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New York State Museum

JOHN M. CLARKE, Director
CHARLES H. PECK, State Botanist

Bulletin 116

BOTANY 10

REPORT OF THE STATE BOTANIST 1906

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1907

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New York State Education Department
Science Division, January 18, 1907

Hon. Andrew S. Draper LL.D.
Commissioner of Education

SIR: I communicate herewith, for publication as a bulletin of the State Museum, the annual report of the State Botanist for the fiscal year ending September 30, 1906.

Very respectfully

JOHN M. CLARKE
Director

State of New York
Education Department
COMMISSIONER'S ROOM
Approved for publication this 18th day of January 1907

A. S. Draper

Commissioner of Education

New York State Education Department

New York State Museum

JOHN M. CLARKE, Director
CHARLES H. PECK, State Botanist

Bulletin 116

BOTANY 10

REPORT OF THE STATE BOTANIST 1906

Dr John M. Clarke, Director of Science Division:

I have the honor of submitting to you the following report of work done in the botanical department of the State Museum during the year 1906.

Specimens of plants for the State herbarium have been collected in the counties of Albany, Columbia, Dutchess, Essex, Fulton, Greene, Hamilton, Herkimer, Madison, Oneida, Putnam, Rensselaer, Saratoga, Steuben, Suffolk and Warren.

Specimens of New York species have been received from contributors and correspondents, that were collected in the counties of Albany, Allegany, Chautauqua, Columbia, Essex, Fulton, Herkimer, Dutchess, Madison, Monroe, Oneida, Onondaga, Orange, Orleans, Rensselaer, Richmond, Saratoga, Steuben, Suffolk, Tompkins, Warren and Washington.

The number of species of which specimens have been added to the State herbarium is 156. Of these, 60 are species new to the herbarium, 96 are not new. Of the former number, 20 are considered new or undescribed species and descriptions of these will be found in another part of this report. A list of the names of added species is given under the title "Species added to the herbarium."

The number of those who have contributed specimens is 61. This includes many who have sent extralimital specimens or specimens simply for identification, but if the specimens were in good condition when received and were suitable or desirable for the herbarium they have been preserved and credited to the sender as a contribution. A list of the names of the contributors and their respective contributions will be found under the title "Contributors and their contributions."

The number of species found or of which specimens have been

contributed that are deemed new to our New York flora is 67. A record of these with their localities and descriptions of new species is given under the title "Species not before reported."

Descriptions of five new but extralimital species and one new variety have been added to this chapter.

A record of new stations of rare plants, of new varieties and forms of well known species, remarks concerning distinguishing characters of closely related species or observations of unusual features in some species are given under the title "Remarks and observations." The number of New York species noticed in this chapter is 27.

The study of our fleshy fungi and the collection of specimens of them for the herbarium have been continued, though much of the season has been singularly unfavorable to their production. Rain and showers were frequent in the early part of summer but the prevailing low temperature was detrimental to the growth of these plants. As the weather became warmer the rains ceased and excessive dryness prevented their growth. September is usually one of the best months of the year for mushroom growths, but this season it was one of the poorest. Late fall rains, however, brought out a delayed crop which was available at a much later date than usual and helped to make good the deficiency of the earlier part of the season. The number of species of fungi added to the herbarium is 39 of which 17 are new species.

The trial of the edible qualities of our wild mushrooms has resulted in adding 11 species to our list of those deemed edible, and makes the whole number of New York species of this class 183. Of the 11 added species 9 have been illustrated by colored figures of natural size. Figures of the 2 remaining species, Russula earlei Pk. and Boletus rugosiceps Pk. have been published in preceding reports. Descriptions of the 11 species tested and approved this year will be found under the title "Edible fungi."

The study of our Crataegus flora has been continued with much interest. Specimens have been collected in the northern, eastern, central and southwestern parts of the State. The number of species added to the State flora is 8, of which two are new species. This addition makes the number of New York species now known 97. Many specimens of this genus still remain undetermined. The destructive influence of late frosts was clearly seen in the failure of many thorn bushes which bore a full crop of flowers to

develop any fruit. The essential floral organs were frozen and consequently the fruit failed to develop. In such cases the stamens and pistils are sometimes frozen before the buds open. When the flowers appear they look fresh and fair at a distance but on close inspection the stamens and pistils are seen to be dead and blackened. If the freeze is very severe after the buds are much swollen no species escapes. If less severe, only the flowers of the most tender species or those which are in the most susceptible condition are killed. During the past season many species of the Tomentosae group failed to develop fruit though at flowering time they were full of blossoms. Species in the same locality whose time of flowering is earlier may escape injury.

The comparatively large genera Hygrophorus and Russula present some peculiar difficulties. The subgenera are not sharply differentiated and in some cases American species appear to combine characters of two subgenera or do not in all respects agree with the characters ascribed to any of the subgenera. Nevertheless a revision of the New York species of these genera has been attempted and the Friesian arrangement of the subgenera and species followed as far as possible. Descriptions have been rewritten and in some cases made more full and satisfactory.

The plan of identifying specimens of plants for correspondents and others who send or bring them to the office for that purpose has been followed. This not only results in the dissemination of useful botanical knowledge, but also in sometimes acquiring interesting and valuable specimens for the herbarium that otherwise might fail to reach it. The number of those for whom determinations of specimens have been made is 82. The number of determinations is 435.

Botanical specimens representing 20 species of trees have been collected but not included in the foregoing enumeration. They are intended to replace the lost or damaged specimens of the swinging frames, which loss occurred while these were absent at the St Louis and Portland expositions.

An additional table case of specimens of parasitic fungi has been prepared and placed in the botanical exhibition room. It contains specimens of 24 species some of which are injurious to cultivated plants, some to wild plants.

The case containing the specimens of the Japanese edible mushroom Shiitake, Pleurotus bretschneideri Kalchb., on the branches where they grew, has been repaired and placed on ex-

hibition. It is surmounted by a bell jar filled with the dried mushrooms in the condition in which they are offered for sale in the markets of China and Japan.

Mr S. H. Burnham, the Assistant Botanist, has been chiefly occupied with office work. He has incorporated the collections of 1905 in their proper places, has disinfected and labeled the specimens, attended to the correspondence of the office in my absence, identifying specimens sent for determination and giving information sought concerning them. He has prepared a card catalogue with descriptive references of the new species of fungi described by the State Botanist.

Respectfully submitted

CHARLES H. PECK
State Botanist

Office of the State Botanist
Albany, December 26, 1906

SPECIES ADDED TO THE HERBARIUM

New to the herbarium

Allionia hirsuta *Pursh*
Amanitopsis pulverulenta *Pk.*
Ascochyta pisi *Lib.*
Aster arcifolius *Bu.*
A. elaeagnus *Bu.*
A. fragrans *Bu.*
A. multiformis *Bu.*
A. violaris *Bu.*
Boletus subpunctipes *Pk.*
Caryospora cariosa *Fairm.*
Collybia campanella *Pk.*
C. lacerata *Lasch.*
Cortinarius intrusus *Pk.*
C. validipes *Pk.*
Crataegus arcana *Beadle*
C. bissellii *Sarg.*
C. cognata *Sarg.*
C. deltoides *Ashe*
C. habereri *Sarg.*
C. noveboracensis *Sarg.*
C. scabrida *Sarg.*
C. tenella *Ashe*
Cynoglossum boreale *Fern.*
Didymium clavus (*A. & S.*) *Rabenh.*
Dryopteris pittsfordensis *Slo.*
Entoloma minus *Pk.*
Flammula expansa *Pk.*
Gaura coccinea *Pursh*
Hydnum luteopallidum *Schw.*
Hygrophorus burnhami *Pk.*
Hygrophorus luridus *B. & C.*
Hypocrea pallida *E. & E.*
Inocybe pallidipes *E. & E.*
Lepiota asperula *Atk.*
L. eriophora *Pk.*
Leptoglossum fumosum *Pk.*
Linum medium (*Planch.*) *Britton*
Marasmius phyllophilus *Pk.*
Mycena albogrisea *Pk.*
Nicandra physaloides *Gaertn.*
Ohleria modesta *Fckl.*
Omphalia pusillissima *Pk.*
Panicum deminutivum *Pk.*
Peckiella hymenii *Pk.*
Phyllosticta ampelopsidis *E. & M.*
P. smilacis *E. & E.*
P. sphaeropsidea *E. & E.*
Pleurotus terrestris *Pk.*
Polyporus galactinus *Berk.*
Puccinia peckii (*DeT.*) *Kell.*
Russula foetentula *Pk.*
R. modesta *Pk.*
R. pectinatoides *Pk.*
R. vesca *Fr.*
Scleroderma tenerum *B. & C.*
Septoria lycopersici *Speg.*
Steccherinum adustulum *Banker*
Stemonitis smithii *Mach.*
Tricholoma hirtellum *Pk.*
Viola incognita *Brainerd*

Not new to the herbarium

Agastache scrophulariaefolia (*Willd.*)
Amanitopsis volvata (*Pk.*) *Sacc.*
Aquilegia canadensis *L.*
Arctium lappa *L.*
Asarum canadense *L.*
Aster camptilis *Bu.*
A. claytoni *Bu.*
A. concolor *L.*
Boletus auriporus *Pk.*
B. frostii *Russ.*
B. nigrellus *Pk.*
B. peckii *Frost*
Boletus rugosiceps *Pk.*
Bromus tectorum *L.*
Castanea dentata (*Marsh.*) *Borkh.*
Catastoma circumscissum (*B. & C.*)
Chrysomyxa pyrolae (*DC.*) *Rostr.*
Chrysopsis mariana *Nutt.*
Clavaria botrytoides *Pk.*
C. cristata *Pers.*
Clitocybe amethystina (*Bolt.*)
C. monadelpha *Morg.*
C. ochropurpurea *Berk.*
Clitopilus prunulus (*Scop.*) *Fr.*

Coreopsis rosea *Nutt.*
Cornus alternifolia *L. f.*
C. candidissima *Marsh.*
Crataegus caesariata *Sarg.*
C. coccinea *L.*
C. ferentaria *Sarg.*
C. illuminata *Sarg.*
C. intricata *Lange*
C. laneyi *Sarg.*
C. pedicellata *Sarg.*
C. pringlei *Sarg.*
C. punctata *Jacq.*
C. spissiflora *Sarg.*
C. tenuiloba *Sarg.*
Craterellus cantharellus (*Schw.*)
Cypripedium acaule *Ait.*
Daedalea quercina (*L.*) *Pers.*
Dasystoma virginica (*L.*) *Britt.*
Dryopteris boottii (*Tuck.*) *Under.*
D. cristata (*L.*) *Gray*
D. cris. clintoniana (*Eat.*)
D. simulata *Dav.*
Eleocharis inter. habereri *Fern.*
E. melanocarpa *Torr.*
Gentiana crinita *Froel.*
Hydnum aurantiacum *A. & S.*
H. femicum (*Karst.*) *Sacc.*
H. imbricatum *L.*
H. repandum *L.*
H. vellereum *Pk.*
H. zonatum *Batsch*
Hypopitys lanuginosa (*Mx.*) *Nutt.*
Ilex vert. cyclophylla *Robins.*
Inocybe calamistrata *Fr.*
Irpex canescens *Fr.*
Lactarius ful. fumosus *Pk.*
L. pergamenus *Fr.*
Lactarius piperatus *Fr.*
L. vellereus *Fr.*
L. volemus *Fr.*
Lespedeza angustifolia *Pursh*
L. hirta (*L.*) *Ell.*
L. virginica (*L.*) *Britt.*
Lobelia dortmanna *L.*
Lycopus sessilifolius *Gray*
Meibomia marilandica (*L.*) *Kuntze*
M. rigida (*Ell.*) *Kuntze*
Monarda punctata *L.*
Mycena galericulata (*Scop.*)
Physarum lateritium (*B. & R.*)
Polyporus schweinitzii *Fr.*
P. sulphureus (*Bull.*)
Polystichum acrostichoides (*Mx.*)
Polystictus simillimus *Pk.*
P. subsericeus *Pk.*
Populus balsamifera *L.*
Russula earlei *Pk.*
Sagina procumbens *L.*
Scirpus atro. pycnocephalus *Fern.*
S. cyp. pelius *Fern.*
Senecio obovatus *Muhl.*
Solidago tenuifolia *Pursh*
Sporobolus serotinus (*Torr.*) *Gray*
Stereum versicolor *Fr.*
Strobilomyces strobilaceus (*Scop.*)
Trillium erect. album *Pursh*
Tricholoma alboflavidum *Pk.*
T. nudum (*Bull.*) *Fr.*
Viburnum lentago *L.*
Viola blanda *Willd.*
V. cucullata *Ait.*
V. fimbriatula *Sm.*
Woodwardia areolata (*L.*) *Moore*

CONTRIBUTORS AND THEIR CONTRIBUTIONS

Mrs E. B. Blackford, Boston Mass.

Lactarius varius *Pk.*
Omphalia epichysium *Pers.*
Hygrophorus serotinus *Pk.*

Miss M. B. Church, Albany

Pleurotus porrigens (*Pers.*) *Fr.*

Mrs M. S. DeCoster, Little Falls

Viola incognita *Brainerd*
Viola selkirkii *Pursh*

Mrs G. M. Dallas, Philadelphia Pa.
Opuntia humifusa *Raf.*

Miss Alice Eastwood, San Francisco Cal.
Lentinus magnus *Pk.*

Mrs L. L. Goodrich, Syracuse
Trillium erectum album *Pursh*

Mrs M. A. Knickerbocker, San Francisco Cal.
Scoliopus bigelovii *Torr.*

Miss E. A. Lehman, Winston-Salem N. C.
Monotropsis lehmanae *Burnh.*

Mrs J. Rogers, Ausable Forks
Lepiota naucinoides *Pk.*

Miss A. M. Ryan, New London Ct.
Marsonia violae (*Pass.*) *Sacc.*

Miss T. L. Smith, Worcester Mass.
Russula modesta *Pk.*

Mrs F. C. Sherman, Syracuse
Pleurotus ulmarius *Fr.*

Mrs C. E. Taft, New York city
Collybia velutipes (*Curt.*) *Fr.*

Mrs E. S. Tomlinson, New York city
Polystichum acrostichoides incisum (*Gr.*) *Under.*

F. H. Ames, Brooklyn
Ammodenia peploides (*L.*) *Bupr.* | Hudsonia tomentosa *Nutt.*
Woodwardia areolata (*L.*) *Moore*

J. C. Arthur, Lafayette Ind.
Aecidium coloradense *Diet.* | Peridermium boreale *Arth.*
Peridermium carneum (*Bosc*) *S. & E.*

G. F. Atkinson, Ithaca
Cortinarius intrusus *Pk.* | Lepiota asperula *Atk.*
Russula constans *Karst.*

H. J. Banker, Greencastle Ind.

Onygena equina *Pers.*

Steccherinum adustulum *Banker*

Elam Bartholomew, Stockton Kan.

Aecidium abundans *Pk.*
Ae. allenii *Clint.*
Ae. diodiae *Burr.*
Ae. grindeliae *Griff.*
Ae. grossulariae (*Pers.*) *Schm.*
Ae. pammelii *Trel.*
Ae. punctatum *Pers.*
Ae. solidaginis *Schw.*
Albugo amaranthi (*Schw.*) *Kze.*
A. candidus (*Pers.*) *Kze.*
Arthosporium compositum *Ell.*
Cercospora pachypus *E. & K.*
C. vignae *E. & E.*
Coleosporium solidaginis (*Schw.*)
Coniosporium arundinis (*Cd.*) *Sacc.*
Cronartium asclepiadeum *Berk.*
Cucurbitaria salicina *Fckl.*
Cudonia circinans (*Pers.*) *Fr.*
Diplodia liriodendri *Pk.*
Dothidea linderae *Ger.*
Exobasidium vaccinii (*Fckl.*) *Wor.*
Geaster pectinatus *Pers.*
Geoglossum hirsutum *Pers.*
G. peckianum *Cke.*
Gymnosporangium clavipes *C. & P.*
Humaria cestrica *E. & E.*
Hypomyces lactifluorum (*Schw.*) *Tul.*
Leotia lubrica (*Scop.*) *Pers.*
Macrosporium ornatissimum *E. & B.*
Marsonia castagnei (*D. & M.*) *Sacc.*
Massariella bufonia (*B. & Br.*) *Tul.*
Meliola nidulans (*Schw.*) *Cke.*
Mitrula olivacea (*Pers.*) *Sacc.*
M. serpentina (*Muell.*) *Mass.*
Oidium monilioides *Lk.*
Peronospora calotheca *DeBy.*
P. euphorbiae *Fckl.*
Phyllachora graminis panici (*Schw.*)
Plasmopara geranii (*Pk.*) *B. & DeT.*
Psilocybe sabulosa *Pk.*
Puccinia absinthi *DC.*
P. agropyri *E. & E.*
P. asparagi *DC.*
P. asteris *Duby*
P. caricis (*Schum.*) *Reb.*
P. cyperi *Arth.*
Puccinia fraxinate (*Lk.*) *Arth.*
P. helianthi *Schw.*
P. heucherae (*Schw.*) *Diet.*
P. lycii *Kalchb.*
P. menthae *Pers.*
P. muhlenbergiae *A. & H.*
P. physalidis *Pk.*
P. pimpinellae (*Strauss.*) *Lk.*
P. prenanthis (*Pers.*) *Fckl.*
P. proserpinacae *Farl.*
P. purpurea *Cke.*
P. rubinella (*Pers.*) *Arth.*
P. silphii *Schw.*
P. stipae *Arth.*
P. tecta *E. & B.*
P. tosta *Arth.*
P. verbesinae *Schw.*
P. veroniae *Schw.*
Rhizographus fusariisporus *E. & E.*
Rhizopus nigricans *Ehrenb.*
Schizothyrella fraxini *E. & E.*
Sclerospora graminicola (*Sacc.*)
Scolecotrichum asclepiadis *E. & E.*
Septoria aurea destruens *E. & E.*
S. munroae *E. & B.*
Sorosporium syntherismae (*Pk.*) *Farl.*
Sphaeropsis cydoniae *C. & E.*
Stichopsora solidaginis (*Schw.*) *Diet.*
Teichospora populina *E. & E.*
Tricholoma portentosum *Fr.*
Tubercinia clintoniae *Kom.*
Tuberculina persicina (*Ditm.*) *Sacc.*
Typhula muscicola (*Pers.*) *Fr.*
Uromyces caladii (*Schw.*) *Farl.*
U. euphorbiae *C. & P.*
U. gentianae *Arth.*
U. glycyrrhizae (*Reb.*) *Magn.*
U. gnaphalii *E. & E.*
U. hordei *Tracy*
U. howei *Pk.*
U. junci (*Desm.*) *Tul.*
U. lespedezae (*Schw.*) *Pk.*
U. trifolii (*Hedw.*) *Lev.*
Ustilago utriculosa (*Nees*) *Tul.*
Xylaria digitata (*L.*) *Grev.*

M. S. Baxter, Rochester

Crataegus laneyi *Sarg.*
C. pedicellata *Sarg.*
Crataegus tenuiloba *Sarg.*
Pentstemon laevigatus *Soland.*

M. S. Baxter and V. Dewing, Rochester

Allionia hirsuta *Pursh*
Gaura coccinea *Pursh*
Conringia orientalis *(L.) Dum.*

R. C. Benedict, New York city

Dryopteris pittsfordensis *Slosson*

A. F. Blakeslee, Cambridge Mass.

Phycomyces nitens *(Ag.) Kunze*

F. S. Boughton, Pittsford

Clitocybe dealbata *Sow.*
Pleurotus subareolatus *Pk.*
Tricholoma columbetta *Fr.*

F. J. Braendle, Washington D. C.

Clavaria cinerea *Bull.*
Collybia zonata *Pk.*
Geaster saccatus *Fr.*
Isaria truncata *Pers.*
Mycenastrum spinulosum *Pk.*
Viola villosa *Walt.*

S. H. Burnham, Sandy Hill

Cordyceps capitata *(Holmsk.) Lk.*
Cynoglossum boreale *Fern.*
Erysiphe polygoni *DC.*
Flammula expansa *Pk.*
Hygrophorus burnhami *Pk.*
Lentinus spretus *Pk.*
Pleurotus terrestris *Pk.*
Polyporus borealis *Wahl.*
Polystichum acrostichoides *(Mx.)*
Russula cyanoxantha *(Schaeff.) Fr.*
Scapania irrigua *(Nees) Dum.*
Timmia megapolitana *Hedw.*
Lepiota asperula *Atk.*

G. H. Chadwick, Albany

Thelephora schweinitzii *Pk.*

G. D. Cornell, Coopers Plains

Arabis glabra *(L.) Bernh.*
Hieracium praealtum *Vill.*
Hypericum ascyron *L.*
Lilium canadense *L.*
Liriodendron tulipifera *L.*
Magnolia acuminata *L.*
Solidago juncea *Ait.*
Sisyrinchium angustifolium *Mill.*

W. C. Cottrell, Gloversville

Nicandra physaloides *Gaertn.*

Simon Davis, Brookline Mass.

Agaricus camp. hortensis *Cke.*
Coprinus plicatilis *Fr.*
C. stenocoleus *Lindb.*
Eccilia unicolor *Pk.*
Entoloma sericellum *Fr.*
E. sericeum (*Bull.*) *Fr.*
Galera sphagnorum *Pers.*
Hygrophorus davisii *Pk.*
Hygrophorus luridus *B. & C.*
H. mephiticus *Pk.*
H. nitratus (*Pers.*) *Fr.*
H. prat. albus *Sacc.*
Inocybe infelix *Pk.*
Leptonia transformata *Pk.*
Marasmius scorodonius *Fr.*
Psathyrella angusticeps *Pk.*
Russula compacta *Frost*

W. T. Davis, New Brighton

Aronia arbutifolia (*L.*) *Medic.*
Aronia atropurpurea *Britton*

Frank Dobbin, Shushan

Arthonia quintaria *Nyl.*
Arthonia radiata (*Pers.*) *Th. Fr.*
Discina orbicularis *Pk.*

Philip Dowell, Port Richmond

Dryopteris boottii (*Tuck.*) *Under.*
D. cristata (*L.*) *Gray*
D. crist. clintoniana (*Eat.*)
D. crist. marginalis *Dav.*
Dryopteris goldieana (*Hook.*) *Gray*
D. pittsfordensis *Slos.*
D. simulata *Dav.*
Woodwardia areolata (*L.*) *Moore*

C. E. Fairman, Lyndonville

Brachysporium obovatum (*Berk.*) *Sacc.*
Caryospora cariosa *Fairm.*
Didymium clavus (*A. & S.*) *Rabh.*
Nemosphaeria fairmani *Sacc.*
Ohleria modesta *Fckl.*
Physarum lateritium (*B. & R.*) *Rost.*

O. E. Fischer, Detroit Mich.

Agaricus camp. hortensis *Cke.*
Lepiota eriophora *Pk.*
Hydnum adustum *Schw.*

N. M. Glatfelter, St Louis Mo.

Guepinia palmiceps *Berk.*
Lepiota cep. lutea *With.*
Merulius rubellus *Pk.*
Pterula densissima *B. & C.*
Thelephora caespitulans *Schw.*

P. W. Graff, Storrs Ct.

Poronia macrospora *Pk.*
Xylaria polymorpha combinans *Pk.*

Cephas Guillet, Toronto Ont.

Hygrophorus miniatus *Fr.*
Lactarius paludinellus *Pk.*

C. C. Hanmer, East Hartford Ct.

Collybia lacerata *Lasch.*
Entoloma cuspidatum *Pk.*
Hygrophorus chlorophanus *Fr.*
Panus levis *B. & C.*

M. E. Hard, Chillicothe O.

Hydnum ochraceum *Pers.*
Tricholoma fumescens *Pk.*

J. J. Hare, Whitby Ont.

Hypholoma sublateritium squamosum *Cke.*

J. E. S. Heath, South Pasadena Cal.

Daldinia vernicosa (*Schw.*) *C. & D.*

A. P. Hitchcock, New Lebanon

Lycoperdon giganteum *Batsch*

G. S. Howell, Rockville Ind.

Tricholoma album *Schaeff.*

C. H. Kauffman, Ann Arbor Mich.

Crepidotus ralfsii *B. & Br.*
Cortinarius multiformis *Fr.*
Hypholoma vinosum *Kauff.*
Lepiota gracilis *Pk.*
Mycena glutinipes *Kauff.*
Pleurotus petaloides (*Bull.*) *Fr.*

W. A. Kellerman, Columbus O.

Galera kellermani *Pk.*
Psathyrella hirta *Pk.*

F. D. Kern, Lafayette Ind.

Puccinia graminis *Pers.*

R. B. Mackintosh, Peabody Mass.

Agaricus campester *L.*
Agaricus rodmani *Pk.*

Charles McIlvaine, Cambridge Md.

Lepiota morgani *Pk.*

George E. Morris, Waltham Mass.

Hygrophorus pallidus *Pk.*
H. ruber *Pk.*
Lepiota eriophora *Pk.*
Stereherinum adustulum *Banker*

L. J. Muchmore, Batavia

Hydnum luteopallidum *Schw.*
Oligonema nitens (*Lib.*) *Rost.*
Stemonitis smithii *Mach.*

F. M. Rolfs, Mountain Grove Mo.

Phyllosticta rubra *Pk.*

W. H. Ropes, Salem Mass.

Agaricus micromegethus *Pk.*

I. M. Shepherd, Trenton, N. J.

Morchella esculenta (*L.*) *Pers.*

F. S. Smith, Angelica

Bacillus amylivorus *Burr.*

Fusicladium pirinum (*Lib.*) *Fckl.*

Perley Spaulding, St Louis Mo.

Fomes annosus *Fr.*
Hydnum artocreas *Berk.*
Merulius lac. verrucifer *Qucl.*
M. rubellus *Pk.*

E. B. Sterling, Trenton N. J.

Arachnion album *Schw.*
Calostoma cinnabarinum *Desv.*
Inocybe sterlingii *Pk.*
Lycoperdon excoriatum *Lloyd*
L. pusillum *Batsch*
L. serotinum *Bon.*
L. stellare (*Pk.*) *Lloyd*
Lycoperdon tesselliatum *Lloyd*
Pholiota discolor *Pk.*
Pluteus petasites *Fr.*
Sarcoscypha dawsonensis *Pk.*
Scleroderma aurantiaca *Pers.*
S. cepa *Pers.*
S. verrucosum (*Bull.*)

D. R. Sumstine, Wilkinsburg Pa.

Pyronema leucobasis (*Pk.*) *Sacc.*

Hermann von Schrenk, St Louis Mo.

Paxillus panuoides *Fr.*

Trametes serialis *Fr.*

K. F. Symonds, Utica

Clitocybe ochropurpurea *Berk.*

E. A. White, Storrs Ct.

Phallogaster whitei *Pk.*

T. E. Wilcox, Washington D. C.

Boletus retipes *B. & C.*
B. rimosellus *Pk.*
B. subtomentosus *L.*
Clavaria pistillaris *L.*
Collybia strictipes *Pk.*
Hymenogaster anomalus *Pk.*
Tricholoma columbetta *Fr.*

W. W. Eggleston, New York city

By exchange

Crataegus arcana *Ashe*
C. coccinea *L.*
C. cognata *Sarg.*
Crataegus deltoides *Ashe*
C. dissona *Sarg.*
C. dodgei *Ashe*

Crataegus glaucophylla *Sarg.*
C. intricata *Lange*
C. matura *Sarg.*
Crataegus modesta *Sarg.*
C. pentandra *Sarg.*
C. pruinosa *Wendl.*
Crataegus tenella *Ashe*

SPECIES NOT BEFORE REPORTED

Allionia hirsuta Pursh

Near Rochester. August. M. S. Baxter and V. Dewing. Introduced from the western states. It is Oxybaphus hirsutus Sweet.

Amanitopsis pulverulenta n. sp.

Pileus thin, convex becoming nearly plane, pulverulent, squamose in the center, even on the margin, white or creamy white, odor feeble or none; lamellae thin, unequal, narrowed behind, free or nearly so, moderately close, subventricose, whitish; stem equal or slightly tapering upward, bulbous, solid, pulverulent or furfuraceous, white; spores subelliptic, .0003–.0004 of an inch long, .0002–.00024 broad.

Pileus 1–2 inches broad; stem 1–2 inches long, 2–3 lines thick. Shaded banks by roadsides. Port Jefferson, Suffolk co. August.

This species is well marked by its white color and the copious mealiness of the pileus and stem. It is apparently closely related to Amanitopsis pubescens (Schw.) but it differs from the description of that species in having the pileus and stem pulverulent instead of pubescent and in the former being squamose in the center. There is no annulus and the slight remains of a membranous volva are seen in very young specimens only. In the dried specimens the lamellae have assumed a pale yellowish cinnamon hue.

Ascochyta pisi Lib.

Living pods of peas and beans. Menands, Albany co. July. This parasitic fungus produces discolored spots on the pods similar to the anthracnose spots of bean pods, but the spores of this fungus are uniseptate, those of the anthracnose, simple.

Aster arcifolius Bu.

Lake Minnewaska, Ulster co. September. Prof. E. Burgess has made a special study of the asters of our country and his revision and elucidation of the Biotian division of the genus enables

me to add to our New York flora several species which were formerly supposed to be varieties of Aster divaricatus, A. macrophyllus and other closely related species.

Aster biformis Bu.

Rathboneville, Steuben co. and Voorheesville, Albany co. August and September. In this species the lower stem leaves are petiolate and cordate with a deep narrow sinus, the upper leaves are abruptly reduced to a smaller size and are nearly or quite sessile. This difference between the upper and lower leaves is suggestive of the specific name.

Aster camptilis Bu.

Low rocky ground. Lake Minnewaska. September. A slender aster with a weak stem which is often reclined or bent as if too feeble to support its own branches or hold itself erect. This character is suggestive of the name bent stemmed aster.

Aster claytoni Bu.

Open places. Menands, Albany co. September. A large and variable species belonging to the group Divaricati. Specimens are sometimes 3 feet tall.

Aster elaeagnus Bu.

North Elba, Essex co. August. A northern species having orbicular or ovate radical leaves and variable stem leaves which are pale and hairy on the under side. This gives a scurfy appearance suggestive of the scurfy character of Elaeagnus leaves. The species belongs to the group Macrophylli.

Aster fragrans Bu.

Round Lake, Saratoga co. September. This species differs from A. divaricatus, to which it was formerly referred, in its more persistent fragrance, more compact panicle of flowers and more truncate base of its leaves.

Aster multiformis Bu.

Lake Minnewaska, Ulster co. September. A species remarkable for its long slender rootstocks and the many forms shown by the leaves of the same plant.

Aster violaris Bu.

Rathboneville, Steuben co. August. This species is distinguished by its suborbicular and reniform apiculate radical and lower stem leaves. It belongs to the group Macrophylli.

Boletus subpunctipes n. sp.

Pileus fleshy, broadly convex, often uneven on the surface, becoming soft with age, brown, reddish brown when dry, flesh white, slowly becoming dingy where cut or broken, taste mild; tubes nearly plane in the mass, adnate or but slightly depressed around the stem, the mouths small, round, whitish or grayish white, changing to reddish brown where wounded; stem equal or nearly so, solid, slightly reticulate at the top, very minutely dotted, sometimes obscurely squamulose at the top, grayish or pallid; spores rusty brown or cinnamon brown, oblong or subfusiform, .0004–.0005 of an inch long, .0002–.00024 broad.

Pileus 2–4 inches broad; stem 2–3 inches long, 4–6 lines thick. Shaded sandy soil. Menands, Albany co. August.

The surface of the pileus is rendered uneven by coarse shallow depressions. The species belongs to the section Versipelles. The dots on the stem are nearly like those on the stem of Boletus chromapes Frost.

Caryospora cariosa Fairm.

In cavities of old beech wood. Lyndonville, Orleans co. C. E. Fairman.

Collybia campanella n. sp.

Pileus thin, conic or campanulate with a papilla at the apex, covered with coarse appressed or deflexed strigose hairs, dark tawny; lamellae ascending, moderately close, whitish; stem firm, equal, inserted, floccose hairy, colored like the pileus; spores not seen.

Pileus 3–4 lines broad; stem 9–12 lines long, .5 of a line thick. Dead and dry branches of arbor vitae, Thuja occidentalis. Horicon, Warren co. July.

This species is related to Collybia stipitaria from which it is readily distinguished by its persistently conic or campanulate pileus and its uniformly dark tawny color of both pileus and stem. The hairy tufts of the stem are pointed and project at right angles from the stem.

Collybia lacerata Lasch.

Dry soil among grasses and bayberry bushes. Fishers island, Suffolk co. October. C. C. Hanmer. In these specimens the expanded pileus is umbonate and the umbo is darker colored than the rest. The specimens agree well with the figure of the species as given in Cooke's *Illustrations of British Fungi*. The spores in our specimens are broadly elliptic or subglobose and .00024–.0003 of an inch long.

Cortinarius intrusus Pk.

Carnation beds in greenhouses. Highland Falls, Orange co. January. Ernest Palmer. Communicated by G. F. Atkinson. The species was described from specimens found growing in mushroom beds in conservatories in Massachusetts and New Jersey and communicated by R. Macadam and C. McIlvaine.

Cortinarius validipes n. sp.

Pileus fleshy, thick, convex becoming nearly plane, dry, squamulose or floccose squamulose, ochraceous, flesh white tinged with yellow next the lamellae, taste mild; lamellae thin, narrow, close, adnate or decurrent with a tooth, yellowish white becoming cinnamon; stem stout, firm, solid, fibrous, striate at the top by the decurrent teeth of the lamellae, subannulate from the adherent remains of the webby veil, yellowish white, whitish within; spores subelliptic, .0003–.0004 of an inch long, .0002–.00024 broad.

Pileus 3–6 inches broad; stem 4–5 inches long, 1–2 inches thick. Coopers Plains, Steuben co. September.

A cluster of six plants was found growing in a small excavation near a farmhouse. The weather had been unusually warm and dry for several weeks, but a soaking rain two days before and a thunder shower one day later seem to have been favorable to the development of this large fine mushroom. It belongs to the section Dermocybe.

Crataegus arcana Beadle

Moores Mills, Dutchess co. May and October. W. W. Eggleston.

Crataegus bissellii Sarg.

Rocky pasture, near Staatsburg, Dutchess co. May and September. Our plants differ from the typical form of the species only in having stamens 5–8 and anthers pale pink soon fading to white.

Crataegus cognata Sarg.

Colemans Station, Dutchess co. and Dykemans, Putnam co. May and September. Mr Eggleston had previously found it in the latter locality.

Crataegus deltoides Ashe

Moores Mills. May and October. W. W. Eggleston. The broadly ovate or deltoid leaves constitute a prominent feature of this species and are suggestive of the specific name.

Crataegus habereri n. sp. Sarg.

Leaves broadly ovate, acute, rounded, subtruncate or abruptly cordate at the wide entire or glandular base, finely doubly serrate above, with straight glandular teeth, and divided usually only above the middle into four or five pairs of small acuminate spreading lobes, nearly half grown when the flowers open about the middle of May and then membranaceous, light yellow green and roughened above by short white hairs and pale and glabrous below, and at maturity thin, dark yellow green and scabrate on the upper surface, light yellow green on the lower surface, 4.5–6.5 cm long and nearly as wide; with slender midribs, and their primary veins extending obliquely to the points of the lobes; petioles slender, slightly wing-margined at the apex, at first slightly villose, soon becoming glabrous, sparingly glandular while young, 2.5–3.5 cm in length; leaves on vigorous shoots truncate or rounded at the base, more coarsely serrate and more deeply lobed, often 7–8 cm long and 6–7 cm wide. Flowers 1.4–1.5 cm in diameter, on slender slightly hairy pedicels, in broad 5–8-flowered corymbs; calyx tube narrowly obconic, glabrous, or slightly hairy near the base, the lobes slender, acuminate, glandular serrate, glabrous on the outer, sparingly villose on the inner surface, reflexed after anthesis; stamens 10; anthers dark rose color; styles 3–5, surrounded at the base by a narrow ring of pale tomentum. Fruit ripening from the first to the middle of September, on glabrous reddish pedicels, in few-fruited drooping clusters, oval to obovate, crimson, lustrous, marked by large pale dots; calyx prominent, with a deep wide cavity, and incurved horizontal or recurved lobes dark red above toward the base and slightly hairy on the upper surface, their tips often deciduous from the ripe fruit; flesh thin, dark yellow, soft and succulent; nutlets 3–5, acute at the ends, slightly ridged and irregularly grooved on the back, 7–8 mm long and about 5 mm wide.

A shrub 3–5 m high, with small stems, wide spreading flexuous

branches, and slender slightly zigzag glabrous branchlets, light orange green when they first appear, becoming light chestnut-brown, lustrous and marked by pale lenticels in their first season, and dull reddish brown the following year, and armed with slender straight or slightly curved chestnut-brown spines 2.5–3 cm long.

Rocky pastures and margins of woods; New Hartford, Oneida co. J. V. Haberer (♀ 2410, type), May 20 and September 28, 1903; C. H. Peck, September 11, 1906.

This species, remarkable in its broad slightly lobed leaves and early ripening fruit, is named for its discoverer, Joseph Valentine Haberer M. D., an enthusiastic student of the flora of Herkimer, Oneida and Madison counties, the founder of the Asa Gray Botanical Club of Utica in 1886 and from that time to the present its president.

Crataegus noveboracensis n. sp. Sarg.

Leaves ovate, acuminate, abruptly concave cuneate at the entire base, finely doubly serrate above, with straight glandular teeth, and deeply divided into five or six pairs of narrow acuminate spreading lobes, more than half grown when the flowers open at the end of May and then thin, yellow green and covered above by short soft white hairs and paler and glabrous below, and at maturity thin but firm in texture, dark yellow green and lustrous on the upper surface and pale yellow green on the lower surface, 4.5–6.5 cm long and 4–5 cm wide, with slender yellow midribs, and thin primary veins arching obliquely to the points of the lobes; petioles slender, slightly wing-margined at the apex, villose on the upper side while young, becoming glabrous, sparingly glandular, 1–2 cm in length; leaves on vigorous shoots thicker, sometimes rounded or subtruncate at the broad base, more coarsely serrate and more deeply lobed, often 7–8 cm long and 6–7 cm wide, with stouter broadly winged petioles. Flowers 1.2–1.4 cm in diameter, on slender slightly villose pedicels, in usually 7–11-flowered lax corymbs; calyx tube narrowly obconic, coated especially near the base with long scattered white hairs, the lobes gradually narrowed, slender, acuminate, glandular serrate, glabrous on the outer, villose on the inner surface, reflexed after anthesis; stamens 15–20; anthers pale yellow; styles 4 or 5. Fruit ripening the middle of September, on slightly hairy reddish pedicels, in usually 5–7-fruited drooping clusters, subglobose to short oblong, full and rounded at the ends, crimson, lustrous, marked by large pale dots, about 1 cm in diameter; flesh thin, yellow, dry and mealy; nutlets 4 or 5, narrowed and rounded at the ends, slightly

ridged on the back, with a low slightly grooved ridge, 5.5–6 mm long and 4–5 mm wide.

A shrub 3–4 m high, with numerous small stems, ascending or suberect branches and slender nearly straight glabrous branchlets dark orange green when they first appear, becoming light chestnut-brown, lustrous and marked by pale lenticels in their first season and light gray brown the following year, and armed with numerous slender straight or slightly curved light chestnut-brown shining spines 4–5 cm long.

Sandy or rocky soil; Essex co. Common. North Elba, C. H. Peck (♯ 40, type), May 27, July 22 and September 14, 1903; C. H. Peck (40), Keene, May 31 and September 16, 1903.

Crataegus scabrida Sarg.

Hilly and rocky pastures. West Albany, Albany co., C. H. Peck; New Hartford, Oneida co., J. V. Haberer. May and September. This is a large shrub or small tree which occurs in several places about Albany. It also occurs in Petersburg, Rensselaer co. Its fruit is edible.

Crataegus tenella Ashe

Hilly and rocky pastures. Colemans Station and Moores Mills, Dutchess co.; Dykemans, Putnam co. May, September and October. W. W. Eggleston.

Cynoglossum boreale Fern.

West Fort Ann, Washington co. June. S. H. Burnham.

Didymium clavus (A. & S.) Rabenh.

Dead herbaceous stems. Grove Springs near Lake Keuka. July. C. E. Fairman. These specimens differ from typical forms in having a slightly smaller peridium.

Dryopteris pittsfordensis Slosson

Springville, Richmond co. May. Philip Dowell. Solway, Onondaga co. R. C. Benedict.

Entoloma minus n. sp.

Pileus thin, subconic or hemispheric, becoming broadly convex, glabrous, grayish brown, darker in the center; lamellae thin, close, ascending at first, sinuate behind, whitish becoming flesh color;

stem slender, hollow, white; spores subglobose, angular, .0003–.0004 of an inch in diameter.

Pileus 8–12 lines broad; stem 1–1.5 inches long, about 1 line thick. Ground in woods. East Schaghticoke, Rensselaer co. August.

Flammula expansa n. sp.

Pileus thin, broadly convex or nearly plane, glabrous or sometimes with appressed spotlike scales in the center, subochraceous, flesh white, taste mild; lamellae thin, narrow, close, yellow, changing to brown where wounded; stem short, equal, solid, brownish without, yellow within; spores broadly elliptic, .0003 of an inch long, .00024 broad.

Pileus 1–3 inches broad; stem about 1 inch long, 2–3 lines thick. Decaying wood of red maple, Acer rubrum. Helderbergs, Albany co. July. S. H. Burnham. East Schaghticoke, Rensselaer co. August.

Gaura coccinea Pursh

Near Rochester. August. Introduced from the west. M. S. Baxter and V. Dewing.

Hydnum coriaceo-membranaceum Schw.

Ground. Lake Pleasant, Hamilton co.

Hydnum luteopallidum Schw.

Decorticated wood and bark of some deciduous tree, apparently butternut, Juglans cinerea. Lyndonville, Orleans co. July. L. J. Muchmore. The type specimens of Schweinitz were found on grapevines. In ours the fungus is resupinate, adnate, with a very thin subiculum, smoky yellow or brownish, whitish or pale yellow on the young margin; the teeth are scarcely half a line long, scattered or crowded, sometimes confluent at the base and subfasciculate, colored like the subiculum but white fimbriate at the tips; spores subglobose, colored, verrucose, .00016–.0002 of an inch broad.

Hygrophorus burnhami n. sp.

Ground. West Fort Ann, Washington co. October. The description of this species may be found in the chapter on New York Species of Hygrophorus.

Hygrophorus luridus B. & C.

Among mosses and fallen leaves in woods. Sand Lake, Rensselaer co. August.

Hypocrea pallida E. & E.

On some resupinate polyporoid fungus on oak branches. Lake Minnewaska, Ulster co. August.

Inocybe pallidipes E. & E.

Dead wood and decaying vegetable matter, near Friends lake, Warren co. July.

The white stem and brown umbonate pileus are prominent and notable characters of this species. Wood inhabiting species of this genus are few. This one is related to Inocybe eutheloides Pk. but it is a stouter plant with a thicker, straighter stem which is white even in the dried state.

Lepiota asperula Atk.

Woods. Near Ithaca. August. G. F. Atkinson. Vaughns, Washington co. July. S. H. Burnham. This last is a form having a more slender stem and slightly darker pileus, but scarcely worthy of specific distinction.

Lepiota eriophora Pk.

Jamestown, Chautauqua co. August. G. E. Morris. This is distinguished from the preceding species by its smaller size, darker brown color, denser crowded scales of the pileus and specially by the copious brown tomentum of both pileus and stem, a character suggestive of the specific name. It has not yet been found in the eastern part of the State. Its range is apparently westward and southward.

Leptoglossum fumosum Pk.

Geoglossum luteum fumosum, State Mus. Rep't 43. 1890. p. 40.

Receptacle fleshy, stipitate, oblong, obtuse, terete or compressed and furrowed on one or both sides, glabrous, moist, hollow, distinct from the stem and sometimes with one or two decurrent lobes at the base, 3–6 lines long, 1.5–3 lines broad, smoky yellow; stem equal or nearly so, glabrous, hollow, about as long as the receptacle, slightly darker; asci subclavate or cylindric; spores oblong, biseriate, often slightly curved, hyaline, 2–4-nucleate, .0012–.0016 of an inch long, .00016–.0002 broad.

Mossy ground in woods. Sand Lake. August. This was formerly considered a mere variety of Leptoglossum luteum, but having found a group of good specimens showing well the distinctive characters of the species it seems worthy of specific rank.

Linum medium (Planch.) Britton

Hempstead Plains, Nassau co. July.

Lycoperdon excoriatum Lloyd

Warrensburg, Warren co. October. The specimens referred to this species were found growing about the roots of an old stump in a pasture. They are either scattered or gregarious in their mode of growth. The peridium is grayish brown and umbonate and has a cortex similar to that of Lycoperdon gemmatum Batsch but it usually separates and falls away in flakes or patches, a character suggestive of the specific name. Sometimes the larger spinules fall away separately, as in L. gemmatum, leaving a scar on the peridium and showing the close relationship between the two species.

Lycoperdon polytrichum Lloyd

Among hair cap mosses, Polytrichum juniperinum. Piseco, Hamilton co. August and September. Closely related to L. gemmatum, but differing in its peculiar habitat.

Lycoperdon serotinum Bon.

Decaying wood, old stumps and prostrate trunks of trees. September to November. Appearing like a late smooth form of Lycoperdon pyriforme Schaeff.

Marasmius phyllophilus n. sp.

Pileus membranaceous, convex or nearly plane, dry, strongly rugose striate or rugose sulcate, whitish, with a faint pinkish tinge when dry; lamellae narrow, distant, rounded behind, adnexed, white, the interspaces venose; stem tough, slender, equal, inserted, hollow, covered with a whitish downy or velvety pubescence; spores .0002–.00024 of an inch long, .00012–.00016 broad.

Pileus 4–8 lines broad; stem 10–15 lines long, about .5 of a line thick. Gregarious on fallen leaves in woods. Wading River, Suffolk co. August.

Closely related to M. insititius Fr. from which it is separated by the attachment of the lamellae to the stem and by the white color and pubescent coating of the stem. The spores also are larger than the dimensions of the spores of that species.

Mycena albogrisea n. sp.

Pileus thin, submembranaceous, ovate or subcampanulate, obtuse, glabrous, sulcate striate, grayish white; lamellae rather thick, broad, distant, adnate, colored like the pileus; stem slender, glabrous, hollow, paler than the pileus, with a whitish strigose villosity at the base; spores .0003 of an inch long, .00016–.0002 broad.

Pileus 3–5 lines broad, nearly as long; stem 1–2 inches long, about half a line thick.

Attached to fallen leaves of coniferous trees. Bolton, Warren co. September. It belongs to the section Basipedes. In the dried specimens the pileus has assumed a slightly darker or smoky tint, but it still retains its sulcate striate character.

Nicandra physaloides Gaertn.

Gloversville, Fulton co. September. W. C. Cottrell. Introduced from Peru. The common name of its fruit is apple of Peru. In *Illustrated Flora of the Northern States and Canada* its name is given as Physalodes physalodes (L.) Britton, but the International Botanical Congress having decided against the use of double names, we have used the name given in Gray's *Manual*.

Omphalia pusillissima n. sp.

Pileus membranaceous, broadly convex or nearly plane, glabrous, umbilicate, slightly striate on the margin when dry, white; lamellae few, distant, decurrent, white; stem slender, filiform, flexuous, glabrous, white; spores subglobose or broadly elliptic, .0002–.00024 of an inch long, .00016–.0002 broad.

Pileus 1–2 lines broad; stem 3–5 lines long. On humus and decaying twigs under pine trees. Delmar, Albany co. August.

This is one of the smallest species of Omphalia known to me. The lamellae are very narrow, sometimes branched and sometimes absent. It is a smaller mushroom than Omphalia integrella, and differs from it in its umbilicate pileus. The stem is hollow but the cavity is minute.

Ohleria modesta Fckl.

On carious wood of beech. Lyndonville, Orleans co. March. C. E. Fairman.

Panicum deminutivum n. sp.

Culms 4–10 inches tall, slender, erect, branched, slightly hairy near the base; branches 3–6, short, subereet, each terminating in a

panicle, occasionally bearing one or two branchlets; radical leaves lanceolate, sparingly villose, 3–6 lines long, cauline leaves narrowly lanceolate or linear, acuminate, 6–12 lines long, 1–1.25 lines broad, minutely pubescent beneath, glabrous above, or one or two lower ones sometimes with a few long scattered hairs, the sheaths mostly shorter than the internodes and minutely pubescent, stipules a tuft of slender bristlelike hairs .5–1 line long; panicles ovate in outline, 6–12 lines long, the branches and pedicels glabrous, spikelets subglobose or oval, less than .5 of a line long, the first scale minute, glabrous or nearly so, second and third scales nearly equal in length, minutely pubescent, the second commonly purplish.

Moist or wet muddy soil. Shore of Little pond about 2.5 miles south of Wading River, Suffolk co. August.

This diminutive panic grass has smaller spikelets than any species I find described. In most of its characters it approaches closely to Panicum psammophilum Nash from which I have separated it because of the smaller size of all its parts, its different mode of growth and different habitat. This is wet humus or decomposed vegetable matter which is apparently submerged in times of high water. The mode of growth is scattered, not cespitose, and the pubescence except at the base of the stem is so minute that it is scarcely visible to the naked eye. Unless carefully examined with a magnifying glass the plants would be considered glabrous.

Peckiella hymenii n. sp.

Subiculum white, overrunning the hymenium of the host plant and obliterating the lamellae, sometimes interrupted; perithecia minute, globose, semiimmersed in the subiculum, numerous, pale honey color becoming darker with age; asci linear, .009–.013 of an inch long, .0003–.0004 broad; spores monostichous, fusiform, acute at each end, hyaline, .0016–.0018 of an inch long, .00025–.0003 broad, oozing from the perithecia and forming irregular whitish masses upon them.

On the hymenium of Lactarius vellereus Fr. Wading River, Suffolk co. August.

The parasite in all the specimens seen, is limited to the hymenium of the host plant, the upper surface of the pileus and the stem remaining unchanged. The host plant also retains its acrid taste. The perithecia are so numerous that they give a general pallid hue to the parasite, though the subiculum itself is white. The emitted spores, adhering in minute masses, do not cover the surface with

a white pulverulence as the spores of the related Hypomyces lactifluorum (Schw.) Tul. do.

Peramium tessellatum (Lodd.) Rydb.

Woods. Floodwood, Franklin co. North Elba, Essex co. August. This may be separated from Peramium repens (L.) Salisb. by its spiral arrangement of the flowers of the spike.

Peridermium consimile A. & K.

Living leaves of spruce trees. Common in the swamps and on the mountains of the Adirondack region where it is associated with Peridermium decolorans Pk. from which it may be distinguished by its smaller spores.

Phyllosticta ampelopsidis E. & M.

Living leaves of woodbine, Ampelopsis quinquefolia. Wading River, Suffolk co. August.

Phyllosticta smilacis E. & E.

Living leaves of greenbrier, Smilax rotundifolia Mx. Wading River, Suffolk co. August.

Phyllosticta sphaeropsidea E. & E.

Living leaves of horse chestnut, Aesculus hippocastanum L. Port Henry, Essex co. September.

Pleurotus terrestris n. sp.

Pileus thin, broadly convex, even, glabrous, moist, whitish; lamellae thin, close, broad, slightly emarginate, adnexed, whitish; stem equal, even, curved, glabrous, solid, eccentric, whitish; spores white, globose, .00028–.00032 of an inch broad.

Pileus 2–3 inches broad; stem 2–3 inches long, 3–4 lines thick. Cespitose. On the ground in the margin of woods, West Fort Ann, Washington co. October. S. H. Burnham.

This species belongs to the section Eccentrici, group Tricholomatarii.

Polyporus galactinus Berk.

Trunks of apple trees. Delmar, Albany co. August. The fresh young specimens are white, but in drying they assume a pale straw color which in time becomes a dingy yellow. The spores in our examples are subglobose, .00016–.0002 of an inch broad.

Puccinia peckii (DeT.) Kell.

On hairy fruited sedge, Carex trichocarpa. North Greenbush. This is the teleutospore form. The aecidial form occurs on living leaves of evening primrose, Onagra biennis (L.) Scop. This form occurs in summer, the other in autumn.

Russula foetentula Pk.

The description of this species may be found in the chapter on "New York Species of Russula."

Russula modesta Pk.

For description see chapter on "New York Species of Russula."

Russula pectinatoides Pk.

The description of this species may be found in the chapter on "Edible Fungi."

Russula vesca Fr.

Woods. Bolton Landing, Warren co. August.

Scleroderma tenerum B. & C.

This is a small Scleroderma, scarcely attaining a diameter of 1 inch, and having a thin grayish or grayish yellow peridium spotted by very small appressed brownish scales. It is gregarious or sometimes cespitose in its mode of growth. It is not rare, but has been confused with another species both in this country and in Europe.

Septoria lycopersici Speg.

Living leaves of tomato. Menands. July. This parasitic fungus produces spots on the leaves and finally discolors the whole leaf and kills it. It is an injurious species.

Steccherinum adustulum Banker

On dead wood and sticks. Jamestown, Chautauqua co. G. E. Morris. East Schaghticoke, Rensselaer co. July. H. J. Banker. This species differs from the common Hydnum adustum Schw. or its equivalent Steccherinum adustum Banker, in its smaller size and its persistently white or whitish pileus and spines or teeth. Its spores are also a little shorter than in that species.

Stemonitis smithii Mach.

Decaying wood. Lyndonville, Orleans co. July. L. J. Muchmore.

Tricholoma hirtellum n. sp.

On or about pine stumps. Wading River, Suffolk co. August. The description of this species may be found in the chapter on "Edible Fungi."

Viola incognita Brainerd

Damp or moist ground. Little Falls. Mrs M. S. DeCoster. Sand Lake, Rensselaer co. May.

NEW EXTRALIMITAL SPECIES OF FUNGI

Phallogaster whitei

Peridium subglobose, 4–5 lines broad, abruptly contracted below into a cylindric stem about 4 lines long and 1 line thick, stellately or radiately rupturing when mature, the rays recurved; glebe masses greenish, becoming black in drying, separated from each other by a white slightly lobed columella, the lobes not reaching the inner surface of the peridium; spores minute, oblong, .00016–.0002 of an inch long.

Much decayed wood. Storrs, Ct. July. E. A. White. Closely allied to Phallogaster saccatus Morg. but distinct in its smaller size, differently shaped peridium, different mode of rupture, more distinct cylindric stem and different internal structure. Like that species it has an abundance of white branching mycelial strands. It is dedicated to its discoverer.

Hymenogaster anomalus

Peridium thin, subglobose, 9–12 lines in diameter, glabrous, slightly lacunose, often with a rootlike strand of mycelium at the base, whitish, sometimes tinged with red above, white and cellular within, the cells empty, .5–1 line in diameter, sterile base obsolete or nearly so, odor slight, not disagreeable; spores globose or broadly elliptic, even, hyaline, uninucleate, .0004–.00055 of an inch long, .00035–.0005 broad.

Near Washington, D. C. August and September. T. E. Wilcox. This species is most closely related to Hymenogaster thwaitesii B. & Br. by its subglobose spores, but it may be separated by its white substance, its smoother colorless spores and

its cordlike strand of mycelium. This last character is unusual in this genus and suggestive of the specific name.

Leptonia transformata

Pileus thin, submembranaceous, slightly convex or nearly plane, often umbilicate, silky tomentose, dry or slightly moist in wet weather, striatulate on the margin which is at first incurved, sometimes becoming wavy or split when old, white, flesh white, taste farinaceous; lamellae sinuate, adnexed, close, unequal, ventricose, white becoming pink; stem long, slender, straight or flexuose, equal or slightly narrowed upward, pruinose at the top, glabrous and shining below, subcartilaginous, stuffed or hollow, white with a white mycelium at the base; spores flesh colored, angular, uninucleate, .0004–.0005 of an inch long, .0003–.00035 broad.

Pileus 5–10 lines broad; stem 1–2 inches long, .5–1 line thick. Bushy places. Falmouth, Mass. July. S. Davis. Both pileus and stem become blackish or blackish brown in drying and the pileus becomes deeply umbilicate and strongly striate from the margin to the umbilicus. These changes give the dried plant an appearance quite unlike that of the fresh one.

Hygrophorus ruber

Pileus thin, conic, commonly unexpanded, acute or subobtuse, cuspidate or narrowly umbonate, very viscid or glutinous, bright red, not turning black in drying; lamellae narrow, ascending, adnexed, subdistant, yellow or yellowish brown; stem equal, viscid, hollow, colored like the pileus; spores subelliptic, .00024–.0003 of an inch long, .00016–.0002 broad.

Pileus .5–2 inches broad; stem scarcely 1 inch long, 1 line thick. Among mosses in wooded swamps. Ellis, Stow, Cohasset, Mass. September. G. E. Morris.

Distinct from H. conicus in its usually smaller size, more viscid pileus, bright red stem and persistent unchanging color in drying.

Hygrophorus serotinus

Pileus fleshy but thin, convex or nearly plane, often with the thin margin curved upward, glabrous or with a few obscure innate fibrils, reddish in the center, whitish on the margin, flesh white, taste mild; lamellae thin, subdistant, adnate or decurrent, white, the interspaces slightly venose; stem equal, stuffed or hollow, glabrous, whitish; spores white, elliptic, .0003 of an inch long, .0002 broad.

Pileus 8–15 lines broad; stem about 1 inch long, 1.5–2.5 lines thick.

Gregarious or cespitose in woods of oak and pine. Shore of Hammond pond near Boston, Mass. November. Mrs E. B. Blackford. This species is similar in size and color to Hygrophorus queletii Bres. but that species is described as having the margin of the pileus viscid when young and adorned with white flocci, the center of the pileus covered or spotted with reddish squamules or flocci and at length rimose areolate, the lamellae tinged with citrine yellow, the stem solid and furfuraceous or squamulose and the habitat is said to be larch woods only. None of these characters is applicable to our plant. It also resembles H. subrufescens Pk. in size and color but it differs from it in its more glabrous pileus with paler margin, its white flesh, stuffed or hollow stem and later time of appearance. This last character is suggestive of the name given to the species.

Xylaria polymorpha combinans n. var.

Club subglobose, often compressed and irregular, cespitose at the top of a common subterranean stem or of two stems united at the top; perithecia and spore character as in the species.

Growing from roots of a dead maple tree. Bridgeport, Ct. November. P. W. Graff. The subterranean stem is about 2.5 inches long, the clubs 1–1.5 broad. The clubs appeared as if resting on the ground. The subglobose shape of the club or stroma is characteristic of X. polymorpha hypoxylea Nits. and the cespitose mode of growth, of X. polymorpha spathulata Pers. This combination of characters of two varieties in one is suggestive of the varietal name here given.

REMARKS AND OBSERVATIONS

Agastache scrophulariaefolia (Willd.) Kuntze

This is a very variable species. A peculiar form occurs near Port Jefferson, in which the leaves are abruptly acuminate or cuspidate and the upper ones are entire or nearly so. The flower spikes are more narrow than usual and are sometimes interrupted toward the base.

Boletus nigrellus Pk.

A form of this extremely rare species was found in Sand Lake in which the pileus is yellowish or greenish yellow when fresh, and

its flesh, as well as the tubes and stem, slowly changes to a dingy flesh color and then to black or blackish where wounded, as in the type.

Castanea dentata (Marsh.) Borkh.

There is a chestnut tree near Freehold, Greene co., in which the involucre of the fruit is rudimentary or abortive. It consists of a mere shallow cup or rim which surrounds the base of the fruit. The tree is known to the inhabitants of the place as the burless chestnut. It blossomed freely the past summer but failed to develop fruit. It is said that the boys are so eager for the nuts that the owner of the tree realizes but small returns from it. As it is the only tree of its kind known to us it would seem desirable that it should be perpetuated either by planting its seeds or grafting scions of it on other chestnut trees.

Catastoma circumscissum (B. & C.) Morg.

This curious little puffball which ruptures at the base when mature, as indicated by the generic name, is more plentiful in more western regions. It has been found in two localities in our State, one in St Lawrence county, the other in Essex county.

Chrysomyxa pyrolae (DC.) Rostr.

As indicated by the specific name, this species usually inhabits the living leaves of various kinds of Pyrola, but the uredo spores were discovered the past season near Friends lake, inhabiting living leaves of Moneses uniflora (L.) Gray. July.

Clavaria bicolor Pk.

This name, being antedated by Clavaria bicolor Mass. was changed in *Sylloge* 17, page 196 to Clavaria peckii Sacc. & D. Sacc. This name having previously been used in *Sylloge* 9, page 249, was not available in this case. Therefore the name Clavaria vestitipes is here substituted for Clavaria bicolor in N. Y. State Museum bulletin 54, page 954.

Craterellus cantharellus (Schw.) Fr.

A form of this mushroom occurred plentifully the past season near Menands. The hymenium was distinctly marked by branched and anastomosing folds or narrow blunt edged lamellae, so that the plants might easily be mistaken for the common yellow chantarelle.

In the dried specimens the folds have disappeared from the hymenium near the stem but they are very distinct toward the margin. In other respects these mushrooms maintain the characters of the species. We propose for them the name Craterellus cantharellus intermedius n. var. The hymenium is intermediate in character between that of Cantharellus and Craterellus.

Dryopteris simulata Dav.

Fine specimens of this delicate fern were found near "Merrell Avenue," Richmond co. by Mr P. Dowell and contributed by him to the State herbarium.

Eleocharis intermedia habereri Fern.

Sandy shore of Oneida lake at Lewis point, Madison co. August. J. V. Haberer. In this variety the bristles are rudimentary or entirely wanting.

Fusarium sclerodermatis Pk.

This name is antedated by Fusarium sclerodermatis Oud. The New York fungus has the same habitat as the other and is so closely related to it that, in our opinion, it is only a less fully developed form of it.

Inocybe calamistrata Fr.

A form of this species sometimes occurs in which the usual dingy blue tint at the base of the stem is wanting. Such specimens were collected near Friends lake in July. They were growing with the normal form.

Irpex canescens Fr.

Fine specimens of this species were found in woods near Wading River. They were growing on dead branches of an apple tree, and developed on the underside of the branches. On branches less than an inch thick, a free margin projected 3 or 4 lines on each side. The hymenium of these margins had the appearance of the hymenium of some Lenzites, the plates being lamellalike and running at right angles to the axis of the branch and parallel to each other, occasionally branching or anastomosing.

Lactarius pergamenus Fr.

This mushroom seems to intergrade with Lactarius piperatus Fr. Specimens sometimes occur that might with almost equal propriety be referred to either species. But specimens were found

near Wading River in which the prominent distinguishing characters of the species were so well expressed that the identity of the species could be easily recognized. The thin, narrow and very crowded lamellae and the thin and flexible pileus were satisfactorily shown.

Lobelia dortmanna L.

In Gray's *Manual* the water lobelia is described as being 5–12 inches high; in Britton and Brown's *Illustrated Flora*, 6-18 inches. Specimens of this plant were collected in Friends lake that are 30–35 inches tall. They grew in deep water which is evidently one factor in determining the length of the stem.

Lycoperdon pedicellatum Pk.

On account of the permanently pedicellate spores of this very distinct puffball the species has been transferred from the genus Lycoperdon to Bovistella and bears the name Bovistella pedicellatum (Pk.) Lloyd.

Panus fulvidus Bres.

So far as can be ascertained from the descriptions of this species of mushroom and Lentinus sulcatus Berk. they are specifically the same. The uneven or denticulate edge of the lamellae of L. sulcatus is not mentioned in the description of P. fulvidus, but in the other characters there appears to be complete agreement. The specimens which in State Museum bulletin 105, page 26 are referred to P. fulvidus have the eroded or denticulate edge of the lamellae ascribed to Lentinus sulcatus and as this species antedates Panus fulvidus our specimens should take the name Lentinus sulcatus Berk. This species was founded on specimens collected in Ohio.

Paxillus panuoides Fr.

A singular form of this species was found at Glens Falls by Dr H. von Schrenk growing on pulp paper that had been stored for a considerable time in an inclosure where there was not much light. Both habitat and place were unusual and evidently had a modifying influence on the character of the specimens. Some of them were 4 inches long, including the narrowed stemlike base, and 2 or 3 inches broad. They were nearly white when fresh but in drying they gradually assumed a yellowish tint approaching the normal

color of the species. Smaller specimens were found growing near these but in a more exposed place. These had the usual color of the species.

Peziza (Mollisia) typhae Pk.

This name is antedated by Peziza (Mollisia) typhae Cke. Though bearing the same name the two fungi appear to be quite distinct. In the New York species the cups are superficial and the disk is much paler than in the other and the spores are much smaller. We therefore substitute the name Mollisia pallidior for Peziza (Mollisia) typhae Pk. in New York State Museum Report 32, page 47.

Physarum lateritium (B. & R.) Rost.

Bark in woods. Lyndonville, Orleans co. Autumn. Scarce. C. E. Fairman. The Lyndonville specimens differ from the typical form in having the lime granules of the peridium and the nodules of the capillitium yellow instead of red.

Polystichum acrostichoides incisum (Gr.) Under.

Pound Ridge, Westchester co. July. Mrs E. S. Tomlinson The specimen is a very broad one, the frond being nearly 6 inches broad in its widest part. The fruiting pinnae are not abruptly reduced in size as in the ordinary form of the species.

Populus balsamifera L.

In the town of Sand Lake, Rensselaer co. there is an outlying and unusually southern station of this northern tree, the balsam poplar. The trees are few in number but they have existed there for many years. Those bearing pistillate aments predominate, but staminate aments are borne by at least one tree. The location is so far south of the general range of the species that late frosts often kill the early starting blossoms and prevent the development of fruit. Sometimes when this does not occur the crop of pollen seems to be insufficient for the general pollination of the pistillate blossoms. Last spring many pistillate aments were found with only three or four fruit pods developed, the others having prematurely fallen. The lack of proper pollination was probably the cause.

The leaves on the older and less vigorous branches are somewhat rhomboidal and pointed at both ends, but those on young and vigorous branches are more ovate and broadly rounded or even truncate at the base. Both kinds of leaves grow on different branches of

the same tree. The species is northern in its range and is common in the Adirondack region.

Sagina procumbens L.

Crevices of walls and pavements. Utica. September. This is an unusual location for the procumbent pearlwort. Its occurrence here was made known to me by Dr Haberer. It forms rather dense compact mats. In Paine's *Catalogue of Oneida County Plants* its habitat is given as "wet sandy banks and shores." It is recorded as "rare" but no definite station is mentioned.

Scirpus atrovirens pycnocephalus Fern.

Shore of Oneida lake at Lewis point, Madison co. August.

Scirpus cyperinus pelius Fern.

Open woods 3 miles south of Utica. August. J. V. Haberer. Near Frankfort, Herkimer co. September. C. H. Peck.

Trametes serialis Fr.

On pulp paper. Glens Falls. October. H. von Schrenk. The specimens are white throughout and therefore the growth of the present season. The usual habitat in the Adirondack region is dead wood of spruce.

Trillium erectum album Pursh

Near Syracuse. May. Mrs L. L. Goodrich. In the contributed specimen the petals are yellowish. This form has been unusually plentiful this year and might easily be considered as good a variety as the form with white petals.

Viola cucullata Ait.

A peculiar form of this species occurs in North Greenbush. In it the scapes are about as long as the leaves, the tips of the petals are white or whitish and also the basal angles of some of the leaves.

EDIBLE FUNGI

Tricholoma hirtellum n. sp.

HAIRY CAP TRICHOLOMA

PLATE 105, FIG. 1–5

Pileus fleshy, thin, convex, subumbonate, dry, hairy, pale brown, flesh white, taste mild; lamellae thin, narrow, close, slightly sinuate,

adnexed, minutely floccose on the edge, yellowish white or pallid; stem slender, equal, stuffed or hollow, with a very small cavity, fibrillose or subsquamulose, colored like or a little paler than the pileus; spores subglobose, .00024–.0003 of an inch long, .0002–.00024 broad.

The hairy cap tricholoma grows in tufts or singly on or about pine stumps in Wading River, Suffolk co. and occurs in August. It is a very rare species and has been found but once. It is related to Tricholoma albofimbriatum Trog., from which it is separated by its hairy cap, white flesh and less crowded gills not fimbriate on the margin. The hairs of the cap are often collected in minute tufts giving the cap an appearance similar to that of the brownish caps of the honey-colored armillaria, but unlike that species it never has a collar on the stem. The caps are 1–1.5 inches broad, the stem 2–3 inches long and 2–3 lines thick.

Tricholoma nudum (Bull.) Fr.

NAKED TRICHOLOMA

PLATE 104, FIG. 1–9

Pileus thin, broadly convex, nearly plane or slightly depressed in the center, obtuse or occasionally slightly umbonate, incurved on the thin naked margin when young, pale violaceous or lavender, fading with age and the escape of moisture to a pale grayish brown, often slightly tinged with reddish or yellowish hues, flesh of the young plant tinged with the color of the pileus, becoming white with age, taste mild; lamellae thin, narrow, close, slightly sinuate, adnate or decurrent, colored like the pileus when young, becoming whitish with age; stem firm, equal, fibrous, stuffed or hollow, colored like the pileus; spores pale flesh color in mass, elliptic, .00024–.0003 of an inch long, .00012–.00016 broad.

The naked tricholoma is a rare species with us. The specimens tested and figured on plate 104 were collected in Electric park, Columbia co., October 29, by Mr S. H. Burnham. The plants were found growing in flower beds, either singly or in clusters, and when young and fresh they are throughout of a beautiful violet color approaching lavender, but this color fades and changes with age and with the escape of moisture and the cap becomes a pale pinkish gray or dingy reddish, the stem and gills also changing in a similar manner. The cap is generally obtuse but sometimes umbonate. The margin is very thin and when young is incurved and sometimes

striatulate, the obscure striations being the shadowy lines of the gills showing through the membranous and almost translucent substance of the margin. In drying, the excessive moisture escapes from the center of the cap first. The margin is naked even in young plants and in this character the species differs from its near relative, the masked tricholoma. It is also smaller than that species and more highly colored when young. The naked margin is probably the character which suggested the name of the species. The typical form of the species is described as having a stuffed stem. In our plants the stem is sometimes clearly hollow. An acid odor has been ascribed to the species but no distinct odor was perceptible in our specimens. European mycologists do not appear to have given very definitely the color of the spores of this species. Professor Fries describes the spores of the species referred by him to Paxillus, tribe Lepista, as sordid, and W. G. Smith, who raised this tribe to generic rank and referred both Tricholoma nudum and T. personatum to it, says the spores are dirty white. In our plant the spores are pale flesh color and indicate a close relationship between this species and those of the pink spored series, specially those in the genus Clitopilus. But the close connection between this species and Tricholoma personatum persuades us at present to let the species remain where it has so long stood notwithstanding the peculiar spore color. The cap in our specimens is 1–3 inches broad, the stem 1–2 inches long and 2–4 lines thick.

Stevenson says of the European plant, "Not recommended as edible." Gillet says "very good" and "very delicate" but rarely used. In our trial of it we found it agreeable in flavor, digestible and harmless and have no hesitation in placing it among the edible species. Its worst defect is its scarcity.

Clitocybe amethystina (Bolt.)

AMETHYST CLITOCYBE

PLATE 106, FIG. 1–6

Pileus at first hemispheric, becoming broadly convex or nearly plane, hygrophanous, often obscurely striate on the margin when young and moist, depressed in the center or frequently umbilicate, often irregular, violaceous when moist, grayish or grayish white when dry; lamellae rather thick, subdistant, violaceous, adnate or slightly decurrent; stem slender, rigid, straight or flexuose, stuffed,

becoming hollow, paler than the moist pileus; spores globose, verrucose, .0003–.0004 of an inch broad.

The amethyst clitocybe is a small species, gregarious in its mode of growth and slightly tough. European mycologists have generally considered it as a mere form or at most a variety of Clitocybe laccata (Scop.) Fr. Berkeley and Broome instituted a new genus, Laccaria, for the reception of C. laccata and allied species with tough substance, hymenophorum confluent with the stem, and thick gills powdered with white globose spores. They remark that the amethyst colored form usually referred to Agaricus laccatus is probably distinct. Their genus has not yet been generally accepted but there is good ground for its establishment and it probably will be recognized in due time. Their remark concerning the amethyst colored form of C. laccata appears to us to be worthy of acceptance and it is therefore accepted here as a distinct species. It is easily recognizable both in its fresh and dried state from the paler and more common form usually referred to C. laccata. It is very constant in its characters and no intermediate forms occur to connect them. It is quite as good as an edible mushroom. In drying, the gills retain their violaceous color longer than the cap.

Clitocybe ochropurpurea Berk.

PURPLISH OCHER CLITOCYBE

PLATE 106, FIG. 7–11

Pileus subhemispheric, becoming convex with a decurved margin or nearly plane and slightly centrally depressed, fleshy, tough, compact, hygrophanous, purplish brown when moist, grayish or pale alutaceous when dry, unpolished; lamellae thick, distant, broad, narrower outwardly, adnate or decurrent, purple; stem variable, short or long, equal, or sometimes thicker in the middle, sometimes at each end, fibrous, solid, colored like or paler than the pileus; spores globose, white, verrucose, .0003–.0004 of an inch broad.

The purplish ocher clitocybe is related to such species as the laccate clitocybe, C. laccata, and the amethyst clitocybe, C. amethystina. From both it is easily separated by its purple gills and larger size. It is found in wet weather from July to September. It grows in open grassy places and is sometimes quite irregular in shape. Its cap is often 3–4 inches broad and its

stem 4–6 lines thick. As an edible species it is rather tough but its flavor is agreeable if well cooked and seasoned and it is harmless.

Should the proposed genus Laccaria be recognized the name of the present species would be Laccaria ochropurpurea (Berk.) and that of the preceding species would be Laccaria amethystina (Bolt.) Cke.

Russula compacta Frost

COMPACT RUSSULA

PLATE 109, FIG. 1–4

Pileus fleshy, compact, broadly convex, becoming centrally depressed or infundibuliform by the elevation of the margin, dry or slightly viscid after rain, unpolished, at first whitish slightly clouded with reddish buff, or rusty red with whitish margin, becoming entirely rusty red with age, flesh white, taste mild or slightly and tardily acrid; lamellae close, adnate or slightly rounded behind, unequal, some forked, white, changing to reddish brown where wounded and in drying; stem short, stout, firm, solid or sometimes cavernous, white, becoming stained where bruised; spores white, globose or subglobose, .0003–.00035 of an inch broad.

The compact russula is a large mushroom belonging to the Friesian section Compactae. It is allied to the European Russula mustelina Fr. from which it may be separated by its different color, which changes with age, and by its disagreeable odor in drying. The cap is usually 2–4 inches broad, but sometimes it attains a diameter of 6 inches. Its stem is short, equal, stout and firm, white when young but usually becoming colored like the cap. It is 2–2.5 inches long, 8–18 lines thick. It furnishes an abundance of agreeable food, the flesh being so thick and compact.

Russula earlei Pk.

EARLE RUSSULA

State Mus. Bul. 67, p. 24, pl. N, fig. 5–10.

The Earle russula is a very distinct and easily recognized species. No one of our other species has such distant gills combined with such small white spores. These characters in connection with its very viscid or glutinous and pale yellow or straw colored cap make it scarcely possible to confuse it with any other species. It has hitherto been found on Long Island only. It occurs in August.

Russula pectinatoides n. sp.

PECTENLIKE RUSSULA

PLATE 105, FIG. 6–10

Pileus thin, broadly convex becoming nearly plane or centrally depressed, viscid when moist, widely tuberculose striate on the margin, brownish or yellowish brown, sometimes darker in the center, flesh white, grayish white under the separable cuticle, taste mild or slightly acrid; lamellae thin, a few forked at the base, occasionally a short one, adnate, white becoming pallid; stem equal, spongy within, even, glabrous, white; spores whitish, subglobose, .00025–.0003 of an inch long.

Grassy ground in groves or pastures. The pectenlike russula is similar to Russula pectinata (Bull.) Fr. from which it differs in its mild or slightly acrid flavor, its even stem, in its flesh being grayish white under the cuticle and in its adnate gills. It is gregarious or scattered in its mode of growth and is not plentiful. It closely resembles Russula sororia Fr. in its general appearance, but may be separated from it by its milder taste.

Its cap is 1–3 inches broad; its stem is 1–2 inches long and 3–4 lines thick. It appears in July and August. It is edible but not very highly flavored.

Russula uncialis Pk.

INCH WIDE RUSSULA

PLATE 107, FIG. 7–12

Pileus thin, convex becoming expanded or centrally depressed, viscid when moist, glabrous or very minutely rivulose-granulose, red or pinkish red, the margin obscurely tuberculose striate, flesh white, taste mild; lamellae moderately close, narrowed toward the stem at which a few of them in some specimens are forked, adnate or slightly emarginate, white, the interspaces venose; stem equal, glabrous stuffed or spongy within, white or reddish; spores white, globose, rough, .0003–.00035 of an inch in diameter.

The inch wide russula belongs to the subgenus Fragiles, white spore group. It is about as large as Russula fragilis, but may be distinguished from it by its mild taste and less crowded gills. From similarly colored specimens of R. chameleontina it differs in its white spores and gills. The gills become pallid in drying.

Agaricus micromegethus Pk.

SMALL MUSHROOM

PLATE 107, FIG. 1–6

Agaricus pusillus Pk., N. Y. State Mus. Rep't 54, p. 152.

Pileus fleshy but thin, fragile, convex, becoming plane, sometimes slightly depressed in the center, dry, silky fibrillose or fibrillose-squamulose, grayish brown, darker or brown in the center, often with yellowish or ferruginous stains, flesh white or whitish, not changing color where wounded, taste and odor almond; lamellae thin, close, free, grayish, soon pinkish, finally brown; stem equal or slightly tapering upward, sometimes bulbous, stuffed or hollow, slightly fibrillose, white, the annulus slight, often evanescent; spores broadly elliptic or subglobose, .0002 of an inch long, .00016 broad.

The specimens from which this species was first described were smaller than others collected later. The caps in these now before us are 1–3 inches broad and the stems 1–2 inches long and 3–5 lines thick. The flesh is white and unchangeable when cut or wounded. It has a taste resembling that of almonds which has given origin to the local name "almond mushroom." One correspondent says that "it is the finest flavored mushroom he has ever tasted." Bruises of the cap and stem of the fresh plant sometimes assume a yellow color. The plants grow singly or in clusters. They appear from September to November, and have been found growing in both sandy and clayey soil, and in tan yards. The range is from Michigan to Massachusetts.

Boletus frostii Russell

FROST BOLETUS

PLATE 108, FIG. 1–5

Pileus convex, firm when young, becoming softer with age, glabrous, viscid, dark red becoming paler with age, flesh whitish, tinged with yellow next the tubes, taste slightly acrid; tubes concave in the young plant, becoming plane or convex, adnate, yellowish with their mouths colored like the pileus, changing to bluish green where wounded; stem equal or nearly so, solid, strongly reticulate, colored like the pileus, yellow within, often with reddish stains at the base; spores with a greenish hue when caught on white paper, subfusiform, .0005–.0006 of an inch long, .0002 broad.

The frost boletus is a very showy species. Its deep red cap and distinctly reticulate red stem are attractive to the eyes and a delight

to the mycologist. It occurs in our State on Long Island and so far as known is not found elsewhere within our limits. Its viscid cap is 2–4 inches broad and its stem about as long and 4–6 lines thick. It grows both in thin woods and in open places and occurs during July and August. According to the old rule, which pronounced all species of which the broken flesh assumed a blue color to be unfit for food and dangerous, this species should be rejected. But this rule must have its exceptions. I have eaten of this boletus without harm and one of my correspondents writes that he has eaten four caps of it at a meal and considers it an excellent species.

Boletus rugosiceps Pk.

RUGOSE CAP BOLETUS

State Mus. Bul. 94, p. 20, pl. Q, fig. 6–10.

The rugose cap boletus is well marked by its yellowish ochraceous cap which is irregularly uneven by unequal and variously shaped pits or depressions in its surface. It is sometimes slightly tinged with red or orange and occasionally embellished with small areolae formed by cracks in the surface. The surface is viscid and shining when moist and the flesh is white or whitish. The tubes are at first closed but they soon open, are minute, round and yellow, becoming darker with age. The stem is solid and firm in texture, often marked with elevated longitudinal lines or ridges and dotted with numerous points which are variable in color, being either pallid, brownish or yellowish. The cap is 1–3 inches broad, the stem 2–4 inches long and 4–8 lines thick. The plants grow in thin woods and may be found in August. They have been found on Long Island but not in other parts of the State. In preparing them for the table it is well to peel away the cuticle and the tubes and discard the stem.

NEW YORK SPECIES OF HYGROPHORUS

Hygrophorus Fr.

Hymenophorum continuous with the stem, descending unchanged into the trama; lamellae acute on the edge, clothed with a hymenium changeable into a waxy mass, not membranaceous; spores globose elliptic or ovoid, white.

Terrestrial putrescent fungi with a viscid or moist pileus.

The waxy character of the hymenium is the chief distinguishing character of the genus. The lamellae are usually thick, distant or subdistant, and their hymenial surfaces somewhat separable from

the trama. Many species with decurrent gills are similar in appearance to species of Clitocybe, but such species may generally be distinguished by their distant lamellae and their viscid pileus and stem. The genus was divided by Fries into three tribes or subgenera which have not yet been accepted as genera but they probably will be in due time. The following synoptic key indicates the prominent characters that may be employed in their separation.

KEY TO THE SUBGENERA

Stem solid or stuffed..... 1
Stem hollow..... Hygrocybe
1 Pileus moist, not viscid..... Camarophyllus
1 Pileus and stem viscid..... Limacium

Limacium Fr.

Universal veil viscid with a partial floccose veil sometimes forming a ring or attached to the margin of the pileus; lamellae adnate or decurrent; stem clothed with squamules or more often scabrous punctate at the top (or sometimes glabrous).

In this subgenus the pileus and stem are normally viscid but in Hygrophorus purpurascens Fr. and H. capreolarius Kalchb. they soon become dry. The stem is usually solid or stuffed, but in H. eburneus Fr. and H. hypothejus Fr. it often becomes hollow. H. pudorinus Fr. is described as having no veil, but the pileus and stem are viscid. Perhaps the "velum nullum" has reference to the partial floccose veil only. There are several species in which the stem is neither squamulose nor scabrous punctate at the top. In other respects they agree with the description of this subgenus. They are H. fuligineus Frost, H. flavodiscus Frost, H. speciosus Pk., H. subviolaceus Pk., H. hypothejus Fr. and H. lividoalbus Fr. This might justify the formation of a new subgenus for their reception, but since Fries himself has placed several similar European species in his subgenus Limacium, thus practically recognizing this additional character, it has seemed better to extend the characters of the subgenus, as Fries has done in fact though not in words, than to found another subgenus on such a slight difference.

KEY TO THE SPECIES

Pileus white, or white with the center yellowish or brownish..... 1
Pileus pinkish, violaceous or red or purple with paler margin..... 7
Pileus livid white, cinereous or brown..... 11
1 Margin of pileus with yellow floccose points..... chrysodon
1 Margin of the pileus naked..... 2

2 Stem hollow when mature.....3
2 Stem solid or stuffed, not hollow when mature.....4
3 Lamellae white.....eburneus
3 Lamellae yellow or yellowish.....hypothejus
4 Lamellae becoming brownish with age or in drying.....5
4 Lamellae persistently white or whitish.....6
5 Pileus slightly virgate with innate fibrils.....virgatulus
5 Pileus not fibrillose.....laurae
6 Stem scabrous punctate at the top.....rubropunctus
6 Stem glabrous at the top.....flavodiscus
7 Pileus purple or with purple squamules in the center.....8
7 Pileus some other color.....9
8 Pileus uniformly colored.....capreolarius
8 Pileus with purple squamules in the center.....purpurascens
9 Stem scabrous punctate at the top.....pudorinus
9 Stem glabrous, naked at the top.....10
10 Pileus bright red, fading to yellow on the margin.....speciosus
10 Pileus pale violaceous.....subviolaceus
11 Stem naked at the top.....12
11 Stem not naked at the top.....13
12 Stem solid.....fuligineus
12 Stem stuffed.....lividoalbus
13 Stem squamulose at the top.....limacinus
13 Stem white floccose at the top.....fuscoalbus

Hygrophorus chrysodon (Batsch) Fr.

GOLDEN TOOTH HYGROPHORUS

Pileus convex or nearly plane, viscid when moist, shining when dry, white with yellow particles or flocci on the margin and sometimes in the center also, flesh white; lamellae distant, decurrent, white, sometimes yellowish on the edge; stem equal or nearly so, stuffed, white with yellow floccose points at the top; spores elliptic, .0003–.00035 of an inch long, .00016–.0002 broad.

Pileus 1.5–3 inches broad; stem 1.5–2.5 inches long, 3–5 lines thick.

Woods and open places. Albany, Columbia and Ulster counties. Not common. September and October.

A beautiful mushroom easily known by the yellow ornamentation of the margin of the pileus, the upper part of the stem and sometimes the edge of the lamellae.

Hygrophorus eburneus (Bull.) Fr.

IVORY HYGROPHORUS

Pileus convex or nearly plane, viscid when moist, slightly pubescent on the margin when young, white, flesh white; lamellae distant,

decurrent, white; stem equal or narrowed at the base, straight or flexuous, stuffed or hollow, viscid, white with white points or squamules at the top; spores subelliptic, .00024–.0003 of an inch long, .0002–.00024 broad.

Pileus 1–2 inches broad; stem 1.5–3 inches long, 2–4 lines thick.

Thin woods and open places. Sometimes cespitose. Lake Mohonk, Ulster co. September and October. It may be distinguished from its near allies by its hollow stem. It is said to be edible but I have not tried it. The viscidity of the stem makes it difficult to pluck from its place of growth and unpleasant to handle.

Hygrophorus virgatulus Pk.

BLACK LINED HYGROPHORUS

State Mus. Rep't 26. 1874. p. 64.

Pileus convex or nearly plane, viscid when moist, minutely streaked with innate blackish fibrils, whitish with a brownish center, flesh white; lamellae distant, arcuate, decurrent, white becoming brownish in drying; stem equal or tapering downward, solid, viscid, white with a few small white floccose scales at the top; spores .0003–.00035 of an inch long, .00016–.0002 broad.

Pileus 1–2 inches broad; stem 2–3 inches long, 2–3 lines thick.

Woods. Rensselaer county. October. Very rare. The specimens here described were found in 1872 but no specimens of this species have since been found. The species is closely related to H. laurae from which it may be separated by its smaller size, more dingy color of the pileus with its innate fibrils and by its more soft floccose scales at the top of the stem.

Hygrophorus laurae Morg.

LAURA HYGROPHORUS

Jour. Cinn. Soc. Nat. Sci. 6. 1883. p. 180.

Pileus fleshy, convex, umbonate, becoming expanded and depressed, more or less irregular, glutinous, white with a reddish or brownish tinge, specially on the disk, flesh white; lamellae unequal, adnate or decurrent, distant, white; stem more or less curved or crooked, often tapering downward, solid, yellowish white, the apex scabrous with scaly points; spores elliptic, apiculate, .0003 of an inch long, .0002 broad.

Pileus 2–4 inches broad; stem 2–4 inches long, 3–6 lines thick.

Woods and open places. Common. August and September. Single, gregarious or cespitose.

Var. unicolor Pk. Pileus wholly white or only faintly tinged with yellow. Warren county. September. Edible. In this variety and in the typical form both pileus and lamellae become darker colored with age or in drying, but in the lamellae the change is more pronounced than in the pileus.

Var. decipiens Pk. Pileus thin, white with a dingy yellow or smoky brown spot in the center; lamellae subdistant, stem long, slender, white; pileus and stem not changing color with age or in drying, lamellae changing color slightly. Cespitose; borders of woods. Hamilton county. September. Edible.

More slender than the typical form and differing specially in the persistent colors of the pileus and lamellae. Closely related to the next following species.

(**Hygrophorus rubropunctus** n. nom.

RED DOTTED HYGROPHORUS

(**Hygrophorus glutinosus** Pk.)

State Mus. Bul. 54. 1902. p. 950.

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

Pileus 1–2 inches broad; stem 1–1.5 inches long, 3–4 lines thick.

Open places. Warren county. September. Rare. In the fresh plant the lower part of the stem appears to be coated with tomentum smeared with gluten, but in the dried plant the gluten assumes an orange-yellow or bright straw color and the tomentum disappears. The species differs from H. laurae Morg. in its white pileus, persistently white lamellae, reddish dots at the top of the stem and in the tomentum of the lower part of the stem. Agaricus glutinosus Bull., in its transfer to the genus Hygrophorus to which it belongs, was consigned to synonymy, therefore according to the rule "once a synonym always a synonym" it becomes necessary to change the name Hygrophorus glutinosus Pk. This has been done by substituting for it the name Hygro-

phorus rubropunctus which has reference to the red dots at the top of the stem.

Hygrophorus flavodiscus Frost

YELLOW DISKED HYGROPHORUS

State Mus. Rep't 35. 1884. p. 134; State Mus. Mem. 3, p. 145, pl. 50, fig. 1–6.

Pileus fleshy, convex or nearly plane, very viscid or glutinous, white, pale yellow or reddish yellow in the center, flesh white; lamellae adnate or decurrent, subdistant, white, sometimes with a slight flesh-colored tint; stem nearly equal, solid, very viscid or glutinous, white at the top, white or yellowish below; spores elliptic, .00025–.0003 of an inch long, .00016–.0002 broad.

Pileus 1–3 inches broad; stem 1–3 inches long, 3–6 lines thick.

Pine woods. Albany county. October. Rare. Edible. This is an excellent edible species, tender and agreeable in flavor. It is well to strip off the viscid pellicle with its adhering dirt and leaves before cooking. The species differs but slightly except in color from H. fuligineus Frost with which it sometimes grows.

Hygrophorus capreolarius Kalchb.

CAPREOLAR HYGROPHORUS

Pileus fleshy, convex becoming plane or centrally depressed, subviscid but soon dry, virgate with innate darker fibrils and punctate squamulose in the center, purplish red, flesh reddish; lamellae narrowed toward each end, distant, adnate or decurrent, purplish with a slight cinnamon tint; stem nearly equal, solid, striate or reticulate with obscure fibrils, purplish brown; spores .00024–.0003 of an inch long, .0002–.00024 broad.

Pileus 1–3 inches broad; stem 1–3 inches long, 3–6 lines thick.

Gregarious or cespitose. Woods, mostly under coniferous trees. Essex county. September.

This was published by Kalchbrenner as a variety of H. erubescens Fr. but in the *Sylloge* it is given as a distinct species and most mycologists recognize it as such at the present time. The spore dimensions given above are from spores of our American specimens.

Hygrophorus purpurascens (A. & S.) Fr.

PURPLISH HYGROPHORUS

Pileus fleshy, convex becoming plane, slightly viscid, soon dry, whitish, variegated in the center with purplish red spots or appressed

squamules; lamellae subdistant, adnate or slightly decurrent, whitish; stem equal, solid, white, roughened by purplish squamules, sometimes with slight traces of a veil near the top; spores .00024 of an inch long, .00016 broad.

Pileus 1.5–3 inches broad; stem 1–2 inches long, 3–6 lines thick.

Gregarious, under pine trees. Albany county. October. Very rare. Found but once. Our specimens differ slightly from the typical form, the pileus being fibrillose rather than squamulose and the lamellae are whitish, not purplish. There is a partial webby veil which forms a slight but mostly evanescent annulus. This species and H. capreolarius are less viscid than the other members of this subgenus here described. The spore dimensions are from American specimens.

Hygrophorus pudorinus Fr.

BLUSHING HYGROPHORUS

State Mus. Bul. 67, p. 41, pl. 83, fig. 1–6.

Pileus fleshy, firm, convex becoming nearly plane, glabrous, viscid when moist, pinkish buff or pale flesh color, flesh white, taste mild; lamellae distant, adnate or decurrent, white; stem equal or pointed at the base, solid, white or whitish, with white points at the top; spores elliptic, .0003–.0004 of an inch long, .00016–.0002 broad.

Pileus 2–4 inches broad; stem 2–5 inches long, 6–10 lines thick.

Gregarious or cespitose. Commonly under spruce or balsam fir trees. Essex county. September. Edible. This is a beautiful species, generally free from the attacks of insect larvae, attractive in appearance and of excellent flavor. It is a first-class edible mushroom. The plant referred to Hygrophorus queletii Bres. in State Museum Report 42, page 23 is now believed to be only a form of this species and it is therefore omitted.

Hygrophorus speciosus Pk.

SHOWY HYGROPHORUS

State Mus. Rep't 29, 1878; p. 43, pl. 2, fig. 1–5. State Mus. Mem. 3, p. 148, pl. 51, fig. 21–28.

Pileus ovate or subconic becoming broadly convex or nearly plane, often with a small blunt or acute umbo, glabrous, very viscid or glutinous, bright red or scarlet when young, or red in the center, yellow on the margin, sometimes fading and becoming wholly yellow, flesh white, pale yellow under the separable pellicle; lamellae dis-

tant, decurrent, white or slightly tinged with yellow; stem rather long, nearly equal, solid, viscid, sometimes slightly fibrillose, whitish or yellowish; spores elliptic, .0003 of an inch long, .0002 broad.

Pileus 1–2 inches broad; stem 2–4 inches long, 2–4 lines thick.

Gregarious. Under or near tamarack trees. Albany, Essex and Warren counties. September and October. Edible.

This is a beautiful mushroom but its bright colors fade with age and in drying. The bright red or scarlet usually persists longest in the center. Sometimes the umbo alone remains red. The species is closely related to the European H. aureus Arrh. from which it differs in its place of growth, its solid stem, the absence of any tawny hues and of any vestiges of an annulus. H. bresadolae Quel. and H. lucorum Kalchb. are also closely related European species from which our plant differs in its solid stem and the absence of any annulus. No red color is attributed in the descriptions, to either of the three species mentioned, but H. aureus is sometimes figured with a red center to the pileus.

Hygrophorus subviolaceus Pk.

VIOLET HYGROPHORUS

State Mus. Rep't 53. 1899. p. 842, pl. C, fig. 11–15.

Pileus firm, hemispheric, becoming convex, glabrous, viscid, violaceous when fresh and moist, paler or grayish when dry, flesh white; lamellae arcuate, decurrent, distant, pale violaceous; stem equal or tapering downward, solid, glabrous, white; spores subglobose or broadly elliptic, .00024–.0003 of an inch long, .0002–.00024 broad.

Pileus 1–1.5 inches broad; stem, 1–1.5 inches long, 2–4 lines thick.

Damp mucky ground in swamps. Meadowdale, Albany co. October.

This species has been found but once. It is evidently very rare. In drying the specimens become blackish or brown. It is related to H. lacmus Fr. but differs from it in its solid stem, in the color of the lamellae and in having no papilla or umbo on the pileus.

Hygrophorus fuligineus Frost

SOOTY HYGROPHORUS

State Mus. Mem. 3, p. 146, pl. 50, fig. 7–12.

Pileus convex or nearly plane, glabrous, very viscid or glutinous, grayish brown or fuliginous, often darker or almost black in the center; lamellae subdistant, adnate or decurrent, white; stem

equal, solid, viscid or glutinous, white or whitish; spores elliptic, .0003–.00035 of an inch long, .0002 broad.

Pileus 1–4 inches broad; stem 2–4 inches long, 4–8 lines thick.

Pine woods. Albany county. October and November. Edible. Often growing in company with H. flavodiscus and equally esteemed as an edible mushroom. Both occur late in the season. The stem is sometimes brownish at the base.

Hygrophorus limacinus (Scop.) Fr.

SLIMY HYGROPHORUS

Pileus fleshy, convex becoming nearly plane, glabrous, viscid, brownish or smoky brown in the center, paler on the margin; lamellae rather thin, subdistant, adnate or decurrent, grayish white; stem equal, firm, solid, viscid, fibrillose striate, squamulose at the top, colored like the pileus toward the base, paler above; spores .0005 of an inch long, .0003 broad.

Pileus 1.5–2.5 inches broad; stem 1–2 inches long, 4–6 lines thick.

Grassy places. Rensselaer county. September. Rare. Found but once.

Hygrophorus fuscoalbus (Lasch.) Fr.

GRAYISH BROWN HYGROPHORUS

Pileus convex becoming plane, even, glabrous, viscose, brownish becoming cinereous, paler on the margin; lamellae rather thick, broad, subdistant, adnate or decurrent, white; stem equal, solid, dry, white floccose at the top, whitish or brownish; spores .0003–.0004 of an inch long, .0002–.00024 broad.

Pileus 1–2 inches broad; stem 2–3 inches long, 1.5–3 lines thick.

Woods. Essex county. September. Rare. The typical form of this species is said to have a subannular floccose veil, a character which is not shown by our specimens. European authors do not agree in the dimensions ascribed to the spores of this species. In our specimens the dimensions of the spores agree with those given in *Sylloge*.

Hygrophorus hypothejus Fr.

SULFUR TINTED HYGROPHORUS

Pileus fleshy but thin, convex becoming plane or centrally depressed, even, virgate, glutinous, variable in color, grayish olive, yellowish olive or brownish, paler after the gluten disappears, flesh

thin with a slight yellow tinge; lamellae distant, decurrent, yellow, or whitish becoming yellowish; stem equal, stuffed or hollow, viscid, paler than the pileus, the partial floccose veil imperfectly annular, soon disappearing; spores .0003–.0004 of an inch long, .00016–.0002 broad.

Pileus 1–2 inches broad; stem 2–3 inches long, 3–5 lines thick.

Woods. Essex county. September. Rare. This species may be distinguished from its nearest relatives by its yellowish lamellae. It is more common southward where it occurs late in the season, growing specially in pine woods.

Hygrophorus lividoalbus Fr.

LIVID WHITE HYGROPHORUS

Pileus thin, convex or nearly plane, often irregular or wavy, even, glabrous, viscid, pallid or livid, naked on the margin; lamellae distant, adnate or slightly decurrent, white; stem slender, nearly equal, glabrous, stuffed, more or less flexuous, whitish; spores subglobose, .00024–.0003 of an inch long, .0002–.00024 broad.

Pileus 1–2 inches broad; stem 1.5–2.5 inches long, 2–3 lines thick.

Woods. Onondaga and Ulster counties. September. Rare. Our specimens do not fully agree with the description of the species in respect to the spore character which is given above, the European plant having larger and more elliptic spores. Further observation may show them to be closely related but distinct species.

Camarophyllus Fr.

Veil none; pileus firm, opaque, moist in rainy weather, not viscose; lamellae distant, arcuate; stem even, glabrous or fibrillose, not punctate scabrous.

The absence of a viscid pileus and of a hollow stem are decisive characters of the subgenus. In wet weather the pileus is only moist, not viscid. The stem is usually solid or stuffed. In a single species, Hygrophorus peckianus Howe, it sometimes becomes hollow.

KEY TO THE SPECIES

Pileus white or whitish 1
Pileus brown, grayish brown or blackish brown 3
Pileus neither white nor brown 6
1 Pileus more than 1 inch broad ..... virgineus
1 Pileus usually less than 1 inch broad 2
2 Stem 1–2 lines thick ..... borealis

2 Stem more than 2 lines thick.....pratensis
3 Pileus less than 1 inch broad.....peckianus
3 Pileus more than 1 inch broad.....4
4 Pileus glabrous.....5
4 Pileus not glabrous.....metapodius
5 Pileus blackish brown.....burnhami
5 Pileus grayish brown.....basidiosus
6 Pileus glabrous.....pratensis
6 Pileus not glabrous.....subrufescens

Hygrophorus virgineus (Wulf.) Fr.

WHITE HYGROPHORUS

State Mus. Mem. 3, p. 150, pl. 52, fig. 8–12.

Pileus fleshy, convex, often becoming plane or centrally depressed, sometimes irregular or wavy on the thin margin, moist, white, flesh white, taste mild; lamellae thick, distant, decurrent, white; stem firm, smooth, solid, equal or tapering downward, white; spores elliptic, .00024–.0003 of an inch long, .0002 broad.

Pileus 1–3 inches broad; stem 1–2 inches long, 3–5 lines thick.

It occurs in grassy places in wet weather and may be found from July to October. Albany, Essex and Rensselaer counties. In the European plant the surface of the pileus is said to become floccose when dry and sometimes to crack into small areas, but these characters have not been observed by us in the American plant. It is edible.

Hygrophorus borealis Pk.

NORTHERN HYGROPHORUS

State Mus. Rep't 26. 1874. Bot. ed. p. 64.

Pileus thin, convex or nearly plane, glabrous, moist, even, sometimes striatulate on the margin; lamellae distant, arcuate, decurrent, white; stem slender, firm, glabrous, straight or flexuous, equal or tapering downward, stuffed or solid, white; spores elliptic, .0003–.00035 of an inch long, .0002–.00024 broad.

Pileus 8–12 lines broad; stem 1–2 inches long, 1–2 lines thick.

Damp or moist ground in woods and swamps, occasionally in pastures. Common in hilly and mountainous regions. July to October. This small white species is closely allied to H. niveus (Scop.) Fr. from which it may be separated by its pileus which is neither viscid nor umbilicate.

Hygrophorus pratensis (Pers.) Fr.

MEADOW HYGROPHORUS

State Mus. Rep't 48, p. 279, pl. 28, fig. 11–17.

Pileus compact, convex, turbinate or nearly plane, often irregular, glabrous, thin on the margin, variable in color, tawny, reddish, buff, cinereous or whitish, flesh white or whitish, taste mild; lamellae thick, distant, decurrent, whitish or yellowish, the interspaces often veiny, stem short, even, glabrous, solid or stuffed, equal or narrowed downward, white or tinged with the color of the pileus; spores .00024–.0003 of an inch long, .00016–.0002 broad.

Pileus 1–3 inches broad; stem 2–3 inches long, 4–6 lines thick.

Scattered, gregarious or cespitose; growing in woods, pastures and grassy places. Common. July to September.

Several varieties of this variable species have been recognized. The names given them are mostly derived from their color. Var. albus. Whole plant white or whitish. Var. cinereus. Whole plant cinereous or the stem only whitish. Var. pallidus. Plant ochraceous white. The plants are edible when cooked.

Hygrophorus peckianus Howe

PECKIAN HYGROPHORUS

Bul. Torrey Bot. Club 5. 1874. p. 43.

Pileus rather thin but firm, convex or slightly depressed in the center, glabrous, hygrophanous, sooty brown when moist, paler or buff brown when dry, the margin often decurved and wavy; lamellae subdistant, thick, arcuate, decurrent, pallid, becoming darker with age; stem slender, glabrous, flexuous, stuffed, sometimes becoming hollow, often narrowed toward the base, colored like the pileus; spores subglobose, .0002–.00024 of an inch long.

Pileus 5–10 lines broad; stem 1.5–2 inches long, 1–2 lines thick.

Gregarious or cespitose. Growing under ferns. Hamilton county. August. The fresh plant emits a peculiar, indescribable odor. It is closely related to the European H. foetens Phil. and may be specifically the same. Its name, however, antedates that of the European plant.

Hygrophorus burnhami n. sp.

BURNHAM HYGROPHORUS

Pileus fleshy, broadly conic becoming convex or nearly plane, moist in wet weather, glabrous or slightly and obscurely innately

fibrillose on the margin, blackish brown, flesh white; lamellae narrow, sometimes forked, subdistant, adnate or slightly decurrent, white; stem equal, sometimes pointed or abruptly narrowed at the base, fibrillose striate, solid, whitish becoming tinged with the color of the pileus, white within and white tomentose at the base; spores elliptic, .0003–.0004 of an inch long, .0002–.00024 broad.

Pileus 1–2 inches broad; stem 1.5–3 inches long, 4–6 lines thick.

Gregarious. Growing in mixed woods. West Fort Ann, Washington co. October. S. H. Burnham.

This species is a near ally of H. caprinus (Scop.) Fr. from which it may be separated by its more glabrous pileus, more narrow and closer lamellae, which also are less decurrent. The stem is paler than the pileus and generally slightly radicated at the base and there covered with a white mycelioid tomentum. The lamellae are about 1 line broad.

Hygrophorus metapodius Fr.

CHANGED STEM HYGROPHORUS

Pileus compact, convex becoming nearly plane, often irregular, soon silky and squamulose, brown or grayish brown, flesh thick; lamellae thick, distant, adnate or somewhat decurrent, broadly emarginate, grayish white; stem unequal, sometimes narrowed toward the base, sometimes ventricose, stuffed, glabrous, cinereous, reddish within; spores .0003 of an inch long, .0002 broad.

Pileus 1.5–2 inches broad; stem 1–2 inches long, 3–5 lines thick.

Woods or groves. Ulster county. September. Rare. This species has been found but once. The specimens differ from the typical form in the flesh not becoming red where wounded and no odor was observed at the time of collection.

Hygrophorus basidiosus n. comb.

GRAYISH BROWN HYGROPHORUS

Clitocybe basidiosa Pk. State Mus. Bul. 2. 1887. p. 5.

Pileus rather thin, convex becoming nearly plane or centrally depressed, sometimes umbilicate, glabrous, hygrophanous, grayish brown and striatulate on the margin when moist, grayish white when dry, flesh whitish; lamellae subarcuate, thick, distant, adnate or slightly decurrent, whitish with a violaceous tint; stem equal or slightly thickened at the top, glabrous, firm, solid, whitish or

pallid; spores subglobose, .00016–.0002 of an inch long, basidia .0024 of an inch long, bearing spicules .0003 of an inch long.

Pileus 1–1.5 inches broad; stem 1–2 inches long, 1–2 lines thick.

Woods and swamps. Albany and Rensselaer counties. August.

This species was formerly taken to belong to the genus Clitocybe, but it now appears to be a better Hygrophorus than Clitocybe. It is remarkable for the elongated basidia and sterigmata of the hymenium. It is rare but easily recognized by the peculiar grayish brown hue of the moist plant and the slight violaceous hue of the lamellae.

Hygrophorus subrufescens Pk.

REDDISH HYGROPHORUS

State Mus. Bul. 67. 1903. p. 23, pl. M, fig. 1–6.

Pileus thin on the margin, convex or nearly plane, dry, minutely floccose or squamulose, pale pink or grayish red, flesh whitish, faintly tinged with pink, taste mild; lamellae subdistant, decurrent, whitish; stem equal or nearly so, flexuous, glabrous, solid or stuffed, white; spores elliptic, .0003 of an inch long, .0002 broad.

Pileus 1–1.5 inches broad; stem 1.5–3 inches long, 2–4 lines thick.

Fallen leaves in woods. Suffolk county. August. Rare. Found but once.

Hygrocybe Fr.

Veil none; pileus viscid when moist, shining when dry, rarely floccose scaly; lamellae soft; stem hollow, soft, glabrous.

The whole fungus is slender, watery, fragile; many of the species are brightly colored.

A few species without a viscid pileus are included in this subgenus because of their fragility, bright colors and hollow stems. By these characters they may be separated from the subgenus Camarophyllus.

KEY TO THE SPECIES

Pileus not viscid 1
Pileus viscid 5
1 Lamellae decurrent 2
1 Lamellae not decurrent 3
2 Pileus glabrous, pale yellow ..... parvulus
2 Pileus usually squamulose, red, rarely yellow ..... cantharellus
3 Pileus brown, sometimes tinged with green or yellow ..... immutabilis
3 Pileus not brown 4
4 Pileus pale yellow ..... parvulus
4 Pileus golden yellow ..... marginatus
4 Pileus usually red or orange, rarely yellow ..... miniatus
5 Stem not viscid 6

5 Stem viscid 10
6 Pileus some shade of red 7
6 Pileus not at all red ..... ceraceus
7 Pileus grayish red or tawny red ..... laricinus
7 Pileus bright red, orange or scarlet 8
8 Pileus acutely conic ..... conicus
8 Pileus not acutely conic 9
9 Stem red with a white base ..... puniceus
9 Stem red with a yellow base ..... coccineus
10 Stem and pileus with greenish slime when young 11
10 Stem and pileus not greenish 12
11 Lamellae decurrent ..... peckii
11 Lamellae adnate ..... psittacinus
12 Pileus white ..... purus
12 Pileus brown ..... luridus
12 Pileus neither white nor brown 13
13 Pileus less than 6 lines broad ..... minutulus
13 Pileus more than 6 lines broad 14
14 Pileus umbilicate ..... nitidus
14 Pileus not umbilicate 15
15 Lamellae adnexed ..... chlorophanus
15 Lamellae adnate or decurrent ..... laetus

Hygrophorus parvulus Pk.

SMALL HYGROPHORUS

State Mus. Rep't 28. 1876. Bot. ed. p. 50, pl. 1, fig. 20–24.

Pileus thin, hemispheric or convex, glabrous, striatulate on the margin when moist, pale yellow; lamellae subdistant, arcuate, adnate or decurrent, whitish or pale yellow; stem equal, glabrous, hollow, yellow or pale yellow; spores elliptic, .00024–.0003 of an inch long, .00016–.0002 broad.

Pileus 3–6 lines broad; stem 1–1.5 inches long, 1–1.5 lines thick.

Woods and open places. Common. August.

A noticeable feature in this species is found in the stem which is often more highly colored than the pileus. It sometimes grows under brakes, Pteris aquilina L.

Hygrophorus cantharellus Schw.

CHANTARELLE HYGROPHORUS

State Mus. Rep't 54. 1901. p. 175, pl. 76, fig. 8–20.

Pileus thin, convex, sometimes umbilicate, glabrous or minutely squamulose, red, orange or yellow: lamellae rather broad, distant, arcuate, decurrent, whitish or yellowish, sometimes tinged with red; stem slender, fragile, glabrous, stuffed or hollow, red, orange or

yellow; spores elliptic, .0003–.0004 of an inch long, .0002–.00024 broad.

Pileus 6–12 lines broad; stem 1–3 inches long, 1–2 lines thick.

Gregarious. Damp soil in woods or open places. Common. June to August. Edible.

Var. roseus Pk. Margin of the pileus wavy or lobed, the lobes often crowded or overlapping.

Var. flavipes Pk. Pileus red or orange, stem yellow.

Var. flaviceps Pk. Pileus yellow, stem red or reddish.

Var. flava Pk. Pileus and stem pale yellow.

Hygrophorus immutabilis Pk.

UNCHANGEABLE HYGROPHORUS

State Mus. Rep't 51. 1898. p. 292.

Pileus thin, conic or convex, umbonate, often striate when dry, greenish brown or yellowish brown, not changing color in drying; lamellae subdistant, whitish or yellowish; stem slender, glabrous, hollow, yellow; spores elliptic, .0004–.0005 of an inch long, .00024–.00028 broad.

Pileus 8–12 lines broad; stem 1–2 inches long, 1.5–2 lines thick.

Dry sandy soil in bushy places. Essex county. August. Rare. Found but once.

Hygrophorus marginatus Pk.

MARGINED HYGROPHORUS

State Mus. Rep't 28. 1876. Bot. ed. p. 50.

Pileus thin, fragile, convex, subcampanulate or nearly plane, often irregular, sometimes broadly umbonate, glabrous, shining, striatulate on the margin, bright golden yellow; lamellae rather broad, subdistant, ventricose, emarginate, adnexed, yellow, sometimes becoming orange or vermilion on the edge, interspaces venose; stem fragile, glabrous, often flexuous, compressed or irregular, hollow, pale yellow; spores broadly elliptic, .00024–.0003 of an inch long, .0002–.00024 broad.

Pileus 10–18 lines broad; stem 1–2 inches long, 1–2 lines thick.

Woods. Essex, Fulton and Rensselaer counties. August.

This beautifully colored hygrophorus resembles the European H. obrussеus Fr. in color, but it differs in its smaller size, more subglobose spores and the red color often assumed by the edge of the lamellae. This last character is suggestive of the specific name. It is so fragile that care is necessary to avoid breaking the

specimens when collecting them. Specimens have been received from correspondents that are said to be viscid when fresh and moist, but when received were not distinguishable from our specimens of this species. It is therefore probable that in wet weather this plant may be found viscid.

Hygrophorus miniatus Fr.

VERMILION HYGROPHORUS

State Mus. Rep't 48. 1896. Bot. ed. p. 182, pl. 28, fig. 1–10.

Pileus thin, fragile, convex becoming nearly plane, glabrous or minutely squamulose, often umbilicate, deep red or sometimes yellow; lamellae distant, adnate, yellow, often tinged with red or rarely wholly red; stem slender, glabrous, equal, stuffed or hollow, polished, colored like or a little paler than the pileus; spores .0003 of an inch long, .0002 broad.

Pileus .5–2 inches broad; stem 1–3 inches long, 1–2 lines thick.

Scattered, gregarious or cespitose. Woods and swamps, among mosses and fallen leaves or on bare ground. Common. June to September. Edible.

Var. subluteus Pk. [var. lutescens Pk. State Mus. Rep't 48, Bot. ed. p. 183]. Pileus yellow or reddish yellow; lamellae and stem yellow.

Var. congelatus Pk. [Hygrophorus congelatus Pk. State Mus. Rep't 23, p. 114]. Pileus small, convex, dingy red, glabrous; lamellae subemarginate, red.

Var. sphagnophilus Pk. Pileus subconic or broadly convex, sometimes centrally depressed, glabrous, red or orange; stem colored like or a little paler than the pileus, white or yellow at the base. Growing among peat mosses in bogs. More fragile than the typical form.

The vermilion hygrophorus is a very variable but beautiful species. Unfortunately its colors are apt to fade and its beauty to be lost in drying.

Hygrophorus ceraceus (Wulf.) Fr.

WAXY HYGROPHORUS

Pileus thin, fragile, convex becoming plane, striatulate, viscid, shining, waxy yellow; lamellae broad, almost triangular, distant, adnate or slightly decurrent, pale yellow; stem sometimes unequal and flexuous, hollow, shining, waxy yellow; spores elliptic, .0003 of an inch long, .00016–.0002 broad.

Pileus about 1 inch broad; stem 1–2 inches long, 1–2 lines thick.

Gregarious. Mossy ground or grassy places. Albany, Essex and Ulster counties. September. A small species having very broad lamellae, which are scarcely decurrent. Its waxy yellow color is suggestive of the specific name.

Hygrophorus laricinus Pk.

LARCH HYGROPHORUS

State Mus. Mem. 3. 1900. p. 146, pl. 51, fig. 1–12.

Pileus thin, convex becoming plane, viscid when moist, grayish red, rusty red or tawny red, sometimes white or yellow on the margin, flesh white, slightly tinged with yellow under the cuticle, taste slightly disagreeable; lamellae distant, aduate or slightly decurrent, whitish; stem equal, firm, hollow, white; spores elliptic, .00024–.0003 of an inch long, .00016–.0002 broad.

Pileus 6–12 lines broad; stem 1–2 inches long, 2–3 lines thick.

Gregarious under tamarack trees. Warren county. October. Rare. Edible. Found but once. The flesh is tender and of good flavor when cooked.

Hygrophorus conicus (Scop.) Fr.

CONIC HYGROPHORUS

Pileus thin, conic, acute or subacute, fragile, glabrous or fibrillose, viscid when moist, shining when dry, often lobed on the margin, red, scarlet, orange or yellow; lamellae thin, rather close, ventricose, narrowed behind, almost free, commonly yellowish; stem equal, fibrously striate, hollow, yellow; spores broadly elliptic, .0004–.0005 of an inch long, .00024–.0003 broad.

Pileus 6–10 lines high and broad; stem 1–4 inches long, 1–2 lines thick.

Woods and in mossy or grassy places. Common. June to September. This species is easily recognized by the conic shape of the pileus which usually terminates in an acute point. Wounded places in the fresh plant are apt to turn black and the whole plant usually turns black in drying. The color of the pileus is variable and Gillet has published several varieties founded on this character. The viscidity of the cap is slight.

Hygrophorus puniceus Fr.

RED HYGROPHORUS

State Mus. Mem. 3. p. 149, pl. 52, fig. 1–7.

Pileus thin, fragile, broadly conic or campanulate, becoming nearly plane, often wavy or lobed on the margin, glabrous, viscid, bright red, paler when old; lamellae broad, thick, distant, slightly adnexed, yellow, often reddish; stem equal or slightly ventricose, hollow, glabrous, yellow or red and yellow, white at the base; spores elliptic, .0003–.0004 of an inch long, .0002 broad.

Pileus 1–3 inches broad; stem 2–3 inches long, 4–6 lines thick.

Damp or mossy places in woods or open ground. Albany and Rensselaer counties and the Adirondack region. Not common. August and September. Edible.

A conspicuous but very tender and fragile mushroom, often larger than our other bright red species of this genus.

Hygrophorus coccineus (Schaeff.) Fr.

SCARLET HYGROPHORUS

Pileus thin, fragile, convex becoming plane, viscid, glabrous, bright red becoming pale, flesh red; lamellae distant, adnate or furnished with a decurrent tooth, pale yellow or reddish, the interspaces veiny; stem terete or compressed, glabrous, hollow, crimson red above, yellow at the base; spores .0003–.0004 of an inch long, .0002–.00024 broad.

Pileus 1–2 inches broad; stem 1–2 inches long, 1–2 lines thick.

Pastures and mossy meadows. Albany, Ulster and Essex counties. September and October. Not common.

Hygrophorus peckii Atk.

PECK HYGROPHORUS

Jour. Myc. 8. 1902. p. 114.

Pileus thin, fragile, convex becoming nearly plane, often slightly umbilicate or centrally depressed, very viscid or glutinous, buff becoming pinkish or vinaceous buff, sometimes tinged with green; lamellae broad, distant, arcuate, decurrent, whitish or sometimes greenish when young; stem slender, sometimes splitting longitudinally, very viscid, colored like the pileus, sometimes greenish at the top; spores elliptic, .00024–.0003 of an inch long, .00016–.0002 broad.

Pileus 5–10 lines broad; stem 1–4 inches long, 1–2 lines thick.

Plants scattered or gregarious, often odorous. Woods and open places. Hamilton, Saratoga and Tompkins counties. July and August.

The green color is due to the gluten and it quickly disappears when the gluten dries. The species is closely related to H. psittacinus Fr. from which it may be separated by the pileus which is neither campanulate nor umbonate and by the lamellae which are paler, less ventricose and more decurrent. The plant is very fragile and must be handled carefully to prevent breaking. In color it resembles H. lactus (Pers.) Fr.

Hygrophorus psittacinus (Schaeff.) Fr.

PARROT HYGROPHORUS

Pileus thin, conic or campanulate becoming nearly plane, somewhat umbonate, striatulate, covered when young with an evanescent greenish gluten, yellowish, reddish or whitish; lamellae thick, subdistant, ventricose, adnate, yellow, more or less tinged with green; stem tough, even, hollow, viscid, green at the top, yellow below; spores .0003 of an inch long, .0002 broad.

Pileus 6–12 lines broad; stem 1–2 inches long, 1–2 lines thick.

Pastures, swamps and clearings, often under brakes, Pteris aquilina L. Lewis county. September to November. Rare

The green color is generally more persistent at the top of the stem than elsewhere, both in this and in the preceding species.

Hygrophorus purus Pk.

PURE HYGROPHORUS

State Mus. Rep't 26. 1874. p. 63.

Pileus thin, fragile, conic becoming expanded and cupulate by the upcurving of the thin margin, very viscid, often irregular, white; lamellae subdistant, broad, ventricose, emarginate with a decurrent tooth, white; stem glabrous, subflexuous, fragile, hollow, very viscid; spores .0003 of an inch long, .0002 broad.

Pileus 1–2 inches broad; stem 3–6 inches long, 2–3 lines thick.

Thin woods. Lewis county. September. Rare. Found but once.

H. calyptraeformis niveus Cke. scarcely differs from this. H. calyptraeformis Berk. differs in its beautiful pink or pinkish rose color.

Hygrophorus luridus B. & C.

LURID HYGROPHORUS

Pileus thin, campanulate or convex becoming nearly plane, umbonate, very viscid, coarsely striate or sulcate striate on the margin, brown or pale brown with a dark center; lamellae thick, distant, ventricose, adnate or slightly decurrent, white; stem slender, hollow, viscid, colored like the pileus; spores .00024–.0003 of an inch long, .0002–.00024 broad.

Pileus 6–12 lines broad; stem 1–2 inches long, 1–1.5 lines thick.

Swamps and damp places. Rensselaer, Saratoga and Hamilton counties. July and August. Not before reported from our State.

The type specimens were collected in North Carolina but our northern plant agrees very well with the description of the species except in having no umbo. No spore characters are given in the original description. The dimensions here given are derived from the spores of the northern plant.

Hygrophorus minutulus Pk.

MINUTE HYGROPHORUS

State Mus. Bul. 2. 1887. p. 9.

Pileus very thin, submembranaceous, convex or expanded, subumbilicate, bright red or orange, viscid, distinctly striatulate when moist, pale red or yellowish when dry; lamellae rather broad, subdistant, sometimes ventricose, adnate or subsinuate and slightly decurrent, whitish tinged with red or yellow; stem short, slender, fragile, solid, viscid when moist, yellowish; spores narrowly elliptic, .0004 of an inch long, .0002 broad, sterigmata .0002–.0003 of an inch long.

Pileus 3–5 lines broad; stem 6–10 lines long, less than .5 of a line thick.

Grassy and mossy places in pastures. Rensselaer county. July. Rare. Found but once.

This is one of our smallest species. Its solid stem does not agree well with the character of the subgenus in which we have placed it, but its bright color indicates its relationship to the species of this subgenus.

Hygrophorus nitidus B. & C.

SHINING HYGROPHORUS

State Mus. Bul. 94. p. 45, pl. 88, fig. 1–7.

Pileus thin, fragile, convex, umbilicate, viscid, pale yellow, shining and striatulate on the margin when moist, whitish when dry; lamellae arcuate, distant, decurrent, pale yellow; stem slender, fragile, viscid, hollow, colored like the pileus; spores .00024–.0003 of an inch long, .0002–.00024 broad.

Pileus 4–12 lines broad; stem 1.5–3 inches long, 1–2 lines thick.

Gregarious or cespitose. Swamps and low damp places. Common. July and August. Edible.

A pretty little mushroom pale yellow throughout, very fragile and very viscid. The yellow color of the lamellae and stem is more persistent than that of the pileus.

Hygrophorus chlorophanus Fr.

SULFURY HYGROPHORUS

State Mus. Mem. 3. p. 147, pl. 51, fig. 13–20.

Pileus thin, fragile, convex becoming nearly plane, often irregular with the margin split or lobed, glabrous, viscid, striate on the margin, pale yellow, sometimes tinged with red in the center; lamellae rather broad, subdistant, thin, ventricose, emarginate, adnexed, pale yellow; stem equal or nearly so, glabrous, viscid when moist, shining when dry, hollow, pale yellow; spores .0003 of an inch long, .0002 broad.

Pileus 8–20 lines broad; stem 1.5–3 inches long, 1–2 lines thick.

Damp or mossy places in woods. Common. July to September. Edible.

Hygrophorus laetus (Pers.) Fr.

PLEASING HYGROPHORUS

Pileus thin, convex, becoming plane, viscid, even or striatulate on the margin, somewhat shining, tawny; lamellae thin, distant, somewhat decurrent, whitish or flesh colored; stem slender, equal, tough, hollow, glabrous, viscid, tawny or pale tawny; spores .00024–.0003 of an inch long, .0002 broad.

Pileus 6–12 lines broad; stem 1–3 inches long, 1–2 lines thick.

Thin woods and pastures. Common. July to September.

When dry the color resembles that of dried specimens of the Peck hygrophorus.

Hygrophorus aurantiacoluteus B. & C., H. cossus (Sow.) Fr. and H. penarius Fr. have been omitted, the specimens formerly referred to these species being doubtful.

NEW YORK SPECIES OF RUSSULA

Russula Pers.

Veil none; hymenophorum descending unchanged into the vesiculose trama; lamellae rigid, fragile, without a milky juice, acute on the edge; spores globose or subglobose, often echinulate or verrucose, white or yellow.

Fleshy putrescent terrestrial fungi.

This genus is closely related to the genus Lactarius, from which it is easily distinguished by the absence of a milky juice. Young plants of some species have the lamellae, when in vigorous growing condition, adorned with small drops of water, but no milky or colored juice issues from wounds as in species of Lactarius. The pileus is destitute of concentric zones, but in the genus Lactarius such markings are frequent. The red colors which are so conspicuous and common in this genus are rarely if ever seen in Lactarius. In the flavor of the flesh there is great similarity. In both genera many species have a mild or an agreeable flavor and many others have an acrid, hot or peppery taste. This disagreeable flavor is generally destroyed in cooking so that nearly all the species that have been tried have been found to be edible.

The genus was divided by Fries into five tribes or subgenera, but these are not sharply limited and are scarcely satisfactory. Nevertheless we have attempted to group our species as nearly as possible in accordance with them. Some species also are so clearly related to each other that they are liable to be confused unless great care and close observation are exercised. It is important to observe the color of the pileus in both young and mature plants, the character of its surface and its margin, the character and color of the lamellae, the taste of the flesh and the color of the spores. Though the species are numerous their general appearance and form are so peculiar and so much alike that it soon becomes easy to recognize the generic character even in an unknown species.

KEY TO THE SUBGENERA

Margin of the mature pileus even.....1
Margin of the mature pileus striate.....2
1 Lamellae unequal, not often forked.....Compactae

1 Lamellae often forked, narrowed toward each end.....Furcatae
1 Lamellae often forked, narrowed toward the stem.....Rigidae
2 Lamellae unequal, viscid pellicle adnate.....Heterophyllae
2 Lamellae mostly equal, viscid pellicle separable.....Fragiles

Compactae Fr.

Pileus fleshy, compact, firm, without a separable pellicle and without striations on the margin; lamellae unequal; stem firm, solid, rarely cavernous when old.

In all our species the spores are white. In nearly all, wounds of the lamellae or flesh change color. Five of the species are so closely related that in the dried state it is scarcely possible to separate them from each other satisfactorily. Their differential characters are chiefly such as can be ascertained only in the living plant. All are mild or tardily acrid in taste. The compact flesh, even margin of the pileus and unequal lamellae are the prominent characters of this subgenus.

KEY TO THE SPECIES

Pileus changing color with age or in drying.....1
Pileus persistently white or whitish.....7
1 Pileus becoming smoky brown, grayish brown or blackish.....2
1 Pileus becoming pale tawny or rusty ochraceous.....6
2 Pileus viscid when moist.....3
2 Pileus dry.....4
3 Lamellae and flesh slowly becoming reddish where wounded.....nigricans
3 Lamellae and flesh not becoming reddish where wounded.....subsordida
4 Flesh slowly becoming reddish where wounded.....densifolia
4 Flesh not becoming reddish where wounded.....5
5 Flesh becoming black or blackish where wounded.....sordida
5 Flesh not changing color where wounded.....adusta
6 Pileus viscid when moist, odorous.....magnifica
6 Pileus dry, inodorous when fresh.....compacta
7 Lamellae persistently white.....delica
7 Lamellae becoming subferruginous in drying.....brevipes

Russula nigricans (Bull.) Fr.

BLACKISH RUSSULA

Pileus thick, firm, at first convex and umbilicate with the margin incurved, becoming expanded and centrally depressed, at first white or white clouded with smoky brown, slightly viscid, becoming blackish or blackish brown, flesh white, first slowly changing to a reddish hue when cut or broken then becoming blackish, taste mild; lamellae broad, subdistant, slightly rounded behind, adnexed, white becoming

blackish with age or in drying; stem short, solid, white becoming dingy or smoky brown with age; spores subglobose, .0003–.0004 of an inch long, nearly or quite as broad.

Pileus 3–5 inches broad; stem 1–2.5 inches long, 6–12 lines thick.

Woods and clearings. July and August. Edible.

The dark color of the cooked mushroom gives it an unattractive appearance but its flavor is excellent. This and the following species of which the pileus becomes smoky brown or blackish brown are apt to be infested by the larvae of insects even when quite young. The injury done by them to the flesh causes it to become blackish.

Russula subsordida Pk.

SUBSORDID RUSSULA

State Mus. Bul. 105. p. 40, pl. 99, fig. 1–5.

Pileus firm, convex becoming nearly plane or centrally depressed, glabrous, viscid when young or moist, whitish becoming smoky brown with age, sometimes with an olive-green tint, flesh grayish white, slowly changing to smoky brown when cut or broken, taste mild or slightly and tardily acrid; lamellae thin, close, adnate, whitish becoming black or blackish with age or in drying; stem short, glabrous, solid becoming spongy within and sometimes cavernous, white becoming smoky brown with age or where wounded; spores globose, .0003 of an inch broad.

Pileus 2–5 inches broad; stem 1–1.5 inches long, 6–12 lines thick.

Woods. Warren county. July. Rare. Edible.

Easily distinguished from R. s o r d i d a by its viscid pileus. Horicon, Warren co. yet remains the only locality known for this species.

Russula sordida Pk.

SORDID RUSSULA

State Mus. Bul. 105. 1906. p. 39, pl. 98, fig. 1–5.

Pileus convex becoming centrally depressed, dry, glabrous, dingy white becoming smoky brown with age, flesh grayish white, changing to blackish brown or bluish black where cut or broken, taste mild or tardily acrid; lamellae close, unequal, adnate or slightly decurrent, sometimes forked, white changing to black or blackish brown with age or in drying; stem short, firm, equal, solid, colored like the pileus; spores globose, .0003 of an inch broad.

Pileus 3–6 inches broad; stem 1–2 inches long, 6–12 lines thick.

Under hemlock trees. Common in hemlock regions. July. Edible.

From R. subsordida it may be separated by its dry pileus, its more clear white lamellae and by the wounds of the flesh more quickly assuming a blackish color. From R. nigricans and R. densifolia both this and the preceding species may be separated by the absence of reddish hues in the change of color assumed by wounds.

Russula densifolia Secr.

DENSE GILLED RUSSULA

Pileus convex becoming nearly plane or centrally depressed, even, glabrous, whitish becoming gray or sooty brown, sometimes darker in the center, flesh white, slowly changing to reddish and then blackish where wounded, taste mild; lamellae thin, close, adnate or decurrent, white, sometimes tinged with red; stem cylindric, even, solid, slightly pruinose, whitish becoming grayish brown or blackish; spores globose, .0003 of an inch broad.

Pileus 2–4 inches broad; stem 1–2 inches long, 5–9 lines thick.

Woods. Suffolk county and Adirondack mountains. July and August.

Related to R. adusta Fr. from which it is distinguished by wounds of the flesh assuming a reddish color. From R. nigricans Fr. it may be separated by its lamellae being adnate or slightly decurrent and more crowded. Sometimes the lamellae, at their inner extremity, separate from the stem and flesh of the pileus and curve outward and upward. This form appears to be slightly viscid when moist and may prove to be worthy of separation. It is R. densifolia paxilloides Pk. in State Museum bulletin 75, 1904, page 20.

Russula adusta (Pers.) Fr.

SCORCHED RUSSULA

Pileus convex becoming centrally depressed or somewhat infundibuliform, white or whitish becoming brownish or sooty gray, flesh white, not changing color where wounded, taste mild; lamellae thin, narrow, close, adnate or slightly decurrent, sometimes slightly rounded behind, white becoming dingy; stem solid, cylindric, colored like the pileus; spores subglobose, .0003–.0004 of an inch long, .00024–.0003 broad.

Pileus 2–3 inches broad; stem 1–2 inches long, 4–8 lines thick.

Woods. Albany and Warren counties. July to September. Rare.

The notable characters of the species are its thin, close, adnate lamellae changing color but slightly with advancing age, its unchangeable flesh and its mild taste. The plant does not become blackish in drying as do the preceding species but assumes a smoky brown or grayish brown hue. It sometimes grows under pine needles which it pushes up enough to reveal its place of growth.

Russula magnifica Pk.

MAGNIFICENT RUSSULA

State Mus. Bul. 67. 1903. p. 24, pl. N, fig. 1–4.

Pileus convex and umbilicate becoming centrally depressed or infundibuliform, glabrous, viscid when young and moist, even or sometimes slightly rimose squamose in the center, whitish becoming pale rusty ochraceous, flesh white or whitish, odor and taste alkaline, strong and disagreeable; lamellae narrow, close, adnate or slightly decurrent, whitish with a faint pinkish tint, becoming reddish brown where wounded and a dark reddish brown or reddish cinnamon in drying; stem equal or tapering downward, solid becoming spongy or sometimes cavernous within, white or whitish; spores subglobose, even or nearly so, .0003–.0004 of an inch long, .00025–.0003 of an inch broad.

Pileus 4–10 inches broad; stem 2–5 inches long, 8–18 lines thick.

Among fallen leaves in woods. Suffolk county. August. Local.

A limited locality near Port Jefferson is the only station known to me where this species has been found. It is the largest russula known to me and is related to R. compacta Frost and R. brevipes Pk.

Russula compacta Frost

COMPACT RUSSULA

State Mus. Rep't 32. 1879. p.32; State Mus. Bul. 116. pl. 109, fig. 1–4.

Pileus fleshy, compact, broadly convex, sometimes umbilicate becoming centrally depressed or even infundibuliform by the upcurving of the margin, dry or subviscid after heavy rain, unpolished, at first white or whitish, becoming rusty ochraceous, flesh white, taste mild or sometimes slightly and tardily acrid, odor in drying strong and disagreeable; lamellae rather close or subdistant, adnate or slightly rounded behind, unequal, occasionally forked, white, be-

coming reddish brown where wounded and smoky brown in drying; stem short, stout, equal or nearly so, solid, white, but becoming stained with reddish brown in handling or where wounded, and sometimes changing color like the pileus; spores globose or subglobose, .0003–.0004 of an inch long, .0003 broad.

Pileus 3–6 inches broad; stem 1.5–2.5 inches long, 6–12 lines thick.

Ground in woods. Essex, Onondaga, Rensselaer and Suffolk counties. July to September. Edible.

Russula brevipes Pk.

SHORT STEM RUSSULA

State Mus. Rep't 43. 1890. Bot. ed. p. 20, pl. 2, fig. 5–8.

Pileus convex and umbilicate, becoming centrally depressed or infundibuliform, dry, glabrous or nearly so, white or whitish, often with yellowish or rusty yellow stains or patches in the center, flesh whitish, taste mild or slightly and tardily acrid; lamellae thin, close, adnate or decurrent, rarely slightly rounded behind, white becoming tinged with pale cinnamon or ferruginous in age or in drying; stem firm, solid, glabrous, white; spores globose, .0004–.0005 of an inch broad.

Pileus 3–5 inches broad; stem 1–2 inches long, 6–10 lines thick.

Woods and open places. Common. July to October.

This species exhibits less change of color than any of the preceding ones of this subgenus. The lamellae however change with age and in drying and because of this change, their close position, the unpolished and opaque character of the pileus and the slightly acrid taste I have separated it from R. delica, which it closely resembles and to which our plant was formerly referred. It has been referred by Bresadola to R. chloroides (Krombh.) but I have never seen the pileus rimose areolate, nor the lamellae greenish or glaucous as in that species. The lamellae of both this and the following species are sometimes adorned with watery drops in wet weather. In the type form the stem is very short, but when the plant grows among fallen leaves it is longer.

Russula delica Fr.

WEANED RUSSULA

Pileus fleshy, firm, broadly convex and umbilicate, becoming infundibuliform, even, glabrous, shining, white, the margin involute

and without striations; lamellae thin, distant, decurrent, persistently white; stem short, even, glabrous, white; spores subglobose, .0003–.0004 of an inch long, .00024–.0003 broad.

Pileus 2–4 inches broad; stem 1–2 inches long, 4–6 lines thick.

Woods. Saratoga county. Rare.

The specimens referred to this species have the white color of the lamellae more persistent than in any of the preceding species and the lamellae are less crowded than in the short stem russula. Nevertheless they have a pale yellowish hue in the dried state and are scarcely as wide apart as the description of the species would indicate, but the disagreement is so slight that it is not sufficient cause for a separation of our plant.

Furcatae Fr.

Pileus compact, firm, even on the thin margin, the thin pellicle closely adnate; lamellae unequal, some of them forked, commonly narrowed toward each end.

The thin but even margin with acute edge and the forked lamellae are the notable characters of this subgenus. The lamellae do not show decided changes in color with age or in drying, as in most species of the preceding subgenus. In some species the pellicle is separable on the margin.

KEY TO THE SPECIES

Pileus green, olive-green or purple or these intermingled.....1
Pileus whitish tinged with yellow or reddish yellow.....basifurcata
1 Lamellae becoming yellowish with age.....olivascens
1 Lamellae persistently white or whitish.....2
2 Lamellae subdistant.....furcata
2 Lamellae close, many forked.....variata

Russula basifurcata Pk

PALE CAP RUSSULA

State Mus. Rep't 38. 1885. p. 90.

Pileus firm, convex, umbilicate, becoming subinfundibuliform, glabrous, slightly viscid when moist, the pellicle separable on the even margin only, dingy white, often tinged with yellow or reddish yellow, flesh white, taste mild, then bitterish; lamellae close, narrowed toward the base, adnate or slightly emarginate, many of them forked at or near the base,, a few short ones intermingled, white becoming yellowish; stem firm, solid, becoming spongy

within, white; spores elliptic, pale yellow, .00035 of an inch long, .00025 of an inch broad.

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

Dry ground in woods and bushy places. Fulton and Essex counties. July and August.

Closely related to the next following species and like it somewhat related to the subgenus Fragiles in some of its characters.

Russula olivascens Fr.

PALE OLIVACEOUS RUSSULA

Pileus convex or nearly plane, umbilicate, olivaceous or pale green, becoming yellowish in the center, even on the margin, flesh white, taste mild; lamellae narrowed toward the stem, close, slightly adnexed, nearly equal, rarely forked, white becoming yellowish; stem firm becoming spongy within, even, white; spores subglobose, yellowish, .0003–.0004 of an inch long, nearly or quite as broad.

Pileus 2–3 inches broad; stem 1–2 inches long, 4–8 lines thick.

Woods. Suffolk county. August.

This species differs from the preceding in the greenish color of the cap, the gills more equal and rarely forked, the absence of a bitterish flavor and in the more globose yellowish spores.

Russula furcata (Pers.) Fr.

FORKED RUSSULA

Pileus convex becoming nearly plane, centrally depressed or infundibuliform, glabrous, the thin pellicle separable on the thin, even, acute margin, varying from pale yellowish green to dark brownish green, sometimes slightly tinged with purple, flesh white, taste mild; lamellae thickish, subdistant, often forked, unequal, adnate or slightly decurrent, white; stem equal or nearly so, solid or spongy within, white; spores white, subglobose, .0003.–.00035 of an inch long, .00025–.0003 of an inch broad.

Pileus 2–4 inches broad; stem 1.5–3 inches long, 5–8 lines thick.

Woods. Albany county. July.

The European plant is said to have a mild taste becoming bitterish, and no purplish tints are attributed to the pileus. In our plant the bifurcations of the lamellae occur mostly near the inner and outer extremities. It is thus far limited to a single locality near Albany.

Russula variata Banning

VARIABLE RUSSULA

State Mus. Bul. 105. 1906. p. 41, pl.101, fig. 1–5

Pileus firm, convex becoming centrally depressed or subinfundibuliform, viscid, even, the thin pellicle separable on the thin even margin, reddish purple or brownish purple, often variegated with green or wholly pea-green, flesh white, taste acrid or sometimes slightly and tardily acrid; lamellae thin, narrow, close, often forked, tapering toward each end, adnate or slightly decurrent, white; stem equal or nearly so, solid or sometimes cavernous, white; spores white, subglobose, .0003–.0004 of an inch long, .0003 of an inch broad.

Pileus 2–4 inches broad; stem 1.5–3 inches long, 5–8 lines thick.

Woods. Common and variable. July and August. Edible.

Distinguished from the forked russula by its more forked narrow and closer lamellae and by its acrid flavor. This is destroyed by cooking. The pileus may be dark purple or pinkish purple either wholly or intermingled with pale green or it may be wholly pale green. R. aeruginascens Pk. [State Mus. Rep't 53, p. 843] is a form of this species with yellowish green pileus.

Rigidae Fr.

Pileus compact, firm, commonly dry, without a distinct viscid pellicle, the cuticle often cracking or breaking into adnate scales or furfuraceous granular or mealy particles, the margin typically even, lamellae broader anteriorly causing the margin to appear obtuse.

The most notable character of the group is the dry surface of the pileus becoming squamose, granular, mealy pruinose or unpolished. The margin is commonly even as in the two preceding groups, but there are several exceptions to this. The lamellae are normally forked and unequal, but in a few instances they are nearly equal.

KEY TO THE SPECIES

Pileus green or greenish.....1
Pileus some other color.....4
1 Pileus even on the margin.....2
1 Pileus striate on the margin when mature.....crustosa
2 Taste mild 3
2 Taste acrid .....viridella
3 Surface of the pileus scaly or warty.....virescens
3 Surface of the pileus irregularly rimose on the margin.....cutefracta

3 Surface of the pileus even, not rimose nor squamose.....modesta
4 Stem yellow .....flavida
4 Stem not yellow 5
5 Pileus pruinose, red or purple.....mariae
5 Pileus not pruinose.....6
6 Pileus striate on the margin when mature.....crustosa
6 Pileus even on the margin.....7
7 Surface of the pileus polished, taste acrid.....rubra
7 Surface of the pileus not polished, taste not acrid.....8
8 Surface of the pileus even, dark red or purplish red.....9
8 Surface of the pileus often rimose areolate, color variable.....lepida
9 Young lamellae white, changing color where wounded.....squalida
9 Young lamellae yellow, not changing color where wounded....ochrophylla

Russula viridella Pk.

PALE GREEN RUSSULA

State Mus. Bul. 105. 1906. p. 41, pl. 100, fig. 1–7.

Pileus subglobose, hemispheric or very convex, becoming nearly plane or centrally depressed, even on the margin, dry, soon minutely squamulose or furfuraceous, specially toward the margin, pale grayish green, generally smooth and paler or subochraceous in the center, flesh white, taste acrid; lamellae thin, narrow, close, some of them forked, a few short ones intermingled, white; stem equal or nearly so, even, solid or spongy within, white; spores white tinged with yellow, globose or subglobose, .00024–.0003 of an inch long, nearly as broad, cystidia subfusiform, .0025–.003 of an inch long, .0006 broad.

Pileus 2–4 inches broad; stem 2–3 inches long, 5–8 lines thick.

Under hemlock trees. Horicon, Warren co. July. Edible.

It has yet been found in no other locality so far as we know. The acridity is destroyed by cooking.

Russula virescens (Schaeff.) Fr.

GREENISH RUSSULA

State Mus. Rep't 48. Bot. ed. p. 189, pl. 31, fig. 1–8.

Pileus fleshy, at first nearly globose, soon convex or nearly plane often becoming centrally depressed, dry, adorned with small flocculent patches or warts, the margin even, green or grayish green, flesh white, taste mild; lamellae moderately close, narrowed toward the stem, free or nearly so, a few of them forked and a few shorter ones sometimes intermingled, white; stem short, firm, white; spores subglobose, white, .00024–.0003 of an inch long.

Pileus 2–4 inches broad; stem 1–2 inches long, 6–10 lines thick.

Thin woods and in grassy open places. Not rare. July and August. Edible.

The margin of the pileus is usually even but occasionally in old specimens it may be partly striate.

Russula cutefracta Cke.

BROKEN SKIN RUSSULA

Pileus convex becoming centrally depressed, dry, even on the margin, the cuticle cracking somewhat radiately but irregularly on the margin, color variable, green, red or purple, flesh white, purplish under the cuticle, taste mild; lamellae narrowed toward the base, somewhat close, some forked, adnexed or nearly free, white; stem solid, firm, nearly equal, whitish or tinged with purple; spores globose, .0004 of an inch broad.

Pileus 3–4 inches broad; stem 2–3 inches long, 6–10 lines thick.

Woods and their borders. Albany county. October.

I have admitted this species on the strength of a single specimen which agrees very closely with Cooke's figure 1040, illustrating the form with green pileus. Still it differs in having the flesh white instead of pinkish under the cuticle. It must be an extremely rare species with us.

Russula crustosa Pk.

CRUSTOSE RUSSULA

State Mus. Bul. 67. 1903. p. 45, pl. 84, fig. 1–7.

Pileus convex becoming nearly plane or centrally depressed, marked with small appressed areolate scales except on the smooth mostly depressed and sometimes subviscid disk, striate on the margin when mature, color variable, stramineous, pale ochraceous, brownish ochraceous, greenish or greenish yellow, rarely brownish purple, the center sometimes paler, sometimes darker than the margin, flesh white, taste mild or slightly and tardily acrid; lamellae moderately close, narrowed toward the stem, some of them forked, some short, white; stem short, stout, equal, stuffed or hollow, white; spores subglobose, white, .0003–.0004 of an inch long, .00025–.0003 of an inch broad.

Pileus 3–5 inches broad; stem 1–2.5 inches long, 6–12 lines thick.

Woods and open places. Common. July and August. Edible.

The striate margin separates this species from all the others in this subgenus. In this it is nearly always present in the mature

plants, in some of the other species it may sometimes appear but it is exceptional. This character militates against the character of the subgenus and connects with the next following one. Sometimes the cuticle cracks on the margin very much as in R. cutefracta but the paler and different colors of the pileus, the white flesh beneath the cuticle and the striate margin easily prevent any confusion of these species. The scales of the pileus often appear as if formed from the breaking up of a crustose cuticle. This sometimes has a grayish appearance.

Russula modesta n. sp.

MODEST RUSSULA

Pileus firm but thin and flexible, broadly convex, becoming nearly plane or centrally depressed, dry, pruinose, even or obscurely striate on the margin, greenish gray, paler on the margin, flesh white, taste mild; lamellae thin, close, many forked at the base, a few short ones, narrowed toward each end, adnate or slightly decurrent, white becoming yellowish, the interspaces venose; stem short, cylindric, solid, glabrous, white; spores subglobose, pale yellowish, .00025–.0003 of an inch long, nearly as broad.

Pileus 1–2.5 inches broad; stem 1–1.5 inches long, 3–5 lines thick.

Woods. Albany county. July.

This species differs from its allies in the pruinose appearance of the surface of the pileus. Under a lens, this is seen to be due to a minute whitish tomentose pubescence. A form of this species with the pileus more distinctly green has been received from Miss T. L. Smith who collected it under oak trees and reports it to be edible.

Russula flavida Frost

YELLOWISH RUSSULA

State Mus. Bul. 105. 1906. p. 38, pl. 97, fig. 1–6.

Pileus firm, convex becoming nearly plane or centrally depressed, dry, frequently sprinkled with minute mealy yellowish particles, specially on the margin, pale yellow, sometimes brighter yellow or orange in the center, flesh white, taste mild; lamellae rather thick, moderately close, entire or nearly so, adnate, white; stem equal or slightly tapering upward, solid, sometimes becoming spongy within, occasionally cavernous, colored like the pileus or a little paler, sometimes brighter at the base; spores yellowish, subglobose, .0003 of an inch long, nearly as broad.

Pileus 2–3 inches broad; stem 1.5–3 inches long, 4–8 lines thick. Woods and bushy places. Rensselaer, Suffolk and Warren counties. July and August. Edible.

The margin of the pileus in old plants sometimes becomes striate and occasionally fades to white. The species is easily recognized by having both stem and pileus yellow and the intervening lamellae white.

Russula lepida Fr.

SCALY RUSSULA

Pileus firm, compact, convex becoming nearly plane, dry, unpolished, often rimose areolate in part, even on the margin, variable in color, red, bright red, red in the center with yellowish margin or wholly yellow, flesh white, taste mild becoming somewhat acrid or disagreeable; lamellae close, narrowed toward the stem, rounded behind or slightly decurrent, some forked at the base, a few short ones intermingled, white becoming yellowish; stem equal or nearly so, solid, white or whitish, sometimes reddish; spores globose, yellowish, .0003–.0004 of an inch in diameter.

Pileus 2–4 inches broad; stem 1–2.5 inches long, 6–10 lines thick. Woods. Albany and Suffolk counties. July and August. Not common.

The description here given applies to the American plant, which differs slightly in color from the European. The disk in that species is said in *Sylloge* to always become whitish, a character not yet observed in our plant. In this the disk sometimes is red while the margin is yellow. The lamellae also, in drying, usually assume a subochraceous or pale cinnamon hue, which character is not attributed to the European plant. The edge of the lamellae is sometimes red near the margin of the pileus. The European plant is said to have the stem almost always stained or spotted with red. In ours it is more often white.

Russula rubra Fr.

RED RUSSULA

Pileus fleshy, hard, rigid, convex becoming nearly plane or centrally depressed, dry, polished, even on the obtuse sometimes wavy margin, very red, almost shining, often darker in the center, flesh white, reddish under the cuticle, taste acrid; lamellae rather close, adnate, broad, unequal, some of them forked, white becoming yellowish with age; stem hard, solid, white or red; spores white, globose or subglobose, .0003–.0004 of an inch long.

Pileus 2–4 inches broad; stem 2–3 inches long, 6–10 lines thick.

Woods. Albany, Madison, Rensselaer and Suffolk counties. July and August.

Distinguished from other members of this subgenus by its smooth polished pileus and its very acrid taste. Var. sapida Cke. (R. atropurpurea Krombh.) is said to be mild in flavor, but otherwise like the species. I have not seen it.

Russula squalida nom. nov.

SQUALID RUSSULA

Russula atropurpurea Pk. State Mus. Rep't 41. 1888. p. 75.

Pileus convex becoming centrally depressed, glabrous, dark purple, often blackish in the center, even or slightly striate on the margin when old, flesh white, grayish or grayish purple under the cuticle, taste mild, odor in drying fetid; lamellae subdistant, a few forked at the base, occasionally a short one intervening, white becoming yellowish, brownish where wounded; stem equal, glabrous, solid or spongy within, white, brownish where bruised; spores pale ochraceous with a salmon tint, subglobose, .0003–.0004 of an inch long, nearly as broad.

Pileus 3–4 inches broad; stem 2–3 inches long, 5–8 lines thick.

Margin of woods. Saratoga county. July.

In the dried state this russula has a peculiar dingy and unattractive appearance. It is very distinct in the unusual color of the spores and the brownish hue assumed where wounded. Agaricus atropurpurea Krombh. being a species of Russula, it becomes necessary to give a new name to the plant to which this specific name was formerly applied by me.

Russula ochrophylla Pk.

OCHERY GILLED RUSSULA

State Mus. Rep't 50. 1897. p. 100; State Mus. Mem. 3. 1900. p. 150, pl. 54, fig. 8–14.

Pileus firm, convex becoming nearly plane and umbilicate or centrally depressed, dry, unpolished, even on the margin, dark red or purplish red, often a little darker in the center, flesh white, red under the adnate cuticle, taste mild; lamellae subdistant, adnate, nearly entire, a few forked at the base, yellowish becoming bright ochraceous buff, dusted by the spores, the interspaces somewhat venose; stem equal or nearly so, solid or spongy within, reddish

but paler than the pileus; spores bright ochraceous buff, globose, .0004 of an inch broad.

Pileus 2–4 inches broad; stem 1.5–2.5 inches long, 6–10 lines thick.

Ground under oak trees. Albany county. July. Rare. Edible.

There is a var. albipes Pk. in which the pileus is deeper red and the stem white. If this mushroom is stewed in milk or cream without peeling, it imparts a pinkish purple hue to the liquid.

Russula mariae Pk.

MARY RUSSULA

State Mus. Rep't 24. 1872. p. 74; State Mus. Bul. 75. 1904. p. 29, pl. 85, fig. 1–8.

Pileus nearly hemispheric becoming broadly convex, plane or centrally depressed, dry, pruinose or minutely pulverulent, dark crimson or purplish, sometimes darker in the center than on the margin, rarely striate on the margin when old, flesh white, pinkish under the cuticle, taste mild or slightly and tardily acrid; lamellae rather close, adnate, white becoming yellowish with age; stem equal, solid or slightly spongy within, colored like or a little paler than the pileus, usually white at each end, rarely entirely white; spores pale yellow, globose, .0003 of an inch broad.

Pileus 1–3 inches broad; stem 1–2 inches long, 3–5 lines thick.

In woods and in open places. Common. July and August. Edible.

This species is easily distinguished by its pruinose or minutely granular cap. When moistened and rubbed on white paper it communicates reddish stains to it. A few of the lamellae are forked at the base. The pileus sometimes fades with age, specially in purplish specimens, and on the margin. Such specimens resemble Russula depallens (Pers.) Fr. as shown in Cooke's figure 1021.

Russula lactea (Pers.) Fr. is omitted; the specimens referred to it belong to Russula albella Pk.

Heterophyllae Fr.

Pileus fleshy, firm, with a thin viscid adnate pellicle and a thin, usually striate margin; lamellae unequal, some of them forked; stem stout, solid, spongy within.

The viscid pileus and striate margin separate this tribe from the preceding one; the firm pileus, adnate pellicle and unequal lamellae

separate it from the following one. Fries included in it a few species with the margin of the pileus even or obscurely striate.

KEY TO THE SPECIES

Pileus even or but slightly striate on the margin.....1
Pileus distinctly striate on the margin.....4
1 Taste mild.....2
1 Taste acrid.....consobrina
2 Lamellae distant.....earlei
2 Lamellae close.....3
3 Lamellae broad, rounded behind, white.....cyanoxantha
3 Lamellae rather narrow, whitish.....vesca
4 Pileus brown or brownish.....sororia
4 Pileus yellowish, reddish yellow or subochraceous.....5
5 Pileus roughened with granules.....granulata
5 Pileus smooth.....6
6 Pileus stramineous or subochraceous.....foetens
6 Pileus reddish yellow.....foetentula

Russula vesca Fr.

EDIBLE RUSSULA

Pileus fleshy, rather firm, nearly plane or centrally depressed, viscid, venosely rugulose or radiately wrinkled with a spreading, even margin, reddish or flesh color, darker in the center, flesh white, taste mild; lamellae thin, close, adnate, unequal, whitish; stem solid, compact, rigid, white; spores globose, white, .0003–.0004 of an inch broad.

Pileus 2–4 inches broad; stem 1–2 inches long, 4–8 lines thick.

Woods. Warren county. August. Rare.

The species may easily be recognized by the minutely radiately wrinkled or rugulose character of the upper surface of the pileus. The wrinkles or veins commonly radiate toward the margin but they often anastomose in a reticulate manner. In the typical form the pileus is pinkish or red flesh color. In our specimens it is mostly greenish, but darker or blackish green in the center where it is also in some specimens varied with reddish or brownish red hues. The European plant is edible as indicated by the name. I have not tested our plant.

Russula cyanoxantha (Schaeff.) Fr.

YELLOWISH BLUE RUSSULA

Pileus compact, convex becoming centrally depressed or subinfundibuliform, viscose, variable in color, even on the margin or

sometimes becoming slightly striate, purplish, lilac or olive-green, commonly becoming paler or yellowish in the center, flesh white, taste mild; lamellae broad, moderately close, rounded behind, pure white; stem spongy within, even, glabrous, white; spores subglobose, .0003–.0004 of an inch long, .00024–.0003 broad.

Pileus 2–4 inches broad; stem 2–3 inches long, 5–8 lines thick.

Woods. Albany and Washington counties. July. Not common.

The pileus is sometimes bluish on the margin and yellowish in the center, a character suggestive of the specific name, but not represented in any of our specimens. The flesh is sometimes reddish under the cuticle. The stem may become hollow in old specimens.

Russula earlei Pk.

EARLE RUSSULA

State Mus. Bul. 67. 1903. p. 24, pl. N, fig. 5–10.

Pileus fleshy, firm, hemispheric becoming broadly convex or nearly plane, sometimes centrally depressed, glabrous, very viscid, the margin even, stramineous becoming paler with age, flesh whitish or yellowish, taste mild; lamellae thick, distant, adnate, a few short, whitish becoming yellowish; stem short, firm, equal or nearly so, solid, becoming spongy within, white; spores white, subglobose, .0002–.00024 of an inch long.

Pileus 1.5–2.5 inches broad; stem 1–1.5 inches long, 3–5 lines thick.

Among fallen leaves in woods. Suffolk county. August.

This species is well marked by its pale and glutinous pileus, its distant lamellae and its small spores.

Russula consobrina Fr.

COUSIN RUSSULA

Pileus fleshy, convex or subhemispheric becoming centrally depressed, viscid, even on the membranaceous margin, gray, olive-brown or umber, flesh white, ashy gray under the pellicle, taste acrid; lamellae close, adnate, many forked and many short, white; stem firm, equal, spongy within, white becoming dingy or cinereous with age; spores white, subglobose, .0003–.0004 of an inch long, nearly as broad.

Pileus 2–4 inches broad; stem 1–3 inches long, 4–10 lines thick.

In woods. Otsego county. July. Rare.

Some of our specimens differ from the description in having a yellowish brown pileus.

Russula sororia Fr.

SISTER RUSSULA

Pileus convex becoming nearly plane, viscid when moist, striate on the thin margin, gray, grayish brown, olive-brown or yellowish brown, often darker in the center, flesh whitish, taste acrid; lamellae narrow, subdistant, adnate, many of them short, rarely forked, whitish or pallid, the interspaces venose; stem equal or slightly tapering upward, white; spores globose, white, .0003 of an inch broad.

Pileus 1–2.5 inches broad; stem 1–2 inches long, 4–8 lines thick.

Woods and groves. Albany and Suffolk counties. July to September.

Similar in color and character to R. consobrina Fr. of which it is thought by some to be a variety, but it is easily distinguished by its distinctly striate margin. R. pectinatoides Pk. resembles this in color but it may be distinguished from it by its mild or tardily and slightly acrid taste and its nearly equal lamellae.

A form with the pileus darker brown, flesh cinereous under the cuticle and stem becoming cinereous was found under chestnut trees near Gansevoort, Saratoga co. It is referable to R. consobrina intermedia Cke.

Russula granulata Pk.

GRANULATED RUSSULA

State Mus. Rep't 53. 1900. p. 843.

Pileus convex becoming nearly plane or centrally depressed, viscid when moist, rough with minute granules or squamules, tuberculate striate on the margin, dingy ochraceous or dingy yellow, tinged with red or brown, flesh white or whitish, taste acrid; lamellae thin, close, adnate, many forked at the base; stem equal or abruptly contracted at the top, glabrous, spongy within, whitish; spores white, subglobose, .0003 of an inch broad.

Pileus 2–3 inches broad; stem 1–1.5 inches long, 6–8 lines thick.

Woods. Ulster and Hamilton counties. August.

In State Museum Report 39, page 57 this was regarded as a variety of R. foetens Fr. from which it differs in its granular pileus, its closer and more narrow lamellae and in the absence of

odor. From R. granulosa Cke. it may be separated by its glabrous stem, smaller spores and adnate lamellae. R. granulata lepiotoides Atk. is a variety having the surface of the pileus rimose squamose.

Russula foetens (Pers.) Fr.

FETID RUSSULA

Pileus fleshy, fragile, subglobose or convex becoming plane or centrally depressed, viscid when moist, widely tuberculose sulcate or striate on the very thin margin, yellowish or dingy ochraceous, flesh pallid, taste acrid, odor strong, amygdaline; lamellae rather close, adnexed, unequal, some of them forked, whitish and often studded with drops of moisture when young, becoming yellowish with age, dingy where bruised, interspaces venose; stem short, stout, stuffed becoming irregularly hollow, white or whitish; spores white, subglobose, .0003–.0004 of an inch long, nearly or quite as broad.

Pileus 3–5 inches broad; stem 1.5–2.5 inches long, 6–12 lines thick.

Woods and bushy places. Common. July to September.

Readily recognized by its peculiar odor, acrid taste and widely striate margin. Gregarious in habit and somewhat variable in color.

Russula foetentula n. sp.

SLIGHTLY FETID RUSSULA

Pileus thin, nearly plane, viscid, glabrous, striate on the margin, reddish yellow, flesh white, taste tardily acrid, odor like that of almonds; lamellae thin, narrow, close, adnexed or nearly free, whitish, the interspaces venose; stem equal, firm, cavernous, white or yellowish white, usually spotted or stained with reddish brown at the base; spores very pale yellow, globose, .0003–.00035 of an inch broad.

Pileus 1.5–3 inches broad; stem 1–1.5 inches long, 3–5 lines thick.

Among fallen leaves in woods. Suffolk county. August.

This species is related to R. foetens Fr., to which it is similar in odor but from which it differs in its closer lamellae and reddish brown or burnt sienna color at the base of the stem.

The specimens reported in State Museum Report 35, page 135 under the name Russula heterophylla Fr. are doubtful and the species is therefore omitted.

Fragiles Fr.

Pileus fragile, covered with a thin separable or subseparable pellicle, viscid when moist, thin on the margin which is commonly striate or tuberculose striate in the mature plant; lamellae equal or nearly so, broader anteriorly; stem soft, spongy or hollow.

The fragile character of the pileus, the viscid separable pellicle, the thin and ultimately striate or tuberculose striate margin and the usually equal simple lamellae are the prominent distinguishing features of this subgenus. Its species outnumber those of any other subgenus of Russula. They may be divided into three groups depending on the color of the spores, which color is frequently indicated by the color of the mature lamellae. There are some exceptional or anomalous cases in which all the characters attributed to this tribe are not shown by species included in it. In some species the pileus is not viscid or the margin is not striate or the pellicle may be separable on the margin but not on the disk. The tuberculose character of the marginal striations is apparently due to the venose interspaces.

KEY TO THE SPECIES

Spores white or whitish....1
Spores pale yellow or citrine....10
Spores ochraceous....20
1 Pileus red or reddish....2
1 Pileus ochraceous or yellowish brown....7
1 Pileus white or whitish....8
2 Taste acrid....3
2 Taste mild....6
3 Pileus even....4
3 Pileus rugulose....rugulosa
4 Pileus darker colored in the center....fallax
4 Pileus typically uniformly colored....5
5 Lamellae rounded behind, subfree, subdistant....emetica
5 Lamellae adnexed, close....fragilis
6 Stem white or reddish....uncialis
6 Stem red or deep red....purpurina
7 Stem white....pectinatoides
7 Stem pale ochraceous....simillima
8 Taste acrid....anomala
8 Taste mild....9
9 Pileus dry....albella
9 Pileus viscid....albida
10 Pileus red or some shade of red....11
10 Pileus some other color....17
11 Taste acrid....veternosa
11 Taste mild or slightly and tardily acrid....12

12 Lamellae distant.....integra
12 Lamellae close.....13
13 Pileus more than 1 inch broad.....14
13 Pileus less than 1 inch broad.....pusilla
14 Stem and flesh becoming cinereous.....15
14 Stem and flesh not becoming cinereous.....16
15 Pileus red or orange.....decolorans
15 Pileus violaceous, purple or dark red.....obscura
16 Stem white, often with reddish stains.....palustris
16 Stem white with yellowish stains.....puellaris
17 Lamellae distant.....integra
17 Lamellae close.....18
18 Pileus yellow, even on the margin.....lutea
18 Pileus yellow, striate on the margin.....19
19 Stem white becoming cinereous.....constans
19 Stem persistently white.....flaviceps
20 Stem tinged with red by minute red granules.....roseipes
20 Stem not adorned with red granules.....21
21 Pileus distinctly striate on the margin.....22
21 Pileus slightly striate when old.....23
22 Lamellae pale yellow when mature.....abietina
22 Lamellae ochraceous when mature.....turci
23 Plant small, lamellae very close.....chamaeleontina
23 Plant large, lamellae subdistant.....alutacea

Russula emetica Fr.

EMETIC RUSSULA

Pileus fleshy, firm becoming fragile, convex becoming plane or centrally depressed, glabrous, viscid when moist, striate sulcate on the margin, rosy or blood-red, sometimes white or fading to white, flesh white, reddish under the separable pellicle, taste very acrid; lamellae equal, broad, subdistant, rounded behind and free or nearly so, white; stem solid or spongy within, elastic when young, becoming fragile, even, white or tinged with red; spores white, globose, .0003–.0004 of an inch broad.

Pileus 2–4 inches broad; stem 1.5–3 inches long, 3–6 lines thick.

Woods and swamps. Common. July to September.

This russula has a very acrid or peppery taste and is generally considered poisonous by European mycologists, but deemed edible and harmless by some American mycophagists. Thorough cooking probably destroys its harmful properties. I have not tried it.

Russula rugulosa Pk.

RUGULOSE RUSSULA

State Mus. Rep't 54. 1901. p. 179, pl. 72, fig. 12–18.

Pileus rather thin, fragile, convex becoming nearly plane or centrally depressed, viscid when moist, uneven with small tubercles and wrinkles, even on the margin when young, becoming tuberculose striate with age, the viscid pellicle separable on the margin, flesh white, reddish under the pellicle, taste acrid or tardily acrid; lamellae moderately close, adnate or slightly rounded behind, white; stem nearly equal, spongy within, white; spores white, subglobose, .0003–.0004 of an inch long, nearly or quite as broad.

Pileus 2–4 inches broad; stem 2–3 inches long, 4–8 lines thick.

Woods among mosses and fallen leaves. Franklin county. August and September. Edible.

Most closely allied to R. emetica Fr. from which it is distinguished by its rugulose pileus and less acrid or tardily acrid taste. The slight acridity is dispelled in cooking and it affords a harmless, tender and agreeable food. From R. vesca Fr. it may be distinguished by its tardily acrid taste and its striate margin.

Russula fallax (Schaeff.) Sacc.

FALLACIOUS RUSSULA

Pileus thin, fragile, convex or nearly or quite plane, viscid when moist, reddish with a darker center, flesh white, taste acrid; lamellae thin, adnexed, distant, whitish or pallid; stem slender, subequal, white; spores white, subglobose, .0003 of an inch long.

Pileus 1–2 inches broad; stem 1–2 inches long, 3–5 lines thick.

Moist places. Not rare. August.

This is R. emetica var. fallax Cke. and R. fragilis var. fallax Massee. We have followed Saccardo in recognizing its specific validity. In our specimens the lamellae appear to be less distant than in the typical form, but in other respects the agreement is good.

Russula fragilis (Pers.) Fr.

FRAGILE RUSSULA

Pileus very thin and fragile, convex becoming plane or slightly depressed in the center, with a thin pellicle somewhat viscid when moist, sometimes umbonate, tuberculose striate on the margin, polished, variable in color, typically pale red, sometimes fading to white,

flesh thin, white, not red under the separable pellicle, taste acrid; lamellae thin, close, adnexed, ventricose, sometimes slightly uneven or eroded on the edge, white; stem slender, spongy within or hollow, white; spores white, subglobose, .0003–.0004 of an inch long.

Pileus 1–2 inches broad; stem 1–1.5 inches long, 3–5 lines thick.

Woods and swamps. Not rare in hilly and mountainous wooded districts. July and August.

Var. nivea (Pers.) Cke. Whole plant white from the first. Rainbow, Franklin co. August.

The species is closely allied to R. emetica Fr. from which it may be separated by its smaller size, paler color, thinner flesh, white under the pellicle, and closer lamellae.

Russula uncialis Pk.

INCH WIDE RUSSULA

State Mus. Bul. 2. 1887. p. 10; State Mus. Bul. 116. pl. 107, fig. 7–12.

Pileus thin, convex becoming plane or centrally depressed, viscid when moist, glabrous or very minutely granulose, red or pinkish red, obscurely tuberculose striate on the margin, flesh white, taste mild; lamellae moderately close, narrowed toward the stem near which a few of them are forked, adnate or slightly emarginate, white becoming pallid, the interspaces venose; stem equal, glabrous, stuffed or spongy within, white or reddish; spores white globose, .0003–.00035 of an inch broad.

Pileus 1–1.5 inches broad; stem 1–1.5 inches long, 2–4 lines thick.

Woods. Rensselaer county. June and July. Rare.

It is unusual to find a red capped, white spored species of this subgenus with a mild taste. This and the next following species are our only examples of this kind.

Russula purpurina Q. & S.

PURPURINE RUSSULA

Pileus fleshy, fragile, subglobose becoming plane or slightly depressed in the center, sometimes cup-shaped by the upcurving of the margin, with a separable pellicle, acute and even or nearly so on the margin, deep red, flesh white, reddish under the pellicle, taste mild; lamellae moderately close, subequal, a little narrowed behind, white becoming yellowish with age or in drying; stem rather long, cylindric or sometimes slightly tapering above or below, stuffed or

spongy within, colored like the pileus or a little paler, sometimes whitish at the base; spores white, globose or subglobose, .0003–.0004 of an inch long, nearly or quite as broad.

Pileus 1.5–3 inches broad; stem 2–3 inches long, 4–6 lines thick.

Woods. Adirondack region. August and September.

The brilliant red color of the pileus and stem make this one of our most beautiful and attractive species of russula. The lamellae have a few short ones intermingled and the edge often appears floccose under a lens and red near the margin of the pileus. Pointed cystidia are numerous.

Russula pectinatoides Pk.

PECTENLIKE RUSSULA

PLATE 105, FIG. 6–10

Pileus thin, broadly convex becoming nearly plane or centrally depressed, viscid when moist, widely tuberculose striate on the margin, dingy straw color, brownish, yellowish brown or cinereous brown, sometimes darker in the center, flesh white, grayish white under the separable pellicle, taste mild or slightly and tardily acrid; lamellae thin, equal or with an occasional short one, some forked at the base, adnate, white becoming pallid; stem equal or nearly so, even, glabrous, spongy within, white; spores whitish, subglobose, .00025–.0003 of an inch long, nearly or quite as broad.

Pileus 1–3 inches broad; stem 1–2 inches long, 3–4 lines thick.

Grassy ground in groves and woods. Albany and Suffolk counties. July and August.

Specimens of this species were formerly reported as R. pectinata Fr. from which it seems best to separate them as they differ in their milder taste, the grayish color of the flesh under the cuticle, the adnate lamellae and the even stem. From R. sororia Fr. the species differs in its milder taste. In the character of the lamellae it is related to that species and might with almost equal propriety be placed in the same subgenus with it. It is edible.

Russula simillima Pk.

VERY SIMILAR RUSSULA

State Mus. Rep't 24. 1872. p. 75.

Pileus hemispheric or convex becoming plane or slightly depressed in the center, viscid when young or moist, striate on the

margin when mature, pale ochraceous, sometimes more highly colored in the center, flesh white, taste acrid; lamellae nearly equal, some forked near the stem, broader anteriorly, yellowish; stem equal or slightly tapering upward, spongy within, rarely hollow, colored like the pileus or a little paler; spores white, globose or nearly so, .0003 of an inch broad.

Pileus 1–3 inches broad; stem 2–3 inches long, 4–9 lines thick.

Woods. Adirondack region. August and September.

Related to R. ochroleuca (Pers.) Fr. and R. claroflava Grove but differing from both in having the stem pale ochraceous. It may be separated from R. ochracea (A. & S.) Fr. by its acrid taste and white flesh and spores. From R. fellea Fr. which it most closely resembles, the similarity justifying the specific name, it scarcely differs except in having the lamellae and stem pale ochraceous from the first, and the flesh white.

Russula anomala Pk.

ANOMALUS RUSSULA

State Mus. Rep't 50. 1897. p. 99.

Pileus thin, fragile, nearly plane or slightly depressed in the center, dry, striate on the margin, white, sometimes tinged with yellow, flesh white, taste acrid; lamellae thin, moderately close, adnate, equal or with an occasional short one, white, dusted with the white spores when dry; stem equal, solid or spongy within, white; spores subglobose, .0003–.00035 of an inch long, nearly or quite as broad.

Pileus 1–1.5 inches broad; stem 1–1.5 inches long, 3–4 lines thick.

Damp ground under trees. Suffolk county. July. Rare.

The anomalous character of this species is found in the pileus which is destitute of the viscid separable pellicle characteristic of this subgenus. Notwithstanding the absence of this character, the fragile pileus with its thin striate margin and the nearly equal lamellae point to this as its proper place in the genus. From R. fragilis nivea (Pers.) Cke. which it closely resembles it may be distinguished by its dry pileus, adnate lamellae and solid stem. Found but once.

Russula albida Pk.

WHITISH RUSSULA

State Mus. Bul. 2. 1887. p. 10; State Mus. Bul. 105. 1906. p. 38, pl. 96, fig. 1–7.

Pileus thin, fragile, hemispheric or very convex becoming nearly plane or slightly depressed in the center, slightly viscid when moist, white, often tinged with yellow in the center, even or slightly striate on the margin, flesh white, taste mild or slightly and tardily bitterish and unpleasant; lamellae thin, moderately close, entire, occasionally forked at the base, adnate or subdecurrent, white or whitish, the interspaces often venose; stem equal or slightly tapering upward, glabrous, stuffed or hollow, white; spores white or with a faint yellowish tinge, subglobose, .0003–.00035 of an inch long, nearly or quite as broad.

Pileus 1–2 inches broad; stem 1–3 inches long, 3–5 lines thick.

Among fallen leaves in woods. Rensselaer and Suffolk counties. July and August. Edible.

The slowly developed unpleasant taste of the fresh plant is lost in cooking. The thin margin of the cap is sometimes curved upward in old plants. Distinguished from R. lactea Fr., which it resembles in color, by its separable, slightly viscid pellicle, its adnate or subdecurrent closer lamellae and its stuffed or hollow stem. By the adnate lamellae and mild taste it may be distinguished from whitened forms of R. emetica Fr.

Russula albella Pk.

SLIGHTLY WHITE RUSSULA

State Mus. Rep't 50. p. 101.

Pileus thin, fragile, dry, plane or slightly depressed in the center, even or obscurely striate on the margin, white or whitish, sometimes tinged with pink or rose-red, specially on the margin, flesh white, taste mild; lamellae thin, close, equal, white; stem equal, solid or spongy within, white; spores white globose, .0003 of an inch broad.

Pileus 2–3 inches broad; stem 1–2 inches long, 3–4 lines thick.

Dry soil in woods. Suffolk county. July. Rare.

This species, like R. anomala Pk. departs from the usual character of the species of this subgenus in having a dry pileus. The fragile pileus and equal lamellae, however, indicate its close

relationship to this subgenus. From R. lactea Fr. it differs in its fragile texture, equal lamellae and the surface of the pileus not cracking and forming areolae.

Russula veternosa Fr.

LANGUISHING RUSSULA

Pileus convex becoming plane or centrally depressed, covered with a slightly viscid adnate pellicle, even on the margin, red or flesh-colored, typically becoming whitish or yellowish in the center, flesh white, taste acrid; lamellae narrow, broader in front, close, adnate, a few shorter ones intermingled, white becoming yellowish; stem equal, even, fragile, soft, spongy within becoming hollow, white; spores pale yellow, subglobose, .0003–.00035 of an inch long, nearly as broad.

Pileus 2–3 inches broad; stem 2–3 inches long, 5–8 lines thick.

Thin woods. Saratoga county. August. Rare.

In our specimens the pileus is in some cases a little paler in the center than on the margin, but none of them is centrally whitish or yellowish as in the typical form. The red pileus with even margin, the acrid taste and pale yellow spores are distinguishing characters in this species.

Russula integra (L.) Fr.

ENTIRE RUSSULA

Pileus firm, becoming fragile, convex becoming plane or centrally depressed, covered with a viscid separable pellicle, thin on the margin which is at length coarsely tuberculose striate, variable in color, flesh white, taste mild; lamellae broad, nearly free, equal, distant, white becoming pale yellow, dusted by the spores; stem at first short, conic, becoming clavate, even, ventricose, sometimes cylindric, spongy within, white; spores pale yellow, subglobose, .0003–.0004 of an inch long, nearly or quite as broad.

Pileus 3–5 inches broad; stem 1.5–2.5 inches long, 6–12 lines thick.

Woods. Adirondack region. July and August. Rare.

The specimens which we have referred to this species are dark red and do not always have the margin distinctly tuberculose striate. The stem is cylindric or sometimes thickened toward the base.

Var. rubrotincta Pk. Stem tinged with red. Otherwise as in the typical form.

Russula palustris Pk.

SWAMP RUSSULA

State Mus. Rep't 53. 1900. p. 842.

Pileus thin, fragile, subglobose or hemispheric becoming convex or nearly plane, viscid when moist and covered with a separable pellicle, obscurely tuberculose striate on the margin, reddish buff to purplish red, flesh white, tinged with reddish buff under the pellicle, taste tardily acrid; lamellae entire, moderately close, whitish becoming yellowish, interspaces venose; stem equal, glabrous, spongy within or hollow, fragile, white or tinged with red; spores pale yellow, subglobose, .0003–.0004 of an inch long, uninucleate.

Pileus 2–3 inches broad; stem 1.5–3 inches long, 4–6 lines thick.

Swamps, under alders. St Lawrence county. August. Rare.

Related to R. decolorans Fr. but smaller, thinner, more fragile, tardily acrid and not discoloring or assuming cinereous hues with age.

Russula decolorans Fr.

DISCOLORED RUSSULA

Pileus fleshy, firm, globose becoming plane or centrally depressed, slightly viscid when moist, polished, even on the margin, becoming striate with age, orange-red becoming paler with age, flesh white, becoming cinereous and variegated with black spots when broken, taste mild; lamellae thin, close, adnexed, fragile, sometimes forked at the base, white becoming yellowish; stem long, cylindric, solid or spongy within, white becoming cinereous, specially within; spores subglobose, yellowish, .0003–.0004 of an inch long, nearly as broad.

Pileus 2–4 inches broad; stem 2–4 inches long, 5–10 lines thick.

Woods. July to October. Not rare.

Russula obscura Rom.

OBSCURE RUSSULA

Pileus fleshy, convex becoming nearly plane, even on the margin or only slightly striate when old, dark red or purple sometimes blackish in the center, not becoming paler with age, subpruinose on the margin; lamellae, spores, size and stem as in R. decolorans.

Albany, Rensselaer and Suffolk counties. July and August.

The chief difference between this species and R. decolorans is found in the color of the pileus. This is variable but darker than in the typical form of that species and more persistent. The flesh and stem become cinereous or smoky brown.

Russula constans Karst.

CONSTANT RUSSULA

Pileus fleshy, convex becoming plane or nearly so, even or unequally striate on the margin, viscid, pale yellow, flesh white becoming gray with age; lamellae adnexed, whitish or pale yellow, becoming smoky brown or blackish in drying; stem white becoming ashy gray with age; spores, size of plant etc. as in R. decolorans Fr.

Woods. Adirondack region. August and September.

This and R. obscura agree with R. decolorans in their general characters, the most conspicuous difference between them and it being the color of the pileus. This character in many species is not thought to be of specific value, but in these plants the colors of the pilei appear to be constant, nor do they become intermingled on the same pileus as in other species with the pileus variously colored.

Russula puellaris Fr.

YOUTHFUL RUSSULA

Pileus thin, conic or convex becoming plane or slightly depressed, scarcely viscid, tuberculose striate on the margin, variable in color, livid, purplish or yellowish, darker or brownish in the center, flesh white, taste mild; lamellae thin, close, narrowed toward the stem, adnate, white becoming pale yellow; stem equal, soft, fragile, stuffed or hollow, white or yellowish; spores pale yellow, subglobose, .0004 of an inch long, .0003 broad.

Pileus 1–1.5 inches broad; stem 1–1.5 inches long, 2–4 lines thick.

Woods. Albany county. July. Rare.

Var. intensior Cke. Pileus deep purple, nearly black in the center, otherwise as in the typical form. Our specimens belong to this variety. The stem is white and shows no yellowish spots or stains.

Russula pusilla Pk.

SMALL RUSSULA

State Mus. Rep't 50. 1897. p. 99.

Pileus very thin, nearly plane or slightly and umbilicately depressed in the center, glabrous, slightly striate on the margin, the thin pellicle separable, red, sometimes a little darker in the center, flesh white, taste mild; lamellae broad, subventricose, subdistant, adnate, or slightly rounded behind, white becoming yellowish ochraceous with age or in drying; stem short, soft, solid or spongy within, white; spores yellowish, globose, .0003 of an inch broad.

Pileus scarcely 1 inch broad; stem 6–12 lines long, 2–3 lines thick.

Naked ground in woods. Suffolk county. July. Rare.

This is the smallest russula known to me. The coloring matter of the pileus produces red stains on moist paper when the pileus is rubbed over the paper.

Russula flaviceps Pk.

YELLOW CAP RUSSULA

State Mus. Rep't 53. 1900. p. 843.

Pileus convex or centrally depressed, glabrous, covered with a thin viscid separable pellicle, even on the margin when young, slightly tuberculose striate when old, pale yellow, flesh white, taste mild or slightly acrid; lamellae close, narrow, adnate or slightly rounded behind, pale yellow becoming more yellow and dusted by the spores with age; stem equal or nearly so, stuffed or spongy within, white; spores yellow, subglobose, .0003 of an inch long.

Pileus 2–4 inches broad; stem 1.5–2.5 inches long, 4–8 lines thick.

Woods. Sullivan county. August. Rare.

Distinguished from R. citrina Gill. and R. fingibilis Britz. by its yellow lamellae, and from R. lutea Fr. by its striate margin and paler yellow lamellae and spores.

Russula lutea (Huds.) Fr.

YELLOW RUSSULA

Pileus thin, rather firm, convex becoming plane or centrally depressed, viscid when moist, even on the margin, beautifully yellow becoming paler with age, flesh white, taste mild; lamellae narrow, close, free, equal, bright ochraceous; stem equal or tapering upward, soft, stuffed or hollow, white; spores yellow, globose or subglobose, .0003–.0004 of an inch long, nearly or quite as broad.

Pileus 1–2 inches broad; stem 1–2 inches long, 3–5 lines thick.

Woods. Essex county. August. Rare. This pretty species has been found by me but once.

Russula roseipes (Secr.) Bres.

ROSY STEM RUSSULA

Pileus thin, convex becoming plane or slightly depressed in the center, slightly viscid, soon dry, slightly striate on the thin margin, reddish flesh color, rosy red or rosy orange, flesh white or yellowish, taste mild; lamellae equal, close, sometimes forked near the stem, free or adnexed, with a decurrent tooth, whitish becoming yellow; stem equal or tapering upward, stuffed or cavernous, reddish or

white stained with red; spores globose, pale ochraceous, .0003–.0004 of an inch long.

Pileus 1–1.5 inches broad; stem 1–2 inches long, 3–5 lines thick.

Woods. Albany and Saratoga counties. July.

This is by some considered a variety of R. puellaris Fr. The red color of the stem when viewed under a lens is seen to be due to minute red particles or a rosy mealiness.

Russula abietina Pk.

FIR TREE RUSSULA

State Mus. Rep't 54. 1901. p. 180, pl. 7, fig. 1–11.

Pileus thin, fragile, convex becoming plane or slightly depressed in the center, covered with a viscid separable pellicle, tuberculose striate on the thin margin, variable in color, purplish, greenish purple or olive-green with a brown or blackish center, or sometimes purplish with a greenish center, flesh white, taste mild; lamellae narrowed toward the stem, subdistant, equal, rounded behind and nearly free, ventricose, whitish becoming pale yellow; stem equal or tapering upward, stuffed or hollow, white; spores bright yellowish ochraceous, subglobose, .0003–.0004 of an inch long, nearly or quite as broad.

Pileus 1–2.5 inches broad; stem 1–2.5 inches long, 3–5 lines thick.

Under balsam fir trees. Essex county. July and August. Edible.

The species is closely related to R. turci Bres. from which I have separated it because of its paler lamellae and the absence of cystidia from the lamellae and of minute areolae from the pileus and because of the presence of greenish and olive-green colors in the pileus. Its place of growth is only under balsam fir trees, Abies balsamea (L.) Mill., so far as it has been observed.

Russula turci Bres.

TURC RUSSULA

Pileus fleshy, thin, convex becoming plane or centrally depressed, viscid, striate on the margin when mature, reddish violaceous or lilac-purple, darker or blackish in the center, sometimes becoming yellowish in age and minutely areolate, flesh white or whitish, taste mild; lamellae equal, subclose, rounded behind, free, pallid when young, soon ochraceous, interspaces venose; stem equal or tapering upwards, rugulose, soon cavernous or hollow, fragile, white; spores ochraceous, globose, echinulate, .0003–.00035 of an inch in diameter.

Pileus 1.5–3 inches broad; stem 1.5–3 inches long, 3–6 lines thick.

Gregarious; in pine woods. Albany county. October.

The specimens referred to this species were formerly thought to belong to Russula nitida (Pers.) Fr. but they agree much more closely with the description of this more recently described russula, from which they can scarcely be specifically distinct. The plant differs from R. nitida in having no well marked odor and in having neither the pileus nor the lamellae shining. Cystidia are present but they are slightly shorter than in the typical form of R. turci.

Russula chamaeleontina Fr.

CHAMELEON RUSSULA

Pileus thin, fragile, plane or slightly depressed in the center, covered with a viscid separable pellicle, even on the margin when young, becoming slightly striate with age, variable in color, pinkish or rose-red, purplish or lilac, becoming yellow in the center or wholly yellowish, flesh white, taste mild; lamellae thin, close, narrow, adnexed or free, sometimes forked, yellow; stem slender, slightly striate, somewhat hollow, white; spores ochraceous, globose, .0003 of an inch broad.

Pileus 1–2 inches broad; stem 1–2 inches long, 2–3 lines thick.

Woods. Saratoga and Albany counties. July and August.

Russula alutacea Fr.

TAN COLORED RUSSULA

Pileus fleshy, convex becoming plane or centrally depressed, covered with a viscid pellicle, even on the margin when young, becoming more or less tuberculose striate when old, variable in color, red, bright blood-red, dark purple, olivaceous or green, flesh white, taste mild; lamellae thick, broad, equal, subdistant, rounded behind, pale yellow becoming ochraceous tinged with tan color, naked, stem stout, solid, spongy within, even, white or red; spores ochraceous yellow, subglobose, .0003–.0005 of an inch long, .0003–.0004 broad.

Pileus 2–4 inches broad; stem 1–2.5 inches long, 6–12 lines thick.

Woods and groves. July and August. Common.

A large fine species considered edible but I have not tried it. The color of the pileus is so variable that the species is not always readily recognized. From R. integra, which is also variable in the color of the pileus, it may be separated by the naked lamellae and the ochraceous color of the spores.

EXPLANATION OF PLATES

PLATE 104

99

Tricholoma nudum (Bull.) Fr.

NAKED TRICHOLOMA

1 Young plant
2 Cluster of three young plants
3 Young plant with umbonate cap
4 Mature plant with convex cap
5 Mature plant with plane cap
6 Vertical section of young cap and upper part of stem
7 Vertical section of mature cap and upper part of stem
8 Transverse section of a stem
9 Four spores, x 400

TRICHOLOMA NUDUM (BULL.) FR.

NAKED TRICHOLOMA

PLATE 105

101

Tricholoma hirtellum Pk.

HAIRY CAP TRICHOLOMA

1 Cluster of three plants
2 Single plant
3 Vertical section of cap and upper part of stem
4 Transverse section of stem
5 Four spores, x 400

Russula pectinatoides Pk.

PECTENLIKE RUSSULA

6 Plant with convex cap
7, 8 Two plants with caps fully expanded
9 Vertical section of cap and upper part of stem
10 Four spores, x 400

FIG. 1–5.
TRICHOLOMA HIRTELLUM PK.
HAIRY CAP TRICHOLOMA

FIG. 6–10.
RUSSULA PECTINATOIDES PK.
PECTENLIKE RUSSULA

PLATE 106

103

Clitocybe amethystina (Bolt.)

AMETHYST CLITOCYBE

1 Young plant with moist cap
2 Plant with cap moist on the margin
3 Plant with dry cap
4 Vertical section of young cap and upper part of stem
5 Vertical section of mature plant and upper part of stem
6 Four spores, x 400

Clitocybe ochropurpurea Berk.

PURPLE GILLED CLITOCYBE

7, 8 Small plants with moist caps
9 Plant medium size with dry cap
10 Vertical section of cap and upper part of stem
11 Four spores, x 400

FIG. 1-6.
CLITOCYBE AMETHYSTINA (BOLT.)
AMETHYST CLITOCYBE

FIG. 7-11.
CLITOCYBE OCHROPURPUREA BERK.
PURPLE GILLED CLITOCYBE

PLATE 107

105

Agaricus micromegethus Pk.

SMALL MUSHROOM

1 Small plant
2 Plant of medium size showing color of young gills
3 Cluster of three plants, two of them large
4 Vertical section of young cap and upper part of stem
5 Vertical section of mature cap and upper part of stem
6 Four spores, x 400

Russula uncialis Pk.

INCH WIDE RUSSULA

7, 8 Two young plants with convex caps
9 Mature plant with expanded cap
10 Vertical section of young cap and upper part of stem
11 Vertical section of mature cap and upper part of stem
12 Four spores, x 400

FIG. 1–6.
AGARICUS MICROMEGETHUS PK.
SMALL MUSHROOM

FIG. 7–12.
RUSSULA UNCIALIS PK.
INCH-WIDE RUSSULA

PLATE 108

107

Boletus frostii Russ.

FROST BOLETUS

1 Young plant
2 Small mature plant
3 Mature plant of medium size
4 Vertical section of cap and stem
5 Four spores, x 400

BOLETUS FROSTII Russ.

FROST BOLETUS

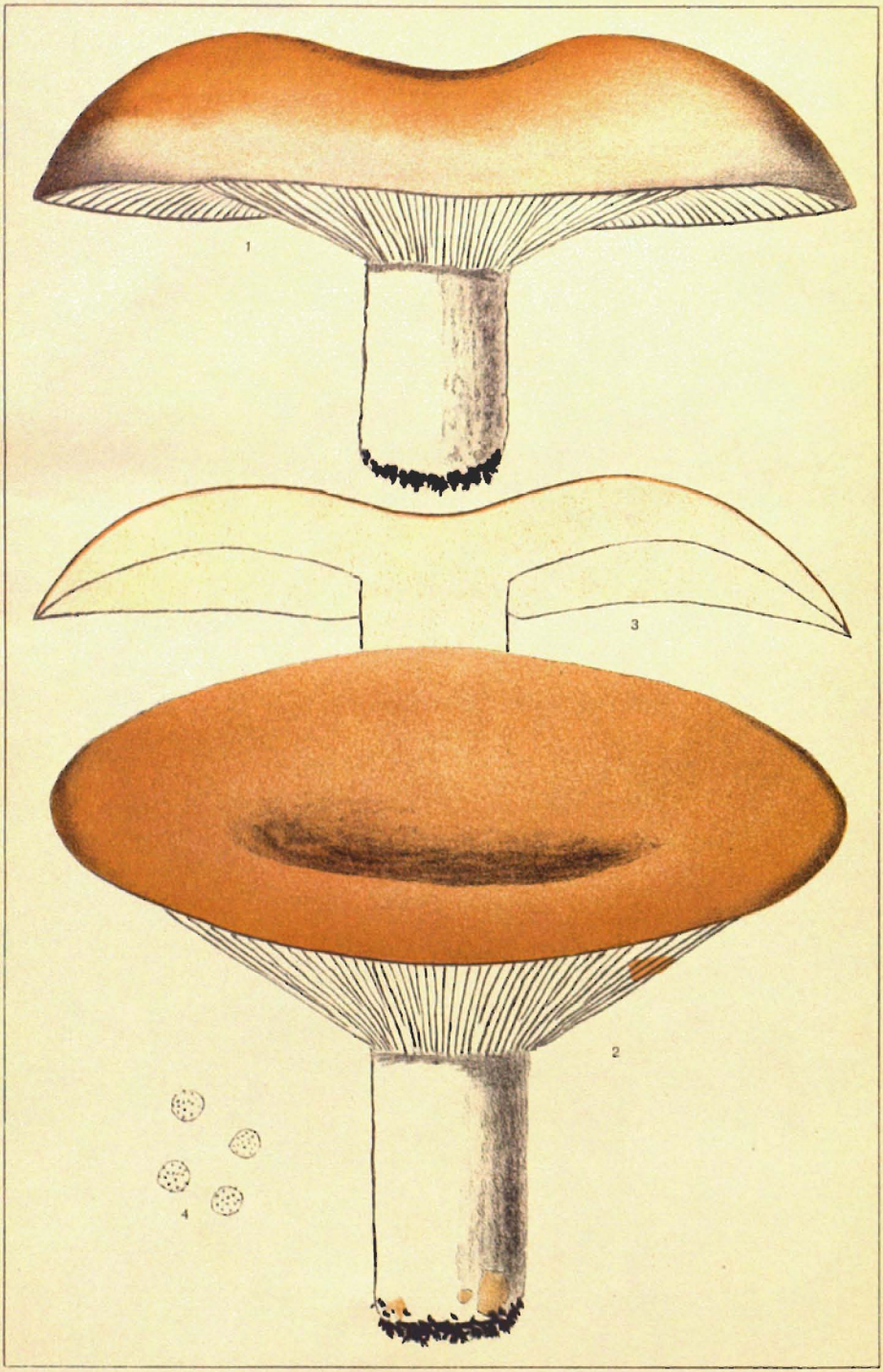
Follows p. 108

PLATE 109

Russula compacta Frost

COMPACT RUSSULA

1 Young plant with convex cap with whitish margin
2 Mature plant with expanded centrally depressed cap
3 Vertical section of cap and upper part of stem
4 Four spores, x 400



RUSSULA COMPACTA Frost.

COMPACT RUSSULA

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