

Extra 32nd Regents' Report.

REPORT OF THE BOTANIST.

for year 1877

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,

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>
Fraginus 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 Fckl.
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. Waldsteinia 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 *insigue* *Hassal.*
Chantransia *violacea* *Ktz.*
Glœotrichia *Pisum* *Thuret.*
Agaricus *spretus* *Pk.*
 A. *inpolitoides* *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. *eremoraceus* *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* *Frøst.*
 R. *delica* *Fr.*
 R. *olivascens* *Fr.*
 R. *flavida* *Frøst.*
Hygrophorus *lividoölbus* *Fr.*
Marasmius *archyropus* *Pers.*
Boletus *punctipes* *Pk.*
 B. *sensibilis* *Pk.*
 B. *Roxanæ* *Frøst.*
 B. *rubinellus* *Pk.*
Polyporus *circinatus* *Fr.*
 P. *parvulus* *Klotzsch.*
 P. *simillimus* *Pk.*
 P. *Morgani* *Frøst.*
 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.

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

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

W. DOOLITTLE, Medusa, N. Y.

Lycoperdon giganteum Batsch. |

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

<i>Potamageton crispus L.</i>	<i>Ulmus racemosa Thomas.</i>
<i>Desmodium nudiflorum DC.</i>	<i>Polygonum amphibium L.</i>
<i>Aster puniceus L.</i>	<i>P. Hartwrightii 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 *Berk.*S. papillatum *Far.*Uromyces Junci *Schw.*Peronospora Ficariæ *Tul.*U. Dactylidis *Oth.*P. obducens *Schroet.*

Puccinia Epil. v. Proserpinaceæ.

P. Potentillæ *De By.*Taphrina aurea *Fr.*P. nivea *Ung.*T. alnitorqua *Tul.*Ramularia macrospora *Fres.*Ascomyces deformans *Berk.*Cenangium pythium *B. & C.*Dothidea vorax *B. & C.*

E. A. RAU, Bethlehem, Pa.

Puccinia Grindeliæ *Pk.*Uromyces sanguineus *Pk.*P. Kuhnii *Schw.*U. Brandegei *Pk.*P. cladophila *Pk.*U. simulans *Pk.*Accidium gracilens *Pk.*U. plumbarius *Pk.*

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

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

(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 Tephrophauæ, 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, floecose-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-eervine 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 *Laceri*. 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, hygrophaneous, 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, merulioid 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. volenus*. 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 fringed. *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 funnellform, 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 *Daerymyces* 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 *P. Dæmonum Rumph.*

Veil none *P. impudicus L.*

Denuded pileus porous, veil not perforate, concealed *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 .0001 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 *Sphaeria*, 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 *Khr.*

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 *Fckl.*

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; flocci 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 FRAGARIE *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 Adirondaek 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 *Grevel.*

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*. Adirondaek 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 UDUM *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, uni-septate, 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 *Fr.*

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 *Mx.*

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. panuoides</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 viscidness 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 SEMI-IBERA *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 ONYSPORA *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. Outl., 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, *Taft*. Reusselaerville, *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."—*Grevillea*. "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 Alton Lack 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 Vill. 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.* STUDDED 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, eiumella 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 subplicate 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 cæspitose, 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. saccatum*. 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 caespitose, obovate, pyriform or turbinate, sessile or with a short stem-like base, radiating 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 caespitose, 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, caespitose 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 caespitose, sessile, radiating, 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, radiating, 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.