane or convex, livid-white or blackish-green; asci very long, linear; spores elongated, filiform, very slender, sometimes becoming coiled, bursting forth and covering the disk with a whitish webby stratum.

Decaying sticks lying in water. Sandlake and Catskill Mountains. May and July.

Externally this fungus has the appearance of a *Helotium*, but the fructification is exactly that of a *Vibrissea*. It seems to me that it really belongs to the genus *Vibrissea*, but I am prevented from placing it there because in the absence of a stem it fails to meet fully the published characters of that genus. I am fully persuaded that some of the genera of fungi are imperfectly characterized, and that we cannot have a satisfactory arrangement of our species until these defective descriptions are modified or revised.

PATELLARIA PUSILLA *n. sp.*

Cups sessile, small, .014'- .028' broad, slightly margined, the disk plane or convex when moist, slightly concave when dry, black; asci clavate; spores crowded or biseriate, lanceolate or subclavate, 6-8-nucleate, .00065'- .0008' long, .0001'- .00012' broad; paraphyses numerous, filiform, not thickened at the apex.

Decaying beech wood. Catskill Mountains. July.

The spores in shape are similar to those of *P. atrata*. They are extremely narrow and probably become 5-7-septate when fully mature.

DERMATEA MINUTA *n. sp.*

Cups minute, .009'- .017' broad, numerous, scattered or sometimes two or three crowded together, attached by a small point, grayish, the disk subochraceous, margin obsolete, disk plane or convex; asci oblong-clavate; spores crowded, oblong-elliptical, .0008'- .001' long, colorless, simple; paraphyses filiform, thickened at the apex.

Dead stems of hobble-bush, *Viburnum lantanoides*. Catskill Mountains. July.

This is the smallest species of *Dermatea* known to me.

BULGARIA BICOLOR *n. sp.* (Plate II, figs. 4-6.)

Cups irregular, expanded, sessile, appressed, about an inch broad, externally gelatinous, whitish or subolivaceous, the disk reddish-brown or dark watery-chestnut; asci cylindrical; spores uniseriate, elliptical, .0009'-.0011' long, .00045'-.0005' broad; paraphyses filiform, thickened at the tips, brownish.

Wet decaying birch wood Brewerton. Sept.

The spores are generally furnished with one or two large nuclei. The contrast between the dark color of the disk and the light color of the cup suggests the specific name.

BULGARIA DELIGATA *n. sp.* (Plate II, figs. 1-3.)

Cups small, 1''-2'' broad, plane or convex, scattered or crowded, sessile, the margin obliterated, purplish-black when moist, black and more or less angular when dry, surrounded at the base by whitish filaments which bind them to the matrix; spores elliptical, uniseriate, binucleate, .001'-.0013' long, .0006'-.0007' broad; paraphyses numerous, filiform, thickened above, slightly colored.

Wet decaying hemlock wood. Catskill Mountains. July.

The numerous white filaments that appear to bind the cups to the matrix, constitute a marked feature in this species, and suggest the specific name.

EXOASCUS PRUNI *Fckl.*

Immature fruit of sand cherry and wild plum, *Prunus pumila* and *P. Americana*. Center and Carlisle. May and June. Also Buffalo. Clinton.

When the fruit of the sand cherry is attacked by this fungus, it enlarges in size, becomes elongated and pointed, soft and discolored. Sometimes it assumes a bright-red hue, but usually a pale whitish-green or yellowish-green varied somewhat by red or pinkish tints. The pit even is destroyed, and the whole texture of the pulp is changed. Rarely the leaves also are attacked, in which case they become swollen, distorted and discolored.

The fruit of the wild plum, when attacked, becomes enlarged and soft, and assumes a whitish or pale green color, but does not become elongated or pointed. Of course, its value as a fruit is wholly destroyed. At Carlisle, one tree was observed which had been cultivated in a court-yard, and which had all of its fruit affected by this fungus.

TAPHRIŃA AUREA *Fr.*

On catkins of poplar, *Populus grandidentata*. Albany and North Greenbush. May.

The propriety of keeping this and the preceding species generically distinct is perhaps doubtful, but I give the names as I find them.

HYPOMYCES LUTEOVIRENS *Fr.*

On decaying Russula. Center. Sept.

The spores in our specimens are longer than required by the description of the species to which we have referred them. They are .0012'-.0015' in length, acuminate at each end, and at length uniseptate. The asci are very long and slender.

DOTHIDEA RETICULATA *Fr.*

Dead leaves of some liliaceous plant, apparently *Smilacina bifolia*. Summit. Sept.

HYPOXYLON UDEM *Fr.*

Decaying poplar wood. Gansevoort. Aug.

DIATRYPE VERRUCOIDES *n. sp.*

Pustules small, verruciform, covered by the epidermis, which is longitudinally or stellately split, the laciniae closely adhering; stroma blackish externally, whitish within, sometimes coated above with a thin cinerous tomentum; ostiola black, depressed, stellately sulcate; perithecia three to eight in a pustule; asci clavate; spores simple, cylindrical, straight or slightly curved, .0008' long, .00016' broad.

Dead beech twigs. Stamford. Sept.

The pustules bear some resemblance to those of *Diatrype verruciformis*, but they are generally smaller. They penetrate to the wood, and are surrounded by a more or less distinct black line.

VALSA PULVINICEPS *n. sp.*

Perithecia 8-12 in a pustule, sunk to the wood, covered by the bark; ostiola erumpent, crowded, prominent, black, forming an orbicular cushion-shaped mass; asci clavate; spores crowded, subelliptical or broadly fusiform, multinucleate, slightly colored, .0004'-.0006' long.

Dead stems of elder, *Sambucus Canadensis*. Richmondville. Sept.

This is apparently very unlike *V. abnormis*, which is said to inhabit *Sambucus*.

VALSA SORBI *Fr.*

Dead branches of mountain ash, *Pyrus Americana*. Adirondack Mountains. July.

LOPHIOSTOMA BICUSPIDATA *Ck.*

Dead stems of thimble berry, *Rubus odoratus*. Catskill Mountains. July.

This is the variety with spores .0012' long. The colorless cusps at the tips of the spores are well shown.

SPHERIA SQUAMULATA *Schw.*

Decaying wood. Catskill Mountains. Sept.

It is with some hesitation that our specimens are referred to this species, for the "black crust" required by the description is not clearly present; indeed, it is in some instances clearly absent; and the ostiola, which are described as "rather thick," in our specimens are compressed as in the genus *Lophiostoma*. In other respects the agreement with the description is good so far as the description goes. But no diagnosis is given of the fruit, and I am informed that no specimens of the species are to be found in Schweinitz's Herbarium, so that it is scarcely possible to remove all uncertainty. • In our specimens the asci are clavate; the spores are crowded, oblong-fusiform, uniseptate, constricted in the middle, colorless, .0015-.0018 long, containing from four to six nuclei.

SPHÆRIA SUBICULATA Schw.

Decaying wood. Catskill Mountains. July.

Sphæria mutans scarcely differs from this species except in the color of the tomentum, and sometimes in the larger size of the perithecia. It is doubtful if the two ought to be kept separate.

SPHÆRIA (VILLOSÆ) INTRICATA n. sp.

Perithecia scattered or crowded, more or less elongated, obtuse, subventricose, generally narrowed at the base, blackish-brown, tomentose-hairy; asci slender, elongated; spores crowded, elongated, linear, more or less curved or flexuous, greenish-yellow, .0016'-.002' long.

Decaying wood and leaves in damp places. Sandlake.

This species partakes of the characters of several others, but is perhaps most likely to be confounded with *S. hirsuta* or *S. strigosa*. The perithecia, though smaller, resemble in shape those of *S. bombardæ*. The spores are very similar to those of *S. hirsuta* and *S. ovina*. From *S. strigosa* it is separated by its peculiar soft matted hairs or tomentum.

SPHÆRIA (VILLOSÆ) SCOPULA C. & P., n. sp.

Perithecia scattered or crowded, small, .006-.008' broad, very black, subglobose, bristly with short, rigid black hairs; asci lanceolate or subclavate; spores crowded or biseriata, linear or slightly narrowed toward each end, multinucleate, obscurely multiseptate, greenish-yellow, .0025'-.003' long, .00016 broad.

Decaying hemlock wood. Adirondack Mountains. Aug.

The spores are often slightly curved

SPHÆRIA (BYSSISEDÆ) ALBIDOSTOMA n. sp.

Perithecia numerous, subcrowded, small, .014'-.018' in diameter, subglobose, seated upon or involved in a black or blackish-brown tomentum, the ostiola naked, not prominent, whitish when moist, darker when dry; asci cylindrical; spores biseriata, oblong-fusiform, at first uniseptate, constricted at the septum and containing two or three nuclei in each cell, then 3-5-septate, colorless, .0015'-.0018' long, .0003'-.00035' broad.

Dead branches of mountain maple, *Acer spicatum*. Catskill Mountains. September.

The whitish ostiola constitute a marked feature in this species. Its affinity is apparently with *S. nidulans*.

SPHÆRIA (BYSSISEDÆ) CLAVARIINA n. sp.

Perithecia small, subovate, clothed with rigid blackish-brown hairs and seated on a blackish-brown subiculum; asci cylindrical; spores uniseriate, oblong-elliptical or subfusiform, containing one or two nuclei, at first colorless, then brown, .0004'-.0005' long, about half as broad.

Stems and branches of *Clavaria cristata*. Sandlake. Aug.

The Clavaria, when attacked by this fungus, becomes distorted and discolored.

SPHÆRIA (CERATOSTOMÆ) SUBDENUDATA *n. sp.*

Perithecia immersed or superficial, subglobose, .02'-.025' broad, black, sometimes bearing a few scattered straight black hairs; ostiola cylindrical, straight or slightly curved, blunt, sometimes oblique, in length equal to or a little shorter than the diameter of the perithecia; asci cylindrical; spores uniseriate, simple, oblong-elliptical, uninucleate, colorless, .0005'-.00055' long, .0002' broad.

Much decayed wood. Catskill Mountains. Sept.

This species, by reason of its somewhat hairy perithecia, might be sought among the *Villosæ*. The perithecia are sometimes deeply sunk in the soft matrix, and have only the ostiola exposed, again they are nearly or quite superficial.

SPHÆRIA LIVIDA *Fr.*

Dry hard hemlock knots. Catskill Mountains. July.

SPHÆRIA (CAULICOLÆ) HUMULINA *n. sp.*

Perithecia small, slightly prominent, covered by the blackened epidermis; ostiola minute, piercing the epidermis; asci cylindrical; spores uniseriate, elliptical, triseptate, colorless, .0006' long, .0003' broad.

Dead hop stems. Carlisle. June.

SPHÆRIA INFECTORIA *Fekl.*

Culms and sheaths of *Calamagrostis arenaria*. Buffalo. Oct. Clinton.

SPHÆRELLA PECKII *Spegaz.*

Fallen leaves of *Amelanchier Canadensis*. Center. May.

SPHÆRELLA SEPTORIOIDES *n. sp.*

Spots few, orbicular, angular or irregular, white; perithecia numerous minute, hypophyllous, black; asci oblong; spores crowded, uniseptate, colorless, .0005' long, the two cells nearly equal.

Living leaves of *Thalictrum dioicum*. Central Bridge. June.

The spots are very white, and so thin that the perithecia show through the tissues of the leaf. The external resemblance to species of *Septoria* suggests the specific name.

(5.)

REMARKS AND OBSERVATIONS.

VIOLA BLANDA *Willd.*

A noticeable form of this violet occurs about Albany. It has the calyx peduncles and petioles tinged with dull red, the flowers rather large, the petals scarcely greenish at the base, and the fragrance wanting. The leaves are sometimes rather coarsely hairy.

VIOLA MUHLENBERGII Torr.

A dwarf form of this species was found in South Corinth, flowering freely the latter part of August.

SEDUM TELEPHIOIDES Mx.

This plant which is rare in our State, is reported by *Hon. D. F. Day*, to be growing at Chittenango Falls, high up on the face of the cliffs.

ASTER MACROPHYLLUS L.

A form occurs near Albany with purplish stems, broadly ovate cauline leaves and flowers with six to ten rays only.

ASTER NOVÆ-ANGLIÆ L. var. ROSEUS T. & G.

Buffalo. Clinton.

ASTER ERICOIDES L. var. VILLOSUS T. & G.

Buffalo. Clinton.

HIERACIUM AURANTIACUM L.

This plant is already fully established in several localities in our State, and is rapidly spreading. I have seen it in abundance in Rensselaer, Schoharie and Montgomery Counties, and it is reported by *Mr. S. W. Cowles* as fully established in Cortland County. It spreads both by seed and by runners. It thrives in hard gravelly soils, by roadsides, in pastures and in meadows, and bids fair to rival the daisy as a noxious weed. It forms a dense carpet of hairy leaves closely pressed to the surface of the ground, and sends up its flowering stems a foot or more high. These bear at their summit a cluster of beautiful orange-colored flowers, which give a very showy appearance to the fields they occupy. The growth of the plant is very rapid. One field that had been plowed in the spring was red with the blossoms of this weed the middle of June. Meadows containing it, after having been mowed, quickly send up a second crop of flowering stems. It is pronounced by farmers to be worthless as fodder, and it is doubtful if it can be kept down except by thorough cultivation of the soil.

SHEPHERDIA CANADENSIS Nutt.

Rocky places near Central Bridge and Sprakers.

CHENOPODIUM ALBUM L.

This species at present is made to include a variety of forms, some of which do not well harmonize either in general aspect or in details of character. A common form about Albany has wide-spreading branches, broad leaves with numerous teeth, usually five to ten on each side, large dense clusters of fruit, usually intermingled with leaves but sometimes becoming leafless, and seeds very large, fully equal in diameter to the seeds of *C. hybridum*. This form differs so widely, in its whole aspect and in all the characters mentioned, from the ordinary narrow-leaved form, *C. viride*, that unless they are clearly connected by intermediate forms it would seem better that they should be kept distinct.

PINUS MITIS *Max.*

Specimens of this pine and of the scrub-pine, *Pinus inops*, have been received from *Mr. N. L. Britton*, who found them growing on Staten Island. This makes six species of pine known to belong to the State. Unfortunately neither of the specimens was accompanied by flowers or cones, from which I infer that they do not fruit, and that the existence of these two species within our limits will not be long continued. *P. inops* is also said to occur on Long Island, but I have seen no specimens from that locality.

JUNCUS CANADENSIS *Gay*, var. SUBCAUDATUS *Engelm.*

Ditches along the railroad. South Corinth. Aug.

The weak stems and spreading panicles give this variety an appearance quite unlike that of the more common one, var. *coarctatus*.

TRISETUM MOLLE *Kunth.*

Cliffs near Central Bridge. June.

ASPIDIUM SPINULOSUM *Swartz.*

Fertile specimens of the dwarf form known as var. *dumetorum* were found on the Catskill Mountains. They are glandular-hairy and therefore should be referred to the recently-proposed species, *A. Americanum* *Day*. The typical *A. spinulosum*, as limited by *Mr. Davenport*, occurs on the Adirondack Mountains.

BOTRYCHIUM TERNATUM *Swartz*, var. OBLIQUUM *Eaton.*

The dwarf form of this variety with the sterile frond about one inch broad and long and the whole plant three or four inches high was found at South Corinth.

BOTRYCHIUM SIMPLEX *Hitch.*, var. SUBCOMPOSITUM *Lasch.*

Lewis's Bluff near Oswego. *Rev. H. Wibbe.*

BRYUM ELONGATUM *Dicks.*

This rare moss occurs on Slide Mountain, one of the highest peaks of the Catskills.

AGARICUS CÆSAREUS *Scop.*

This species was found at Gansevoort growing in a circle about forty feet in diameter. About one-fourth of the circumference of the circle was unoccupied by the fungus in consequence of the encroachment of a cleared field. In the American form of the species the stem is rather slender and equal or slightly tapering upward. I have not seen it "subventricose" as required by the description.

AGARICUS AMERICANUS *Pk.*

This Agaric usually grows in grassy places or on lawns, but fine specimens were found the past season growing in a large tuft on an old stump. The lamellæ are much narrowed behind and somewhat reticulately connected. In the fresh state the whole plant is white with the exception of the scales of the pileus.

AGARICUS HORDUS *Fr.*

Although the specimens formerly referred to this species agree in most respects with the description there are certain discrepancies, which upon further investigation induce me to believe it to be a distinct species. I would, therefore, give it the following name and description :

AGARICUS (TRICHOLOMA) PRÆFOLIATUS *n. sp.*

Pileus thin, slightly convex or expanded, a little moist in wet weather, virgate with innate brownish fibrils, dark-cinereous or grayish-brown, usually a little darker on the disk, the margin sometimes revolute ; lamellæ very broad, subdistant, rounded behind, sometimes united at the point of attachment, venose-connected and somewhat transversely striate, often split transversely, the edge uneven or eroded, white ; stem equal, firm, fibrous, fibrillose-striate or rimose, stuffed or hollow, white or whitish ; spores broadly elliptical, generally uninucleate, .00025'-.00035' long ; flesh white, odor pleasant, anise-like.

Plant 4'-6' high, pileus 3'-5' broad, stem 5'-10' thick.

Ground and decaying hemlock wood in woods and groves. June and Aug.

The pileus is often irregular and sometimes eccentric. The lamellæ are very broad, sometimes a half an inch or more, and usually much torn. The plant is scattered in its mode of growth, but few individuals occurring in a place. The obscure striations of the lamellæ are retained in the dried specimens.

AGARICUS CORTICOLA *Schum.*

This plant revives on the application of moisture, thus indicating an affinity with species of *Marasmius*.

AGARICUS CALLISTUS *Pk.*

This beautiful Agaric grows on decaying wood in damp places as well as in exsiccated water-holes.

CORTINARIUS CORRUGATUS *Pk.*

In woods. Gansevoort and Sandlake. Aug.

The color of the pileus varies from yellow to reddish-yellow or ochraceous, the lamellæ are sometimes minutely transversely venose, and the stem is slightly fibrillose, and sometimes sprinkled above with yellowish grains or squamules.

PAXILLUS POROSUS *Berk.*

Fine specimens were found at Brewerton, growing on the ground in woods and on mounds of earth. The plant emits an unpleasant earthy odor. I have not found the pileus viscid, and conclude that the part of the description "viscid when moist" is a mistake. This species is easily known by its porous hymenium, which connects it with the genus *Boletus*. *Paxillus flavidus* Berk. is probably not distinct from *Gomphidius rhodoxanthus* Schw., which occurs within our limits. The species is ambiguous between *Paxillus* and *Gomphidius*, but from the character of its spores it seems nearer the

latter genus to which I have referred it. Our New York species of *Paxillus* may be tabulated thus :

Stem central :	
Pileus glabrous or only the margin tomentose.....	<i>P. involutus</i> <i>Batsch.</i>
Pileus hairy, less than two inches broad.....	<i>P. strigosus</i> <i>Pk.</i>
Stem eccentric or lateral :	
Velvety-tomentose, hymenium lamellated.....	<i>P. atrotomentosus</i> <i>Batsch.</i>
Glabrous, reticulated, hymenium porous.....	<i>P. porosus</i> <i>Berk.</i>
Stem none.....	<i>P. pannuoides</i> <i>Fr.</i>

LACTARIUS INDIGO *Schw.*

This *Lactarius* appeared in considerable abundance in August, both in Sandlake and in Gansevcoort. The younger and fresh plants are generally highly colored and distinctly zonate, especially on the margin, but they fade with age, and generally lose their zonate character. The pileus when moist, is smooth, and subviscid to the touch, the stem is hollow and often spotted, and the spores are yellowish. Wounded places become greenish. It belongs to the section *Dapetes*, so named doubtless because of the edible qualities of its species. The four New York species of this section are very similar in character, and differ but little except in color and place of growth. They may be tabulated as follows :

Lamellæ when young blue, milk blue.....	<i>L. Indigo</i> <i>Schw.</i>
Lamellæ when young orange, milk orange.....	<i>L. deliciosus</i> <i>L.</i>
Lamellæ when young purplish-red, milk dark red.....	<i>L. subpurpureus</i> <i>Pk.</i>
Lamellæ when young grayish-yellow, milk pale saffron.....	<i>L. Chelidonium</i> <i>Pk.</i>

The first and last species usually occur on dry soil under or near pine trees ; the second and third prefer damp soil in and about swamps and among mosses.

LACTARIUS SORDIDUS *Pk.*

A notable variety occurs in Sandlake. It has a hairy pileus and a greenish stem. The hairs of the pileus are of a brownish-green color, and toward the margin they separate in tufts or squamules. The pileus, as well as the stem, is more highly colored than in the typical form. It may take the name var. *hirsutus*.

LACTARIUS AQUIFLUUS *Pk.*

The agreeable aromatic odor, which is present both in the fresh and in the dried plant, is similar to that of *L. glyciosmus*.

RUSSULA FOETENS *Pers.*

The odor of this plant as it occurs with us is not usually fetid or unpleasant. It resembles the odor of cherry bark and might aptly be termed amygdaline. The lamellæ are rarely forked and frequently they are quite as equal as in species of the section *Fragiles*. In this respect it violates the characters of the section *Heterophyllæ* in which the species is placed. It is doubtless this form to which Dr. Curtis gave the name *Russula amygdalina*. But our plant is scarcely a distinct species, for it does occur with numerous short lamellæ intermingled with the longer ones, and the same peculiar odor has been attributed by one writer at least to the European *R. foetens*.

BOLETUS SPECTABILIS *Pk.*

This rare species occurs near Indian Lake in Hamilton County. It was discovered in North Elba in 1869, since which time I had not met with it. It constitutes with *B. pictus* and *B. paluster* a natural group of allied species. When young the tomentum in all of them covers the whole pileus.

BOLETUS ALBUS *Pk.*

This is another Boletus of rare occurrence. When young the tubes are white, but they at length become yellow or ochraceous-yellow. The flesh is white and the plant when fresh emits a fetid odor.

BOLETUS SUBTOMENTOSUS *L.*

A form of this species occurs in which the costæ of the stem anastomose in such a way as to form large but rather obscure reticulations. Is it *B. lanatus* Rost.? Another form having the pileus and stem darker-colored than usual occurs on much decayed prostrate trunks of trees and about old stumps. The chinks of the pileus are sometimes whitish.

BOLETUS AFFINIS *Pk.*

A fine variety of this species was found at Gansevoort, in which the pileus was beautifully mottled by small yellowish spots. It merits the name var. *maculosus*.

BOLETUS MODESTUS *Pk.*

This rare species sometimes has the flesh of the pileus yellowish. The stem is minutely scurfy or farfuraceous.

POLYPORUS CÆRULEOPORUS *Pk.*

A form of this species was found at South Corinth, in which the whole plant was grayish-blue except the flesh which was white.

POLYPORUS RHIPIDIUM *Berk.*

There is a slight viscosity to the pores of this species. The pileus fades with age.

POLYPORUS SPUMEUS *Fr.*

A large form of this plant, with pilei sometimes six or eight inches across, occurred at Brewerton.

POLYPORUS BOREALIS *Fr.*

This sometimes occurs on hemlock stumps. It then differs from the form on spruce in having the pileus broader, wholly white and strigose-hairy or fibrous-hispid.

POLYPORUS VOLVATUS *Pk.*

The form recently published under the name *Polyporus obvolutus* Berk. & Cke. is not specifically distinct from this species, according to specimens received from Mr. Ellis.

CLAVARIA BOTRYTES *Pers.*

When old the branches both of this species and of *C. flava* become elongated, obtuse, very fragile and of a uniform color. The yellow tips of the latter and the red ones of the former species wholly disappear.

MYROTHECIUM FUNGICOLA *Pk.*

This species has recently been referred to *M. inundatum* Tode. The spores in that species are represented in *Sturm's Dutchland Flora* as globose. In our plant they are oblong or cylindrical, a difference which seems to me to be of specific value.

PERONOSPORA VITICOLA *B. & C.*

Leaves of wild grape-vines. Catskill Mountains. A *Peronospora* which is scarcely distinguishable from this species occurs about Albany on leaves of the great ragweed, *Ambrosia trifida*.

MORCHELLA SEMIIBERA *DC.*

Mr Warne finds two forms of this species at Oneida, one with the pileus conical, the other with it hemispherical and obtuse. In both the stem may be either short or long. The pileus is often free nearly or quite to the apex.

GYROMITRA ESCULENTA *Fr. (Helvella esculenta.)*

This plant sometimes grows so large that a single one will weigh a pound.

HELVELLA ELASTICA *Bull.*

This species is described as having the pileus free. It is not uncommon to find it with the pileus attached in one or two points to the stem.

VERPA DIGITALIFORMIS *Pers.*

Buffalo. *Clinton*.

HELOTIUM PILEATUM *Pk.*

Decaying stems lying in water. Sandlake. May.

This is a large form about an inch high, with a conical or subcampanulate pileus 2'-3" broad.

VALSA GNYSPORA *Pk.*

The habitat of this species was, by an error, stated to be dead oak branches. It is dead branches of mountain holly, *Nemopanthes Canadensis*. I have not found it on oak. It is very distinct from *V. taleola*, if the published characters of that species are at all reliable.

(6.)

NEW YORK SPECIES OF LYCOPERDON.

LYCOPERDON *Tourn.*

Peridium membranaceous, vanishing above or becoming flaccid; bark adnate, subpersistent, breaking up into scales or warts; capillitium soft, dense, adnate to the peridium and sterile base. *Syst. Myc., Berk. Oul., Cooke's Handbook.*

The species of *Lycoperdon* are commonly known as "Puff-balls." They belong to a family of fungi called Gasteromycetes, because of their habit of producing their spores in the inner cavity of the plant. The particular order to which they belong is called Trichogasters, a name having reference to the hair-like filaments with which the interior of the mature plant is filled. These filaments form a somewhat elastic mass, and are interspersed with vast numbers of minute dust-like spores. When, therefore, the mature plant is

suddenly compressed, it emits a little cloud of spores which bears some resemblance to a puff of smoke. This probably suggested the name "Puff-balls."

There are two other closely related genera in this order, whose species emit the characteristic puff of spores. One is called *Bovista*, the other *Scleroderma*. In the former, the outer rind or epidermis disappears as the plant matures, and there is no distinct spongy or cellular mass of sterile tissue at the base of the plant. In the latter, the walls of the plant are thick and firm when young, and they remain in nearly the same condition when mature. In these respects both genera differ from the genus *Lycoperdon*. In it the fertile part of the plant is more or less globose in shape, but there is always a mass of coarse empty cells at the base, which constitute a sterile part of the plant—that is, they produce no spores. In those species which have this part highly developed, it constitutes a sort of stem to the fertile part, and raises it above the earth or the matrix on which the plant grows. When the sterile base is but slightly developed, the plant appears to sit directly on the ground or matrix, and is then said to be *sessile*. The exterior of the plant consists of two parts. The outer part is sometimes called the *bark*, sometimes the *exterior peridium*. In some species it takes the form of minute flocculent or pulverulent masses of scurf-like scales, in others it consists of weak spines or spine-like bristles, while in others still the spines are much longer and stouter, being thickened at the base. Plants with these coarse long spines are said to be *echinate*, because of their stiff bristly aspect. Sometimes several contiguous spines have their tips curved toward each other and united together, thus forming little stellate or star-like clusters. These external processes or adornments are often called *warts*. In some species they are deciduous at maturity, in others they form a permanent adornment of the inner rind or true *peridium*, but in such cases they usually shrivel with age and become less conspicuous. In a few species, the exterior peridium, at maturity, is separable from the inner, and may be peeled off like a thin membrane. The inner or true peridium is at first rather thick and firm, but when fully mature it is generally thin, membranaceous and flaccid. In one series of species, the upper part, when mature, breaks up into irregular fragments and soon falls away; in another series it bursts by a small apical aperture, and then remains in this condition a long time. This difference in the peridia of the various species affords a character by which the genus is divided into two sections. The first section was designated by Fries as *Bovistoides*, the other as *Proteoides*. The former was raised by Rostkovius to the rank of a genus with the name *Langermannia*, but modern mycologists have generally followed Fries in regarding these species as a section or sub-genus of *Lycoperdon*.

The peridium incloses at first a soft fleshy mass of white cellular matter. If a minute portion of this be examined microscopically, a great number of short jointed filaments and enlarged cells or basidia are seen, the latter of which bear slender spicules, usually four apiece, on the tips of which the spores are borne. When the plant is fully developed, this central fleshy substance becomes filled with moisture and quickly changes its color. So abundant is the moisture that it may be pressed out like water from a wet cloth or sponge. The inexperienced collector is sometimes surprised at finding the moisture in the specimens which he has laid up to dry increasing instead of diminishing, and his surprise is soon changed to disappointment and perhaps annoyance, when he sees his beautiful specimens water-soaked and discolored by this superabundance of moisture. In most species the white color of the flesh at first changes to a yellow or greenish-yellow, but this hue soon becomes darker until at last it is either a purple-brown or a dingy-olive; that is, brown more

or less tinged with dark-red, or brown tinged with yellow or greenish-yellow. In a few species the final color is less decided, approaching a dark-umber or snuff-brown. Sometimes the outer stratum, lying next to and in contact with the inner surface of the peridium, is paler than the rest of the mass. With this change in the color of the interior mass there is also a change no less wonderful in its character. It is now no longer moist and fleshy, but dry and dusty. The whole interior is filled with a soft but elastic mass of intricate, slender, cottony filaments interspersed with countless multitudes of minute dust-like spores. This mass of threads is called the *capillitium*. In some species it is of nearly uniform density throughout, but in others those filaments that spring from the base do not so freely unite and intermingle with those that spring from the walls of the peridium. They, therefore, form a central mass more or less distinct from the rest, and are called the *columella*. The *columella* is usually of a somewhat conical shape, but sometimes it is nearly globose. It may be detected in the mature plant by carefully making two opposite slits in the peridium, extending them from the apex nearly or quite to the base, and then opening the two hemispheres thus formed, the uncut base acting as a hinge on which the halves may turn. The *columella*, if present, will be seen projecting from the base in the center of the cleft. The slits are best made with a pair of small, sharp scissors, as care should be taken not to disturb the natural position of the filaments more than is necessary. In the mass the *capillitium* and spores appear to be uniformly and similarly colored, but often if the filaments are cleared of the spores they are seen to be paler in color. Rarely they are darker. The color of the *capillitium* and spores might be used as a character for grouping our species in subsections. The spores in all our species are nearly or quite globose. They vary in size in the different species from .00016 to .00025 of an inch in diameter. The olive-tinted spores in nearly all the species are smooth and about .00016 of an inch in diameter, but the purple-tinted ones are always rough or echinulate and generally larger, varying from .0002 to .00025 of an inch broad. It is perhaps needless to say that the size of the spores does not at all depend on the size of the plant that produces them. The spores of the Giant puff-ball, the largest one of the genus, are but .00016 of an inch in diameter, while those of the little Smooth puff-ball, which is scarcely more than an inch in diameter, are about .00025 of an inch broad. The color of the spores may be ascertained by ejecting a small quantity of them on white paper or by opening the peridium and exposing them to view.

Puff-balls rarely make their appearance in the early part of the season. Old effete specimens of the preceding autumn may be found in early spring, flattened and closely pressed to the ground by the snows of winter. Fresh specimens rarely appear before the middle of June. Their greatest abundance is in late summer and early autumn. During the months of August, September and October most of our species occur. One species I have found in July and August only, another in July only. Some species are invariably found in cleared lands, others in woods or bushy places, while a few are denizens of both field and forest. Some grow on the ground only, others on old logs and decaying wood, and a few on both the ground and decaying wood. One southern species is said to inhabit the bark of living oak trees. Some species have distinct, whitish, root-like fibres at the base. These penetrate the earth, and sometimes creep through it for a considerable distance. In the Pear-shaped puff-ball they are generally well developed, and sometimes several individuals are found to be attached together by these creeping subterranean fibres.

In the determination of the species, it is desirable to have specimens in both the mature and the immature condition. The former will afford the

means of ascertaining the color and character of the capillitium and spores, the latter will exhibit the color of the immature plant, and the character of its warts or adornments. The character of these, and the characters of the capillitium and spores are of the first importance, but the color of the immature plant and its size and shape are less constant and reliable, and are therefore generally considered of secondary importance. Specimens preserved entire and in their natural shape are much more satisfactory for study than those that are sliced in sections or pressed flat and mounted on herbarium paper. Such specimens can easily be kept in trays or small paper boxes. The immature ones should be gathered just before maturity. If taken too early they shrivel too much, and do not keep their shape as well.

Puff-balls are useful because they are edible. None of the species are considered dangerous or even hurtful, yet some are so small and so scarce, that they are not of much value for food. The larger ones are generally better flavored than the smaller and more common ones. They should be used as food in the immature condition only, while the flesh is yet of a pure white color. When it begins to discolor its goodness is gone.

The method of preparing them for the table is as follows: Take off the rind and cut the fleshy part into thin slices. Beat up two or three or more eggs, according to the quantity to be prepared, and dip the slices in it. Then fry in butter, seasoning with salt, pepper and savory herbs if desired. Another method is to put the slices in water and heat to the boiling point. Then take them out and fry in butter as before. Puff-balls, as an article of food, have this advantage over mushrooms. They are not often infested by insects or their larvæ, and there is scarcely any possibility of mistaking any deleterious species for them. In the following descriptions, those species whose esculent qualities have been tested by the writer are marked edible.

The Synoptical table is intended to be an aid to the student in tracing the species. Nearly all the characters employed in it are ascertainable without the aid of the microscope.

SYNOPTICAL TABLE OF SPECIES.

SECTION I. *Peridium Rupturing Irregularly.*

Plant very large, spores dingy-olive.....	L. giganteum.
Plant large, spores purple-brown.....	L. cyathiforme.
Plant medium size, stem long, spores dingy-brown.....	L. saccatum.

SECTION II. *Peridium Opening by a Small Apical Aperture.*

Mature capillitium and spores purplish-tinted.....	a.
Mature capillitium and spores olive-tinted.....	b.
a Denuded peridium reticulate with brown lines.....	L. eonstellatum.
a Denuded peridium smooth.....	L. atropurpureum.
a Peridium not denuded, warts minute, persistent.....	L. glabellum.
b Plant shaggy or echinate with spinose or pyramidal warts,	c
b Plant not shaggy, warts minute or papilla-like.....	e.
c Plant sessile, growing in cleared land.....	L. Wrightii.
c Plant subsessile, growing in wood or bushy places....	d.
d Denuded peridium pitted, spores pedicellate.....	L. pedicellatum.
d Denuded peridium smooth, spores not pedicellate.....	L. echinatum.
e Plant generally with a stem-like base.....	f.
e Plant without a stem-like base, sessile.....	g.
f Denuded peridium pitted and reticulate with dotted lines,	L. gemmatum.
f Denuded peridium not pitted.....	L. molle.
f Peridium scarcely denuded, warts minute, equal.....	L. pyriforme.
g Plant pinkish-brown, growing in woods.....	L. subincarnatum.
g Plant whitish, growing in cleared land.....	L. pusillum.
g Plant yellowish, growing in woods.....	L. coloratum.
g Plant whitish, ovate or conical.....	L. calyptriforme.

SECTION I. *Bovistoides*. *Peridium rupturing irregularly, the upper part falling away in fragments. Columella none.*

In the species of this section the peridium is apt to crack in areas, and at maturity it breaks up in irregular fragments and falls away. The capillitium and spores are also soon dispersed, so that there remains only the sterile base which is sometimes margined by the lacerated, but more permanent basal part of the peridium. In this case the remains are somewhat cup-shaped. The bark or warts are usually of a soft floccose character, but sometimes not conspicuously developed.

LYCOPERDON GIGANTEUM *Batsch*. GIANT PUFF-BALL.

Very large, 10–20 in diameter, obconic or depressed-globose, nearly or quite sessile, white or whitish, becoming discolored by age, smooth or slightly roughened by weak spinose or minute floccose warts, sometimes cracking in areas; capillitium and spores yellowish green to dingy-olive; spores smooth, .00016 in diameter. Edible.

Ground in fields, pastures and grassy places. Buffalo, *Clinton*. Oneida, *Warne*. North Galway, *Teft*. Rensselaerville, *Doolittle*. Catskill Mountains, *Paine*. Late summer and autumn.

This is the largest puff-ball known in this country, and is therefore very appropriately named the Giant puff-ball. The species, according to Fries, has also received other names, such as *L. maximum* Schæff, the largest puff-ball; *L. Bovista* L., the Bovista-like puff-ball; *L. vulgare* Vaill, the Common puff-ball, and *L. proteus* Sow, the Protean puff-ball. Its dimensions are usually within the limits given in the description, but sometimes it grows much larger. Its great size frequently brings it into notice, and makes it the subject of short newspaper articles. The following have recently fallen under the observation of the writer, and are introduced here because they indicate the size sometimes attained by this puff-ball: "In a low moist portion of the Gordon Park there grew this fall one of the largest puff-balls (*Lycoperdon giganteum*) ever seen. It measured a little over eight feet in circumference, and weighed forty-seven pounds. It looked at a distance like some large boulder. * * A specimen of the above dimensions would be a meal for a good large family. In fact, I think it sufficient to appease the appetites of some of the largest European fungus clubs."—*Country Gentleman*. "There was an enormous puff-ball in a bank near the house of the writer this summer. It was eighteen and a half inches in its greatest diameter, and four feet four inches in circumference. These puff-balls have come up in the same place for many years past, and always of a large size, but never before so large as the above."—*Grecillea*. "Among noteworthy specimens seen at the recent Edinburgh Fungus Show, was * * a puff-ball (*Lycoperdon giganteum*) fifty-four inches in circumference and weighing twenty pounds."—*Botanical Gazette*. Schweinitz affirms that he found in a certain meadow specimens of this puff-ball three feet in diameter. The largest New York specimen that I have seen is the one contributed by Mr. Warne. It measures fifteen inches in diameter in its dried state. It was considerably larger in its fresh state. The specimen from Rensselaerville is fourteen inches in diameter in the dried state. One writer advises that when one of these large puff-balls occurs at a convenient distance from the house, it should not be removed from its place of growth, but that a sufficient quantity be cut from it for a meal. The next day it may be visited again and enough more be taken for another meal. In this way it may supply a small family for a week; but if all were taken up and carried to the house at once, some of it

would spoil before it could be used. It is said that when the growing plant is cut or wounded, the wounds heal or fill up with new tissue. Cordier states that the old flesh of this puff-ball is sometimes used for amadou, and that the spores are mixed with milk by the Finns, to make a medicine for calves afflicted with diarrhoea. They are also used, he says, in making various shades of brown paint. The capillitium and spores of this and other species are also said to have been used in staunching blood, and their fumes as an anæsthetic. Fries says that there are two forms of this species, one obconic, and the other larger and globose. All the specimens that I have seen were depressed-globose, their vertical diameter being less than the horizontal. As one correspondent expresses it, they were very much like a large round loaf of bread in shape and in color. In all our specimens the sterile base is very small in proportion to the size of the plant, so that, in the growing state the plant must have appeared quite sessile. Probably the smaller obconic form has a more distinct base. According to Fries, the species is so variable in size, shape, color and the character of the surface, that from these alone it is difficult to distinguish it. There is, however, no New York species at present known to me with which it is likely to be confused, if the characters of the mature peridium, and the color of the capillitium and spores are observed.

LYCOPERDON CYATHIFORME Bosc. CUP-SHAPED PUFF-BALL.

Large, 3'-10' in diameter, nearly globose, generally furnished with a short more or less thick stem-like base, whitish cinereous or pinkish-brown, smooth or minutely floccose, sometimes with minute scattered spinules or floccose scales, generally cracking in areas, the upper part at length falling away in fragments and leaving a cup-shaped base with a lacerated margin; capillitium and spores purple-brown; spores rough .0002'-.00025' in diameter. Edible.

Ground in fields and pastures. Buffalo, *Clinton*. Oneida, *Warne*. Utica, *Johnson*. Fort Edward, *Howe*. Albany, Sandlake, Maryland and South Corinth. Autumn.

Bosc's figure and description of this species, for a transcript of which I am indebted to the kindness of Prof. Farlow, are not very satisfactory. They were evidently derived from the basal remains of the effete plant, a mode of describing fungi which is scarcely to be recommended. But in this case it happens that there is no other known American puff-ball than the one here described to which, in the effete condition, his description is applicable, so that there is very little doubt as to the species he intended to describe. A translation of his description is here given.

"Sessile, conical, concave at the top, the margin thin and lacerated.

"This species, which occurs in very dry and open places in South Carolina, appears to have some resemblance to *L. infundibulum* Willd. Its color is a grayish-violet, more distinct in the cavity. I have never seen it open naturally to disseminate its seeds. Insects which perforate it, the feet of quadrupeds which crush it, winds which blow it against trees supply this want."

The use of the word sessile in this description is very natural, if we should suppose as Bosc evidently did, that the sterile base was the only and normal condition of the plant. "Conical" would probably have been more accurate, if it had been written "obconical" or "inversely conical." This species, according to Dr. Berkeley, is apparently the same as *L. fragile* Vitt. It is also the *L. albopurpureum* of Frost's List of Fungi in the Catalogue of

Plants growing near Amherst College. It is the *Bovista cyathiformis* of the Twenty-second State Cabinet Report, and an immature condition of it was reported and figured in the Twenty-third State Cabinet Report under the name *L. giganteum*.

As an edible species, it is not inferior to the giant puff-ball. It is equal to it in flavor and occurs more frequently and in greater numbers. The smaller plants are about the size of a man's fist, the larger ones are as big as a man's head. The short thick stem often penetrates the earth so that the plant appears to be truly sessile. The color is generally brown more or less tinged with pink or lilac, but sometimes it is nearly white. Usually the upper part cracks into rather large distinct areas. Just at maturity there is a thin membrane or epidermis which may be separated from the peridium, which is then seen to have a beautiful but minutely velvety surface. It is at this time quite thick but very fragile. The cup-like base, which remains after the dispersion of the capillitium and spores, is suggestive of the specific name. It is more or less tinged with the purplish-brown hue of the capillitium and frequently persists till the following spring. Sometimes the persistent basal part of the peridium is expanded so that the cup is lost in a nearly plane surface. The color of the capillitium and spores readily separate it from the other species of this section.

LYCOPERDON SACCATUM *Fr.* LONG-STEMMED PUFF-BALL.

Medium size, 2'-4' high, 1'-2' broad; peridium depressed-globose or somewhat lentiform, supported by a long stem-like base, furfuraceous with minute persistent mealy or granular warts or spinules, often plicate beneath, white or creamy white, at maturity becoming brown or olive-brown, subshining and very thin or membranous, breaking up into irregular fragments which sometimes adhere to the capillitium for a considerable time, the stem-like base cylindrical or narrowed downward, sometimes thick; capillitium rather dense, subpersistent, and with the spores dingy-olive or dingy-brown, sometimes verging toward purplish-brown; spores rough, .00016'-0002' in diameter. Edible.

Low mossy grounds and bushy swamps, especially under alders. Sandlake, Center and Adirondack Mountains. August—October.

The Long-stemmed puff-ball is one of our finest species. Its symmetrical shape, pure color, soft and delicate appearance, all conspire to render it attractive. The peridium is sometimes nearly globose, but usually it is more or less depressed and hemispherical or lens-shaped. Its warts are soft and delicate, and so minute, that to the naked eye the plant appears to be mealy or almost pruinose. They are persistent, but in the mature plant they shrivel or dry up so that they are scarcely noticeable. In the mature plant the peridium shrinks to a thin delicate membrane, in which respect it differs from the peridium in the two preceding species. The under surface is sometimes marked by radiating alternate elevations and depressions, and in some instances the stem is also rendered uneven by shallow, undulate depressions. The stem sometimes persists long after the disappearance of the peridium and its contents.

Before maturity this species bears a strong resemblance to *L. molle* Pers., the Soft puff-ball, but when mature the two are easily separated by the different manner in which the peridium ruptures.

SECTION II. *Proteoides*. *Peridium opening by a small apical aperture, persistent. Columella generally present.*

In this section the species are more numerous than in the preceding, and the plants are generally more abundant, but they do not attain such large dimensions. The peridium persists for a long time, and as its aperture is very small, its capillitium and spores are not so soon dispersed. In some of the species there are larger deciduous warts or spines interspersed among smaller and more persistent ones; in others, all are nearly equal and persistent; in a few, all are deciduous.

* *Spores purple-tinted, intermingled with short fragmentary slender filaments.*

LYCOPERDON CONSTELLATUM Fr. RETICULATE PUFF-BALL.

Peridium subglobose or obovate, sometimes depressed, 10"—18" broad, echinate with rather long stout crowded brown spines which are either straight curved or stellately united and which at length fall off and leave the surface reticulate with brown lines; capillitium and spores brown or purplish-brown, columella present; spores rough, .0002'-.00025' in diameter.

Ground in dense shades and groves. Oneida. *Warne*. Rare. Autumn.

I am not aware that this species has been found in any other locality in the State. I have seen the dried specimens only, but Mr. *Warne* informs me that the fresh plants do not differ essentially in color from the dried ones. These are of a cervine or dull-brown color, closely resembling the hue of the dead and fallen leaves among which they appear to have grown. They are about an inch across, and very rough or shaggy, with crowded stout spines. When these have fallen, the surface is reticulated by a network of minutely warted brown lines, a character by which the species is readily distinguished.

LYCOPERDON ATROPURPUREUM Vitt. PURPLE-SPORED PUFF-BALL.

Peridium globose depressed-globose or obovate, 6'-30' broad, generally narrowed below into a short stem-like base, white cinerous or brownish, mealy-spinulose hairy-spinulose echinate or stellately echinate, when denuded smooth and subshining; capillitium and spores finally purplish-brown, columella present; spores rough, .0002'-.00025' in diameter.

Sandy pastures, woods and bushy places. Common. August—October. Albany, Sandlake, Gansevoort, Brewerton, Catskill Mountains and Helderberg Mountains.

This appears to be one of the most polymorphous species we have. It is so variable that I have been obliged to modify the usual description very much, in order to include forms which are quite diverse, yet which appear to me to run together in such a way that I am unable to draw any satisfactory line of distinction between them. The following is the usual description of the Manuals:

"Peridium flaccid, dingy-rufous, opening by a minute obtuse mouth; bark at first rough, with minute spines; sterile base cellular, continuous with the capillitium; spores largish, pedicellate, brown-purple, echinulate."

I do not find the spores in our plant truly pedicellate; but in all the forms which I have referred to this species, as well as in all the species of this sub-

section and in European specimens of this species, I find them intermingled with short, fragmentary, slender filaments, which look very much as if they were pedicels broken from the spores. I have not been able to find the spores attached terminally to them; but, in several instances, they appeared to be attached laterally. There also appears to be a minute point or apiculus on the spores, probably the point of attachment; but this is scarcely worthy of being called a pedicel.

There are three principal varieties which I have referred to this species. The first is usually one to two inches broad, sessile, or with a very short stem, nearly smooth, being mealy or pruinose, and having a few minute, weak, scattered spinules or scales. Its color is generally whitish, or white slightly clouded with brown. It grows in sandy pastures and cleared lands, and is probably the nearest of the three in its resemblance to the type.

The second is turbinate or subglobose, and narrowed below into a distinct, though short, stem-like base. It varies in diameter from half an inch to an inch and a half, and is thickly beset with slender bristle-like spinules which are often blackish, and give the plant a decidedly hairy aspect. The largest specimens have the spinules a little stouter, and sometimes stellately united. Such specimens connect this with the next variety.

The third variety varies from one to two and a half inches in diameter, and is generally furnished with a short stem-like base. Its spines are quite coarse, and often crowded and stellately united. They give it a decidedly rough or echinate appearance, so that at first sight it would be thought a distinct species; but the spines are easily deciduous, and individuals occur in which they are more scattered, and which have a mealy or pruinose surface, by which characters this variety appears plainly to run into the first. I regard the second and third as worthy of a name, and designate and define them as follows:

Var. *hirtellum*. Peridium hairy-spinulose with erect or curved sometimes stellately united spinules, which are often of a blackish color.

Ground and decaying vegetable matter in woods.

Var. *stellare*. Peridium echinate or stellately echinate with rather stout easily deciduous spines.

Ground in woods and bushy places.

In this species the capillitium and spores are at first greenish-yellow, olive-tinted or brownish; but when fully mature they are purple-tinted. Some care will, therefore, be necessary, lest the last variety be confused with the Echinate puff-ball, *L. echinatum*. This variety was mentioned in the Twenty-second State Cabinet Report, under the name *L. calvescens* B. & C. The specimens were thus referred by one of the authors of that species; but when the description of the species was published, the reference was found to be erroneous. The larger, purple-tinted, rough spores forbid such a reference.

LYCOPERDON GLABELLUM *Ph.* SMOOTH PUFF-BALL.

Plant subglobose or subturbinate, 8–18' broad, sometimes narrowed below into a stem-like base, yellow or brownish-yellow, furfuraceous with minute nearly uniform persistent warts; capillitium and spores purplish-brown columella present; spores rough, .0002'–.00025' in diameter.

Ground in pine woods and bushy places. North Greenbush, Albany and Center. Autumn.

The Smooth puff-ball is not inferior in beauty to any of our species. Its pretty yellow color and soft, smooth appearance readily attract attention. It

is generally about one inch in diameter, and obovate, pyriform or subturbinate in shape. To the naked eye it appears to be smooth, or only mealy, or minutely papillose; but under a lense it is seen to be covered with minute, granular, or branny warts. These, in all the specimens that I have seen, are persistent. The character of the warts and the different color of the peridium enable this species to be easily distinguished from the preceding one, to the smaller and smoother forms of which it otherwise approaches.

* * *Spores olive-tinted or brown.*

a. Plant shaggy or echinate.

LYCOPERDON WRIGHTII B. & C. WRIGHT'S PUFF-BALL.

Peridium globose depressed-globose or lentiform, 6'–24" in diameter, generally sessile, white or whitish, echinate with deciduous sometimes crowded stellate spines or pyramidal warts, when denuded smooth or minutely velvety; capillitium and spores dingy-olive, columella present; spores smooth, .00016' in diameter. Edible.

Ground in pastures and grassy places. Very common. July—October.

This is another very variable species. The typical form was a small one, minutely echinate and having the denuded peridium smooth. The plant often occurs much larger and more coarsely echinate with stout angular spines or pyramidal warts which fall off and generally leave the surface of the peridium velvety. This larger form was published in the Twenty-sixth Report of the N. Y. State Museum under the name *Lycoperdon separans*, but it is impossible to keep the two forms distinct. The larger ones sometimes have the denuded peridium smooth and there are other forms intermediate in the size and roughness of the peridium. I have therefore modified the specific description so as to include both forms.

Another puff-ball occurs which is probably a variety of this species but of which I have seen only immature specimens. It is of a purer white color and has the warts or spines tipped with black. For the present I have placed it with this species as a variety. It is probable that *L. calvescens* B. & C., is merely another form of this species differing simply in having a stem-like base. The following are the characters of the varieties noticed:

Var. *typicum*. Small, 6'–9' broad, globose, minutely echinate, the warts quickly falling off and leaving the peridium smooth. (*L. Wrightii* B. & C.)

Var. *separans*. Larger, 10'–24' broad, subglobose or lentiform, echinate with coarse substellate spines or pyramidal warts which at length fall off and leave the peridium smooth or velvety. (*L. separans* Pk.)

Var. *atropunctum*. Larger, 10'–15' broad, subglobose, pure white, warts or coarse spines brown or blackish at the tips.

This species is generally gregarious, but sometimes it forms tufts of several individuals closely crowded together. It sometimes occurs in cultivated grounds and stubble fields. The under surface is occasionally plicate as in the Long-stemmed puff-ball. In the variety *separans* the warts or spines are crowded at their thickened bases and slightly attached to each other so that they come off at maturity in flakes or patches. When the denuded surface of the peridium is velvety it is usually of a darker color than when smooth, being subcinnamon, reddish-brown or dark-brown.

LYCOPERDON PEDICELLATUM *Pk.* PEDICEL-SPORED PUFF-BALL.

Peridium 10'–18'' in diameter, globose or depressed-globose, sessile or narrowed below into a stem-like base, whitish or cinereous, becoming dingy or smoky-brown with age, echinate with rather dense spines which are either straight curved or stellately united and which at length fall off and leave impressions or obscure reticulations on the surface; capillitium and spores greenish-yellow, then dingy-olive, columella present; spores smooth, pedicellate, .00016'–.00018' in diameter, the pedicel three to five times as long.

Ground and decaying wood in woods and bushy places. Croghan, Center, Brewerton and Catskill Mountains. Autumn. Oneida, *Warne*.

The pedicellate spores constitute the peculiar feature of this species. It is one which suggests the name and which enables the species to be easily distinguished from all its allies. The spore is terminally and persistently attached to the pedicel, as in some species of *Bovista*. The plant is sometimes sessile, but usually it is narrowed below into a stem-like base. In the immature state it has a rough, shaggy appearance, but the spines shrivel with age so that it appears less rough when old. The pitted surface of the denuded peridium affords a mark of distinction from the next species. *L. pulcherrimum* B. & C. is evidently the same species, but the name here adopted has priority of publication.

LYCOPERDON ECHINATUM *Pers.* ECHINATE PUFF-BALL.

Peridium 10'–18' broad, subglobose, generally narrowed below into a short stem-like base, whitish brownish or pinkish-brown, echinate above with rather stout spines, which at length fall off and leave the surface smooth; towards the base spinulose or furfuraceous; capillitium and spores dingy-olive; spores minutely rough, .00016' in diameter.

Ground and decaying wood in woods. Albany, Forestburgh and Adirondack Mountains. August–October.

Fries, in the *Systema Mycologicum*, refers this species to *L. gemmatum* as a variety; but it seems to me to be worthy of specific distinction, both on account of the different character of its warts, its much more echinate appearance, and its smooth, denuded peridium. He also gives as synonyms *L. candidum* *Pers.*, and *L. muricatum* *Willd.*

The whole plant is generally obovate, pyriform or turbinate, and the spines are larger and more or less curved at and near the apex, diminishing in size toward the base where they are more persistent. In the immature condition it is difficult to distinguish it from the preceding species; but when mature its smooth peridium and spores destitute of pedicels separate it. It grows chiefly in woods among fallen leaves, and on decaying vegetable matter.

*b. Plant not shaggy.*LYCOPERDON GEMMATUM *Batsch.* STUDED PUFF-BALL.

Peridium 10'–18' in diameter, globose or depressed-globose, generally narrowed below into a stem-like base, scattered or cæspitose, subumbonate, whitish or cinereous, often tinged with yellow pinkish or brown, warts generally unequal, the larger mostly gemmate or papilla-like, pointed at the apex, scattered among smaller granular and more persistent ones, at length falling off and

leaving the surface areolate-dotted or reticulate with a network of fine dotted lines; capillitium and spores greenish-yellow, then dingy-olive or brown, cœiumella present; spores smooth or very minutely rough, .00016' in diameter. Edible, but not pleasant flavored.

Ground and decaying wood in woods and fields. Very common. July—October.

This is one of the most common and, at the same time, one of the most variable species. It is, therefore, more difficult to describe than to recognize after its peculiar appearance is familiar. The most available marks of distinction are the larger, erect, pointed warts or spinules, scattered among the minute ones, and giving the surface an appearance somewhat as if studded with gems, and, when these have fallen, the little smooth dots or impressions which they leave on the peridium. These are surrounded by the smaller and more persistent warts, which usually form fine reticulating dotted lines, and render the denuded peridium scabrous. In some instances, the warts on the upper part of the peridium are more crowded than usual, and nearly uniform in size; but when they fall they leave the usual smooth dots or impressions where they had stood. The denuded peridium is generally cinerous or grayish and opaque. The stem varies very much in thickness and length. In some instances, it is almost or entirely wanting; in others, it is elongated nearly as much as in the Long-stemmed puff-ball. It is cylindrical or narrowed downwards, and it may be nearly equal to the peridium in diameter, or very much thinner. As in the preceding species, the larger warts generally occur on the upper part of the peridium and near the apex. When these are close and nearly uniform in size, they give the plant a coarsely papillose appearance, and if, at the same time, the stem is wanting, the plant becomes the variety called *papillatum*, or *L. papillatum* Schœff. Such forms occur both with and without the stem, and cannot easily be kept distinct from the ordinary forms. In the variety *hirtum*, or *L. hirtum* Mart., the larger warts are reduced to slender bristle-like spinules, which are often blackish in color; but they have an expanded base, and when they fall off they leave the usual dot-like impressions and reticulations. This form is rare with us. *L. excipuliforme* Pers., which is regarded by Fries as a variety of this species, either does not occur with us or else I have confused it with the ordinary forms of the species. It is characterized by its elongated stem with a subpicate base, and its scattered subspinulose warts. Sometimes the larger warts are blackish, or tipped with black, and occasionally they manifest a tendency to group themselves in a stellate manner. When the plant is cœspitose, it sometimes forms tufts of considerable extent. Such tufts, fully two feet in diameter, and containing scores of plants crowded together so compactly that their usual rounded form was lost, have fallen under my observation.

The following are the characters of the two varieties mentioned as they are given in *Systema Mycologicum*:

Var. hirtum. Turbinate, sessile, hairy with soft slender warts which generally become blackish.

Var. papillatum. Subrotund, sessile, papillose, furfuraceous-pulverulent.

LYCOPERDON MOLLE Pers. SOFT PUFF-BALL.

Peridium 6''–16'' broad, globose or depressed-globose, narrowed below into a stem-like base, furfuraceous with nearly uniform persistent minute weak spinules or granular warts, sometimes with a few larger papilliform ones

toward the apex, whitish, sometimes tinged with yellow, when mature brownish or olive-brown, nearly smooth, subshining; capillitium and spores dingy-olive, columella present; spores minutely rough, .00016'-.00018 in diameter.

Among mosses, especially *Polytrichum*, in old meadows and pastures. Albany, Summit and South Corinth. Autumn.

This puff-ball closely resembles the ordinary forms of the preceding species in the size, shape and color of the immature plant, and by Fries was referred to it as a variety. There may be connecting forms, but if so, I have not observed them, and for the present prefer to keep the two distinct. In this plant, the warts or spinules are very small and weak, so that it has a smoothish, soft and delicate appearance, much like that of *L. sarcatum*. They are mostly persistent, but wither or shrivel with age, so that the mature peridium appears to the naked eye to be nearly smooth and somewhat glossy or shining. In this respect it differs essentially from the Studded puff-ball. I have never seen it with the dotted and reticulate surface of that species. From the Long-stemmed puff-ball it is with difficulty separated in its immature state, but when mature, the different manner in which the peridium of the two species ruptures will at once distinguish them. From its habit of growing among mosses, the stem is often elongated, and is sometimes very slender in proportion to the size of the peridium. In wet weather the peridium of this and the preceding species manifests a tendency to crack in areas.

LYCOPERDON PYRIFORME *Schæff.* PEAR-SHAPED PUFF-BALL.

Plant 6"-15" broad, 10'-20' high, generally cæspitose, obovate, pyriform or turbinate, sessile or with a short stem-like base, radicating with white branching and creeping root-like fibres, subumbonate, covered with very minute subpersistent nearly uniform warts or scales, often with a few slender scattered deciduous spinules intermingled, pallid dingy-whitish or brownish; capillitium and spores greenish-yellow, then dingy-olivaceous, columella present; spores smooth, .00016' in diameter. Edible, but not well-flavored.

Decaying wood and ground both in woods and cleared lands Very common. July—October.

The Pear-shaped puff-ball sometimes approaches *L. gemmatum* in size and shape, but it is not easily mistaken for that species because of the different character of its warts. They are very numerous, small, nearly uniform in size, and appear to the naked eye like branny scales. They are often quite as distinct on the stem as on the peridium. They are quite persistent, but sometimes fall from the upper part of the peridium, leaving it smooth and whitish or cinerous. The peridium frequently cracks in areas, especially in wet weather. One form occurs with the peridium abruptly narrowed into a small, but distinctly scaly stem; another is of a very pale color and almost smooth, the warts being scarcely visible to the naked eye. In mountainous forests, patches of this puff-ball which are several feet in length frequently occur on old prostrate mossy trunks. Whole clusters of young plants may sometimes be obtained attached together by their creeping radicular fibres.

LYCOPERDON SUBINCARNATUM *Pk.* PINKISH PUFF-BALL.

Peridium 6'-12" broad, globose, rarely either depressed or obovate, gregarious or cæspitose, sessile, with but little cellular tissue at the base, covered with minute nearly uniform pyramidal or subspinulose at length deciduous

warts, pinkish-brown, the denuded peridium whitish or cinereous, minutely reticulate-pitted; capillitium and spores greenish-yellow, then dingy-olivaceous, columella present; spores minutely roughened, .00016-.00018 in diameter.

Prostrate trunks, old stumps, etc., in woods. Common. August—October.

This is a very distinct species not likely to be confused with any other. Its peculiar color is quite constant, and this, with its minute, uniform warts, cæspitose habit, sessile character, and pitted, denuded peridium, easily distinguishes it from all allied species. It rarely exceeds an inch in diameter, and I have never found it growing on the ground, nor in cleared lands. It often has white, creeping, radicular fibres, similar to those of *L. pyriforme*, and it sometimes forms patches equal in extent to those of that species. The little pits or depressions in the denuded peridium are left by the deciduous warts. They are smaller and deeper than the similar impressions of *L. gemmatum*, and are not surrounded by dotted lines.

LYCOPERDON PUSILLUM Fr. LITTLE PUFF-BALL.

Peridium 3"-12" broad, globose, scattered or cæspitose, sessile, radicating, with but little cellular tissue at the base, white or whitish, brownish when old, rimose-squamulose or slightly roughened with minute floccose or furfuraceous persistent warts; capillitium and spores greenish-yellow, then dingy-olivaceous; spores smooth, .00016' in diameter.

Ground in grassy places and pastures. Common. June—October.

This puff-ball is generally about a half an inch in diameter; but specimens sometimes occur that are scarcely larger than a pea, and others that are fully an inch across. It grows in open ground, either on naked soil or among short grass, and is sometimes crowded together in tufts. Its surface is often cracked in areas which are sometimes quite minute, giving the surface a scaly appearance. Rarely the warts are in the form of minute, branny spinules or stellate hairs. They are generally persistent, but in the mature plant they are so shriveled that they are scarcely noticeable. It occurs throughout the season, sometimes appearing as early as June. Its smoother surface will readily distinguish it from small forms of *L. Wrightii* and *L. gemmatum*, var. *papillatum*.

LYCOPERDON COLORATUM Pk. COLORED PUFF-BALL.

Peridium 5"-10" broad, globose or obovate, subsessile, radicating, yellow or reddish-yellow, brownish when old, slightly roughened with minute granular or furfuraceous persistent warts; capillitium and spores at first pale, inclining to sulphur-color, then dingy-olive; spores subglobose, smooth, about .00016' in diameter.

Ground in thin woods and bushy places. Sandlake and Catskill Mountains. July and August.

This delicate little puff-ball is quite rare. It is generally about a half an inch broad and nearly globose, though sometimes it is narrowed toward the base, where it is usually furnished with a few delicate, white, radicular fibres. The color of the immature plant is yellowish and quite conspicuous; but when old it so closely resembles the dead, brown color of the fallen leaves among which the plant grows, that it is difficult to detect it. But few individuals

are found in one place. The warts are very minute, and easily overlooked. They have a granular or almost mealy appearance, and, when old, usually become blackish. At first the capillitium and spores appear to have a sulphur-yellow color; but when fully mature, if the capillitium is cleared of the spores, it is seen to be much darker. There appears to be a slight depression in one side of the spore, so that, when viewed in a particular direction, it appears flattened or depressed on one side, although viewed in a different direction it may appear globose.

LYCOPERDON CALYPTRIFORME *Berk.* CONICAL PUFF-BALL.

Peridium about 6' high, 3' -4'' broad, ovate or subconical, sessile, whitish, furfuraceous with minute warts or sipinules; capillitium and spores olivaceous or yellowish-olivaceous; spores smooth, .00016' in diameter.

Moss-covered rocks. Very rare. Adirondaek Mountains. August.

I have met with this very small and rare species but once, and then but two specimens were found. In these the apex was compressed or laterally flattened, instead of papilliform, as required by the original description of the species; but in all other respects they agree well with the specific characters. The plant is very distinct from all our other species by its small size and ovate or conical shape.

In closing this report, grateful acknowledgments are rendered to those botanists whose names already appear in the preceding pages, for their kind coöperation in the investigation of our flora, and for their generous contributions of specimens.

When no name is added to the station or stations herein given, the plant has been found therein by the writer. Dates signify the time when the specimens were collected or the plants observed.

Respectfully submitted,

CHAS. H. PECK.

ALBANY, *January* 4, 1879.

[From the Tenth Report of the New York Commissioners of Fisheries.]

THE MOSSES OF CALEDONIA CREEK.

By CHARLES H. PECK.

The plants received from Caledonia creek (the fish-hatching station), are a water-cress, a chara, and four mosses. The latter grow in tufts or patches more or less dense, either in wet places or submerged in water. When growing in or under water, they afford a place of refuge or a habitation, and probably food, also, to various water insects and their larvæ, small mollusks and crustaceans. The mosses received had an abundance of these small animals among their branches. I have before observed inhabitants of similar character in tufts of moss in swamps and mountain rivulets, but never before have I seen them so various and so numerous. Whether this abundance is due chiefly to the character of the stream whence the specimens were taken, or to the character and plenteousness of the food it affords them, or to both combined, may be a question. But one thing is evident. There cannot long be an abundance of consumers without an abundance of food to be consumed. The abundance of animal life in Caledonia creek implies an abundance of food on which these organisms exist, and, if we wish to perpetuate or increase this abundance, we must preserve or increase the necessary supply of food.

There is, among the mosses of that locality, one of special interest, both because of its rare occurrence, and because of the noticeable coincidence between its abundant growth there, and the abundance of animal life that accompanies it. It is possible that this coincidence is purely accidental, and yet, on the other hand, it is not wholly improbable that there is some important connection between the two facts, which would render a brief account of the moss desirable.

It is known to botanists by the name *Hypnum noterophilum*, or Moisture-loving moss, under which name it was described by Messrs. Sullivant and Lesquereux.

Franklin and Lancaster counties, Pennsylvania, are its previously reported localities, given on the authority of Prof. T. C. Porter. In those localities it is said to grow in limestone springs. It was discovered in the Caledonia locality, several years ago, by Hon. G. W. Clinton, but up to the present time this remains its only known locality in our State. It is quite evident, therefore, that it is a moss of very rare occurrence in our State, although it occurs in abundance in this single locality. At Caledonia it grows (according to my information) in shallow, mostly quiet or slowly flowing water, attached to pebbles and rocks, and forms quite extensive patches of a dark-green or blackish-green color. The stems are generally two to four inches long, though smaller forms sometimes occur. They are irregularly branched, the branches being rather long, and ascending or nearly erect, so that the moss has a somewhat stiff or rigid aspect. The narrow, nearly erect leaves, also add to this peculiar appearance. They are furnished with a stout, thick midrib, which extends through the leaf and projects a little beyond its apex. In some of the specimens nothing remained of many of the lower leaves except this thick midrib. Whether the blade of these leaves had been eaten away by the crustaceans and insect larvæ that hide everywhere among the branches, or whether it had gradually

fallen away by decay. is uncertain. The principal features of the moss are represented in the accompanying illustration (Plate 3).

I have never seen the moss in fruit, and am of the opinion that it rarely, if ever, fruits in submerged situations. It is a noticeable fact, that it has occurred in limestone regions only, and in water in which more or less lime is held in solution. Any experiments in transplanting it in other waters would be more likely to be successful, if this fact be kept in view; still it is possible that it might thrive in other waters. One of the mosses associated with it, at Caledonia, frequently occurs in water free from lime. The pebbles and small stones could be easily removed by taking them up bodily with the attached moss and its occupants, and transporting them to the desired localities. If planted in large streams, care should be taken to place them in still, shallow water, for in streams of strong current and large volume, the smaller stones are rolled about by the force of the current, so that mosses seldom acquire or retain a foot-hold in such situations.

The three other mosses associated with the preceding one, are *Hypnum rus-ciforme*, the Ruscus-like moss, *Hypnum filicinum*, the fern-branched moss, and *Hypnum riparium*, the river-bank moss. The first one has occurred in our State, in rivulets in the Catskill and Shawangunk Mountains. The second has been found in many localities, but it prefers springy places and dripping rocks in limestone districts. The third occurs everywhere, in swamps, water-holes, and sluggish streams. The specimens of these were less in quantity than of the other, from which I infer that they are not in unusual abundance there, and probably their occurrence is of no special significance. †

STATE OF NEW YORK.

THIRTY-THIRD
ANNUAL REPORT

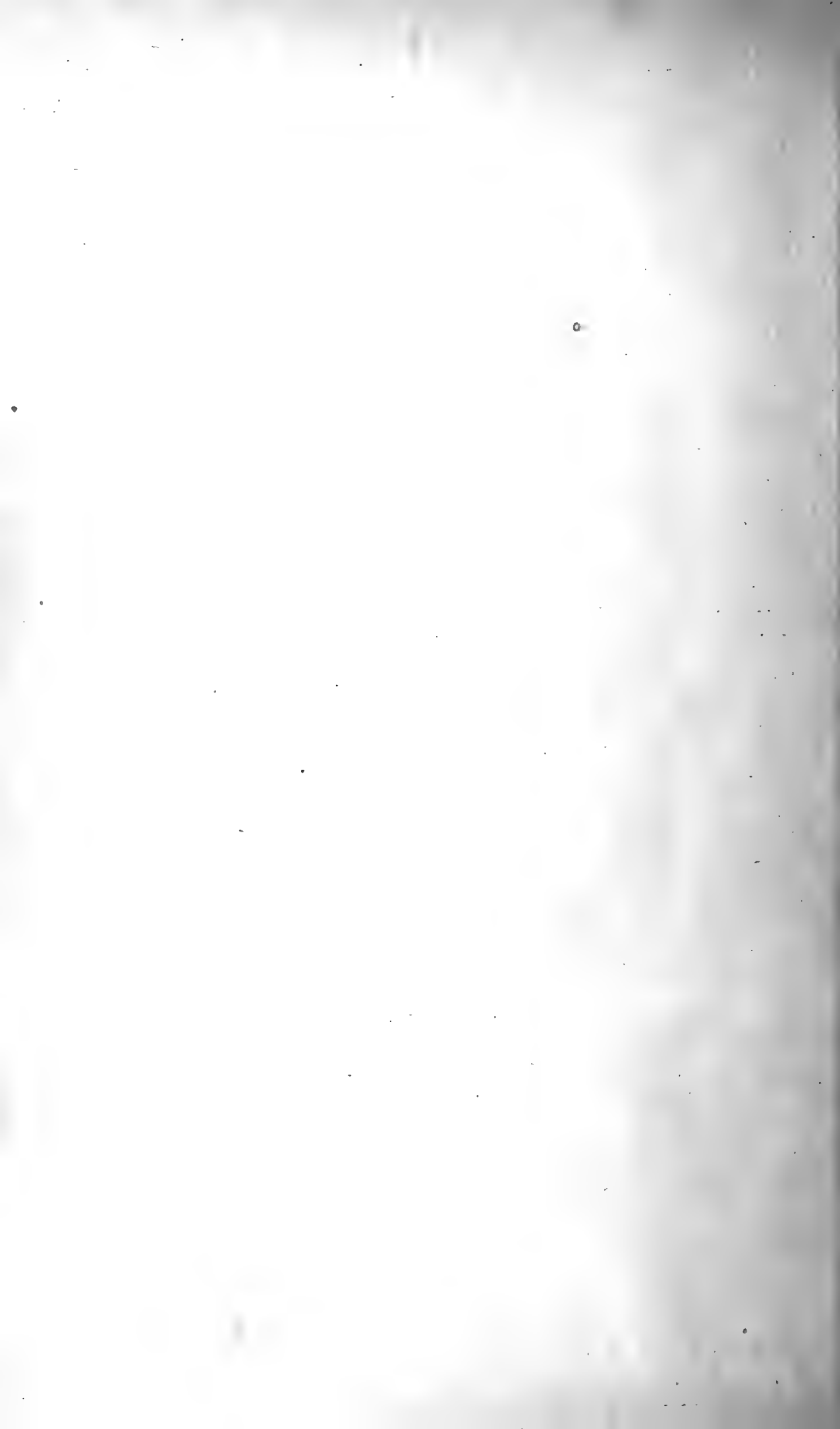
OF THE

STATE MUSEUM OF NATURAL HISTORY.

TRANSMITTED TO THE LEGISLATURE, FEBRUARY 7, 1880.

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1880.



REPORT OF THE BOTANIST.

33 Reg Rep for

S. B. WOOLWORTH, LL. D., *Secretary of the Board of Regents of the University:*

SIR— Since the date of my last report, specimens of one hundred and eighty-three species of plants have been mounted and placed in the herbarium of the State Museum of Natural History, none of which were before represented therein. A list of the specimens mounted is marked (1).

Specimens of plants have been collected in the counties of Albany, Dutchess, Oneida, Onondaga, Orange, Saratoga, Schenectady, Suffolk and Rensselaer. These represent one hundred and eighty-eight species, of which one hundred and fifty-one are new to the herbarium. Sixty-eight of these are believed to be new or hitherto undescribed species. A list of the specimens collected is marked (2).

Specimens of nineteen New York species, new to the herbarium and not represented by specimens collected by myself, have been contributed by correspondents. These, added to those collected, make the whole number of added species one hundred and seventy. There are, besides, a considerable number of extra-limital contributions. A list of the contributors and their contributions is marked (3).

Previously unreported species, including new species and their descriptions, are marked (4).

New stations of rare plants, remarks and observations are marked (5).

Among the Agarics, classified by botanists under the sub-generic name *Amanita*, are several species known to be deleterious when used as food. These are sometimes mistaken, by persons not possessing sufficient knowledge or ability to distinguish the species, for those that are harmless and truly edible, and serious accidents are the result. The published descriptions of the species are generally purely technical, and scarcely intelligible to any except botanists. It has, therefore, seemed desirable that a revision of the New York species of this group should be made, and the descriptions written in such a manner as to give special prominence to the principal distinctive characters, so that the species may be easily and readily recognized. The descriptions of all the species hitherto observed in our State have, therefore, been rewritten and supplemented by remarks upon their variations, their peculiar characteristics, and their distinguishing specific features. For the benefit of students of fungi, the synonyms have to some extent been given, and the spore characters of each species have been added. The qualities generally ascribed to the more common species are also noted. Of the others, they are not yet ascertained. The account of these Agarics is marked (6).

(1.)

PLANTS MOUNTED.

New to the Herbarium.

Glaucium luteum.....	Scop.	Russula olivascens.....	Fr.
Alliaria officinale.....	D. C.	R. flavida.....	Frost.
Hypericum adpressum.....	Bart.	Marasmius archyropus.....	Fr.
Aster memorialis.....	Ait.	Boletus punctipes.....	Pk.
Plantago Rugelii.....	Decaisne.	B. rubinellus.....	Pk.
Gentiana puberula.....	Mx.	B. sensibilis.....	Pk.
Potamogeton crispus.....	L.	B. Roxanæ.....	Frost.
Listera australis.....	Lindl.	Polyporus parvulus.....	Kl.
Chantransia violacea.....	Ktz.	P. simillimus.....	Pk.
Zygnema insigne.....	Hass.	P. circinatus.....	Fr.
Gloetrichia Pisum.....	Thuret	P. cuticularis.....	Bull.
Micromitrium Austinii.....	Sull.	P. chrysoloma.....	Fr.
Agaricus spretus.....	Pk.	P. molluscus.....	Fr.
A. impolitoides.....	Pk.	Trametes Trogii.....	Berk.
A. subhirtus.....	Pk.	Hydnum fuscoâtrum.....	Fr.
A. alboides.....	Pk.	H. cinnabarinum.....	Schw.
A. patuloides.....	Pk.	H. alutaceum.....	Fr.
A. dealbatus.....	Sow.	Grandinia membranacea.....	Pk.
A. odoratus.....	Bull.	Craterellus Cantharellus.....	Schw.
A. anisarius.....	Pk.	C. clavatus.....	Pers.
A. leptolomus.....	Pk.	Corticium polyporoideum.....	B. & C.
A. cremoraceus.....	Pk.	C. subrepandum.....	B. & Cke.
A. hygrophoroides.....	Pk.	Clavaria fastigiata.....	L.
A. lentinoides.....	Pk.	C. formosa.....	Pers.
A. atratoides.....	Pk.	C. corrugata.....	Karst.
A. luteopallens.....	Pk.	C. flaccida.....	Fr.
A. epichysium.....	Pers.	Pterula divaricata.....	Pk.
A. tomentosolus.....	Pk.	Tremella subcarnosa.....	Pk.
A. umbrosus.....	Pers.	Dacrymyces conglobatus.....	Pk.
A. dystheles.....	Pk.	Melanogaster variegatus.....	Tul.
A. muricatus.....	Fr.	Rhizopogon rubescens.....	Tul.
A. trechisporus.....	Berk.	Cynophallus caninus.....	Fr.
A. nodulosporus.....	Pk.	Phallus Ravenelii.....	B. & C.
A. eutheloides.....	Pk.	Clathrus cancellatus.....	L.
A. infelix.....	Pk.	Geaster Capensis.....	Thum.
A. sapineus.....	Fr.	Enerthenema papillata.....	Pers.
A. carbonarius.....	Fr.	Cribraria vulgaris.....	Schrad.
A. aquatilis.....	Fr.	Acrospermum album.....	Pk.
A. flavidus.....	Schaff.	Sphæropsis Peckiana.....	Thum.
A. Artemisæ.....	Pass.	S. pulchrispora.....	P. & C.
A. modestus.....	Pk.	S. typhina.....	Pk.
Cortinarius cærulescens.....	Fr.	S. cornina.....	Pk.
C. crystallinus.....	Fr.	Depazea Juglandina.....	Fr.
C. amarus.....	Pk.	Septoria Albaniensis.....	Thum.
C. opimus.....	Fr.	S. Canadensis.....	Pk.
C. bivelus.....	Fr.	Vermicularia compacta.....	C. & E.
C. furfurellus.....	Pk.	Torula ramosa.....	Pk.
C. armeniicus.....	Fr.	Septosporium velutinum.....	C. & E.
C. iodes.....	B. & C.	Puccinia Scirpi.....	Lk.
Hygrophorus lividoalbus.....	Fr.	Synchytrium Anemones.....	D. C.
Lactarius corrugis.....	Pk.	Protomyces conglomeratus.....	Pk.
Russula nigricans.....	Bull.	Isaria fulvipes.....	Pk.
R. delicata.....	Fr.	Tubercularia hirtissima.....	Pk.
R. compacta.....	Frost.	T. subdiaphana.....	Schw.

Periconia albiceps.....	<i>Pk.</i>	Peziza humosoides.....	<i>Pk.</i>
Helminthosporium obovatum,	<i>Berk.</i>	P. longipila.....	<i>Pk.</i>
Cladosporium compactum....	<i>B. & C.</i>	P. urticina.....	<i>Pk.</i>
Heterosporium Ornithogali...	<i>Kl.</i>	P. aurata.....	<i>Fekl.</i>
Fusicladium dendriticum.....	<i>Wallr.</i>	P. melaleuca.....	<i>Fr.</i>
Cercospora Rosæcola.....	<i>Fres.</i>	P. Typhæ.....	<i>Pk.</i>
C. Apii.....	<i>Fres.</i>	P. Sphærella.....	<i>P. & C.</i>
Peronospora Ficariæ.....	<i>Tul.</i>	P. enterochroma.....	<i>Pk.</i>
P. Corydalis.....	<i>De By.</i>	Helotium lutescens.....	<i>Fr.</i>
P. gangliiformis.....	<i>Berk.</i>	H. fratenum.....	<i>Pk.</i>
Verticillium lateritium.....	<i>Ehr.</i>	H. palustre.....	<i>Pk.</i>
Polyactis cinerea.....	<i>Berk.</i>	H. vibrisseoides.....	<i>Pk.</i>
Penicillium bicolor.....	<i>Fr.</i>	Patellaria pusilla.....	<i>Pk.</i>
Spendylocladium tenellum....	<i>Pk.</i>	Dermatea minuta.....	<i>Pk.</i>
Oidium destruens.....	<i>Pk.</i>	Bulgaria bicolor.....	<i>Pk.</i>
Ramularia effusa.....	<i>Pk.</i>	B. deligata.....	<i>Pk.</i>
R. variabilis.....	<i>Fekl.</i>	Exoascus Pruni.....	<i>Fekl.</i>
R. albomaculata.....	<i>Pk.</i>	Taphrina aurea.....	<i>Tul.</i>
R. angustata.....	<i>Pk.</i>	Hypomyces luteovirens.....	<i>Fr.</i>
R. Norvegicæ.....	<i>Pk.</i>	Dothidea reticulata.....	<i>Fr.</i>
R. Fragariæ.....	<i>Pk.</i>	Hypoxyton udum.....	<i>Fr.</i>
R. lineola.....	<i>Pk.</i>	Diatrype verrucoides.....	<i>Pk.</i>
R. Plantaginis.....	<i>Pk.</i>	Valsa pulviniceps.....	<i>Pk.</i>
Glomerularia Corni.....	<i>Pk.</i>	V. Sorbi.....	<i>Fr.</i>
Sporotrichum sulfureum.....	<i>Grev.</i>	Lophiostoma bicuspidata.....	<i>Cke.</i>
S. virescens.....	<i>Lk.</i>	Sphæria squamulata.....	<i>Schw.</i>
S. alutaceum.....	<i>Schw.</i>	S. subiculata.....	<i>Schw.</i>
S. larvatum.....	<i>Pk.</i>	S. intricata.....	<i>Pk.</i>
Acremonium flexuosum.....	<i>Pk.</i>	S. scopula.....	<i>C. & P.</i>
Sepedonium cervinum.....	<i>Dittm.</i>	S. albidostoma.....	<i>Pk.</i>
S. brunneum.....	<i>Pk.</i>	S. clavariina.....	<i>Pk.</i>
Morchella angusticeps.....	<i>Pk.</i>	S. subdenudata.....	<i>Pk.</i>
Gyromitra curtipes.....	<i>Fr.</i>	S. livida.....	<i>Fr.</i>
Geoglossum irregulare.....	<i>Pk.</i>	S. humilina.....	<i>Pk.</i>
Peziza euplecta.....	<i>Cke.</i>	S. infectoria.....	<i>Fekl.</i>
P. melastoma.....	<i>Sow.</i>	Sphærella Peckii.....	<i>Spegaz.</i>
P. apiculata.....	<i>Cke.</i>	S. septorioides.....	<i>Pk.</i>
P. tetraonalis.....	<i>Pk.</i>		

(2.)

PLANTS COLLECTED.

Not new to the Herbarium.

Thalictrum dioicum.....	<i>L.</i>	Gerardia tenuifolia.....	<i>Vahl.</i>
Actæa alba.....	<i>Bigel.</i>	Lycopus Europæus.....	<i>L.</i>
Viola Selkirkii.....	<i>Pursh.</i>	Monarda fistulosa.....	<i>L.</i>
Hypericum mutilum.....	<i>L.</i>	Lophanthus nepetoides.....	<i>Benth.</i>
Linum striatum.....	<i>Walt.</i>	Polygonum Hartwrightii.....	<i>Gr.</i>
Lespedeza reticulata.....	<i>Pers.</i>	Potamogeton natans.....	<i>L.</i>
Ribes hirtellum.....	<i>Mx.</i>	P. hybridus.....	<i>Mx.</i>
Proserpinaca palustris.....	<i>L.</i>	P. gramineus.....	<i>L.</i>
Dipsacus sylvestris.....	<i>Mill.</i>	Triglochin palustre.....	<i>L.</i>
Aster ericoides.....	<i>L.</i>	Cyperus dentatus.....	<i>Torr.</i>
A. dumosus.....	<i>L.</i>	Eleocharis olivacea.....	<i>Torr.</i>
A. Tradescanti.....	<i>L.</i>	Carex tentaculata.....	<i>L.</i>
Solidago altissima.....	<i>L.</i>	C. intumescens.....	<i>Muhl.</i>
S. gigantea.....	<i>Ait.</i>	C. polytrichoides.....	<i>Muhl.</i>
Polymnia Canadensis.....	<i>L.</i>	C. tenera.....	<i>Dew.</i>
Hieracium venosum.....	<i>L.</i>	Spartina alterniflora.....	<i>Loisel.</i>
		Eragrostis capillaris.....	<i>Nees.</i>
		Panicum proliferum.....	<i>Lam.</i>

Hordeum vulgare.....	L.	Sphæropsis abundans.....	Pk.
Equisetum arvense.....	L.	S. smilacina.....	Pk.
Woodsia obtusa.....	Torr.	Septoria pastinacina.....	Pk.
<i>New to the Herbarium.</i>			
Lechea racemulosa.....	Ma.	S. hedeomina.....	Pk.
L. tenuifolia.....	Ma.	S. Gei.....	Desm.
Rudbeckia triloba.....	L.	S. Ostryæ.....	Pk.
Mentha rotundifolia.....	L.	S. lythrina.....	Pk.
Salvia Sclarea.....	L.	S. increscens.....	Pk.
Potamogeton Robbinsii.....	Oakes.	S. Ludwigia.....	Cke.
Spiranthes simplex.....	Gr.	S. Mori.....	Lev.
Glyceria obtusa.....	Trin.	S. Urticæ.....	Desm.
Muhlenbergia sobolifera.....	Trin.	S. Cornicola.....	Desm.
Cladonia Boryi.....	Tuckerm.	S. atropurpurea.....	Pk.
Vaucheria velutina.....	Ag.	S. Aceris.....	B. & Br.
Agaricus solitarius.....	Bull.	Cytispora minuta.....	Thum.
A. strobiliformis.....	Vitt.	Glæosporium Trifolii.....	Pk.
A. rhagadiosus.....	Fr.	G. Laportæ.....	Pk.
A. Frostianus.....	Pk.	G. Hepaticæ.....	Pk.
A. candicans.....	Pers.	G. salicinum.....	Pk.
A. compressipes.....	Pk.	Coryneum pustulatum.....	Pk.
A. vilescens.....	Pk.	Asterosporium betulinum.....	Pk.
A. trullisatus.....	Ellis.	Melanconium cerasinum.....	Pk.
A. confluens.....	Pers.	Torula uniformis.....	Pk.
A. Iris.....	Berk.	Synphragmidium effusum.....	Pk.
A. bombycinus.....	Schaff.	Gymnosporium variabile.....	Pk.
A. scabrinellus.....	Pk.	Puccinia Ellisiana.....	Thum.
A. curvipes.....	Fr.	Protomyces fuscus.....	Pk.
Cortinarius multiformis.....	Fr.	Melampsora Hartigii.....	Thum.
C. tophaceus.....	Fr.	Røstelia Ellisii.....	Pk.
C. pulchrifolius.....	Pk.	Cronartium asclepiadeum.....	Fr.
C. rubrocinerus.....	Pk.	Stilbum pruinosipes.....	Pk.
C. uliginosus.....	Berk.	Periconia parasitica.....	Pk.
C. sericipes.....	Pk.	Tubercularia Celastri.....	Schw.
C. croceoconus.....	Fr.	Helminthosporium Pruni.....	B. & C.
C. basalis.....	Pk.	Macrosporium Meliloti.....	Pk.
Russula fragilis.....	Fr.	Alternaria Chartarum.....	Preuss.
Cantharellus brevipes.....	Pk.	Helicosporium cinereum.....	Pk.
Panus levis.....	B. & C.	Polyactis Streptothrix.....	C. & E.
P. dealbatus.....	Berk.	Pyricularia grisea.....	Sacc.
Boletus Frostii.....	Russell.	Peronospora obducens.....	Schræt.
Polyporus hispidioides.....	Pk.	Oidium irregulare.....	Pk.
P. benzoinus.....	Wallr.	Cercospora Nymphæacea.....	C. & E.
P. chioneus.....	Fr.	C. Smilacis.....	Thum.
P. floccosus.....	Fr.	C. elongata.....	Pk.
Stereum neglectum.....	Pk.	C. squalidula.....	Pk.
Cyphella caricina.....	Pk.	C. Caulophylli.....	Pk.
Hymenula hysteroioides.....	Pk.	C. griseëlla.....	Pk.
Clavaria pyxidata.....	Pers.	C. zebrina.....	Pass.
C. miniata.....	Berk.	C. althæina.....	Sacc.
Physarum mirabile.....	Pk.	C. Sanguinariæ.....	Pk.
Cribraria argillacea.....	Pers.	Ramularia Armoraciæ.....	Fckl.
Phoma Herbarum.....	West.	R. Dulcamaræ.....	Pk.
P. Phytolacæ.....	B. & C.	R. Mitellæ.....	Pk.
P. lineolatum.....	Desm.	R. Celastri.....	Pk.
P. longipes.....	B. & C.	Microstroma leucosporum.....	Niessl.
Leptothrium punctiforme.....	B. & C.	Fusisporium Solani.....	Mart.
L. dryinum.....	Sacc.	Helvella palustris.....	Pk.
Hendersonia abnormalis.....	Pk.	Peziza subvernalis.....	Pk.
Sphæropsis celastrina.....	Pk.	P. luteodisca.....	Pk.
S. seriatus.....	Pk.	P. multipuncta.....	Pk.
S. cerasina.....	Pk.	P. floriformis.....	Pk.
S. phomatella.....	Pk.	P. mycogena.....	Ellis.
		P. regalis.....	C. & E.
		P. sanguinea.....	Pers.

Helotium vitigenum.....	<i>De Not.</i>	Diatrype nigrospora.....	<i>Pk.</i>
H. pallescens.....	<i>Fr.</i>	Valsa Carpini.....	<i>Pers.</i>
H. affinisimum.....	<i>Pk.</i>	Valsa aurea.....	<i>Fekl.</i>
Patellaria Hamamelidis...	<i>Pk.</i>	V. paucispora.....	<i>Pk.</i>
Cenangium Viburni.....	<i>Schw.</i>	V. compta.....	<i>Tul.</i>
Caliciopsis pinea.....	<i>Pk.</i>	V. Prunicola.....	<i>Pk.</i>
Hysterium gramineum. . . .	<i>M. & N.</i>	V. tessera.....	<i>Fr.</i>
Taphrina alnitorqua.....	<i>Tul.</i>	V. Abietis.....	<i>Fr.</i>
Nectria dematiosa.....	<i>Schw.</i>	V. acrocystis.....	<i>Pk.</i>
Xylaria bulboso.....	<i>B. & Br.</i>	Cucurbitaria longitudinalis.	<i>Pk.</i>
Hypoxylon Blakei.....	<i>B. & C.</i>	Sphaerella recutita.....	<i>Fr.</i>
Eutypa subnecta.....	<i>Fr.</i>	S. depressa.....	<i>Pk.</i>
Diatrype quadrata.....	<i>Schw.</i>	S. conigena.....	<i>Pk.</i>
D. strumella.....	<i>Fr.</i>		

(3.)

CONTRIBUTORS AND THEIR CONTRIBUTIONS.

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

Epipactis helleborine v. viridans, *Irm.*

Mrs. M. J. Myers, Syracuse, N. Y.

Scolopendrium vulgare, *Sm.*

Mrs. H. S. Gifford, Syracuse, N. Y.

Botrychium Lunaria, *Sw.*

Miss L. G. Barnett, Cannonsburg, Pa.

Secotium Warnei..... *Pk.* | Geaster limbatus..... *Fr.*

Mrs. L. A. Millington, South Haven, Mich.

Ascomyces deformans, *Berk.*

Prof. D. C. Eaton, New Haven, Ct.

Asplenium Bradleyi, *Eaton.*

Prof. S. A. Forbes, Normal, Ill.

Septoria podophyllina..... *Pk.* | Septoria Lactucae..... *Pass.*
S. Trillii..... *Pk.* | Cellulospodium sphaerosporum, *Pk.*

C. Atwood, Moravia, N. Y.

Danthonia compressa, *Aust.*

S. H. Wright, M. D., Penn Yan, N. Y.

Enonymus Americanus v. obovatus, *T. & G.*

E. H. Crocker, Troy, N. Y.

Trifolium repens, *L.*

F. B. Hine, Silver Cliff, Col.

Bovista subterranea, *Pk.*

C. W. Irish, Iowa City, Iowa.

Mycenastrum spinulosum.... *Pk.* | Bovista subterranea..... *Pk.*

E. Michener, M. D., Toughkenamon, Pa.

Polyporus elongatus..... *Berk.* | Tuber excavatum..... *Vitt.*

Hon. T. M. Peters, Moulton, Ala.

Phallus rubicundus..... *Bosc.* | Hypoxylon Petersii..... *B. & C.*
Cenangium platascum..... *Pk.* | Collema callibotrys..... *Tuckm.*

E. W. Holway, Decorah, Iowa.

Æcidium Polemonii..... *Pk.* | Æcidium albescens *Grev.*

W. Barbeck, Philadelphia, Pa.

Enerthenema papillata *Pers.* | Chondrioderma floriforme.. *Bull.*

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

Uromyces Peckiana.....	<i>Far.</i>		Ascomyces flavus.....	<i>Far.</i>
U. Junci v. Spartinae,	<i>Far.</i>		A. deformans v. Po-	
Puccinia Epil. v. Proserpin-			tentillæ.....	<i>Far.</i>
aceæ.....	<i>Far.</i>			

E. S. Miller, Wading River, N. Y.

Ranunculus Ficaria.....	<i>L.</i>		Pogonia verticillata.....	<i>Nutt.</i>
Rumex maritimus.....	<i>L.</i>		Marsilia quadrifolia.....	<i>L.</i>
Alnus glutinosa.....	<i>Gert.</i>		Cystoclonium purpurascens,	<i>Ktz.</i>

W. R. Gerard, New York, N. Y.

Stereum scriblitum.....	<i>B. & Cke.</i>		Tuber dryophilum.....	<i>Tul.</i>
Simblum rubescens.....	<i>Ger.</i>		Sphærella spleniata.....	<i>C. & P.</i>

E. A. Rau, Bethlehem, Pa.

Gymnosporangium specio-			Trichobasis Oxytropi.....	<i>Pk.</i>
sum.....	<i>Pk.</i>		Æcidium monoicum.....	<i>Pk.</i>
Puccinia atropuncta.....	<i>P. & C.</i>		Æ. Jamesianum.....	<i>Pk.</i>
Lecythea macrosora.....	<i>Pk.</i>			

Prof. J. Macoun, Belleville, Ont.

Paxillus hirsutus..... *Pk.* | Polyporus Macouni..... *Pk.*

C. C. Frost, Brattleborough, Vt.

Lycoperdon Frostii, *Pk.*

A. P. Morgan, Dayton, Ohio.

Polyporus frondosus.....	<i>Fr.</i>		Polyporus graveolens.....	<i>Schw.</i>
P. Morgani.....	<i>Frost.</i>		Stemonitis Morgani.....	<i>Pk.</i>

J. J. Brown, M. D., Sheboygan, Wis.

Agaricus amabilipes.....	<i>Pk.</i>		Lycoperdon cælatum.....	<i>Bull.</i>
Mycenastrum spinulosum..	<i>Pk.</i>		L. cyathiforme ...	<i>Bosc.</i>

M. E. Jones, Grinnell, Iowa.

Sorosporium atrum.....	<i>Pk.</i>		Tricholasis gaurina.....	<i>Pk.</i>
S. Astragali.....	<i>Pk.</i>		Æcidium gaurinum.....	<i>Pk.</i>
Puccinia aberrans.....	<i>Pk.</i>		Æ. Giliaë.....	<i>Pk.</i>
P. intermixta.....	<i>Pk.</i>		Æ. intermixtum.....	<i>Pk.</i>
P. Physalidis.....	<i>Pk.</i>		Sphærella megastoma.....	<i>Pk.</i>
Uromyces hyalinus.....	<i>Pk.</i>			

Prof. D. S. Martin, New York, N. Y.

Ræstelia lacerata, *Tul.*

N. L. Britton, New Dorp, N. Y.

Desmodium viridiflorum....	<i>Beck.</i>		Quercus Phellos.....	<i>L.</i>
Ribes Grossularia.....	<i>L.</i>		Spiranthes simplex.....	<i>Gr.</i>
Disidia teres.....	<i>Walt.</i>		Juncus maritimus.....	<i>Lam.</i>
Artemisa cadauta.....	<i>Mx.</i>		Cyperus cylindricus.....	<i>Britton.</i>
Veronica Buxbaumii.....	<i>Ten.</i>		Scirpus sylvaticus.....	<i>L.</i>
Mentha rotundifolia.....	<i>L.</i>		Carex extensa.....	<i>Good.</i>
Heliotropium Europæum...	<i>L.</i>		Muhlenbergia capillaris...	<i>Kunth.</i>

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

Agaricus bombycinus	Schæff.	Melogramma gyrosum	Schw.
Clavaria pyxidata	Pers.	Cystopus cubicus	Lev.
Pestalozzia Guepini	Desm.	Peziza sanguinea	Pers.
Puccinia Ellisiana	Thum.	Cenangium Viburni	Schw.
P. atropuncta	P. & C.	Rhytisma sparsum	P. & C.
Stilbum erythrocephalum . . .	Dittm.	Diatrype quadrata	Schw.

Arthur Hollick, Port Richmond, N. Y.

Ranunculus Ficaria	L.	Eclipta procumbens	Mx.
Portulaca grandiflora	Hook.	Tecoma radicans	Juss.
Fragaria Indica	Ait.	Morus alba	L.
Ribes Grossularia	L.	Tripsacus dactyloides	L.
Diodia teres	Walt.		

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

Stereum zonatum	Ell.	Ombrophila aurea	Ell.
Pestalozzia monochaeta	Desm.	O. subaurea	Cke.
Cladosporium fasciculatum . .	C. & E.	O. violacea	Fr.
Macrosporium atrichum	C. & E.	Stictis pinophila	Ell.
M. inquinans	C. & E.	S. linearis	C. & E.
Trichothecium griseum	Cke.	Dothidea petiginosa	Ell.
Colletotrichum caudatum	Pk.	Diatrype rhuina	C. & E.
Fusisporium cyathicolum	Ell.	Eutypa subsecta	Fr.
Peziza acerina	C. & E.	Valsa delicatula	C. & E.
P. mauribarba	Ell.	V. myinda	C. & E.
P. tenella	C. & E.	V. chlorodisca	C. & E.
P. lethalis	Ell.	Sphaeria anguillida	C. & E.
Patellaria clavata	Ell.	S. subexserta	C. & E.
Phacidium sphæroideum	C. & E.	Venturia ciliata	Ell.

(4.)

PLANTS NOT BEFORE REPORTED.

Ranunculus ficaria, *L.* Flushing, Long Island, *J. Schrenk.* Contributed by *E. S. Miller.* Staten Island, *Arthur Hollick.* Introduced.

Lechea racemulosa, *Mx.* Highland Mills, Orange County. July.

Lechea tenuifolia, *Mx.* Wading River, Long Island. Sept.

Portulaca grandiflora, *Hook.* New Brighton, Staten Island. *Hollick.* July. Escaped from cultivation.

Lespedeza reticulata, *Pers.* Long Island. This and its variety, *angustifolia,* were formerly regarded as varieties of *L. violacea,* and were reported as such, but they are now regarded as a distinct species.

Fragaria Indica, *Ait.* West Brighton, Staten Island. *Hollick.* June-Sept.

Ribes Grossularia, *L.* Princes Bay and New Dorp, Staten Island. *N. L. Britton* and *A. Hollick.* May. Escaped from cultivation.

Diodia teres, *Walt.* Rossville and Tottenville, Staten Island. *Britton* and *Hollick.* Aug.

Eclipta procumbens, *Mx.* Streets of New Brighton. *Hollick.* July.

Rudbeckia triloba, *L.* Fishkill, Dutchess county. Sept.

Tecoma radicans, *Juss.* Princes Bay. *Hollick.* June.

Veronica Buxbaumii, *Ten.* New Dorp. *Britton.* June. Introduced.

Mentha rotundifolia, *L.* Richmond, Staten Island. *Britton*. Jamesville, Onondaga county. Aug. and Sept. Introduced.

Salvia sclarea, *L.* Jamesville. Aug. Introduced.

Heliotropium Europæum, *L.* New York city, along Eighth avenue and Harlem railroad. *Britton*. Oct. Introduced.

Rumex maritimus, *L.* Montauk Point. *Miller*.

Alnus glutinosa, *Gært.* College Point, Long Island. *Schrenk*. Contributed by *E. S. Miller*. Introduced.

Epipactis helleborine var. *viridans*, *Irm.* Woods, near Syracuse. *Mrs. S. M. Rust*. July. This is a very interesting and important addition to our flora. It is at present the only known representative of the genus in the eastern part of the country as *E. gigantea* is in the western part. It is remarkable that it should be limited to a single locality, but that locality had already been rendered famous by its possession of two ferns, *Botrychium Lunaria* and *Scolopendrium vulgare*, that, so far as our State is concerned, scarcely pass beyond its limits. *Mrs. M. P. Church*, a member of the Syracuse Botanical Club, has the credit of making this discovery, which has been favorably noticed by Prof. Gray and Prof. Hooker, and has already been published in the botanical journals.

Spiranthes simplex, *Gray*. Wading river, where it had previously been detected by *Mr. Miller*. Also Tottenville. *Britton*. Aug. and Sept. It is not probable that this species occurs much to the north of New York city.

Glyceria obtusa, *Trin.* Riverhead, Long Island. Sept.

Tripsacum dactyloides, *L.* Long Bridge, Staten Island. *Hollick*. Aug.

Asplenium Bradleyi, *Eaton*. Near Newburgh. *D. C. Eaton*. Sept. This fern was discovered and the specimens collected, in the locality mentioned, by *Prof. Eaton*, in the year 1864. In September last I visited the locality and searched carefully for the plant, but without success. The top of the rocky hill on which the fern had occurred had recently been cleared and it is possible that its station has already been destroyed.

Cladonia Boreri, *Tuckerm.* (*Cladonia lacunoso* Delise.) Wading River. Sept.

Vaucheria velutina, *Ag.* Wet springy places. Albany. June. The specimens are not fertile and are, therefore, to some extent, doubtful.

Agaricus solitarius, *Bull.* Thin woods and open places, Wading River. Sept. A form with the bulb and lower part of the stem merely floccose-squamulose, or clothed with white mealy particles.

Agaricus strobiliformis, *Vitt.* Open bushy places, Catskill mountains. Oct.

Agaricus Frostianus, *Pk.* Woods and bushy places, Sandlake and Adirondack mountains.

Agaricus rhagadiosus, *Fr.* Woods. Wading River. Sept.

Agaricus candicans, *Pers.* Among fallen leaves in woods. Center. Oct.

Agaricus (*Clitocybe*) *compressipes*, *n. sp.* Pileus thin, convex or expanded, umbilicate, glabrous, hygrophanous, brownish when moist, whitish or pale-alutaceous when dry, margin thin; lamellæ close,

subarcuate or horizontal, adnate or subdecurrent, whitish; stem firm, hollow, generally compressed, slightly pruinose; spores elliptical, .0002 in. to .00025 in. long, .00016 in. to .00018 in. broad; flesh white when dry, odor slight, farinaceous. Plant gregarious, 1 in. to 1.5 in. high, pileus 6 lines to 16 lines broad, stem 1 line to 2 lines thick. Grassy places. Albany. July. The moist pileus is sometimes obscurely zonate. The odor is not always perceptible unless the pileus is moist or broken. The stem is sometimes compressed at the top only, sometimes at the base only, and rarely it is wholly terete. The species belongs to the section Orbiformes.

Agaricus (Clitocybe) vilescens, n. sp. Pileus convex, then plane or depressed, often irregular, glabrous, slightly pruinose on the involute margin, brown or grayish-brown, becoming paler with age, often concentrically rivulose; lamellæ close, adnate or decurrent, cinereous, sometimes tinged with dingy yellow; stem short, solid, sometimes compressed, grayish-brown, with a whitish tomentum at the base; spores subglobose or broadly elliptical, .0002 in. to .00025 in. long; flesh whitish-gray, odor slight. Plant gregarious, 1 in. to 2 in. high, pileus 1 in. to 1.5 in. broad, stem 1 line to 2 lines thick. Grassy pastures. Jamesville. Aug.

Agaricus trullisatus, Ellis. Sandy soil. Long Island. Sept. This resembles the larger forms of *A. laccatus*, but it has a stouter habit, the pileus is more squamulose, the stem is bulbous or thickened at the base, the mycelium is violet-colored and the spores are oblong.

Agaricus confluens, Pers. Woods. Verona and Jamesville. Aug.

Agaricus iris, Berk. Decaying trunks of trees. Jamesville. Aug. Our specimens have the edge of the lamellæ minutely floccose and the base of the stem covered with a blue mycelium. The species seems too near *A. marginellus*.

Agaricus bombycinus, Schæff. Trunks of maple trees. Buffalo. Clinton. Kasoag and Catskill mountains. July and Aug.

Agaricus (Entoloma) scabrinellus, n. sp. Pileus thin, convex or nearly plane, papillate, minutely scabrous, dark-brown, the thin margin extending slightly beyond the lamellæ; lamellæ broad, ventricose, rounded behind and slightly attached, floccose on the edge, dingy-white, then flesh-colored; stem equal, fibrillose, slightly pruinose at the apex, paler than the pileus; spores irregular, uninucleate, .0003 in. to .0004 in. long, .0002 in. to .0003 in. broad. Plant about 1 in. high, pileus 6 lines to 10 lines broad, stem 1 line thick. Shaded, gravelly soil by roadsides. Wading River. Sept. The plants are very regular in shape, the pileus usually has a small, papilla-like umbo and is somewhat shining. Its roughness is scarcely visible to the naked eye.

Agaricus curvipes, Fr. Dead trunks of young trees. Verona. Aug. Our specimens have the lamellæ floccose-crenate on the edge.

Cortinarius multiformis, Fr. Woods. Jamesville. Aug. The specimens were collected in dry weather and the pileus was not perceptibly viscid except in very young plants. The bulbous base of the stem is not always distinctly marginate.

Cortinarius tophaceus, Fr. Woods. Jamesville. Aug. The spores in this species are subglobose, rough, uninucleate, .00025 in. to .0003 in. long, .00025 in. broad.

Cortinarius (Inoloma) pulchrifolius, n. sp. Pileus convex or expanded, obtuse, silky-fibrillose, whitish or reddish-gray, the margin often whitened by the veil; lamellæ broad, subdistant, emarginate, bright purple or violet-purple; stem cylindrical, solid, bulbous, silky-fibrillose, white, often tinged with violet, violaceous within; spores subelliptical, rough, .0004 in. to .0005 in. long, about .0003 in. broad. Plant 2 in. to 4 in. high, pileus 2 in. to 4 in. broad, stem 3 lines to 5 lines thick. Oak woods. Wading River. Sept. This species is easily known by its pale pileus and bright-colored lamellæ. From the hue of these the plant might, at first sight, be taken for *Agaricus ochropurpureus*, but when mature the lamellæ assume the characteristic cinnamon color of species of *Cortinarius*, though it is somewhat darker than usual.

Cortinarius (Inoloma) rubrocinerus, n. sp. Pileus convex, then expanded, silky-fibrillose, reddish-cinereus; lamellæ subdistant, rounded behind, emarginate, dingy-violaceous, soon becoming pale-cinnamon; stem short, solid, bulbous, silky-fibrillose, whitish tinged with violet; spores subelliptical, .0004 in. to .0005 in. long, about .0003 in. broad; veil whitish-cinereus, flesh when young violaceous. Plant gregarious, about 2 in. high, pileus 2 in. to 3 in. broad, stem 4 lines to 6 lines thick. Sandy soil in open places. Riverhead. Sept. This species is closely related to the preceding, from which it is separated by its darker colored pileus and differently colored lamellæ.

Cortinarius uliginosus, Berk. In sphagnous bogs. Center. Sept. The fingers become stained in handling fresh specimens of this plant. Paper in which they are wrapped is also stained by them. The spores are elliptical-cymbiform, .0004 in. long, .00025 in. broad. The pileus is sometimes obtusely, sometimes acutely, umbonate, and sometimes without any umbo.

Cortinarius croceoconus, Fr. Woods. Gansevoort. Aug.

Cortinarius (Dermocybe) sericipes, n. sp. Pileus thin, conical or subcampanulate, sometimes expanded and umbonate, glabrous, chestnut-color, the umbo often darker; lamellæ broad, close, ascending or ventricose, narrowed behind, whitish, then tawny or tawny-cinnamon, white on the edge; stem equal, hollow, silky-fibrillose, shining, white, slightly mealy at the top; spores large, unequally elliptical, pointed at each end, granular within, .00065 in. long, .00045 in. broad. Plant gregarious or subcæspitose, 1 in. to 3 in. high, pileus 6 lines to 12 lines broad, stem 1 line to 2 lines thick. Damp ground in thin woods. Center. Oct.

Cortinarius (Dermocybe) basalis, n. sp. Pileus thin, convex or expanded, hairy, tawny; lamellæ loose, subventricose, pale tawny when young, cinnamon color when old; stem short, equal, hollow, fibrillose, pallid or pale-tawny, usually with a webby annulus near the base; spores subelliptical, .0003 in. long, .00018 in. broad; flesh pallid, odor none. Plant subcæspitose, about 1 in. high, pileus 5 lines to 10 lines broad, stem 1 line thick. Naked soil in wood. Wading River. Sept. The noticeable feature in this species is the slight annulus which is placed below the middle of the stem. The hairy pileus and the lamellæ are nearly alike in color.

Russula fragilis, Fr. Woods. Center. Oct.

Cantharellus brevipes, *n. sp.* (Plate 1, figs. 18–20.) Pileus fleshy, obconic, glabrous, alutaceous or dingy cream-color, the thin margin erect, often irregular and lobed, tinged with lilac in the young plant; folds numerous, nearly straight on the margin, abundantly anastomosing below, pale umber tinged with lilac; stem short, tomentose-pubescent, cinereus, solid, often tapering downward; spores yellowish, oblong-elliptical, uninucleate, .0004 in. to .0005 in. long, .0002 in. broad. Plant 3 in. to 4 in. high, pileus 2 in. to 3 in. broad, stem 4 lines to 6 lines thick. Woods. Ballston, Saratoga county. July. This interesting species is related to the *C. floccosus*, both by its short stem and its abundantly anastomosing folds. The two species should be separated from the others and constitute a distinct section. The flesh in *C. brevipes* is soft and whitish and the folds are generally thinner than in *C. floccosus*.

Panus lævis, *B. & C.* Oak stumps. Wading River. Sept. The margin of the pileus is sometimes marked by small, oblique elevations or ridges which unite inwardly and thus form, with the edge of the pileus, small triangular spaces. Sometimes the two elevated lines which form the sides of a triangle divide near the margin and thus form two very small additional triangles. The pure white color and regular, even pileus make this a very pretty species. The color, however, becomes slightly tinged with yellow in drying.

Panus dealbatus, *Berk.* Decaying wood of deciduous trees. Verona Aug.

Boletus Frostii, *Russell.* Thin woods. Wading River and Riverhead. Sept. The spores in our specimens are longer than required by the description, but in other respects the specimens agree with the published characters of the species.

Polyporus (Anodermei) hispidoides, *n. sp.* Pileus 4 in. to 8 in. broad, about half an inch thick, sessile, rarely narrowed behind or below into a short, stem-like base, soft, spongy, fleshy-fibrous, tomentose, not at all or very obscurely zonate, ferruginous-brown, becoming darker with age, yellow on the margin when young; pores small, irregular, subrotund, angular or flexuous, greenish-yellow, becoming brown when bruised or old, the thin dissepiments externally villous; spores subglobose or broadly elliptical, about .0002 in. long. Base of spruce or pine trees. Albany, Burnt hills and Adirondack mountains. July and Aug. This fungus is closely related to *P. hispidus*, and may yet prove to be a mere variety of it. That species is described as compact, and having minute rotund pores. It is also said to grow on the trunks of frondose trees, and to have a thick pileus, none of which characters are applicable to our plant. It occurs only, so far as I have seen, on trunks of spruce and pine, its pileus is rarely more than half an inch thick, its substance is soft, even when dry, and the pores are angular. The thin dissepiments become more or less lacerated when old, and often retain a yellowish color when dried. The pileus is very similar in color to *Lensites sepiaria*.

Polyporus benzoinus, *Wallr.* Decaying stumps and trunks of hemlock trees. Brewerton and Helderberg mountains. Sept. This closely resembles *P. resinus* which occurs on trunks of frondose trees.

Polyporus chioneus, *Fr.* Decaying wood of frondose trees. Verona. Aug.

Polyporus floccosus, *Fr.* Decaying wood. Verona. Aug.

Stereum neglectum, *n. sp.* Pileus effuso-reflexed, thin, coriaceous, often laterally confluent, strigose-hairy, concentrically sulcate, grayish or yellowish-gray; hymenium pallid, becoming purplish, minutely setulose, the setæ short, colorless, rough, stout, .002 in. to .003 in. long; spores subelliptical, .0005 in. long, .0003 in. broad. Dead trunks and branches of elm trees. Verona. Aug. This fungus has the general appearance of such species as *S. purpureum*, *S. vorticosum* and *S. hirsutum*, from all of which it may be distinguished by its peculiar hymenium which, to the naked eye, has a pruinose appearance by reason of the presence of the minute colorless setæ. A genus *Peniophora* has been proposed for such species, and if accepted our plant will belong to it. The hymenium is sometimes rendered uneven by the confluence of several individuals.

Cyphella caricina, *n. sp.* Cups .5 line to .1 line broad, membranaceous, sessile, white, externally minutely webby-hairy; hymenium smooth, in large specimens uneven; spores lanceolate or subclavate, colorless, .0004 in. to .0005 in. long, about .00016 in. broad. Culms and leaves of carices. Verona. Aug.

Clavaria miniata, *Berk.* Damp ground. Burnt hills, Saratoga county. July.

Clavaria pyxidata, *Pers.* Oneida. *H. A. Warne.* Buffalo. *Clinton.* Savannah. Aug.

Hymenula hysterioides, *n. sp.* Minute, oblong or elliptical, plane or slightly convex, amber color, when dry contracted, hysteriiform, blackish; spores numerous, oblong, hyaline, .0003 in. to .00035 in. long. Wood of red osier, *Cornus stolonifera*. Center. May. When dry it looks like some minute *Hysterium*, but when moist it expands and reveals the pallid or amber-colored hymenium.

Simblum rubescens. *Ger. in litt.* Astoria, Long Island. Sept. *W. R. Gerard.* This is the only representative of the genus yet found in this country. It differs from all the other species in its pinkish-red color. One specimen was found in which the pileus was supported by two distinct stems arising from one volva.

Physarum mirabile, *n. sp.* Sporangium hemispherical or depressed, nearly plane above, pervious, minutely rough or squamulose, yellow or tawny, rupturing irregularly, the basal part adherent to the top of the stem; capillitium composed of slender pale or yellowish filaments and yellow, knot-like thickenings of two kinds, one minute and subglobose, the other elongated, pointed or spine-like, conspicuous and persistently attached to the inner wall of the sporangium; stem equal or slightly tapering upward, reddish-brown, penetrating quite through the sporangium and forming a hollow, persistent, yellow columella open at the top; spores globose, smooth, blackish-brown, .0003 in. in diameter.

Decaying wood and bark. Verona. Aug. This species is remarkable for the peculiar spine-like thickenings of the capillitium and for the singular elongated hollow columella. In a vertical section of the unruptured sporangium the former may be seen extending from the walls of the sporangium to the columella. The latter is yellow or

subochraceous, about as thick as the stem and often a little widened at the top. Being hollow it causes the unruptured sporangium to appear deeply umbilicate or pervious. The filaments of the capillitium often adhere for a time to the base of the columella as a pale-yellowish flocculent mass. The exterior surface of the sporangium is scaly, but the number and size of the scales vary considerably in different specimens. This singular species may hereafter be deemed worthy of generic distinction, but for the present it is thought best to refer it to the genus *Physarum*.

Cribraria argillacea, *Pers.* Much decayed wood. Helderberg mountains. July.

Phoma herbarum, *West.* Dead stems of white daisy, *Leucanthemum vulgare*. Jamesville.

Phoma Phytolacca, *B. & C.* Dead stems of poke weed, *Phytolacca decandra*. Verona. Aug. The perithecia are sometimes covered by the whitened epidermis, sometimes exposed. They occur on both the exterior and the interior surface of the hollow stems. They are depressed, orbicular, elliptical or oblong, and are furnished with an ostiolum which pierces the covering epidermis. Sometimes two or more are confluent in a linear manner. The spores are about .0005 in. long and contain from four to six nuclei.

Phoma lineolatum, *Desm.* Cones of Norway spruce. Albany. May.

Phoma longipes, *B. & C.* † Dead grape vines. North Greenbush. May.

Phoma hysteriellum, *P. & C.*, *n. sp.* Perithecia immersed, slightly prominent, mostly hysteriiform, covered by the epidermis, black, with a minute papilliform ostiolum; spores elliptical or subfusiform, colorless, binucleate, .0003 in. long. Dead stems of herbs. Buffalo. Nov. *G. W. Clinton.*

Leptothyrium punctiforme, *B. & C.* Perithecia minute, .0025 in. to .0042 in. broad, subhemispherical, black, shining, opening by a sub-circular or irregular aperture, pale within; spores subfusiform, curved, colorless, .0005 in. to .0008 in. long.

Living leaves of daisy fleabane *Erigeron annuum*. Quaker Street. June. The perithecia are so minute that they are but just visible to the naked eye. The fungus attacks the lower or basal leaves, which soon become yellowish in color and wither.

Leptothyrium dryinum, *Sacc.* Living leaves of white oak. Wading River. Sept.

Hendersonia abnormalis, *n. sp.* Perithecia numerous, small, subconical, surrounding the stem on all sides, seated on smoky-brown spots, raising small pustules in the bark, at length rupturing the epidermis and opening by a small round aperture; spores elliptical or oblong, colored, .0006 in. to .0011 in. long, about .0004 in. broad, three to six-septate, the cells divided by longitudinal septa.

Dead stems of bitter-sweet, *Celastrus scandens*. Charlton. July. This fungus occurred in company with *Sphaeropsis Celastris*, from which it is easily distinguished by the brown discolored spots it occupies. Colored filaments sometimes surround the perithecia. The ostiola are usually whitened.

Hendersonia Coluteæ, *P. & C.*, *n. sp.* Perithecia prominent, erumpent, hemispherical or subconical, firm, cellular, ostiola black, papilli-

form: spores oblong, obtuse, colored, three to five-septate, sometimes with one or two longitudinal septa, .0008 in. to .001 in. long.

Dead twigs of *Colutea arborescens*. Buffalo. Clinton.

Sphæropsis brunneola, P. & C. Dead stems of *Smilax hispida*. Buffalo. Clinton. The specimens do not fully accord with the description of the species, but probably belong to it.

Sphæropsis phomatella, n. sp. Perithecia numerous, minute, seated on indefinite whitish or pallid spots, covered by the epidermis which is at length ruptured, black; spores oblong, at first hyaline, then colored, .0008 in. to .0012 in. long; sporophores short.

Dead shoots of ash, *Fraxinus Americana*. West Troy. May. The perithecia are very small and at first sight suggest the idea of a *Phoma*.

Sphæropsis abundans, n. sp. Perithecia numerous, erumpent, closely surrounded by the ruptured epidermis, black; spores very unequal, elliptical or oblong, at first hyaline and pedicellate, then colored, obtuse, .00065 in. to .0009 in. long, about .0005 in. broad. Dead twigs and branches of rock chestnut oak. Albany and North Greenbush. May. The twigs are roughened by the numerous perithecia and they sometimes have a darker appearance where they are affected by the *Sphæropsis*. The epidermis is ruptured very irregularly. *Sphæropsis dryina* differs in its smaller colorless spores, and *S. linearis*, in its linear arrangement. This last species occurs also on young dead shoots of hickory, *Carya alba*.

Sphæropsis cerasina, n. sp. Perithecia numerous, small, seated on the inner bark, covered by the slightly elevated epidermis which is at length pierced or slightly ruptured, black, often cinereous above; spores at first hyaline, then colored, elliptical-ovate or oblong, .0008 in. to .001 in. long; sporophores short. Dead branches of choke cherry, *Prunus Virginiana*. West Albany. May.

Sphæropsis seriatus, n. sp. Perithecia hard, crowded or subcæspitose, arranged in long lines in the chinks of the rough bark, black; spores at first pale, then colored, elliptical-ovate or oblong, .0008 in. to .001 in. long. Dead bark of sassafras, *Sassafras officinale*. Center. May. The hard sclerotoid perithecia and the linear arrangement of the clusters make this a very distinct species.

Sphæropsis celastrina, n. sp. Perithecia numerous, small, seated on the inner bark, covered by the epidermis which is slightly elevated and at length pierced or slightly ruptured; spores oblong or oblong-ovate, colored, .0008 in. to .001 in. long. Dead stems of bitter-sweet, *Celastrus scandens*. Charlton. July. This is quite unlike *S. propullans* in which the perithecia are much larger and cæspitose. The epidermis is usually whitish or cinereous over each perithecium and it ruptures slightly, forming a small aperture.

Sphæropsis milacina, n. sp. Spots orbicular, 2 lines to 3 lines broad, arid, whitish with a dark border; perithecia epiphyllous, subhemispherical or depressed, black, often disposed in a circle near the margin of the spot; spores oblong or subfusiform, colorless, .0008 in. to .0012 in. long, about .0003 in. broad. Living leaves of greenbrier, *Smilax rotundifolia*. Wading River. Sept.

Septoria pastinacina, n. sp. Spots extended, indefinite, brown; perithecia minute, .005 in. to .006 in. broad, numerous, surrounding the stem on all sides, covered by the epidermis which is pierced by the

ostiolum, black; spores filiform, curved or flexuous, .0008 in. to .0012 in. long. Dead stems of parsnip, *Pastinaca sativa*. Albany. May. It is related to such species as *S. Brunandiana*, *S. nebula*, etc.

Septoria hedeomina, *n. sp.* Spots none; perithecia scattered, minute, .003 in. to .004 in. broad, inconspicuous, black; spores filiform, strongly curved, hyaline, .0012 in. to .0015 in. long. Dead stems and calyces of pennyroyal, *Hedeoma pulegioides*. Sandlake. May.

Septoria Gei, *R. & D.* Living leaves of *Geum Virginianum*. Guilderland. July.

Septoria Ostryæ, *n. sp.* Spots small, suborbicular, reddish-brown; perithecia few, generally clustered in the center of the spot, brown or blackish-brown; spores linear, strongly curved, obscurely three or four-septate, colorless, .0016 in. to .0024 in. long. Living leaves of hop hornbeam, *Ostrya Virginica*. Helderberg mountains. July.

Septoria lythrina, *n. sp.* Spots suborbicular or irregular, grayish-brown, often surrounded by a narrow blackish border; perithecia minute, epiphyllous, rarely amphigenous, blackish; spores filiform, slightly curved, .0008 in. to .0016 in. long. Living leaves of spiked loosestrife, *Lythrum Salicaria*. Newburgh. July.

Septoria increscens, *n. sp.* Spots at first small, then larger, brown with an arid center; perithecia minute, black; spores filiform, curved or flexuous, .0012 in. to .0016 in. long. Living leaves of star flower, *Trientalis Americana*. Charlton. July. After the leaves are attacked by this fungus they turn yellow in patches and then brown. These discolored places increase in size till the whole leaf is dead.

Septoria atropurpurea, *n. sp.* Spots suborbicular, sometimes confluent, purplish-brown above, often centrally mottled by small whitish arid spots, paler below, purplish, with a brown or an ochraceous-brown center; perithecia few, tendrils white; spores filiform, straight or flexuous, .002 in. to .003 in. long. Living leaves of the large-leaved aster, *Aster macrophyllus*. Jamesville. Aug. The perithecia occur both on the arid central dots and on the colored parts of the spots. The peculiar character of the spots and the very long spores make this a very distinct species.

Septoria Aceris, *B. & Br.* Living leaves of sugar maple, *Acer saccharinum*. Sandlake. Aug. In our specimens the spots are very small, almost dot-like, arid, with a reddish-brown border and one to four perithecia. The spores are three-septate and strongly curved, but this difference is probably only varietal.

Septoria Ludwigæ, *Cke.* Living leaves of water purslane, *Ludwigia palustris*. Charlton. July. In our specimens the spots have a purplish border and the spores are without nucleoli. Dr. Curtis long ago distributed specimens of this species under the name *Septoria Ludwigæ* B. & C., but so far as I know the characters of the species were never published.

Septoria Mori, *Lev.* Living leaves of white mulberry, *Morus alba*. Charlton. July.

Septoria Urticæ, *Desm.* Living leaves of wood nettle, *Laportea Canadensis*. Charlton. July.

Septoria Cornicola, *Desm.* Living leaves of red osier and alternate-leaved dogwood, *Cornus stolonifera* and *C. alternifolia*. Jamesville and Center. Aug. and Oct.

Cytispora minuta, *Thum.* Dead branches of ash, *Fraxinus Americana*. West Troy. May.

Glœosporium Trifolii, *n. sp.* Spots suborbicular often concentrically zoned, brown; spores oblong or cylindrical, obtuse, simple, colorless, .0006 in. to .0009 in. long, .00016 in. to .00025 in. broad. Living leaves of red clover, *Trifolium pratense*. Albany. July.

Glœosporium salicinum, *n. sp.* Spots large, irregular, indefinite, arid, pale; spores elongated, subfusiform, curved or flexuous, obscurely triseptate, each cell usually containing two nuclei, colorless, .0016 in. to .002 in. long. Living leaves of willow, *Salix sericea*. Sandlake. Aug. Usually one end of the spore is more acute than the other.

Glœosporium Hepaticæ, *n. sp.* Spots large, irregular, often discoloring the whole leaf, blackish-brown; pustules minute, scattered, epiphyllous, the thick tendrils pinkish when dry; spores oblong or cylindrical, colorless, obtuse at each end, straight or slightly curved, .0006 in. to .001 in. long, .00025 in. to .0003 in. broad, usually with two to four nuclei. Living leaves of liverwort, *Hepatica acutiloba*. Helderberg mountains. July. This species appears to be very destructive to the leaves it attacks. The discoloration apparently spreads rapidly and finally involves the whole leaf.

Glœosporium Laportæ, *n. sp.* Spots orbicular, yellowish-green with a dark-margined arid center; spores simple, globose or elliptical, colorless, .00016 in. to .00025 in. long, uninucleate or binucleate, forming a pallid globule on the upper surface of the spot. Living leaves of wood nettle, *Laportea Canadensis*. Charlton. July.

Coryneum pustulatum, *n. sp.* (Plate 1, figs. 1-3.) Pustuliform, seated on the inner bark, covered by the elevated epidermis which is at length pierced or slightly ruptured; spores long, subclavate or subfusiform, colored, five to seven septate, often strongly curved, .0025 in. to .003 in. long, about .0005 in. broad; sporophores short. Dead branches of oak or chestnut. Sandlake. May. The spores sometimes ooze out and stain the matrix black. This and its pustulate form give the fungus the appearance of a *Stilbospora*, though the structure indicates that it is a *Coryneum*.

Pestalozzia Guepini *Desm.* Living leaves of Camellia in conservatories. Buffalo. *Clinton*.

Asterosporium betulinum, *n. sp.* (Plate 1, figs. 4-5.) Pustulate, erumpent, with a black orbicular disk, the stroma filamentous; spores three or four-radiate, slightly colored, the rays oblong-ovate or elongate-conical, subacuminate, three to five-septate, .0008 in. to .0015 in. long, .00035 in. to .00048 in. broad in the widest parts, slightly narrowed at the base, the cells often uninucleate, the terminal one paler. Dead branches of birch, *Betula lutea*. Quaker Street. June. Externally this closely resembles *A. Hoffmanni*, but in European specimens of that species the rays are triangular-ovate and widest at the base where they are .00065 in. broad. In our plant they are paler, narrower, more elongated and abruptly narrowed at the base. I have been unable to detect a perithecium else I should refer our plant to *Prosthemium betulinum* Kze.

Melanconium cerasinum, *n. sp.* Stroma distinct, thin, white; spores very unequal, globose, ovate, elliptical or oblong, .00065 in. to .001

in. long, generally containing a single large nucleus. Dead bark of choke cherry, *Prunus Virginiana*. Center. June. This species is closely related to *M. intermedium*, from which it is distinguished by its paler, smaller spores and especially by its distinct white stroma. In *M. intermedium* the stroma is obsolete or merely cortical. It also approaches *M. effusum* Cd.

Torula uniformis, *n. sp.* (Plate 1, figs. 11-13.) Flocci cæspitose, erect, parallel or slightly diverging, nearly straight and uniform in diameter, .0012 in. to .003 in. long, black or blackish-brown, the articulations subquadrate, uninucleate, not easily separating, about .00016 in. broad and long. Dead bark of maple. Quaker Street. June. The flocci are slightly united at their bases, and when pressed under the cover of the microscope slide they separate into groups of two to six or more, and look then very much like a species of *Speira* or *Synphragmidium*. The species differs from *T. splendens* in its more slender flocci, which also are not narrowed above.

Synphragmidium effusum, *n. sp.* (Plate 1, figs. 6-10.) Effused, forming a dense velvety black stratum; strings of spores moniliform, colored, sometimes paler at the tips, united at their bases into groups of three or more, either with or without a short common pedicel, at first laterally adherent throughout their length, .0016 in. to .003 in. long, .0002 in. to .0003 in. broad, the groups .0005 in. to .0011 in. broad, the cells about as long as broad. Decaying maple wood. Verona. Aug.

I have not been able to detect any membrane investing the groups of spore threads, but its absence may be due to the age of the specimens. In every other respect the characters of the genus are present. The species is readily distinguished from *S. Kummeri* by its effused character. The preceding species, *Torula uniformis*, strongly resembles this in its spore threads, which are united at the base, but I find no common pedicel to the groups. It forms a beautiful connecting link between *Torula* and *Synphragmidium*.

Gymnosporium variabile, *n. sp.* Flocci sparse, branched, paler than the spores; spores abundant, variable, globose, elliptical, oblong or fusiform, purplish-brown, .0005 in. to .0012 in. long, .0005 in. to .00055 in. broad, forming effused pulverulent patches. Under surface of decaying wood lying on the ground. Albany. May. The species is related to *G. fulvum* from which it differs in its darker, purplish-brown color and in its smoother and more variable spores.

Puccinia Ellisiana Thum. Living and languishing leaves of *Andropogon scoparius* and *A. furcatus*. Buffalo. Clinton. Center. Sept. and Oct. This is apparently *Puccinia Andropogi* Schw., but that name is badly formed, nor can it be corrected without interfering with *Puccinia Andropogonis* Fekl. I have therefore adopted the later name.

Protomyces fuscus, *n. sp.* Spots irregular, determinate, blackish-brown or grayish-brown, often marginal; spores immersed in the tissues of the leaf, globose, colored, .0016 in. to .0024 in. in diameter, with a thick epispore. Living leaves of liverwort, *Hepatica acutiloba* Helderberg mountains. July. This species differs from *P. macrosporus* in the darker color of the spores and in its darker definite spots.

A species of *Vermicularia* often occurs on the spots formed by the *Protomyces*.

Melampsora Hartigii, Thum. Living leaves of willows, *Salix cordata* and *S. nigra*. Albany and Helderberg mountains. July to Oct.

Æcidium camicifugatum Schw. Living leaves of black snakeroot, *Cimicifuga racemosa*. Buffalo. Clinton. July.

Ræstelia Ellisii Pk. Living leaves of shad bush, *Amelanchier Canadensis*. Riverhead. Sept.

Cronartium asclepiadeum Fr. Living leaves of sweet fern, *Comptonia asplenifolia*. Long Island. Sept.

Stilbum pruinosisipes, n. sp. Stem slender, equal or slightly tapering upward, scarcely one line high, blackish, pruinose; head small, subglobose, chestnut colored or blackish; spores very minute, elliptical. Dead stems of raspberry, *Rubus strigosus*. Center. Oct.

Stilbum erythrocephalum Dittm. Cow-dung. Buffalo. Clinton.

Periconia parasitica, n. sp. Stem slender, smooth, equal, subpellucid, white; head subglobose or lenticular, white; spores obovate elliptical or oblong, .0003 in. to .0005 in. long, about .0002 in. broad. Dead branches of water beech, *Carpinus Americana*, and parasitic on *Cheirospora botryospora*. Charlton. July.

This resembles *Stilbum candidum*, but the spores are not diffuent and the heads are more depressed and whiter.

Tubercularia Celastris Schw. Dead stems of bitter sweet, *Celastrus scandens*. Charlton. July.

Helminthosporium Pruni B. & C. Dead branches of choke cherry, *Prunus Virginiana*. Center. June. The spores in this species are very variable both in length and in the number of septa.

Macrosporium Meliloti, n. sp. Spots irregular, terminal or marginal, blackish-brown; flocci short, colored, septate, generally flexuous; spores subelliptical, or clavate, generally tapering below into a short pedicel, three to five-septate with a few longitudinal septa, colored, .001 in. to .002 in. long. Living leaves of melilot. Newburgh. July.

Alternaria Chartarum Preuss. Damp paper. Albany. Nov.

Helicosporium cinereum, n. sp. (Plate 2, figs. 4-6.) Patches effused, thin, cinereous; flocci slender, sparingly branched, septate, blackish-brown, the articulations longer than broad; spores nearly colorless, grayish or cinereous in the mass, coiled in three or four volutions, diameter of the coil .0008 in. to .001 in. Decaying wood. North Greenbush. June. The species is easily distinguished from *H. olivaceum* by its cinereous color and from *H. obscurum* by the more numerous volutions of the spores.

Polyactis Streptothrix, C. & E. Living or languishing leaves of cohosh, *Caulophyllum thalictroides*. Jamesville. Aug. The spores in our specimens, as well as in authentic specimens received from Mr. Ellis, are .011 to .012 mm. in diameter, not .018 mm. as required by the description.

Pyricularia grisea, Sacc (*Trichothecium griseum*, Cke). Living leaves of crab grass, *Panicum sanguinale*. Sandlake. Aug. I do not find any published description of this fungus, but specimens have been distributed under the latter name by Mr. Ellis.

Peronospora obducens, Schrot. Cotyledonous leaves of touch-me-not. Sandlake. May.

Oidium irregulare, *Pk.* Living leaves of bladder nut, *Staphylea trifolia*. Monroe, Orange county. July.

Cercospora Nymphæacea, *C. & E.* Living leaves of water lily, *Nymphaea odorata*. Riverhead. Sept.

Cercospora zebrina, *Pass.* Living leaves of yellow clover, *Trifolium agrarium*. Sandlake. Aug.

Cercospora althæina, *Sacc.* Living leaves of hollyhock, *Althæa rosea*. Sandlake. Aug.

Cercospora Smilacis, *Thum.* (Plate 2, figs. 1-3.) Spots numerous, small, orbicular, reddish-brown, surrounded by a darker margin on the upper surface of the leaf; flocci hypophyllous, tufted, slender, septate, nodulose above, colored; spores narrowly clavate, .0012 in. to .0024 in. long, colorless, with two to four septa. Living leaves of *Smilax glauca*. Wading River. Sept. This fungus was very abundant in the locality mentioned. The number of flocci in a tuft is usually small, generally four to eight, and the spores are so strongly narrowed toward one end that they are obclavate in form.

Cercospora elongata, *n. sp.* (Plate 1, figs. 21-23.) Spots irregular, angular, limited by the veinlets, often confluent, sometimes arid, brown grayish-brown or cinereous; flocci amphigenous, tufted, colored, subflexuous, sometimes nodulose; spores elongated, obscurely three to many-septate, gradually narrowed toward one end, colorless, .002 in. to .006 in. long, .00015 in. to .0002 in. broad, generally longer than the flocci. Living leaves of wild teasel, *Dipsacus sylvestris*. Jamesville. Aug.

Cercospora squalidula, *n. sp.* Spots angular or subrotund, unequal, brown or grayish-brown with a dark border; flocci amphigenous, tufted, slightly nodulose above, colored; spores cylindrical or subclavate, unequal in length, .0012 in. to .0045 in. long, nearly colorless, simple or with one to three obscure septa. Living leaves of virgin's bower, *Clematis Virginiana*. Jamesville. Aug. The spots are sometimes of a uniform dark-brown color, sometimes grayish with a darker border. The species is distinct from *C. olivascens* which is said to grow on leaves of clematis.

Cercospora Sanguinariæ, *n. sp.* Spots large, indeterminate, smoky-brown, sometimes obscurely mottled or subreticulate with darker lines on the upper surface; flocci hypophyllous, few, scattered or subcæspitose, rather long, colored, often nodulose above; spores subcylindrical, obtuse, four to eight-septate, colorless, .0015 in. to .0025 in. long. Living or languishing leaves of blood root, *Sanguinaria Canadensis*. Jamesville. Aug. Mycelioid filaments appear to permeate the tissues of the leaf and send up, here and there, spore-bearing flocci which are generally nodulose at or near the tips. Owing to the scattered mode of growth of the flocci the fungus is scarcely visible, but the large smoky-brown spots are very conspicuous.

Cercospora Eupatorii, *n. sp.* Spots at first small and pale-green, then larger, suborbicular, determinate, reddish-gray or reddish-brown, with an elevated margin and darker border; flocci tufted, short, simple, colored; spores elongated, slender, generally slightly thickened toward one end, obtuse, colorless, triseptate, .002 in. to .003 in. long. Living leaves of *Eupatorium album*. Long Island. *Miller.*

Cercospora griseëlla, *n. sp.* Spots suborbicular, indeterminate, yel-

lowish; flocci short, minutely tufted, septate; spores slightly thickened toward one end or subfusiform, colorless, triseptate, .0016 in. to .002 in. long. Living leaves of fleabane, *Erigeron annuum*. Charlton. July. The tufts are so numerous and so minute as to give the spots on the under surface of the leaf the appearance of being suffused by a minute pruinosity.

Cercospora Caulophylli, *n. sp.* Spots irregular or suborbicular, dark-brown or grayish with a dark-brown margin; flocci hypophyllous, tufted, flexuous, nodulose above, colored, rarely branched; spores oblong or cylindrical, with one to three septa, colorless, .0008 in. to .0012 in. long, .00025 in. to .0003 in. broad. Living or languishing leaves of cohosh, *Caulophyllum thalictroides*. Helderberg mountains. July.

Ramularia Armoraciæ *Fckl.* Living leaves of horse radish, *Nasturtium Armoracia*. Charlton. July.

Ramularia Celastri, *n. sp.* Spots small, suborbicular, scattered, brown or blackish-brown, generally with a pure-white center on the upper surface; flocci hypophyllous, slender, septate, tufted; spores cylindrical, nearly straight, colorless, .0006 in. to .001 in. long, about .00015 in. broad. Living leaves of bitter sweet, *Celastrus scandens*. Highland Mills, July.

Ramularia Mitellæ, *n. sp.* Spots suborbicular, brown; flocci hypophyllous, minutely tufted, short, nearly straight, slightly colored; spores straight, oblong or cylindrical, colorless, unequal in length, .0003 in. to .0008 in. long, .00012 in. broad. Living leaves of mitrewort, *Mitella diphylla*. Newburgh and Jamesville. Aug. and Sept.

Ramularia Dulcamaræ, *n. sp.* Spots indeterminate, yellowish-green; flocci hypophyllous, branched, forming with the spores a soft felty stratum of a violet-gray color; spores oblong or subcylindrical, simple or containing several nucleoli, colorless, .0008 in. to .0018 in. long, .0002 in. to .00025 in. broad. Living leaves of nightshade, *Solanum Dulcamara*. Verona. Aug. The spots are very unequal in size and often confluent. When the leaf fades the spots retain for a longer time their greenish hue. The species in some respects approaches the genus *Peronospora*.

Microstroma leucosporum *Niessl.* (Plate 1, figs. 14-17.) Living leaves of butternut, *Juglans cinerea*. Charlton. July. It is with some hesitation that I refer our plant to this species. According to the figure of the European fungus, which occurs on leaves of *Juglans regia*, the spores are more than twice as long as broad and binucleate, while in our fungus they are scarcely twice as long as broad and uninucleate. Perhaps farther investigation will require its separation as a distinct species. It occurs on leaves of young trees.

Fusisporium Solani, *Mart.* Potatoes. Albany. March. In England, this fungus is regarded as a great pest. Mr. W. G. Smith writes of it and the potato-rot fungus as follows: "For more than thirty years our potato crops have been systematically destroyed by two virulent fungi, viz., *Peronospora infestans* and *Fusisporium Solani*, these two parasites almost invariably work in company with each other, they suddenly appear for a few weeks, destroy our crops, and vanish for ten or twelve months, then reappear and repeat the work of destruction. * * * As I have kept the resting-spores of both parasites alive artificially in decayed potato leaves in water, in moist

air and in expressed diluted juice of horse-dung, it conclusively proves to me that the resting-spores hibernate naturally in the same manner."

Helvella palustris, *n. sp.* (Plate 2, figs. 16-18.) Pileus irregular, at first blackish and slightly adnate, then grayish-brown or mouse-colored and free, rugose beneath; stem equal, slender, sulcate-costate, colored like the pileus, the costæ thin, subacute; asci cylindrical; spores broadly elliptical, .00065 in. to .0008 in. long, .0005 in. broad containing a single large nucleus; paraphyses thickened above, brown. Plant 1 in. to 2 in. high, pileus 6 lines to 12 lines broad, stem about 2 lines thick. Among mosses and liverworts in swamps. Manlius. Aug. This species is related to *H. sulcata*, from which it differs in its more slender and darker-colored stem, its less firm and more free pileus and its darker-colored paraphyses. In the dried specimens the upper surface of the pileus has assumed a blackish color, but the lower surface has retained very nearly its normal hue. The dark-colored slender stem readily separates this species from all others with costate or lacunose-costate stems.

Peziza (Cupulares) subvernalis, *n. sp.* Cups fleshy, 3 lines to 6 lines broad, sessile or with a short thick stem-like base which is sometimes whitened with mycelium, chestnut-colored when moist, darker when dry, externally slightly furfuraceous, the hymenium plane or slightly concave, subpruinose; asci cylindrical; spores smooth, elliptical, .0008 in. to .0009 in. long, .0005 in. broad; paraphyses numerous, slightly thickened above, colored. Decaying wood and bark of ash trees, *Fraxinus sambucifolia*. Sandlake. May. The color is a little paler than in *P. badia*. The thick fleshy base gradually expands into the broad, shallow or nearly plane cup, which is narrowly margined. The plants shrivel much in drying.

Peziza (Dasyscyphæ) luteodisca, *n. sp.* Cups minute, .014 in. to .028 in. broad, expanded, plane or slightly concave, margined, externally mealy-pubescent, white, the hymenium yellow, inclining to orange when dry; stem short or obsolete; asci subcylindrical; spores crowded or biseriate, fusiform, .0004 in. to .0005 in. long. Dead stems of rushes, *Scirpus validus*. Manlius. Aug. The stems are so short that at first sight the cups appear to be sessile.

Peziza (Mollisia) floriformis, *n. sp.* Cups small, one-half to one line broad, thin, smooth, at first subcylindrical and regular, then floriform with the margin wavy inflexed, dull cream-colored; asci short, cylindrical, .00065 in. to .0008 in. long; spores spermatoid. Decaying wood of maple. Verona. Aug. The margin of the larger cups is strongly inflexed in three or four places, giving the plants a resemblance to a small three or four-petalous flower.

Peziza multipuncta, *Pk.* Dead culms of carices. Albany. May.

Peziza regalis, *C. & E.* Dead branches. North Greenbush. Nov.

Peziza mycogena, *Ellis.* On some effete fungus. Griffins. Sept.

Peziza sanguinea, *Pers.* Decaying wood. Buffalo. Clinton. Sandlake. This species is referred by some mycologists to the genus *Patellaria*.

Helotium vitigenum, *De Not.* Dead grape vines. Albany and North Greenbush. July and Oct.

Helotium pallescens, *Fr.* Chips and decaying wood. North Greenbush. Oct.

Helotium (*Pelastea*) *affinissimum*, *n. sp.* Cups subcæspitose, stipitate, plane or convex, 1 line to 2 lines broad, yellow, the external surface and margin slightly pruinose; stem subcylindrical, yellowish, 2 lines to 4 lines long; asci cylindrical; spores oblong, obtuse, .0008 in. to .0004 in. long. Decaying sticks buried in the ground. Albany. June. This species resembles *H. lutescens* very closely, but it is more cæspitose in its mode of growth, becomes more discolored in drying and has smaller spores.

Patellaria Hamamelidis, *n. sp.* (Plate 2, figs. 7-10.) Small, .014 in. to .02 in. broad, sessile, black or externally slightly tinged with reddish-brown, the disk nearly plane, margin at length obliterated; asci oblong-clavate, spores crowded or biseriate, oblong-fusiform, sometimes slightly curved, at first colorless, then slightly colored, trisepitate, .00065 in. to .0008 in. long, .00025 in. to .0003 in. broad. Dead bark of witch hazel, *Hamamelis Virginica*. North Greenbush. May.

Cenangium Viburni, *Schw.* Dead stems and branches of hobble bush. *Viburnum Lantanoides*. Buffalo. Clinton. Catskill mountains. July.

Caliciopsis, *Pk.* Receptacle oblong urceolate or subcylindrical, at first closed, then open and pulverulent at the apex, stipitate. This genus is instituted to receive a small *Calicium*-like fungus that does not well accord with the characters of any genus known to me. It partakes to some extent of the characters of some of the small stipitate species of *Cenangium*, but its more slender habit and urceolate or subcylindrical receptacle which soon becomes pulverulent above separate it from that genus. These same characters and its less tough substance forbid its reference to the genus *Tympanis*. The name is formed from *Calicium* and *opsis*.

Caliciopsis pinea, *Pk.* (Plate 2, figs. 11-15.) Scattered or subcæspitose, about 1 line high, glabrous, shining, black; stem slender, straight or curved, slightly thickened at the base, often growing from a cluster of black spheriform perithecia which contain spermatoid spores; receptacle narrowly urceolate, generally a little curved or inclined to one side, slightly exceeding the stem in diameter, the apex soon brownish pulverulent; asci ovate-lanceolate; long pedicellate, spores simple, elliptical, colored, .0002 in. to .00025 in. long.

Bark of pine trees, *Pinus Strobus*. Guilderland and Charlton. The peculiar form of the receptacle is suggestive of the dry capsules of many mosses, particularly of species of *Hypnum*. The spheriform bodies and their spermatoid contents are probably only another condition of this fungus. The young stems are at first pointed, but as they increase in length they become more obtuse and finally the receptacle is developed at the top. Although this plant strongly resembles species of *Calicium* externally, it is wholly destitute of any thalline crust and gonidial cells and must be deemed a fungus.

Tuber dryophilum, *Tul.* Staten Island. *Gerard.*

Hysterium gramineum, *M. & N.* Dead leaves of sand reed, *Calamagrostis arenaria*. Wading River. Sept. This is the *Hysterium Robergii* Desm. of Dr. Curtis' specimens. *H. cubmigenum* var. *gramineum* Fr. and *Lophodermium arundinaceum* var. *gramineum*, *Duby.*

Taphrina alnitorqua, *Tul.* Fertile aments of alders. Newburgh. July.

Nectria dematiosa, Schw. Dead branches of mulberry. *Morus aba*. Charlton. July.

Xylaria bulbosa, B. & Br. Ground under tamarack and arbovitæ trees. Manlius. Aug.

Hypoxylon Blakei, B. & C. Dead trunks of willows. Buffalo. Clinton. Center. June. This scarcely differs from *H. Morsei* except in its spores which are a little smaller than in that species.

Eutypa subsecta, Fr. Dead trunks and branches of poplar, *Populus tremuloides*. Center. Sept.

Diatrype quadrata, Schw. Bark of oak, beech, etc. Buffalo. Clinton. Sandlake and North Greenbush. This is *Diatrype obesa* B. & C. in Ravenel's Exsicc. Fung. Fasc. IV, No. 47. It bursts forth from the bark of various deciduous trees and assumes a great variety of aspects, being crowded, scattered or seriatly arranged and forming either large or small pustules. Schweinitz's description of it is so defective that it is not surprising that several synonyms have been made.

Diatrype strumella, Fr. Dead stems of flowering currant, *Ribes florida*. Albany. May.

Diatrype nigrospora, n. sp. Stroma small, thin, orbicular, pustulate, blackish or black, elevating the epidermis and stellately or transversely rupturing it; perithecia few, generally 6-12, sunk to the wood and covered above by the stroma; ostiola slightly prominent, piercing the subcinereous or blackish disk; asci subcylindrical, 8-spored; spores crowded or biseriate, oblong elliptical, obtuse; generally slightly curved, at first pale, then colored, uniseptate, .00065 in. long, .00032 in. broad, each cell containing a large nucleus. Dead branches of birch, *Betula lutea*. Quaker Street. June. This is related to such species as *D. moroides*, *D. cincta* and *D. æthiops*.

Melogramma gyrosum Schw. Dead bark. Silver Creek, Chautauqua county. Clinton.

Valsa Carpini, Pers. Dead bark of water beech, *Carpinus Americana*. North Greenbush. May.

Valsa aurea Fckl. Dead branches of water beech. North Greenbush. May. This species is well marked by the small reddish or yellowish disk and the simple ovate-elliptical spores which are about .0008 in. long and .00035 in. broad.

Valsa paucispora, n. sp. Pustules covered by the slightly elevated epidermis which is at length ruptured; perithecia, 2-5, seated on the inner bark; ostiola short, black, piercing the minute pallid disk, even or rarely slightly radiate-sulcate; asci short, .0025 in. to .0028 in. long, subcylindrical, tetrasporous; spores simple, uniseriate, nearly colorless, ovate-elliptical, .0006 in. long to .0008 in. long, .0004 in. to .00045 in. broad. Dead alder twigs. North Greenbush. May. This is closely related to the preceding species from which it may be separated by its paler disk, shorter four-spored asci and uniseriate spores.

Valsa compta, Tul. Dead branches of beech, *Fagus ferruginea*. Quaker Street. June. In our specimens the spores are ovate or oblong-elliptical, colorless, .0007 in. to .0009 in. in length.

Valsa prunicola, n. sp. Pustules scattered, slightly prominent, piercing the epidermis or rupturing it transversely; perithecia 10-12,

sunk to the wood or nestling in the inner bark; ostiola entire, crowded, slightly exerted; asci fusiform or subcylindrical; spores crowded, cylindrical, straight or slightly curved, quadrinucleate, colorless, .0005 in. to .0006 in. long, .00016 in. broad. Dead branches of wild bird cherry, *Prunus Pennsylvanica*. Sandlake. May.

Valsa tessera, Fr. Dead stems of hazel nut, *Corylus Americana*. Center. May.

Valsa Abietis, Fr. Bark of hemlock and spruce trees. West Troy, Sandlake and North Greenbush. May and Oct. In some instances the asci are wanting, the perithecia being filled with a multitude of the minute spores.

Valsa acrocystis, n. sp. (Plate 2, figs. 19-22.) Pustules small, covered by the epidermis, which is slightly elevated and ruptured in a narrow transverse chink; perithecia generally 4 to 12, circinating, seated on the inner bark, covered by a grayish-brown tomentum, ostiola short, blunt, black, seriatly placed; asci oblong; spores large, crowded or biseriata, oblong, colored, uniseptate, .0016 in. to .0025 in. long, .0005 in. to .0008 in. broad, with a small hyaline hemispherical or subglobose appendage at each end. Dead branches of birch, *Betula lenta*. North Greenbush. May. The linear arrangement of the ostiola and the peculiar character of the appendages of the spores are marked features in this species. The tomentum of the pustules and the large colored appendiculate spores indicate a relationship between this species and *Valsa hapalocystis*, and yet our plant belongs to the Section Euvalsa. The specific name has reference to the appendages of the spores.

Sphæria capillifera, Curr. Decaying wood. Portage. July. Clinton.

Cucurbitaria longitudinalis, n. sp. (Plate 2, figs. 23-26.) Perithecia .02 in. to .03 in. broad, subglobose, arranged in short lines in longitudinal chinks in the bark, black, pierced at the apex; asci cylindrical; spores uniseriate, four or five-septate, often with one or two longitudinal septa, colored, .0011 in. to .0013 in. long, .0004 in. to .0005 in. broad. Dead stems of the privet Andromeda, *Andromeda ligustrina*. Center. May.

Sphærella recutita, Fr. Dead leaves of carices, *Carex varia*. West Troy. May.

Sphærella depressa, n. sp. Perithecia numerous, minute, depressed or even concave when dry, black; asci oblong-clavate; spores simple, oblong-elliptical or subfusiform, colorless, .0005 in. to .0006 in. long. Dead stems of Mulgedium. Center. May. The perithecia are so much depressed that they resemble a minute Peziza in form. They are slightly papillate.

Sphærella conigena, n. sp. Perithecia minute, erumpent, black; asci broad, obovate or subclavate, somewhat pointed at the apex; spores oblong or subcylindrical, when mature uniseptate, .001 in. to .0016 in. long. Old cones of arbor-vitæ. Helderberg mountains July.

(5.)

REMARKS AND OBSERVATIONS.

Viola Selkirkii, Pursh. Plentiful in a pine grove near West Albany. The large pale blunt spur is a conspicuous feature in the flowers of this species.

Hypericum mutilum, L. A tall form, 12 to 15 in. high, with straight branches, occurs near Riverhead. Its cyme is leafy, and thus connects the variety *gymnanthum* with the typical form.

Linum striatum, Walt. Wet banks near Newburgh. July.

Hieracium venosum var. *subcaulescens*, Gr. A form of this plant with the veins of the leaves uncolored was found near Wading River. It was in full flower in September.

Lycopus Europæus var. *sessilifolius*, Gr. Near Riverhead.

Convolvulus arvensis, L. Fields near Newburgh.

Polygonum Hartwrightii, Gr. Flowering specimens were found on the shore of the "Green Lake" west of Jamesville. In all the specimens seen the peduncle was axillary, not terminal as in *P. amphibium*.

Quercus Phellos, L. Tottenville. Britton.

Potamogeton amplifolius, Tuckerm. Thompson's Lake, Helderberg mountains, and near Warwick, Orange county.

Potamogeton gramineus var. *heterophyllus*, Fr. Thompson's Lake, also "Green Lake" near Jamesville. In low muddy places east of the latter lake it forms a dense carpet over the surface of the ground.

Potamogeton, *Robbinsii*, Oakes. Ballston Lake. July. Though the plants were abundant and the flowering spikes numerous, the stems being sometimes excessively branched above, no good fruit could be found. The plants grow at the head of the lake in company with *Potamogeton lonchites*, *P. perfoliatus*, *P. compressus*, *P. hybridus*, *P. Claytonii*, *P. pectinatus* and *Bidens Beckii*.

Triglochin palustre, L. Abundant in marshy ground near Manlius Center.

Hemerocallis fulva, L. Banks of streams in fields. Guilderland. Escaped from gardens, but thriving without cultivation.

Juncus maritimus Lam. This rush was found some years ago on Coney Island. Specimens were collected there again the past season by Mr. N. L. Britton, thus showing that it is still maintaining its foothold amid the march of improvement on that island.

Carex tentaculata var. *altior*, Boott. (*C. Purshii* Olney.) Charlton and North Greenbush.

Carex intumescens, Rudge. Helderberg mountains. A starved form with but one or two perigynia in a spike.

Scolopendrium vulgare, Sm. A rediscovery of this interesting fern was recently made by Mrs. Barnes and other members of the Syracuse Botanical Club, probably in the identical station where it was found by Pursh in 1807. Specimens collected in this locality by Mrs. Leavenworth were kindly contributed by Mrs. M. J. Myers. If we

regard the stations near Jamesville as one locality there are now three localities in the State where this fern is known to grow.

Botrychium Lunaria, Sw. A new station for this rare fern has been discovered near Syracuse, and specimens have been contributed by Mrs. H. S. Gifford.

Chara foetida var. *longibracteata*, A. Br. This interesting variety of our common chara occurs in pools by the side of the railroad at Verona.

Chara fragilis, Desv. This and the preceding species abound in the "Green Lakes" of Onondaga county. On account of the clearness of the water, the plants are seen at a great depth and they give the green appearance that suggests the popular name of the lakes.

Fissidens grandifrons, Brid. Rivulets near Jamesville, but as usual the moss is sterile.

Cladonia papillaria, Hoffm. Sterile soil. Ballston. July.

Agaricus melleus, Vahl. This extremely variable species sometimes has a white pileus.

Agaricus virescens, Pk. I find that this name is preoccupied and substitute for it *Agaricus viriditinctus*.

Gomphidius rhodoxanthus, Schw. This plant has been thought by some to be the same as *Paxillus flavidus*, Berk., but it does not agree well with the description of that species. Neither does it agree fully with the characters of the genus *Gomphidius*. I do not find the pileus viscid, nor the lamellæ forked, though they are venose-connected. They do not readily separate from the pileus as in *Paxillus*.

Russula virescens, Fr. According to the description of this species the margin of the pileus should be even, but specimens sometimes occur in which the margin is wholly or partly striate. The number of forked and intermediate lamellæ is also variable and the warts are sometimes pale-brown instead of green. The color of the pileus is generally grayish-green but it is frequently tinged with yellow.

Panus stipticus, Bull. This usually occurs on trunks of deciduous trees, but occasionally it is found on hemlock trunks.

Lenzites betulina, Fr. Specimens of this species have been found on hemlock trunks. *Lenzites vialis* also occurs both on frondose and acerose trees, so that the division of the genus into two sections depending on the character of the habitat is scarcely reliable.

Polyporus igniarius, Fr. One specimen was found about one foot broad and having seventeen strata of pores, thus indicating an age of seventeen years.

Polyporus pergamenus, Fr. The typical form of this species, according to the description, has the pileus coriaceous-membranaceous, rigid, tomentose, concentrically sulcate, white; the pores seriate placed, pallescent and produced into very thin dentate plates. Its habitat is said to be pine, and its locality Arctic America. The species, as now understood, proves to be a very common and very variable one and includes several synonyms. In Ravenel's *Fungi Car. Exsicc.*, Fasc. 1, No. 13, *Polyporus laceratus*, Berk., is represented to be a synonym of this species. Dr. Berkeley himself does not give it as a distinct species in his *Notices of North America Fungi*, though it was founded on specimens from New Orleans, from which we infer that he does not regard it as a good species. According to the description it scarcely

differs from *Polyporus elongatus*, Berk., except in its shape and its larger pores. The former difference is of little value for *P. elongatus* is known to vary very much in shape and size. But *P. elongatus*, according to authentic specimens received from Dr. Michener, can scarcely be regarded as any thing more than a mere form, or perhaps variety, of *P. pergamenus*. For of this species we have in this State two prevailing forms. One form has the pileus tomentose, concentrically sulcate and white, and its pores become paler with age and are at length produced or lacerated into thin dentate plates precisely as required by the description. But it differs from the type in generally, though not always, having the pileus too thick to be called membranaceous, and in the pores not being seriatly placed. These slight differences, however, are of but little account in such a variable plant as ours is known to be, and there can be no doubt that it should be referred to *P. pergamenus*. The other form, which is more abundant even than the first, is generally thinner and less distinctly tomentose. Indeed, it is sometimes nearly or quite smooth, and it often appears to become smoother with age. Instead of being concentrically sulcate it is generally more or less marked with narrow delicate zones. There are also fine radiating lines or striations which are more perceptible in the smoother specimens. The color is generally grayish pallid or subochraceous. The pores are usually seriatly placed, especially toward the margin, and though variable in color they are commonly tinged with purple when fresh and young, as in the preceding form. As in that form also they become paler with age. This is the form recently published under the name *Polyporus pseudopergamenus*, Thum. When the pileus is narrowed toward its base so that its length is greater than its breadth it is *Polyporus elongatus*, Berk. It occurs on a great variety of deciduous trees, but is most frequent on birch, maple, oak and chestnut. The first form is most common on poplar though not limited to it. I have not found either growing on pine. These two forms run into each other by such insensible gradations that it is not possible to draw any satisfactory line of distinction between them, and therefore the conclusion must be that both are forms of one species, *Polyporus pergamenus*.

According to Berkeley and Curtis *Polyporus Menandianus*, Mont. also belongs to this species, thus making the synonymy include *P. laceratus*, Berk., *P. elongatus*, Berk., *P. Menandianus*, Mont., and *P. pseudopergamenus*, Thum. It may also be added that according to Berkeley and Curtis the specimens in the Schweinitzian Herbarium under the names *Polyporus abietinus* and *Polyporus stereoides* should be referred to *P. pergamenus*. This species sometimes revives to a certain extent the second season. It puts on a new hymenium and a new growth on the margin of the pileus. The same is true also of *Polyporus cinnabarinus*.

Polyporus vulgaris, Fr. The variety with pale yellow pores occurs on decaying maple wood at Verona. The yellow hue is generally lost in drying.

Polyporus splendens, Pk. This name proves to be preoccupied and I would therefore substitute for it *Polyporus subsericeus* Pk. For the same reason I would substitute *Polyporus guttulatus*, Pk., for *Polyporus maculatus*, Pk., *Polyporus flavidus*, Pk., is *P. Peckianus*, Cke.

Cheirospora botryospora, Fr. This species occurs with us on the beech, *Fagus ferruginea*, and the water beech, *Carpinus Americana*. In Europe it occurs also on the ivy.

Puccinia linearis, Pk., On *Calamagrostis Canadensis*. Copake. The name being preoccupied it is changed to *Puccinia striatula*, Pk.

Uromyces solida, B. & C. Living leaves of *Desmodium rotundifolium*. Newburg. The name of this species proves to be inappropriate and the description very imperfect if we may rely on authentic specimens received from Dr. Curtis. It is scarcely possible to identify the species satisfactorily from the published description. The spores are not always "compact," but often quite lax. Neither are they always "obovate," but generally ovate or elliptical. The rough or verruculose epispore is a noticeable feature, yet it is not mentioned in the description. It is not surprising, therefore, that the species has recently been republished under a new name, *Uromyces Desmodii* Thum.

Ræstelia lacerata, Tul. This fungus was recently detected by Prof. D. S. Martin growing in abundance on the living leaves of apple trees at Rogers Rock near Ticonderoga. An allied fungus, *Ræstelia cancellata*, has also been found to attack the fruit of the quince.

Peridermium decolorans, Pk. This is considered by Baron Thumen in his "Blasenrost Pilze der Coniferen" to be a variety of *Peridermium abietinum*.

Peronospora alta, Fckl. Living leaves of English plantain, *Plantago lanceolata*. Verona.

Sphærella nigrita, Cke. This is not specifically distinct from *Sphærella spleniata*, C. & P., according to specimens received from Mr. Gerard.

NEW YORK SPECIES OF AMANITA.

"Spores white. Veil or *volva* universal, at first continuous distinct from the cuticle of the pileus. Hymenophorum distinct from the stem. *All terrestrial.*" *Hymen. Europ.* p. 17.

The Agarics which are grouped under the subgeneric name *Amanita* are distinguished from all others by their white spores and their universal veil distinct from the pileus. In the subgenus *Volvaria* there is a similar veil or *volva*, but the spores are rosy or pinkish-colored. By some authors the species of these two subgenera have been united under the common name *Amanita*, but even in this case it was found convenient to separate them into two sections, depending on the color of the spores. Some mycologists have regarded the species of *Amanita* as worthy of generic distinction, and have separated them from the Agarics as a distinct genus. But by those species whose *volva* is evanescent they approach so closely to other subgenera that it is difficult to maintain this position unless we also raise the other subgenera to the same rank. The differences between the subgenera are so slight that this has not seemed advisable to the most eminent mycologists; and yet the species of Agarics are already so numerous that it is very difficult to find appropriate unoccupied specific names for the new ones

frequently discovered, and some mode of relief in this respect is exceedingly desirable.

The species of *Amanita* grow on the ground in the woods, groves and copses. They rarely occur in open fields, unless in the vicinity of trees or near the margin of woods. Thin, open woods and copses afford the most favorable localities. In the early condition the plant is wholly enveloped in its volva, but as it increases in size the volva is necessarily ruptured. In some species, *A. caesareus*, for example, the volva is distinctly membranous, and includes the young plant as if in an oval sack. At length the upper part of the volva is ruptured, and the pileus and stem are exerted. Sometimes one or more irregular and unequal fragments of the ruptured volva adhere to the surface of the pileus for a time, and are carried up by it in its growth. But usually in these species the surface of the pileus is smooth, and the remains of the ruptured volva wholly adhere to the base of the stem or its bulb like a membranous margin, a sheath or a lacerated cup. In other species the volva is not distinctly membranous, but is more floccose or scaly and friable in its character. It envelops the young plant, but the distinction between the pileus and bulbous base of the stem is soon manifest, and as the stem elongates the upper part of the volva is separated from the lower part, and persistently adheres to the surface of the pileus. As this expands its covering or calyptra breaks up into superficial scales or warts. These are often angular or pyramidal in form, and sometimes unlike the pileus in color, and afford a beautiful ornamentation. The part that remains at the base of the stem often breaks up into mealy or floccose scales, and sometimes wholly disappears when the plant matures. Generally a smooth pileus indicates a perfect membranous volva, and a warty one an imperfect, floccose or evanescent one. Sometimes, especially after heavy rains, specimens, which normally have the pileus warty, are found with a smooth pileus; but these are only occasional, and probably mostly accidental cases, the warts having been washed off by the rain. Most of the species are solitary or gregarious and of moderate or large size. The pileus, when fully expanded, is nearly plane and quite regular, so that these Agarics are among the most noble and attractive in their appearance. Many of them have a thin pellicle or cuticle, which, in the young and moist plant, is slightly viscid.

The lamellæ in nearly all the species are white or whitish, and free from the stem. Usually they are narrowed toward the stem, and cease just before reaching it, thus leaving a small free space around its apex. In many species the short ones that intervene between the long ones are abruptly terminated at their inner extremity, as if truncated or cut square off. The stem is usually rather long and well formed, and in most species is more or less thickened or bulbous at the base. In some species it is hollow or stuffed with cottony fibrils; in others it is solid. In the greater number of species it is furnished with a membranous ring or annulus, that surrounds it near the top like a flabby collar. In the young plant this is stretched from the stem to the margin of the pileus, and wholly conceals the lamellæ. As the pileus expands the annulus breaks loose from its attachment to the margin, and remains adhering to the stem. In some species this rupture is not always clean and even, small portions remaining at-

tached to the margin. The annulus then has a lacerated or torn appearance. The species are readily divided into two primary sections, depending on the presence or absence of the annulus. The species having an annulus have been again divided by Fries into subsections, depending on the character of the volva. These are thus characterized:

1. Volva rupturing at the apex or circumscissile, the free margin persistent. Of our species *A. caesareus*, *A. spretus* and *A. phalloides* belong to this subsection.

2. Volva definitely circumscissile, persistent on the margined base, the covering of the pileus broken up into thick warts. Here belong *A. russuloides*, *A. muscarius*, *A. Frostianus*, *A. solitarius* and *A. strobiliformis*.

3. Volva wholly friable, reduced to scales and warts. Our only representative of this subsection is *A. rubescens*.

4. Volva wholly obsolete, flocculose, entirely evanescent. Of this subsection we have thus far no representative.

The second and third sub-sections appear to run into each other in such a way that it is difficult to keep them distinct.

In collecting specimens for examination, the earth should be carefully removed from the base of the stem before the plant is taken up, in order to obtain it entire and to secure the volva in as perfect condition as possible. Young plants taken just as the pileus is emerging from the volva, if kept in a warm, moist atmosphere, will continue to elongate the stem and expand the pileus.

The characters especially to be noted in the determination of the species are found in the volva, whether membranous and persistent or floccose-scaly, and more or less evanescent; in the pileus, whether smooth and naked or warty, and whether even or striated on the margin; in the stem, whether with or without an annulus, whether solid or hollow and whether with or without a bulb at the base, and if bulbous what is the character of the bulb. The color, though a conspicuous character, is so variable in some species that it is deemed of secondary importance. The spores, beyond their color, can only be available in affording distinctive characters by the aid of a compound microscope and a micrometer.

Some of the species have a very bad reputation for their deleterious and poisonous qualities, but a few are generally admitted by authors to be esculent. I have not personally tested the edible qualities of any of the species, and those indicated as edible are thus given on the authority of others. I do not consider it safe for any one who is not fully able to distinguish the edible from the poisonous species to indulge in the use of the *Amanitas* for food.

SYNOPSIS OF THE SPECIES.

1. Stem furnished with an annulus.....	2
2. Volva membranous, persistent; pileus not warty.....	3
3. Pileus widely striate on the margin, lamelle yellow....	<i>A. caesareus</i> .
3. Pileus narrowly striate, lamelle white.....	<i>A. spretus</i> .
3. Pileus even on the margin, lamelle white.....	<i>A. phalloides</i> .
2. Volva squamose, friable, sometimes evanescent.....	4
4. Pileus striate on the margin.....	5
5. Pileus widely striate, warts soon disappearing.....	<i>A. russuloides</i> .

5. Pileus narrowly striate.....	6
6. More than two inches broad, spores elliptical... <i>A. muscarius</i> .	
6. Less than two inches broad, spores globose.... <i>A. Frostianus</i> .	
4. Pileus even on the margin.....	7
7. Flesh with reddish stains when wounded..... <i>A. rubescens</i> .	
7. Flesh without reddish stains when wounded.....	8
8. Bulb of the stem acutely margined, often split.. <i>A. strobiliformis</i> .	
8. Bulb not acutely margined..... <i>A. solitarius</i> .	
1. Stem destitute of an annulus.....	9
9. Volva membranous.....	10
10. Pileus hairy-squamulose, volva large, firm. <i>A. volvatus</i> .	
10. Pileus soon glabrous, volva sheathing, flabby. <i>A. vaginatus</i> .	
9. Volva not membranous.....	11
11. Pileus soon glabrous..... <i>A. nivalis</i> .	
11. Pileus warty.. <i>A. strangulatus</i> .	
11. Pileus pulverulent..... <i>A. farinosus</i> .	

STEM FURNISHED WITH AN ANNULUS.

Agaricus cæsareus, Scop. Orange Agaric. Pileus hemispherical, then expanded, smooth, bright red or orange, fading to yellow, widely and *distinctly striate on the margin*; lamellæ free, yellow; stem equal or slightly tapering upward, flocculose, stuffed with cottony fibrils or hollow, yellowish, bearing a yellowish annulus near the top and inserted at the base in a *large loose membranous white volva*; spores elliptical, .00035 in. to .0004 in. long.

Plant 5 in. to 8 in. high, pileus 4 in. to 8 in. broad, stem 4 lines to 6 lines thick. August.

This is a large, beautiful and very showy Agaric and has been called "*Fungorum princeps*," chief of fungi. It occurs in wet seasons in thin open woods, but is not very common. It sometimes grows in large circles or "fairy rings." The American plant differs in some slight respects from the European as represented in figures and descriptions, and I have modified the description to meet the peculiarities of our plant. In Europe the pileus is said to vary in color, being sometimes white, pale-yellow, red and copper-colored, though usually orange-yellow. In our plant I have found the pileus very uniform in coloration, it being at first bright-orange or even a brilliant red, fading with age to yellow, either wholly or on the margin only. In dried specimens the red color entirely disappears. The striations of the margin are quite deep and long, and almost as distinct as in *A. vaginatus*, where they are said to be "pectinate-sulcate." The flesh is represented as yellowish. In our plant it may be white, yellow or red under the cuticle, but next the lamellæ it is pretty constantly yellow. The stem is described as subventricose. In our plant I have always found it equal or slightly tapering upwards and generally rather long in proportion to the size of the pileus, so that the American plant must have a more graceful aspect than the European. The stem is yellowish, but adorned with delicate floccose fibrils of a yellowish-rhubarb color. The annulus is also sometimes tinged with this hue. The volva is soft and almost tomentose in texture, yet distinctly membranous, persistent and white. The lamellæ are yellow, a character by which it is at once distinguished from all our other species. All authors agree in attributing esculent qualities to this fungus. It has been termed "*Cibus Deorum*," the food of the gods. Cordier says it is delicious and everywhere sought after, but utters a caution against confounding it with

the "False Orange" or Fly Agaric, *Agaricus muscarius*. *Agaricus aurantius* Bull. and *Amanita aurantia*, Pers., are given as synonyms.

Agaricus spretus, Pk. Despised Agaric. Pileus subovate, then convex or expanded, smooth or at first adorned with a few fragments of the volva, *slightly striate on the margin*, whitish or pale-brown; lamellæ close, *reaching the stem*, white; stem equal, smooth, slightly pruinose above the white annulus, stuffed or hollow, whitish, finely striate at the top, inserted at the base in the rather large *persistent membranous somewhat sheathing volva*; spores elliptical, .0004 in. to .0005 in. long, .00025 in. to .0003 in. broad, generally containing a single large nucleus.

Plant 4 in. to 6 in. high, pileus 3 in. to 5 in. broad, stem 4 lines to 6 lines thick. August.

This species occurs in bushy or open places and seems to prefer a dry gravelly or sandy soil. It is not common. It sometimes grows in clusters and then has the pileus more or less irregular. The striations of the margin of the pileus are rather short and not always deep and distinct. The lamellæ reach the stem and form little decurrent lines at its apex. The stem is without any bulb at its base, which is more or less sheathed by the persistent volva much as in *A. vaginatus*. In light sandy soil the stem penetrates the earth quite deeply. The whole plant is sometimes white, but often the pileus and stem are tinged with brown. It appears to be related in some respects to *A. porphyrius* and *A. recutitus*, but it differs from both in its coloration and in other characters.

Agaricus phalloides, Fr. Phallus-like Agaric. Pileus at first ovate or subcampanulate, then expanded, slightly viscid when young and moist, smooth or rarely adorned by a few fragments of the volva, *even on the margin*, white, yellowish-brown or blackish-brown; lamellæ rather broad, rounded behind, free, white; stem equal or slightly tapering upward, stuffed or hollow, smooth or slightly floccose, annulate, *bulbous*, the ruptured volva either appressed loose or merely forming a narrow margin to the bulb; spores *globose*, .0003 in. to .00033 in. broad.

Plant 4 in. to 8 in. high, pileus 2 in. to 5 in. broad, stem 3 to 6 lines thick. Summer and Autumn.

This species is common and variable. It occurs everywhere in woods and assumes such different colors that the inexperienced mycologist is apt to mistake its different forms for distinct species. With us the prevailing colors of the pileus are white, yellowish-white, grayish-brown and blackish-brown. It is remarkable that the form with a greenish pileus, which seems to be common enough in Europe, does not occur here. Fries also mentions a form having a white pileus with a black disk. A somewhat similar form occurs here, in which the pileus is grayish-brown with a black disk. Some of the variously-colored forms were formerly taken to be distinct species, in consequence of which several synonyms have arisen, of which *A. virescens*, Fl. Dan., *Amanita viridis*, Pers., and *Amanita citrina*, Pers., are examples. *A. vernus*, Bull., is a variety having a white pileus, a rather thick annulus and an appressed volva. It sometimes occurs early in the season; hence the specific name. It also occurs late in the season and runs into the typical form so that it is not easy to keep it distinct. The flesh and the lamellæ are white, the stem is white, pallid or brownish, and the annulus is either white or brownish. The bulb is generally very broad

and abrupt or depressed, though it sometimes is small and approaches an ovate form. The large bulbs are sometimes split externally in two or three places and are, therefore, two or three-lobed. In such cases the volva is less persistent than usual and its free portion then furnishes merely an acute edge or narrow margin to the bulb. Specimens sometimes occur in which the margin of the pileus is narrowly adorned with a slight tomentose villosity, but usually it is perfectly smooth and even. By this character taken in connection with the membranous volva and bulbous base of the stem, the species is readily distinguished. Sometimes a strong odor is emitted by it, but usually the odor is slight. Authors generally pronounce this a poisonous and very dangerous species. Its appearance is attractive, but its use as food is to be avoided.

Agaricus russuloides, *Pk.* Russula-like Agaric. Pileus at first ovate, then convex or expanded, at first rough with a few superficial warts, soon smooth, viscid when moist, *widely striate-tuberculate on the margin*, pale-yellow or straw color; lamellæ close, free, narrowed toward the stem, white; stem firm, smooth, stuffed, equal or slightly tapering upward, bulbous, furnished with a thin subevanescent annulus; *volva fragile*, subappressed; spores broadly elliptical, .0004 in. long, .0003 in. broad.

Plant 2 in. to 3 in. high, pileus 1.5 in. to 2 in. broad, stem 3 lines to 5 lines thick. June.

This rare species was found in grassy places in open woods, several years ago, and has not been met with by me since. It is remarkable for and easily known by the widely striate margin of the pileus. The tuberculate appearance is due to short transverse veins or wrinkles which intervene between and connect the lamellæ and give to the surface of the pileus an appearance similar to that seen in many species of *Russula*. The dried specimens look very much like small dried forms of *A. cæsareus*, but they have not the perfect volva of that species. The bulb is ovate and the volva fragile and easily broken into fragments. Its nearest relationship is with *A. muscarius*, from which its smoother pileus and peculiar margin at once distinguish it.

Agaricus muscarius, *L.* Fly Agaric. Pileus at first ovate or hemispherical, then broadly convex or nearly plane, slightly viscid when young and moist, *rough with numerous whitish or yellowish warts*, rarely smooth, narrowly and *slightly striate on the margin*, white, yellow or orange-red; lamellæ white; stem equal or slightly tapering upward, stuffed with webby fibrils or hollow, bearing a white annulus above, *ovate-bulbous* at the base, white or yellowish; the volva usually breaking up into scales and adhering to the upper part of the bulb and the base of the stem; spores *elliptical*, .0003 in. to .0004 in. long, .00025 in. to .0003 in. broad.

Plant 5 in. to 8 in. high, pileus 3 in. to 6 in. broad. June to October.

The Fly Agaric, or "False Orange" as it is called in France, is a common and variable species. It occurs in thin open woods and in bushy pastures. The fine ornamentation of its warts and its beautiful colors make it a very showy and attractive species. I have not seen it with the bright blood-red or scarlet colors attributed to the European plant, but it is usually more or less orange-colored when young, fading to yellow with advancing age, either wholly

or on the margin only. Sometimes the fading process goes on until the pileus is nearly white. In one variety the pileus is of a uniform citrine or lemon-yellow color, in another it is wholly white. This form I suspect is the same as *A. subremotus*, B. & C. The margin is narrowly and usually but slightly striate. Sometimes, especially after heavy rains, it is not uncommon to find specimens almost or entirely destitute of warts and even of the fragments of the volva at the base of the stem. The flesh under the cuticle is not always yellow. It may be either white or orange according to the color exhibited by the pileus. The lamellæ are sometimes faintly tinged with a yellowish or creamy hue. The stem also, which is usually white, may be occasionally tinged with yellow. The remains of the volva often encircle it at the base in a somewhat concentric manner. The varieties already mentioned may be characterized thus:

Var. *formosus* (*Amanita formosa*, G. & R.) Pileus soft, fragile, citrine-yellow, warts loose, white or yellowish. Var. *albus*. Pileus white, warts rather firm, subacute. Var. *regalis*, a large form with a liver-colored pileus, and Var. *umbrinus* with a thin, brown or livid pileus and dark-brown disk I have not seen.

The species is renowned for its intoxicating and poisonous properties. Cordier states that it is one of the most active poisons and has caused numerous accidents by being mistaken for the Orange Agaric. A kind of fly poison is sometimes manufactured from it. If a moist plant be placed where flies have access to it they will sip the viscid substance from the surface of the pileus and pay the penalty with their lives. I have seen it surrounded by a circle of dead flies thus destroyed.

Agaricus Frostianus, *Pk.* Frost's Agaric. Pileus convex or expanded, bright-orange or yellow, warty, sometimes nearly or quite smooth, striate on the margin; lamellæ free, white or slightly tinged with yellow; stem white or yellow, stuffed, bearing a slight, sometimes evanescent, annulus, bulbous at the base, the bulb *slightly margined* by the volva; spores *globose* .0003 in. to .0004 in. in diameter.

Plant 2 in. to 3 in. high, pileus 1 in. to 2 in. broad, stem about 2 lines thick. June to October.

This appears like a very small form of the Fly Agaric, to which, as var. *minor*, it was formerly referred. The only decided characters for distinguishing it are its small size and globose spores. Relying mainly on the latter I have hesitatingly admitted it as a species. It should yet be compared with *Amanita puella*, G. & R., which Fries regards as a mere form of *A. muscarius*, characterizing it with the words "smaller, without warts." It is also near, *A. gemmatum* Fr., but that is described as having a solid exannulate stem. Mr. Frost's manuscript description says "not often warty," but I have nearly always found it more or less warty. The specific name "affinis" which was given to this species by Mr. Frost, has been more than once used, in connection with other species, and it seems best to substitute another for it. Our plant sometimes grows in company with *A. muscarius*, but it seems to prefer more dense woods, especially mixed or hemlock woods. It is generally very regular and beautiful and has the stem quite often of a yellow color, and the bulb margined above with a collar-like ring.

Agaricus rubescens, *Pers.* Reddish Agaric. Pileus at first ovate, then broadly convex or nearly plane, *warty*, slightly viscid when young

and moist, even or substriate on the margin, whitish, reddish-brown or brown; lamellæ reaching to the stem toward which they are narrowed, white; stem equal or slightly tapering upward, squamulose, stuffed or hollow, thickened or bulbous at the base, slightly striate at the top, annulate, whitish or pallid; *flesh becoming reddish where wounded*; spores elliptical, .0003 in. to .00035 in. long, .0002 in. to .00025 in. broad.

Plant 4 in. to 6 in. high, pileus 3 in. to 5 in. broad, stem 4 lines to 6 lines thick. July to September.

This Agaric occurs both in thin and in dense woods. It is solitary or scattered in its mode of growth. The pileus is generally adorned with soft, easily removable, whitish or reddish-stained warts, but as in other species, it is not unusual after heavy rains to find specimens with the pileus entirely naked. The margin of the pileus is generally even, but sometimes specimens are found in which it is slightly striated. It is also in this, as in all the other species, sometimes split in one or more places. The color is quite variable and is generally somewhat sordid and undecided in character. It is whitish, alutaceous, pinkish-brown, yellowish-brown or reddish-brown. The flesh is white and generally becomes reddish where bruised or wounded, especially in warm wet weather. Reddish stains are usually found on the stem or lamellæ, being the result probably of the bites of insects. They are not always readily produced at will in the American plant. Sometimes the little branny scales that clothe the stem are colored red. The base of the stem is thickened or bulbous, but the bulb is ovate or gradually tapering into the stem, and not abrupt and distinct as in *A. phalloides*. The volva is wholly friable and often entirely disappears from the base of the stem or bulb.

A. circinatus, Schum., is regarded by Fries as a variety of this species, distinguished by its plane brownish-red pileus and numerous adnate circinating warts. *A. verrucosus*, Bull., is a mere form with minute warts and flesh slowly changing to red.

One author places this Agaric among the suspected species. Berkeley says of it, "Quality doubtful," while most authors, including Badham, Rogues, Currey, Cooke and Curtis, pronounce it esculent. Cordier says it is a most delicate food, of which large quantities are consumed in Lorraine.

Agaricus solitarius, Bull. Solitary Agaric. Pileus convex or plane, *warty*, white or whitish, *even on the margin*; lamellæ reaching the stem, white or slightly tinged with cream-color; stem at first mealy or scaly, equal, *solid*, white, bulbous, the bulb scaly or mealy, *narrowed below into a root-like prolongation*; *annulus lacerated*, often adhering in fragments to the margin of the pileus and lamellæ; spores elliptical-oblong, .0003 in. to .0005 in. long, .00025 in. broad.

Plant 4 in. to 8 in. high, pileus, 3 in. to 6 in. broad, stem 4 lines to 6 lines thick. August and September.

The Solitary Agaric grows singly or very much scattered in thin woods and open places. It is generally white throughout, though sometimes the pileus is tinged with brown and the warts are a little ochreous or brownish. In some specimens they are few and scattered, but generally they are numerous, crowded, angular and often erect and acute, especially on the disk. There are two forms of the species. In one, the volva breaks up into brownish scales which adorn the bulb

and lower part of the stem. In the European plant these scales are said to be imbricating. I have not found this form in our State, but it occurs farther south. In the other, the bulb and lower part of the stem are covered with white mealy or granular particles. This form occurs on Long Island. The annulus also and the upper part of the stem, when young, are covered with floccose or mealy particles. The former is soon lacerated and a part of it frequently adheres to the margin of the pileus and the edge of the lamellæ. Sometimes there is very little of it left to form a ring on the stem. This lacerated annulus and the peculiar deeply-rooting bulb are marked and distinguishing features in this species. *A. echinocephalus*, Vitt., is apparently a closely-related species, but is characterized as having a shining pileus with pyramidal acute seceding warts and a distant persistent annulus. The lamellæ are also said to become green. *A. albellus*, Scop., and *Aminata pellita*, Secr., are regarded by Fries as synonyms.

Authors are divided in their estimate of the qualities of this fungus, one saying that it is very poisonous, another, that it is scarcely edible, and another, that its flesh is white and of an excellent flavor. In any case it is too scarce with us to be of much value.

Agaricus strobiliformis, Vitt. Fir-cone Agaric. Pileus convex or nearly plane, *rough with angular supersistent warts*, white or cinereous, sometimes yellow on the disk, the margin even and extending a little beyond the lamellæ; lamellæ free, rounded behind, not reaching the stem, equal or slightly tapering upward, *solid*, floccose-scaly, white, bulbous, *the bulb very large, margined above and furnished with one or two concentric furrows*, somewhat pointed below, floccose mealy when young; spores elliptical, .0005 in. to .0006 in. long, .0003 in. to .0004 in. broad.

Plant 6 in. to 10 in. high, pileus 6 in. to 10 in. broad, stem 8 lines to 15 lines thick. Autumn.

This Agaric, which usually attains a very large size, is quite rare with us. It is generally of a white or whitish color, but sometimes yellowish on the disk, and it has the pileus rather thickly studded with firm angular mostly persistent warts which are often flattened at the top in such a way as to resemble somewhat the scales of a pine cone, whence the specific name. They are generally whitish though sometimes tinged with brown. In some instances they fall away and leave the pileus nearly smooth. The annulus is large, and as in the preceding species is often torn or lacerated. The bulb at the base of the stem is one of the peculiar and distinguishing features of the species. It is very large, sometimes attaining a diameter of two and a half inches, and at the upper part a slight furrow intervenes between its narrow margin and the stem, as if produced by the impressed margin of the young pileus. Sometimes a second furrow surrounds the bulb a little below this, and below the second furrow the thick exterior coat of the bulb is split longitudinally in several places, thus giving it a lobed appearance. The larger part of the bulb often appears above the surface of the ground, but it is somewhat pointed or conical below and thus slightly penetrates the earth, but it has not the long distinct tap root that so strongly characterizes the preceding species. All traces of the volva soon disappear from the bulb. The plant formerly referred to *A. muscarius* as variety *major* is to be referred to this species. The solid

stem and even margin of the pileus separate this species from white forms of *A. muscarius*. Authors generally agree in calling it an edible species.

STEM DESTITUTE OF AN ANNULUS.

Agaricus volvatus, Pk. Volvate Agaric. Pileus convex, then nearly plane, *slightly striate on the margin, hairy or floccose-scaly*, white or whitish, the disk sometimes brownish, lamellæ close, free, white; stem equal or slightly tapering upward, stuffed, minutely floccose-scaly, whitish, inserted at the base in a *large, firm, cup-shaped, persistent volva*; spores *elliptical*, .0004 in. long, .0003 in. broad.

Plant 2 in. to 3 in. high, pileus 2 in. to 3 in. broad, stem 3 to 4 lines thick. July and August.

This species is quite rare. It grows in woods and open places and is easily distinguished from all others by the absence of the annulus and the presence of the large somewhat cup-shaped persistent volva. The pileus is not smooth as is usually the case in the species with a persistent membranous volva, but is more or less scaly with minute tufts of fibrils or tomentose hairs. Sometimes the margin is not very distinctly striate. The color varies from white to brownish. The lamellæ, which are white in the fresh plant, in the dried specimens assume a dull cinnamon-brown hue, except on the edge which remains white and is more or less floccose. *A. volvaceus*, Bull., has a similar volva, but its spores and lamellæ are pinkish or flesh-colored and it belongs, therefore, to the subgenus *Volvaria*.

Agaricus vaginatus, Bull. Sheathed Agaric. Pileus at first ovate or subcampanulate, then convex or nearly plane, *smooth*, rarely adorned with a few fragments of the volva, slightly viscid when young or moist, *deeply and distinctly striate on the thin margin*, very variable in color; lamellæ free, white or whitish; stem rather slender, equal or slightly tapering upward, stuffed or hollow, fragile, nearly smooth or minutely mealy-squamulose, *not bulbous*; surrounded at the base by the more or less elongated *sheathing flabby volva*; spores *globose*, shining, .0003 in. to .0004 in. in diameter.

Plant 4 in. to 7 in. high, pileus 2 in. to 4 in. broad, stem 2 lines to 4 lines thick. Woods and copses, sometimes on much decayed wood. June to October.

This, like our other common species *A. muscarius* and *A. phalloides* is very variable. The pileus is generally smooth, but sometimes, especially in young plants, it is adorned with one or more irregular fragments of the volva. The thin margin is rather widely striate and the striæ are so deep and distinct that the margin has sometimes been described as "sulcate" and "pectinate-sulcate." The prevailing colors are grayish-brown, livid-brown and tawny or ochery-brown with their intermediate shades. The flesh and lamellæ are white or whitish, and the stem is generally paler than the pileus. Both it and the pileus are somewhat fragile and the plant is easily broken unless handled with care. The pileus is sometimes slightly prominent or umbonate in the center, but it is nearly plane and quite regular. In very wet weather this and many other species sometimes have the margin a little raised or reflexed so that the pileus appears concave or depressed in the center. The volva is so fragile that unless care is taken in gathering the

specimens it does not adhere to the base of the stem but is left in the ground. In appearance this species is rather slender and regular, in mode of growth it is solitary or very much scattered. It grows in woods either dense or thin and sometimes in open places, and it seems to be able to accommodate itself to a great variety of circumstances. As it often happens, the variability of this species has given rise to numerous synonyms, which are mostly indicative of its various colors. Among these may be mentioned *A. plumbeus*, Shæff., *A. hyalinus*, Schæff., *A. badius*, Schæff., *A. fulvus*, Schæff., *A. trilobus*, Bolt., *A. pulvinatus*, Bolt., *Amanita livida*, Pers., and *Am. spadicea*, Pers. Some authors class this among the edible species, others, among the suspected or doubtful ones. Cordier pronounces it a delicate food.

Agaricus nivalis, Grev. Snowy Agaric. Alpine Agaric. Pileus at first ovate, then convex or plane, smooth, *striate on the thin margin*, white, sometimes tinged with yellow or ochraceous on the disk, flesh white; lamellæ subdistant, white, free; stem equal, rather tall, nearly smooth, *bulbous*, stuffed, white, the volva very fragile, *soon breaking up into fragments or sometimes persisting in the form of a collar-like ring at the upper part of the bulb*; spores globose, .0003 in. to .0004 in. in diameter.

Plant 4 in. to 6 in. high, pileus 2 in. to 3 in. broad, stem 2 to 4 lines thick. July to October.

This fungus has generally been considered a mere variety of the preceding, from which, according to the "English Flora," it differs merely in the "greater distance of the lamellæ and the greater compactness of the stem." But in the American plant, which seems to me to be the same specifically, I find two other notable points of distinction, namely, the more frail fragmentary volva and the distinctly bulbous base of the stem. This last character is also noticed in Greville's description, and it has especially influenced me to keep the species distinct. In its original locality its habitat is said to be "highland pastures and summits of mountains." With us it occurs in open, grassy places and in thin woods, but it is not common. I have seen it in the counties of Essex, Rensselaer and Otsego. It approaches in some respects, *A. Frostianus*, but its larger size, smooth pileus, lighter color and the absence of an annulus will easily distinguish it from that species. *A. fungites*, Batsch, is given as a synonym of this species.

Agaricus strangulatus, Fr. Strangulated Agaric. Pileus at first ovate or subelliptical, then campanulate, convex or plane, *warty*, slightly viscid when moist, *deeply and distinctly striate on the margin*, grayish-brown; lamellæ free, close, white; stem equal or tapering upwards, stuffed or hollow, nearly smooth, white or whitish, *the volva soon breaking up into scales or subannular fragments*; spores globose, .0004 in. to .0005 in. in diameter.

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

This plant was found in 1869 growing in the grassy borders of a grove near Greenport, Long Island. I have not since found it, and conclude that it is a very rare species with us. In color and general appearance it resembles *A. vaginatus*, from which it may be distinguished by the warty pileus and the slight volva which does not sheath the base of the stem, but soon breaks up into small fragments, or scales, which sometimes

form a sort of ring around the base of the stem, but which oftener remain as scales or disappear entirely. The warts of the pileus are often very numerous, persistent and close, especially on the disk, but sometimes they nearly all disappear, leaving the resemblance to *A. vaginatus* very close. They are dingy-gray or mouse-colored. The stem usually tapers upward and is adorned with minute branny scales or with a sort of mealliness, especially on the upper part. This species was described by Berkeley and Broome under the name *A. Ceciliae*, but Fries considers it the same as his *A. strangulatus*. Our plant has globose spores, while the spores of *A. Ceciliae* are described in the Handbook of British Fungi as "oval, .00034 by .0006 in.," a discrepancy which I am unable to explain. Neither is the application of the specific name *strangulatus* clear.

Agaricus farinosus, Schw. Mealy Agaric. Pileus nearly plane, thin, *flocculent-pulverulent*, widely and deeply striate on the margin, grayish-brown or livid-brown; lamellæ free, whitish; stem whitish or pallid, equal, stuffed or hollow, mealy, *subbulbous*, the volva *flocculent-pulverulent*, evanescent; spores variable, *elliptical ovate* or *subglobose*, .00025 in. to .0003 in. long.

Plant about 2 in. high, pileus 1 in. to 15 lines broad, stem 1 line to 3 lines thick. July to September.

This is our smallest *Amanita*. It is neither very common nor very abundant when it does occur. The pileus is generally grayish-brown or mouse-colored, though specimens sometimes occur that are almost white. The striations of the margin are long and generally distinct. The dusty flocculent covering is grayish-brown and usually most dense on or near the center of the pileus. It is this that suggests the specific name and affords a good distinguishing character for the species, which might otherwise be easily mistaken for a diminutive form of *A. vaginatus*. The lamellæ are sometimes uneven or floccose on the edge, which gives them a serrated appearance. Toward the outer extremity they are somewhat venosely connected in the interspaces as in *A. russuloides*. The stem is whitish and more or less mealy, with a slight bulb at the base which is at first clothed like the pileus. It is described by Schweinitz as "solid," but I have always found it stuffed or hollow.

Two other species of *Amanita* have been published by *E. C. Howe*, M. D., of Yonkers, under the names *A. onustus* and *A. soleatus*. No locality is added to the descriptions, but they are presumably of this State. I have seen no specimens of these species, but the description of the latter indicates that it is the same as *A. volvatus*. I have therefore deemed it best to omit them, until we have more definite information concerning them.

In the preceding pages, when no name is added to the station or stations mentioned, the plant has been found therein by the writer. Dates signify the time when the specimens were collected, and therefore indicate, to some extent, the time of the occurrence of the plant. Grateful acknowledgments are rendered to those Botanists whose names appear in the preceding pages, and who have kindly aided me by contribution of notes and specimens.

Very respectfully submitted,

CHARLES H. PECK.

ALBANY, January 7, 1880.

[Assem. Doc. No. 127.] 7

EXPLANATION OF PLATE I.

CORYNEUM PUSTULATUM *Peck.*

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- FIG. 1. Piece of a branch bearing the fungus in pustules.
FIG. 2. One immature and three mature spores in position x 400.
FIG. 3. Two free spores x 400.

ASTEROSPORIUM BETULINUM *Peck.*

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- FIG. 4. Piece of a branch bearing the fungus in pustules.
FIG. 5. One immature and two mature spores x 400.

SYMPHRAGMIDIUM EFFUSUM *Peck.*

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- FIG. 6. A piece of wood bearing a patch of the fungus.
FIG. 7. Mycelium with two rudimentary spores x 400.
FIG. 8. A spore with the series of cells adhering to each other x 400.
FIG. 9. A spore with the series of cells separating from each other x 400.
FIG. 10. A single separated series of cells separating from each other x 400.

TORULA UNIFORMIS *Peck.*

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- FIG. 11. A piece of bark bearing tufts of the fungus.
FIG. 12. Two clusters of flocci x 400.
FIG. 13. Two flocci united at the base x 400.

MICROSTROMA LEUCOSPORUM *Niessl.*

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- FIG. 14. Part of a leaflet bearing small patches of the fungus.
FIG. 15. Vertical view of a spore mass x 400.
FIG. 17. Lateral view of a spore mass x 400.
FIG. 17. Five spores x 400.

CANTHARELLUS BREVIPES *Peck.*

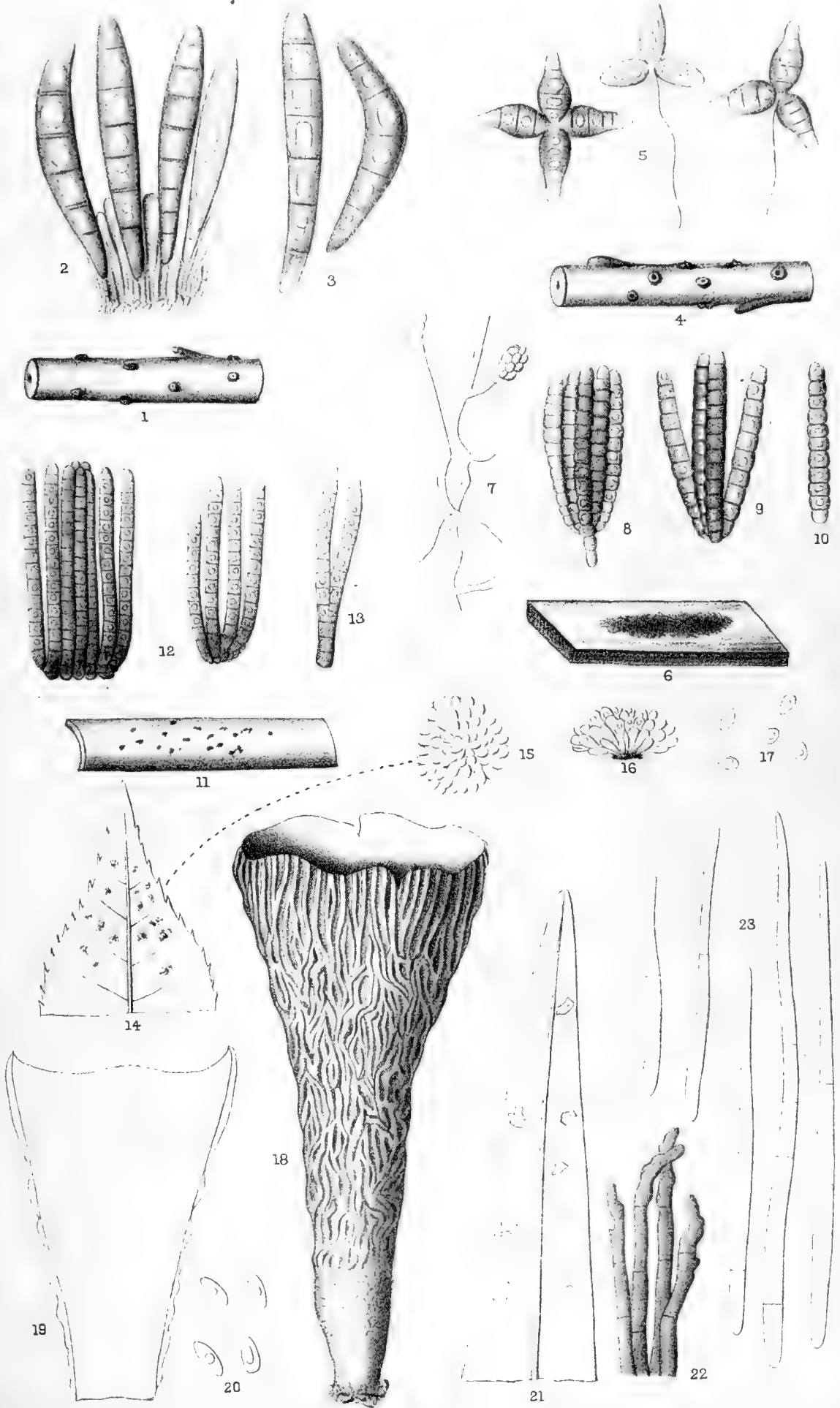
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- FIG. 18. A small plant.
FIG. 19. Vertical section of a pileus.
FIG. 20. Four spores x 400.

CERCOSPORA ELONGATA *Peck.*

Page 29.

- FIG. 21. Part of a leaf bearing the fungus in angular spots.
FIG. 22. A tuft of flocci x 400.
FIG. 23. Five spores x 400.



EXPLANATION OF PLATE II.

**CERCOSPORA SMILACIS* Thum.

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- FIG. 1. A leaf bearing the fungus in orbicular spots.
FIG. 2. A tuft of flocci x 400.
FIG. 3. Three spores x 400.

HELICOSPORIUM CINEREUM Peck.

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- FIG. 4. A piece of wood bearing a patch of the fungus.
FIG. 5. Mycelium and part of three flocci x 400.
FIG. 6. One spore partly uncoiled and two spores coiled x 400.

PATELLARIA HAMAMELIDIS Peck.

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- FIG. 7. A piece of bark bearing the fungus.
FIG. 8. Two receptacles magnified.
FIG. 9. A paraphysis and an ascus containing spores x 400.
FIG. 10. Four spores x 400.

CALICIOPSIS PINEA Peck.

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- FIG. 11. A piece of bark bearing the fungus.
FIG. 12. One mature and two immature plants with a cluster of sphaeriform bodies at the base, all magnified.
FIG. 13. Two asci containing spores x 400.
FIG. 14. Five spores x 400.
FIG. 15. Five spermatia x 400.

HELVELLA PALUSTRIS Peck.

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- FIG. 16. A young plant.
FIG. 17. A mature plant.
FIG. 18. A paraphysis and an ascus containing spores x 400.

VALSA ACROCYSTIS Peck.

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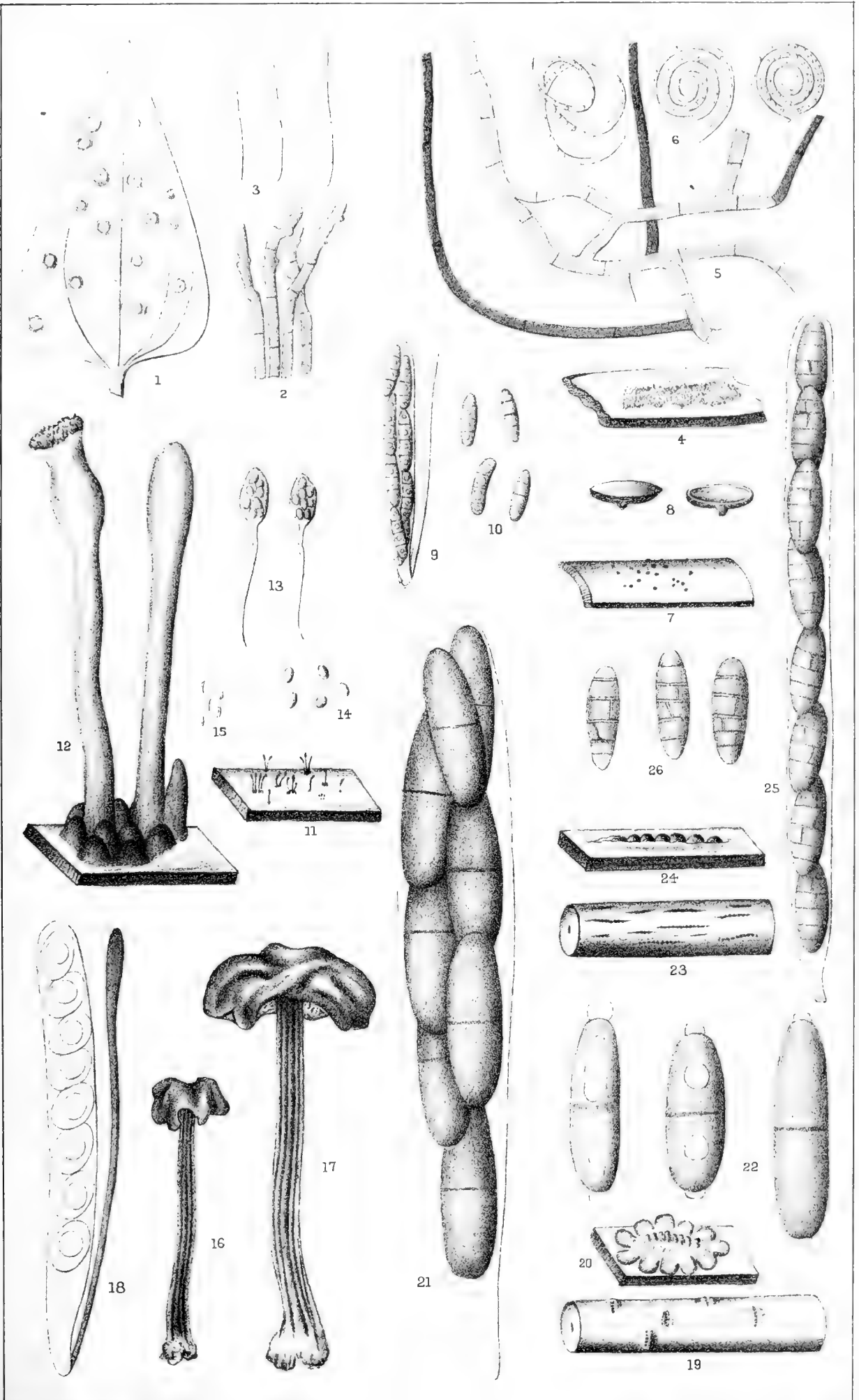
- FIG. 19. Piece of a branch bearing the fungus.
FIG. 20. A magnified cluster of perithecia with the epidermis removed.
FIG. 21. An ascus containing spores x 400.
FIG. 22. One immature and two mature spores x 400.

CUCURBITARIA LONGITUDINALIS Peck.

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- FIG. 23. Piece of a branch bearing the fungus.
FIG. 24. A row of perithecia magnified.
FIG. 25. An ascus containing spores x 400.
FIG. 26. Three spores x 400.

*This species was unpublished when the report was written, but was afterward published by Baron Thumen. Owing to the delay in printing I am enabled to insert the name given by him and thus avoid a synonym.



1914

1914

34th Report

STATE MUSEUM OF NATURAL HISTORY.

23

- ~~Catalogue of Scientific Serials of all Countries, 1633-1872, 8vo. S. H. Scudder, Cambridge, 1879.~~
~~The American Entomologist, 1880.~~
~~The Naturalists' Directory for 1879. S. E. Cassino, Boston, 1879.~~
~~Encyclopædia Britannica Vol. X, 1879, Vol. XI. New York, 1880.~~
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~~The Nation, Vols. 30 and 31. New York, 1880.~~

34 REGENTS REPORT

1883

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1880

34 Reg. Rep.
REPORT OF THE BOTANIST.

Hon. DAVID MURRAY, LL. D., *Secretary of the Board of Regents of the University:*

SIR — Since the date of my last report, specimens of two hundred and thirty-nine species of plants have been mounted and placed in the Herbarium in the State Museum of Natural History, of which one hundred and sixty-seven were not before represented therein. Seventy-two species have been represented by better specimens or by the addition of specimens of some form or variety not before shown. A list of the mounted specimens is marked (1). Specimens have been collected in the counties of Albany, Columbia, Dutchess, Essex, Greene, Hamilton, Franklin, Rensselaer, Schenectady, Saratoga, Ulster and Warren. These represent one hundred and ninety-seven species, of which eighty-five are new to the Herbarium and thirty-eight are believed to be unpublished. A list of collected specimens is marked (2). Specimens of thirteen New York species, new to the Herbarium and not among my own collections, have been contributed by correspondents, or have been obtained in naming specimens for them. These, added to the collected species, make the whole number of additions new to the Herbarium, ninety-eight species. A list of contributors and their contributions is marked (3). Previously unreported species will be noticed and descriptions of new species given in a part of the report marked (4). New stations of rare plants, remarks upon interesting species or varieties, and various observations are recorded in a part marked (5).

The plants designated by the term "fungi," are very numerous, whether we speak of them as individual plants or as species. In localities where they have been most thoroughly collected and investigated they outnumber in species the larger and far more conspicuous flowering plants. They are also extremely varied in their characters and habits. All, however, are comparatively small in size, but few species ever attaining the length or breadth of a single foot. If we except the fleshy and speedily perishable sorts which are not generally very abundant, we may say that most of the species are too small to be readily distinguished by the naked eye. And of no species is it possible for the unaided eye to distinguish clearly the shape and features of the spores (seeds). Even the entire plant in multitudes of species would probably wholly escape observation and detection if they had not the habit of growing in masses or patches of many individuals closely congregated together, for masses of minute objects become visible when the single elements that compose them are invisible. They sometimes produce changes also in or on the substances they inhabit, which attract attention and lead to their discovery. Such changes were known and noticed long before the fungi that produce

them were detected. The leaves of many plants often became discolored in spots or would wither and die in an unaccountable manner ; the branches of plum trees and cherry trees bore black and unsightly excrescences which at length caused them to die ; potato vines were suddenly affected with blackish spots and premature death, and the tubers themselves rotted mysteriously, either in the ground or out of it ; fields of waving grain were struck with " rust " that was not due to any oxidation ; stems and leaves of grass and grain were " branded " in blackish lines, yet not by the use of fire ; Indian corn often produced turgid, smutty excrescences on the ears that should have been well filled with golden grain ; the products of the fruit trees and the orchards would speedily decay without any apparent or satisfactorily explainable cause ; the sweetened juice of grapes and other fruits would quickly ferment, effervesce and indicate chemical activity without the introduction of any chemical reagents ; preserved fruits would often turn sour or musty ; even sweet milk would not retain its sweetness long ; wood thoroughly dried and kept so, or if kept constantly submerged, was found to be almost imperishable, but in intermediate circumstances it would speedily decay. These and many other phenomena were noticed, and their causes were sometimes made the subject of speculative theories, but the real agencies that produced them were not and could not well be fully understood till investigated by the aid of the microscope. When by this means our powers of vision have been sufficiently increased, we find that the dead spots on leaves usually bear crops of minute fungi, that the " black knot " of plum and cherry trees is an enlargement of the branch covered by a fungus whose threads have caused the mischief, that the spots on the potato leaves and the consequent rotting of the tubers are the work of a minute parasitical fungus, that the " rusts " and " brands " of the grain fields, the smut of corn, the decay of fruits, the fermentation of juices, the souring of milk and other substances and the rotting of wood are all due to the presence of fungi of one kind or another. And now that the microscope has disclosed this previously almost invisible world of vegetation and we have entered upon its investigation, we can only wonder at its extent and importance. We find these minute organisms endowed with certain definite forms and certain fixed structural characters by means of which they can be systematically classified and specifically designated just as readily as the ordinary plants we see about us. We find in many instances that they have peculiar habits and habitats to which they are addicted, so that a knowledge of the habitat and behavior of the fungus is many times sufficient to indicate pretty accurately the systematic character of the parasite.

We have already learned that nearly all flowering plants, whether cultivated or wild, have one or more parasitic fungoid foes to whose attacks they are sometimes subject. Some plants have several of these enemies that attack them in one part or another, at one time or another, while some more fortunate are rarely affected and then only under circumstances peculiarly favorable to the parasite. Besides the fungi that attack only living plants, there are multitudes of species that are often less particular concerning their habitat and that revel promiscuously upon the tissues of dead plants. Nor can we stop here, for living animal

organisms are by no means exempt from the pernicious and even fatal attacks of these minute parasites. Fishes and flies, silkworms and cicadas, the larvæ and pupæ of various moths, beetles and other insects are killed by certain fungi that grow in or upon them. So peculiarly liable are insects to death from this cause that eminent scientists have suggested that these parasitic plants may be made available as insecticides with which we may combat injurious species. But before this can be accomplished it is necessary to find a fungus that will inhabit the insects we wish to destroy, for it is evident that no single insect-killing fungus can be used against every noxious insect; and, unfortunately, those insects which are most hurtful to our crops do not thus far appear to be subject to the attack of any fungus. Parasites and predaceous foes of their own class yet appear to be a more promising means of diminishing the numbers and ravages of such insects.

Most of our knowledge of fungi has been acquired within the present century. Many thousands of species have been described and classified, and new ones are discovered and published almost monthly. But much yet remains to be done. The life histories and the true specific limits of many comparatively common species are yet to be ascertained. In some instances a kind of polymorphism or alternation of generations exists and makes investigation more difficult. The minuteness of some species and the peculiar conditions necessary for the development of others are also obstacles to be overcome before we can claim to fully understand these organisms. Indeed there is a lower grade of these very lowly plants the investigation of which is difficult even with our best microscopes. I refer to such organisms as Bacteria, Vibriones, Bacilli and Micrococci. To them the putrefaction of animal substances is attributed and also of some vegetable substances; they are also charged with the production of some of the most destructive maladies of our domestic animals; and the recent investigations of Prof. Burrill indicate that they are responsible too for the production of those dread diseases of our fruit trees, the "yellows" of the peach and the "blight" of the apple and the pear trees, diseases that have hitherto baffled all efforts to ascertain their causes. There are also those who believe that many of the contagious diseases of the human race are due to similar agencies. It is very probable that this belief will yet be supported by abundant evidence; but, if it should not be, enough is already known to make it evident that the relations of fungi to our material interests and well-being are much more intimate and far-reaching than is generally supposed. In view of their relations to us and to our food-plants, and of their importance in the economy of nature, and of the general lack of information concerning them, I have thought it would be well to give a plain and easy account of a few of our common species, avoiding, as far as possible, the use of technical terms and illustrating the minute parts by enlarged drawings. I have selected for this purpose such species as almost any one may find and observe if they will examine our corn fields, strawberry plants and orchards.

Ustilago Maydis, *Lev.* Indian corn Smut. (Plate 3, Figs. 1-3.) This fungus can be found in almost any corn field after the corn has developed its flowers. The visible part of the fungus consists of more

or less irregular and unsightly swellings or excrescences on the tassel or the ears of the corn. Very rarely these swellings occur on the stem and leaves also, but as a rule they occur on the tassels and ears and more often on the latter than on the former. They are very variable in size and shape. Generally they range from the size of a hazel-nut to that of an ordinary apple. They are soft to the touch and externally whitish and membranous, but they soon rupture and are then more or less stained by their own contents. The interior is composed of a shreddy mass of tissue filled in and covered over with a copious blackish-brown dust or powder that creaks the fingers in handling it or the clothes that brush against it. By microscopic examination this is found to be a mass of globular grains each one of which has a diameter of about four ten-thousandths of an inch; that is, it would take two thousand five hundred of them when laid in a straight row in contact with each other to cover the space of one inch. The surface is covered with minute points or prominences which gives them a rough but pretty appearance under the microscope. These powdery grains are the spores, that is, the seeds of the fungus. There are thousands, perhaps millions of them in a single excrescence. Nature has thus made plentiful provision for the multiplication and spread of the fungus. This and other closely related fungi have been specially studied by Professor Fischer Von Waldheim who finds that the fungus enters the corn while yet young, tender and germinating. The spores of the fungus are scattered over the ground by the wind. They may then be carried beneath its surface by rain or water soaking into the ground or the farmer himself in preparing his ground and planting his seed may unwittingly plant beneath the surface the seeds of a crop of fungi. If any of these spores happen to be in such a position that they come in contact with the young corn sprout in its upward growth they immediately send forth their growing filaments which penetrate the tender tissues of the young plant. When they have established themselves within the supporting plant they continue to live at its expense and grow with its growth, extending themselves upward through the stem as it elongates, until the proper time comes for them to break forth in excrescences and perfect a new crop of spores. It is characteristic of the smuts that they perfect their spores in certain definite parts of the supporting plant, though their mycelial threads may pervade all parts of the plant. A few produce their spores in the leaves or on the stem, but most of them develop their fruit in the flowers or seeds of the host plant. A knowledge of this fact is important in case it is deemed desirable to attempt the destruction or extermination of the parasite. It may serve as a guide to us in our search for the pest, informing us both as to the time when and the place where. In the case of the Indian corn smut it would be useless to look for it before the tassels appear. I am not aware that any experiments, made with the purpose to discover a remedy for this malady, have been successful. It is not probable that any external application will be of much avail, for the threads of the fungus are well protected by the surrounding tissues of the supporting plant. In this, as in so many other cases, prevention is better than cure. Although it may not be possible wholly to prevent the attacks of this pest, yet it is reasonable

to suppose that if every cultivator of corn would go through his fields at the proper time, that is, as soon as the excrescences have made their appearance, and cut off and burn up every excrescence, he would thereby prevent the dissemination of millions of these fungus spores and do much toward the prevention of the continuance and spread of the evil. Though the winds may carry the spores to great distances it is probable that most of them fall to the ground in the field in which they are produced. In this event it is easy to see that corn raised for several consecutive years on the same piece of ground would be more likely to be affected with smut than corn raised where there is a constant rotation of crops.

The specific name *Maydis*, applied to this fungus, is derived from the specific name *Mays*, which belongs to its supporting plants. *Ustilago Zeæ*, Schw., is a synonym, the specific part of which is derived from *Zea*, the generic name of Indian corn. The specific names of fungi are often derived from the name of the plant they inhabit.

Helminthosporium inconspicuum, C. & E. Obscure corn-leaf Fungus. (Plate 3, figs. 4-6.) If the lower leaves of corn stalks be examined toward the end of Summer, some of them will be found to be dead and discolored at and near the pointed end. This discoloration is sometimes continuous, involving the whole outer half of the leaf, and sometimes it is interrupted and forms spots of various sizes and shapes. The spots, by increasing in size, become confluent, and thus a leaf at first spotted may soon become uniformly discolored. The discoloration results from the death of the leaf tissues and the destruction of the green coloring matter of the leaf cells, the affected part appearing to the observer like so much dead leaf. The fungus that causes the discoloration is too minute to be easily seen by the unaided eye. But if a hand-glass of moderate magnifying power is brought into use, the surface of the dead spots will appear as if adorned with a slight pubescence or hairiness. With good eyes, well trained, this apparent hairiness can be seen in a favorable light by looking horizontally across the surface of the affected part. By microscopic examination it is found that this appearance is not due to the presence of hairs, but of a minute fungus. Numerous short, stiff, dark-colored articulated threads grow up from the surface, each one of which bears at its apex one or two nearly black spores. These are about as long as the threads and a little thicker. They are generally from thirty-five to forty-five ten-thousandths of an inch long, and about one-seventh or one-eighth as broad. They are divided into several cells by dark transverse partitions. In the original description of the species these partitions are said to vary in number from three to five, but I have generally found them more numerous, running up even to eight or nine. The life history of this fungus has not yet been traced and therefore it is not known where it passes the Winter. The genus to which it belongs takes its name from two Greek words, one of which signifies a worm, and the other, a spore. It was doubtless given because of some fancied or real resemblance between the spores of some species and a worm. The species of *Helminthosporium* usually inhabit vegetable matter already dead. From the habit the present species has of attacking the lower leaves only, which already have had their vigor impaired by age, and their vitality diminished by partial

exclusion from the full rays of the sun, it is quite probable that it never attacks healthy and vigorous leaves, but only those already weak and languishing. In this case it would be but slightly different in its habitat from those species that live on dead vegetable matter, and it could only be said to hasten the death of the leaf by a few days or weeks and therefore should not be regarded as a very noxious fungus. It is not unusual to find another fungus, a species of *Macrosporium*, associated with it and growing on parts of the leaf that have been dead for some time. This fungus is easily distinguished from the other by its spores which are shorter and comparatively thicker and divided into cells by short, longitudinal as well as transverse partitions.

Puccinia Maydis, *Potsch*. Indian corn Brand. (Plate 3, figs. 7-11.) Frequently in the latter part of the season the corn leaves are affected by a fungus called the Indian corn Brand. Small pustules or tubercles, technically called *sori*, appear on one or both sides of the leaf. Sometimes they are accompanied by a discolored spot, but often there is scarcely any discoloration. The pustules may be few and scattered or numerous and more or less crowded, or even confluent, in which case they form lines or irregular patches. At first these pustules are covered by the thin epidermis of the leaf, but at length this is ruptured, and then the fungus beneath is revealed. Some of the pustules, especially at the time of the earliest appearance of the fungus, are filled with rusty-red globular spores about one one-thousandth of an inch in diameter. This is the *Uredo*-form or early state of the fungus, for some fungi have different states or forms of development, just as insects do. Other pustules, and a little later in the season all the pustules, contain the true *Puccinia* or brand-spores. These are nearly or quite black, and before the covering epidermis is ruptured the pustule-containing them have a peculiar livid or lead color. The covering of the pustules usually ruptures in a longitudinal direction, that is, lengths wise of the leaf, either through the middle or near one side of the pustule. In the latter case the broad fragment of the epidermis forms a kind of flap that remains and partly covers the cluster of spores. Each pustule contains many spores closely packed together in an upright position. When highly magnified they are found to be two or three times as long as broad, and to have a single transverse partition which divides each spore into two cells nearly equal in size. A pale pedicel of variable length is also attached to the base of each spore. The spores themselves vary in length from sixteen to twenty ten-thousandths of an inch, exclusive of the pedicel. They are very persistent and may still be found in the pustules of old leaves in the Spring of the next year. Thus it appears to be the office of these brand-spores to carry the fungus through the Winter.

The species of *Puccinia* are very numerous and all inhabit living plants. Most of them, as in the present species, are known to have two or more forms of development. They do more or less injury to their supporting plants, according to the greater or less abundance of the parasite, though they do not usually kill the plant they attack. By interfering with the office of the leaves and abstracting therefrom nourishment that should go to the support of the plant, they must necessarily impair its strength and vigor. Experiments are greatly needed

to indicate the best methods of preventing the attack of these fungi on cultivated plants.

Another name, *Puccinia Sorghi*, Schw., is sometimes applied to the fungus under consideration, but as Schweinitz employed it to designate also a fungus found on the leaves of Sorghum, and as I have not been able to ascertain positively whether the Sorghum fungus is really identical with the Indian corn Brand, I have thought it best to employ for this the name *Puccinia Maydis*.

The three fungi already noticed as inhabitants of Indian corn are by no means all the species that attack it in the living state, but they are the most common ones that infest it in this vicinity. One or all of them can be found in almost every corn field in the latter part of the season. Many other species occur on the dead stalks and leaves, especially when left lying in damp places.

Ramularia Fragariæ, *Pk.* Strawberry *Ramularia*. (Plate 3, figs. 12-15.) It is by no means an unusual thing to find the leaves of strawberry vines, both cultivated and wild, marked with nearly circular spots. These spots have a pale or whitish center in which the leaf tissues appear to be dry and dead. They are not ordinarily much more than an eighth of an inch in diameter, but they are surrounded by a broad border which is dark-red or brownish-red. When the spots are numerous these colored borders run into each other and form discolored patches on the leaf. Sometimes the discoloration runs out to the margin of the leaf in a broad stripe. On the lower surface of the leaf the central part of the spot is not usually as pale as on the upper surface. To an ordinary observer the spots alone are seen. The cause of them remains a mystery. Some have supposed them to be produced by the scalding heat of the sun, others by the stings of insects, and others have intuitively imagined that possibly they might be caused by a fungus, and have alluded to them as the "strawberry rust." A fungus indeed does produce them but it is not a true "rust-fungus." It is one so small and so well protected from observation by the similarity between its own color and the color of the spot that untrained eyes will scarcely detect it. If, however, the white or central part of the spot be examined with a magnifying glass it will generally be found to be frosted over with minute white flocculent tufts or mealy-looking particles. This is the fertile condition of the fungus. It may not always be found in fertile condition. If sterile, nothing but the spot will be seen. The fungus consists of three parts: first, the creeping filaments which permeate the cells of the leaf, destroying their vitality and natural color; second, the minute tufts of short, upright stems, usually simple, but sometimes branched; and third, the long, narrow spores which are borne at the top of the stems. The spores are cylindrical, and about eight or ten times as long as broad. They are generally straight and simple, but occasionally one occurs which is slightly curved or which may be divided near the middle by one or two obscure transverse partitions. The spores and stems make up the minute white flocculent masses seen upon the surface of the spot. The latter are usually a little thicker than the former, but there is not much difference in the length of the two. They are found on both surfaces of the leaf, but are more abundant on the upper surface. The fungus occurs

throughout the season, and, so far as my observation goes, it attacks especially those plants that grow in exposed, sunny places, or on dry, light or sandy soils. To what extent the productiveness of the plants is diminished or the quality of the fruit is deteriorated by the attacks of this fungus, I have no data for determining.

The generic name *Ramularia* is derived from the Latin *ramulus*, a little branch, and has reference to the disposition of the stems to bear branches occasionally. The species inhabit the living leaves of plants and produce spots on them which at once indicate the presence of the fungus. In some species several spores occur on one stem, they being attached end to end like the links of a chain. A species of *Ramularia* occurs in Europe on the leaves of the Indian strawberry, *Fragaria Indica*, but I have seen no specimens of it. The figure of it in "Fungi Italici" indicates that it has thicker stems than our plant and that they are swollen in the middle and narrower toward each end.

Mucor inaequalis, *Pk.* Black Squash Mold. (Plate 3, figs. 16-18.) This mold attacks squashes and pumpkins in Autumn, or even in Winter, if kept in a warm place. It does not require a very high temperature for its development. The mycelioid threads of the fungus permeate the cells of the squash or pumpkin, producing soft pulpy rotten spots in the flesh. These threads are comparatively coarse and they send off numerous branches in every direction. If their progress is not interrupted they continue to extend themselves until the whole squash is rendered worthless. On the surface or exposed part of the affected places numerous thread-like stems grow up about one-twelfth of an inch high, each one of which bears a minute globose head. These stems and their swollen tips are at first of a milky-white color, the tips shining and appearing somewhat like a drop of dew; but they gradually assume a darker hue and finally become blackish or bluish-black. The growth is often so dense and extensive that to the naked eye it appears like a black felty patch. The stems are generally undivided, but occasionally one is found separating near the base into two branches. The heads contain the spores of the fungus. These are nearly black in color and very unequal in size, a character which suggests the specific name *inaequalis* which has been given to the fungus. The spores vary from two to six ten-thousandths of an inch in length. They are also very variable in shape, some being nearly globose, others broadly elliptical, and others, especially the larger ones, more or less angular or irregular as if they had been so closely crowded in the head as to be pressed out of proper shape. This variable character of the spores, together with the dark color of the plant, serves to distinguish this mold from all other species known to me. Another somewhat similar species attacks the pumpkin occasionally, but its stems are longer and permanently white and its spores are more uniform in size and shape. Several other species attack melons and gourds but all are readily distinguished from the present one. The growth of this mold is very rapid. A piece was cut from a pumpkin infected by the mycelium of its fungus and placed in a warm room. The next day the cut surface was covered with a black patch of the mature mold. It is probable, however, that in a lower temperature its development is less rapid. Obvious methods of checking the spread of the fungus are: first, remove

all affected pumpkins or squashes at once from the vicinity of the unaffected ones; second, cut out and destroy all the affected spots as soon as detected; third, keep in as low a temperature as possible without freezing.

Mycologists have instituted two genera of molds that are very closely related. In one, which they call *Mucor*, the globose head that contains the spores bursts irregularly when mature. In the other, which they call *Ascophora*, it collapses or falls down over the top of the stem, and then presents an appearance similar to that of a miniature spread parasol, or of a saucer inverted and supported on a slender stick. In the black squash mold both these characters exist, for sometimes the head collapses and sometimes it bursts irregularly. If young specimens, while yet white, are placed in a warm dry place their further development is sometimes checked and then especially the heads collapse as in *Ascophora*. Thus it will be seen that satisfactory generic characters and generic limits have not yet in all cases been ascertained.

Fusicladium dendriticum, Wallr. Apple peel Fungus. (Plate 4, figs. 1-3.) Probably every one has observed the small, round, blackish spots common on apples, but perhaps not every one is aware of the cause of them. These spots are not always uniform in color, but are varied by lighter and darker patches or circles. They often have a cracked or scaly appearance. Sometimes they are bare and nearly smooth and then they have a dull reddish tint, but generally they have a blackish or blackish-brown color, more or less tinged with gray or dark-green. They are generally from one-eighth to one-fourth of an inch in diameter, but sometimes they are even larger. There may be but one or two on an apple, but usually they are more numerous, sometimes even so numerous and close that two or more run together. When examined microscopically it is found that they are produced by a fungus, whose dense stratum of threads and spores gives a somewhat velvety appearance to the surface. The fungus develops beneath the epidermis or thin outer skin of the apple, which at length ruptures, breaking up in small flakes or fragments which remain attached for some time, giving a grayish tint to the spot. The margin is generally well defined but minutely irregular. It may be either darker-colored or paler than the center. The threads and spores are colored and very variable, scarcely any two being exactly alike. Some of the threads are long and prostrate, others short and upright. The spores vary from subglobose to elliptical, fusiform, oblong or narrowly pyriform. They are generally simple, but sometimes when old they are divided by a single transverse septum or partition. Occasionally they contain one or more nuclei or shining oil globules. The fungus does not affect the apple deeply, its injury being limited to the surface. It is all taken off with the peel and does not detract materially from the weight or quality of the flesh. Still it injures the appearance of the fruit, and possibly in this way affects the sale of it. It is said that it sometimes opens the way for the attack of other fungi by cracking the epidermis of the apple, but this is not a common result. All varieties of apples are not equally subject to its attacks. Common fruit and especially that growing on trees in the borders of woods seems more liable to its attacks than fruit on thrifty, well-cultivated trees. This

fungus with us occurs most frequently on apples, but its habitat is not limited to them. It sometimes appears also on apple leaves, and on pears and pear leaves and young twigs which it sometimes seriously injures. It has also been found in Europe, on thorns, particularly the evergreen thorn, *Crataegus pyracantha*. In consequence of this variety in its habitat it is not surprising that it has received a variety of names. *Spilocæa Pomi*, Fr., *Helminthosporium Pyrorum*, Desm., *Cladosporium Pyrorum*, Berk., *Cladosporium dendriticum*, Wallr., *Cladosporium orbiculatum*, Desm., *Actinonema Cratægi*, P. & A., *Actinonema Pomi*, Lev., and *Phlyctidium Cratægi*, Wallr., are some of the synonyms that have been at one time or another applied to the forms of this fungus.

Penicillium glaucum, Grev. Crustaceous Mold. (Plate 4, figs. 4-10.) Soft decaying spots, of a peculiar brown color, somewhat resembling that of dead leaves, often make their appearance on apples, especially if they are stored in a warm place. Frequently a species of mold develops on these spots. At first minute white tufts appear but they soon acquire a pale bluish-green color, which is indicated botanically by the word "glaucous." These tufts are usually about as large as the head of an ordinary pin. Generally they become so numerous and so closely crowded together that they form a continuous patch or crust, which would render the name "crustaceous mold" appropriate, although this name was probably suggested originally by the patches, sometimes formed by the sterile threads of the fungus. If the decayed portion of the apple be examined microscopically, numerous slender fungoid filaments will be found running through it in every direction. These are the mycelium of the fungus, the immediate cause of the rot. As the roots of a tree absorb nourishment from the soil that surrounds them, so the threads of this fungus absorb their nourishment from the apple cells that surround them. They spread more or less rapidly till the whole apple is rendered worthless. When they come to the surface or reach an air cavity, such as exists about the seeds, they send up fruiting stems if the conditions are favorable. These stems are delicate jointed threads which give out near the top one or more pairs of short opposite branches, which are themselves once or twice forked. Each ultimate branchlet bears at its tip a string of spores, looking much like a string of minute beads. The branches are so short that they are scarcely visible unless highly magnified. They with their strings of spores resemble a minute inverted tassel. The strings of spores are so numerous that they give a dusty appearance to the fungus and often hide from view the threads that support them. Their attachment to the branchlets and to each other is very slight and easily broken. Even a drop of water spreading itself on the slide of the microscope will separate them if it comes in contact with them. A slight breath of wind is enough to scatter them far and wide. The separate spores are globular and range from twelve to twenty one-hundred thousandths of an inch in diameter. Five thousand of the largest ones could be placed in a line in the space of one inch.

As has already been intimated, the fertile threads often grow in clusters or tufts. Sometimes these tufts are so compact and the threads

that compose them are so closely united that it is not possible to distinguish them easily. They appear to form a single white stem crowned with a mass of spores. This form of the fungus is represented in fig. 7. It was at one time thought to be, not merely a distinct species, but a distinct genus, and was named *Coremium leucopus* (the white stemmed *Coremium*) by Persoon. It was also called *Floccaria glauca* by the celebrated Greville. It is now regarded simply as a variety of the crustaceous mold and takes the name variety *Coremium*. Sometimes the fertile threads go to the other extreme and become excessively loose and elongated in their mode of growth and send off a few fertile branches as represented in fig. 8.

Although so commonly found on decaying apples, this fungus is not limited to that habitat. It occurs also on pears and other fruits and various decaying vegetable substances.

Besides the synonyms already given, *Byssus scoparia*, Fl. Dan., and *Penicillium crustaceum*, Fr., may be mentioned.

Oidium fructigenum, *Kuz. and Schm.* Fruit *Oidium*. (Plate 4, figs. 11-15.) Small, mealy-looking cushions or pustules sometimes occur on the surface of apples. Single ones are scarcely larger than the head of an ordinary pin, but sometimes two or more occur so near each other that they appear to run together and form larger and irregular masses. Their color is not very decided, but it is generally a dingy-white or grayish-yellow or a brownish-yellow, with a slight tinge of red. When very old they sometimes assume a blackish tint. They break out over a part or even over the whole surface of the apple, and are said to be more abundant in dry than in wet seasons. The external visible part of the fungus consists of short more or less densely tufted threads, each one surmounted by a string of spores. These are somewhat elliptical or egg-shaped, from which feature the generic name appears to have been derived. As in most species whose spores are produced in necklace-shaped strings the spores readily separate from each other. In this fungus they are much larger than in the crustaceous mold already noticed. The fungus attacks also pears, peaches, plums, etc., and is therefore appropriately called the "fruit *Oidium*." With us it is especially common on plums. It does not always wait for the fruit to fall from the tree, but often attacks it while yet attached to the branches. Dried and withered plums yet dotted with the fungus cushions may sometimes be found still hanging on the trees in the spring of the year. It is even claimed by one writer that fruit is preserved by this fungus rather than destroyed. But my observations indicate that it does not preserve in an uninjured and pure condition. It first produces a kind of rot in the fruit, a "dry rot" perhaps it may be called. It is perhaps less pulpy and soft than the rot produced by some fungi, but the flesh becomes discolored and changed under the influence of the mycelium. Some experiments illustrative of this were made by the writer with peaches.

On September 25th spores of the fungus were planted on a sound peach in three places; on the rind, on the scar that marks its place of attachment to the branch, and on the flesh which had been exposed by cutting away a minute portion of the rind. Those planted on the scar were at the same time moistened by a drop of water.

On the next day there was a slight discoloration about the scar. A

small portion of the exposed flesh being examined it was found that the spores had germinated and had commenced sending out their threads or mycelium. No change was observed where spores had been sown on the rind.

On the 27th the discoloration about the scar had increased in extent, and the spot where the spores had been planted on the flesh was surrounded on all sides by a rot-discoloration one-fourth of an inch broad. Nothing has yet come of the spores planted on the rind, nor did they appear afterward to produce any effect. On the 28th both rot spots had increased in size, and the flesh wound where the spores were planted was covered with a fine crop of the Oidium. On the 30th the two rot spots had run together and the scar was also covered with the oidium. Oct. 1st, nearly the whole peach was discolored. Oct. 2d, the whole peach was discolored and the Oidium had broken out in one new spot.

Sept. 27. A hard, sound peach was inoculated in two places by making slight incisions under the rind, inserting in them the spores of the Oidium and then pressing down the rind closely in its original place, to shut off as much as possible exposure to the external air. Spores were also planted on the uninjured rind and moistened with water. On the next day the places of inoculation were surrounded by discolored rot spots. No change appeared where the spores were planted on the rind, nor did these spores afterward produce any effect. Sept. 30th. The two rot spots about the places of inoculation have run together and now occupy about one-half the peach. Oct. 1st. The rot has extended and reached the stem-scar of the peach, and there a nice crop of the Oidium has made its appearance. No Oidium has appeared in the two places of inoculation. Oct. 2d. The rot has extended and the Oidium has broken out in a new place on the part of the peach opposite the stem-scar.

Sept. 27. A hard, sound peach was cut into halves and the Oidium spores were planted in a small spot in the cut flesh of one of the halves. On the 28th there was a discolored spot about the place where the spores were planted, but not elsewhere. The 29th, being Sunday, no observation was taken. On the 30th about one-third of the cut surface was discolored, the discoloration being only on the side where the spores were planted. Also the Oidium has appeared. Oct. 1st. The discoloration has extended and more Oidium has developed. Oct. 2d. The discoloration has extended but little, probably from lack of moisture, as the peach is becoming dry. The unplanted side is still unharmed, though considerably dried.

From these three simple experiments the following deductions are made: First, the Oidium does produce a kind of rot in the peach; Second, the spores do not affect the peach when planted on the uninjured skin or rind; Third, when planted on the freshly-exposed flesh they germinate most readily and reproduce themselves in about three days. These results might possibly be somewhat modified if the experiments were made on other fruits, but essentially I believe they would only be confirmed.

The names that have been applied to this fungus by mycologists at different times are numerous. Among them are *Torula fructigena*,

Pers., *Oospora candida*, Wallr., *Oidium Wallrothii*, Thum., *Monilia fructigena*, Saec., *Acrosporium fructigenum*, Pers., and *Oidium laxum*, Ehr.

Sphæropsis malorum, Berk. Apple Sphæropsis. (Plate 4, figs. 16-21.) It is not an uncommon thing to find apples in Autumn lying under the trees of the orchard and discolored by an incipient decay. Sometimes this discoloration is seen in them while yet hanging on the trees. It is the work and earliest manifestation of the presence of a fungus, distinct from those already noticed. It has the usual brown hue of decay produced by the mycelium of some other apple-infesting fungi, and it is not easy to say just what fungus is causing the decay until the fertile condition of the parasite makes its appearance. In this case the discoloration is soon followed by the appearance of numerous minute black pimples or pustules. These are at first covered by the thin epidermis, but soon this is ruptured and the black, somewhat conical protuberance beneath is revealed. This is the spore-case of the fungus. In due time it contains a cluster of spores which are generally about twice as long as broad, and which range from eight to twelve ten-thousandths of an inch in length. They are at first pale in color and supported on a short stem or pedicel, but when mature they become black or blackish-brown, separate from their pedicels and escape through a minute aperture at the apex of the spore-case. The spores are not always developed as soon as the spore-cases appear. Sometimes fertile spore-cases are found in Winter or even in the following Spring. The specific part of the name of this fungus, *Sphæropsis malorum*, is derived from the Latin *mala*, a word meaning apples.

The generic name is suggested by the resemblance these fungi have to species of *Sphæria*. There is another genus called *Diplodia* which scarcely differs from *Sphæropsis* in any respect except that its spores are divided in the middle by a transverse septum. In some instances this mark of distinction between the two genera fails, for both divided and undivided spores may be found in the same spore-case. And even both so-called genera are now regarded by excellent mycologists as mere forms or states of more highly developed fungi. For other remarks concerning this fungus see Thirty-first Report, page 20.

(1.)

PLANTS MOUNTED.

Not new to the Herbarium.

<i>Thalictrum dioicum</i>	<i>L.</i>	<i>Proserpinaca palustris</i>	<i>L.</i>
<i>Actæa alba</i>	<i>Bigel.</i>	<i>Cornus circinata</i>	<i>L'Her.</i>
<i>Viola Selkirkii</i>	<i>Goldie.</i>	<i>Dipsacus sylvestris</i>	<i>Mill.</i>
<i>Hypericum mutilum</i>	<i>L.</i>	<i>Aster dumosus</i>	<i>L.</i>
<i>Linum striatum</i>	<i>Walt.</i>	<i>A. ericoides</i>	<i>L.</i>
<i>Vitis riparia</i>	<i>Mx.</i>	<i>A. Tradescanti</i>	<i>L.</i>
<i>Euonymus Americana</i>	<i>L.</i>	<i>Solidago altissima</i>	<i>L.</i>
<i>Trifolium repens</i>	<i>L.</i>	<i>S. gigantea</i>	<i>Ait.</i>
<i>Lespedeza reticulata</i>	<i>Pers.</i>	<i>Polymnia Canadensis</i>	<i>L.</i>
<i>Desmondium rotundifolium</i> ...	<i>D. C.</i>	<i>Hieracium venosum</i>	<i>L.</i>
<i>Ribes hirtellum</i>	<i>Mx.</i>	<i>Vaccinium Pennsylvanicum</i> ..	<i>Lam.</i>
<i>R. rotundifolium</i>	<i>Mx.</i>	<i>Gerardia tenuifolia</i>	<i>Vahl.</i>

- Monarda fistulosa..... *L.*
 Lophanthus nepetoides..... *Benth.*
 Lycopus Europæus..... *L.*
 Polygonum Hartwrightii..... *Gr.*
 Quercus prinoides..... *Willd.*
 Potamogeton natans..... *L.*
 P. amplifolius..... *Tuckerm.*
 P. hybridus..... *Max.*
 P. gramineus..... *L.*
 Pogonia verticillata..... *Nutt.*
 Triglochin palustre..... *L.*
 Juncus Canadensis..... *J. Gay*
 Cyperus dentatus..... *Torr.*
 Eleocharis olivacea..... *Torr.*
 Carex polytrichoides..... *Muhl.*
 C. straminea..... *Schk.*
 C. tentaculata..... *Muhl.*
 C. lagopodioides..... *Schk.*
 C. intumescens..... *Rudge.*
 Hordeum vulgare..... *L.*
 Spartina alterniflora..... *Loisel.*
 Danthonia compressa..... *Aust.*
 Panicum proliferum..... *Lam.*
 P. sanguinale..... *L.*
 Tricuspis seslerioides..... *Torr.*
 Equisetum arvense..... *L.*
 Woodsia obtusa..... *Torr.*
 Pellæa atropurpurea..... *Lk.*
 Cladonia papillaria..... *Hoffm.*
 Polyporus hirsutus..... *Fr.*
 P. zonatus..... *Fr.*
 P. vulgaris..... *Fr.*
 Irpex lacteus..... *Fr.*
 Clavaria aurea..... *Schæff.*
 Thelephora terrestris..... *Fr.*
 T. laciniata..... *Pers.*
 Stereum ochraceoflavum..... *Schw.*
 Puccinia Menthæ..... *Pers.*
 Uromyces solida..... *B. & C.*
 Peronospora alta..... *Fckl.*
 Microsphaeria Vaccinii..... *C. & P.*
 Helotium citrinum..... *Batsch.*
 Triblidium hiascens..... *B. & C.*
 Hypoxylon concentricum..... *Grev.*
 Diatrype quadrata..... *Schw.*
 Valsa leucostoma..... *Fr.*
 V. rugiella..... *C. & E.*
 Sphærella spleniata..... *C. & P.*
- New to the Herbarium.*
- Ranunculus Ficaria..... *L.*
 Lechea racemulosa..... *Max.*
 L. tenuifolia..... *Max.*
 Portulaca grandiflora..... *Hook.*
 Fragaria Indica..... *L.*
 Ribes Grossularia..... *L.*
 Diodia teres..... *Walt.*
 Eclipta procumbens..... *Max.*
 Rudbeckia triloba..... *L.*
 Tecoma radicans..... *Juss.*
 Veronica Buxbaumii..... *Tenore.*
 Mentha rotundifolia..... *L.*
 Salvia Sclarea..... *L.*
- Heliotropium Europæum..... *L.*
 Rumex maritimus..... *L.*
 Alnus glutinosa..... *Gartn.*
 Potamogeton Robbinsii..... *Oakes.*
 Spiranthes simplex..... *Gr.*
 Epipactes helleborine v. viridans..... *Irm.*
 Hemerocallis fulva..... *L.*
 Tripsacum dactyloides..... *L.*
 Glyceria obtusa..... *Trin.*
 Muhlenbergia sobolifera..... *Trin.*
 Asplenium Bradleyi..... *Eaton.*
 Cladonia Boryi..... *Tuckerm.*
 Vaucheria velutina..... *Ag.*
 Agaricus solitarius..... *Bull.*
 A. strobiliformis..... *Vitt.*
 A. rhagadiosus..... *Fr.*
 A. candicans..... *Pers.*
 A. vilescens..... *Pk.*
 A. compressipes..... *Pk.*
 A. trullisatus..... *Ellis.*
 A. confluens..... *Pers.*
 A. Iris..... *Berk.*
 A. scabrinellus..... *Pk.*
 A. curvipes..... *Fr.*
 Cortinarius subsiccus..... *Pk.*
 C. tophaceus..... *Fr.*
 C. pulchrifolius..... *Pk.*
 C. rubrocinerus..... *Pk.*
 C. uliginosus..... *Berk.*
 C. croceoconus..... *Fr.*
 C. sericipes..... *Pk.*
 C. basalis..... *Pk.*
 Russula fragilis..... *Fr.*
 Cantharellus brevipes..... *Pk.*
 Panus lævis..... *B. & C.*
 P. dealbatus..... *Berk.*
 Boletus Frostii..... *Russ.*
 Polyporus chioneus..... *Fr.*
 P. floccosus..... *Fr.*
 Stereum neglectum..... *Pk.*
 Clavaria miniata..... *Berk.*
 Cyphella caricina..... *Pk.*
 Hymenula hysteroides..... *Pk.*
 Simblum rubescens..... *Ger.*
 Physarum mirabile..... *Pk.*
 Cribraria argillacea..... *Pers.*
 Leptothyrium punctiforme..... *B. & C.*
 L. dryinum..... *Sacc.*
 Phoma lineolatum..... *Desm.*
 P. hysteriellum..... *P. & C.*
 P. longipes..... *B. & C.*
 P. Phytolacæ..... *B. & C.*
 Sphæropsis phomatella..... *Pk.*
 S. cerasina..... *Pk.*
 S. abundans..... *Pk.*
 S. celastrina..... *Pk.*
 S. seriatus..... *Pk.*
 S. smilacina..... *Pk.*
 S. brunneola..... *B. & C.*
 Hendersonia abnormalis..... *Pk.*
 H. Coluteæ..... *P. & C.*
 Cytispora minuta..... *Thum.*
 Asterosporium betulinum..... *Pk.*

Coryneum pustulatum.....	<i>Pk.</i>	Cercospora zebrina.....	<i>Sacc.</i>
Melanconium cerasinum.....	<i>Pk.</i>	C. Smilacis.....	<i>Thum.</i>
Synphragmidium effusum.....	<i>Pk.</i>	C. squalidula.....	<i>Pk.</i>
Gymnosporium variabile.....	<i>Pk.</i>	C. Sanguinariæ.....	<i>Pk.</i>
Torula uniformis.....	<i>Pk.</i>	C. althæina.....	<i>Sacc.</i>
Glæosporium Hepaticæ.....	<i>Pk.</i>	Peronospora obducens.....	<i>Schr.</i>
G. salicinum.....	<i>Pk.</i>	Microstroma leucosporum.....	<i>Niessl.</i>
G. Laportææ.....	<i>Pk.</i>	Fusisporium Solani.....	<i>Mart.</i>
Septoria pastinacina.....	<i>Pk.</i>	Helvella palustris.....	<i>Pk.</i>
S. increscens.....	<i>Pk.</i>	Peziza multipuncta.....	<i>Pk.</i>
S. Gei.....	<i>R. & D.</i>	P. mycogena.....	<i>Ellis.</i>
S. Ostryæ.....	<i>Pk.</i>	P. floriformis.....	<i>Pk.</i>
S. Aceris.....	<i>B. & Br.</i>	P. regalis.....	<i>C. & E.</i>
S. Mori.....	<i>Lev.</i>	P. luteodisca.....	<i>Pk.</i>
S. Ludwigæ.....	<i>Cke.</i>	P. subvernalis.....	<i>Pk.</i>
S. lythrina.....	<i>Pk.</i>	Patellaria Hamamelidis.....	<i>Pk.</i>
S. Urticæ.....	<i>Desm.</i>	Helotium pallescens.....	<i>Fr.</i>
S. atropurpurea.....	<i>Pk.</i>	H. vitigenum.....	<i>De Not.</i>
S. hedeomina.....	<i>Pk.</i>	H. affinissimum.....	<i>Pk.</i>
S. cornicola.....	<i>Desm.</i>	Cenangium Viburni.....	<i>Schw.</i>
Protomyces fuscus.....	<i>Pk.</i>	Caliciopsis pinea.....	<i>Pk.</i>
Puccinia Ellisiana.....	<i>Thum.</i>	Taphrina alnitorqua.....	<i>Tul.</i>
Melampsora Hartigii.....	<i>Thum.</i>	Hysterium gramineum.....	<i>M. & N.</i>
Cronartium asclepiadeum.....	<i>Fr.</i>	Nectria dematiosa.....	<i>Schw.</i>
Ræstelia Ellisii.....	<i>Pk.</i>	Xylaria bulbosa.....	<i>Pers.</i>
Æcidium cimicifugatum.....	<i>Schic.</i>	Hypoxyton Blakei.....	<i>B. & C.</i>
Stilbum pruinifugum.....	<i>Pk.</i>	Eutypa subtecta.....	<i>Fr.</i>
Periconia parasitica.....	<i>Pk.</i>	Diatrype nigrospora.....	<i>Pk.</i>
Tubercularia Celastri.....	<i>Schw.</i>	D. strumella.....	<i>Fr.</i>
Helicosporium cinereum.....	<i>Pk.</i>	Valsa compta.....	<i>Tul.</i>
Helminthosporium pruni.....	<i>B. & C.</i>	V. aurea.....	<i>Fckl.</i>
Alternaria chartarum.....	<i>Preuss.</i>	V. paucispora.....	<i>Pk.</i>
Macrosporium Meliloti.....	<i>Pk.</i>	V. Prunicola.....	<i>Pk.</i>
Polyactis Streptothrix.....	<i>C. & E.</i>	V. tessera.....	<i>Fr.</i>
Pyricularia grisea.....	<i>Sacc.</i>	V. Carpini.....	<i>Pers.</i>
Oidium irregulare.....	<i>Pk.</i>	V. Abietis.....	<i>Fr.</i>
Ramularia Armoraciæ.....	<i>Fckl.</i>	V. acrocystis.....	<i>Pk.</i>
R. Dulcamaræ.....	<i>Pk.</i>	Cucurbitaria longitudinalis.....	<i>Pk.</i>
R. Celastri.....	<i>Pk.</i>	Sphæria pulveracea.....	<i>Ehrh.</i>
R. Mitellæ.....	<i>Pk.</i>	S. pulviscula.....	<i>Curr.</i>
Cercospora Nymphæacea.....	<i>C. & E.</i>	S. capillifera.....	<i>Curr.</i>
C. elongata.....	<i>Pk.</i>	Sphærella recutita.....	<i>Fr.</i>
C. Caulophylli.....	<i>Pk.</i>	S. conigena.....	<i>Pk.</i>
C. Eupatorii.....	<i>Pk.</i>	S. depressa.....	<i>Pk.</i>
C. griseïlla.....	<i>Pk.</i>		

(2.)

PLANTS COLLECTED.

Not new to the Herbarium.

Clematis verticillaris.....	<i>D. C.</i>	Malva rotundifolia.....	<i>L.</i>
Ranunculus Pennsylvanicus.....	<i>L.</i>	Vitis æstivalis.....	<i>Mx.</i>
Nuphar advena.....	<i>Ait.</i>	Acer Pennsylvanicum.....	<i>L.</i>
N. lutea.....	<i>Sm.</i>	Rubus odoratus.....	<i>L.</i>
Nymphæa odorata.....	<i>Ait.</i>	R. villosus.....	<i>Ait.</i>
Cardamine hirsuta.....	<i>L.</i>	Rosa Carolina.....	<i>L.</i>
Sisymbrium officinale.....	<i>Scop.</i>	R. lucida.....	<i>Ehrh.</i>
Lepidium ruderales.....	<i>L.</i>	Ribes rotundifolium.....	<i>Mx.</i>
Raphanus sativus.....	<i>L.</i>	R. prostratum.....	<i>L'Her.</i>

- Epilobium angustifolium* *L.*
E. coloratum *Muhl.*
Aralia hispida *Mx.*
Sambucus pubens *Mx.*
Viburnum nudum *L.*
Aster corymbosus *Ait.*
A. cordifolius *L.*
A. multiflorus *Ait.*
A. Tradescanti *L.*
A. longifolius *Lam.*
A. puniceus *L.*
A. acuminatus *Mx.*
Solidago latifolia *L.*
S. serotina *Ait.*
Bidens connata *Muhl.*
B. cernua *L.*
Artemisia Canadensis *Mx.*
Lactuca sanguinea *Bigel.*
Campanula rotundifolia *L.*
Plantago major *L.*
Verbascum Blattaria *L.*
Mimulus ringens *L.*
Mentha piperita *L.*
M. Canadensis *L.*
Lycopus Virginicus *L.*
Scutellaria lateriflora *L.*
Echium vulgare *L.*
Origanum vulgare *L.*
Polygonum amphibium *L.*
Euphorbia maculata *L.*
E. hypericifolia *L.*
Humulus Lupulus *L.*
Juglans nigra *L.*
Taxus Canadensis *Willd.*
Sparganium simplex *Huds.*
Potamogeton Claytonii *Tuckerm.*
P. amplifolius *Tuckerm.*
P. gramineus *L.*
P. lucens *L.*
P. pusillus *L.*
Sagittaria variabilis *Engelm.*
Lilium Philadelphicum *L.*
Juncus tenuis *Willd.*
Carex stipata *Muhl.*
C. stellulata *L.*
C. scoparia *Schk.*
C. cristata *Schw.*
C. straminea *Schk.*
C. gynandra *Schw.*
C. formosa *Dev.*
C. virescens *Muhl.*
C. triceps *Mx.*
C. laxiflora *Lam.*
C. debilis *Mx.*
C. flava *L.*
C. tentaculata *Muhl.*
C. oligosperma *Mx.*
Leersia Virginica *Willd.*
L. oryzoides *Swartz.*
Agrostis perennans *Tuckerm.*
A. scabra *Willd.*
A. vulgaris *With.*
A. alba *L.*
Muhlenbergia Mexicana *Trin.*
M. sylvatica *T. & G.*
Dactylis glomerata *L.*
Eatonia obtusata *Gr.*
E. Pennsylvanica *Gr.*
Glyceria Canadensis *Trin.*
G. nervata *Trin.*
G. pallida *Trin.*
G. fluitans *R. Br.*
G. acutiflora *Torr.*
Poa serotina *Ehrh.*
P. pratensis *L.*
P. alsodes *Gr.*
Festuca elatior *L.*
F. nutans *Willd.*
Triticum repens *L.*
Elymus Canadensis *L.*
Anthoxanthum odoratum *L.*
Phalaris arundinacea *L.*
Panicum agrostoides *Spreng.*
P. dichotomum *L.*
P. depauperatum *Muhl.*
Setaria viridis *Beauv.*
Equisetum limosum *L.*
E. sylvaticum *L.*
Pteris aquilina *L.*
Asplenium Filixfemina *Bernh.*
Phegopteris polypodioides *Fee*
P. hexagonoptera *Fee.*
Aspidium Noveboracense *Sw.*
A. aculeatum *Sw.*
- New to the Herbarium.*
- Carum Carui* *L.*
Potamogeton rufescens *Schrad.*
Carex adusta *Boott.*
C. glaucodea *Tuckerm.*
Triticum violaceum *Hornem.*
Nitella opaca *Ag.*
N. intermedia *Nordst.*
Agaricus ornellus *Pk.*
Hygrophorus limacinus *Fr.*
Polyporus croceus *Fr.*
P. undosus *Pk.*
P. semipileatus *Pk.*
Irpex viticola *C. & P.*
Pterula densissima *B. & C.*
Tremella subochracea *Pk.*
T. epigæa *B. & Br.*
Grandinia crustosa *Fr.*
Hymenula vulgaris *Fr.*
Arcyria macrospora *Pk.*
Cribraria dictydioides *Oke. & Balf*
Hendersonia Cydoniæ *C. & E.*
Phyllosticta Sambuci *Desm.*
P. Grossulariæ *Sacc.*
P. Nesææ *Pk.*
Septoria Galeopsisidis *West.*
S. Hydrocotyles *Desm.*
S. Violæ *West.*
S. Cucurbitacearum *Sacc.*
S. corylina *Pk.*
S. betulicola *Pk.*

Septoria microsperma.....	<i>Pk.</i>	Ramularia rufomaculans.....	<i>Pk.</i>
S. Pileæ.....	<i>Thum.</i>	R. sambucina.....	<i>Pk.</i>
Septoglœum Apocyni.....	<i>Pk.</i>	R. Impatientis.....	<i>Pk.</i>
Vermicularia circinans.....	<i>Berk.</i>	R. Rudbeckii.....	<i>Pk.</i>
Morthiera Thumenii.....	<i>Cke.</i>	Monilia Harknessii.....	<i>Pk.</i>
Pestalozzia Stevensonii.....	<i>Pk.</i>	Colletotrichum lineola.....	<i>Cd.</i>
Puccinia Thalictri.....	<i>Chev.</i>	Sporocybe nigriceps.....	<i>Pk.</i>
P. Cirsii.....	<i>Lasch.</i>	Macrosporium concinnum.....	<i>Berk.</i>
P. simplex.....	<i>Pk.</i>	Helminthosporium Tiliæ.....	<i>Fr.</i>
Protomyces polysporus.....	<i>Pk.</i>	H. inconspicuum.....	<i>C. & E.</i>
Ræstelia penicillata.....	<i>Rabh.</i>	H. arbusculoides.....	<i>Pk.</i>
Aspergillus phæocephalus.....	<i>D. & M.</i>	H. septemseptatum.....	<i>Pk.</i>
A. clavellus.....	<i>Pk.</i>	Zygodemus bicolor.....	<i>C. & E.</i>
Fusisporium tenuissimum.....	<i>Pk.</i>	Rhinotrichum subalutaceum.....	<i>Pk.</i>
Diplocladium minus.....	<i>Bon.</i>	Periconia sphærophila.....	<i>Pk.</i>
Verticillium candidum.....	<i>Pk.</i>	Graphium gracile.....	<i>Pk.</i>
Septocylindrium Ranunculi.....	<i>Pk.</i>	Peziza hydrophila.....	<i>Pk.</i>
Cercospora reticulata.....	<i>Pk.</i>	P. fusarioides.....	<i>Berk.</i>
Cercospora clavata.....	<i>Ger.</i>	P. atrata.....	<i>Fr.</i>
C. venturioides.....	<i>Pk.</i>	P. balsamicola.....	<i>Pk.</i>
C. Bœhmeriæ.....	<i>Pk.</i>	Hypoxyton marginatum.....	<i>Schw.</i>
C. Acalyphæ.....	<i>Pk.</i>	Diatrypella angulata.....	<i>Fr.</i>
C. circumscissa.....	<i>Sacc.</i>	Dothidea melanoplaca.....	<i>Desm.</i>
C. beticola.....	<i>Sacc.</i>	Valsa myinda.....	<i>C. & E.</i>
C. Violæ.....	<i>Sacc.</i>	Lophiostoma angustilabrum.....	<i>B. & Br.</i>
C. depazeoides.....	<i>Sacc.</i>	Meliola balsamicola.....	<i>Pk.</i>
Ramularia Spirææ.....	<i>Pk.</i>	Sphærella Leersia.....	<i>Pass.</i>

(3.)

CONTRIBUTORS AND THEIR CONTRIRUTIONS.

Julia S. Hoag, Albany, New York.

Euthora cristata.....	<i>Ag.</i>	Delesseria alata.....	<i>Lamour.</i>
Ptilota serrata.....	<i>Harv.</i>		

Professor J. Hall, Albany, New York.

Polyporus squamosus.....	<i>Fr.</i>		
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Professor J. S. St. John, Albany, New York.

Thalictrum anemonoides.....	<i>Mx.</i>	Nelumbium luteum.....	<i>Willd.</i>
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Professor A. N. Prentiss, Ithaca, New York.

Geaster mammosus.....	<i>Chev.</i>	Helicomycetes mirabilis.....	<i>Pk.</i>
Stemonitis Morgani.....	<i>Pk.</i>	Peziza aurelia.....	<i>Pers.</i>
Areyria macrospora.....	<i>Pk.</i>	Diatrype punctulata.....	<i>B. & R.</i>
Lamproderma iridea.....	<i>Cke.</i>	Zasmidium cellare.....	<i>Pers.</i>

Isaac Coles, Glen Cove, New York.

Triosteum angustifolium.....	<i>L.</i>	Trillium er. var. declinatum..	<i>Gr.</i>
Galium verum.....	<i>L.</i>		

E. C. Howe, M. D., Yonkers, New York.

Carex Sullivantii.....	<i>Boott.</i>	Polypogon Monspeliensis.....	<i>Desf.</i>
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W. R. Gerard, New York City, New York.

Æcidium pedatatum.....	<i>Schw.</i>		
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I. C. Martindale, Camden, New Jersey.

Quercus heterophylla.....	<i>Mx.</i>		
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W. Barbeck, Philadelphia, Pa.

Chondrioderma floriforme.....	<i>Bull.</i>	Cribraria dictydioides.....	<i>Cke. & Balf</i>
Physarum leucophæum.....	<i>Fr.</i>		

C. J. Sprague, Boston, Mass.

Hirneola Auricula-Judæ Berk. |

E. W. Holway, Decorah, Iowa.

Æcidium Periclymeni	D. C.		Æcidium Xanthoxyli	Pk.
Æ. albescens	Grev.			

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

Sporidesmium Rauii	Ellis.		Helicosporium auratum	Ellis.
Cercospora graphioides	Ellis.		H. thysanophorum	E. & H.
Menispora glauconigra	C. & E.		Gonytrichum subroseum	Ellis.
Dendryphium Harknessii	Ellis.		Arthrosporium compositum	Ellis.
Penicillium repens	C. & E.		Ascomyces anomalus	E. & H.
Zygodemus bicolor	C. & E.			

Rev. H. Wibbe, Oswego, N. Y.

Coreopsis discoidea	T. & G.		Eleocharis quadrangulata	B. Br.
Lamium maculatum	L.			

Geo. Martin, M. D., Westchester, Pa.

Agaricus laccatus	Scop.		Stereum complicatum	Fr.
A. subochraceus	Pk.		Peridermium Pini	Chev.
A. sapineus	Fr.		Uromyces Martinii	Far.
Lenzites sepiaria	Fr.		Cryptosporium acicolum	Thum.
Trametes hydroides	Fr.		Meliola amphitricha	Fr.
Polyporus sanguineus	Fr.		Capnodium elongatum	B. & D.

J. D. Trask, M. D., Astoria, N. Y.

Agaricus spectabilis Fr.

H. W. Harkness, M. D., Sacramento, Cal

Daedalea vorax	Hark.		Coniothecium irregulare	Pk.
Monilia Ellisii	Hark.		Zygodemus granulosus	Pk.
Helicosporium Mulleri	Cd.		Z. atroruber	Pk.
Rhinotrichum repens	Preuss.		Patellaria indigotica	C. & P.
Trichægum atrum	Preuss.		Hypoxyton discretum	Schw.

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

Podisoma macropus	Schw.		Gymnosporangium biseptatum	Ellis.
P. clavariæforme	D. C.		Basidiospora entospora	Cornu.
P. fuscum	Duby.			

(4)

PLANTS NOT BEFORE REPORTED.

Triosteum angustifolium, L. Manhasset and Glen Cove, Long Island. I. Coles.

Coreopsis discoidea, T. & G. Borders of Lily pond near Oswego. Rev. J. H. Wibbe.

Lamium maculatum, L. Roadsides west of Oswego. Wibbe.

Potamogeton rufescens, Schrad. Edmonds ponds, Adirondack mountains. July. A few plants were found growing in water one to two feet deep, but most of them grow where it was three or four feet deep. In the latter the leaves are more distant than in the former. A few of the lower ones are obtuse, the others are acute. They are

brownish-green in color and have two or three faint veins each side of the midrib. These are connected by transverse veinlets. The stems were not at all branched but in some instances they had sent out runners from the base and had thus given rise to new plants. Neither petiolate nor floating leaves were seen. The dry fruit has a deep impression or pit on each side. This is *Potamogeton obrutus*, Wood.

Eleocharis quadrangulata, R. Br. "Paddy lake," South Scriba, Oswego county. *Wibbe*. This is a rare plant. In the Manual the outlet of Oneida lake is given as a station for it and in the Beck Herbarium a specimen is labeled N. Salem pond, Westchester county.

Carex adusta, *Boott*. Rocky woods, Stissing mountain, Dutchess county. June. In some of the specimens all the spikes were sterile.

Carex glaucoidea, *Tuckerm.* Stissing mountain. June.

Carex Sullivantii, *Boott*. Yonkers. *E. C. Howe*. Dr. Howe informs me that he regards this plant as a hybrid between *C. pubescens* and *C. arctata*.

Polypogon Monspeliensis, *Desf.* Yonkers. *Howe*.

Triticum violaceum, *Hornem.* Rocky places and mountain precipices. Stissing mountain and Adirondack mountains. June and July I have seen no specimens with purplish or violet-tinged spikes. The lower sheaths are sometimes slightly hairy or downy. The awns vary in length and when long they sometimes curve outward.

Nitella opaca, *Ag.* Edmonds ponds. July. The specimens are referred to this species because of their diœcious character. Their general appearance is remarkably like that of *N. flexilis*. But few fertile plants were seen.

Nitella intermedia, *Nordst.* Sandy shore of Lake Sanford, Adirondack mountains. Aug. The specimens are small but apparently belong to this species.

Agaricus spectabilis, *Fr.* Long Island. *J. D. Trask*.

Agaricus (Hypholoma) ornellus, *n. sp.* Pileus convex or nearly plane, slightly squamose, reddish-brown tinged with purple, the margin paler, floccose-appendiculate; lamellæ moderately close, yellowish or pallid, becoming brown; stem equal or slightly thickened upward, solid, squamulose, pale-yellow, sometimes expanded at the base into a brownish disk margined with yellowish filaments; spores brown, elliptical, .00025 in. to .0003 in. long, .00016 in. to .0002 in. broad. Plant 1 in. to 2 in. high, pileus about 1 in. broad, stem 1 line to 1.5 lines thick. Decaying wood. South Ballston, Saratoga county. Oct. The scales of the pileus are sometimes arranged in concentric circles. The purplish tint is not always uniform but in some instances forms spots or patches.

Hygrophorus limacinus, *Fr.* Thin woods and open places. North Greenbush. Oct.

Polyporus croceus, *Fr.* Decaying oak wood. Catskill mountains. Aug.

Polyporus undosus, *n. sp.* Effuso-reflexed, carnose-fibrous, soft but rather tough; pileus thin, undulate, narrow, rugose-tomentose, obscurely sulcate-zonate, whitish or alutaceous; pores long, medium size, unequal, angular, white, the dissepiments thin, dentate, in oblique situations elongate, lacerate; mycelium white. Decaying trunks of

hemlock, *Abies Canadensis*. Catskill mountains. Aug. This Polyporus is apparently related to *P. destructor*. It is often entirely resupinate. The pileus is narrow, scarcely exceeding half an inch in breadth, but it is frequently two or three inches long. It is generally distinctly wavy or almost complicate after the manner of *Stereum complicatum*. The substance is soft when fresh but becomes hard in drying. The pores are much longer than the thickness of the pileus which is at first slightly fibrillose-tomentose.

Polyporus semipileatus, *n. sp.* Suborbicular, narrowly reflexed above, subvillose, whitish or alutaceous; pores short, minute, rotund, white, with thin acute dissepiments. Bark of dead maple, *Acer spicatum*. Catskill mountains. Aug. Related to *P. semisupinus*, B. & C. The effused or resupinate part of the fungus is usually about one inch in diameter. The pileus or reflexed part is scarcely half an inch broad. The pores are so minute that they are scarcely visible to the naked eye. Both this and the preceding species belong to the section *Anodermei*.

Irpex viticola, *C. & P. n. sp.* Resupinate, suborbicular or confluent in long patches, the margin usually definite and slightly reflexed, subcinereous; teeth compressed, subincised, acute or obtuse, whitish or pallid. Dead grape vines. North Greenbush. July.

Grandinia crustosa, *Fr.* Decaying wood and bark. Helderberg mountains. Nov.

Pterula densissima, *B. & C.* Decaying wood. Helderberg mountains. Nov.

Tremella epigæa, *B. & Br.* Catskill mountains. The habitat of this species is the ground, but our specimens were growing on the hymenium of and old Polyporus near the ground.

Tremella subochracea, *n. sp.* Small, two to four lines in diameter, forming interrupted or anastomosing lines or patches, gyrose-plicate, pale-ochraceous, becoming darker in drying; spores oblong or oblong-pyriform, slightly curved at the small end, colorless, .0004 in. to .0005 in. long, .00016 in. to .0002 in. broad. Decorticated wood of poplar, *Populus monilifera*. Albany. Sept. A peculiar feature of this species is its tendency to grow in lines which run together in a reticulate manner. The color is a dingy-yellow or subochraceous.

Hymenula vulgaris, *Fr.* Dead stems of herbs. Albany. Sept.

Geaster mammosus, *Chev.* Ithaca. *Prof. A. N. Prentiss.*

Stemonitis Morgani, *Pk.* Decaying wood. Ithaca. *Prentiss.*

Lamproderma arcyrioides var. *iridea*, *Cke.* Decaying wood. Ithaca. *Prentiss.*

Arcyria macrospora, *n. sp.* Sporangia short, oval or ovate-oblong, crowded, stipitate, the persistent basal part smooth or finely striate; stem short, reddish-brown or chestnut color; capillitium and mass of spores red, the filaments .0002 in. to .0003 in. thick, rough with numerous spines and spiny bands; spores large, globose, nearly smooth, .0004 in. to .0005 in. in diameter. Decaying wood. Ithaca. *Prentiss.* Copake. Oct. The large size of the spores in this fungus induces me to separate it from *A. puniceus* which it closely resembles. When viewed with a glass of high power the spores appear minutely rough.

Cribraria dictydioides, *Cke & Balf.* Decaying wood. Adirondack

mountains. Aug. This fungus differs but slightly from *Cribraria tenella*. The persistent cup or basal part of the sporangium in that species is entirely wanting in this, hence its resemblance to species of *Dictydium*. This character appears to be constant, but should it fail this fungus could scarcely be regarded as any thing more than a variety of *C. tenella*. When this report was written this fungus was deemed an unpublished species. Prof. Wm. Barbeck, then of Philadelphia, had detected it, pointed out its distinctive character, and given it the name *Cribraria dictydioides*, but before its publication it was distributed in Cooke and Ravenel's *Fungi Americani Exsiccati* under the name, which, owing to the delay in the publication of the report and to avoid synonymy, I am permitted to here insert.

Hendersonia Cydoniæ, C. & E. Living leaves of pear, crab-apple and apple. Catskill mountains and Sandlake. Aug. and Sept.

Phyllosticta Sambuci, Desm. Living or languishing elder leaves. Catskill mountains. Aug.

Phyllosticta Grossulariæ, Sacc. Living leaves of red currant. Sand lake. Sept.

Phyllosticta Nesææ, n. sp. Spots suborbicular, scattered or somewhat confluent, pale-rufous; perithecia hypophyllous, numerous, very minute; spores oblong, straight or slightly curved, colorless, .0003 in. to .0004 in. long, about .0001 in. broad. Living leaves of swamp loose-stripe, *Nesæa verticillata*. South Ballston. Sept.

Septoria Galeopsidis, West. Living leaves of hemp-nettle, *Galeopsis Tetrahit*. Catskill mountains. Aug.

Septoria Hydrocotyles, Desm. Living leaves of water pennywort, *Hydrocotyle Americana*. Catskill mountains. Aug.

Septoria Violæ, West. Living leaves of violets. Catskill mountains. Aug.

Septoria Cucurbitacearum, Sacc. Living pumpkin leaves. Catskill mountains. Aug.

Septoria corylina, n. sp. Spots suborbicular, scattered, brown or reddish-brown, with a darker margin; perithecia few, epiphyllous, minute, blackish-brown, opening widely when moist; spores filiform, curved, colorless, .0015 in. to .0018 in. long. Living leaves of hazelnut, *Corylus rostrata*. Millerton. June. The spots are usually one and a half to three lines broad. They are darker on the lower than on the upper surface.

Septoria betulicola, n. sp. Spots small, often large by confluence, angular, reddish-brown above, paler below; perithecia hypophyllous, very minute, blackish; spores filiform, curved, colorless, .0012 in. to .0018 in. long. Living leaves of birch, *Betula lutea*. Catskill mountains. Aug. This is distinct from *S. Betulæ*, both in the color and character of the spots and in the length of the spores. The perithecia are so minute that they are scarcely distinguishable by the naked eye. In variety *marginalis* the spots are marginal and confluent.

Septoria microsperma, n. sp. (Plate 1, figs. 3-5.) Spots indefinite, brown, sometimes confluent, perithecia hypophyllous, numerous, small, irregular, brown, wrinkled when dry, rupturing irregularly; spores allantoid, colorless, .00035 in. to .0005 in. long. Fading leaves of birch, *Betula lenta*. Knowersville. Oct. The leaves bearing the fungus

had assumed their autumnal tints, but in some instances the green color had been retained about the margin of the spots.

Septoria Pileæ, *Thum.* Spots small, scarcely one line in diameter, scattered, angular or suborbicular, definite, whitish, perithecia few, one to four, epiphyllous, minute, brown or blackish-brown; spores filiform, colorless, .0009 in. to .0015 in. long, about .00008 in. thick. Living leaves of the stingless nettle, *Pilea pumila*. Sandlake. Sept. The spots are numerous but very small and the perithecia are scarcely visible to the naked eye. On the lower surface the spots are sometimes tinged with red or reddish-brown.

Septoglœum Apocyni, *n. sp.* (Plate 1, figs. 1-2.) Spots few, large, irregular, brown or blackish-brown; nuclei few; spores large, subcylindrical, rounded at the ends, colorless, .0016 in. to .002 in. long, .0003 in. to .0004 in. broad, three to seven-septate, each cell nucleate. Living leaves of Indian hemp, *Apocynum cannabinum*. North Greenbush. Sept. The spots at length become thick, brittle and almost black. The surrounding tissue fades to a yellowish hue. The septa of the spores are not always distinct but the nuclei in all the specimens examined are plainly visible.

Vermicularia circinans, *Berk.* Surface of onions. Albany. Jan.

Morthiera Thumenii, *Cke.* Living leaves of thornbush, *Crataegus coccinea*. Sandlake. Sept. The specimens have the spores of this species but the perithecia are few and scattered as in *M. Mespili*.

Pestalozzia Stevensonii, *Pk.* (*P. strobilicola*, *Speg.*) Cone scales of Norway spruce. *Abies excelsa*. Albany. September.

Puccinia Thalictri, *Chev.* Living leaves of tall meadow rue, *Thalictrum Cornuti*, and early meadow rue, *Thalictrum dioicum*. Albany and Center. The spores of this species are scarcely distinguishable from those of *P. Anemones* to which species I formerly referred our specimens.

Puccinia Cirsii, *Lasch.* Living leaves of thistles, *Cirsium lanceolatum*. Knowersville. October.

Puccinia simplex, *n. sp.* Spots small, orbicular, scattered, brown or grayish-brown, with a purplish margin; sori hypophyllous, hemispherical or depressed, compact, central, one on a spot, dark-brown; spores fragile, oblong-clavate, slightly constricted at the septum, pale-brown, .0016 in. to .002 in. long, .0004 in. to .0005 in. broad; pedicel very short. Living leaves apparently of some species of *Geum*. Albany. Sept. Though the spots are numerous, it is seldom that more than one sorus occurs on a single spot.

Protomyces polysporus, *n. sp.* Spots orbicular, thickened, generally convex on the upper surface, concave on the lower, pale-green or yellowish-green, becoming brown when old, two to four lines broad; spores numerous, crowded, globose or subglobose, subhyaline, or slightly tinged with green, .0005 in. to .0006 in. in diameter. Living leaves of the great ragweed, *Ambrosia trifida*. Albany. September. Leaves spotted by this fungus may be found from June till the close of the season. Usually the upper surface of the spot is convex and the lower concave, but sometimes this order is reversed. Late in the season many of the spots are found to have assumed a brown or blackish-brown color. The spores are generally globose, but from their crowded mode of

growth some of them appear to be pressed into a somewhat angular ovate or broadly elliptical shape. The host plant does not suffer materially from the attacks of the fungus, the affected ones growing as large as the unaffected and their leaves retaining their ordinary green color except in the affected spots. Occasionally a *Peronospora* is found on the spots, an indication, perhaps, that the supposed *Protomyces* spores may be after all only the resting spores (oöspores) of a *Peronospora*.

Ræstelia penicillata, *Rabh.* Leaves and unripe fruit of the shad bush, *Amelanchier Canadensis*. Highlands. June.

Æcidium pedatatum, *Schw.* Living leaves of violet, *Viola pedata*. New Dorp, Staten Island. *W. R. Gerard.*

Helicomyces mirabilis, *n. sp.* (Plate 2, figs. 6-10.) Forming dense tufts or irregular whitish patches one line or more in diameter; flocci slender, branched, colorless, the fertile ones sometimes coiled and slightly thickened near the spore; spores abundant, large, spirally or irregularly coiled in two or more volutions, multiseptate, the cells about as broad as long, either filled with a granular endochrome or containing a single large nucleus; coils .0016 in. to .0025 in. in diameter; spores .0005 in. to .0006 in. broad. Old corn cobs lying in water. Ithaca. *Prentiss.* The tufts or masses occur mainly on the erect scales of the cob. In the dry state they are rather firm and compact. The septa of the spores are variable in number, ranging from six to sixteen or more. Unlike typical *Helicomyces*, this species has the threads long and well-developed.

Septocylindrium Ranunculi, *n. sp.* Spots oblong or irregular, brown; flocci hypophyllous, very short; spores oblong or subcylindrical, usually narrowed in the middle, obtuse, colorless, simple or one to three-septate, .0008 in. to .0016 in. long. Living leaves of buttercups, *Ranunculus acris*. Sandlake. Sept. This species is ambiguous between *Cylindrium* and *Septocylindrium*. Many of the spores are simple, others are obscurely uniseptate and others still show three septa. Possibly the simple spores are immature, and on this supposition I have referred the species to *Septocylindrium*; otherwise this fungus would obliterate the distinction between *Cylindrium* and *Septocylindrium*.

Ramularia Spirææ, *n. sp.* Spots indefinite, scattered or confluent, brown or blackish-brown; spores hypophyllous, concatenate, oblong or cylindrical, colorless, variable in length, .0003 in. to .001 in. long, .00012 in. to .00016 in. broad, generally with a minute nucleus near each end. Living leaves of nine-bark, *Spiræa opulifolia*. Albany. Sept. The strings of spores are well-developed, and in some instances branched.

Ramularia rufomaculans, *n. sp.* Spots numerous, often confluent and occupying nearly the whole leaf, dull-red; flocci very short, hypophyllous tufted; spores concatenate, variable, elliptical oblong or cylindrical, colorless, .0003 in. to .0006 in. long, .00012 in. to .00016 in. broad. Living leaves of *Polygonum amphibium* var. *terrestre*. Albany. Sept. The chains of spores are sometimes branched. The species is closely related to *R. Bistortæ*, from which it is separated because of the different character of the spots and the different and variable character of the spores. Sometimes the spots have a paler or

greenish-yellow margin. When very confluent the leaf at a little distance presents the general dingy red hue of the spots.

Ramularia sambucina, *n. sp.* Spots small, orbicular, scattered, pallid or reddish-brown, surrounded by a blackish-brown border; flocci hypophyllous, tufted, short, irregular above, colorless; spores oblong or subcylindrical, slightly narrowed at the extremities, colorless, .0009 in. to .0013 in. long, .0002 in. to .00025 in. broad, sometimes concatenate, rarely uniseptate. Living leaves of elder, *Sambucus Canadensis*. Catskill mountains. Aug.

Ramularia Impatientis, *n. sp.* Spots few, suborbicular, reddish-brown, the margin subindeterminate; spores epiphyllous, oblong, subacute, colorless, .0006 in. to .0009 in. long. Living leaves of touch-me-not, *Impatiens fulva*. Catskill mountains. Aug. This is a very obscure fungus, scarcely visible to the naked eye. The flocci and spores are generally more abundant near the margin of the spot, but this is not always well defined.

Ramularia Rudbeckii, *n. sp.* Spots variable in size, frequently confluent, angular, included by the veinlets, brown; flocci hypophyllous, tufted, short; spores subcylindrical, rounded at the ends, colorless, .0012 in. to .002 in. long, sometimes concatenate and obscurely septate. Living leaves of the cut-leaved cone-flower, *Rudbeckia laciniata*. Catskill mountains. Aug. The flocci are even shorter than the spores.

Cercosporella reticulata, *n. sp.* (Plate 2, figs. 14-16.) Spots large, irregular, brown; flocci amphigenous, short, tufted, nearly colorless; spores numerous, very variable in length, bacillary or subcylindrical, colorless, .0016 in. to .0045 in. long, .00025 in. to .0003 in. broad, with three to seven septa. Living leaves of the tall goldenrod, *Solidago altissima*. Catskill mountains. Aug. The large spots sometimes occupy nearly half of the leaf. They are dry and brittle. The pure white color of the fungus contrasts beautifully with the dark brown color of the spots. The spores are usually more abundant along the veinlets than elsewhere, and they thus give a reticulate appearance to the spot. I have referred the species to the genus *Cercosporella*, between which and *Cercospora* there appears to be scarcely any difference, except that of color.

Cercospora depazeoides, *Sacc.* Living leaves of elder, *Sambucus Canadensis*. Sandlake. Sept.

Cercospora circumscissa, *Sacc.* Living leaves of choke cherry, *Prunus Virginiana*. Catskill mountains. Aug.

Cercospora beticola, *Sacc.* Living leaves of beets, *Beta vulgaris*. Albany. Sept.

Cercospora Violæ, *Sacc.* Living leaves of violets. Catskill mountains. Aug.

Cercospora venturioides, *n. sp.* Spots generally large, irregular, sometimes confluent, dark-brown or cinereous with a broad blackish-brown margin; flocci epiphyllous, tufted, short, subflexuous, generally one or two-septate, united at the base, colored; spores cylindrical or bacillary, at length three to five-septate, colorless, .0015 in. to .005 in. long. Living leaves of silkweed, *Asclepias Cornuti*. Albany. Sept. The spots have a very dark or smoky-brown color which often becomes centrally cinereous on the upper surface. Sometimes there

are but one or two on a leaf, in other instances they are so numerous that nearly all the leaf is discolored. The flocci usually occur on the cinereous part of the spot. They are so compactly united in a mass at the base that when viewed through a handglass they appear like some minute species of *Venturia*.

Cercospora clavata, Ger. Spots small, numerous, irregular, indefinite, often confluent; flocci hypophyllous, minutely tufted, abundant, short, thick, subflexuous, subnodulose, colored, .001 in. to .0015 in. long; spores very unequal in length, cylindrical or bacillary, slightly colored, .0015 in. to .005 in. long, three to seven-septate. Living leaves of *Asclepias incarnata*. Albany. Sept. This species is very closely related to the preceding one. The flocci and spores are nearly alike in both, but the external appearance of the two is quite different. In this species the spots are small and numerous and have no cinereous center; the flocci are on the lower surface of the leaf and the tufts are so numerous and crowded that, with the spores, they form a continuous velvety stratum. It is *Helminthosporium clavatum*, Ger.

Cercospora Bœhmeriæ, n. sp. Spots small, numerous, often confluent, angular, limited by the veinlets, brownish, sometimes becoming arid and grayish; flocci hypophyllous, tufted, short, subflexuous, colored; spores subcylindrical or bacillary, generally curved, four or five-septate, colored, .0016 in. to .0035 in. long. Living leaves of the false nettle, *Bœhmeria cylindrica*. South Ballston. Sept. The tufts are very numerous but so minute that they are scarcely visible to the naked eye. They are compactly united at the base in a sort of sclerotoid mass as in *C. venturioides*. The spots, though numerous, are not very conspicuous because of their dull, pale color.

Cercospora Acalyphæ, n. sp. Spots very small, orbicular, arid, whitish with a narrow purplish-brown border; flocci epiphyllous, tufted, subflexuous, septate, colored; spores slender, bacillary, five to seven-septate, colorless, .002 in. to .003 in. long, .00016 in. broad in the widest part. Living leaves of three-seeded mercury, *Acalypha Virginica*. Albany. Sept.

Verticillium candidum, n. sp. (Plate 2, figs. 11-13.) White; fertile flocci erect, septate, branched, the branches opposite or verticillate, sometimes with verticillate ramuli; spores terminal, globose, colorless, .00016 in. to .0002 in. in diameter. Decaying wood and bark in damp secluded places. Helderberg mountains. Oct. and Nov. It forms more or less extensive thin, white patches. The sterile flocci are usually thicker than the fertile.

Diplocladium minus, Bon. Decaying Agarics and Polypori. Helderberg mountains. Nov. It forms dense felty patches of intricate white filaments on the soft decaying substance of the matrix. It is distinguished from *Verticillium epimyces* by its clear white color and uniseptate spores.

Fusisporium tenuissimum, n. sp. Tufts superficial, very minute, lax, forming thin subpulverulent whitish patches; flocci branched, colorless, subconglutinate at the base; spores fusiform, straight or curved, three to five-septate, colorless, .0008 in. to .0016 in. long, .00016 in. to .0002 in. broad. Dead stems of herbs. Schenectady. Sept. The tufts are so minute that they appear to the naked eye like patches

of mere flocculent dust. The spores are at first short and simple, but they soon become uniseptate and then longer and mostly triseptate.

Aspergillus phæocephalus, D. & M. "Spanish onions." Albany. Oct.

Aspergillus clavellus, n. sp. (Plate 2, figs. 1-5.) Sterile flocci creeping, abundant, soft, white; fertile flocci erect, gradually enlarged above into an oblong-elliptical or clavate head; head at first white, then glaucous-green; spores globose or broadly elliptical, smooth, .00016 in. to .0002 in. long. Cooked squash. Albany. Oct. This species, by the clavate apices of the fertile flocci, is related to *A. mollis*, but that species is white and has the fertile flocci branched and the spores large. In color, our plant resembles *A. glaucus*, but that has the apices of the fertile flocci globose, and the spores, according to Corda, much larger and rough.

Monilia Harknessii, n. sp. Flocci tufted, slender, tawny, breaking up into elliptical or lemon-shaped spores, .00025 in. to .0004 in. long, about .0002 in. broad. Decaying wood. Helderberg mountains. Nov. This fungus is related to and congeneric with such species as *Oidium aureum*, *O. fulvum* and *O. pulvinatum*, but if the genus *Oidium* is to be limited to such fungi as grow on living vegetable tissues, as some mycologists hold, then the species just mentioned and the one just described must be referred to the genus *Monilia*.

Colletotrichum lineola, Ck. Old corn stalks. Chatham, Columbia county. June. Sometimes this fungus is so abundant that the patches surround the whole stem and appear to clothe it with a thin blackish pubescence, though the flocci have a tendency to arrange themselves in parallel lines. It is this tendency apparently which suggested the specific name. The gelatinous subiculum which is said to exist is not at all apparent in our specimens. The spores vary somewhat, being in some instances about equally pointed at both ends, in others they are much more pointed at one end than at the other. *Psilonia apalospora*, B. & R., and *Vermicularia velutina*, B. & R., according to my Curtisian and Ravenelian specimens are very closely related to each other and to this species if indeed they are really specifically distinct.

Sporocybe nigriceps, n. sp. (Periconia of some authors.) Plant black, .025 in. to .03 in. high; stem erect, shining, smooth, septate, sometimes with one or two short thick branches at the top; head globose or elliptical; spores globose, minutely rough, colored, .00025 in. to .00035 in. in diameter. Dead leaves of sedges and carices. Albany and Adirondack mountains. July and Aug. Two forms occur, sometimes growing on the same leaf. In one the head is larger, elliptical in outline and nearly as long as its stem, which has but one or two septa. In the other the head is smaller and nearly or quite globose and the proportionally longer stem has several septa. *Sporocybe nigrella* is said to inhabit dead leaves of grass, and *S. cholorocephala*, dead leaves of carices. I am not acquainted with either species, but as both are described as having smooth spores our plant cannot well be referred to either of them. An unfortunate disagreement exists among European mycologists in the application of the generic names *Sporocybe* and *Periconia*. The English mycologists employ the former

term to designate those species that have simple septate stems, and the latter those that have the stems made up of several compacted or coalescing filaments. This application of these terms is exactly reversed by some of the continental mycologists. We have thought best to follow the English mycologists in our use of these generic names.

Periconia sphærophila, *n. sp.* (Sporocybe of some authors.) (Plate 2, figs. 17-20.) Stem slender, cylindrical, about .03 in. high, black, growing like a rostrate ostiolum from Sphæriaceous perithecia; spores few, loose, scarcely forming a head, subglobose or broadly elliptical, colored, .0003 in. to .00035 in. long. On perithecia of *Sphæria morbosa*. Adirondack mountains. July. This fungus usually occupies patches of perithecia. In the places where it occurs nearly every perithecium supports a fungus, but other parts of the same excrescence will be wholly free from it. It is not often that the fungus occupies all the excrescence. Growing, as it does, from the apex of the perithecium, it, with its matrix, simulates the appearance of a Ceratostomaceous Sphæria, the *Periconia* answering to the rostrate ostiolum. The stems are scarcely half a line high and are composed of densely compacted filaments. They are often coated by a pellucid membrane. It is not a rare fungus in elevated localities in the Adirondack mountains, where *Sphæria morbosa* is plentiful on the wild red cherry, *Prunus Pennsylvanica*. So intimate is its connection with the Sphæria that it is difficult to believe that it is a distinct fungus rather than a second form of development of the Sphæria. But the spores are clearly produced at the apex of the pseudo ostiolum just as in *Periconia* and it has therefore seemed to me a distinct fungus, but one of very singular character. I find no fruit of the Sphæria in any of the attacked perithecia. It may be that this *Periconia* is one of nature's antidotes to the too rapid multiplication of this noxious Sphæria, but before this can be positively affirmed the specimens should be examined in winter or spring when the Sphæria matures its spores.

Graphium gracile, *n. sp.* (Plate 1, figs. 11-13.) Spots large, irregular, reddish-brown; stems hypophyllous, slender, attenuated upwards, black or blackish-brown, pale at the tips where the component filaments diverge and are colorless, subnodulose or rarely slightly branched; spores oblong, colorless, .0005 in. to .001 in. long, .0002 in. to .00025 in. broad. Living leaves of red raspberry, *Rubus strigosus*. Catskill mountains. Aug. The slender subulate stems of the fungus are so scattered that they are easily overlooked. They are, however, more easily seen because of the whitish tomentum of the leaf through which they grow. The spores fall off easily. They sometimes contain a small nucleus near each end.

Macrosporium concinnum, *Berk.* Dead twigs of striped maple, *Acer Pennsylvanicum*. Catskill mountains. Aug.

Helminthosporium Tiliæ, *Fr.* Dead branches of bass wood, *Tilia Americana*. Helderberg mountains. Nov. This was associated with *Exosporium Tiliæ*, from which it is distinguished by its narrower spores with more numerous septa and by the absence of the hard stroma which belongs to the *Exosporium*. The tufts in our specimens are almost wholly made up of spores.

Helminthosporium septemseptatum, *Pk.* Cut surface of maple stump. Helderberg mountains. Nov. The young spores are colorless, adhere firmly to the tips of the flocci and are either simple or one to three-septate. When mature they are colored, easily separated from the flocci and six or seven-septate. The species is allied to *H. fusisporum*, but in that the spores are described as narrower than the flocci, in our plant they are broader than the flocci.

Helminthosporium inconspicuum, *C. & E.* Living or languishing leaves of Indian corn. Sandlake and Albany. July and Sept.

Helminthosporium arbusculoides, *n. sp.* Flocci rather slender, long, simple, subflexuous, often decumbent at the base, multiseptate, opaque, black, forming extensive blackish patches; spores terminal, oblong or narrowly elliptical, colored, triseptate, .00065 in. to .00085 in. long, about .0003 in. broad, the terminal cells sometimes paler. Bark of living white birch, *Betula populifolia*. West Albany. Oct. The species is apparently allied to *H. arbuscula*, from which it is distinguished especially by its septate flocci. The articulations are numerous, being once or twice as long as broad, but owing to the opaque character of the flocci the septa are not always distinctly seen. The decumbent flocci present a very straggling appearance. They form extensive patches which sometimes entirely surround the trunks of small trees, especially near the base.

Zygodemus bicolor, *C. & E.* Decaying leaves and fungi. Helderberg mountains. Nov. The margin is sometimes nearly uniformly colored with the rest of the stratum.

Rhinotrichum subalutaceum, *n. sp.* Flocci elongated, branched, creeping, intricate, septate, forming brownish-alutaceous tomentose patches, fertile branches commonly short, narrowed and minutely roughened with spicules at the apex; spores globose, colored, minutely roughened or echinulate, .0003 in. to .0004 in. in diameter. Decaying wood. Helderberg mountains. Nov. The fertile branches are generally short and without septa. They are usually abruptly narrowed at the apex and there rough with minute spicules on which the globose spores are borne.

Zasmidium cellare, *Pers.* Decaying wood in damp shaded places. Ithaca. *Prentiss.* The specimens are without fruit but apparently belong here.

Peziza (Humaria) hydrophila, *n. sp.* Cups scattered, sessile, expanded, nearly plane or even convex, reddish-brown when moist, black when dry, two to four lines broad; asci cylindrical; spores uniseriate, elliptical, generally binucleate, .0009 in. to .001 in. long, .0006 in. to .0007 in. broad, paraphyses numerous, thickened above, brown, closely compacted and adhering to each other. Decaying wood lying in water. Adirondack mountains. July. Externally this fungus has the general appearance of some species of *Bulgaria*, but its softer fleshy substance requires its reference to the genus *Peziza*. The numerous colored coalescing paraphyses constitute a distinctive feature.

Peziza atrata, *Fr.* Dead stems of herbs. Albany. May.

Peziza fusarioides, *Berk.* Dead stems of nettles. Albany. June.

Peziza aurelia, *Pers.* Decaying wood. Ithaca. *Prentiss.*

Peziza (Tapezia) balsamicola, *n. sp.* (Plate 1, figs. 14-21.) Sub-

iculum thin, appressed, gray, one to two lines broad, composed of filaments of two kinds, one kind, coarse, branching, septate, blackish-brown, bearing numerous short ramuli, each of which is terminated by a large colored three to four-lobed spore-like body, .0006 in. to .0009 in. long and broad, the other kind, delicate colorless, bearing narrowly fusiform colorless conidia; cups minute, .012 in. to .016 in. broad, sessile, glabrous, immarginate, waxy, whitish, subpellucid; asci enlarged upwards, broad and obtuse at the apex, .0015 in. to .0002 in. long; spores oblanate, crowded, .0006 in. to .0008 in. long, .0002 in. to .0003 in. broad, generally three or four-nucleate; paraphyses filiform.

Living or languishing leaves of balsam fir, *Abies balsamea*. Stony Clove, Catskill mountains. Aug. The presence of two kinds of filaments in the subiculum suggests the question whether both belong to the Peziza. In a few instances the perithecia of a sphaeriaceous fungus were found on the subiculum, and in one case both this fungus and the Peziza were occupying the same patch of filaments. The delicate whitish filaments appear to overrun and adhere to the coarse brown ones as if parasitic on them. This commingling of the two gives the general gray hue to the subiculum. It is probable that the delicate filaments belong to the Peziza and are parasitic on the other which probably belongs to the following fungus.

Meliola balsamicola, *n. sp.* (Plate 1, figs. 22-27.) Perithecia few, gregarious, minute, ovate or subconical, free, black, seated on a small blackish-brown spot-like subiculum; asci generally oblong, rarely subcylindrical and elongated; spores mostly crowded or biseriata, rarely uniseriate, uniseptate, colorless, .00035 in. to .00045 in. long, generally two to three-nucleate and one cell a little narrower than the other. Living or languishing leaves of balsam fir, associated with *Peziza balsamicola*. Catskill mountains. Aug. The subicula on which this fungus occurred were a little darker colored than those which bore the Peziza the whitish filaments being less abundant. From this it is inferred that the colored filaments are properly the subiculum of the *Meliola*. *M. ganglifera* and some South African species of *Asterina* are said to have similar bodies on the threads of the subiculum. Our fungus does not fully meet the requirements of the genus *Meliola*, neither is it a good *Asterina* nor *Dimerosporium*. It needs further investigation.

Hypoxylon marginatum, *Schw.* Oak fence posts. Albany. Sept.

Diatrype punctulata, *B. & R.* White oak wood. Ithaca. *Prentiss.* The specimens are sterile, but evidently belong to this species, which, though first published as a *Hypoxylon*, was afterward described as a *Diatrype*.

Diatrypella angulata, *Fr.* Dead branches of ash and poplar. North Greenbush. Oct.

Valsa myinda, *C. & E.* Dead branches of maple, *Acer spicatum*. Knowersville. Oct.

Dothidea melanoplaca, *Desm.* Languishing or dead leaves of white hellebore, *Veratrum viride*. Catskill and Adirondack mountains. July and Aug. The specimens are not in fruit; neither has it been found in fertile condition in Europe so far as I am informed. Possibly it perfects its fruit in Winter or early Spring.

Lophiostoma angustilabrum, *B. & Br.* Decorticated sticks. North Greenbush. June.

Sphærella Leersiaë, *Pass.* Dead leaves of grass, *Leersia oryzoides*. North Greenbush. Sept.

REMARKS AND OBSERVATIONS.

Thalictrum anemonoides, *Mx.* A double-flowered form with the stamens transformed into oval greenish petaloid leaflets was detected near Coeymans, Albany county. *Prof. J. S. St. John.*

Nuphar advena, *Ait.* A variety (near var. *variegata*) with large partly purplish flowers is not rare in the lakes and sluggish streams of the Adirondack wilderness. The flower when pressed open is nearly three inches in diameter. A very noticeable variety occurs in Forked lake, Adirondack mountains, where it was first detected by *Prof. P. A. Puissant*. It may be characterized thus: Var. *hybrida*. Sepals six, rarely five, subequal, the three exterior often tinged with red; petals twelve to fourteen, generally thirteen, about as long as the contiguous stamens; stigmatic disk red, umbilicate, ten to thirteen-rayed, the margin slightly crenate; leaves small, with a paler greenish dash beneath on each side of the midrib, the sinus usually open; petioles flattened on the upper side. This variety grows in water four to eight feet deep in close proximity to a patch of *Nuphar lutea* var. *pumila* (*N. Kalmiana*, Pursh.) In size and character it is intermediate between this and the ordinary form of *N. advena*. It is smaller in all its parts than the latter and larger than the former and appears very much as if it might be a hybrid between them. The number of the sepals connects it with *N. advena*, but the disk of the stigma allies it more closely with *N. Kalmiana*. The flowers when outspread are nearly two inches across. When fresh they have an agreeable spicy or aromatic odor. In this respect they differ from our common forms of both species.

Nymphæa odorata, *Ait.* In stony ponds, Adirondack mountains, a small form was found in which the outspread flowers are scarcely two inches in diameter. Also a form in which the outer petals are tinged with pink.

Cardamine hirsuta v. *sylvatica*, *Gr.* Thin dry soil covering rocks. Edmonds ponds.

Vitis æstivalis, *Mx.* A form with the leaves deeply and angularly five-lobed occurs in Sandlake. The foliage at first sight appears as if it had been eaten by insects.

Prunus pumila, *L.* Sandy shore near the outlet of Long lake, Adirondack mountains; the prostrate trailing form fruiting abundantly.

Rosa lucida, *Ehrh.* To this species I refer a very marked form occurring on the slopes of Mt. Defiance and near Westport, Essex county. The stems are armed, especially toward the base, with very numerous unequal, bristly prickles, the calyx lobes are scarcely glandular-bristly and the smooth fruit is ovate or elliptical.

Ribes rotundifolium, *Mx.* Mt. Defiance. A form with leaves mostly about half an inch broad, as if starved and unthrifty, yet fruiting abundantly.

Myriophyllum tenellum, *Bigel.* Not uncommon in the Adirondack region. On the miry shores of Mud-pond, a shallow sheet of water about one mile south-west of Edmonds ponds, it is so plentiful that its peculiar yellowish hue is visible at a long distance. It grows both in and out of water.

Epilobium angustifolium, *L.* A form with flowers nearly white, occurs occasionally in the Adirondack region. White flowered forms of the following species have been observed the past season; *Verbascum Thapsus*, *Echium vulgare*, *Mimulus ringens*, *Scutellaria lateriflora*, *Origanum vulgare*. The last-named plant is very plentiful about Phœnicia, Ulster county, where it monopolizes some of the pastures and hillsides.

Epilobium coloratum, *Muhl.* A small form with unbranched stems six to ten inches high was observed in the Catskill mountains. It resembles *E. alpinum*, from which it may be distinguished by its acute leaves.

Lythrum alatum, *Pursh.* Bank of Oswego river opposite Battle Island. *Wibbe.*

Conioselinum Canadense, *T. & G.* Moist cliffs, Catskill mountains.

Galium verum, *L.* Glen Cove. *Coles.*

Aster corymbosus, *Ait.* In the Catskill mountains three forms occur which are readily distinguished from each other by the flowers. A small form in open grassy places has a dense corymb of small heads with short broad close rays; a large form in shaded moist places along streams has a loose corymb of larger heads with long narrow distant rays; a third form, intermediate between these two, grows in thin woods and has rays about midway between the other two in length, breadth and relative position. In all the forms the rays sometimes exceed nine in number. The flowers of the large form resemble those of *A. macrophyllus*, but the involucre is shorter.

Aster Tradescanti v. *fragilis*, *T. & G.* (*A. fragilis*, *Willd.*) Long lake and Raquette falls, Adirondack mountains. It is one of the earliest flowering Asters of this region, being in flower the latter part of July.

Aster longifolius, *Lam.* A form with the stem leaves broadly lanceolate and strongly serrate in the middle was found at Phœnicia.

Aster acuminatus, *Mx.* Two well-marked forms occur. In one the leaves are crowded on the upper half of the stem, the lower half being nearly or quite destitute of foliage. In cold, elevated localities, as in the Stony Clove of the Catskills, this form has but few heads; generally from one to six. The other form has a stouter stem, leafy throughout its entire length, and numerous heads of flowers.

Artemisia Canadensis, *Mx.* Sandy banks along the railroad near Thurman station, Warren county.

Rudbeckia laciniata, *L.* Plentiful in the Catskill mountains, following the streams far up toward the Stony Clove.

Lactuca Canadensis v. *sanguinea*, *T. & G.* Fields and cleared places. North Elba. Plants with yellow flowers and those with reddish or orange-colored flowers were associated in the same station.

Campanula rotundifolia, *L.* A small form with solitary flowers grows at Edmonds ponds.

Mentha piperita, *L.* Along streams at Phœnicia a singular form was observed. Its flowers were in axillary whorls or clusters as in *M. sativa*, *M. Canadensis*, etc.: not in terminal spikes as in the ordinary form. This marked variation from the usual mode of inflorescence gives such a peculiar aspect to the plant that it seems worthy of a name and might be called var. *interrupta*.

Mentha Canadensis, *L.* Very variable. The stems are simple or branched; the leaves are ovate or elliptical, tapering at the base or abruptly narrowed, grayish-green or purplish; the flowers may have the stamens all exerted or all included, or some exerted and some included even on the same plant. Besides, the plant varies from nearly smooth to very hairy.

Lycopus Virginicus, *L.* The small few-flowered form (*L. pumilus*, *Vahl.*) with a thickened tuberous root occurs in the Adirondack region.

Polygonum amphibium v. *aguaticum*, *Willd.* Common in still or slow-flowing water of the Adirondack region. The elongated stems creep on the bottom and send up, at intervals, flowering branches which bear the thick, smooth, glossy, floating leaves and the brilliant red spikes of flowers which enliven and beautify the lonely waters of the wilderness. Each node of the submerged stem gives rise to a cluster of rootlets.

Sparganium simplex v. *angustifolium*, *Gr.* The terrestrial form, with shorter, erect leaves, occurs at Edmonds ponds.

Sparganium minimum, *Bauh.* Colby pond, Adirondack mountains.

Potamogeton Oakesianus, *Robbins.* In the slow-flowing streams of the Adirondack region there is a slender *Potamogeton* which I refer to this species. I have not seen it with mature fruit, its fruiting season being very late, if indeed it matures its fruit at all. Its stem is not at all or only sparingly branched, its floating leaves are very narrow or even lanceolate, and borne on slender petioles many times longer than the leaves, and the phyllodia or submerged leaves are exceedingly long and slender, even capillary.

Potamogeton Claytonii, *Tuckerm.* A dwarf form resembling *P. lucens* v. *minor*, grows on mud in an exsiccated pond-hole in the Stony Clove. It fruits freely but seldom has any phyllodia. The stems are but a few inches long and yet they are sometimes much branched. Its appearance is very unlike the ordinary floating forms of the species.

Potamogeton gramineus v. *graminifolius*, *Fr.* Stony ponds, Adirondack mountains. It is sometimes destitute of floating leaves. The var. *heterophyllus* was collected in Raquette river. This also occurs without floating leaves, as at Westport, and yet fruiting freely.

Potamogeton amplifolius, *Tuckerm.* One of the most common pond-weeds in the Adirondack waters. It is a large, fine-appearing plant and fruits abundantly. Like other species it is more slender in waters with a strong current than in still waters. In such localities the leaves are more diseant and even the spikes elongated and more loosely flowered. In still water the spikes are very compact and the flowers are regularly arranged in six ranks.

Potamogeton lucens, *L.* Raquette river. The var *minor* in the Normanskill near Albany.

Potamogeton pusillus, *L.* Both var. *vulgaris* and var. *tenuissimus*

occur in Lower Saranac lake. In this lake are also *P. amplifolius*, *P. Claytonii*, *P. gramineus*, *P. hybrideus*, *P. compressus*, *P. perfoliatus* and *P. natans*. In the inlet between this lake and Round lake, *P. amplifolius*, *P. Claytonii* and *P. gramineus* v. *heterophyllus* abound in a luxuriant growth. Pond-weeds, water-lilies and aquatic plants generally are more abundant in and near the inlets of the lakes of this region than in other parts of the waters. Probably the sediment brought down by the streams and accumulating in the parts of the lakes adjacent to their inlets affords a soil especially favorable to the production and support of water-plants.

Trillium erectum v. *declinatum*, *Gr.* Long Island. *Coles.* Some of the flowers are white, others are variously tinged with pink. In one specimen two flowering stems grew from the same rootstock.

Lilium Philadelphicum, *L.* This commonly has but one or two flowers on a stem, but in rare instances as many as five flowers occur.

Carex flava, *L.* A large form with three or four fertile spikes and the staminate spike, nearly all fertile, was collected at Millerton. The numerous large fertile spikes give the plant an unusual appearance. Sometimes the lowest spike is compound.

Carex triceps, *Mx.* A form with oblong spikes. Mt. Defiance.

Carex gynandra, *Schw.* Not rare in the Adirondack region, but passing into *C. crinita* by such insensible gradations that it is difficult to keep them separate.

Carex scoparia, *Schk.* Of this species we have three forms. In one, the spikes are arranged in a somewhat racemose manner. This is usually found in dry, sandy soil. In another the spikes are more or less aggregate in a cluster or head. This is the common form usually found in wet places. In the third form, the var. *minor*, the spikes are small and aggregate. This occurs in the Adirondack mountains. The whole plant is smaller than usual.

Carex debilis, *Mx.* A large, thrifty form is found in the Adirondack region. It has five fertile spikes, the lowest one usually bearing near its base a branch about an inch in length.

Carex tentaculata, *Muhl.* At Edmonds ponds starved specimens occur which have but a single short subglobose fertile spike. They were in company with var. *gracilis*.

Carex oligosperma, *Mx.* Stony ponds. A slender form with the fertile spikes but three or four-flowered.

Agrostis scabra, *Willd.* In thin woods in the Catskills there is a small leafy form of this grass with green panicles.

Muhlenbergia Mexicana, *Trin.* A very variable grass. A tall, slender, slightly branched variety was found on damp shaded cliffs in Stony Clove. A much branched form with short erect leaves and a rigid aspect occurs on the banks of the Hudson near Albany. Growing with it and scarcely to be distinguished from it, except by the awned flowers, is a very similar form of *Muhlenbergia sylvatica*.

Glyceria fluitans, *R. Br.* Edmonds ponds. In this locality the spikelets are short, three to four lines long, and usually about five-flowered.

Setaria viridis, *Beauv.* A singular form was found at West Albany on the banks of the railroad. The spikes are more slender than usual,

and the bristles are shorter, stouter and purplish. These give a purplish tint to the appearance of the spike whereby this form can be readily distinguished from the ordinary one. The flowers make an approach to a verticillate arrangement toward the base of the spikes after the manner of *S. verticillate*.

Aspidium fragrans, Sw. This rare fern was found in limited quantity on the rocks at Edmonds ponds. This is the second locality in the Adirondacks in which it has been found. Here also, as at Lake Avalanche, it was associated with *Woodsia hyperborea*, a fern of no common occurrence in our State. *Aspidium aculeatum* v. *Braunii* also occurs sparingly in this locality.

Pellaea gracilis, Hook. At Edmonds ponds, about half way up the cascade opposite the Cascade House, is a limited mass of calcite surrounded by the ordinary rock of the mountains. The limestone affords a congenial habitat for this dainty little fern and here it grows in great luxuriance and profusion. This mass of calcite appears to render this limited locality inhabitable by the fern, for I did not find it extending beyond this isolated station which is the only one in the interior mountain district in which I have observed this fern.

Phegopteris polypodioides, Fre. A dwarf yet fertile form of this fern with the frond only two or three inches long was found growing in crevices of rocks in the Adirondack mountains.

Cheilanthes vestita, Sw. A second station for this fern in our State has been found near Poughkeepsie. The one on New York Island is said still to exist but the plants occupy a very limited area.

Agaricus virescens, Pl. (Report 25, p. 74.) The name of this species being preoccupied I would substitute for our plant the name *Agaricus viriditinctus*.

Polyporus radiatus, Fr. One form of this species has the margin yellow, in another form the pileus is uniform in color.

Polyporus lucidus, Fr. Specimens sometimes occur in which there are two distinct strata of pores.

Septoria Rubi, B. & C., var. *alba*, Pl. In this variety the spots are small and white, and bear but few perithecia. It occurs on *Rubus villosus* and *R. Canadensis*.

Sporocybe Persicæ, Fr. This fungus should be placed in the genus *Sphæronema*. The spores are produced at the base, not at the apex of the fungus.

Haplographium apiculatum, Pl. This species was first found inhabiting an insect gall on leaves of witch hazel, *Hamamelis Virginica*. It has since been found on the lower surface of the leaves themselves, on dry suborbicular brown spots. The flocci often have two or three swollen nodules in the upper part, from which strings of spores grow. In such cases the strings of spores appear to be in verticils when viewed with a low magnifying power.

Sphæria Coryli, Batsch. var. *spiralis*, Pl. This variety differs from the ordinary form only in having the ostiola spirally coiled in about two volutions. All the ostiola on the perithecia of a host plant are affected in the same way, that is, I do not find on any given leaf or leaves of an affected plant some ostiola straight and some coiled, but all are straight or all are coiled.

Sphæria callista, B. & R. Bark of mountain maple bush, *Acer spicatum*. Catskill mountains. This fungus should be referred to the genus *Chilonectria*. The perithecia, which are seated on a brown tomentum or subiculum, are blackish and membranous and at length collapse or become saucer-shaped. The asci contain numerous allantoid hyaline spores, .0003 in. long.

In the preceding pages, names added to the station of a plant indicate the collector or contributor. When no name is added the plant was collected by the writer. Dates signify the time when the specimens were collected, and indicate, to some extent, the time of the occurrence of the plant.

Grateful acknowledgments are rendered to those botanists whose names appear in the preceding pages. They have kindly co-operated with me and generously contributed desired specimens.

Respectfully submitted,

CHARLES H. PECK.

ALBANY, *January 6, 1881.*

EXPLANATION OF PLATE I.

SEPTOGLŒUM APOCYNII, *Pk.*

Page 45.

- FIG. 1. A leaf with two spots produced by the fungus.
FIG. 2. Three spores x 400.

SEPTORIA MICROSPERMA, *Pl*

Page 44.

- FIG. 3. A leaf bearing three groups of the fungus.
FIG. 4. A fragment of a leaf with a perithecium magnified.
FIG. 5. Four spores x 400.

ASPERGILLUS GLAUCUS, *Lk.*

Page 49.

- FIG. 6. A fragment of Polyporus bearing a patch of the fungus.
FIG. 7. A young plant magnified.
FIG. 8. Two mature plants magnified.
FIG. 9. Upper part of a plant with most of the spores removed, more highly magnified.
FIG. 10. Four spores x 400.

GRAPHIUM GRACILE, *Pk.*

Page 50.

- FIG. 11. Part of a leaf with spots produced by the fungus.
FIG. 12. A fragment of a leaf and four plants magnified.
FIG. 13. The upper part of a plant with spores x 400.

PEZIZA BALSAMICOLA, *Pk.*

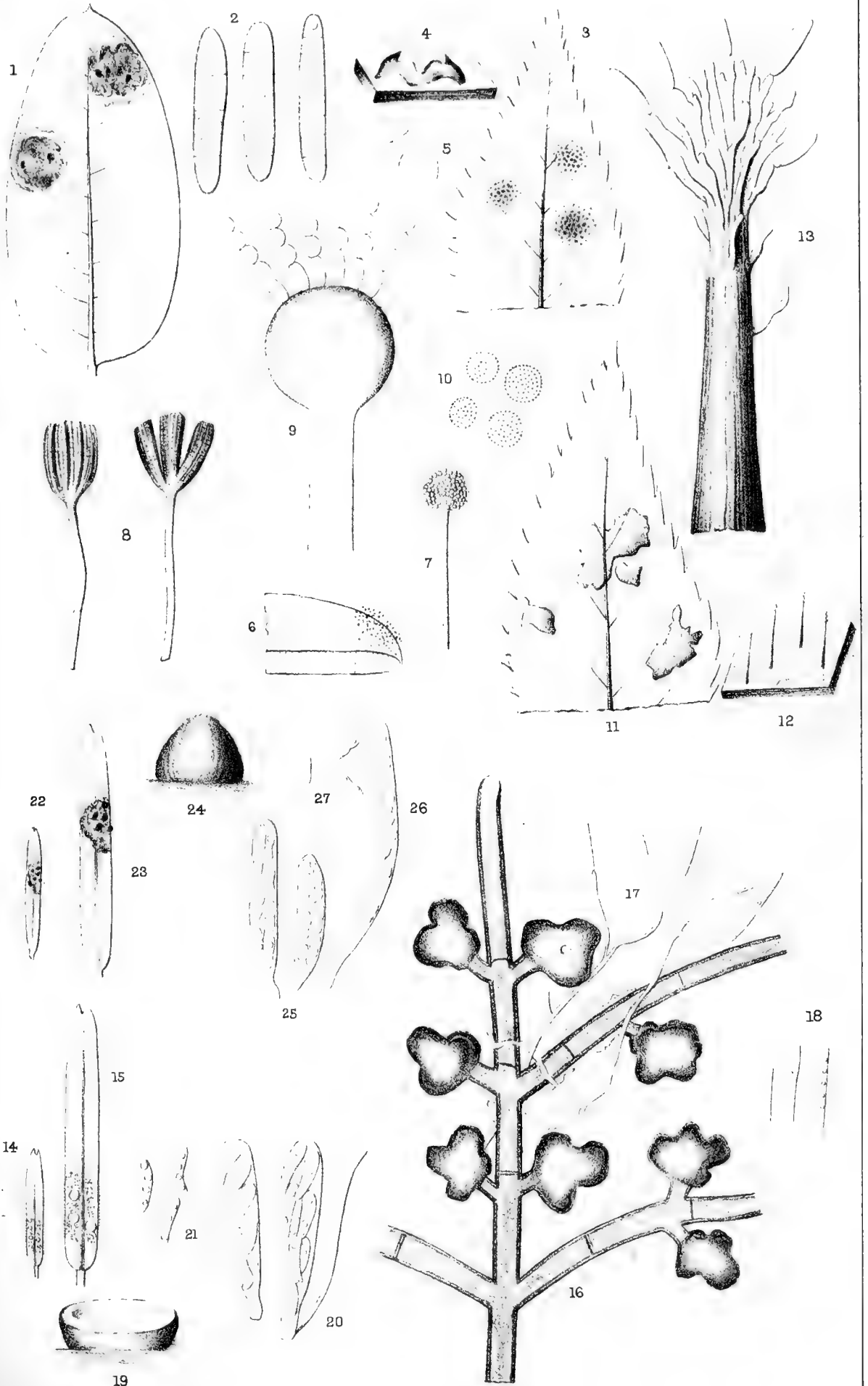
Page 51.

- FIG. 14. A leaf with the subiculum and three cups of the fungus.
FIG. 15. The same slightly magnified.
FIG. 16. Part of one of the coarse colored threads of the subiculum with its spore-like bodies x 400.
FIG. 17. Delicate colorless threads of the subiculum with their fusiform conidia X 400.
FIG. 18. Three conidia x 400.
FIG. 19. A cup magnified.
FIG. 20. A paraphysis and two asci containing spores x 400.
FIG. 21. Three spores x 400.

MELIOLA BALSAMICOLA, *Pk.*

Page 52.

- FIG. 22. A leaf with the subiculum and five perithecia of the fungus.
FIG. 23. The same slightly magnified.
FIG. 24. A perithecium more highly magnified.
FIG. 25. Two asci of usual form, with their spores x 400.
FIG. 26. An ascus of unusual form, with its spores x 400.
FIG. 27. Three spores x 400.



EXPLANATION OF PLATE II.

ASPERGILLUS CLAVELLUS, *Pk.*

Page 49.

- FIG. 1. A tuft of the fungus with its matrix.
FIG. 2. Three plants magnified.
FIG. 3. Upper part of a plant with most of the spores removed, more highly magnified.
FIG. 4. A group of spores x 400.
FIG. 5. A string of spores with its basidium more highly magnified.

HELICOMYCES MIRABILIS, *Pk.*

Page 46.

- FIG. 6. A piece of a corn cob bearing the fungus.
FIG. 7. Threads of the fungus x 400.
FIG. 8. A coiled spore x 400.
FIG. 9. A spore partly uncoiled x 400.
FIG. 10. A fragment of a spore x 400.

VERTICILLIUM CANDIDUM, *Pk.*

Page 48.

- FIG. 11. A piece of wood bearing a patch of the fungus.
FIG. 12. A plant with spores x 400.
FIG. 13. Six spores x 400.

CERCOSPORELLA RETICULATA, *Pk.*

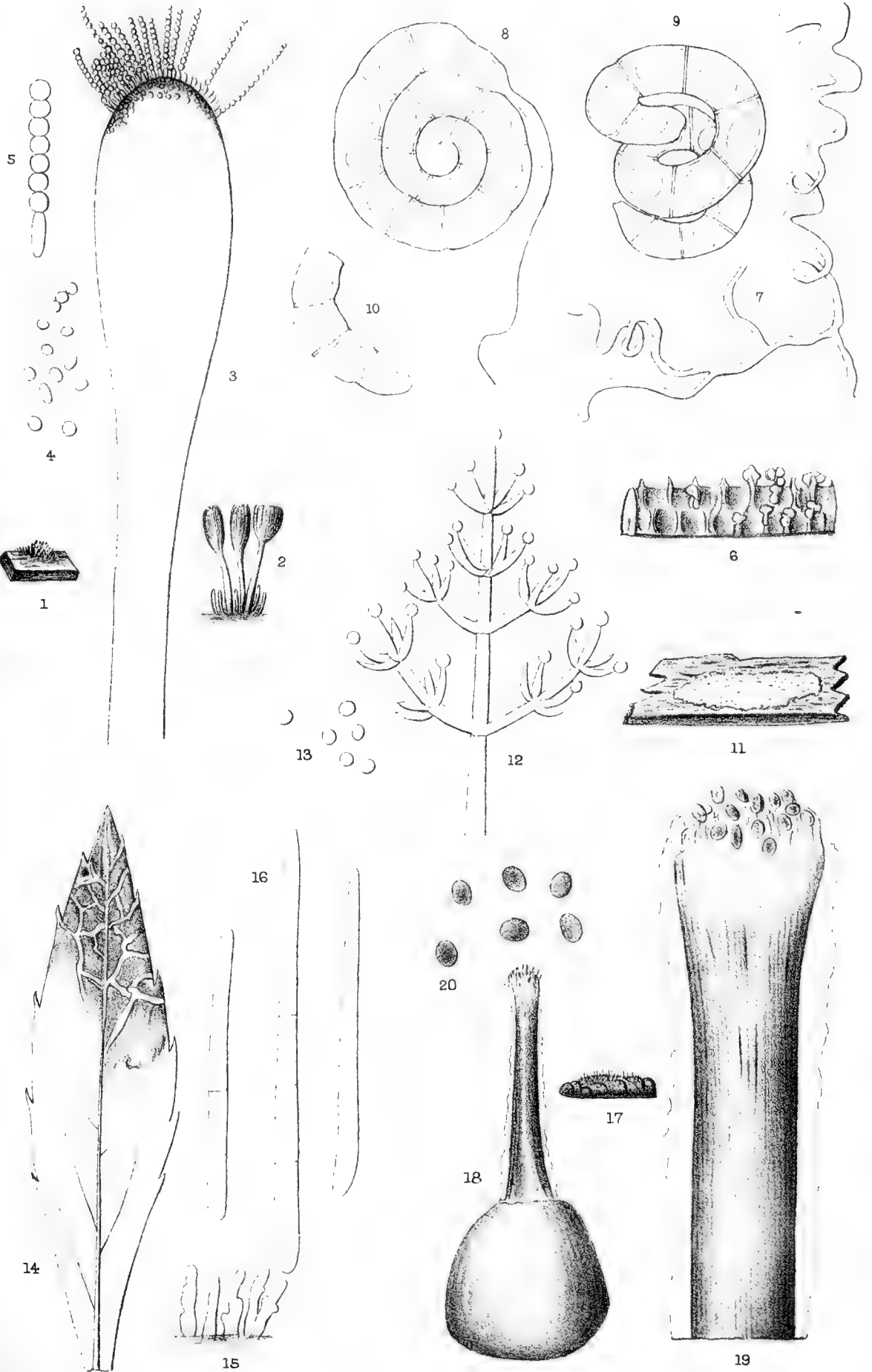
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- FIG. 14. A leaf discolored at the apex by the fungus.
FIG. 15. A group of flocci x 400.
FIG. 16. Three spores x 400.

PERICONIA SPHÆROPHILA, *Pk.*

Page 50.

- FIG. 17. A patch of the fungus with its matrix.
FIG. 18. A plant and the perithecium from which it grows magnified.
FIG. 19. Upper part of a plant with spores more highly magnified.
FIG. 20. Six spores x 400.



EXPLANATION OF PLATE III.

USTILAGO MAYDIS, *Lev.*

Page 26.

- FIG. 1. Part of the "tassel" of Indian corn affected by the corn smut.
FIG. 2. Part of a cob of corn affected by the corn smut.
FIG. 3. Five of the spores x 400.

HELMINTHOSPORIUM INCONSPICUUM, *C. & E.*

Page 28.

- FIG. 4. Part of a leaf of Indian corn with its terminal part discolored and spotted by the fungus.
FIG. 5. A small fragment bearing six plants moderately magnified.
FIG. 6. Three plants bearing spores x 400.

PUCGINIA MAYDIS, *Potsch.*

Page 29.

- FIG. 7. Pustules of the fungus on the leaf of Indian corn.
FIG. 8. Four pustules of the early state of the fungus.
FIG. 9. Vertical sections through two pustules of the fungus, moderately magnified; the one at the left the early state.
FIG. 10. Four of the early spores x 400.
FIG. 11. Three spores x 400.

RAMULARIA FRAGARIA, *Pk.*

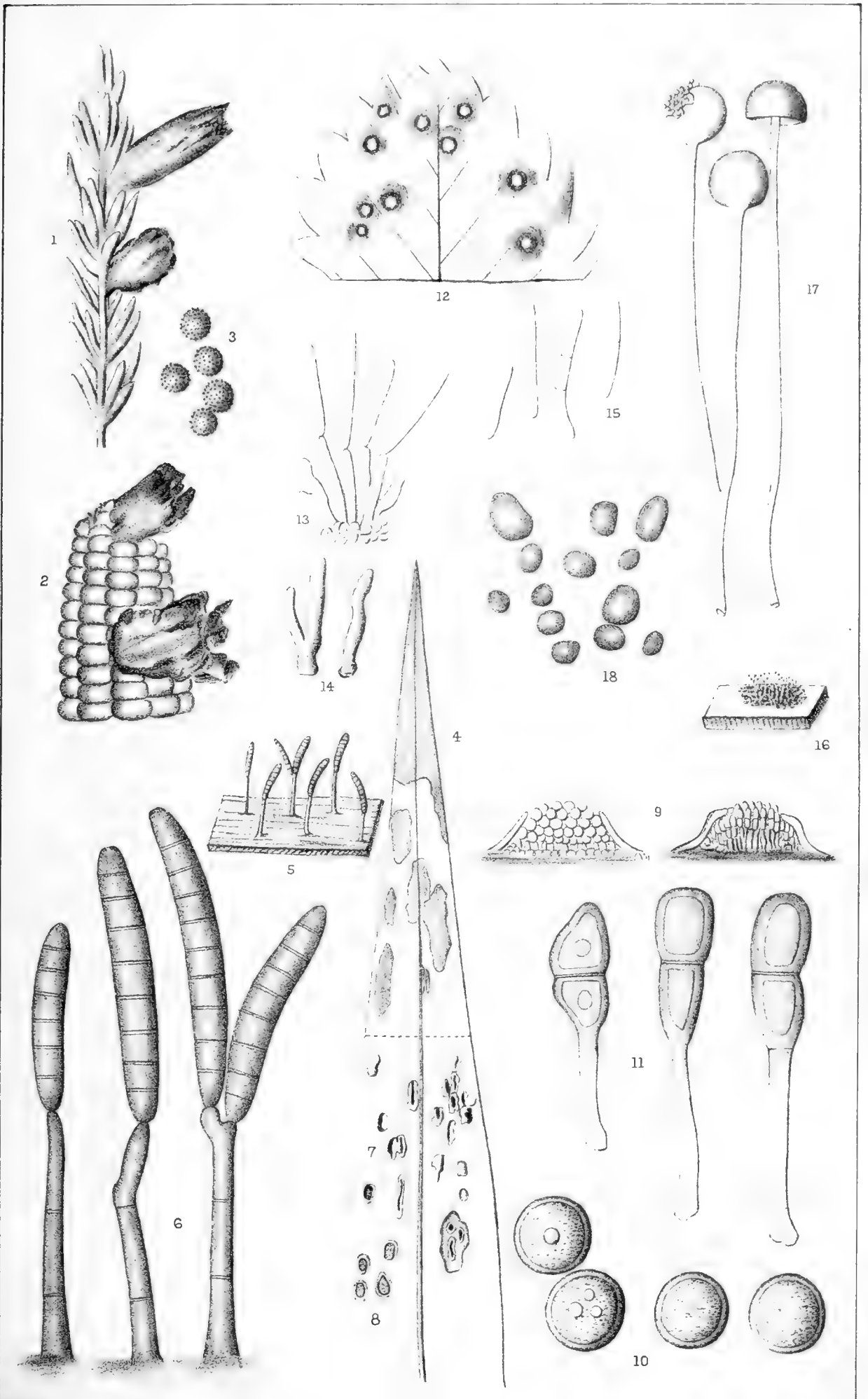
Page 30.

- FIG. 12. Part of a leaf spotted by the fungus.
FIG. 13. A tuft of the fungus bearing four spores x 400.
FIG. 14. Two separate stems of the fungus, one of them branched, x 400.
FIG. 15. Four spores x 400.

MUCOR INÆQUALIS, *Pk.*

Page 31.

- FIG. 16. A tuft of the fungus.
FIG. 17. A branched and an unbranched stem of the fungus with their spore-cases, moderately magnified; the one at the left ruptured irregularly and discharging its spores, the one at the right collapsed and the other yet unchanged.
FIG. 18. Several spores x 400.



EXPLANATION OF PLATE IV.

FUSICLADIUM DENDRITICUM, Wallr.

Page 32.

- FIG. 1. Fungus spots on an apple.
- FIG. 2. Threads of the fungus x 400. The three lower much elongated.
- FIG. 3. Twelve spores of various shapes x 400; two still attached to the threads.

PENICILLIUM GLAUCUM, Lk.

Page 33.

- FIG. 4. Decayed fungus spot on an apple, with tufts of the fungus in the center.
- FIG. 5. A small fragment of the apple with seven tufts of the fungus.
- FIG. 6. A few plants magnified.
- FIG. 7. A tuft of the variety *coremium* magnified.
- FIG. 8. An elongated branched plant magnified.
- FIG. 9. A plant x 400.
- FIG. 10. Six spores 400.

OIDIUM FRUCTIGENUM, Pers.

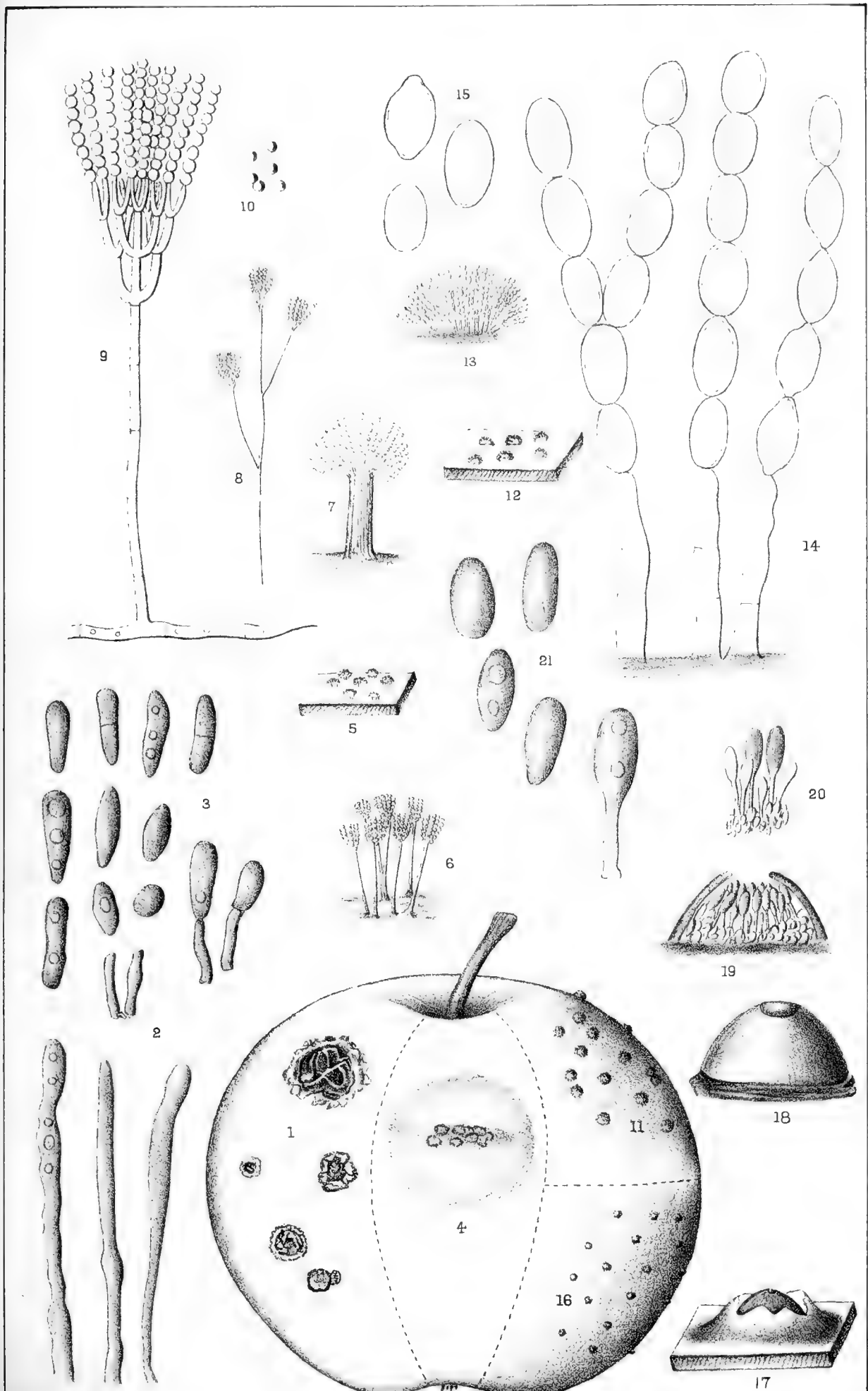
Page 34.

- FIG. 11. Tufts of the fungus on an apple.
- FIG. 12. A fragment of the apple, with six tufts of the fungus.
- FIG. 13. A tuft of the fungus magnified.
- FIG. 14. Three threads of the fungus bearing strings of spores x 400.
- FIG. 15. Three spores x 400.

SPHEROPSIS MALORUM, Berk.

Page 36.

- FIG. 16. Part of the surface of an apple dotted by the fungus.
- FIG. 17. A fragment of the apple with a single perithecium bursting through the epidermis magnified.
- FIG. 18. A perithecium magnified.
- FIG. 19. A vertical section through the center of a perithecium magnified.
- FIG. 20. A tuft of spores taken from the perithecium magnified; some of them immature.
- FIG. 21. Five spores x 400; one of them with its pedicel still attached.



THIRTY-FIFTH ANNUAL REPORT

ON THE

NEW YORK STATE MUSEUM OF NATURAL HISTORY.

BY THE

REGENTS OF THE UNIVERSITY

OF THE

STATE OF NEW YORK.

TRANSMITTED TO THE LEGISLATURE JANUARY 13, 1882.

ALBANY:
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1884.



35 Reg. Report
REPORT OF THE BOTANIST. for year 1881

Hon. DAVID MURRAY, LL. D.,

Secretary of the Board of Regents of the University:

SIR — Since the date of my last report, specimens of two hundred and forty-eight species of plants have been mounted and placed in the State Herbarium, of which ninety-four species were previously unrepresented therein. The others represent species by improved specimens, or are forms or varieties not before represented. A list of the names is marked (1).

During the past season specimens have been collected in the counties of Albany, Greene, Putnam and Rensselaer. These represent one hundred and fifteen species, of which sixty-seven are new to the State and to the Herbarium, and forty are believed to be unpublished. A list of the names of the collected specimens is marked (2).

Among the contributed specimens, only one collected in the State proves to be new to our flora. A list of the names of contributors and their contributions is marked (3).

A record of the species now added to our flora and of the descriptions of such as are yet unpublished is marked (4).

A part of the report containing remarks and observations upon various species and a list of the New York Carices at present known is marked (5).

In pursuance of the plan introduced in the Thirty-third Report, in reference to the subgenus *Amanita*, and for the reasons therein stated, descriptions of all the hitherto known New York species of *Agarics* belonging to the subgenus *Lepiota* have been drawn up, and, in many instances, made more complete by the addition of the dimensions and character of the spores. Full remarks concerning the peculiarities, variations and distinctive features of each species are added to its description, and important characters are italicized. A synoptical table is introduced, which is intended to aid in tracing any given species to its name. This monograph of our *Lepiotæ* is marked (6).

A table case has been filled with specimens of earth-stars (*Geaster*), puff-balls (*Lycoperdon* and *Bovista*) and sap-balls (*Polyporus*) placed

in paper trays. All of our fleshy and tough or corky species of fungi ought to be exhibited in this manner. Many are too bulky to be mounted entire in the usual manner, and many are in better condition for study and recognition if preserved in their natural shape than if pressed and mounted on herbarium sheets and stacked away in cabinets.

(1.)

PLANTS MOUNTED.

Species not new to the Herbarium.

- | | |
|--------------------------------------|---|
| Clematis verticillaris, <i>DC.</i> | Mentha Canadensis, <i>L.</i> |
| Thalictrum anemonoides, <i>Mx.</i> | M. piperita, <i>L.</i> |
| Ranunculus Pennsylvanicus, <i>L.</i> | Lycopus Virginicus, <i>L.</i> |
| Nymphæa odorata, <i>Ait.</i> | Origanum vulgare, <i>L.</i> |
| Nuphar advena, <i>Ait.</i> | Scutellaria lateriflora, <i>L.</i> |
| N. Kalmiana, <i>Ait.</i> | Echium vulgare, <i>L.</i> |
| Cardamine hirsuta, <i>L.</i> | Chenopodium album, <i>L.</i> |
| Sisymbrium officinale, <i>Scop.</i> | Polygonum amphibium, <i>L.</i> |
| Raphanus sativus, <i>L.</i> | Euphorbia maculata, <i>L.</i> |
| Lepidium ruderales, <i>L.</i> | E. hypericifolia, <i>L.</i> |
| Malva rotundifolia, <i>L.</i> | Urtica gracilis, <i>Ait.</i> |
| Vitis æstivalis, <i>Mx.</i> | Humulus Lupulus, <i>L.</i> |
| Acer Pennsylvanicum, <i>L.</i> | Juglans nigra, <i>L.</i> |
| Robinia viscosa, <i>Vent.</i> | Taxus Canadensis, <i>Willd.</i> |
| Rubus odoratus, <i>L.</i> | Sparganium simplex, <i>Huds.</i> |
| R. villosus, <i>Ait.</i> | Potamogeton Oakesianus, <i>Robbins.</i> |
| Rosa Carolina, <i>L.</i> | P. Claytonii, <i>Tuckerm.</i> |
| R. lucida, <i>Ehrh.</i> | P. amplifolius, <i>Tuckerm.</i> |
| Ribes hirtellum, <i>Mx.</i> | P. gramineus, <i>L.</i> |
| R. prostratum, <i>L'Her.</i> | P. lucens, <i>L.</i> |
| Epilobium angustifolium, <i>L.</i> | P. pusillus, <i>L.</i> |
| E. coloratum, <i>Muhl.</i> | Sagittaria variabilis, <i>Engelm.</i> |
| Aralia hispida, <i>Mx.</i> | Trillium erectum, <i>L.</i> |
| Sambucus pubens, <i>Mx.</i> | Lilium Philadelphicum, <i>L.</i> |
| Viburnum nudum, <i>L.</i> | Juncus tenuis, <i>Willd.</i> |
| Galium verum, <i>L.</i> | J. marginatus, <i>Rost.</i> |
| Aster corymbosus, <i>Ait.</i> | Carex lagopodioides, <i>Schk.</i> |
| A. cordifolius, <i>L.</i> | C. cristata, <i>Schw.</i> |
| A. multiflorus, <i>Ait.</i> | C. mirabilis, <i>Dew.</i> |
| A. Tradescanti, <i>L.</i> | C. scoparia, <i>Schk.</i> |
| A. longifolius, <i>Lam.</i> | C. straminea, <i>Schk.</i> |
| A. puniceus, <i>L.</i> | C. tenera, <i>Dew.</i> |
| Solidago latifolia, <i>L.</i> | C. stipata, <i>Muhl.</i> |
| S. stricta, <i>Ait.</i> | C. sparganioides, <i>Muhl.</i> |
| S. serotina, <i>Ait.</i> | C. sterilis, <i>Willd.</i> |
| Bidens connata, <i>Muhl.</i> | C. gynandra, <i>Schw.</i> |
| B. cernua, <i>L.</i> | C. gracillima, <i>Schw.</i> |
| Artemisia Canadensis, <i>Mx.</i> | C. formosa, <i>Dew.</i> |
| Lactuca Canadensis, <i>L.</i> | C. conoidea, <i>Schk.</i> |
| Campanula rotundifolia, <i>L.</i> | C. virescens, <i>Muhl.</i> |
| Plantago major, <i>L.</i> | C. triceps, <i>Mx.</i> |
| Verbascum Blattaria, <i>L.</i> | C. laxiflora, <i>Lam.</i> |
| Mimulus ringens, <i>L.</i> | C. arctata, <i>Boott.</i> |

- Carex debilis*, *Mx.*
C. flava, *L.*
C. tentaculata, *Muhl.*
C. oligosperma, *Mx.*
Leersia Virginica, *Willd.*
L. oryzoides, *Sw.*
Agrostis scabra, *Willd.*
A. perennans, *Tuckerm.*
A. vulgaris, *With.*
A. alba, *L.*
Muhlenbergia sylvatica, *T. and G.*
M. Mexicana, *Trin.*
Spartina cynosuroides, *Willd.*
Dactylis glomerata, *L.*
Phleum pratense, *L.*
Festuca elatior, *L.*
F. nutans, *Willd.*
Poa alsodes, *Gr.*
P. serotina, *Ehrh.*
P. pratensis, *L.*
Glyceria acutiflora, *Torr.*
G. fluitans, *R. Br.*
G. Canadensis, *Trin.*
G. pallida, *Trin.*
G. nervata, *Trin.*
Eatonia obtusata, *Gr.*
E. Pennsylvanica, *Gr.*
Panicum agrostoides, *Spreng.*
P. depauperatum, *Muhl.*
P. dichotomum, *L.*
P. Crus-galli, *L.*
Phalaris arundinacea, *L.*
Anthoxanthum odoratum, *L.*
Elymus Virginicus, *L.*
Elymus Canadensis, *L.*
Triticum violaceum, *Hornem.*
T. repens, *L.*
Setaria viridis, *Beauv.*
Phegopteris polypodioides, *Fee.*
P. hexagonoptera, *Fee.*
Aspidium Noveboracense, *Sw.*
A. aculeatum, *Sw.*
Pteris aquilina, *L.*
Equisetum sylvaticum, *L.*
E. limosum, *L.*
Bartramia Marchica, *Brid.*
Coprinus micaceus, *Fr.*
Stereum rugosum, *Fr.*
S. sanguinolentum, *Fr.*
Polyporus pubescens, *Fr.*
P. pergamenus, *Fr.*
P. ferruginosus, *Fr.*
Hydnum alutaceum, *Pers.*
Tremella sarcoides, *Sm.*
Ptychogaster albus, *Cd.*
Septoria Rhoidis, *B. and C.*
S. Rubi, *B. and C.*
Haplographium apiculatum, *Pk.*
Ramularia obovata, *Fekl.*
Trichoderma viride, *Pers.*
Sphærotheca Castagnei, *Lev.*
Erysiphe lamprocarpa, *Lev.*
Stictis versicolor, *Fr.*
Xylaria digitata, *Greov.*
Hypoxylon multifforme, *Fr.*
Eutypa spinosa, *Tul.*
Sphæria Coryli, *Batsch.*
S. callista, *B. and R.*

Species new to the Herbarium.

- Triosteum angustifolium*, *L.*
Carum Carui, *L.*
Coreopsis discoidea, *T. and G.*
Lamium maculatum, *L.*
Potamogeton rufescens, *Schrad.*
Eleocharis quadrangulata, *Br.*
Carex adusta, *Boott.*
C. glaucodea, *Tuckerm.*
C. Sullivantii, *Boott.*
Polypogon Monspeliensis, *Desf.*
Zea Mays, *L.*
Nitella opaca, *Ag.*
N. intermedia, *Nordst.*
Agaricus spectabilis, *Fr.*
A. ornellus, *Pk.*
Hygrophorus limacinus, *Fr.*
Polyporus hypococcinus, *Berk.*
P. undosus, *Pk.*
P. semipileatus, *Pk.*
Irpex viticola, *C. and P.*
Grandinia crustosa, *Fr.*
Pterula densissima, *B. and C.*
Tremella epigæa, *B. and Br.*
T. subochracea, *Pk.*
Hymenula vulgaris, *Fr.*
Geaster mammosus, *Chev.*
Arcyria macrospora, *Pk.*
Cribraria dictydioides, *C. and B.*
Hendersonia Cydoniæ, *C. and E.*
Phyllosticta Grossulariæ, *Sacc.*
P. Nesææ, *Pk.*
Septoria Galeopsidis, *West.*
S. Hydrocotyles, *Desm.*
S. Violæ, *West.*
S. Cucurbitacearum, *Sacc.*
S. corylina, *Pk.*
S. betulicola, *Pk.*
S. microsperma, *Pk.*
S. Pileæ, *Thum.*
Septoglœum Apocyni, *Pk.*
Vermicularia circinans, *Berk.*
Morthiera Thumenii, *Cke.*
Pestalozzia Stevensonii, *Pk.*
Puccinia Thalictri, *Chev.*

- Puccinia* *Cirsii*, *Lasch.*
P. *simplex*, *Pk.*
Protomyces *polysporus*, *Pk.*
Æcidium *pedatatum*, *Schw.*
Helicomyces *mirabilis*, *Pk.*
Septocylindrium *Ranunculi*, *Pk.*
Ramularia *Spirææ*, *Pk.*
R. *rufomaculans*, *Pk.*
R. *sambucina*, *Pk.*
R. *Impatientis*, *Pk.*
R. *Rudbeckii*, *Pk.*
Cercospora *reticulata*, *Pk.*
Cercospora *depazeoides*, *Sacc.*
C. *beticola*, *Sacc.*
C. *Violæ*, *Sacc.*
C. *Bœhmeriæ*, *Pk.*
C. *Acalyphæ*, *Pk.*
C. *graphioides*, *Ell.*
C. *clavata*, *Ger.*
Verticillium *candidum*, *Pk.*
Diplocladium *minus*, *Bon.*
Fusisporium *tenuissimum*, *Pk.*
Aspergillus *phæocephalus*, *D. and M.*
A. *clavellus*, *Pk.*
Monilia *Harknessii*, *Pk.*
- Ellisiella* *caudata*, *Sacc.*
Sporocybe *nigriceps*, *Pk.*
Periconia *sphærophila*, *Pk.*
Graphium *gracile*, *Pk.*
Macrosporium *concinnum*, *Berk.*
Helminthosporium *Tiliæ*, *Fr.*
H. *septemseptatum*, *Pk.*
H. *inconspicuum*, *C. and E.*
H. *arbusculoides*, *Pk.*
Zygodemus *bicolor*, *C. and E.*
Rhinotrichum *subalutaceum*, *Pk.*
Zasmidium *cellare*, *Pers.*
Peziza *hydrophila*, *Pk.*
P. *atrata*, *Fr.*
P. *fusarioides*, *Berk.*
P. *aurelia*, *Pers.*
P. *balsamicola*, *Pk.*
Meliola *balsamicola*, *Pk.*
Hypoxyton *marginatum*, *Schw.*
Diatrype *punctulata*, *B. and R.*
Diatrypella *angulata*, *Fr.*
Valsa *myinda*, *C. and E.*
Dothidea *melanoplaca*, *Desm.*
Lophiostoma *angustilabrum*, *B. and Br.*
Sphærella *Leersii*, *Pass.*

(2.)

PLANTS COLLECTED.

Not new to the Herbarium.

- Ranunculus* *abortivus*, *L.*
Brassica *arvensis*, *L.*
Viola *Selkirkii*, *Pursh.*
Acer *Pennsylvanicum*, *L.*
Trifolium *repens*, *L.*
Rubus *triflorus*, *Richardson.*
Tiarella *cordifolia*, *L.*
Heracleum *lanatum*, *Mx.*
Tanacetum *vulgare*, *L.*
Vaccinium *corymbosum*, *L.*
V. *Pennsylvanicum*, *Lam.*
Scutellaria *galericulata*, *L.*
Marrubium *vulgare*, *L.*
Polygonum *orientale*, *L.*
Fraxinus *pubescens*, *Lam.*
F. *sambucifolia*, *Lam.*
Quercus *alba*, *L.*
Q. *coccinea*, *Wang.*
Q. *tinctoria*, *Bart.*
Q. *rubra*, *L.*
Carya *amara*, *Nutt.*
Potamogeton *gramineus*, *L.*
P. *pusillus*, *L.*
P. *pectinatus*, *L.*
- Polygonatum* *giganteum*, *Diet.*
Uvularia *sessilifolia*, *L.*
Carex *vulpinoidea*, *Mx.*
C. *cephalophora*, *Muhl.*
C. *Muhlenbergii*, *Schk.*
C. *lagopodioides*, *Schk.*
C. *cristata*, *Schw.*
C. *mirabilis*, *Dew.*
C. *adusta*, *Boott.*
C. *stricta*, *Lam.*
C. *granularis*, *Muhl.*
C. *gracillima*, *Schw.*
C. *virescens*, *Muhl.*
C. *plantaginea*, *Lam.*
C. *laxiflora*, *Lam.*
C. *Emmonsii*, *Dew.*
C. *Pennsylvanica*, *Lam.*
Zizania *aquatica*, *L.*
Stipa *avenacea*, *L.*
Bromus *racemosus*, *L.*
Poa *trivialis*, *L.*
Aira *flexuosa*, *L.*
Osmunda *cinnamomea*, *L.*
Aspidium *Boottii*, *Tuckerm.*

New to the Herbarium.

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| Agaricus alluviinus, <i>Pk.</i> | Septoria musiva, <i>Pk.</i> |
| A. rubroinctus, <i>Pk.</i> | Phyllosticta Cratægi, <i>Pk.</i> |
| A. albus, <i>Schæff.</i> | P. variabilis, <i>Pk.</i> |
| A. stellatus, <i>Fr.</i> | Protomyces macrosporus, <i>Ung.</i> |
| A. pascuus, <i>Pers.</i> | Ustilago pallida, <i>Schræt.</i> |
| A. sinuatus, <i>Fr.</i> | Acalyptospora Populi, <i>Pk.</i> |
| A. fastibilis, <i>Fr.</i> | Macrosporium transversum, <i>Pk.</i> |
| A. alnicola, <i>Fr.</i> | Alternaria tenuis, <i>Nees.</i> |
| A. sulcatipes, <i>Pk.</i> | Ellisiella caudata, <i>Sacc.</i> |
| A. hærens, <i>Pk.</i> | Botrytis ceratioides, <i>Pk.</i> |
| A. tiliophilus, <i>Pk.</i> | Dactylium dendroides, <i>Fr.</i> |
| A. nitidipes, <i>Pk.</i> | Verticillium Lactarii, <i>Pk.</i> |
| A. epimyces, <i>Pk.</i> | Cercospora Tiliæ, <i>Pk.</i> |
| Hygrophorus fuliginus, <i>Frost.</i> | C. Lepidii, <i>Pk.</i> |
| H. flavodiscus, <i>Frost.</i> | C. Daturæ, <i>Pk.</i> |
| Russula heterophylla, <i>Fr.</i> | C. longispora, <i>Pk.</i> |
| Marasmius salignus, <i>Pk.</i> | C. varia, <i>Pk.</i> |
| Polyporus immitis, <i>Pk.</i> | Ramularia Ranunculi, <i>Pk.</i> |
| P. fraxinophilus, <i>Pk.</i> | R. Vaccinii, <i>Pk.</i> |
| Irpex crassus, <i>B. and C.</i> | R. Hamamelidis, <i>Pk.</i> |
| I. mollis, <i>B. and C.</i> | R. aquatilis, <i>Pk.</i> |
| Corticium effuscatum, <i>C. and E.</i> | Asterophora Pezizæ, <i>Cd.</i> |
| Thelephora rosella, <i>Pk.</i> | Peziza lætirubra, <i>Che.</i> |
| Clavaria pinophila, <i>Pk.</i> | P. singularia, <i>Pk.</i> |
| Cyphella læta, <i>Fr.</i> | Tympanis Nemopanthis, <i>Pk.</i> |
| Phoma cucurbitale, <i>B. and C.</i> | Cenangium betulinum, <i>Pk.</i> |
| Sphæropsis Caryæ, <i>C. and E.</i> | Triblidium clavæsporium, <i>Pk.</i> |
| Discella hysteriella, <i>Pk.</i> | Ascomyces deformans, <i>Berk.</i> |
| D. albomaculans, <i>Pk.</i> | Gymnascella aurantiaca, <i>Pk.</i> |
| Gleosporium fraxinea, <i>Pk.</i> | Valsa tomentella, <i>Pk.</i> |
| Septoria cannabina, <i>Pk.</i> | Sphæria petiolophila, <i>Pk.</i> |
| S. Sicyi, <i>Pk.</i> | Sphærella fraxinea, <i>Pk.</i> |
| S. Calystegiæ, <i>Sacc.</i> | Venturia curviseta, <i>Pk.</i> |
| S. Cirsii, <i>Niessl.</i> | |

(3.)

CONTRIBUTORS AND THEIR CONTRIBUTIONS.

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

- | | |
|--------------------------------|------------------------------|
| Potamogeton crispus, <i>L.</i> | Smilax hispida, <i>Muhl.</i> |
| Geranium maculatum, <i>L.</i> | |

Mary E. Banning, Baltimore, Md.

- | | |
|---------------------------|--|
| Pachyma Cocos, <i>Fr.</i> | |
|---------------------------|--|

Lizzie G. Barnett, Cannonsburg, Pa.

- | | |
|-----------------------------|--|
| Secotium Warnei, <i>Pk.</i> | |
|-----------------------------|--|

Eloise Butler, Minneapolis, Minn.

- | | |
|-----------------------------|--|
| Secotium Warnei, <i>Pk.</i> | |
|-----------------------------|--|

W. R. Gerard, New York, N. Y.

- | | |
|-----------------------------|----------------------------------|
| Æcidium Rusbyi, <i>Ger.</i> | Polyporus arcularius, <i>Fr.</i> |
|-----------------------------|----------------------------------|

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

- | | |
|--|--------------------------------------|
| Corticium effuscatum, <i>C. and E.</i> | Puccinia Mikanix, <i>Speg.</i> |
| Rostafinskia australis, <i>Speg.</i> | Graphium verticillatum, <i>Speg.</i> |
| Lycoperdon constellatum, <i>Fr.</i> | |

C. J. Sprague, Boston, Mass.

Lecidea vescicularis Hoffm. *Biatora globifera, Ach.*

S. H. Wright, M. D., Penn Yan, N. Y.

Æcidium Asperifolii, Pers. *Erysiphe Montagnei, Lev.*
Æ. Falcarii, D. C. *Polythrincium Trifolii, Cd.*
Puccinia coronata, Qd. *Peronospora Schachtii, Fckl.*

E. C. Howe, M. D., Yonkers, N. Y.

Eragrostis pilosa, Beauv. *Carex Muhlenbergii v. enervis, Boott.*
E. Purshii, Schrad.

M. F. Merchant, M. D., Moravia, N. Y.

Mitchella repens, L.

H. W. Barnum, Valley Falls, N. Y.

Trillium grandiflorum, Salisb.

Prof. C. E. Bessey, Ames, Iowa.

Secotium Warnei, Pk.

C. W. Irish, Iowa City, Iowa.

Polyporus fraxinophilus, Pk. *Trametes Peckii, Kalchb.*

I. Cowles, Flushing, N. Y.

Opuntia Rafinesquii, Engelm.

J. L. Bennett, Providence, R. I.

<i>Carex cristata Schw.</i>	<i>Carex conjuncta, Boott.</i>
<i>C. aurea, Nutt.</i>	<i>C. alopecoidea, Tuckerm.</i>
<i>C. miliaris, Mx.</i>	<i>C. rosea, Schk.</i>
<i>C. microdonta, Torr.</i>	<i>C. stipata, Muhl.</i>
<i>C. panicea, L.</i>	<i>C. sparganioides, Muhl.</i>
<i>C. vividula, Mx.</i>	<i>C. cephaloidea, Boott.</i>
<i>C. festiva, Dew.</i>	<i>C. cephalophora, Muhl.</i>
<i>C. synocephala, Carey.</i>	<i>C. bicostata, Olney.</i>
<i>C. athrostachya, Olney.</i>	<i>C. vulpinoidea, Mx.</i>
<i>C. scoparia, Schk.</i>	<i>C. Kunzei, Olney.</i>
<i>C. lagopodioides, Schk.</i>	<i>C. Gayana, Desu.</i>
<i>C. festucacea, Schk.</i>	<i>C. teretiuscula,</i>
<i>C. straminea, Schk.</i>	<i>C. prairea, Dew.</i>
<i>C. Haleana, Olney.</i>	<i>C. siccata, Dew.</i>
<i>C. alata, Torr.</i>	<i>C. disticha, Huds.</i>
<i>C. Bonplandii, Kunth.</i>	<i>C. bromoides, Schk.</i>
<i>C. torta, Boott.</i>	<i>C. stenophylla, Wahl.</i>
<i>C. crinita, Lam.</i>	<i>C. Douglassii, Boott.</i>
<i>C. pallescens, L.</i>	<i>C. chordorhiza, Ehrh.</i>
<i>C. flaccosperma, Dew.</i>	<i>C. tenella, Schk.</i>
<i>C. grisea, Wahl.</i>	<i>C. canescens, L.</i>
<i>C. virescens, Muhl.</i>	<i>C. vitilis, Fr.</i>
<i>C. gynocrates, Wormsk.</i>	<i>C. tenuiflora, Wahl.</i>
<i>C. capitata, L.</i>	<i>C. trisperma, Dew.</i>
<i>C. nigricans, Mey.</i>	<i>C. Deweyana, Schw.</i>
<i>C. pauciflora, Lightf.</i>	<i>C. albolutescens, Schw.</i>
<i>C. filifolia, Nutt.</i>	<i>C. maritima, Mull.</i>
<i>C. polytrichoides, Muhl.</i>	<i>C. aquatilis, Wahl.</i>
<i>C. Muhlenbergii, Schk.</i>	<i>C. lenticularis, Mx.</i>

Carex aperta, <i>Boott.</i>	Carex miliacea, <i>Muhl.</i>
C. rigida, <i>Good.</i>	C. arctata, <i>Mx.</i>
C. limosa, <i>L.</i>	C. debilis, <i>Mx.</i>
C. Buxbaumii, <i>Wahl.</i>	C. filiformis, <i>L.</i>
C. Steudellii, <i>Kunth.</i>	C. striata, <i>Mx.</i>
C. atrata, <i>L.</i>	C. trichocarpa, <i>Muhl.</i>
C. nigra, <i>Alli.</i>	C. Pseudo-Cyperus, <i>L.</i>
C. Willdenovii, <i>Schk.</i>	C. hystericina, <i>Willd.</i>
C. Backii, <i>Boott.</i>	C. intumescens, <i>Rudge.</i>
C. Geyeri, <i>Boott.</i>	C. Grayii, <i>Carey.</i>
C. longirostris, <i>Torr.</i>	C. lupulina, <i>Muhl.</i>
C. amplifolia, <i>Boott.</i>	C. subulata, <i>Mx.</i>
C. Fraseriana, <i>Sims.</i>	C. squarrosa, <i>L.</i>
C. retroflexa, <i>Muhl.</i>	C. retrorsa, <i>Schw.</i>
C. stellulata, <i>Good.</i>	C. Schweinitzii, <i>Dew.</i>
C. Davisii, <i>S. & T.</i>	C. utriculata, <i>Boott.</i>
C. gracillima, <i>Schw.</i>	C. monile, <i>Tuckerm.</i>
C. triceps, <i>Mx.</i>	C. pulla, <i>Mx.</i>
C. plantaginea, <i>Lam.</i>	C. Whitneyi, <i>Olney.</i>
C. Careyana, <i>Torr.</i>	C. Tuckermani, <i>Boott.</i>
C. platyphylla, <i>Carey.</i>	C. Olneyi, <i>Boott.</i>
C. retrocurva, <i>Dew.</i>	C. Raynoldii, <i>Dew.</i>
C. laxiflora, <i>Lam.</i>	C. podocarpa, <i>R. Br.</i>
C. eburnea, <i>Boott.</i>	C. foetida, <i>All.</i>
C. umbellata, <i>Schk.</i>	C. Rossii, <i>Boott.</i>
C. Emmonsii, <i>Dew.</i>	C. Halleriana, <i>Asso.</i>
C. nigromarginata, <i>Schw.</i>	C. Cherokeeensis, <i>Schw.</i>
C. Pennsylvanica, <i>Lam.</i>	C. debilis, <i>Mx.</i>
C. varia, <i>Muhl.</i>	C. oxylepis, <i>Torr.</i>
C. Richardsonii, <i>R. Br.</i>	C. Boottiana, <i>Benth.</i>
C. pubescens, <i>Muhl.</i>	

(4.)

SPECIES NOT BEFORE REPORTED.

ERAGROSTIS PURSHII, *Schrad.*

Waste places about Yonkers. *E. C. Howe.*

AGARICUS METULÆSPORUS, *B. and Br.*

Woods. Adirondack mountains. August and September.

AGARICUS ALLUVIINUS, *Pk.*

Alluvial soil, among weeds. Albany. July.

AGARICUS RUBROINCTUS, *Pk.*

Thin woods and open places. July—September.

For the description of this and the two species next preceding, see the synopsis of the subgenus *Lepiota* in the closing pages of this report.

AGARICUS ALBUS, *Schæff.*

Woods. East Berne, Albany county. August.

AGARICUS STELLATUS, *Fr.*

Decaying prostrate trunks of trees in woods. East Berne, August.

AGARICUS PASCUUS, *Pers.*

Woods. East Berne. August. Sometimes the freshly broken plant has a slight odor of meal.

AGARICUS SINUATUS, *Fr.*

Woods. East Berne. August.

AGARICUS FASTIBILIS, *Fr.*

Thin woods. Albany. October. The plant here noticed is a white variety, approaching var. *alba*, but with a short stem. The spores are almost ochraceous. The drops of moisture on the lamellæ at length dry up and leave brownish stains or granules resembling those on the stem and tubes of *Boletus granulatus*.

AGARICUS ALNICOLA, *Fr.*

In low swampy woods about the base of alders. Sandlake. October.

AGARICUS (GALERA) SULCATIPES, *n. sp.*

Pileus thin, ovate, then conical or subcampanulate, hygrophanous, chestnut-colored and generally striatulate on the margin when moist, becoming paler when dry; lamellæ ascending, subdistant, adnate, whitish, becoming ferruginous-cinnamon; stem slender, straight or flexuous, equal, hollow, rather tenacious, striate-sulcate, silky, floccose-pruinose toward the base, white, often tinged with blue or green at the base; spores elliptical, ferruginous-cinnamon, .00025'—.0003' long, .00016' broad.

Plant gregarious, 1.5'—3' high, pileus 5''—8'' broad, stem 1'' thick.

Woods. East Berne. August.

The plants were found growing on a bed of buckwheat bran. The stem is white and almost shining; striate and silky above, and pulverulent or floccose-pruinose at the base, where it generally assumes a greenish-blue color if handled when moist. When dry the stem is distinctly furrowed. The pileus fades in drying to subochraceous or subalutaceous. The lamellæ are sometimes white on the edge.

AGARICUS (CREPIDOTUS) HÆRENS, *n. sp.*

Pileus convex, sessile, cuneiform or dimidiate, glabrous, hygrophanous, viscid and striatulate on the margin when moist, white or whitish when dry; lamellæ moderately close, narrow, tapering toward each end, subcinereous, then brownish; spores elliptical, pale-ferruginous, .0003' long, .0002' broad.

Pileus 4''—12'' long and broad.

Decaying wood. Albany. September.

The elliptical spores and viscid pileus are distinguishing characters in this species. The pileus is often stained by the spores and it then has a sordid or squalid appearance. When not so stained it is very white if dry, watery-white if moist. The margin is very thin. The lamellæ are dingy, when young, and they become darker with age. The stem is wanting or merely rudimentary. The pileus is attached by white filaments.

AGARICUS (CREPIDOTUS) TILIOPHILUS, *n. sp.*

Pileus rather thin, convex, minutely pulverulent or subglabrous, hygrophanous, watery-brown and striatulate on the margin when moist, dingy buff-color when dry; lamellæ rather broad, subdistant, rounded behind, adnexed, colored like the pileus, becoming ferruginous-cinnamon; stem very short, often curved, solid, eccentric, whitish, pruinose, with a white pubescence at the base; spores ovate or subelliptical, brownish-ferruginous, .0002'— .00025' long, .00016'— .00018' broad.

Pileus 6"—12" broad, stem 2"—4" long, 1" thick.

Dead trunks and branches of basswood, *Tilia Americana*. East Berne. August.

Sometimes the plants are so closely crowded that they appear cæspitose.

AGARICUS (HYPHOLOMA) NITIDIPES, *n. sp.*

Pileus fleshy, firm, convex, glabrous or obscurely fibrillose, whitish or yellowish; lamellæ close, adnexed, whitish or subcinereous, becoming rosy-brown, generally white on the edge; stem equal or slightly thickened at the base, solid, silky, shining, whitish; spores ovate, rosy-brown, .0002'— .00025' long, .00016'— .00018' broad.

Plant 2'—4' high, pileus 2'—3' broad, stem 3'—4' thick.

Damp, shaded ground. Albany. September.

Externally this species resembles *A. præcox*, from which its solid stem and smaller spores at once distinguish it.

AGARICUS (PANÆOLUS) EPIMYCES, *n. sp.*

Pileus fleshy, at first subglobose, then convex, white, silky-fibrillose, flesh soft, white or whitish; lamellæ rather broad, somewhat close, rounded behind, adnexed, dingy-white, becoming brown or blackish, with a white edge; stem short, stout, tapering upwards, strongly striate and minutely mealy or pruinose, solid in the young plant, hollow in the mature plant, but with the cavity small, hairy or substrigose at the base; spores elliptical, black, .0003'— .00035' long, .0002'— .00025' broad.

Plant 1'—1.5' high, pileus 8"—12" broad, stem 3"—4" thick.

Parasitic on fungi. North Greenbush. November.

This singular species is referred to the subgenus *Panæolus* because of its black spores. Its thick, fleshy stem and pileus do not well accord with the character of these parts in the other species of this subgenus, and, notwithstanding the color of the spores, it may seem best to some to refer the species to the subgenus *Hypholoma*. *A. Loveianus*, *A. alumnus*, *A. cirrhatus*, *A. tuberosus*, *A. racemosus* and *A. pilipes* are other species of *Agarics* which are parasitic on putrid fungi. The species of *Nyctalis* also have a similar habitat.

HYGROPHORUS FULIGINEUS, Frost MS.

Pileus convex or plane, smooth, glutinous, fuscous or smoky-brown, the disk usually darker or almost black, the margin sometimes wavy or irregular, and in old specimens often reflexed, flesh white; lamellæ moderately broad, adnate or decurrent, subdistant, white, the interspaces often veiny; stem variable, long or short, equal or ventricose, sometimes attenuated at the base, solid, glutinous, white, sometimes slightly stained with smoky-brown; spores elliptical, .0003'—0.00035' long, .0002' broad.

Plant 2'—4' high, pileus 1'—4' broad, stem 4"—10" thick.

Pine woods. West Albany. November.

The abundant gluten which covers the pileus gives it when dry a shining appearance, as if varnished. There is a short space at the top of the stem which is free from gluten, slightly silky and very white. The plant grows either singly or in tufts of three or four individuals.

HYGROPHORUS FLAVODISCUS, Frost MS.

Pileus convex or plane, smooth, glutinous, white, with a pale-yellow or reddish-yellow disk, flesh white; lamellæ adnate or decurrent, subdistant, white, sometimes with a slight flesh-colored tint, the interspaces sometimes veiny; stem subequal, solid, glutinous, white, sometimes slightly stained with yellow; spores elliptical, .00025'—0.0003' long, .00016' broad.

Plant 2'—3' high, pileus 1'—3' broad, stem 2"—8" thick.

Pine woods. West Albany. November.

The late Mr. C. C. Frost sent me manuscript descriptions of a few species of fungi which he had found in Vermont and regarded as new species. Among them are descriptions of the two species of *Hygrophorus* now found for the first time within our limits. I have adopted the names given by Mr. Frost, but have remodeled his descriptions and extended them so as to include the character and dimensions of the spores. Both species were found growing together, and but for the marked difference in the coloration of the pileus both might readily be taken for forms of one species.

This, like the preceding one, has a short white space at the top of the stem, free from the viscosity that exists elsewhere. It resembles in many respects *Hygrophorus speciosus*, which has the pileus red, fading to yellow with advancing age. Perhaps the three may yet prove to be forms of one very variable species, for the most conspicuous differences between them consist in the colors of the pileus. The constancy with which the three styles of coloration has thus far been maintained indicates a specific difference, but color alone is not generally regarded as having any specific value.

RUSSULA HETEROPHYLLA, Fr.

Woods. East Berne. August.

MARASMIUS SALIGNUS, n. sp.

Pileus submembranous, convex or plane, without striæ, dry, glabrous or subpruinose, whitish; lamellæ rather narrow, adnate, subdistant, whitish, sometimes united behind in pairs, occasionally branched; stem short, slender, stuffed, reddish-brown, slightly mealy or pruinose, inserted; spores ovate or subelliptical, pointed at one end, .00025'—.00032' long, 00016' broad.

Plant 6"—10" high, pileus 2"—5" broad, stem scarcely half a line thick.

Bark of living willow trees. Bethlehem. September.

This species is closely related to *M. ramealis*, but in that species the pileus, according to the description, is rufescent either wholly or on the disk, and the stem is white; in our species the pileus is white or whitish and the stem is reddish-brown. Only in young specimens is the stem white and then only at the apex. Sometimes there is a slight depression or umbilicus in the center of the pileus.

POLYPORUS (MERISMA) IMMITIS, n. sp.

Pilei cæspitose-imbricated, broad, slightly convex or flattened, more or less rough or uneven, radiate-rugose, tuberculose or fibrous-hispid, zoneless, white, becoming tinged with yellow or alutaceous in drying, flesh white, slightly fibrous, soft and moist when fresh, cheesy when dry, with a subacid odor; pores minute angular or even subflexuous, about equal in length to the thickness of the pileus, the dissepiments thin, white, often at length dentate or lacerate on the edge; spores minute, white, elliptical, .00012'—.00016' long, .00007'—.00008' broad.

Pilei 2'—4' broad, the flesh commonly 3"—4" thick.

Decaying ash trunks. East Berne. August.

The species is apparently related to *P. caesareus*, but the character of the pores is quite different in the two species.

POLYPORUS (PLACODERMEI) FRAXINOPHILUS, *Pk.*

Pileus sessile, thick, corky, subtriquetrous, narrow, somewhat decurrent behind, the first year whitish, with a minute whitish tomentum or hairiness, then gray, finally blackish, in old specimens concentrically sulcate, rimose, the substance within obscurely zoned, at first whitish, then isabelline or pale-tawny, the margin obtuse; pores stratose, plane or subconvex, small, nearly equal, subrotund, the dissepiments obtuse, entire, whitish; spores white, broadly elliptical, .0003 — .00035' long, .00025' — .0003' broad.

Pileus 2'—4' long, 1'—1.5' broad.

Trunks and branches of dead or languishing ash trees. Coeymans, Albany county. May and September.

The species belongs to the tribe *Fomentarii*, and is related by its whitish pores and surface to *P. connatus*, but its colored substance and larger pores will easily distinguish it from that species.

IRPEX CRASSUS, *B. and C.*

Oak stumps. North Greenbush. October.

IRPEX MOLLIS, *B. and C.*

Decaying wood. Helderberg mountains. October.

The teeth in this species are sometimes compressed in such a manner that they appear like radiating lamellæ broken up into narrow segments. They have a coarse stout appearance even when most of them are subulate. The pileus is whitish and moist when fresh. A resupinate form occurs, both of this species and of *I. lacteus*.

CORTICIUM EFFUSCATUM, *C. and E.*

Dead branches. East Berne. August.

THELEPHORA ROSELLA, *n. sp.*

Very small, tufted, rosette-like, variously laciniate, dentate or subfimbriate on the margins, whitish or subincarnate, developing from a blackish tubercle; spores minute, narrowly elliptical or sublanceolate, .0002' — .00025' long, scarcely half as wide.

Dead branches of alder, *Alnus incana*. Sandlake. July.

This is a very singular species, and may prove to be an imperfect condition of some fungus quite unlike this one.

CLAVARIA PINOPHILA, *n. sp.*

Stems short, more or less tufted, much branched; branches crowded, often compressed above and subdigitately divided, paleochraceous, ultimate ramuli rather long, subulate, white; spores oblong or sublanceolate, .0004' — .0005' long, .00016' broad.

Thin woods under pine trees. East Berne. August.

The tufts are about one inch high. The spores appear white when caught on brown paper.

CYPHELLA LÆTA, *Fr.*

Dead stems of herbs lying on the ground. East Berne. August.
The beautiful sulphur color is lost in drying.

PHOMA CUCURBITALE, *B. and C.*

Old squashes. Sandlake. July.

SPHÆROPSIS CARYÆ, *C. and E.*

Dead bark of hickory trees, *Carya alba*. West Troy. May.
The perithecia do not always grow in lines, but are frequently arranged in an irregular manner.

DISCELLA HYSTERIELLA, *n. sp.*

Perithecia hysteriiform, nestling in the fibres of the wood, opening by a longitudinal chink or a wide elliptical aperture, black; spores numerous, oblong, obtuse at each end, colorless, obscurely uniseptate, .0003'—.0004' long, .00012'—.00015' broad.

Decorticated wood. North Greenbush. Autumn and Spring.

DISCELLA ALBOMACULANS, *n. sp.*

Perithecia punctiform, hemispherical, prominent, gregarious on an indefinite whitish spot, black, opening by a simple irregular or triradiate aperture; spores abundant, oblong, colorless, obscurely uniseptate, .0004'—.0005' long, .00012' broad.

Dead twigs of grape-vines. Helderberg mountains. May.

Related to, but distinct from, the preceding by its perithecia, narrower and longer spores and by its forming a whitish spot on the matrix.

GLÆOSPORIUM FRAXINEA, *n. sp.*

Spots numerous, small, pale-red with a darker or purplish-red border and usually with a minute whitish center, nuclei few; spores oblong-elliptical, colorless, .0002'—.00025' long, .00016' broad, sometimes with a minute nucleus at each end.

Living leaves of ash, *Fraxinus pubescens*. Albany. June.

SEPTORIA CANNABINA, *n. sp.*

Spots suborbicular, small, unequal, cinereous, often with a reddish-brown border; perithecia minute, numerous, epiphyllous, central on the spot, blackish; spores filiform, colorless, curved, .0008'—.0012' long.

Living leaves of hemp, *Cannabis sativa*. Cold Spring. June.

SEPTORIA SICYI, *n. sp.*

Spots small, suborbicular, scattered or rarely subconfluent, whitish or cinereous, arid; perithecia few, epiphyllous, blackish; spores filiform, straight or curved, colorless, .0016'—.0024' long.

Living leaves of *Sicyos angulatus*. Albany. June.

SEPTORIA CALYSTEGIÆ, *Sacc.*

Living leaves of *Calystegia Sepium*. Albany. June.

SEPTORIA CIRSII, *Niessl.*

Living leaves of Canada thistle, *Cirsium arvense*. West Albany.
June.

SEPTORIA MUSIVA, *n. sp.*

Spots small, numerous, angular, brown, usually obscurely mottled by minute angular patches of paler color; perithecia few, epiphyllous, depressed, black or blackish; spores cylindrical, slightly curved, colorless, sometimes obscurely triseptate, .0012' — .0018' long.

Living leaves of cottonwood, *Populus monilifera*. Albany. July.

This species differs from *S. Populi*, Desm., in the character of the spots which are variegated like mosaic work, and in the septation of the spores.

PHYLLOSTICTA ~~CRATÆGI~~^{rubra}, *n. sp.*

Spots small, angular or irregular, sometimes confluent, red; perithecia one to five on a spot, epiphyllous, minute, black; spores broadly elliptical or subglobose, colorless, .0003' long, .00025' broad.

Living leaves of thorn bushes, *Cratægus tomentosa*. Albany.
July.

PHYLLOSTICTA VARIABILIS, *n. sp.*

Spots small or large, suborbicular or irregular, brown or reddish-brown, the center at length dotted with whitish arid areas or becoming entirely arid, finally falling away; perithecia minute, epiphyllous, black; spores oblong-elliptical, colorless, .0002' — .0003' long, .0001' — .00012' broad.

Living leaves of purple-flowered raspberry, *Rubus odoratus*. Albany. September.

PROTOMYCES MACROSPORUS, *Ung.*

Living leaves and stems of the great ragweed, *Ambrosia trifida*. Albany. June.

When this fungus attacks the stems it forms prominent swellings which are generally about half an inch long and nearly as broad and of a pale-green color. The spores are globose or subglobose and vary considerably in size, ranging from .0014' — .0024' in diameter. They are imbedded in the tissues of the swellings.

USTILAGO PALLIDA, *Schret.*

Flowers of wild buckwheat, *Polygonum cilinode*.

Three species of smut occur on our knot-weeds. *Ustilago utriculosa* is common on *Polygonum Pennsylvanicum*, *U. Candollei* is found on *P. sagittatum* and *U. pallida* on *P. cilinode*. Catskill mountains and Grafton, Rensselaer county.

ACALYPTOSPORA POPULI, n. sp.

Spots irregular or suborbicular, reddish-brown, definite; spores epiphyllous, oblong-ovate or subfusiform, scarcely pedicellate, colored, one to two-septate, .0008'—.0009' long, .0003'—.00033' broad.

Living leaves of the great-toothed poplar, *Populus grandidentata*. Center. July.

The fungus was found on the leaves of young trees. The affected tissues soon break up and fall out. The spores appear to form gummy patches or reticulations slightly darker than the general color of the spot.

MACROSPORIUM TRANSVERSUM, n. sp.

Spots pale, at first greenish-yellow, then whitish and arid, sometimes with a reddish-brown border, forming transverse bands on the leaf; flocci tufted, subflexuous, septate, colored, .0016'—.0025' long, .00016'—.0002' broad; spores apical, oblong-ovate or oblong-clavate, either obtuse at both ends or acuminate or subrostrate at one end, three to five-septate, with here and there a longitudinal septum, colored, .001'—.002' long.

Living leaves of *Carex stricta*. West Albany. May.

The discolored spots are often sterile. Frequently the leaves are narrowed at the affected spots by the contraction of the tissues and are thereby weakened and abruptly bent.

ALTERNARIA TENUIS, Nees.

Inner surface of old pods of silkweed, *Asclepias Cornuti*. North Greenbush. November.

In some specimens the rostrum of the spores is not dilated at the apex as figured by Corda, but as the two forms grow intermingled in the same patch they are evidently all one species. The spots, as I find them, are generally thinly effused and indefinite, not definite as figured in "*Fungi Italici*."

ELLISIELLA CAUDATA, Sacc.

Dead leaves of broom-grass, *Andropogon scoparius*. Center. May.

This genus appears to me to be founded on very slight characters. It scarcely differs from *Colletotrichum*, except in having the spores longer pointed.

BOTRYTIS CERATIOIDES, n. sp.

Flocci white, flaccid, suberect, obscurely septate, simple or sparingly branched, obtuse and sometimes bilobed at the apex, the upper part densely pulverulent with spores; spores globose, smooth, subochraceous or isabelline, .00025'—.0003' in diameter.

Decaying wood of hemlock, *Abies Canadensis*. Albany. June.

This fungus forms more or less extensive patches over the surface of the wood. The upper part of the flocci being covered with spores, the general aspect is somewhat similar to that of some species of *Ceratium*, *e. g.*, *C. hydroides*. The spores are so abundant that they hide the flocci and at first sight the whole fungus appears to be pale ochraceous. The smooth spores and white flocci separate this species from *B. carnea*, Schum.

DACTYLIUM DENDROIDES, *Fr.*

Decaying wood and fungi. East Berne. August.

Verticillium agaricinum, Bon., is closely related if not, indeed, the same species.

VERTICILLIUM LACTARII, *n. sp.*

Flocci branched, white; branches either simple, opposite or verticillate, the ultimate ramuli tapering to the apex; spores apical, obovate or oblong-elliptical, smooth, colorless, .0006'— .0012' long, .0004'— .0005' broad, usually with a slight point or apiculus at the base.

Putrescent Lactarii, especially *L. subdulcis*. Center and East Berne. June — August.

CERCOSPORA TILLÆ, *Pk.*

Living leaves of basswood, *Tilia Americana*. Sandlake. July.

CERCOSPORA LEPIDII, *n. sp.*

Spots small, orbicular, grayish-brown or subcinereous, usually marked with faint concentric lines; flocci amphigenous, about .0016' long, single or two to three in a cluster, pallid; spores very long, tapering upwards, slightly constricted at the septa, eight to nine-septate, .005'— .007' long, .0007'— .0008' broad in the widest part, greenish.

Living leaves of the field pepper-grass, *Lepidium campestre*. New Baltimore, Greene county. May.

This is a very singular species. The fungus occurs on both sides of the leaf, but is more abundant on the upper surface. The flocci are short and thick and occasionally branched. The septa occur in the broad part of the spore, the upper part being much narrowed. Occasionally a cell is divided by a longitudinal septum.

CERCOSPORA DATURÆ, *n. sp.*

Spots suborbicular or irregular, varying in color from cinereous to reddish-brown, sometimes marked by irregular or flexuous elevated lines; flocci amphigenous, scarcely tufted, about equal to the spores in length; spores rather large, narrowed upwards, greenish, four to six-septate, .002'— .003' long, about .0005' broad in the widest part.

Living leaves of stramonium, *Datura Stramonium*. Cold Spring, Putnam county. June.

CERCOSPORA LONGISPORA, n. sp.

Spots suborbicular, sometimes confluent and irregular, grayish-brown, the margin slightly darker; flocci amphigenous, sometimes epiphyllous only, tufted, .0008'—.0016' long, colored; spores very long, variously curved or flexuous, colorless, simple or obscurely septate, sometimes forked, .0024'—.0056' long, about .00016' broad.

Living leaves of lupine, *Lupinus perennis*. Center. July.

The species is apparently very distinct from *C. Lupini*, Cke., and is well marked by its densely tufted black flocci and its very long hyaline spores.

CERCOSPORA VARIA, n. sp.

Spots suborbicular, sometimes large and irregular, reddish-brown, with a darker margin, reddish-gray beneath; flocci few, hypophyllous, tufted, short, slightly colored; spores subcylindrical, one to five septate, sometimes multinucleate, .0016'—.003' long.

Living leaves of maple-leaved Viburnum. East Berne. August.

A form of this species occurs on *Viburnum Lentago*, in which the spots are brown and the flocci are shorter.

RAMULARIA RANUNCULI, n. sp.

Spots suborbicular, scattered, brown; flocci hypophyllous, tufted, colorless, subflexuous; spores oblong, sometimes narrowed toward one end, simple or uniseptate, occasionally catenulate, colorless, .00065' — .0016' long, .0003'— .0005' broad.

Living leaves of hooked crowfoot, *Ranunculus recurvatus*. West Albany. June.

RAMULARIA VACCINII, n. sp.

Spots few or many, orbicular, rarely confluent, whitish or yellowish-green, becoming brown when old; flocci short, nearly colorless, sometimes creeping, hypophyllous, rarely amphigenous, spores very abundant, forming a continuous stratum, often catenulate, very variable, elliptical, ovate, oblong or cylindrical, colorless, .0003'— .0012' long, .00016'— .0002' broad.

Living leaves of blueberry, *Vaccinium corymbosum* and *Vaccinium Pennsylvanicum*. Center. July.

This species is remarkable both for the abundance and the variability of its spores.

RAMULARIA HAMAMELIDIS, n. sp.

Spots small, angular, reddish-brown, a little paler on the lower surface; flocci hypophyllous, tufted, short, slightly colored; spores fusiform or oblong-cylindrical, colorless, .0005 — .0014' long.

Living leaves of witch-hazel, *Hamamelis Virginica*. Sand-lake. July.

Though the spots are distinct enough, the fungus is so minute that it is scarcely visible to the naked eye.

RAMULARIA AQUATILIS, n. sp.

Spots small, pale; flocci epiphyllous, tufted, very slender, short, flexuous, white, .0003' — .0006' long; spores subfiliform, narrowed toward one end, sometimes three to four-nucleate, colorless, .0008' — .0012' long, .0001' — .00012' broad.

Living leaves of pond-weed, *Potamogeton lonchites*. Albany. September.

The tufts are numerous and very small and white. When magnified they have a stellate appearance, the spores diverging like rays from the central mass of flocci.

ASTEROPHORA PEZIZÆ, Cd.

Hymenium of *Peziza hemispherica*. Center. July.

This fungus covers the inner surface of the *Peziza* with a white stratum of slender filaments and stellately warted spores.

PEZIZA LÆTIRUBRA, Cke.

Decaying leaves lying on damp, sandy soil. Center. September.

PEZIZA (MOLLISIA) SINGULARIA, n. sp.

Cups minute, waxy, sessile, flattened or convex, not distinctly margined, seated on irregular, indefinite pallid spots, dingy-gray or pale amber-brown; asci cylindrico-clavate, .002' — .003' long, .0003' — .0004' broad; spores crowded or biseriate, colorless, oblong, sometimes slightly narrowed toward one end, .0005 — .0006' long, .00016' — .0002' broad; paraphyses filiform, scarcely thickened at the apex.

Under surface of living leaves of hispid crowfoot, *Ranunculus hispidus*. East Berne. August.

This is one of the few species of *Peziza* that attack living plants. Sometimes the cups, or rather the receptacles, are confluent and irregular. Perhaps a form of *Pseudopeziza Ranunculi*, Fckl.

TYMPANIS NEMOPANTHIS, n. sp.

Receptacles minute, densely tufted, substipitate, black, at first sphæriiform and opening by a slight irregular chink, then with the disk exposed, slightly margined, concave or plane; asci

cylindrical, or oblong-clavate, $.003'$ — $.0045'$ long, about $.00032'$ broad; spores filiform, variously curved, sometimes multinucleate, $.0016'$ — $.003'$ long.

Dead stems and branches of mountain holly, *Nemopanthes Canadensis*. Grafton, Rensselaer county. July.

The tufts are erumpent and quite prominent. They vary much in size, but are generally one to two lines broad. The receptacles are so closely crowded that the disk is often angular from mutual pressure. The species is similar in its appearance to *Tympanis alnea*.

CENANGIUM BETULINUM, *n. sp.*

Receptacles cæspitose or subseriate, erumpent through short transverse chinks in the bark, at first sphaeriiform, then open, black, the disk nearly plane, slightly margined, often irregular from mutual pressure, $.007'$ — $.014'$ broad; asci oblong or sub-clavate, $.0016'$ long, about $.0004'$ broad; spores crowded, oblong, obtuse, slightly colored, triseptate, $.0004'$ — $.0005'$ long, about $.00016'$ broad.

Dead bark of white birch, *Betula populifolia*. Cēter. May.

This species differs from *C. seriatum*, which also occurs on birch, in its small size, smaller tufts, which usually contain five to ten plants, and in its septate spores.

TRIBLIDIUM CLAVÆSPORUM, *n. sp.*

Receptacles, when moist, suborbicular, plane or slightly convex, margined, $.03'$ — $.04'$ broad, black, when dry more or less contracted, hysteriiform, with thick labiæ; asci clavate or cylindrical, $.0035'$ — $.0045'$ long; spores oblong-clavate, crowded or biseriate, colored, four-septate, $.0009'$ — $.0011'$ long, $.0003'$ — $.0004'$ broad.

Decorticated wood of willows, *Salix nigra*. Albany. July.

ASCOMYCES DEFORMANS, *Berk.*

Living leaves of peach trees. Sandlake.

GYMNASCELLA, *gen. nov.*

Perithecia wanting; asci numerous, subglobose, produced upon or among slender, branching filaments.

Externally this fungus has the aspect of species of *Sporotrichum*, but the spores are produced in asci.

GYMNASCELLA AURANTIACA, *n. sp.*

Filaments slender, branched, intricate, colored, forming minute subconfluent bright-orange or scarlet-colored tufts; asci numerous, subglobose, produced among the filaments, $.0004'$ — $.0006'$ long; spores orbicular, $.00016'$ — $.0002'$ broad, crowded in the ascus, colorless, generally uninucleate.

Old bones in damp places. Albany. May.

The bright red color of the tufts readily attract the attention. The spores are flattened, and when viewed edgewise appear narrowly elliptical. The asci are produced upon short branches of the filaments and frequently form dense clusters or masses. I have seen no evidence of a perithecium, and indeed the asci are thin and somewhat fugacious, and from the crowding of the spores are with difficulty seen. I have not been able to detect with certainty more than six spores in an ascus, though probably there are eight in some cases.

By the absence of a perithecium, or receptacle, this fungus is related to *Ascomyces* and kindred genera, but its whole character otherwise is very different. In its habitat it is related to *Onygena*, the species of which affect animal substances, but it forms no definite head or peridium. It also presents some analogies with other genera, but with none does it seem to agree in all respects. I am disposed, however, to regard it as belonging to the *Onygeni*, notwithstanding the absence of a definite peridium.

VALSA (CRYPTOSPORA) TOMENTELLA, n. sp.

Perithecia four to eight, subcircinate, nestling in the inner bark, black, clothed below with a whitish tomentum, disk lanceolate, whitish or brownish, erumpent through a narrow transverse chink which is acute at each end, pierced by the smooth black ostiola; asci oblong, broad, subcylindrical to fusiform, sessile, .002'— .003' long; spores cylindrical, crowded, colorless, more or less curved, obtuse at the ends, usually multinucleate, .002'— .0027' long, .00016'— .0002' broad.

Bark of white birch, *Betula populifolia*. West Albany. May.

This species is related to *V. cinctula*, but the peculiar character of the disk and the whitish tomentum that invests the base of the perithecia afford available characters by which to separate it from that and other allied species.

SPHAERIA PETIOLOPHILA, n. sp.

Perithecia minute, scattered, covered by the epidermis which is pierced by the prominently papillate or short rostrate ostiola, depressed-globose, black; asci narrow, subcylindrical, .0016'— .0018' long; spores narrowly fusiform, pointed at each end, colorless, biseriate, .0005'— .0006' long, about .00008' broad, sometimes containing three or four nucleoli.

Petioles of fallen leaves of mountain maple, *Acer spicatum*. Helderberg mountains. May.

This species belongs to the modern genus *Gnomonia*, section

Eugnomonia. In *S. petiolorum* Schw., which according to Fuckel is the same as *S. amœna* Nees., the perithecia are surrounded by a white tubercle and the spores are shorter and half as broad as long.

SPHÆRELLA FRAXINEA, *n. sp.*

Perithecia numerous, minute, .003' broad, black, either epiphyllous or hypophyllous, generally collected in groups forming suborbicular spots; asci oblong, often slightly narrowed above, .0014'— .0016' long; spores crowded, oblong-ovate, uniseptate, colorless, .0004'— .00045' long, .00016'— .0002' broad, divided by the septum into two very unequal parts, the smaller part one-third or one-fourth the length of the larger.

Fallen leaves of ash, *Fraxinus Americana*. Helderberg mountains. May.

Distinct from *Sphærie Fraxicola* Schw., in the character of the spots and of the perithecia. I have not seen fertile specimens of that species.

VENTURIA CURVISETA, *n. sp.*

Perithecia numerous, minute, .003'— .004' in diameter, clustered or subgregarious, black, bearing near the apex five to eight diverging black setæ, .003'— .005' long and abruptly curved near the base; asci oblong, narrowed above, often slightly curved .0016'— .002' long; spores crowded or biseriate, oblong, colorless, .00045'— .0005' long, .00016'— .0002' broad, faintly uniseptate, the upper cell broader than the lower.

Callen leaves of mountain holly, *Nemopanthes Canadensis*. Fenter. May and June.

The peculiar feature of this species is found in the curved bases of the setæ. These are so strongly bent that they spread nearly horizontally and appear like stellate rays when the perithecia are viewed from above. They are few in number and often unequal in length.

(5.)

REMARKS AND OBSERVATIONS.

GERANIUM MACULATUM, *L.*

A form with white flowers. Syracuse. *Mrs. S. M. Rust.*

CASSIA NICTITANS, *L.*

Banks of the Hudson river. North Greenbush.

MITCHELLA REPENS, *L.*

The form producing white berries occurs near Moravia. *M. F. Merchant.*

PLANTAGO LANCEOLATA, *L.*

A singular form was found by Mrs. Rust near Syracuse. It had a compound spike, ovate in outline. The branches were short and densely crowded. It appeared as if many of the flowers had been transformed into short branches.

POTAMOGETON AMPLIFOLIUS, *Tuckerm.*

This fine large species is plentiful in Warner's lake, East Berne. *P. pusillus*, *P. pectinatus* and both varieties of *P. gramineus* also abound there.

SMILAX HISPIDA, *Muhl.*

Flowering specimens were found in Cicero swamp, Onondaga county, by Mrs. Rust.

CALOPOGON PULCHELLUS, *R. Br.*

A white-flowered form. Syracuse. *Mrs. M. C. Still.*

JUNIPERUS VIRGINIANA, *L.*

This tree is common along the Hudson river from Albany to West Point. It here has a peculiar aspect. The branches are very numerous and frequently diverge from the trunk at a small angle. They afford a dense spray beautifully symmetrical in outline and having nearly the form of an elongated cone. Its beauty of figure renders it a very desirable acquisition for the adornment of parks, court-yards and ornamental grounds. It is freely attacked by three species of fungus, one of which produces oblong or spindle-shaped swellings in the branches and which probably has something to do in determining the peculiar aspect of these trees. The other two produce the subglobose galls which are commonly known as "Cedar apples." These fungi do not appear to destroy the life of the tree, though they cling to it year after year as a parasite.

BROMUS TECTORUM, *L.*

This beautiful introduced grass has become common all along the Hudson River railroad between Albany and Cold Spring and probably still farther south. Railroads are very effective agents in the dissemination and distribution of many plants.

CORTINARIUS IODES, *B. & C.*

The pileus in this species is sometimes spotted with white. The bulbous white stem is adorned with lilac-colored fibrils.

LENZITES SEPIARIA, *Fr.*

This species usually inhabits wood of coniferous trees, but it sometimes occurs on other wood. It was found near Albany in company with *Lenzites vialis* on a prostrate trunk of the

necklace poplar or cottonwood, *Populus monilifera*. It has occurred also on willow, *Salix discolor*.

STEREUM RUGOSUM, *Fr.*

Well-developed specimens occurred near East Berne. The margin was narrowly reflexed, blackish and zonate. A cupulate form was also found.

NEW YORK CARICES.

Since the publication of the New York State Flora, several changes in the nomenclature of the genus *Carex* have been made. A revised list of the New York Carices is here given, the names in the left-hand column being those adopted by Dr. Torrey in the New York State Flora; those in the right-hand column are the names applied to the same species in the last edition of Gray's Manual.

Names in N. Y. S. Flora.	Names in Gray's Manual.
Carex dioica, <i>L.</i>	Carex gynocrates, <i>Wormsk.</i>
C. exilis, <i>Dew.</i>	C. exilis, <i>Dew.</i>
C. pauciflora, <i>Lightf.</i>	C. pauciflora, <i>Lightf.</i>
C. polytrichoides, <i>Muhl.</i>	C. polytrichoides, <i>Muhl.</i>
C. Willdenovii, <i>Schk.</i>	C. Willdenovii, <i>Schk.</i>
C. Backii, <i>Boott.</i>	C. Backii, <i>Boott.</i>
C. disperma, <i>Dew.</i>	C. tenella, <i>Schk.</i>
C. chordorhiza, <i>Ehrh.</i>	C. chordorhiza, <i>Ehrh.</i>
C. cephalophora, <i>Muhl.</i>	C. cephalophora, <i>Muhl.</i>
C. Muhlenbergii, <i>Schk.</i>	C. Muhlenbergii, <i>Schk.</i>
C. siccata, <i>Dew.</i>	C. siccata, <i>Dew.</i>
C. rosea, <i>Schk.</i>	C. rosea, <i>Schk.</i>
C. retroflexa, <i>Muhl.</i>	C. retroflexa, <i>Muhl.</i>
C. sparganioides, <i>Muhl.</i>	C. sparganioides, <i>Muhl.</i>
C. stipata, <i>Muhl.</i>	C. stipata, <i>Muhl.</i>
C. vulpinoidea, <i>Mx.</i>	C. vulpinoidea, <i>Mx.</i>
C. setacea, <i>Dew.</i>	C. bromoides, <i>Schk.</i>
C. bromoides, <i>Schk.</i>	C. alopecoidea, <i>Tuckerm.</i>
C. alopecoidea, <i>Tuckerm.</i>	C. disticha, <i>Huds.</i>
C. Sartwellii, <i>Dew.</i>	C. teretiuscula, <i>Good.</i>
C. teretiuscula, <i>Good.</i>	C. decomposita, <i>Muhl.</i>
C. decomposita, <i>Muhl.</i>	C. trisperma, <i>Dew.</i>
C. trisperma, <i>Dew.</i>	C. Deweyana, <i>Schw.</i>
C. Deweyana, <i>Schw.</i>	C. canescens, <i>L.</i>
C. canescens, <i>L.</i>	C. can. v. vitilis.
C. can. v. sphærostachya.	C. stellulata, <i>L.</i>
C. stellulata, <i>Good.</i>	C. sterilis, <i>Willd.</i>
C. stell. v. sterilis.	C. stell. v. scirpoides.
C. stell. v. scirpoides.	C. tenuiflora, <i>Wahl.</i>
C. tenuiflora, <i>Wahl.</i>	C. scoparia, <i>Schk.</i>
C. scoparia, <i>Schk.</i>	C. lagopodioides, <i>Schk.</i>
C. scop. v. lagopodioides.	C. straminea, <i>Schk.</i>
C. straminea, <i>Schk.</i>	C. straminea, <i>Schk.</i>
C. stram. v. fœnea.	C. fœnea, <i>Willd.</i>
C. stram. v. moniliformis.	C. fœn. v. sabulonum.

Names in N. Y. S. Flora.

Carex stram. v. festucacea.
C. stram. v. cristata.
C. stram. v. mirabilis.
C. pedunculata, *Muhl.*
C. squarrosa, *L.*
C. Buxbaumii, *Wahl.*
C. triceps, *Mx.*
C. virescens, *Muhl.*
C. gracillima, *Schw.*
C. formosa, *Dew.*
C. Davisii, *Schw. & Torr.*
C. rigida, *Good.*
C. angustata, *Boott.*
C. cæspitosa, *L.?*
C. aquatilis, *Wahl.*
C. aurea, *Nutt.*
C. crinita, *Lam.*
C. oligosperma, *Mx.*
C. bullata, *Schk.*
C. bull. v. cylindracea.
C. cylindrica, *Tuckm.*
C. utriculata, *Boott.*
C. subulata, *Mx.*
C. folliculata, *L.*
C. intumescens, *Rudge.*
C. int. v. globularis.
C. lupulina, *Muhl.*
C. lup. v. polystachya.
C. scabrata, *Schw.*
C. Schweinitzii, *Dew.*
C. retrorsa, *Schw.*
C. tentaculata, *Muhl.*
C. hystericina, *Willd.*
C. Pseudo-Cyperus, *L.*
C. longirostris, *Torr.*
C. trichocarpa, *Muhl.*
C. aristata, *R. Br.*
C. umbellata, *Schk.*
C. Pennsylvanica, *Lam.*
C. Penn. v. Muhlenbergii.
C. Novæ-Angliæ, *Schw.*
C. filiformis, *L.*
C. lanuginosa, *Mx.*
C. vestita, *Willd.*
C. pubescens, *Muhl.*
C. limosa, *L.*
C. lim. v. irrigua.
C. livida, *Willd.*
C. flava, *L.*
C. Cederi, *Ehrh.*
C. pallescens, *L.*
C. Torreyi, *Tuckm.*
C. striata, *Mx.*
C. granularis, *Muhl.*
C. laxiflora, *Lam.*
C. conoidea, *Schk.*
C. digitalis, *Willd.*

Names in Gray's Manual.

Carex stram. v. festucacea.
C. cristata, *Schw.*
C. crist. v. mirabilis.
C. pedunculata, *Muhl.*
C. squarrosa, *L.*
C. Buxbaumii, *Wahl.*
C. triceps, *Mx.*
C. virescens, *Muhl.*
C. gracillima, *Schw.*
C. formosa, *Dew.*
C. Davisii, *Schw. & Torr.*
C. rigida v. ? Bigelovii.
C. stricta, *Lam.*
C. vulgaris, *Fr.*
C. aquatilis, *Wahl.*
C. aurea, *Nutt.*
C. crinita, *Lam.*
C. oligosperma, *Mx.*
C. bullata, *Schk.*
C. monile, *Tuckm.*
C. Tuckermani, *Boott.*
C. utriculata, *Boott.*
C. subulata, *Mx.*
C. folliculata, *L.*
C. rostrata, *Mx.*
C. intumescens, *Rudge.*
C. Grayii, *Carey.*
C. lupulina, *Muhl.*
C. lupuliformis, *Sartw.*
C. scabrata, *Schw.*
C. Schweinitzii, *Dew.*
C. retrorsa, *Schw.*
C. tentaculata, *Muhl.*
C. hystericina, *Willd.*
C. Pseudo-Cyperus, *L.*
C. comosa, *Boott.*
C. longirostris, *Torr.*
C. trichocarpa, *Muhl.*
C. aristata, *R. Br.*
C. umbellata, *Schk.*
C. Pennsylvanica, *Lam.*
C. varia, *Muhl.*
C. Novæ-Angliæ, *Schw.*
C. filiformis, *L.*
C. lanuginosa, *Mx.*
C. vestita, *Willd.*
C. pubescens, *Muhl.*
C. limosa, *L.*
C. irrigua, *Sm.*
C. livida, *Willd.*
C. flava, *L.*
C. Cederi, *Ehrh.*
C. pallescens, *L.*
C. Torreyi, *Tuckm.*
C. polymorpha, *Muhl.*
C. granularis, *Muhl.*
C. grisea, *Wahl.*
C. conoidea, *Schk.*
C. digitalis, *Willd.*

Names in N. Y. S. Flora.

Carex oligocarpa, Schk.
 C. *olig. v. major*.
 C. *tetanica*, Schk.
 C. *anceps*, Willd.
 C. *blanda*, Dew.
 C. *Crawei*, Dew. mss.
 C. *plantaginea*, Lam.
 C. *Careyana*, Torr.
 C. *eburnea*, Boott.
 C. *flexilis*, Rudge.
 C. *arctata*, Boott.
 C. *debilis*, Mx.
 C. *miliacea*, Muhl.
 C. *lacustris*, Willd.

Names in Gray's Manual.

Carex oligocarpa, Schk.
 C. *Hitchcockiana*, Dew.
 C. *tetanica*, Schk.
 C. *laxiflora*, Lam.
 C. *lax. v. blanda*.
 C. *Crawei*, Dew.
 C. *plantaginea*, Lam.
 C. *Careyana*, Torr.
 C. *eburnea*, Boott.
 C. *flexilis*, Rudge.
 C. *arctata*, Boott.
 C. *debilis*, Mx.
 C. *miliacea*, Muhl.
 C. *riparia*, Curtis.

The list derived from the Flora of New York comprises ninety-one species and fifteen varieties, which in the Manual are regarded as one hundred and one species and six varieties. Representatives of the following species and varieties have been added to the Herbarium since the publication of the Flora :

Carex scirpoidea, Mx.
 C. *Stuedelii*, Kunth.
 C. *sychnocephala*, Carey.
 C. *alata*, Torr.
 C. *adusta*, Boott.
 C. *torta*, Boott.
 C. *aperta*, Boott.
 C. *lenticularis*, Mx.
 C. *gynandra*, Schw.
 C. *platyphylla*, Carey.
 C. *Richardsonii*, R. Br.
 C. *Sullivantii*, Boott.
 C. *striata*, Mx.
 C. *Houghtonii*, Torr.
 C. *extensa*, Good.
 C. *glaucodea*, Tuckerm.
 C. *tentaculata v. gracilis*, Boott.
 C. *tent. v. altior*, Boott.
 C. *tent. v. unispicata*, Pk.

Carex capillaris, L.
 C. *retrocurva*, Dew.
 C. *Muhlenbergii v. enervis*, Boott.
 C. *teretiuscula v. major*, Koch.
 C. *vulpinoidea v. platycarpa*, Olney.
 C. *rosea v. radiata*, Dew.
 C. *scoparia v. minor*, Boott.
 C. *adusta v. sparsiflora*, Olney.
 C. *straminea v. tenera*, Boott.
 C. *stram. v. aperta*, Boott.
 C. *stram. v. Crawei*, Boott.
 C. *stricta v. strictior*, Gr.
 C. *stricta v. xerocarpa*, Gr.
 C. *laxiflora v. intermedia*, Boott.
 C. *laxiflora v. plantaginea*, Boott.
 C. *laxiflora v. latifolia*, Boott.
 C. *retrorsa v. Hartii*, Gr.
 C. *lupulina v. giganteoidea*, Dew.
 C. *Emmonsii v. elliptica*, Boott.

The whole number of species now known to inhabit the State is one hundred and nineteen. Adding to these the twenty-six varieties whose names are given in the preceding list and we have a total of one hundred and forty-five species and varieties.

(6)

NEW YORK SPECIES OF LEPIOTA.

“White-spored, hymenophorum distinct from the stem, veil universal, concrete with the epidermis of the pileus. Lamellæ free, often remote, neither sinuate nor decurrent.” — *Hymen. Europ.*, p. 29.

The word *Lepiota* has reference to the scaly character of the pileus. The species grouped under this name may be distinguished from the species of *Amanita* by the character of the scales of the pileus, which in that subgenus are wart-like and superficial and for the most part easily separable from the pileus, while in this they are intimately united to the cuticle, which usually breaks up into scales or scale-like fragments. On the other hand they are distinguished from the species of *Armillaria* by the lamellæ which in most of the species do not reach the stem but are wholly free from it. In the few instances in which they reach the stem they are but slightly attached to it, and not sinuate or decurrent as in *Armillaria*.

The species are mostly of medium size, though *Agaricus procerus* has few rivals in length of stem, and *A. Morgani* in breadth of pileus. The pileus is soft and fleshy but generally rather thin. The cuticle, which is usually entire in the very young plant, soon breaks up into scales which are appressed or erect, large or small, fibrillose, floccose, granular or mealy according to the species. These scales often give an ornamental or variegated appearance to the pileus which is quite attractive. In form, the pileus in the young plant is subglobose or ovate, then it becomes convex or campanulate and finally in many species it is nearly flat with a central prominence or umbo. This umbo in such species as *A. procerus* and *A. mastoideus* is especially prominent.

The lamellæ are white or whitish in most of the species. Occasionally they may be tinged with yellow and in a few species they assume a smoky-red or pinkish-brown hue in old age or in drying. In *A. Badhami*, *A. meleagris* and *A. Americanus* the whole plant changes color when wounded or in drying.

The stem in most of the species is rather slender and either hollow or stuffed with webby or cottony filaments. The annulus or ring that is attached to and surrounds the stem is sometimes slight and disappears in very wet weather or in old age. The spores, which are normally white, sometimes assume a yellowish hue when kept a long time. *A. Morgani*, an Ohio species, is remarkable for producing spores of a bright-green color which soon fades to a dull-green. The spores vary

much in size in the different species and afford, in several instances, excellent specific characters. *A. procerus* has very large spores, *A. cristatus* small ones and *A. metulæsporus* long ones.

Several of the species occur in woods and are especially fond of a loose soil composed chiefly of decayed vegetable matter, others grow in open grassy places, in fields, gardens and cultivated grounds. A few are occasionally found on old stumps and much decayed wood. *A. acutesquamosus*, *A. cepæstipes*, and some others are sometimes found growing in conservatories.

None of our species are reputed to be poisonous, yet only two, *A. procerus* and *A. naucinoides*, have been reported edible.

Fries divides this subgenus into two primary sections, the first containing the species with a dry pileus, the second, those with a viscid pileus. The first section, which has by far the greater number of species, is subdivided into five groups, all but one of which are represented in our flora. Of the Mesomorphi, "smaller, slender species with a hollow stem, a dry pileus and an entire, not granulose lacerated cuticle," we have not yet detected any representatives.

We have followed the system of Fries in our arrangement of the species.

SYNOPSIS OF THE SPECIES.

1. Pileus dry.....		2
2. Pileus with the margin even.....		3
3. Annulus movable, stem more than five inches long...	<i>A. procerus.</i>	4
3. Annulus not movable, stem less than five inches long,		
4. Pileus smooth, lamellæ becoming pinkish-brown..	<i>A. naucinoides.</i>	5
4. Pileus rough with erect acute scales.....		
5. Lamellæ crowded, some of them forked.....	<i>A. Friesii.</i>	6
5. Lamellæ close, simple ..	<i>A. acutesquamosus.</i>	7
4. Pileus with fibrillose, floccose or appressed scales..		
6. Scales reddish or reddish-brown.....		7
7. Scales soon disappearing from the margin....	<i>A. cristatus.</i>	
7. Scales everywhere persistent	<i>A. rubrotinctus.</i>	
6. Scales blackish or blackish-brown		8
8. Stem short, bulbous	<i>A. fuscusquameus.</i>	
8. Stem rather long, not bulbous ..	<i>A. felinus.</i>	
6. Scales pale yellow..	<i>A. alluviinus.</i>	
4. Pileus with granular, branny or mealy scales		9
9. Pileus rusty-yellow or reddish-yellow, lamellæ adnexed	<i>A. granulosus.</i>	
9. Pileus ochraceous-yellow, lamellæ adnate	<i>A. amianthinus.</i>	
9. Pileus dingy-white or brownish.....	<i>A. pusillomyces.</i>	
9. Pileus white	<i>A. cristatellus.</i>	
2. Pileus with the margin striate or substriate		10
10. Stem enlarged above the base.....		11
11. Plant becoming brownish-red in drying ..	<i>A. Americanus.</i>	
11. Plant not becoming brownish-red in drying ...	<i>A. cepæstipes.</i>	
10. Stem not enlarged above the base.....	<i>A. metulæsporus.</i>	
1. Pileus viscid.....		12
12. Pileus white	<i>A. illinitus.</i>	
12. Pileus alutaceous or dingy-yellow.....	<i>A. oblitus.</i>	

CUTICLE OF THE PILEUS DRY.

PROCERI.

Annulus persistent, movable, distinct from the volva.

This tribe is distinguished by its species having a well-developed annulus, which soon breaks loose from its attachment to the stem and thus forms a movable ring upon it, and a distinct cavity or depression in the pileus beneath the umbo for the reception of the stem.

The only representative thus far found in our State is *A. procerus*, but *A. rhacodes*, *A. excoriatus*, *A. mastoideus* and *A. Morgani* have been reported from neighboring States and will probably yet occur in our limits. All the European species of this tribe are classed by Fries as edible.

AGARICUS PROCERUS, Scop.

Tall Agaric. Parasol Mushroom.

Pileus at first ovate, then broadly convex or expanded, *strongly umbonate*, scaly or spotted from the breaking up of the cuticle, whitish alutaceous or brownish, the deflexed margin generally silky-fibrillose, the flesh soft, white; lamellæ close, free or remote, whitish, sometimes tinged with yellow or pink; *stem tall*, cylindrical or slightly tapering upward, bulbous, hollow, squamose or furfuraceous, colored like the pileus, sometimes spotted, the annulus thick, firm, *movable*, white; *spores large*, elliptical, .00055'—.0007' long, .00035'—00045' broad.

Plant 5'—10' high; pileus 3'—6' broad; stem 4"—6" thick.

Fields, pastures, roadsides and occasionally in woods. July to September.

This Agaric resembles a parasol in shape, whence the popular name. It is easily distinguished from the allied species by its long stem, movable ring and prominent umbo. Generally the scales of the pileus are rather broad and distant from each other toward the margin, but closer toward the umbo on which the cuticle usually remains unruptured. For this reason the umbo is generally darker colored than the rest of the pileus. Sometimes the scales are appressed and spot-like, again they are slightly reflexed and then they give a rougher appearance to the pileus. They may be brownish, tawny-brown or reddish-brown in color. They often disappear almost wholly from the margin of the pileus which then has a whitish silky appearance. The stem is remarkable for its great length when compared with its thickness and is suggestive of the specific name, *procerus*. In extreme cases it is nearly or quite a foot long, though rarely more than half an inch thick. In a dried specimen before me the stem is nine inches long and one-fourth of an inch thick. The surface of the stem is in many cases

merely scurfy, in others it is scaly from the cracking of the cuticle into small areas or fragments. Rarely it has a spotted appearance. Generally the plant grows singly, but sometimes it forms large tufts or clusters.

Fries remarks that its odor and taste are pleasant and that it is edible but tough. Probably for esculent purposes it would be better to use only the younger plants.

CLYPEOLARIÆ.

Annulus persistent, fixed, homogeneous with the universal veil which coats the stem.

In this tribe the annulus does not become movable on the stem and the fibrils or scales of the veil clothe that part of the stem which is below the annulus and the exterior or lower surface of the annulus also. The species are mostly small or of medium size and some possess a distinct odor.

AGARICUS FRIESII, *Lasch.*

Fries' Agaric.

"Pileus fleshy, soft, lacerated into *appressed tomentose scales*; stem hollow, with a webby pith, subbulbous, squamose; annulus superior, pendulous, equal; lamellæ subremote, linear, crowded, branched." — *Hymen. Europ.*, p. 31.

Pileus fleshy but rather thin, convex or nearly plane, clothed with a soft tawny or brownish-tawny tomentum which breaks up into appressed often subconfluent scales, the disk rough with small acute erect scales, flesh soft, white; lamellæ *narrow, crowded*, free, white, *some of them forked*; stem equal or slightly tapering upward, subbulbous, hollow, colored like the pileus below the annulus and there clothed with soft tomentose fibrils which sometimes form floccose or tomentose scales, white and pruinose above, annulus well-developed, flabby, white above, tawny and floccose-scaly below; spores .00028' — .00032' long, .00012' — .00016' broad.

Plant 2' — 5' high; pileus 1' — 4' broad; stem 2 — 5'' thick.

Soft loose soil in woods and low bushy places. July — September. Catskill mountains and East Worcester.

I have quoted the description of this species as it is given in *Epicrisis*, because the American plant which I have referred to it does not in all respects agree with this description, but comes so near it that it can scarcely be specifically distinct. In the American plant, so far as I have seen it, erect acute scales are always present, especially on the disk, and the tomentum of the pileus does not always break up into

distinct areas or scales. Neither is the stem usually scaly but rather clothed with soft tomentose or almost silky fibrils. The lamellæ are crowded and some of them are forked. At the furcations there are slight depressions which interrupt the general level of the edges and give them the appearance of having been eaten by insects. The plant has a slight odor, especially when cut or bruised.

AGARICUS ACUTESQUAMOSUS, *Wein.*

Acute-scaled Agaric.

“Pileus fleshy, obtuse, at first *hairy-floccose*, then *bristly with erect acute squarrose scales*; stem somewhat stuffed, stout, bulbous, pruinose above the moderate-sized annulus; lamellæ approximate, lanceolate simple.” — *Hymen. Europ.*, p. 31.

Pileus convex or nearly plane, obtuse or broadly subumbonate clothed with a soft tawny or brownish-tawny tomentum which usually breaks up into imperfect areas or squamæ, rough with erect acute scales which are generally larger and more numerous on the disk; lamellæ close, free, white or yellowish; stem equal, hollow or stuffed with webby filaments, subbulbous; spores about .0003' long, .00012' — .00016' broad.

Plant of the same size as the last.

Woods and conservatories. Buffalo, *G. W. Clinton*. Albany, *A. F. Chatfield*. Adirondack mountains and Brewerton.

Fries remarks that this species agrees so closely with the preceding one that he thinks the two should be united. The chief differences set forth in the descriptions already quoted consist in the appressed, tomentose scales and branched lamellæ of the one and the erect acute scales and simple lamellæ of the other. Now in the American plants I find erect acute scales on all the specimens, both those with branched and those with simple lamellæ, so that the difference between the two forms is reduced with us to that of the lamellæ alone. It is therefore probable that they will have to be united. The form found in the hot houses seems to have the tomentum of the pileus less dense and the erect scales more numerous than in the form growing in woods. The annulus is frequently lacerated. In the specimens of the woods the erect scales are sometimes blackish in color, and they then contrast quite conspicuously with the tawny or brownish-tawny tomentum beneath them. They vary in size and shape. Some resemble pointed papillæ, others, being more elongated, are almost spine-like. These are sometimes curved. They are generally larger and more numerous on the disk than elsewhere, and often they are wholly wanting on the margin.

AGARICUS CRISTATUS, *A. & S.*

Crested Agaric.

Pileus thin, campanulate or convex, then nearly plane, *obtuse*, at first with an even reddish or reddish-brown surface, then *white adorned with reddish or reddish-brown* scales formed by the breaking up of the cuticle, the central part or disk colored like the scales; lamellæ close, free, white; stem slender, hollow, equal, smooth or silky-fibrillose below the ring, whitish, annulus small, white; spores *oblong* or *narrowly subelliptical*. .0002' — .00028' long, .00012' — .00015' broad.

Plant 1' — 2' high; pileus .5' — 1.5' broad; stem 1" — 2" thick.

Grassy places and borders of woods. June — September.

This species is easily known by its small size and the crested appearance of the white pileus, an appearance produced by the orbicular unruptured portion of the cuticle that remains like a colored spot on the disk. The fragments or scales are more close near this central part and more distant from each other toward the margin, where they are often wholly wanting. The scales are sometimes very small and almost granular. In very wet weather the margin of the pileus in this and some other species becomes upturned or reflexed.

The spores when viewed in one position appear as if truncated at one end and acute or pointed at the other, in another position they appear narrowly elliptical, the truncate end being slightly rounded. The spores of *A. Friesii* are somewhat similar in shape but are a little longer.

The plant usually has a distinct odor.

AGARICUS RUBROINCTUS, *Pk. n. sp.*

Red-tinted Agaric.

Pileus thin, convex or nearly plane, sometimes slightly and broadly umbonate, at first even with a reddish or pinkish surface, a little darker and sometimes slightly rough on the disk, then adorned with appressed scales formed by the breaking up of the cuticle; lamellæ close, free, white or whitish; stem hollow, equal or slightly thickened at the base, smooth or slightly silky-fibrillose below the annulus, whitish, the annulus *well developed, membranous*, white or pinkish, *persistent*; spores *subelliptical, uninucleate*, .00035' — .00045' long, .0002' — .00025' broad.

Plant 1.5' — 3.5' high; pileus 1' — 2.5' broad; stem 2" — 3" thick.

Thin woods and open places. July — September. Helderberg mountains and East Worcester.

When young this Agaric closely resembles the preceding one from which it is distinguished by its larger size, more scaly and less white pileus, larger and more persistent annulus and larger spores. The cuticle sometimes remains entire and sometimes cracks in a radiating manner toward the margin, thereby giving to the pileus a sort of fibrillose or virgate appearance. The annulus sometimes partly breaks from its attachment to the stem and becomes almost movable.

AGARICUS FELINUS, *Pers.*

Cat Agaric.

Pileus thin, subcampanulate or convex, subumbonate, adorned with numerous *subtomentose* or *floccose blackish-brown scales*; lamellæ close, free, white; stem *slender, rather long*, equal or slightly tapering upward, hollow, clothed with soft loose floccose filaments, brown, annulus slight, evanescent; spores elliptical, .00025'—.0003' long, .00016'—.0002, broad. 6 - 7.5'

Plant 2'—3.5' high; pileus .5'—1.5' broad; stem 1"—2" thick.

Woods. Adirondack mountains. August and September.

This is not a common species with us, having occurred thus far only in the woods of our mountainous regions. The scales or adornments of the pileus are similar in character to those of *A. Friesii*, but are much darker in color. Fries unites this Agaric with *A. clypeolarius* as a variety, but says that it is so frequent and so constant in the pine woods of Europe that it deserves to be noticed separately. It is easily distinguished from *A. rubrotinctus* by the darker color of the scales of the pileus, by the loose floccose filaments that clothe the brown stem, by the fugacious annulus and the smaller spores.

AGARICUS FUSCOSQUAMEUS, *Pk.*

Brown-scaled Agaric.

Pileus rather thin, hemispherical or convex, subumbonate, adorned with numerous *substrigose, erect or reflexed blackish-brown scales*; lamellæ close, free, white; stem *short, rather stout*, equal, hollow or stuffed with a cottony pith, clothed with loose soft dingy floccose filaments, *bulbous*, brown; annulus slight, evanescent; spores narrowly elliptical, .00025'—.0003' long, .00012'—.00015" broad.

Plant 2'—3' high; pileus 1.5'—2.5' broad; stem 3"—4" thick.

Pine and hemlock woods. Croghan. September.

This species is closely related to the preceding one, and might, perhaps, be considered a variety of it. It has the same color, but is dis-

tinguished by its more strigose erect scales, its short but stouter bulbous stem, broader pileus and narrower spores. It is apparently very rare, having been detected only in the locality here given.

AGARICUS ALLUVIINUS, *Pk., n. sp.*

Alluvial Agaric.

Pileus thin, convex or plane, sometimes reflexed on the margin, *white, adorned with minute pale-yellow hairy or fibrillose scales*; lamellæ thin, close, free white or yellowish; stem slender, fibrillose, whitish or pallid, slightly thickened at the base, annulus slight, subpersistent, often near the middle of the stem; spores elliptical, $.00025'$ — $.0003'$ long, $.00016'$ — $.0002'$ broad.

Plant 1'—2' high; pileus $.5'$ —1' broad; stem 1"—1.5" thick.

Alluvial soil, among weeds. Albany. July.

In the fresh plant the scales are of a pale-yellow or lemon color, but in drying they and the whole pileus take a deeper rich yellow hue. The annulus is generally remote from the pileus, sometimes even below the middle of the stem.

AGARICUS METULÆSPORUS, *B. and Br.*

Long-spored Agaric.

Pileus thin, campanulate or convex, subumbonate, at first with a uniform pallid or brownish surface, which soon breaks up into *small brownish scales, the margin more or less striate*, often appendiculate with fragments of the veil; lamellæ close, free, white; stem slender, equal or slightly tapering upward, hollow, adorned with soft loose floccose scales or filaments, pallid, annulus slight, evanescent; spores *long, subfusiform*, $.00055'$ — $.00075'$ long, $.00025'$ — $.0003'$ broad.

Plant 2'—3.5' high; pileus $.5'$ —1.5' broad; stem 1"—2" thick.

Woods. Adirondack mountains. August and September.

This species occurs with us in the same localities as *A. felinus*, which it very much resembles in size, shape and general characters, differing only in color, the striate margin of the pileus and the character of the spores. Both were at first taken to be forms of *A. clypeolarius*, and were included in the description of that species in Report 23, p. 72. Judging from the published descriptions of *A. clypeolarius*, it is probable that in Europe also it has been made to include forms which will yet be considered distinct species. In *Epicrisis* it is said to "vary wonderfully in size and color," and in the *Hand-book of British Fungi* the pileus is said to be "white, yellow, pink, rufous, brown, etc." In *Icones Selectæ*, Fries figures what he considers the typi-

cal form of the species, a form which I have not observed here, and which probably does not occur with us. It is a little remarkable that none of the published descriptions and figures of this species, so far as I have seen them, give the spore characters. Those characters are often of the utmost value in distinguishing closely related species. In regard to the spores of *A. metulæsporus*, the descriptions do not all agree, but the discrepancies are probably due to variability in the spores and to lack of care in the examination. In *Epicrasis* they are said to be twice as large as in the allied species, and acutely pointed at one end. In *Grevillea*, Vol. I, p. 55, they are said to be nine-pin shaped or obliquely clavate. In *Mycological Illustrations*, by M. C. Cooke, they are represented as fusiform and acute at both ends. In our plant they are nearly fusiform in shape, but varying somewhat in the character of the apices, which are sometimes acute, sometimes blunt, and sometimes acute at one end and blunt at the other. The species has a wide range, having been found in Ceylon, England and Alabama.

ANNULOSI.

Annulus superior, fixed, subpersistent, universal veil adnate to the pileus.

The species of this tribe are chiefly distinguished by the well-developed but fixed and rather persistent annulus. They are generally larger and more fleshy than those of the preceding tribe. In some species the lamellæ, and in others the whole plant changes color in drying.

AGARICUS CEPÆSTIPES, Sow.

Onion-stemmed Agaric.

Pileus thin, at first ovate, then campanulate or expanded, umbonate, soon adorned with numerous *minute brownish scales* which are often *granular or mealy, plicate striate* on the margin, white or yellow, the umbo darker; lamellæ thin, close, free, white, becoming dingy with age or in drying; stem rather long, tapering toward the apex, generally *enlarged in the middle or near the base*, hollow, annulus thin, subpersistent; spores subelliptical, uninucleate, .0003' — .0004' long, .0002' — .0003' broad.

Plant often caespitose, 2'—4' high; pileus 1' — 2' broad; stem 2" — 3" thick.

Rich ground and decomposing vegetable matter. Also in graperies and conservatories. Buffalo, *G. W. Clinton*. Albany, *A. F. Chatfield*.

The species takes its name from the peculiar oblong swelling or enlargement in the middle or the lower part of the stem. It is similar to

the enlargement in the flowering stem of an onion. The plants sometimes occur in tufts or clusters of many individuals. When very young the pileus is ovate and of a uniform color, but the surface soon breaks up into minute scales which rest upon a white or whitish ground color. In drying the lamellæ generally assume a dingy or smoky hue, but the pileus does not generally change color. Two forms occur in hot-houses, the one having a white, the other a yellow pileus. The striations of the margin are rather deep and close and give a somewhat plicate appearance to that part of the pileus. The form that grows in the open air has shorter striations on the margin, and the stem is not so regularly enlarged in the middle, the enlargement being mostly near the base and sometimes wanting entirely. Possibly this form may be the *A. rorulentus* Panizzi, but it seems to me too near *A. cepæstipes* to be separated.

AGARICUS AMERICANUS, *Pk.*

American Agaric.

Pileus rather fleshy, at first ovate, then convex or expanded, *umbonate*, more or less striate on the margin, the cuticle breaking up, except on the umbo, into *reddish or reddish-brown appressed scales*, white, flesh white; lamellæ rather broad, close, free, white, narrower toward the stem and there sometimes anastomosing; stem tapering upward, *enlarged at or a little above the base*, hollow, white, annulus rather large, but thin and flabby, sometimes separating from its attachment to the stem, occasionally evanescent; spores subelliptical, uninucleate, .0003' — .0004' long, .0002' — .0003' broad.

Plant sometimes cæspitose, 3'—5' high; pileus 1.5' — 4' broad; stem 2" — 5" thick.

Lawns and grassy places, sometimes on decaying wood. July and August.

This species has many points of resemblance to the preceding one but it is larger, with a stouter stem and a more fleshy pileus, with much broader and more distinct scales. The stem is enlarged as in that species but the enlargement is generally at or near the base. When bruised the flesh changes color and in drying the whole plant assumes a dull brownish-red or smoky-red hue, a character by which the species may be easily distinguished. The European species, *A. Badhami* and *A. meleagris*, change color under similar circumstances, but the latter becomes red and the former saffron-red. They also differ in other respects from our plant. This has been found by Miss Banning near Baltimore, Maryland, with a pileus sometimes seven inches in diameter. She has observed that it sometimes exudes a reddish juice when cut or

wounded. The striations of the margin vary in different plants, being sometimes distinct, sometimes obscure.

I have placed this species in the tribe Annulosi because of its relation to *A. cepæstipes*. It has also a close relation to the Proceri and might with almost equal propriety be placed among them. The annulus both in this and the next species occasionally loosens from the stem and becomes a movable ring.

AGARICUS NAUCINOIDES, *Plk.*

Smooth Agaric.

Pileus at first subglobose, then convex, fleshy, soft, *smooth*, rarely slightly squamulose or granular-mealy, white or smoky-white, flesh white; lamellæ rather broad, close, free, white, *slowly changing to a dingy pinkish-brown or smoky-brown color* with age or in drying; stem smooth or silky-fibrillose, equal or slightly thickened at the base, hollow, sometimes stuffed with webby filaments, white or smoky-white, annulus thick, persistent, white; spores subelliptical, uninucleate, .0003' — .0004' long, .0002' — .0003' broad.

Plant 2' — 4' high; pileus 1.5' — 3.5' broad; stem 3" — 5" thick.

Grassy grounds in pastures, fields and roadsides. Common. September—November.

This is a beautiful as well as a useful Agaric. It is very regular and symmetrical in shape and generally pure white in color. Its surface is usually very smooth and even, though occasionally a slight mealliness or granular roughness is developed on the disk and still more rarely a few minute scales appear. In a single instance I have seen the surface cracked into rather large thick scales, a result probably of unusually wet weather. The white color sometimes gives place to a dingy smoky-white or ashy hue. The lamellæ are at first white or cream-colored, but when old or dried they become smoky-brown or brownish tinged with pink. The stem is hollow, but, as in many other hollow-stemmed *Lepiotæ*, the cavity often contains webby or cottony filaments, especially when young. The plant occurs late in the season and is most often found in grassy pastures and in lawns, though sometimes it occurs in corn fields and other cultivated grounds. It is liable to be confused with white forms of the common edible mushroom, *A. campestris*, but in that species the lamellæ at first have a beautiful pink or flesh-colored hue which soon changes to a blackish-brown color. It also bears some resemblance to *A. lævis* and to *A. cretaceus*, but the former has flesh-colored and the latter brown spores. It is, however, more nearly related to its white-spored allies,

A. naucinus, *A. Schulzeri* and *A. holosericeus*. If we may rely upon the published descriptions of these three species, the first one may be distinguished from our plant by its globose spores and granulated cuticle; the second by its ovate spores, small annulus, umbonate pileus and nauseous taste; the third by its silky-fibrillose pileus and solid stem. Some discrepancies exist in the published descriptions and figures of *A. naucinus*, to which our plant was first referred. See Report 23, p. 72, and Report 29, p. 66. In Berkeley's *Outlines of British Fungology*, page 94, the spores are characterized as "very large," but their shape is not given. In Cooke's *Mycological Illustrations* they are represented as globose, but small; in *Epicrasis*, page 34, they are described as globose, and in *Michelia*, Vol. VII, p. 229, their dimensions indicate a length greater than their breadth. It is probable, therefore, that two or more species have been confused by authors.

As an edible species, the smooth Agaric is not at all inferior to the common mushroom. Indeed, in some respects it is superior to it. It is as large, and its flesh is as thick and white, and no less tender and savory. Its keeping qualities are better, for in the common mushroom the lamellæ soon become blackish and repulsive, while in this one they retain their white color a long time, and do not become so dark-colored when they do change. It is also less liable to be infested by the larvæ of insects, and, growing as it generally does, among short grass, it is more clean and attractive in appearance. If it can be cultivated as easily as the common mushroom, it will make a very desirable and more marketable substitute for that species.

GRANULOSI.

The universal veil of the pileus and stem continuous, when ruptured forming a slight annulus.

The species of this tribe are mostly rather small, and have the pileus and stem coated with minute warts, granules or branny particles, rather than with ordinary scales. The lamellæ, in some of the species, reach the stem and are slightly attached to it. Such species serve to connect this subgenus with the following one.

AGARICUS GRANULOSUS, *Batsch.*

Granular Agaric.

Pileus thin, convex or nearly plane, sometimes almost umbonate, rough with numerous granular or branny scales, often radiately wrinkled, rusty-yellow or reddish-yellow, often growing paler with age, flesh white or reddish tinged; lamellæ close, rounded behind and

usually *slightly adnexed*, white; stem equal or slightly thickened at the base, stuffed or hollow, white above the annulus, colored and adorned like the pileus below it, annulus slight, evanescent; spores, elliptical, .00016'—.0002' long, .00012'—.00014' broad.

Plant 1'—2.5' high; pileus 1'—2.5' broad; stem 1"—3" thick.

Woods, copses and waste places. Common. August—October.

This is a small species with a short stem and granular reddish-yellow pileus, and lamellæ slightly attached to the stem, a character by which it differs from all the preceding. The annulus is very small and fugacious, being little more than the abrupt termination to the coating of the stem. The species was formerly made to include several varieties which are now regarded as distinct.

AGARICUS AMIANTHINUS, Scop.

Amianth Agaric.

Pileus thin, convex, subcampanulate or plane, often umbonate, *coated with numerous granular and furfuraceous scales, ochraceous-yellow*, sometimes radiately wrinkled, crenate-appendiculate on the margin; lamellæ rather broad, close, *adnate*, white or yellowish; stem rather long, slender, equal or slightly thickened at the base, stuffed or hollow, white above, colored like the pileus and floccose-squamulose below the slight evanescent annulus; spores elliptical, .0002'—.00028' long, about .00016' broad.

Plant 1.5'—4' high; pileus 1'—1.5' broad; stem 1"—2" thick.

Damp, mossy ground and much decayed wood. Adirondack mountains. August and September.

This Agaric closely resembles the preceding one, of which it is sometimes regarded as a variety. It may be distinguished by its more ochraceous persistent color, appendiculate margin, elongated stem, and by its lamellæ, which are not rounded behind, but are attached to the stem by their whole breadth. The flesh is also more or less tinged with yellow. It prefers mossy, shaded ground under evergreen trees. The flocculent part of the veil is easily rubbed off and mostly disappears in drying. It is a pretty Agaric.

AGARICUS PUSILLOMYCES, Pk.

Small Agaric.

Pileus thin, subcampanulate or convex, subumbonate, *minutely granular or furfuraceous, whitish or brownish*; lamellæ broad, close, free, white; stem slender, equal, scarcely annulate, *rough with a granular mealiness*, colored like the pileus; spores elliptical, .00016'—.0002' long, .00012' broad.

Plant scarcely 1' high; pileus 2"—4" broad; stem about .5" thick.

Ground under brakes, *Pteris aquilina*. Lake Pleasant. August.

This very small Agaric is related by its granular pileus to *A. granulatus*, but its small size and different color at once distinguish it. It is apparently very rare, having been found but once.

AGARICUS CRISTATELLUS, *Pk.*

Little crested Agaric.

Pileus thin, convex, subumbonate, *minutely mealy*, especially on the margin, *white*, the disk slightly tinged with pink; lamellæ close, rounded behind, free, white; stem slender, whitish, hollow; spores subelliptical, .0002' long.

Plant the same size as the last.

Mossy places in woods. Copake. October.

This is distinguished from the last species by its white mealy pileus, narrower lamellæ and smooth stem. The margin is sometimes appendiculate with the minute fragments of the veil. The annulus is obsolete. The white pileus and pinkish tinge of the disk suggest a resemblance in color to *A. cristatus*. The species has been detected but once.

CUTICLE OF THE PILEUS VISCID.

AGARICUS ILLINITUS, *Fr.*

White-smear'd Agaric.

Pileus rather thin, soft, at first ovate, then campanulate or expanded, subumbonate, *smooth, white*, very viscid or glutinous, even or striate on the margin; lamellæ close, free, white; stem equal or slightly tapering upward, stuffed or hollow, viscid, white; spores broadly elliptical, .0002' long, .00016' broad.

Plant 2'—4' high; pileus 1'—2.5' broad; stem 2"—3" thick.

Thin or open woods. Adirondack mountains. July to September.

This is a smooth white species with the stem and pileus clothed with a clear viscid or glutinous veil. The margin of the pileus is often even, but the typical form of the species has it striate. The flesh is soft and white. The species may be distinguished from the viscid white species of *Hygrophorus* by the free, not adnate nor decurrent, lamellæ.

AGARICUS OBLITUS, *Pk.*

Smeared Agaric.

Pileus fleshy, convex or expanded, subumbonate, smooth or obscurely spotted or scaly from the breaking up of the veil, viscid, *alutaceous in-*

clining to tawny, the umbo generally darker; lamellæ crowded, free, whitish or yellowish, some of them forked; stem equal or slightly tapering upward, smooth at the top, *floccose* and viscid elsewhere, hollow or containing a cottony pith, annulus obsolete; spores elliptical, .0002'—.00025' long, .00012'—.00016' broad.

Plant 2'—3' high; pileus 2'—3' broad; stem about 3" thick.

Frondose woods. Lowville. September.

This species is about equal in size to the preceding one, and equally viscid. It is distinguished by its colored pileus usually adorned by a few spot-like scales and by the floccose scales or filaments of the stem. It has been found but once.

In the preceding pages, a personal name added to the station of a plant indicates the collector or contributor. When no name is added to the station the plant was collected by the writer. Dates signify the time when the plant was collected, and indicate to some extent the time of its occurrence. In the monograph of the *Lepiotæ* they indicate the time when or during which the species has been observed. A single accent placed above and at the right of a figure should be read "inch" or "inches," according to circumstances; a double accent should be read "line" or "lines." A dash between two numbers is equivalent to the word "to."

Grateful acknowledgments are rendered to those botanists who have contributed specimens or information.

Very respectfully submitted.

CHARLES H. PECK.

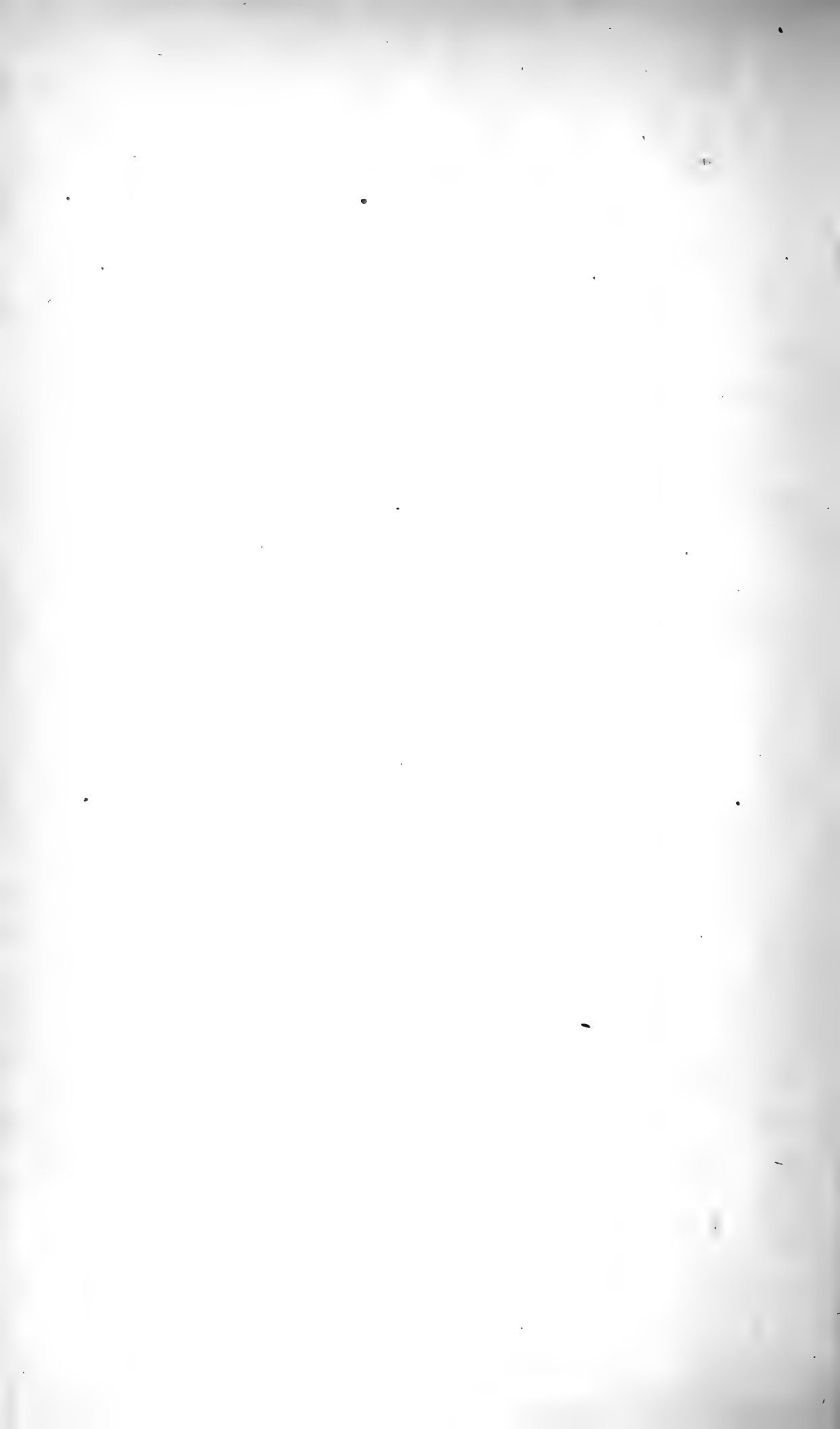
ALBANY, *January 4*, 1882.

36 REGENT'S REPORT



REPORT OF THE BOTANIST,
CHARLES H. PECK.

36 Rep. Report.



36 Reg. Report for 1882
REPORT OF THE BOTANIST.

Hon. DAVID MURRAY, LL. D.,

Secretary of the Board of Regents of the University :

SIR — Since the date of my last report, specimens of one hundred and forty-two species of plants have been mounted and placed in the State Herbarium, of which sixty-eight were not previously represented therein. The specimens of the remaining species represent new forms or varieties of species before represented, or exhibit some features or characters not well shown by the older specimens. A list of the species of which specimens have been mounted is hereinafter given and marked (1).

By reason of the veto, by the Governor, of the appropriation for the reimbursement of the expenses of the Botanist for the years 1880 and 1881, it was not deemed prudent by me to advance any more money to meet these expenses. I have, therefore, been obliged to devote myself to the accomplishment of such work as could be done with the materials already on hand, and I have no additions to the Herbarium by the collecting of the Botanist, to report. This interruption of the work is to be regretted since it delays its completion and thereby increases the cost. If it shall be deemed best to continue the work of supplying deficiencies in the Herbarium and of developing a knowledge of the cryptogamic botany of our State, it is desirable that either the salary of the Botanist be increased sufficiently to enable him to meet the necessary expenses out of his own pocket, or else that an appropriation for these expenses be made in advance.

As usual, numerous specimens have been contributed to the Herbarium by various correspondents and other co-laborers in botany. A list of the contributors and of their respective contributions is marked (2).

Some of the contributed specimens represent plants that are new to the Herbarium and have not before been reported, others are rare plants from newly-discovered localities, or specimens that exhibit some

peculiar variation in the species, and for these or other reasons are worthy of notice. New stations of rare plants, remarks and observations are recorded in a section marked (3).

Among the contributed specimens is a new species of edible fungus belonging to the genus *Agaricus*, subgenus *Psalliota*, and closely related to the common edible mushroom, and its near relative the horse mushroom. The mushrooms are so interesting by reason of their frequent use as an article of food, and the three species mentioned are so variable and so intimately related to each other, that in pursuance of a plan already adopted in two previous reports (in which synopses of the subgenera *Amanita* and *Lepiota* have been given), I have thought best to give a full descriptive synopsis of all our New York species of the subgenus *Psalliota*. In this monograph the descriptions have been revised and made more complete, the dimensions of the spores have been given and copious remarks have been added with the design of pointing out more clearly the distinguishing features of the species and of aiding in their discrimination. It is marked (4).

(1.)

PLANTS MOUNTED.

Not new to the Herbarium.

- | | |
|-------------------------------------|---|
| Ranunculus abortivus, <i>L.</i> | Potamogeton crispus, <i>L.</i> |
| Raphanus Raphanistrum, <i>L.</i> | P. pusillus, <i>L.</i> |
| Brassica Sinapistrum, <i>Boiss.</i> | P. pectinatus, <i>L.</i> |
| Viola Selkirkii, <i>Pursh.</i> | P. gramineus, <i>L.</i> |
| Geranium maculatum, <i>L.</i> | Smilax hispida, <i>Muhl.</i> |
| Acer rubrum, <i>L.</i> | Trillium grandiflorum, <i>Salisb.</i> |
| Trifolium repens, <i>L.</i> | Polygonatum giganteum, <i>Diet.</i> |
| Rubus triflorus, <i>Rich.</i> | Uvularia sessilifolia, <i>L.</i> |
| Opuntia Rafinesquii, <i>Engelm.</i> | Heteronthera reniformis, <i>R. and P.</i> |
| Tiarella cordifolia, <i>L.</i> | Eleocharis tuberculosa, <i>R. Br.</i> |
| Mitchella repens, <i>L.</i> | Scieria pauciflora, <i>Muhl.</i> |
| Viburnum nudum, <i>L.</i> | Carex stricta, <i>Lam.</i> |
| Heracleum lanatum, <i>Mx.</i> | C. Muhlenbergii, <i>Schk.</i> |
| Tanacetum vulgare, <i>L.</i> | C. cephalophora, <i>Muhl.</i> |
| Vaccinium corymbosum, <i>L.</i> | C. Emmonsii, <i>Dew.</i> |
| V. Pennsylvanicum, <i>Lam.</i> | C. Pennsylvanica, <i>Lam.</i> |
| Nyssa multiflora, <i>Wang.</i> | C. tenera, <i>Dew.</i> |
| Scutellare galericulata, <i>L.</i> | C. lagopodioides, <i>Schk.</i> |
| Marrubium vulgare, <i>L.</i> | C. adusta, <i>Boott.</i> |
| Apocynum cannabinum, <i>L.</i> | C. granularis, <i>Muhl.</i> |
| Polygonum orientale, <i>L.</i> | C. gracillima, <i>Schw.</i> |
| Fraxinus Americana, <i>L.</i> | C. cristata, <i>Schw.</i> |
| F. pubescens, <i>Lam.</i> | C. mirabilis, <i>Dew.</i> |
| Quercus alba, <i>L.</i> | C. virescens, <i>Muhl.</i> |
| Q. Prinus, <i>L.</i> | C. vulpinoidea, <i>Mx.</i> |
| Q. rubra, <i>L.</i> | C. plantaginea, <i>Lam.</i> |
| Q. coccinea, <i>Wang.</i> | C. laxiflora, <i>Lam.</i> |
| Q. tinctoria, <i>Bart.</i> | Zizania aquatica, <i>L.</i> |
| Populus tremuloides, <i>Mx.</i> | Stipa avenacea, <i>L.</i> |
| P. grandidentata, <i>Mx.</i> | Aira flexuosa, <i>L.</i> |

Bromus racemosus, L.
Poa trivialis, L.
Eragrostis pilosa, Bv.
Aspidium Boottii, Tuckerm.
Osmunda cinnamomea, L.
Agaricus serotinus, Schrad.
 A. *æruginosus*, Curt.

Agaricus sapidus, Kalchb.
Polyporus adustus, Willd.
 P. *hispidioides*, Pk.
Trametes mollis, Sommf.
Corticium læve, Pers.
 C. *incarnatum*, Pers.
 C. *lilacinofuscum*, B. and C.

New to the Herbarium.

Malva crispa, L.
Tillæa simplex, Nutt.
Sedum acre, L.
Amarantus blitoides, Wats.
Sagittaria pusilla, Nutt.
Eragrostis Purshii, Schrad.
Agaricus alluviinus, Pk.
 A. *rubroinctus*, Pk.
 A. *albus*, Schæff.
 A. *pascuus*, Pers.
 A. *sinuatus*, Fr.
 A. *fastibilis*, Fr.
 A. *sulcatipes*, Pk.
 A. *hærens*, Pk.
 A. *tiliophilus*, Pk.
 A. *nitidipes*, Pk.
 A. *epimyces*, Pk.
Hygrophorus fuliginus, Frost.
 H. *flavodiscus*, Frost.
Marasmius salignus, Pk.
Polyporus immitis, Pk.
 P. *fraxinophilus*, Pk.
Irpex crassus, B. and C.
 I. *mollis*, B. and C.
Corticium effuscatum, C. and E.
Thelephora rosella, Pk.
Cyphella læta, Fr.
Phoma cucurbitale, B. and C.
Sphæropsis Caryæ, C. and E.
Discella hysteriella, Pk.
 D. *albomaculans*, Pk.
Glæosporium fraxinea, Pk.
Septoria cannabina, Pk.
 S. *Sicyi*, Pk.

Septoria Cirsii, Niessl.
 S. *Calystegiæ*, Sacc.
 S. *musiva*, Pk.
Phyllosticta Cratægi, Pk.
 P. *variabilis*, Pk.
Protomyces macrosporus, Ung.
Ustilago pallida, Schræt.
Acalyptospora Populi, Pk.
Macrosporium transversum, Pk.
Alternaria tenuis, Nees.
Ellisiella caudata, Sacc.
Botrytis ceratioides, Pk.
Dactylium dendroides, Fr.
Verticillium Lactarii, Pk.
Cercospora Tiliæ, Pk.
 C. *Lepidii*, Pk.
 C. *Daturæ*, Pk.
 C. *varia*, Pk.
 C. *longispora*, Pk.
Ramularia Vaccinii, Pk.
 R. *Ranunculi*, Pk.
 R. *Hamamelidis*, Pk.
 R. *aquatilis*, Pk.
Asterophora Pezizæ, Cð.
Peziza lætiruba, Cke.
 P. *singularia*, Pk.
Tympanis Nemopanthis, Pk.
Cenangium betulinum, Pk.
Triblidium clavæsporium, Pk.
Ascomyces deformans, Berk.
Gymnascella aurantiaca, Pk.
Valsa tomentella, Pk.
Sphærella fraxinea, Pk.
Venturia curviseta, Pk.

(2.)

CONTRIBUTORS AND THEIR CONTRIBUTIONS.

Mrs. L. A. Millington, Glens Falls N. Y.

Epilobium molle, Torr.

Miss M. Bowles Columbia, Tenn.

Polypodium incanum, Pursh.

C. D. Hill, Tunis, N. Y.

Calystegia Sepium, L.

J. F. Shoemaker, Luverne, Minn.

Oxybaphus nyctagineus, Sweet.

Charles E. Smith, Philadelphia, Penn.

Corema Conradii, Torr.

U. F. Cornelius, Willow Brook, N. Y.

Cynoglossum officinale, L.

Rev. Washington Rodman, Astoria, N. Y.

Agaricus Rodmani, Pk.

H. N. Johnson, Coeymans, N. Y.

Sagittaria pusilla, Nutt.

Thalictrum anemonoides, Mx.

W. C. Stevenson, c. r., Philadelphia, Pa.

Puccinia Myrrhis, Schw.

S. J. Bowman, Albany, N. Y.

Ranunculus multifidus, Pursh.

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

Tillæa simplex, Nutt.

Eragrostis poæoides, Bv.

Amarantus blitoides, Wats.

E. Purshii, Schrad.

J. Howell, Arthur, Oregon,

Puccinia mirabilissima, Pk.

Berberis Aquifolium, Pursh.

Dædalea vorax, Hark.

Wood of Abies Douglassii.

S. B. Griswold, Albany, N. Y.

A flower of the Century plant, Agave Americana, L.

W. M. Canby, Wilmington, Del.

Tillæa simplex, Nutt.

W. Russell, Albany, N. Y.

A specimen of the Chinese "leechee nut."

E. L. Hankenson, Newark, N. Y.

Sedum reflexum, L.

Salix cordata sericea.

Azolla Caroliniana, Willd.

Felix von Thumen, Vienna, Austria.

Agaricus geophyllus, Sow.

Stereum sanguinolentum, Fr.

A. mitis, Fr.

Corticium roseum, Fr.

A. sphinctrinus, Fr.

C. radiosum, Fr.

Polyporus cinnabarinus, Jacq.

C. Juniperina, Karst.

P. pergamenus, Fr.

Hirneola Auricula-Judæ, Berk.

P. cuticularis, Fr.

Clavaria fistulosa, Fr.

Merulius molluscus, Fr.

C. Kunzei, Fr.

Dædalea mollis, Sommf.

C. cristata, Holmsk.

Craterellus sinuosus, Fr.

Pistillaria quisquilaris, Fr.

C. cornucopioides, Fr.

Typhula filiformis, Fr.

Thelephora sebacea, Pers.

Tremella disciformis, Fr.

T. fastidiosa, Fr.

Geaster triplex, Jungh.

Stereum lobatum, Kze.

Mycogala parietinum, Rost.

- Æcidium* Lampanæ, *Schultz.*
Æ. Thalictri, *Grev.*
Æ. Pastinacæ, *Rost.*
Æ. Onosmatis, *Thum.*
Æ. Lithospermi, *Thum.*
Æ. Symphyti, *Thum.*
Æ. Ligustri, *Strauss.*
Æ. Orchidearum, *Desm.*
Æ. Xylostei, *Wallr.*
Æ. Frangulæ, *Schum.*
Æ. Tussilaginis, *Pers.*
Puccinia Oxyriæ, *Fckl.*
P. Asteris, *Schw.*
P. Anemones, *Pers.*
P. Wilcoxiana, *Thum.*
P. crassivertex, *Thum.*
P. Artemisiarum, *Duby.*
P. Brachypodii, *Fckl.*
P. Morthierii, *Kornick.*
P. Cirsii, *Lasch.*
Urocystis primulicola, *Magn.*
Synchytrium Taraxaci, *DeBy.*
Ceratitium Oxyacanthæ, *Desm.*
C. laceratum, *Sow.*
Uredo cancellata, *D. and M.*
U. alpestris, *Schroet.*
U. Iridis, *Duby.*
U. digitariæcola, *Thum.*
Coleosporium ochraceum, *Bon.*
C. Campanulacearum, *Fr.*
Uromyces Cacaliæ, *Lev.*
U. Lathyri, *Fckl.*
U. Iridis, *Lev.*
Cronartium ribicola, *Dictr.*
Melampsora Euphorbiæ, *Castr.*
M. Balsamiferæ, *Thum.*
M. Lini, *Tul.*
Podosphaeria biuncinata, *C. and P.*
P. Kunzei, *Lev.*
Uncinula flexuosa, *Pk.*
U. macrospora, *Pk.*
U. circinata, *C. and P.*
Calocladia penicillata, *Lev.*
Microsphaeria Viburni, *Schw.*
Erysiphe Martii, *Lev.*
E. lamprocarpa, *Lev.*
Phyllactinia guttata, *Lev.*
Sphaerotheca Castagnei, *Lev.*
S. Niesslii, *Thum.*
Stigmatea Chætomium, *Fr.*
S. confertissima, *Fckl.*
Capnodium pelliculosum, *B. and Br.*
Ceratostoma spurium, *Fr.*
Massaria foedans, *Fr.*
M. inquinans, *Tul.*
Epichloe typhina, *Tul.*
Cryptospora nigro-annulata, *Rehm.*
Phyllachora Ulmi, *Fckl.*
Ascomyces Quercus, *Cke.*
A. cœrulescens, *Mu.*
A. alutaceus, *Thum.*
Expascus Alni, *Fckl.*
E. Betulæ, *Fckl.*
Botryosphaeria Berengeriana, *DeNott.*
Calosphaeria tumidula, *Sacc.*
Anthostomella Yuccæ, *Thum.*
Zignoella punctiformis, *Sacc.*
Roesleria hypogaea, *P. and T.*
Gibberella pulicaris, *Sacc.*
Coleroa Alchemillæ, *Fr.*
Ombrophila Mortheriana, *Rehm.*
Bulgaria inquinans, *Fr.*
Durella macrospora, *Fckl.*
Mollisia excelsior, *Karst.*
Helotium scutula, *Karst.*
H. stigmarion, *Rehm.*
Peziza striata, *Nees.*
P. flavofulginea, *A. and S.*
P. carpinea, *Fr.*
Hypoderma Lauri, *Duby.*
Lophium decipiens, *Karst.*
Lophodermium petiolicolum, *Fckl.*
Gnomonia errabunda, *Awd.*
Phelonitis strobilina, *Fr.*
Cladosporium fasciculare, *Fr.*
C. Martianoffianum, *Thum.*
C. diaphanum, *Thum.*
C. ampelinum, *Pass.*
Cercospora beticola, *Sacc.*
C. Solani, *Thum.*
C. Smilacis, *Thum.*
C. Thalictri, *Thum.*
C. acerina, *Hart.*
C. persica, *Sacc.*
C. Rhamni, *Fckl.*
C. Bupleuri, *Pass.*
Triposporium Juglandis, *Thum.*
Macrosporium Ravenelii, *Thum.*
M. diversisporium, *Thum.*
Fusicladium Aronici, *Sacc.*
F. dendriticum, *Wallr.*
F. orbiculatum, *Thum.*
F. pyrinum, *Bon.*
Dendryphium curtum, *B. & Br.*
Sporidesmium Macluræ, *Thum.*
Ramularia Hellebori, *Fckl.*
R. didyma, *Ung.*
R. Nemopanthis, *C. & P.*
Sporotrichum pulviniforme, *Thum.*
Isaria farinosa, *Fr.*
Fusisporium Buxi, *Fr.*
F. lacteum, *Desm.*
F. chenopodium, *Thum.*
Cystispora foliicola, *Lib.*
C. Thierryana, *Thum.*
Sphacelia segetum, *Lev.*
Glœosporium filicinum, *Rost.*
G. Sibiricum, *Thum.*
G. ampelophagum, *Sacc.*
G. affine, *Sacc.*
G. Robergei, *Desm.*
G. Pisi, *Qud.*
G. paradoxum, *Sacc.*
G. sphaerelloides, *Sacc.*
Pestalozzia Planimi, *Vize.*
P. Acaciæ, *Thum.*
P. lignicola, *Cke.*
Diplodia carpinea, *Thum.*

Diplodia Incarvilleæ, *Thum.*
 D. Henriquesii, *Thum.*
 D. Molleriana, *Thum.*
 D. fœniculina, *Thum.*
 D. radiciperda, *Thum.*
 Dothichiza Sorbi, *Lib.*
 Micropera Pinastri, *Sacc.*
 Phoma negundicola, *Thum.*
 Aposphæria suffulta, *Thum.*
 Asteromella vulgaris, *Thum.*
 Phyllosticta Bolleana, *Thum.*
 P. nuptialis, *Thum.*
 Ascochyta Lactucæ, *Rostr.*
 Septoria æsculina, *Thum.*
 S. leguminum, *Desm.*
 Myxosporium colliculosum, *Berk.*
 Hendersonia Foueroyæ, *Thum.*
 Henriquesia lusitanica, *P. & T.*
 Heliscus Lugdunensis, *S. & T.*

Helminthosporium turcicum, *Pass.*
 Fusarium globulosulum, *Pass.*
 Fusidium stachydis, *Pass.*
 Epidochium ambiens, *Desm.*
 Botrytis cinerea, *Pers.*
 Exosporium Rubi, *Nees.*
 Penicillium glaucum, *Lk.*
 Passalora bacilligera, *Fr.*
 Stachybotrys lobulata, *Berk.*
 Septosporium curvatum, *Rabh.*
 Coniothecium didymum, *D. & M.*
 C. Mollerianum, *Thum.*
 Hydnum amicum, *Quel-*
 H. septentrionale, *Fr.*
 Irpex paradoxus, *Fr.*
 Microcrassus candidus, *Cohn.*
 Ectostroma Mulgedii, *Thum.*
 E. Macluræ, *Thum.*

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

Sisymbrium canescens, *Nutt.*
 Draba arabisans, *Mx*
 Alyssum calycinum, *L.*
 Hypericum Canadense, *L.*
 Dianthus Armeria, *L.*
 Trifolium hybridum, *L.*
 Lespedeza Stuvei, *Nutt.*
 Prunus pumila, *L.*
 Poterium Canadense, *Gr.*
 Agrimonia parviflora, *Ait.*
 Rubus neglectus, *Pk.*
 Cratægus coc. v. macracantha.
 Potentilla recta, *Willd.*
 P. fruticosa, *L.*
 P. palustris, *Scop.*
 Saxifraga aizoides, *L.*
 Chierophyllum procumbens, *Lam.*
 Lonicera hirsuta, *Eaton.*
 L. oblongifolia, *Muhl.*
 L. Xylosteum, *L.*
 L. Tartarica, *L.*
 Scabiosa australis, *Wulf.*
 Tragopogon pratensis, *L.*
 Polymnia Uvedalia, *L.*
 Coreopsis discoidea, *T. & G.*
 Pyrola sec. v. pumila, *Paine.*
 Moneses uniflora, *Gr.*
 Gerardia purpurea, *L.*
 Lobelia Kalmii, *L.*
 Calamintha acinos, *Claro*
 Onosmodium Carolinianum, *D. C.*

Amarantus blitoides, *Wats.*
 Rumex Brittanica, *L.*
 Quercus Muhlenbergii, *Engelm.*
 Myrica Gale, *L.*
 Naias major, *All.*
 Sagittaria variabilis, *Engelm.*
 Aplectrum hyemale, *Nutt.*
 Spiranthes Romanzoviana, *Chapm.*
 Iris pseudacorus, *L.*
 Juncus alp. v. insignis, *Fr.*
 Elocharis rostellata, *Torr.*
 Scirpus Smithii, *Gr.*
 S. planifolius, *Muhl.*
 S. pauciflorus, *Lightf.*
 Carex Steudelli, *Kunth.*
 C. tetanica, *Schk.*
 C. Grayii, *Carey.*
 C. hirta, *L.*
 C. flaccosperma, *Desv.*
 C. Hitchcockiana, *Desv.*
 Oryzopsis Canadensis, *Torr.*
 Aira cæspitosa, *L.*
 Panicum virgatum, *L.*
 P. hispidum, *Muhl.*
 Eragrostis capillaris, *Nees.*
 Botrychium simplex, *Hitch.*
 B. matricariæfolium, *Braun.*
 Ophioglossum vulgatum, *L.*
 Isoetes Engel. v. gracilis, *Engelm.*
 Azolla Caroliniana, *Willd.*

Clarence Lown, Poughkeepsie, N. Y.

Cheilanthes vestita, *Sw.*
 Asplenium ebenoides, *Scott.*

Asplenium Bradleyi, *D. C. Eaton.*

(3.)

NEW STATIONS, REMARKS AND OBSERVATIONS.

The first thirteen species noticed are new to the Herbarium, the first eleven have not before been reported.

SISYMBRIUM CANESCENS, *Nutt.*

Watkins Glen, Schuyler county. *Professor W. R. Dudley.* In the manual, this plant is reported to have been found at Lucifer Falls, Tompkins county, by J. W. Chickering, but Prof. Dudley writes that he has searched for it in vain in that locality.

MALVA CRISPA, *L.*

Roadside, Petersburg, Rensselaer county. Escaped from gardens and sparingly naturalized.

LYCHNIS DIURNA, *L.*

With the preceding species. Also escaped from gardens and door-yards.

LONICERA XYLOSTEUM, *L.*

South Hill near Ithaca. A single shrub was found growing in a pasture where there was an abundance of *Lonicera Tartarica*, *L. Dudley.* Both species have also been introduced about Albany where the latter also takes the lead in establishing itself.

SCABIOSA AUSTRALIS, *Wulf.*

Established about Union Springs, Cayuga county. *Dudley.*

CALAMINTHA ACINOS, *Clærv.*

Roadsides near Ithaca. Introduced. *Dudley.*

AMARANTUS BLITOIDES, *Wats.*

About Albany. *G. W. Clinton.* Union Springs and Frontenac Island, Cayuga lake. *Dudley.* Introduced from the West. In its foliage it resembles the very common *Amarantus albus*, but it has long prostrate spreading stems and branches and much larger seeds than that species.

IRIS PSEUDACORUS, *L.*

Near Ithaca. Also established in two localities in alluvial soil near Cayuga lake. *Dudley.*

CAREX HIRTA, *L.*

South Hill, Ithaca. Near the Delaware, Lackawana and Western railroad and apparently introduced. *Dudley.*

CAREX FLACCOSPERMA, Dew.

South Hill, Ithaca. *Dudley*. A stout form of *Carex laxiflora* var. *intermedia* sometimes occurs about Albany, which resembles this species in general aspect but it is readily distinguished from it by its much longer scales and different perigynia.

ASPLENIUM EBENOIDES, R. R. Scott.

Near Saugerties, Ulster county. Growing on limestone rocks in company with the walking fern, *Camptosorus rhizophyllus*. *C. Lown*. Mr. Lown had previously found a few specimens of this extremely rare fern about four miles south-east of Poughkeepsie. In this case as in all others it was associated with *Camptosorus rhizophyllus* and *Asplenium ebeneum*, the three growing within a foot of each other. In the Saugerties locality the *Asplenium ebeneum*, though present, was several feet distant.

SEDUM ACRE, L.

Roadside, Petersburg. Escaped from cultivation and sparingly naturalized.

SAGITTARIA PUSILLA, Nutt.

In the New York Flora this species is recorded as occurring on "muddy banks of the Hudson where the water is brackish, as at West Point and Peekskill." The habitat attributed to it in the Manual is, "inundated shores, from eastern New Jersey and Philadelphia southward near the coast." It was recently detected by *Mr. H. N. Johnson* along the river shore at Coeymans, a few miles below Albany. This is a long distance from the usual stations of the plant and far above the reach of brackish water.

THALICTRUM ANEMONOIDES, Mx.

Coeymans. *Johnson*. This species manifests a strong disposition to produce double flowers. A few years ago Mr. Johnson took some of the plants from their native habitat and set them in his garden. The past season they developed double flowers. The exterior sepals are green and bract-like, but the inner, which are numerous, are white and petal-like. No stamens exist in any of the flowers and no pistils in some, thus indicating that the stamens have been transformed into petals.

ALYSSUM CALYGINUM, L.

University grounds, Ithaca. Introduced. *Dudley*.

DRABA ARABISANS, Mx.

Esty Glen and shore of Cayuga lake. *Dudley*.

LEPIDIUM CAMPESTRE, *L.*

Near Ithaca. *Dudley*. Also near Coeymans and rapidly spreading over the State.

LESPEDAZA STUVEI, *Nutt.*

Ithaca. *Dudley*.

RUBUS NEGLECTUS, *Pk.*

West shore of Cayuga lake. *Dudley*.

POTENTILLA RECTA, *Willd.*

Near Moravia. *Dudley*.

AGRIMONIA PARVIFLORA, *Ait.*

Freeville and Danby, Tompkins county. *Dudley*.

CRATÆGUS COCCINEA var. MACRACANTHA.

College campus, Ithaca and Union Springs. The thorns on the specimens are four to four and a half inches long.

PRUNUS PUMILA, *L.*

South Hill, Ithaca. *Dudley*. Some of the fruit is swollen into a pale, soft body, ovate or obovate in form and pointed at the apex. This is the result of an attack by a fungus, *Exoascus Pruni*, Fckl. This fungus also attacks the fruit of the wild plum, *Prunus Americana*, Marshall. I have also seen the fruit of our wild black cherry, *Prunus serotina*, swollen in a similar manner but the cause in this case was from an attack of an insect, the larvæ of which were found in the affected fruit.

SEDUM REFLEXUM, *L.*

Thoroughly established by the roadside near Newark, Wayne county. *E. L. Hankenson*.

EPILOBIUM MOLLE, *Torr.*

Sphagnous marsh in "Cheney's woods," near Glens Falls. *Mrs. L. A. Millington*. The specimens sent are young plants and they show at the base a dense cluster of very small thick subterranean scale-like leaves, which might easily be mistaken for a cluster of small tubers. They are arranged in pairs on opposite sides of the stem, as are the leaves, and they appear whitish, thick and starchy like cotyledonous leaves. Their office is apparently similar to that of cotyledonous leaves, that is, to store up nutriment upon which the plant can draw at some subsequent period of its existence. They do not appear upon the base of old plants or those which have flowered and fruited. They are also found at the base of young plants of *Epilobium palustre*.

LONICERA OBLONGIFOLIA, *Muhl.*

Michigan Hollow, near Danby. *Dudley.*

SAXIFRAGA AIZOIDES, *L.*

Cliffs of Taghanic ravine, near Ithaca, growing with *Primula Mistassinica* and *Pinguicula vulgaris*. *Dudley.*

CHÆROPHYLLUM PROCUMBENS, *Lam.*

In "Negundo woods," near Ithaca. *Dudley.*

MITCHELLIA REPENS, *L.*

Near Moravia. *M. F. Merchant*, M. D. This is the form that produces white berries, concerning which Dr. Merchant writes, "I have observed them quite closely for nearly three years and have watched their flowering two seasons and their fruiting three. The flowers are not dimorphous in this patch, but are all of one form, all having long exserted stamens and short pistils. The fruit is copious and without any tendency to change or approach the red-fruited form. The plants are thrifty and spreading and there are none of the red-fruited plants in the immediate vicinity."

COREOPSIS DISCOIDEA, *T. & G.*

Shores of Dryden lake. *Dudley.*

LOBELIA KALMII, *L.*

Farley's Point, Cayuga lake, growing along the shores and in meadows. A variety with stout stem and large flowers. *Dudley.*

PYROLA SECUNDA var. PUMILA, *Paine.*

Deep moss in a fir-tree swamp near Freeville. *Dudley.*

CALYSTEGIA SEPIUM, *L.*

Tunis, Lewis county. *C. D. Hill.* The specimen differs from the ordinary form of the plant in having the stem pubescent, the leaves narrow and the flower tube very short. The flowers appear as if they were double, but in their dried and pressed condition this appearance may be deceptive.

RUMEX BRITANNICA, *L.*

Shores of Owaseo lake inlet. *Dudley.*

COREMA CONRADII, *Torr.*

Shawangunk mountains, Ulster county. *C. E. Smith.* Long Island is the only locality in the State from which this pretty little evergreen heath-like shrub has previously been reported. Judging from the localities usually ascribed to it in the manuals, this

new station is much farther inland than the plant usually occurs. Its presence here gives an additional botanical interest to the Shawangunk mountains which have already furnished several very rare and interesting species of plants.

QUERCUS MUHLENBERGII, *Engelm.* (*Q. castanea*, Muhl.)

“Big Gully” near Union Springs. *Dudley.* This is the *Q. Prinus* var. *acuminata* of the Manual, *Q. acuminata*, Mx., but it is regarded by Dr. Engelmann as quite distinct from *Q. Prinus*. It is a rare species in our State, its proper home being, according to Dr. Engelmann, in the Mississippi valley. In the New York Flora it is attributed to Chemung county on the authority of Dr. Knieskern. There are two forms of it; one having lanceolate narrow leaves, five to six inches long and one and a half to two inches broad, with acuminate apex and sharp teeth; the other having broadly ovate or obovate leaves, six or seven inches long and four or five inches broad, with broader and more rounded teeth. Our specimens belong to the narrow-leaved form.

MYRICA GALE, *L.*

Locke pond, Cayuga county. *Dudley.*

SAGITTARIA VARIABILIS var. HASTATA, *Engelm.*

Summit marsh, Spencer, Tioga county. *Dudley.* The specimen shows long linear and lanceolate phyllodia; also stolons giving rise to young plants. The variations in this well-named *Sagittaria* are exceedingly numerous. Specimens collected at Coeymans have the leaves of variety *latifolia*, but all the flowers staminate on some plants, thus passing to the diœcious inflorescence of variety *obtusa*. Specimens of variety *gracilis* from the same place have, in some cases, all the leaves without lobes, in others some leaves are lobed, others, lobeless. A specimen of this variety from Long lake has the fruiting heads almost sessile, as in *S. heterophylla*. Specimens of variety *hastata* and variety *angustifolia* also sometimes occur with diœcious inflorescence.

NAIAS MAJOR, *All.*

Foot of Cayuga lake. A slender form with long internodes and long narrow leaves. Black lake, a shallow pond four miles below Cayuga lake. A short, stout, dark or purplish-colored leafy form with dichotomous recurved habit and slightly curved and more distinctly reticulated fruit. *Dudley.*

APLECTRUM HYEMALE, *Nutt.*

West Dryden. *Dudley.*

SCIRPUS SMITHII, *Gr.*

Shore of Cayuga lake, near Union Springs. *Dudley.*

CAREX STEUDELII, *Kunth.*

Six-mile creek, near Ithaca. *Dudley.*

ERAGROSTIS PURSHII, *Schrad.*

Waste places about Albany. *Clinton.* This southern grass is rapidly extending its range northward. Last year it was reported from Yonkers, this year it appears to be well established at Albany. It appears, like many other introduced plants, to follow the lines of the railroads which are a powerful agency in extending the distribution and range of species and in intermingling the floras of different localities. This grass closely resembles its congener, *E. pilosa*, from which it is most readily distinguished by the naked axils of its panicle.

ERAGROSTIS CAPILLARIS, *Nees.*

Ithaca. *Dudley.* A dwarf form three or four inches high.

CHEILANTHES VESTITA, *Sw.*

Two miles below Poughkeepsie on the east side of the river. It occurs also on the west side of the river, but in blasting the rocks for the West Shore railroad, its station may have been destroyed.

C. Lown.

ASPLENIUM BRADLEYI, *D. C. Eaton.*

Shawangunk mountains, Ulster county. *Lown*

BOTRYCHIUM SIMPLEX, *Hitch.*

Danby. *Dudley.* The specimens are well developed and belong to the varieties *incisum* and *subcompositum*.

BOTRYCHIUM MATRICARIÆFOLIUM, *A. Braun.*

McLean, Tompkins county. *Dudley.* Both these species and the more rare *B. lanceolatum*, *Angst.*, occur in Petersburg, Rensselaer county, growing together.

ISOETES ENGLEMANNI var. GRACILIS, *Engelm.*

Locke pond. *Dudley.*

AZOLLA CAROLINIANA, *Willd.*

Foot of Cayuga lake. *Dudley.* Sodus bay. *Hankenson.* The Cayuga lake specimens are much more dense and compact in habit than the Sodus bay specimens.

(4.)

NEW YORK SPECIES OF PSALLIOTA.

“Stem annulate, distinct from the hymenophorum; lamellæ free.”
Hymen, Europ., p. 278.

The name of the subgenus Psalliota is derived from the Greek word *Ψαλλιον* (*Ψελλιον*), a bracelet or armlet. Its application to these Agarics was probably suggested by the annulus or ring which encircles the stem. The species of this subgenus correspond in structure to those of the subgenus Lepiota in the Leucospori or white-spore series and to those of the subgenus Annularia in the Hyporhodii or pink-spore series. The tendency of the flesh in some species of Psalliota to change color when cut or bruised corresponds also to a similar tendency in some of the Lepiotæ. No corresponding subgenus has yet been established in the Dermini or ochraceous-spore series, nor in the Coprinarii or black-spore series. The Agarics belonging to the subgenus Psalliota are generally of medium or large size and rather attractive in appearance until the lamellæ have assumed the blackish color of age. They are most abundant in late summer or autumn, but in warm wet weather some of them occur early in the season also. The pileus is more or less fleshy but usually rather brittle or easily broken. It may be either smooth, fibrillose or scaly. Sometimes even individuals of the same species exhibit pilei with all these characters. The fibrillose pileus of a young individual may become either smooth or scaly with age. No species having a viscid pileus appears yet to have occurred either in our State or in Europe, though an Ohio species *A. fabaceus*, Berk., is described as having the pileus viscid when moist. The lamellæ are generally close or crowded and rounded at their inner extremity and not attached to the stem. They change color with advancing age, becoming darker as they grow older. This change of color is in great measure due to the development of the spores which cause the lamellæ to assume their own brown or blackish-brown hue. The lamellæ of young plants are generally whitish or pallid, changing in some species, directly from this color to the brown color of maturity, and in others, assuming an intervening pinkish rosy or reddish hue before taking on the final dark or sombre color. The exceptional *A. fabaceus* is described as having the lamellæ brown even in the young plant, but even in this case they are said to become darker with age. In the common mushroom, *A. campestris*, they may become moist or subdeliquescent when old, thus indicating a relationship with the inky species of the genus Coprinus. The stem is fleshy and furnished with an annulus or ring, which in some species varies in its degree of development, and in others is more or less thin and somewhat evanes-

cent. The spores in our species are quite small, elliptical or subelliptical in outline, and do not vary greatly in dimensions in the different species.

Fries groups the European species in two sections which he names "Edules," and "Minores." The former group includes the larger and more fleshy species. Several of them are edible and have long been used as an article of food. No representatives of the "Minores" have yet been found in our State. Of the "Edules" we have several species which may again be divided into two sub-groups depending on their usual habitats. Those which grow in open places, manured grounds or cultivated fields generally have a thicker, firmer pileus and a comparatively shorter stouter stem than those that grow in copses groves and woods. It is among these especially that the most notable succulent "mushrooms" are found.

SYNOPTICAL TABLE OF THE SPECIES.

Growing in fields, open places or cultivated grounds	2
2. Lamellæ at first whitish or pallid.....	3
2. Lamellæ at first pinkish or flesh colored.....	A. campestris.
3. Lamellæ narrow, stem solid	A. Rodmani.
3. Lamellæ broader, stem stuffed or hollow.....	A. arvensis.
1. Growing in woods, copses or groves.....	4
4. Stem bulbous	5
4. Stem not bulbous	6
5. Pileus smooth.....	A. silvicola.
5. Pileus squamulose.....	A. placomyces.
6. Pileus two inches or more in diameter.....	A. silvaticus.
6. Pileus less than two inches in diameter	A. diminutivus.

AGARICUS CAMPESTRIS, L.

Common Mushroom. Edible Mushroom. Field Agaric.

Pileus at first hemispherical or convex, then expanded with de-curved margin or nearly plane, smooth silky floccose or hairy squamulose, the margin extending beyond the lamellæ, the flesh rather thick, firm, white; lamellæ free, close, ventricose, *at first delicate pink or flesh color*, then blackish-brown, *subdeliquescent*; stem equal or slightly thickened toward the base, *stuffed*, white or whitish, nearly or quite smooth; annulus at or near the middle, more or less lacerated, sometimes evanescent; spores elliptical, .00025 to .0003 in. long, .00016 to .0002 in. broad.

Plant 2 to 4 in. high, pileus 1.5 to 4 in. or more broad, stem 4 to 8 lines thick.

Fields, pastures, manured grounds, mushroom beds, etc.

This is the well-known "edible mushroom," a species which is more extensively cultivated and more generally used as food than any other. With proper attention to its characteristic features there is no need of

its being mistaken for or confused with any deleterious or poisonous species.

The pileus is nearly always regular in shape, rather thick and moderately firm, hemispherical or convex when young but usually becoming more flattened or nearly plane with age.

In its young state it is adorned with fine silky or hairy fibrils which sometimes, with advancing age, form minute persistent tufts or scales and sometimes disappear altogether, leaving the surface quite smooth. The decurved margin usually extends a little beyond the extremity of the lamellæ. The cuticle or skin is more or less readily separable from the flesh, which is white, but sometimes manifests a tendency to change color slightly when cut or bruised, and to exhibit pinkish or reddish stains. The color of the pileus in the wild form is usually white or whitish with us, but in the cultivated forms it is often ochrey-brown or pale tawny, and varieties sometimes occur in which it is brown.

The lamellæ have a very beautiful and delicate pinkish hue which is apparent as soon as they are exposed to the light by the separation of the concealing veil from the margin of the pileus. This color gradually becomes darker with advancing age until it finally changes to a dark brown or almost black hue. This character is one of the best by which to distinguish the "edible mushroom" from all other Agarics, except its nearest allies, *A. Rodmani* and *A. arvensis*. And even from these, when young, it may readily be distinguished by the primary color of its lamellæ. The subgenera *Annularia* and *Pluteus* in the pink-spore series contain species the lamellæ of which exhibit similar pinkish colors, but these never change to brown or blackish-brown as the plant matures or becomes old. In the mushroom the lamellæ are rounded at their inner extremity and not attached to the stem, so that generally in mature specimens there is a small free space between it and them.

The stem is commonly short in proportion to the breadth of the pileus, its length being, in most cases, less than the horizontal diameter of the pileus. Ordinarily it is cylindrical in shape, though now and then instances occur in which it may either be slightly thickened or slightly narrowed toward the base. The central portion of the stem is a little softer in texture than the external portion, hence it is said to be stuffed. The annulus encircles it at or near the middle. It is sometimes quite thin and flabby and is then easily torn and destroyed.

The mushroom, like many other plants which have been the subject of long and extensive cultivation, has given rise to several forms which exhibit quite marked distinctive features. These forms differ

so much from the original typical form that they have received distinguishing names and are called varieties. The following are the principal ones.

Var. *albus*. White variety. Pileus smooth or slightly silky-fibrillose, white or whitish, stem short.

This is our most common variety. It occurs in unfrequented streets, waste places, cultivated grounds and especially in rich pastures where the grass is kept short. It usually appears in August and September, but sometimes in warm, wet weather it is found early in the season. A very large form with the pileus six or seven inches broad sometimes occurs.

Var. *praticola*. Meadow variety. (*A. praticola*, Vitt.) (*A. pratensis*, *Handbook*.) Pileus adorned with reddish scales, flesh somewhat tinged with pink. This variety must be uncommon with us. I have seen no examples of it, nor of the three following varieties:

Var. *umbrinus*. Brown variety. Pileus smooth, brown; stem stout and minutely scaly.

Var. *rufescens*. Reddish variety. Pileus reddish, minutely scaly; lamellæ at first white; stem elongated; flesh turning bright red when cut or bruised. This departs so decidedly from the ordinary characters of the type, especially in the white color of the young lamellæ, that it seems to merit separation as a distinct species.

Var. *villaticus*. Villa variety. (*A. villaticus*, *Bronk*.) Plant large, pileus scaly; stem scaly, coated or subvolvate by the inferior veil. In the *Handbook of British Fungi* this is placed as a variety of *A. arvensis*, but most authors regard it as a variety of *A. campestris*.

Var. *hortensis*. Garden variety. Pileus brownish or ochrey-brown, bearing hairy fibrils or minute scales. This is often cultivated and is occasionally exposed for sale in the markets of Albany.

Var. *Buchanani*. Buchanan's variety. Pileus white, smooth, depressed in the center, the margin naked; stem stout; annulus thin, lacerated. A rare variety sometimes occurring in mushroom beds.

Var. *elongatus*. Long-stem variety. Pileus small, smooth, convex, the margin adorned with the adherent remains of the lacerated veil; stem long, slender, slightly thickened toward the base; annulus slight or evanescent. This is also a variety of mushroom beds.

Var. *vaporarius*. Green-house variety. (*A. vaporarius*, Vitt.) Pileus brownish, coated with long hairs or fibrils; stem hairy-fibrillose, becoming transversely scaly. Conservatories, cellars, etc. Not differing greatly from Var. *hortensis*.

AGARICUS RODMANI, *Pk.*

Rodman's Mushroom.

Pileus rather thick, firm, at first convex, then nearly or quite plane, with decurved margin, smooth or rarely slightly rimose-squamose on the disk, white or whitish, becoming yellowish or subochraceous on the disk, the flesh white, unchangeable; lamellæ close, narrow, rounded behind, free, reaching nearly or quite to the stem *at first whitish, then pink or reddish-pink*, finally blackish-brown; stem short, subequal, solid, whitish, smooth below the annulus, often furfuraceous or slightly mealy-squamulose above; annulus variable, thick or thin, entire or lacerated, at or below the middle of the stem; spores broadly elliptical or subglobose, generally uninucleate, .0002 to .00025 in. long, .00016 to .0002 in. broad.

Plant 2 to 3 in. high; pileus 2 to 4 in. broad; stem 6 to 10 lines thick.

Grassy ground and paved gutters. Astoria, Long Island. *Rev. W. Rodman.* Washington Park, Albany. May to July.

This species is intermediate between *A. campestris* and *A. arvensis*, from both of which it may be distinguished by its narrow lamellæ, solid stem and smaller, almost globose, spores. In size, shape of the pileus and general appearance it most resembles *A. campestris*, but in the whitish primary color of the lamellæ and in the yellowish tints which the pileus often assumes, it approaches nearer to *A. arvensis*. The pileus, which is usually smooth, occasionally manifests a tendency to crack into small areas or scales on the disk. The flesh is quite thick and firm, its thickness generally much exceeding the breadth of the lamellæ. This character, together with the solidity of the stem, indicates a disposition in the species to produce flesh rather than fruit and may make it more desirable for cultivation than the common mushroom. The length of the stem, in all the specimens I have seen, is less than the breadth of the pileus. Its shape is nearly cylindrical. The annulus is generally rather thick and sometimes projects both above and below in such a manner that it appears like a grooved band or collar surrounding the stem. In some instances it is so near the base that it suggests the idea of a volva. Its lower or exterior surface is occasionally rimose, thereby indicating another point of resemblance between this species and *A. arvensis*. In this respect, as well as in its solid stem and narrow lamellæ, it also approaches *A. augustus*, a large and showy European species which has not yet occurred with us, but which may be known by its lamellæ changing at once from the pallid color of immaturity to the dark-brown hue of age, without exhibiting any intervening pinkish tints.

The species is respectfully dedicated to its discoverer. Its edible qualities are deemed equal to those of the common edible mushroom. It has been tested by Mr. G. Rodman. It is apparently a rare species, but may be more common than is supposed, for it may possibly have been heretofore confused with the common mushroom, which it much resembles in color, the pileus being at first white or whitish, although it soon assumes yellowish tints or becomes a pale ochrey-red or russet color on the disk.

AGARICUS ARVENSIS. *Schæff.*

Horse Mushroom. Plowed-land Mushroom.

Pileus at first convex or conical-campanulate, then expanded, at first more or less floccose or mealy, then smooth, white or yellowish, flesh white; lamellæ close, free, generally broader anteriorly, *at first whitish, then pinkish*, finally blackish-brown; stem equal or slightly thickened toward the base, smooth, *hollow or stuffed* with a floccose pith; annulus rather large, thick, the lower or exterior surface often cracked in a radiate manner; spores elliptical, .0003 to .0004 in. long, .0002 to .00025 in. broad.

Plant 2 to 5 in. high; pileus 3 to 5 in. or more broad; stem 4 to 10 lines thick.

Cultivated fields and pastures. Summer and autumn.

This species is so closely related to the common mushroom that it is regarded by some authors as a mere variety of it. Even the renowned Persoon is said to have written concerning it, "It appears to be only a variety of *A. campestris*." Cordier says of it, "Distinguished from *A. campestris* by its pure white color, more pale lamellæ, its white flesh not changing color when cut or bruised, its lamellæ remaining pale a long time and not deliquescing." Fries also says that it is commonly not distinguished from *A. campestris*, but that it is diverse in some respects; its white flesh being unchangeable, its lamellæ never deliquescing, remaining a long time pale and not becoming dark red in middle age. Berkeley says of it, "A coarse, but wholesome species, often turning yellow when bruised."

In size the horse mushroom often exceeds the common mushroom, its pileus, according to the Handbook, sometimes attaining a breadth of eighteen inches and its stem a thickness of one to two inches. The white color of the pileus often becomes tinged with yellow, either with age or in drying. The pale primary color of the lamellæ, the thick, well-developed annulus and the hollow stem are available features for distinguishing it from its close allies. It is less common with us than *A. campestris*, to which in edible qualities it is very similar. *A. Georgii*, *Sow.*, *A. pratensis*, *Scop.*, *A. edulis*, *Krombh.*, and *A. exquisitus*, *Vitt.*, are synonyms.

AGARICUS SILVICOLA, Vitt.

Silvan Mushroom.

Pileus convex or subcampanulate, sometimes expanded or nearly plane, *smooth, shining*, white or yellowish; lamellæ close, thin, free, rounded behind, generally narrowed toward each end, *at first whitish, then pinkish*, finally blackish-brown; *stem long*, cylindrical, stuffed or hollow, white, *bulbous*; annulus either thick or thin, entire or lacerated; spores elliptical, .00025 to .00032 in. long, .00016 to .0002 in. broad.

Plant 4 to 6 in. high; pileus 3 to 6 in. broad; stem 4 to 8 lines thick.

Woods, copses and groves or along their borders. Summer and autumn.

Many authors place this as a variety of *A. campestris*, but as it occurs with us its characters are very constant and well marked and enable it to be distinguished from that species with great facility. It generally attains a larger size, has a smoother, more shining pileus, which is usually tinged with yellow, it has the primary color of the lamellæ whitish, and its stem is longer and proportionately more slender and distinctly bulbous. It has, as Fries suggests, more points of resemblance to *A. arvensis* than to *A. campestris*, but its bulbous stem at once separates it from that species. The bulb is peculiar, it being small but very abrupt and depressed or flattened like a common turnip. The pileus is thin in proportion to its breadth and is quite fragile, so that the plants must be handled with care to prevent its being broken. In mature plants the margin of the pileus sometimes has a lurid or dull purplish tint, which is probably derived from the color of the spores.

The annulus is often tinged with yellow exteriorly and is sometimes radiately rimose on the lower surface like that of *A. arvensis*. In some instances fragments of it remain attached to the margin of the pileus. The plants sometimes grow in close groups or tuft-like clusters. *A. edulis*, Berk., is given as a synonym.

It is reported to be esculent, but I have not tested it. Persons unacquainted with it should guard against confounding immature specimens of it with the white forms of the phalloid agaric, *A. phalloides*, a poisonous species which grows in similar places and bears some resemblance to it. The poisonous *A. phalloides* has a much larger bulb to the stem and the lamellæ remain permanently white or whitish, showing at no age either the pinkish or blackish-brown hues which are so conspicuous in *A. silvicola*.

AGARICUS PLACOMYCES, *Pk.*

Flat-cap Agaric.

Pileus fleshy but rather thin, at first convex or campanulate, then expanded and quite plane, *squamulose*, whitish, *the disc and minute scales brown*; lamellæ close, free, *white, then pinkish*, finally blackish-brown; stem smooth, stuffed with a small pith slightly tapering upward, *bulbous*, whitish, the bulb stained with yellow and usually giving rise to one or two mycelioid white root-like processes; annulus large, flabby; spores elliptical, .0002 to .00025 in. long, .00016 to .00018 in. broad.

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

Under hemlock trees. Oneida and Knowersville. July.

This rare but beautiful Agaric is easily distinguished from its allies by the bulbous stem and the perfectly flat white surface of the expanded pileus finely adorned by numerous minute brown scales. These scales are confluent on the disk where they form a brown spot, thus imitating in appearance many species of the subgenus *Lepiota*. Sometimes faint radiating striæ extend from the disk to the margin of the pileus. In damp weather the large thin annulus is sometimes studded with drops of moisture of a dark color. Nothing is known concerning the edible qualities of the species. The specific name is derived from two Greek words, *πλακους*, a flat cake, and *μυκης*, a fungus, and has reference to the very flat horizontally expanded pileus.

AGARICUS SILVATICUS, *Schæff.*

Wood Agaric.

Pileus thin, at first convex or campanulate, then expanded, *gibbous or subumbonate*, fibrillose or variegated with a few thin tawny brownish or reddish-brown *spot-like appressed scales*, whitish, brownish or smoky gray, the disk sometimes tinged with red or reddish-brown, the flesh white or faintly reddish; lamellæ thin, close, free, narrowed toward each end, reddish, then blackish-brown; stem rather long, *equal or slightly tapering upward*, hollow, whitish; spores elliptical, .0002 to .00025 in. long, .00016 to .0002 in. broad.

Plant 3 to 5 in. high, pileus 2 to 4 in. broad, stem 4 to 6 lines thick.

Woods. Summer and autumn. Not common.

The absence of a bulbous base to the stem and the fibrillose or feebly scaly pileus which is more or less gibbous or umbonate, serve to distinguish this from the two preceding species. Concerning its edibility,

Cordier says that it is at least suspicious and that Vivian pronounces it "pernicious." Its odor is strong and its flesh when cut assumes a slight yellowish tint.

AGARICUS DIMINUTIVUS, *Pk.*

Diminutive Agaric. *

Pileus thin, fragile, at first convex, then plane or centrally depressed, sometimes slightly umbonate, whitish or alutaceous, faintly spotted with small thin silky appressed brownish scales, the disk brownish or reddish-brown; lamellæ close, thin, free, ventricose, brownish-pink becoming brown, blackish-brown or black; stem equal or slightly tapering upward, stuffed or hollow, smooth, pallid; annulus thin, persistent, white; spores elliptical, .0002 in. long, .00015 to .00016 in. broad.

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

Woods. Croghan and Sandlake. Autumn.

This is a small but symmetrical and beautiful Agaric. It is perhaps too closely related to the preceding species of which it may possibly prove to be a mere variety or dwarf form. Its pileus is quite thin and fragile. Usually the darker or reddish hue of the disk gradually loses itself in the paler color of the margin, but sometimes the whole surface is tinged with red.

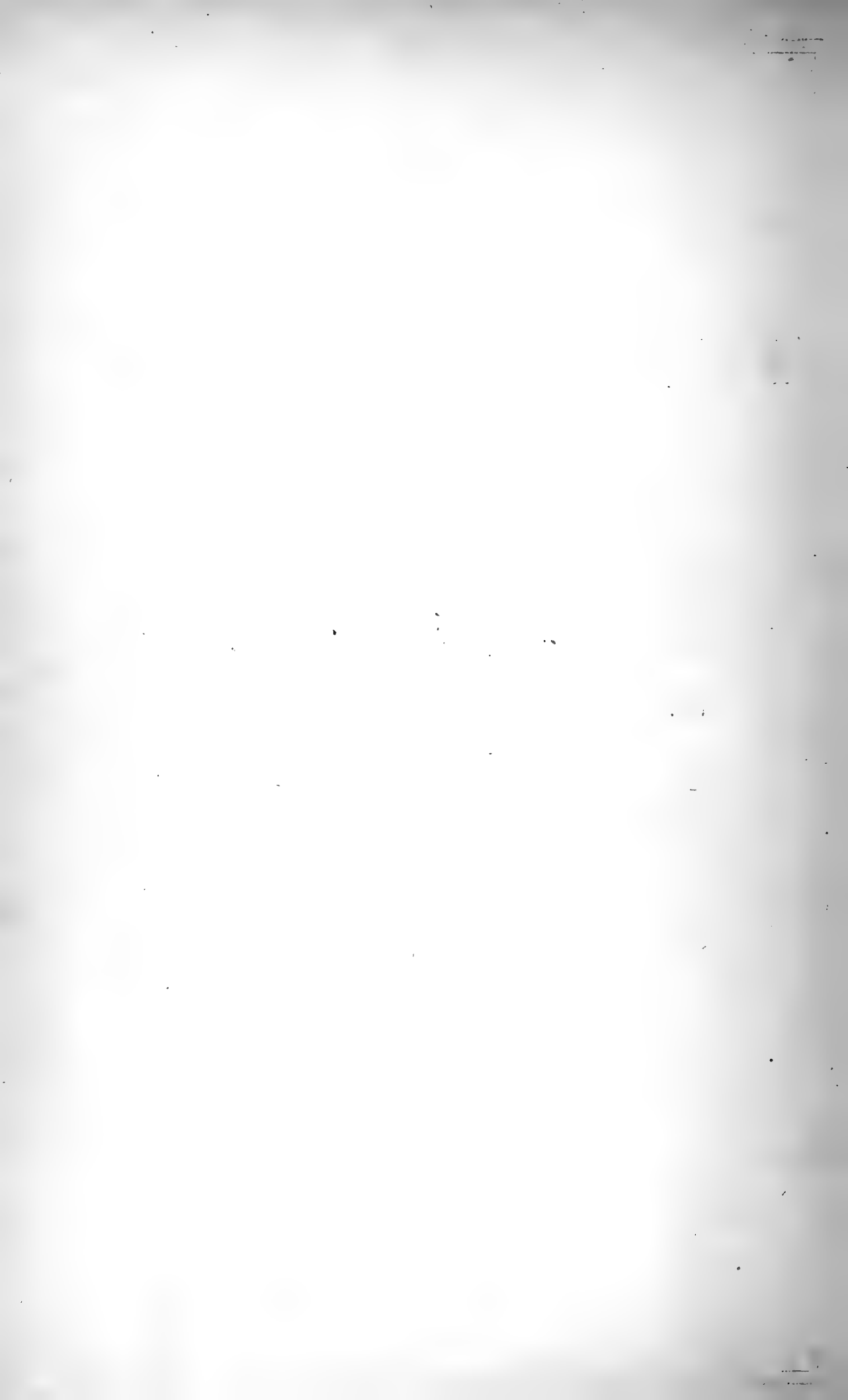
In closing this brief report my most cordial thanks are tendered to those botanists who have aided me by contributing specimens and information, and their continued co-operation in the work now well advanced is most earnestly solicited.

Respectfully submitted,

CHAS. H. PECK.

ALBANY, *January 8, 1883.*

[Sen. Doc. No. 53.] 7



BULLETIN

OF THE

NEW YORK STATE MUSEUM

OF

NATURAL HISTORY
+
37 REGENT'S REPORT

VOL. I.—No. 2

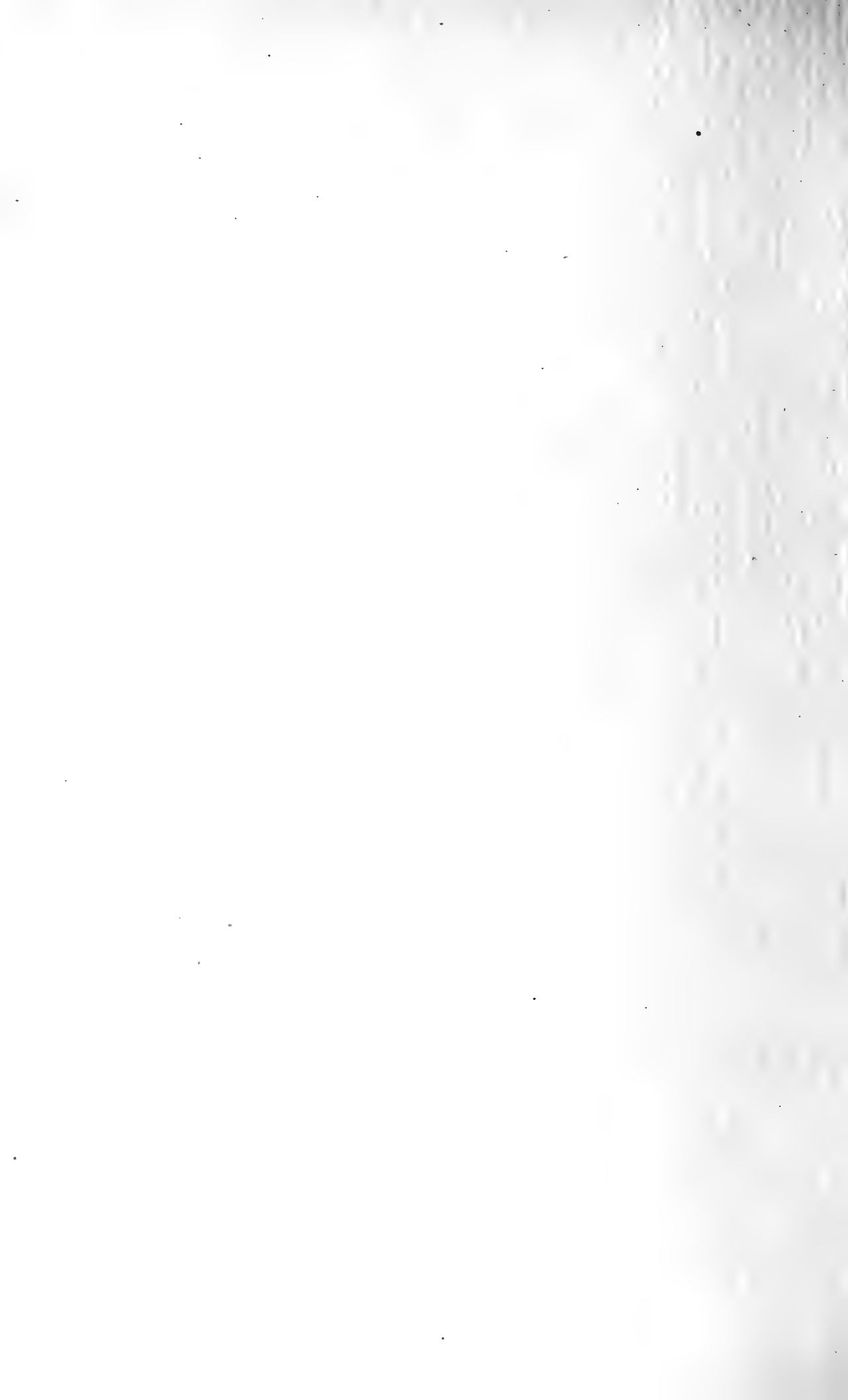
May 1887

CONTRIBUTIONS TO THE BOTANY OF THE STATE OF NEW
YORK BY CHARLES H. PECK STATE BOTANIST

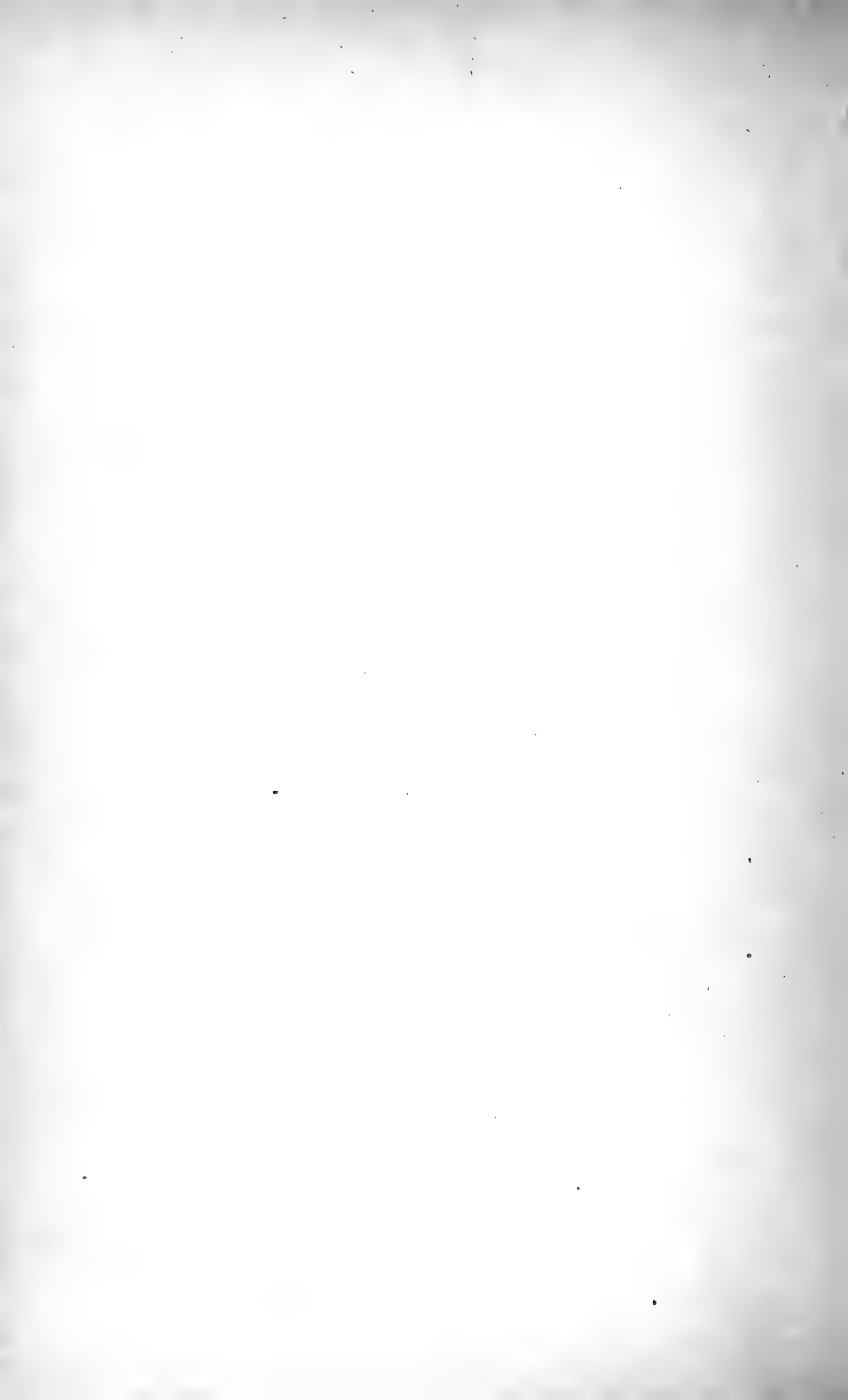
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ALBANY
CHARLES VAN BENTHUYSEN & SONS

1887



REPORT OF THE BOTANIST,
1883.



37th REPORT. 1882

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

GENTLEMEN — The work of the year now past has been devoted to the poisoning, mounting and labeling of specimens of plants, to their collection, and in some instances to figuring them, in order to preserve as completely as possible the appearance and characters of the fresh growing plant, or to present to the eye at a glance the minute microscopic details and spore characters. Aid has also been rendered to several correspondents by identifying for them specimens of plants sent for that purpose, a work whereby knowledge is disseminated and the advantages of the herbarium are distributed and in a measure rendered available to those even who are not able personally to consult it. Attention has also been given to the examination of diseased specimens of cultivated plants, which have been sent for that purpose, in order that the cause of the affection might, if possible, be ascertained. Some time has also been spent in revising a part of the collection of fungi in the herbarium, the necessity for which is hereinafter set forth.

Specimens of one hundred and forty-nine species of plants have been mounted and added to the herbarium of the State Museum of Natural History, forty-four of which were not previously represented therein. The specimens of the remaining one hundred and five species serve to improve or render more complete the representation of the species or exhibit some form or variety of the plant not previously shown. The mounted specimens include both collected and contributed ones. A list of their specific names accompanies this report and is marked (A). A list of the names of contributors and of the species represented by their respective contributors is marked (B).

The operation of the Executive veto of the appropriation for the expenses of the Botanist in the year 1882 extended over a considerable part of the past year, consequently but little collecting could be done. The appropriation made for this purpose at the last session of the Legislature was not available until October first, the beginning of the present fiscal year, and then the season for field work had nearly closed. But a part of the summer was so favorable to the production of Agarici and other fleshy fungi that I was unwilling to let so good an opportunity pass unimproved. Accordingly I collected what I could in the counties of Albany and Rensselaer without incurring a greater expense than I was able and willing to bear out of my own pocket. The result was the collection of specimens of more than a hundred species of fungi, of which thirty-two are new to our State and several are new to science. The descriptions of the new species

are contained in a part of the report marked (C). I have also added to this part of the report descriptions of new species contained in the Thirty-second Report, but which were never published in such a way as to be generally available to the public or to those most interested in having them.

The recent publication of the second volume of Prof. P. A. Saccardo's great work, *Sylloge Fungorum*, completes that part of the work which pertains to the Pyrenomycetous fungi and gives to mycologists a new system of arrangement and classification of the vast group of Sphæriaceous fungi. While this system recognizes as primary groups or families the Perisporiaceæ, Sphæriaceæ, Hypocreaceæ, Dothideaceæ, Microthyriaceæ, Lophiostomaceæ and Hysteriaceæ, the characteristics of which are based chiefly on external features, after the manner of the old system, it divides these families into sections whose characters are derived from the spores. By a most happy, simple and uniform system of nomenclature the very names of these sections are made to indicate their distinguishing characters and thereby to greatly simplify the system and facilitate the study, identification and classification of the numerous species. Many new genera have been introduced, some of which appear to be founded on rather slight characters, yet as a whole the system so ingeniously combines and employs both the external salient features and the internal spore characters of these fungi that it readily commends itself to favorable consideration. I am not aware that it has more than a single decided opponent, and in my opinion it will be adopted and followed in its general features by nearly if not quite all mycologists. I have, therefore, devoted some time to a revision of our collection of these fungi, that the nomenclature and arrangement of the specimens may keep pace with the advancement of the science and be in harmony with the new order of things thus introduced. This revisionary work is not yet fully completed. The great number of new genera requires the re-examination and re-labeling of many of the specimens. I have prepared a list of the names of our Sphæriaceous fungi, brought down to and including those of the thirty-first report, in which are placed in the left hand column the names as they stand under the new arrangement, in the right hand column the names as given under the former system of arrangement whenever they differ from the others. This list is marked (F).

A record of species new to our flora, but already described, new stations of rare plants, remarks upon new or noticeable varieties, etc., are given in a part of the report marked (D)

In pursuance of a plan devised for the purpose of giving to the public more complete and satisfactory descriptions of certain groups of our fungi than can be found in any works yet published, I have prepared monographs of the three genera, *Paxillus*, *Cantharellus* and *Craterellus*, so far as they are represented in our State. This part of the report is marked (E).

Respectfully submitted,

CHAS. H. PECK,
Botanist.

ALBANY, December 31, 1883.

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Paxillus, Cantharellus and Craterellus.
 - F. Names of New York species of Pyrenomycetous fungi according
to the Saccardoan system of arrangement.
- [Sen. Doc. No. 60.] 9

(A.)

PLANTS MOUNTED.

Not new to the Herbarium.

- Ranunculus abortivus, *L.*
 Podophyllum peltatum, *L.*
 Sarracenia purpurea, *L.*
 Sisymbrium officinale, *Scop.*
 Alyssum calycinum, *L.*
 Draba arabisans, *Mx.*
 Ampelopsis quinquefolia, *Mx.*
 Tilia Americana, *L.*
 Rhus typhina, *L.*
 Geranium Robertianum, *L.*
 Acer rubrum, *L.*
 Lupinus perennis, *L.*
 Lespedeza Stuvei, *Nutt.*
 Prunus Virginiana, *L.*
 P. serotina, *Ehrh.*
 Cratægus pyrifolia, *Ait.*
 C. coccinea, *L.*
 Poterium Canadense, *Gr.*
 Potentilla recta, *Willd.*
 Rubus villosus, *Ait.*
 R. Canadensis, *L.*
 R. neglectus, *Pk.*
 Pyrus Americana, *D. C.*
 Saxifraga aizoides, *L.*
 Epilobium molle, *Torr.*
 E. palust. v. lineare, *Gr.*
 Apium graveolens, *L.*
 Lonicera oblongifolia, *Muhl.*
 Viburnum Lentago, *L.*
 V. Opulus, *L.*
 V. dentatum, *L.*
 Cornus alternifolia, *L.*
 Galium lanceolatum, *Torr.*
 Erigeron strigosus, *Muhl.*
 Coreopsis discoidea, *T. & G.*
 Lobelia Kalmii, *L.*
 Vaccinium corymbosum, *L.*
 Rhodora Canadensis, *L.*
 Cynoglossum officinale, *L.*
 Convolvulus arvensis, *L.*
 Calystegia sepium, *L.*
 Amarantus blitoides, *Wats.*
 Rumex Britanica, *L.*
 Corema Conradii, *Torr.*
 Morus rubra, *L.*
 Urtica gracilis, *Ait.*
 Carya porcina, *Nutt.*
 Quercus macrocarpa, *Mx.*
 Q. Muhlenbergii, *Engelm.*
 Abies nigra, *Poir.*
 Potamogeton pauciflorus, *Pursh.*
 Alisma Planta. v. Americanum, *Gr.*
 Naias major, *All.*
- Sagittaria variabilis, *Engelm.*
 Spiranthes Romanzoviana, *Cham.*
 Aplectrum hyemale, *Nutt.*
 Habenaria hyperborea, *R. Br.*
 Trillium erect. v. album, *Pursh.*
 Juncus Can. v. coarctatus, *Engelm.*
 Scirpus Smithii, *Gr.*
 Carex Steudellii, *Kunth.*
 C. Houghtonii, *Torr.*
 C. tetanica, *Schk.*
 C. virescens, *Muhl.*
 C. mirabilis, *Dew.*
 C. stram. v. festucacea, *Boott.*
 C. Hitchcockiana, *Dew.*
 Panicum dichotomum, *L.*
 P. Crus-galli v. hispidum, *Muhl.*
 Eragrostis capillaris, *Nees.*
 E. poæoides, *Beauv.*
 E. Purshii, *Schrad.*
 Danthonia spicata, *Beauv.*
 Cinna pendula, *Trin.*
 Festuca nutans, *Willd.*
 Asplenium Bradleyi, *Eaton.*
 Aspidium Goldianum, *Hook.*
 Botrychium lanceolatum, *Angst.*
 B. matricariæfolium, *A. Br.*
 Isoetes Engel. v. gracilis, *Engelm.*
 Azolla Caroliniana, *Willd.*
 Parmelia oliv. v. aspidota, *Ach.*
 Agaricus vaginatus, *Bull.*
 A. vulgaris, *Pers.*
 A. granulosus, *Batsch.*
 A. melleus, *Vahl.*
 A. arvensis, *Schæff.*
 A. petaloides, *Bull.*
 A. tener, *Schæff.*
 A. fœniseccii, *Pers.*
 A. præcox, *Pers.*
 A. flavescens, *Pk.*
 Hygrophorus borealis, *Pk.*
 H. luridus, *B. & C.*
 Lactarius distans, *Pk.*
 L. pyrogalus, *Bull.*
 Cantharellus cibarius, *Fr.*
 Russula nitida, *Pers.*
 R. flavida, *Frost.*
 R. variata, *Banning.*
 Polyporus brumalis, *Pers.*
 Hydnum zonatum, *Batsch.*
 H. graveolens, *Delast.*
 Phallus impudicus, *L.*
 Gnomoniella fimbriata, *Sacc.*

New to the Herbarium.

- | | |
|--------------------------------------|--|
| Sisymbrium canescens, <i>Nutt.</i> | Agaricus bullaceus, <i>Bull.</i> |
| Lonicera Xylosteum, <i>L.</i> | Paxillus simulans, <i>Pk.</i> |
| Scabiosa australis, <i>Wulf.</i> | Lactarius albidus, <i>Pk.</i> |
| Hieracium Pilosella, <i>L.</i> | L. cilioides, <i>Fr.</i> |
| Calamintha acinos, <i>Clærz.</i> | L. lividus, <i>Pk.</i> |
| Atriplex hortensis, <i>L.</i> | L. deceptivus, <i>Pk.</i> |
| Carex hirta, <i>L.</i> | Russula albida, <i>Pk.</i> |
| C. flaccosperma, <i>Dew.</i> | R. uncialis, <i>Pk.</i> |
| Phalaris Canariensis, <i>L.</i> | Cortinarius simulans, <i>Pk.</i> |
| Asplenium ebenoides, <i>Scott.</i> | C. cinnabarinus, <i>Fr.</i> |
| Agaricus pantherinus, <i>D. C.</i> | C. gracilis, <i>Pk.</i> |
| A. infantilis, <i>Pk.</i> | C. praepallens, <i>Pk.</i> |
| A. phyllophilus, <i>Fr.</i> | Hygrophorus virgineus, <i>Fr.</i> |
| A. pithyophilus, <i>Secr.</i> | H. minutulus, <i>Pk.</i> |
| A. basidiosus, <i>Pk.</i> | Hydnum albidum, <i>Pk.</i> |
| A. alcalinolens, <i>Pk.</i> | H. rufogriseum, <i>Pk.</i> |
| A. aquosus, <i>Bull.</i> | H. hirsutum, <i>Pk.</i> |
| A. clavicularis, <i>Fr.</i> | H. scrobiculatum, <i>Fr.</i> |
| A. albinellus, <i>Pk.</i> | Melanogaster Americanus, <i>Pk.</i> |
| A. Rodmani, <i>Pk.</i> | Valsa sepincola, <i>Fckl.</i> |
| A. fuscofolius, <i>Pk.</i> | Cryptospora Betulae, <i>Tul.</i> |
| A. castanellus, <i>Pk.</i> | |

(B.)

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Mrs. I. B. SAMPSON, Albany, N. Y.

Stellaria pubera, *Mx.* | Rhodora Canadensis, *L.*

Mrs. C. M. FERRY, Oneida, N. Y.

Agaricus trullisatus, *Ellis.* | Geaster hygrometricus, *Pers.*
Lenzites betulina, *Fr.*

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Geranium Robertianum, *L.*

Prof. W. G. FARLOW, Cambridge, Mass.

Puccinia obscura, <i>Schræet.</i>	Cercospora Pyri, <i>Farl.</i>
P. Lantanæ, <i>Farl.</i>	C. leptosperma, <i>Pk.</i>
Isariopsis pusilla, <i>Fres.</i>	Entyloma Lobeliæ, <i>Farl.</i>
Peronospora Linariæ, <i>Fckl.</i>	E. Compositarum, <i>Farl.</i>
Microstroma leucosporum, <i>Niessl.</i>	E. Menispermi, <i>F. & T.</i>

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Æcidium Hibisciatum, <i>Schw.</i>	Puccinia Tanaceti, <i>D. C.</i>
Æ. Orobi, <i>Pers.</i>	P. Gentianæ, <i>Strauss.</i>
Æ. Amorphæ, <i>Cke.</i>	P. Amorphæ, <i>Curt.</i>
Uromyces pyriformis, <i>Cke.</i>	P. Hyssopi, <i>Schw.</i>
U. Sparganii, <i>C. & P.</i>	P. lateripes, <i>B. & K.</i>
U. Junci, <i>Schw.</i>	P. Kuhniæ, <i>Schw.</i>
Microsphæra elevata, <i>Burrill.</i>	P. Silphii, <i>Schw.</i>
M. erineophila, <i>Peck.</i>	P. Aletridis, <i>B. & C.</i>

Prof. WM. TRELEASE, Madison, Wis.

Oidium irregulare, *Pk.*

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* The titles of the first four articles were enumerated in the Thirty-seventh Report on the State Museum, but the articles were not printed. A revision of them is here given.

NEW SPECIES OF NEW YORK FUNGI.

Tricholoma infantilis.

Pileus thin, convex or nearly plane, even, minutely silky, moist in wet weather, reddish-gray, the margin when young incurved and whitish; lamellæ subdistant, plane or slightly ventricose, often eroded on the edge, whitish; stem short, equal or tapering upward, hollow, slightly silky, colored like the pileus or a little paler; spores broadly elliptical, .0003 to .00035 in. long, .0002 to .00025 broad, often containing a shining nucleus.

Plant gregarious, pileus 4 to 12 lines broad, stem 1 to 1.5 in. high, 1 to 2 lines thick.

Gravelly soil in fields. Sandlake. June.

This is a very small species belonging to the section *SERICELLA* and related to *Tricholoma cœlata*, from which it is distinguished by its different color and the absence of an umbilicus from the pileus. This is sometimes papillate, and both it and the stem imbibe moisture. The latter is fleshy-fibrous, and its cavity is very small. In the larger specimens the margin of the pileus is often wavy, and the edge of the lamellæ eroded. *Tricholoma Hebeloma*, a closely allied species, may be distinguished by its more conical pileus, slender habit and smaller spores.

Clitocybe basidiosa.

Pileus rather thin, convex, then expanded and umbilicate or centrally depressed, glabrous, hygrophane, grayish-brown and striatulate on the margin when moist, dingy-white or grayish-white when dry, flesh whitish; lamellæ arcuate or nearly plane, thick, distant, adnate or slightly decurrent, whitish with a violaceous tint; stem equal or slightly thickened above, glabrous, firm, whitish or pallid; spores subglobose, .00016 to .0002 in. long, basidia elongated, .0024 in. long, bearing spicules .0003 in. long.

Plant single or cæspitose, 1 to 2 in. high, pileus 16 to 18 lines broad, stem 1 to 2 lines thick.

Woods and swamps. Sandlake and East Berne. August.

The numerous narrow and elongated basidia of this species are suggestive of the specific name. The plant is also easily recognized by the peculiar, pale, livid gray hue of the pileus, and the slight violaceous tint of the lamellæ. The pileus is rarely slightly umbonate. When dry both it and the stem have a slight silky appearance. The stem is usually solid, and slightly enlarged as it enters the pileus. The species should be placed among the ORBIFORMES, though in some respects it approaches *C. obbatus* and *C. Calathus*. It also has the aspect of some species of *Hygrophorus*.

Collybia alcalinolens.

Pileus thin, subconical or convex, then expanded, slightly silky-fibrillose, shining, hygrophanous, dark watery-brown when moist, grayish-brown or cinereous when dry, flesh white; lamellæ rather broad, subdistant, adnate or emarginate with a decurrent tooth, whitish; stem equal, glabrous, slightly pruinose above, hollow, shining, whitish; spores broadly elliptical, .0003 to .00035 in. long, .0002 to .00025 in. broad.

Plant gregarious, 1 to 2 in. high, pileus 8 to 18 lines broad, stem 1 to 3 lines thick.

Thin woods and bushy places. Sandlake. June and July.

This species has a peculiar odor resembling that of chloride of lime. In this respect it is similar to some species of *Mycena*. The plant is quite variable. The disk of the pileus is now elevated, now depressed, sometimes darker than the rest, sometimes canescent with short, grayish fibrils. The margin is quite thin and sometimes striatulate when moist. Occasionally it surpasses the lamellæ, which in the expanded plant are often ventricose. The stem is sometimes irregular or compressed. The species belongs to the section TEPHROPHANÆ, and is apparently allied to *A. laceratus*.

Leptonia albinella.

Pileus submembranous, subconical or convex, subumbilicate, furfuraceous or minutely squamulose, hygrophanous, whitish and striatulate on the margin when moist, white and shining when dry; lamellæ narrow, close, adnexed, white, becoming incarnate; stem equal, hollow, glabrous or slightly pruinose, whitish; spores angular, .00045 to .0005 in. long, .0003 to .00035 in. broad.

Plant 1.5 to 2 in. high, pileus 6 to 12 lines broad, stem 1 line thick.

Bushy places. Sandlake. July.

Readily distinguished from its allies by its white color. *Leptonia assularum* B. & C. differs in having an umbonate virgate pileus with a dark center. *Nolanea delicatulus* is a more slender, delicate plant with a smoother pileus and not at all umbilicate.

Psilocybe castanella.

Pileus thin, at first convex or subconical, then expanded or slightly depressed, glabrous, hygrophanous, chestnut-colored or umber-brown and striatulate on the margin when moist, pale-alutaceous when dry, flesh a little paler than the surface of the pileus; lamellæ close, adnate or slightly rounded behind, at first pale-brown, then purplish-brown; stem equal, flexuous, hollow or stuffed with a whitish pith, slightly silky-fibrillose, brownish or subrufescent with a white mycelium at the base; spores purplish-brown, .0003 to .00032 in. long, .00016 to .0002 in. broad.

Plant gregarious or subcæspitose, 1 to 2 in. high, pileus 4 to 8 lines broad, stem .5 to 1 line thick.

Rich grassy ground by roadsides. Sandlake. June.

The species appears to be closely allied to *Agaricus squalens*, which may be distinguished by its lurid color, decurrent lamellæ and ferruginous-brown spores. Moreover its habitat is unlike that of our plant. In very wet weather both the pileus and lamellæ sometimes have a watery-brown appearance, and then the striations of the former sometimes extend to the disk, which is rarely slightly umbonate. In drying, the moisture first disappears from the center of the pileus. The young pileus is usually chestnut-colored, and its margin and the stem are adorned with a few whitish fibrils.

Psilocybe fuscofulva.

Pileus thin, convex or subcampanulate, subumbonate, glabrous, hygrophanous, dark watery-brown and striatulate on the margin when moist, subochraceous when dry; lamellæ rather broad, moderately close, adnate, subventricose, purplish-brown; stem slender, flexuous, stuffed, slightly silky, reddish-brown; spores purplish-brown, .0004 to .0005 in. long, .00025 to .0003 in. broad.

Plant 1.5 to 2.5 in. high, pileus 6 to 12 lines broad, stem 1 to 2 lines thick.

Among sphagnum. Karner. October.

The species is related to *Agaricus atrobrunneus*, but its smaller size and differently colored lamellæ will serve to distinguish it.

Dermocybe simulans.

Pileus fleshy, thin, convex, then expanded, at first grayish-violaceous and silky-fibrillose, then pale-cinereous, often tinged with yellow or brownish-yellow on the disk, flesh pale-violaceous or pale-cinereous; lamellæ rather broad, subventricose, rounded behind, moderately close, violaceous, becoming cinnamon-colored; stem short, equal or slightly thickened at the base, silky-fibrillose, shining, stuffed or hollow, violaceous, becoming whitish or pallid; spores subglobose or broadly elliptical, .0003 to .00035 in. long, .00025 to .0003 in. broad.

Plant 1 to 2 in. high, pileus 6 to 18 lines broad, stem about 2 lines thick.

Woods. Sandlake. July.

The colors of this species are so similar to those of *Inoloma alboviolacea* that the plant might at first sight be mistaken for a small form of that species, but its small size, thin pileus and short, hollow stem afford distinguishing characters.

Telamonia gracilis.

Pileus thin, convex or campanulate, then expanded, umbonate, floccose-fibrillose, hygrophanous, watery-brown or sordid-chestnut when moist, whitened on the margin with grayish fibrils, subochraceous or tawny-cinnamon when dry; lamellæ thin, subdistant, becoming subventricose, ferruginous-brown, becoming cinnamon-colored; stem long, slender, flexuous, fibrillose and slightly floccose-scaly, with a slight whitish evanescent annulus, colored like the pileus; spores elliptical, uninucleate, .0004 to .00045 in. long, .00025 to .0003 in. broad.

Plant 2 to 4 in. high, pileus 6 to 12 lines broad, stem 1 to 2 lines thick.

Among moss and sphagnum in marshes. Sandlake. August.

The umbo is small and sometimes acute, rarely obsolete. The dry pileus varies much in color, it being tawny, cinnamon, subochraceous or grayish-cervine. The young lamellæ also vary from ferruginous-brown to reddish-umber and sometimes have a slight violaceous tint. The species is apparently related to *Telamonia flexipes* and *T. rigida*, but the first is described as having the stem violaceous at the apex, and the second as having the pileus glabrous, both of which characters are wanting in our plant.

Variety *brevipes* has the stem but 1 or 2 inches long. It occurs on decaying wood.

Hydrocybe præpallens.

Pileus fleshy, thin, subconical, then convex or expanded, glabrous, hygrophanous, watery-brown or chestnut-colored when moist, pale-ochraceous when dry, flesh yellowish-white; lamellæ close, lanceolate, rounded behind or slightly emarginate, reddish-umber, becoming tawny-cinnamon; stem short, equal, subflexuous, fleshy-fibrous, slightly silky, pallid or brownish; spores subelliptical, .0003 to .0004 in. long, .00025 in. broad.

Plant 1 to 3 in. high, pileus 6 to 18 lines broad, stem 2 to 4 lines thick.

Naked soil in woods. Sandlake. June.

The difference in the color of the moist pileus and the dry one is quite decided. The change from the dark-chestnut color of the one to the dingy-yellow or isabelline hue of the other is very noticeable and suggestive of the specific name. The fibrils of the veil are grayish-white, and the margin, which is at first incurved, is apt to become wavy, irregular or reflexed in large specimens. In the thinner specimens it is striatulate when moist. The lamellæ are narrowed toward the outer extremity and when young are of a peculiar reddish-brown or dark-ferruginous hue. The stem is usually hollow, but apparently from the erosion of insects. The species belongs to the section **FIRMIORES**.

Hygrophorus minutulus.

Pileus thin, submembranous, convex or expanded, subumbilicate, bright-red, viscid and distantly striatulate when moist, pale-red or yellowish when dry; lamellæ rather broad, subdistant, sometimes ventricose, adnate or subsinuate and slightly decurrent, whitish, tinged with red or yellow; stem short, slender, fragile, solid, viscid when moist, yellowish; spores narrowly elliptical, .0004 in. long, .0002 in. broad, borne on slender spicules which are .0002 to .0003 in. long.

Plant 6 to 10 lines high, pileus 3 to 5 lines broad, stem scarcely half a line thick.

Grassy ground in pastures. Sandlake. July.

This is one of our smallest species of *Hygrophorus*. Its nearest relative is *H. aurantiacoluteus* B. & C., from which the viscid pileus and stem and less decurrent lamellæ separate it. As the moisture escapes from the fresh plant the pileus becomes paler and assumes a slight silky appearance, but often the thoroughly dried specimens

resume the bright-red hue of the fresh plant. Often several basidia grow from the same filament.

Russula albida.

Pileus thin, broadly convex, then expanded or depressed, glabrous, viscid when moist, white, sometimes slightly tinged with yellow, the spreading or erect margin at length slightly and narrowly tuberculose-striate, flesh white; lamellæ adnate or subdecurrent, moderately close, some of them forked near the stem, white, the interspaces venose; stem nearly equal, glabrous, stuffed or hollow, white; spores white, minutely rough, subglobose or broadly elliptical, .00035 in. long, .0003 in. broad; taste mild or bitterish.

Plant 1 to 3 in. high, pileus 1 to 2.5 in. broad, stem 3 to 6 lines thick.

Woods. Sandlake. July and August.

This *Russula* belongs to the section FRAGILES. It may be distinguished from white forms of *Russula emetica* by its adnate or slightly decurrent lamellæ and by its milder taste.

Russula uncialis.

Pileus thin, convex, then expanded or centrally depressed, viscid when moist, glabrous or very minutely rivulose-granulose, red or pinkish-red, the margin obscurely tuberculose-striate, flesh white; lamellæ moderately close, narrowed toward the stem, at which a few of them are sometimes forked, adnate or slightly emarginate, white, the interspaces venose; stem equal, glabrous, stuffed or spongy within, white or reddish; spores white, globose, rough, .0003 to .00035 in. in diameter; taste mild.

Plant 1 to 1.5 in. high, pileus 1 to 1.5 in. broad, stem 2 to 4 lines thick.

Thin woods. Sandlake. June and July.

A small species, generally about 1 in. high, with the pileus about the same in breadth. Like the preceding species, to which it is closely related, it belongs to the white-spored group of the section FRAGILES, a group to which Europe contributes but a single mild species. The color of the pileus is nearly uniform and generally a pale-red or pinkish-red. The lamellæ in the fresh plant are white, but in the dried specimens they are pallid.

Hydnum albidum.

Pileus fleshy, thin, convex or nearly plane, subpruinose, white,

flesh white; aculei white; stem short, solid, central or eccentric, white; spores subglobose, .00016 to .0002 in. in diameter.

Plant 1 to 2 in. high, pileus 1 to 1.5 in. broad, stem 3 to 5 lines thick.

Ground in thin woods. Sandlake. June and July.

The species is closely allied to *Hydnum repandum*, with which it appears to have been united by some authors, but its small size, white color and smaller spores appear to me to make it worthy of specific distinction. It is quite unlike *Hydnum candidum*. The pileus is often irregular and lobed on the margin.

Clavaria divaricata.

Stem short, small, whitish, much branched; branches widely spreading, terete, even or slightly longitudinally wrinkled, more or less curved, pale-ochraceous, the ultimate ones tapering outward and terminating in one or more acute points; spores .0004 to .0005 in. long, .0002 to .00025 broad.

Tufts 2 to 4 in. high, and nearly as broad.

Woods. Sandlake. August.

This is a rare species, and is remarkable for and easily distinguished by its divaricate branches which give to the plant a very spreading, straggling aspect.

The following species were described in the Thirty-second Report of the State Museum, but owing to the limited edition and the incomplete manner (without plates) of the publication of that Report it has been thought best to repeat these descriptions here.

Clitocybe subhirta.

Pileus at first convex, then expanded or slightly depressed, tomentose-hairy and pale-yellow or buff, becoming subglabrous and whitish with age, the margin incurved; lamellæ close, adnate or decurrent, whitish or pale yellow; stem subequal, stuffed or hollow, whitish; spores subglobose or broadly elliptical, .0002 to .00025 in. long.

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

Woods. Brewerton. September.

The species belongs to the section DISCIFORMES, and is near *Clitocybe subalutacea*, but distinct from it and all its other allies by the hairy pileus. Sometimes the hairs are more conspicuous on the margin than on the disk.

Collybia cremoracea.

Pileus thin, submembranous, convex or campanulate, obtuse, dry, slightly silky, dingy cream-colored, the margin sometimes wavy; lamellæ broad, ventricose, emarginate, with a decurrent tooth, whitish; stem slender, equal, slightly silky, stuffed or hollow, pallid or colored like the pileus; spores subglobose or broadly elliptical, about .00025 in. long, .0002 in. broad.

Plant 1.5 to 2 in. high, pileus 6 to 12 lines broad, stem 1 to 2 lines thick.

Thin woods. Gansevoort. August.

The species belongs to the section LÆVIPEDES.

Collybia hygrophoroides.

Plate 2. Figs. 23-26.

Pileus subconical, then convex or expanded, smooth, hygrophanous, reddish or yellowish-red when moist, paler when dry; lamellæ broad, subdistant, rounded behind or deeply emarginate, eroded on the edge, whitish; stem subequal, striate, stuffed or hollow, whitish; spores subelliptical, .0002 to .00025 in. long, .00016 in. broad.

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

Decaying half-buried wood. Knowersville. May.

The young pileus resembles that of *Hygrophorus conicus*, both in shape and in color. When dry it becomes pallid or subochraceous. The species belongs to the section TEPHROPHANÆ.

Mycena luteopallens.

Pileus submembranous, convex, glabrous, striatulate on the margin when moist, bright-yellow, paler when dry; lamellæ subdistant, slightly arcuate, yellow; stem equal or slightly tapering upward, smooth, hollow, yellow, furnished at the base with yellow hairs and fibrils.

Plant scattered or cæspitose, about 2 in. high, pileus 3 to 6 lines broad, stem about 1 line thick.

Among fallen leaves in woods. Adirondaek mountains. August.

It resembles *Hygrophorus parvulus* in color, but it is readily distinguished from that species by its subcæspitose mode of growth, its proportionately longer and more slender stem and the yellow hairs at its base.

Inocybe eutheloides.

Pileus thin, broadly conical or campanulate, becoming nearly plane with age, distinctly umbonate, silky-fibrillose, more or less rimose, varying in color from grayish-cervine to chestnut-brown, the disk sometimes squamulose, the flesh white; lamellæ moderately close, rather broad, ventricose, narrowed or rounded behind, adnexed, whitish, becoming ferruginous-brown, white and denticulate on the edge; stem equal, subflexuous, solid, fibrillose, whitish or pallid; spores even, uninucleate, subelliptical, .00035 to .00045 in. long, .00025 to .0003 in. broad.

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

Woods. Brewerton. September.

The species belongs to the section RIMOSI. It agrees in many respects with the description of *Inocybe eutheles*, but differs in the character of the lamellæ, which are rather abruptly and strongly narrowed behind and adnexed, not adnate. The spores are longer than in that species and the plant is destitute of a farinaceous odor. The pileus is sometimes scarcely rimose and it varies considerably in color. The stem is decidedly paler than the pileus.

Inocybe infelix.

Pileus thin, subcampanulate, then convex or expanded, umbonate, fibrillose-squamulose, umber-brown or grayish-brown, flesh white; lamellæ close, rather broad, ventricose, emarginate, whitish, becoming ferruginous-brown; stem equal, solid, silky-fibrillose, whitish or pallid, pruinose above; spores oblong, even, .00045 to .0006 in. long, .0002 to .00025 in. broad.

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

Sterile or mossy ground. Indian lake, Adirondack mountains. August.

The species belongs to the section LACERI. The pileus is more lacerated in wet weather than in dry, and generally becomes paler with age. A small form, variety *brevipes*, has the pileus 4 to 6 lines broad and but slightly umbonate, and the stem scarcely more than half an inch long. Sometimes the stem is white above and darker toward the base. The long narrow spores constitute a marked feature of the species.

Myxacium amarum.

Pileus thin, convex or nearly plane, often irregular, smooth, glutinous, yellow, the disk often tinged with red, the margin whitish, flesh white, taste very bitter; lamellæ close, rounded behind, whitish, becoming ochraceous-cinnamon; stem soft, viscid in wet weather, solid, tapering upward, whitish, clothed with silky white fibrils; spores elliptical, .0003 to .0004 in. long, .0002 to .00025 broad.

Plant gregarious or subcæspitose, 1 to 2 in. high, pileus about 1 in. broad, stem 2 to 4 lines thick.

Under spruce and balsam trees. Adirondack mountains. August.

The very bitter taste is suggestive of the specific name. The stem is scarcely viscid except in wet weather.

Russula compacta Frost MS.

“Pileus white, firm, solid, cracked in age, sometimes tinged with red or yellow or both in spots, turning up in age, seldom depressed; lamellæ very white, almost free, not forked or dimidiate, becoming brown when bruised or dry; stem solid, white, even, smooth; flesh at first white, then brownish.”

Pileus fleshy, compact, convex or centrally depressed, whitish, sometimes tinged with red or yellow, becoming reddish-alutaceous or dingy-ochraceous with age, the margin thin, even, incurved when young; lamellæ rather broad, subdistant, nearly free, some of them forked, a few dimidiate, white, becoming brown with age or where bruised; stem short, equal, firm, solid, white, changing color like the pileus; spores subglobose, nearly even, .00035 in. in diameter.

Plant 2 to 4 in. high, pileus 3 to 5 in. broad, stem 8 to 12 lines thick.

Open woods. Sandlake and Brewerton. August and September.

The late Mr. C. C. Frost sent me specimens and manuscript descriptions of a few species of fungi collected by him in Vermont. He gave names to those which he considered new species, and it gives me pleasure to adopt his names whenever it is rendered possible by the discovery of the species within our limits. The plant here described does not fully agree with his manuscript description, which I have quoted, but it approaches so near an agreement that there cannot be much doubt of the specific identity of the two plants. In our plant the pileus is sometimes split on the margin. The change in the color of the pileus and stem is nearly the same, but the lamellæ sometimes become darker than either. When drying, the specimens emit

a strong and very disagreeable odor. The species belongs to the section COMPACTÆ.

Russula flavida *Frost MS.*

“Pileus fleshy, convex, slightly depressed, unpolished, bright-yellow; lamellæ white, adnate, turning cinereous; stem yellow, solid, white at the extreme apex.”

Pileus fleshy, convex, then plane or slightly depressed, yellow, becoming paler with age, flesh white, taste mild, the margin at first even, then tuberculate-striate; lamellæ nearly simple, subdistant and broader before, adnate, white, the interspaces venose; stem short, equal or tapering upward, firm, glabrous, solid or merely spongy within, yellow; spores globose, .00025 to .0003 in. in diameter.

Plant gregarious, 1 to 2 in. high, pileus 1 to 2 in. broad, stem 4 to 6 lines thick.

Grassy places in copses and open woods. Sandlake. July.

The species belongs to the section RIGIDÆ. The pileus is dry and sometimes slightly mealy or granular. When young it is bright-yellow, but it fades with age and sometimes becomes white on the margin.

Boletus rubinellus.

Plate 2. Figs. 20-22.

Pileus at first broadly conical or subconvex, then nearly plane, subtomentose, red, becoming paler with age; tubes convex, adnate or slightly depressed about the stem, rather large, subrotund, pinkish-red, becoming sordid-yellow; stem equal, smooth, yellow with reddish stains; spores oblong-fusiform, .0004 to .0005 in. long, .00016 broad.

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

Woods. Gansevoort. August.

Apparently related to *B. rubinus*, and also resembling *B. piperatus*, but the stem is differently colored, and I have not found the pileus at all viscid.

Tremella subcarnosa.

Small, tufted, compressed, irregular, wavy or contorted, subcarnose, externally gelatinous, whitish or pinkish-alutaceous, becoming brownish-incarnate and somewhat glaucous when dry; spores obovate, pointed at one end, .0002 to .0003 in. long, .00016 broad.

Tufts 2 to 4 lines high and about as broad.

Decaying wood of deciduous trees. Carlisle. June.

The affinities of this fungus are doubtful. It is provisionally referred to the genus *Tremella*, although the central part of the substance is fleshy rather than gelatinous. The plants revive on the application of moisture and when moist are somewhat tremelloid. The tufts form beautiful little rosettes.

***Grandinia membranacea* P. & C., n. sp.**

Effused, thin, membranaceous, whitish or subalutaceous, sometimes slightly tinged with greenish-yellow or olivaceous; granules numerous, crowded, unequal; spores broadly elliptical or subglobose, slightly rough, .00025 to .0003 in. long.

Much decayed wood, leaves, etc. Tonawanda. G. W. CLINTON.

Apparently related in texture to *G. papillosa*, but differing in color and in its even, not rimose, hymenium.

***Phoma callospora* P. & C., n. sp.**

Perithecia small, scattered, slightly prominent, covered by the epidermis, black; spores oblong or cylindrical, obtuse, straight or curved, containing 3 to 5 nuclei, .0006 to .0008 in. long, .0002 to .00025 broad.

Dead stems of *Polygonum*. Buffalo. October. G. W. CLINTON.

***Phoma cornina*.**

Perithecia numerous, not crowded, minute, nearly covered by the stellately ruptured epidermis, black, opening by a large pore; spores oblong, obtuse, .0012 to .0016 in. long, .0005 to .00055 broad.

Dead branches of green osier, *Cornus circinata*. Sprakers. June.

This and the preceding species are erroneously referred to the genus *Sphaeropsis* in the Thirty-second Report.

***Sphaeropsis typhina*.**

Perithecia scattered, subconical, slightly prominent, often compressed; spores fusiform, pointed at each end, colored, .0006 in. long, .00016 broad.

Dead leaves of *Typha latifolia*. Sprakers. June.

The fusiform pointed spores constitute a noticeable character in this species.

***Protomyces conglomeratus*.**

Spores imbedded in the tissues of the stems of the host plant, large, globose, colored, .0016 to .002 in. in diameter, aggregated in

groups or clusters and forming small protuberances or tubercles on the dry stems.

Common saltwort, *Salicornia herbacea*. Syracuse. September.

The species is remarkable for the large size of the spores and their clustered mode of growth.

Periconia albiceps.

Plate 1, figs. 8-11.

Stems short, .02 to .03 in. high, equal or slightly tapering upward, black; head subglobose, white; spores oblong or subfusiform, colorless, .0003 to .0006 in. long.

Dead stems of balmoney, *Chelone glabra*. Sandlake. May.

The stems of the fungus are composed of compacted filaments, and I have followed the English mycologists in referring the species to the genus *Periconia*. It is *Sporocybe* of Bonorden.

Gonatobotryum tenellum.

Patches thinly effused, subolivaceous; flocci subtufted, erect, slender, simple or rarely branched, not nodulose-inflated, septate, brown, .006 to .014 in. high; spores in verticels of 2 to 4 at the septa, oblong, simple, subfuliginous, .00045 to .0005 in. long, .00016 to .0002 broad.

Dead stems of stoneroot, *Collinsonia Canadensis*. North Greenbush. October.

By reason of the equal, not nodulose, flocci the species does not well agree with the character of the genus. Because of the colored flocci it would go no better in *Arthrimum*.

Ramularia effusa.

Hypophyllous, often occupying the whole lower surface of the leaf, whitish; spores very variable, globose, obovate-elliptical, oblong or cylindrical, .00016 to .0011 in. long, .00016 to .0002 broad, sometimes uniseptate.

Living leaves of black huckleberry, *Gaylussacia resinosa*. Karner. July.

Sometimes all the leaves on a branch have the lower surface whitened by this fungus.

Ramularia albomaculata.

Spots suborbicular, 2 to 3 lines in diameter, sometimes confluent, pale yellowish-green on the upper surface, becoming purplish

or brown with age, whitened by the fungus below ; spores oblong or elliptical, generally binucleate, .0003 to .0004 in. long, .00016 broad.

Living leaves of hickory, *Carya alba*. Albany and Greenbush. June and July.

Sometimes the spots are angular, being limited by the veinlets of the leaf. In this species and in the next one I have not seen the spores septate, but suspecting that the nuclei indicate septa in more mature specimens, I have referred the species to this genus for the present. They may belong rather to *Cylindrium* or *Fusidium*.

Ramularia angustata.

Spots small, orbicular, sometimes confluent, pale greenish-yellow, becoming reddish-brown or brown, frosted on the lower surface by the fungus ; flocci minute ; spores narrowly fusiform or subcylindrical, .0003 to .0004 in. long, about .0001 in. broad, often containing two or three nucleoli.

Living leaves of pinxter plant, *Azalea nudiflora*. Central Bridge and Carlisle. June.

The very narrow spores suggest the specific name.

Ramularia lineola.

Spots suborbicular, sometimes confluent, brown, concentrically lineolate ; flocci obscure, tufted, hypophyllous ; spores slender, cylindrical, obtuse, .0005 to .0008 in. long, often uniseptate.

Living leaves of dandelion, *Taraxacum*, *Dens-leonis*. Greenbush. July.

The fungus is so minute that it is scarcely visible to the naked eye.

Sporotrichum larvicolum.

Flocci slender, simple or branched, forming a continuous, dense, soft, white or yellowish stratum coating the whole matrix ; spores abundant, minute, globose, .00008 to .00012 in. broad.

Dead larvæ lying on the ground under alders. Adirondack mountains. July.

The larvæ were very numerous and, but for the check imposed upon the increase of the species by the attacks of this fungus, they would probably in a short time have completely defoliated all the alders in that locality. In some specimens the fungus spores were so abundant that the surface of the stratum had a pulverulent appearance.

Acremonium flexuosum.

Plate 1, figs. 16-18.

Flocci procumbent, interwoven, branched, forming a thin, soft, tomentose, white or cream-colored stratum, the branches widely divergent, sometimes opposite, narrowed and flexuous toward the tips and bearing scattered, alternate spicules or sporophores; spores oval or elliptical, .0005 to .0008 in. long, .0003 to .0005 in. broad.

Decaying wood. Griffins, Delaware county. September.

From *Acremonium album* it differs in habit and habitat, as well as in the flexuous terminal portions of the flocci and their alternate pointed spicules; and from *Acremonium alternatum* it is distinguished by its elliptical spores.

Sepedonium brunneum.

Effused, pulverulent, brown; spores globose, rough, .0008 to .001 in. in diameter.

Decaying fungi. Gansevoort. August.

This is similar in habit to *Sepedonium chrysospermum*, from which its dark snuff-brown spores distinguish it. Like that fungus, this is also probably a mere state of some species of Hypomyces.

Morchella angusticeps.

Plate 1, figs 19-21.

Pileus narrowly conical or oblong-conical, acute or subobtuse, 1 to 2 in. long, its diameter at the base scarcely exceeding that of the stem, pale-buff or cream-colored, adnate, sometimes a little curved, the costæ longitudinal, anastomosing or connected by transverse veins; stem subequal, hollow, furfuraceous, even or sometimes marked by irregular longitudinal ridges and furrows, whitish, about equal to the pileus in length; asci cylindrical; spores elliptical, yellowish, .0008 to .001 in. long, .0005 to .0007 broad.

Borders of woods and open places. Albany and Karner. April and May. Edible.

This morel is perhaps too closely related to *Morchella conica* Pers., but if that species is correctly represented in Mycographia, plate 81, fig. 315, our plant is easily distinguished by its much more narrow pileus, which scarcely exceeds the stem in diameter. The paraphyses of that species are also represented as filiform, and are described (l. c. p. 182) as thickened above. In our plant I find no such paraphyses, but instead of them there are oblong or subclavate

bodies much shorter than the asci, but nearly as broad. They are often filled with large, unequal, crowded nuclei, and appear more like undeveloped asci than like ordinary paraphyses. The interior surface of the stem is scurfy like the exterior.

Peziza orbicularis.

Plate 2, figs. 4-6.

Receptacle 8 to 12 lines broad, sessile, appressed to the matrix, nearly plane, orbicular or sometimes irregular, externally whitish or subolivaceous and slightly gelatinous when moist, the disk reddish-brown or chestnut-colored; asci cylindrical; spores uniseriate, elliptical, .0009 to .0011 in. long, .00045 to .0005 in. broad; paraphyses filiform, thickened at the tips, brownish.

Wet, much decayed wood. Brewerton and Guilderland. September and October.

The spores usually contain one or two large nuclei. The contrast between the dark color of the disk and the light color of the external surface is quite noticeable. The flattened orbicular form of the receptacle when growing on smooth surfaces suggests the specific name. In the Thirty-second Report both this and the next species were referred to the genus *Bulgaria* under the respective names *B. bicolor* and *B. deligata*, but upon further observation their affinities appear to me to bring them in the genus *Peziza*, subgenus *Discina*, in consequence of which I am obliged to change the names.

Peziza leucobasis.

Plate 2, figs. 1-3.

Receptacles 1 to 3 lines broad, scattered or crowded, plane or convex, sessile, scarcely margined, purplish-black when moist, black and more or less angular when dry, surrounded at the base by dense whitish filaments; asci cylindrical, .01 to .012 in. long, .0009 to .001 broad; spores uniseriate, elliptical, even, binucleate, subhyaline, .001 to .0013 in. long, .0006 to .0007 broad; paraphyses numerous, filiform, septate, colored, slightly thickened above.

Wet, decaying hemlock wood. Catskill mountains. July.

The numerous white filaments that appear to bind the receptacles to the matrix, constitute a marked feature in this species and suggest the specific name.

Peziza longipila.

Plate 2, figs. 15-19.

Receptacle small, .014 to .02 in. broad, narrowed below into a short stem, densely clothed with long, rigid, erect, septate, tawny-

brown hairs, the uppermost .01 to .014 in. long, .0003 broad, the disk whitish, concealed in the dry plant by the hairs of the margin; asci cylindrical, .0025 to .003 in. long, .00025 to .0003 broad; spores oblong or subfusiform, straight or slightly curved, colorless, .0003 to .0004 in. long, .00008 to .00012 broad.

Dead stems of *Eupatorium maculatum*. Adirondack mountains. July.

Apparently near *P. relicina* Fr., but that is described as sessile and of a bay color.

This and the next following species belong to the subgenus *Dasyscypha*.

***Peziza urticina*.**

Receptacle minute, .007 to .014 in. broad, sessile, subglobose, almost hyaline, and with the mouth connivent when moist, whitish and pulverulent-hairy when dry; asci subfusiform; spores crowded or biseriate, fusiform, .0004 to .0005 in. long; paraphyses filiform.

Dead stems of nettles, *Laportea Canadensis*. Catskill mountains. July.

When moist the hairs are appressed and the cups appear longitudinally striate. When dry the disk is generally concealed. The plants are so small that they appear to the naked eye like minute white grains.

***Helotium fraternum*.**

Plate 1, figs. 12-14.

Receptacle small, $\frac{1}{2}$ to 1 line broad, stipitate, the disk plane or slightly concave, pallid or reddish-yellow, becoming more concave and dull-red in drying, the stem about equal in length to the diameter of the receptacle; asci clavate or subcylindrical, .003 to .004 in. long, .0004 to .0005 broad; spores crowded or biseriate, subcylindrical, .00065 to .0008 in. long, .00016 to .0002 broad; paraphyses numerous, filiform, scarcely thickened at the tips.

Petioles and midveins of fallen leaves of maple, *Acer saccharinum*. Adirondack mountains. July.

***Pezicula minuta*.**

Receptacle minute, .009 to .017 in. broad, numerous, scattered or two or three crowded together, attached to the matrix by a minute point, grayish, pulverulent, the margin obtuse or obsolete, the disk plane or convex, subochraceous; asci oblong-clavate; spores crowded,

oblong-elliptical, colorless, .0008 to .001 in. long; paraphyses filiform, thickened at the apex.

Dead stems of hobble bush, *Viburnum lantanoïdes*. Catskill mountains. July.

Ascophanus tetraonalis.

Receptacle sessile, 1 to 2 lines broad, externally cinereous, the margin sometimes wavy or flexuous, the disk blackish or blackish-brown; asci cylindrical, truncate at the apex; spores uniseriate, elliptical, smooth, colorless, .0006 to .0007 in. long, .0003 broad.

Excrement of partridges or ruffed grouse. Catskill mountains. July.

The receptacles are about equal in size to those of *Ascophanus gallinaceus*, which has a similar habitat, but a paler color and shorter spores. This and the next following species were erroneously referred to the genus *Peziza* in the Thirty-second Report.

Ascophanus humosoides.

Receptacles small, scarcely more than half a line broad, sessile, scattered or crowded, orange-colored inclining to vinous-red, the disk plane or slightly convex, slightly margined; asci short, cylindrical or clavate; spores crowded or elliptical, even, .0008 to .001 in. long, .0005 broad; paraphyses filiform, slightly thickened above.

Excrement of some wild animal. Catskill mountains. July.

The cups are attached to the matrix by a few white filaments.

Patellaria pusilla.

Receptacle small, .014 to .028 in. broad, sessile, slightly margined, black, the disk plane or convex when moist, slightly concave when dry; asci clavate; spores crowded or biseriate, subclavate, .00065 to .0008 in. long, .0001 to .00012 broad, six to eight nucleate; paraphyses numerous, filiform.

Decaying beech wood. Catskill mountains. July.

The spores are similar in shape to those of *P. atrata*. They are extremely narrow and probably become five to seven-septate when mature.

Acanthostigma scopula.

Perithecia small, .006 to .008 in. broad, subglobose, very black, bristly with short, rigid, divergent black hairs or setæ which are .003 to .005 in. long, .00016 to .0002 thick; asci lanceolate or subclavate; spores crowded or biseriate, elongated, gradually narrowed

toward each end, straight or slightly curved, multinucleate, at length obscurely multiseptate, greenish-yellow, .0025 to .003 in. long, .00012 to .00016 broad.

Decaying wood of hemlock. Adirondack mountains. August.

This is *Sphaeria scopula* C. & P. in the Thirty-second Report. It is here referred to the genus *Acanthostigma* because of the shape of the spores. From *A. Clintonii* it may be distinguished by its larger perithecia and longer spores.

Lasiosphaeria intricata.

Perithecia scattered or crowded, somewhat elongated, .025 to .035 in. long, .018 to .02 broad, generally narrowed toward the base, obtuse, subfragile, tomentose-hairy, brown or blackish-brown; subiculum very thin or none; asci slender, elongated, .005 to .008 in. long, .0004 to .0005 broad; spores crowded, linear, curved or flexuous, greenish-yellow, .0016 to .0025 in. long, .00016 to .0002 broad.

Decaying wood and leaves in damp places. Sandlake.

The species belongs to the section LEPTOSPORA. The perithecia, though small, resemble in shape those of *Bombardia fasciculata*. The minute papillate ostiolum is often concealed by the tomentum of the perithecia. This is composed of intricate, matted, slender, septate, brown filaments, which, by their soft, tomentose character, readily distinguish this species from the related *L. strigosa*, *L. hispida*, *L. hirsuta*, etc.

Herpotrichia leucostoma.

Perithecia small, .012 to .018 in. broad, numerous, somewhat crowded, subglobose, seated upon or involved in a blackish-brown tomentum, the ostiola naked, not prominent, whitish when moist, grayish or sordid when dry; asci cylindrical or subclavate, .006 to .008 in. long, .0004 to .0006 broad; spores crowded or biseriate, oblong-fusiform, at first uniseptate, constricted at the septum and containing two or three nuclei in each cell, then three to five-septate, colorless, .0015 to .002 in. long, .0003 to .00035 in. broad.

Dead branches of mountain maple-bush, *Acer spicatum*. Catskill mountains. September.

The whitish ostiola constitute a marked feature in this species. It is distinguished from *Herpotrichia Schiedermayeriana* Fckl. by its much smaller perithecia, and the more numerous septa of the spores. I have observed no globose appendages at the ends of the spores in

our plant. The threads of the subiculum are obscurely septate and sometimes slightly branched. The more classical name "leucostoma" is here substituted for "albidostoma."

Zignoella humulina.

Perithecia small, .011 to .014 in. broad, depressed-hemispherical, slightly sunk in the matrix, subglabrous, black, with a minute papillate ostiolum ; asci cylindrical, .0025 to .003 in. long, .0003 to .0004 in. broad ; spores uniseriate or obliquely monostichous, elliptical, four-locular, appearing obscurely triseptate, colorless, .0005 to .0006 in. long, .00025 to .0003 in. broad.

Dead stems of hops, *Humulus lupulus*. Carlisle. June.

The spores are not distinctly triseptate, and the species apparently belongs to the subgenus *Zignoina*. The perithecia have a dull, squalid, unpolished or subscabrous appearance.

Acrospermum album.

Perithecia elongated, subfusiform, somewhat compressed, pointed at the apex, narrowed below into a short, terete, stem-like base, white ; spores very long, filiform.

Dead stems of spikenard, *Aralia racemosa*. Catskill mountains. July.

This resembles *A. compressum* in size, but it is at once distinguished from that and other related species by its persistently white color.

ADDITIONS, REMARKS AND OBSERVATIONS.

The first fourteen species of the following list are additions to our State flora, and have not before been reported.

Hieracium Pilosella L.

Door yards. Aurora, Cayuga county. *C. Atwood, M. D.*

This plant has been introduced from Europe, and is yet scarce and perhaps not thoroughly established.

Atriplex hortensis L.

Roadsides. High Bridge, Onondaga county. *Mrs. S. M. Rust* and *Mrs. C. Barnes.*

Probably a stray from cultivation, and perhaps not permanently established.

Amanita pantherina DC.

Thin woods. Sandlake, Rensselaer county. July.

According to the figure and description of this species the pileus is brown or brownish, but in all our specimens it is white or merely tinged with brown on the disk. In other respects they agree so well with the description that there can be no doubt of their specific identity. They afford a striking instance of the tendency in some of our American forms to depart from the color of the European plant. The different character of its volva will distinguish it from white forms of *A. muscarius*, and the warts on the pileus and annulus on the stem will separate it from *A. nivalis*.

Clitocybe phyllophila Fr.

Among fallen leaves in woods. Karner. September.

Clitocybe pithyophila Fr.

Among fallen leaves in woods. Sandlake.

Collybia aquosa Bull.

Among sphagnum. Karner. October.

In our specimens the lamellæ, instead of being rounded behind and free, according to the description of the species, are adnate or

slightly decurrent. They are therefore designated, variety *adnati-folia*. In drying, the moisture escapes from the thicker, central part of the pileus sooner than from the thin margin.

Mycena clavicularis Fr.

Under pine trees. Sandlake. June.

Psilocybe bullaceus Fr.

Manured ground. Sandlake. July.

Lactarius cilicioides Fr.

Sandy soil. West Albany. October.

A small, white form with very sparse milk.

Hygrophorus virgineus Fr.

Roadsides and grassy fields. Sandlake. August.

Cortinarius cinnabarinus Fr.

Thin woods and bushy places. Sandlake. June.

Hydnum scrobiculatum Fr.

Woods. Sandlake. July.

The disk is sometimes very uneven with irregular prominences.

Valsa sepincola Fekl.

Dead stems of raspberry, *Rubus strigosus*. Karner. October.

Cryptospora Betulae Tul.

Dead bark and twigs of white birch, *Betula populifolia*. Karner. October.

Ampelopsis quinquefolia Mx.

Specimens sometimes occur with some of the leaves trifoliate.

Geranium Robertianum L.

A white-flowered form. Isley island, Sodus Bay, Wayne county. F. W. Battershall.

Galium lanceolatum Torr.

A white-flowered form. Sandlake.

Rhodora Canadensis L.

Thirteenth pond, Johnsburgh, Warren county. May. Mrs. I. B. Sampson.

The specimens are in flower, but the leaves had not yet developed. The original herbarium specimens bear old capsules, but no leaves,

so that leaf-bearing specimens are yet wanting. I do not find this plant recorded in any of the local catalogues of plants of various parts of the State, and Dr. Torrey admitted it in the New York Flora with the following explanatory remark: "I am not quite certain that I have received specimens of this plant from within the limits of the State; but it doubtless grows in some of the northern counties." The result has proved the accuracy of his supposition, but the plant is evidently rare in our State.

Potamogeton pauciflorus *Pursh.*

A peculiar form of this species occurs in Glass lake, Rensselaer county. The stems are 1 to 2 feet long, the spikes numerous and axillary and the foliage of a dull-brownish or reddish-brown color, quite unlike the ordinary bright-green hue of the species.

Pogonia affinis *Aust.*

In a swamp near Tappantown, Rockland county. June. *E. F. Smith.*

Juncus Canadensis var. **coarctatus** *Engelm.*

This plant sometimes has the flower heads wholly or in part changed to enlarged leafy buds, or rather galls, for they are produced by the attacks of insects.

Clitopilus Noveboracensis *Pk.*

Sometimes the pileus is dark-brown, much darker than in the typical form. There is also a variety *tomentosipes*, in which the stem is clothed with a whitish or grayish hairy tomentum. The plants are also sometimes cæspitose. Sandlake. July.

Entoloma strictior var. **isabellinus** *Pk.*

Pileus, when moist, of a watery isabelline hue and striatulate on the margin, when dry, whitish or pale straw color.

Sphagnous marshes. Sandlake. August.

Clavaria amethystina *Bull.*

Woods. Sandlake. July.

Sometimes the color inclines to a grayish-violaceous hue. Both the small sparsely branched and the abundantly branched forms occur.

Dacrymyces conglobatus *Pk.*

Plate 1, figs. 1-4.

In the Thirty-second Report, this was provisionally referred to the genus *Dacrymyces*. It is apparently *Peziza rubella* Pers., and *Om-*

brophila rubella Quel., which is figured in *Tabulæ Analyticæ Fungorum*, by M. Patouillard, Fasc. 11, fig. 157. But unless it shall yet be found to have an ascigerous form it can not well be received in either of these genera. It may yet be necessary to institute a genus for its reception.

Glomerularia Corni *Pk.*

Plate 2, figs. 10-14.

This species was originally found on leaves of dwarf cornel, *Cornus Canadensis*. It also occurs in the Adirondack forests on leaves of fly honeysuckle, *Lonicera ciliata*. On this host it forms extensive patches, sometimes occupying nearly the whole leaf, and its filaments are more highly developed. It has been described in *Sylloge Fungorum*, vol. IV, p. 10.

Geoglossum irregulare *Pk.*

Plate 1, figs. 5-7.

A description of this fungus is contained in *Revue Mycologique*, 1882, p. 212, under the name *Geoglossum vitellinum* Bres. Owing to the imperfect publication of the Thirty-second Report it will be better to adopt this later name.

Helotium vibrisseoides *Pk.*

Plate 2, figs. 7-9.

In 1881 this fungus was published under the name of *Vibrissea turbinata* Phillips. It is *Gorgoniceps turbinata* Sacc., a name which should be adopted for the reason already given.

NEW YORK SPECIES OF PAXILLUS.

PAXILLUS Fr.

“Hymenophorum continuous with the stem, decurrent. Lamellæ membranous, scissile, somewhat branched and often anastomosing behind, *distinct from the hymenophorum and easily separable from it.* Spores sordid-whitish or ferruginous.

“*Fleshy putrescent fungi continuously and gradually unfolding and expanding from an involute margin.*” *Hymen. Europ.*, p. 400.

The species of this genus are related to the Agarici on one hand, and to the Boleti on the other. The important distinguishing character is afforded by the lamellæ, which are easily and smoothly separable from the pileus, just as the tubes of a Boletus are from the pileus that supports them. This relationship between the Paxilli and Boleti is still further indicated by the anastomosing of the lamellæ, which in one species, *Paxillus porosus*, is carried to such an extent that the hymenium is as distinctly porous as it is in some Boleti. On the other hand, the close relationship that exists between this genus and the genus Agaricus may be inferred from the fact that *Agaricus personatus* and *A. cinerascens* are still retained by Fries among the Agarici, although he makes the remark that they belong rather to the Paxilli. In the second edition of *Epicrisis* he has modified the diagnosis of the genus, and at the same time admitted that it is “not yet correctly defined.” Neither is the limitation of the two tribes into which he divides the species very satisfactory, for a central stem and sordid spores, characters assigned to *Lepista*, are not always associated together, nor are ferruginous spores found only in species with the stem commonly lateral or eccentric. It has, therefore, seemed best to me, for the present, to refer to this genus such species only as have the spores colored and the separable lamellæ more or less branched, crisped or anastomosing. This reduces our species to five, three of which are found also in Europe. They grow chiefly in woods and occur in the latter part of summer and in autumn. The separable character of the hymenium can only be ascertained by the mutilation of a specimen.

Synopsis of the Species.

- | | |
|-------------------------------|--------------------|
| 1 Hymenium clearly lamellate. | 2. |
| 2 Pileus white, stem present. | P. simulans. |
| 2 Pileus colored. | 3. |
| 3 Stem glabrous. | P. involutus. |
| 3 Stem densely hairy. | P. atrotomentosus. |
| 3 Stem none. | P. panuoides. |
| 1 Hymenium wholly porous. | P. porosus. |

Paxillus simulans *n. sp.*

Simulating Paxillus.

Pileus broadly convex, expanded or subinfundibuliform, compact, subglabrous, even or somewhat scabrous-pustulate, *white or whitish*, the involute margin often tomentose-hairy, flesh white; lamellæ close, forked, crisped near the stem, adnate or decurrent, *white, then ochraceous-yellow tinged with salmon color*; stem *central*, short, firm, equal, *stuffed or hollow*, pubescent, white; spores pale ochraceous-yellow, subglobose or broadly elliptical, .0002 to .0003 in. long, .0002 in. broad.

Plant 1 to 3 in. high, pileus 2 to 4 in. broad, stem 6 to 12 lines thick.

In thin woods. Sandlake. July. Rare.

A large species externally resembling *Lactarius vellereus*, and perhaps hitherto confused with it, but easily distinguished from it by the absence of a milky juice and by the lamellæ which are crisped near the base and which soon assume a peculiar salmon-yellow hue, which also appears in the spores when collected on white paper. This change of color begins in the crisped portion near the stem and gradually advances toward the outer extremity. In the dried specimens the lamellæ are ochraceous-brown and they have the edge more or less beaded with white granules. They are often forked near the outer extremity as well as toward the inner. The length of the stem sometimes scarcely exceeds its breadth. In but a single instance was it eccentric, and in that case the pileus was lobed and irregular. The surface of the pileus is sometimes roughened with minute pustules or papillæ and sometimes has a pitted appearance. Rarely the margin is obscurely zonate. The taste is bitterish and unpleasant, and some times the plant emits a subacid odor. It is a singular species.

Paxillus involutus *Fr.*

Involute Paxillus.

Pileus compact, convex or expanded, sometimes centrally depressed, glabrous, *viscid when moist*, varying in color from grayish

or sordid-buff to ferruginous or brownish-ochraceous, the margin at first *strongly involute and covered with a dense grayish tomentose villosity*, flesh grayish-white or pallid ; lamellæ close, decurrent, branched and anastomosing behind, whitish, then yellowish or subferruginous, becoming reddish-brown or fuscous where cut or bruised, the interspaces venose ; stem equal or slightly thickened at the base, central or sometimes eccentric, glabrous, solid ; spores elliptical, .0003 to .0004 in. long, .0002 to .00025 in. broad.

Plant 2 to 4 in. high, pileus 2 to 4 in. broad, stem 4 to 8 lines thick.

In woods on the ground and on decaying wood. Common in the Adirondack mountains and not rare in the mixed woods of all our hilly districts. August to November.

This species is said, by Fries and other authors, to be edible. but I have not tested its edible qualities. It is said to be held in high estimation as an article of food in Russia. It is somewhat solitary in its mode of growth and prefers a soil chiefly composed of vegetable mold. Damp shaded mossy banks and deep hemlock and spruce woods are favorite habitats for it. It sometimes grows on much decayed stumps and old prostrate trunks of trees. In such cases the stem is sometimes eccentric, but when growing on the ground it is almost always central, though Fries places the species in the tribe Tapinia. Neither do the spores of our plant agree well with the dimensions given in the Handbook of British Fungi, still it does not appear to me to be specifically distinct. The pileus is generally regular in outline and, when expanded, bears upon its margin short, distant and somewhat irregular striations. The hairiness of the margin is more distinct in the young plants. The color of the pileus is not very decided, being somewhat variable, and a peculiar mixture of gray, ochraceous, ferruginous and brown. The surface is sometimes opaque, sometimes shining. The lamellæ and often other parts of the plant change color when cut or bruised. In drying, the lamellæ of this and also of the preceding and the two following species frequently assume a smoky-brown or blackish hue.

Paxillus atrotomentosus Fr.

Dark-Downy Paxillus.

Pileus compact, convex, then expanded or centrally depressed, varying from subglabrous to scabrous-granulose, sometimes tomentose-hairy on the disk, often minutely rivulose, ochraceous-red, ferruginous-brown or reddish-brown, the margin sometimes paler, flesh

white; lamellæ close, rather broad, adnate or slightly decurrent, somewhat branched and anastomosing at the base, pale creamy-yellow, the interspaces venose; stem firm, stout, solid, eccentric or lateral, rarely central, *densely tomentose-hairy, dark-brown*; spores elliptical, .0002 to .00025 in. long, .00016 in. broad.

Plant single or cæspitose, 3 to 6 in. high, pileus 3 to 6 in. broad, stem 6 to 15 lines thick.

Ground and much decayed wood of pine and hemlock. Helderberg mountains, Sandlake and Gansevoort. August.

This is a large species, easily recognized by the dark-brown coarsely velvety or densely hairy coat of the stem, which character is suggestive of the specific name. It sometimes grows in large tufts, and then the pileus is frequently irregular by reason of mutual compression. In wet weather the pileus is moist and sometimes obscurely mottled with dark spots. Occasionally it emits an unpleasant, dirt-like odor.

Paxillus panuoides Fr.

Panus-like Paxillus. Stemless Paxillus. Pale Paxillus.

Pileus fleshy, thin, convex or nearly plane, *sessile* or resupinate, sometimes narrowed behind into a short stem-like base, pubescent or glabrous, yellowish or brownish-yellow; lamellæ narrow, close, anastomosing and crisped at the base, yellow; spores subglobose or broadly elliptical, .00018 to .0002 in. long, .00013 to .00016 in. broad.

Pileus 1 to 2 in. broad and long.

Decaying wood, usually of pine and hemlock. Albany, Maryland and Adirondack mountains. August and September.

This is our only sessile species. It grows in open places as well as in woods. It is quite variable in Europe, according to the description in Hymenomycetes Europæi. A form with a whitish pileus (*Agaricus lamellirugis* Dec. Fl., *Merulius crispus* Turpin) is the variety B of Fries. A form with a resupinate cup-like pileus, variety *pezizoides*, is his variety C, and *Gomphus pezizoides* Pers. The Handbook also describes a form with a white pileus tinged with violet. Of these, only the var. *pezizoides* has been found here. It occurs in the Adirondack mountain region.

Paxillus porosus Berk.

Porous Paxillus.

Pileus fleshy, broadly convex or expanded, often irregular or subreniform, dry, glabrous or minutely tomentose, reddish-brown, some-

times ochraceous-brown, flesh yellowish; lamellæ *wholly connected by numerous narrow transverse branches, causing the hymenium to consist of large angular pores*, decurrent, bright-yellow; stem short, hard, eccentric or lateral, generally reticulated above, colored like the pileus; spores elliptical, uninucleate, .00035 to .00045 in. long, .00024 to .00032 in. broad.

Plant 1 to 2 in. high, pileus 2 to 4 in. broad, stem 3 to 6 lines thick.

Ground in woods and open places. Sandlake, Oneida, Brewerton and Catskill mountains. August.

A singular species remarkable for its boletoid or porous hymenium. It is thus far peculiar to this country. Its spores, according to Prof. A. P. Morgan, are bright-yellow. They are larger than in any of our other species of Paxillus. The author of the species makes the remark that "without examining the fructification it might be taken for a *Boletus*." It is admitted that the spores are broader in proportion to their length than are the spores of most Boleti, but in *Boletus strobilaceus* the spores make quite as wide a departure from the ordinary form. In fresh specimens the radiating lamellæ are distinguishable, being somewhat broader than the connecting veins or branches, but in the dried specimens this difference is so obscured that the hymenium appears in no manner to differ from that of some of the large and angular-pored Boleti. Indeed this same kind of union of radiating lamellæ is discernible in the hymenium of *Boletus paluster* in which the spores approach much more closely to the ordinary form of Boletus spores; from which it may be inferred that if the species just described is a genuine Paxillus, the distinction between that genus and the genus Boletus is very slight indeed, consisting in this case merely in the eccentric or lateral stem.

The stem in *P. porosus* is most often lateral, and at the point of its insertion there is generally an excavation in the margin of the pileus which gives to it a somewhat reniform outline. The pileus has been described as "viscid when moist," but I have never observed this character in our plant. The color of the hymenium in the fresh plant is a bright chrome-yellow. The fresh plant sometimes emits a disagreeable, dirt-like odor.

Paxillus strigosus Pk. does not have the lamellæ branched or crisped at the base, and it has been omitted. It probably belongs rather to *Inocybe*.

NEW YORK SPECIES OF CANTHARELLUS.

CANTHARELLUS *Adans.*

“Hymenophorum continuous with the stem, descending unchanged into the trama. Lamellæ thick, fleshy or waxy, *fold-like*, sub-branched, *obtuse on the edge*. Spores white. *Fleshy or membranous putrescent fungi destitute of a veil.*” *Hymen. Europ.*, p. 455.

The prominent distinguishing characters of this genus are the fleshy substance of the plants and the obtuse edge of the lamellæ. In nearly all the species these are either dichotomously branched or reticulately or anastomosingly connected with each other. They are so narrow and thick in some species that they appear more like folds or veins than like lamellæ. When a transverse section of the lamellæ is made their fold-like character becomes apparent. The hymenial substance covers the entire lower surface of the pileus and hence the interspaces are fertile as well as the lamellæ. Although some species formerly included in this genus are now excluded, it still contains some incongruous members. Thus *C. floccosus* bears very little general resemblance to *C. infundibuliformis*, and *C. aurantiacus* looks strangely by the side of *C. pruinosis*. It has, therefore, seemed best to group the species into subgenera or sections according to their natural affinities.

In the section AGARICOIDES the pileus is fleshy and is rapidly narrowed below into the stem. The lamellæ are very thin and close, resembling much those of the Agarici, but they are obtuse on the edge and regularly and sometimes repeatedly dichotomous. The species of this group are closely related to the Agarici.

In EUCANTHARELLUS the pileus is narrowly obconic and tapers downward gradually till it is lost in the short stem. Sometimes the spreading margin makes it trumpet-shaped. The lamellæ are very narrow, thick and abundantly and reticulately branched.

In CANTHARELLUS (proper) the pileus is fleshy, glabrous and more horizontally expanded, and the lamellæ are broader, more distant, and more sparingly branched than in the preceding group. The stem is also longer in proportion to the size of the pileus.

In *LEPTOCANTHARELLUS* the pileus is fleshy but thin, and floccose, fibrillose or pruinose. It is umbilicate, centrally depressed or funnel-shaped and sometimes pervious. The lamellæ are mostly sparingly branched, and the slender stem is generally hollow. The last three groups contain species which have their respective counterparts or corresponding species in the genus *Craterellus*.

In the diagnosis of the genus which I have quoted the spores are said to be white, but in some of our species they vary considerably from this color.

The name of the genus is derived from *cantharus*, a kind of drinking cup.

Synopsis of the Species.

1 Lamellæ thin, regularly and repeatedly dichotomous.	2.
2 Lamellæ orange-colored.	C. aurantiacus.
2 Lamellæ white.	C. umbonatus.
1 Lamellæ thick, simple or irregularly branched.	3.
3 Stem very short, hairy or subtomentose.	4.
4 Pileus floccose-scaly.	C. floccosus.
4 Pileus glabrous.	C. brevipes.
3 Stem longer, glabrous.	5.
5 Pileus glabrous, yellow.	6.
6 Pileus thick, stem solid.	C. cibarius.
6 Pileus thin, stem stuffed or hollow.	C. minor.
5 Pileus glabrous, cinnabar-red.	C. cinnabarinus.
5 Pileus not glabrous.	7.
7 Floccose or fibrillose.	8.
8 Dingy-yellow or brownish.	C. infundibuliformis.
8 Dingy-cinereous or blackish-cinereous.	C. cinereus.
7 Pruinose.	C. pruinosis.

AGARICOIDES. *Lamellæ thin, close, regularly dichotomous.*

***Cantharellus aurantiacus* Wulf.**

Orange Chantarelle. False Chantarelle.

Pileus fleshy, thick, soft, minutely tomentose, plane or slightly depressed, *yellowish-orange*, often tinged with smoky-brown, the margin decurved or involute, flesh whitish or yellowish; lamellæ narrow, close, repeatedly forked, decurrent, *bright-orange*, sometimes yellowish; stem equal or slightly tapering upward, solid, subconcolorous; spores subelliptical, .00025 to .0003 in. long, .00016 to .00018 broad.

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

Ground and much decayed wood. Common in hilly and mountainous districts. July to October.

The bright color and regular bifurcations of the lamellæ render this a beautiful and easily recognizable species. The pileus is somewhat obconic in outline, but it is subject to some variation in color. The disk is often tinged with brown or smoky-brown and sometimes the whole surface fades to a dingy buff-red. The margin is sometimes a pale yellow or even whitish, and a form with whitish lamellæ has occurred in a sphagnous marsh near Albany. In the European plant the stem is said occasionally to become black. This form is *Merulius nigripes* Pers. The wholly white European form has not been found here.

The species is pronounced "poisonous" by some authors, and "scarcely esculent" by Rev. M. J. Berkeley. It is especially fond of a damp mossy soil filled with vegetable mold, and it sometimes occurs quite late in the season.

***Cantharellus umbonatus* Fr.**

Umbonate Chantarelle.

Pileus thin, soft, at first convex, then plane or centrally depressed, umbonate, papillate or even, smooth or flocculose-silky, rarely minutely squamulose, bluish-cinereous, grayish-brown or blackish-cinereous, the flesh white; lamellæ thin, straight, more or less decurrent, dichotomous, white; stem equal or slightly tapering upward, solid or stuffed, generally slightly silky, villose or white-tomentose at the base, whitish or tinged with the color of the pileus; spores white, oblong or subfusiform, .0004 to .0005 in. long, .00016 to .0002 broad.

Plant 1 to 6 in. high, pileus 6 to 12 lines broad, stem 2 to 4 lines thick.

Damp, mossy ground in woods and open places. North Elba, Catskill mountains and Karner. August to October.

Var. *subcæruleus*. Pileus bluish or bluish-gray, silky and shining.

Var. *dichotomus*. Pileus even or the umbo reduced to a mere papilla, grayish-brown.

Var. *brevior*. Pileus as in variety *dichotomus*, but the stem very short, about 1 inch long, equal and scarcely silky.

This is a variable species. All the descriptions of the European plant which have come under my notice speak of it as umbonate, and some emphasize this character and describe it as "always persistent," "unchanged," etc. In the American plant it is often entirely absent, and when present it is generally a mere acute papilla.

If of fair size in the fresh plant it becomes small and inconspicuous in the dried specimen. In consequence of this disagreement between the American plant and the descriptions of the European, the former was supposed to be distinct, and described in the Twenty-third Report as *Cantharellus dichotomus*; but from its close agreement in other respects I am now of the opinion that our plant is but a variety of the European, and I have modified the description of the species so that it may include our forms. I have looked in vain for a description of the spore characters of this species in any of the European works at my command. These characters here given are taken from the American plant. Should they be found to differ from those of the European plant, it will be necessary to keep our plant distinct. In ours, as in the European, wounds of the flesh and lamellæ often change to a reddish hue, and sometimes the lamellæ assume this color in drying. When growing among mosses the stem is often considerably elongated, and the white tomentum at its base so closely invests the surrounding mosses that it is difficult to pluck the plant entire without taking with it a tuft of moss.

EUCANTHARELLUS. *Lamellæ very narrow, thick, vein-like, abundantly branching or anastomosing; pileus narrowly obconic; stem very short.*

The species of this section appear thus far to be peculiar to America.

***Cantharellus floccosus* Schw.**

Floccose Chantarelle.

Pileus fleshy, firm, *elongated funnel-form or trumpet shape, floccose-scaly, ochraceous-yellow*; lamellæ thick, narrow, close, abundantly anastomosing above, long-decurrent and subparallel below, *subconcolorous*; stem very short, thick, sometimes with a flexuous, root-like prolongation; spores ochraceous, narrowly elliptical, .0005 to .0006 in. long, .0003 in. broad, with an oblique apiculus at one end.

Plant 2 to 5 in. high, pileus 2 to 4 in. broad, stem 4 to 8 lines thick.

Woods and their borders. Common. July and August.

This is our largest species of Chantarelle. At first the plant is almost cylindrical, it being scarcely broader at the top than at the base; but it gradually expands above and spreads its margin until it becomes trumpet-shaped. The pileus of the young plant is some-

times tinged with orange. The scales are sometimes thick and persistent, and again thin and subevanescent. The pileus is depressed or umbilicate at a very early age, and it frequently becomes pervious when mature. The interstices or reticulations formed by the anastomosing of the lamellæ are in some specimens as broad as long, in others much longer than broad. The stem is often, though not always, somewhat tomentose.

Cantharellus brevipes *Pk.*

Short-stemmed Chantarelle.

Pileus fleshy, narrowly obconic, *glabrous, alutaceous or dingy cream color*, the thin margin erect, often irregular and lobed, tinged with lilac in the young plant, flesh soft, whitish; lamellæ numerous, nearly straight on the margin, abundantly anastomosing below, *pale umber tinged with lilac*; stem short, tomentose-pubescent, solid, cinereus, often tapering downwards; spores yellowish, oblong-elliptical, unincleate, .0004 to .0005 in. long, .0002 in. broad.

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

Woods. Ballston. July.

This is a very rare species. It occurred in very limited quantity in 1879, in the locality mentioned, and has not since been found. It is smaller than *C. floccosus*, more cæspitose in its mode of growth, and with thinner lamellæ. The thick fleshy pileus is neither pervious nor umbilicate and but slightly depressed.

CANTHARELLUS. *Lamellæ narrow, distant, sparingly and irregularly branched or anastomosing; pileus fleshy, glabrous; stem fleshy, generally solid.*

Cantharellus cibarius *Fr.*

Edible Chantarelle.

Pileus fleshy, firm, convex, then expanded or slightly depressed, glabrous, *yellow*, the margin at first involute, then spreading, often wavy or irregular, flesh white within; lamellæ narrow, thick, distant, decurrent, somewhat branched or anastomosing, yellow; stem firm, glabrous, *solid, yellow*, sometimes tapering downwards; spores sub-elliptical, .0003 to .0004 in. long, .0002 to .00025 broad.

Plant 1.5 to 4 in. high, pileus 1.5 to 4 in. broad, stem 3 to 6 lines thick.

Woods, copses and open places. Common. June to September.

The edible Chantarelle, though often irregular in shape, is beautiful in color. The whole plant is of a clear, rich egg-yellow hue, and this, with its solid stem, renders its identification easy. The American plant scarcely varies in color, but in Europe there is said to be a white variety of it. When old, the margin first begins to dry, and soon assumes a dull reddish-brown hue. The flesh both of the pileus and stem is white, though often tinged with yellow near the surface. Some authors attribute to it an odor like that of ripe apricots, but I have not been able to detect any decided odor in it. The lamellæ vary somewhat in their degree of proximity to each other and in the extent of their ramification. They are sometimes wavy or crisped as in some species of *Paxillus*. The interspaces are usually venose. The length of the stem is generally about equal to the breadth of the pileus. It is more frequently curved or flexuous than straight, and sometimes it is narrowed downward. The spores are described by most authors as white, but if they are collected on white paper they have a slight yellowish or salmon-yellow tint. The plant grows either in a scattered manner or arranged in curved lines, as if attempting to form a "fairy ring." A favorite habitat is in the deep shade of hemlock trees, but it also grows freely and plentifully in thin woods of deciduous trees in damp, showery weather. The species is quite celebrated for its edible qualities. Fries says that "it is justly enumerated among the most sapid fungi;" Badham, that "no fungus is more popular;" Berkeley, that "it is occasionally served up at public dinners at the principal hotels in London on state occasions, when every effort is made to secure the rarest and most costly dainties;" Cooke, that "it is alike esteemed in France, Germany, Austria and Italy," and that "it is not at all uncommon to hear from epicures rapturous encomiums of this golden fungus." According to Badham, "it requires to be gently stewed, and a long time, to make it tender; but by soaking it in milk the night before, less cooking will be requisite."

***Cantharellus cinnabarinus* Schw.**

Cinnabar-colored Chantarelle.

Pileus fleshy, rather thin, firm, convex, then depressed or subinfundibuliform, often irregular, *cinnabar-red*, the margin at first inflexed, often lobed in large specimens, flesh whitish, externally tinged with red; lamellæ subdistant, branched, decurrent, *cinnabar-*

red; stem glabrous, solid, *cinnabar-red*; spores subelliptical, .0003 to .0004 in. long, .0002 to .00025 in. broad.

Plant 1 to 2 in. high, pileus 8 to 16 lines broad, stem 2 to 4 lines thick.

Thin woods and open places. Sandlake, Brewerton and Forestburgh. July to September.

This Chantarelle is beautifully colored, though frequently irregular in shape. It is closely related to the preceding species, from which its color, smaller size and comparatively broader lamellæ distinguish it. It varies slightly in the depth of its color, the pileus being sometimes tinged with yellow. It is difficult to preserve its red hue in the dried specimens. The width of the lamellæ is generally equal to or greater than the thickness of the flesh of the pileus. The flesh has a slightly pungent or peppery taste. The species was placed by Fries in the genus *Hygrophorus*, but it is a genuine *Cantharellus*.

***Cantharellus minor* Pk.**

Small Chantarelle.

Pileus fleshy, thin, convex, then expanded, often umbilicate or centrally depressed, glabrous, *yellow*, flesh, pale-yellow; lamellæ narrow, distant, sparingly branched, yellow; stem *slender*, subflexuous, subequal, smooth, *stuffed or hollow*, yellow, with a whitish mycelium at the base; spores subelliptical, .00025 to .0003 in. long, .00016 to .0002 in. broad.

Plant gregarious or subcæspitose, 1 to 1.5 in. high, pileus 6 to 12 lines broad, stem 1 to 2 lines thick.

Thin woods and open places. Greenbush and Sandlake. June and July.

This is a very small Chantarelle. It is colored like *C. cibarius*, from which it is distinguished by its smaller size, thin and frequently umbilicate pileus, comparatively broader lamellæ, and more slender stem, and smaller spores. In very small or young specimens the stem sometimes appears to be solid, but in large and mature specimens it is stuffed or hollow, especially in the upper part. By this character it connects this section with the next. In wet weather the pileus is moist and has a watery-yellow hue which fades slightly in drying.

LEPTOCANTHARELLUS. *Pileus thin or submembranous, not glabrous; stem subelongated, generally hollow.*

***Cantharellus infundibuliformis* Scop.**

Funnel-shaped Chantarelle.

Pileus thin or submembranous, convex and umbilicate, then funnel-shaped and often pervious, slightly floccose or fibrillose, uneven, varying in color from dingy-yellow to dark watery-brown when moist, grayish or grayish-yellow or grayish-brown when dry, the margin frequently wavy, irregular or lobed; lamellæ narrow, thick, decurrent, distant, irregularly or dichotomously branched, yellow or subcinereous, *becoming pruinose*, the interspaces generally venose; stem rather slender, glabrous, hollow, *yellow*; spores broadly elliptical, .00035 to .00045 in. long, .0003 to .00035 in. broad.

Var. *typicus*. Pileus dingy-yellow; stem pale-yellow.

Var. *luteolus*. (*Cantharellus lutescens*, 23d Rep., p. 122.) Pileus convex, umbilicate, dingy-yellow; lamellæ very distant, sparingly branched, yellowish; stem yellow, tinged with red or orange.

Var. *zonatus* Fr. Pileus zonate.

Var. *subcinereus*. Pileus dark watery-brown when moist, gray or grayish-brown when dry; stem yellowish, dingy above.

Plant gregarious or subcæspitose, 1.5 to 4 in. high, pileus 6 to 18 lines broad, stem 1.5 to 3 lines thick.

Woods and swamps among moss or fallen leaves and on decayed wood. Common. June to October.

This species is so variable that it seems desirable to designate its principal varieties by name. Through variety *subcinereus* it approaches *C. cinereus* on one hand, and, through variety *luteolus*, *C. tubæformis* on the other. Indeed, so closely is it allied to this last-named species that the two were united in *Systema Mycologicum*. But in all our forms or varieties the lamellæ become frosted or pruinose in appearance, and this character, according to the descriptions of Professor Fries, is a distinguishing feature of *C. infundibuliformis*. In the description of *C. tubæformis*, as given in the Handbook, the lamellæ of it also are said to be "frosted with a white bloom," but the dimensions there ascribed to its stem and spores do not correspond to those of any of our specimens. In our plant the pileus of fresh growing specimens has a moist or watery appearance, and as the moisture evaporates the color becomes paler. The surface of the pileus is a little uneven, and the fibrils are so arranged that they give it a somewhat streaked or virgate appearance approaching sometimes to a subreticulate aspect. Occasionally the pileus is slightly zonate,

but such specimens grow intermingled with others that are not zonate and are evidently the same species. In the larger specimens the pileus is frequently more lobed and irregular than in the others. In these also the lamellæ are apt to be less distant and more branched and the interspaces more venose than usual. The color of the lamellæ may be yellow, grayish-yellow, subcinereous or even tinged with lilac. The stem in variety *typicus* is pale-yellow or flavid, in variety *luteolus* it is more or less tinged with red, and in variety *subcinereus* it has a dingy or smoky tint above. This variety occurs especially among Sphagnum in marshes.

Cantharellus cinereus Pers.

Gray Chantarelle.

Pileus thin, submembranous, centrally depressed or funnel-shaped, often becoming pervious, minutely hairy or scaly, *cinereous* or *blackish-cinereous*, the margin frequently lobed or irregular; lamellæ thick, distant or subdistant, decurrent, branched and anastomosing, *cinereous*; stem hollow, often compressed or irregular, *cinereous* or *blackish-cinereous*; spores elliptical, .0003 to .00035 in. long, .0002 to .00025 broad.

Plant gregarious or cæspitose, 1.5 to 3 in. high, pileus 1 to 2 in. broad, stem 2 to 4 lines thick.

Woods. Greig, Sandlake and Albany. August and September.

The gray Chantarelle is less common than the preceding species to which it is closely related, but from which it may be distinguished by the absence of yellow hues from its pileus and stem. Its stem is generally comparatively thicker and its mode of growth more cæspitose.

Cantharellus pruinoseus Pk.

Frosted Chantarelle.

Pileus thin, convex, subumbilicate, *pruinose, white*; lamellæ *rather broad*, distant, long-decurrent, *simple or rarely branched, white*; stem long, slender, slightly enlarged above, *pruinose, whitish*; spores *globose*, .0002 to .00025 in. in diameter.

Plant about 1 in. high, pileus 2 to 3 lines broad, stem scarcely 1 line thick.

Ground in pastures. Sageville. August.

This is our smallest species, and is one most readily recognized by its slender habit, white color and minutely mealy or pruinose surface.

In some respects it approaches the European *C. Brownii* B. & Br., but is clearly distinct from it, by its broad and very decurrent lamellæ, by its pruinose surface and by its umbilicate instead of an umbonate pileus.

Cantharellus crispus differs from all the preceding species in habit and texture and is now referred to the genus *Trogia*.

Satisfactory examples of *Cantharellus tubæformis* have not occurred within our limits. The specimens formerly referred to this species and to *C. lutescens* prove to be only forms of *C. infundibuliformis*.

Several dimidiate and resupinate species of this genus are found in Europe, but none have occurred within our limits.

NEW YORK SPECIES OF CRATERELLUS.

CRATERELLUS Fr.

“Hymenium waxy-membranous, distinct, but adnate to the hymenophorum, definitely inferior, continuous, glabrous, even or rugose. Spores white.

“*Terrestrial, fleshy or membranous, autumnal fungi, related to the Cantharelli and furnished with an entire pileus and a stem.*”
Hymen. Europ., p. 630.

This genus is intimately related to *Cantharellus* on one hand, and by its nearly even hymenium it approaches *Thelephora* and *Clavaria* on the other. So intimate is its relationship with *Cantharellus* that, in the *Systema Mycologicum*, its species were referred to that genus, and in his later work, the *Hymenomycetes Europæi*, Professor Fries justly remarks that the analogy between various species of the two genera is wonderful. Indeed, some of the species of these genera cannot readily be distinguished without an inspection of the hymenium, so closely do they resemble each other in size, shape and color. The species of *Craterellus* have the hymenium nearly even, or merely rugose or rugose-wrinkled, the folds or wrinkles being irregular or indistinct, or so interwoven and lost in each other and in the hymenium that any particular one cannot readily be traced from the stem to the margin of the pileus, as they can be in species of *Cantharellus*. In the same species the wrinkles are more distinct in some specimens than in others, and often they are more distinct in the fresh plant than in the dried one. In all our species the hymenium is decurrent. The pileus is frequently more or less split or lobed on the margin and sometimes is divided nearly to its base. It is not clear why the genus should be characterized as “autumnal,” for some of the species occur as early as July. In some of the older works these fungi are distributed in the genera *Cantharellus*, *Merulius*, *Elvella* and *Peziza*. The name *Craterellus* signifies a little cup, and has reference to the shape of the pileus in some species.

Synopsis of the Species.

- | | |
|--|--------------------|
| 1 Stem hollow, pileus mostly pervious. | 2. |
| 2 Hymenium cinereous or brown. | 3. |
| 3 Pileus tubiform, spores .0005 to .0007 in. long. | C. cornucopioides. |
| 3 Pileus funnel-shaped, spores .00025 to .0003 in. long. | C. dubius. |
| 2 Hymenium yellow. | C. lutescens. |
| 1 Stem solid, pileus not pervious. | 4. |
| 4 Hymenium and stem similarly colored. | C. Cantharellus. |
| 4 Hymenium and stem dissimilarly colored. | C. clavatus. |

Craterellus cornucopioides Pers.

Cornucopia-like Craterellus. Horn-like Craterellus.

Pileus thin, submembranous, *tubiform*, pervious, sometimes granular or minutely scaly, cinereous, smoky-brown or blackish, the spreading or decurved margin generally lobed, wavy or irregular; hymenium even or rugose-wrinkled, cinereous or brown; stem very short, hollow, *blackish-brown or black*; spores *narrowly elliptical*, .0005 to .0007 in. long, .0003 to .0004 broad.

Plant gregarious or subcæspitose, 2 to 3 in. high, pileus 1 to 2.5 in. broad, stem 2 to 3 lines thick.

Woods. Common. July to September.

This is our most common Craterellus. It is easily recognized by its elongated tubular or narrowly trumpet-shaped pileus and its dingy-gray or smoky-brown hue. The pileus is thin but rather tough and elastic. The hymenium is generally a little paler than the pileus and varies in color from cinereous to reddish-brown and dark smoky-brown. It sometimes becomes pruinose when dry. The stem is short or almost obsolete, the hymenium extending nearly or quite to the surface of the ground. The spores are larger than in any of our other species. It grows especially on naked soil on shaded banks or knolls or in old roads in woods. In shape it corresponds very closely to *Cantharellus floccosus*, but in every other respect it differs decidedly from that species. In color it resembles *Cantharellus cinereus*, from which its more elongated pileus, shorter stem and different hymenium at once separate it. *Cantharellus cornucopioides* Fr., *Peziza cornucopioides* L., *Merulius cornucopioides* Pers., *Merulius purpureus* With. and *Helvella cornucopioides* Scop. are ancient synonyms.

Craterellus dubius Pk.

Doubtful Craterellus.

Pileus thin, *infundibuliform or subtubiform*, subfibrillose, dark-brown or lurid-brown, pervious, the margin generally wavy and

lobed ; hymenium dark-cinereous and rugose when moist, the obscure crowded irregular wrinkles abundantly anastomosing, nearly even and paler when dry ; stem short, hollow, *colored like the hymenium* ; spores *broadly elliptical or subglobose*, .00025 to .0003 in. long, .0002 to .00025 in. broad.

Plant single or cæspitose, 2 to 3 in. high, pileus 1 to 2 in. broad, stem about 2 lines thick.

Ground under spruce trees. Adirondack mountains. August.

This very rare species has not been found by us since its discovery in Keene Valley, Essex county, in 1877. It is closely related to *C. cornucopioides*, from which its shorter more funnel-shaped pileus, longer paler stem and smaller spores will distinguish it. It is also apparently similar to *C. sinuosus* and *C. crispus*, and both it and they may yet prove to be different forms of one very variable species. In all of our specimens the pileus is pervious and the stem hollow to the base. This last character will distinguish the species from both those mentioned. In some specimens the pileus is much lobed or multifid on the margin. The hymenium is darker colored and much more rugose or uneven when moist than it is when dry. In the dried specimens it is pale-cinereous, often with a tinge of yellow, and its color extends to the base of the stem. The darker color of the pileus is continued downwards in the cavity of the stem. In general appearance this species corresponds more closely to *Cantharellus cinereus* than does *C. cornucopioides*, which is sometimes compared with that species.

Craterellus lutescens Fr.

Yellowish Craterellus.

Pileus thin, submembranous, varying from convex and umbilicate to tubiform or funnel-shaped, often becoming pervious, *yellowish, dingy-yellow or brownish*, the margin frequently lobed, wavy or irregular; hymenium nearly even or distinctly and sometimes densely rugose-wrinkled, *yellow* ; stem rather slender, subflexuous, glabrous, *hollow, yellow* ; spores subelliptical, .0004 to .0005 in. long, .00025 to .0003 in. broad.

Plant single or gregarious, occasionally cæspitose, 2 to 3 in. high, pileus 1 to 2 in. broad, stem 1.5 to 3 lines thick.

Moist places in woods and swamps. Sandlake and Helderberg mountains. July and August.

This species corresponds closely in size, color and general appearance to *Cantharellus infundibuliformis*, from which it is not readily distinguished except by its hymenium, which is neither pruinose nor furnished with distinct lamellæ, though its vein-like wrinkles sometimes make a close approach to the narrow lamellæ of that Chantarelle. It is commonly compared with *Cantharellus tubæformis*, with which, according to Fries, it was formerly confused, and to which it corresponds very closely by reason of its naked yellow hymenium. The pileus of the European plant is described as "flocculose," but in our plant it is usually almost glabrous or but slightly fibrillose. The hymenium is sometimes slightly reddish or orange-tinted and the stem is colored like it rather than like the pileus. In small or young plants it is not uncommon to find the stem stuffed below and hollow above only. The base of the stem is frequently hairy or strigose.

Cantharellus lutescens Fr., *Merulius lutescens* Pers., *Merulius xanthopus* Pers., *Helvella tubæformis* Schæff. and *Peziza undulata* Bolt. are synonyms of the older works.

Craterellus Cantharellus Schw.

Chantarelle Craterellus.

Pileus fleshy, firm, *convex, then centrally depressed or infundibuliform*, glabrous, yellow or pinkish-yellow, the margin commonly lobed, wavy or irregular, flesh white; hymenium nearly even or rugose-wrinkled, *yellow*; stem glabrous, *solid, yellow*; spores subelliptical, .0003 to .0004 in. long, .0002 to .00025 in. broad.

Plant single or cæspitose, 1.5 to 3 in. high, pileus 1.5 to 3 in. broad, stem 3 to 5 lines thick.

Thin woods and bushy places. Sandlake. August.

So closely does this plant resemble the edible Chantarelle, both in size, shape and color, that it would be natural to suppose it a form of that species with an undeveloped or abnormally developed hymenium. Its color is a vitelline or egg-yellow, as in that species, but sometimes there is a slight pinkish tinge to the pileus and a faint shade of salmon color or orange to the hymenium. The spores also, when collected on white paper, have a yellowish or salmon-yellow tint. The plant is more frequently cæspitose than *Cantharellus cibarius*, and consequently the pileus is generally more irregular. It was placed by Schweinitz in the genus *Thelephora*, section CRATERELLÆ, whence the synonym *Thelephora Cantharellus* Schw. In Grevillea, vol. 1, p. 147, this name is given as a synonym of *Craterellus late-*

ritius B., which is described as "brick-red" with a deeply umbilicate pileus. I have seen no such forms of our plant and hesitate to adopt the opinion there expressed. The species appears to be peculiar to this country.

Craterellus clavatus Pers.

Pileus fleshy, soft, *clavate or narrowly obconic*, turbinate, truncate or slightly depressed, nearly glabrous, yellowish, flesh white; hymenium slightly corrugated or rugose-wrinkled, *dull-purplish or brownish incarnate*; stem short, solid, pallid or yellowish; spores subelliptical, .0004 to .0005 in. long, .0002 to .0003 in. broad.

Plant 2 to 3 in. high, pileus 1 to 2 in. broad, stem 3 to 6 lines thick.

Hemlock woods. Brewerton. September. Rare.

This species has not been found by me since its discovery in our State in 1878. Its corresponding species among the Chantarelles is *Cantharellus brevipes*. Its resemblance to *Clavaria pistillaris* is also noticeable. The pileus is sometimes slightly uneven or rugose, and its margin is rather obtuse and sometimes crenately irregular. The color of the hymenium is a peculiar mixture of pink, brown, lilac and purple, which is not easy to define. It sometimes approaches a pale-liver color. Fries describes it as passing from violet-flesh color to fuliginous and umber-brown. These variations in the color of the hymenium have given rise to various synonyms; for example, *Merulius violaceus* Pers., *Merulius purpurascens* Pers., *Merulius carneus* Pers., and *Merulius umbrinus* Pers. Other synonyms are *Merulius clavatus* Pers., *Clavaria truncata* Schmidt, and *Clavaria elvelloides* Wulf.

Craterellus cæspitosus Pk. is a spurious species and is therefore omitted.

NAMES OF NEW YORK PYRENOMYCETOUS FUNGI.

The names by which the following species were formerly known or reported are given in the right-hand column whenever they differ from those of the Saccardoan system. The left-hand column contains the names required by that system.

Perisporiaceæ.

Podosphæra tridactyla <i>De By.</i>	Podosphæra <i>Kunzei Lev.</i>
P. biuncinata <i>C. & P.</i>	
Sphærotheca Castagnei <i>Lev.</i>	
S. pruinosa <i>C. & P.</i>	
Phyllactinia suffulta <i>Sacc.</i>	Phyllactinia <i>guttata Lev.</i>
Uncinula adunca <i>Lev.</i>	
U. Ampelopsidis <i>Pk.</i>	
U. Clintonii <i>Pk.</i>	
U. macrospora <i>Pk.</i>	
U. flexuosa <i>Pk.</i>	
U. geniculata <i>Ger.</i>	
U. circinata <i>C. & P.</i>	
U. parvula <i>C. & P.</i>	
U. luculenta <i>Howe.</i>	
U. Americana <i>Howe.</i>	Uncinula <i>spiralis B. & C</i>
Microsphæra Astragali <i>Trev.</i>	Microsphæra <i>holosericea Lev.</i>
M. abbreviata <i>Pk.</i>	
M. Hedwigii <i>Lev.</i>	
M. Dubyi <i>Lev.</i>	
M. Friesii <i>Lev.</i>	
M. penicillata <i>Lev.</i>	
M. Van Bruntiana <i>Ger.</i>	
M. densissima <i>Schw.</i>	
M. Russellii <i>Clinton.</i>	
M. extensa <i>C. & P.</i>	
M. diffusa <i>C. & P.</i>	
M. pulchra <i>C. & P.</i>	
M. Vaccinii <i>C. & P.</i>	
M. Platani <i>Howe.</i>	
M. Menispermi <i>Howe.</i>	
M. Symphoricarpi <i>Howe.</i>	
Erysiphe communis <i>Fr.</i>	
E. Martii <i>Lev.</i>	
E. lamprocarpa <i>Lev.</i>	
E. Liriodendri <i>Schw.</i>	
E. Euphorbiæ <i>Pk.</i>	
Erysiphella aggregata <i>Pk.</i>	
Eurotium herbariorum <i>Lk.</i>	
Dimerosporium Collinsii <i>Thum.</i>	Sphæria <i>Collinsii Schw.</i>
Scorias spongiosa <i>Fr.</i>	

Sphæriaceæ.

- Cœlosphæria exilis *Sacc.*
 Fracchiæa callista *B. & C.*
 Calosphæria Princeps *Sel.*
 Coronophora oötheca *Sacc.*
 Quaternaria Persoonii *Tul.*
 Valsa Pini *Fr.*
 V. Vitis *Fekl.*
 V. Alni *Pk.*
 V. Lindéræ *Pk.*
 V. subclypeata *C. & P.*
 V. Americana *B. & C.*
 V. truncata *C. & P.*
 V. centripeta *Fr.*
 V. colliculus *Wormsk.*
 V. Rubi *Fekl.*
 V. nivea *Fr.*
 V. leucostoma *Fr.*
 V. ambiens *Fr.*
 V. salicina *Fr.*
 V. translucens *De Not.*
 Eutypella Prunastri *Sacc.*
 E. stellulata *Sacc.*
 E. Platani *Sacc.*
 E. fraxinicola *Sacc.*
 E. tumidula *Sacc.*
 E. innumerabilis *Sacc.*
 Eutypa Acharii *Tul.*
 E. lata *Tul.*
 E. spinosa *Tul.*
 Diatrype disciformis *Fr.*
 D. Stigma *Fr.*
 D. platystoma *Berk.*
 D. bullata *Fr.*
 D. corniculata *B. & Br.*
 D. asterostoma *B. & C.*
 D. Duriæi *Mont.*
 Diatrypella Tocciaëana *De Not.*
 D. aspera *Nits.*
 D. discoidea *C. & P.*
 D. betulina *Pk.*
 D. Cephalanthi *Sacc.*
 D. prominens *Howe.*
 Ceratostoma rubefaciens *Sacc.*
 C. piliferum *Fekl.*
 Chætomium lanosum *Pk.*
 C. funiculum *Cke.*
 C. melioloides *C. & P.*
 C. comatum *Fr.*
 Sordaria coprophila *C. & D.*
 S. fimiseda *C. & D.*
 S. ampicornis *Ellis.*
 Sphæria exilis *A. & S.*
 S. callista *B. & C.*
 Valsa pulchella *Fr.*
 Sphæria oötheca *B. & C.*
 Valsa quaternata *Fr.*
 Valsa Prunastri *Fr.*
 V. stellulata *Fr.*
 V. Platani *Schw.*
 V. fraxinicola *C. & P.*
 V. tumidula *C. & P.*
 V. innumerabilis *Pk.*
 Sphæria limæformis *Schw.*
 Diatrype Tocciaëana *De Not.*
 D. aspera *Fr.*
 D. discoidea *C. & P.*
 D. betulina *Pk.*
 D. Cephalanthi *Schw.*
 Sphæria rubefaciens *Pk.*
 S. piliferum *Fr.*
 Chætomium elatum *Kze.*
 Hypoxylon coprophilum *Fr.*
 Sphæria fimiseda *C. & D.*
 S. eximia *Pk.*

Sordaria valsoides Sacc.
Hypocopra leucoplaca Sacc.
Coprolepa fimeti Sacc.
Philocopra canina Sacc.
Rosellinia aquila De Not.
R. Desmazierii Sacc.
R. mutans Sacc.
R. obtusissima Sacc.
R. pulveracea Fckl.
R. sordaria Rehm.
R. hirtissima Sacc.
Bombardia fasciculata Fr.
Anthostomella Closterium Sacc.
A. rostrispora Sacc.
A. smilacinina Sacc.
Anthostoma adustum Sacc.
A. cercidicolum Sacc.
A. atropunctatum Sacc.
A. ? scoriadeum Sacc.
Xylaria polymorpha Grev.
X. corniformis Fr.
X. grandis Pk.
X. acuta Pk.
X. Hypoxylon Grev.
X. digitata Grev.
X. graminicola Ger.
X. filiformis Fr.
Ustulina vulgaris Tul.
Daldinia concentrica C. & D.
Hypoxylon coccineum Bull.
H. argillaceum Berk.
H. Howeanum Pk.
H. fuscum Fr.
H. xanthocreas B. & C.
H. cohærens Fr.
H. perforatum Schw.
H. multiforme Fr.
H. Morsei B. & C.
H. serpens Fr.
H. Sassafras Berk.
H. atropurpureum Fr.
H. rubiginosum Fr.
H. fuscopurpureum Berk.
H. smilacicolum Sacc.
Nummularia discreta Tul.
N. Bulliardii Tul.
Ceratostomella rostrata Sacc.
Gnomoniella tubiformis Sacc.
G. mirabilis Sacc.
G. vulgaris Sacc.
G. curvicolla Sacc.
G. eccentrica Sacc.

Sphæria valsoides Pk.
S. leucoplaca B. & R.
S. fimeti Pers.
S. canina Pk.
S. aquila Fr.
S. Desmazierii B. & Br.
S. mutans C. & P.
S. obtusissima B. & C.
S. pulveracea Ehrh.
S. sordaria Fr.
S. hirtissima Pk.
S. bombardia Batsch.
S. Closterium B. & C.
S. rostraspora Ger.
S. smilacinina Pk.
Diatrype adusta C. & P.
D. cercidicola B. & C.
D. atropunctata Schw.
Sphæria scoriadea Fr.

Hypoxylon ustulatum Bull.
H. concentricum Bolt.
H. fragiforme Pers.

Diatrype smilacicola Schw.
D. discreta Schw.
Hypoxylon nummularia Bull.
Sphæria rostrata Fr.
S. tubæformis Tode.
S. mirabilis Pk.
S. Gnomon Tode.
S. curvicolla Pk.
S. eccentrica C. & P.

Gnomoniella fimbriata Sacc.

G. Coryli Sacc.

G. melanostyla Sacc.

Læstadia carpinea Sacc.

L. fraxinicola Sacc.

L. brunnea Sacc.

Physalospora minutella Sacc.

P. ceanothina Sacc.

Trichosphæria fissurarum Sacc.

T. subcorticalis Sacc.

Wallrothiella Arceuthobii Sacc.

W. squalidula Sacc.

Botryosphæria Quercuum Sacc.

Cryptosporella leptasca Sacc.

C. anomala Sacc.

Sphærella punctiformis Rabh.

S. maculiformis Auersw.

S. spleniata C. & P.

S. orbicularis Pk.

S. colorata Pk.

S. indistincta Pk.

S. Impatientis P. & C.

S. Vaccinii Cke.

S. sparsa Auersw.

S. Sarraceniæ Sacc.

S. smilacicola Cke.

Stigmatea Robertiana Fr.

Didymella Sphærellula Sacc.

D. onosmodina Sacc.

Melanopsamma recessa Sacc.

M. Papilla Sacc.

Bertia moriformis De Not.

Venturia ditricha Karst.

V. Clintonii Pk.

V. compacta Pk.

V. Kalmiæ Pk.

V. orbicula C. & P.

V. pulchella C. & P.

V. Dickiei C. & D.

V. Myrtilli Cke.

Endothia gyrosa Fekl.

Melanconis stilbostoma Tul.

M. thelebola Sacc.

Diaporthe platasca Sacc.

D. acerina Sacc.

D. Woolworthii Sacc.

D. leiphæma Sacc.

D. impulsa Sacc.

D. Cratægi Fekl.

D. bicincta Sacc.

D. oxyspora Sacc.

D. obscura Sacc.

Sphæria fimbriata Pers.

S. Coryli Batsch.

S. melanostyla Fr.

Sphærella carpinea Fr.

Depazea fraxinicola Curt.

D. brunnea B. & C.

Sphæria minutella Pk.

S. ceanothina Pk.

S. fissurarum B. & C.

S. subcorticalis Pk.

S. Arceuthobii Pk.

S. squalidula C. & P.

Melogramma Quercuum Fr.

Valsa leptasca P. & C.

Diatrype anomala Pk.

Sphæria punctiformis Pers.

S. Sarraceniæ Schw.

Depazea smilacicola Schw.

Dothidea Robertiana Fr.

Sphæria Sphærellula Pk.

S. onosmodina P. & C.

S. recessa C. & P.

S. Papilla Schw.

S. moriformis Tode.

S. gyrosa Schw.

Valsa stilbostoma Fr.

V. thelebola Fr.

Diatrype platasca Pk.

Valsa acerina Pk.

V. Woolworthii Pk.

V. leiphæma Fr.

V. impulsa C. & P.

V. Cratægi Curr.

V. bicincta C. & P.

V. oxyspora Pk.

V. obscura Pk.

- Diaporthe mucronata* Sacc.
 D. salicella Sacc.
 D. spiculosa Nitsch.
 D. aculeata Sacc.
 D. racemula Sacc.
 D. Desmodii Sacc.
 D. exercitalis Sacc.
 D. picea Sacc.
Didymosphæria Parnassiæ Sacc.
Massariella bufonia Speg.
Parodiella perisporioides Speg.
Amphisphæria phileura Sacc.
 A. salebrosa Sacc.
 A. thujina Sacc.
Oththia alnea Sacc.
 O. seriata Sacc.
Valsaria Peckii Sacc.
 V. moroides Sacc.
Massaria Corni Sacc.
 M. Argus Tul.
 M. vomitoria B. & C.
Leptosphæria Doliolum De Not.
 L. subconica Sacc.
 L. viridella Sacc.
 L. ramulicola Sacc.
 L. scapophila Sacc.
 L. sorghophila Sacc.
 L. orthogramma Sacc.
 L. culmifraga C. & D.
 L. Crepini De Not.
 L. Marcyensis Sacc.
 L. taxicola Sacc.
 L. platanicola Sacc.
Clypeosphæria Hendersoniæ Sacc.
Chætosphæria leonina Sacc.
 C. phæostromoides Sacc.
Melanomma pulvis-pyrius Fekl.
Trematosphæria pertusa Fekl.
Sporormia minima Auersw.
Aglaospora profusa Lamb.
Pseudovalsa bicornis Sacc.
 P. lancif. v. elliptica Pk.
 P. sambucina Sacc.
 P. hapalocystis Sacc.
Melogramma vagans De Not.
Metasphæria Semen Sacc.
 M. staphylina Sacc.
Lasiosphæria hirsuta C. & D.
 L. cæsariata Sacc.
 L. viridicoma Sacc.
 L. canescens Karst.
 L. xestothele Sacc.
Valsa mucronata Pk.
Sphæria salicella Fr.
 S. spiculosa Pers.
 S. aculeata Schw.
 S. racemula C. & P.
 S. Desmodii Pk.
 S. exercitalis Pk.
 S. picea Pers.
 S. Parnassiæ Pk.
Massaria bufonia Tul.
Sphæria perisporioides B. & C.
 S. phileura C. & P.
 S. salebrosa C. & P.
 S. thujina Pk.
Cucurbitaria alnea Pk.
 C. seriata Pk.
Valsa Peckii Howe.
Diatrype moroides C. & P.
Massaria gigaspora Desm.

Sphæria Doliolum Pers.
 S. subconica C. & P.
 S. viridella Pk.
 S. ramulicola Pk.
 S. scapophila Pk.
 S. sorghophila Pk.
 S. orthogramma B. & C.
 S. culmifraga Desm.
 S. Crepini West. †
 S. Marciensis Pk.
 S. taxicola Pk.
 S. platanicola Howe.
 S. Hendersoniæ Ellis.
 S. leonina C. & P.
 S. phæostromoides Pk.
 S. pulvis-pyrius Pers.
 S. pertusa Pers.
 S. minima Auersw.
Valsa profusa Fr.
Melanconis bicornis Cke.
 M. elliptica Pk.
Valsa sambucina Pk.
 V. hapalocystis B. & Br.
Melogramma Bulliardii Tul.
Sphæria Semen C. & P.
 S. staphylina Pk.
 S. hirsuta Fr.
 S. cæsariata C. & P.
 S. viridicoma C. & P.
 S. canescens Pers.
 S. xestothele B. & C.

Lasiosphæria Pezizula Sacc.
 L. spermoides *C. & D.*
 L. ovina *C. & D.*
Acanthostigma Clintonii Sacc.
Zignoella exigua Sacc.
Pleospora herbarum Rabh.
Pyrenophora phæocomes Sacc.
Iulella monosperma Sacc.
Teichospora obducens Fekl.
 T. interstitialis *Sacc.*
 T. phellogena *Sacc.*
Cucurbitaria elongata Grev.
 C. Berberidis *Gray.*
Thyridium Spraguei Sacc.
Fenestella superficialis Sacc.
 F. Xanthoxyli *Sacc.*
Ophiobolus fulgidus Sacc.
 O. porphyrogonus *Sacc.*
 O. acuminatus *Duby.*
 O. Urticæ *Sacc.*
Sillia ferruginea Karst.
Cryptospora suffusa Tul.
 C. femoralis *Sacc.*
 C. cinctula *Sacc.*
 C. trichospora *Sacc.*

Sphæria Pezizula B. & C.
 S. spermoides *Hoffm.*
 S. ovina *Pers.*
 S. Clintonii *Pk.*
 S. exigua *C. & P.*
 S. herbarum *Pers.*

 S. monosperma *Pk.*
 S. obducens *Fr.*
 S. interstitialis *C. & P.*
 S. phellogena *B. & C.*
 S. elongata *Fr.*

 S. Spraguei *B. & C.*
Melogramma superficialis P. & C.
Valsa Xanthoxyli Pk.
Sphæria fulgida C. & P.
 S. rubella *Pers.*
 S. acuminata *Sow.*
 S. Urticæ *Rabh.*
Diatrype ferruginea Fr.
Valsa suffusa Fr.
 V. femoralis *Pk.*
 V. cinctula *C. & P.*
 V. trichospora *C. & P.*

Hypocreaceæ.

Nectriella mycetophila Sacc.
Melanospora lagenaria Fekl.
Hypomyces lateritius Tul.
 H. Lactifluorum *Tul.*
 H. floccosus *Fr.*
 H. ochraceus *Tul.*
 H. aurantius *Fekl.*
 H. Van Bruntianus *Ger.*
 H. polyporinus *Pk.*
 H. transformans *Pk.*
Hypocrea rufa Fr.
 H. Patella *C. & P.*
 H. chromosperma *C. & P.*
 H. gelatinosa *Fr.*
 H. contorta *Schw.*
 H. Richardsoni *B. & M.*
 H. citrina *Fr.*
 H. alutacea *C. & D.*
 H. apiculata *C. & P.*
Nectria Ribis Rabh.
 N. cinnabarina *Fr.*
 N. Celastri *Schw.*
 N. cucurbitula *Fr.*
 N. sanguinea *Fr.*

Nectria mycetophila Pk.
Sphæria lagenaria Pers.
Hypocrea lateritia Fr.
 H. Lactifluorum *Schw.*
 H. floccosa *Fr.*

Nectria episphæria <i>Fr.</i>	
N. Peziza <i>Fr.</i>	
N. Apocyni <i>Pk.</i>	
Gibberella pulicaris <i>Sacc.</i>	Sphæria pulicaris <i>Pers.</i>
G. Saubinetii <i>Sacc.</i>	S. Saubinetii <i>Mont.</i>
Claviceps purpurea <i>Tul.</i>	Cordyceps purpurea <i>Tul.</i>
Cordyceps pistillariæformis <i>B. & Br.</i>	Torrubia clavulata <i>Schw.</i>
C. superficialis <i>Sacc.</i>	T. superficialis <i>Pk.</i>
C. ophioglossoides <i>Tul.</i>	T. ophioglossoides <i>Tul.</i>
C. capitata <i>Lk.</i>	T. capitata <i>Fr.</i>
C. entomorrhiza <i>Fr.</i>	T. entomorrhiza <i>Fr.</i>
C. militaris <i>Lk.</i>	
Epichloe typhina <i>Tul.</i>	
Hypocrella Hypoxylon <i>Sacc.</i>	Epichloe Hypoxylon <i>Pk.</i>

Dothideaceæ.

Phyllachora Ulmi <i>Fekl.</i>	Sphæria ulmea <i>Schw.</i>
P. Lespedezæ <i>Sacc.</i>	S. Lespedezæ <i>Schw.</i>
P. graminis <i>Fekl.</i>	S. graminis <i>Pers.</i>
P. Caricis <i>Sacc.</i>	Dothidea Caricis <i>Fr.</i>
P. Trifolii <i>Fekl.</i>	D. Trifolii <i>Fr.</i>
P. flabella <i>Thum.</i>	D. flabella <i>B. & C.</i>
P. Pteridis <i>Fekl.</i>	D. Pteridis <i>Pers.</i>
P. Dalibardæ <i>Sacc.</i>	D. Dalibardæ <i>Pk.</i>
P. episphæria <i>Sacc.</i>	D. episphæria <i>Pk.</i>
Dothidiella Kalmiæ <i>Sacc.</i>	D. Kalmiæ <i>Pk.</i>
D. Osmundæ <i>Sacc.</i>	D. Osmundæ <i>P. & C.</i>
Plowrightia ribesia <i>Sacc.</i>	D. ribesia <i>Pers.</i>
P. morbosa <i>Sacc.</i>	Sphæria morbosa <i>Schw.</i>
Dothidea Sambuci <i>Fr.</i>	
D. tetraspora <i>B. & Br.</i>	
D. Linderæ <i>Ger.</i>	
Ropographus filicinus <i>Fekl.</i>	Dothidea filicina <i>Fr.</i>
R. clavisporus <i>Sacc.</i>	Hysterium clavisporum <i>C. & P.</i>

Microthyriaceæ.

Myiocopron Smilacis <i>Sacc.</i>	Microthyrium Smilacis <i>De Not.</i>
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Lophiostomaceæ.

Lophiotrema Spirææ <i>Sacc.</i>	Lophiostomum Spirææ <i>Pk.</i>
L. Scrophulariæ <i>Sacc.</i>	L. Scrophulariæ <i>Pk.</i>
L. sexnucleatum <i>Sacc.</i>	L. sexnucleata <i>Cke.</i>
Lophiostoma triseptatum <i>Pk.</i>	
L. prominens <i>Pk.</i>	
L. turritum <i>C. & P.</i>	
L. magnatum <i>C. & P.</i>	
L. macrostomum <i>De Not.</i>	
L. scelestum <i>Sacc.</i>	
Lophidium obtectum <i>Sacc.</i>	L. obtectum <i>Pk.</i>

Hysteriaceæ.

- Aulographum subconfluens *Pk.*
 Glonium stellatum *Muhl.*
 G. parvulum *Ger.*
 G. simulans *Ger.*
 G. hyalospermum *Ger.*
 G. lineare *De Not.*
 Angelina rufescens *Duby.*
 Hysterium pulicare *Pers.*
 H. angustatum *A. & S.*
 H. truncatulum *C. & P.*
 H. ellipticum *Fr.*
 H. macrosporum *Pk.*
 H. Thuiarum *C. & P.*
 H. magnosporum *Ger.*
 H. Azaleæ *Schw.*
 H. rincipolum *Schw.*
 Mytilidion tortile *Sacc.*
 Dichæna faginea *Fr.*
 Gloniopsis australis *Sacc.*
 Hysterographium Fraxini *De Not.*
 H. insidens *Sacc.*
 H. Roussellii *Sacc.*
 H. variabile *Sacc.*
 H. vulvatum *Rehm.*
 Hypoderma ilicinum *De Not.*
 H. nervisequum *DC.*
 H. Desmazieri *Duby.*
 H. lineare *Pk.*
 H. virgultorum *DC.*
 H. commune *Duby.*
 H. scirpinum *DC.*
 H. Smilacis *Rehm.*
 Lophodermium exaridum *C. & P.*
 L. maculare *De Not.*
 L. hysteroioides *Sacc.*
 L. sphærioides *Duby.*
 L. Pinastri *Chev.*
 L. typhinum *Lamb.*
 Lophium mytilinum *Fr.*
 Colpoma morbidum *Sacc.*
 C. lacteum *Pk.*
 Acrospermum compressum *Tode.*
- Hysterium lineare *Fr.*
 Ascobolus conglomeratus *Schw.*
- Dothidea rincipola *Schw.*
 Hysterium tortile *Schw.*
- H. australis *Duby.*
 H. Fraxini *Pers.*
 H. insidens *Schw.*
 H. Roussellii *De Not.*
 H. variabile *C. & P.*
 H. vulvatum *Schw.*
 H. ilicinum *De Not.*
- Rhytisma lineare *Pk.*
- Hysterium commune *Fr.*
 H. scirpinum *Fr.*
 H. Smilacis *Schw.*
- H. maculare *Fr.*
 H. xylomoides *Chev.*
 H. sphærioides *A. & S.*
 H. Pinastri *Schrad.*
 H. typhinum *Fr.*
- Triblidium morbidum *Pk.*

NEW YORK SPECIES OF VISCID BOLETI.

BOLETUS *Dill.*

Hymenium composed of separable tubes crowded into a porous stratum, without a trama, distinct and easily separable from the hymenophore. Mouths of the tubes either porous, round or angular; spores normally fusiform, rarely oval or subrotund. *Terrestrial, fleshy, putrescent, centrally stipitate fungi. Many of them valuable for their edible qualities, a few poisonous. Hym. Europ., p. 495.*

This genus is related to Paxillus on one hand and to Polyporus on the other. It is more accurately limited than many others, but its species are numerous and less clearly defined. Some are very variable, others are too closely allied to be readily distinguished. Fries remarks that "no genus has given me more trouble than that of the Boleti." The difficulty is apparently due to the imperfect descriptions given by some authors and to the variability of some species whose limits have not been well ascertained.

Most of the Boleti grow in the warmest part of the season, and especially in very warm showery weather. They are scarce in dry weather. Some species attain a very large size, others exhibit a singular change of color in their tubes or flesh when cut or bruised. They are described as terrestrial, yet a few species sometimes occur also on much decayed wood.

The spores vary in color in different species, but this variation occurs in closely related species, so that it is not deemed available for classifying in series as in the genus Agaricus. It is, however, valuable as a specific character and should always be noted. Fries has taken the primary color of the tubes as the distinguishing character of the series, but the same objection holds in this case as in the other.

New York is rich in species of this genus. Two sections, LACERIPEDES Pk. (Torr. Bull. 1883, p. 73) and HIRTIPELLES Pk. (in. ed.) are represented, of which no examples appear to have occurred in Europe. We attempt here an exposition of the species of the Viscipelles, the first section in the Friesian arrangement.

VISCIPELLES. *Pileus covered with a viscose pellicle.* Stem solid, neither bulbous nor reticulated with veins. Tubes adnate to the stem, rarely sinuate, of one color. *Hym. Europ.*, p. 496.

In this section the species have the pileus either viscid or glutinous when moist, and in most of them the viscid pellicle is separable from the flesh. The flesh, when cut or exposed to the air does not, with one exception, assume the bluish tints so often seen in some of the members of other sections, yet in some, dull-pinkish or more obscure tints appear. In mature plants it generally becomes soft, almost floccose or cottony in texture. The tubes are mostly adnate or even slightly decurrent. In rare instances they may be somewhat depressed around the stem. The pores are usually of medium or large size and frequently angular. The dissepiments are often uneven or dentate. The mouths are colored like the rest of the tubes. Yellow or ochraceous hues prevail, but the tubes when young are paler than when mature. The stem is not distinctly bulbous, is always solid and generally glabrous or merely dotted. It is annulate in some, naked in others. In several closely related central species of the group it, as well as the tubes, exudes, when young, drops of a thick, gummy fluid, which soon hardens, becomes darker and forms sugary granules or glandular dots. The color of the spores is by no means uniform, but it is some shade of ochraceous, ferruginous or brown. The first and last species here described are exceptional by their slight viscosity. The first is also exceptional by its universal tomentose-pulverulent veil. Several species are edible. Nearly all occur in regions inhabited by pine or other coniferous trees, and are wanting in localities destitute of these trees.

Synopsis of the Species.

Stem annulate.	1.
Stem not annulate.	6.
1 Cuticle of the pileus red.	2.
1 Cuticle of the pileus not red.	3.
2 Pileus either wholly or on the margin yellow-pulverulent.	B. Ravenelii.
2 Pileus squamose.	B. spectabilis.
3 Young tubes whitish.	B. Elbensis.
3 Young tubes yellow.	4.
4 Stem not dotted.	B. Clintonianus.
4 Stem dotted.	5.
5 Stem 5 lines or more thick, annulus not glutinous.	B. luteus.
5 Stem less than 5 lines thick, annulus glutinous.	B. subluteus.
6 Stem dotted.	7.
6 Stem not dotted.	9.

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|---|----------------|
| 7 Pileus yellow. | 8. |
| 7 Pileus not clear yellow. | B. granulatus. |
| 8 Stem rhubarb color. | B. punctipes. |
| 8 Stem yellow, 4 lines or more thick. | B. subaureus. |
| 8 Stem generally yellow, less than 4 lines thick. | B. Americanus. |
| 9 Pileus bay-brown or chestnut color. | 10. |
| 9 Pileus some other color. | B. piperatus. |
| 10 Pileus very glutinous, stem very short. | B. brevipes. |
| 10 Pileus merely viscid when moist, stem longer. | B. badius. |

Boletus Ravenelii B. & C.

Ravenel's Boletus.

Pileus convex or nearly plane, slightly viscid when young or moist, at first covered with a sulphur-yellow pulverulent tomentum, the disk at length naked, dull-red, flesh whitish, sometimes with yellowish strains; tubes at first plane, adnate, pale-yellow, at length yellowish-brown or umber, sometimes becoming convex and slightly depressed around the stem, dingy-greenish when bruised, medium size, subrotund; stem nearly equal, clothed and colored like the young pileus, yellow within, with a slight somewhat evanescent tomentose annulus; spores ochraceous-brown, .0004 to .0005 in. long, .0002 to .00025 broad.

Plant solitary, rarely cæspitose, pileus 1 to 3 in. broad, stem 1.5 to 4 in. long, 3 to 6 lines thick.

Woods and copses. Rensselaer, Saratoga and Fulton counties.

This is a very distinct and beautiful species. Mr. Ravenel remarks in his notes that "this plant is not infested by larvæ, and preserves more constant characters than any other Boletus with which I am acquainted." The webby powdered filaments constitute a universal veil, which at first covers the whole plant and conceals the young tubes. As the pileus expands, the veil generally disappears from the disk and ruptures between the margin and the stem, a part adhering to each. In consequence of the peculiar veil and the slight viscosity of the pileus the species does not harmonize well with the associated species, and but for the slight annulus it might as well be placed near *B. piperatus*. The annulus is sometimes stained by the spores. These, when caught on white paper, at first appear to have a slight greenish tint.

Boletus spectabilis Pk.

Showy Boletus.

Pileus broadly convex, at first covered with a red tomentum, then squamose, viscid when moist, red, the tomentose scales becoming grayish-red, brownish or yellowish, flesh whitish or pale-yellow; tubes

at first yellow, concealed by a reddish glutinous membrane, then ochraceous, convex, *large, angular*, adnate; stem nearly equal, annulate, yellow above the annulus, red or red with yellow stains below; spores *purplish-brown*, .0005 to .0006 in. long, .00025 to .00028 broad.

Pileus 2 to 5 in. broad, stem 3 to 5 in. long, 4 to 6 lines thick.

Thin woods in swamps. Adirondack mountains. August.

This rare and showy species is at present known only from two localities, North Elba, where it was first discovered in 1869, and at Jacksons, near Cedar river, where it occurred in 1878. When cut the flesh emits a strong, unpleasant odor. Wounds of the flesh, made by insects or small animals, had a bright-yellow color. When young, the tomentose veil covers the whole plant, but it soon breaks up into scales on the pileus, and partly or wholly disappears from the stem. The color of the spores is darker than in any of the other species of this section.

Boletus Elbensis *Pk.*

Elba Boletus.

Pileus gibbous or convex, smooth, viscid when moist, *dingy-gray or pinkish-gray*, obscurely virgate-spotted, flesh white; tubes at first *whitish*, nearly plane, adnate or slightly decurrent, rather large, angular, becoming dingy or brownish-ochraceous; stem nearly equal, annulate, *whitish above the annulus*, colored like the pileus below, sometimes slightly reticulated at the apex by the decurrent walls of the tubes; spores *ferruginous-brown*, .0004 to .0005 in. long, .00016 to .0002 broad.

Plant subgregarious, pileus 2 to 4 in. broad, stem 3 to 5 in. long, 4 to 6 lines thick.

Thin woods of larch, spruce and balsam. Adirondack mountains. July to September.

This species is so closely related to the European *B. laricinus*, that it might almost be regarded as a variety of that species. I have separated it because of its smooth pileus and stem. I have never seen the former squamose, nor the latter scrobiculate. From *B. viscidus* it differs decidedly in its coloration.

Boletus Clintonianus *Pk.*

Clinton's Boletus.

Pileus thick, convex, very viscid or glutinous. smooth, soft, shining, varying in color, *golden-yellow, reddish-yellow or chestnut-color*, the margin thin, flesh pale-yellow, becoming less bright or dingy on exposure to the air; tubes nearly plane, adnate or subdecurrent, small,

angular or subrotund, pale-yellow when young, becoming dingy-ochraceous, changing to purplish-brown where bruised; stem equal or slightly thickened at the base, straight or flexuous, annulate, *yellow at the apex*, elsewhere reddish or reddish-brown, sometimes stained with yellow, slightly reticulate at the apex by the decurrent walls of the tubes, annulus *whitish or yellow, persistent*, forming a thick tomentose band about the stem; spores *brownish-ochraceous*, .0004 to .00045 in. long, .00016 to .0002 broad.

Plant single or rarely cæspitose, pileus 2 to 5 in. broad, stem 2 to 5 in. long, 4 to 9 lines thick.

Mossy ground in woods and grassy ground in open places; generally under or near larch trees.

This fine species is apparently the American analogue of the European *B. elegans*, from which it differs in its generally darker color, in its persistent, not fugacious, annulus, and in its stem, which is not at all dotted, either above or below the annulus. It is edible, and has a mild taste in the fresh uncooked state. It has occurred once in Washington Park, Albany, near some larch trees, with which it was probably introduced.

***Boletus luteus* L.**

Yellow-brown Boletus.

Pileus gibbous or convex, sometimes nearly plane, viscid or glutinous when moist, virgate-spotted, yellowish-brown, flesh white or yellowish; tubes small, simple, adnate, at first pale-yellow, then dingy-ochraceous; stem *stout*, rather short, annulate, *rough with dots and yellowish above the ring*, brownish-white or yellowish below, the annulus *large, membranous*, whitish or brownish-white; spores ochraceo-ferruginous, nearly fusiform, .0003 in. long, .00015 broad.

Gregarious or rarely subcæspitose, pileus 2 to 5 in. broad, stem 1 to 2 in. long, 5 to 8 lines thick.

Under pine trees, *Pinus sylvestris*. Menands. October.

This is the only instance in which I have observed this species in our State. Possibly it may have been introduced in this place with the young pines under which it was growing. Its annulus is very conspicuous. It is sometimes torn and partly adherent in fragments to the margin of the pileus. In short-stemmed specimens it extends downwards and covers the lower part of the stem like a sheath, resembling in this respect the western *Boletus sphaerosporus*, a related species. In other specimens it forms a broad band with the upper margin widely spreading. In the dried specimens the pileus has assumed a dull-brownish or reddish-brown hue. The plant is edible.

Boletus subluteus *n. sp.*

Small Yellowish Boletus.

Pileus convex or nearly plane, viscid or glutinous when moist, sometimes obscurely virgate-spotted, dingy-yellowish inclining to ferruginous-brown. flesh whitish varying to dull-yellowish; tubes plane or convex, adnate, small, subrotund, yellow, becoming ochraceous; stem equal, *slender*, annulate, pallid or yellowish, *marked both above and below the annulus with reddish or brownish glandular dots*, annulus submembranous, *glutinous*, at first concealing the tubes, then *collapsing and forming a narrow whitish or brownish band* about the stem; spores ochraceo-ferruginous, subfusiform, .0003 to .0004 in. long, .00016 to .0002 broad.

Solitary or gregarious, pileus 1.5 to 3 in. broad, stem 1.5 to 2.5 in. long, 2 to 4 lines thick.

Sandy soil in pine woods or groves. Albany and Lewis counties. September and October.

In the Twenty-third Report this fungus was referred as an aberrant form to *B. luteus*, which it much resembles in its general characters. But I find it so constant in its peculiar features that I am disposed to regard it as a distinct species. It differs from *B. luteus* in its smaller size, more slender stem and glutinous collapsing annulus. This never extends downwards so as to sheathe the lower part of the stem, but forms a narrow band with scarcely any spreading margin. Besides the stem is conspicuously dotted both above and below the annulus. The markings of the pileus in this species, *B. luteus* and *B. Elbensis* are similar and resemble little patches of innate brownish fibrils. The species is probably edible, but I have not tested it.

Boletus Americanus *n. sp.*

American Boletus.

Pileus thin, convex or nearly plane, soft, very viscid or glutinous when moist, slightly *tomentose on the margin when young*, soon glabrous or slightly squamose on the margin, rarely wholly squamose-spotted from the drying of the gluten, pale-yellow, becoming dingy or less bright with age, sometimes vaguely dotted or streaked with bright-red, flesh pale-yellow, less clear or pinkish-gray on exposure to the air; tubes plane or convex, adnate, *rather large*, angular, pale-yellow, becoming sordid-ochraceous; stem *slender*, equal or slightly tapering upwards, firm, *not at all annulate*, yellow, sometimes pallid or brownish toward the base, marked with numerous brown or

reddish-brown glandular dots, yellow within; spores *ochraceo-feruginous*, oblong or subfusiform, .00035 to .00045 in. long, .00016 to .0002 broad.

Gregarious, pileus 1 to 3 in. broad, stem 1.5 to 2.5 in. long, 2 to 4 lines thick.

Under or near pine trees in woods and open places. Very common. July to October.

This is one of our most common species. It is generally associated with *B. granulatus*, from which it is easily distinguished by its thinner pileus, yellow color and more slender stem. As in that and other related species, the stem and tubes exude drops of a turbid milk or juice which hardens and forms the glandular dots seen on them. These are sometimes so numerous that they become confluent. By them and the viscosity of the pileus in this and allied species the fingers become stained in handling the fresh plants. The species is closely related to the European *B. flavidus*, to which our plant has commonly been referred by American mycologists, and under which name it stands in the Twenty-third Report. I am satisfied by more recent investigation that it should be kept distinct, inasmuch as it constantly differs in the character of the veil and the dots of the stem. In *B. flavidus* the stem is described as sprinkled with fugacious glandules above the merely viscous annulus. In *B. Americanus* the stem is dotted from top to base with persistent glandules, there is no appearance of an annulus on it and the veil is somewhat tomentose on the margin of the young pileus. The plant has a slight subacid odor which is perceptible even in the dried specimens. The mycelium is white.

Boletus subaureus *Pk.*

Pale-golden Boletus.

Pileus convex, becoming nearly plane, soft, viscose, *pale-yellow or golden-yellow*, sometimes adorned with darker spots or small tufts of hairs, the margin in the young plant slightly grayish-tomentose, flesh pale-yellow; tubes small or medium size, somewhat angular, adnate or subdecurrent, pale-yellow, becoming dingy-ochraceous; stem equal, *stout*, glandular-dotted, *yellow without and within*; spores *ochraceous-brown*, oblong or subfusiform, .00035 to .0004 in. long, .00016 broad.

Plant gregarious or rarely caespitose, pileus 2 to 4 in. broad, stem 1.5 to 2.5 in. long, 4 to 6 lines thick.

Thin woods. Albany and Saratoga counties. July to October.

This species resembles *B. Americanus* in color, but differs from it in its thicker pileus, stouter stem and differently colored spores. These have nearly the same color as those of *B. Ravenelii*. In its more robust habit it approaches *B. granulatus*. The minute hairy squamules of the pileus are a peculiar feature, but they are not always present. The glandular dots occur also on the tubes.

***Boletus punctipes* Pk.**

Punctate-stemmed Boletus.

Pileus convex or nearly plane, glutinous when moist, yellow, the thin margin at first minutely grayish-pulverulent, becoming recurved with age; tubes short, nearly plane, adnate, small, subrotund, *at first brownish*, becoming sordid-ochraceous; stem rather long, *tapering upwards*, not annulate, glandular-dotted, *rhubarb-yellow*; spores .00035 to .0004 in. long, .00016 to .0002 broad.

Plant gregarious, pileus 2 to 3 in. broad, stem 2 to 3 in. long, 3 to 5 lines thick.

Woods. Gansevoort, Saratoga county. August.

The rhubarb-colored stem and the brownish color of the young hymenium are the distinguishing features of this species. The granulations occur also on the tubes. The species is a rare one, having been found but once.

***Boletus^a albus* Pk.**

White Boletus.

Pileus convex, viscid when moist, *white*, flesh white or yellowish; tubes plane, rather small or medium size, subrotund, adnate, whitish, becoming yellow or ochraceous; stem equal or slightly tapering downwards, not annulate, both it and the tubes glandular-dotted, white, sometimes tinged with pink towards the base; spores *ochraceous*, subfusiform, .0003 to .00035 in. long, .00016 broad.

Plant gregarious or subcaespitose, pileus 1.5 to 3 in. broad, stem 1.5 to 3 in. long, 3 to 5 lines thick.

Pine or hemlock woods. Saratoga county and Adirondack mountains. August to October.

This species is easily known by its white pileus. This, however, becomes dark-colored or brown in drying. The fresh plant sometimes has a peculiar fetid odor, but it does not appear to be constant. *Boletus Boudieri* Q. is a closely related European species. Another European species bears the name *Boletus albus* Gillet, but the name of the American plant, which was published in 1873, has priority.

Boletus granulatus L.

Granulated Boletus.

Pileus thick, convex or nearly plane, very viscid or glutinous when moist, variable in color, *pinkish-gray, reddish-brown, yellowish, tawny-ferruginous or brownish*, flesh white or tinged with yellow; tubes nearly plane, adnate, *small*, at first whitish or very pale-yellow, becoming dingy-ochraceous; stem subequal, rather short, not annulate, both it and the tubes marked with glandular dots, whitish or pallid, sometimes yellowish; spores *ochraceo-ferruginous*, subfusiform, .0003 to .00035 in. long, .00016 broad.

Plant gregarious, pileus 1.5 to 3 in. broad, stem 1 to 2 in. long, 4 to 6 lines thick.

Woods, especially of pine, and in open places. Very common. July to October.

The pileus in this species is very variable in color, but it is never wholly white as in the preceding species. Its stem is often dotted to the base, but the dots or granules are generally more numerous and distinct on the upper part. This and *B. Boudieri* appear to be the only European species with exannulate glandular-dotted stems. If we have correctly valued our forms, New York alone has five such species. It is true, they are closely related to each other, and might be regarded by some as mere varieties of a single extremely variable species, but to me the distinguishing characters here given appear to be constant and decisive.

B. granulatus is recorded as edible by most authors. I have not tested it. Gillet remarks that it ought to be regarded at least with suspicion. *B. collinitus* in the Twenty-third Report, *B. flavorufus* Schæff., *B. lactifluus* Sow. and *B. circinans* Pers. are synonyms.

Boletus brevipes Pk.

Short-Stemmed Boletus.

Pileus thick, convex, covered with a *thick, tough gluten* when young or moist, *dark-chestnut color*, sometimes fading to dingy-tawny, the margin inflexed, flesh white or tinged with yellow; tubes short, nearly plane, adnate, small, subrotund, at first whitish, then yellowish, becoming dingy-ochraceous; stem *very short*, not annulate, whitish, *not dotted or rarely with a few very minute and inconspicuous dots at the apex*; spores subfusiform, .0003 in. long, .00012 broad.

Solitary or gregarious, pileus 1.5 to 2.5 in. broad, stem .5 to 1 in. long, 3 to 5 lines thick.

Sandy soil in pine woods. Albany county. October.

The species is closely related to *B. granulatus*, from which it differs especially in its copious gluten, darker-colored pileus, shorter stem, and in the almost entire absence of granules from the tubes and stem. When present they are limited to the upper part of the stem and are extremely minute and inconspicuous. It occurs very late in the season. *B. viscosus* Frost is a synonym.

Boletus badius Fr.

Bay Boletus.

Pileus convex, even, soft, viscid or glutinous when moist, somewhat shining when dry, *tawny or chestnut color*, flesh whitish tinged with yellow, bluish next the tubes; tubes rather long and large, angular, adnate, *sinuate-depressed*, whitish-yellow, becoming tinged with green; stem nearly equal, rather long, even, paler than the pileus, *brownish-pruinose*; spores oblong, .0004 to .0005 in. long, .00016 to .0002 broad.

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

Woods. Rensselaer and Lewis counties. August and September.

The dimensions of the spores are derived from the American plant. They are smaller than those given by Karsten for the European plant. We have observed no greenish hue to the tubes nor bluish color to the flesh, and to this extent our specimens are doubtful. The plant needs further examination.

Boletus piperatus Bull.

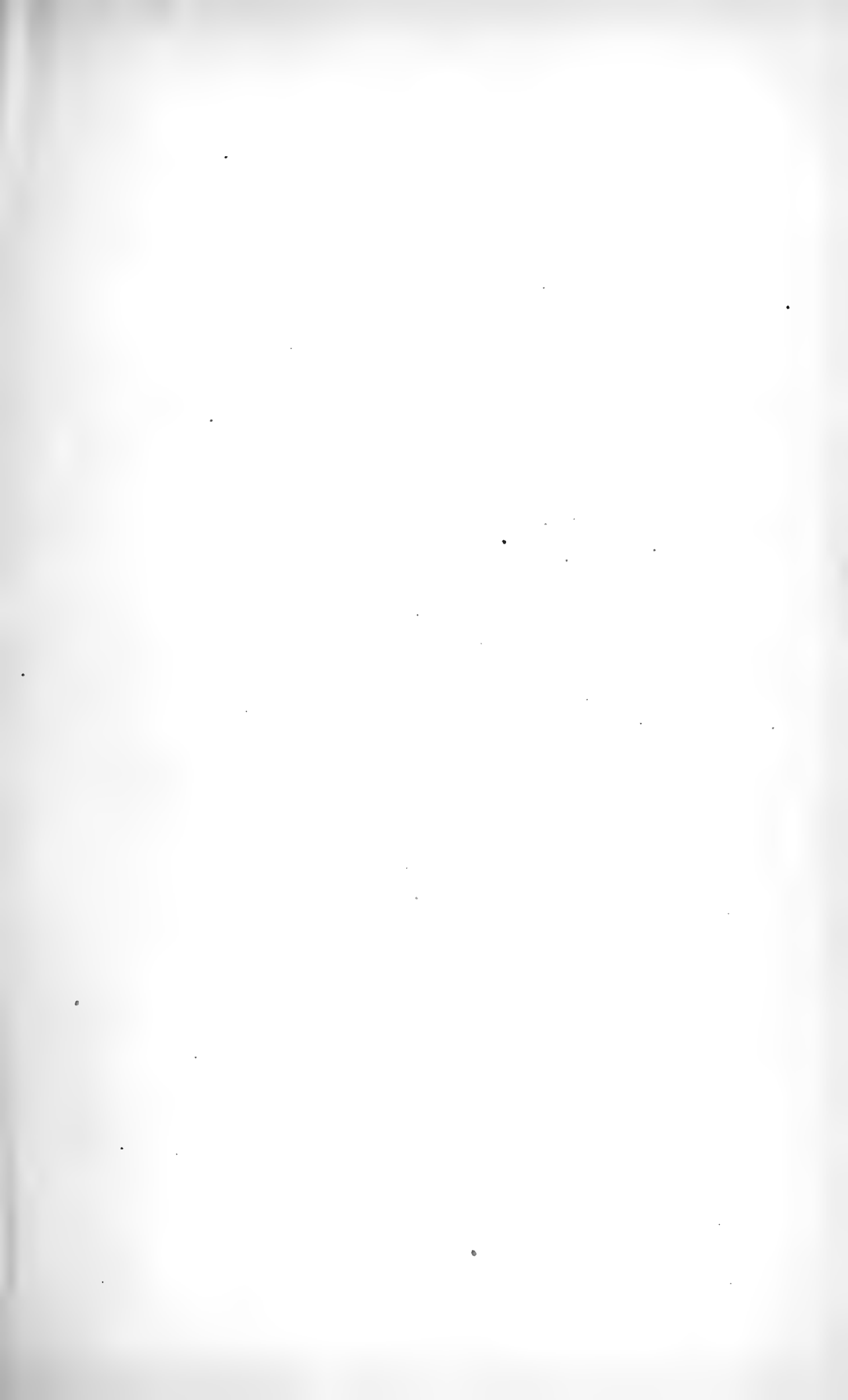
Peppery Boletus.

Pileus convex or nearly plane, smooth, *slightly viscid* when moist, *yellowish, cinnamon or subferruginous*, flesh white or yellowish, *taste acrid*, peppery; tubes rather long and large, angular, plane or convex, adnate or subdecurrent, *reddish-ferruginous*, generally more highly colored than the pileus; stem slender, nearly equal, *tawny-yellow, bright-yellow at the base*; spores *ferruginous-brown*, subfusiform, .00035 to .00045 in. long, .00016 broad.

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

Woods and open places. Common and variable. July to October.

The species is readily known by the peppery taste of the flesh, and the bright yellow color of the base of the stem. The pileus is sometimes rimose-scaly or rimose-areolate. It is less viscid than most other species of this section. The color of the spores is similar to that of the spores of *B. Elbensis*. *B. ferruginatus* Batsch. is a synonym.



EXPLANATION OF PLATE 1.

Ombrophila rubella *Quel.*

- Fig. 1. Fragment of bark bearing the fungus.
- Fig. 2. A plant and its matrix magnified.
- Fig. 3. A branched filament bearing four clusters of spores magnified.
- Fig. 4. Five spores, $\times 400$.

Geoglossum vitellinum *Bres.*

- Fig. 5. Five plants of various forms.
- Fig. 6. Three asci; two containing spores and two united below.
- Fig. 7. Four spores, $\times 400$.

Periconia albiceps *Pk.*

- Fig. 8. Piece of a stem bearing the fungus.
- Fig. 9. Two plants magnified.
- Fig. 10. Filaments of the head; two of them bearing spores, $\times 400$.
- Fig. 11. Four spores, $\times 400$.

Helotium fraternum *Pk*

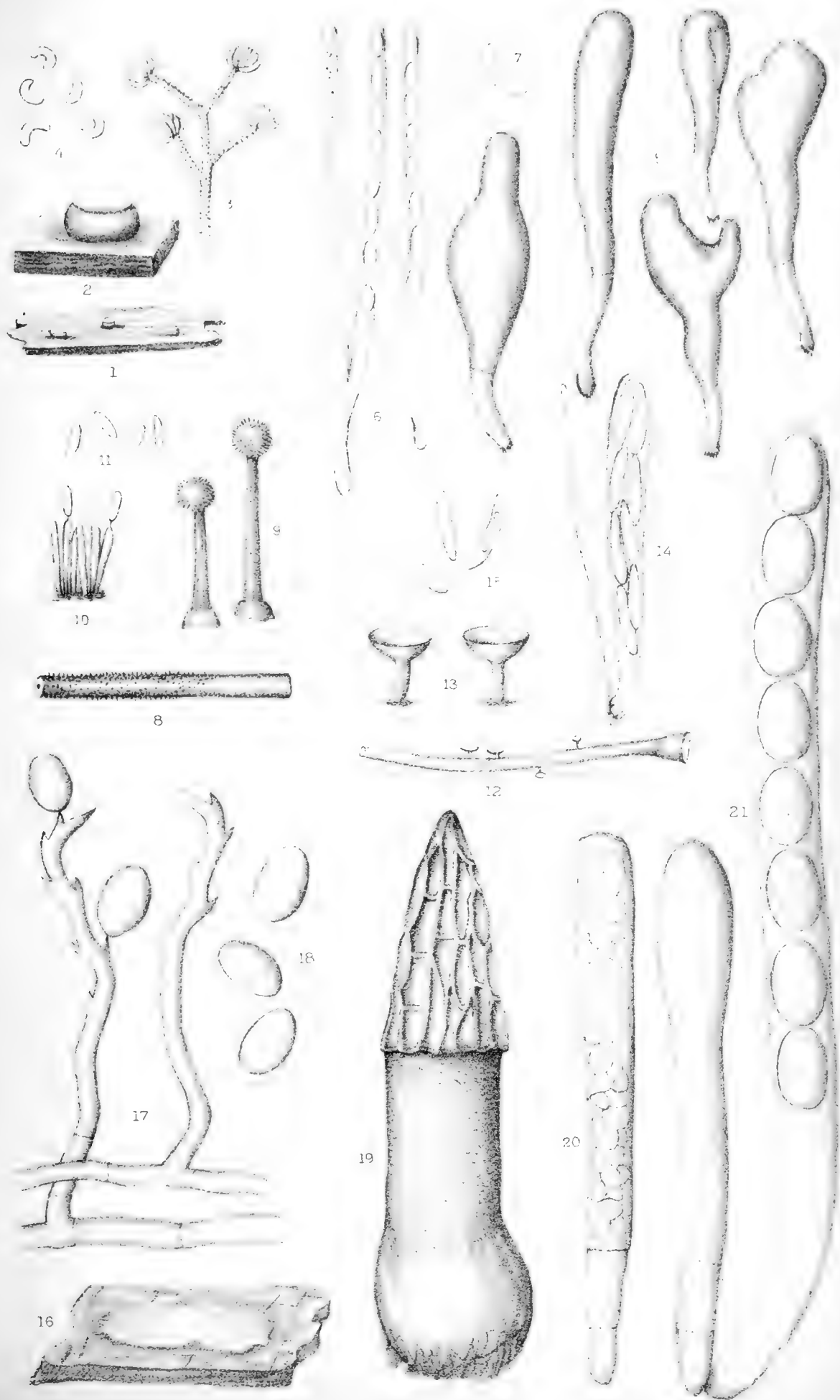
- Fig. 12. A petiole bearing four examples of the fungus.
- Fig. 13. Two plants magnified.
- Fig. 14. A paraphysis and an ascus containing spores, $\times 400$.
- Fig. 15. Three spores, $\times 400$.

Acremonium flexuosum *Pk.*

- Fig. 16. A piece of wood bearing the fungus.
- Fig. 17. Branching filaments; one of them bearing two spores, $\times 400$.
- Fig. 18. Three spores, $\times 400$.

Morchella angusticeps *Pk.*

- Fig. 19. A plant of medium size.
- Fig. 20. Two undeveloped asci; one containing crowded nuclei, $\times 400$.
- Fig. 21. An ascus containing spores, $\times 400$.





EXPLANATION OF PLATE 2.

***Peziza leucobasis* Pk.**

- Fig. 1. A piece of wood bearing the fungus.
- Fig. 2. A plant magnified.
- Fig. 3. A paraphysis and an ascus containing spores, $\times 400$.

***Peziza orbicularis* Pk.**

- Fig. 4. A plant and its matrix.
- Fig. 5. A paraphysis and an ascus containing spores, $\times 400$.
- Fig. 6. Three spores, $\times 400$.

***Gorgoniceps turbinata* Sacc.**

- Fig. 7. Piece of a branch bearing the fungus.
- Fig. 8. A plant magnified.
- Fig. 9. A paraphysis and an ascus containing spores, $\times 400$.
- Fig. 9'. A spore, $\times 400$.

***Glomerularia Corni* Pk.**

- Fig. 10. A leaf spotted by the fungus.
- Fig. 11. Short branching flocci, $\times 400$.
- Fig. 12. Flocci and spores, $\times 400$.
- Fig. 13. A mass of adhering spores, $\times 400$.
- Fig. 14. A single spore, $\times 400$.

***Peziza longipila* Pk.**

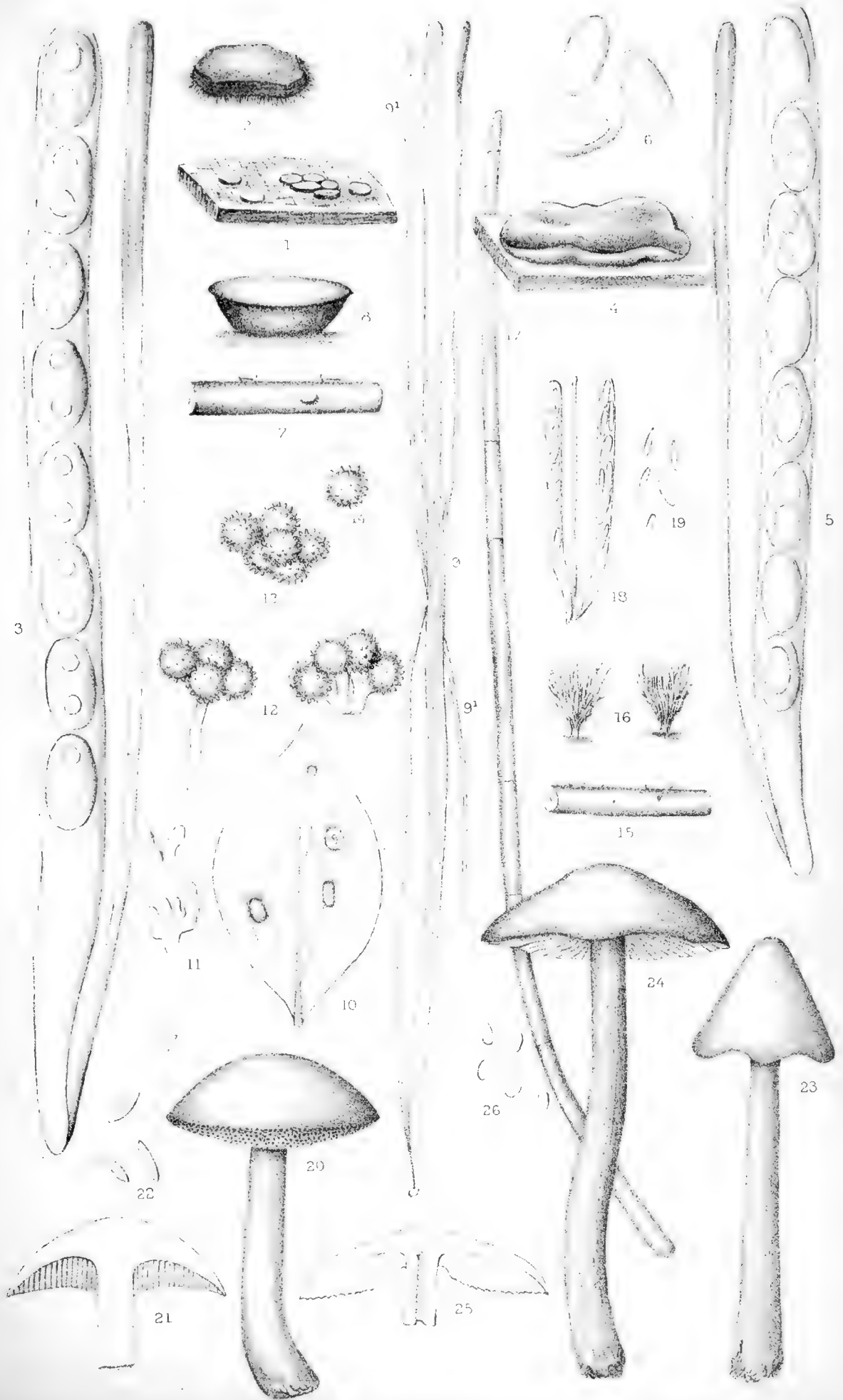
- Fig. 15. Piece of a stem bearing the fungus.
- Fig. 16. Two plants magnified.
- Fig. 17. A hair from the cup, $\times 400$.
- Fig. 18. A paraphysis and two asci containing spores, $\times 400$.
- Fig. 19. Five spores, $\times 400$.

***Boletus rubinellus* Pk.**

- Fig. 20. A plant of medium size.
- Fig. 21. Vertical section of a pileus and upper part of the stem.
- Fig. 22. Four spores, $\times 400$.

***Collybia hygrophoroides* Pk.**

- Fig. 23. A young plant.
- Fig. 24. An older plant with the pileus more expanded.
- Fig. 25. Vertical section of a pileus and upper part of the stem.
- Fig. 26. Five spores, $\times 400$.





38 REGENT'S REPORT



REPORT OF THE BOTANIST.

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

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

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

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

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

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

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

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

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

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

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

Most respectfully submitted,
CHAS. H. PECK.

ALBANY, *December* 31, 1884.

A.

PLANTS ADDED TO THE HERBARIUM.

New to the Herbarium.

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

Leptosphæria eutypoides, *Pk.*
 L. Corallorhizæ, *Pk.*
 L. lycopodiicola, *Pk.*
 Metasphæria Myricæ, *Pk.*

Mazzantia sepium, *S. & P.*
 Sphærulina sambucina, *Pk.*
 Cryptospora Caryæ, *Pk.*

Not New to the Herbarium.

Ranunculus repens, *L.*
 Nuphar advena, *Ait.*
 Caulophyllum thalictroides, *Mx.*
 Podophyllum peltatum, *L.*
 Capsella Bursa-pastoris, *Mæneh.*
 Viola pubescens, *Ait.*
 V. rostrata, *Pursh.*
 V. can. v. sylvestris, *Regel.*
 Hypericum ellipticum, *Hook.*
 Acer dasycarpum, *Ehrh.*
 Geranium maculatum, *L.*
 Rhus typhina, *L.*
 Rubus hispidus, *L.*
 Rosa setigera, *Mx.*
 Fragaria Virginiana, *Ehrh.*
 Prunus serotina, *Ehrh.*
 Aralia hispida, *Mx.*
 A. nudicaulis, *L.*
 Sambucus pubens, *Mx.*
 Cornus sericea, *L.*
 C. stolonifera, *Mx.*
 Fedia umbilicata, *Mx.*
 Tussilago Farfara, *L.*
 Senecio aureus, *L.*
 Tanacetum vulgare, *L.*
 Vaccinium Pennsylvanicum, *Lam.*
 Chiogenes hispidula, *T. & G.*
 Amarantus blitoides, *Wats.*
 Quercus palustris, *Du Roi.*
 Alnus incana, *Willd.*
 A. serrulata, *Ait.*
 Salix fragilis, *L.*
 Symplocarpus fœtidus, *Salisb.*
 Corallorhiza multiflora, *Nutt.*
 Uvularia perfoliata, *L.*
 U. grandiflora, *Sm.*
 Trillium grandiflorum, *Salisb.*
 Juncus marginatus, *Rostk.*
 Carex stipata, *Muhl.*

Carex grisea, *Wahl.*
 C. laxiflora, *Lam.*
 C. umbellata, *Schk.*
 Holcus lanatus, *L.*
 Agrostis vulgaris, *With.*
 Glyceria fluitans, *R. Br.*
 G. elongata, *Trin.*
 Danthonia spicata, *Beauv.*
 D. compressa, *Aust.*
 Panicum dichotomum, *L.*
 Bromus ciliatus, *L.*
 Aira cæspitosa, *L.*
 Millium effusum, *L.*
 Lycopodium complanatum, *L.*
 Agaricus muscarius, *L.*
 A. naucinoides, *Pk.*
 A. transmutans, *Pk.*
 A. radicatus, *Relh.*
 A. maculatus, *A. & S.*
 A. stipitarius, *Fr.*
 A. clavicularis, *Fr.*
 A. atrocaeruleus, *Fr.*
 A. strictior, *Pk.*
 A. rhodopolius, *Fr.*
 A. præcox, *Pers.*
 A. subochraceus, *Pk.*
 A. Hypnorum, *Batsch.*
 A. Rodmani, *Pk.*
 A. arvensis, *Schæff.*
 Coprinus atramentarius, *Bull.*
 Cortinarius porphyropus, *A. & S.*
 Marasmius anomalus, *Pk.*
 M. androsaceus, *L.*
 Panus lævis, *B. & C.*
 Schizophyllum commune, *Fr.*
 Boletus Clintonianus, *Pk.*
 Polyporus lucidus, *Leys.*
 P. undosus, *Pk.*

B.

CONTRIBUTORS AND THEIR CONTRIBUTIONS.

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

Trillium grandiflorum, *Salisb.*

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

Trillium grandiflorum, *Salisb.*

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

Juncus trifidus, *L.*

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

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

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

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

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

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

Harold Wingate, Philadelphia, Pa.

Chondrioderma Michellii, *Lib. v sessile*, *Rostk.*

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

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

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

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

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

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

Romeyn B. Hough, Lowville, N. Y.

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

D. Byron Waite, Springwater, N. Y.

Castilleja coccinea, *Spreng.*

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

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

H. Andrews, Albany, N. Y.

Potamogeton Robbinsii, *Oakes.*

John D. Parsons, Albany, N. Y.

Lycoperdon giganteum, *Batsch.*

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

Uncinula spiralis, *B & C.*

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

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

Prof. L. Lesquereux, Columbus, O.

* *Polyporus lucidus*, *Leys. ?*

* *Polyporus applanatus*, *Fr. ?*

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

F. S. Earle, Cobden, Ill.

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

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

Lentinus lepideus, <i>Fr.</i>	Polyporus squamosus, <i>Fr.</i>
Rhabdospora subgrisea, <i>Pk.</i>	P. applanatus, <i>Fr.</i>

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

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

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

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

Aug. F. Færste, Granville, Ohio.

Secotium Warnei, *Pk.*

C.

PLANTS NOT BEFORE REPORTED.

***Ipomœa purpurea*, Lam.**

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

***Populus dilatata*, Ait.**

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

***Listera convallarioides*, Hook.**

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

***Festuca rubra*, L.**

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

***Molinia cærulea*, Mœnch.**

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

***Tolypella comosa*, Allen.**

Seneca lake. *T. F. Allen*.

***Tolypella fimbriata*, Allen.**

Lake Ontario. *Allen*.

Tolypella intertexta, Allen.Seneca lake. *Allen.***Chara hydropitys, A. Br. v. genuina, A. Br.**Saranac river. Aug. *Paul Allen.***Agaricus clypeolarius, Bull.**

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

Agaricus (Tricholoma) terræolens, n. sp.

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

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

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

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

Agaricus (Mycena) immaculatus, n. sp.

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

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

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

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

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

Agaricus (Mycena) vexans, n. sp.

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

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

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

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

Agaricus (Mycena) purpureofuscus, n. sp.

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

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

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

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

Agaricus discopus, Lev.

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

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

Agaricus hiemalis, Osbeck.

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

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

Agaricus scyphoides, Fr.

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

Agaricus jubatus, Fr.

Damp ground in thin woods. West Albany. Sept.

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

Agaricus (Clitopilus) unitinctus, n. sp.

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

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

Thin pine woods. Karner. Oct.

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

Agaricus atrides, Lasch.

Damp ground in woods. Caroga. July.

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

Agaricus villosus, Fr.

Prostrate trunks of poplars. West Albany. Aug.

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

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

Trunks of horsechestnut. Albany. Oct.

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

Agaricus (Inocybe) umboninotus, n. sp.

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

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

Mossy ground in woods. Caroga. July.

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

Agaricus (Inocybe) maritimoides, n. sp.

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

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

Thin woods. Karner. Oct.

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

Agaricus (Inocybe) comatellus, n. sp.

Plate 2, figs. 5-8.

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

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

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

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

Agaricus (Inocybe) subexilis, n. sp.

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

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

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

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

Agaricus (Hebeloma) sordidulus, n. sp.

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

Sandy soil, in open places. Karnet. Oct.

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

A small species, belonging to the section PUSILLI.

Agaricus (Hebeloma) parvifructus, n. sp.

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

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

Sandy soil in pine woods. West Albany. Oct.

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

Agaricus (Hypholoma) madeodictis, n. sp.

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

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

Decaying wood in wet places. Adirondack mountains. June.

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

Agaricus (Psilocybe) cærulipes, n. sp.

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

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

Decaying wood. South Ballston. Aug.

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

Corprinus lagopus, Fr.

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

Cortinarius multiformis, Fr.

Pine woods. Karner. Oct.

Cortinarius decoloratus, Fr.

Pine woods. Karner. Oct.

Cortinarius (Dermocybe) aureifolius, n. sp.

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

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

Sandy soil in thin pine woods. Karner. Oct.

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

Hygrophorus purpurascens, Fr.

Sandy soil under pine trees. Karner. Oct.

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

Lactarius hysginus, Fr

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

Lactarius varius, Pk.

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

Lactarius paludinellus, Pk.

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

Russula basifurcata, n. sp.

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

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

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

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

Lentinus suavissimus, Fr.

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

Boletus sulphureus, Fr.

Thin woods. Caroga. July.

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

Boletus versipellis, Fr.

Sandy soil. West Albany and Karner. Oct.

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

Polyporus abortivus, Pk.

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

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

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

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

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

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

***Polyporus crispellus*, n. sp.**

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

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

Prostrate trunks of hemlock. Osceola. Aug.

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

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

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

Decaying wood. South Ballston. Aug.

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

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

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

Soft decaying wood of deciduous trees. Osceola. July.

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

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

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

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

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

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

Polyporus (Physisporus) ornatus, n. sp.

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

Decaying prostrate trunks of deciduous trees. Osceola. Aug.

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

Polyporus (Physisporus) odorus, n. sp.

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

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

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

Polyporus (Physisporus) subacidus, n. sp.

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

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

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

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

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

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

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

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

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

Merulius (Resupinati) subaurantiacus, n. sp.

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

Soft decayed wood of hemlock. Osceola. Aug.

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

Merulius fugax, Fr.

Soft decayed wood of deciduous trees. Osceola. Aug.

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

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

Geaster striatus, DC.

Sandy soil. Karner. Sept.

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

Phyllosticta Labruscæ, Thum.

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

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

Phyllosticta Epigææ, n. sp.

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

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

Phyllosticta lantanoidis, n. sp.

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

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

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

Phyllosticta Podophylli, Winter.

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

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

Ascochyta Cassandræ, n. sp.

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

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

Ascochyta colorata, n. sp.

Plate 2, figs. 9 and 10.

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

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

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

Phoma Phytolaccæ, B. & C.

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

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

Phoma elevatum, n. sp.

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

Decorticated wood of deciduous trees. Adirondack mountains. June.

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

Phoma Pruni, n. sp.

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

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

Phoma albifructum, n. sp.

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

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

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

Sphæropsis ribicola, C. & E.

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

Sphæropsis alnicola, n. sp.

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

Dead branches of alder. West Albany. Apr.

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

Appendicularia, gen. nov.

Plate 3, figs. 1-4.

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

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

Appendicularia entomophila, n. sp.

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

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

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

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

Sphærographium hystricinum, Sacc.

Plate 3, figs. 5-7.

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

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

Sphærographium lantanoidis, n. sp.

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

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

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

Gelatinosporium fulvum, n. sp.

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

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

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

Coniothyrium valsoideum, n. sp.

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

Dead branches of alder. West Albany. Apr.

Septoria Ribis, Desm.

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

Septoria alnicola, Cke.

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

Septoria Lysimachiaë, West.

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

Septoria Dalibardaë, n. sp.

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

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

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

Septoria Dentariaë, n. sp.

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

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

Septoria punicea, n. sp.

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

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

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

Septoria Trillii, Pk.

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

Septoria fumosa, n. sp.

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

Living or languishing leaves of *Solidago Canadensis*. Albany. June. The spores are shorter than those of *S. Virgaureæ*.

Septoria Diervillæ, n. sp.

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

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

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

Rhabdospora subgrisea, n. sp.

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

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

Diplodia pinea, Kx.

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

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

Staganospora Smilacis, Sacc.

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

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

Glæosporium Ribis, Cast.

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

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

Glæosporium Salicis, West.

Languishing leaves of *Salix longifolia*. North Greenbush. Sept. Our specimens have the spores either simple or two or three-nucleate.

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

Marsonia Quercus, n. sp.

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

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

Pestalozzia monochætoidea, S. & E.

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

Ramularia Diervillæ, n. sp.

Plate 1, figs. 16-18.

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

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

Ramularia multiplex, n. sp.

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

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

Ramularia Prini, n. sp.

Plate 1, figs. 19-21.

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

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

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

Ramularia Oxalidis, Farl.

Plate 1, figs. 13-15.

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

Cylindrosporium veratrinum, S. & W.

Plate 1, figs. 10-12.

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

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

Ovularia moniloides, E. & M.

Plate 2, figs. 1-4.

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

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

Peronospora Arthuri, Farl.

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

Peronospora Halstedii, Farl.

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

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

Peronospora Potentillæ, De By.

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

Entyloma Saniculæ, n. sp.

Plate 1, figs. 7-9.

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

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

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

Cercospora Violæ, Sacc.

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

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

Cercospora Cephalanthi, E. & K.

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

Cercospora Comari, n. sp.

Plate 1, figs. 1-3.

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

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

Cercospora Majanthemi, Fckl.

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

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

Hadrotrichum lineare, n. sp.

Plate 1, figs. 4-6.

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

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

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

Cenangium balsameum, n. sp.

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

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

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

Sphærotheca pannosa, Lev.

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

Microsphæria Nemopanthis, n. sp.

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

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

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

Capnodium Citri, B. & D.

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

Asterina nuda, n. sp.

Plate 2, figs. 11-15.

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

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

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

Valsa pauperata, C. & F.

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

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

Valsa cornina, n. sp.

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

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

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

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

Valsa Friesii, Fckl.

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

Valsa opulifoliæ, n. sp.

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

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

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

Valsa leucostomoides, n. sp.

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

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

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

Diatrypella Frostii, Pk.

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

Diaporthe Wibbei, Nits.

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

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

Diaporthe cylindrospora, n. sp.

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

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

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

Didymosphæria Typhæ, n. sp.

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

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

Sphærella conigena, n. sp.

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

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

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

Venturia Cassandræ, n. sp.

Plate 3, figs. 11-14.

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

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

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

Leptosphæria Corallorhizæ, n. sp.

Plate 2, figs. 20-23.

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

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

Leptosphæria eutypoides, n. sp.

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

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

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

Leptosphæria lycopodiicola, n. sp.

Plate 2, figs. 16-19.

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

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

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

Metasphæria Myricæ, n. sp.

Plate 2, figs. 24-27.

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

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

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

Sphærulina sambucina, n. sp.

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

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

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

Cryptospora Caryæ, n. sp.

Plate 2, figs. 28-31.

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

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

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

Mazzantia sepium, Sacc. & Penz.

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

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

D.

REMARKS AND OBSERVATIONS.**CAULOPHYLLUM THALICTROIDES, L.**

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

VIOLA CUCULLATA, Ait.

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

HYPERICUM ELLIPTICUM, *Hook.*

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

RHUS TYPHINA, *L.*

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

ROSA SETIGERA, *Mx.*

Low ground near West Albany. Introduced from the West.

RUBUS HISPIDUS, *L.*

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

FEDIA RADIATA, *Mx.*

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

ARALIA NUDICAULIS, *L.*

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

ARALIA HISPIDA, *Mx.*

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

CUPHEA VISCOSISSIMA, *Jacq.*

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

TUSSILAGO FARFARA, *L.*

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

HIERACIUM AURANTIACUM, *L.*

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

VACCINIUM PENNSYLVANICUM, *Lam.* var. NIGRUM.

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

CASTILLEIA COCCINEA, *Spreng.*

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

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

HYDRANGEA ARBORESCENS, *L.*

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

POTAMOGETON ROBBINSII, *Oakes.*

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

HABENARIA ROTUNDIFOLIA, *Rich.*

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

TRILLIUM GRANDIFLORUM, *Salisb.* v. *VARIEGATUM.*

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

JUNCUS TRIFIDUS, *L.*

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

SCIRPUS POLYPHYLLUS, *Vahl.*

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

SCIRPUS SYLVATICUS, *L.*

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

GLYCERIA FLUITANS, *L.*

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

AIRA CÆSPITOSA, *L.*

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

MILLIUM EFFUSUM, *L.*

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

PELLÆA GRACILIS, *Hook.*

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

WOODWARDIA VIRGINICA, *Sm.*

Abundant in a marsh near Karner.

AGARICUS STIPITARIUS, *Fr.* v. SETIPES.

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

AGARICUS CLAVICULARIS, *Fr.*

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

AGARICUS LEAIANUS, *Berk.*

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

AGARICUS FIBULA v. CONICUS.

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

AGARICUS ATROCÆRULEUS, *Fr.*

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

AGARICUS RHODOPOLIUS, *Fr.* v. UMBILICATUS.

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

TROGIA CRISPA, *Fr.* v. VARIEGATA.

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

BOLETUS VISCOSUS, *Frost.*

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

BOLETUS SCABER, *Fr.* v. NIVEUS.

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

BOLETUS GRACILIS, *Pk.* v. LÆVIPES.

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

POLYPORUS SULPHUREUS, *Fr.*

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

POLYPORUS VOLVATUS, *Pk.*

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

POLYPORUS CONGLOMERATUS, *Pk.*

Prostrate trunks of beech. Osceola. Aug.

LYCOPERDON GIGANTEUM, *Batsch.*

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

MORTHIERA MESPILI, *Fckl.*

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

PUCCINIA CALTHÆ, *Lk.*

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

UROCYSTIS POMPHOLYGOIDES, *Schl.*

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

CYSTOPUS CUBICUS, *De By.*

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

GLOMERULARIA CORNI, *Pk.*

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

LOPHIOTREMA SPIRÆÆ, *Sacc.* v. ADULTUM.

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

DIAPORTHE SPICULOSA, *Nits.*

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

HYPODERMA NERVISEQUUM, *Fr.*

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

LOPHODERMIIUM PETIOLICOLUM, *Fckl.* v. ACERINUM.

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

E.

NEW YORK SPECIES OF LACTARIUS.

LACTARIUS, *Fr.*

[*Galorrheus, Fr. Lactifluus, Hoffm.*]

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

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

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

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

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

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

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

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

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

Synopsis of the Species.

	Milk at first bright-colored, unchangeable.....	1
	Milk at first white, changing color on exposure to the air.....	2
	Milk white or whitish, unchangeable.....	7
1	Young lamellæ and milk indigo-blue.....	Indigo. 11
1	Young lamellæ and milk dark-red.....	subpurpureus. 115
1	Young lamellæ and milk orange-red.....	deliciosus.
1	Young lamellæ and milk saffron-yellow.....	Chelidonium.
2	Milk becoming pinkish-red.....	3
2	Milk becoming yellow.....	4
2	Milk becoming lilac-color.....	uvidus. 117
3	Pileus dingy-gray or buff-gray (partly).....	fuliginosus. 128
3	Pileus dingy-brown (partly).....	lignyotus. 129
4	Margin of the mature pileus glabrous.....	5
4	Margin of the mature pileus tomentose-hairy.....	6
5	Pileus distinctly spotted, taste acrid.....	chrysorheus. 117
5	Pileus not distinctly spotted, taste tardily acrid.....	theiogalus.
6	Stem spotted.....	scrobiculatus. 118
6	Stem not spotted.....	cilicioides.
7	Pileus viscid when moist.....	8
7	Pileus not viscid.....	13
8	Margin of the pileus distinctly tomentose-hairy.....	torminosus. 119
8	Margin of the pileus glabrous or nearly so.....	9
9	Pileus greenish-brown or yellowish-brown, tinged with green.....	sordidus. 120
9	Pileus some other color, glabrous and viscid.....	10
10	Pileus some shade of red or yellow.....	11
10	Pileus some other color.....	12

x Cl. L. ...

11	Pileus reddish, generally zoneless.....	hysginus.	121
11	Pileus ochraceous, zoneless.....	affinis.	121
11	Pileus yellow or yellowish-white, zonate.....	insulsus.	122
	12 Stem paler than the pileus.....	trivialis.	120
	12 Stem colored like the pileus.....	cinereus.	122
13	Pileus minutely tomentose, pubescent or squamulose.....		14
13	Pileus glabrous or merely pruinose.....		21
	14 Pileus rugose-reticulated, velvety-pubescent.....	corrugis.	130
	14 Pileus not rugose-reticulated.....		15
15	Pileus some shade of gray or brown.....		16
15	Pileus some shade of red or yellow.....		18
15	Pileus white or whitish.....		20
	16 Plant inodorous.....		17
	16 Plant odorous.....	glyciosmus.	123
17	Pileus about one inch broad, becoming paler with age.....	griseus.	122
17	Pileus more than one inch broad, not expallent (partly).....	plumbeus.	127
	18 Lamellæ distant (partly).....	hygrophoroides.	
	18 Lamellæ close.....		19
19	Pileus less than two inches broad, milk white.....	alpinus.	123
19	Pileus two inches or more broad, milk watery (or white).....	helvus.	124
	20 Surface of the pileus persistently velvety-tomentose.....	vellereus.	124
	20 Margin of the pileus cottony-tomentose when young (partly)	deceptivus.	125
21	Pileus white or whitish.....		22
21	Pileus some other color.....		24
	22 Lamellæ distant or subdistant.....		23
	22 Lamellæ crowded, dichotomous.....	piperatus.	125
23	Stem more than four lines thick, young pileus umbilicate (partly)	deceptivus.	125
23	Stem not more than four lines thick, pileus never umbilicate.....	albidus.	126
	24 Pileus some shade of gray or brown.....		25
	24 Pileus some shade of red or yellow.....		31
25	Wounds of the lamellæ becoming pinkish-red.....		26
25	Wounds of the lamellæ not becoming pinkish-red.....		27
	26 Pileus dingy-gray or buff-gray (partly).....	fuliginosus.	128
	26 Pileus dingy-brown (partly).....	lignyotus.	129
27	Wounds of the lamellæ becoming sordid-greenish.....		28
27	Wounds of the lamellæ not becoming sordid-greenish.....		29
	28 Plant growing on the ground.....	variatus.	126
	28 Plant growing on decaying wood.....	parvus.	127
29	Taste mild.....	Gerardii.	126
29	Taste acrid.....		30
	30 Pileus dry, zoneless (partly).....	plumbeus.	127
	30 Pileus moist, generally zonate.....	pyrogalus.	128
31	Lamellæ distant (partly).....	hygrophoroides.	129
31	Lamellæ close or subdistant.....		32
	32 Taste acrid.....		33
	32 Taste mild or slightly acrid.....		34
33	Pileus bay-red, flesh pinkish.....	rufus.	131
33	Pileus yellowish-red, flesh white.....	platyphyllus.	131

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

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

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

X. *Lactarius Indigo*, Schw.

Blue *Lactarius*.

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

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

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

X *Lactarius subpurpureus*, Peck.

Purplish *Lactarius*.

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

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

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

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

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

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

× **Lactarius deliciosus, Fr.**

Delicious Lactarius.

Agaricus deliciosus L.

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

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

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

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

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

× **Lactarius Chelidonium, Peck.**

Celandine Lactarius.

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

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

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

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

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

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

Lactarius uvidus, Fr.

Moist Lactarius.

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

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

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

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

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

Lactarius chrysorheus, Fr.

Yellow-milk Lactarius.

Agaricus zonarius, Bolt.

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

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

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

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

× Lactarius theiogalus, Fr.

Sulphur-milk Lactarius.

Agaricus theiogalus, Bull.

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

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

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

Woods and groves. Common. July to October.

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

Lactarius resimus, Fr.

Recurved Lactarius.

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

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

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

Woods. Croghan. September. Rare.

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

Lactarius scrobiculatus, Fr.

Spotted-stemmed Lactarius.

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

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

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

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

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

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

Lactarius cilicioides, Fr.

Tomentose Lactarius.

Agaricus tomentosus, Otto. *Agaricus erinitus*, Schæff.

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

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

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

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

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

Milk white or whitish, unchangeable.

* Pileus viscid when moist.

× *Lactarius torminosus*, Fr.

Colic Lactarius. Woolly Lactarius.

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

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

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

Woods. Adirondack mountains and Sandlake. August.

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

Lactarius sordidus, Peck.

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

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

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

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

Lactarius trivialis, Fr.

Common Lactarius.

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

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

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

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

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

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

Lactarius hysginus, Fr.

Reddish Lactarius.

Agaricus vietus, Krombh.

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

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

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

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

Lactarius affinis, Peck.

Related Lactarius.

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

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

Pastures and copses. Catskill mountains. October. Rare.

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

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

Lactarius insulsus, Fr.

Unsavory Lactarius.

Agaricus flexuosus, Secr.

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

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

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

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

× **Lactarius cinereus, Peck.**

Cinereous Lactarius.

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

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

Woods. Sandlake and Greig. August and September.

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

** Pileus not viscid.

† *Pileus minutely tomentose or squamulose*

Lactarius griseus, Peck.

Gray Lactarius.

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

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

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

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

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

Lactarius glyciosmus,

Fragrant Lactarius. Scented Lactarius.

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

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

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

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

Lactarius alpinus, Peck.

Alpine Lactarius.

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

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

Summit of Haystack mountain and Karner. August. Rare.

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

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

✕ *Lactarius helvus*, Fr.

Pale-red *Lactarius*.

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

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

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

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

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

Lactarius vellerius, Fr.

Fleecy *Lactarius*.

Agaricus Listeri Sow. *A. piperatus* Poll.

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

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

Woods and open places. Common. July to September.

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

× **Lactarius deceptivus**, *Peck.*

Deceptive Lactarius.

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

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

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

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

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

× **Lactarius piperatus**, *Fr.*

Peppery Lactarius.

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

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

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

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

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

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

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

Lactarius albidus, Peck.

White Lactarius.

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

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

Thin woods. Karner. September. Very rare.

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

Lactarius varius, n. sp.

Variable Lactarius.

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

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

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

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

Lactarius parvus, Peck.

Small Lactarius.

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

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

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

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

Lactarius plumbeus, Fr.

Lead-colored Lactarius.

Agaricus plumbeus, Bull.

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

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

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

Lactarius pyrogalus, Fr.

Caustic Lactarius.

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

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

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

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

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

Lactarius fuliginosus, Fr.

Dingy Lactarius.

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

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

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

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

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

Lactarius lignyotus, Fr.

Sooty Lactarius.

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

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

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

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

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

Lactarius Gerardii, Peck.

Gerard's Lactarius.

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

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

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

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

Lactarius hygrophoroides, B. & C.

Hygrophorus-like Lactarius. Distant-gilled Lactarius.

Lactarius distans, Pk.

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

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

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

Grassy ground and borders of woods. Albany, Greenbush and Sand-lake. July and August.

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

× *Lactarius volemus*, Fr.

Orange Lactarius. Orange-brown Lactarius.

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

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

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

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

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

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

Lactarius corrugis, Peck.

Corrugated Lactarius.

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

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

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

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

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

Lactarius platyphyllus, Peck.

Broad-gilled Lactarius.

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

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

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

Lactarius rufus, Fr.

Red Lactarius.

Agaricus rufus, Scop.

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

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

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

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

Lactarius camphoratus, Fr.

Camphor Lactarius.

Agaricus camphoratus, Bull.

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

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

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

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

Lactarius subdulcis, Fr.

Sweet Lactarius. Sweetish Lactarius.

Agaricus subdulcis, Bull.

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

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

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

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

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

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

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

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

Lactarius paludinellus, n. sp

Little marsh Lactarius.

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

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

Among sphagnum, in shaded marshes. Sandlake. August.

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

NEW YORK SPECIES OF PLUTEUS.

PLUTEUS, Fr.

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

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

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

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

Synopsis of the Species.

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

Pluteus cervinus, Schæff.

Fawn-colored Agaric. Fawn Pluteus.

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

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

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

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

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

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

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

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

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

Pluteus umbrosus, Pers.

Shade-loving Agaric. Brown Pluteus.

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

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

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

Pluteus granularis, Peck.

Granular Pluteus.

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

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

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

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

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

Pluteus nanus, Pers.

Dwarf Agaric. Mealy Pluteus.

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

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

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

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

Pluteus tomentosulus, Peck.

Woolly Agaric.

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

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

Decaying wood and prostrate trunks. Catskill mountains and Gansevoort. July and August.

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

Pluteus sterilomarginatus, Peck.

Sterile-margined Agaric.

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

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

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

Decaying trunks and sticks in woods. Portville. September.

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

Pluteus longistriatus, Peck.

Striated Pluteus.

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

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

Decaying wood. Albany. July.

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

Pluteus leoninus, Schæff.

Lion-colored Agaric. Yellow Pluteus.

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

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

Decaying wood in forests. Adirondack mountains. August

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

Pluteus admirabilis, Peck.

Admirable Pluteus.

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

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

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

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

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

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

EXPLANATION OF PLATE I.

CERCOSPORA COMARI, *Peck.*

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

HADROTRICHUM LINEARE, *Peck.*

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

ENTYLOMA SANICULÆ, *Peck.*

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

CYLINDROSPORIUM VERATRINUM, *S. & W.*

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

RAMULARIA OXALIDIS, *Farl.*

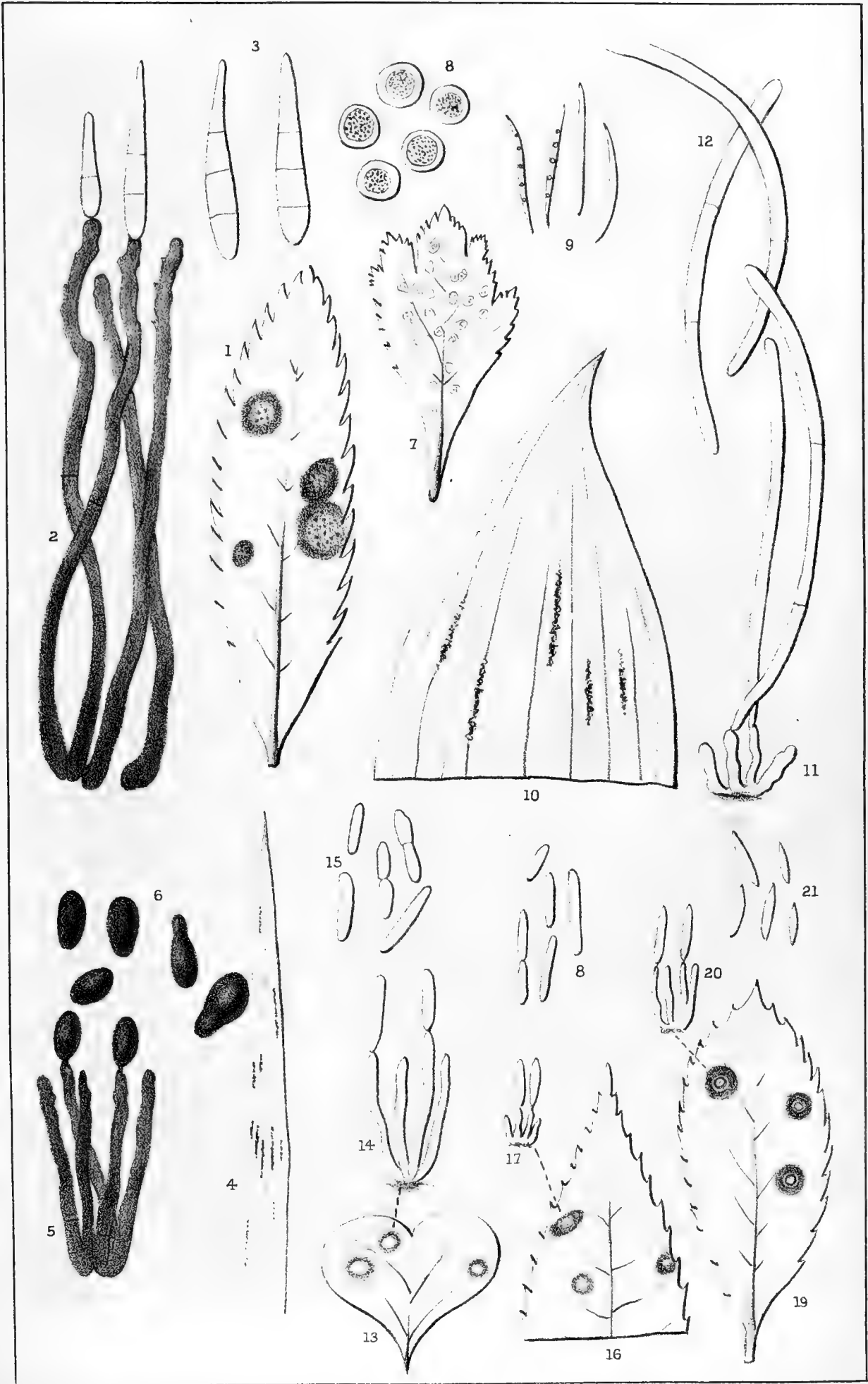
- Fig. 13. A leaflet spotted by the fungus.
- Fig. 14. A tuft of four flocci, two of them bearing spores, x 400.
- Fig. 15. Five spores, x 400.

RAMULARIA DIERVILLÆ, *Peck.*

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

RAMULARIA PRINI, *Peck.*

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



EXPLANATION OF PLATE II.

OVULARIA MONILOIDES, *E. & M.*

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

AGARICUS (INOCYBE) COMATELLUS, *Peck.*

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

ASCOCHYTA COLORATA, *Peck.*

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

ASTERINA NUDA, *Peck.*

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

LEPTOSPHERIA LYCOPODIICOLA, *Peck.*

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

LEPTOSPHERIA CORALLORHIZÆ, *Peck.*

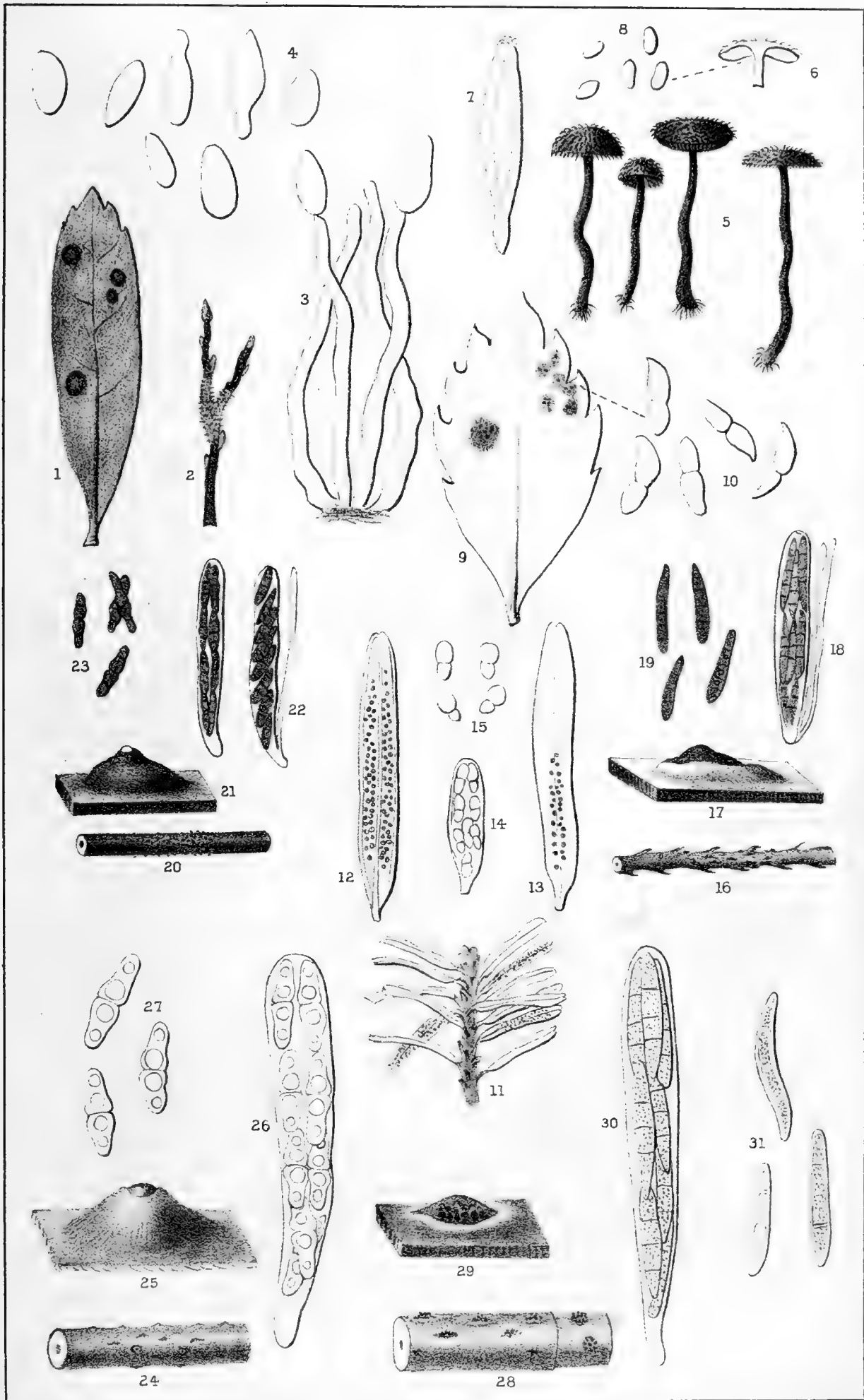
- Fig. 20. Piece of a stem, bearing the fungus.
- Fig. 21. A perithecium and its matrix, magnified.
- Fig. 22. A paraphysis and two asci containing spores, x 400.
- Fig. 23. Four spores, x 400.

METASPHÆRIA MYRICÆ, *Peck.*

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

CRYPTOSPORA CARYÆ, *Peck.*

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



EXPLANATION OF PLATE III.

APPENDICULARIA ENTOMOPHILA, *Peck.*

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

SPHÆROGRAPHIUM HYSTRICINUM, *Sacc.*

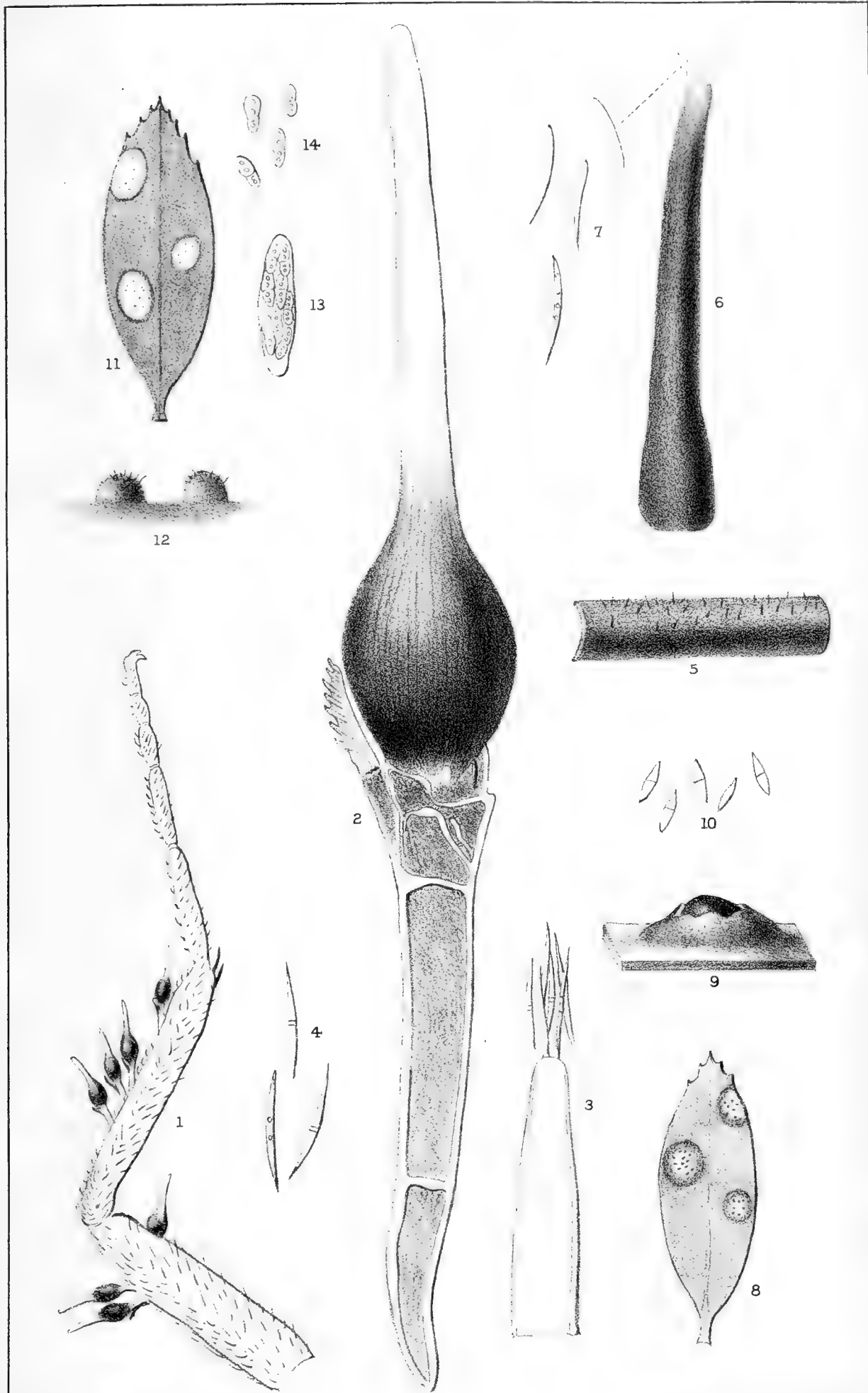
- Fig. 5. Piece of bark bearing the fungus.
- Fig. 6. A perithecium with spores escaping from its apex, magnified.
- Fig. 7. Four spores, x 400.

ASCOCHYTA CASSANDRÆ, *Peck.*

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

VENTURIA CASSANDRÆ, *Peck.*

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





39 REGENT'S REPORT

for year

1886.

proper exhibition of the collections on hand and to provide for a moderate increase. Area occupied by duplicates which are mainly in drawers, 15,000 square feet.

Number of drawers in State Museum.....	970
Number of drawers occupied by specimens belonging to the State and arranged in private museum and working rooms of James Hall.....	3,200
	<hr/>
	4,170
	<hr/> <hr/>

Two-thirds of these drawers may be regarded as occupied by duplicate collections. In addition to the specimens in drawers there are large slabs and masses of corals which occupy an area equal to 1,000 drawers.

Besides the rooms for collections, there should be provided a room for a scientific library, which for the present could be limited to an area of 900 or 1,000 square feet with provision for increase in the future.

WORKING ROOMS.— For the Botanist a working-room of 18 x 25 feet would suffice, with adjacent room for the collections, of 25 x 30 feet.

For the general collections in Zoölogy a room for work and study of 20 x 25 feet, a preparatory room, as a work-room, with water, tanks, etc., 25 x 30 feet.

GEOLOGY AND PALEONTOLOGY. — A receiving-room with space for library in use of 25 x 30 feet and adjacent to a room of 30 x 40 feet furnished with at least 1,000 drawers to contain the collections under investigation and comparison.

Also a work-room with tables and appliances for cleaning, ticketing and preparing specimens for study and arrangement. This room should, if possible, be adjacent to a lathe-room, with machinery for cutting and polishing specimens. These two rooms would require an area of at least 1,200 square feet.

For general storage of *minerals, geological specimens* and *fossils* preparatory to a distribution of the duplicates, a room of 35 x 45 or 40 x 50 feet, with drawers, to contain the specimens and conveniences necessary for the arranging, labeling and packing specimens.

STUDENTS' ROOMS. — Rooms should be provided for students in special branches of scientific study, since the increased attention to science will soon demand such conveniences. These would require an area of 10,000 feet of floor space.

If the building be fire-proof the typical collections may be arranged in the same rooms, but in separate cases, with the general collections of the same department.

Considering the condition of the building now occupied by the State Museum, the committee regard it as very important to secure, as soon as possible, rooms for the typical collections in some fire-proof building. The area required would be 30 x 40 feet.

DIRECTOR'S ROOM. — A small room as a private office for conference, consultation and correspondence should be provided for the Director of the Museum.

REPORT OF THE BOTANIST.

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

GENTLEMEN — I have the honor of communicating to you the following statement of the work of the Botanist for 1885 ;

In the prosecution of the work on the State Herbarium, specimens of plants have been collected in the counties of Albany, Essex, Genesee, Herkimer, Orange, Rensselaer, Saratoga, Schoharie, and Ulster. Of the collected specimens, those representing one hundred and ninety-eight species have been prepared, mounted and added to the Herbarium. Of these, one hundred and fourteen species were not before represented therein. The remaining eighty-four species are illustrated more completely and satisfactorily by the added specimens.

Specimens have been received from nineteen contributors. A large number of these represent extra-limital species of fungi, but among those from this State are six species new to the Herbarium, and not among my collections of the past season. The whole number of added species, both collected and contributed, is two hundred and ten ; the whole number new to the Herbarium is one hundred and twenty. A list of the names of the added species is marked (A). A list of the names of the contributors and their respective contributions is marked (B).

Descriptions of forty-two species of fungi, which are deemed new or hitherto unpublished, have been prepared. A part of these have been illustrated by two plates of drawings. The descriptions of new species, together with a record of the occurrence and locality of others new to our flora, are in a part of the report marked (C).

A record of observations on common or well-known species not new to our flora is marked (D). It has reference to any thing peculiar, interesting, or instructive in the variation, distribution, behavior or habitat of the plant. Sometimes useful hints may be obtained by such observations. For example, a variety of the common blueberry, *Vaccinium Pennsylvanicum*, was noticed on the summit of one of the mountains in the northern part of Saratoga county. Its fruit was black and shining, destitute of bloom, very large, sweet, juicy and pleasant flavored. It grew in compact clusters at the ends of the branches, and could be easily and rapidly picked. Such a susceptibility to variation and improvement in the fruit of this plant, in its natural and wild condition, indicates for it a peculiar value and a possibility of usefulness under cultivation and domestication.

An interesting point in the behavior of some of our pulpy-fruited trees and shrubs the past season, and one that seems worthy of record, is their great productiveness. In this part of the State wild-cherry trees, cornel bushes, viburnums, wild gooseberry bushes, various blueberry bushes and the shadbush were all observed heavily laden with fruit. In the Adirondack region the crop of Canadian blueberries (*Vaccinium Canadense*) was remarkable both for its abundance and for the large size and fine quality of the berries. In the Albany market the fruit of the shadbush (*Amelanchier Canadensis*) was offered for sale under the name "blueberries," its very abundance, apparently, having prompted the attempt to introduce it. The name given it, however, was scarcely appropriate, since there is nothing in its botanical relations or in its color suggestive of it. This unusual fruitfulness extended in some instances to cultivated fruit trees. For example, pears were never more plentiful nor cheaper in our markets than in the season just passed. The cause of this exceptional productiveness is apparently, to a great extent, climatic, yet it is interesting to trace effects to causes, even when the latter are beyond our control. In the eastern and northern part of the State, at the time when these fruit trees and shrubs were in flower, there was almost continuous fair weather with little or no rain. This was favorable to the extensive pollenization of the flowers. Insects could ply their vocation and carry pollen from flower to flower, day after day, without interruption or hindrance. The consequence was the young fruit set in abundance. This was followed later in the season by frequent showers and generous rains, which afforded the necessary moisture for the proper and full development of the fruit. Possibly the late and severe frosts of the spring of 1884 may have contributed something toward this result, by diminishing the fruitfulness of that year, and thus leaving the trees and shrubs in a more vigorous condition this year, and, therefore, more capable of perfecting an abundant crop.

In pursuance of the plan of giving, from time to time, monographs of certain groups or genera of our Agaricini, descriptions have been written of the New York species of the genera *Pleurotus*, *Claudopus* and *Crepidotus*. To these genera belong such Agarics, mostly wood-inhabiting, as are either wholly destitute of a stem or have it lateral or eccentric. The spore characters have been given in all cases. The great importance of this in the descriptions of Agarics will readily be seen in some of the species now described. Thus *Pleurotus spathulatus*, the Spathulate Agaric, and *Pleurotus petaloides*, the Petal-like Agaric, have generally been considered one and the same species, probably through neglect of the spore characters. But it seems to me that any one examining the spores of the two forms will at once pronounce them distinct. The general neglect of the spore characters of Agarics by European authors is much to be regretted and is often the source of much perplexity in the identification of our species. The descriptions of the species of the three genera mentioned are marked (E).

The Herbarium has been removed from Geological Hall to State Hall. It now occupies a room on the second floor of the building and is in more commodious quarters than before.

Thanks are due to the correspondents and botanists who have aided me in the prosecution of my botanical work, both by the contribution of specimens and of information.

Very respectfully submitted,

CHAS. H. PECK.

ALBANY, *December* 31, 1885.

(A.)

PLANTS MOUNTED.

New to the Herbarium.

- Solidago speciosa* Nutt.
Betula nigra L.
Cypripedium candidum Muhl.
Eragrostis Frankii Meyer.
Agaricus lascivus Fr.
 A. *rubescentifolius* Pk.
 A. *cerussatus* Fr.
 A. *amplus* Pers.
 A. *esculentoides* Pk.
 A. *fuscolilacinus* Pk.
 A. *amabilissimus* Pk.
 A. *spathulatus* Pers.
 A. *atropellitus* Pk.
 A. *pascuensis* Pk.
 A. *fuscogriseellus* Pk.
 A. *formosus* Fr.
 A. *depluens* Fr.
 A. *marginatus* Batsch.
 A. *unicolor* Fr.
 A. *blattarius* Fr.
 A. *calamistratus* Fr.
 A. *eutheles* B. & Br.
 A. *alnicola* Fr.
 A. *elator* Pk.
 A. *croceitinctus* Pk.
Cortinarius arenatus Fr.
Hygrophorus pudorinus Fr.
Russula crustosa Pk.
Boletus subaureus Pk.
 B. *flavipes* Pk.
Polyporus confluens Fr.
Hydnum geogenium Fr.
 H. *farinaceum* Pers.
Grandinia granulosa Fr.
Corticium puteanum Fr.
 C. *radiosum* Fr.
 C. *cinerascens* Berk.
Clavaria circinans Pk.
 C. *gracilis* Pers.
 C. *byssiseda* Pers.
Tremella pinicola Pk.
Siphoptychium Caspari Rostf.
Phyllosticta Mitellæ Pk.
 P. *Hamamelidis* Pk.
Dendrophoma Tiliæ Pk.
 D. *Cephalanthi* Pk.
Cytispora intermedia Sacc.
Phoma aquilina S. & P.
 P. *strobiligena* Desm.
 P. *sordida* Sacc.
 P. *Phillipsiana* S. & R.
 P. *Clintonii* Pk.
 P. *Majanthemi* Pk.
Sphæropsis tiliacea Pk.
 S. *Linderæ* Pk.
 S. *Juniperi* Pk.
Sphæropsis pallida Pk.
 S. *sphærospora* Pk.
 S. *maculans* Pk.
Coniothyrium Staphyleæ Pk.
Vermiculari uncinata B. & C.
Septoria oleandrina Sacc.
 S. *Osmorrhizæ* Pk.
 S. *lineolata* S. & S.
 S. *graminum* Desm.
Rhabdospora Xanthii Pk.
 R. *pleosporoides* Sacc.
Phlyctæna septorioides Sacc.
 P. *complanata* Sacc.
Diplodina Ellisii Sacc.
Zythia ovata Pk.
Thyrsidium Micheneri Sacc.
Marsonia Martini S. & E.
Coryneum compactum B. & Br.
Pestalozzia Saccardoi Speg.
 P. *consocia* Pk.
 P. *camposperma* Pk.
Uredo Ledi A. & S.
Puccinia hastata Cke.
Gymnosporangium clavariæforme D. C.
Periconia pycnospora Fres.
Sporodinia grandis Lk.
Illosporium humigenum P. & S.
Monilia Peckiana S. & V.
Ramulari Geranii Fekl.
Saprolegnia ferax Kutz.
Geoglossum viscosum Pers.
Leotia marcida Pers.
Godronia Cassandræ Pk.
Tympanis saligna Tode.
Stictis Saccardoi Rehm.
Lichenopsis sphæroboloidea Schw.
Ascomyces extensus Pk.
Microsphaeria Ceanothi Pk.
Valsa rhoophila C. & E.
 V. *glandulosa* Cke.
 V. *cenisia* DeN.
Læstadia Æsculi Pk.
Rosellinia ambigua Sacc.
 R. *mastoidea* Sacc.
Hypoxylon semiimmersum Nits.
Sphærella maculosa Sacc.
 S. *macularis* Auersw.
 S. *Lycopodii* Pk.
Diaporthe Carpinii Fekl.
 D. *Robergeana* Niessl.
 D. *galericulata* Sacc.
 D. *Neillii* Pk.
 D. *marginalis* Pk.
 D. *sparsa* Pk.
Didymosphaeria bacchans Pass.
Leptosphaeria Typharum Karst.
 L. *Kalmiæ* Pk.
Zignoella diaphana Sacc.

Pyrenophora relicina Sacc.
Cryptospora Tiliæ Tul.
Hypocrea fungicola Karst.
Pleonectria Berolinensis Sacc.
Not new to the Herbarium.
Ranunculus acris L.
R. multifidus Ph.
Actæa alba Bigel.
A. rubra Mx.
Arabis lyrata L.
Barbarea vulgaris R. Br.
Camelina sativa Crantz.
Amelanchier Canadensis T. & G.
Potentilla Canadensis L.
Pryus arbutifolia L.
Ribes rubrum L.
R. rotundifolium Mx.
R. hirtellum Mx.
Thaspium aureum Nutt.
Cornus paniculata L'Her.
Lonicera oblongifolia, Muhl.
Petasites palmata Gr.
Senecio aureus L.
Vaccinium Pennsylvanicum Lam.
Castilleja coccinea Spreng.
Gratiola aurea Muhl.
Echium vulgare L.
Hydrophyllum Virginicum L.
Menyanthes trifoliata L.
Apocynum androsæmifolium L.
Asclepias obtusifolius Mx.
A. tuberosa L.
Chenopodium album L.
Atriplex patula L.
Amarantus blitoides Wats
A. hypochondriacus L.
Euphorbia Peplus L.
Celtis occidentalis L.
Morus alba L.
Alnus viridis D.C.
Salix longifolia Muhl.
Populus monilifera Ait.
P. balsamifera L.
Abies nigra Poir.
A. balsamea Marsh.
Juniperus sabina L.
Arisæma triphyllum Torr.

Orontium aquaticum L.
Triglochin maritimum L.
Cypripedium acaule Ait.
C. pubescens Willd.
C. parviflorum Salisb.
Liparis Lœselii Rich.
Uvularia grandiflora Sm.
U. sessilifolia L.
Streptopus roseus Mx.
Fimbristylis capillaris Gr.
Cyperus cylindricus Britton.
Carex gynocrates Wormsk.
C. sterilis Willd.
C. canescens L.
C. pedunculata Muhl.
C. Emmonsii Dew.
C. gynandra Schw.
C. pseudocyperus L.
Festuca elatior L.
Osmunda regalis L.
Agaricus Austinii Pk.
A. sapidus Kalchb.
Lentinus strigosus Schw.
Marasmius androsaceus Fr.
Trogia crispa Fr.
Polporus Vaillantii Fr.
P. biformis Fr.
P. adustus Fr.
P. applanatus Fr.
P. fomentarius Fr.
P. pinicola Fr.
P. betulinus Fr.
P. albellus Pk.
P. chioneus Fr.
Irpex cinnamomeus Fr.
Hydnum mucidum Pers.
Stereum versiforme B. & C.
S. spadiceum Fr.
S. versicolor Fr.
Clavaria pyxidata Pers.
Sphæronema pruinatum Pk.
Puccinia Calthæ Lk.
Ustilago Junci Schw.
Fusicladium dendriticum Wallr.
Macrosporium Cheiranthi Fr.
Glomerularia Corni Pk.
Uncinula spiralis B. & C.
Metasphæria Peckii Sacc.

(B.)

CONTRIBUTORS AND THEIR CONTRIBUTIONS.

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

Trillium grandiflorum Salisb. var. *variegatum* Pk.

Miss E. G. Knight, New York, N. Y.

Fruit of *Salisburia adiantifolia* Sm.

Mrs. L. A. Millington, New Russia, N. Y.

Festuca elatior L.

Mrs. M. M. Patten, Albany, N. Y.

Pyxidantha barbulate *Mc.*

Rev. W. M. Beauchamp, Baldwinsville, N. Y.

Hydrocotyle umbellata *L.* | Cypripedium acaule *Ait.*

Prof. F. Lamson Scribner, Washington, D. C.

Bromus sterilis <i>L.</i>	Chloris verticillata <i>Nutt.</i>
B. tectorum <i>L.</i>	Deschampsia atropurpurea <i>Wahl.</i>
Elymus Virginicus <i>L.</i>	Melica mutica <i>Walt.</i>
Buchloe dactyloides <i>Engl.</i>	M. diffusa v. nitens <i>Scrib.</i>
Arundinaria tecta <i>Muhl.</i>	Setaria verticillata <i>Bv.</i>
Poa arachnifera <i>Torr.</i>	

F. E. Wood, Clifton, Mich.

Amelanchier Can. v. oligocarpa <i>Gr.</i>	Betula glandulosa <i>Mr.</i>
Artemisia frigida <i>Willd.</i>	Calypso borealis <i>Salisb.</i>
Mertensia paniculat <i>Don.</i>	Corallorhiza Macraei <i>Gr.</i>
Vaccinium myrtilloides <i>Hook.</i>	Comandra livida <i>Rich.</i>
Castilleja pallida <i>Kunth.</i>	Aspidium Lonchitis <i>Sw.</i>
Physalis grandiflora <i>Hook.</i>	

W. C. Stevenson, Jr., Philadelphia, Pa.

Puccinia Cryptotæniæ *Pk.*

E. S. Miller, Wading River, N. Y.

Crantzia lineata *Nutt.*

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

Siphoptychium Casparya *Rostf.*

E. A. Rau, Bethlehem, Pa.

Æcidium Dicentræ <i>Trelease.</i>	Fusarium scolecoides <i>S. & E.</i>
Æ. tenue <i>Schw.</i>	Gonatobotrys maculicola <i>Wint.</i>
Glœosporium betularum <i>E. & M.</i>	

E. C. Howe, M. D., Lansingburgh, N. Y.

Solidago speciosa <i>Nutt.</i>	Carex siccata <i>Desv.</i>
Rumex Brittanica <i>L.</i>	C. alopecoidea <i>Tuckerm.</i>
Trifolium hybridum <i>L.</i>	C. scabrata <i>Schw.</i>
Aster Tradescanti <i>L.</i>	C. monile <i>Tuckerm.</i>
Eragrostis Frankii <i>Pursh.</i>	

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

Negundo aceroides <i>Mœnch.</i>	Hieracium pilosella <i>L.</i>
Fedia radiata <i>Mc.</i>	H. aurantiacum <i>L.</i>
Patasites palmata <i>Gr.</i>	Statice Limonium <i>L.</i>
Solidago uliginosa <i>Nutt.</i>	Pogonia verticillata <i>Nutt.</i>
S. Virg. v. alpina <i>Bigel.</i>	Salix longifolia <i>Muhl.</i>
Nabalus nanus <i>D. C.</i>	Carex Buxbaumii <i>Wahl.</i>
Juncus pelocarpus <i>Meyer.</i>	Trisetum subspicatum <i>Bv.</i>
Aster ptarmicoides <i>T. & G.</i>	

W. H. Kellerman, Manhattan, Kansas.

Polyporus picipes <i>Fr.</i>	Hirneola auricula-Judæ <i>Berk.</i>
P. adustus <i>Fr.</i>	Phyllosticta Podophylli <i>Wint.</i>
P. fraxinophilus <i>Pk.</i>	P. Labruscæ <i>Thum.</i>
Merulius tremellosus <i>Schrad.</i>	P. Chenopodii <i>West.</i>
Craterellus cornucopioides <i>Fr.</i>	P. Ampelopsidis <i>E. & M.</i>
Stereum frustulosum <i>Fr.</i>	P. smilacina <i>E. & M.</i>

Septoria Verbenæ *R. & D.*
 S. Cerastii *R. & D.*
 S. Verbascicola *B. & C.*
 Leptostroma vulgare *Fr.*
 L. Actææ *Schw.*
 Sphæronema Persicæ *Schw.*
 Vermicularia Dematium *Fr.*
 Darluca filum *Cast.*
 Phragmidium Potentillæ *Pers.*
 Puccinia nigrescens *Pk.*
 P. solida *Schw.*
 P. Menthæ *Pers.*
 P. Silphii *Schw.*
 P. Sorghi *Schw.*
 P. Artemisiarum *Duby.*
 P. Polygonorum *Lk.*
 P. Mariæ-Wilsoni *Clinton*
 P. Myrrhis *Schw.*
 P. Chærophylli *Purt.*
 P. Xanthii *Schw.*
 P. aculeata *Schw.*
 Uromyces Lespedezæ (*Schw.*)
 U. Hyperici *Schw.*
 U. appendiculata *Lev.*
 Ustilago segetum *Lk.*
 Roestelia lacerata *Tal.*
 Æcidium Caladii *Schw.*
 Æ. Dicentræ *Tuel.*
 Æ. Enothæræ *Pk.*
 Æ. leucospermum *D. C.*
 Æ. Ficiaræ *Pers.*
 Uredo Smilacis *Schw.*
 U. Agrimonæ *D. C.*
 U. Alchemillæ *Pers.*
 Trichobasis Crotonis *Cke.*
 Coleosporium Sonchi *Pers.*

Chrysomyxa pyrolatum *Kœnig.*
 Synchytrium decipiens *Farl.*
 S. Taraxaci *De By.*
 S. Anemones *Woron.*
 Sporocybe byssoides *Fr.*
 Macrosporium Maydis *C. & E.*
 M. Solani *E. & M.*
 Helminthosporium gracile *Wallr.*
 Pyricularia grisea *Sacc.*
 Cercospora Gymnocladi *E. & M.*
 C. Ampelopsidis *Pk.*
 Ramularia rufomaculans *Pk.*
 Cylindrosporium Fraxini *E. & M.*
 Peronospora gangliiformis *De By.*
 Cystopus cubicus *Lev.*
 Botrytis vulgaris *Berk.*
 Peziza nivea *Fr.*
 Phacidium Medicaginis *Lasch.*
 Exoascus deformans *Fckl.*
 Podosphæria tridactyla *De By.*
 Uncinula macrospora *Pk.*
 U. adunca *Lev.*
 Microsphæria Euphorbiæ *B. & C.*
 Eysiphe Martii *Len.*
 E. lamprocarpa *Lev.*
 Sphæria Arthuriana *Sacc.*
 Diatrype hypophlœa *B. & C.*
 Rosellinia millegrana *Schw.*
 Hypoxylon atropunctatum *Schw.*
 H. Sassafra *Schw.*
 Gnomonia setacea *C. & D.*
 Melanomma pulvis-pyrius *Fckl.*
 Ophiobolus porphyrogonus *Sacc.*
 Sphærella maculæformis *Pers.*
 Phyllachora Trifolii *Fckl.*
 Pleonectria denigrata *Wint.*

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

*Rhabdospora pleosporoides *Sacc.*
 Phoma Clintonii *Pk.*
 Illosporium humigenum *P. & S.*

Læstadia Æsculi *Pk.*
 Morus alba *L.*

Arthur Peck, Sandlake, N. Y.

Populus balsamifera *L.*

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

Montagnites Candollei *Fr.*
 Polyporus leucospongia *C. & H.*
 Thelephora Harknessii *Ph.*
 Corticium carneum *B. & Cke.*
 C. pactolinum *C. & H.*
 Hymenula aciculosa *E. & H.*
 Octaviana rosea *Hk.*
 Polyplocium Californicum *Hk.*
 P. inquinans *Berk.*
 Arcyria vitellina *Ph.*
 Cryptosporium Lupini *Cke.*
 Chromosporium lateritium *C. & H.*
 Chætophoma atriella *C. & H.*
 C. quercifolia *Cke.*
 Septoria Aceris *B. & Br.*
 Morthiera Mespili *Fckl.*

Marsonia Populi *Desm.*
 M. Potentillæ *S. & E.*
 M. Neillii *Hk.*
 Glœosporium Pteridis *Hk.*
 G. nervisequum *Fckl.*
 Septoglœum defolians *Hk.*
 S. Fraxini *Hk.*
 S. maculans *Hk.*
 S. Nuttallii *Hk.*
 Diplodia lata *C. & H.*
 D. Eucalypti *C. & H.*
 D. Pittospori *C. & H.*
 D. millegrana *C. & H.*
 D. Symphoricarpa *C. & H.*
 D. Sarothamni *C. & H.*
 D. extensa *C. & H.*

- Diplodia Lupini *C. & H.*
 D. Amygdali *C. & H.*
 D. maculata *C. & H.*
 D. Phoradendri *Cke.*
 D. decorticata *C. & E.*
 Macrodiplodia Sambuci *Cke.*
 M. Arctostaphyli *Vize.*
 Hendersonia Lupini *C. & H.*
 Harknessia Eucalypti *Cke.*
 Pestalozzia Moorei *Hk.*
 P. anomala *Hk.*
 Dichomera Compositarum *C. & H.*
 Phragmidium Fragariæ *D. C.*
 Uromyces intricata *Cke.*
 U. Terebinthi *D. C.*
 U. Nevadensis *Hk.*
 U. Spragueæ *Hk.*
 U. Chorizanthis *E. & H.*
 Puccinia variolans *Hk.*
 P. evadens *Hk.*
 P. Symphoricarpi *Hk.*
 P. Harknessii *Vize.*
 P. Cœnothære *Vize.*
 P. striata *Cke.*
 P. Solani *Cke.*
 P. Asari *Lk.*
 Sorosporium Californicum *Hk.*
 Synchronium papillatum *Farl.*
 S. pluriannulatum *Farl.*
 Graphiola phœnicis *Poir.*
 Torula glutinosa *C. & H.*
 Camptoum cuspidatum *C. & H.*
 Triposporium elegans *Cd.*
 Thecospora bifida *Hk.*
 Stigmina Platani *Sacc.*
 S. Thermopsi *Hk.*
 Chætopsis fusca *Cd.*
 Zygosporium oscheoides *Mont.*
 Helicosporium vegetum *N.*
 Chalaza setosa *Hk.*
 C. fusidioides *Cd.*
 C. montellica *Sacc.*
 C. brachyptera *Sacc.*
 Beltrania quernea *Hk.*
 Hemileia vastatrix *B. & Br.*
 Cercospora glomerata *Hk.*
 Didymaria spissa *Hk.*
 Dicranidion fragile *Hk.*
 Volutella Buxi *Berk.*
 Helvella Californica *Ph.*
 Peziza tautilla *Ph. & H.*
 P. Escholtziæ *Ph. & H.*
 P. labrosa *Ph. & H.*
 P. sphærophoroides *Ph. & H.*
 Phillipsiella purpurea *Ph. & H.*
 Belonidium fuscum *Ph. & H.*
 Cenangium ferruginosum *Fr.*
 Phacidium Arbuti *C. & H.*
 P. albidum *Ph. & H.*
 P. internum *Ph.*
 Rhytisma Arbuti *Ph.*
 R. punctatum *Fr.*
 Stictis Lupini *Ph. & H.*
 S. Megarrhizæ *Ph. & H.*
 S. monilifera *Ph. & H.*
 S. pelvicula *Ph.*
 Triblidium rufulum *Spr.*
 T. turgidulum *Ph. & H.*
 Hysterium connivens *C. & H.*
 H. Eucalypti *Ph. & H.*
 H. prominens *Ph. & H.*
 H. formosum *Cke.*
 H. Mulleri *Duby.*
 Ailographum aciculum *Hk.*
 A. reticulatum *Ph. & H.*
 Geopora Cooperi *Hk.*
 Sphærotheca lanestris *Hk.*
 Asterina anomala *C. & H.*
 Capnodium heteromeles *C. & H.*
 Lasiobotrys affinis *Hk.*
 Valsa Lupini *C. & H.*
 V. agnostica *C. & H.*
 Diatrype prominens *C. & H.*
 D. disciformis *Fr.*
 Hypoxylon stigmatum *Cke.*
 Gnomonia Coryli *Batsch.*
 G. Alni *Plow.*
 Phomatospora Datiscæ *Hk.*
 Trabutia quercina *S. & R.*
 Botryosphaeria ambigua *Sacc.*
 Sphærella Umbellulariæ *C. & H.*
 S. Dendromeconis *C. & H.*
 Eriosphaeria investans *Cke.*
 Diaporthe Lupini *Hk.*
 D. gorgonoidea *C. & H.*
 Amphisphaeria decorticata *C. & E.*
 A. dothideospora *C. & H.*
 Valsaria Eucalypti *K. & C.*
 Leptosphaeria Ceanothi *C. & H.*
 L. Ogilviensis *B. & Br.*
 L. consessa *C. & E.*
 L. Californica *C. & H.*
 Heptameria mesædema *Sacc.*
 Massaria pulchra *Hk.*
 Pleospora vitrispora *C. & H.*
 P. compressa *Hk.*
 Thyridium Garryæ *C. & H.*
 Sphaeria tumulata *Cke.*
 S. conflictæ *Cke.*
 S. confertissima *Plow.*
 S. epipteridis *C. & H.*
 S. anisometra *C. & H.*
 Dialonectria filicina *C. & H.*
 D. depallens *C. & H.*
 D. Eucalypti *C. & H.*
 Thyronectria virens *Hk.*
 Acrospermum corrugatum *Ell.*
 Dothidea Sequoiæ *C. & H.*
 Ophiodothis tarda *Hk.*
 Plowrightia phyllogena *Hk.*
 P. Calystegiæ *C. & H.*
 P. tuberculiformis *Ell.*
 Lophiostoma congregatum *Hk.*

C. Vanderloo, Albany, N. Y.

Specimen of root with enlargement.

J. J. Brown, M. D., Sheboygan, Wis.

Cylindrosporium Rubi E. & M.

George L. English, Philadelphia, Pa.

Schizea pusilla Pursh.

(C.)

PLANTS NOT BEFORE REPORTED.

Solidago speciosa, Nutt.

Brunswick, Rensselaer county. E. C. Howe.

Eragrostis Frankii, Meyer.

Center island near the railroad bridge at Troy. Howe.

Agaricus (Tricholoma) rubescentifolius, n. sp.

Pileus thin, convex or nearly plane, subumbilicate, at first brownish, then smoky-yellow, sometimes obscurely squamulose; lamellæ narrow, close, adnexed, creamy-white or pale yellow, becoming smoky-red in drying; stem glabrous or slightly fibrillose, hollow, pruinose at the top, colored like the pileus; spores minute, subglobose, .00016 to .0002 in. long.

Plant subcæspitose, 1 to 1.5 in. high, pileus 6 to 12 lines broad, stem 1 to 2 lines thick.

Pine stumps. North Greenbush. Aug.

Agaricus lascivus, Fr.

Woods. Delmar. Sept. The plant is apparently a variety, being odorless and having the pileus almost white.

Agaricus cerussatus, Fr.

Thin woods. Karner. Sept.

Agaricus amplus, Pers.

Sandy soil. Karner. Sept.

Agaricus (Collybia) fuscolilacinus, n. sp.

Pileus thin, convex, glabrous, hygrophanous, even and watery-brown when moist, lilac-brown and rugose when dry; lamellæ close, ventricose, adnexed, brownish; stem slender, flexuous, hollow, colored like the pileus, mealy or pruinose at the top, with a whitish

villosity at the base; spores subglobose or broadly elliptical, .00016 to .0002 in. long.

Pileus 4 to 8 lines broad, stem 1.5 to 3 in. long, about 1 line thick.

Among moss and fallen leaves in open places in woods. Adirondack mountains. Aug.

The species should be referred to the section *Tephrophanæ*.

Agaricus (Collybia) esculentoides, n. sp.

Pileus hemispherical or convex, umbilicate, glabrous, pale yellowish-brown; lamellæ moderately close, broad, thick, whitish; stem slender, hollow, somewhat tenacious, colored like the pileus; spores elliptical, .00025 to .0003 in. long, .0002 in. broad.

Pileus 8 to 12 lines broad, stem 1.5 to 2 in. long, 1 to 1.5 lines thick.

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

This species resembles *A. esculentus* in size and color, but it differs in its stem which is not radicated, and in its pileus which soon becomes umbilicate or more or less centrally depressed. It has a bitter taste, a character attributed to *A. esculentus* also. Our plant occurred in autumn, but *A. esculentus* is said to grow in early spring.

Agaricus (Mycena) amabilissimus, n. sp.

Pileus submembranous, campanulate, obtuse or acute, glabrous, obscurely striatulate when moist, bright-red or scarlet; lamellæ ascending, whitish or tinged with red; stem slender, pallid, subpellucid, with a white villosity at the base.

Pileus 3 to 6 lines broad and high; stem about 1 in. long.

Among mosses and ferns in marshes. Karner. Sept.

This species is closely related to *A. acicula* of which it may possibly be a large form, but inasmuch as it differs not only in size but also in its longer and more conical or campanulate pileus and in its differently colored lamellæ it seems best to keep it distinct.

Agaricus spathulatus, Pers.

Ground. Sandlake. June.

Agaricus (Pleurotus) atropellitus.

Decaying wood and bark both of frondose and acerose trees. Maryland. Helderberg and Adirondack mountains. June to Oct.

Agaricus (Clitopilus) pascuensis, n. sp.

Pileus fleshy, compact, centrally depressed, glabrous, pale-alutaceous, the cuticle of the disk cracking into minute areas; lamellæ rather narrow, close, decurrent, whitish, becoming flesh-colored; stem short, equal or tapering downward, solid, glabrous, colored like the pileus; spores subelliptical, pale-incarnate, .0003 to .0004 in. long, .0002 to .00025 broad.

Pileus 2 to 3 in. broad, stem 8 to 18 lines long, 4 to 6 lines thick. Pastures. Day, Saratoga county. July.

The species is closely related to *A. prunulus*. It has a farinaceous taste but no odor. Its shorter spores, its pileus without any pruinosity and appearing slightly scaly on the disk and tinged with tan color will readily distinguish it from that species. *A. prunulus* grows in woods in autumn, this species in pastures in midsummer. It is solitary or gregarious.

Agaricus (Nolanea) fuscogriseellus, n. sp.

Pileus submembranous, convex, conic or campanulate, either with or without a central papilla, hygrophonous, grayish-brown, and striatulate when moist, paler and shining when dry, but the disk or papilla often remaining dark-colored; lamellæ moderately close, subventricose, whitish, then flesh-colored; stem slender, brittle, glabrous, hollow, slightly pruinose, or mealy at the top, pallid or livid, with a white mycelium at the base; spores irregular, .0004 in. long, .0003 broad.

Pileus 6 to 12 lines broad, stem 1.5 to 3 in. long, 1 to 2 lines thick.

Mossy ground in open places. Adirondack mountains. Aug. This is more slender than *A. pascuus* to which it is related, and its stem is not fibrous and silky.

Agaricus formosus, Fr.

Woods and open places, especially under brakes, *Pteris aquilina*. Adirondack mountains. Aug.

It closely resembles the very common *A. asprellus*, from which it may be distinguished by the yellowish hue of the pileus.

Agaricus depluens, Fr.

Decaying wood. Catskill mountains. Gansevoort and Sterling. July and August.

Agaricus marginatus, Batsch.

Decaying wood. Guilderland. Sept.

Agaricus unicolor, Fr.

Decaying wood. Adirondack mountains. Aug. In color and size this species bears a striking resemblance to *A. laccatus*, but its habitat and the character of the spores readily distinguish it.

Agaricus blattarius, Fr.

Woods. Adirondack mountains. Aug.

Agaricus calamistratus, Fr.

Damp ground. Delmar. Sept. Our specimens had no decided odor, but the essential characters of the species, including the peculiar bluish color toward the base of the stem, were present.

Agaricus eutheles, B. & Br.

Under pine trees. West Albany. Sept. In these specimens the farinaceous odor attributed to the species was not observed, but the other characters were present.

Agaricus alnicola, Fr.

At the base of alders and on birch stumps. Delmar. Sept.

The American specimens have the bitter taste ascribed to the European plant. The form found on birch stumps has the lamellæ rounded behind, while that found at the base of alders has them adnate. The young plant has a noticeable annulus but it nearly or quite disappears with age.

Agaricus (Naucoria) elatior, n. sp.

Pileus thin, at first conical or subcampanulate, then convex or nearly plane, glabrous, slightly viscid and striatulate on the margin when moist, livid or grayish-brown; lamellæ broad, ventricose, distant, whitish or livid, then dark-ferruginous, white on the edge; stem elongated, slender, hollow, flexuous, slightly fibrillose, pallid; spores brownish-ferruginous, oblong-elliptical, .0007 to .0008 in. long, .0003 to .0004 broad.

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

In sphagnum. Karner. Sept. Related to *A. scorpioides*.

Cortinarius arenatus, Fr.

Sandy soil under pine trees. Delmar. Sept.

A form with longer stem and subconical pileus sometimes occurs in marshes among sphagnum.

Hygrophorus pudorinus, Fr.

Pine woods. Delmar. Sept.

Our plant does not strictly agree with the description of the species to which we have referred it. The color of the pileus is darker in the center, where it is a brownish-red, but it fades toward the margin, where it is nearly white. The stem is not conspicuously contracted at the apex, but in other respects it agrees so well with the description of *H. pudorinus* that it seems to us to belong to that species.

Russula crustosa, n. sp.

Pileus at first convex, then nearly plane or centrally depressed, slightly viscid when moist, striate on the margin, brownish-yellow, greenish or subolivaceous, the cuticle cracking and forming small spot-like areolæ or pseudo-verruçæ; lamellæ nearly entire, some of them forked at the base, narrowed behind and nearly free, white; stem cylindrical, stuffed or hollow, white; spores white, subglobose, .0003 to .00035 in. broad; flesh white, taste mild.

Pileus 3 to 5 in. broad, stem 1 to 2.5 in. long, 6 to 12 lines thick.

Rocky ground in thin woods. Day. July and Aug.

This plant approaches *R. aeruginea* so closely, that it may be a question whether it is a distinct species or a mere variety. It differs in the breaking up of the cuticle and in having the disk generally paler instead of darker than the rest of the pileus. The cuticle usually remains entire on the disk, which is of a dingy yellowish hue, while toward the margin the color is greenish or smoky-green, though in some instances it also is yellowish or dirty straw-color. The greenish specimens so closely resemble *R. virescens*, that in a dry time they might easily be confused with that species. The viscid pileus and its striate margin will distinguish it. The lamellæ are rather narrow anteriorly.

***Boletus subaureus*, n. sp.**

Pileus convex, becoming nearly plane, soft, viscose, pale-yellow or golden-yellow, sometimes mottled with darker spots or tufts of hairs, the young margin adorned with a slight grayish tomentum, flesh pale-yellow; tubes subdecurrent, small, angular or subrotund, at first yellow then ochraceous-yellow; stem cylindrical, solid, glandular-punctate, yellow without and within; spores oblong-elliptical, .00035 to .0004 in. long; .00016 broad.

Pileus 2 to 4 in. broad, stem 1.5 to 2.5 in. long, 5 to 6 lines thick.

Woods. Day. July.

This species is intermediate between *B. flavidus* and *B. granulatus*. It has the stout stem, thick pileus and general aspect of the latter, but the yellow color of the stem and young tubes connect it more closely with the former.

***Boletus flavipes*, n. sp.**

Pileus convex or nearly plane, glabrous, dull-red, inclining to chestnut color; tubes nearly plane or convex, small, subrotund, pale-yellow, becoming a little darker with age; stem cylindrical, solid, furfuraceous, pale-yellow; spores oblong-fusiform, olivaceous, .0005 to .0006 in. long, .00016 to .0002 in. broad.

Pileus 1.5 to 2.5 in. broad, stem 2 to 3 in. long; 4 to 6 lines thick.

Woods. Caroga and South Ballston. July and Aug.

***Polyporus confluens*, Fr.**

Pine woods. New Scotland. Sept.

Our specimens are not at all squamulose, and this character is not attributed to the species by all authors. It is probable that it is not uniform in this respect.

***Polyporus Schweinitzii*, Fr.**

Pine woods, generally at or near the base of stumps and trees. West Albany. Sept.

P. hispidoides is a dimidiated form of this species, and not a variety of *P. hispidus*.

Hydnum geogenium, Fr.

Woods. South Ballston. Aug.

I am not aware that this rare and interesting species has before been noticed in this country. According to Fries, the species is very variable, so much so that some specimens might be referred to the section Pleuropoda, others to Mesopoda, and others still to Apoda, to which the typical form belongs.

Hydnum farinaceum, Pers.

Decaying wood of hemlock. Osceola. Aug.

Grandinia granulosa, Fr.

Dead bark of alders. Karner. Sept.

A variable species, referred to Thelephora by Albertina and Schweinitz, to Hydnum by Persoon, and to Grandinia by Fries. Our specimens were whitish when fresh, but they become ochraceous or subalutaceous when old and dry. They are also rimose, thus answering to variety *rimosa* Pers.

Corticium puteanum, Fr.

Decaying wood in swamps. Guilderland. Sept.

Corticium radiosum, Fr.

Decaying wood. Osceola. Aug.

Corticium cinerascens, Berk.

Dead branches of oak. Albany. Aug.

Our specimens are resupinate. The hymenium when moist was tuberculose and of a dingy hue; in the dry state it is cinereous and rimose. The spores are elliptical.

Clavaria circinans, n. sp.

Stem short, solid, dichotomously or subverticillately branched; branches slightly diverging or nearly parallel, nearly equal in length, the ultimate ones terminating in two or more short acute concolorous ramuli; spores ochraceous.

Plant 1 to 2 in. high, obconic in outline, flat topped, appearing almost as if truncated, pallid or almost whitish in color, generally growing in imperfect circles or curved lines.

Under spruce and balsam trees. Adirondack mountains. Aug.

Clavaria gracilis, Pers.

Ground in open places, especially under brakes, *Pteris aquilina*. Adirondack mountains.

The typical form has the branches numerous, nearly straight and slender, but forms occur in which they are thicker, more loose and flexuous. Such forms approach *C. Kunzei* in appearance, but they

may be distinguished by their pallid stem, more tenacious substance and yellowish spores. The plant is slightly fragrant.

Clavaria byssiseda, Pers.

Decaying wood twigs and bark in woods. Adirondack mountains. Aug.

Easily known by its small size, pallid color, and abundant white creeping fibrillose mycelium.

Tremella pinicola, n. sp.

Pulvinate, gyrose-plicate, somewhat lobed and lacunose, raisin-colored when moist, blackish when dry, filaments slender, branched; spores oblong, curved, colorless, .0005 in. long, .0002 broad.

Dead branches of pine. Day. July. It belongs to the section Cerebrina.

Siphoptychium Casparyi, Rost.

Decaying wood. Lake Placid. Adirondack mountains. G. A. Rex.

Phyllosticta Mitellæ, n. sp.

Spots suborbicular, brown; perithecia minute, .0025 to .003 in. broad, amphigenous, black; spores subglobose, colorless, .0002 to .00025 in. long.

Living leaves of mitre-wort, *Mitella diphylla*. Newburgh. Sept.

Phyllosticta Hamamelidis, n. sp.

Spots very large, sometimes occupying nearly half the leaf, irregular, angular, reddish-brown above, paler beneath; perithecia small, .004 in. broad, amphigenous, black; spores broadly elliptical, colorless, .0005 to .0006 in. long, .00035 to .0004 broad, often containing a single large nucleus.

Living leaves of witch-hazel, *Hamamelis Virginiana*. Day. July.

Phoma aquilina, S. & P.

Dead stems of ferns. West Albany. May.

Phoma Strobiligena, Desm.

Scales of pine cones. Albany. G. W. Clinton. Elizabethtown. May.

Phoma sordida, Sacc.

Dead branches of water beech, *Carpinus Americana*. Saugerties. May.

Phoma Phillipsiana, S. & R.

Dead branches of alders, *Alnus viridis*. Elizabethtown. May.

The spores in our specimens do not fully agree with the description of the species. They are elliptical or oblong and somewhat variable and irregular, but the differences scarcely seem worthy of specific distinction.

Phoma Majanthemi, n. sp.

Perithecia minute, .007 to .010 in. broad, amphigenous, subglobose, prominent, black; spores oblong, subtruncate at each end, colorless,

00025 to .0003 in. long, .00012 broad. Dead leaves of two-leaved Solomon's seal, *Majanthemum bifolium*. Elizabethtown. May.

Phoma Clintonii, n. sp.

Perithecia numerous, sunk in the wood, oblong or subhysteriiform, black; spores oblong-ovate, colorless, .0004 to .00045 in. long, .00016 broad, supported on slender basidia.

Decorticated wood of horse-chestnut, *Æsculus Hippocastanum*. Albany. May. *Clinton*.

This is quite distinct from *P. diplodioides*, both in habit, form of perithecia and character of the spores.

Dendrophoma Cephalanthi, n. sp.

Perithecia small, .02 to .025 in. broad, erumpent, depressed, with a papillate ostiolum, black; spores abundant, straight or slightly curved, colorless, .00016 to .0002 in. long; basidia very slender, branched above, .001 to .0015 in. long.

Dead branches of button bush, *Cephalanthus occidentalis*. Karner. Oct.

Dendrophoma Tiliæ, n. sp.

Perithecia minute, scattered, erumpent, black, white within; spores oblong or subcylindrical, obtuse, colorless, .0006 to .001 in. long, .0003 to .00035 broad; basidia filiform, branched.

Dead branches of bass wood, *Tilia Americana*. Quaker Street. June.

Vermicularia uncinata, B. & C.

Dead stems of *Desmodium nudiflorum*. Sandlake. June.

Cytispora intermedia, Sacc.

Dead branches of oak, *Quercus rubra*. Albany. Apr.

Sphæropsis tiliacea, n. sp.

Perithecia at first covered, then erumpent, subglobose or depressed, numerous, minute, .007 to .010 in. broad, opening by a minute pore, black; spores oblong or subelliptical, at first pale, then colored, .0007 to .0009 in. long, .0005 to .0006 broad; sporophores scarcely as long as the spores.

Dead bark of basswood, *Tilia Americana*. Albany. Apr.

Sphæropsis Linderae, n. sp.

Perithecia numerous, minute, .005 to .010 in. broad, erumpent, black, white within; spores obovate or elliptical, at first pale, then colored, .0008 to .0011 in. long, .0005 to .0006 broad supported on sporophores shorter than themselves.

Dead branches of spice bush, *Lindera benzoin*. Albany. May.

Very near the preceding species.

Sphæropsis Juniperi, n. sp.

Perithecia gregarious, numerous, small, .008 to .011 in. broad, erumpent, black; spores oblong or elliptical, .0008 to .00095 in. long, .00045 to .0005 broad.

Dead bark of red cedar, *Juniperus Virginiana*. West Albany May.

Sphæropsis pallida, *n. sp.*

Perithecia cæspitose, erumpent, .011 to .013 in. broad, black; spores subglobose, slightly colored, .0007 to .0008 in. long, .00065 to .00075 broad, containing one to three nuclei; sporophores very short.

Dead branches of sumac, *Rhus typhina*. Saugerties. May.

This fungus has the general appearance of *S. Sumachi*, but the perithecia are usually smaller than in that species, and the spores paler and of a different shape, being nearly globose.

Sphæropsis Sphærospora, *n. sp.*

Perithecia numerous, minute, .006 to .007 in. broad, subglobose or depressed, at first covered by the epidermis, black, opening by a minute pore; spores globose or subovate, slightly colored, .0004 to .0005 in. long, usually containing a single large nucleus.

Dead stems of silk weed, *Asclepias cornuti*. Sandlake. June.

Sphæropsis maculans, *n. sp.*

Perithecia immersed in the matrix, .016 to .02 in. broad, black, with a papillate ostiolum; spores elliptical, colored, .0004 to .0005 in. long, .0002 to .00025 broad.

Dead decorticated branches. Adirondack mountains. May.

This is a peculiar and well-marked species. The perithecia are immersed in the wood which is stained black just about each perithecium. The black ostiolum projects slightly above the surface of the wood.

Coniothyrium Staphyleæ, *n. sp.*

Perithecia minute, .007 to .011 in. broad, subglobose, slightly prominent, at first covered by the epidermis then erumpent, black; spores very minute, elliptical, slightly colored, .00016 in. long, .00012 broad.

Dead whitened twigs of *Staphylea trifolia*. Saugerties. May.

Septoria Osmorrhizæ, *n. sp.*

Spots small, subangular or irregular, brown; perithecia epiphyllous, .004 to .005 in. broad, slightly prominent, centrally depressed, reddish-brown or amber-colored; spores filiform, more or less curved or flexuous, colorless, .002 to .0028 in. long, .00016 broad, oozing out and forming a whitish tendril. Living leaves of sweet cicely, *Osmorrhiza longistylis*. Schoharie. July.

Septoria oleandrina, *Sacc.*

Living or languishing leaves of oleander, *Nerium Oleander*. Sandlake. June.

Septoria lineolata, *S. & S.*

Dead leaves of sedges, *Carex varia*. Elizabethtown. May.

Septoria graminum, *Desm.*

Living leaves of black-fruited mountain rice, *Oryzopsis melanocarpa*. Day. July.

Rhabdospora pleosporoides, Sacc.

Dead stems of Scotch thistle, *Onopordon acanthium*. Albany-May. Clinton.

Rhabdospora Xanthii, n. sp.

Perithecia numerous, small, .011 to .014 in. broad, depressed, covered by the thin browned or blackened epidermis which is pierced by the ostiola; spores filiform, curved, colorless, .0008 to .0012 in. long, .00006 broad.

Dead stems of cocklebur, *Xanthium strumarium*. Albany and North Greenbush. Apr.

The tissues surrounding the perithecia are often colored in such a way as to impart a smoky-brown hue to the affected patches.

Phlyctæna septorioides, Sacc.

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

Phlyctæna complanata Sacc.

Dead stems of Polygonum. North Greenbush. May.

Zythia ovata, n. sp.

Perithecia ovate, reddish or flesh colored when fresh and moist, black when dry, single or two to three in a cluster, nearly superficial, .025 to .030 in. long, .017 to .018 broad; spores oblong, colorless, .0003 in. long, .00012 broad; basidia densely and fasciculately branched.

Dead bark of poplar. South Ballston. Sept.

Diplodina Ellisii, Sacc.

Dead stems of goose foot, *Chenopodium album*. North Greenbush-Apr.

This was originally *Diplodia hyalospora*, C. & E. The perithecia are .008 to .01 broad. The spores are at first simple, then uniseptate. They are .0007 to .001 long, .00035 to .0004 broad.

Thyrsidium Micheneri, Sacc.

Dead branches of water beech, *Carpinus Americana*. West Troy-May.

This is *Cheirospora Micheneri*, B. & C.

Marsonia Martini, S. & E.

Living leaves of *Quercus prinoides*. Karner. Sept.

Coryneum compactum, B. & Br.

Dead branches of red birch, *Betula nigra*. Saugerties. May.

Pestalozzia Saccardoi, Speg.

Dead leaves of oak, *Quercus alba*. Day. July. The spots on the leaves are less black and the colored cells of the spores are more numerous in this species than in *P. monochæte*, which also inhabits oak leaves.

Pestalozzia consocia, n. sp.

Spots very large, sometimes occupying nearly half the leaf, irregular or angular, reddish-brown above, paler beneath; acervuli amphigenous, minute, punctiform, black; spores oblong-fusiform, .0012 to .0014 in. long, .0003 broad, five septate, with four colored cells, .0009 to .0011 in. long and a single bristle at the apex.

Living leaves of witch-hazel, *Hamamelis Virginiana*. Day. July.

The species is associated with and occupies the same spots as *Phyllosticta Hamamelidis*. It may be a question as to which species causes the spots, though they are probably due to the *Phyllosticta*.

Pestalozzia? campsosperma, n. sp.

Acervuli hypophyllous, minutely tufted; spores fusiform, curved, triseptate, .0008 to .0012 in. long, .00028 to .00032 in. broad, with two colored cells .0005 in. long, the apical cell hyaline, conical, ending in an acuminate point, the lower cell tapering into the short pedicel.

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

This is a singular species. I have seen no terminal cilia and am not able to say whether they are entirely wanting or whether they are early deciduous. The characters otherwise are so exactly like those of *Pestalozzia* that I have, with some doubt, referred our plant to that genus. The curved spores are very characteristic of the species.

Uredo Ledi, A. & S.

Living leaves of Labrador tea, *Ledum latifolium*. Bergen swamp, Genesee county, and Sandlake, Rensselaer county. June.

The authors of this species remark that the leaves attacked by the fungus appear broader than usual. This peculiarity was very perceptible in the Bergen swamp specimens, the usually involute margins of the leaves being almost wholly expanded or unrolled. The spores, which occur on the lower surface of the leaf and are partly concealed by its tomentum, are .0008 to .0009 in. broad. Their smaller size, different place of occurrence, and the different color of the spots readily distinguish this species from *Uredo ledicola*.

Puccinia hastata, Cke.

Living leaves of *Viola primulæfolia*. Riverhead. Sept. The typical form was discovered in Maine on leaves of *Viola hastata*. In our specimens teleutospores and stylospores occur on the same leaf and sometimes in the same sorus.

Gymnosporangium clavariæforme, D. C.

Branches of Juniper, *Juniperus communis*. Elizabethtown. May.

This was in some instances associated with *Gymnosporangium clavipes*, the two occurring near each other on the same branch. The species is a rare one in this country, and has hitherto been reported from Maine only.

Periconia pycnospora, Fres.

Dead stems of melilot. Bethlehem. Apr.

Sporodinia grandis, Lk.

Decaying *Agaricus abortivus*. Osceola. Aug.

Ulosporium humigenum, Pk. & Sacc.

Tufts subglobose or pulvinate, rather compact, often botryoidal by confluence, sordid red, grayish or subcinereous; spores globose, at first three or more aggregated, then free, colorless, .0002 to .00028 in. broad; basidia none or obsolete.

Damp ground, horse dung, etc. Lebanon Springs. Clinton. Copake. Aug. and Sept.

Monilia Peckiana, Sacc.

Petioles of dwarf blueberry, *Vaccinium Pennsylvanicum*. Cobble Hill, near Elizabethtown. May.

This is a very destructive fungus. The leaves, of which the petioles are attacked, soon wither, turn brown and die. The destruction of the leaf tissues progresses from the base toward the apex as if destroyed by the advancing mycelium. But the strings of spores, so far as I have observed, are produced on the petioles only. The spores vary very much in size, ranging from .0005 to .0012 in. long, and from .0005 to .0009 broad. They are globose or subelliptical and usually have a slight prominence or apiculus at one or both ends.

Variety *angustior* Sacc. Young fruit of choke cherry, *Prunus Virginiana*. Schoharie. July. This differs from the typical form not only in its host plant and place of development, but also in the size of the spores. These are subglobose and .0004 to .0005 in. long. These differences seem to me to indicate a difference of species, but Prof. Saccardo regards this fungus as a mere variety of the former. It is very destructive to the young cherries. In some instances nearly all the cherries in a raceme were affected by it. Those attacked were smaller than the healthy ones. They were of a brownish or grayish-brown hue, and more or less frosted by the fungus. Should this parasite ever escape from its native host plant and attack our cultivated cherries, it might become a very annoying and destructive pest.

Ramularia Geranii, Fekl.

Living or languishing leaves of wild geranium, *Geranium maculatum*. Schoharie. July.

Saprolegnia ferax, Kutz.

On fishes in an aquarium. Albany. Also in an artificial fish pond. Sandlake. It is sometimes very destructive to fish.

Geoglossum viscosum, Pers.

Ground under brakes, *Pteris aquilina*. Adirondack mountains. Aug. This may be distinguished by its triseptate spores from *G. Peckianum*, which it much resembles.

Leotia mercida, Pers.

Swampy places. Delmar and Karner. Sept.

Godronia Cassandræ, n. sp.

Receptacle small, .02 to .03 in. broad, sessile or nearly so, depressed, urceolate, tawny-brown, the hymenium whitish or livid when moist, darker when dry, the narrow mouth entire or slightly dentate-lacerate, almost closed when dry; asci cylindrical, .0045 to .005 in. long, .0003 to .0004 broad; spores filiform, nearly straight, .002 to .003 in. long; paraphyses filiform, numerous.

Dead branches of leather leaf, *Cassandra calyculata*. Karner. Aug.

Tympanis saligna, Tode.

Dead branches of willow, *Salix purpurea*. West Albany. Apr. The specimens are without fruit and to this extent doubtful.

Stictis Saccardoi, Rehm.

Dead stems of scouring rush, *Equisetum hyemale*. Delmar. Sept.

Lichenopsis sphæroboloidea, Schw.

Dead stems of Cornus. Elizabethtown. May.

Asoomyces extensus, Pk.

Spots large, irregular, brown, usually somewhat convex above and concave below, most frequently occurring at the apical end of the leaf or of its lobes; asci hypophyllous, cylindrical, obtuse or subtruncate, .002 to .0025 in. long, .0009 to .0011 broad; spores globose or broadly elliptical, variable in size, .00016 to .0003 in. long, .00016 to .00025 broad.

Living leaves of the over-cup oak, *Quercus macrocarpa*. Plattsburgh. July. Gen. J. M. Robertson.

The specimens were first sent by Gen. Robertson to the editors of the *Country Gentleman*, with the information that nearly every leaf on the tree was affected in a manner similar to those sent. In these the dead spots occupied one-fourth to one-half the entire leaf. They number from one to three spots on a leaf. It is very evident that the vital functions of leaves so extensively affected must be much impaired, and that the health and vigor of the tree must be correspondingly weakened. It was also stated that many other oaks in that region were similarly affected. The species is distinct from *A. Quercus* Cke., in the character of the spots and also of the spores.

Microsphæria Cæanothi, (Schw.).

Living leaves of New Jersey tea, *Ceanothus Americanus*. New Scotland. Oct.

This appears to be the fungus described by Schweinitz as *Erysiphe Ceanothi*, although the perithecia in our specimens can scarcely be described as "immersed" and the species is a *Microsphæria*, not an *Erysiphe*. It is closely related to *M. penicillata*, having about four eight-spored asci in a perithecium, but it differs from that fungus in occurring only on the upper surface of the leaves. It sometimes attacks the immature fruit which it covers with a more dense white mycelium.

Valsa rhoophila, C. & E.

Dead branches of poison sumach, *Rhus venenata*. Guilderland. May.

Valsa glandulosa, Cke.

Dead branches of *Ailanthus glandulosus*. Cold Spring. June.

Valsa cenisia, De Not.

Dead branches of red cedar, *Juniperus Virginiana*. West Albany. May.

Rosellinia ambigua, Sacc.

Decorticated stems of red-berried elder, *Sambucus pubens*. Adirondack mountains and Sandlake. June.

The species belongs to the section Coniochæta. The perithecia in some of our specimens are so densely crowded that they form a continuous black stratum.

Rosellinia mastoidea, Sacc.

Fallen decorticated branches of willow, *Salix purpurea*. West Albany. Apr.

Hypoxyton semiimmersum, Nits.

Decaying wood. Adirondack mountains. June.

Læstadia Æsculi, n. sp.

Perithecia small, .007 in. broad, lenticular, covered by the epidermis, erumpent, opening by a minute pore, black; asci subclavate; spores crowded, subelliptical, colorless, .0003 to .0004 in. long, .0002 to .00025 in. broad.

Fallen petioles of horse chestnut, *Æsculus Hippocastanum*. Albany. May. *Clinton*.

Sphærella maculosa, Sacc.

Fallen leaves of poplar, *Populus tremuloides*. Adirondack mountains. June.

This species resembles *S. orbicularis*, but the perithecia are smaller and hypophyllous, and the spores are larger and distinctly colored.

Sphærella macularis, Auersw.

Fallen leaves of poplar. Adirondack mountains. June.

In this species the spots are small and angular, the perithecia are amphigenous and the spores are smaller than in *S. maculosa*.

Sphærella Lycopodii, n. sp.

Perithecia minute, .004 in. broad, blackish; asci oblong or subcylindrical, often slightly narrowed toward the apex, .0012 to .0016 in. long, .0004 broad; spores oblong, .00045 to .0005 in. long, .00016 to .0002 broad.

Scales of dead spikes of club moss, *Lycopodium clavatum*. Adirondack mountains. June.

This differs from *S. lycopodina*, in its place of growth and in its smaller asci and spores.

Diaporthe Carpini, Fckl.

Dead branches of water beech, *Carpinus Americana*. Albany. Apr.

Diaporthe Robergeana, Niessl.

Dead branches of bladder-nut, *Staphylea trifolia*. Albany. Apr.

Diaporthe galericulata, Sacc.

Dead branches of beech, *Fagus sylvatica*. Sandlake. June.

Diaporthe Neilliae, n. sp.

Perithecia numerous, .02 to .024 in. broad, loosely and irregularly aggregated in extensive patches, immersed in the interior bark and often forming a slight depression in the wood, covered by the epidermis which is pierced by the black conical or rostellate ostiolum, the base often concave beneath; asci subcylindrical, the sporiferous part about .0025 in. long, .0003 to .0004 broad; spores crowded or biseriata, oblong or subfusiform, slightly constricted at the septum, two or four nucleate, .00055 to .00065 in. long, .0002 to .00025 broad.

Dead branches of nine bark, *Neillia opulifolia*. Albany. Apr.

The surface of the affected branch is rough to the touch by reason of the projecting ostiola. The perithecia are sometimes valsoidly clustered.

Diaporthe marginalis, n. sp.

Pustules numerous, covered by the epidermis which is somewhat elevated; perithecia valsoid, 8 to 15 in a pustule, nestling in the inner bark with no circumscribing line, the ostiola slightly emergent, black, usually surrounding the margin of the whitish pulveraceous erumpent disk; asci subcylindrical, .0025 to .003 in. long, .0004 to .0005 broad; spores crowded or biseriata, uniseptate, obscurely apiculate at each end, .0008 to .0009 in long, .0002 to .00025 broad.

Dead branches of *Alnus viridis*. Elizabethtown. May.

In its external appearance this fungus resembles *Valsa ambiens*. In the larger pustules the ostiola form a marginal circle about the disk as in that species, but in the smaller ones they sometimes emerge centrally and obliterate the disk.

Diaporthe sparsa, n. sp.

Perithecia few, minute, scattered, immersed in the wood whose surface is blackened; asci clavate or subcylindrical, .003 to .0035 in. long, .0003 to .0004 broad; spores crowded, oblong or subfusiform, colorless, constricted at the septum, four-nucleate, .0008 to .0012 in. long, .0002 to .00028 broad. Dead branches of *Rhus Toxicodendron*. Saugerties. May.

Didymosphæria bacchans, Pass.

Dead branches of grapevines. Saugerties. May.

Leptosphæria Typharum, Karst.

Dead leaves of *Typha latifolia*. Adirondack mountains. June.

Leptosphaeria Kalmiæ, n. sp.

Perithecia subcæspitose, erumpent, .014 to .018 in. broad, sub-hemispherical, thick, black, the ostiola pertuse or slightly papillate; asci cylindrical, .004 to .005 in. long, .0003 to .00035 broad; spores uniseriate, oblong or subfusiform, triseptate, sometimes slightly constricted at the middle septum, colored, .00065 to .0008 in. long, .00025 to .0003 broad; paraphyses filiform.

Dead stems of sheep laurel, *Kalmia angustifolia*. Adirondack mountains. June.

Generally there are two to four perithecia in a cluster, but sometimes they are single and occasionally laterally compressed. The epidermis usually ruptures longitudinally. The species is related to *Leptosphaeria vagabunda*.

Zignoella diaphana, Sacc.

Decaying wood. Adirondack mountains. June.

Our specimens have the perithecia depressed and smaller than in the type.

Pyrenophora relicina, Sacc.

Dead leaves of quack grass, *Triticum repens*. West Albany and Helderberg mountains. May.

Cryptospora Tiliæ, Tul.

Dead branches of basswood, *Tilia Americana*. Helderberg mountains. May.

Hypocrea fungicola, Karst.

Decaying Polyporus. Caroga. July. The species was formerly confused with *H. citrina*, which it very closely resembles.

Pleonectria Berolinensis, Sacc.

Dead stems of currant, *Ribes rubrum*. Albany. April.

(D.)

REMARKS AND OBSERVATIONS.

Ranunculus repens, L.

A beautiful double flowered *Ranunculus* was found growing in a wet place by the road side in the village of Bergen. Its creeping stems and other characters connect it with *R. repens*, and especially with that form of it which was described by Dr. Beck as *R. Clintonii*. Whether the plant with its double flowers was a spontaneous development or whether it had escaped from cultivation in some garden is not known.

Actæa alba, Bigel.

A form with long slender pedicels was found at Karner growing with *A. rubra*. The latter sometimes has thick pedicels, so that the color of the fruit remains as the most reliable character for distinguishing these species.

Barbarea vulgaris, R. Br.

This plant is very abundant on the low lands between Utica and Rome. It takes possession of pastures and cleared lands and rivals the common yellow buttercups in profusion. Its vigorous and abundant growth give it the appearance of an introduced plant and make it worthy of classification among our noxious weeds. Variety *arcuata* occurs along shaded streams in Sandlake.

Arabis lyrata, L.

The usual habitat of this plant is on rocks and precipices, but fine specimens were found growing in a sandy field near Albany.

Camelina sativa, L.

Abundant in wheat fields near Bergen. June. An introduced and troublesome weed.

Viola cucullata, Ait.

A peculiar form of this very variable species grows in Bergen swamp. The leaves are very small, about half an inch broad, the peduncles are elongated and the lateral petals are whitish at the base.

Prunus serotina, Ehrh.

The black cherry is very abundant about Southfield, Orange county, where it blossoms profusely even when a mere shrub in size. The choke cherry is also common here. It blossoms two or three weeks earlier than the black cherry.

Cephalanthus occidentalis, L.

The leaves are usually opposite or ternate, but sometimes there are four in a whorl.

Crantzia lineata, Nutt.

Specimens of this rare plant were sent from Wading River by *E. S. Miller*.

Epilobium hirsutum, L.

This introduced plant is gradually spreading. It is in North Greenbush, *G. W. Clinton*, and at Dunsback Ferry, near Cohoes. *H. C. Gordinier*.

Petasites palmata, Gray.

This rare species has been found in a sphagnous marsh in Sandlake. *Gordinier*. It also occurs sparingly in a marsh near Guilderland Station, in Albany county, but here it is in danger of extermination as the marsh will probably be soon cleared for cultivation.

Senecio aureus, L.

Variety *Balsamitæ* was found in dry rocky places at Southfield.

Vaccinium Pennsylvanicum, Lam.

The black-fruited form, variety *nigrum*, is not rare in the town of Day, Saratoga county. In one locality on the top of a mountain it

was found producing berries of unusual size. Many of them were found by actual measurement to be fully a half inch in diameter. They were sweet and agreeable to the taste and grew in close clusters of three to six berries. This form would be a most desirable one to introduce into cultivation if it can be made to thrive as well in other localities as it does in its native one. The same variety, bearing more abundant though smaller fruit, was found growing in a marsh in the same town. This would indicate its adaptability to a variety of soils.

Clethra alnifolia, L.

The sweet pepper bush or white alder is abundant about Spruce pond near Southfield; also on Skunnemunk mountain. In the former locality, a plant of *Leucothoë racemosa* was also observed.

Menyanthes trifoliata, L.

Spruce pond near Southfield. The flowers are dimorphous. On some plants the stamens are longer than the pistils, on others shorter.

Apocynum androsæmifolium, L.

There are two forms of our common dogbane, in one of which the flowers are nearly twice as large as in the other.

Celtis occidentalis, L.

Near Saugerties. The hackberry is not rare in the lower part of the Hudson river valley, but northward and westward it is seldom found. I am informed that a tree of this species growing in the Mohawk valley, near Sprakers, is such a novelty that it has received from the inhabitants the name of "the unknown tree."

Nyssa multiflora, Wang.

Abundant on Skunnemunk mountain where it forms a tall tree and has a trunk twelve inches or more in diameter at the base.

Betula nigra, L.

The red birch was admitted into the New York Flora by Dr. Torrey, on the authority of Dr. J. Carey, who gave Saugerties as its locality. No specimens were placed in the Herbarium. Desiring New York specimens, I visited Saugerties and found several trees growing along the banks of the *Æsopus* river south of Saugerties. The species is easily known by its rough bark, curved branches and long drooping branchlets. The bark of young trees is smooth and whitish or reddish-white and such trees might easily be mistaken for the paper birch or poplar leaved white birch.

Alnus viridis, D. C.

Plentiful on Cobble hill, also along the road between Elizabethtown and Keene.

Arisæma triphyllum, Torr.

The apex of the spadix of the Indian turnip is generally obtuse. A specimen was found near Albany, in which the spadix was abruptly

contracted near the top and prolonged into a slender subulate point, thus showing a tendency to approach, in form, the spadix of *A. Dracontium*.

Symplocarpus foetidus, *Salisb.*

A specimen occurred near West Albany of which the spathe was double, or rather there were two spathes one smaller, partly within the other and facing it. The smaller interior one contained the spadix.

Orontium aquaticum, *L.*

Abundant at Spruce pond, Orange county. The spadix or club is at first greenish, then bright yellow, finally green again. In the yellow or flowering state it is erect and the scape for a short distance below the spadix is a pure white. After flowering the spadix is thrust beneath the surface of the water by the bending of the scape and both it and the upper part of the scape gradually assume their final green color. The flowers are protogynous and their odor is similar to that of chestnut blossoms. The plants sometimes grow among the sphagnum and sedges of the low quaking shores, and then their leaves are erect. The root is so deeply and firmly fixed in its place, that it is exceedingly difficult to obtain an entire plant.

Cypripedium candidum, *Muhl.*

In Bergen swamp the white lady slipper is associated with the larger and smaller yellow lady slippers. This is its only New York locality known to me, and it grieves me to know that it is here sometimes collected unsparingly merely for hand bouquets. By such treatment it is in danger of extermination. Such a rare and beautiful plant should be gathered sparingly and preserved in its native locality as long as possible.

Trillium grandiflorum, *Salisb.*

The variety *variegatum* has again been collected in the Jamesville locality where it presented the same characteristics as last year. Mrs. Goodrich writes that no specimen with sessile leaves had variegated petals. The petioled leaves and petals striped with green are thus far constantly associated. Of some plants transferred to her garden all reproduced the petioled leaves, and the single one which blossomed had its petals marked with green. One plant occurred in which the flower was borne on one stem and the leaves on another, both rising from the same rootstock. Miss Overacker found a monstrosity in which the flower had nine petals and twelve stamens; also another in which all the parts of the flower were in fours, even the ovary being four-celled. Rev. Mr. Beauchamp also found near Baldwinsville a specimen whose flower had six long sepals and eighteen shorter petals. Under proper cultivation this plant would probably produce double flowers and numerous varieties very readily.

Carex sterilis, *Willd.*

The typical form in which the spikes are often all or nearly all staminate is abundant in Bergen swamp. In the eastern part of the State the plants almost uniformly bear pistillate spikes, and an abun-

dance of fruit. *C. sterilis* and *C. flava* are the prevailing species in Bergen swamp. Among the interesting and rare species are *C. gynocrates*, the typical form, and *C. vaginata*.

Agaricus melleus, Vahl.

An abortive form of this Agaric sometimes occurs. It resembles the abortive form of *A. abortivus*.

Septoria
Agaricus serrulatus, Pers.

This species is quite variable. An Agaric was found in the Adirondack wilderness which I was at first inclined to regard as an undescribed species, but have concluded that it is a variety of *A. serrulatus*. The pileus is grayish or whitish-gray and the stem is destitute of the blackish points which belong to the typical form. It may be distinguished as variety *pallida*.

Lactarius resimus, Fr.

The plant which we have referred to this species as variety *regalis* was observed in Day. Its glabrous margin and glabrous stem remain constant. The pileus was obscurely zonate and the stem spotted. It might, at first sight, be mistaken for *L. insulsus*, but the change in the color of the milk would correct such a mistake.

Russula foetens, Fr.

Variety *granulata* has the cuticle of the pileus rough with small granular scales.

Gymnosporangium macropus, Schw.

Plentiful on red cedar trees about Highland Mills, Orange county, and also about Schoharie.

Septoria mirabilis, Pk.

This should be referred to the genus *Glœosporium*.

Septoria corylina, Pk.

Variety *permaculata* differs from the typical form in having the spots large, brown or reddish-brown with an arid paler center. Living leaves of *Corylus rostrata*. Day.

Cenangium deformatum, Pk.

If the genus *Cenangium* be limited to such species as have simple colorless spores, this species must be transferred to the genus *Karschia*.

Hypoderma Desmazieri, Duby.

Specimens were found on leaves of pitch pine, *Pinus rigida*, while they were yet on the tree and green at the base. This would indicate that the fungus sometimes attacks and kills the leaves.

Spathularia flavida, Pers.

Variety *rugosa* has the club rugose. It was found in the Adirondack region growing in a circle about fifteen feet in diameter. All the plants in the circle had the club or receptacle rugose. Some of the plants were affected by *Hypocrea alutacea*. The stems were quite as velvety as in the form described as *Spathularia velutipes*, C. & F.

Sphærotheca pannosa, Lev.

Variety *Ribis* occurs on the stems, fruit and leaves of wild gooseberry, *Ribes cynosbati*. Bergen. June. It forms a dense felty stratum of mycelium, which is white at first but soon becomes brown. In the form on roses the mycelium, so far as I have observed, remains white. I have received from Prof. Scribner specimens of the same variety which were found on gooseberry in Colorado.

Hypoxylon Morsei, B. & C.

Dead branches of poison sumach, *Rhus venenata*. Guilderland station. May. If *H. Blakei* be united to this species, which union some advocate, then *H. Morsei* is an inhabitant of alders, willows, poplars and sumach.

Sordaria coprophila, C. & D.

In the early and immature condition of this fungus, the perithecia are thinly clothed with a minute cinereous flocculent villosity or tomentum, and the spores are cylindrical flexuous and colorless and very unlike the elliptical colored appendaged spore of the mature state.

Sphæria taxicola, Pk.

The spores in this are .0008 to .0009 in. long, .00016 to .0002 broad, triseptate and colorless. Therefore the species should be referred to the genus *Metasphæria* of the Saccardoian system.

(E.)

NEW YORK SPECIES OF PLEUROTUS, CLAUDOPUS AND CREPIDOTUS.

PLEUROTUS, Fr.

Stem eccentric, lateral or none. Spores white.

The species of this genus grow chiefly on decaying wood. A few grow on the ground or are attached to mosses. They are very diverse in size and general appearance. For instance, there is little resemblance between *P. ulmarius* and *P. striatulus*, the one a large species with a stout stem and thick fleshy pileus, the other a very small one with no stem and a thin membranous pileus. Yet both are included by the generic description. By reason of the lateral or eccentric stem and of the tufted mode of growth of some species, the pileus is often very irregular and unsymmetrical. Some of the species are also very variable in color, and among the small, at first resupinate forms, the young plant is often, in appearance, very unlike the reflexed mature

plant. These variations make it difficult to accurately describe the species and to satisfactorily identify them from the published descriptions. Some of them, by reviving under the influence of moisture and by the tenacity of their substance, indicate an affinity with the genus *Panus* and its allies. Some of the larger stout-stemmed species occasionally have the stem nearly or quite central in which case they might be taken for species of *Tricholoma*, though their lignatile instead of terrestrial habitat would be an indication of their real affinity, but not a wholly reliable one, since some species of *Tricholoma* grow on wood. By their white spores they are separated from the otherwise similar *Claudopodes* and *Crepidoti*. Two species, *P. sapidus* and *P. euosmus* have pale lilac-tinted spores, but these can scarcely justify the removal of these plants to any genus having colored spores, since they would harmonize no better there than here. Indeed there is room for doubt if either of these supposed species is more than a variety of *P. ostreatus*. Several species have valuable esculent qualities. Fries has divided the genus into three sections, which for convenience we have adopted in the arrangement of our New York Pleuroti. He names them respectively, **EXCENTRICI**, **DIMIDIATI** and **RESUPINATI**.

Synopsis of the Species.

Stem eccentric pileus entire or marginate behind.....	1
Stem none or short, pileus sessile or not marginate behind.....	7
1. Lamellæ adnate or emarginate, not decurrent.....	2
1. Lamellæ distinctly decurrent.....	4
2. Lamellæ white.....	3
2. Lamellæ yellow.....	<i>P. sulphureoides.</i>
3. Odor farinaceous, spores elliptical.....	<i>P. lignatilis.</i>
3. Odor not farinaceous, spores globose.....	<i>P. ulmarius.</i>
4. Pileus slightly areolate.....	<i>P. subareolatus.</i>
4. Pileus not areolate.....	5
5. Spores dull lilac.....	<i>P. sapidus.</i>
5. Spores white.....	6
6. Lamellæ anastomosing at the base.....	<i>P. ostreatus.</i>
6. Lamellæ distinct at the base.....	<i>P. salignus.</i>
7. Pileus never resupinate, generally with a short lateral stem or stem-like base.....	8
7. Pileus at first resupinate, generally sessile.....	11
8. Pileus viscid when young or moist.....	<i>P. serotinus.</i>
8. Pileus not viscid.....	9
9. Lamellæ gray, subdistant, stem not compressed.....	<i>P. tremulus.</i>
9. Lamellæ white, crowded, stem compressed.....	10
10. Plant growing on the ground.....	<i>P. spathulatus.</i>
10. Plant growing on decaying wood.....	<i>P. petaloides.</i>
11. Pileus white.....	12
11. Pileus not white.....	13
12. Pileus one inch or more long.....	<i>P. porrigens.</i>
12. Pileus small, less than one inch long or broad.....	<i>P. septicus.</i>
13. Lamellæ white or yellowish.....	<i>P. atrocæruleus.</i>
13. Lamellæ cinereous, livid-brown or blackish.....	14
14. Pileus even or slightly striate on the margin.....	<i>P. atropellitus.</i>
14. Pileus plicate-striate, black.....	<i>P. niger.</i>
14. Pileus striate, cinereous or livid-brown.....	<i>P. striatulus.</i>

Pileus entire or with a thin margin on one side, stem distinct, eccentric or lateral.

Pleurotus ulmarius, Fr.

Elm Agaric.

Agaricus ulmarius, Bull.

Pileus fleshy, compact, convex or nearly plane, glabrous, moist, sometimes tinged with reddish, yellowish or brownish hues and marbled with livid spots, becoming darker and shining when old, flesh pure white; lamellæ broad, emarginate or rounded behind, *adnexed*, moderately close, *white or whitish*; stem stout, *solid*, straight or curved, glabrous or partly or wholly tomentose, whitish; spores *globose*, .0002 to .00025 in. broad.

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

Trunks of elm trees. Albany and Trenton Falls. September to December. Edible.

Variety *acericola*. Plant smaller, cæspitose.

Trunks and roots of maple trees. Adirondack mountains. September.

Variety *populicola*. Plant subcæspitose, stem wholly tomentose. West Albany.

This is one of our largest Pleuroti. It is variable in size and appearance. The stem is often thickened either above or below, and it may be glabrous or entirely tomentose, or only at the base or apex. Sometimes it is longitudinally rimose. On the elms of Albany it usually grows from places where branches have been cut away. It persists as a conspicuous object for many days. In very wet weather the disk is apt to crack either in a radiate or reticulate manner.

Pleurotus sulphureoides, Pk.

Pale-yellow Agaric.

Pileus fleshy, rather thin, convex, umbonate, glabrous or slightly squamulose, *pale-yellow*; lamellæ moderately close, *rather broad*, slightly emarginate or rounded behind, *pale-yellow*; stem firm, equal, slightly fibrillose, *stuffed or hollow*, generally curved and eccentric, rarely central, slightly mealy or tomentose at the top, yellowish or pallid; spores elliptical, .0003 to .00035 in. long .0002 to .00025 broad.

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

Decaying prostrate trunks. Catskill mountains. October. Rare. This species has not been detected since its discovery. It becomes paler in drying. The minute scales are brown, but sometimes are wanting. I have separated this Agaric from *A. sulphureus* because of its eccentric stem, woody habitat and squamulose pileus.

Pleurotus lignatilis, Fr.

Wood-inhabiting Agaric.

Agaricus abscondens, Pk.

Pileus compact, convex, sometimes slightly depressed or umbilicate, flocculose-pruinose or glabrous, *white*; lamellæ thin, *narrow, crowded*, emarginate or adnate, *white*; stem unequal, rather slender, curved, stuffed or hollow, whitish, sometimes tomentose at the base; spores *minute, elliptical*, .00016 to .0002 in. long, usually with a shining nucleus; odor distinct, farinaceous.

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

Decaying wood. Griffins, Delaware county, September.

Our specimens, by their pure white color, emarginate adnexed lamellæ and glabrous stem, did not well agree with the published description of *P. lignatilis*, and they were, therefore, described in the Thirty-first Report as a distinct species. But *P. lignatilis* is very variable according to Fries, and as our plant is scarcely more than a variety of it we have united it thereto.

Pleurotus subareolatus, *Pk.*

Slightly-areolate Agaric.

Pileus compact, convex, *whitish tinged with brownish pink*, usually *cracking in small maculiform areas*; lamellæ rather broad, loose, decurrent, whitish becoming tinged with yellow in drying; stem eccentric, subvertical, short, curved, firm, solid, sometimes compressed, white; spores oblong, .0005 to .0006 in. long, about .0002 broad.

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

Trunks of elm trees. Bethlehem. October.

This plant has occurred with us but once. It differs from *P. tessulatus* by its strongly decurrent lamellæ which form slightly elevated lines far down on the stem.

Pleurotus sapidus, *Kalchb.*

Sapid Agaric.

Plant generally cæspitose; pileus eccentric or lateral, rarely sessile, irregular, convex or depressed on the disk, glabrous, variable in color, whitish, yellowish, grayish-brown, lilac-brown or smoky-brown, flesh white; lamellæ rather broad, subdistant, decurrent, distinct or anastomosing at the base, whitish; stem firm, solid, straight or curved, white or whitish, often united at the base; spores oblong, *pale lilac*, .00035 to .00045 in. long, .00016 to .0002 broad.

Pileus 2 to 5 in. broad, stem 1 to 2 in. long, 3 to 8 lines thick.

Decaying wood of elm, beech, birch, horse-chestnut, etc., sometimes on buried sticks. Common. June to November. Edible.

This is a very variable species, closely allied to *P. ostreatus*, with which it is sometimes confused, and from which its short-stemmed subsessile forms with anastomosing lamellæ can scarcely be distinguished except by the peculiar color of the spores. These, when caught on white paper, have a dull, pale-lilac hue, inclining to lavender color. If they fall on a dark or brown surface they appear whitish. By reason of the colored spores of this fungus and of *P. euosmus*, W. G. Smith proposed the transfer of these plants to *Claudopus*, but this arrangement was not adopted by Fries, because their real affinities were evidently with the *Pleuroti*. He says that the species is so variable that its characters are indicated with difficulty, and that on the same trunk specimens sometimes occur that are white, tawny-brown and umber. In the typical form, the lamellæ are not described as anastomosing, but a form is mentioned in which the stem is reticulated by anastomosing veins. In our plant the lamellæ frequently anastomose at the base, just as in *P. ostreatus*. Its stem, also, is sometimes as short or obsolete as in that species. It occurs both in woods and in open

places. It is more abundant in autumn, but occasionally appears as early as June. It is no less valuable than the next species for its edible qualities. A stew made of it is a very good substitute for an oyster stew.

In Hungary, according to Dr. Kalchbrenner, it is not only eagerly sought for food in the woods but is also cultivated in gardens by frequently moistening the elm trunks on which it grows.

In drying, the specimens roll up in an annoying manner, unless kept under pressure. The dried specimens are very liable to the attacks of insects.

Pleurotus ostreatus, Fr.

Oyster Agaric. Oyster Mushroom.

Agaricus ostreatus, Jacq. *Agaricus dimidiatus*, Bull.

Pileus fleshy, two to four inches broad, soft, convex or slightly depressed behind, subdimidiate, often cæspitously imbricated, moist, glabrous, whitish cinereous or brownish, flesh white; lamellæ broad, decurrent, subdistant, *anastomosing at the base*, white or whitish; stem, when present, very short, firm, lateral, sometimes strigose-hairy at the base; spores oblong, *white*, .0003 to .0004 in. long, .00016 broad.

Decaying wood and trunks of trees. June to November. Edible.

With us this species is much less frequent than the preceding one. Specimens, nearly white when fresh, but yellowish when dried, were collected on oak trunks in Orange county. The spores were clearly white on white paper, but in other respects the plants might readily be taken for a whitish sessile form of the preceding species.

Pleurotus salignus, Fr.

Willow Agaric.

Agaricus salignus, Abb. d. Schw. *Agaricus brumalis*, Scop.

Pileus fleshy, two to six inches broad, firm, spongy, convex or nearly plane, sometimes depressed and slightly hairy toward the base, nearly dimidiate, horizontal, whitish, dark-cinereous or ochraceous; lamellæ decurrent, some of them branched, eroded on the edge, *distinct at the base*, whitish; stem, when present, very short, lateral, tomentose; spores oblong, .00036 in. long, .00015 broad.

Decaying wood, especially of willows. Sandlake.

I have admitted this species with some hesitation, for our specimens, though apparently belonging to it, are not in good condition and hence doubtful. Fries says it is distinguished from *Panus conchatus* by its soft, not coriaceous, substance, but Gillet characterizes its substance as coriaceous when old.

Pileus definitely lateral, neither margined behind nor at first resupinate, sessile or attached to a very short lateral stem or stem-like base.

Pleurotus serotinus, Fr.

Late Agaric.

Agaricus serotinus Schrad. *Agaricus serotinoides*, Pk.

Pileus fleshy, one to three inches broad, compact, convex or nearly plane, *viscid when young and moist*, dimidiate reniform or suborbic-

ular, solitary or cæspitose and imbricated, variously colored, *dingy-yellow, reddish-brown, greenish-brown or olivaceous*, the margin at first involute; lamellæ close, determinate, whitish or yellowish; stem very short, lateral, thick, yellowish beneath and minutely tomentose or squamulose with blackish points; spores *minute, elliptical*, .0002 in. long, .0001 broad.

Dead trunks of deciduous trees. Catskill and Adirondack mountains. Buffalo. *G. W. Clinton*. Autumn.

The late Agaric occurs especially in the hilly and mountainous districts of the State. It rarely makes its appearance before September and is sometimes found as late as December. It varies considerably in color but is easily recognized by its peculiar stem and determinate lamellæ. When viewed from above it appears to be stemless or attached by a mere basal prolongation of the pileus, but the lower surface of this prolongation, being differently colored and definitely limited by the basal termination of the lamellæ, has the appearance of a very short but distinct stem. In our plant the surface of the pileus is sometimes adorned with a minute brown or blackish fibrillose tomentum, which gives it a somewhat punctate or scabrous appearance. I find no notice of this character in the descriptions of the European plant. Such specimens with the lower surface of the stem, merely tomentose, were published in the Twenty-third Report as *Agaricus serotinoïdes*, but they do not appear to me to be anything more than a mere form of the species. Sometimes the pileus is distinctly tomentose toward the base.

Pleurotus tremulus, Fr.

Tremulous Agaric. Gray Pleurotus.

Agaricus tremulus, Schæff.

Pileus thin, eight to twelve lines broad, obovate or reniform, plane or depressed on the disk, tenacious, glabrous, *livid-gray or grayish-brown* when moist, pale-gray when dry; lamellæ determinate, linear, subdistant, *gray or grayish*; stem marginal, short, distinct, nearly terete, ascending, villose at the base; spores *globose*, .0003 in. broad.

Ground among or attached to mosses. Poughkeepsie. October. *W. R. Gerard*.

The stem in our specimens is lateral, as required by the description and the place assigned to the species in the Friesian arrangement, but in *Mycological Illustrations*, Pl. 242, it is represented as eccentric.

The stem is sometimes wanting, and then the pileus is attached by fibrils. The species is easily known by its gray color and place of growth. It is apparently very rare with us, having been found in our State but once.

Pleurotus spathulatus.

Spathulate Agaric.

Agaricus spathulatus, Pers. *P. petaloïdes* v. *spathulatus*, Fr.

Pileus rather thin, one to two inches broad, ascending, *spathulate*, tapering behind into the stem, glabrous, convex or depressed on the disk and there sometimes pubescent, *alutaceous* or *brownish tinged with gray, red or yellow*; lamellæ crowded, linear, decurrent, whitish or

yellowish; stem compressed, sometimes channeled above, grayish-tomentose; spores *elliptical*, .0003 in. long, .00016 to .0002 broad; *odor and taste farinaceous*.

Ground. Sandlake. June. Edible.

It grows singly or in tufts and is an inch or more in height. The margin is thin and sometimes striatulate and reflexed. Toward the base the flesh is thicker than the breadth of the lamellæ. The cuticle is tough and separable. The flesh is said by Gillet to be tender and delicate. Persoon describes the disk as spongy-squamulose, but in our specimens it is merely pubescent or tomentose.

The species was united as a variety to *P. petaloides* by Fries, and is described by Gillet under that name, but it seems to me to be sufficiently distinct in its habit, habitat, color and spores to be regarded as a species.

Pleurotus petaloides, Fr.

Petal-like Agaric. Petaloid Pleurotus.

Agaricus petaloïdes, Bull.

Pileus rather thin, eight to twenty lines broad, *cuneate or spathulate*, tapering behind into the short compressed generally villose-tomentose stem, convex or nearly plane, glabrous or with a minute grayish pubescence or tomentum toward the base, sometimes striatulate on the margin when moist, *whitish pale-alutaceous or brownish*; lamellæ crowded, linear, decurrent, whitish or yellowish; spores *minute, globose*, .00012 to .00016 in. broad.

Decaying wood. Buffalo. *G. W. Clinton*. East Worcester, Karner, Catskill and Adirondack mountains. July and August.

This is closely allied to the preceding species, with which it is united by most writers, but the striking difference in the size and shape of the spores indicates that they should be kept as distinct species. With us the petal-like Agaric is much more frequent in its occurrence than the spathulate Agaric.

In shape and general appearance it closely resembles *Crepidotus appplanatus*, from which it may be distinguished by its paler lamellæ, smaller white spores and more colored pileus.

Pileus at first resupinate, then reflexed, sessile; lamellæ radiating from an eccentric point.

Pleurotus porrigens, Fr.

Prolonged Agaric. Pine Pleurotus.

Agaricus porrigens, Pers.

Pileus rather thin, at first resupinate and suborbicular, then reflexed and prolonged, obovate subelliptical or ear-shaped, often longer than broad, one to three inches long, sessile, *glabrous or villose-tomentose toward the base, pure white*, the margin involute when young, sometimes lobed in large specimens; lamellæ *narrow, linear, thin, crowded*, sometimes slightly forked or anastomosing at the base, white; spores subglobose, .00025 to .0003 in. broad.

Much decayed wood of pine and hemlock. Buffalo. *G. W. Clinton*. Karner, Catskill and Adirondack mountains. Autumn.

The prolonged Agaric is a fine species, easily known by its pure

white color, sessile pileus, and its lamellæ forking or even anastomosing near the base in large specimens.

I find no good characters by which to distinguish *Agaricus nephretus*, Ellis, from this fungus. The spores in this, as well as in *P. striatulus*, *P. niger* and some others, have a slight depression on one side, which makes them broader in one diameter than in the other, and gives them a slightly curved appearance when viewed edgewise.

Pleurotus septicus, Fr.

Wood-rotting Agaric. Thin Pleurotus.

Agaricus pubescens, Sow.

Pileus *small*, thin, three to six lines broad, nearly plane, *pubescent or subpulverulent*, sessile or with a short white pubescent stem or stem-like base, *pure white*; lamellæ *rather broad, subdistant*, white; spores subglobose, .00016 to .0002 in. broad.

Decaying wood. Ballston and Adirondack mountains. August.

The clear white color of *P. porrigens* is seen also in this species, which may be easily distinguished by its smaller size, nearly pubescent pileus, subdistant lamellæ and smaller spores.

Pleurotus atrocæruleus, Fr.

Dark-blue Agaric. Blue-black Pleurotus.

Agaricus alneus, Schæff.

Pileus *fleshy* with an *upper brownish gelatinous stratum*, one to two inches broad, convex or nearly plane, reniform dimidiate or obovate, rather tough and flexible, sometimes cæspitously imbricated, sessile, *villose-tomentose*, dark-blue, blackish, grayish or tawny-brown, flesh soft, whitish; lamellæ *rather broad, close, whitish or yellowish*; spores *elliptical*, .00025 to .0003 in. long, .00016 to .0002 broad.

Decaying trunks and branches of beech, alders and poplars. Karner. September. Buffalo. *G. W. Clinton*.

I have seen no American specimens with the dark-blue or indigo color shown in the published figures of the European plant, but Fries himself says that the pileus is sometimes brown, so that we have no doubt of the specific identity of our plant. The pileus is covered with a grayish or cinereous villosity, which in small specimens forms a thin uniform velvety pubescence, but in large specimens it is more dense and somewhat tufted. Sometimes it is much thinner on the margin than toward the base of the pileus, and in such specimens the real color of the pileus is best seen on the margin. This, in large specimens, is often wavy or somewhat lobed. Small, blackish forms frequently resemble large forms of the next species, but are distinguishable by the paler color of the lamellæ. The plant readily revives on the application of moisture.

Pleurotus atropellitus, n. sp.

Black-skinned Agaric.

Pileus very thin, three to eight lines broad, rather tough, flaccid, resupinate or reflexed and lateral, convex or nearly plane, suborbicular obovate or reniform, *villose-tomentose except on the margin*, sessile or

prolonged at the base into a short grayish-tomentose stem, *blackish-brown or black*, the tomentum grayish or cinereous, the thin margin slightly striate when moist; lamellæ rather broad, *close, blackish-brown or black*, whitish on the edge; spores *subelliptical*; .0003 to .00035 in. long, .00016 to .0002 broad.

Decaying wood and bark, both of frondose and acerose trees. Fort Edward, *E. C. Howe*. Buffalo. *G. W. Clinton*. Maryland, Helderberg and Adirondack mountains. June to October.

Our plant is closely related to *Pleurotus applicatus*, and it is with some hesitation that I have described it as distinct. But unless the figures and descriptions of that species are erroneous, our fungus is easily distinguished from it by its larger size, darker color and closer blackish lamellæ. *P. applicatus* is described as dark cinereous, cupular, two to three lines broad, villose at the base, sessile or attached by a prolongation on the back and with the lamellæ distant and paler than the pileus. In the American plant these characters do not hold good. The pileus is often clearly attached by a lateral stem or stem-like base and the villosity is found everywhere except on the margin, and the lamellæ are always, so far as I have seen, as dark as or even blacker than the pileus. The plant is flexible and revives on the application of moisture, thus indicating an affinity with the genus *Panus*. I have seen no description of the spores of *P. applicatus*.

Pleurotus niger, Schw

Black Agaric.

Pileus submembranous, two to four lines broad, subresupinate, pulveraceous, *black, plicate on the margin*; lamellæ broad, radiating, *black, cinereous on the edge*; spores subglobose, .0002 to .00025 in. broad.

Decaying wood. Helderberg mountains, June. This apparently rare fungus has been found in our State but once. The pileus is attached by a tuft of black hairs, and in the largest specimens these extend to the disk and there have a pulverulent appearance. The black color, black villosity and more coarsely striate or plicate margin distinguish this species from the next, which it otherwise closely resembles.

Pleurotus striatulus, Fr.

Slightly-striate Agaric.

Agaricus membranaceus, Scop. *Agaricus striato-pellucidus*, Pers.

Pileus membranous, very delicate, two to four lines broad, resupinate or subcupular, then reflexed, sometimes obconic and pendulous, sessile, slightly *striate* when moist, strongly striate or corrugated when dry, flaccid, *glabrous*, scattered or gregarious, persistent, *cinereous or brown*; lamellæ few, distant, *whitish or cinereous*; spores subglobose, .0002 to .00025 in. broad.

Much decayed wood of pine and hemlock. Fort Edward. *E. C. Howe*. Buffalo. *G. W. Clinton*. Greenbush and Adirondack mountains. July and October.

This is the smallest of our *Pleuroti*. Like the three preceding species, it revives on the application of moisture, and with them it forms a peculiar group worthy of distinction and separation from the

others. The pileus is attached by a grayish villosity. In drying it sometimes becomes nearly black. It is then so small and shriveled that it is easily overlooked.

CLAUDOPUS, *Smith.*

Pileus eccentric, lateral or resupinate. Spores pinkish.

The species of this genus were formerly distributed among the Pleuroti and Crepidoti, which they resemble in all respects except in the color of the spores. The genus at first was made to include species with lilac-colored as well as pink spores, but Professor Fries limited it to species with pink spores. In this sense we have taken it. The spores in some species are even, in others rough or angulated. The stem is either entirely wanting or is very short and inconspicuous, a character indicated by the generic name. The pileus is often resupinate and attached by a dorsal point when young, but it becomes reflexed with age. The species are few and infrequent. All inhabit decaying wood.

Synopsis of the Species.

Pileus yellow.....	<i>C. nidulans.</i>	1
Pileus white or whitish		1
1 Spores even	<i>C. variabilis.</i>	
1 Spores angulated.....	<i>C. depuens.</i>	
Pileus gray or brown.....		2
2 Pileus striatulate when moist.....	<i>C. Greigensis.</i>	
2 Pileus not striatulate	<i>C. byssisedus.</i>	

Claudopus nidulans.

Nestling Agaric.

Agaricus nidulans, Pers.

Pileus one to three inches broad, sessile or rarely narrowed behind into a short stem-like base, often imbricated, suborbicular dimidiate or reniform, *tomentose*, somewhat strigose-hairy or squamulose-hairy toward the margin, *yellow or buff color*, the margin at first involute; lamellæ rather broad, moderately close or subdistant, *orange-yellow*; spores even, slightly curved, .00025 to .0003 in. long, about half as broad, delicate pink.

Decaying wood. Sandlake, Catskill and Adirondack mountains. Autumn.

This fungus was placed by Fries among the Pleuroti, and in this he has been followed by most authors. But the spores have a delicate pink color closely resembling that of the young lamellæ of the common mushroom, *Agaricus campestris*. We have, therefore, placed it among the Claudopodes, where Fries himself has suggested it should be placed if removed at all from Pleurotus. Our plant has sometimes been referred to *Panus dorsalis*, Bosc., but with the description of that species it does not well agree. The tawny color, spathulate pileus, paler floccose scales, short lateral stem and decurrent lamellæ ascribed to that species are not well shown by our plant. The substance of the pileus, though rather tenacious and persistent, can scarcely be called coriaceous. The flesh is white or pale yellow. The tomentum of the pileus is often matted in small tufts and intermingled with coarse hairs, especially toward the margin. This gives a squa-

mose or strigose-hairy appearance. The color of the pileus is often paler toward the base than it is on the margin.

Claudopus variabilis, Fr.

Variable Agaric.

Agaricus variabilis, Pers. *Agaricus sessilis*, Bull. *Agaricus niveus*, Sow.

Pileus thin, one-half to one inch broad, at first resupinate, then reflexed, sessile or with a very short stem, tomentose, white; lamellæ rather broad, thin, radiating from a lateral or an eccentric point, distant, white becoming pink; spores *even*, elliptical, .00025 to .0003 in. long, about half as broad.

Decaying wood and dead branches. Adirondack mountains. July to October. Buffalo. G. W. Clinton.

A small and not common species. The thin pileus is often attached to its place of growth by white tomentose filaments, and the point to which the lamellæ converge is also sometimes tomentose.

Claudopus depluens, Fr.

Rainy Agaric.

Agaricus depluens, Batsch.

Pileus thin, one-half to one inch broad, at first resupinate, then reflexed, variable in form, sessile or with a short stem, slightly silky-tomentose especially toward the base, white or whitish, sometimes slightly tinged with pink; lamellæ broad, subdistant, whitish, becoming pink; spores *angulated*, .0004 to .00045 in. long, .0003 broad, usually containing a single large nucleus.

Decaying wood. Catskill mountains, Gansevoort and Sterling. July and August.

This species, like the preceding one, which it closely resembles and from which it is separated by the character of the spores, is very variable. In our specimens the pileus is white, but it is sometimes described as tinged with red or gray. It is also said to grow upon the ground and on mosses, but our specimens grew upon decaying wood. In both these particulars they agree with the figure of the species in *Mycological Illustrations*.

Claudopus Greigensis, Pk.

Greig Agaric.

Pileus very thin, convex, five to ten lines broad, hygrophanous, grayish-cinnamon color and *striatulate* when moist, silky-fibrillose when dry; lamellæ subdistant, *scarcely reaching the stem*, grayish becoming dingy-pink; stem short, about one line long, solid, curved, fibrillose below, with an abundant white radiating mycelium at the base; spores *angulated*, .00035 to .00045 in. long, .0003 broad, usually containing a single large nucleus.

Much decayed wood. Greig. September.

This species is intermediate between the preceding and the following one, but it is more closely related to the latter, from which it is distinguished by the *striatulate* pileus and free lamellæ.

Claudopus byssisedus, Fr.

Fibril-attached Agaric. Little Claudopus.

Agaricus byssisedus, Pers.

Pileus very thin, four to ten lines broad, at first resupinate, then reflexed, nearly plane, glabrous or merely pruinose with a slight grayish villosity, gray, grayish-brown or brown; lamellæ rather broad, *subdecurrent*, grayish, then tinged with pink; stem short, lateral or eccentric, generally curved, with white radiating byssoid fibrils at the base; spores angulated, .0004 to .00045 in. long, .0003 broad.

Decaying wood. Sterling and Adirondack mountains. August and September.

CREPIDOTUS, Fr.

Veil wanting or not manifest. Pileus eccentric, lateral or resupinate. Spores ferruginous.

The Crepidoti correspond in shape and habit to the smaller Pleuroti and the Claudopodes, but they are distinguished from both by the ferruginous color of their spores. These are globose in several species, in others they are elliptical. In some there is a depression on one side which gives them a naviculoid character and causes the spore to appear slightly curved when viewed in a certain position. In consequence of the similarity of several of our species, the character of the spores is of much importance in their identification, and it is unfortunate that European mycologists have so generally neglected to give the spore characters in their descriptions of these fungi. In most of the species the pileus is at first resupinate, but it generally becomes reflexed as it enlarges. It is generally sessile or attached by a mass of white fibrils or tomentum. For this reason it is usually somewhat tomentose or villose about the point of attachment, even in species that are otherwise glabrous. In several species the pileus is moist or hygrophanous and then the thin margin is commonly striatulate. This character is attributed to but one of the dozen or more European species. The large number of New York species is noticeable, and future investigation may show that mere varieties have in some instances been taken for species. Their mode of growth is usually gregarious or somewhat loosely imbricated, in consequence of which the pileus, which in most species is white or yellowish, is often stained by the spores, and then it has a rusty, stained or squalid appearance. The species occur especially on old stumps, prostrate trunks and soft much-decayed wood in damp, shaded places. The name Crepidotus is derived from two Greek words *κρηπις*, a shoe or slipper, and *ους*, an ear.

Synopsis of the Species.

Pileus viscid when moist.....	<i>C. hærrens</i> .
Pileus not viscid.....	1
1. Pileus with a distinct stem.....	2
1. Pileus sessile or with an indistinct stem.....	3
2. Stem thickened at the base.....	<i>C. haustellaris</i> .
2. Stem not thickened at the base.....	<i>C. tiliophilus</i> .
3. Pileus glabrous or only slightly villose at the base.....	4
3. Pileus not glabrous.....	6
4. Lamellæ narrow and decurrent.....	<i>C. applanatus</i> .
4. Lamellæ broad, not decurrent.....	5

5. Pileus white, spores globose.....*C. malachius.*
 5. Pileus yellowish, spores not globose.....*C. croceitinctus.*
 6. Pileus white, with a white villosity or tomentum 7
 6. Pileus with a colored villosity or tomentum 9
 7. Spores elliptical..... 8
 7. Spores globose.....*C. putrigena.*
 8. Spores less than .0003 in. long*C. herbarum.*
 8. Spores more than .0003 in. long*C. versutus.*
 9. Pileus squamose with a tawny tomentum, spores elliptical..*C. fulvotomentosus.*
 9. Pileus with a yellowish tomentum, spores globose.....*C. dorsalis.*

Crepidotus hærens, Pk.

Sticky Agaric.

Pileus thin, four to twelve lines broad, convex, sessile, cuneiform or dimidiate, glabrous, or slightly squamulose, hygrophonous, *viscid* and striatulate on the margin when moist, white or whitish when dry; lamellæ moderately close, narrow, tapering toward each end, subcinereous, then brownish; spores *elliptical*, pale-ferruginous, .0003 in. long, .0002 broad.

Decaying wood. Albany. September.

The elliptical spores and viscid pileus are the distinguishing characters of the species. I know of no other viscid *Crepidotus*. The pileus is watery white or gray when moist, and white when dry, unless stained by the spores. The margin is very thin and the pileus is attached to the matrix by white filaments. The species is rare, having been observed but once.

Crepidotus haustellaris, Fr.

Kidney-shaped Agaric.

Pileus thin, four to ten lines broad, lateral or eccentric, reniform or suborbicular, plane, moist, slightly tomentose when dry, alutaceous or pale-ochraceous; lamellæ broad, subdistant, rounded behind, slightly adnexed or nearly free, pallid, then brownish-cinnamon; stem short, distinct, solid, *bulbous thickened at the base*, whitened with a slight tomentose villosity; spores elliptical, .00035 to .0004 in. long, .0003 broad.

Dead bark of poplars. Thurman, Warren county. October. Rare.

Our specimens differ from the European plant in being smaller and of a paler color. The pileus is also sometimes eccentric, though Fries describes it as "exactly lateral" in the European plant. The dimensions of the spores are taken from our specimens, no spore characters being given in any description of the species to which we have had access. Fries remarks that the species is "small, regular, not caespitose, especially marked by the subconic stem and almost free lamellæ."

Crepidotus tiliophilus, Pk.

Linden-loving Agaric.

Pileus moderately thin, six to twelve lines broad, convex, minutely pulverulent, hygrophonous, watery-brown and striatulate on the margin when moist, dingy-buff when dry; lamellæ rather broad, subdistant, rounded behind, adnexed, colored like the pileus, becoming ferruginous-cinnamon; stem two to four lines long, about one line thick, solid, often curved, pruinose, with a white pubescence at

the base; spores subelliptical, brownish-ferruginous, .00025 to .0003 in. long, .00016 to .0002 broad.

Dead trunks and branches of basswood, *Tilia Americana*. East Berne, Albany county. August.

This plant is closely related to the preceding one from which I have separated it because of its larger size, smaller spores and stem not thickened at the base. The individual plants are also sometimes so closely crowded that they appear cæspitose. It is possible that intermediate forms may yet be found that will connect these.

Crepidotus applanatus, Fr.

Flattened Agaric.

Pileus very thin, six to twelve lines long, four to ten broad, variable in shape, suborbicular, reniform, cuneiform or spatulate, plane or convex, sometimes slightly depressed behind, sessile or prolonged behind into a short compressed white-tomentose stem-like base, glabrous, hygrophanous, watery-white and striatulate on the margin when moist, white when dry; lamellæ *very narrow, linear, crowded, decurrent*, white, becoming cinnamon; spores globose, .0002 to .00025 in. broad.

Old stumps and much decayed wood. Common. July to September.

It is very variable in the shape of the pileus, but it is commonly either cuneate or spatulate. It closely resembles *Pleurotus petaloides* in this respect as well as in the narrow crowded lamellæ and flattened stem-like base. As in that species and others of this genus, the pileus quickly becomes convolute in drying, unless it is placed under pressure. The striations of the thin margin are often retained in the dried plant. In the 26th Report, our specimens were erroneously referred to *C. nephrodes*, B. & C., from which they differ in the glabrous pileus and crowded linear lamellæ. This last character distinguishes it from all our other *Crepidoti*. It is gregarious and the pileus is often stained by the spores.

Crepidotus malachus, B. & C.

Soft-skinned Agaric.

Pileus thin on the margin, thicker behind, eight to twenty-four lines broad, varying from reniform or suborbicular to cuneate or flabellate, nearly plane, sometimes depressed behind, sessile or prolonged behind into a short white tomentose rudimentary stem or tubercle, glabrous, hygrophanous, *watery-white or grayish-white* and striatulate on the margin when moist, *white* when dry; lamellæ close, *sub-ventricose, rounded behind, white or whitish*, becoming brownish-ferruginous; spores *globose*, .00025 to .0003 in. broad.

Variety *plicatilis*. Pileus coarsely plicate on the margin.

Decaying wood in damp shaded places. Common. June to September.

This resembles the preceding species in color and habit, but it is easily distinguished by its broader pileus and much broader lamellæ rounded behind. In drying, the moisture is retained longer by the thin margin than it is by the thicker disk. The striations are some-

times retained in the dried specimens. By neglecting the spore characters, squalid spore-stained specimens of this species were erroneously referred, in the 24th Report, to *C. mollis*, a species not yet found in our State, though it has been reported from North Carolina, Ohio and Massachusetts.

***Crepidotus croceitinctus*, n. sp.**

Saffron-tinted Agaric.

Pileus eight to twelve lines broad, convex or nearly plane, sessile, *glabrous*, sometimes with a white villosity at the base, moist, *yellowish*; lamellæ moderately broad, rounded behind, whitish, becoming *dull saffron-yellow*, then ferruginous; spores ferruginous, *subglobose* or *broadly elliptical*, .0002 to .00025 in. long.

Decaying wood of poplar and beech. Adirondack mountains and Day, Saratoga county. July.

This species is separated from *C. dorsalis* by its glabrous pileus and its less globose spores, and from *C. crocophyllus* by its larger size, yellow color and the absence of squamules from the pileus. Its spores are of a brighter ferruginous color than in most of our other species.

***Crepidotus putrigena*, B. & C.**

Rotten-wood Agaric.

Pileus thin, convex, subreniform, often imbricated, sessile, *slightly tomentose with a more dense white villosity at the base*, moist, striatulate on the margin, whitish or yellowish-white; lamellæ rather close, broad, rounded behind, whitish, becoming ferruginous; spores *globose*, .00025 to .0003 in. broad.

Decaying wood. Brewerton. September.

This species is perhaps too closely allied to *C. malachus*, from which it scarcely differs, except in the villose-tomentose pileus. The lamellæ are three or four times broader than the thickness of the flesh of the pileus.

***Crepidotus herbarum*, Pk.**

Herb-inhabiting Agaric.

Pileus thin, two to five lines broad, resupinate, suborbicular, clothed with a white, downy villosity, incurved on the margin when young, sometimes becoming reflexed, sessile, dimidiate and less downy; lamellæ rather narrow, subdistant, radiating from a naked lateral or eccentric point, white, then subferruginous; spores elliptical, .00025 to .0003 in. long, .00014 to .00016 broad.

Dead stems of herbs and dead bark of maple. North Greenbush and Adirondack mountains. August and September.

***Crepidotus versutus*, Pk.**

Evasive Agaric.

Pileus four to ten lines broad, at first resupinate, then reflexed, reniform or dimidiate, sessile, white, clothed with a soft, downy or tomentose-vilosity, incurved on the margin; lamellæ rather broad,

subdistant, rounded behind, radiating from a lateral or eccentric point, whitish, then ferruginous; spores subelliptical, .00035 to .0004 in. long, .00025 to .0003 broad.

Decaying wood, bark, etc., in damp, shaded places. Common. June to October.

This species, and *C. herbarum* appear to run together, and but for the marked difference in the size of their spores I should have united them. The latter is not limited in its habitat to the stems of herbs, and the former sometimes, though rarely, occurs on them. *C. herbarum* is a smaller species with a thinner pileus, nearly always resupinate, and when reflexed, less densely tomentose. Its smaller spores especially distinguish it. Both appear to be closely allied to the European *C. chimonophilus*, which seems to be distinguished by its "oblong elliptical" spores, and its few distant lamellæ attenuated behind.

Crepidotus fulvotomentosus, *Pk.*

Tawny-tomentose Agaric.

Pileus eight to twenty-four lines broad, scattered or gregarious, suborbicular, reniform or dimidiate, sessile or attached by a short, white-villose tubercle or rudimentary stem, hygrophane, watery-brown and sometimes striatulate on the margin when moist, whitish, yellowish or pale ochraceous when dry, adorned with small, tawny, hairy or tomentose scales; lamellæ broad, subventricose, moderately close, rounded behind, radiating from a lateral or eccentric white villose spot, whitish becoming brownish-ferruginous; spores elliptical often uninucleate, .0003 to .0004 in. long, .0002 to .00025 broad.

Decaying wood of poplar, maple, etc. Common. June to October.

A pretty species, corresponding in some respects to the European *C. calolepis*, but much larger and with tawny, instead of rufescent scales. The cuticle is separable and is tenacious though it has a hyaline gelatinous appearance. The pileus is subsistent, and specimens dried in their place of growth are not rare.

Crepidotus dorsalis, *Pk.*

Dorsal Agaric.

Pileus eight to fifteen lines broad, sessile, dimidiate or subreniform, plane or slightly depressed behind, with a decurved substriate margin, slightly fibrillose-tomentose, reddish-yellow; lamellæ close, ventricose, rounded behind, radiating from a lateral white villose spot, yellowish, then brownish-ochraceous or subferruginous; spores globose, .00025 in. broad.

Decaying wood. Sprakers and Adirondack mountains. June and September. Buffalo. *G. W. Clinton.*

The tomentum of the pileus is more dense and conspicuous about the point of attachment, where it sometimes forms minute tufts or scales.

EXPLANATION OF PLATE 1.

ASCOMYCES EXTENSUS Peck.

- FIG. 1. A leaf partly killed and discolored by the fungus.
- FIG. 2. An ascus containing spores $\times 400$.
- FIG. 3. Four spores $\times 400$.

AGARICUS (NOLANEA) BABINGTONII Blox.

- FIG. 4. One young plant and two mature plants, the two at the left having the pileus moist and striatulate.
- FIG. 5. Vertical section of a pileus and the upper part of its stem.
- FIG. 6. Transverse section of the stem.
- FIG. 7. Three spores $\times 400$.

PESTALOZZIA CONSOCIA Peck.

- FIG. 8. Part of a leaf with a discolored spot dotted by the fungus.
- FIG. 9. Four spores, the one at the left immature $\times 400$.

PESTALOZZIA CAMPSOSPERMA Peck.

- FIG. 10. A leaf bearing the fungus.
- FIG. 11. Four spores $\times 400$.

SPHÆRELLA LYCOPODII Peck.

- FIG. 12. Two spikes of the host plant bearing the fungus.
- FIG. 13. A slightly magnified scale dotted by the fungus.
- FIG. 14. An ascus containing spores $\times 400$.
- FIG. 15. Four spores $\times 400$.

GODRONIA CASSANDRÆ Peck.

- FIG. 16. Part of a branch bearing the fungus.
- FIG. 17. A receptacle magnified.
- FIG. 18. Vertical section of the same.
- FIG. 19. A paraphysis and two asci containing spores $\times 400$.
- FIG. 20. Three spores $\times 400$.

CLAVARIA CIRCINANS Peck.

- FIG. 21. Two plants.
- FIG. 22. Five spores $\times 400$.

EXPLANATION OF PLATE 2.

DIAPORTHE MARGINALIS *Peck.*

- FIG. 1. Part of a branch bearing the fungus.
- FIG. 2. A pustule magnified.
- FIG. 3. Vertical section of a magnified pustule, showing three perithecia.
- FIG. 4. Two asci containing spores x 400.
- FIG. 5. Four spores x 400.

DIAPORTHE NEILLIÆ *Peck.*

- FIG. 6. Part of a branch bearing the fungus.
- FIG. 7. A perithecium magnified, its rostrum piercing the epidermis.
- FIG. 8. Two asci containing spores x 400.
- FIG. 9. Four spores x 400.

LEPTOSPHERIA KALMIÆ *Peck.*

- FIG. 10. Part of a branch bearing the fungus.
- FIG. 11. A piece of the bark with two perithecia magnified.
- FIG. 12. A perithecium more highly magnified.
- FIG. 13. A paraphysis and an ascus containing spores x 400.
- FIG. 14. Four spores x 400.

LÆSTADIA ÆSCULI *Peck.*

- FIG. 15. Part of a petiole bearing the fungus.
- FIG. 16. A perithecium magnified.
- FIG. 17. Two asci containing spores x 400.
- FIG. 18. Four spores x 400.

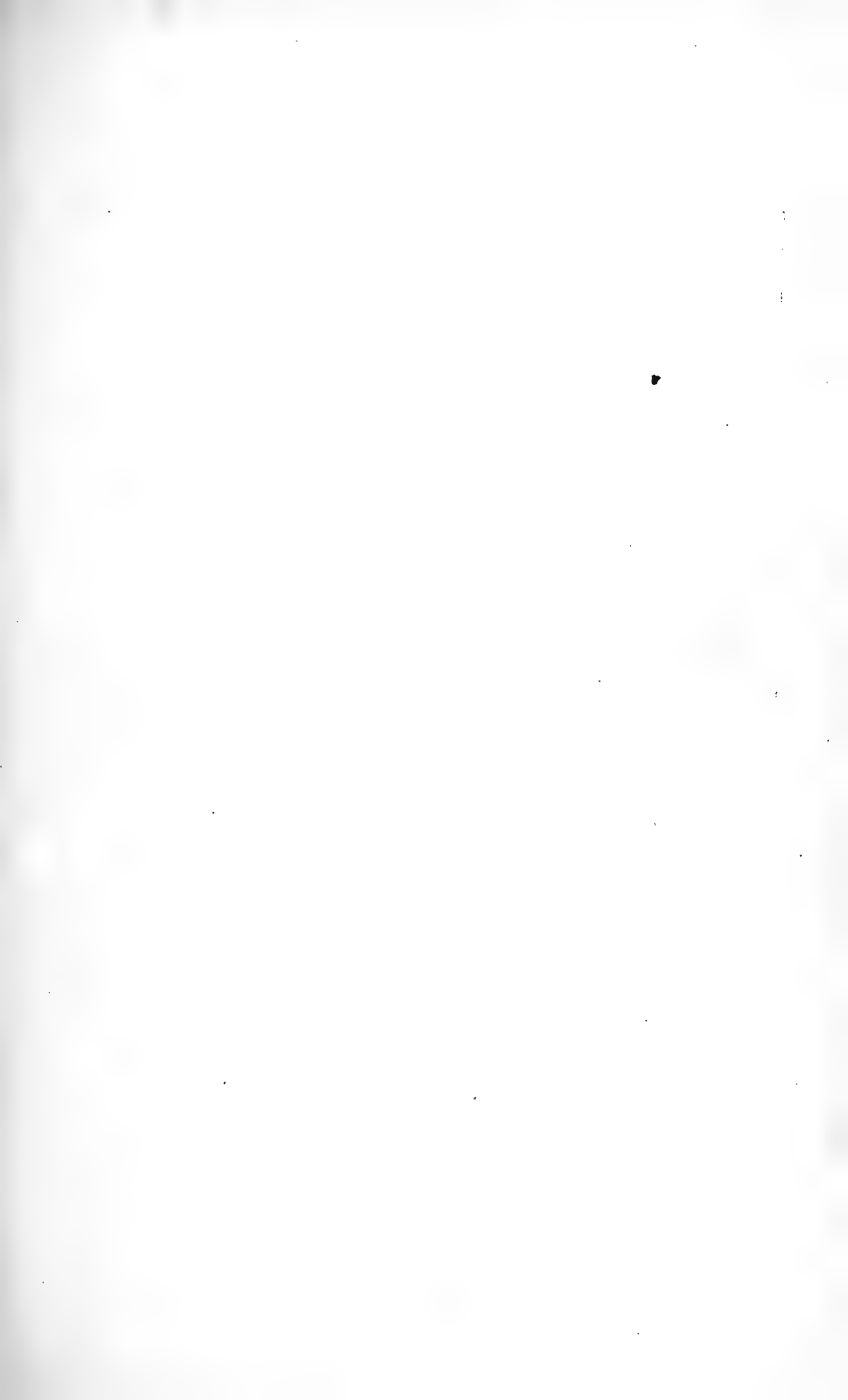
MONILIA PECKIANA *S. & V.*

- FIG. 19. A leaf partly discolored and its petiole frosted by the fungus.
- FIG. 20. Two chains of spores x 400.
- FIG. 21. A single spore x 400.

M. PECKIANA var. ANGUSTIOR *S.*

- FIG. 22. Part of a raceme with four of its young fruits frosted by the fungus.
- FIG. 23. Two chains of spores x 400.
- FIG. 24. Two spores x 400.





EXPLANATION OF PLATE 1.

ASCOMYCES EXTENSUS Peck.

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SPHÆRELLA LYCOPODII Peck.

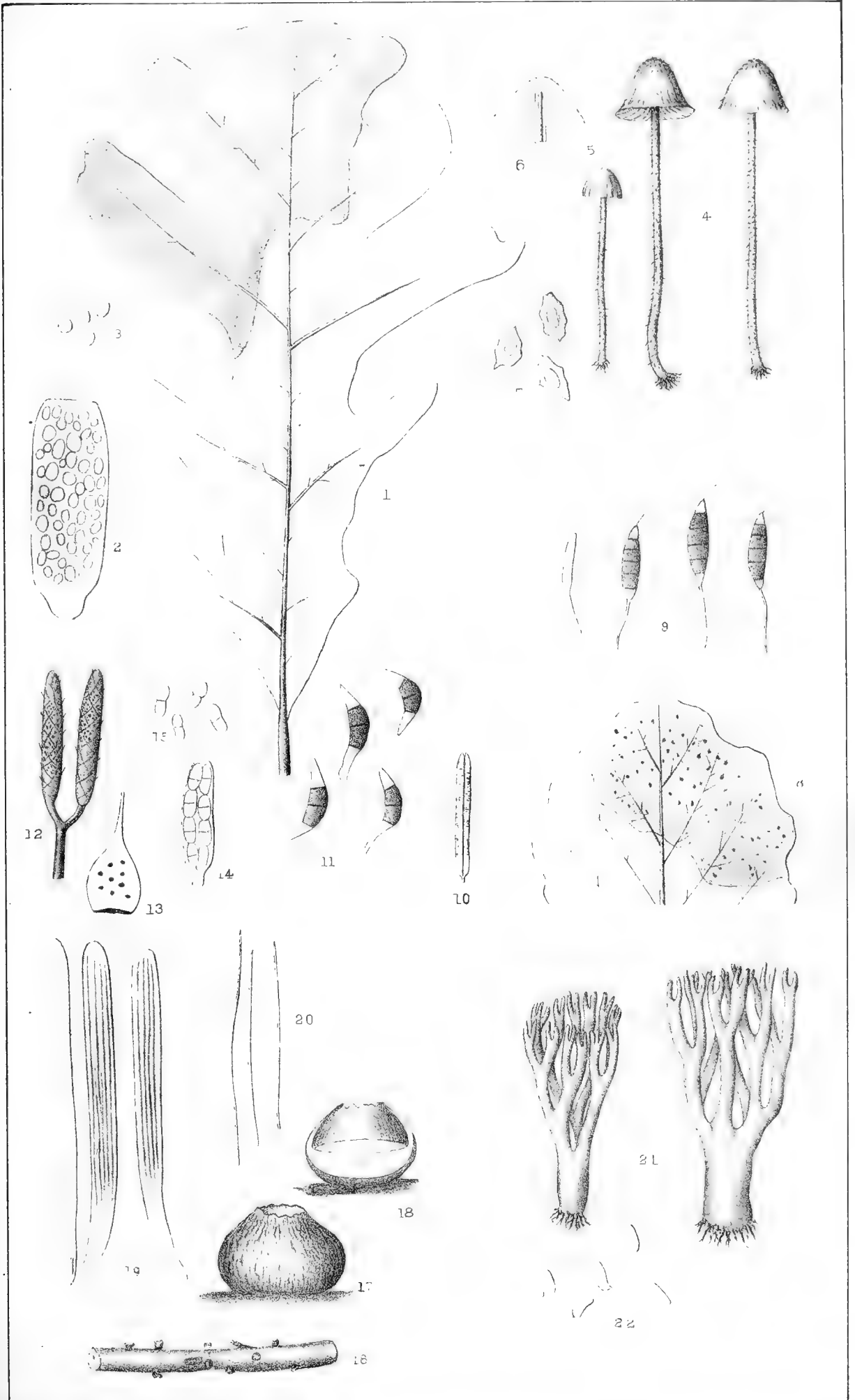
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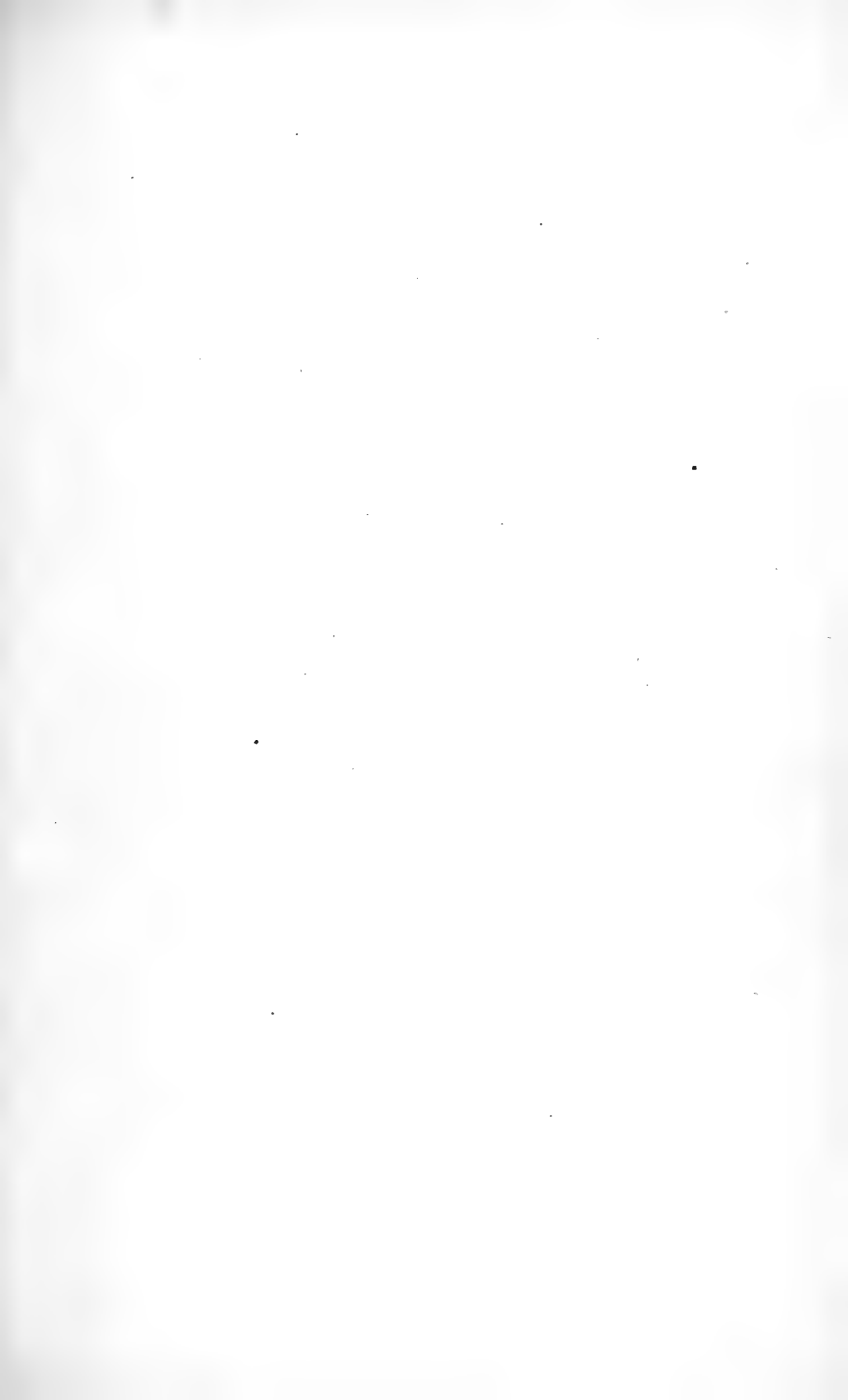
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EXPLANATION OF PLATE 2.

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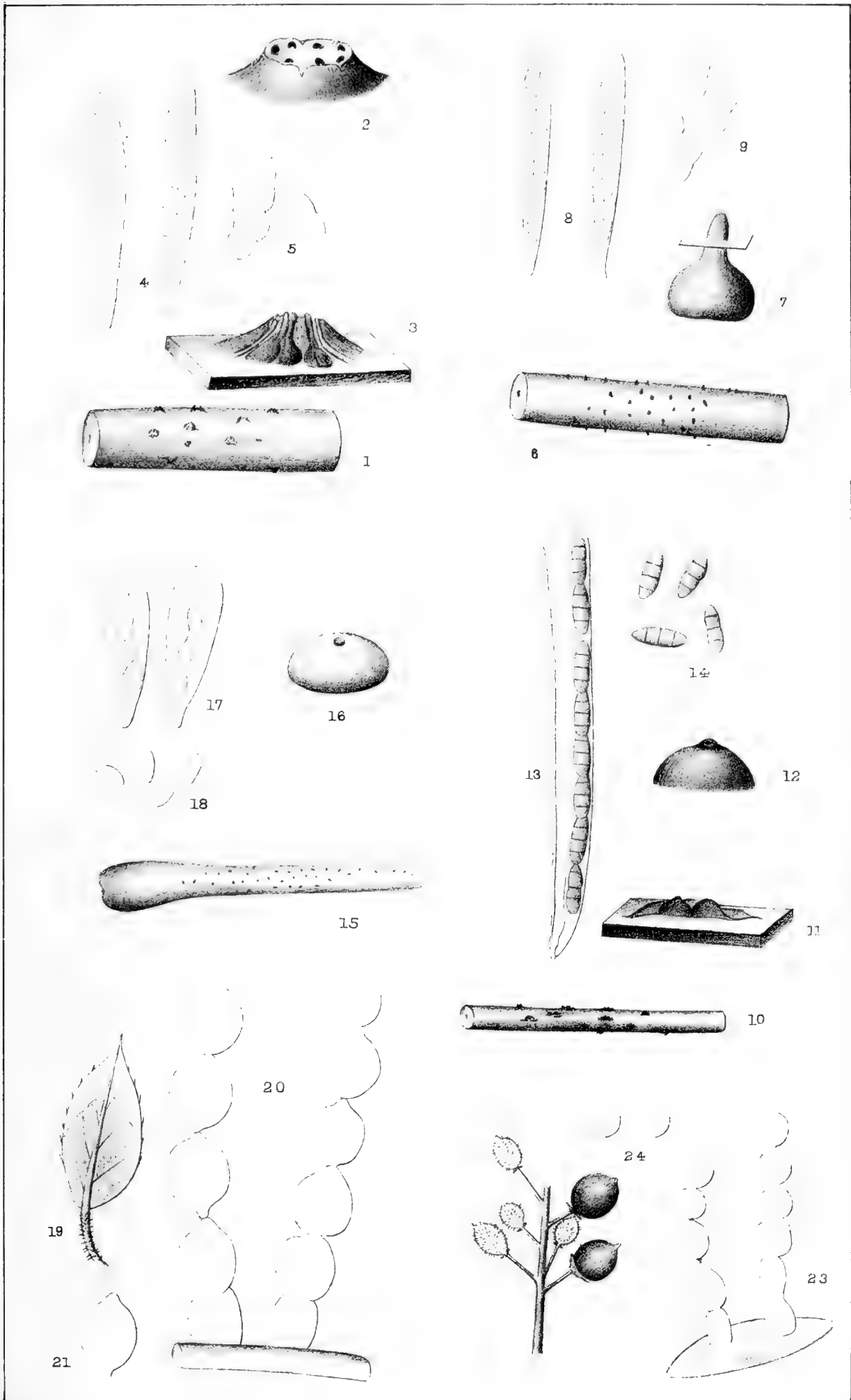
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FORTIETH ANNUAL REPORT

OF THE

NEW YORK STATE MUSEUM
OF
NATURAL HISTORY,

For the Year 1886.

TRANSMITTED TO THE LEGISLATURE JANUARY 14, 1887.

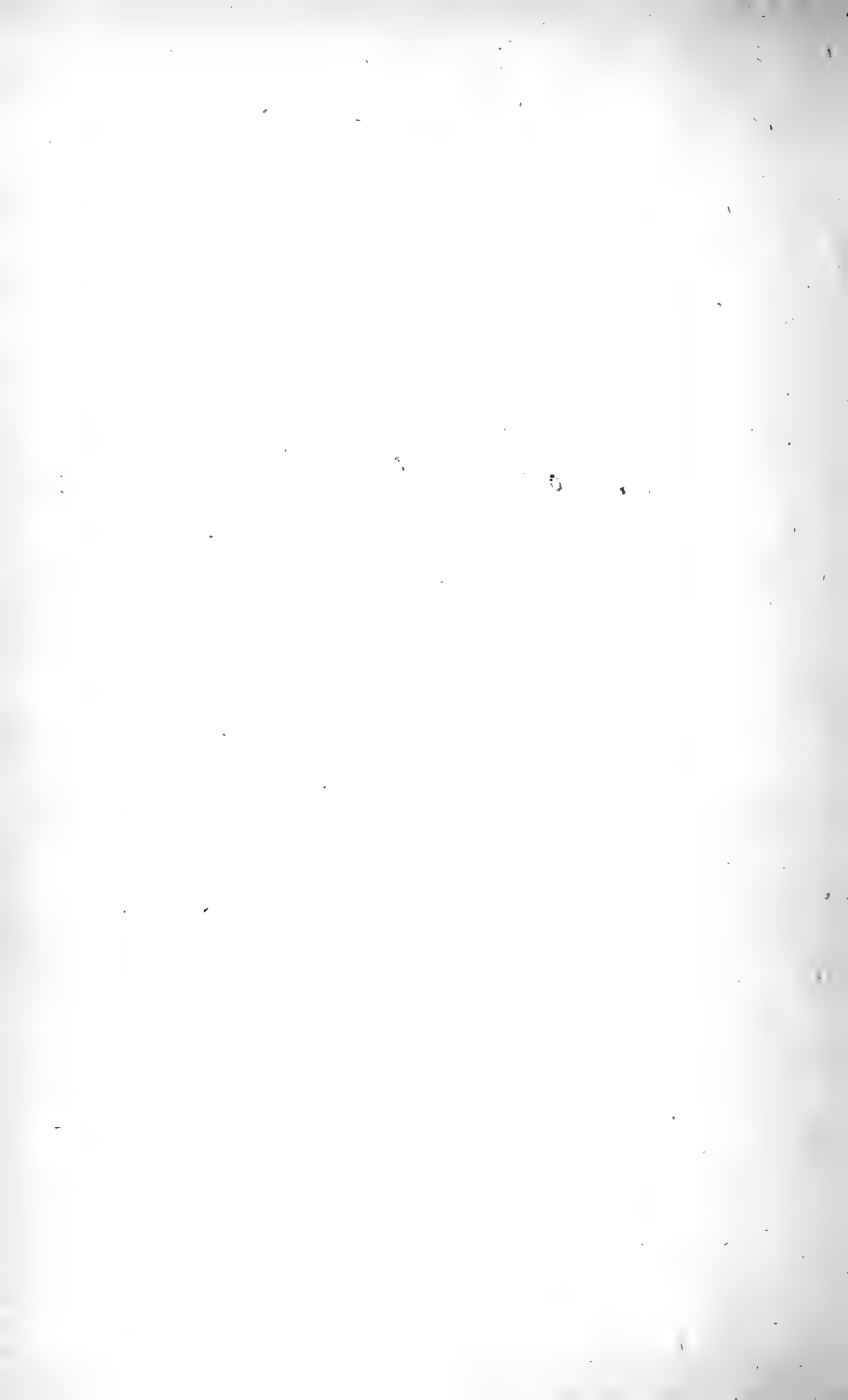
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THE ARGUS COMPANY, PRINTERS,

1887.

Extr. 40th Regent's Report.

REPORT OF THE BOTANIST.



R E P O R T.

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

GENTLEMEN:—I have the honor to communicate to you the following report:

In prosecuting the work of completing and arranging the State herbarium the past year, specimens of the plants of the State have been collected in the counties of Albany, Genesee, Essex, Hamilton, Livingston, Montgomery, Rensselaer, Saratoga, Schoharie, Washington, Wayne and Wyoming.

Specimens of 184 species have been added to the herbarium, of which twelve were contributed by correspondents, and 172 were collected by the Botanist. Of these 106 are new to the herbarium, and with two exceptions are new to our flora. Forty-seven of them are regarded as previously unpublished species. Among the added species are seven flowering plants, one moss and one lichen. The remainder are fungi. A list of the additions accompanies this report and is marked "A."

The number of contributors is twenty-three. Among their contributions are specimens of many extra limital species, not included in the preceding enumeration. These are kept distinct from the herbarium proper, which represents the State flora. A list of the contributors and of their respective contributions is marked "B."

A paper containing notices of species not before reported, together with a record of their respective localities and descriptions of new species, is marked "C."

Notes and observations concerning those not new to our flora will be found in a paper marked "D."

Wishing to obtain good flowering specimens of certain plants which grow upon the summit of Mt. Marcy, that locality was visited early in June. Although the snow had not yet entirely disappeared from that high elevation, several of the desired plants were in full bloom. Fine specimens were obtained of the alpine

rosebay, *Rhododendron Lapponicum*, the Lapland diapensia, *Diapensia Lapponica*, the hairy fly honeysuckle, *Lonicera caerulea*, and the dwarf birch, *Betula glandulosa*. The hairy fly honeysuckle and the small cranberry had not before been observed by me on the open summit of the mountain and should be added to the list of plants already published as belonging to that elevated station. July is given in the Manual and also in the State Flora as the time of flowering of the alpine or Lapland rosebay, but here it was flowering finely on the tenth day of June. Several new and interesting species of fungi rewarded my search in that bleak locality. Near the base of the mountain, the few fruited June berry, *Amelanchier Canadensis*, var. *oligocarpa*, enlivened the dark evergreen forest with its few pure white flowers. These are much scattered on the branches, there being only one, two or three in a place. The petals are broadly oval or almost orbicular, and the branches are wide-spreading, straggling and irregular. These features are so unlike the corresponding ones in other varieties of the species, that for the instant they almost compel us to believe that the plant is a distinct species rather than a mere variety. Yet, in less elevated and more open places connecting forms appear. Along Marcy brook, the rare mountain bush cranberry or few flowered viburnum, *Viburnum pauciflorum*, was observed, but it was not yet in flower. At Ausable ponds the large leaved avens, *Geum macrophyllum*, was discovered. This is a notable addition to our flora. It is an inhabitant of the White mountain region of New Hampshire and of the Lake Superior region, whence it extends westward to the Sierra Nevada mountains, and northward to Sitka. This New York station is intermediate between the eastern one and the nearest western one. An interesting form of the northern Clintonia was also discovered at this time. In it, one or two lateral umbels project from the scape at short distances below the terminal umbel of flowers. I find no mention of this form in our botanies. It is apparently due to a very thrifty and vigorous condition of the plant. The number of flowers in an umbel often much exceeds the number ascribed in the descriptions of the botanies.

From time to time reports have reached me that a red-flowered form of the white water-lily, *Nymphaea odorata*, existed in some of the waters of the Adirondack region. As I had never been

able to find such a plant myself, these reports were somewhat tantalizing. Knowing that such a lily had been found in Massachusetts, and learning of a definite locality where it was reported to have been seen in the Adirondacks, I determined to test the accuracy of this report, and to add, if possible, a specimen of such a rarity to the herbarium. Mud pond, in which it was said to grow, is a small, boggy water-hole, between Long lake and Tupper's lake. Upon visiting it I found an abundance of the white water-lily. There were a few flowers scattered about, in which the external petals were considerably tinged with red. When these flowers were but partly open, and viewed at a short distance, they had a decided pink-red appearance, and might easily be mistaken for the variety in question. But a closer examination invariably revealed white interior petals, though in some instances these were slightly stained with red or pink on the exterior surface near the base. Thus far the occurrence of the real red water-lily in the Adirondack region has not been verified by me; but this half-way approach to it indicates the possibility of its existence there, and raises the hope that it may yet be added to our flora. In this bog hole the bayonet rush, *Juncus militaris*, was found growing plentifully. It is an interesting addition to the indigenous plants of the State. On this trip, groves of larches or tamaracks, *Larix Americana*, in three widely separated localities, were noticed, in which many of the trees were almost defoliated by the ravages of some insect. Among them were many trees already dead, evidently having yielded to the thorough manner in which they had been deprived of their foliage. It appears that the loss of a large percentage of the larch trees of these noble forests must yet be added to the loss of many of the spruces through the agency of pestilent insects.

Wishing to observe what influence had been exerted on the flora by the operation of the salt works at Warsaw and its neighboring localities, that place was visited. It is well known that certain so-called seaside and salt marsh plants occur at Onondaga lake, about the salt works at Salina, and in other places where there are saline influences. It is evident that at Warsaw no saline influences have been present until quite recently. No salt springs come to the surface. The salt water is manufactured, so to speak, and pumped up from great depths. No salt marsh plants existed there when

the salt wells were first opened. Had any been introduced and established there since that time, was a question, the answer to which I wished to put on record. Not a single plant of this character was found. The nearest approach to it is the common orache, *Atriplex patula*, which grows freely along the sea coast; but this plant is also capable of living and thriving in places remote from salt water or saline influences. It has followed the tracks of our railroads till now it is a common plant along these thoroughfares in many places in the interior of the State. At Warsaw it is abundant, and occurs in several well-marked forms, thus showing well its disposition to vary. Its fondness for salt water, however, is shown by the fact that it is especially vigorous along the ditches by which the waste brine is carried away, and it follows these for considerable distances. Some of the trees in the immediate vicinity of several factories were seen to be dead or dying. Their death was apparently due to the gaseous products of the combustion of coal which is used in running the works. They were not in reach of the brine.

Two opinions are entertained concerning the liability of plants to the attacks of parasitic fungi. Some claim that, no matter how vigorous and healthy a plant may be, if the spores of its parasite lodge upon it the result will be the development in it of the disease which that parasite generates in that particular host plant. Others claim that there is a difference in the susceptibility of plants of the same species to the attacks of the same parasite; that a plant in a weak, starved or feeble condition is more likely to yield to and suffer from the attacks of its parasites than is one of the same species which is strong, well fed and vigorous. In other words, it is claimed that the vigorous plants, though exposed to the action of the spores of the parasite, have the power to resist the development of the disease and to remain healthy and unaffected; while the more feeble ones, exposed to the action of the spores of the same parasite, yield to the disease and suffer therefrom. This last claim is one of great practical importance, and if it can be shown to be well founded, a knowledge of it may be useful. Two instances illustrative of it fell under my observation the past season.

At Warsaw a small patch of knotgrass, *Polygonum aviculare*, was noticed. The plants were very small and starved in appear-

ance, and seemed to be struggling for existence. A close inspection showed that many of them were affected by a parasitic fungus, *Uromyces Polygani*. On one side of this patch, and continuous with it, was one composed of taller, more healthy looking plants. These were entirely free from the fungus, thus indicating that the weakness of the plants in one patch had favored the development of the disease, while the strength of the plants in the other had resisted it. It might be said by the supporters of the other claim that the dwarfed and weak condition of the affected plants was due to the presence of the fungus and not the predisposing cause of its presence. To one accustomed to observe this fungus, such an assertion would carry but little weight. But if we should admit the truth of this assertion, how should we explain the presence of the dwarf but unattacked plants in this patch?

In low ground near the lake shore at Port Henry, were numerous seedling plants, apparently of the discoid tickseed, *Coreopsis discoidea*. This ground had been overflowed in time of high water, and when the water receded it left numerous heaps of small sticks, bits of bark and other floodwood. Many of the seedling tickseeds were growing on these heaps of rubbish where there was little or no soil to afford nutriment to their roots. Others were growing on the ground about them, having their roots imbedded in and nourished by the soil. The plants growing on the floodwood were in many instances infested by a parasitic fungus, *Peronospora Halstedii*; but not a single affected plant could be found among those whose roots were in the soil. In this case the better nourished plants had escaped infection, although as much exposed to it as their less favored companions. Possibly there may be cases in which plants are liable to the attacks of parasitic fungi, no matter how strong and vigorous they may be, but it is clear that this cannot be a rule without exceptions. Instances are not wanting to show a greater susceptibility to attack in weak than in strong and well fed plants. Those who are accustomed to collect specimens of parasitic fungi soon learn, almost unconsciously, to look for them, either among feeble and starved plants or among those of unusually rank and luxuriant growth.

Very respectfully submitted,

CHAS. H. PECK,

ALBANY, December 15, 1886.

(A.)

PLANTS ADDED TO THE HERBARIUM.

NEW TO THE HERBARIUM.

- | | |
|---|--|
| Geum macrophyllum <i>Willd.</i> | P. eupyrena <i>Sacc.</i> |
| Aster sagittifolius <i>Willd.</i> | P. Populi <i>Pk.</i> |
| Lactuca Scariola <i>L.</i> | P. herbarum <i>West.</i> |
| Mimulus moschatus <i>Dougl.</i> | P. Castanea <i>Pk.</i> |
| Amianthium muscætoxicum <i>Gr.</i> | P. Dipsaci <i>Sacc.</i> |
| Juncus militaris <i>Bigel.</i> | Aposphæria conica <i>Sacc.</i> |
| Alopecurus pratensis <i>L.</i> | Cytospora grandis <i>Pk.</i> |
| Distichium capillaceum <i>B. & S.</i> | Haplosporella Pini <i>Pk.</i> |
| Calicium eusporum <i>Nyl.</i> | Diplodia paupercula <i>B. & C.</i> |
| Collybia fuliginella <i>Pk.</i> | D. Asparagi <i>Pk.</i> |
| Clitopilus subvilis <i>Pk.</i> | Stagonospora Chenopodii <i>Pk.</i> |
| Hebeloma glutinosum <i>Lind.</i> | Septoria Stachydis <i>R. & D.</i> |
| Polyporus dryophilus <i>Berk.</i> | S. fusca <i>Pk.</i> |
| P. sinuosus <i>Fr.</i> | S. Stellariæ <i>R. & D.</i> |
| P. radiculosus <i>Pk.</i> | S. Sibirici <i>Thum.</i> |
| Hydnum velatum <i>B. & C.</i> | S. solidaginicola <i>Pk.</i> |
| H. subfuscum <i>Pk.</i> | S. brevis <i>Pk.</i> |
| H. carbonarium <i>Pk.</i> | S. populicola <i>Pk.</i> |
| Irpex ambiguus <i>Pk.</i> | S. Smilacinæ <i>E. & M.</i> |
| Porothelium papillatum <i>Pk.</i> | Pilidium graminicola <i>Pk.</i> |
| Thelephora dendritica <i>Berk.</i> | Glæosporium Robergei <i>Desm.</i> |
| Stereum abietinum <i>Pers.</i> | G. septorioides <i>Sacc.</i> |
| Hymenochæte tenuis <i>Pk.</i> | G. Lindemuthianum <i>Sacc.</i> |
| Clavaria Kromholzii <i>Fr.</i> | Melanconium betulinum <i>Schm.</i> |
| Phyllosticta Caryæ <i>Pk.</i> | M. dimorphum <i>Pk.</i> |
| P. phaseolina <i>Sacc.</i> | Marsonia Populi <i>Sacc.</i> |
| P. Lycopersici <i>Pk.</i> | Coryneum tumoricola <i>Pk.</i> |
| P. phomiformis <i>Sacc.</i> | Scolecosporium Fagi <i>Lib.</i> |
| P. tumoricola <i>Pk.</i> | Pestalozzia Jefferisii <i>Ellis.</i> |
| P. populina <i>Sacc.</i> | Monilia Martini <i>S. & E.</i> |
| P. spermoides <i>Pk.</i> | M. cinerea <i>Bon.</i> |
| P. faginea <i>Pk.</i> | Ramularia Barbareæ <i>Pk.</i> |
| P. vagans <i>Pk.</i> | Coniosporium punctoideum |
| P. fatiscens <i>Pk.</i> | <i>Karst.</i> |
| P. Symphoricarpi <i>West.</i> | Cladosporium Aphidis <i>Thum.</i> |
| Phoma magnifructa <i>Pk.</i> | C. Asparagi <i>Fr.</i> |
| P. leguminum <i>West.</i> | C. brevipes <i>Pk.</i> |

C. letiferum *Pk.*
 Cercospora Acetosellæ *Ellis.*
 Macrosporium tomato *Cke.*
 Pilacre orientalis *B. & Br.*
 Graphium Sorbi *Pk.*
 Isariopsis alborosella *Sacc.*
 Fusarium Lycopersici *Sacc.*
 Peziza truncicomes *Ger.*
 P. alboviolascens *A. & S.*
 Helotium episphæricum *Pk.*
 Ascomyces letifer *Pk.*
 A. rubrobrunneus *Pk.*
 Erysiphe horridula *Lev.*
 Calosphæria ciliatula *Karst.*
 Valsa Thujæ *Pk.*
 V. exudans *Pk.*
 Valsella adhærens *Fckl.*

V. Laschii *Sacc.*
 Diatrypella quercina *Nits.*
 Melanconiella Decorahensis
Ellis.
 Sphærella Pinsapo *Thum.*
 S. minutissima *Pk.*
 S. alnicola *Pk.*
 S. Pontederiæ *Pk.*
 Diaporthe farinosa *Pk.*
 D. sulphurea *Fckl.*
 Valsaria Niesslii *Sacc.*
 Leptosphaeria Asparagi *Pk.*
 Massaria Pyrii *Oth.*
 Pleospora Shepherdia *Pk.*
 Dothidella Alni *Pk.*
 Lophiotrema vestita *Pk.*
 L. parasitica *Pk.*

NOT NEW TO THE HERBARIUM.

Thalictrum purpurascens *L.*
 Nelumbium luteum *Willd.*
 Nymphaea odorata *Ait.*
 Nuphar advena *Ait.*
 Nasturtium lacustre *Gr.*
 Arabis Drummondii *Gr.*
 Cardamine hirsuta *L.*
 Lepidium Virginicum *L.*
 Lechea major *Mx.*
 Polygala paucifolia *Willd.*
 Lathyrus palustris *L.*
 Lespedeza violacea *Pers.*
 Geum rivale *L.*
 Pyrus sambucifolia *C. & S.*
 Amelanchier Canadensis *T. & G.*
 Ribes Cynosbati *L.*
 R. lacustre *Poir.*
 R. prostratum *L'Her.*
 Cornus paniculata *L'Her.*
 Lonicera cærulea *L.*
 Symphoricarpos racemosus *Mx.*
 Aster acuminatus *Mx.*
 A. Radula *Ait.*
 Solidago uliginosa *Nutt.*
 Hieracium pilosella *L.*
 Rhododendron Lapponicum
Wahl.
 Hyssopus officinalis *L.*

Polygonum tenue *Mx.*
 Diapensia Lapponica *L.*
 Carya alba *Nutt.*
 Quercus palustris *Du Roi.*
 Betula glandulosa *Mx.*
 Salix Cutleri *Tuckerm.*
 Abies alba *Mx.*
 Orchis spectabilis *L.*
 Clintonia borealis *Raf.*
 Streptopus roseus *Mx.*
 S. amplexifolius *D. C.*
 Polygonatum biflorum *Ell.*
 Luzulu parviflora *Desv.*
 Juncus articulatus *L.*
 Scirpus Eriophorum *Mx.*
 Scleria verticillata *Muhl.*
 Carex alopecoidea *Tuckerm.*
 C. flava *L.*
 C. longirostris *Torr.*
 Agrostis vulgaris *With.*
 Avena striata *Mx.*
 Panicum capillare *L.*
 P. Crus-galli *L.*
 Setaria glauca *Bv.*
 Triticum caninum *L.*
 Aspidium Goldianum *Hook.*
 Omphalia umbellifera *L.*
 Pleurotus subareolatus *Pk.*

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| <p> <i>Crepidotus hærens</i> <i>Pk.</i>
 <i>Boletus subaureus</i> <i>Pk.</i>
 <i>Polyporus pubescens</i> <i>Fr.</i>
 <i>P. cyphellæformis</i> <i>B. & C.</i>
 <i>Trametes mollis</i> <i>Fr.</i>
 <i>Phlebia radiata</i> <i>Fr.</i>
 <i>Odontia fimbriata</i> <i>Fr.</i>
 <i>Peniophora neglecta</i> <i>Pk.</i>
 <i>Clavaria pinea</i> <i>Pk.</i>
 <i>Glœosporium Martini</i> <i>S. & E.</i> </p> | <p> <i>Marsonia Juglandis</i> <i>Sacc.</i>
 <i>Ramularia Plantaginis</i> <i>E. & M.</i>
 <i>Cystopus Bliti</i> <i>Lev.</i>
 <i>Peronospora Halstedii</i> <i>Farl.</i>
 <i>P. gangliformis</i> <i>De By.</i>
 <i>Trichothecium roseum</i> <i>Lk.</i>
 <i>Pezicula acericola</i> <i>Pk.</i>
 <i>Uncinula adunca</i> <i>Lev.</i>
 <i>Hypoxylon atropunctatum</i> <i>Schw.</i>
 <i>Diaporthe acerina</i> <i>Sacc.</i> </p> |
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(B.)

CONTRIBUTORS AND THEIR CONTRIBUTIONS.

Mrs. M. M. PATTON, Berne, N. Y.

Cynoglossum grande *Dougl.* | Brodiaea capitata *Benth.*

Mrs. I. B. SAMPSON, Albany, N. Y.

Sarracenia variolaris *Mx.* | Ruellia oblongifolia *Mx.*
Polygala nana *DC.* | Eriocaulon gnaphalodes *Mx.*

Hon. DAVID MURRAY, Albany, N. Y.

Viola lutea *Sm.* | Sedum acre *L.*
Arenaria verna *L.* | S. saxatile *L.*
Silene inflata *Sm.* | Linnea borealis *Gron.*
Parnassia palustris *L.* | Gnaphalium leontopodium
Saxifraga aizoon *Jacq.* | *Willd.*
S. azoides *L.* | Hieracium pilosella *L.*
S. bryoides *L.* | Loiseleuria procumbens *Desv.*

Prof. JAMES HALL, Albany, N. Y.

Agaricus subareolatus *Pk.*

CHARLES E. BEECHER, Albany, N. Y.

Lenzites sepiaria *Fr.* | Dædalea glaberrima *B. & C.*
Polyporus brumalis *Fr.* | Stereum versicolor *Fr.*
P. sanguineus *L.* | Hypochnus rubrocinctus *Ehr.*
Trametes hydnoides *Fr.* | Geaster minimus *Schw.*

GEO. A. REX, M. D., Philadelphia, Penn.

Hemiarcyria stipata *R.* | Tilmadoche gyrocephalum
Arcyria dictyonema *R.* | *Mont.*
A. Erstedii *R.* | Physarum pulcherrimum *B. & C.*
Trichia Jackii *R.* | P. Petersii *B. & C.*

Rev. A. B. LANGLOIS, Pointe a la Hache, La.

Cytospora pallida, *Ellis.* | Botryodiplodia diplocarpa
Fusarium sarcochroum *Desm.* | *E. & E.*
Ailographum cæspitosum *E. & E.* | Meliola sanguinea *Ellis.*
Dinemasporium Langloisii *Ellis.* | Valsa hylodes *Ellis.*

E. C. HOWE, M. D., Lansingburgh, N. Y.

Carex Buxbaumii <i>Wahl.</i>		Triticum caninum <i>L.</i>
Alopecurus geniculatus <i>L.</i>		

H. L. GRIFFIS, Binghamton, N. Y.

Polygala paucifolia *Willd.*

C. E. SMITH, Philadelphia, Penn.

Baptisia tinctoria <i>R. Br.</i>		Linaria vulgaris <i>Mill.</i>
Polygala lutea <i>L.</i>		

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

Trametes Pini <i>Fr.</i>		Polyporus versicolor <i>Fr.</i>
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Prof. B. T. GALLOWAY, Columbia, Mo.

Cercospora condensata <i>E. & K.</i>		Cercospora Sanguinariæ <i>Pk.</i>
C. Gymnocladi <i>E. & K.</i>		Puccinia Seymeriæ <i>Burrill.</i>
C. rhuina <i>C. & E.</i>		Septoria bacciligera <i>Wint.</i>
C. Plantaginis <i>Sacc.</i>		Gleosporium Aceris <i>Cke.</i>
C. Caulophylli <i>Pk.</i>		Marsonia Quercus <i>Pk.</i>

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

Puccinia curtipes <i>Howe.</i>		Uromyces Trifolii <i>Fckl.</i>
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Prof. T. H. McBRIDE, Iowa City, Iowa.

Boletus sphærosporus *Pk.*

JULIUS A. BISKY, Flushing, N. Y.

Aster Radula <i>Ait.</i>		Mimulus moschatus <i>Dougl.</i>
A. acuminatus <i>Mx.</i>		Amianthium muscætoxicum <i>Gr.</i>

Prof. F. LAMSON SCRIBNER, Washington, D. C.

Arundo Donax *L.*

A. P. MORGAN, Preston, O.

Polyporus endocrocinus *Berk.*

Prof. WM. TRELEASE, St. Louis, Mo.

Lycoperdon delicatum <i>B. & C.</i>		Dothidea viridispora <i>Cke.</i>
L. rimulatum <i>Pk.</i>		

Prof. W. A. KELLERMAN, Manhattan, Kansas.

- Lenzites abietina *Fr.*
 Panus stipticus *Fr.*
 Polyporus adustus *Fr.*
 P. brumalis *Fr.*
 P. sulphureus *Fr.*
 P. appianatus *Fr.*
 P. picipes *Fr.*
 P. fraxinophilus *Pk.*
 Trametes sepium *Berk.*
 Craterellus cornucopioides *Fr.*
 Stereum frustulosum *Fr.*
 Merulius tremellosus *Schrad.*
 Hydnum pallidum *C. & E.*
 Tremella foliacea *Fr.*
 Glæosporium stenosporum
E. & K.
 Vermicularia Dematium *Fr.*
 Darluca filum *Cast.*
 Leptostroma vulgare *Fr.*
 L. Actææ *Schw.*
 Septoria Verbænæ *R. & D.*
 S. gaurina *E. & K.*
 S. Nolitangeris *Ger.*
 S. Kalmicola *B. & C.*
 S. Helianthi *E. & K.*
 S. Verbascicola *B. & C.*
 S. Polygonorum *Desm.*
 S. Mimuli *E. & K.*
 S. Pruni *Ellis.*
 S. Cerastii *R. & D.*
 S. Gei *Desm.*
 S. sphærelloides *E. & K.*
 S. xanthifolia *E. & K.*
 S. Sisymbrii *Ellis.*
 S. Speculariæ *B. & C.*
 S. Erigerontis *Pk.*
 S. lactucicola *E. & M.*
 S. Cacaliæ *E. & K.*
 Phyllosticta Asiminæ *E. & E.*
 P. acericola *B. & C.*
 P. smilacina *E. & M.*
 P. Phaseoli *Sacc.*
 P. Chenopodii *West.*
 P. Ampelopsidis *E. & M.*
 P. Labruscæ *Thum.*
 P. Podophylli *Wint.*
 P. Lycii *E. & K.*
 Discosia maculæcola *Ger.*
 Phoma glandicola *Desm.*
 Stilbospora ovata *Pers.*
 Coniothyrium herbarum
C. & E.
 Sphæronema Persicæ *Schw.*
 Cæoma mercurialis *Lk.*
 Coleosporium Campanulacearum
Fr.
 C. Sonchi *Tul.*
 C. Senecionis *Fr.*
 C. Agrimonis *Bon.*
 Uredo Smilacis *Schw.*
 Trichobasis Crotonis *Oke.*
 Chrysomyxa pyrolatum *Koenig.*
 Synchytrium Anemones *Woron.*
 S. mercurialis *Fckl.*
 S. Taraxaci *DeBy.*
 Ræstelia penicillati *Fr.*
 R. lacerata *Tul.*
 Melampsora salicina *Lev.*
 Æcidium impatientatum *Schw.*
 Æ. Allii-ursini *Pers.*
 Æ. Tragopogonis *Pers.*
 Æ. Prenanthis *Pers.*
 Æ. Euphorbiæ *Pers.*
 Æ. leucospermum *DC.*
 Æ. rubellum *Pers.*
 Æ. Epilobii *DC.*
 Æ. Cænothæ *Pk.*
 Æ. Caladii *Schw.*
 Æ. Dicentræ *Trel.*
 Æ. Ficariæ *Pers.*
 Æ. Violæ *Schum.*
 Æ. Callirrhoes *E. & K.*
 Æ. amphigenum *E. & K.*
 Æ. Sambuci *Schw.*
 Æ. Verbenicola *E. & K.*
 Æ. Ceanothi *E. & K.*
 Uromyces appendiculatus *Lev.*
 U. Zygadeni *Pk.*
 U. Euphorbiæ *C. & P.*
 U. Lespedezæ *Schw.*
 U. Alchemillæ *Pers.*
 U. Peltandræ *Howe.*
 U. Hyperici *Schw.*
 Ustilago Carbo *Tul.*

- U. Syntherismæ Schw.
 Phragmidium obtusum Lk.
 Gymnosporangium macropus Schw.
 Puccinia Sorghi Schw.
 P. Helianthi Schw.
 P. Mariæ Wilsoni Clint.
 P. Amorphæ Curt.
 P. aculeata Lk.
 P. Artemisiarum Duby.
 P. Myrrhis Schw.
 P. Xanthii Schw.
 P. Malvastri Pk.
 P. nigrescens Pk.
 P. Polygonorum Lk.
 P. solida Schw.
 P. Chærophylli Purt.
 P. Menthæ Pers.
 P. Silphii Schw.
 Epicoccum sphærococcum Berk.
 Sporocybe byssoides Fr.
 Fusieladium fasciculatum C. & E.
 Helminthosporium gracile Wallr.
 H. interseminatum B. & R.
 Macrosporium Maydis C. & E.
 M. Solani E. & M.
 M. Catalpæ E. & M.
 Polythrincium Trifolii Kze.
 Stachybotrys lobulata Berk.
 Botrytis vulgaris Fr.
 Pyricularia grisea Sacc.
 Cylindrosporium Fraxini E. & K.
 Microstroma leucospora Niessl.
 Ramularia Desmodii Cke.
 R. Astragali E. & H.
 R. Grindeliæ E. & K.
 R. rufomaculans Pk.
 R. Tulasnei Sacc.
 Entyloma Ranunculi Bon.
 E. Physalidis Wint.
 Cystopus cubicus Lev.
 C. Bliti DeBy.
 Peronospora sordida Berk.
 P. parasitica Tul.
 P. gangliformis De By.
 P. alta Fckl.
 P. Halstedii Farl.
 P. Oxybaphi E. & K.
 P. Arthurii Farl.
 Cercospora Acalyphæ Pk.
 C. Ampelopsidis Pk.
 C. Chenopodii Fres.
 C. Plantaginis Sacc.
 C. effusa Ellis.
 C. Desmodii E. & K.
 C. condensata E. & K.
 Cercospora Gymnocladi E. & K.
 C. chionea E. & K.
 C. Isanthi E. & K.
 C. rhuina C. & E.
 C. microsora Sacc.
 C. Teucriti E. & K.
 Peziza capitata Pk.
 P. floccosa Schw.
 P. nivea Fr.
 Ascobolus pilosus Fr.
 Phacidium Pini Schw.
 P. Medicaginis Schw.
 Cenangium triangulare Schw.
 Exoascus deformans Berk.
 Chætomium chartarum Cd.
 Chætomella perforata E. & E.
 Podosphæria Kunzei Lev.
 Phyllactinia suffulta Reb.
 Erysiphe lamprocarpa Lev.
 Uncinula adunca Lev.
 U. Ampelopsidis Pk.
 U. macrospora Pk.
 Microsphaeria Euphorbiæ B. & C.
 M. Platani Howe.
 Diatrype disciformis Fr.
 D. bullata Fr.
 D. hypophlæa B. & C.
 Xylaria Hypoxylon Fr.
 Hypoxylon sassafras Schw.
 H. atropunctatum Schw.
 Rosellinia millegrana Sacc.
 Dothidea perisporioides B. & C.
 Stigmatea Robertiani Fr.
 Diaporthe spiculosa Fr.
 Phyllachora Ulmi Fckl.
 Heliosphaeria patella Grev.
 Linospora capræ Fckl.

Venturia orbicula <i>C. & P.</i>	S. Arthuriana <i>Sacc.</i>
Kellermania yuccagena <i>E. & E.</i>	S. anguillida <i>C. & E.</i>
Leptosphaeria doliolum <i>Pers.</i>	S. fulgida <i>C. & P.</i>
Pleonectria denigrata <i>Wint.</i>	Sphaerella decidua <i>E. & K.</i>
Ophiobolus porphyrogonus <i>Sacc.</i>	S. maculaeformis <i>Pers.</i>
Melanomma pulvispyrius <i>Fekl.</i>	S. sparsa <i>Awd.</i>
Gnomonia setacea <i>Pers.</i>	S. polystigma <i>Ellis.</i>
Melanconis dasycarpa <i>E. & R.</i>	S. Campanulae <i>E. & K.</i>
Sphaeria Caryae <i>C. & E.</i>	

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

Hydnum auriscalpium <i>L.</i>	Urocystis pompholygodes <i>Schl.</i>
Scleroderma vulgare <i>Fr.</i>	Podisoma Sabinæ <i>Fr.</i>
Phyllosticta Sambuci <i>Desm.</i>	Roestelia lacerata <i>Tul.</i>
Sporidesmium lepraria <i>B. & Br.</i>	Sepedonium chrysospermum <i>Lk.</i>
Phragmidium bulbosum <i>Schl.</i>	Chaetomium elatum <i>Kze.</i>
P. mucronatum <i>Lk.</i>	Hypomyces aurantius <i>Tul.</i>
P. gracile <i>Grev.</i>	H. lateritius <i>Tul.</i>
Triphragmium Ulmariae <i>Lk.</i>	H. rosellus <i>Tul.</i>
Puccinia graminis <i>Pers.</i>	Sphaerotheca Castagnei <i>Lev.</i>
P. clandestina <i>Carm.</i>	Sphaeria fimbriata <i>Pers.</i>
P. Umbilici <i>Guep.</i>	Sphaerella Buxi <i>DC.</i>
Ustilago Carbo <i>Tul.</i>	Stigmatea Robertiani <i>Fr.</i>

H. C. GORDINIÈR, M. D., Troy, N. Y.

Ranunculus alismæfolius <i>Geyer.</i>	Salix candida <i>Willd.</i>
Lepidium campestre <i>L.</i>	Thuja occidentalis <i>L.</i>
Cerastium nutans <i>Raf.</i>	Orchis spectabilis <i>L.</i>
Arenaria lateriflora <i>L.</i>	Cypripedium spectabile <i>Swartz.</i>
Geranium Carolinianum <i>L.</i>	Carex Buxbaumii <i>Wahl.</i>
Trifolium hybridum <i>L.</i>	C. Muhlenbergii <i>Schk.</i>
Mitella nuda <i>L.</i>	C. alopecoidea <i>Tuck.</i>
Chrysopsis graminifolia <i>Nutt.</i>	C. aurea <i>Nutt.</i>
Polygonum tenue <i>Mx.</i>	Alopecurus geniculatus <i>L.</i>
Rumex Brittanica <i>L.</i>	Glyceria acutiflora <i>Torr.</i>
Blitum capitatum <i>L.</i>	Pardanthus Chinensis <i>Ker.</i>
Populus balsamifera <i>L.</i>	

J. DUNN, Albany, N. Y.

A piece of wood of silver maple, showing the scar of an inscribed cross, both in the wood and the bark.

W. S. HAYWARD, Sodus, N. Y.

A splinter of wood and fragments of stone broken by lightning.

(C.)

PLANTS NOT BEFORE REPORTED.

GEUM MACROPHYLLUM, Willd.

Adirondack mountains, near the inlet of Lower Ausable pond. In the Manual this species is accredited to the base of the White mountains, Northern Michigan, Illinois and north-westward. Our newly discovered station is intermediate between the eastern and western localities recorded in the Manual. Flowering specimens were collected in June.

LACTUCA SCARIOLA, L.

Introduced, but apparently well established, in Clyde, Wayne county. September.

MIMULUS MOSCHATUS, Dougl.

Introduced. "Well established in a bog near Locust Valley," Long Island. *Julius A. Bisky.* August.

AMIANTHIUM MUSCÆTOXICUM, Gr.

Valley Stream, Long Island. July. *J. A. Bisky.* This is probably one of its most northern stations.

JUNCUS MILITARIS, Bigel.

Adirondack mountains. In Mud pond and Clear pond near Long lake. July. The bayonet rush grows in shallow water in these localities. Its panicle is not very conspicuous, and a superficial observer might easily mistake the plant for the great bulrush, *Scirpus validus*, which grows in similar situations. It spreads by creeping rootstocks which give origin to new plants, sometimes at less than an inch from the parent plant. The capillary submersed leaves noticed by Dr. Robbins in flowing water were not seen in these stations, in which the plants grow in quiet water. The whitish membranous scales that subtend the reddish-brown or chestnut colored heads of flowers are noticeable by reason of the contrast in colors.

DISTICHIUM CAPILLACEUM, B & S.

Wet rocks and precipices. Adirondack mountains, Cascadeville. June. The distichous arrangement of the leaves, characteristic of the genus, is not very conspicuous in this moss, which at first sight somewhat resembles *Dicranella heteromalla*.

CALICIUM EUSPORUM, Nyl.

Bark of dead balsam, *Abies balsamea*. Chapel pond, Adirondack mountains. June. This rare lichen has but recently been detected in this country. Mr. Willey informs me that he first found it about a year ago in the White mountain region.

COLLYBIA FULIGINELLA, N. sp.

Pileus convex or nearly plane, sometimes irregular or undulate on the margin, glabrous, even, fuliginous-brown, flesh white; lamellæ, rather narrow, close, rounded behind, adnexed or nearly free, white; stem equal or slightly tapering upward, subfibrillose, stuffed or hollow, colored like the pileus or a little paler, white tomentose at the base; spores subelliptical, .0003 to .00035 inch long, .0002 to .00025 broad, usually containing a single large nucleus.

Pileus 1.5 to 2.5 inches broad, stem 1.5 to 2 inches long, 2 to 3 lines thick.

Under or near arbor-vitæ, *Thuja occidentalis*. Elizabethtown, Essex county. September.

In size and shape this species resembles *Collybia dryophila*, but its color, which closely resembles that of *Lactarius lignyotus*, is far different.

CLITOPILUS SUBVILIS, N. sp.

Pileus thin, centrally depressed or umbilicate, with the margin decurved, hygrophanous, dark-brown and striatulate when moist, grayish-brown and silky-shining when dry; lamellæ subdistant, adnate or slightly decurrent, whitish when young, then flesh-colored; stem slender, brittle, rather long, stuffed or hollow, glabrous, colored like the pileus or a little paler; spores irregular, angular, .0003 to .0004 inches long; odor weak or none, taste farinaceous.

Pileus 8 to 15 lines broad, stem 1.5 to 3 inches long, 1 to 2 lines thick.

Damp soil in thin woods. Karner, Albany county. October.

The species seems to be closely related to *Clitopilus vilis*, from

which I have separated it because of its smooth and shining (not flocculose and opaque), pileus and its farinaceous taste. It was discovered in 1884, growing, in company with *Entoloma rhodopolium* in such a way that it was taken to be a variety of it, and it was referred to that species under the name var. *umbilicatum*. This year it was found plentifully in the same locality, but entirely unaccompanied by *E. rhodopolium*. A more careful study of it leads me to the conclusion that it is a distinct species.

HEBELOMA GLUTINOSUM, Lind.

Among fallen leaves and on half buried decaying wood, in thin woods. Conklingville. September.

In wet weather the gluten is sufficiently copious to drip from the pileus.

CORTINARIUS SUBFERRUGINEUS, Fr.

Thin woods. Conklingville. September.

POLYPORUS DRYOPHILUS, Berk.

At the base of oak trees. Conklingville. July.

POLYPORUS SINUOSUS, Fr.

Decaying wood of maple, *Acer saccharinum*. Forestburgh, Sullivan county. September. The species is remarkable for and easily known by its sweet and agreeable fragrance, which has been likened to that of licorice.

POLYPORUS RADICULOSUS, N. sp.

Resupinate, effused, thin, soft, tender, orange-yellow, the mycelium creeping in and over the wood, silky-tomentose, at first white, then yellow, forming numerous yellow branching root-like strings or ribs which are more or less connected by a soft, silky tomentum; pores rather large, angular, at first shallow, sunk in the mycelium, the dissepiments becoming more elevated, thin and fragile; spores elliptical, .0002 to .00025 inch long, .00012 to .00016 broad.

Half buried chips of poplar. *Populus tremuloides*. Gansevoort. September.

The species is allied to *P. Vaillantii*, in its peculiar rhizomorphoid strings of mycelium, but from this it differs decidedly in its color and texture. In these respects it approaches *P. bombycinus*, of which it may possibly be a peculiar variety. It is very

destructive to the wood on which it grows, causing it to become soft, brittle and even friable.

HYDNUM VELATUM, B. & C.

Decaying wood of poplar, *Populus tremuloides*. Gansevoort. September.

HYDNUM SUBFUSCUM, N. sp.

Resupinate, thin, soft, the margin and subiculum beneath white, tomentose, sometimes extended into branching strings of mycelium, the upper surface of the subiculum pale yellowish-brown or dingy-isabelline, when magnified, appearing as if sprinkled with minute shining particles; aculei slender, subulate, very acute, white when young, then with white tips or wholly colored like the subiculum.

Decaying wood of deciduous trees. Conklingville. September. In *H. himantia*, which, in some respects, this species resembles the teeth are described as obtuse and pulverulent.

HYDNUM CARBONARIUM, N. sp.

Resupinate, very thin, at first floccose-pruinose and white, then smoky-brown, sometimes retaining a white margin; aculei at first short, then longer, subulate or cylindrical, minutely ciliate at the apex, whitish when young, then smoky-brown.

Charred wood. Elizabethtown. September. The species is easily recognized by its peculiar color and by the ciliate or setulose tips of the teeth. It appears as if it had been smoked or scorched.

IRPEX AMBIGUUS, N. sp.

Resupinate, adnate; subiculum very thin, flocculose-pruinose, white, becoming pallid with age; aculei oblique, somewhat united at the base, minute, very variable, subulate and entire, or compressed, acute, truncate, branched, incised or subserrate, white when young, becoming pallid with age.

Decaying beech wood and bark. Adirondack mountains. September.

It forms small irregular or interrupted patches. To the naked eye it resembles *Hydnum pallidum*, but the teeth are more or less united at the base, thus requiring it to be placed in the genus *Irpex*. Scarcely any two of them are exactly alike.

POROTHELIUM PAPILLATUM, N. sp.

Effused, very thin, flocculose-pruinose, white when young, soon pallid or isabelline, subwaxy and often rimose, the margin subin-

determinate: verrucae minute, subdistant, at first a limpid globule resting on the subiculum, then slightly prominent, papilliform, colored like the subiculum and crowned with a limpid globule which varies in color from hyaline to amber.

Decorticated wood of poplar, *Populus tremuloides*. Elizabethtown. September. It forms patches several inches in extent. It is apparently related to *P. Friesii*, but it is not membranous, the warts are colored like the subiculum and are not immersed in it.

THELEPHORA DENDRITICA, Berk.

Overspreading the hymenium of effete *Polyporas applanatus*. Adirondack mountains. September.

STEREUM ABIETINUM, Pers.

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

Our specimens agree with the description of the species to which we have referred them, but they present some interesting characters not mentioned in that description. It often happens that great perplexity arises because of the incomplete descriptions of some of the older authors. A careful examination of our specimens shows the presence of both setæ and metuloids, the latter much more numerous than the former. Thus this species does for *Stereum*, *Hymenochæte* and *Peniophora* what *Dædalea confragosa* does for *Dædalea*, *Trametes* and *Lenzites*, as was shown in the thirtieth report. It sets at naught the characters used in distinguishing these genera, and bids defiance to the generic limits assigned in the botanies. To the naked eye, the hymenium in our specimens has a somewhat "velvety pruinose" appearance, but when examined by the microscope it is found to be abundantly furnished with projecting setiform bodies, some of which are smooth and colored, as in *Hymenochæte*; others are colorless and rough or minutely warted, as in *Peniophora*. Sometimes a single one is colorless and warted in the upper part, colored and smooth in the lower. And as if this was not enough of confusion to our former notions, the hymenium, though dry, becomes rimose as in many species of *Corticium*. The fungus sometimes forms patches several inches in extent by the confluence of individuals. It is nearly or quite one line thick, the intermediate stratum being

composed of erect fibres. Though dry, it is not very tough. The spores are oblong or subfusiform .0005 to .0007 inch long, .0002 broad.

HYMENOCHÆTE TENUIS, N. sp.

Resupinate, very thin, even, forming elongated, more or less confluent, dark ferruginous patches, concolorous on the determinate margin, inseparable, rimose; setæ acute, .0012 to .0025 inch long.

Decorticated wood of arbor-vitæ, *Thuja occidentalis*. Cascadeville. June.

CLAVARIA KROMHOLZII, Fr.

Open woods. Brewerton and Adirondack mountains. September.

PHYLLOSTICTA LYCOPERSICI, N. sp.

Spots large, suborbicular, cinereous; perithecia minute, brown or blackish, opening by a single or sometimes by two pores; spores abundant, oblong or elliptical, .00025 to .0003 inch long, .0001 to .00012 broad.

Fruit of tomato, *Lycopersicum esculentum*. Menands, Albany county. July.

PHYLLOSTICTA PHASEOLINA, Sacc.

Leaves of cultivated bean, *Phaseolus vulgaris*. Menands. September.

PHYLLOSTICTA CARYÆ, N. sp.

Spots large, irregular, often confluent, at first yellowish, then brown, sometimes becoming grayish in the center; perithecia minute, .004 inch broad, punctate, epiphyllous; spores irregularly elliptical, .0002 inch long, .00008 broad.

Living leaves of hickory, *Carya alba*. Piffard. August.

PHYLLOSTICTA PHOMIFORMIS, Sacc.

Living leaves of white oak, *Quercus alba*. Sandlake, Rensselaer county. September.

PHYLLOSTICTA TUMORICOLA, N. sp.

Spots suborbicular, arid, pallid with a reddish or reddish-brown margin, apparently caused by insects; perithecia amphigenous or epiphyllous minute, .005 to .007 inch broad, depressed, brownish; spores oblong or narrowly elliptical, colorless, .0004 to .0005 inch long, .0002 to .00025 broad.

Living gall-spotted leaves of white oak, *Quercus alba*. Karner. October. In *P. phomiformis* the spores are much larger than in

this species. The spots are centrally punctured and appear to have been produced by the stings of insects.

PHYLLOSTICTA POPULINA, Sacc. v. PARVA n. var.

Living or languishing leaves of necklace poplar, *Populus monilifera*. Menands. October.

Spots very small, orbicular, white, with a brown border; perithecia one to four on a spot.

PHYLLOSTICTA SPERMOIDES, N. sp.

Spots suborbicular, brown or cinereous with a brown border, sometimes confluent; perithecia minute, .0014 to .0025 inch broad, numerous, hypophyllous, blackish; spores minute cylindrical, .0002 inch long.

Living leaves of wild grape vine, *Vitis riparia*. Gansevoort. September.

PHYLLOSTICTA FAGINEA, N. sp.

Spots suborbicular, small, often seriate or subconfluent, and arranged in rows parallel to the veins of the leaf, cinereous or reddish-gray, with a reddish-brown border or wholly reddish-brown, subferruginous beneath; perithecia few, epiphyllous, minute, .003 inch broad, black; spores ovate or elliptical, .0003 to .0004 inch long, .0002 to .00025 broad.

Living leaves of beech, *Fagus ferruginea*. Argusville and Elizabethtown. September.

PHYLLOSTICTA VAGANS, N. sp.

Spots none; perithecia minute, .003 to .0035 inch broad, amphigenous, numerous, occupying the whole leaf, black; spores very minute, spermatoid, .00012 inch long, .00004 broad, sometimes oozing out and forming a white globule.

Dead leaves of *Smilacina racemosa*. Conklingville. September.

This is a very anomalous species. But for the very short minute spores, it would accord better with *Septoria* than *Phyllosticta*.

PHYLLOSTICTA FATISCENS, N. sp.

Spots rather large, suborbicular, pallid, generally marked by one or more elevated concentric lines, at length cracking around the margin and separating, wholly or in part, from the uninjured tissues of the leaf; perithecia minute, .004 inch broad, epiphyllous,

at first pale, then brownish; spores oblong, straight or slightly curved, .00025 to .0004 inch long, .00012 to .00016 broad.

Living leaves of yellow pond lily, *Nuphar advena*. Argusville, Schoharie county. July.

PHYLLOSTICTA SYMPHORICARPI, West.

Living leaves of snowberry, *Symphoricarpus racemosus*. Canajoharie, Montgomery county. July.

PHOMA MAGNIFRUCTA, N. sp.

Perithecia small, .005 to .007 inch broad, scattered, subglobose, erumpent, black; spores oblong-fusiform, .0009 to .0012 inch long, .0003 to .0004 broad; sporophores short.

Cone scales of arbor vitæ, *Thuja occidentalis*. Keene, Essex county. June.

This species is readily distinguished from others inhabiting cone scales by its large spores.

PHOMA LEGUMINUM, West.

Legumes of locust, *Robinia pseudacacia*. Piffard. August.

PHOMA OLERACEA, Sacc v. DIPSACI Sacc.

Dead stems of teasel, *Dipsacus sylvestris*. Wallington, Wayne county. September.

PHOMA EUPYRENA, Sacc.

Dead potato stems. Menands. October.

PHOMA POPULI, N. sp.

Perithecia minute, .003 to .004 inch broad, epiphyllous, gregarious, black, opening by a large pore; spores cylindrical, straight or slightly curved, .0006 to .0008 inch long, .00012 broad.

Dead leaves of poplar, *Populus tremuloides*. Elizabethtown. September.

PHOMA HERBARUM, West.

Dead stems of wormwood, *Artemisia vulgaris*. Port Henry. June.

PHOMA CASTANEA, N. sp.

Perithecia numerous, surrounding the branch, .011 to .014 inch broad, erumpent, black; spores minute, oblong or cylindrical, .00025 to .0003 inch long, .00006 to .00008 broad; sporophores short.

Dead branches of chestnut, *Castanea vesca*. Sandlake. May.

AOSPHÆRIA CONICA, Sacc.

Decaying oak wood. Piffard. August.

CYTOSPORA GRANDIS, N. sp.

Pustules large, two to three lines broad, ellipsoid or suborbicular, scar-like, ferruginous from the ruptured bark; loculi numerous; spores minute, curved, .0002 inch long.

Dead bark of sumach, *Rhus typhina*. Gansevoort. September.

HAPLOSPORELLA PINI, N. sp.

Perithecia valsoid, cæspitose, three to five in a cluster, sunk in the inner bark, erumpent; spores globose or subelliptical, colored, .0005 to .0006 inch long.

Dead bark of white pine, *Pinus Strobus*. Elizabethtown. June.

DIPLODIA PAUPERCUA, B. & Br.

Dead branches of elder, *Sambucus Canadensis*. Adirondack mountains. June.

DIPLODIA ASPARAGI, N. sp.

Perithecia gregarious, subglobose, minute, opening by a papillate pore, black; spores elliptical, colored, .0008 to .001 inch long, .0005 broad.

Dead stems of asparagus. Menands. October.

STAGONOSPORA CHENOPODII, N. sp.

Spots few, large, brown or yellowish-brown; perithecia minute, .004 to .005 inch broad, black; spores oblong, obtuse, biseptate or triseptate, constricted at the septa, colorless, .0008 to .001 inch long, .0003 to .0004 broad.

Living leaves of goose-foot, *Chenopodium album*. Menands. August.

SEPTORIA STACHYDIS, R. & D.

Living leaves of hedge nettle, *Stachys aspera*. Port Kent. June.

SEPTORIA FUSCA, N. sp.

Spots blackish-brown, indefinite, occupying the lobes of the leaves or their margins; perithecia epiphyllous, black; spores filiform, straight, slightly curved or flexuous, .0016 to .002 inch long.

Living or languishing leaves of wormwood, *Artemisia vulgaris*. Port Henry. June.

It differs from *S. Artemisia* in its indefinite spots and longer spores.

SEPTORIA STELLARIÆ, R. & D.

Living or languishing leaves of chickweed, *Stellaria media*. Aden Lair, Adirondack mountains. June.

SEPTORIA SIBIRICI, Thum.

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

SEPTORIA SOLIDAGINICOLA, N. sp.

Spots small, angular, white or whitish on the upper surface, darker beneath, surrounded by a brown or reddish brown border; perithecia few, usually one or two on a spot, epiphyllous, subglobose, blackish; spores linear, straight, subacute, simple, .001 to .0016 inches long, .00016 broad.

Living leaves of goldenrod, *Solidago arguta*. Cobble hill, near Elizabethtown. September.

Distinguished from *S. Solidaginis* by its longer continuous spores, which are neither septate nor nucleate.

SEPTORIA BREVIS, N. sp.

Spots none; perithecia scattered, epiphyllous, minute, .003 to .004 inch broad, opening widely, black; spores short, .0004 to .0005 inch long, .00006 broad, straight or slightly curved.

Dead leaves of *Solidago Virgaurea* v. *alpina*. Mt. Marcy. June.

Distinct from other species inhabiting solidago, by its very short spores, which resemble somewhat the allantoid spores of species of *Valsa*.

SEPTORIA POPULICOLA, N. sp.

Spots suborbicular, reddish or brownish red with a narrow blackish border on the upper surface, grayish on the lower; perithecia hypophyllous, few, pale, opening widely; spores filiform, curved, two to four-septate, .0025 to .003 inch long .00012 to .00016 broad.

Living leaves of balm of Gilead, *Populus balsamifera*. Keene. June.

Distinguished from other species found on poplar by its long pluriseptate spores. The perithecia are but slightly developed.

SEPTORIA SMILACINÆ, E. & M.

Languishing leaves of *Smilacina racemosa*. Sandlake. September.

PILIDIUM GRAMINICOLA, N. sp.

Perithecia minute, .008 to .014 inch broad, depressed, erumpent, orbicular or hystericiform, membranous, opening widely, black, the disk whitish, the mouth laciniate-dentate; spores oblong or subfusiform, colorless, triseptate, .0012 to .0016 inch long, .0004 to .00045 broad; sporophores short, colorless.

Dead leaves of blue joint, *Calamagrostis Canadensis*. Mount Marcy. June.

GLÆOSPORIUM LINDEMUTHIANUM, Sacc.

Living bean pods, especially of the butter or wax bean. Menands. August.

An injurious fungus that produces brown spots on the pods, thus spoiling their appearance and diminishing their value.

GLÆOSPORIUM SEPTORIOIDES, Sacc.

Living leaves of white oak. *Quercus alba*. Gansevoort. September.

GLÆOSPORIUM ROBERGEI, Desm.

Living leaves of water beech, *Carpinus Americana*. Gansevoort. September.

MELANCONIUM BETULINUM, Schm.

Dead bark of white birch, *Betula populifolia*. Menands. September.

Distinguished from *M. bicolor* by its longer spores.

MELANCONIUM DIMORPHUM, N. sp.

Pustules small, subcutaneous, slightly prominent, subconical, black, containing a small white stroma; spores of two forms, one narrow, cylindrical, straight or curved, .0003 to .0004 inch long, .00008 broad, the other oblong, elliptical or subfusiform, colored, .0004 to .0005 inch long, .0002 to .00025 broad, oozing out in a black mass or in tendrils.

Dead branches of alder, *Alnus viridis*. Adirondack mountains. June.

Remarkable for the two kinds of spores. In some pustules the broader spores are more numerous, in others the narrower ones, but both kinds were found in all the pustules examined. Can the narrow ones be broken or effete sporophores?

MARSONIA POPULI, Sacc.

Living leaves of *Populus monilifera*. Menands. July.

CORYNEUM TUMORICOLA, N. sp.

Spots scattered, suborbicular, pallid with a reddish-brown border, apparently produced by insects; heaps epiphyllous, minute, dot-like, unequal, black; spores oblong, triseptate, colored, .0004 to .0005 inch long, .00016 broad, at length breaking from the sporophores.

Living leaves of elm, *Ulmus Americana*. Adirondack mountains. July. The spots in this instance, as in that of *Phyllosticta tumoricola*, appear to be due to the stings of insects. A central aperture or puncture is visible in the spots and the fungus occurs on only a part of them.

SCOLECOSPORIUM FAGI, Lib.

Dead branches of alder, *Alnus incana*. Elizabethtown. September.

The typical form occurs on beech, but I find no essential differences in the form on alder. *Massaria macrosperma*, the ascigerous form has not yet been observed with us.

PESTALOZZIA JEFFERISII, Ellis.

Leaves of wild grape, *Vitis riparia*. Gansevoort. September.

The fungus occurs on spots which are apparently produced by a sterile *Rhytisma*.

MONILIA MARTINI, E. & S.

Old corn cobs. Menands. September.

MONILIA CINEREA, Bon.

On plums. Sandlake. Closely related to *Monilia fructigena*, with which the species has been united by some authors.

RAMULARIA BARBAREÆ, N. sp.

Spots suborbicular, arid, white, generally bordered by a slightly thickened brown line; flocci amphigenous, either short and branched or longer and simple; spores oblong or cylindrical, often catenulate, rarely uniseptate, .0004 to .0009 inch long, .00012 to .00016 broad.

Living leaves of winter cress, *Barbarea vulgaris*. Highland Mills and Port Henry. June.

This species is closely related to *R. Armoraciæ*, from which it may be distinguished by the whiter mostly margined spots, the shorter hyphæ and the catenulate spores.

CONIOSPORIUM PUNCTOIDEUM, Karst.

Decorticated wood of arbor vitæ, *Thuja occidentalis*. Adirondack mountains. June.

CLADOSPORIUM APHIDES, Thum.

Dead aphides of *Phragmites communis*. Bergen Swamp. June.

CLADOSPORIUM ASPARAGI, Fr.

Dead stems of asparagus. Menands. October.

CLADOSPORIUM BREVIPES, N. sp.

Spots suborbicular, cinereous; flocci densely cæspitose, short, .001 to .0015 inch long, dark olivaceous, almost black in the mass, amphigenous, septate; spores terminal, elliptical, .0005 to .0006 inch long, .0003 to .0004 broad.

Living leaves of white oak, *Quercus alba*. Menands. July. This species forms minute compact tufts, so distinct and well defined that they might easily be mistaken for perithecia.

CLADOSPORIUM LETIFERUM, N. sp.

Spots dark brown, irregular, large, often involving the whole leaf; tufts epiphyllous, subeffused, olive green, the hyphæ very short, almost obsolete; spores oblong-pyriform, uniseptate or biseptate, slightly constricted at the septa, .0008 to .0012 inch long, .0003 broad.

Living leaves of poplar, *Populus tremuloides*. Keene. June.

This fungus often kills the leaves it attacks. When the spores have a single septum the two cells are unequal; when they have two septa the middle cell is generally larger than the terminal ones. The species differs from *C. Asteroma* in the shape and character of the spores and in its more effused habit.

CERCOSPORA ACETOSELLÆ, Ellis.

Living leaves of yellow dock, *Rumex crispus*. Elizabethtown. September.

Our specimens differ slightly from the type and may be designated variety *maculosa*. Spots numerous, small, suborbicular, grayish,

surrounded by an elevated margin and a brownish-red border ; spores at length with one or two septa.

MACROSPORIUM TOMATO, Cke.

Decaying fruit of tomato. Menands. October.

PILACRE ORIENTALIS, B. & Br.

Dead bark of alders, *Alnus incana*. Elizabethtown. September.

In our specimens the sporiferous branches are sometimes elongated and flexuous and the young plant wholly white, in which respects they differ from the typical form of the species. But the stem soon becomes cinereous and finally the whole plant is umber-brown. Young plants sometimes grow from the base of old ones, sometimes from the head.

GRAPHIUM SORBI, N. sp.

Spots generally small, one to two lines broad, orbicular, definite, reddish-brown ; stems hypophyllous, rather stout, equal or slightly tapering upward, the component flocci diverging and colorless at the apex ; spores oblong, hyaline, .0008 to .001 inch long, .00025 to .0008 broad, sometimes with two to four minute nuclei.

Living leaves of mountain ash, *Pyrus Americana*. Adirondack mountains. July.

ISARIOPSIS ALBOROSELLA, Sacc.

Living or languishing leaves of chickweed, *Cerastium vulgatum*. Keene. July.

I find only uniseptate spores in our specimens.

FUSARIUM LYCOPERSICI, Sacc.

Fruit of the tomato. Menands. August.

A malady affects the fruit of the tomato. In the vicinity of Albany, the past season, the first ripening tomatoes were found almost invariably to be soft and decaying. A brown or discolored spot, usually located at the flowering end of the fruit, appears to be the origin and center of the disease. This spot often makes its appearance while the fruit is yet green. This *Fusarium* soon develops on this spot, appearing in the form of minute pallid dots, or in more effused patches which are of a pinkish or an orange hue. With advancing age it assumes a more or less brownish hue. If the affected tomato be cut open its inner flesh often exhibits a

peculiar purplish tint. In a short time the white flocculent threads of the fungus appear on the cut surface, soon to be followed by the more waxy and colored patches of spores, thus showing that the mycelium has permeated the diseased flesh of the tomato. The affected tomatoes become very watery and any surface on which a diseased tomato lies, soon becomes wet from the exuding juices. From the constancy with which this fungus appears in connection with the disease, it would appear that it might be regarded as the cause of the decay, but there are circumstances that point to some more subtle agent of the mischief. Further investigation is necessary to determine satisfactorily the source of the disease.

PEZIZA TRUNCICOMES, Ger.

Decaying prostrate trunks of deciduous trees. Knowersville, Albany county. May.

PEZIZA ALBOVIOLASCENS, A. & S.

Old chestnut rails. Conklingville. September.

HELOTIUM EPISPHERICUM, N. sp.

Receptacle minute, .012 to .02 inch broad, gregarious, sessile, at first subhyaline, then reddish-yellow, the disk nearly plane, asci subcylindrical; spores oblong or lanceolate, .0002 to .00025 inch long, .0001 to .00012 broad.

On old *Hypoxylon Morsei*. Elizabethtown. September.

It resembles *H. citrinum* in habit, but is very much smaller.

ASCOMYCES LETIFER, N. sp.

Indefinite, hypophyllous, often occupying the whole lower surface of the leaf and suffusing it with a glaucous bloom; asci cylindrical, obtuse or subtruncate, .0016 to .002 inch long, .0006 to .0008 broad; spores minute, varying from narrowly elliptical to subglobose, .00016 to .0002 inch long, .00008 to .00012 broad.

Living leaves of mountain maple bush, *Acer spicatum*. Elizabethtown. June.

The species is very distinct from *A. polysporus*, which forms definite spots. The attacked leaves soon turn black, wither and die. Sometimes all the leaves on a branch are affected and the fungus then causes a veritable blight.

ASCOMYCES RUBROBRUNNEUS, N. sp.

Spots definite, variable, small and suborbicular or large and irregular, sometimes confluent, usually concave above, convex below, dull reddish-brown above, paler below; asci oblong, truncate at the apex, .002 to .003 inch long, .0006 to .0009 broad; spores minute, subelliptical, .00012 to .00016 inch long, .0006 to .0008 broad.

Living leaves of red oak, *Quercus rubra*. Sandlake. September.

In some respects this approaches *A. alutarius*, from which the color of the spots, larger asci and different shape of the spores will distinguish it.

ERYSIPHE HORRIDULA, Lev.

Abundant on corn gromwell, *Lithospermum arvense*. Port Henry. June.

Our specimens were too young when collected to show the spore characters, and are to this extent doubtful.

CALOSPHERIA CILIATULA, Karst.

Dead trunks and branches of white birch, *Betula populifolia*. Menands. September.

VALSA THUJÆ, N. sp.

Pustules scattered, slightly prominent, closely covered by the epidermis; perithecia nestling in the inner bark, subcircinate, five to ten in a pustule; asci oblong-clavate, .0014 to .0016 inch long; spores allantoid, .0004 to .0005 inch long, .00008 to .0001 broad.

Dead branches of arbor vitæ, *Thuja occidentalis*. Elizabethtown. September.

VALSA EXUDANS, N. sp.

Perithecia collected in a cortical stroma, thin, crowded, angular, closely covered by the pustulately elevated, irregularly ruptured epidermis, ostiola obscure or concealed beneath the defiled epidermis; asci very slender, cylindrical, .0016 inch long, .00016 broad; spores minute, oblong, straight, colored, .0002 inch long, oozing out and staining the surface of the matrix.

Dead bark of alders, *Alnus incana*. Elizabethtown. September.

This is an anomalous species and does not agree well with the generic characters. The straight, colored and oozing spores are unusual and peculiar features.

VALSELLA ADHERENS, Fckl.

Corticated trunk and branches of white birch, *Betula populifolia*. Sandlake. September.

In our plant the disk is often whitish or grayish from the adhering remains of the epidermis; the perithecia are five to twelve in a pustule and the spores are colored in the mass. It is apparently a variety of the species and may be called var. *Americana*.

VALSELLA LASCHII, Sacc.

Dead whitened twigs of *Acer spicatum*. Port Henry. June.

In our specimens the black stroma is apparent through the translucent epidermis, and the white disk, though small, is plainly seen by contrast. The asci are very broad, .0016 to .002 inch long, .0005 to .0006 broad. This form may be designated var. *acerina*.

DIATRYPELLA QUERCINA, Nits.

Dead branches of thorn, *Crataegus tomentosa*. Elizabethtown. September.

Although occurring on thorn branches, there does not appear to be any good characters for separating this fungus from the species to which I have referred it.

SPHÆRELLA MINUTISSIMA, N. sp.

Perithecia very numerous, occupying the whole lower surface of the leaf, very minute, .002 to .0025 inch broad, veiled by the epidermis, black; asci oblong or slightly narrowed toward the apex, .0016 to .002 inch long, .0003 to .0004 broad; spores crowded, oblong, straight, obscurely septate in the middle, .0006 to .0007 inch long, .00016 broad.

Dead leaves of alder, *Alnus incana*. Adirondack mountains. June.

The perithecia are scarcely visible to the naked eye. The affected leaves remain on the branches through the winter. They had not yet fallen in June.

SPHÆRELLA ANLICOLA, N. sp.

Perithecia small, .0035 to .0045 inch broad, hypophyllous, clustered or scattered, naked, black; asci oblong or subclavate, .002 to .0025 inch long, .0005 to .0006 broad; spores crowded, lanceolate,

uniseptate, often slightly curved, .0009 to .0011 inch long, .00016 broad.

Dead leaves of alder, *Alnus viridis*. Mt. Marcy. June. The spores are narrowed toward one end and septate in the middle. The species is evidently distinct from *S. Alni viridis* in its larger exposed perithecia, in the shape of its spores and in wanting a dematiaceous stroma. Apparently the same species was found near Elizabethtown, but without fruit.

SPHÆRELLA PONTEDERLÆ, N. sp.

Spots rather large, six to ten lines long, oblong or elliptical, sometimes confluent, brown above, blackish brown or grayish brown below; perithecia minute, .003 inch broad, hypophyllous, black; asci oblong or subfusiform, .002 to .0025 inch long, .0005 broad; spores crowded or biseriate, oblong-clavate, uniseptate, sometimes quadrinucleate, .0006 to .0008 inch long, .0002 to .00025 broad.

Languishing leaves of pickerel weed, *Pontederia cordata*. Whitehall, Washington county. September.

Apparently related to *S. Caladii*, but with longer spores and different spots.

SPHÆRELLA PINSAPO, Thum.

Fallen leaves of arbor-vitæ. Port Henry. June.

DIAPORTHE SULPHUREA, Fckl.

Dead stems and branches of hazelnut, *Corylus rostrata*. Gansevoort. September.

This species is easily recognized by the beautiful yellow spurious stroma that extends everywhere under the epidermis of the affected branches.

DIAPORTHE (CHOROSTATE) FARINOSA, N. sp.

Stroma somewhat pulverulent or mealy, dull buff color, formed of the slightly changed inner bark, erumpent in a minute slightly exserted disk; perithecia valsoid, irregularly circinating, generally four to ten in a circle, the clusters subconfluent, ostiola black, dotting the prominent pulverulent buff colored or at length brownish disk; asci subcylindrical, .0024 to .003 inch long, .00035 to .0004 broad; spores crowded or biseriate, oblong or subfusiform, uniseptate, generally quadrinucleate, .0006 to .0008 inch long, .00016 to .0002 broad.

Dead branches of basswood, *Tilia Americana*. Argusville. July.

This species approaches *D. furfuracea* in its pulverulent stroma, but it differs in its prominent disk, which renders the affected branches rough to the touch, and in its smaller quadri-nucleate crowded or biseriate spores. From *D. velata* it is easily separated by the entire absence of any black circumscribing line or blackened surface. It evidently belongs to the subgenus *Chorostate*, but the clusters of perithecia are so numerous and so closely and almost confluent placed that they form an almost continuous stratum which surrounds the branch and extends long distances under the epidermis.

MELANCONIELLA DECORAHENSIS, Ellis.

Dead bark of white birch, *Betula populifolia*. Gansevoort. September.

In the typical form the disk is described as "sordid gray." In our specimens, both it and the stroma are yellowish green and pulverulent. On the smaller branches the disk is smaller and the ostiola are less prominent than on the larger ones. When the epidermis is torn away the perithecia adhere to it. The young spores are colorless and subacute at each end. The mature ones are colored; obtuse and constricted at the septum.

The conidia ooze out and form orbicular black patches one to two lines broad. These are very conspicuous by reason of the contrast between their color and the white color of the matrix.

VALSARIA NIESSLII, Sacc.

Dead bark of white birch, *Betula populifolia*. Menands. September.

LEPTOSPHERIA ASPARAGI, N. sp.

Perithecia broadly conical, .01 to .014 inch broad, at first covered by the pierced epidermis, then naked, black; asci clavate or cylindrical, short pedicellate, .003 to .004 inch long, .00045 to .0006 broad; spores oblong or subfusiform, crowded, .0008 to .0012 inch long, .0003 broad, at first colorless and triseptate, then slightly colored and five-septate, constricted at the septa.

Dead stems of asparagus. Menands. October.

MASSARIA PYRI, Otth.

Bark of pear and apple trees. Albany. May.

PLEOSPORA SHEPHERDLÆ, N. sp.

Perithecia scattered, small, .014 to .018 inch broad, covered by the epidermis, erumpent, black; asci cylindrical, .006 to .008 inch long, .0006 broad; spores uniseriate, oblong, generally triseptate, rarely five-septate, with one or two longitudinal septa, constricted in the middle, colored, .0008 to .001 inch long, .0003 to .0004 broad.

Dead branches of *Shepherdia Canadensis*. Port Henry. June.

DOTHIDELLA ALNI, N. sp.

Stroma orbicular, one to three lines broad, thin, convex and black above, concave, brown or grayish-black and papillosely rugulose below; asci cylindrical; spores ovate-elliptical, obscurely uniseptate near one end, colorless, .0006 to .0008 inch long, .0003 to .00035 broad.

Dead leaves of *Alnus viridis*. Mt Marcy. June.

The spores are very unequally divided, the smaller cell appearing like an umbo.

LOPHIOTREMA VESTITA, N. sp.

Perithecia closely gregarious, small, .014 to .02 inch broad, sunk in the wood, erumpent, conical, clothed with a slight tawny-ferruginous pulverulent tomentum, ostiola naked, black, subterete or compressed; asci clavate, .006 to .007 inch long, .0006 to .0007 broad; spores crowded, subfusiform, at first biconic and uniseptate, then triseptate or quadrinucleate, constricted in the middle, colorless, .0012 to .0016 inch long, .0003 to .0004 broad.

Decorticated wood of poplar, *Populus tremuloides*. Gansevoort. September.

Readily distinguished by the tawny, pulverulent tomentum of the perithecia.

LOPHIOTREMA PARASITICA, N. sp.

Perithecia crowded, subsuperficial, .014 to .02 inch broad, clothed with a minute subcervine pulverulent tomentum, becoming blackish-brown with age, the ostiola prominent, subterete or compressed, clothed like the perithecia; asci subclavate, .005 to .006 inch long, .0006 to .0007 broad; spores crowded, at first biconic, then triseptate, constricted in the middle, colorless, .0012 to .0016 inch long, .0003 broad.

On old *Hypoxylon Morsei*. Elizabethtown. September.

This and the preceding species appear to be peculiar by reason of the pulverulent tomentum of the perithecia. They would seem to constitute a distinct section of the genus.

(D.)

NOTES AND OBSERVATIONS.

THALICTRUM PURPURASCENS, L.

A singular *Thalictrum* was found on the shore of Lake Champlain, near Port Henry. Its leaves were thin and delicate, quite small, and five to seven-lobed, resembling those of *Thalictrum dioicum*. Some had a general petiole, others had none. The flowers were almost dioecious, the anthers resembling those of *Thalictrum purpurascens*, though perhaps they were a little more slender and more strongly mucronate. The plants had the general aspect of *T. purpurascens*, except the leaves, which resembled more those of *T. dioicum*. *T. dioicum* in the same locality was past flowering, it being now the middle of June, and had developed its fruit to full size. Whether this plant is a hybrid between *T. dioicum* and *T. purpurascens*, or a variety of the latter, or a distinct species, is the question to be solved. Similar forms have been regarded by Prof. Trelease as hybrids.

NASTURTIUM LACUSTRE, Gr.

Black creek, near Bergen.

ARABIS DRUMMONDII, Gr.

Port Henry. A form with spreading pods.

GEUM RIVALE, L.

A form with pale yellow or cream-colored flowers was collected in the Adirondack mountains. It is not rare in that locality.

RIBES CYNOSBATI, L.

A very lax form of this plant occurs at Cascadeville, in the Adirondack mountains. The branches are long and slender, and the flowers are much scattered and very long pedicelled. It is associated in this locality with *Ribes rotundifolium*, *R. lacustre* and *R. prostratum*. All were in flower at the same time. The last species occurs abundantly at Lower Ausable pond, where

nearly all the young fruit of a large patch was found infested by *Sphærotheca Mors-uvæ* Schw., which fungus is probably a mere variety of *Sphærotheca pannosa* Lev.

ASTER SAGITTIFOLIUS, Willd.

This fine aster has not hitherto been represented in the herbarium. It is recorded in the New York State Flora as a rare plant in New York. Fine specimens were found near Piffard, Livingston county, and it occurs in great abundance along the railroad between that place and Rochester.

ASTER ACUMINATUS, Mx.

Glen Cove, Long Island. *J. A. Bisky*. A very noticeable station for this mountain-loving plant.

SOLIDAGO ULIGINOSA, Nutt.

Bergen swamp. A very slender form, with unusually narrow and entire leaves, and a rather short panicle, sometimes slightly recurved.

SYMPHORICARPUS RACEMOSUS, Mx.

Near Canajoharie. The variety *pauciflorus* in rocky places, near Port Henry.

POLYGONUM TENUE, Mx.

Summit of Cobble hill, near Elizabethtown.

SALIX CANDIDA, Willd.

Occurs sparingly near Guilderland Station. *H. C. Gordinier*.

ABIES ALBA, Mx.

Newcomb, Essex county. It also occurs in North Elba, but in all the localities observed by me the trees were growing in cleared land, and had evidently sprung up since the forests were cut.

ORCHIS SPECTABILIS, L.

A form with white flowers. Schaghticoke. *H. C. Gordinier*. Mr. H. L. Griffis also sends a white-flowered form of the flowering wintergreen, *Polygala paucifolia*, from Binghamton.

CLINTONIA BOREALIS, Raf.

This plant grows almost everywhere in the Adirondack mountains, and in some places it is exceedingly thrifty and vigorous.

It is not uncommon to find plants with one or even two lateral umbels in addition to the terminal one. The number of flowers in the lateral umbels is generally less than the number in the terminal umbel of the same plant, and when there are three umbels the lowest one has the smallest number of flowers. They vary usually from three to six in the lateral umbels. In one specimen there were six flowers in the lateral and twelve in the terminal umbel. One plant had five large leaves.

SCLERIA VERTICILLATA, Muhl.

A small form with but three clusters of flowers is common in Bergen swamp.

CAREX ALOPECOIDEA, Tuckerm.

This species is rare in the eastern part of the State. It occurs near Lansingburgh. *E. C. Howe* and *H. C. Gordinier*.

CAREX FLAVA, L.

An extremely variable species, even in the same locality and apparently surrounded by the same circumstances and influences. At Hewitt's pond in the Adirondack mountains, specimens were collected which were but four or five inches high and which bore but a single small fertile spike each. Near these, others were found which were fifteen or sixteen inches high and bore five fertile spikes each. Another form, intermediate in size, had three fertile spikes, two approximate and a lower distinct one.

CAREX LONGIROSTRIS, Torr.

Rocky places. Keene. A rare species with us.

ALOPECURUS GENICULATUS, L.

Green Island. *H. C. Gordinier*. Lansingburgh. *E. C. Howe*.

These specimens are nearly erect, not geniculate at the base. On the other hand specimens of *Alopecurus pratensis*, a species described as erect, were collected by myself near Albany, in which the stems were decidedly geniculate at the base, thus exactly reversing this character as given in the descriptions.

AGROSTIS VULGARIS, With.

A form with very many of the flowers developed into leafy buds. Hewitts pond.

PANICUM CRUS-GALLI, L.

The form with dense panicles of awnless flowers is common in wet places about Warsaw, Wyoming county.

BOTRYCHIUM LANCEOLATUM, Angst.

Cascadeville, Adirondack mountains. June.

OMPHALIA UMBELLIFERA, L.

Not rare in the Adirondack mountains. Variety *abiegnus* grows on soft decayed wood of coniferous trees, and has a pale yellow pileus. Variety *alpinus* grows among mosses and on muck soil composed of decomposed vegetable matter. It usually occurs at high altitudes. It was plentiful in June on the summit of Mt. Marcy. In it the pileus and lamellæ are bright yellow.

PHOLIOTA MYCENOIDES, Fr.

In thin woods at Conklingville a form was found having the pileus rugose.

LENZITES SEPIARIA, Fr.

A resupinate form, var. *dentifera*, occurs on spruce in the Adirondack mountains, in which form the lamellæ anastomose, and are more or less toothed or lacerated, resembling an *Irpex* more than a *Lenzites*.

POLYPORUS VOLVATUS, Pk.

This singular species develops in May and June in the Adirondack mountains. When young it is slightly viscid. It is especially subject to the attacks of insects. In July most of the specimens will be found to be infested by them.

CREPIDOTUS HÆRENS, Pk.

Fine specimens of this rare species were found on ash and butternut near Sprakers. The pileus is sometimes slightly floccose-squamulose. The tough viscid pellicle is separable, and in drying the moisture disappears from the disk first, from the thin margin last.

HYDNUM GRAVEOLENS, Delast.

A singular *Hydnum* was found at Elizabethtown, in which the pileus was very uneven and everywhere coated with a whitish villosity or tomentum. It has the peculiar odor of *H. graveolens*, to which species we have referred it as variety *inequale*.

PHLEBIA RADIATA, Fr.

Dead bark of wild bird cherry, *Prunus Pennsylvanica*. Conklingville. September. A thin cream-colored form corresponding nearly to variety *pallida* Fr. It sometimes forms extensive patches by the confluence of many individuals.

ODONTIA FIMBRIATA, Pers.

Decaying wood of poplar. Conklingville. September. A form with the subiculum thicker than usual and finely rimose. Variety *rimosa*.

PENIOPHORA NEGLECTA, Pk.

A wholly resupinate form occurs on red maple, *Acer rubrum*. Bergen.

CORTICIUM MARTIANUM, B. & C.

When well developed this is a highly colored and very showy species. At first a small orbicular tuft of strigose radiating hairs appears. The center of the tuft soon assume a reddish tint, which again changes to bright-red or scarlet and becomes waxy. The hymenium is now covered with irregular rugæ or folds giving the plant the appearance of some species of *Phlebia*. With advancing age the hymenium loses its brilliancy and becomes tinged with brownish, grayish or olivaceous tints, but the margin retains for a longer time its bright-red color, which fades to gray on the extreme fimbriate edge. The mycelium is yellowish. Metuloids have been seen in some specimens, but they are rare.

SPHÆROPSIS MALORUM, Pk.

This has occurred on leaves of apple trees, but in this case with perithecia rather smaller than in the type.

MARSONIA JUGLANDIS, Sacc.

The species is quite variable, being both hypophyllous and epiphyllous, and occurring on small or large spots and with few or many nuclei.

SEPTOCYLINDRIUM RANUNCULI, Pk.

This has occurred on radical leaves of *Ranunculus abortivus*. Helderberg mountains. May.

RAMULARIA PLANTAGINIS, E. & M.

Variety *nigromaculans* Pk. Spots with a small grayish center and a broad blackish or blackish-brown margin. The fungus occurs on this blackish margin. Menands. October.

PERONOSPORA GANGLIFORMIS, De By.

Living leaves of *Souchus asper*. Warsaw.

PEZICULA ACERICOLA, Pk.

Variety *gregaria* Pk. Receptacles small, gregarious. Bark of red maple, *Acer rubrum*. Karner. September.

RHYTISMA SALICINUM, Fr.

Fallen leaves of *Salix Cutleri*. Mt. Marcy. June. Fertile specimens.



FORTY-FIRST ANNUAL REPORT

OF THE

TRUSTEES

OF THE

State Museum of Natural History

FOR THE YEAR 1887.

TRANSMITTED TO THE LEGISLATURE MAY 7, 1888.

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1888.



REPORT OF THE BOTANIST.

7

for 1867



REPORT OF THE BOTANIST.

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

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

In the prosecution of the work of completing and arranging the State Herbarium the past year, specimens of the plants of the State have been collected in the counties of Albany, Greene, Lewis, Oneida, Oswego, Rensselaer, Saratoga and Ulster. Specimens have also been contributed which were collected in the counties of Broome, Cayuga, Kings, Orleans, Rensselaer and Wayne. Specimens of one hundred and seventy species of plants have been added to the herbarium, of which twenty-seven were contributed by correspondents and one hundred and forty-three were collected by the botanist. Of those collected by the botanist, one hundred and five species are new to the herbarium and to the State flora. Among the added species are twenty-six flowering plants, some of which are introduced and possibly may not be sufficiently abundant and well-established to be properly considered a part of our flora, but all were found growing without cultivation and it was thought best to place the fact on record. A list of the added species is appended and is marked A.

The number of correspondents who have contributed specimens is seventeen. The contributed specimens of extralimital species are not included in the foregoing enumeration. A list of the names of the contributors, and of their respective contributions, is marked B.

In the eastern part of the State, the months of July, August and September were unusually favorable to the production of fleshy fungi, the Hymenomycetes, and special attention was given to the collection of these plants. They constitute a large percentage of the added species and among them are many that are considered new to science. In consequence of their evanescent colors, painted

sketches were made of most of the new species while the plants were yet fresh. A record of the added species, together with descriptions of the new ones, is marked C.

Remarks concerning species previously known to belong to our flora and descriptions of new varieties are recorded in a chapter marked D.

The botanical reports have now become so numerous that an index to them is greatly needed, in order to facilitate reference to them and save time in consulting them. I have, therefore, prepared an index of the genera and species recorded in reports twenty-two to thirty-eight, inclusive. It is alphabetically arranged and is marked F.

Beaver dam is a body of water near to and connected with Beaver lake, in the eastern part of Lewis county. It was reported to me that the red-flowered variety of the white water lily, *Nymphaea odorata*, had been seen growing there. Wishing to obtain specimens of this interesting form, the locality was visited, but only the same form that was found last year in Mud pond was detected here. The external petals are tinged with red but the inner ones are white. The full red-flowered variety is yet a desideratum. There was found, however, in Beaver lake inlet, locally called "The Slough," a scarcely less interesting form of this plant. It has the very large flowers and leaves of the tuberous water lily, *Nymphaea tuberosa*, and yet the very distinct and pleasant fragrance of the white water lily. It is interesting, scientifically, because it tends to support the views of those botanists who consider these plants as mere forms of one species.

A form of the northern or Canadian blueberry, *Vaccinium Canadense*, in which the fruit is jet black and shining, was observed growing plentifully in the cleared land and pastures near Beaver lake. Thus, it happens that each one of our four common blueberries, which contribute to supply our markets with this excellent fruit, has its black-fruited variety, notwithstanding the general application of the name "blueberries." This variation is interesting and worthy of notice, because it indicates a tendency in these plants to vary in a part in which variation may be made the basis of useful improvement under proper treatment and culture. The fruit is the useful part of these plants and variation in it indicates capability of improvement in this direction. A similar variation has also been observed in the fruit of the black huckle-

berry, *Gaylussacia resinosa*. In it the fruit is commonly dull black without any bloom, but in the variety it is of a shining jet black and is readily distinguishable from the ordinary form. Dishonest berry pickers sometimes take advantage of the similarity in size and shape between this huckleberry and the black-fruited variety of the chokeberry, *Pyrus arbutifolia*. They mix the two fruits and the fraud is not likely to be detected till the taste reveals it. The flavor of large quantities of canned berries is sometimes spoiled by this reprehensible practice.

Mr. P. H. Dudley, civil engineer of the N. Y. C. and H. R. railroad, has, at my request, communicated to me some of the results of his investigations of the fungi destructive to wood. This is of such great practical importance that I have added a copy of his communication to this report. It is marked E.

Very respectfully submitted.

CHAS. H. PECK.

ALBANY, December 6, 1887.

(A.)

PLANTS ADDED TO THE HERBARIUM.

New to the Herbarium.

- Ranunculus septentrionalis* Poir.
Brassica campestris L.
Lunaria biennis L.
Dianthus barbatus L.
Levisticum officinale Koch.
Valerianella olitoria Poll.
Aster junceus Ait.
Phlox maculata L.
Myosotis arvensis Hoffm.
M. collina Hoffm.
Cuscuta tenuiflora Engelm.
Physalis lanceolata Mx.
Nepeta grandiflora Bieb.
Plantago Media L.
Aristolochia Clematitis L.
Euphorbia Esula L.
Salix amygdaloides Ander.
Potamogeton Spirillum Tuckm.
P. Zizii M. & K.
P. Hillii Morong.
P. marina L.
Eleocharis diandra Wright.
Panicum nervosum Muhl.
Deyeuxia Porteri Vasey.
Eatonia Dudleyi Vasey.
Bromus arvensis L.
Lepiota granosa Morg.
L. arenicola Pk.
Tricholoma resplendens Fr.
T. Columbetta Fr.
T. intermedium Pk.
T. terriferum Pk.
T. tricolor Pk.
T. fuligineum Pk.
T. putidum Fr.
Clitocybe subsimilis Pk.
C. cæspitosa Pk.
C. sulphurea Pk.
C. tortilis Bolt.
Collybia scorzonerea Batsch.
C. hariolorum D. C.
C. strictipes Pk.
C. alba Pk.
Omphalia subgrisea Pk.
Mycena capillaripes Pk.
M. crystallina Pk.
Entoloma sericeum Bull.
E. flavoviride Pk.
Clitopilus erythrosporus Pk.
C. conissans Pk.
C. cæspitosus Pk.
Pholiota minima Pk.
Inocybe fibrillosa Pk.
I. subfulva Pk.
I. violaceifolia Pk.
I. asterospora Quel.
I. margarisporea Berk.
I. commixta Bres.
Inocybe agglutinata Pk.
I. nigridisca Pk.
I. vatricosa Fr.
Hebeloma crustuliniforme Bull.
H. longicaudum Pers.
Flammula lubrica Fr.
F. subfulva Pk.
Naucoria paludosa Pk.
N. unicolor Pk.
N. triscopoda Fr.
N. carpophila Fr.
Galera inculta Pk.
Agaricus comptulus Fr.
Stropharia albocyanea Desm.
Psilocybe clivensis B. & Br.
P. senex Pk.
Deconica subviscida Pk.
Psathyrella minima Pk.
Cortinarius balteatus Fr.
C. pluvius Fr.
C. muscigenus Pk.
C. brevipes Pk.
C. brevissimus Pk.
C. albidifolius Pk.
C. spilomeus Fr.
C. flavifolius Pk.
C. griseus Pk.
C. badius Pk.
C. subflexipes Pk.
C. paleaceus Fr.
C. rigidus Fr.
Hygrophorus Lauræ Morg.
Lactarius aspideus Fr.
L. maculatus Pk.
Russula lepida Fr.
R. adulterina Fr.
R. atropurpurea Pk.
Boletus speciosus Frost.
B. auriflammeus B. & C.
B. purpureus Fr.
B. hemichrysus, B. & C.
B. glabellus Pk.
B. variipes Pk.
B. indecisus Pk.
B. albellus Pk.
Polyporus flavovirens B. & R.
P. rimosus Berk.
P. mutans Pk.
P. pineus Pk.
Merulius Ravenelii Berk.
M. himantioides Fr.
Hydnum fasciatum Pk.
Irpeex nodulosus Pk.
Radulum Pendulum Fr.
Corticium olivaceum Fr.
Clavaria albida Pk.
C. densa Pk.
Geaster Schæfferi Vitt.

Geaster vittatus Kalchb.
Sphæropsis carpinea S. & Br.
Cercospora Gentiana Pk.

Oöspora Cucumeris Pk.
Sporendonema myophilum Sacc.
Zygodemus violaceofuscus Sacc.

Not new to the Herbarium.

Nelumbium luteum Willd.
Nymphæa odorata Ait.
Stellaria longifolia Muhl.
Vicia sativa L.
Fragaria Virginiana Duchesne.
Rubus villosus Ait.
Galium circaezans Mx.
G. trifidum L.
Aster diffusus Ait.
A. Tradescanti L.
Erigeron annuus Pers.
Solidago rugosa Mill.
Gaylussacia resinosa T. & G.
Fraxinus viridis Mx.
Asclepias tuberosa L.
Symphytum officinale L.
Myosotis palustris With.
Epiphegus Virginiana Bart.
Juncus acuminatus Mx.
J. marginatus Rost.
J. Canadensis Gay.
J. tenuis Willd.
Cyperus filiculmis Vahl.

Scirpus polyphyllus Vahl.
S. Torreyi Olney.
Eragrostis capillaris L.
Panicum clandestinum L.
Botrychium lanceolatum Angst.
Amanita phalloides Fr.
A. rubescens Fr.
Lepiota granulosa Batsch.
L. illinita Fr.
Tricholoma Peckii Howe.
T. vaccinum Pers.
T. fumosoluteum Pk.
Clitocybe nebularis Batsch.
C. laccata Scop.
Collybia lentinoides Pk.
Clitopilus prunulus Scop.
Inocybe rimosa Bull.
Marasmius præacutus Ellis.
M. salignus Pk.
Hygrophorus pratensis Fr.
Clavaria stricta Pers.
C. crispula Fr.
C. pistillaris L.

(B.)

CONTRIBUTORS AND THEIR CONTRIBUTIONS.

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

Lunaria biennis L.
Fragaria Virginiana Duch.
Aster junceus Ait.
A. diffusus Ait.
A. Tradescanti L.
Fraxinus viridis Mx.
Myosotis arvensis Hoffm.
M. collina Hoffm.
Cuscuta tenuiflora Engl.
C. epilinum Weihe.
Plantago Media L.

Aristolochia Clematitis L.
Euphorbia Esula L.
Salix amygdaloides And.
Juncus Canadensis Gay.
Potamogeton Zizii M. & K.
P. Spirillus Tuckerm.
P. Hillii Mor.
P. marina L.
Panicum nervosum Muhl.
Deyeuxia Porteri Vasey.
Eatonia Dudleyi Vasey.

Prof. B. D. Halsted, Ames, Iowa.

Sphærotheca lanestris Hark.
Cercospora rosæcola Pass.
Peronospora Claytoniæ Farl.
Puccinia prunispinosæ Pers.

Uromyces Lupini B. & C.
U. Betæ Kuhn.
Æcidium Phaceleæ Peck.

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

Puccinia Malvacearum Mont.
Ustilago antherarum Fr.
Monilia Linhartiana Sacc.
Phragmotrichum Chailletii K. & S.
Exoascus Wiesneri Rathay.

Geoglossum atropurpureum Pers.
Microsphaeria Vaccinii C. & P.
Leptosphaeria Silenes-acaulis De Not.
Dothidea Wittrockii Eriks.

Prof. H. A. Green, Troy, N. Y.

Umbilicaria Muhlenbergii Tuckerm.

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

Polyporus sulphureus *Fr.* | Nidularia pulvinata *Schw.*
Perichæna corticalis *Batsch.* |

E. C. Howe, M. D., Lansingburgh, N. Y.

Eleocharis diandra *Wright.* | Agropyrum caninum *R. & S.*
Bromus arvensis *L.* |

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

Bromus arvensis *L.* | Aristolochia Clematitidis *L.*

Harold Wingate, Philadelphia, Penn.

Orthotricha microcephala *Wing.*

P. H. Dudley, New York.

Lenzites striata *Sw.* | Lentinus Nicaraguensis *B. & C.*
L. abietina *Fr.* | Trametes Pini *Fr.*

W. C. Stevenson, Jr., Philadelphia, Penn.

Lepiota Americana *Peck.*

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

Reticularia Lycoperdon *Bull.*

George T. Fish, Rochester, N. Y.

Nulumbium luteum *Willd.*

H. L. Griffis, Binghamton, N. Y.

Sporendonema myophilum *Sacc.*

A. P. Morgan, Preston, Ohio.

Hydnum casearum *Morg.* | Hydnum alboviride *Morg.*

C. J. Curtis, Lincolnton, N. C.

Fistulina hepatica *Fr.* | Lactarius atroviridis *Pk.*
Hypomyces hyalinus *Schw.* | Boletus leprosus *Pk.*
Boletus flexuosipes *Pk.* | Boletus dictyocephalus *Pk.*

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

Polyporus rimosus *Berk.*

S. H. Wright, M. D.

Polyporus Curtisii *Berk.* | Clathrus columnatus *Bosc.*
P. sanguineus *Fr.* |

(C.)

PLANTS NOT BEFORE REPORTED.

Ranunculus septentrionalis, *Poir.*

In wet places, rarely in pine woods. Albany and Rensselaer counties. Common. June. I have not seen, in the vicinity of Albany, the true *R. repens*, with which this species has been confused.

Brassica campestris, *L.*

About houses and in cultivated grounds. Menands, Albany county. June. The specimens belong to variety *colza*, which has probably been introduced in "bird seed."

Lunaria biennis, L.

Escaped from cultivation at Ithaca. May. Prof. W. R. Dudley.

Dianthus barbatus, L.

Established in woods near Ithaca. June and July. Dudley.

Levisticum officinale, Koch.

Occasionally established by roadsides and in waste places. Cayuga county. Dudley. Sandlake, Rensselaer county. June.

Valerianella olitoria, Poll.

Frontenac island, Cayuga lake. May. Dudley. Introduced and synonymous with *Fedia olitoria* Vahl.

Aster junceus, Ait.

Sphagnous swamps. Round marsh, Dryden. September. Dudley.

Phlox maculata, L.

Roadsides. Sandlake. June. Probably introduced in this locality, or escaped from cultivation, but the plants were growing remote from any dwelling.

Myosotis arvensis, Hoffm.

Ithaca. May and June. Dudley.

Myosotis collina, Hoffm.

Ithaca. May. Dudley.

Cuscuta tenuiflora, Engelm.

Near Union Springs. Growing on peppermint, *Mentha piperita*. August and September. Dudley.

Physalis lanceolata, Mx.

Cultivated grounds. Menands. Our plant is well described in the Manual under the name *Physalis Pennsylvanica*. It has probably been introduced from the south or west, but is very persistent.

Nepeta grandiflora, Bieb.

Roadsides. Menands. September. Introduced.

Plantago Media, L.

University grounds, Ithaca. June. Dudley.

Aristolochia Clematitis, L.

Lansingburgh, Rensselaer county. *H. C. Gordinier.* Union Springs.
June. *Dudley.* Introduced.

Euphorbia Esula, L.

Groton. June and July. *Dudley.*

Salix amygdaloides, Ander.

Fall creek, Eddy pond, Cayuga lake, Cayuga marshes, etc. Abundant.
May. *Dudley.*

Potamogeton Spirillus, Tuckerm.

Cayuta lake. August. *Dudley.* Lower Saranac lake, Essex county.
Sandlake.

Two forms occur. In one the submersed leaves are rather long and straight; in the other they are shorter and somewhat recurved, and give the plant a peculiar appearance. The Cayuta-lake specimens are very small, being but one or two in. long.

Potamogeton Zizii, M. & K.

Fall creek. August and September. *Dudley.* Normanskill creek near Kenwood, Albany county.

Potamogeton Hillii, Morong,

Malloryville. July. *Dudley.*

Potamogeton marina, L.

Near the outlet of Seneca lake. July. *Dudley.*

Eleocharis diandra, Wright.

Lansingburgh. *E. C. Howe.*

Panicum nervosum, Muhl.

Woods near White church. July. *Dudley.* Cold Spring, Putnam county, and Adirondack mountains.

Deyeuxia Porteri, Vasey.

Thatcher's pinnacle, West Danby. August. *Dudley.* This is *Calamagrostis Porteri* of the Manual. It is a rare and local species.

Eatonia Dudleyi, Vasey.

South hill. June. *Dudley.* The specimens placed in the State Herbarium by Dr. Torrey, and labeled *Koeleria Pennsylvanica*, belong to this species, which has until recently been confused with *Eatonia*

Pennsylvanica. The characters by which it is separated from *E. Pennsylvanica* are, according to the author of the species, "its slender culms and panicle, the very short cauline leaves, the longer and wider lower glume, the more obtuse upper one and the shorter obtuser flowering glumes." The flowers have a peculiarly blunt appearance by which the plant may be easily recognized.

***Bromus arvensis*, L.**

Troy. *Gordinier* and *Howe*. Sparingly introduced. June.

***Lepiota granosa*, Morg.**

Prostrate trunks of trees, old stumps and decayed wood. Catskill mountains. September.

Our specimens do not agree rigidly with the description of the species to which we have referred them. The pileus is either obtuse or umbonate, even or radiately rugose-wrinkled, and is generally even and regular on the margin. The stem also is either equal or slightly thickened at the base, but these variations are not of specific importance. The flesh of the stem is yellowish as in *Lepiota amianthinus* to which this species is closely related, both in color and structure, but from which it may be distinguished by its habitat, its larger size and its entire membranous persistent annulus.

***Lepiota arenicola*, n. sp.**

Pileus at first broadly conical, then convex or nearly plane, obscurely punctate with minute granular squamules, whitish or cinereous, substriate and crenulate on the margin; lamellæ broad, subventricose, distant, free, white; stem slender, equal, stuffed, glabrous, whitish, the annulus imperfect, obsolete or quickly evanescent; spores oblong or subfusiform, acute at one end, .0005 to .0006 in. long, .0002 to .00024 broad.

Pileus 3 to 6 lines broad; stem 8 to 12 lines long, about 5 lines thick. Sandy soil. Karner, Albany county. August.

The spores indicate an affinity of this species with *L. metulispora*, of which it might be regarded as a dwarf variety, but it differs in its smaller size, more expanded pileus, distant lamellæ and glabrous stem. The mycelium binds the sand into a globose mass at the base of the stem.

***Tricholoma resplendens*, Fr.**

Thin woods. Catskill mountains. September.

***Tricholoma Columbetta*, Fr.**

Woods. Selkirk, Albany county. August.

Tricholoma intermedium, n. sp.

Pileus thin, campanulate, obtuse, glabrous, slightly viscid when moist, greenish-yellow, flesh white; lamellæ crowded, free or slightly adnexed, white; stem equal, firm, glabrous, white; spores broadly elliptical, .0002 in. long, .00016 broad.

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

Thin woods. Catskill mountains. September.

This species resembles some forms of *T. equestre*, from which it is separated by its white lamellæ. It appears to be intermediate between that species and *T. sejunctum* from which its glabrous pileus and crowded lamellæ distinguish it.

Tricholoma terriferum, n. sp.

Pileus broadly convex or nearly plane, irregular, often wavy on the margin, glabrous, viscid, pale alutaceous, generally soiled with adhering particles of earth carried up in its growth, flesh white, with no decided odor; lamellæ thin crowded, slightly adnexed, white, not spotted or changeable; stem equal, short, solid, white, floccose-squamulose at the apex; spores minute, subglobose, .00012 in. long.

Pileus 3 to 4 in. broad; stem 1 to 1.5 in. long, 6 to 8 lines thick.

Woods. Catskill mountains. September.

This and the next preceding species belong to the section *Limacina*.

Tricholoma tricolor, n. sp.

Pileus broadly convex or nearly plane, sometimes slightly depressed in the center, firm, dry, obscurely striate on the margin, pale alutaceous, inclining to russet, flesh whitish; lamellæ thin, narrow, close, adnexed, pale yellow, becoming brown or purplish-brown in drying; stem stout, short, firm, tapering upwards from the thickened or subbulbous base, white; spores broadly elliptical or subglobose, .0003 in. long.

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

Woods. Selkirk. August.

Remarkable for its varied colors and for the peculiar hue assumed by the lamellæ in the dried state.

Tricholoma fuligineum, n. sp.

Pileus convex or nearly plane, obtuse, often irregular, dry, minutely squamulose, sooty-brown, flesh grayish, odor and taste farinaceous; lamellæ subdistant, uneven on the edge, cinereous, becoming blackish in drying; stem short, solid, equal, glabrous, cinereous; spores oblong, elliptical, .0003 in. long, .00016 broad.

Pileus 1 to 2.5 in. broad; stem 1 to 1.5 in. long, 3 to 5 lines thick. Among mosses in open places. Catskill mountains. September. This and the next preceding species belong to the section *Genuina*.

***Tricholoma putidum*, Fr.**

Under pine trees. Catskill mountains. September.

Our specimens agree accurately with the description of *T. putidum*, except that the pileus is not umbonate; but this character is limited by Fries in *Icones Selectæ* to young plants.

***Clitocybe subsimilis*, n. sp.**

Pileus at first conical or subturbinate, then plane, nearly obconical, soft, fleshy, pure white, the margin at first involute and somewhat tomentose, then even or marked with irregular ridges, as if from matted tomentum, flesh white, taste mild; lamellæ in the young plant adnate, in the adult, decurrent, subdistant, often branched, white, the interspaces venose; stem equal or merely subbulbous, by no means obclavate, solid, soft, elastic, white; spores broadly elliptical or subglobose; .0002 to .00025 in. long, .00016 to .0002 broad.

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

Under pine trees. Catskill mountains. September.

This species is closely related to *Clitocybe clavipes*, of which there is said to be a white variety. I have separated our plant not only because of its pure white color, but also because of its peculiar stem, which is not at all obclavate as in *C. clavipes*, though sometimes it is slightly and abruptly bulbous. Its resemblance to *C. clavipes* has suggested the specific name. It is very unlike *C. obtexta* in its dry pileus and subdistant lamellæ.

Variety *monstrosa*. Lamellæ reticulately branched or anastomosing, causing the hymenium to appear porous either wholly or in part.

With the typical form.

***Clitocybe cæspitosa*, n. sp.**

Pileus thin, infundibuliform, often irregular, slightly silky, hygrophanous, grayish brown when moist, subcinereous or argillaceous when dry; lamellæ narrow, close, decurrent, somewhat branched, white; stem equal, stuffed or hollow, silky, white; spores minute, subelliptical, .00012 to .00016 in. long.

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

Thin woods. Catskill mountains. September.

The plant is remarkable for its cæspitose mode of growth and its irregular, deformed appearance. The pileus is somewhat perforated. The relationship is with *C. expallens*, *C. Adirondackensis*, etc.

Clitocybe sulphurea, n. sp.

Pileus convex, slightly umbonate, moist or subhygrophanous, pale yellow, streaked, flesh yellowish; lamellæ subdistant, adnate, uneven or serrulate on the edge, pale yellow; stem equal or tapering upwards, curved or flexuous, hollow, colored and streaked like the pileus, yellowish within; spores broadly, elliptical or subglobose, .00025 to .0003 in. long, .0002 to .00025 broad.

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

Decaying wood of spruce and balsam. Wittenberg mountain. September.

Distinct from *Tricholoma sulphureum*, which it resembles in color, by its moist pileus, adnate lamellæ, hollow stem and lack of odor.

Clitocybe tortilis, Bolt.

Hard ground in an old road. Sandlake. August. A species closely allied to *C. laccata* and appearing like an irregular dwarf form of that species. Sometimes caespitose.

Collybia scorzonerea, Batsch.

Woods. Adirondack and Catskill mountains. July and September. The species is distinguished from *C. maculatus* by the yellowish hue of the pileus and lamellæ. The stem is sometimes attenuated and radicating at the base and sometimes blunt.

Collybia hariolorum, D. C.

Woods. Catskill mountains. September.

Collybia strictipes, n. sp.

Pileus thin, broadly convex or nearly plane, glabrous, slightly rugose on the disc, moist or subhygrophanous, pale yellow, more highly colored on the disk, paler when dry; lamellæ thin, crowded, adnexed or subfree, white; stem equal, straight, hollow, glabrous, slightly mealy or pruinose at the top, white, with a dense white tomentum at the base; spores ovate, pointed or acuminate at one end, .00025 to .0003 in. long, .00016 broad.

Pileus 1.5 to 2 in. broad; stem 1.5 to 2.5 in. long, 2 to 3 lines thick.

Woods. Catskill mountains. September.

Collybia alba, n. sp.

Pileus thin, convex or hemispherical, even, obtuse, glabrous, white; lamellæ broad, subdistant, ventricose, adnexed or nearly free, white; stem short, equal or slightly thickened at the top, solid, glabrous,

white; broadly elliptical or subglobose, .00016 to .0002 in. long, .00012 to .00016 broad.

Pileus 3 to 5 lines broad, stem about 1 in. long, .5 to 1 line thick.

Mossy decayed wood and stumps. Gansevoort. July.

A small white species related to *C. Micheliana*, *C. muscigena* and *C. ludia*, but differing from these by its broad ventricose lamellæ.

***Omphalia subgrisea*, n. sp.**

Pileus membranaceous, convex or nearly plane, glabrous, striatulate, grayish-brown with a paler margin; lamellæ distant, arcuate-decurrent, cinereous; stem slender, short, stuffed, generally curved, sprinkled with minute mealy particles, colored like the pileus.

Pileus 2 to 3 lines broad; stem 6 to 10 lines long.

Decayed wood of birch, *Betula lutea*. Blue Mountain lake, Adirondack mountains. July.

In color this plant resembles *Mycena vulgaris*, or grayish forms of *M. clavicularis*; in size, *M. corticola*. When very young the stem is conical and the pileus is more narrow than its base.

***Mycena capillaripes*, n. sp.**

Pileus membranous, campanulate, glabrous, hygrophanous, livid gray or brownish and striate when moist, paler when dry, odor weak, alkaline; lamellæ ascending, subdistant, adnate, whitish or livid-white, the edge obscurely brownish-purple; stem slender, almost capillary, fragile, glabrous, hollow, colored like the pileus; spores narrowly elliptical, .0003 in. long, .00016 broad.

Pileus 3 to 5 lines broad; stem 1.5 to 2.5 in. long, scarcely .5 line thick.

Under pine trees. Karner. August.

This species is related to *Mycena rubromarginata* from which I have separated it because of its smaller size, slender stem, paler color, smaller spores and alkaline odor. It is also much smaller and paler than *M. purpureofusca*.

***Mycena crystallina*, n. sp.**

Pileus membranous, at first conical or convex, then nearly plane, sometimes with a slight umbo and reflexed margin, even or obscurely striate on the margin, everywhere beset with minute shining viscid glandular particles, pure white; lamellæ narrow, thin, adnate, close, white; stem short, slender, hollow, colored and adorned like the pileus, attached by white woolly hairs.

Pileus 2 to 5 lines broad; stem 4 to 8 lines long.

Fallen leaves of pine. Catskill mountains. September.

The species belongs to the Basidipes and is closely related to *M. saccharifera*, from which it is separated because of its larger size, more numerous closer adnate lamellae and pure white color. The glands occur in every part of the plant and cause it to appear as if slightly sticky or viscid when pressed between the fingers. They are not visible to the naked eye, but under a lens they appear like minute globular shining particles. In the dried state the specimens assume a slight yellowish tint.

***Entoloma sericeum*, Bull.**

Sandy pastures. West Albany. June.

***Entoloma flavoviride*, n. sp.**

Pileus thin, at first broadly conical, then convex or subconcave by the upcurving of the margin, dingy yellowish-green, slightly silky and shining when dry; lamellae broad, subdistant, ventricose, free or slightly adnexed, dingy or cinereous; stem equal, hollow, fibrous-striate, whitish; spores angular, uninucleate, .00045 to .0005 in. long, .0003 to .0004 broad.

Pileus 6 to 12 lines broad; stem 1 to 2.5 in. long, 1 to 2 lines thick.

Low swampy woods. Karner. August.

The color of the pileus is a peculiar dingy yellowish-green or olive-green by which the species is easily recognized.

***Clitopilus erythrosporus*, n. sp.**

Pileus thin, hemispherical or strongly convex, glabrous or merely pruinose, grayish-incarnate, flesh whitish with an incarnate tint, taste farinaceous; lamellae narrow, crowded, arcuate, strongly decurrent, colored like the pileus; stem equal or slightly tapering upward, hollow, slightly pruinose at the top, colored like the pileus; spores elliptical, rosy-red, .0002 in. long, .00012 to .00016 broad.

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

Decayed wood and among fallen leaves in woods. Catskill mountains and Menands. September and October.

The species is easily recognized by its peculiar uniform color, its narrow, crowded and very decurrent lamellae and its bright rosy-red spores.

***Clitopilus conissans*, n. sp.**

Pileus thin, convex, glabrous, pale glutaceous, often dusted by the copious spores; lamellae close, adnate, reddish-brown; stem slender, brittle, hollow, white; spores narrowly elliptical, bright rosy red, .0003 in. long, .00016 broad.

Plant cæspitose; pileus 1 to 1.5 in. broad; stem 1 to 2 in. long, 1 to 2 lines thick.

A single tuft of this peculiar species was found growing at the base of an apple tree in the Catskill mountains, in September. The species is remarkable for the copious bright colored spores which were so thickly dusted over the pilei of the lower specimens as to conceal the real color of the surface. They are quite as bright as and a little longer than those of the preceding species. The general aspect of the plant with its dark colored lamellæ is suggestive of some species of *Hypoloma* or *Psilocybe*, but the color of the spores requires its insertion in this place.

***Clitopilus cæspitosus* n. sp.**

Pileus at first convex, firm, nearly regular, shining white, then nearly plain, fragile, often irregular or eccentric from its tufted mode of growth, glabrous but with a slight silky luster, whitish, flesh white, taste mild; lamellæ narrow, thin, crowded, often forked, adnate or slightly decurrent, whitish, becoming dingy or brownish-incarnate; stem cæspitose, solid, silky-fibrillose, slightly mealy at the top, white; spores very pale incarnate, .0002 in. long, .00016 broad.

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

Thin woods and pastures. Catskill mountains. September.

This is a large, fine species, very distinct in its cæspitose habit, white color and very pale, sordid tinted spores. But for the color of these the plant might easily be taken for a species of *Clitocybe*. The tufts sometimes form long rows.

***Pholiota minima*, n. sp.**

Pileus membranous, hemispherical or campanulate, umbonate, glabrous, hygrophamous, brown and striatulate when moist, pale buff or yellowish-white when dry; lamellæ rather close, subventricose, adnexed, ferruginous; stem slender, solid, glabrous, shining, similar to the pileus in color, annulus near the middle, slight, evanescent; spores elliptical, .0003 in. long, .0002 broad.

Pileus 2 to 4 lines broad; stem 8 to 12 lines long, .5 line thick.

Among *Polytrichum*. Catskill mountains. September.

The species is distinguished from *P. mycenoides*, to which it is closely related, by its smaller size, paler color, umbonate pileus and solid stem.

***Inocybe fibrillosa*, n. sp.**

Pileus thin, convex or nearly plain, obtuse or subumbonate, densely fibrillose, tawny, the disk usually darker in color and adorned with appressed fibrillose scales; lamellæ close, adnate, at first yellowish or

yellowish-olivaceous, then cinnamon-brown; stem equal, hollow, fibrillose-squamose, pallid; spores even, .0004 in. long, .00025 broad.

Pileus 10 to 18 lines broad; stem about 1 in. long, 1 to 2 lines thick. Damp mossy banks in woods. Bethlehem, Albany county. August. The species belongs to the Squarrosæ.

***Inocybe subfulva*, n. sp.**

Pileus at first broadly conical or subcampanulate, then convex or nearly plane, umbonate, fibrillose-squamose, tawny-ochraceous; lamellæ broad, close, rounded behind, adnexed, ventricose, pallid, becoming tawny-cinnamon; stem, equal, firm, solid, fibrous-striate, obscurely pruinose, a little paler than the pileus; spores stelletely rough, .0004 to .0005 in. long, .0003 to .00035 broad.

Pileus 8 to 16 lines broad; stem 1 to 2 in. long, 1 to 2 lines thick. Sandy soil, in fields. Selkirk. August.

Related to *I. calospora*, from which it differs in the erect scales of the pileus, the adnexed lamellæ, the solid stem and the somewhat elliptical shape of the spores. The species belongs to the Laceræ.

***Inocybe violaceifolia*, n. sp.**

Pileus thin, convex or nearly plane, fibrillose, subsquamulose, grayish; lamellæ close, adnexed, at first pale violaceous, then brownish-cinnamon; stem firm, solid, slender, fibrillose, whitish; spores even, .0004 in. long, .00025 broad.

Pileus 6 to 12 lines broad; stem about 1 in. long, 1 line thick. Mossy ground in woods. Selkirk. August.

A small, pale species, remarkable for the violaceous tint of the young lamellæ. It belongs to the Rimosæ.

***Inocybe asterospora*, Quel.**

Woods and open places. Sandlake. June. South Ballston. July.

***Inocybe margarispora*, Berk.**

Grassy ground in thin woods. Greenbush, Rensselaer county. June. Our specimens are a little smaller than the typical ones, but they appear to belong to this species.

***Inocybe commixta*, Bres.**

Adirondack mountains. July.

Inocybe agglutinata, n. sp.

Pileus at first conical, then campanulate or convex, umbonate, fibrillose, pale tawny, streaked or spotted with appressed fibrils, the umbo usually darker; lamellæ close, broad, ventricose, adnexed, at first whitish, then brownish-cinnamon, often white on the edge; stem firm, solid, white or whitish and pruinose above, brownish or tawny and fibrillose below; spores even, .0004 to .00045 in. long, .0002 to .00024 broad.

Pileus 6 to 12 lines broad; stem 1 to 2 in. long, 1 to 2 lines thick. Under pine trees. Catskill mountains. September.

This is a beautiful and well marked species. The fibrils of the pileus appear as if agglutinated to its surface, though it is not viscid. Sometimes they form tawny spots like appressed scales. In very wet weather they are apt to wash away and disappear. In general appearance the plant resembles *I. Whitei*, but the umbonate dry pileus at once distinguishes it. The real affinity is with *I. geophylla*.

Inocybe nigridisca, n. sp.

Pileus thin, at first convex, then nearly plane or somewhat centrally depressed, umbonate, moist, minutely fibrillose, blackish-brown with a grayish margin when moist, cinereous when dry; lamellæ close, rounded behind, free or slightly adnexed, at first grayish, then ferruginous-brown, sometimes tinged with yellow; stem slender, firm, solid, flexuous, minutely villose-pruinose, reddish-brown; spores nodulose, .0003 in. long, .0002 broad.

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

Under cinnamon fern, *Osmunda cinnamomea*. Kasoag. Oswego county. June.

The adornment of the pileus and stem is so minute that at first sight the plant appears to be glabrous. The margin of the pileus soon becomes elevated, causing the center to appear depressed. The species belongs to the Velutinæ. It is distinguished from *I. paludinella* by its darker color, and its moist or subhygrophanous character.

Inocybe vatricosa, Fr.

Damp ground under willows. Catskill mountains. September.

The pallid color, decumbent stem and webby veil are characteristic of this species. The European plant is said to be inodorous, but our specimens had a radish-like odor. In it the spores are even, elliptical, .0004 in. long, .00024 broad. I find no description of the spores of the European plant. A variety with the disk reddish occurs in the same locality. It appears somewhat like a diminutive form of *Hebeloma longicaudum*.

Hebeloma crustuliniforme, Bull.

Open woods. Catskill mountains. September.

A small form, but exhibiting well the characters of the species.

Hebeloma longicaudum, Pers.

Woods. Catskill mountains. September.

In our plant the pileus is not umbonate, nor do all the descriptions ascribe this character to the species.

Flammula lubrica, Fr.

Decayed wood and ground among fallen leaves. Catskill mountains. September.

This species closely resembles *F. spumosa* in general appearance, but it may be distinguished by its somewhat spotted pileus and its white flesh. The spores also are paler than those of *F. spumosa*.

Flammula subfulva, n. sp.

Pileus convex, viscid, innately fibrillose, spotted toward the margin with darker appressed scales, sordid-tawny, flesh grayish-white; lamellæ close, adnate, brownish-ochraceous; stem equal or slightly tapering upward, fibrillose, solid, whitish; spores brownish-ochraceous, elliptical, uninucleate, .00024 to 0003 in. long, .00016 broad.

Pileus 1.5 to 2.5 in. broad; stem 2 to 3 in. long, 2 to 4 lines thick.

About the base of trees. Catskill mountains. September.

The plant is more or less caespitose. It is allied to *F. spumosa*, but differs in its tawny squamose-spotted pileus and grayish-white flesh.

Naucoria paludosa, n. sp.

Pileus very thin, broadly convex or plane, glabrous, hygrophanous, brown and striatulate on the margin when moist, buff-yellow when dry; lamellæ close, thin, rather broad, adnexed, at first yellowish or pallid, then brownish-ochraceous; stem slender, equal, hollow, brittle, glabrous, pallid or brownish; spores ferruginous, elliptical, uninucleate, .0004 in. long, .0002 broad.

Pileus 6 to 12 lines broad; stem 1 to 2 in. long, .5 to 1 line thick.

Wet, marshy or damp ground under willows and alders. Catskill mountains. September.

Naucoria unicolor, n. sp.

Pileus thin, broadly convex, plane or slightly depressed, glabrous, hygrophanous, yellowish-brown and striatulate on the margin when moist, paler when dry; lamellæ thin, close, slightly rounded behind,

colored like the pileus; stem equal, tough, hollow, glabrous, colored like the pileus, with white mycelium at the base; spores broadly elliptical, brownish-ferruginous, .00025 to .0003 in. long, .0002 broad.

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

Decayed wood and old stumps of deciduous trees. Selkirk. August.

***Naucoria triscopoda*, Fr.**

Decayed wood. Catskill mountains. September.

Our specimens belong to the form having the pileus striatulate on the margin when moist. This form is figured and described in *Icones Selectæ* as *Agaricus triscopus*.

***Naucoria carpophila*, Fr.**

Borders of woods. Catskill mountains. September.

***Galera inculta*, n. sp.**

Pileus thin, somewhat fragile, campanulate, then convex or nearly plane, obtuse or rarely with a small umbo, hygrophanous, cinnamon color and striatulate when moist, buff color and atomate when dry, sometimes minutely pitted or corrugated, rarely rimose-squamulose; lamellæ broad, subdistant, ventricose, adnexed, white crenulate on the edge, at first pallid, then pale cinnamon; stem straight or subflexuous, hollow, brittle, slightly silky striate, reddish-brown, sometimes slightly pruinose-mealy at the top and white villose at the base; spores subelliptical, pointed at each end, brownish-ferruginous, .0006 to .00065 in. long, .0003 broad.

Pileus 6 to 12 lines broad; stem 1 to 1.5 in. long, .5 to 1 line thick.

Damp ground under willows and alders. Catskill mountains. September.

This is a very distinct species. The pileus, when dry, resembles in color that of *Galera tener*; when moist, that of *Clitocybe laccata* in its small glabrous striatulate form. The specimens were found growing with *Naucoria paludosa*, from which they may be distinguished by the more campanulate pileus, the broader, more distant lamellæ and the larger spores.

***Agaricus comptulus*, Fr.**

Cultivated ground. Menands. August.

Closely allied to *A. campestris*, from which it may be separated by its smaller size, the yellowish hue of the dry plant and by the smaller spores.

***Stropharia albocyanea*, Desm.**

Bushy pastures. Catskill mountains. September.

Psilocybe clivensis, B. & Br.

Borders of woods. Catskill mountains. September.

Psilocybe senex, n. sp.

Pileus thin, hemispherical, obtuse, hygrophanous, dark brown and striatulate when moist, pale cinereous and shining when dry, somewhat squamose with superficial subfasciculate whitish fibrils, the margin appendiculate with the same; lamellæ broad, subdistant, adnate, at first grayish, then brown or blackish-brown with a white edge; stem slender, hollow, fragile, minutely floccose-pruinose, subpellucid, white; spores brown, elliptical, .0003 in. long, .0002 broad.

Pileus 6 to 10 lines broad; stem 1.5 to 3 in. long, 1 line thick.

Decayed wood in woods. Catskill mountains. September.

The species is apparently related to *P. canifaciens*, but is at once distinguished by its slender white stem. The specific name has reference to the white hairs or fibrils of the pileus, which are suggestive of the white hairs of old age.

Deconica subviscida, n. sp.

Pileus thin, at first subconical, then convex or nearly plane, often slightly umbonate, glabrous, hygrophanous, pale chestnut or reddish tan color, subviscid and striatulate on the margin when moist, pallid or dull buff when dry; lamellæ broad, subdistant, adnate or slightly decurrent, at first whitish or dingy, then brownish ferruginous; stem equal or tapering downwards, fibrillose, hollow, brownish toward the base, paler above, the fibrils whitish or grayish; spores ovate, brown, .0003 in. long, .0002 broad.

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

Horse dung and manured ground. Menands. August.

This species has many characters in common with *D. bullacea*, from which I have separated it because of its scarcely viscid pileus without a separate cuticle, and its different spores. It is gregarious, and in wet weather appears in great abundance and in successive crops. The slight whitish veil is perceptible in the young plant.

Psathyrella minima, n. sp.

Pileus membranous, hemispherical, obtuse, obscurely striatulate when moist, even and pruinose-atomate when dry, dingy-yellow or reddish-brown, becoming paler in drying; lamellæ broad, adnate, white, becoming yellowish-cinnamon; stem capillary, minutely mealy or furfuraceous under a lens, pellucid, white; spores black, narrowly elliptical, .00025 to .0003 in. long .00012 to .00015 broad.

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

Excrement of deer in woods. Adirondack mountains. July.

About the size of and growing with *Coprinus radiatus* from which it is clearly distinct by its entire pileus and persistent adnate lamellæ.

Cortinarius balteatus Fr.

Grassy ground in pastures. Catskill mountains. September.

Our specimens belong to a form which may be called variety *bulbosus*. Stem strongly bulbous, at first almost wanting, the pileus appearing to rest on the bulb which is abruptly pointed beneath.

The typical form occurs in Europe and is said to grow especially under pine trees.

Cortinarius pluvius, Fr.

Woods. Catskill mountains. September.

Cortinarius muscigenus, *n. sp.*

Pileus at first ovate, then convex or concave from the recurving of the margin, subumbonate, glabrous, viscose with a separable pellicle, tawny-orange and widely striate on the margin when moist, tawny and shining when dry, flesh dingy white, tinged with yellow; lamellæ broad, ventricose, adnate, with a broad shallow emargination, somewhat rugose on the sides, yellowish, becoming cinnamon; stem long, subequal, viscid, even, silky, solid, white or whitish; spores .0005 to .0006 in. long, .0003 to .00036 broad.

Pileus 1.5 to 2.5 in. broad; stem 3 to 4 in. long, 3 to 4 lines thick. Mossy ground under balsam trees. Wittenberg mountain. September.

Closely related to *C. collinitus* from which it is separated by its more highly colored pileus, striate margin and even, not diffracted-squamose, stem.

Cortinarius brevipes, *n. sp.*

Pileus convex, silky-fibrillose, sordid white, flesh yellowish-white; lamellæ close, adnexed, pale violaceous becoming cinnamon; stem short, silky-fibrillose, bulbous, whitish, pale violaceous within; spores subelliptical, .0004 in. long, .00024 broad.

Pileus 1 to 2 in. broad; stem about 1 in. long, 4 to 6 lines thick. Woods. Catskill mountains. September.

The species belongs to the tribe Inoloma and is related to *C. albo-violaceus*, from which it is separated by its smaller size, short stem and yellowish-white flesh.

Cortinarius brevissimus, *n. sp.*

Pileus convex, often irregular, at first minutely silky, then glabrous, dingy white or argillaceous, flesh whitish; lamellæ close, adnexed, at first pale violaceous, then whitish, finally cinnamon; stem equal, very

short, hollow, silky-fibrillose, white, pale violaceous within; spores broadly elliptical, .00024 to .0003 in. long, .0002 to .00024 broad.

Pileus 8 to 12 lines broad; stem 5 to 8 lines long, 3 to 4 lines thick.

Thin woods. Catskill mountains. September.

Related to the preceding species, but smaller, with a hollow stem and shorter spores.

Cortinarius albidifolius, n. sp.

Pileus thin, convex, subglabrous, whitish, tinged with yellow or pale ochraceous, the epidermis sometimes cracking and forming squamules, flesh whitish; lamellæ subdistant, slightly emarginate, adnate, whitish, becoming cinnamon; stem equal or slightly thickened at the base, solid, white, variegated below with yellowish floccose squamules, silky-fibrillose at the top; spores subglose or broadly elliptical; .00025 to .0003 in. long, .0002 to .00025 broad.

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

Woods. Catskill mountains. September.

Related to *C. ochroleucus*, but apparently distinct by the yellow scales of the stem and the adnate subdistant lamellæ. Both it and the preceding species belong to the tribe Dermocybe.

Cortinarius spilomeus, Fr.

Woods. Catskill mountains. September.

Cortinarius flavifolius, n. sp.

Pileus convex or nearly plane, fibrillose or squamulose, sometimes longitudinally rimose, varying in color from sordid buff to tawny yellow, flesh whitish; lamellæ subdistant, adnexed, at first a rich sulphur yellow, then yellowish cinnamon; stem slightly tapering upward, solid, whitish, peronate and slightly annulate by the copious silky, whitish veil; spores broadly elliptical, .0003 in. long, .0002 broad.

Pileus 2 to 3 in. broad; stem 2 to 3 in. long, 5 to 8 lines thick.

Woods. Catskill mountains. September.

The pileus is not truly hygrophaneous, but the character of the stem indicates that the species belongs in *Telamonia* near *C. bivelus*. It differs from *C. limonium* by its dry pileus, and from *C. infucatus* by the color of the young lamellæ.

Cortinarius griseus, n. sp.

Pileus convex, obtuse or gibbous, fibrillose-squamulose with grayish hairs or fibrils, moist, pale gray; lamellæ subdistant, adnexed, at first pallid, then brownish-ochraceous; stem tapering upward from a

thickened or bulbous base, silky-fibrillose, whitish; spores .0004 to .0005 in. long; .0003 broad.

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

Mossy ground under balsam trees. Wittenberg mountain. September.

The fibrils of the pileus are similar to those of *C. paleaceus*, but the plant is much larger and stouter, and the spores are larger than in that species. It is well marked by its grayish color.

Cortinarius badius, n. sp.

Pileus thin, at first conical, then convex or broadly campanulate, umbonate, hygrophanous, blackish-chestnut color when moist, bay-red or chestnut color when dry, sometimes tinged with gray, the umbo darker, usually whitish-silky on the margin when young, flesh, when moist, colored like the pileus; lamellæ broad, subdistant, ventricose, adnexed, at first yellowish or cream-color, then subochraceous; stem slender, equal, hollow, silky-fibrillose and subannulate by the whitish veil, when old colored like the pileus both without and within; spores .0005 in. long, .0003 broad.

Pileus 8 to 12 lines broad; stem 1 to 1.5 in. long, about 1 line thick.

Mossy ground. Catskill mountains. September.

The species is related to *C. nigrellus*, from which it differs in its broad lamellæ which are paler in the young plant and in its larger spores.

Cortinarius subflexipes, n. sp.

Pileus thin, conical, then expanded and subacutely umbonate, hygrophanous, blackish-brown with the thin margin whitened by the veil when moist, subochraceous when dry; lamellæ thin, close, ventricose, adnexed, at first reddish-violaceous, then cinnamon; stem equal, flexuous, silky, shining, subannulate by the whitish veil, pale violaceous when young, pallid or reddish when old; spores .00024 to .0003 in. long; .0002 broad.

Pileus 6 to 10 lines broad; stem 1 to 1.5 in. long, about 1 line thick.

Thin woods. Catskill mountains. September.

Apparently related to *C. flexipes*, from which I have separated it because of its more glabrous pileus and different lamellæ. It and the two preceding species are referred to the tribe Telamonia.

Cortinarius paleaceus, Fr.

Mossy or bare ground in open places. Catskill mountains. September.

Cortinarius rigidus, Fr.

Catskill mountains. September.

Hygrophorus Lauræ, Morg.

Woods. Catskill mountains. September.

The squamules at the top of the stem are sometimes reddish. The disc is sometimes yellowish.

Lactarius aspideus, Fr.

Borders of woods. Catskill mountains. September.

A pretty but rare species, easily known by its pale yellow or straw color and the lilac hue assumed by wounds of the lamellæ or flesh. In *Systema Mycologicum* the stem is described as hollow and spotted. In our specimens the stem is hollow but not spotted. It is colored like the pileus and the spores are broadly elliptical or subglobose slightly rough, .0003 to .0004 in. long.

Lactarius maculatus, n. sp.

Pileus fleshy, firm, at first convex and umbilicate or centrally depressed, then subinfundibuliform, glabrous, viscid when moist, concentrically spotted, especially toward the margin, varying in color from grayish-buff to grayish-lilac, flesh subconcolorous, taste acrid and unpleasant; lamellæ close, thin, sometimes forked, adnate to decurrent, pallid or cream color; stem short, equal or tapering toward the base, hollow, spotted, colored like, or a little paler than, the pileus; milk at first whitish with a cream-colored tint, wounds of the flesh and lamellæ changing to lilac; spores subglobose, echinulate, .0004 to .0005 in. long.

Pileus 3 to 5 in. broad; stem 1 to 2 in. long, 5 to 8 lines thick.

Thin woods and pastures. Catskill mountains and Menands. August and September.

This species is allied to *L. uvidus*, with which it was united in the Thirty-eighth Report as variety *magnus*. Having had the opportunity of investigating it in the fresh state, it seems to me to be a distinct species, readily recognized by its larger size and its firmer, spotted pileus which is centrally depressed or infundibuliform. I have not seen it at all umbonate. The spots of the pileus are arranged in concentric circles and by their confluence the pileus often appears to be zonate. The change of color assumed by wounds is similar to that which takes place in *L. uvidus*.

Russula lepida, Fr.

Woods. Menands. August.

Generally with the pileus red, but quite variable in this respect.

Russula adulterina, Fr.

Low swampy ground. Karner. June.

This is placed by Fries as a variety of *R. integra*.

Russula atropurpurea, n. sp.

Pileus at first convex, then centrally depressed, glabrous, dark purple, blackish in the center, the margin even or slightly striate, flesh white, grayish or grayish-purple under the separable pellicle, taste mild, odor of the drying plant fetid, very unpleasant; lamellæ nearly equal, subdistant, sometimes forked near the stem, at first white, then yellowish, becoming brownish where bruised; stem equal, glabrous, spongy within, white, brownish where bruised; spores subglobose, minutely rough, pale ochraceous with a salmon tint, .0003 to .0004 in. long.

Pileus 3 to 4 in. broad; stem 2 to 3 in. long, 5 to 8 lines thick.

Open woods. Gansevoort. July.

In color this species resembles *R. variata*, but in other respects it is very different. It is very distinct in the peculiar color of its spores, and in the brownish hue assumed by wounds.

Boletus speciosus, Frost.

Woods. Sandlake and Bethlehem. August.

A beautiful species belonging to the Calopodes.

Boletus auriflammeus, B. & C.

A single specimen of this very rare but well-marked species was found in Sandlake. August.

Boletus purpureus, Fr.

Oak woods. Menands. August.

Boletus hemichrysus, B. & C.

Pine stumps. Gansevoort. July.

The Boleti are generally terrestrial fungi as affirmed by Professor Fries in Hym. Europ., but this species appears to be an exception to the prevailing habit of the genus. *B. subtomentosus*, *B. paluster* and *B. felleus* sometimes grow on decayed wood, but they are usually terrestrial. Of this species only three specimens have been seen, all of

which grew from the side of an old pine stump. The tomentum of the pileus is nearly one line thick. The species belongs to the tribe Pulverulenti.

Boletus glabellus, n. sp.

Pileus fleshy, thick, broadly convex or nearly plane, soft, dry, subglabrous, smoky-buff, flesh white, both it and the tubes changing to blue where wounded; tubes nearly plane, adnate, small, subrotund, ochraceous tinged with green; stem subequal, glabrous, even, reddish toward the base, pallid above, adorned with a narrow reddish zone or circumscribing line at the top; spores oblong, brownish-ochraceous, with a tinge of green when fresh; .0004 to .0005 in. long, .00016 broad.

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

Grassy ground under oaks. Menands. July.

The species belongs to the Subpruinosi, and is easily distinguished from its allies by the reddish circumscribing line at the top of the stem. This disappears in the dried specimens.

Boletus variipes, n. sp.

Pileus from convex to nearly plane, thick, soft, dry, squamulose, punctate-squamulose or minutely tomentose, pale grayish-brown, sometimes tinged with yellow or ochraceous, flesh white, unchangeable; tubes convex or nearly plane, slightly depressed around the stem, small, subrotund, at first white, then greenish-yellow, the mouths dingy ochraceous; stem nearly equal, firm, more or less reticulated, whitish or pallid; spores oblong-fusiform, brownish-ochraceous with a greenish tinge, .0005 to .0006 in. long, .0002 broad.

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

Oak woods. Menands. August.

The species belongs to the Edules. It is separated from *B. edulis* by its squamulose pileus. This character and its paler stem also separate it from *B. separans*. The stem is variable in color, length and degree of reticulation.

Variety *albipes*. Stem whitish, wholly reticulated, the reticulations coarser toward the base.

Variety *pallidipes*. Stem pallid, slightly scurfy, even or obscurely reticulated toward the base.

Variety *tenuipes*. Stem elongated, slender.

Boletus indecisus, n. sp.

Pileus convex or nearly plane, dry, slightly tomentose, ochraceous-brown, often wavy or irregular on the margin, flesh white, unchangeable, mild; tubes nearly plane or convex, adnate, small, subrotund,

grayish, tinged with flesh color when mature, becoming dingy or brownish where wounded; stem minutely scurfy, often irregular or flexuous, reticulated at the top, pallid without and within; spores oblong, brownish flesh color, .0005 to .0006 in. long, .00016 broad.

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

Oak woods. Menands. August.

It belongs to the tribe Hyporhodie. It has the general appearance of *B. modestus*, but the tubes are not at all yellow. It differs from *B. alutarius* in color and in having the stem reticulated at the top, not scrupose. Its mild taste will separate it from any form of *B. felleus*.

Boletus albellus, n. sp.

Pileus convex, soft, glabrous, whitish, flesh white, unchangeable; tubes convex, free or nearly so, small, subrotund, whitish, not changing color when wounded; stem glabrous or minutely furfuraceous, substrate, bulbous or thickened at the base, whitish; spores brownish-ochraceous, .00055 to .00065 in. long, .0002 to .00025 broad.

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

Woods. Sandlake. August.

Closely related to *B. scaber*, of which it may possibly prove to be a dwarf form; but it is easily distinguished by its smooth or only slightly scurfy stem without any appearance of the colored dot-like squamules which are a constant and characteristic feature of that species.

Polyporus flavovirens, B. and R.

Ground in woods. Selkirk. August.

Our specimens agree very well with the description of *P. flavovirens*, except that they are smaller and the dry plant is not tough and fibrous. They are to this extent doubtful.

Polyporus rimosus, Berk.

Trunks of locust, *Robinia pseudacacia*. Flatbush, L. I. Rev. J. L. Zabriskie.

Polyporus mutans, n. sp.

Resupinate rather thick, tough, following the inequalities of the wood; pores minute, rotund, short, buff-yellow or cream color, becoming dingy red or dull incarnate where wounded, the subiculum fibrous, changing color like the pores, the whole plant assuming an incarnate hue when dried.

Decaying wood of deciduous trees. Selkirk. August.

Sometimes a narrow, reflexed obtuse margin of a yellowish-brown color is formed. The pores are often oblique. The species appears to be quite distinct by reason of its peculiar colors.

Polyporus pineus, n. sp.

Resupinate, irregular from the inequalities of the matrix, rather tender but separable from the matrix, the thin subiculum and margin whitish, sometimes tinged with yellow; pores rather large, angular, unequal, two to three lines long, often oblique and lacerated, dingy whitish, becoming blackish where bruised or wounded, the whole plant becoming blackish or blackish-brown in drying.

Wood and bark of pine. Selkirk. August.

The species is apparently allied to *P. obliquus*, but the pores can not be described as very small, nor has our plant an "erect crested margin." It has a distinct subiculum on which the pores are formed and by reason of which the plant is separable from the matrix.

Merulius Ravenelii, Berk.

Bark of prostrate trunks of spruce, *Abies nigra*. Adirondack mountains. July to September.

This fungus varies in hue from flesh color to dark smoky red or brownish-red. The pores are at first shallow with obtuse folds or dissepiments, but with age these become thinner and the pores deeper so that the plant might easily be taken for a *Polyporus*. Its pure white margin contrasts conspicuously with its dark waxy hymenium. The specimens labeled *Merulius serpens* in Ravenel's *Exsiccati*, Vol. IV, 9, belong to this species.

Merulius himantioides, Fr.

Prostrate trunks of hemlock. Catskill mountains. September.

The color of the hymenium resembles that of *M. lacrymans*, but the subiculum is very different. The fungus is soft, tender and membranous, and by confluence becomes widely effused. The subiculum is sometimes studded with drops of a reddish color, and is composed in part of branching strings of mycelium.

Hydnum fasciatum, n. sp.

Pileus thin, coriaceous, nearly plane, umbilicate, blackish-brown, adorned with three to seven narrow elevated scabrous, tawny-gray concentric zones; aculei short, decurrent, ferruginous-brown; stem short, slender, tough, tawny-gray or blackish; spores subglobose, rough, .00016 in. broad.

Pileus 6 to 12 lines broad; stem 4 to 6 lines long.

Naked ground in woods. Catskill mountains. September.

The specimens were past maturity when collected, and the colors of young plants may vary somewhat from those here given. The species

is well marked by the peculiar elevated zones or lines of the pileus. The plant is closely gregarious, and sometimes the pilei are confluent. The relationship is with *H. connatum* and *H. zonatum*.

Irpex nodulosus, n. sp.

Resupinate, forming suborbicular patches four to ten inches or more in diameter, subseparable; the subiculum thick, tough; the hymenium dentate-porous toward the thick definite margin, centrally nodulose and prolonged into unequal compressed truncate or laciniate, rarely terete acute aculei, whitish, centrally yellowish or pale ferruginous.

Bark of standing trunks of poplar. Gansevoort. July.

Radulum pendulum, Fr.

Dead prostrate trunk of basswood, *Tilia Americana*. Argusville. July.

This is distinct from our other species by its reflexed pileate form. The pileus is whitish and pubescent, or at length nearly smooth. The species is quite rare.

Corticium olivaceum, Fr.

Decayed wood. North Greenbush and Slingerlands.

Clavaria albida, n. sp.

Plants 2 to 4 in. high, whitish; stem short, thick, generally tapering downwards, divided above into a few short, thick, much-branched ramuli, ultimate branches densely crowded, terminating in a few short, blunt teeth; flesh firm, dry, whitish, taste tardily acrid, then bitter; spores oblong, pale ochraceous, .0005 to .0006 in. long, .0002 broad.

Ground in thin woods. Menands. August.

The species has the structure of *C. botrytis* and *C. flava*, but it is readily distinguished from these by its uniform whitish color, the tips of the branches being concolorous.

Clavaria densa, n. sp.

Tufts 2 to 4 in. high, nearly as broad, whitish or creamy-yellow, branching from the base; branches very numerous, nearly parallel, crowded, terete, somewhat rugose when dry, the tips dentate, concolorous; spores slightly colored, subelliptical, .0003 to .0004 in. long, .0002 to .00034 broad.

Ground in woods. Selkirk. August.

Apparently closely allied to *C. condensata*, but differing decidedly in color.

Geaster Schæfferi, Vitt.

Woods. Catskill mountains. September.

The interior stratum of the external peridium is very thick in the fresh plant and conceals the short pedicel of the inner peridium, but in the dried state this stratum contracts and exposes the pedicel, which is about one line long. This character distinguishes the species from *G. rufescens*.

Geaster vittatus, Kalchb.

Under pine trees. Catskill mountains. September.

The thin outer coat of the external peridium cracks in parallel lines, causing the laciniae or rays to appear as if striped with white longitudinal lines. This character gives name to the species and serves to distinguish it from *G. saccatus* to which it is otherwise very closely related.

Sphæroopsis carpinea, Sacc. & Br.

Dead twigs of water beech, *Carpinus Americana*. Menands. May.

Cercospora Gentianæ, n. sp.

Spots suborbicular, brown or reddish-brown, sometimes confluent; hyphæ amphigenous, short, subflexuous, slightly colored, .0006 to .0012 in. long, growing from minute blackish tubercles; spores more narrow than the hyphæ, cylindrical or gradually narrowed toward one end, one to three-septate, colorless, .0012 to .0024 in. long.

Living leaves of gentian, *Gentiana linearis*. Number Four, Adirondack mountains. July.

Oöspera Cucumeris, n. sp.

Tufts loose, subconfluent, whitish or grayish, forming soft, velvety patches; hyphæ erect or diverging; spores catenulate, elliptical or oblong, colorless, .0004 to .0008 in. long, .00025 to .0003 broad.

Decaying fruit of muskmelon, *Cucumis Melo*. Menands. October.

Sporendonema myophilum, Sacc. in litt.

Hyphæ colorless, simple or branched, densely interwoven and forming a soft whitish somewhat waxy mass, some of them producing chains of globose or broadly-elliptical spores, .00016 to .0003 in. long.

Inhabiting the bodies of living mice. Binghamton. *H. L. Griffis*.

In the specimen contributed by Mr. Griffis the fungus had broken the skin of the mouse near the eyes, and also on the left shoulder. In the latter place the white patch was about six lines broad, and the ruptured margin of the skin had in some parts a bloody appearance. The mouse was said to be alive when caught, but it is quite probable

that the fungus would have killed it in a short time. It would be interesting to know if the fungus could be communicated to healthy mice in their food or otherwise, but my efforts to obtain a subject on which to try the experiment were unsuccessful.

Zygodemus violaceofuscus, Sacc.

Roots of beech. Selkirk. August.

(D.)

REMARKS AND OBSERVATIONS.

Nymphæa odorata, Ait.

A form with very large leaves and flowers, equaling in size those of *N. tuberosa*, grows in the inlet of Beaver lake, Number Four, Lewis county. It has the decided and delightful fragrance of the ordinary form.

Rubus villosus, Ait. var. humifusus, T. & G.

Professor Dudley finds this variety near Ithaca. The variety *frondosus* is much more plentiful, and from it most of the cultivated varieties appear to have been derived, if we may judge by the character of the fruit offered for sale in the markets. It is less cylindrical, more acid and has larger seeds than the fruit of the typical form. I am quite confident that the true *R. villosus* would produce a fruit of far better quality, if brought under successful cultivation, and it seems strange that some of our enterprising nurserymen have not succeeded in introducing it into more frequent cultivation.

Vaccinium Canadense, Kalm.

A black-fruited variety of this valuable little shrub is plentiful at Number Four, Adirondack wilderness. There is also a black-fruited variety of *V. vacillans*.

These varieties do not appear to have been designated by name, but they correspond to variety *nigrum* of *V. Pennsylvanicum* and variety *atrococcum* of *V. corymbosum*. Thus each of our common edible blueberries has its black-fruited variety. These black fruits are destitute of the bloom of the ordinary ones, and have a shining luster, but are scarcely different in flavor or quality from the ordinary blue ones. The black huckleberry, *Gaylussacia resinosa*, also has its corresponding variety, in which the fruit is jet black and shining. It also sometimes differs slightly in shape from the ordinary dull black fruit.

Scirpus polyphyllus, Vahl.

Gansevoort. July. A rare species with us.

Scirpus Torreyi, Olney.

Beaver lake at the inlet from Beaver dam. July.

This is a form in which the cluster of spikes is subtended by a bract equaling or slightly exceeding it in length.

Lepiota amianthina, Scop.

Specimens sometimes approach *L. granulosa* in the structure of the lamellæ which are somewhat emarginate and adnexed, but in all other respects they are true *L. amianthina*.

Lepiota granulosa, Batsch. var. albida.

A persistently whitish variety. Pastures. Catskill mountains. September.

Tricholoma fumidellum, Pk.

In the Catskill mountains a form of this species occurs which has the pileus umbonate and the umbo decidedly brown or smoky brown. Sometimes the cuticle is rimose areolate and then the plant imitates *Lepiota cristata* in general appearance. It is moist in wet weather and belongs to the tribe Spongiosa.

Tricholoma fumosoluteum, Pk.

Abundant among moss under balsam trees near the summit of Wittenberg mountain. The pileus is sometimes spotted thus indicating a relationship with the tribe Guttata, though its real affinities are with the Spongiosa. The taste is farinaceous and slightly bitter. The flesh is tinged with yellow under the subseparable epidermis.

Tricholoma Peckii, Howe.

This rare species occurs in the Catskill mountains.

Both the pileus and stem are adorned with beautiful tawny or tawny-red scales. The lamellæ when old become stained or spotted with brown or are discolored or dotted on the edge. The white flesh of the pileus has a farinaceous taste, then bitterish. The odor is also somewhat farinaceous. The pileus is viscid when moist, and the species is allied to *T. transmucans* and *T. albobrunneum*.

Clitocybe nebularis.

A cæspitose form of the species was observed in the Catskill mountains. Also a form in which the whole plant is white. This is the common form in these mountains. It has the same shape as the typical form, from which it differs only in color.

Clitocybe laccata, Scop. var. amethystina.

Specimens of this beautiful variety were found at Menands and at Karner in August. Two forms occur, in both of which the pileus is umbilicate and dark violaceous when moist, canescent or greyish when dry; in one the pileus is about one inch broad, convex and regular; in the other it is two to two and a half inches broad, and has the margin reflexed and often much lobed and wavy. In this form the lamellæ are broad, distant and often ruptured transversely. They are also more highly colored than in the typical form. The ordinary form has been found growing in circles in grassy places.

Collybia lentinoides, Pl.

A description of this species was published in the Thirty-second Report. Two varieties have been observed the past season.

Variety *rufipes*. Stem even, colored reddish-alutaceous like the pileus. This variety closely resembles ordinary forms of *Collybia dryophila* in color, and but for the serrated edge of the lamellæ it might easily be taken for that species. Albany Rural cemetery. June.

Variety *flaviceps*. Pileus buff-yellow and striatulate on the margin when moist, pale buff when dry; stems cæspitose, hollow, whitish.

In all the forms the essential characters of the species are the glabrous, hygrophanous pileus, the lamellæ with serrated edge and the stuffed or hollow stem.

Collybia rubescentifolia, Pl.

In the Thirty-ninth Report this species was referred to *Tricholoma*, but subsequent observations indicate that it is a *Collybia*. The pileus is pretty constantly umbilicate and is hygrophanous, being dingy-yellow or smoky-yellow when moist and pale-yellow or buff when dry. The change in the color of the lamellæ in the dried plant is a marked and constant character, and is suggestive of the specific name. The species is closely allied to *C. luteoölivacea* B. & C., but no hygrophanous character is attributed to that species nor any change in the color of the lamellæ. Besides, its stem is described as scurfy.

Mycena pura, Pers.

This species is quite variable in color. A form occurs under pine trees in the Catskill mountains, in which the whole plant has a purplish color, with the lamellæ a little paler than the pileus and stem. It is darker than the ordinary forms.

Naucoria Highlandensis, Pk.

This was found in the Catskill mountains, growing on buried pieces of charcoal. This habitat is the same as that of *Flammula carbonaria*, a species to which our plant is evidently allied, but from which it is separated by its white flesh and its adnexed lamellæ.

Stropharia Johnsoniana, Pk.

A form of this very rare species, which has hitherto been found in but one locality, occurs in the Catskill mountains. In it the pileus is wholly yellowish and sometimes marked with darker spots, and the stem is squamulose below the annulus, with upwardly directed squamules.

Hygrophorus miniatus, Fr.

This species is very abundant in wet weather in all our woody and swampy districts, and is very variable in size and somewhat in color.

Variety *subluteus*. Pileus yellow or reddish-yellow, stem and lamellæ yellow, plant often cæspitose.

Thin woods. Catskill mountains. September.

Lactarius rufus, Fr.

Among moss, under balsam trees, near the summit of Wittenberg mountain. A small form, but very acrid, and thus distinguishable from large forms of *L. subdulcis*.

Lactarius affinis, Pk.

This occurred plentifully in the Catskill mountains in September. It is readily distinguished from *L. insulsus* by the characters indicated in the Thirty-eighth Report.

Lactarius scrobiculatus, Fr.

Fine specimens were found growing under hemlock trees in the Catskill mountains. The pileus in some was eight inches broad, pale yellow, very viscid, slightly zoned and distinctly bearded on the margin with coarse hairs.

Russula sordida, Pk.

A large form of this species was found growing under hemlock trees at Gansevoort. The pileus was four to eight inches broad, at first white or whitish, umbilicate or centrally depressed; then more or less stained with smoky-brown or blackish hues and subinfundibuliform. The flesh is white and taste mild; the stem is short, one to two inches thick, solid, white, and somewhat pruinose; the lamellæ are distant, unequal, very brittle, tinged with yellow. Every part of the plant turns blackish or violaceous-black where wounded. By this character it is distinguished from *R. nigricans*, in which the flesh at first becomes red where broken.

Marasmius salignus, Pk. var. major.

Pileus six to ten lines broad; lamellæ broad, distant, decurrent, the interspaces venose; stems often cæspitose.

Bark of willows. Gansevoort. July.

Marasmius androsaceus, Fr.

Two forms of this species occur here as in Europe. There the form with paler pileus grows on fallen leaves of frondose trees, the one with darker or fuscous pileus on leaves of acerose trees. Here the form with pale pileus abounds, in wet weather, on fallen leaves of spruce trees, and the one with fuscous pileus on fallen pine leaves. Often the two forms grow in close proximity to each other, yet, in every instance observed, the difference of color corresponds to this difference in habitat.

Marasmius præacutus, Ellis.

Fallen pine leaves. Catskill mountains. September.

Polyporus cæruleoporus, Pk.

On exposure to the light the blue color gradually fades to a grayish hue. Sometimes specimens occur with one-half of the pileus exposed and faded, the other half sheltered and retaining its normal grayish-blue color. The pores retain the blue color longer than the pileus, but the whole plant fades in drying. The flesh of the pileus is white.

Polyporus vulgaris, Fr.

A form with vesicular pores, a vertical section of the hymenium being porous, was found on poplar at Gansevoort. September. *P. obducens*, *P. adustus* and *P. subacidus* have all a similar vesicular form. I am satisfied that the genus *Myriadoporus*, which was founded on such forms, is not a good one and should be abandoned.

***Solenia villosa*, Fr. var. *polyporoidea*.**

At first granuliform, then cylindrical, often crowded and forming a continuous pure white stratum, appearing like a resupinate Polyporus, the villosity scarcely visible to the naked eye, but perceptible with a lens.

Decayed wood of hemlock. Adirondack mountains. July.

This differs from the typical form in its crowded mode of growth. Is it, therefore, a distinct species?

***Clavaria stricta*, Pers. var. *fumida*.**

The whole plant is of a dingy, smoky-brownish hue. Otherwise as in the typical form. Catskill mountains. September.

In the fresh state the specimens appear very unlike the ordinary form, but in the dried state they are scarcely to be distinguished.

***Geoglossum microsporum*, C. & P.**

A rare species, not observed since its discovery in 1871, till it was again found this year in the Catskill mountains.

(E.)

FUNGI DESTRUCTIVE TO WOOD.

NOTE.—P. H. Dudley, C. E., has investigated the action of certain fungi upon railroad ties and wooden structures. At my request he has communicated to me some of the results of his investigations. These results are of such great practical and economic importance, that with his permission, I have added to this report a copy of his communication.

66½ PINE STREET, NEW YORK, December 5, 1887.

Prof. CHARLES H. PECK, *State Botanist*:

MY DEAR SIR.—The well established fact that the decay of all timber, under ordinary usages, is due to the growth of many species of fungi, gives to your long and patient work, in collecting, identifying and calling attention to different species, a value and bearing of practical importance hardly expected a few years since. The enormous annual consumption of timber by railroad companies, ship-builders, architects, manufacturers and farmers, in conjunction with the decreasing supply and increasing cost, gives value to any knowledge which will help check any unnecessary decay of timber.

The experience gained from the failures of many of the expensive efforts to preserve timber has shown that specific knowledge of the

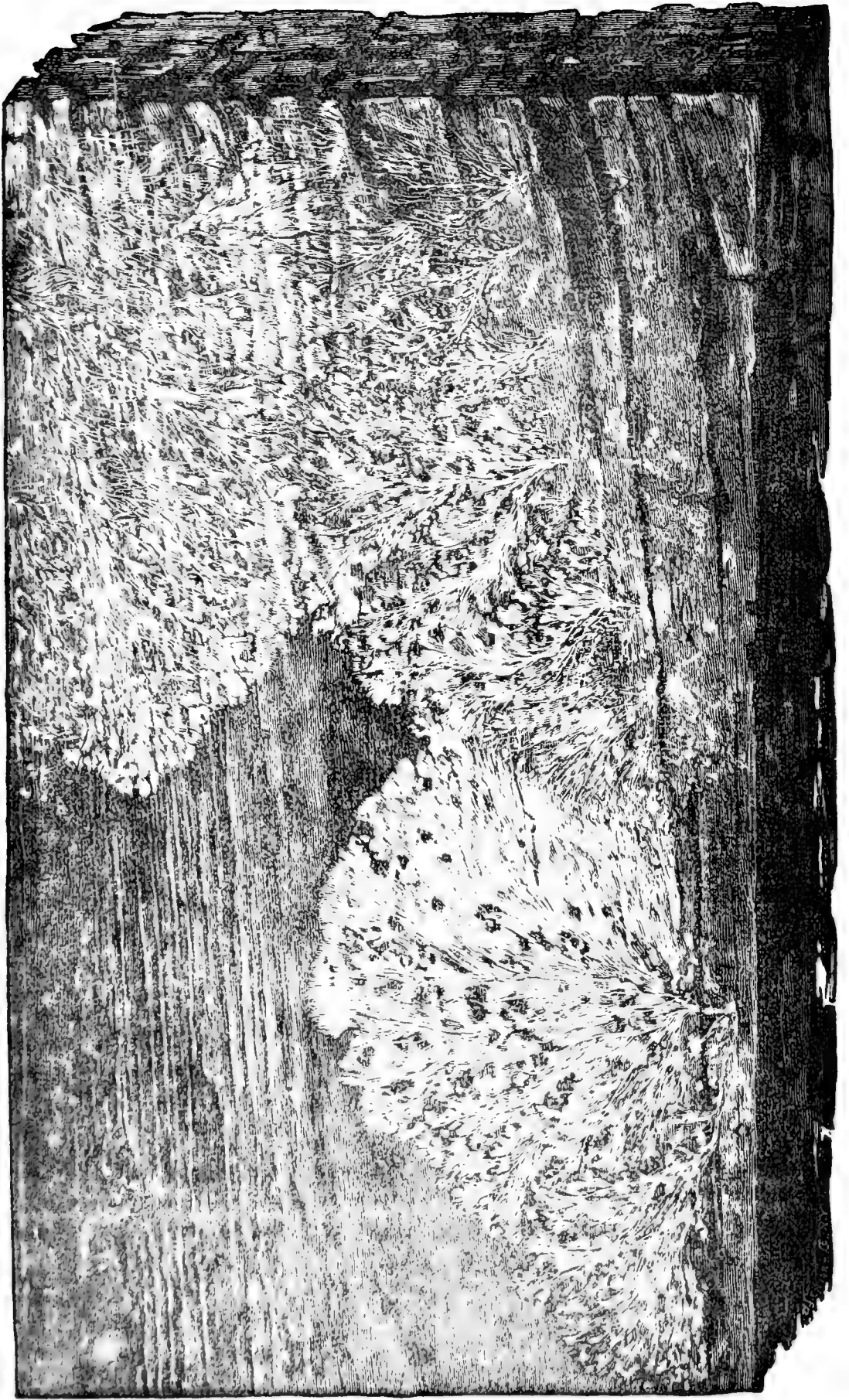


Fig. II. Mycelium of *Polyporus radula*, one-fourth size.

habitats and growth of definite species of fungi is required to best adapt the means to accomplish the desired work. Now that knowledge of the habitats of species of fungi has been acquired, simple and effective preventive measures suitable for many cases, without treatment, can at once be put into practice.

The study of the decay of timber used for construction is rendered very difficult in most cases, from the fact that the entire structure of the wood may be destroyed by the growth of the mycelium, or its fermentative process, of the fungus without fructification taking place. This is especially true of railroad ties and bridge timbers. So little is seen in proportion to the destruction accomplished, it is due to this feature more than to any other, that the true function of the fungi on wood is not more generally understood by users and consumers of timber. It is not strange the idea is so prevalent that fungi are the accompaniments, instead of the cause of the decay of wood. A growth of mycelium, nearly similar to that shown in Fig. II,* of a fungus on the under side of a plank, as in station platforms or between boards when piled in close contact, has not been sufficient in most cases to call attention to the injury, if not the destruction of the plank or timber upon which it is growing.

Fig. II shows the mycelium of *Polyporus radula*, Fr. growing on the under side of a plank from a station platform. After the mycelium has run over the wood in a dense mass, then, by means of the fluids it generates — some of them having an acid reaction — the fibers or wood cells are softened and penetrated by the mycelium, and in this way the process of disorganization is carried on.

This causes the wood to shrink, crack, and finally fall to pieces.

The mycelium of many other species of the higher Fungi differs from this to some extent, but the final effect of its growth on and through the wood is to destroy it. Besides the visible mycelium there are many other growths and ferments, invisible to the eye, which cause a rapid internal decay of large unseasoned painted blocks, such as truck bolsters, transoms, buffers, dock timbers, and end sills to cars.

In warm and damp weather it is not uncommon for such growths to occur upon timber when piled in close contact, according to the species of wood and fungi, in three to eight weeks. In this vicinity the timber on which such growths have started may not be considered sufficiently injured for construction — to be rejected. If it is thoroughly

* Figures I, II and III are from my paper entitled "Woods and Their Destructive Fungi," in the *Popular Science Monthly*, August and September for 1886, and are used by permission of the editor, Prof. W. J. Youmans. P. H. D.

dried or seasoned before use, the decay commenced is checked and will not revive until the wood again becomes moist from external causes. On the contrary, if such wood is put into structures while damp and unseasoned, then painted or confined where the moisture is retained, the decay will continue, the rapidity depending upon the continued amount of damp and warm weather or equivalent conditions. This is commonly and erroneously called "dry rot." Decay of dry wood can not take place without moisture.

It is well established by numerous proofs that seasoned woods last in all conditions of service where it is unfavorable for the growth of fungi, and decay in all conditions where they can grow, unless the timber is judiciously treated. The propagation of fungi upon timber may be either by germination of spores, which are thrown off by thousands when in fructification and disseminated by the air, or by revival of mycelium already on or in the wood.

Besides the ever-present spores of a fungus or its mycelium in timber, three essential conditions in combination are necessary for the decay of wood, or in other words, the growth of a fungus.

First. Moisture, either external or internal.

Second. A temperature between 40° and 120° Fahr., 75° to 90° being the most favorable for the maximum growth of fungi.

Third. A small amount of air, still or nearly quiet. Free circulation or winds check the growth of mycelium when in direct contact with it.

When wood must be exposed to these three conditions, sooner or later, according to its structure and cell contents, fungi grow and destroy it as a result of a natural law of their growth. Therefore, to protect seasoned wood from decay, the combination mentioned must be prevented from taking place by rejecting either one of the three elements; or, if that is impossible, an antiseptic or preservative must be used to prevent the growth of any fungi. This brief statement comprehends, both theoretically and practically, what is necessary to be done to preserve timber structures from decay, but to reduce the principles to practice, so as to meet all conditions of service which may occur, requires a knowledge of the structure of the particular wood, its cell contents, size of stick to be used and care in seasoning. Also a knowledge of the special fungus or fungi attacking the species of wood, and the value and proper use of preservatives and antiseptics.

Species of fungi which I have found upon specific woods when used as railroad ties or in bridges.

The fungi peculiar to white oak, *Quercus alba*, L., are *Polyporus*

applanatus, Fr.; *P. versicolor*, Fr.; *P. pergamenus*, Fr.; *Dædalea unicolor*, Fr.; *D. quercina*, Pers., and *Lenzites vialis*, Pk.

Polyporus applanatus attacks the heart wood of the white oak tie and is very destructive, and requires a moderate amount of air and moisture for its growth. The characteristic decay of these ties is from the under to the upper side, and is most rapid in stone ballast, or a coarse ballast which retains a little moisture and permits access of air. In a ballast containing considerable loam, which checks the circulation of air, and in wet cuts, the growth of the mycelium is retarded and the durability of the ties increased. In porous ballast, unless wet, the deeper the white oak ties are imbedded the better are the conditions of the growth of the fungi and the more rapid the decay of the ties. On the contrary, only imbedding the ties sufficient for the stability of the track increases the service of the ties by retarding the rapidity of the upward growth of the mycelium.

Polyporus versicolor attacks the sap wood of white oak ties and posts, and to a limited extent the heart wood.

Polyporus pergamenus attacks those ties from which the bark has not been removed.

Dædalea unicolor, *D. quercina* and *Lenzites vialis* have been found on ties laid on railroad bridges.

The structure of the white oak is so firm and dense that it readily sustains the heaviest traffic and it is quite difficult to impregnate the internal cells of the ties. Unless a process has been used which would sterilize the spores lodged in the wood or possible traces of mycelium, the exterior treatment on the unseasoned wood prevents the escape of the internal moisture, the same as a coat of paint. This will hasten decay, for it furnishes the requisite conditions for fermentations and internal growth of mycelium.

The fungi attacking ties of the chestnut, *Castanea vulgaris*, variety *Americana*, A. D. C. (*Castanea vesca*, L., variety *Americana*, Mx.), are *Polyporus sulphureus*, Fr.; *P. spumeus*, Fr. ? ; *P. hirsutus*, Fr.; *P. versicolor*, Fr.; *P. pergamenus*, Fr.; *Agaricus Americanus*, Pk. and *A. sublateritius*, Schæff.

Polyporus sulphureus is also very destructive to telegraph poles and large posts, attacking them near the ground line.

The chestnut contains naturally a stronger antiseptic than the white oak and resists, in contact with the soil, the growth of the fungi until the antiseptic is destroyed by the air, or contact with the rails and spikes. The decay of the chestnut tie is from the top downwards; therefore the deeper the tie is imbedded the longer the body lasts. The full advantage of this is lost in

some degree from the decay which takes place around the spikes and under the rails, from the fact that the iron in contact with this wood neutralizes its natural antiseptic. The ends and centers of chestnut ties are sound after the rails have cut into the wood enough to necessitate their removal. The opinion is quite prevalent that they do not decay, but are mostly destroyed by mechanical abrasion; which is not the fact, for the microscope reveals the truth, the presence of the mycelium of a fungus and its destructive work on the wood fibers as an important reason of their rapid abrasion.

The chestnut is lighter than the white oak and many of the wood fibers much coarser, which enables it to be impregnated with an antiseptic quite readily. The large ducts of the two woods are about the same size. The medullary rays of the chestnut are fewer than of the white oak, and it is, therefore, more easily indented as a tie.

The fungus which principally attacks the white cedar, *Chamaecyparis sphaeroidea*, Spach., is *Agaricus campanella*, Batsch. It even attacks the growing tree, and in most cases its mycelium is found in the ties when cut. The tree is a very slow grower and, as the lower limbs become shaded, they die and are attacked by their special fungus, and this communicates with the upright cells of the tree. It takes from ten to twenty years before the limbs break off and the wound or orifice is closed by the growing wood. As long as air has access to the mycelium it slowly grows and destroys the wood above and below the wound, the decay spreading laterally very slowly, owing to the small medullary rays and the preservatives they contain. As soon as the orifice is closed, shutting off the air supply, the decay for the time is nearly if not entirely checked. When the trees are cut for ties it is not uncommon to find one or more decayed spots, from one-half to an inch in diameter, extending nearly the entire length of the tie.

The durability of the wood is so great that such ties are not rejected as long as there is sufficient sound wood for spiking. This wood contains a natural preservative and is very durable in contact with the soil, but its structure is too light and delicate to long withstand the heavy traffic of trunk lines, though from its durability it is valuable for those of moderate traffic.

The fungi which destroy ties made of Tamarack, *Larix Americana*, Mx., are *Polyporus pnicola*, Fr. and *Trametes Pini*, Fr.

The fruit of the former always shows traces of phosphoric acid.

This wood is heavier than white cedar, the wood cells being larger, with thicker walls. It is also much stronger because the cells in the annual layer formed in the autumn are nearly solid and in sufficient number to resist indentation or cutting of the ties by the rails under

heavy traffic. It is a wood which can be easily treated so as to resist the attacks of fungi, and such ties have lasted over thirty (30) years in actual service.

The fungi attacking the hemlock, *Tsuga Canadensis*, Carr., are numerous. The following is a list so far as observed:

Agaricus melleus, Vahl.

A. campanella, Batsch.

A. porrigens, Pers.

A. succosus, Pk.

A. rugosodiscus, Pk.

A. epipterygius, Scop.

Paxillus atrotomentosus, Fr.

Lenzites sepiaria, Fr.

Stereum radiatum, Pk.

Polyporus lucidus, Fr.

P. benzoinus, Fr.

P. epileucus, Fr.

P. Vaillantii, Fr.

P. subacidus, Pk.

P. medulla-panis, Fr.

P. pinicola, Fr.

P. abietinus, Fr.

P. borealis, Fr.

This wood does not contain any natural antiseptic or preservative, and is readily attacked by a host of fungi, and decays very quickly. It is heavier than white cedar, but lighter than the tamarack, and, when well preserved by metallic antiseptics, makes a valuable tie.

The fungi destroying the wood of yellow pine, *Pinus palustris*, Mill., are *Lentinus lepideus*, Fr. See Fig. I.

Sphaeria pilifera, Fr. See Fig. III.

Trametes Pini, Fr., and *Merulius lacrymans*, Fr.

The first is the most destructive to ties in this vicinity, the decay

being most rapid on the bottom and extending upwards. In porous ballast the deeper the ties are imbedded the shorter the duration of service, so far as decay is concerned. The mycelium requires considerable moisture for its growth, and some air. A bal-

last which prevents a free circulation of the

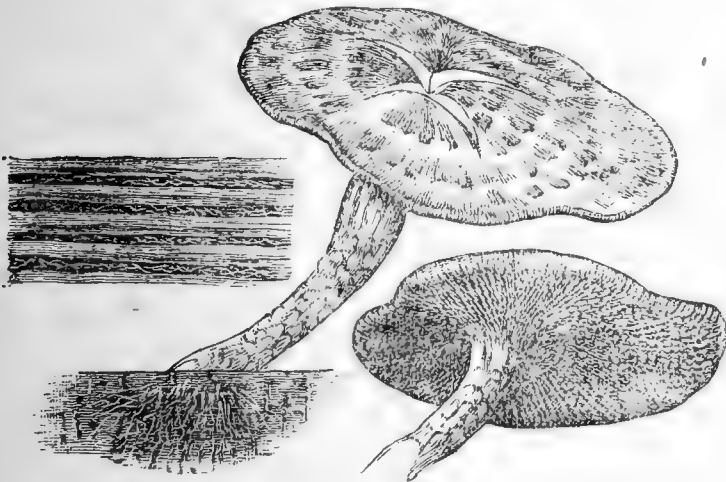


Fig. I. *Lentinus lepideus*, Fr. on Yellow Pine.

Showing the fruit of the fungus on, and the mycelium in, the wood. The size of the fruit varies from an inch to eight inches in diameter.

latter checks its growth. The sun and wind check its growth and oftentimes a tie which looks sound upon the surface will be so badly decayed underneath that its removal from the track will be necessary.

The mycelium of this fungus is usually pure white, and is not killed by freezing in the wood. In bridges it is very destructive.

Trametes Pini is also found upon ties of this wood, but is confined to the portions above ground. It will grow and fruit with less moisture than *Lentinus lepideus*, but as far as observed, its rapidity of destruction is not so great.

The fungus shown in Fig. III appears on the sap-wood of yellow pine, giving it a dark, dingy appearance, and if the dampness continues fermentations are set up, destroying the wood.

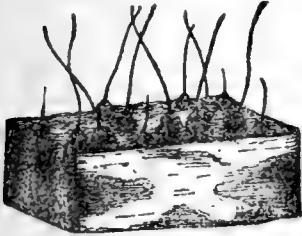


Fig. III. *Sphaeria pilifera*, Fr., magnified five diameters.

Sphaeria Pilifera attacks the sap-wood, discolors and quickly destroys this portion of the wood under favorable conditions for its growth. The resinous matter in yellow pine does not protect it in out-door situations, from attacks of the fungi mentioned.

The heart wood of yellow pine is so dense and firm that it is not readily penetrated by antiseptics. The same remarks in regard to imbedding white oak ties apply to this wood. In buildings, yellow pine is attacked by *Merulius lacrymans*, Fr., where it is warm and damp and the air stagnant.

White pine, *Pinus Strobus*, L., when used in bridges and trestles, is attacked by *Lentinus lepideus*, Fr., *Agaricus melleus* Vahl., *Polyporus Vaillantii* Fr. and, in warm inclosures, *Merulius lacrymans* Fr. Both the latter are very destructive.

There are many other woods whose structure is well adapted to their use as railroad ties, but which are so quickly destroyed by fungi as to be of no value unless judiciously treated. These are the beech, birches, elms and maples.

The above will be sufficient to call attention to the practical importance of a study of the fungi, in an economic sense as applied to the decay of wood.

The following simple but effective measures for the preservation of wood can at once be put in practice :

Timber, ties and boards should be seasoned before using, except when submerged. Green wood, according to the species, contains from twenty-five to forty-eight per cent of its weight of sap or moisture, and fully one-half these amounts must be removed to prevent decay in lumber painted on one side, or large sticks of timber painted on all sides, as buffers and car sills, transoms, truck bolsters and timbers.

All lumber and timber should be piled so there can be a free circulation of air around and between each board or stick. Stringers, six

to ten inches thick, should first be laid down, and the lumber piled on them in tiers, with narrow sticks between each board at the ends and centers. Grass and weeds should not be allowed to grow near the piles of lumber, impeding the circulation of air under them.

Large timber should be seasoned under sheds and not exposed to the rays of the sun, as the latter dries an exterior portion so rapidly that it prevents the proper escape of moisture from the outside, and internal decay is liable to occur.

If timber, ties or boards are piled in close contact, and remain so for any length of time, dampness will revive and start the growth of mycelium. It is not uncommon to see large sticks of timber, especially for freight cars, taken into the shops partially covered by mycelium, dressed, framed, put into cars and then painted, thus completing the essential condition for slow but certain decay. Such wood has only one-fourth to one-third the life of seasoned wood.

Boards, especially those used for sheathing freight cars, when piled

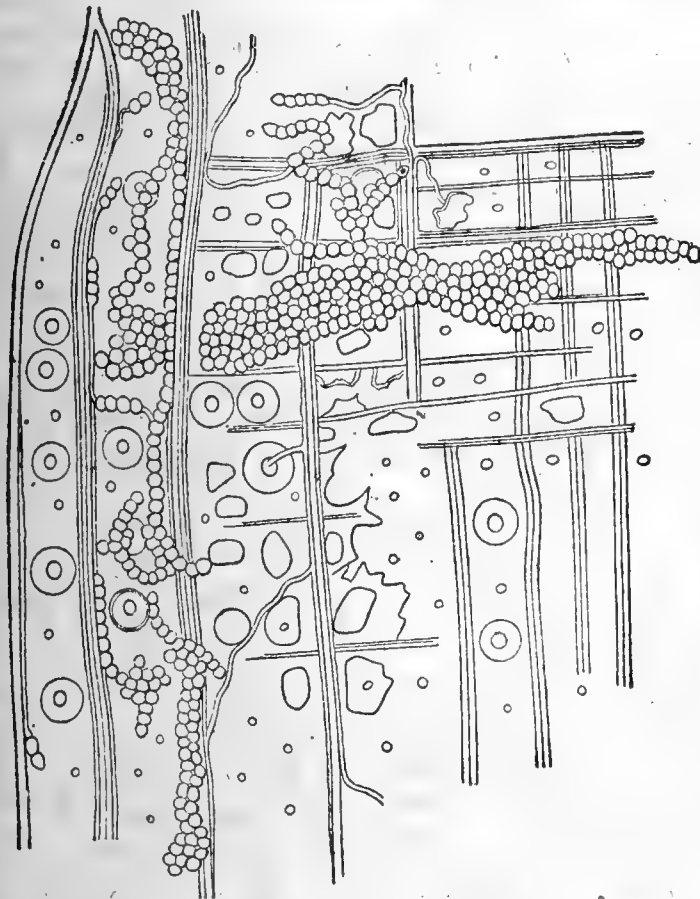


Fig. IV. Magnified 150 diameters, showing fungus growths discoloring the sap-wood of white pine.

Such boards, when put into cars and when moisture reaches the unpainted surface. This class of decay is

in close contact, in summer, are attacked in a short time by fungi, which discolor the wood by filling the cells with growths, often similar to those shown in Fig. IV.

The species of fungi which discolor the sap-wood and then set up fermentations are exceedingly numerous and grow with great rapidity. Some of the forms found in white pine are spheres resembling those shown in Fig. IV.

This wood, on being dried, will remain discolored, but the seasoning will check the

decay. This class of decay is

not confined to cars and railroad structures, but exists also in buildings, wharves and docks, where timber forms the major part.

The reasons for the first steps in checking the present unnecessary decay of timber must be first understood before we can derive full benefits of more expensive and complex treatment of timber.

Yours truly,

P. H. DUDLEY.

(F.)

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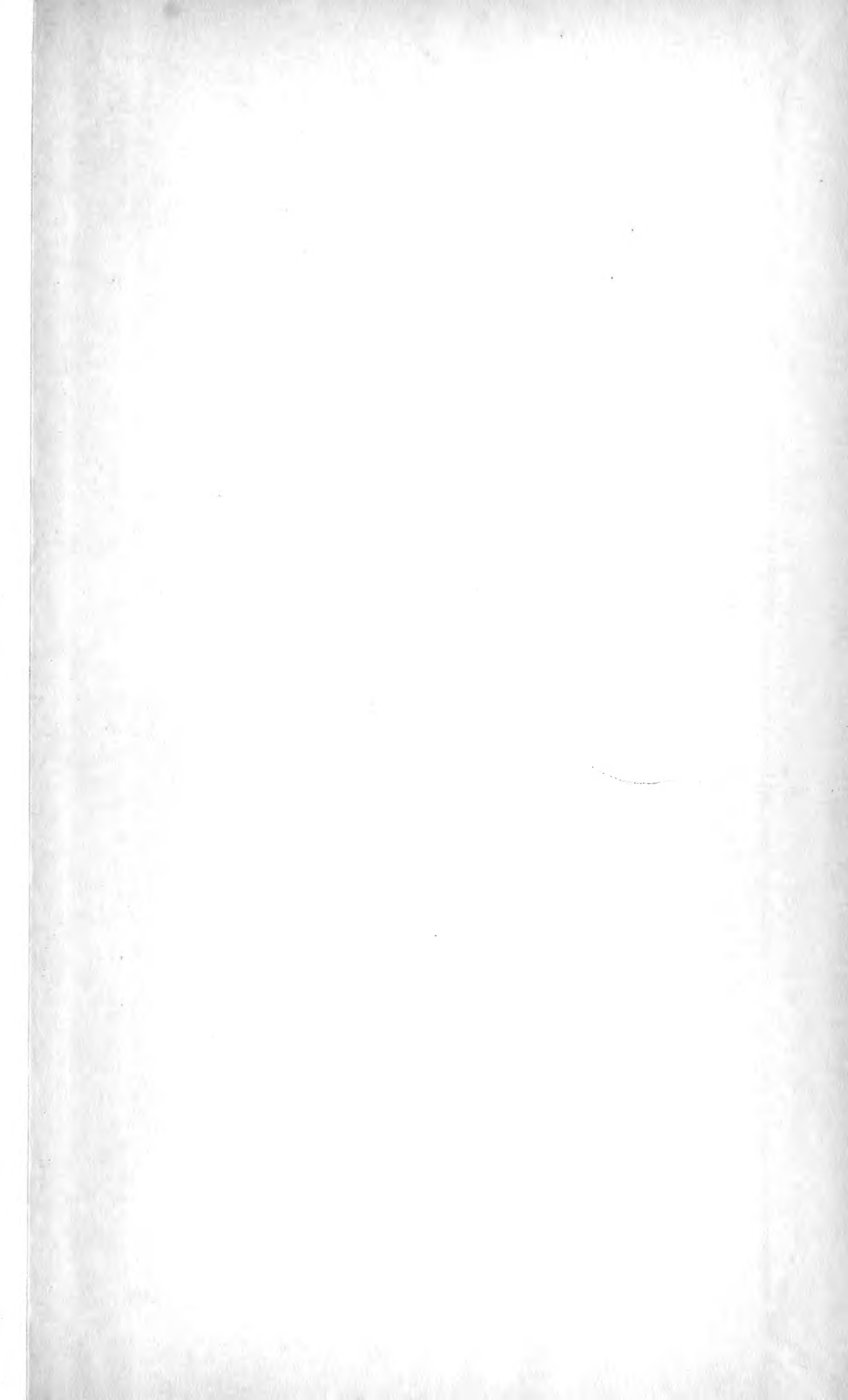
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