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No. 550 ALBANY, N. Y. SEPTEMBER 1, 1913

New York State Museum

JOHN M. CLARKE, Director

CHARLES H. PECK, State Botanist

Museum Bulletin 167

REPORT OF THE STATE BOTANIST 1912

ALBANY

THE UNIVERSITY OF THE STATE OF NEW YORK

1913

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THE UNIVERSITY OF THE STATE OF NEW YORK

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(November 1, 1913)

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New York State Education Department
Science Division, February 14, 1913

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

SIR: I have the honor to transmit herewith the manuscript and accompanying illustrations of the annual report of the State Botanist, for the fiscal year ending September 30, 1912, and I recommend the same for publication as a bulletin of the State Museum.

Very respectfully
JOHN M. CLARKE
Director

STATE OF NEW YORK
EDUCATION DEPARTMENT
COMMISSIONER'S ROOM

Approved for publication this 19th day of February, 1913

Commissioner of Education

University of the State of New York Bulletin

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No. 550 ALBANY, N. Y. SEPTEMBER 1, 1913

New York State Museum

JOHN M. CLARKE, Director

CHARLES H. PECK, State Botanist

Museum Bulletin 167

REPORT OF THE STATE BOTANIST 1912

Dr John M. Clarke, Director of the State Museum:

I have the honor of submitting the following report of work done in the botanical section of the State Museum since the date of my last report.

The collections of the season of 1911 have been mounted on herbarium sheets or placed in pasteboard boxes suitable for their reception and arranged in their proper places in the herbarium. Additional specimens of plants either native or naturalized have been collected in the counties of Albany, Essex, Lewis, Livingston, Monroe, Steuben and Sullivan.

Specimens have been contributed that were collected in the counties of Albany, Chautauqua, Cattaraugus, Clinton, Columbia, Fulton, Hamilton, Herkimer, Monroe, New York, Oneida, Ontario, Onondaga, Orleans, Oswego, Rensselaer, Richmond, Schoharie, Suffolk, Tompkins, Ulster, Warren and Washington.

Correspondents have contributed extralimital specimens that were collected in Canada, California, Colorado, Connecticut, Cuba, District of Columbia, Indiana, Kansas, Kentucky, Maine, Maryland, Massachusetts, Michigan, Minnesota, Montana, New Hampshire, New Jersey, North Carolina, Ohio, Pennsylvania, Utah and Vermont.

The number of species of which specimens have been added to the herbarium is 278, of which 72 were not before represented therein. Of these, 11 are considered new or hitherto undescribed species.

A list of the names of the added species is marked "Plants added to the herbarium." These are divided into two groups

respectively designated plants "New to the herbarium" and plants "Not new to the herbarium."

The number of those who have contributed specimens of plants is 70. This list includes the names of those who sent specimens for identification only, if the specimens were of such character and condition as to make them desirable additions to the herbarium.

The number of identifications made is 1859; the number of those for whom they were made 136.

A list of the names of the contributors and their respective contributions is marked "Contributors and their contributions."

The names of species new to our flora with their respective localities, times of collection and remarks concerning them will be found under the title "Species not before reported." This may include such plants as have previously been considered forms or varieties of other species, but which are now considered worthy of specific distinction.

New localities of rare species, new varieties and any facts of interest that may have been observed will be mentioned under the title "Remarks and observations."

Species sent for identification, if collected outside the limits of our State, have been described under the heading "New species of extralimital fungi," when no description could be found to match them.

Two species of mushrooms have been tried for their edible qualities, and though neither can be considered first class in all respects, both have been found to be harmless and palatable and have been approved as edible. Colored figures of them have been prepared and descriptions will be given in a chapter on "Edible fungi." These make the whole number of New York species and varieties of mushrooms now known to be edible 215.

A small but attractive looking mushroom was discovered growing among decaying pine leaves in Richmond county by Mr W. H. Ballou. He found it to be very poisonous. It is therefore figured and described as a poisonous fungus.

Specimens of seven species of Crataegus or thorn bushes have been added to the herbarium. Of this genus of trees and shrubs 218 New York species are now recognized. Prof. C. S. Sargent, the eminent expert crataegologist, has kindly prepared a synoptical key to our New York species. This was a most difficult and intricate piece of work which none but an expert in this peculiar branch of botany could well do. In this work he has laid an

excellent foundation for the study of these interesting though often considered nearly worthless and annoying shrubs and trees. He has also added to this, descriptions of 25 new species of this genus.

In places where the chestnut bark disease, Diaporthe parasitica Murrill, has obtained a foothold it still continues its destructive work. The chestnut tree is common in the central and eastern parts of Rensselaer county. Its bark disease has been reported from both the northern and southern borders of the county. Two visits have been made the past season to the town of Sand Lake in the central part of the county to look for the disease, but hitherto no evidence of its presence there has been found. It seems remarkable that the disease should occur in the northern and southern borders only, unless its approach has been made from two different points of infection situated in nearly opposite directions from the center of the county. With the disease both in the northern and in the southern borders it is perhaps too much to expect that the intervening space can long escape attack. It would be well for the owners of chestnut timber land to keep a sharp lookout for it and promptly remove any affected trees that may be discovered, strip off the bark and burn it at once, that the disease may be kept in check as much as possible.

A small rocky knob at the north end of Lake Placid in Essex county is locally known by the name Eagles eyrie. It is covered with woods, the prevailing trees being red spruce and paper or canoe birch. These vie with each other in the size and length of their trunks. I have seen no more stately and no finer specimens of them in any other part of the Adirondacks. The trail leading from the shore of Lake Placid to the top of this mountain is about half a mile long and neither very rough nor very steep. At three stations on this trail the leaves of the striped maple, Acer pennsylvanicum L., were wilted and drooping. An examination of the base of the trunk revealed a mass of white mycelioid filaments infesting it and the roots. The fungus was not in fruiting condition and its systematic location could not be ascertained. The attack was apparently so severe that it doubtless will eventually destroy the lives of the diseased trees.

Near the red schoolhouse in the town of North Elba, Essex county, there is a patch of shrubs of wicopy or leatherwood,

Dirca palustris L. It occupies about half an acre of wooded hillside. The trunks range in diameter from one-fifth cm at or near the base, and are often free from branches for one or two feet (30–60 cm). In this case the shrubs assume a treelike aspect. In these shrubs the medullary rays are quite as conspicuous as the annular rings. They are zigzag in direction and anastomose. Thin cross sections of the trunk may easily be crumbled between the thumb and fingers into small angular fragments, the cleavage following the medullary rays as well as the annular rings. These thin cross sections, even of trunks an inch or an inch and a half in diameter, may easily be made with an ordinary pocket knife without splitting or laceration by using a little pressure on the standing trunk in the direction of the cut at the time of cutting. The largest shrub of this kind that has come under my notice is one transplanted into a dooryard many years ago. Its trunk at the base is now about 9 inches or 22.5 cm in diameter. The root of this shrub is yellow and much branched. On sloping ground it is often slightly bent or somewhat decumbent in the upper part and tapers downward like a tap root, but it is much branched. Although the name "leatherwood" is often applied to this shrub the wood itself is quite soft and brittle. It is the bark that is really the tough and leathery part of the plant. Therefore "leatherbark" would be a more appropriate name. It is probable that an exceedingly strong kind of rope or cordage could be made of this bark. The Indians are said to have used the branches for cords but it is evident that the bark was the valuable factor in their material. It might be worth while to experiment a little with the fiber of the bark to see if it could not be used in making a coarse strong canvas suitable for sacks, bags, tents or sails.

The prevailing weather in the spring of 1912 was, in the eastern part of the State, unusually cool and vegetation in consequence was late and backward. On the night of June 14th a frost occurred in the vicinity of Albany sufficiently severe to kill young foliage on many small shrubs and herbs and the tender marginal cells of the younger leaves of others and on some trees. The rainfall for this month was below the mean, and the early outlook for vegetation was not encouraging; but later, conditions became more favorable, vegetation revived and rarely have we had a more fruitful and productive season.

One of our thorn bushes, Crataegus helderbergensis Sarg., the Helderberg thorn, failed entirely to bear fruit this season, probably because its blossoms were in the right condition to be frozen on the night of June 14th or possibly because it was an "off year." Sometimes thorn trees, like apple trees, appear to have "off years"; that is, a year in which a thorn tree bears an abundant crop of fruit is likely to be followed by one in which it bears no fruit, as if the production of the abundant crop had so weakened its vigor as to render it incapable of bearing two abundant crops in two successive years. The fruitless year is called an "off year."

It is interesting to note the correspondence between the favorable influences of a season on the common products of the garden and field and on the mycological crop of the woods, pastures and waste places. A productive season in one case is usually a productive season in the other. The very fruitful season of 1912 was ushered in by an unusually abundant crop of morels as the following quotations from communications of correspondents will show. "We had a very fair morel season this year and I found about 300." "Mushrooms are very early and very plentiful here this season." "We never had so many or such large morels before." My own experience here in the vicinity of Albany corroborates the above statements. I found morels larger and more plentiful than usual. They seemed to presage an abundantly fruitful season. This prophetic indication has been very satisfactorily fulfilled by an unusually good crop of wild mushroom growths in general; and in August and September the common mushroom, Agaricus campestris L., was very plentiful in pastures in the vicinity of Albany.

Much time has been required and devoted to the necessary preparation for the removal of the herbarium and duplicate specimens from Geological Hall to their new location in the Education Building. The specimens have been securely tied in bundles or, if kept in small boxes, safely packed in larger boxes to facilitate their handling and secure transportation. The contents of the table cases of the anteroom, in anticipation of removal, have for several weeks been packed in boxes and been ready for transportation.

Respectfully submitted
CHARLES H. PECK
State Botanist

Albany, December 31, 1912

PLANTS ADDED TO THE HERBARIUM

New to the herbarium

Achillea ptarmica *L.*
Amanita ovoidea *Bull.*
Anellaria separata (*L.*) *Karst.*
Aposphaeria fibriseda (*C. & E.*)
Artemisia carruthii *Wood*
A. dracunculoides *Pursh*
A. glauca *Poll.*
Arthonia quintaria *Nyl.*
A. radiata (*Pers.*) *Th. Fr.*
Betula alba *L.*
Bolbitius vitellinus (*Pers.*) *Fr.*
Boletus retipes *B. & C.*
Calosphaeria myricae (*C. & E.*)
Calvatia rubroflava (*Cragin*) *Morg.*
Chrysothamnus pinifolius *Greene*
Clavaria grandis *Pk.*
C. vermicularis *Scop.*
Cladochytrium alismatis *Büsgen*
Collema crispum *Borr.*
Collybia murina *Batsch*
Coronopus procumbens *Gilibert*
Crataegus gracilis *S.*
C. harryi *S.*
C. leptopoda *S.*
C. livingstoniana *S.*
C. macera *S.*
C. procera *S.*
Creonectria ochroleuca (*Schw.*)
Diaporthe castaneti *Nits.*
Diatrypella favacea (*Fr.*) *C. & D.*
Didymella asterinoides (*E. & E.*)
Dothidea baccharidis *Cke.*
Escholtzia californica *Cham.*
Flammula graveolens *Pk.*
Helicopsis punctata *Pk.*
Heliomyces pruinosipes *Pk.*
Helminthosporium fuscum *Fckl.*
Hydnum laevigatum *Sw.*
H. subcrinale *Pk.*
Hygrophorus ruber *Pk.*
Inocybe radiata *Pk.*
Lenzites trabea (*Pers.*) *Fr.*
Leptonia euchlora (*Lasch.*) *Fr.*
Macrophoma juniperina *Pk.*
Malus glaucescens *S.*
Mycena flavifolia *Pk.*
M. splendidipes *Pk.*
Opegrapha herpetica *Ach.*
Penicillium hypomycetes *Sacc.*
Pestalozzia truncata *Lev.*
Phialea anomala *Pk.*
Phoma asclepiadea *E. & E.*
P. semiimmersa *Sacc.*
Phyllosticta mahoniaecola *Pass.*
P. rhoicola *E. & E.*
Placodium camptidium *Tuck.*
Pleurotus tessulatus (*Bull.*) *Fr.*
Polyporus dryadeus (*Pers.*) *Fr.*
Puccinia urticae (*Schum.*) *Lagerh.*
Riccardia sinuata (*Dicks.*) *Limpr.*
Russula ballouii *Pk.*
Septoria margaritaceae *Pk.*
Silene dichotoma *Ehrh.*
Tricholoma latum *Pk.*
T. piperatum *Pk.*
T. subpulverulentum (*Pers.*)
Urophlyctis major *Schroet.*
Vermicularia hysteriiformis *Pk.*
Verrucaria muralis *Ach.*
V. papularis *Fr.*
Vicia hirsuta (*L.*) *S. F. Gray*
Zygodesmus avellanus *Sacc.*

Not new to the herbarium

Acetabula vulgaris *Fckl.*
Adiantum pedatum *L.*
Aecidium hydnoideum *B. & C.*
Agaricus abruptibulbus *Pk.*
A. micromegethus *Pk.*
Agrostis borealis *Hart.*
Ajuga reptans *L.*
Aleurodiscus oakesii (*B. & C.*) *Cke.*
Alnus rugosa (*DuRoi*) *Spreng.*
Alopecurus genic. aristulatus *Torr.*

Amanita formosa *G. & R.*
A. frostiana *Pk.*
Amaranthus graecizans *L.*
A. retroflexus *L.*
Ambrosia artemisiifolia *L.*
Andromeda glaucophylla *Link*
Anthemis cotula *L.*
A. tinctoria *L.*
Arenaria stricta *Mx.*
Aristida purpurascens *Poir*
Artemisia biennis *Willd.*
A. frigida *Willd.*
A. gnaphaloides *Nutt.*
A. vulgaris *L.*
Aspidium boottii *Tuck.*
A. cristatum *(L.) Sw.*
A. goldianum *Hook.*
A. marginale *(L.) Sw.*
A. noveboracensis *(L.) Sw.*
A. spinulosum *(O. F. Muell.)*
A. spin. dilatatum *(Hoffm.)*
A. spin. intermedium *(Muhl.)*
A. thelypteris *(L.) Sw.*
Asplenium acrostichoides *Sw.*
A. filix-foemina *(L.)*
A. platyneuron *(L.) Oakes*
A. trichomanes *L.*
Barbarea vulgaris *R. Br.*
Boletinus grisellus *Pk.*
Boletus brevipes *Pk.*
B. scaber *Fr.*
B. subaur. rubroscriptus *Pk.*
B. subtomentosus *L.*
Botrychium lanceolatum *(S.G.Gmel.)*
B. obliquum *Muhl.*
B. obliq. dissectum *(Spreng.)*
B. ramosum *(Roth) Aschers*
B. simplex *E. Hitchc.*
B. tern. intermedium *Eaton*
B. virginianum *(L.) Sw.*
Camelina microcarpa *Andrz.*
Camptosorus rhizophyllus *(L.) Link*
Cantharellus cibarius *Fr.*
C. floccosus *Schw.*
Carex aestivalis *M. A. Curtis*
C. muhlenbergii *Schkr.*
C. trib. reducta *Bailey*
Carya glabra villosa *(Sarg.)*
C. ovata *(Mill.) K. Koch*
Cercospora symplocarpi *Pk.*
Cephalozia lunulaefolia *Dum.*
Chlorosplenium aeruginascens *(Nyl.)*
Cladonia crist. vestita *Tuck.*
C. grac. dilatata *(Hoffm.)*
Clavaria cristata *Holmsk.*
C. fastigiata *L.*
C. kunzei *Fr.*
C. obtusissima minor *Pk.*
C. pinophila *Pk.*
C. stricta *Pers.*
C. tsugina *Pk.*
Clitocybe adirondackensis *Pk.*
C. cerussata *Fr.*
C. maxima *G. & M.*
Clitopilus noveboracensis *Pk.*
Convolvulus sepium pubescens *(Gray)*
Corallorhiza odontorhiza *Nutt.*
Cortinarius uliginosus *Berk.*
C. vernalis *Pk.*
C. variicolor *(Pers.)*
Crucibulum vulgare *Tul.*
Cynanchium nigrum *(L.) Pers.*
Cyperus dentatus *Torr.*
C. ferax *Rich.*
Cystopteris bulbifera *(L.) Bernh.*
C. fragilis *(L.) Bernh.*
Cytospora chrysosperma *(Pers.) Fr.*
Daedalea unicolor *(Bull.) Fr.*
Dicksonia punctilobula *(Mx.) Gray*
Diaporthe parasitica *Murrill*
Doassansia alismatis *(Fr.) Cornu*
Elymus canadensis *L.*
Entoloma sericeum *(Bull.) Fr.*
E. sinuatum *Fr.*
Epilobium molle *Torr.*
Epipactus repens ophioides *(Fern.)*
E. tesellata *(Lodd.)*
Erigeron annuus *(L.) Pers.*
E. canadensis *L.*
Eupatorium pur. maculatum *(L.)*
Equisetum hyemale *L.*
E. scirpoides *Mx.*
E. varieg. nelsonii *Eaton*
Fagus grandiflora *Ehrh.*
Fistulina hepatica *Fr.*
Flammula spum. unicolor *Pk.*
F. sulphurea *Pk.*
Fomes igniarius *(L.) Fr.*
F. pinicola *(Sw.) Fr.*
Fomitiporia prun. betulicola *Pk.*

Geoglossum microsporum *C. & P.*
Geum canadense *Jacq.*
G. flavum (*Porter*) *Britton*
G. strictum *Ait.*
Grimaldia fragrans (*Balb.*) *Cd.*
Gutierrezia sarothrae (*Pursh*)
Gymnolomia multiflora (*Nutt.*)
Habenaria fimbriata (*Ait.*) *R. Br.*
H. microphylla *Goldie*
Haplosporella ailanthi *E. & E.*
Hebeloma fastibile *Fr.*
Hedeoma pulegioides (*L.*) *Pers.*
Helianthemum majus *BSP.*
Heliopsis scabra *Dunal.*
Helvella capucinoides *Pk.*
Hierochloe odorata (*L.*) *Wahl.*
Humaria leucoloma (*Hedw.*) *Fr.*
H. granulata *Bull.*
Hydnum caput-ursi *Fr.*
Hygrophorus nitidus *B. & C.*
Hypericum perforatum *L.*
Hypholoma incertum *Pk.*
Ilex monticola *Gray*
Inocybe eutheloides *Pk.*
I. geophylla violacea *Pat.*
I. subochracea (*Pk.*) *Mass.*
Jeffersonia diphylla (*L.*) *Pers.*
Jungermannia lanceolata *L.*
Lactarius glyciosmus *Fr.*
L. vellereus *Fr.*
Lamium amplexicaule *L.*
Lecanora subfusca allophana *Ach.*
Lejeunea cavifolia (*Ehrh.*) *Lindb.*
Lenzites sepiaria *Fr.*
Leonorus cardiaca *L.*
Lepiota americana *Pk.*
L. cepaestipes *Sow.*
L. farinosa *Pk.*
L. procera *Scop.*
Liparis loeselii (*L.*) *Rich.*
Listera australis *Lindl.*
Lonicera hirsuta *Eaton*
Lycopodium annotinum *L.*
L. annot. pungens *Desv.*
L. comp. flabelliforme *Fern.*
L. clavatum *L.*
L. inundatum *L.*
L. lucidulum *Mx.*
L. obscurum *L.*
Lycopodium obsc. dendroideum (*Mx.*)
L. tristachyum *Pursh*
Machaeranthera pulverulenta (*Nutt.*)
Malva moschata *L.*
Marasmius elongatipes *Pk.*
M. scorodonius *Fr.*
M. semihirtipes *Pk.*
Marrubium vulgare *L.*
Marsupella emarginata (*Ehrh.*)
Microstylis unifolia (*Mx.*) *BSP.*
Monarda didyma *L.*
Mutinus elegans (*Mont.*) *E. Fisch.*
Myosotis virginica (*L.*) *BSP.*
Nepeta cataria *L.*
Odontoschisma prostratum (*Wahl.*)
Onoclea sensibilis *L.*
Onopordum acanthium *L.*
Origanum vulgare *L.*
Osmunda cinnamomea *L.*
O. claytoniana *L.*
Oxalis filipes *Small*
O. stricta *L.*
Pallavicinia lyellii (*Hook.*)
Panaeolus papilionaceus *Fr.*
Panax quinquefolia *L.*
Panicum boscii *Poir*
P. dichotomum *L.*
P. latifolium *L.*
P. oricola *H. & C.*
P. spretum *Schultes*
P. xanthophysum *Gray*
Panus torulosus *Fr.*
Peridermium pyriforme *Pk.*
P. strobi *Kleb.*
Pertusaria leioplaca (*Ach.*) *Schaer.*
Phallus ravenellii *B. & C.*
Phegopteris dryopteris (*L.*) *Fee*
P. polypodioides *Fee*
Pholiota adiposa *Fr.*
P. autumnalis *Pk.*
P. cerasina *Pk.*
P. duroides *Pk.*
P. squarrosa *Muell.*
Phoma lineolata *Desm.*
Phylloporus rhodoxanthus (*Schw.*)
Physalis virginiana *Mill.*
Picea canadensis (*Mill.*) *BSP.*
Pleurotus ost. magnificus *Pk.*
P. septicus *Fr.*

Pleurotus sulfuroides *Pk.*
Poa debilis *Torr.*
Polygonum acre *HBK.*
P. aviculare *L.*
P. maritimum *L.*
P. pennsylvanicum *L.*
P. persicaria *L.*
Polypodium vulgare *L.*
Polyporus betulinus *Fr.*
P. curtisii *Berk.*
P. distortus *Schw.*
P. frondosus *Fr.*
P. radicatus *Schw.*
P. squamosus (*Huds.*) *Fr.*
P. volvatus *Pk.*
Polystichum acrostichoides (*Mx.*)
P. braunii (*Spenner*) *Fee*
Poria inermis *E. & E.*
Potentilla recta *L.*
Prunella vulgaris *L.*
Psathyrella disseminata *Pers.*
Psilocybe atomatoides *Pk.*
Pteris aquilina *L.*
Ribes triste albinervium (*Mx.*)
Roestelia aurantiaca *Pk.*
Rubus odoratus *L.*
R. triflorus *Richards.*
Russula nigricans (*Bull.*) *Fr.*
R. sanguinea (*Bull.*) *Fr.*
Rynchospora capillacea *Torr.*
Salsola kali tenuifolia *G. F. W. Mey.*
Saponaria officinalis *L.*
Satureja vulgaris (*L.*) *Fritsch*
Scapania undulata (*L.*) *Dum.*
Schistostega osmundacea (*Dicks.*)
Scirpus caespitosus *L.*
S. planifolius *Muhl.*
Scleroderma vulgare *Hornem.*
Seligeria pusilla *B. & S.*
Serapias helleborine *L.*
Sesuvium maritimum (*Walt.*) *BSP.*
Setaria glauca (*L.*) *Bv.*
S. viridis (*L.*) *Bv.*
Shepherdia canadensis (*L.*) *Nutt.*
Sisymbrium offic. leiocarpum *DC.*
Sparganium diver. acaule (*Beebe*)
Spherobolus stellatus *Tode*
Spathularia clavata (*Schaeff.*)
Sphenolobus exsectaeformis (*Briedl.*)
Spiranthes praecox (*Walt.*) *BSP.*
Symphoricarpos orbiculatus *Moench.*
Thlaspi arvense *L.*
Tremella vesicaria *Bull.*
Tricholoma chrysenteroides *Pk.*
Trillium grandiflorum (*Mx.*)
Typhula phacorrhiza *Fr.*
Urnula craterium (*Schw.*) *Fr.*
Valsa pini (*A. & S.*) *Fr.*
Verbascum thapsus *L.*
Verbena hastata *L.*
V. urticaefolia *L.*
Veronica peregrina *L.*
V. tournefortii *C. C. Gmel.*
Vicia angustifolia *Roth*
V. tetrasperma (*L.*) *Moench.*
Viola cucullata *Ait.*
V. septentrionalis *Greene*
Volvaria bombycina (*Pers.*) *Fr.*
Xanthium commune *Britton*
Xyris montana *H. Reis*

CONTRIBUTORS AND THEIR CONTRIBUTIONS

Miss L. C. Allen, Newtonville, Mass.

Clavaria fumigata *Pers.*
Lepiota alleniae *Pk.*

Miss F. Beckwith, Rochester

Artemisia dracunculoides *Pursh*

Mrs N. L. Britton, New York

Schistostega osmundacea (*Dicks.*)
Seligeria pusilla *B. & S.*

Mrs J. C. Cahn, Detroit, Mich.

Clavaria platyclada *Pk.*

Miss V. K. Charles, Washington, D. C.

Agaricus subrufescens *Pk.*

Mrs E. P. Gardner, Canandaigua

Ajuga reptans *L.*
Convolvulus sepium pubescens (*Gray*)
Corallorhiza odontorhiza *Nutt.*
Geum flavum (*Porter*) *Britton*
Heliopsis scabra *Dunal.*
Panicum boscii *Poir*
P. spretum *Schultes*
Physalis virginiana *Mill.*
Veronica peregrina *L.*
V. tournefortii *C. C. Gmel.*

Mrs L. L. Goodrich, Syracuse

Crucibulum vulgare *Tul.*

Miss C. C. Haynes, New York

Bazzania tricrenata (*Wahl.*) *Trev.*
B. trilobata (*L.*) *S. F. Gray*
Blepharostoma trichophyllum (*L.*)
Calypogeia trichomanis (*L.*) *Cd.*
Cephalozia bicuspidata (*L.*) *Dum.*
C. connivens (*Dicks.*)
C. fluitans (*Nees*) *Spruce*
C. lunulaefolia *Dum.*
Chiloscyphus polyanthus (*L.*) *Cd.*
Conocephalum conicum *L.*
Diplophylleia taxifolia (*Wahl.*)
Frullania eboracensis *Gottsche*
Geocalyx graveolens (*Schrad.*)
Jungermannia lanceolata *L.*
Lejeunea cavifolia (*Ehrh.*) *Lindb.*
Lepidozia setacea (*Web.*) *Mitt.*
Lophocolea heterophylla (*Schrad.*)
Lophozia alpestris (*Schleich.*)
Lophozia attenuata (*Mart.*) *Dum.*
L. barbata (*Schreb.*) *Dum.*
L. mildeana (*Gottsche*)
Marchantia polymorpha *L.*
Marsupella emarginata (*Ehrh.*)
Mylia anomala (*Hook.*) *S. F. Gray*
M. taylori (*Hook.*) *S. F. Gray*
Nardia crenulata (*Smith*) *Lindb.*
Notothylas orbicularis (*Schw.*)
Odontoschisma denudatum (*Mart.*)
O. prostratum (*Sw.*)
Pallavicinia lyellii (*Hook.*)
Pellia epiphylla (*L.*) *Cd.*
Plagiochila asplenioides (*L.*) *Dum.*
Radula tenax *Lindb.*
Reboulia hemisphaerica (*L.*) *Raddi*
Riccardia sinuata (*Dicks.*) *Limpr.*
Ricciella sullivantii (*Aust.*)

Scapania apiculata *Spruce*
S. nemorosa (*L.*) *Dum.*
S. undulata (*L.*) *Dum.*
Sphenolobus exsectaeformis (*Briedl.*)
S. exsectus (*Schmid.*)
Temnoma setiforme (*Ehrh.*)
Trichocolea tomentella (*Ehrh.*) *Dum.*

Miss A. Hibbard, West Roxbury, Mass.
Clavaria obtusissima *Pk.*
Clavaria subcaespitosa *Pk.*
Tricholoma piperatum *Pk.*

Mrs M. W. Hill, St Paul, Minn.
Lentinus tigrinus (*Bull.*) *Fr.*

Miss M. F. Miller, Washington, D. C.
Adiantum pedatum *L.*
Aspidium boottii *Tuck.*
A. cristatum (*L.*) *Sw.*
A. goldianum *Hook.*
A. marginale (*L.*) *Sw.*
A. noveboracense (*L.*) *Sw.*
A. spinulosum (*O. F. Muell.*)
A. spin. dilatatum (*Hoffm.*)
A. spin. intermedium (*Muhl.*)
A. thelypteris (*L.*) *Sw.*
Asplenium acrostichoides *Sw.*
A. filix-foemina (*L.*)
A. platyneuron (*L.*) *Oakes*
A. trichomanes *L.*
Botrychium lanceolatum (*S. G. Gmel.*)
B. obliquum *Muhl.*
B. obliq. dissectum (*Spreng.*)
B. ramosum (*Roth*)
B. simplex *E. Hitckc.*
tern. intermedium *Eaton*
B. virginianum (*L.*) *Sw.*
Camptosorus rhizophyllus (*L.*) *Link*
Cystopteris bulbifera (*L.*) *Bernh.*
C. fragilis (*L.*) *Bernh.*
Dicksonia punctilobula (*Mx.*) *Gray*
Equisetum hyemale *L.*
Geum canadense *Jacq.*
Lycopodium annotinum *L.*
L. annot. pungens *Desv.*
L. clavatum *L.*
L. comp. flabelliforme *Fern.*
L. lucidulum *Mx.*
L. obscurum *L.*
L. obsc. dendroideum (*Mx.*)
L. tristachyum *Pursh*
Microstylis unifolia (*Mx.*) *BSP.*
Monarda didyma *L.*
Onoclea sensibilis *L.*
Osmunda cinnamomea *L.*
O. claytoniana *L.*
Panax quinquefolia *L.*
Phegopteris dryopteris (*L.*) *Fee*
P. polypodioides *Fee*
Polypodium vulgare *L.*
Polystichum acrostochoides (*Mx.*)
P. braunii (*Spenner*) *Fee*
Potentilla recta *L.*
Pteris aquilina *L.*

Mrs E. Watrous, Hague
Arenaria stricta *Mx.*

Miss E. C. Webster, Canandaigua
Camelina microcarpa *Andrz.*
Cortinarius variicolor (*Pers.*)
Lamium amplexicaule *L.*
Lepiota farinosa *Pk.*
Thlaspi arvense *L.*

Mrs M. S. Whetstone, Minneapolis, Minn.

Boletus sphaerosporus *Pk.*
Entoloma helodes *Fr.*
Guepinia elegans *B. & C.*
Guepiniopsis fissus *Berk.*
Inocybe fibrillosa *Pk.*
Marasmius trullisatipes *Pk.*
Pholiota autumnalis *Pk.*
Psilocybe cystidiosa *Pk.*
Stropharia umbilicata *Pk.*
Volvaria perplexa *Pk.*

W. E. Abbs, Rochester

Boletus subaur. rubroscriptus *Pk.*
Phylloporus rhodoxanthus (*Schw.*)
Tricholoma subpulverulentum (*Pers.*) *Fr.*

C. P. Alexander, Gloversville

Achillea ptarmica *L.*
Andromeda glaucophylla *Link*
Carex aestivalis *M. A. Curtis*
C. muhlenbergii *Schkr.*
C. tribul. reducta *Bailey*
Cyperus dentatus *Torr.*
Epilobium molle *Torr.*
Epipactis repens ophioides (*Fern.*)
E. tesellata (*Lodd.*)
Equisetum scirpoides *Mx.*
E. varieg. nelsonii *Eaton*
Habenaria fimbriata (*Ait.*) *R.Br.*
Habenaria microphylla *Goldie*
Helianthemum majus *BSP.*
Ilex monticola *Gray*
Liparis loeselii (*L.*) *Rich.*
Listera australis *Lindl.*
Lycopodium inundatum *L.*
Microstylis uniflora (*Mx.*) *BSP.*
Panicum oricola *H. & C.*
P. xanthophysum *Gray*
Shepherdia canadensis (*L.*) *Nutt.*
Sparganium diver. acaule (*Beebe*)
Xyris montana *H. Reis*

F. H. Ames, Brooklyn

Boletus scaber *Fr.*
Polyporus curtisii *Berk.*

G. F. Atkinson, Ithaca

Cladochytrium alismatis *Büsgen*
Clavaria tetragona *Schw.*
Doassansia alismatis (*Fr.*) *Cornu*
Heliomyces pruinosipes *Pk.*
Lepiota cepaestipes *Sow.*
Marasmius semihirtipes *Pk.*
Tremellodendron aurantium *Atk.*
Urophlyctis major *Schroet.*

G. G. Atwood, Albany

Diaporthe parasitica *Murrill*
Peridermium strobi *Kleb.*

W. H. Ballou, New York

Lactarius volem. subrugosus *Pk.*
Lenzites trabea (*Pers.*) *Fr.*
Mycena splendidipes *Pk.*
Phallus ravenellii *B. & C.*
Psilocybe graveolens *Pk.*
Russula ballouii *Pk.*

H. J. Banker, Greencastle, Ind.

Helvella capucinoides *Pk.*
Polyporus distortus *Schw.*
Volvaria bombycina (*Pers.*) *Fr.*

E. Bartholomew, Stockton, Kan.

Asteromella asteris *Pk.*
Coryneum effusum *Pk.*
Cylindrosporium crescentum *Barth.*
Diatrype albopruinosa (*Schw.*) *Cke.*

Fusicladium depressum (*B. & Br.*)
Herpotrichia diffusa (*Schw.*) *Sacc.*
Hysteriographium acerinum *Pk.*
Irpex cinnamomeus *Fr.*
Ramularia anomala *Pk.*
Valsa translucens (*DeNot.*)
Valsa truncata *C. & P.*

M. S. Baxter, Rochester

Alopecurus genic. aristulatus *Torr.*
Artemisia biennis *Willd.*
A. carruthii *Wood*
A. dracunculoides *Pursh*
A. frigida *Willd.*
A. glauca *Pall.*
A. gnaphalodes *Nutt.*
A. vulgaris *L.*
Carex brunnescens *Poir*
C. flava *L.*
C. lanuginosa *Mx.*
C. leptalea *Wahl.*
Chrysothamnus pinifolius *Greene*
Cynosurus cristatus *L.*
Eleocharis rostellata *Torr.*
Elymus canadensis *L.*
Grindelia squarrosa (*Pursh*) *Dunal.*
Gutierrezia sarothrae (*Pursh*)
Gymnolomia multiflora (*Nutt.*)
Hierochloe odorata (*L.*) *Wahl.*
Jeffersonia diphylla (*L.*) *Pers.*
Machaeranthera pulverulenta (*Nutt.*)
Marrubium vulgare *L.*
Panicum dichotomum *L.*
P. latifolium *L.*
P. spretum *Schultes*
Poa debilis *Torr.*
Rynchospora capillacea *Torr.*
Scirpus caespitosus *L.*
S. planifolius *Muhl.*
Serapias helleborine *L.*

F. S. Boughton, Pittsford

Acetabula vulgaris *Fckl.*
Boletinus grisellus *Pk.*
Clavaria fastigiata *L.*
C. pinophila *Pk.*
C. stricta *Pers.*
C. vermicularis *Scop.*
Inocybe geophylla violacea *Pat.*
Panus torulosus *Fr.*
Pleurotus tessulatus (*Bull.*) *Fr.*
Psilocybe atomatoides *Pk.*
Russula sanguinea (*Bull.*) *Fr.*
Urnula craterium (*Schw.*) *Fr.*

F. J. Braendle, Washington, D. C.

Hydnum fasciatum *Pk.*
Hygrophorus nemoreus *Fr.*
Polystictus perg. revolutus *Pk.*
Polystictus pseudopergamenus (*Thuem.*)
Pterula densissima *B. & C.*
Tricholoma tumulosum *Kalchb.*

C. K. Brain, Columbus, Ohio

Collybia delicatula *Pk.*
Collybia murina *Batsch*
Russula xerampelina *Fr.*

S. H. Burnham, Hudson Falls

Aleurodiscus oakesii (*B. & C.*)
Amaranthus retroflexus *L.*
Ambrosia artemisiifolia *L.*
Anthemis cotula *L.*
Barbarea vulgaris *R. Br.*
Boletus retipes *B. & C.*
Cantharellus cibarius *Fr.*
Cercospora symplocarpi *Pk.*
Clavaria cristata *Holmsk.*
C. grandis *Pk.*
C. kunzei *Fr.*
C. tsugina *Pk.*
C. vermicularis *Scop.*
Clitocybe adirondackensis *Pk.*
C. cerussata *Fr.*
C. maxima *G. & M.*

Clitopilus noveboracensis *Pk.*
Collema crispum *Borr.*
Collybia murina *Batsch*
Cortinarius vernalis *Pk.*
Daedalea unicolor (*Bull.*) *Fr.*
Diatrypella favacea (*Fr.*)
Entoloma sericeum (*Bull.*) *Fr.*
E. sinuatum *Fr.*
Erigeron annuus (*L.*) *Pers.*
E. canadensis *L.*
Fagus grandiflora *Ehrh.*
Flammula graveolens *Pk.*
Fomes igniarius (*L.*) *Fr.*
Geoglossum microsporum *C. & P.*
Geum strictum *Ait.*
Grimaldia fragrans (*Balb.*) *Cd.*
Haplosporella ailanthi *E. & E.*
Hedeoma pulegioides (*L.*) *Pers.*
Heliomyces pruinosipes *Pk.*
Hydnum laevigatum *Sw.*
Hygrophorus nitidus *B. & C.*
H. ruber *Pk.*
Hypericum perforatum *L.*
Inocybe eutheloides *Pk.*
I. radiata *Pk.*
I. subochracea (*Pk.*) *Mass.*
Lactarius vellereus *Fr.*
Leonurus cardiaca *L.*
Malva moschata *L.*
Marasmius elongatipes *Pk.*
M. scorodonius *Fr.*
Mutinus elegans (*Mont.*) *E. Fisch.*
Myosotis virginica (*L.*) *BSP.*
Nepeta cataria *L.*
Origanum vulgare *L.*
Oxalis filipes *Small*
O. stricta *L.*
Pestalozzia truncata *Lev.*
Pholiota autumnalis *Pk.*
P. squarrosa *Muell.*
Phoma lineolata *Desm.*
Pleurotus ost. magnificus *Pk.*
Pleurotus sulfuroides *Pk.*
Polygonum acre *HBK.*
P. aviculare *L.*
P. pennsylvanicum *L.*
P. persicaria *L.*
Polyporus frondosus *Fr.*
P. radicatus *Schw.*
Prunella vulgaris *L.*
Psathyrella disseminata *Pers.*
Ribes triste albinervium (*Mx.*)
Rubus odoratus *L.*
Salsola kali tenuifolia *G. F. W. Mey.*
Saponaria officinalis *L.*
Satureja vulgaris (*L.*) *Fritsch*
Setaria glauca (*L.*) *Bv.*
S. viridis (*L.*) *Bv.*
Sisymbrium offic. leiocarpum *DC.*
Spathularia clavata (*Schaeff.*)
Sphaerobolus stellatus *Tode*
Symphoricarpos orbiculatus *Moench*
Tremella vesicaria *Bull.*
Tricholoma chrysenteroides *Pk.*
T. latum *Pk.*
Typhula phacorrhiza *Fr.*
Verbascum thapsus *L.*
Verbena hastata *L.*
V. urticaefolia *L.*
Verrucaria muralis *Ach.*
V. papularis *Fr.*
Viola cucullata *Ait.*
V. septentrionalis *Greene*
Xanthium commune *Britton*

M. T. Cook, New Brunswick, N. J.

Polycephalum subauranticum *Pk.*

S. Davis, Brookline, Mass.

Bulgaria rufa *Schw.*
Clavaria kromholzii *Fr.*
Clitopilus leptonia *Pk.*
Entoloma flavifolium *Pk.*
E. fumosonigrum *Pk.*
E. minus *Pk.*
E. modestum *Pk.*
Inocybe asterospora *Quel.*
I. castaneoides *Pk.*
Inocybe decipientoides *Pk.*
I. diminuta *Pk.*
I. longispora *Pk.*
I. teichospora *Berk.*
Lepiota cristatella *Pk.*
Morchella conica *Pers.*
M. esculenta (*L.*) *Pers.*
Nolanea delicatula *Pk.*
N. multiformis *Pk.*
Ombrophila clavus (*A. & S.*) *Cke.*

J. Dearness, London, Ont.

Aecidium magnatum *Arth.*
A. monoicum *Pk.*
Diplodia exocarpi *Dearness*
Pestalozzia fun. multiseta *Sacc.*
Ramularia pruni *Pk.*
Septogloeum salicinum (*Pk.*) *Sacc.*
Uromyces trifolii (*Hedw.*) *Lev.*

C. C. DeRouville, Albany

Agaricus micromegathus *Pk.*
Amanita formosa *G. & R.*

F. Dobbin, Shushan

Phialea subcarnea (*C. & P.*)
Picea canadensis (*Mill.*) *BSP.*
Ptilidium ciliare (*L.*) *Nees*
Vicia angustifolia *Roth*
Vicia tetrasperma (*L.*) *Moench*

J. Dunbar, Rochester

Malus glaucescens *S.*

D. L. Dutton, Brandon, Vt.

Physcia ciliaris (*L.*) *Ach.*
Stereocaulon coralloides *Fr.*

C. E. Fairman, Lyndonville

Aposphaeria fibriseda (*C. & E.*)
Didymella asterinoides (*E. & E.*)
Helicopsis punctata *Pk.*
Helminthosporium fuscum *Fckl.*
Humaria leucoloma (*Hedw.*) *Fr.*
Hydnum subcrinale *Pk.*
Pholiota duroides *Pk.*
Phyllosticta mahoniaecola *Pass.*
Zygodesmus avellaneus *Sacc.*

W. G. Farlow, Cambridge, Mass.

Puccinia physostegiae *Pk. & Clint.*

J. C. Fisher, Baltimore, Md.

Claviceps purpurea (*Fr.*) *Tul.*

W. P. Fraser, Quebec, Que.

Diatrype tumidella *Pk.*

H. Garman, Lexington, Ky.

Aspergillus clavellus *Pk.*
Sporotrichum atropurpureum *Pk.*

A. O. Garrett, Salt Lake City, Utah

Albugo bliti (*Biv.*) *Ktze.*
A. candida (*Pers.*) *Ktze.*
A. tragopoginis (*DC.*) *Gray*
Cercosporella fraserae (*E. & E.*)
Claviceps setulosa (*Oud.*) *Sacc.*
Clavaria contorta *Holmsk.*
Cylindrosporium padi *Karst.*
Erysiphe polygoni *DC.*
Lophiostoma sieversiae *Pk.*
Microsphaera alni ludens *Salm.*
Monilia sidalceae *Pk.*
Ramularia sambucina *Sacc.*
Rhysotheca halstedii (*Farl.*)
Septoria polemonioides *Pk.*
Tuberculina persicina (*Ditm.*) *Sacc.*

W. E. Geiser, Albany
Amanita ovoidea *Bull.*

H. T. Güssow, Ottawa, Que.
Pleurotus petaloides (*Bull.*) *Fr.*

M. E. Hard, Kirkwood, Mo.
Collybia atrata *Fr.*

L. R. Hesler, Ithaca
Sphaerella saccharoides *Pk.* Valsa pini (*A. & S.*) *Fr.*

G. H. Hudson, Plattsburg
Chlorosplenium aeruginascens (*Nyl.*) *Karst.*

F. W. Kelley, Albany
Trillium grandiflorum (*Mx.*) *Salisb.*

G. L. Kirk, Rutland, Vt.
Endocarpiscum guepini (*Delis*) *Nyl.*

R. H. Kirtland, Albany
Lactarius glyciosmus *Fr.* Russula nigricans (*Bull.*) *Fr.*

L. C. C. Krieger, Chico, Cal.
Bolbitius vitellinus (*Pers.*) *Fr.* Lysurus borealis (*Burt*) *C. G. Lloyd*

R. Latham, Orient Point

Anthemis tinctoria *L.*
Aristida purpurascens *Poir*
Arthonia quintaria *Ach.*
Calosphaeria myricae (*C. & E.*)
Calvatia rubroflava (*Cragin*)
Cladonia crist. vestita *Tuck.*
C. grac. dilitata (*Hoffm.*)
Cyperus ferax *Rich.*
Dothidea baccharidis *Cke.*
Humaria granulata *Bull.*
Lecanora subfusca allophana *Ach.*
Lenzites sepiaria *Fr.*
L. trabea (*Pers.*) *Fr.*
Macrophoma juniperina *Pk.*
Odontoschisma prostratum (*Wahl.*)
Onopordum acanthium *L.*
Opegrapha herpetica *Ach.*
Pertusaria leioplaca (*Ach.*) *Schaer.*
Phoma asclepiadea *E. & E.*
P. semiimmersa *Sacc.*
Phyllosticta rhoicola *E. & E.*
Placodium camptidium *Tuck.*
Pleurotus septicus *Fr.*
Polygonum maritimum *L.*
Poria inermis *E. & E.*
Scleroderma vulgare *Hornem.*
Sesuvium maritimum (*Walt.*) *BSP.*
Spiranthes praecox (*Walt.*) *W. & C.*
Tricholoma piperatum *Pk.*

C. G. Lloyd, Cincinnati, Ohio
Polyporus dryadeus (*Pers.*) *Fr.*

C. A. Mabie, Holley
Hydnum caput-ursi *Fr.* Lepiota americana *Pk.*

R. B. Mackintosh, Peabody, Mass.
Hypholoma velutinum leucocephalum *B. & Br.*

G. E. Morris, Waltham, Mass.

Boletinus glandulosus *Pk.*
B. solidipes *Pk.*
Boletus rubinellus *Pk.*
B. satanus *Lenz*
Clavaria ligula *Fr.*
Eccilia regularis *Pk.*
Flammula brunneodisca *Pk.*
F. sphagnicola *Pk.*
Hydnum geogenium *Fr.*
Lenzites sepiaria *Fr.*
Leptonia euchlora (*Lasch.*) *Fr.*

W. A. Murrill, New York
Hypholoma ambiguum *Pk.*

H. S. Paine, Glens Falls

Amanita frostiana *Pk.*
Cantharellus floccosus *Schw.*

F. T. Pember, Granville
Prunella vulgaris *L.*

A. J. Perkins, Santa Ana, Cal.
Gyrophragmium decipiens *Pk.*

C. R. Pettis, Albany
Peridermium pyriforme *Pk.*

F. J. Seaver, New York
Creonectria ochroleuca (*Schw.*) *Seaver*

W. L. Sherwood, New York
Selaginella sherwoodii *Underw.*

F. C. Stewart, Geneva

Flammula sulphurea *Pk.*
Fomes pinicola (*Sw.*) *Fr.*
Hebeloma fastibile *Fr.*
Panaeolus papilionaceus *Fr.*
Pholiota adiposa *Fr.*
P. cerasina *Pk.*

D. R. Sumstine, Wilkinsburg, Pa.

Diaporthe castaneti *Nits.*
Diaporthe parasitica *Murrill*

D. B. Swingle, Bozeman, Mont.
Trametes malicola *B. & C.*

W. H. VanGasbeck, Albany
Carya ovata (*Mill.*) *K. Koch*

J. M. VanHook, Bloomington, Ind.
Rosellinia mammiformis (*Pers.*) *Ces. & DeNot.*

H. L. Wells, New Haven, Conn.

Boletus edulis clavipes *Pk.*
Boletus gertrudiae *Pk.*

M. S. Wheeler, Berlin, Mass.

Diaporthe parasitica *Murrill*

T. E. Wilcox, Washington, D. C.

Armillaria nardosmia *Ellis*
Boletus auriporus *Pk.*
Boletus subluteus *Pk.*
Calvatia craniiformis (*Schw.*)
Tricholoma equestre (*L.*) *Fr.*

F. A. Wolf, Auburn, Ala.

Pestalozzia rostrata *Zab.*

D. B. Young, Albany

Crucibulum vulgare *Tul.*
Lepiota farinosa *Pk.*
Penicillium hypomycetis *Sacc.*
Polyporus squamosus (*Huds.*) *Fr.*
P. volvatus *Pk.*
Roestelia aurantiaca *Pk.*

SPECIES NOT BEFORE REPORTED

Achillea ptarmica L.

Near Gloversville, Fulton co. C. P. Alexander. Introduced and probably escaped from cultivation.

Amanita ovoidea Bull.

Ground in woods. Near Hurstville, Albany co. September. W. B. Geiser. The description of this species will be found in the chapter on Edible fungi in this report.

Anellaria separata (L.) Karst.

On manure in groves. North Elba, Essex co. July.

Aposphaeria fibriseda (C. & E.) Sacc.

Decorticated wood of sumac. Lyndonville, Orleans co. May. C. E. Fairman.

Artemisia carruthii Wood

Cobbs Hill reservoir. Rochester. September. M. S. Baxter.

Artemisia dracunculoides Pursh

Cobbs Hill reservoir. Rochester. October. Miss Florence Beckwith. M. S. Baxter. Introduced but apparently well established.

Artemisia glauca Pall.

Cobbs Hill reservoir. Rochester. September. M. S. Baxter.

Arthonia quintaria Nyl.

On bark of Ailanthus, Ailanthus glandulosa Desf. and butternut, Juglans cinerea L. Orient Point, Suffolk co. June. R. Latham. Shushan, Washington co. August. F. Dobbin.

Arthonia radiata (Pers.) Th. Fr.

On bark of shag-bark hickory, Carya ovata (Mill.) K. Koch and basswood, Tilia americana L. Shushan. August. F. Dobbin. Determined by G. K. Merrill.

Betula alba L.

The European white birch is often planted for ornament in parks and lawns. Near Rochester it has escaped from cultivation and is apparently permanently established in a wild locality not far from the city.

Bolbitius vitellinus (Pers.) Fr.

Manure in groves. North Elba. July.

Boletus retipes B. & C.

Woods. Vaughns, Washington co. September. S. H. Burnham. This is a southern species and the locality here given is probably near the northern limit of its range.

Calosphaeria myricae (C. & E.) E. & E.

Dead stems and branches of bayberry, Myrica carolinensis Mill. Orient point. December and January. R. Latham.

Calvatia rubroflava (Cragin) Morg.

Sandy soil. Orient Point. November. R. Latham.

Chrysothamnus pinifolius Greene

Cobbs Hill reservoir. Rochester. September. M. S. Baxter. Determined by P. A. Rydberg.

Clavaria grandis Pk.

Woods. Vaughns. October. S. H. Burnham. This is a small slender form with few short branches supported by a long slender stem.

Clavaria vermicularis Scop.

Ray Brook, Essex co. C. H. Peck. Vaughns. October. S. H. Burnham. Pittsford, Monroe co. September. F. S. Boughton.

Cladochytrium alismatis Büsgen

Living and languishing leaves of water plantain, Alisma plantagoaquatica L. Ithaca flats. July. B. B. Higgins. Communicated by G. F. Atkinson.

Collema crispum Borr.

On mosses. Vaughns. April. S. H. Burnham.

Collybia murina Batsch

Among fallen leaves in woods. North Elba. July. C. H. Peck. Vaughns. August. S. H. Burnham.

Coronopus procumbens Gilibert

Near Chenango lake, Chenango co. F. V. Coville. Introduced. The specimens are apparently a dwarf form without fruit.

Crataegus gracilipes S.

East side of Hemlock lake, Ontario co. September.

Crataegus harryi S.

Wetstone brook near Honeoye state road, Richmond, Ontario co. September.

Crataegus leptopoda S.

East side of Hemlock lake. September.

Crataegus livingstoniana S.

East side of Hemlock lake near the north end. September.

Crataegus macera S.

East side of Hemlock lake near the north end. September.

Crataegus procera S.

East side of Hemlock lake near the north end. September.

Creonectria ochroleuca (Schw.) Seaver

On white birch. Autumn. New York City. F. J. Seaver. Sphaeria ochroleuca Schw., Nectria ochroleuca Berk., Nectria aureofulva C. & E., Nectria pallida E. & E. and Nectria depauperata Cke. are regarded as synonyms of this species by Mr Seaver.

Diaporthe castaneti Nits.

Dead branches of chestnut, Castanea dentata (Marsh.) Borkh. Bemus Point, Chautauqua co. May. D. R. Sumstine.

Diatrypella favacea (Fr.) Ces. & DeNot.

Dead branches of European white birch, Betula alba L. Albany. April. S. H. Burnham.

Didymella asterinoides (E. & E.) Rehm

Dead stems of wild teasel, Dipsacus sylvestris Huds. Lyndonville. May. C. E. Fairman. This is Sphaerella asterinoides E. & E.

Dothidea baccharidis Cke.

Dead branches of groundsel bush, Baccharis halimifolia L. Orient Point. April. R. Latham.

Escholtzia californica Cham.

Cobbs Hill reservoir. Rochester. September. This is commonly called California poppy. It is abundant on the steep banks of the reservoir and is apparently well and permanently established.

Flammula graveolens Pk.

Forbes Manor grounds in old sawdust. Rensselaer. November. S. H. Burnham.

Helicopsis punctata n. sp.

Cespitose; tufts gregarious, minute, .25–.5 mm broad, brown; hyphae very short or obsolete, irregular, slender, hyaline; spores convolute, forming a spiral, 6–8-septate, usually with a nucleus in each cell, colored, persistent, 4–5 μ broad.

Inside of bark scales of some species of Prunus. April. Lyndonville. C. E. Fairman.

Caespites gregarii, minuti, .25–.5 mm lati, brunnei; hyphae brevissimae vel obsoletae, irregulares, graciles, hyalinae; sporae convolutae, spiram 6–8-septatem, 4–5 μ latam, coloratam, persistentem, cellis uninucleatis, formantes.

Heliomyces pruinosipes n. sp.

Pileus tremelloid, thin, submembranaceous, broadly convex or depressed by the upcurving of the margin, glabrous, hygrophanous, bright orange red when moist, reddish brown when dry, odor strong, disagreeable; lamellae thin, narrow, close, adnate, pallid; stems slender, hollow, dark reddish brown, usually pruinose or slightly pubescent above, whitish tomentose at the base and there fasciculately united; spores not seen.

Pileus 1–2 cm broad; stem 2–3 cm long, 1.2–2.5 mm thick.

Around old stumps of coniferous trees. Vaughns. August and September. S. H. Burnham. On bark. Ithaca. September. G. F. Atkinson.

Pileus tremelloideus, tenuis, submembranaceous, late convexus vel depressus, margine recurvo, glaber, hygrophanous, humidus laete aurantiaco-ruber, siccus, rubescente brunneus, odore graveolente, ingrato; lamellae tenues, angustae, confertae, adnatae, pallidae; stipites graciles, cavi, rufescente brunnei, vulgo pruinosi vel leviter apice pubescentes, basi albescente tomentosi, fasciculati; sporae ignotae.

Helminthosporium fuscum Fckl.

Dead herbaceous stems. Lyndonville. April. C. E. Fairman.

Hydnum laevigatum Sw.

Near Tripoli, Washington co. October. S. H. Burnham.

Hydnum subcrinale n. sp.

Subiculum effused, composed of a whitish tomentum; aculei very slender, close, equal or slightly tapering upward, flexuous, subglabrous, acute, pallid or subincarnate; spores minute, subglobose, 1.5–2 μ broad.

Decayed wood. Blue Mountain lake, Hamilton co. August. C. E. Fairman. This resembles Hydnum crinale Fr. in structure but is very unlike it in color.

Subiculum effusum, tomento albido compositum; aculei gracillimi, conferti, aequales vel sursum leviter attenuati, flexuosi, subglabri, acuti, pallidi vel subincarnati; sporae minutae, subglobose, 1.5–2 μ latae.

Hygrophorus ruber Pk.

Woods. Vaughns. Fine large bright colored specimens were collected in September by S. H. Burnham.

Inocybe radiata Pk.

Under pine trees. Vaughns. October. S. H. Burnham. The epidermis of this species sometimes excoriates as in Inocybe excoriata Pk. The specimens referred to this species in New York State Museum Bulletin 105, page 24, as a small form belong to I. asterospora Quel.

Lenzites trabea (Pers.) Fr.

On pine wood. Richmond co. November. W. H. Ballou. Orient Point. R. Latham.

Leptonia euchlora (Lasch.) Fr.

Orville, Onondaga co. August. G. E. Morris.

Macrophoma juniperina n. sp.

Perithecia gregarious, .3–.5 mm broad, thin, slightly prominent, at first covered by the epidermis, then erumpent, black, white within; spores elliptic, oblong or obovate, hyaline, granulose within, 25–40 x 12–18 μ, sporophores mostly shorter than the spores.

Dead branchlets of red cedar, Juniperus virginiana L. Orient Point. December. R. Latham.

The spores are similar in size to those of Macrophoma cavarae Poll., but they are more variable in shape and are not nucleate.

Perithecia gregaria, .3–.5 mm lata, tenua, leviter prominentia, primum epidermide tecta, demum erumpentia, atra, intra alba; sporae ellipsoideae, oblongae vel obovatae, hyalinae, intra granulosae, 25–40 x 12–18 μ, sporophores vulgo sporis breviores.

Malus glaucescens S.

Near Charlotte, Monroe co. September. J. Dunbar.

Mycena flavifolia n. sp.

Pileus thin, slightly submembranaceous, conic or convex, sulcate striate, somewhat plicate-crenate on the margin, glabrous, pale smoky yellow, becoming pale pinkish brown or subalutaceous in drying, sometimes slightly umbonate; lamellae thin, close, broad at the outer extremity, narrowed toward the stem, pale yellow, becoming pallid in drying; stem slender, equal, glabrous, hollow, chestnut colored; spores ellipsoid or subovoid, 6–8 x 4–5 μ.

Gregarious. Under balsam fir trees. North Elba. September. The center of the pileus is often more highly colored than the rest.

Pileus tenuis, submembranaceous, sublentus, conicus vel convexus, sulcato-striatus, interdum margine plicato-crenatus, glaber, subumbonatus, pallide fumoso-luteus, in siccitate incarnato-brunnescens vel subalutaceus; lamellae tenues, confertae, anteriore latae, posteriore angustatae, pallido luteae, pallescentes; stipes gracilis, aequalis, glaber, cavus, castaneus; sporae ellipsoideae vel subovoideae 6–8 x 4–5 μ.

Mycena splendidipes n. sp.

Plate X

Pileus thin, submembranaceous, oval when young, brown above and yellow below, becoming grayish green, greenish brown or

brown and subcampanulate or convex with age, striate, glabrous, odor strong, flavor disagreeable, properties poisonous; lamellae subdistant, rather narrow, adnate, white or whitish; stem long or short, straight or flexuous, hollow, glabrous, bright lemon yellow; spores broadly ellipsoid or subglobose, 6–8 x 4–6 μ.

Pileus 10–20 mm broad; stem 5–30 cm long, 1–2 mm thick.

Decaying pine leaves. Richmond co. November. W. H. Ballou.

This is a dangerous or poisonous species. A single plant chewed and possibly a little of it swallowed caused sickness for some time.

Pileus tenuis, submembraneus, primum ovalis superiore brunneus, inferiore luteus, demum griseo-viridis, straitus, convexus subcampanulatusve, glaber, graveolens, flavor ingratus, venenus; lamellae subdistantes, angustae adnatae, albae albidaeve; stipes longus brevisve, rectus flexuosuve, cavus, glaber, luteus; sporae late ellipsoideae vel subglobosae, 6–8 x 4–6 μ.

Opegrapha herpetica Ach.

On basswood, Tilia americana L. Orient Point. June. R. Latham. Determined by G. K. Merrill who says of it, "the first American specimen I have seen."

Penicillium hypomycetes Sacc.

On the inner bark of an unknown tree. Albany. March. D. B. Young.

Pestalozzia truncata Lev.

On cone scales of Norway spruce, Picea excelsa Link. Albany. April. S. H. Burnham. The name of this species is suggested by the fact that in old spores the terminal hyaline cells fall away leaving the colored central part with truncate ends.

Phialea anomala n. sp.

Receptacle thin, broadly cupulate or disciform, 1.5–3 mm broad, externally clothed with small, tawny, radiating fibrils, the margin incurved, entire; stem slender, firm, flexuous, .5–1.5 cm long, tawny, fibrillose, tomentose, fulvous; hymenium greenish black; asci cylindric or subclavate, eight-spored, spores ellipsoid or somewhat narrowed toward the base, continuous, hyaline, 10–12 x 4–5 μ, paraphyses filiform.

On dead herbaceous stems or twigs in wet places. Remsen, Oneida co. August.

The anomalous character of this species is in its tawny, fibrillose stem and the exterior surface of the receptacle. The peculiar color of the hymenium is also unusual in this genus.

Receptaculum tenue, late cupulatum vel disciforme, 1.5–3 mm latum, fibris parvis fulvis radiantibus externe investum, margine incurvo, integrum; stipes gracilis, fulvus, fibrilloso-tomentosus, firmus, flexuosus, .5–1.5 cm longus; hymenium viride atrum; asci cylindracei subclavative, 8-sporae ellipsoideae vel basi leviter attenuatae, continuae, hyalinae, 10–12 x 4–5 μ, paraphyses filiformes.

Phoma asclepiadea E. & E.

Dead stems of common milkweed, Asclepias syriaca L. Orient Point. January. R. Latham.

Phoma semiimmersa Sacc.

Dead branches of thorn bushes. Orient Point. January. R. Latham.

Phyllosticta mahoniaecola Pass.

Leaves of the so-called cultivated "American holly," a species of Mahonia. Lyndonville. September. C. E. Fairman.

Phyllosticta rhoicola E. & E.

Living leaves of poison ivy, Rhus toxicodendron L. Orient Point. August. R. Latham.

Placodium camptidium Tuck.

Oak bark. Orient Point. November. R. Latham. Determined by L. W. Riddle.

Pleurotus tessulatus (Bull.) Fr.

Camp Monroe, Fourth lake, Herkimer co. August. F. S. Boughton.

Polyporus dryadeus (Pers.) Fr.

Base of oak trees. Near Kenwood, Albany co. August.

Puccinia urticae (Schum.) Lagerh.

On leaves of some species of Carex. West Albany. Formerly confused with Puccinia angustata Pk.

Riccardia sinuata (Dicks.) Limpr.

Damp decaying prostrate trunks of trees. Little Moose lake, Herkimer co. September. Miss C. C. Haynes.

Russula ballouii n. sp.

Plate IX, figures 1–4

Pileus thin, broadly convex, nearly plane or slightly depressed in the center, yellow when moist, grayish yellow when the moisture has escaped, the pale brick-red cuticle cracking into minute scales everywhere except in the center; lamellae thin, narrow, close, adnate or subdecurrent, pale yellow, becoming pruinose or dusted by the white spores; stem firm, equal or slightly tapering downward, the surface colored and adorned like the pileus; spores subglobose, 8–10 μ.

Pileus 2–3 cm broad; stem 2–3 cm long, 8–10 mm thick.

Woods, specially under poplar trees. Near Bullshead, Richmond co. October. W. H. Ballou.

Pileus tenuis, late convexus, subplanus vel in centro leviter depressus, humidus luteus, siccus griseo-luteus, ubique, disco excepto, squamis minutis lateritiis ornatus; lamellae tenues, angustae, confertae, adnatae vel subdecurrentes, pallidae vel pruinosae; stipes firmus, aequalis vel leviter sursum crassus, pileo similis ornatus et coloratus; sporae subglobosae, 8–10 μ.

Septoria margaritaceae n. sp.

Spots mostly large, .5–2 cm long, commonly one on a leaf, brown; perithecia epiphyllous, minute, about .25 mm wide, black; spores filiform, curved or flexuous, 40–80 x 1–2 μ, commonly attenuated toward the apex, oozing out and forming a whitish or yellowish white mass on the apex of the perithecium.

On languishing leaves of pearly everlasting, Anaphalis margaritacea (L.) B. & H. White Lake, Oneida co. August.

Usually there is a single large spot on a leaf but occasionally there are several smaller spots occupying the whole leaf.

Maculae vulgo magnae, .5–2 cm longae, vulgo solitariae, brunneae; perithecia epiphylla, minuta, circiter, .25 mm lata, atra; sporae filiformes, curvae vel flexuosae, 40–80 x 1–2 μ, vulgo ad apicem attenuatae, exudantes et globulum albidum formantes.

Silene dichotoma Ehrh.

Marietta, Onondaga co. S. N. Cowles. An introduced species.

Tricholoma latum Pk.

Plate IX, figures 5–8

Pileus fleshy, firm but flexible, broadly convex or nearly plane, moist, glabrous, white or whitish, flesh white, taste disagreeable;

lamellae plane or slightly arcuate in mass, narrow, close, rounded behind, adnexed, white or whitish, becoming dingy or tinged with reddish brown when old; stem short, nearly equal, solid or stuffed, slightly pruinose at the top, more or less white tomentose at the base, colored like the pileus; spores oblong or subfusiform, 10–12 x 3.5–4 μ.

Pileus 5–10 cm broad; stem 2.5–5 cm long, 1.5–2 cm thick. Gregarious. Woods, Vaughns. September. S. H. Burnham.

Pileus carneus, firmus, flexuosus, late convexus vel subplanus, humidus, glaber, albus albidusve, carne albus, sapor ungratus; lamellae planae vel leviter arcuatae; confertae, angustae, adnexae, albae albidaeve, in senectute sordidae; stipes brevis, subaequalis, solidus vel farctus, ad apicem subpruinosus, basi albotomentosus, pileo similis coloratus; sporae oblongae vel subfusiformes, 10–12 x 3.5–4 μ.

Tricholoma piperatum Pk.

Orient Point. November. R. Latham.

Tricholoma subpulverulentum (Pers.) Fr.

Near Rochester. October. W. E. Abbs. Only two specimens were received. The species has been regarded as edible, but it was not possible to obtain enough fairly to try its edible quality.

Urophlyctis major Schroet.

Living or languishing leaves of water plantain, Alisma plantago-aquatica L. Ithaca flats. July. B. B. Higgins. Communicated by G. F. Atkinson.

Vermicularia hysteriiformis n. sp.

Perithecia thin, oval or oblong, .4–.8 mm long, shining, black, covered by the epidermis and at length adorned with numerous subulate divergent black or brown setae; spores narrowly fusiform, acute at each end, slightly curved, hyaline, 20–30 x 3–4 μ.

Dead stems of blue cohosh, Caulophyllum thalictroides (L.) Mx. Troupsburg, Steuben co. May.

A species very distinct from all others by the shape of the perithecia which appear longer than broad through the epidermis, resembling in this respect some species of Hysterium.

Perithecia tenua, ovalia oblongave, .4–.8 mm longa, nitida, atra, primum epidermide tecta, demum setis numeris subulatis, divergen-

tibus atris vel fuscis ornata; sporae anguste fusiformes, utrinque acutae, leviter curvae, hyalinae, 20–30 x 3–4 μ.

Verrucaria muralis Ach.

Limestone rocks. Vaughns. April. S. H. Burnham.

Verrucaria papularis Fr.

Limestone rocks. Indian ladder, Helderberg mountains, Albany co. April. S. H. Burnham. Determined by G. K. Merrill.

Vicia hirsuta (L.) S. F. Gray

Richmond co. June. N. L. Britton. An introduced species.

Zygodesmus avellanus Sacc.

On wood of wild cherry. Lyndonville. April. C. E. Fairman.

REMARKS AND OBSERVATIONS

Aecidium hydnoideum B. & C.

This parasitic leaf fungus attacks living leaves of the leatherwood, Dirca palustris L. It usually forms a single large yellowish or reddish yellow spot on a leaf. A single cluster of cups commonly occupies each spot.

Agrostis borealis Hartm.

Along McIntyre brook, Adirondack mountains. July. This is an unusual form having the awn of the spikelet short and not exserted.

Boletus scaber Fr.

In this species the hymenium or mass of tubes is usually more or less depressed around the stem. In three specimens collected in Rosedale, Long Island, by F. H. Ames the tubes are adnate at first and then in drying separate from the stem carrying with them a thin layer of the external coating, thereby forming a cuplike depression about its insertion.

Boletus subaureus rubroscriptus n. var.

Pileus variously marked with red lines. Rochester. September. W. E. Abbs.

Pileus lineis rubris variis notatus.

Cladonia cristatella vestita Tuck.

Sandy soil. Orient Point. November. R. Latham.

Clavaria obtusissima minor n. var.

Plant smaller than the type, with more numerous and more slender branches and branchlets, the ultimate ones not so distinctly consolidated nor umbilicate, but obtuse or obtusely dentate.

Bolton, Warren co. September. For the description of the species see chapter on "New species of extralimital fungi."

Minor, rami ramulique numerosiores et graciliores, ultimati non distincte consolidati ne umbilicati, sed obtusi vel obtuse dentati.

Cynanchum nigrum (L.) Pers.

The black swallowwort is abundant near Rochester not far from Cobbs Hill reservoir. It usually grows in small patches of six to ten feet in diameter. The pods often divaricate in such a way as to give a somewhat stellate appearance to their arrangement.

Cytospora chrysosperma (Pers.) Fr.

Bark of glaucous willow, Salix discolor Muhl. Alder creek, Oneida co. In this form the spore tendrils assume an orange color instead of golden yellow as in the type.

Flammula spumosa unicolor n. var.

Pileus uniformly yellow; otherwise as in the type. In marshy woods. Karner, Albany co. July.

Fomitiporia prunicola Murr.

A form of this species which usually grows on trunks of wild bird cherry or pin cherry, Prunus pennsylvanica L., was found growing on a trunk of the canoe birch, Betula alba papyrifera (Marsh.) Spach, in the Adirondack mountains. The form growing on canoe birch was not distinguishable in any way from that on cherry. It might be called Fomitiporia prunicola f. betuli cola.

Habenaria fimbriata (Ait.) R. Br.

This large and fine purple-fringed orchis is remarkable for the durability of its flowers. A vase of the cut flowers has been known to remain perfectly fresh in appearance, at least ten days, with no other care than an occasional supply of fresh water. This is remarkable since its natural habitat is in wet marshy ground and often in the shade of trees. It is not rare in wooded marshes at North Elba. If a suitable habitat could be furnished it would make a fine addition to the ornamental plants of parks and gardens.

Ilex monticola Gray

Woodsworth lake, Fulton county. June. C. P. Alexander. This is an outlying station about seventy-five miles north and west of its nearest previously recorded localities, Taconic, Shawangunk and Catskill mountains, Gray's new Manual mentions Cattaraugus county also as a station for it, but this is apparently a far western outlying station.

Jeffersonia diphylla (L.) Pers.

Moist woods. Pittsford. Fine flowering specimens of this rare plant were collected April 15th and contributed by M. S. Baxter. He also contributed a fine fruiting specimen from High island, Potomac river, Maryland.

Lonicera hirsuta Eaton

This pretty, climbing shrub sometimes attains a comparatively large size. An example was observed in North Elba with the shrub approximately 2 cm in diameter and 3 or 4 m tall.

Pholiota cerasina Pk.

Specimens of this rare species were collected in Inlet, Hamilton co. and contributed by F. C. Stewart. It is peculiar in its cherry-like odor by which it is easily recognized.

Picea canadensis (Mill.) BSP.

Cambridge water works swamp, Washington co. July. F. Dobbin and S. H. Burnham. This swamp is a large one, covering an area of approximately one square mile and the stream flowing through it is fed by cold springs which probably aid in making it a suitable habitat for this northern cold-loving spruce. This is doubtless the southern limit for it in our State and an outlying station in which it has been able to maintain itself by reason of the cold character of the soil. Nevertheless the shortness of the leaves of these specimens indicate that its environment here is not favorable to its most vigorous development. Still it bears cones though not of large size.

Pleurotus ostreatus magnificus n. var.

Pileus very large, 12–30 cm broad, glabrous, often pitted toward the margin, pallid or subalutaceous; lamellae whitish, anastomosing at the base; stem 5 to 10 cm long, eccentric, strigose, variable, whitish; spores 10–14 x 4–5 μ.

On an old log near the ground. Shakers, Albany co. November. S. H. Burnham.

Pileus maximus, 12–30 cm latae, glaber, saepe margine lacunosus, pallidus subalutaceusve; stipes 5 to 10 cm longus, eccentricus, strigosus, variabilis, albidus; sporae 10–14 x 4–5 μ.

Polystichum braunii (Spenner) Fee

A new station for this rare fern has been discovered in our State by Edgar Tweedy, a lover of both plants and birds. It is in North Elba and is at present its most northern New York station known to me. It had previously been found in several places in the Catskill mountains, also near Summit, Schoharie co., and Hague,

Warren co. It is limited in quantity in the North Elba locality and it is hoped that any one finding it will be careful not to exhaust the locality.

Seligeria pusilla B. & S.

Limestone rocks. Chilson lake, Essex co. Mrs N. L. Britton. This is the second New York locality for this very rare little moss.

Senecio robbinsii Oakes

The Robbins' ragwort has become very abundant in some of the low wet meadows in North Elba and constitutes a large percentage of the hay cut from them. It is uniformly spread over the meadows and when in flower gives to them a more subdued yellow hue than the common buttercup gives to drier meadows earlier in the season.

Serapias helleborine L.

This rare and somewhat local plant occurs in many places in deep woods in Monroe county. The suggestion that it may have been introduced for medicinal purposes does not seem to be well sustained, since inquiry by a resident of the locality among some of the oldest inhabitants there failed to elicit any evidence to substantiate such a supposition. A fine, unusually heavy, fruited form of the species was found growing in dense woods along the banks of the Genesee river below Rochester by M. S. Baxter.

Trillium grandiflorum (Mx.) Salisb.

A " double flowered " form of this beautiful trillium has appeared several years near Howes Cave and is apparently permanently established. It has three whorls of petals beside the calyx lobes, but no stamens or pistils. It is needless to say that it bears no fruit, as all the essential organs of the flower are transformed into petals. It was discovered there in May by F. W. Kelley of Albany who has kindly contributed a specimen to the herbarium.

NEW SPECIES OF EXTRALIMITAL FUNGI

Asteromella asteris

Perithecia superficial, epiphyllous, densely cespitose, seated on an obscure thin brown crust, globose, about .25 mm broad, black, the tufts about 1 mm broad; spores minute, oblong or subcylindric, continuous, hyaline, 6–8 x 2–2.5 μ, sporophores minute or obsolete.

Upper surface of living or languishing leaves of the panicled aster, Aster paniculatus Lam. Louisville, Kan. October. E. Bartholomew.

Perithecia superficialia, epiphylla, dense aggregata, crusta tenue obscura brunnea insidentia, globosa, atra, caespites 1 mm lati; sporae minutae, oblongae vel subcylindraceae, continuae, hyalinae, 6–8 x 2–2.5 μ, sporophores minuti vel obsoleti.

Boletinus solidipes

Pileus fleshy, convex becoming broadly convex or nearly plane, squamose with radiately arranged closely appressed brown or purplish brown hairs, sometimes purplish brown or yellowish brown in the center, flesh whitish; tubes small, angular, radiately arranged, grayish becoming brown, adnate or decurrent; stem equal, solid, slightly annulate, yellowish below the annulus, grayish above, often stained with darker spots or marks, white or yellowish within, veil grayish, adhering partly to the margin of the pileus, partly to the stem; spore print ochraceous, spores 8–10 x 4–5 μ.

Pileus 5 to 10 cm broad; stem 5–8 cm long, 8–10 mm thick. Friendship, Me. August. G. E. Morris.

This species resembles in some respects Boletinus cavipes Opat. but it is somewhat darker in color and differs specially in its solid stem.

Pileus carnosus, convexus, demum late convexus vel subplanus, pilis purpureo-brunneus radiantibus appressis squamosus, interdum in centro lutescente brunneus, carne albido; tubuli parvi, angulares, radiantes, adnati vel decurrentes, grisei, deinde brunnei; stipes aequalis, solidus, leviter annulatus, infra annulum luteolus, supra annulum griseus, saepe maculis brunneis inquinatus, intra albidus, velo griseo, margini partim pilei et partim stipiti adherente; sporae subochraceae, oblongae, 8–10 x 4–5 μ.

Clavaria obtusissima

Much branching from a short thick whitish stem, the branches curving, dividing irregularly, enlarged above and divided into several blunt, wrinkled ends, longitudinally wrinkled, ochraceous, flesh white, taste mild; spores ochraceous in mass, oblong or subcylindric, 12–16 x 5–6 μ.

Plant 10–12 cm tall, 6–10 cm broad.

Woods of deciduous trees. West Roxbury, Mass. September. Miss Ann Hibbard.

Stipes crassus, brevis, ramosissimus, ramosi ramulosique curvati, supra sulcati et incrassata, ochracei, caro albus, sapor mitis; sporae ochroceae, oblongae vel subcylindraceae, 12–16 x 5–6 μ.

Clavaria subcaespitosa

Forming dense tufts 7.5–12.5 cm tall, fragile, white or whitish, the stems united at the base, three to five times dichotomously divided, the terminal branchlets obtuse or subacute, both stems and branches solid, soft, becoming thinner and flattened or angular in drying, flesh white, taste mild; spores broadly ellipsoid or subglobose, 4–5 x 3–4 μ.

Ground. Ellis, Mass. September. Mrs E. B. Blackford and G. E. Morris. Communicated by Miss Ann Hibbard.

This species may be separated from Clavaria densa Pk. by its greater fragility, whiter color, softer texture and smaller spores. In the dried specimens the stems and branches are much more slender and of a purer white color than in C. densa.

Stipes brevis, crassus, dichotome ramosissimus, caespites densus 7.5–12.5 cm longos fragiles formans; rami ramulique obtusi vel subacuti, solidi, molles, in siccitate tenuiores et deplanati vel angulares, carno albo, sapore mite; sporae late ellipsoideae vel subglobosae, 4–5 x 3–4 μ.

Clitopilus leptonia

Pileus thin, conic or convex, umbilicate, hygrophanous, squamulose in and near the broad umbilicus, chestnut color and striatulate on the margin when moist, black in the umbilicus; lamellae broad, broadly simuate adnate or decurrent, distant, white becoming pink, sometimes transversely venose; stem slender, equal or slightly narrowed upward, fibrillose, straight, stuffed or hollow, brown becoming darker with age, with a copious white myceliod tomentum at the base; spores subglobose, angular, uninucleate, 10–12 x 8–10 μ.

Pileus 2.5–3.5 cm broad; stem 5–8 cm long, 1–3 mm thick.

Gregarious. Low ground under trees. Stow, Mass. September. S. Davis.

This slender species closely approaches some species of Leptonia in general appearance. This character has suggested the specific name. The more or less decurrent lamellae throw the species into the genus Clitopilus. It differs from Clitopilus vilis Fr. by the color of the pileus and by its larger spores, and from C. subvilis Pk. by the color of the pileus and its squamulose center. In the dried state the pileus and stem are black and the margin of the pileus is sulcate striate.

Pileus tenuis, conicus vel convexus, umbilicatus hygrophanus, centro umbilicoque squamulosus alibi glaber, udus, castaneus, margine striatulatus, in umbilico ater; lamellae latae, late adnatae vel decurrentes, distantes, albae, demum incarnatae, interdum transverse venosae; stipes gracilis, aequalis, vel leviter seorsum attenuatus, fibrillosus, rectus farctus cavusve, brunneus, basi abundante albo tomentoso; sporae subglobosae, angulares, uninucleatae, 10–12 x 8–10 μ.

Pileus 2.5–3.5 cm latus; stipes 5–8 cm longus; 1–3 mm crassus.

Coryneum effusum

Forming thinly effused indefinite black patches on wood, mycelium subhyaline, sporophores slender, often flexuous and tapering downward, subhyaline, 12–30 μ long; spores oblong or subfusiform, straight or slightly curved 2-septate when mature, the central cell black, the terminal cells subhyaline, one or both finally subtruncate, 20–28 x 10–12 μ, the central cell 10–12 μ long.

Wood of western cottonwood, Populus occidentalis Rydb. Stockton, Kan. March. E. Bartholomew.

Differs from typical species of Coryneum in forming no definite acervuli or subcutaneous erumpent heaps but in developing in effused patches on decorticated wood.

Coryneum tenuiter effusum, in ligni superficiei areas atras indefinitas formans; sporae oblongae vel subfusiformae, rectae vel leviter curvae, in maturitate biseptatae, loculo centrale atro, terminalibus subhyalinis, saepe truncates, 20–28 x 10–12 μ, loculus centralis 10–12 μ longus.

Diatrype tumidella

Stroma orbicular, plane or convex, 1–2 mm broad, surrounded by a black line which penetrates to the wood, erumpent and

surrounded by the ruptured fragments of the epidermis, the surface at first pallid or brownish and dotted by the black sulcate ostiola, becoming blackish with age, whitish within; perithecia monostichous, black within, 4–12 in a stroma; asci subclavate or cylindric, the sporiferous part 35–50 x 8–10 μ; spores crowded or subbiseriate, straight or slightly curved, obtuse at each end, fuscous, 10–20 x 4–5 μ.

Dead branches of pin cherry, Prunus pennsylvanica L. Ste. Anne de Bellevue. Quebec, Canada. W. P. Fraser.

Closely related to Diatrype tumida E. & E., from which it differs in its smaller stroma, its broader asci and specially in its broader and darker spores.

Stroma orbiculare, disciforme vel convexum, 1–2 mm latum linea atra ad lignum penetrante cinctum, epidermidis ruptae fragmentis cinctum primum pallide brunneum, demum nigrum, ostiolis sulcatis punctatum intra albidum; perithecia monosticha, intra atra, in stromate 4–12; asci subclavati vel cylindracei, 35–50 x 8–10 μ; sporae confertae vel subbiseriatae, rectae vel leviter curvae, putrinque obtusae, fuscae, 10–20 x 4–5 μ.

Eccilia regularis

Pileus thin, submembranaceous, convex, finely striate to the center, distinctly umbilicate, bright buff or pinkish buff, sometimes with an orange spot in the center when moist, becoming silky in drying; lamellae close, arcuate, decurrent, soon pink; stem colored like or a little paler than the pileus; spores angular, uninucleate, 8–10 x 7–8 μ.

Pileus 2–3 cm broad; stem 4–6 cm long, 2–3 mm thick.

Ground in woods. Friendship, Me. August. G. E. Morris.

This is a small but beautiful and very regular or symmetrical species. It is nearly uniformly colored throughout, being a yellowish or pinkish buff. The dried specimens are tawny ochraceous. Under a lens they appear to have the pileus minutely striate.

Pileus tenuis, submembranaceous, convexus, minute striatus, umbilicatus, late luteolus vel incarnate luteolus, interdum udus in centro aurantiacus, siccus sericeus; lamellae confertae, arcuatae, decurrentes, mox incarnatae; stipes gracilis, aequalis, farctus, rectus, glaber, pileo in colore similis vel pallidior; sporae angulares, uninucleatae, 8–10 x 7–8 μ.

Pileus 2–3 cm latus; stipes 4–6 cm longus, 2–3 mm crassus.

Entoloma fumosonigrum

Pileus fleshy, thin, convex or nearly plane, involute on the margin, dry, subglabrous, smoky black, flesh white, taste disagreeable; lamellae moderately close, sinuate adnate, eroded on the edge, at first white, then pale pink; stem slender, equal or slightly tapering upward, stuffed, glabrous or fibrillose, pruinose at the top, colored like or a little paler than the pileus, with a white mycelioid tomentum at the base, sometimes wholly white; spores subglobose, slightly angular, uninucleate, often with an oblique apiculus at one end, 8–10 μ long.

Pileus 2–5 cm broad; stem 4–5 cm long, 2–4 mm thick.

Under trees in swamps. Stow, Mass. September. S. Davis.

Apparently related to Entoloma melaniceps C. & M. from which it is separated by its stuffed stem and smaller spores. From E. fuliginarium Karst. by the even margin of the pileus and the paler color of the lamellae.

Pileus carnosus, tenuis, convexus vel subplanus, margine involutus, siccus, subglaber, fumoso niger, carne alba, sapore ingrato; lamellae subconfertae, sinuatae, adnatae, acie erosae, primum albae, demum pallide incarnatae; stipes gracilis, aequalis vel leviter sursum attenuatus farctus, glaber vel leviter fibrillosus, ad apicem pruinosus, pileo in colore similis vel pallidior basi tomento albo ornatus, interdum omnino albidus; sporae subglobosae, leviter angulares uninucleatae, saepe oblique apiculatae, 8–10 μ longae.

Pileus 2–5 cm latus; stipes 4–5 cm longus, 2–4 mm crassus.

Flammula brunneodisca

Pileus fleshy, thin, broadly convex or nearly plane, umbonate, slightly viscid with a separable pellicle, slightly innately fibrillose, ochraceous yellow with a brown center, flesh white; lamellae thin, close, adnate with a decurrent tooth, pale yellow becoming rusty brown; stem slender, equal, solid, glabrous, pale yellow without and within, paler at the top; spores ellipsoid, 6–8 x 4–5 μ.

Pileus 2.5–6 cm broad; stem 2–3 cm long, 4–6 mm thick.

Cespitose. "On ground at the edge of a stone but probably growing from a buried root." Waltham, Mass. October. G. E. Morris.

Pileus carnosus, tenuis, late convexus vel subplanus, umbonatus, leviter viscidus, obscure et innate fibrillosus, pallide ochrace-

o-luteus, in centro brunneus, carne alba; lamellae tenues, confertae, adnatae, dente decurrentes, pallide luteae ferrugineo-brunnescentes; stipes aequalis, gracilis, solidus, glaber, pallide luteus, ad apicem pallidior; sporae ellipsoideae, 6–8 x 4–5 μ.

Pileus 2.5–6 cm latus; stipes 2–3 cm longus, 4–6 mm crassus.

Flammula sphagnicola

Pileus fleshy, thin, convex or nearly plane, obtuse or umbonate, viscid, glabrous, yellowish with reddish or reddish brown often spotted center, flesh white; lamellae thin, narrow, close, adnate or with a decurrent tooth, whitish becoming cinnamon color; stem slender, equal or slightly enlarged at the base, hollow, whitish, slightly white fibrillose at the top, with a white tomentum at the base; spores ellipsoid, uninucleate, 8–10 x 4–6 μ.

Pileus 1–2.5 cm broad; stem 2.5–3.5 cm long, 1–3 mm thick.

Among sphagnum in swamps. Amesbury, Mass. September. G. E. Morris.

Pileus carneus, tenuis vel subplanus, obtusus vel umbonatus, viscidus, glaber, lutescens rufescens vel rufo-brunneus, in centro saepe maculatus, carno albo; lamellae tenues, angustae, confertae, adnatae, interdum dente decurrentes, albidae demum cinnamomeae; stipes gracilis aequalis vel basi crassus, cavus, albidus, ad apicem leviter fibrillosus, basi tomento albo; sporae ellipsoideae, uninucleatae, 8–10 x 4–6 μ.

Pileus 1–2.5 cm latus; stipes 2.5–3.5 cm longus, 1–3 mm crassus.

Hysteriographium acerinum

Perithecia subsuperficial, subseriate broadly elliptic or oblong, even, black, 1–3 mm long, .5–1 mm broad; asci subcylindric, 120–170 μ long; spores crowded, oblong or subfusiform, 7–10-septate, muriform, 35–50 x 12–16 μ.

Decorticated wood of Rocky mountain maple, Acer glabrum Torr. Boulder, Col. August. E. Bartholomew.

Perithecia superficialia, subseriatim disposita, late ellipsoidea vel oblonga, levia, atra, 1–3 mm longa, .5–1 mm lata; asci subcylindracei, 120–170 μ longi; sporae confertae, oblongae vel subfusiformes, 7–10-septatae, muriformes, 35–50 x 12–16 μ.

Inocybe castaneoides

Pileus thin, conic or convex becoming nearly plane, broadly umbonate, fibrillose, squamulose on the umbo, striatulate on the

margin, rimulose, chestnut color when young, becoming reddish brown; lamellae thin, close, sinuate, adnexed, whitish becoming ferruginous, whitish on the edge; stem brittle, flexuous, fibrillose, solid or stuffed, white becoming reddish brown, a slight white veil is sometimes seen in the very young plant; spores 8–10 x 6–8 μ, cystidia rare, 40–50 x 15–20 μ.

Pileus 1.5–2.5 cm broad; stem 2–4 cm long, 1–2 mm thick.

Gregarious. Roadsides under grass and ferns. Stow, Mass. September. S. Davis.

This species belongs to the section Rimosi. It is allied to Inocybe castanea Pk. from which it differs in its squamulose umbo, sinuately adnexed lamellae, its stem white when young, the presence of an evanescent veil, its more distinctly nodulose spores and its broader, shorter cystidia.

Pileus tenuis, conicus vel convexus, deinde subplanus late umbonatus, fibrillosus, in umbone squamulosus, in margine striatulatus, in juventate castaneus, demum fuscus; lamellae tenues, confertae, sinuatae, adnexae, albidae, deinde ferrugineae, acie albidae; stipes fragilis, flexuosus, fibrillosus, farctus vel solidus, albus demum fuscus, velo albo evanescente; sporae subglobosae, irregulare nodolosae, uninucleatae, 8–10 x 6–8 μ, cystidia sparsa, 40–50 x 15–20 μ.

Lophiostoma sieversiae

Perithecia minute, about .25 mm broad, erumpent, black; asci oblong, 150–280 x 50–70 μ, usually 8-spored; spores oblong or subfusiform, 3-septate, at first involved in mucus, 50–75 x 20–25 μ.

Dead stems of Sieversia turbinata (Rydb.) Greene. Big Cottonwood canyon, Utah. July. A. O. Garrett.

Perithecia minuta, .25 mm lata, erumpentia, atra; asci oblongi, 150–280 x 50–70 μ, vulgo 8-sporis; sporae oblongae vel subfusiformes, 3-septatae, primum in muco involutae, 50–75 x 20–25 μ.

Marasmius trullisatipes

Pileus thin, campanulate or convex, acutely umbonate, glabrous, isabelline or subrufescent; lamellae thin, subclose, broad anteriorly, adnate, whitish tinged with pink; stem tough, solid, white within, pruinose above, tomentose below, externally cartilaginous; spores 6 x 4 μ.

Pileus 1.2–2 cm broad; stem 3–5 cm long, 2–3 mm thick.

Ground. Near Minneapolis, Minn. May. Mrs M. S. Whetstone. Also Cedar Point, Ohio. July. C. K. Brain.

The umbo in the dried specimens sometimes appears blackish. The tomentum of the lower part of the stem binds together particles of earth and causes the stem to appear thickened at the base or deeply rooted in the ground.

Pileus tenuis, campanulatus vel convexus, acute umbonatus, glaber, isabellinus vel subrufescens; lamellae tenues, subconfertae, anteriore latae, adnatae, incarnato-albidae; stipes tenax, solidus, intus albus, ad apicem pruinosus, basi tomentosus, extus cartilaginous; sporae 6 x 4 μ.

Pileus 1.2–3 cm latus; stipes 3–5 cm longus, 2–3 mm crassus.

Monilia sidalceae

Widely effused on the lower surface of the leaf, tufts at first white, then brownish; hyphae very short; spores oblong elliptic or globose, hyaline, 16–20 x 12–14 μ or 12–14 μ broad.

Living leaves of Sidalcea nervata A. Nels. Red Butte canyon, Utah. July. A. O. Garrett.

Caespites late effusi, hypophylli, albi, brunnescentes; hyphae brevissimae; sporae oblongae ellipsoideae vel globosae, hyalinae, 16–20 x 12–14 μ vel 12–14 μ latae.

Nolanea multiformis

Pileus fleshy, thin, convex nearly plane or centrally depressed, fragile, glabrous or slightly fibrillose, brown or blackish brown, striatulate on the margin which becomes wavy split or irregular when old; lamellae thin, subdistant, broad, adnate, white becoming pink; stem equal, fragile, flexuous, glabrous or fibrillose, solid or hollow, white or brown; spores subglobose, angular, uninucleate, 10–12 x 8–10 μ.

Pileus 1–3 cm broad; stem 1–2 cm long, 1–2 mm thick.

Gregarious. Grassy ground. Brookline, Mass. September. S. Davis.

This species is apparently allied to Nolanea aethiops Fr. from which it may be separated by the striatulate margin of the pileus, the absence of black dots or points from the top of the stem and by its more globose spores. In the dried specimens the pileus is often plicate. When fresh the stem is sometimes white both at the top and bottom but brown in the middle.

Pileus carnosus, tenuis, convexus subplanus vel in centro depressus, fragilis, glaber vel leviter fibrillosus, brunneus vel nigresco-brunneus, in margine striatulatus, demum undatus rimosus vel irregularis; lamellae tenues, subdistantes, latae, adnatae, albae incarnatescentes; stipes aequalis, fragilis, flexuosus, glaber vel fibrillosus, solidus vel cavus, albus brunneusve; sporae subglobosae, angulares, uninucleatae, 10–12 x 8–10 μ.

Pileus 1–3 cm latus; stipes 1–2 cm longus, 1–2 mm crassus.

Polycephalum subaurantiacum

Stem slender, 1–3 mm long, slightly attenuated upward, thickened or bulbous at the base, clothed with ascending mostly whitish hairs, simple or slightly branched above, composed of united hyphae, orange colored below, white above, the fertile ones bearing 1–4 globose or subglobose minute whitish heads of spores; spores ellipsoid or subglobose, hyaline, 4–6 x 3–4 μ.

Gregarious on branchlets of avocado or alligator pear, Persea gratissima Gaertn. f. Cuba. September. Communicated by M. T. Cook.

Sometimes two or three stems start from the same hairy bulb. The species is apparently closely related to Polycephalum aurantiacum K. & C. and may be a variety of it but from which it may be separated because of its slender generally tapering or subulate stem which is white above and because of its larger spores. The hairs of the bulb are usually concolorous with it, those of the stem are white or whitish. They are apparently the diverging tips of some of the component hyphae of the stem.

Stipes gracilis, 1–3 mm longus, sursum leviter attenuatus, basi crassus vel bulbosus, vulgo pilis ascendentibus albidis hirtus, simplex vel leviter supra ramosus, hyphis coalitis compositus, infra aurantiacus, supra albus, fertilibus sporarum capita 1–4 minuta globosa vel subglobosa albida producentibus; sporae ellipsoideae vel subglobosae, 4–6 x 3–4 μ.

Psilocybe cystidiosa

Pileus thin, convex or subconic, glabrous, hygrophanous, pale brown when moist, yellowish drab with a brownish center and sometimes obscurely striate on the margin when dry, sometimes becoming lacerated when expanded, flesh white, taste nutty; lamellae thin, close, adnate, whitish becoming purplish brown,

stem equal or slightly tapering upward, hollow, pruinose at the top, white, often with a subglobose mass of earth adhering to the base; spores purplish brown, ellipsoid, 8–10 x 5–6 μ, cystidia 60–80 x 12–20 μ.

Pileus 2–4 cm broad; stem 4–5 cm long, 2–4 mm thick.

Solitary or clustered. Minneapolis, Minn. August. Mrs M. S. Whetstone.

Pileus tenuis, convexus vel subconicus, glaber, hygrophanous, pallide brunneus humidus, luteolus siccus, mox in centro brunneus et obscure in margine striatus, mox expansus laceratescens, carne alba, sapore nucino; lamellae tenues, confertae, adnatae, albidae, purpureo-brunnescentes; stipes aequalis vel leviter deorsum attenuatus cavus, ad apicem pruinosus, albus, basi conglobatus; sporae purpuroe-brunneae, ellipsoidae, 8–10 x 5–6 μ, cystidia 60–80 x 12–20 μ.

Pileus 2–4 cm latus; stipes 4–5 cm longus, 2–4 mm crassus.

Psilocybe graveolens

Cespitose, strongly odorous; pileus hemispheric or convex, glabrous, varying in color from creamy white to subalutaceous, flesh pallid; lamellae close, subventricose, rounded behind, adnexed, brown when mature; stem equal, silky fibrillose, stuffed or hollow, white; spores subelliptic, 8–10 x 5–6 μ.

Hackensack marshes, New Jersey. November. W. H. Ballou.

This species is remarkable for its strong, persistent odor.

Plantae caespitosae, graveolentes; pileus hemisphaericus vel conconvexus, glaber, cremeo subalutaceus, carne pallido; lamellae confertae, subventricosae, adnexae, in maturitate brunneae; stipes aequalis, sericeo-fibrillosus, confertus vel cavus, albus; sporae subellipticae, 8–10 x 5–6 μ.

Ramularia anomala

Tufts forming indefinite whitish patches on the lower surface of the leaves with no discolored spot and scarcely visible to the naked eye; hyphae very minute, densely crowded about 20 μ long; spores oblong or cylindric, continuous, hyaline, subacute, 12–20 x 3–4 μ.

Living leaves of climbing false buckwheat, Polygonum scandens L. Red Cloud, Neb. J. M. Bates. Communicated by E. Bartholomew.

Unlike most species of Ramularia, this has no discolored spots on the leaves of the host plant.

Caespites areas indefinitas albidas obscuras in superficiei foliorum inferiore formantes, macula nulla discolorata, fungoque oculo inermi vix visible; hyphae minutissimae dense confertae circiter 20 μ longae; sporae oblongae vel cylindraceae, continueae, hyalinae utrinque, subacutae, 12–20 x 3–4 μ.

Septoria polemonioides

Spots suborbicular, brown or brown with a whitish center, perithecia epiphyllous, black; spores slender, straight or curved, pointed at each end, continuous, hyaline, 30–60 x 1–1.5 μ.

Living or languishing leaves of some species of Polemonum. Utah. A. O. Garrett.

This species differs from Septoria polemonii Thuem, in its longer continuous and sharp pointed spores and in the color of the spots.

Maculae suborbiculares, brunneae, interdum centro albidae; perithecia epiphylla, atra; sporae graciles, rectae vel curvae, utrinque acutae, continuae, hyalinae, 30–60 x 11.5 μ.

Sphaerella saccharoides

Spots definite, oblong, .5–1 cm long, brownish on the margin; perithecia epiphyllous, minute, black; asci subcylindric, 70–80 x 12–14 μ; spores biseriate, oblong or subfusiform, constricted at the septum, each cell binucleate, hyaline, 25–30 x 5–6 μ.

Leaves of sugar cane, Saccharum officinarum L. Cuba. T. E. Thurston. Communicated by L. R. Hesler.

This species appears to be closely related to Sphaerella sacchari Speg. from which according to the description it differs in its definite whitish spots, in the longer asci and spores and in the latter being quadri-nucleate.

Maculae definitae, oblongae, .5–1 cm longae, margine brunescetes; perithecia epiphyllae, minutae, nigrae; asci subcylindracei, 70–80 x 12–14 μ; sporae in asco biseriatae, oblongae vel subfusiformes, ad septum constrictae, quadri-nucleatae, hyalinae, 25–30 x 5–6 μ.

Sporotrichum atropurpureum

Hyphae widely effused, forming a soft tomentose covering on the matrix, at first white, gradually becoming red, dark purple or violaceous, sparsely and irregularly branched, septate, often

granular within, 2–5 μ broad, sterile branches or mycelium gradually or sometimes abruptly tapering to a long slender point, the fertile often fasciculately combined; spores oblong or subcylindric, frequently narrowed toward one end, very variable, 6–16 x 2–4 μ.

On kernels of Indian corn, Zea mays L. Lexington, Ky. H. Garman.

This is a remarkable species by reason of the peculiar color of the mature fungus.

Mycelium late effusum; hyphae in matrice stratum molle tomentosum formantes, primum album, deinde rubrum vel atropurpureum, ramulis paucis irregularibusque, 2–5 μ latis, saepe intra granularibus, septatis, sterilibus praelonge attenuatis, fertilibus in maturitate frequenter et fasciatim combinatis; sporae oblongae vel subcylindaceae, saepe infra attenuatae, variabiles, 6–16 x 2–4 μ.

Stropharia umbilicata

Pileus fleshy, convex, deeply umbilicate, shining, squamose with scattered appressed brownish scales, umber brown, tinged with olive green when dry, the margin sometimes adorned with fragments of the veil, flesh yellowish; lamellae close, adnexed or almost free, sinuate, 2–3 mm broad, becoming sooty brown with a white edge; stem subequal, slightly broader at the top, stuffed or hollow, fibrillosely scaly, whitish above, rusty brown below, annulus superior, membranaceous; spores ellipsoid, 7–8 x 4–5 μ.

Pileus 4–5 cm broad; stem 2.5–4 cm long, 4–6 mm thick.

Cespitose. Chips and sawdust. Minnesota. September. Doctor Munger. Communicated by Mrs M. S. Whetstone.

Pileus carnosus, convexus, profunde umbilicatus, nitidus, squamulis sparsis appressis, brunneis ornatus, umbrinus, demum olivaceo-viride tinctus, interdum margine fragmentis veli triangularibus ornatus, carne lutescente; lamellae confertae, adnexae vel subliberae, sinuatae, 2–4 mm latae, demum fuliginosae, acie albidae; stipes subaequalis, farctus vel cavus, fibrilloso-squamulosus, supra albidus, infra ferrugineo-brunneus, annulo superiore, membranaceo; sporae ellipsoideae, 7–8 x 4–5 μ.

Pileus 4–5 cm latus; stem 2.5–4 cm longus, 4–6 mm crassus.

Volvaria perplexa

Pileus thin, convex or nearly plane, umbonate, slightly depressed around the umbo, dry, adorned with minute erect hairy

squamules, fimbriate on the even margin, white; lamellae close, free, about 2 mm broad in the widest part, pale pink; stem long, slender, glabrous, shining, solid or stuffed, slightly pruinose at the top, thickened at the base, white, brownish where bruised, volva closely sheathing, elongated; spores ellipsoid, 6–8 x 4–5 μ.

Pileus 12–20 mm broad; stem 5–7 cm long, 2–3 mm thick.

Solitary. Among fallen leaves in woods. Minnesota. November. Mrs M. S. Whetstone.

This species seems to be closely allied to Volvaria parvula Weinm. from which it is separated by its squamulose pileus with fimbriate margin, its much longer stuffed or solid stem and longer sheathing volva, its larger spores and by the absence of cystidia.

Pileus tenuis, convexus vel subplanus, umbonatus, circa umbonem leviter depressus, siccus, squamulis erectis hirtis minutis ornatus, margine leve fimbriatus, albus; lamellae confertae, liberae, circiter 2 mm latae, pallide incarnatae; stipes longus, gracilis, nitidus, glaber, solidus vel farctus, ad apicem leviter pruinosus, basi crassus, albus, ubi contusus brunnescens, volva elongata vaginata; sporae ellipsoideae 6–8 x 4–5 μ.

Pileus 12–20 mm latus; stem 5–7 cm longus, 2–3 mm crassus.

EDIBLE FUNGI

Amanita ovoidea Bull.

OVOID AMANITA

Plate 131

Pileus fleshy, hemispheric or expanded, glabrous, inflexed on the margin, pure white, flesh white, taste insipid; lamellae rather broad, subclose, ventricose, free or nearly so, white; stem equal or tapering upward, squamulose farinaceous, solid, firm, white without and within, bulbous at the base, annulate above; spores globose or subglobose, 10–12 x 9–11 μ or about 10 μ broad.

The ovoid amanita is a large, attractive and noble looking species. It is pure white throughout with the exception of the volva that envelops the bulbous base of the stem. This is slightly tinged with pink. The cap may range from 4 to 8 inches broad, the stem from 4 to 6 inches long and 6 to 12 lines thick. The cap is very smooth, almost glossy, and white as snow. The flesh also is white but its taste is insipid, and in cooking it is necessary to season it well with butter and salt to make it satisfactorily palatable. The stem is firm, solid, more or less mealy externally and pure white. The species is very rare having not before been found in our State so far as I know. In Sylloge, volume V, page 9, Professor Saccardo remarks that he has never seen its spores nor has anyone else so far as he knows. This remark no longer holds good. The New York specimens yielded spores. Since the species is cogeneric with some of our most poisonous species of mushrooms, we advise no one to try its edibility unless perfectly sure of its identity.

Tricholoma chrysenteroides Pk.

GOLDEN-FLESH TRICHOLOMA

Plate 132

Pileus fleshy, convex or nearly plane, glabrous, or slightly silky, firm, pale yellow or at length rufescent, the margin sometimes reflexed, flesh pale yellow, taste and odor farinaceous; lamellae close, adnexed, often with venose interspaces, yellowish, sometimes becoming dingy with age; stem equal, firm, glabrous, solid or stuffed, rarely hollow, yellowish without and within; spores ellipsoid, 8–10 x 5–6 μ.

The golden-flesh tricholoma is easily known by its pale yellow color and its farinaceous odor and taste. It is similar in color to Tricholoma sulphureum Bull. Its cap is one to two or sometimes two and a half inches broad, convex or nearly flat above or occasionally with the margin curved upward. It is smooth or slightly silky and its flesh is colored like the cap. Indeed the plant is nearly uniform in color throughout, except in old specimens in which the upper surface of the cap becomes reddish. The lamellae are rather close, adnexed, usually veiny in the interspaces and are apt to become dingy with age. The stem is equal in diameter throughout, firm, smooth or somewhat silky fibrillose, solid or rarely stuffed or slightly hollow when large or old and colored like the pileus. It was found growing under poplar trees among fallen leaves at Vaughns in September. When cooked it has an agreeable flavor but old specimens are liable to be somewhat tough, though still very palatable.

POISONOUS FUNGI

Mycena splendidipes Pk.

POISON MYCENA

Plate X

Pileus at first ellipsoid, even, the upper half brown, the lower half yellow, at length hemispheric or convex, submembranous, widely striate on the margin, glabrous, greenish gray; lamellae ascending, subdistant, white; stem slender, hollow, glabrous, bright shining lemon yellow; spores broadly ellipsoid or subglobose, 6–8 x 4–6 μ.

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

Woods. Among fallen pine leaves. Richmond co. November. W. H. Ballou.

This is a beautiful little Mycena, very attractive in appearance by reason of its bright shining yellow stems and very interesting on account of the great change in appearance caused by its transformation from the young to the mature state. This is best expressed by the figures given in the plate. It is a veritable little siren. Its discoverer, venturing to eat a single sample of it was made sick by the experiment, and has furnished a warning to all future generations against its dangerous qualities.

CRATAEGUS IN NEW YORK

So much has been learned of the characters and distribution of the different species of Crataegus in New York during the last three or four years through the collections and observations of a number of students of these plants that it now seems desirable to join in a brief summary this information with that contained in the various publications on the subject which have appeared in the last ten years.

In western New York Crataegus has been more systematically and carefully collected and studied than in any other part of North America, but there is still much field work to be done before the species of the eastern, southern and central parts of the State are equally well known, and it is hoped that the publication of this synopsis of the work already accomplished may lead to further investigations and collections.

C. S. SARGENT

Arnold Arboretum
Jamaica Plain, Mass.
December 1912

KEY TO THE SPECIES

Synopsis of the groups

A Nutlets without ventral cavities..... (Groups Crus-galli-Anomalae)

B Nutlets with longitudinal cavities on their ventral faces..... (Group Tomentosae)

Crus-galli

Leaves subcoriaceous to coriaceous, obovate to oblong-obovate, usually rounded, or acute or acuminate at the apex, mostly serrate only above the middle, without lobes except on vigorous shoots, their veins thin and sometimes within the parenchyma, petioles short, usually eglandular; flowers in many-flowered corymbs; fruit subglobose to short-oblong, flesh thin, usually green.

* Veins of the leaves within the parenchyma; stamens 10
Anthers rose color .....C. crus-galli
Anthers white .....C. arduennae

** Veins of the leaves prominent
†Glabrous with the exception of occasional hairs on the young leaves; anthers pale pink

Stamens 9–10.....C. geneseensis
Stamens 10–20
Flowers at least 1.8 cm in diameter, in broad many-flowered corymbs; leaves broadly ovate; fruit crimson, spines stout.....C. robusta
Flowers not more than 1.2 cm in diameter, in few-flowered corymbs; leaves narrowly obovate; fruit bright cherry red; spines slender..C. cerasina
†† Corymbs more or less villose
Mature leaves glabrate; corymbs slightly villose; stamens 10–20, anthers dark rose color; fruit short-oblong to subglobose.....C. persimilis
Mature leaves pubescent below; corymbs densely villose; stamens 10–14, anthers white sometimes faintly tinged with pink; fruit short-oblong to obovoid.....
C. helderbergensis

Punctatae

Leaves thin, mostly acute or acuminate, usually more or less lobed above the middle, their veins prominent, petioles short; flowers in many-flowered corymbs; anthers rose color or pink (pale yellow in one variety of no. 1); fruit subglobose to ellipsoidal or obovoid, usually more or less flattened at the ends, punctate, flesh dry and mealy, nutlets 2–5, prominently ridged on the back.

* Stamens 20
Leaves more or less villose at maturity; anthers rose color, or yellow (in var. aurea); leaves obovate, often acutely lobed above the middle on vigorous shoots; fruit flattened at the ends, marked by large dots, dull red, or yellow (in var. aurea).....C. punctata
Leaves glabrous at maturity
† Anthers dark rose color
Pedicels stout, villose; calyx thickly coated with white hairs; fruit subglobose, crimson, lustrous
C. celsa
Pedicels slender, glabrous; calyx glabrous; fruit short-oblong to slightly obovoid
Flowers not more than 1.2 cm in diameter; fruit orange-red, lustrous; leaves cuneate at the base
C. notabilis

Flowers at least 2.5 cm in diameter; fruit dark crimson, pruinose; leaves cuneate or broad and rounded at the base.....C. eastmaniana

†† Anthers pink; corymbs glabrous

Flowers 1.8–2 cm in diameter; leaves ovate, oval or orbicular; fruit short-oblong, crimson, pruinose.... C. dewingii

Flowers not more than 1.5 cm in diameter; fruit not pruinose

Leaves ovate or obovate; fruit short-oblong to depressed-globose, bright cherry-red..... C. eatoniana

Leaves oblong-obovate; fruit oblong-obovoid, scarlet.....C. barbara

** Stamens 15–20, anthers rose color; leaves oblong-obovate to oval, rounded or acute at the apex; corymbs slightly villose; fruit short-oblong to slightly obovoid, dull brick-red .....C. pausiaca

*** Stamens 10; anthers rose color or pink corymbs slightly villose

Leaves rhombic or obovate, acuminate and long-pointed, glabrous; fruit short-oblong..... C. desueta

Leaves obovate to ovate, acute, villose while young; anthers pink; fruit subglobose to slightly obovoid.. C. brownietta

Pruinosae

Leaves thick, usually broad at the base, smooth or scabrate above; petioles long and slender; flowers in glabrous or hairy corymbs; stamens usually 10 or 20, anthers rose color, pink or white; fruit subglobose, often broader than high, short-oblong or obovoid, sometimes angled, green or red, generally pruinose, ripening late, flesh dry and hard, the mature calyx prominent, raised on a tube; nutlets 3–5.

*Stamens 20

† Mature leaves smooth and glabrous on the upper surface

‡ Fruit on slender drooping pedicels

Anthers rose color, red or maroon

Tube of the calyx of the fruit elongated; anthers dark rose color; leaves blue-green; fruit pruinose

Leaves elliptical; fruit subglobose, becoming dark red and very lustrous when fully ripe..... C. pruinosa

Leaves oblong-ovate; fruit obovoid, crimson.... C. oblita

Tube of the calyx of the fruit short

Upper surface of the young leaves glabrous

Fruit obovoid, slightly pruinose

Fruit conspicuously mammillate below the middle; leaves ovate to rhombic; anthers rose color.....C. arcana

Fruit not mammillate; leaves rhombic; anthers maroon.....C. obstipa

Fruit short-oblong to slightly obovoid, densely pruinose; leaves oblong-ovate; anthers maroon .....C. beata

Upper surface of the young leaves covered with soft hairs

Leaves broadly ovate; anthers red; flowers 2.5 cm in diameter in 10–15-flowered corymbs; fruit short-oblong; cavity of the calyx pointed in the bottom.....C. pallescens

Leaves ovate; anthers rose color; flowers not more than 2 cm in diameter, in 5- or 6-flowered corymbs; fruit subglobose to obovoid; cavity of the calyx wide in the bottom..... C. pelacris

Anthers pink

Tube of the calyx of the fruit elongated; fruit pruinose

Leaves ovate; anthers creamy white, slightly tinged with pink; fruit subglobose to short-oblong, dark red.....C. amoena

Leaves ovate to oval, long-pointed; fruit subglobose, slightly 5-angled, bright red..... C. aristata

Leaves ovate; fruit broad-obovoid to short-oblong, green with a purple cheek..... C. prominens

Tube of the calyx of the fruit short; fruit pruinose

Leaves ovate

Fruit depressed-globose, green tinged with red or orange color.....C. gracilis
Fruit globose to depressed-globose, angular, becoming scarlet and lustrous.C. howeana
Fruit short-oblong, vermillion..C. latiflora
Fruit short-oblong to subglobose, often broader than high, dark red; anthers faintly tinged with pink .....C. pellecta
Leaves oblong-ovate; fruit short-oblong to oval, red .....C. ramosa
Leaves obovate; fruit subglobose, crimson..... C. scitula

Anthers yellow
Tube of the calyx of the fruit elongated
Leaves broadly ovate; fruit subglobose to short-oblong, crimson, lustrous.....C. conspecta
Leaves ovate to obovate; fruit obovoid, pale red, pruinose .....C. russata
Tube of the calyx of the fruit short
Leaves ovate; fruit pruinose
Fruit short-oblong to slightly obovoid, scarlet. C. formosa
Fruit obovoid, pruinose, green becoming dull crimson at maturity.....C. cognata
Leaves ovate to oval; fruit subglobose, often broader than high, to obovoid, orange-red, lustrous, flesh orange-red....C. rubro-lutea

‡‡ Fruit on stout erect pedicels; tube of the calyx of the fruit short
Anthers faintly tinged with pink; fruit obovoid
Leaves ovate to oval; fruit bright cherry-red, pruinose .....C. casta
Leaves broadly ovate; fruit dark green, becoming bright red and lustrous at maturity..... C. leiophylla
Anthers pale rose color; leaves ovate; fruit short-oblong, slightly angled, red, pruinose; calyx much enlarged .....C. macrocalyx
Anthers bright red; leaves ovate, acuminate; fruit subglobose, often broader than high, distinctly angled, orange-red, lustrous....C. clintoniana

Anthers yellow or white

Leaves ovate to oval; fruit subglobose, usually broader than high, conspicuously angled while young, pruinose, dull orange-red blotched with green at maturity.....C. conjuncta

Leaves oblong-ovate; fruit obovoid, gradually narrowed to the base, dark green tinged with red... C. longipedunculata

†† Mature leaves scabrate on the upper surface

Leaves ovate to rhombic; anthers red; fruit ovoid to short-oblong, slightly pruinose, crimson; tube of the calyx of the fruit elongated.....C. lennoniana

Leaves ovate; anthers pink; fruit subglobose, often broader than high, bright apple green, slightly pruinose; tube of the calyx of the fruit short..... C. bronxensis

** Stamens 10 or less

† Mature leaves smooth and glabrous on the upper surface

‡ Fruit on slender drooping pedicels, anthers rose color, red or maroon; tube of the calyx of the fruit short

Leaves ovate

Anthers slightly tinged with rose; fruit depressed-globose, broader than high, red, lustrous..... C. uncta

Anthers dark red; fruit short-oblong, crimson, lustrous.....C. radiata

Anthers purplish red; fruit short-oblong to obovoid, bright orange-red, pruinose.....C. placiva

Leaves ovate to oval; anthers maroon; fruit short-oblong, cherry-red, pruinose.....C. pulchra

‡‡ Fruit on erect pedicels

Anthers rose color

Tube of the calyx of the fruit elongated; leaves ovate, acuminate; fruit obovoid, dark red, pruinose, hard and dry at maturity.....C. aridula

Tube of the calyx of the fruit short; leaves ovate; fruit depressed-globose, rather broader than high, dull red, slightly pruinose, becoming lustrous... C. robbinsiana

Anthers pink

Leaves ovate to broadly ovate; fruit globose to depressed-globose, angular, scarcely pruinose, dull red, often blotched with red.....C. b r e v i p e s

Leaves oblong-obovate; fruit short-oblong, pruinose, light green, becoming crimson at maturity. C. p l a n a

†† Mature leaves scabrate on the upper surface

‡ Fruit on slender drooping pedicels, pruinose

Leaves ovate; anthers rose color; fruit obovoid, scarlet .....C. o v a t i f o l i a

Leaves broadly ovate; anthers yellow; fruit short-oblong, dull greenish red.....C. i n u s i t u l a

‡‡ Fruit on erect pedicels; leaves ovate; anthers dark rose color; fruit subglobose, often broader than high, scarlet, pruinose .....C. e x o r n a t a

Medioximae

Leaves hairy on the upper surface early in the season, glabrous and smooth or scabrate at maturity; petioles long and slender; flowers in few-or many-flowered glabrous corymbs; stamens 10 or less, anthers rose color or pink; fruit globose, short-oblong or obovoid, rarely slightly angled, scarlet, crimson, maroon or orange-red, more or less pruinose, ripening late in September or in October, flesh hard and solid, mature calyx sessile, nutlets 2–5, usually 3 or 4.

* Fruit subglobose to globose

† Mature leaves smooth on the upper surface

‡ Leaves yellow-green

Leaves ovate to rhombic, acute or acuminate; fruit rather broader than high, crimson, blotched with green .....C. d i s s o n a

Leaves ovate to oval, acuminate and short-pointed; fruit subglobose to ovoid, crimson, pruinose..... C. i m p l i c a t a

Leaves broadly ovate

Calyx-lobes foliaceous, coarsely serrate; fruit obovoid at first, when fully grown becoming depressed-globose, bright red; leaves often truncate at the base .....C. d e l t o i d e s

Calyx-lobes small, finely serrate; fruit subglobose, orange-red; leaves not truncate at the base..... C. s c c l u s a

‡‡ Leaves blue-green

Leaves ovate to deltoid; fruit globose, dark scarlet, lustrous .....C. maineana

Leaves oblong-ovate to oval; fruit rather broader than high to short-obovoid, obscurely angled, crimson, lustrous.....C. opulens

Leaves ovate-acuminate; fruit subglobose to short-oblong, truncate at the apex, rounded at the base, maroon, lustrous .....C. perspicabilis

†† Mature leaves scabrate on the upper surface

Leaves yellow-green, ovate; fruit subglobose to short-oblong, scarlet, lustrous.....C. macera

Leaves blue-green, ovate-acuminate; fruit subglobose to short-oblong, flattened at the ends, scarlet, lustrous, slightly pruinose .....C. diffusa

** Fruit short-oblong

† Mature leaves smooth on the upper surface

Leaves broadly ovate; calyx-lobes short and broad; anthers red; fruit orange-red, slightly pruinose.... C. xanthophylla

Leaves ovate; calyx-lobes long and slender; anthers bright rose color; fruit red and lustrous..... C. livingstoniana

†† Mature leaves scabrate on the upper surface, ovate, long-pointed; fruit scarlet, lustrous.....C. strigosa

*** Fruit obovoid

† Mature leaves glabrous on the upper surface

‡ Leaves blue-green above

Leaves subcoriaceous, oblong-ovate

Fruit oblong-obovoid or rarely short-oblong, light cherry red, pruinose .....C. compta

Fruit full and rounded at the apex, abruptly narrowed at the base, bright orange-red, pruinose..... C. tortuosa

Leaves thin

Leaves oblong-ovate, acuminate; flowers in broad lax many-flowered corymbs; fruit oblong-obovoid, gradually tapering to the long base, crimson, lustrous.... C. promissa

Leaves ovate; flowers in compact 4–6-flowered corymbs; fruit only slightly narrowed at the base and sometimes decurrent on the pedicel.....C. congestiflora

‡‡ Leaves yellow-green above, thin
Anthers dark rose color
Calyx-lobes short and broad
Leaves oblong-ovate, long-pointed; flowers in 5–8-flowered corymbs; fruit abruptly narrowed and often mammillate at the base, scarlet, pruinose.. C. numerosa
Leaves oblong-ovate, acuminate; flowers in 8–12-flowered corymbs; fruit crimson, lustrous..... C. foliata
Calyx-lobes long and slender; leaves oblong-ovate, deeply tinged with red when they unfold; fruit crimson, lustrous .....C. colorata
Anthers pale pink; calyx-lobes long and narrow; leaves ovate; fruit scarlet, lustrous.....C. cruda
†† Mature leaves scabrate on the upper surface
‡ Leaves blue-green on the upper surface, ovate to rhombic; fruit crimson, pruinose, remaining hard at maturity.... C. acerba
‡‡ Leaves yellow-green on the upper surface
Leaves broadly ovate to triangular; anthers pale rose color; fruit on long slender drooping pedicels, light cherry-red, pruinose..... C. dissociabilis
Leaves broadly ovate; anthers purple; fruit on stout erect or spreading pedicels, crimson, pruinose .....C. barryana

Tenuifoliae

Leaves thin, hairy on the upper surface early in the season, becoming smooth or scabrate; petioles long and slender; flowers in glabrous or slightly villose corymbs; stamens 10 or less, or rarely 20, anthers rose color or pink; fruit short-oblong, subglobose or obovoid, red, lustrous, ripening in August or September, the flesh soft and succulent, mature calyx small and sessile.
* Stamens 10 or less
† Fruit longer than broad
‡ Fruit usually short-oblong
Leaves yellow-green above
Upper surface of mature leaves glabrous
Leaves ovate, acuminate

Calyx-lobes villose on the inner surface.
Leaves oblong-ovate; flowers in 6–12-flowered corymbs; pedicels and calyx-tube glabrous.. C. ignea
Leaves broadly ovate; flowers in 15–18-flowered corymbs; pedicels and calyx-tube slightly villose .....C. hadleyana
Calyx-lobes glabrous on the inner surface
Fruit bright orange-red
Anthers dark rose color; cavity of the fruit deep and narrow.....C. suavis
Anthers pink
Flowers not more than 1.2 cm in diameter, in narrow compact corymbs; cavity of the fruit broad and shallow..... C. boothiana
Flowers 1.5–1.6 cm in diameter, in broad lax corymbs; fruit sometimes slightly obovoid, the cavity deep and narrow.. C. slavinii
Fruit dark crimson, lustrous, oblong-obovoid early in the season, becoming short-oblong; anthers pink .....C. ascendens
Fruit crimson, sometimes subglobose; anthers dark red; leaves long-pointed..... C. acuminata
Fruit sometimes slightly obovoid
Flowers in wide lax many-flowered corymbs
Anthers dark rose color; fruit bright scarlet, its cavity small and shallow..... C. tenella
Anthers pale rose color; fruit crimson, its cavity deep and narrow..... C. spathifolia
Flowers in small compact corymbs; anthers pink; fruit scarlet, lustrous...C. nescia
Leaves ovate, acute; fruit rarely subglobose, the flesh red; anthers purple..C. rubrocarnea
Leaves broadly ovate, acute, glaucescent early in the season; anthers dark rose colored; fruit scarlet, lustrous.....C. glaucophylla

Leaves ovate to deltoid, acute; anthers rose colored; fruit sometimes slightly obovoid..... C. demissa
Leaves ovate to broadly oval, acute; anthers light red; fruit scarlet, lustrous.....C. delucida
Leaves ovate to rhombic or ovate-oblong; anthers red; fruit dark purple-red, ripening and falling in August .....C. matura
Upper surface of the mature leaves scabrate
Leaves ovate, acuminate
Calyx-lobes slightly villose on the inner surface; fruit scarlet, lustrous
Calyx and pedicels glabrous; leaves dark green; flesh of the fruit dry and yellow.....C. streeterae
Calyx and pedicels slightly hairy; leaves light green; flesh of the fruit juicy and red.....C. rubicunda
Calyx-lobes glabrous on the inner surface
Anthers light rose color
Fruit scarlet, lustrous; flowers up to 1.8 cm in diameter.....C. recta
Fruit dull red; flowers about 1.5 cm in diameter .....C. insignata
Anthers dark rose color; fruit crimson.... C. fucata
Leaves oval to ovate, acute; fruit dark crimson, lustrous; stamens rarely more than five..... C. pentandra
Leaves blue-green above, glabrous at maturity
Leaves ovate, acuminate; fruit scarlet, lustrous; anthers rose color
Cavity of the fruit broad and deep; flesh of the fruit thick, sweet and juicy.....C. bella
Cavity of the fruit narrow and shallow; flesh of the fruit thin, dry and mealy....C. ornata
Leaves oval, acute or acuminate; anthers rose color; fruit crimson, lustrous.....C. genialis
‡‡ Fruit obovoid
Leaves yellow-green
Upper surface of the mature leaves glabrous

Leaves oblong-ovate, long-pointed, narrowed at the base; anthers dark red; fruit cherry-red, 1–1.2 cm long.....C. leptopoda

Leaves ovate, acuminate, often broad at the base; anthers rose color; fruit scarlet, 2.5 cm long.. C. paineana

Upper surface of the mature leaves scabrate

Leaves ovate, acuminate; fruit scarlet, the calyx little enlarged; anthers light red..... C. gracilipes

Leaves ovate, acute; fruit crimson, the calyx much enlarged and prominent; anthers dark rose color .....C. habereri

Leaves blue-green above, glabrous at maturity

Leaves oblong-ovate to oval, acuminate, thick; flowers not more than 1 cm in diameter, in wide many-flowered corymbs; stamens usually 5, anthers pink; fruit crimson, lustrous..... C. parviflora

Leaves broadly ovate, acuminate, thin; flowers 1.5 cm in diameter, in narrow usually 4–6-flowered corymbs; stamens 10, anthers dark rose color; fruit scarlet, lustrous.....C. tenuiloba

†† Fruit subglobase; leaves yellow-green

Leaves scabrate on the upper surface, deeply lobed..... C. claytoniana

Leaves glabrous on the upper surface, slightly lobed.... C. stolonifera

** Stamens 20

† Fruit usually short-oblong

Leaves yellow-green and glabrous on the upper surface at maturity

Leaves oblong-ovate to oval, acuminate; flowers in compact 7–8-flowered corymbs; anthers pink; fruit on drooping pedicels, occasionally obovoid, bright cherry-red, lustrous.....C. edsonii

Leaves broadly ovate, acuminate; anthers rose color; fruit on erect pedicels, orange-red, lustrous..... C. conferta

Leaves blue-green and scabrate on the upper surface at maturity, ovate, acuminate

Flowers in wide lax many-flowered corymbs; anthers red; fruit on long drooping pedicels, dull scarlet, its cavity shallow and narrow.....C. benigna

Flowers in compact 6–12-flowered corymbs; anthers light red; fruit sometimes slightly obovoid, on short erect pedicels, its cavity deep and narrow..... C. mellita

†† Fruit obovoid, dark crimson, lustrous; leaves oblong-ovate, acuminate, yellow-green, flabrous at maturity; anthers dark red.....C. luminosa

Coccineae

Leaves large, thin, oblong, acutely and more or less deeply lobed; petioles long; flowers in usually wide many-flowered corymbs; stamens 10 or less, or 20; anthers rose color, pink or rarely white; fruit short-oblong to obovoid, up to 2 cm in length, flesh succulent, nutlets 3–5, grooved and usually ridged on the back (*Flabellatae* Sargent in Rhodora III.22 [1901]).

* Anthers rose color or pink

† Stamens 10 or less

‡ Fruit short-oblong

Leaves glabrous on the upper surface at maturity

Stamens usually 5; fruit on long slender pedicels

Calyx-tube glabrous; leaves ovate to oval, acute; anthers dark red.....C. holmesiana

Calyx-tube villose

Leaves oblong-ovate, acuminate; calyx-tube densely covered with matted hairs, the lobes long and slender, villose on the inner surface; anthers pink.....C. acclivis

Leaves ovate, acute or acuminate; calyx-tube slightly hairy, the lobes short and broad, glabrous; anthers rose color....C. uticaënsis

Stamens usually 10; fruit on short stout pedicels

Leaves ovate, acute, drooping, conspicuously concave; fruit dark dull red, villose at the ends..... C. pringlei

Leaves oval to oblong-ovate; fruit crimson, lustrous, glabrous .....C. lobulata

Leaves scabrate on the upper surface at maturity

Leaves broadly ovate to oval, acute or acuminate; stamens usually 10; anthers rose color; fruit rounded and symmetrical at the base..... C. pedicellata

Leaves ovate, acuminate; stamens 8–10; anthers pale pink; fruit usually unsymmetrical at the base by a mammillate process adnate to the pedicel..... C. gloriosa

‡‡ Fruit obovoid

Leaves glabrous on the upper surface at maturity, ovate, acute or acuminate; stamens 10, anthers pink..... C. letchworthiana

Leaves scabrate on the upper surface at maturity

Leaves oblong-ovate, acuminate; stamens 10, anthers pale pink .....C. vivida

Leaves oval to oblong-ovate, short-pointed and acute at the apex; stamens 5–8, anthers dark rose color.. C. tardipes

‡‡‡ Fruit subglobose to short-oblong or rarely obovoid, on erect pedicels; leaves glabrous on the upper surface at maturity, ovate to oval, acute or acuminate; stamens usually 5, anthers rose purple..C. polita

‡‡‡‡ Fruit subglobose to oval; leaves scabrate on the upper surface at maturity, ovate, acuminate; stamens 7–10, anthers rose color..C. sejuncta

†† Stamens 20

‡ Leaves glabrous on the upper surface at maturity.

Leaves broadly ovate, acuminate; fruit gradually narrowed to the base and often slightly decurrent on the pedicel.

Leaves yellow-green; calyx-tube glabrous; anthers pink .....C. dayana

Leaves blue-green; calyx villose; anthers red..... C. gilbertiana

Leaves ovate, long-pointed, deeply lobed; corymbs densely villose; anthers pink....C. flabellata

‡‡ Leaves scabrate on the upper surface at maturity.

Leaves ovate, long-pointed and acuminate; anthers pale rose color; fruit abruptly narrowed at the base. C steubenensis

Leaves oblong-ovate, acuminate, slightly lobed; corymbs only sparingly villose; anthers red..... C. limosa

** Anthers white

Stamens 20; calyx and pedicels densely villose..C. irrasa

Stamens 5–8; calyx and pedicels slightly villose..... C. perrara

Molles

Leaves thin, broad, cuneate or rounded at the base, petioles long; flowers large, in many-flowered corymbs; stamens 10 or less, or 15–20, anthers yellow, rose color or pink; fruit up to 2.5 cm in diameter, subglobose or obovoid, scarlet, more or less pubescent at the ends; nutlets 3–5, narrow at the ends, only slightly ridged.

* Stamens 10 or less

† Anthers yellow

Fruit obovoid to short-oblong, on erect pedicels; leaves blue-green and glabrous on the upper surface at maturity . . . . . C. champlainensis

Fruit subglobose to short-oblong, on drooping pedicels; leaves yellow-green and scabrate on the upper surface at maturity, their margin more or less contorted..... C. contortifolia

†† Anthers rose color; leaves yellow-green at maturity

Leaves scabrate on the upper surface at maturity

Flowers in wide many-flowered corymbs; leaves oval; fruit short-oblong, crimson..C. ellwangeriana

Flowers in very compact few-flowered corymbs; leaves oblong-ovate; fruit short-oblong to oblong-obovoid, scarlet.....C. robesoniana

Leaves glabrous on the upper surface at maturity

Flowers in wide corymbs; leaves ovate; fruit short-oblong to obovoid, bright cherry-red..C. exclusa

Flowers in compact corymbs; leaves oblong-ovoid; fruit subglobose to short-oblong, dark crimson..... C. urbica

Flowers in broad loose many-flowered villose corymbs; leaves ovate; fruit obovoid to short-oblong, crimson.. C. anomala

††† Anthers pink; leaves blue-green and glabrous on the upper surface at maturity; fruit obovoid, bright scarlet.... C. huntiana

** Stamens 15–20; anthers rose color; leaves oval to ovate, yellow-green and scabrate above at maturity; fruit short-oblong, crimson .....C. radians

*** Stamens 20; anthers rose color; leaves ovate to oval, yellow-green and usually scabrate above at maturity; fruit short-oblong .....C. fulleriana

Dilatatae

Leaves thin, wide, often broader than long on vigorous shoots, petioles long and slender; flowers large, in broad 6–12-flowered corymbs; stamens 20, anthers rose color; fruit subglobose, the calyx enlarged and prominent; nutlets 5, ridged on the back.

* Leaves truncate or cordate at the wide base, broadly ovate; fruit bright scarlet.....C. dilatata

** Leaves cuneate at the base; fruit crimson

Leaves ovate to slightly obovate; fruit ripening early in September and soon falling, its cavity deep..... C. hudsoniana

Leaves ovate; fruit ripening late in October and persistent until midwinter, its cavity shallow..... C. durobrivensis

Intricatae

Leaves thin, usually cuneate at the base, petioles short, glandular; flowers large, opening late, in small few-flowered glandular corymbs, with large conspicuous bracts and bractlets; stamens 10 or less in the New York species, anthers yellow, pink or rose color; fruit late ripening, usually short-oblong or obovoid, red or yellow, flesh hard; nutlets 3–5, rounded at the ends.

* Anthers yellow

Fruit obovoid; mature leaves glabrous above

Leaves oblong-ovate, acuminate; fruit dark orange-red.....C. intricata

Leaves oval — acuminate to ovate — acute; fruit pale orange-yellow .....C. cornellii

Fruit short-oblong to obovoid, crimson; leaves oblong to obovate, scabrate on the upper surface at maturity. C. verecunda

Fruit subglobose to short-oblong or obovoid, green, yellow or orange, villose at the ends; leaves ovate, scabrate on the upper surface at maturity..... C. modesta

Fruit subglobose, orange-red; leaves oblong-ovate to oval, glabrous on the upper surface at maturity..... C. foetida

** Anthers pink or pale rose color

Fruit obovoid, dull orange-red tinged with green, on drooping pedicels; leaves oval to ovate, glabrous.... C. bisselliii

Fruit subglobose to short-oblong or ovoid, yellow-green, tinged with red, villose at the ends, on erect pedicels; leaves oblong-ovate, scabrate on the upper surface at maturity .....C. peckii

Rotundifoliae

Leaves subcoriaceous or thin, obovate to ovate, elliptical or rhombic, cuneate at the base, petioles usually short; flowers in many- or few-flowered corymbs; stamens 10 or less, or 15–20, anthers yellow, white, rose color or pink; fruit subglobose to short-oblong or obovoid, red, generally ripening late, mostly 1–1.5 cm in diameter; nutlets usually 3 or 4 (*Coccineae* Sargent in Rhodora 3:26 (not Loudon) (1901).

* Anthers yellow or white

† Stamens 10 or less

Leaves subcoriaceous; flowers in glabrous or in villose corymbs (var. pubera); fruit short-oblong, up to 1.5 cm in diameter.....C. rotundifolia

Leaves thin

Leaves smooth and glabrous; corymbs glabrous; fruit short-oblong, usually less than 1 cm in diameter... C. dodgei

Young leaves roughened above by short hairs; corymbs villose, fruit obovoid....C. caesariata

†† Stamens 10–18; leaves thin; flowers in compact villose corymbs; fruit short-oblong to subglobose, scarlet.... C. divergens

††† Stamens usually 20

‡ Upper surface of the mature leaves smooth

Flowers in villose corymbs; anthers white; fruit ellipsoidal to subglobose, bright cherry-red..... C. illuminata

Flowers in glabrous corymbs; fruit short-oblong, crimson

Leaves thick, elliptical to obovate or ovate, roughened above while young by short hairs; flowers in wide many-flowered corymbs; anthers white.. C. maribella

Leaves thin, rhombic to obovate, glabrous above; flowers in narrow few-flowered corymbs; anthers yellow .....C. macauleyae

‡‡ Upper surface of the mature leaves scabrate; flowers in villose corymbs; stamens 15–20; leaves broadly ovate, deeply lobed; fruit short-oblong to subglobose, crimson .....C. noveboracensis

** Anthers rose color, red or pink

† Stamens 10 or less

‡ Corymbs villose; leaves roughened above while young by short hairs

Flowers in small compact 4–10-flowered corymbs; fruit subglobose to short-oblong

Stamens 5–10, anthers red; fruit scarlet; leaves ovoid to obovoid.....C. verrucalis

Stamens 5–7, anthers dark rose color; fruit short-oblong, orange-red; leaves rhombic to obovate... C. puberis

Stamens 10, anthers pale pink; fruit crimson; leaves ovate.....C. proctoriana

Flowers in wide many-flowered corymbs; stamens 5–10, anthers pink

Fruit short-oblong, ripening at the end of September, its cavity deep, pointed in the bottom; leaves elliptical to slightly obovate.....C. maligna

Fruit subglobose, ripening in August, its cavity shallow, broad in the bottom; leaves rhombic... C. praecoqua

‡‡ Corymbs usually glabrous

Leaves roughened above by short white hairs; fruit subglobose to ellipsoidal, scarlet

Flowers in small very compact 5–10-flowered corymbs; stamens 10, anthers pink..... C. spissa

Flowers in wide mostly 10–15-flowered corymbs; stamens 5, anthers dark rose color . . . . . C. chateaugayensis

Young leaves covered above by soft hairs; flowers in wide 7–15-flowered corymbs; stamens 5 or 6; anthers pink; fruit short-oblong to slightly obovoid, cherry-red . . . . . C. harryi

†† Stamens 20, anthers pink; leaves thin, glabrous; flowers in wide 7–10-flowered glabrous corymbs; fruit short-oblong, dark red . . . . . C. neo-baxteri

Anomalae

Leaves thick to subcoriaceous, usually cuneate or on vigorous shoots narrowed and rounded or rarely cuneate or subcordate at the base, scabrate above while young; petioles long and slender; flowers in many-flowered glabrous or villose corymbs; stamens 10 or 20, anthers rose color or pink; fruit subglobose to short-oblong or rarely obovoid, nutlets furnished with obscure ventral depressions.

* Stamens 20

† Flowers on villose pedicels; leaves ovate to oval or obovate, villose on midribs and veins below; anthers rose color; fruit short-oblong to ovoid or depressed-globose, orange-red, cavity of the fruit broad . . . . . C. saundersiana

†† Flowers on glabrous pedicels; leaves glabrous below; cavity of the fruit narrow

Leaves ovate to oval; calyx-lobes glabrous on the inner surface; anthers pink; fruit short-oblong to obovoid, orange-red . . . . . C. brachyloba

Leaves obovate to ovate; calyx-lobes villose on the inner surface; anthers rose color; fruit subglobose, scarlet . . . . . C. fallsiana

** Stamens 10 or less

† Leaves scabrate on the upper surface at maturity

‡ Fruit subglobose; pedicels and inner surface of the calyx-lobes villose

Leaves broadly ovate to oval or suborbicular, acute; fruit often broader than high, crimson . . . . . C. dunbarii

Leaves oblong-ovate, acuminate; fruit dark red . . . . . C. inopinata

‡‡ Fruit short-oblong

Pedicels and inner surface of the calyx-lobes glabrous; leaves oblong-obovate, acuminate. C. scabrida

Pedicels and inner surface of the calyx-lobes villose

Leaves rhombic to broadly obovate, short-acuminate ..... C. affinis

Leaves rhombic to obovate, acuminate..... C. misella

Leaves oblong-ovate, acuminate..... C. asperifolia

‡‡‡ Fruit short-oblong to obovoid, bright red; pedicels and inner surface of the calyx-lobes villose..... C. repulsans

†† Leaves glabrous on the upper surface at maturity; pedicels glabrous; inner surface of the calyx-lobes villose

Leaves oblong-ovate, long-pointed, finely serrate, on vigorous shoots gradually narrowed and cuneate at the base; anthers dark red or purple; fruit narrow-obovoid ..... C. floridula

Leaves ovate, acuminate, coarsely serrate, on vigorous shoots broad, rounded, subcordate or rarely cuneate at the base; anthers rose color; fruit short-oblong.... C. knieskerniana

Tomentosae

Leaves thin or subcoriaceous; flowers small, opening late, in many-flowered tomentose, villose or rarely glabrous corymbs; stamens usually 10 or 20; fruit obovoid to subglobose or short-oblong, becoming soft and succulent at maturity; nutlets 2 or 3, obtuse at the ends, penetrated on their inner faces by longitudinal cavities

* Leaves thin

† Stamens usually 20

‡ Anthers rose color or pink

Fruit obovoid, orange-red; leaves oval to ovate-oblong; anthers pale rose color.. C. tomentosa

Fruit usually subglobose

Mature leaves more or less villose below

Anthers rose color

Leaves oblong-ovate to rhombic, smooth above while young; corymbs and calyx nearly glabrous; fruit scarlet..... C. efferta

Leaves oblong-obovate, scabrate above while young; fruit sometimes slightly obovoid, crimson .....C. diversa

Anthers pink

Leaves rhombic to oblong-ovate; fruit short-oblong to subglobose, orange-red.....
C. finitima

Leaves ovate to obovate; fruit sometimes slightly obovoid, scarlet....C. spinifera

Mature leaves glabrous, elliptic to rhombic or rarely obovate; fruit scarlet; anthers red.....
C. menandiana

‡‡ Anthers pale yellow

Mature leaves more or less villose below

Fruit short-oblong to obovoid, orange-scarlet; leaves oblong-ovate to oval or obovate..C. structilis

Fruit short-oblong to subglobose, orange-red, covered with short pale hairs; leaves ovate to rhombic....
C. comans

Fruit subglobose, dark red; leaves obovate.....
C. truculenta

Mature leaves glabrous, ovate to elliptic or subrhombic; fruit short-oblong, crimson.....C. ambrosia

†† Stamens 10 or less

‡ Anthers rose color or pink; fruit subglobose to short-oblong

Mature leaves villose below, rhombic to obovate, acute or acuminate; fruit on erect pedicels, bright red; anthers purple .....C. rhombifolia

Mature leaves glabrous below

Fruit on drooping pedicels, scarlet

Leaves ovate, long-pointed; anthers dark rose color; cavity of the fruit deep and narrow.....
C. deweyana

Leaves obovate to rhombic; anthers pink; cavity of the fruit broad and shallow.....
C. cupulifera

Fruit on erect pedicels, orange-red; leaves obovate to rhombic; anthers pink.....C. balkwillii

‡‡ Anthers pale yellow; fruit subglobose

Fruit on drooping pedicels
Leaves obovate to ovate or oval; fruit crimson; flowers up to 1.5 cm in diameter, on slightly hairy pedicels .....C. microsperma
Leaves oblong-ovate to oval; fruit dark crimson; flowers not more than 1.2 cm in diameter, on densely villose pedicels.....C. flagrans
Fruit on erect pedicels
Leaves oblong-ovate; fruit crimson; flowers on glabrous pedicels .....C. venustula
Leaves oval to oblong-obovate; fruit dark orange-red; flowers on densely villose pedicels.....
C. laneyi

** Leaves thick
† Stamens usually 20
‡ Anthers pale rose color or pink
Fruit on long drooping pedicels, scarlet
Leaves elliptical, acute at the ends; fruit subglobose . . . . . .C. succulenta
Leaves broadly oval to obovate, acute or rounded at the apex; fruit subglobose to short-oblong.....
C. gemmosa
Leaves rhombic to oval or ovate, acute or acuminate; fruit ovoid to oval.....C. calvinii
Leaves obovate, acute; fruit short-oblong to subglobose; anthers pink.C. sonnenbergensis
Fruit on erect pedicels
Corymbs and under surface of the leaves villose
Fruit scarlet
Leaves obovate; fruit short-oblong.....
C. frutescens
Leaves oval to ovate or obovate; fruit short-oblong to ovate.....C. honeoyensis
Fruit bright cherry-red, subglobose to short-oblong or ovate .....C. admiranda
Corymbs and under surface of the leaves glabrous; leaves rhombic; fruit short-oblong to subglobose.
C. spinea
‡‡ Anthers pale yellow; leaves oblong-obovate to oval; fruit on drooping pedicels, subglobose, crimson.....
C. halliana

†† Stamens 10–20; anthers pink; leaves oblong-obovate; tomentose below at maturity; fruit on drooping pedicels, subglobose to short-oblong, crimson..C. conspicua

††† Stamens 10 or less

‡ Anthers rose color or pink; leaves ovate to obovate; fruit on drooping pedicels, crimson

Young leaves glabrous above; anthers rose color; fruit subglobose to obovoid, cavity of the calyx deep.....C. beckiana

Young leaves covered above by short white hairs; anthers pale pink; fruit subglobose, cavity of the calyx shallow.....C. ogdensburgensis

‡‡ Anthers pale yellow

Fruit on drooping pedicels, subglobose to short-oblong; spines stout

Leaves rhombic or oval or obovate, short-pointed or rounded at the apex.....C. ferentaria

Leaves broadly ovate to slightly obovate, acute....
C. hystricina

Fruit on erect pedicels, subglobose, crimson, not more than 1 cm in diameter; spines long and slender; leaves broadly obovate to elliptic or oval.....
C. macracantha

List of species

CRUS-GALLI

Crataegus crus-galli Linnaeus

Spec. 476 (1753). Sargent, Silva N. Am. IV. 91, t. 178

Near Albany and Hemlock lake region; not common.

Var. pyracanthifolia Aiton, Hort. Kew. II. 170 (1788)

Rochester, Niagara Falls and La Salle; not common.

Var. rubens n. var.

Anthers white faintly tinged with pink; flesh of the fruit red, otherwise as in the species.

On the rich bottom lands bordering the outlet of Canandaigua lake east of the railroad station at Chapin, Ontario county; very common.

B. H. Slavin (no. 3, type), September 24, 1908, June 14, 1909; (no. 54), September 24, 1908; June 14, 1909.

Crataegus arduennae Sargent

Bot. Gazette XXXV. 377 (1903); N. Y. State Mus. Bul. 122. 27 (1908)

South Buffalo; not common; also eastern Pennsylvania and Ontario to Illinois and Missouri.

Crataegus geneseensis Sargent

N. Y. State Mus. Bul. 122. 27 (1908)

Valley of the Genesee river.

Crataegus robusta Sargent

N. Y. State Mus. Bul. 122. 28 (1908)

Niagara Falls.

Crataegus cerasina Sargent

N. Y. State Mus. Bul. 122. 29 (1908)

Niagara Falls.

Crataegus persimilis Sargent

Proc. Rochester Acad. Sci. IV. 94. (1903)

Near Rochester and Syracuse.

Crataegus helderbergensis Sargent

N. Y. State Mus. Bul. 105. 49 (1906)

Thompson lake, near Albany.

PUNCTATAE

Crataegus punctata Jacquin

Hort. vind. 1. 10, t. 28 (1770). Sargent, Silva N. Am. IV. 103, t. 184

Very common.

Var. aurea Aiton, Hort. Kew. II. 170 (1780).

Common.

Var. canescens Britton, Bul. Torrey Bot. Club XXI. 231 (1894).—Sargent, N. Y. State Mus. Bul. 105. 50 (1906).

North Greenbush; rare.

Crataegus celsa Sargent

N. Y. State Mus. Bul. 122. 31 (1908)

Niagara Falls.

Crataegus notabilis Sargent

N. Y. State Mus. Bul. 122. 32 (1908)

Buffalo.

Crataegus eastmaniana n. sp.

Glabrous. Leaves obovate and cuneate at the base to ovate and rounded at the base, sharply serrate and slightly divided above the middle into small acuminate lobes; nearly fully grown when the flowers open during the first week of June and then thin, yellow-green above and glaucescent below, and at maturity thin, dark blue-green and lustrous on the upper surface and paler on the lower surface, 4.5 to 5 cm long and 3 to 4 cm wide, with prominent midribs and primary veins; turning orange and red in October; petioles slender, slightly wing-margined at the apex, 1.5–2.5 cm in length; leaves on vigorous shoots broadly ovate, rounded or cuneate at the base, more coarsely serrate and more deeply lobed, and often 6 to 7 cm long and 5 to 6 cm wide. Flowers 2.5 cm in diameter on slender pedicels, in small compact five- to ten-flowered corymbs, the lower peduncles from the axils of upper leaves; calyx-tube broadly obconic, the lobes separated by wide sinuses, slender, acuminate, nearly entire, occasionally glandular-serrate near the middle, reflexed after anthesis; stamens twenty; anthers dark rose color, soon fading to light green; styles three to five, surrounded at the base by a narrow ring of pale tomentum. Fruit ripening early in October on slender drooping pedicels, short-oblong to slightly obovoid, dark crimson, slightly pruinose, marked by numerous small pale dots, about 1.5 cm long and 1.2 cm in diameter; calyx little enlarged, with a deep narrow cavity pointed and densely tomentose in the bottom, and spreading usually incurved-persistent lobes; flesh thin, dry and mealy; nutlets three to five, rounded at the base, narrowed and rounded at the apex, ridged on the back with a broad high ridge, 9 to 10 mm long and 5 to 6 mm wide, the narrow hypostyle extending nearly to the middle of the nutlet.

An arborescent shrub 5 to 7 m high, with a short main stem sometimes 3 cm in diameter, smooth pale gray branches, and slender nearly straight branchlets dark yellow-green when they first appear, light orange-brown at the end of their first season, and gray-brown the following year, and armed with numerous slender straight or slightly curved chestnut-brown shining spines 2.5 to 3.5 cm long.

Low rich ground on the border of Durand-Eastman park, Rochester, Henry T. Brown (no. 1, type), October 6, 1908; June 7, 1909.

Crataegus dewingii Sargent

N. Y. State Mus. Bul. 122, 34 (1908).

Buffalo, Belfast.

Crataegus eatoniana Sargent

N. Y. State Mus. Bul. 105. 51 (1906).

Menands near Albany.

Crataegus barbara Sargent

N. Y. State Mus. Bul. 122. 33 (1908).

Brighton near Rochester.

Crataegus pausiaca Ashe

Ann. Carnegie Mus. 1. 390 (1902). Sargent, Trees and Shrubs 1. 105. t. 53.

Chapin; also in eastern Pennsylvania.

Crataegus desueta Sargent

N. Y. State Mus. Bul. 122. 84 (1908).

Coopers Plains and Olean.

Crataegus brownietta n. sp.

Leaves obovate to ovate, acute, cuneate or rounded at the base, finely and often doubly serrate with straight glandular teeth, and slightly divided above the middle into short acuminate spreading lobes; nearly fully grown when the flowers open in the last week of May and then yellow-green, roughened above by short white hairs and sparingly villose on the midribs and veins below, and at maturity thin, dark yellow-green and glabrous on the upper surface, still slightly villose on the lower surface, 4 to 4.5 cm long and 2.5 to 3 cm wide, with slender midribs and four or five pairs of thin primary veins; petioles slender, slightly wing-margined at the apex, sparingly villose early in the season, becoming glabrous, and more or less tinged with red in the autumn, 1 to 1.5 cm in length; leaves on vigorous shoots broadly ovate, acuminate, rounded at the wide base, subcoriaceous, coarsely serrate, deeply lobed, often 7 to 8 cm long and wide, with stout winged petioles. Flowers on slender slightly hairy pedicels, in wide lax many-flowered sparingly villose corymbs, the lower peduncles from the axils of upper leaves; calyx-tube narrowly obconic, glabrous, the lobes long, slender, acuminate, usually glandular-serrate below the middle, glabrous on the outer, slightly villose on the inner surface, reflexed after anthesis; stamens ten; anthers bright pink; styles three or four, surrounded at the base by a broad ring of long white hairs. Fruit ripening the end of

September on glabrous drooping red pedicels, subglobose to slightly obovoid, crimson, lustrous, marked by numerous small pale dots, 1.5 cm in diameter; calyx prominent with a broad shallow cavity pointed and tomentose in the bottom, and spreading and incurved lobes; flesh thin, yellow, dry and mealy; nutlets three or four, rounded and broadest at the apex, gradually narrowed and rounded at the base, prominently ridged on the back with a broad high ridge, 8 to 9 mm long and about 5 mm wide, the narrow chestnut-brown hypostyle extending to below the middle of the nutlet.

A tree or arborescent shrub 6 to 7 m high, with a stem covered with yellowish brown bark, upright branches, and slender nearly straight branchlets dark orange-green marked by pale lenticels and slightly villose when they first appear, glabrous, lustrous and light gray-green at the end of their first season and dull gray-brown the following year, and armed with stout straight chestnut-brown shining spines 3 to 5 cm long.

Helmlock lake region, Livingston county, Henry T. Brown (no. 31, type), May 28, 1906; September 20, 1907.

This species is named for its discoverer, Henry T. Brown, the engineer of the park department of the city of Rochester who has paid particular attention to the Thorns which grow in great abundance and variety near Hemlock lake.

PRUINOSAE

Crataegus pruinosa K. Koch

Verhandl. Preuss. Gart. Verein. neue Reihe 1. 346 (1854). Sargent, Silva N. Am. XIII. 61, t.648; N. Y. State Mus. Bul. 122. 37 (1908).

Crown Point, Lansingburg, Chapin, Buffalo, Belfast, Salamanca; also western Vermont, Massachusetts, eastern Pennsylvania, and southern Ontario to Ohio and Illinois.

Crataegus oblita Sargent

N. Y. State Mus. Bul. 122. 40 (1908).

Buffalo.

Crataegus arcana Beadle

Biltmore Bot. Studies 1. 122 (1902). Sargent, Bot. Gazette XXXV. 101; N. Y. State Mus. Bul. 122. 35 (1908).

Syracuse, Niagara Falls, Coopers Plains; also eastern Pennsylvania to western North Carolina.

Crataegus obstipa n. sp.

Glabrous. Leaves rhombic, acute at the ends, finely serrate with straight glandular teeth and slightly divided above the middle into two or three pairs of short, broad lobes; about one-half grown when the flowers open early in June and then yellow-green and paler below than above, and at maturity thin, yellow-green, smooth and lustrous on the upper surface, pale on the lower surface, 4 to 4.5 cm long and 2.5 to 3 cm wide, with thin midribs and primary veins; petioles slender, narrowly wing-margined to the middle, 4.5 to 6 cm in length; stipules linear, glandular, bright red, deciduous before the flowers open; leaves on vigorous shoots thicker, more coarsely serrate and more deeply lobed, and sometimes 5 cm long and 4 cm wide. Flowers on slender pedicels, in five- or six-flowered corymbs, the lower peduncles from the axils of upper leaves; calyx-tube broadly obconic, the lobes separated by wide sinuses, gradually narrowed from the base, slender, acuminate, entire or minutely glandular-dentate near the middle; stamens twenty; anthers maroon; styles three to five. Fruit ripening early in October on slender drooping pedicels, obconic, rounded at the apex and at the narrow base, crimson, marked by large pale dots, pruinose, 1.3–1.5 cm long and 1 to 1.2 cm in diameter; calyx prominent, with a short tube, a deep narrow cavity pointed in the bottom, and spreading erect lobes; flesh thin, hard and dry; nutlets three to five, thin and rounded at the ends, broader at the apex than at the base, ridged on the back, with a broad, grooved ridge, 6 to 7.5 mm long and 5 mm wide, the narrow hypostyle extending to just below the middle of the nutlet.

A shrub 3 or 4 m high, with ascending stems and branches covered with dark gray bark, and thin zigzag contorted branchlets dark green and marked by pale lenticels when they first appear, orange-brown at the end of their first season and dull gray-brown the following year, and armed with very numerous straight chestnut-brown shining spines 1.5 to 3 cm long, persistent and compound on old stems and branches.

Open pastures in heavy soil, near Chapin, Ontario county, B. H. Slavin (no. 21, type), October 3, 1908; May 29, 1909.

Crataegus beata Sargent

Proc. Rochester Acad. Sci. IV. 97 (1903); N. Y. State Mus. Bull. 122. 85 (1908).

Ithaca, Chapin, near Rochester, Hemlock lake, Canadice lake, Belfast, Portage, Castile, Coopers Plains; common.

Crataegus pallescens n. sp.

Glabrous with the exception of the hairs on the young leaves and calyx-lobes. Leaves ovate, acuminate, rounded or abruptly cuneate at the broad base, sharply and often doubly serrate with straight glandular teeth, and divided into five or six pairs of short acuminate spreading lobes; more than half-grown when the flowers open the middle of June and then thin, yellow-green, and covered above by short white hairs and glabrous and glaucescent below, and at maturity thin, glabrous, dark yellow-green on the upper surface and pale on the lower surface, 6.5 to 8.5 cm long and 6 to 8 cm wide, with thick midribs and thin primary veins arching obliquely to the points of the lobes; petioles slender, broadly wing-margined at the apex, glandular with conspicuous occasionally persistent glands, 2.5 to 3.5 cm in length; stipules strap-shaped, acute, bright rose color, conspicuously glandular, often persistent until the flowers open; leaves on vigorous shoots abruptly cuneate at the base, more coarsely serrate and more deeply lobed, and sometimes 9 to 10 cm long and broad. Flowers 2.5 cm in diameter on long slender pedicels, in compact mostly ten- to fifteen-flowered corymbs, the lower peduncles from the axils of upper leaves; calyx-tube broadly obconic, the lobes separated by wide sinuses, long, wide, acuminate, conspicuously glandular-serrate, slightly villose on the inner surface, reflexed after anthesis; stamens ten; anthers deep red; styles four or five. Fruit ripening early in October on drooping red pedicels, short-oblong, rounded at the ends, cardinal-red, marked by occasional large pale dots, pruinose, 1 to 1.2 cm in diameter; calyx prominent, with a short tube, a wide, deep cavity pointed in the bottom, and spreading prominent lobes; flesh thin, yellow, dry and mealy; nutlets four or five, gradually narrowed to the ends, rather broader at the apex than at the base, irregularly ridged on the back with a high narrow ridge, 7 to 8 mm long and 4 to 4.5 mm wide, the broad hypostyle extending one-third the length of the nutlet.

An arborescent shrub 6 to 7 m tall, with stems sometimes 3 cm in diameter at the base, covered with dull ashy gray bark, ascending and spreading branches forming a thin open head, and stout slightly zigzag branchlets dark orange-green and marked by pale lenticels when they first appear, becoming pale chestnut-brown and lustrous at the end of their first season and armed with occasional stout slightly curved chestnut-brown shining spines 4 to 5 cm long and sometimes persistent and compound on old stems and branches.

Open damp woods near Ogdensburg, John Dunbar (no. 45, type), June 12 and September 28, 1907; June 5, 1908.

Crataegus pelacris n. sp.

Glabrous with the exception of the hairs on the young leaves. Leaves ovate, acuminate, abruptly cuneate or rounded at the wide base, sharply often doubly serrate with straight or incurved glandular teeth, and divided usually above the middle into four or five pairs of small acuminate recurved lobes; tinged with red when they unfold, and at the end of May when the flowers open, thin, yellow-green, and covered above by short white hairs and glabrous below, and at maturity thick, glabrous, dark blue-green on the upper surface, pale blue-green on the lower surface, 4 to 5 cm long and 3 to 4.5 cm wide; petioles slender, sparingly glandular, 2 to 2.5 cm in length; leaves on vigorous shoots cuneate at the base, more coarsely serrate, more deeply lobed, and often 6 to 7 cm long and broad. Flowers 1.8 to 2 cm in diameter on slender pedicels, in small compact mostly five- or six-flowered corymbs, the much elongated lower peduncles from the axils of upper leaves; calyx-tube broadly obconic, the lobes separated by wide sinuses, gradually narrowed from the broad base, acuminate, entire or minutely glandular-dentate near the middle, reflexed after anthesis; stamens twenty; anthers large, bright rose color; styles five, surrounded at the base by a ring of white hairs. Fruit ripening in October on drooping pedicels, subglobose to obovoid, rounded at the ends, green and pruinose, becoming red when fully ripe, 1 to 1.2 cm in diameter; calyx prominent, with a short tube, a broad deep cavity wide in the bottom, and spreading lobes; flesh thin, hard and dry; nutlets five, thin and rounded at base, rounded and grooved on the back, 6 to 6.5 mm long and 4 mm wide, the broad conspicuous hypostyle extending to below the middle of the nutlet.

A shrub 3 to 4 m high, with ascending stems and branches covered with dark gray bark near the ground, and stout, slightly zigzag branchlets dark orange-green and marked by pale lenticels when they first appear, dull chestnut-brown at the end of their first season and red-brown the following year, and armed with numerous stout straight or curved bright chestnut-brown shining spines 3 to 4.5 cm long.

Pastures near Olean, B. H. Slavin (no. 51, type), May 25 and September 19, 1908; pastures near Salamanca, B. H. Slavin (no. 18), June 6 and September 24, 1907.

Crataegus amoena Sargent

N. Y. State Mus. Bul. 122. 38, 86 (1908).

Niagara Falls and Coopers Plains.

Crataegus aristata Sargent

N. Y. State Mus. Bul. 150. 27 (1911).

Rossie.

Crataegus prominens Sargent

Ontario Nat. Sci. Bul. 4. 23 (1908).

Hemlock lake; also near Toronto, Canada.

Crataegus gracilis Sargent

N. Y. State Mus. Bul. 122. 37 (1908).

Niagara Falls and Coopers Plains.

Crataegus howeana Sargent

N. Y. State Mus. Bul. 105. 52 (1906).

Menands near Albany.

Crataegus latiflora n. sp.

Glabrous. Leaves broadly ovate, acute or acuminate, abruptly cuneate or rounded at the base, sharply doubly serrate with straight glandular teeth, and divided into four or five pairs of small acuminate lobes; more than half-grown when the flowers open in the first week of June and then thin, yellow-green, smooth and lustrous on the upper surface, pale on the lower surface, and at maturity 6 to 7 cm long and wide, with thin midribs and primary veins; petioles slender, narrowly wing-margined nearly to the middle, rose colored in the autumn, 1.5 to 2 cm in length; leaves on vigorous shoots sometimes rounded at the broad base, more coarsely serrate and more deeply lobed, often 8 cm long and wide, their petioles stout, glandular with persistent glands, 2 to 2.5 cm in length. Flowers 2.5 to 2.8 cm in diameter, on slender pedicels, in usually six- to eight-flowered corymbs, the lower peduncles from the axils of upper leaves; calyx-tube broadly obconic, the lobes separated by wide sinuses, broad, acuminate, coarsely glandular-serrate, reflexed after anthesis; stamens twenty; anthers pale pink; styles four or five. Fruit ripening in October on drooping pedicels, short-oblong, rounded at the ends, vermilion, marked by occasional large pale dots, 1 cm long and 8 to 9 mm in diameter; calyx prominent with a short tube, a broad deep cavity wide in the bottom, and spreading and appressed lobes mostly deciduous from the ripe fruit; nutlets four or five, acute at the ends, rather broader at the apex

than at the base, ridged on the back with a high, grooved ridge, 6 to 7 mm long and 4 to 4.5 mm wide, the broad hypostyle extending nearly to the middle of the nutlet.

An arborescent shrub 3 to 4 m high, with stems covered with brown scaly bark, and slender, slightly zigzag branchlets dark orange-green and marked by pale lenticels when they first appear, light chestnut-brown and lustrous at the end of their first season, and armed with occasional nearly straight chestnut-brown shining spines 4 to 5 cm long, persistent and compound on old stems and branches.

In heavy clay soil on the Miller farm in the town of Richmond, Livingston county, H. T. Brown (no. 64, type), June 4, 1906; October 1, 1909.

Crataegus pellecta Sargent

N. Y. State Mus. Bul. 122. 85 (1908).

Coopers Plains.

Crataegus ramosa Sargent

N. Y. State Mus. Bul. 122. 86 (1908).

Coopers Plains.

Crataegus scitula n. sp.

Glabrous. Leaves obovate, acuminate, gradually narrowed and cuneate at the entire base, finely doubly serrate with straight glandular teeth, and slightly divided above the middle into three or four pairs of narrow acuminate lobes; more than half-grown when the flowers open in the first week of June and then yellow-green and slightly tinged with red above and lustrous on the upper surface, pale on the lower surface, 5 to 6 cm long and 3 to 4 cm wide, with thin prominent midribs and primary veins; pedicels slender, wing-margined at the apex, glandular early in the season, 2 to 2.5 cm in length. Flowers on slender pedicels, in mostly twelve- to fifteen-flowered corymbs, the lower peduncles from the axils of upper leaves; calyx-tube broadly obconic, the lobes gradually narrowed from the base, slender, acuminate, glandular-serrate; stamens twenty; anthers pink; styles three to five. Fruit ripening in October, on drooping red pedicels, subglobose or sometimes rather longer than broad, crimson, marked by small pale dots, very pruinose, 9 to 11 mm in diameter; calyx prominent, with a short tube, a narrow deep cavity pointed in

the bottom, and spreading appressed lobes dark red on the upper side below the middle, flesh thin, dry and mealy; nutlets three to five, broad and rounded at the apex, narrowed at the base, ridged on the back with a broad high ridge, 6 to 7 mm long and 4 to 5 mm wide, the broad hypostyle extending to the middle of the nutlet.

A shrub 2 to 3 m high, with ascending stems and branches covered with ashy gray bark, and slender nearly straight branchlets dark orange-green and marked by pale lenticels when they first appear, becoming light chestnut-brown and lustrous at the end of their first season, and armed with numerous slender straight or slightly curved chestnut-brown shining spines 3 to 4 cm long.

Open pastures in heavy soil near Chapin, Ontario county, B. H. Slavin (no. 7, type), September 24, 1908 and May 29, 1909.

Crataegus conspecta Sargent

Ontario Nat. Sci. Bul. 4. 28 (1908).

Salamanca; also Chippewa and Niagara-on-the-Lake, Ontario.

Crataegus russata n. sp.

Glabrous. Leaves ovate to obovate, acuminate and long-pointed at the apex, abruptly or gradually narrowed and cuneate at the base, finely doubly serrate with straight glandular teeth, and slightly divided usually above the middle into short broad, acuminate lobes; nearly fully grown when the flowers open the end of May and then thin, smooth and lustrous above and paler below, and at maturity thick, dark yellow-green on the upper surface, pale on the lower surface, 4 to 4.5 cm long and 2.5 to 4.5 cm wide; petioles slender, narrowly wing-margined at the apex, glandular with occasional persistent glands, 1.5 to 2 cm in length; leaves on vigorous shoots broadly ovate, acuminate, rounded or truncate at the wide base, more coarsely serrate and more deeply lobed, and often 7 cm long and broad, their petioles stout, wing-margined nearly to the base, more or less glandular. Flowers 2 to 2.3 cm in diameter, on slender pedicels, in small compact 5–8-flowered corymbs, the lower peduncles from the axils of upper leaves; calyx-tube narrowly obconic, the lobes separated by wide sinuses, slender, elongated, acuminate, entire, minutely dentate near the middle, reflexed after anthesis; stamens twenty; anthers pale yellow or white; styles four or five,

surrounded at the base by a ring of pale tomentum. Fruit on slender drooping pedicels, ripening in October and persistent on the branches for several weeks, obovoid, rounded at the apex, gradually narrowed at the base, pale red, pruinose, 1.3 to 1.5 cm long and 1 cm in diameter; calyx prominent with a long tube, a wide deep cavity pointed in the bottom, and spreading lobes mostly deciduous from the ripe fruit; flesh hard and dry, tinged with red; nutlets four or five, rounded at the ends, rather broader at the apex than at the base, rounded and slightly grooved on the back, 6 mm long and 3.4 mm wide, the narrow hypostyle extending one-third the length of the nutlet.

A shrub 3 to 4 m high, with stout stems covered near the base with gray-brown scaly bark, ascending branches, and slender nearly straight zigzag branchlets dark orange-brown and marked by pale lenticels when they first appear, becoming bright chestnut-brown and lustrous at the end of their first season and dull gray-brown the following year, and armed with numerous slender straight dark chestnut-brown shining spines 3 to 5 cm long.

Hillsides, near Painted Post, Steuben county, common; G. D. Cornell (no. 132, type), October 1907; May 26, 1908.

Crataegus formosa Sargent

Proc. Rochester Acad. Sci. IV. 101 (1903).

Near Rochester, Coopers Plains, Murray, Niagara Falls, Buffalo and Salamanca.

Crataegus cognata Sargent

Rhodora V. 58 (1903); N. Y. State Mus. Bul. 122. 41 (1908).

Dykemans, Castile, Coopers Plains, Tuscarora, Hemlock lake, Niagara Falls, Buffalo, Chapin; also southern New England and southern Ontario.

Crataegus rubro-lutea Sargent

N. Y. State Mus. Bul. 122. 88 (1908).

Coopers Plains.

Crataegus casta Sargent

N. Y. State Mus. Bul. 105. 53 (1906).

Coopers Plains.

Crataegus leiophylla Sargent

Proc. Rochester Acad. Sci. IV. 99 (1903); N. Y. State Mus. Bul. 122. 41 (1908).

Ithaca, Coopers Plains, Belfast, Tuscarora, near Rochester, and Buffalo.

Crataegus macrocalyx Sargent

N. Y. State Mus. Bul. 122. 89 (1908).

Coopers Plains.

Crataegus clintoniana Sargent

N. Y. State Mus. Bul. 122. 39 (1908).

Buffalo.

Crataegus conjuncta Sargent

Rhodora V. 57 (1903); N. Y. State Mus. Bul. 105. 54 (1906).

Near Albany, common; also southern New England, eastern Pennsylvania, northern Illinois and Wisconsin.

Crataegus longipedunculata Sargent

Ontario Nat. Sci. Bul. 4. 26 (1908); Peck in N. Y. State Mus. Bul. 150. 28 (1911).

Near Canandaigua; also in southern Ontario.

Crataegus lennoniana Sargent

Proc. Rochester Acad. Sci. IV. 98 (1903).

Rochester, Murray, Adams Basin and Syracuse.

Crataegus bronxensis Sargent

N. Y. State Mus. Bul. 122. 115 (1908).

Bronx Park, New York City.

Crataegus uncta Sargent

N. Y. State Mus. Bul. 122. 91 (1908).

Coopers Plains.

Crataegus radiata Sargent

N. Y. State Mus. Bul. 122. 42 (1908).

Buffalo.

Crataegus placiva n. nom. Sargent

N. Y. State Mus. Bul. 122. 46 (1908) (not Sargent in Ontario Nat. Sci. Bul. (1908)).

Ithaca, Belfast and Buffalo.

Crataegus pulchra Sargent

N. Y. State Mus. Bul. 122. 42 (1908).

Ithaca, Chapin, Niagara Falls and Buffalo.

Crataegus aridula Sargent

N. Y. State Mus. Bul. 122. 43 (1908).

Niagara Falls.

Crataegus robbinsiana Sargent

Rhodora VII. 197 (1905); N. Y. State Mus. Bul. 105. 55 (1906).

Near Albany; also in western and southern Vermont and western New Hampshire.

Crataegus brevipes Peck

N. Y. State Mus. Bul. 139. 20 (1910).

Corning.

Crataegus plana Sargent

N. Y. State Mus. Bul. 122. 45 (1908).

Coopers Plains, Belfast, Castile, Almond, Hemlock lake and Buffalo.

Crataegus ovatifolia Sargent

N. Y. State Mus. Bul. 122. 92 (1908).

Coopers Plains.

Crataegus inusitula Sargent

N. Y. State Mus. Bul. 122. 55 (1908).

Chapin and Coopers Plains.

Crataegus exornata Sargent

Ontario Nat. Sci. Bul. 4. 31 (1908).

Salamanca; also southern Ontario.

MEDIOXIMAE

Crataegus dissona Sargent

Rhodora V. 60 (1903); N. Y. State Mus. Bul. 105. 54 (1906).

Moores Mills, Colemans Station, Dykemans, Albany, Coopers Plains; also western and southern New England, eastern Pennsylvania and southern Illinois.

Crataegus implicata Sargent

N. Y. State Mus. Bul. 122. 49 (1908).

Buffalo.

Crataegus deltoides Ashe

Jour. Elisha Mitchell Sci. Soc. XVII, pt. II, 19 (1901). Sargent, Proc. Acad. Nat. Sci. Phila. 603 (1905). Peck, N. Y. State Mus. Bul. 116. 21 (1907).

Moores Mills; also in eastern Pennsylvania.

Crataegus seclusa n. sp.

Glabrous with the exception of the hairs on the young leaves and calyx-lobes. Leaves broadly ovate, rounded or occasionally abruptly cuneate at the wide base, sharply doubly serrate with straight glandular teeth, and slightly divided into broad acuminate lobes; more than half-grown when the flowers open in the last week of May and then thin, yellow-green, smooth and slightly hairy above and glabrous and glaucescent below, and at maturity thin, dark yellow-green and glabrous on the upper surface, pale on the lower surface, 5 to 7 cm long and wide, with stout midribs, and prominent primary veins extending obliquely to the points of the lobes; petioles slender, narrowly wing-margined at the apex, slightly hairy on the upper side early in the season, soon becoming glabrous, occasionally glandular, 2 to 2.5 cm in length. Flowers 1.5 cm in diameter, on long slender pedicels, the lower peduncles from the axils of upper leaves; calyx-tube narrowly obconic, the lobes gradually narrowed from the base, short-acuminate, glandular-serrate, villose on the lower surface, reflexed after anthesis; stamens six to ten; anthers dark red; styles three or four, surrounded at the base by a ring of white tomentum. Fruit ripening at the end of September, on drooping red pedicels, subglobose, orange-red, marked by small pale dots, slightly pruinose, becoming lustrous, 1 cm in diameter; calyx little enlarged, with a broad, shallow cavity pointed in the bottom, and spreading closely appressed persistent lobes; flesh thin, dry and mealy; nutlets three or four, rounded at the ends, rather broader at the apex than at the base, ridged on the back with a broad grooved ridge, 1.6 to 1.7 cm long and 3 to 4 mm wide, the narrow hypostyle extending nearly to the base of the nutlet.

A shrub 5 to 6 m high, with stout stems covered with rough dark brown bark, ascending branches, and slender glabrous,

zigzag branchlets dark orange-green and marked by pale lenticels when they first appear, becoming light chestnut-brown and lustrous at the end of their first season and dull gray-brown the following year, and armed with stout slightly curved chestnut-brown shining spines 3.5 to 4 cm long.

On clay soil north of Hemlock lake in the town of Richmond, Livingston county, Henry T. Brown (no. 136, type), September 27, 1907; May 30, 1908.

Crataegus maineana Sargent

Proc. Rochester Acad. Sci. 4. 106 (1903); N. Y. State Mus. Bul. 122. 46 (1908).

Hemlock lake, Rochester, Belfast and Buffalo.

Crataegus opulens Sargent

Proc. Rochester Acad. Sci. IV. 104 (1903).

Near Herkimer, Coopers Plains, Belfast, Hemlock lake, Rochester, Brighton, Buffalo; also in southeastern Michigan.

Crataegus perspicabilis n. sp.

Glabrous with the exception of the hairs on the young leaves and calyx-lobes. Leaves ovate, acuminate, rounded or abruptly cuneate at the broad base, coarsely doubly serrate with straight glandular teeth, and slightly divided into four or five pairs of short, broad, lateral lobes; more than half-grown when the flowers open from the 20th to the end of May, and then thin, yellow-green and sparingly furnished above with short white hairs and paler below, and at maturity thin but firm in texture, blue-green on the upper surface, pale blue-green on the lower surface, 5–7 cm long and 5–6 cm wide, with slender midribs and primary veins; petioles slender, slightly hairy on the upper side while young, soon becoming glabrous, glandular with occasional minute persistent glands, 3 to 3.5 cm in length; leaves on vigorous shoots ovate, acuminate, rounded, truncate or slightly obcordate at the wide base, thicker, more deeply lobed, coarsely serrate, often 10 to 11 cm long and broad, their petioles stout, glandular with prominent stipitate persistent glands. Flowers on long slender pedicels, in narrow mostly 4–10-flowered corymbs, the elongated lower peduncles from the axils of upper leaves; calyx-tube narrowly obconic, the lobes gradually narrowed from wide bases, long, slender, acuminate, ciliate or

obscurely toothed on the margins, slightly hairy on the inner surface below the middle, reflexed after anthesis; stamens 10; anthers light rose color; styles three. Fruit ripening in October, on slender pedicels, subglobose to short-oblong, truncate at the apex, rounded at the base, maroon, lustrous, marked by numerous pale dots, 1 to 1¼ cm in diameter; calyx little enlarged, with a wide shallow cavity tomentose in the bottom, and spreading persistent lobes; flesh thick, dry and mealy; nutlets three, rounded at the ends, rather broader at the apex than at the base, rounded and ridged on the back with a broad irregularly grooved ridge, 6 to 7 mm long and about 4 mm wide.

An arborescent shrub sometimes 4 m high, with stout stems covered with ashy gray bark, becoming dark and scaly near their base, ascending branches forming an open irregular head, and stout, zigzag branchlets dark orange-green and marked by pale lenticels when they first appear, chestnut or orange-brown at the end of their first season and dull red-brown the following year, and armed with numerous stout straight chestnut-brown spines 4.5 to 5 cm long.

Salamanca, B. H. Slavin (no. 43, type), October 6, 1907; May 26, 1908.

Crataegus macera Sargent

N. Y. State Mus. Bul. 122. 117 (1908).

Hemlock lake.

Crataegus diffusa Sargent

Proc. Rochester Acad. Sci. IV. 103 (1903).

Ithaca, Hemlock lake and Rochester.

Crataegus beckwithae Sargent

Proc. Rochester Acad. Sci. IV. 124 (1903).

Ithaca, Hemlock lake and Rochester.

Crataegus xanthophylla Sargent

N. Y. State Mus. Bul. 122. 48 (1908).

Buffalo.

Crataegus livingstoniana Sargent

N. Y. State Mus. Bul. 122. 116 (1908).

Hemlock lake.

Crataegus strigosa Sargent

N. Y. State Mus. Bul. 122. 51 (1908).

Buffalo and near Herkimer.

Crataegus compta Sargent

Proc. Rochester Acad. Sci. IV. 102 (1903).

Near Utica, Rochester and Buffalo.

Crataegus tortuosa Sargent

N. Y. State Mus. Bul. 122. 47 (1908).

Utica, Ithaca and Buffalo.

Crataegus promissa Sargent

N. Y. State Mus. Bul. 122. 50 (1908).

Filmore, Hemlock lake, Niagara Falls; also in southern Ontario.

Crataegus congestiflora Sargent

N. Y. State Mus. Bul. 122. 44 (1908).

Near Herkimer, Castile, Belfast, Olean, Palmyra, Buffalo and Salamanca.

Crataegus numerosa Sargent

N. Y. State Mus. Bul. 122. 90 (1908).

Coopers Plains.

Crataegus foliata Sargent

N. Y. State Mus. Bul. 122. 53 (1908).

Niagara Falls.

Crataegus colorata Sargent

Proc. Rochester Acad. Sci. IV. 123 (1903); N. Y. State Mus. Bul. 122. 60 (1908).

Dykemans, near Herkimer, Ithaca, Chapinville, Rochester, Hemlock lake, Belfast, Coopers Plains, Murray, Buffalo, Salamanca; also in southern Ontario and Michigan.

Crataegus cruda Sargent

N. Y. State Mus. Bul. 122. 54 (1908).

Hemlock lake, Niagara Falls and Salamanca.

Crataegus acerba Sargent

N. Y. State Mus. Bul. 122. 93 (1908).

Coopers Plains and Olean.

Crataegus dissociabilis Sargent

N. Y. State Mus. Bul. 122. 95 (1908).

Coopers Plains.

Crataegus barryana Sargent

N. Y. State Mus. Bul. 122, 52, 93 (1908).

Corning, Rochester, Hemlock lake and Coopers Plains.

TENUIFOLIAE

Crataegus ignea Sargent

N. Y. State Mus. Bul. 122, 96 (1908).

Coopers Plains and Little Falls.

Crataegus hadleyana n. sp.

Leaves broadly ovate, acuminate, rounded or cuneate at the base, finely often doubly serrate with straight glandular teeth, and slightly divided into four or five pairs of short acuminate lateral lobes; nearly fully grown when the flowers open at the end of May and then thin, light yellow-green and roughened above by short white hairs and paler and glabrous below, and at maturity firm in texture, glabrous, dark yellow-green and lustrous on the upper surface, pale on the lower surface, 6 to 8 cm long and 5 to 6.5 cm wide, with stout midribs, and slender primary veins arching obliquely to the points of the lobes; petioles stout, wing-margined at the apex, sparingly villose on the upper side while young, becoming glabrous, glandular with occasional minute deciduous glands, 1.5 to 2.5 cm in length. Flowers 1.5 to 1.7 cm in diameter, on long slender slightly villose pedicels, in wide mostly 15–18-flowered corymbs, the much elongated slender nearly glabrous lower peduncles from the axils of upper leaves; calyx-tube narrowly obconic, slightly villose, the lobes long, slender, acuminate, conspicuously glandular-serrate, glabrous on the outer surface, sparingly villose on the inner surface, reflexed after anthesis; stamens six to ten, usually six; anthers rose color; styles two to five, surrounded at the base by a broad ring of white hairs. Fruit ripening early in October, on glabrous pedicels, in wide, drooping clusters, short-oblong, rounded at the ends, scarlet, lustrous, marked by large pale dots, 1 to 1.2 cm long and 9 to 10 cm in diameter; calyx little enlarged, with a deep, narrow cavity pointed in the bottom, and spreading lobes dark red on the upper side below the middle, their tips mostly deciduous from the ripe fruit; flesh thin, tinged with red, soft and succulent; nutlets usually two or three, rounded and broadest at the apex, gradually narrowed and rounded at the base, ridged on the back with a broad grooved ridge, 7 to 8

mm long and 4 to 5 mm wide, the narrow hypostyle extending nearly to the base of the nutlet.

A shrub with stout, slightly zigzag glabrous branchlets light orange-green and marked by numerous orange colored lenticels when they first appear, becoming light chestnut-brown and lustrous at the end of their first season and dull red-brown the following year, and armed with stout curved chestnut-brown shining spines 3 to 3.5 cm long.

Rocky hilltops north of the Mohawk river, Beaver brook valley, three miles east of Herkimer, J. V. Haberer (no. 2444, type), October 1907, May 28 and October 1, 1912.

This handsome and distinct plant is named in memory of James Hadley M.D. (1785–1869), professor of chemistry and natural sciences in the Fairfield Medical College of Physicians and Surgeons at Fairfield, Herkimer county, and later professor of chemistry and natural sciences in Hamilton College, an active and successful student of the plants of central New York and at Fairfield instructor in botany of Asa Gray.

Crataegus suavis Sargent

N. Y. State Mus. Bul. 122. 59 (1908).

Clayton, Ithaca, Frankfort, East Aurora, Buffalo, Niagara Falls, Hemlock lake, Coopers Plains, Salamanca, Cattaraugus creek.

Crataegus boothiana Sargent

N. Y. State Mus. Bul. 122. 58 (1908).

Rochester, Monroe, Fillmore, Tuscarora, Almond.

Crataegus slavinii Sargent

N. Y. State Mus. Bul. 122. 57 (1908).

Brighton, Hemlock lake, Almond and Salamanca.

Crataegus ascendens Sargent

Rhodora V. 141 (1903); N. Y. State Mus. Bul. 105. 57 (1906).

Thompsons lake near Albany; also in western Vermont.

Crataegus acuminata Sargent

N. Y. State Mus. Bul. 105. 56 (1906).

Near Albany and Herkimer.

Crataegus tenella Ashe

Ann. Carnegie Mus. I, pt III. 338 (1902). Sargent, Bot. Gazette XXXV. 108. Peck, N. Y. State Mus. Bul. 116. 23 (1907).

Colemans Station, Moores Mills, Dykemans; also in eastern Pennsylvania and Delaware.

Crataegus spatifolia Sargent

N. Y. State Mus. Bul. 122. 98 (1908).

Coopers Plains.

Crataegus nescia Sargent

N. Y. State Mus. Bul. 122. 100 (1908).

Coopers Plains.

Crataegus rubrocarnea Sargent

N. Y. State Mus. Bul. 105. 55 (1906).

Albany.

Crataegus glaucophylla Sargent

Rhodora V. 140 (1903); Proc. Rochester Acad. Sci. IV. 12; N. Y. State Mus. Bul. 122. 102 (1908).

Westport, near Herkimer, Chapin, Rochester, Hemlock lake, Portage, Castile, Belfast, East Aurora, Coopers Plains; also western Pennsylvania, southern Ontario and Michigan.

Crataegus demissa Sargent

Rhodora V. 139 (1903); N. Y. State Mus. Bul. 105. 55 (1906).

Near Albany, Gansevoort, Ithaca, Chapin and Tuscarora.

Crataegus delucida Sargent

Rhodora V. 139 (1903); N. Y. State Mus. Bul. 105. 55 (1906).

Near Albany; also in western Vermont.

Crataegus matura Sargent

Rhodora III. 24 (in part) (1901); Rhodora v. III (1903); Proc. Rochester Acad. Sci. IV. 126.

Moores Mills, Dykemans, Lewis Point, Oneida lake, Chapin, Hemlock lake, Belfast, Coopers Plains, Olean; also in western New England and southern Ontario.

Crataegus streeterae Sargent

Proc. Rochester Acad. Sci. IV. 119 (1903); N. Y. State Mus. Bul. 122. 62 (1908).

Ithaca, Frankfort, near Utica, Chapin, Rochester, Belfast, Coopers Plains, Buffalo, Niagara Falls; also in southern Michigan.

Crataegus rubicunda Sargent

Proc. Rochester Acad. Sci. IV. 121 (1903); N. Y. State Mus. Bul. 122. 60 (1908).

Chapin, Rochester, Belfast, Hermitage; also in southern Ontario.

Crataegus recta Sargent

N. Y. State Mus. Bul. 122. 97 (1908).

Coopers Plains.

Crataegus insignata Sargent

N. Y. State Mus. Bul. 122. 101 (1908).

Coopers Plains.

Crataegus fucata Sargent

N. Y. State Mus. Bul. 122. 99 (1908).

Coopers Plains.

Crataegus pentandra Sargent

Rhodora III. 25 (1901); Silva N. Am. XIII. 129, t. 681; N. Y. State Mus. Bul. 105. 35 (1906).

Moores Mills, Pawling and near Albany, west of Whetstone; also in western New England.

Crataegus bella Sargent

N. Y. State Mus. Bul. 122. 61 (1908).

Ithaca, Chapin, Hemlock lake, Coopers Plains, Belfast, Buffalo, Buffalo, Salamanca, Cattaraugus creek; also in southern Ontario.

Crataegus ornata Sargent

Proc. Rochester Acad. Sci. IV. 120 (1903); N. Y. State Mus. Bul. 122. 60 (1908).

Lenox, Madison City, near Utica, Rochester, Coopers Plains, Buffalo and LaSalle.

Crataegus genialis Sargent

Rhodora V. 148 (1908); N. Y. State Mus. Bul. 105. 55 (1906).

Near Albany, Little Falls, Belfast, Coopers Plains and Buffalo; also in southern Ontario.

Crataegus leptopoda Sargent

N. Y. State Mus. Bul. 122. 118 (1908).

Hemlock lake, Canadice lake and Almond.

Crataegus paineana n. sp.

Glabrous with the exception of the hairs on the young leaves. Leaves ovate, acuminate, rounded or cuneate at the base, finely serrate with straight slender teeth and divided usually only above the middle into short broad acute lobes; more than half grown when the flowers open about the first of June and then yellow-green and slightly roughened above by short white hairs, and at maturity thin, dull yellow-green on the upper surface, paler on the lower surface, 4 to 5 cm long and 3 to 3.5 cm. wide, with slender midribs and primary veins; petioles slender, slightly wing-margined at the apex, 2 to 3 cm in length; leaves on vigorous shoots ovate, abruptly acuminate, broad and rounded or cuneate at the base, coarsely serrate, often deeply lobed, 1.7 to 1.8 cm long and 6 to 7 cm wide, their petioles stout, wing-margined to the middle, rose-colored and often glandular in the autumn. Flowers on long slender pedicels, in many-flowered corymbs, the much elongated lower peduncles from the axils of upper leaves; calyx-tube narrowly obconic, tne lobes gradually narrowed from the base, long and slender, entire, reflexed after anthesis; stamens five to nine; anthers rose color; styles two to four. Fruit ripening at the end of September, on elongated pedicels, in many-fruited drooping clusters, long-obovoid, rounded at the apex, gradually narrowed to the base, scarlet, lustrous, marked by small pale dots, 2 to 5 cm long and 1 cm in diameter; calyx little enlarged, with a very narrow and deep cavity, the lobes appressed and mostly deciduous from the ripe fruit; flesh thick, orange-colored, sweet and of good flavor; nutlets two to four, usually three, narrowed and rounded at the ends, rather broader at the apex than at the base, ridged on the back with a narrow grooved ridge, 7 to 8 mm long and about 4 mm wide, the narrow hypostyle extending to below the middle of the nutlet.

A shrub 3 to 4 m high, with numerous erect stems and branches forming an open round-topped head, and stout, slightly zigzag branchlets tinged with red when they first appear, becoming dull reddish or orange-brown at the end of their first season, and armed with numerous stout or slender incurved chestnut-brown spines 2 to 4 cm long.

Rocky upland pastures, Beaver brook valley north of the Mohawk river and two or three miles east of Herkimer, very common, J. V. Haberer (no. 2518, type), June 10 (the petals fallen) and September 30, 1907; Haberer, Dunbar and Sargent, September 26, 1912.

This species, which, in autumn when it is covered with its innumerable drooping clusters of brilliant fruit, is one of the most beautiful of all the Tenuifoliae, is named in memory of John A. Paine, jr (1840–1912), author of "A Catalogue of Plants of Oneida County and Vicinity."

Crataegus gracilipes Sargent

N. Y. State Mus. Bul. 122. 119 (1908).

Near Herkimer and Hemlock lake.

Crataegus habereri Sargent

N. Y. State Mus. Bul. 116. 21 (1907).

Near Utica.

Crataegus parviflora Sargent

Proc. Rochester Acad. Sci. IV. 117 (1903).

Ithaca, Chapin, Penfield, Rochester, Hemlock lake, Cattaraugus creek.

Crataegus tenuiloba Sargent

Proc. Rochester Acad. Sci. IV. 122 (1903).

Lenox, Rochester, Penfield, Hemlock lake and Buffalo.

Crataegus claytoniana Sargent

N. Y. State Mus. Bul. 122. 120 (1908).

Clayton.

Crataegus stolonifera Sargent

Bot. Gazette XXXV. 109 (1903).

Tuscarora; also in Delaware, eastern and western Pennsylvania and southern Michigan.

Crataegus edsonii Sargent

Rhodora VII. 205 (1905); N. Y. State Mus. Bul. 105. 57 (1906).

Lansingburg; also in western New England.

Crataegus conferta Sargent

N. Y. State Mus. Bul. 122. 62 (1908).

Ithaca, near Rochester, Buffalo and Salamanca.

Crataegus benigna Sargent

Proc. Rochester Acad. Sci. IV. 127 (1903).

Rochester, Silver Springs and Belfast.

Crataegus mellita Sargent

N. Y. State Mus. Bul. 105. 58 (1906).

Sand Lake, near Albany.

Crataegus luminosa Sargent

N. Y. State Mus. Bul. 122. 63 (1908).

Buffalo.

COCCINEAE

Crataegus holmesiana Ashe

Jour. Elisha Mitchell Sci. Soc. XVI, pt II. 78 (1900). Sargent Silva N. Am. XIII. 119, t. 676; Proc. Rochester Acad. Sci. IV. 114 (1903).

Phoenicia, Albany, Ogdensburg, Little Falls, near Utica, Oriskany, Elmira, Ithaca, Syracuse, Rochester, Hemlock lake, Belfast, Castile, Buffalo; also in Quebec and Ontario, New England and Pennsylvania.

Crataegus acclivis Sargent

Proc. Rochester Acad. Sci. IV. 115 (1903); N. Y. State Mus.. Bul. 122. 71 (1908).

Albany, near Utica, Ithaca, Chapin, Rochester, Hemlock lake, Belfast, Niagara Falls and Buffalo.

Crataegus uticaensis n. sp.

Leaves ovate, acute or acuminate, abruptly cuneate or gradually narrowed and rounded or broad and rounded at the base, coarsely serrate with straight glandular teeth, and divided above the middle into four or five pairs of short acuminate lobes; more than half grown when the flowers open about the 20th of May and then ellow-green, roughened above by short white hairs and paler and glabrous below, and at maturity yellow-green, smooth and glabrous on the upper surface, 6 to 7 cm long and 5 to 5.5 cm wide, with thin midribs and primary veins; petioles slender, sparingly villose when they first appear, soon becoming glabrous, glandular with occasional small deciduous glands, 1.5 to 2.5 cm in length; stipules linear, acuminate, conspicuously glandular, caducous; leaves on vigorous shoots cuneate, rounded or slightly cordate at the wide base, more coarsely serrate and more deeply lobed, often 8 cm long and wide. Flowers 2 to 2.2 cm in diameter, on slender sparingly villose pedicels, in compact slightly hairy mostly 8–14-flowered corymbs, the lower peduncles from the axils of upper leaves; calyx-tube narrowly obconic, hairy with occasional white hairs or nearly glabrous, the lobes separated by broad sinuses, short, broad, entire or occasionally

glandular-dentate near the middle, glabrous, reflexed after anthesis; stamens five or six; anthers rose color; styles three or four. Fruit ripening and falling in September, on slender drooping pedicels, short-oblong, rounded at the ends, scarlet, marked by large pale dots, about 1.5 cm long and 1.2 to 1.3 cm in diameter; calyx little enlarged with a wide deep cavity pointed in the bottom, and spreading lobes dark red on the upper side below the middle; flesh thick, orange color; nutlets three or four, narrowed and rounded at the ends, ridged on the back with a low rounded ridge, 7 to 8 mm long and 4 to 5 mm wide, the broad conspicuous hypostyle extending to below the middle of the nutlet.

An arborescent shrub 5 to 7 m high, growing singly or in clumps, with ascending stems and branches covered with ashy gray bark and forming a pyramidal head, stout glabrous branchlets tinged with red when they first appear, becoming light orange-brown, lustrous and marked by pale lenticels during their first season and ashy gray the following year, and armed with slender nearly straight dark brown shining spines 4.5 to 5 cm long.

Hills south of Utica, common; J. V. Haberer (no. 2441, type, 2441A, 2441B), May 24 and September 19, 1912. Rocky banks north of the Mohawk river at Little Falls, J. V. Haberer (no. 2439), May 6, 1907; Haberer and Dunbar, September 27, 1912.

Crataegus pringlei Sargent

Rhodora III. 21 (1901); Silva N. Am. XIII. 111, t. 672; Proc. Rochester Acad. Sci. IV. 112 (1903).

Crown Point, Colemans Station, Fort Ann, Oriskany, near Little Falls, near Herkimer, Marcy, Chapin, Rochester, Hemlock lake; also in western New England, southern Ontario, Michigan and Illinois.

Crataegus lobulata Sargent

Rhodora III. 22 (1901); Silva N. Am. XIII. 117, t. 675; N. Y. State Mus. Bul. 105. 63 (1906).

Sand Lake, near Albany, Crown Point; also in western and southern New England.

Crataegus pedicellata Sargent

Bot. Gazette XXXI. 226 (1901); Silva N. Am. XIII. 121, t. 677; N. Y. State Mus. Bul. 122. 69 (1908).

New Hartford, Little Falls, Chapin, Syracuse, Rochester, Hemlock lake, East Aurora, Buffalo, Salamanca; also in southern Ontario and western Pennsylvania.

Crataegus gloriosa Sargent

N. Y State Mus. Bul. 122. 70 (1908).

Rochester.

Crataegus letchworthiana Sargent

N. Y. State Mus. Bul. 122. 69 (1908).

Near Portage.

Crataegus vivida Sargent

Ontario Nat. Sci. Bul. 4. 47 (1908).

Ithaca, Chapin, Cattaraugus creek; also in southern Ontario.

Crataegus tardipes Sargent

Ontario Nat. Sci. Bul. 4. 51 (1908).

Utica, Salamanca; also in southern Ontario.

Crataegus polita Sargent

Rhodora V. 112 (1903); N. Y. State Mus. Bul. 105. 63 (1906).

Sand Lake, near Albany, Little Falls, near Herkimer and Utica.

Crataegus sejuncta Sargent

N. Y. State Mus. Bul. 105. 62 (1906).

Albany, Buffalo; also in western New England.

Crataegus dayana Sargent

N. Y. State Mus. Bul. 122. 66 (1908).

Hemlock lake, Buffalo and Cattaraugus creek.

Crataegus gilbertiana n. sp.

Leaves ovate, acute, cuneate or rounded at the broad base, sharply often doubly serrate with straight glandular teeth, and slightly divided into four or five pairs of short acuminate lateral lobes; about one-third grown when the flowers open the middle of June and then thin, yellow-green, roughened above by short white hairs and slightly hairy below along the midribs and veins, and at maturity thin, dark blue-green and glabrous on the upper surface, paler on the lower surface, still slightly hairy on the thin midribs and primary veins, 7 to 8 cm long and 5.5 to 6.5 cm wide; petioles slender, slightly wing-margined at the apex, glabrous, 2.5 to 3 cm in length; leaves on vigorous shoots acuminate, abruptly cuneate at the base, more coarsely

serrate, often deeply lobed, 10 to 12 cm long and 9 to 10 cm wide, with stout glandular winged petioles. Flowers about 2 cm in diameter, on slender slightly villose pedicels, in erect sparingly hairy mostly 10–12-flowered corymbs, the elongated lower peduncles from the axils of upper leaves; calyx-tube narrowly obconic, thickly covered with long white hairs, the lobes separated by wide sinuses, slender, acuminate, entire, glabrous on the upper surface, slightly villose on the lower surface, reflexed after anthesis; stamens twenty; anthers red; styles three or five. Fruit ripening in October, on long drooping nearly glabrous pedicels, obovoid, rounded at the apex, gradually and abruptly narrowed at the base, crimson, lustrous, marked by small pale dots, 1.5 to 1.8 cm long and 1.3 to 1.5 cm in diameter; calyx with a short neck, a broad deep cavity pointed in the bottom, and spreading mostly deciduous lobes; flesh very thin, orange-colored, dry and mealy; nutlets gradually narrowed and rounded at the ends, slightly ridged on the back, 8 to 9 mm wide, the narrow hypostyle extending to just below the middle of the nutlet.

An arborescent shrub 6 to 7 m high, with ascending stems sometimes 3 dm in diameter at the base, and covered with ashy gray scaly bark, and stout nearly straight glabrous branchlets dark orange-green and marked by pale lenticels when they first appear, becoming bright chestnut-brown and very lustrous at the end of their first season and pale gray the following year, and armed with stout nearly straight chestnut-brown spines 3 to 4 cm long.

Pastures and meadows on the borders of Mud lake in Warren, Herkimer county, common; J. V. Haberer (no. 2414), June 16 and October 9, 1907; Haberer, Dunbar and Sargent, September 28, 1912.

The blue color of the leaves of this species is unusual in plants of the Coccineae group. It is named in memory of Benjamin Davis Gilbert (1835–1907), a native of Clayville, New York, and for many years a resident of Utica where he was a successful bookseller and the agricultural editor of the Utica Morning Herald, secretary of the New York Dairymen's Association, and secretary and treasurer of the Central New York Farmers Club. Mr Gilbert, who early became interested in ferns, was the author of many papers on these plants and an industrious and careful student of the flora of central New York.

Crataegus steubenensis Sargent

N. Y. State Mus. Bul. 122. 103 (1908).

Coopers Plains.

Crataegus irrasa Sargent

Rhodora V. 116 (1903).

Keene, Essex co.; also in the Province of Quebec.

Crataegus perrara n. sp.

Leaves ovate to broadly oval, acute at the apex, rounded or sharply cuneate at the broad base, finely often doubly serrate with straight glandular teeth, and divided above the middle into four or five pairs of short broad acuminate lobes; nearly fully grown when the flowers open at the end of May and then thin, yellow-green, roughened above by short white hairs and glabrous below, and at maturity thin, yellow-green, scabrate on the upper surface, pale on the lower surface, more or less contorted, 4.5 to 5.5 cm long and 3.5 to 4.5 cm wide, with thin midribs and primary veins; petioles slender, glabrous, 2 to 3 cm in length; leaves on vigorous shoots rounded, truncate or abruptly cuneate at the broad base, coarsely serrate, deeply divided into broad lateral lobes and often 8 to 9 cm long and 7 to 8 cm wide. Flowers 2 cm in diameter, on stout slightly hairy pedicels, in compact many-flowered corymbs, the lower peduncles from the axils of upper leaves; calyx-tube narrowly obconic, sparingly villose with long white hairs, the lobes slender, acuminate, coarsely glandular-serrate, slightly hairy on the outer surface, glabrous on the inner surface, reflexed after anthesis; stamens five to eight; anthers white; styles three to five. Fruit ripening the middle of September on drooping red pedicels, short-oblong to slightly obovoid, rounded at the ends, crimson, lustrous, marked by small pale dots, 1.5 to 1.8 cm long and 1 to 1.2 cm in diameter; calyx little enlarged with a deep narrow cavity, and erect often incurved lobes; flesh thin, yellow, dry and mealy; nutlets near the apex of the fruit, three to five, broadest and rounded at the apex, gradually narrowed to the base, slightly and irregularly ridged on the back, 6 to 7 mm long and 4 to 5 mm wide.

A shrub 5 to 6 m high with ascending branches, dark brown scaly bark, and stout zigzag branchlets dark orange-green and

slightly villose when they first appear, becoming light chestnut-brown, lustrous and marked by small pale lenticels at the end of their first season and light red-brown the following year, and unarmed or armed with occasional chestnut-brown spines 5 to 6 cm long.

Meadows in rich moist soil, near Chapinville, Ontario county, B. H. Slavin (no. 35, type), May 29 and September 17, 1909; Honeoye lake region, Ontario county, Henry T. Brown (no. 76). June 7 and September 19, 1907.

Crataegus limosa Sargent

N. Y. State Mus. Bul. 122. 67 (1908).

Near Rochester.

Crataegus flabellata (Spach) Sargent

Rhodora III. 75 (1901); Rhodora V. 114 (1903).

Mespilus flabellata Bosc, ex Spach Hist. Vég. II. 63 (1834).

Crown Point and Rossie; also in western Vermont, New Hampshire, Province of Quebec, Massachusetts and Connecticut.

MOLLES

Crataegus champlainensis Sargent

Rhodora III. 20 (1901); Silva N. Am. XIII, 105, t. 667; N. Y. State Mus. Bul. 105. 59 (1906).

Crown Point, Port Henry, near Albany, Greenbush, Ogdensburg, Chapin, Hemlock lake; also in western New England, Quebec and southern Ontario.

Crataegus contortifolia Sargent

N. Y. State Mus. Bul. 105. 59 (1906).

North Albany and North Greenbush.

Crataegus ellwangeriana Sargent

Bot. Gazette XXXIII. 1184 (1902); Silva N. Am. XIII, 109, t. 671; Proc. Rochester Acad. Sci. IV. 112 (1903).

Ithaca, Ogdensburg, Chapinville, Canandaigua, Rochester, Hemlock lake, Portage, Salamanca; also in southern Ontario, Michigan and western Pennsylvania.

Crataegus robesonana Sargent

Rhodora, v. 110 (April 1903)

Crataegus spissiflora Sargent Proc. Rochester Acad. Sci. IV. 112 (June 1903); N. Y. State Mus. Bul. 105. 61 (1906).

Near Albany, Little Falls, Lenox, Ithaca, Rochester, Hemlock lake; also in southern Ontario and western Massachusetts.

Crataegus exclusa Sargent

Rhodora V. 108 (1903); N. Y State Mus. Bul. 105. 60 (1906).

Near Albany, Greenbush, Chapinville; also in western Vermont.

Crataegus urbica nov. nom. Sargent

Crataegus oblongifolia Sargent, N. Y. State Mus. Bul. 105. 60 (not K. Kock) (1906).

Near Albany.

Crataegus anomala Sargent

Rhodora III. 74 (1901).

Crown Point and Fort Ann; also in western Vermont and the province of Quebec.

Crataegus huntiana n. sp.

Leaves ovate, acute, rounded or abruptly cuneate at the broad base, coarsely often doubly serrate with straight glandular teeth, and slightly divided into short acuminate lateral lobes; about one-third grown when the flowers open the middle of June and then thin, light yellow-green and covered by short white hairs longest and most abundant on the lower side of the midribs and veins, and at maturity thin, blue-green, glabrous and lustrous on the upper surface, paler on the lower surface and slightly hairy on the prominent midribs and four or five pairs of primary veins arching obliquely to the points of the lobes, 7 to 8 cm long, 6 to 7 cm wide, and on vigorous shoots sometimes 10 to 12 cm long and 8 to 9 cm wide; petioles stout, densely villose early in the season, tinged with red and glabrous in the autumn, 2 to 3 cm in length. Flowers 1.8 to 2 cm in diameter, on slender villose pedicels, in small densely villose mostly 12-flowered corymbs, the long lower peduncles from the axils of upper leaves; calyx-tube narrowly obconic, densely villose, the lobes narrow, acuminate, conspicuously glandular-serrate, slightly villose; stamens seven to ten; anthers rose color; styles four or five. Fruit ripening early in October, on stout drooping slightly

hairy pedicels, broadly obovoid, occasionally slightly decurrent on the pedicel, scarlet, very lustrous, marked by few large white dots, slightly pubescent at the ends, 1.8 to 2 cm long and 1.6 to 1.8 cm in diameter, villose at the base of the little enlarged calyx with a deep narrow cavity pointed in the bottom, and erect and incurved often deciduous lobes densely villose on the inner surface; flesh yellow, dry and mealy, of good flavor; nutlets four or five, placed above the middle of the fruit, broad and rounded at the apex, gradually narrowed to the base, rounded and slightly grooved on the back, 9 to 10 mm long and 5 to 6 mm wide, the conspicuous hypostyle extending nearly to the base of the nutlet.

A round-topped shrub 3 to 4 m high, with numerous stout erect stems and branches and slender slightly zigzag branchlets, light orange-green and thickly covered when they first appear with long white hairs, glabrous, light orange-brown, lustrous and marked by dark lenticels in their first autumn and light brown the following year, and armed with straight or slightly curved dark red-brown shining spines 2.5 to 5 cm long.

Roadsides and rocky pastures between Jordanville and Mud lake, on the headwaters of the Susquehanna river, Herkimer county; J. V. Haberer (no. 2450, type), June 16 and October 19, 1907; Haberer, Dunbar and Sargent, September 28, 1912.

This handsome shrub is named in memory of Edwin Hunt (1837–80), for many years professor of natural sciences in the Utica Free Academy, a successful teacher of botany and a careful and industrious student of the flora of central New York.

Crataegus radians Sargent

N. Y. State Mus. Bul. 122. 64 (1908).

Rochester.

Crataegus fulleriana Sargent

Proc. Rochester Acad. Sci. IV. 111 (1903).

Rochester.

DILATATAE

Crataegus dilatata Sargent

Bot. Gazette XXXI. 9 (1901); Silva N. Am. XIII, 113, t. 672; N. Y. State Mus. Bul. 105. 63 (1906).

Thompsons lake near Albany, Gansevoort; also New England and Province of Quebec.

Crataegus hudsonica Sargent

Man. 457, f. 373 (1905); N. Y. State Mus. Bul. 105. 63 (1906).

Near Albany and Greenbush.

Crataegus durobrivensis Sargent

Trees and Shrubs I. 3, t. 2 (1902); Rochester Acad. Sci. IV. 114 (1903); N. Y. State Mus. Bul. 105. 64 (1906).

Near Albany, Ithaca, Canandaigua, Rochester, Hemlock lake, Portage and Niagara Falls.

INTRICATAE

Crataegus intricata Lange

Bot. Tidskr. XIX. 246 (1894). Sargent, N. Y. State Mus. Bul. 105. 67 (1906).

Moores Mills, near Albany, Lansingburg, Coopers Plains; also in New England and southern Pennsylvania.

Crataegus cornellii Sargent

N. Y. State Mus. Bul. 122. 105 (1908).

Coopers Plains.

Crataegus verecunda Sargent

Proc. Rochester Acad. Sci. IV. 109 (1903); N. Y. State Mus. Bul. 105. 68 (1906).

Lansingburg, Corning, Ithaca, Rochester, Hemlock lake and Coopers Plains.

Crataegus modesta Sargent

Rhodora III. 28 (1901); N. Y. State Mus. Bul. 105. 68 (1906).

Moores Mills, near Albany, Coopers Plains; also in New England and eastern Pennsylvania.

Crataegus foetida Ashe

Ann. Carnegie Mus. I. pt III. 389 (1902). Sargent, N. Y. State Mus. Bul. 105. 68 (1906).

Crataegus baxteri Sargent, Proc. Rochester Acad. Sci. IV. 107 (1903).

Lansingburg, Albany, Ithaca, Chapinville, Rochester, Hemlock lake, Castile, Coopers Plains; also in western Massachusetts, eastern Pennsylvania and southern Ontario.

Crataegus bissellii Sargent

Rhodora V. 65 (1903).

Staatsburg; also in southern Connecticut.

Crataegus peckii Sargent

Rhodora V. 63 (1903); N. Y. State Mus. Bul. 105. 68 (1906).

Lansingburg.

ROTUNDIFOLIAE

Crataegus rotundifolia (Ehrhart) Moench

Baum. Weiss. 29, t. 1 (1785).

Crataegus coccinea var. rotundifolia Sargent, Bot. Gazette XXXI. 14 (1900); N. Y. State Mus. Bul. 105. 64 (1906).

Moores Mills, Albany, Crown Point, Lake Placid, Ogdensburg; also New England, Province of Quebec and Pennsylvania.

Var. pubera Sargent, Rhodora XI. 183 (1909).

Crataegus coccinea Sargent, Silva N. Am. XIII. 133, t. 683 (not Linneus) (1902); N. Y. State Mus. Bul. 105. 64 (1906).

Pawling, Albany, North Elba, Chateaugay, Lake Placid, Buffalo; also New England, eastern Canada, Quebec, Ontario and Michigan.

Crataegus dodgei Ashe

Jour. Elisha Mitchell Sci. Soc. XIX. 26 (1901). Sargent, N. Y. State Mus. Bul. 105. 64 (1906).

Near Albany, Elmira, Buffalo, Belfast, Tuscarora, Coopers Plains; also in New England, eastern Pennsylvania and in southern Ontario and Michigan.

Crataegus caesariata Sargent

N. Y. State Mus. Bul. 105. 604 (1906).

Near Albany.

Crataegus divergens Sargent

N. Y. State Mus. Bul. 105. 66 (1906).

North Greenbush.

Crataegus illuminata Sargent

N. Y. State Mus. Bul. 105. 65 (1906).

North Greenbush.

Crataegus maribella n. sp.

Glabrous with the exception of the hairs on the young leaves and calyx-lobes. Leaves elliptical to obovate or ovate, acute or acuminate, cuneate at the entire base, finely doubly serrate above with straight glandular teeth, and slightly divided above the middle into narrow acuminate lobes; about half grown when the flowers open the end of May and then thin, light yellow-green and roughened above by short white hairs and glaucescent and glabrous below, and at maturity thick, yellow-green, smooth and lustrous on the upper surface, pale on the lower surface, 6 to 8 cm long and 4 to 4.5 cm wide, with stout midribs and thin primary veins extending obliquely to the points of the lobes; petioles stout, red in the autumn, 2 to 2.5 cm in length; leaves on vigorous shoots ovate, rounded at the wide base, 7 to 8 cm long and 6 to 7 cm wide, with stout, winged glandular petioles. Flowers 2 cm in diameter, on long slender pedicels, in wide lax mostly 10–14-flowered corymbs, the much elongated lower peduncles from the axils of upper leaves; calyx-tube narrowly obconic, the lobes separated by wide sinuses, gradually narrowed from the base, long-acuminate, coarsely glandular-serrate, slightly villose on the inner surface, reflexed after anthesis; stamens twenty; anthers white; styles two to four. Fruit ripening the end of September on slender drooping pedicels, short-oblong, rounded at the ends, crimson, lustrous, marked by large pale dots, 1 to 1.2 cm long and 9 to 10 mm in diameter; calyx little enlarged with a deep narrow cavity pointed in the bottom, and reflexed closely appressed lobes often deciduous from the ripe fruit; flesh thick, orange color, soft and mealy, nutlets two to four, usually three, narrowed and rounded at the ends, rather broader at the apex than at the base, ridged on the back with a high rounded ridge, 7 to 8 mm long and 4.5 mm wide, the broad hypostyle extending to just below the middle of the nutlet.

A broad shrub 3 to 4 m high, with erect stems, and stout zigzag branchlets light yellow-green when they first appear, becoming light chestnut-brown, very lustrous and marked by large dark lenticels at the end of their first season and pale gray the following year, and armed with numerous stout straight light chestnut-brown shining spines 3 to 4.5 cm long.

Rocky banks on the north side of the Mohawk river below Little Falls; J. V. Haberer (no. 2491, type), June 1, 1912; Haberer and Dunbar, September 22, 1912. Moss island in the Mohawk river,

below Little Falls; J. V. Haberer (no. 2416), June 1, 1912; Haberer, Dunbar and Sargent, September 27, 1912.

This species is named in memory of Miss Mary Isabel Haberer, the companion and assistant of her father in his botanical explorations of the flora of central New York.

Crataegus macauleyae Sargent

Proc. Rochester Acad. Sci. IV. 130 (1903).

Chapinville and Rochester.

Crataegus noveboracensis Sargent

N. Y. State Mus. Bul. 116. 22 (1907).

North Elba and Keene.

Crataegus verrucalis Peck

N. Y. State Mus. Bul. 122. 123 (1908).

Adirondack region.

Crataegus puberis Sargent

N. Y. State Mus. Bul. 105. 73 (1906).

Near Belfast.

Crataegus proctoriana n. sp.

Leaves ovate, acute or acuminate, abruptly or broadly cuneate at the base, coarsely often doubly serrate with straight glandular teeth, and deeply divided into four or five pairs of narrow acuminate spreading or often slightly recurved lobes; about half grown when the flowers open the first of June and then thin, yellow-green, roughened above by short white hairs and glabrous below, and at maturity thin but firm in texture, dark, yellow-green and smooth or scabrate on the upper surface, pale yellow-green on the lower surface, 5 to 7 cm long and 4 to 6 cm wide, with slender midribs, and thin primary veins extending obliquely to the points of the lobes; petioles slender, slightly wing-margined at the apex, glandular with occasional small persistent glands, 2 to 2.5 cm in length; leaves on vigorous shoots ovate, acuminate, abruptly cuneate, rounded or truncate at the wide base, coarsely serrate, deeply lobed, often 9 to 10 cm long and 8 to 9 cm wide, their petioles stout, narrowly wing-margined often to the middle, conspicuously glandular, 2.5 to 3 cm in length. Flowers 1.3 to 1.5 cm in diameter, on slender slightly hairy pedicels, in

narrow mostly 8–10-flowered sparingly villose corymbs, the lower peduncles from the axils of upper leaves; calyx-tube narrowly obconic, covered at the base with long scattered white hairs, the lobes separated by wide sinuses, glabrous on the outer surface, slightly villose on the inner surface; stamens ten; anthers pink in the bud, fading white as the flowers open; styles three or four. Fruit ripening the end of September on slender pedicels, in few-fruited clusters, subglobose but often slightly longer than broad, crimson, lustrous, marked by large pale dots, 1 to 1.2 cm in diameter; calyx little enlarged, with a broad shallow cavity and reflexed appressed lobes; flesh thin, dry and mealy; nutlets three or four, rounded at the ends, rather broader at the apex than at the base, ridged on the back with a high deeply grooved ridge 7 to 8 mm long and about 4 mm wide, the broad conspicuous hypostyle extending to just below the middle of the nutlet.

A broad shrub 5 to 6 m high, with stout stems covered with dark scaly bark, erect spreading branches, and slender slightly zizag branchlets tinged with red and marked by numerous pale lenticels when they first appear, becoming dark chestnut-brown and lustrous at the end of their first season and ashy gray the following year, and armed with stout straight or slightly curved chestnut-brown shining spines 3 to 4.5 cm. long.

Swampy hilltops south of Utica, rare; J. V. Haberer (no. 2412, type), June 4, September 22 and October 6, 1907, September 19, 1912; Haberer, Dunbar and Sargent, September 28, 1912.

This interesting species is named for Thomas Redfield Proctor, a public-spirited citizen of Utica to whose generosity the city owes its public parks, covering an area of some five hundred acres.

Crataegus maligna n. sp.

Leaves elliptical to slightly obovate, acute or acuminate, gradually narrowed and cuneate or rounded at the base, finely serrate with straight glandular teeth, and divided above the middle into three or four pairs of short broad acute lobes; nearly fully grown when the flowers open the middle of June and then yellow-green and roughened above by short white hairs and glabrous below, and at maturity thin but firm in texture, glabrous, dark yellow-green on the upper surface, pale on the lower surface, 4 to 4.5 cm long and 3 to 3.5 cm wide, with thin midribs and primary veins; petioles slender, slightly wing-margined at the apex, glabrous, occasionally glandular, 1.5 to 2 cm in length; leaves on vigorous shoots ovate, rounded or abruptly

cuneate at the wide base, 4.5 to 5 cm long and broad. Flowers 1.8 cm in diameter, on slender slightly villose pedicels, in wide mostly 15–20-flowered corymbs, the lower peduncles from the axils of upper leaves; calyx-tube narrowly obconic, slightly villose at the base, the lobes separated by wide sinuses, broad, acuminate, glandular-serrate, glabrous on the outer surface, villose on the inner surface, reflexed after anthesis; stamens five to ten; anthers pink; styles three or four, surrounded at the base by a narrow ring of white hairs. Fruit ripening the end of September on drooping red pedicels, short-oblong, slightly narrowed and rounded at the base, crimson, lustrous, marked by occasional pale dots, 1.2 to 1.3 cm long and 9 to 10 mm in diameter; calyx prominent with a short tube, a very deep narrow cavity pointed in the bottom, and reflexed appressed persistent lobes; flesh thin, dry and mealy; nutlets three or four, acute at the apex, broader and rounded at the base, ridged on the back with a low ridge, occasionally depressed on the inner surfaces, 7 to 7.5 mm long and 4 to 4.5 mm wide, the broad prominent hypostyle extending to just below the middle of the nutlet.

A shrub 3 to 4 m tall, with ascending stems covered at the base with scaly bark, ascending branches forming a compact head, and stout slightly zigzag glabrous branchlets light orange-green when they first appear, bright chestnut-brown, lustrous and marked by large pale lenticels at the end of their first season and dull gray-brown the following year, and armed with numerous slender straight chestnut-brown shining spines 7 to 8 cm long.

Open pastures in moist soil near Ogdensburg. J. Dunbar (no. 49, type), June 12 and September 28, 1907.

A slight depression which occurs on the inner faces of some of the nutlets indicates the relationship of this very distinct species with the Anomalae, but such depressions are not constant and in other characters it is more like the Rotundifoliae with which I have placed it rather than with the Anomalae.

Crataegus praecoqua Sargent

Rhodora V. 167 (1903).

Crataegus praecox Sargent. Rhodora III. 27 (not Loudon) (1902).

Crown Point, Fort Ann; also in northern Illinois, Wisconsin and the Province of Quebec.

Crataegus spissa Sargent

N. Y State Mus. Bul. 122. 122 (1908).

North Elba.

Crataegus chateaugayensis Sargent

N. Y. State Mus. Bul. 122. 121 (1908).

Near Chateaugay lake.

Crataegus harryi Sargent

N. Y. State Mus. Bul. 122. 124 (1908).

Richmond, Canadice lake and Honeoye lake.

Crataegus neo-baxteri Sargent

N. Y State Mus. Bul. 122. 74 (1908).

Tuscarora.

ANOMALAE

Crataegus saundersiana Sargent

Ontario Nat. Sci. Bul. 4. 66 (1908).

Palmyra; also in southern Ontario.

Crataegus brachyloba Sargent

N. Y. State Mus. Bul. 122. 75 (1908).

Buffalo.

Crataegus fallsiana n. sp.

Leaves obovate to ovate, acuminate, gradually or abruptly narrowed at the entire base, sharply and often doubly serrate above, with straight glandular teeth and divided above the middle into four or five pairs of short acute lobes; nearly one-third grown when the flowers open about the 10th of June and then yellow-green and roughened above by short white hairs and paler and glabrous below, and at maturity glabrous, dark yellow-green on the upper surface, light yellow-green on the lower surface, 6 to 10 cm long and 5 to 7 cm wide, with stout midribs and slender primary veins; petioles slender, wing-margined at the apex, glabrous, dark red in the autumn, 3 to 4 cm in length. Flowers 3 cm in diameter, on long slender glabrous pedicels, in wide lax mostly 6–10-flowered corymbs, the elongated lower peduncles from the axils of upper leaves; calyx-tube narrowly obconic, glabrous, its lobes gradually narrowed to the base, long, slender, acuminate, entire or slightly dentate near the middle, glabrous on the outer surface, villose on

the inner surface, reflexed after anthesis; stamens twenty; anthers rose color; styles three to five. Fruit ripening the end of September on drooping pedicels, subglobose, truncate at the ends, slightly angled, scarlet, lustrous, marked by small pale dots, 1.4 to 1.5 cm in diameter; calyx little enlarged with a deep narrow cavity, and spreading and erect lobes often deciduous from the ripe fruit; flesh orange color, of good flavor; nutlets three to five, rounded at the ends, broader at the base than at the apex, ridged on the back with a wide grooved ridge, slightly and irregularly depressed on the inner faces, 7 to 8 mm long and 4 to 5 mm wide, the prominent hypostyle extending to below the middle of the nutlet.

An arborescent shrub or small tree sometimes 7 m high, with a stem 15 cm in diameter at the base, bark covered with small dark gray-brown scales, stout pale gray branches, and slender slightly zigzag branchlets light orange-color when they first appear, becoming light chestnut-brown, lustrous, and marked by numerous pale lenticels at the end of their first season, and armed with stout straight or slightly curved chestnut-brown shining spines 3.5 to 4.5 cm long.

Top of Falls hill south of the Mohawk at Little Falls, J. V. Haberer (no. 2464, type), June 12, 1912; Haberer, Dunbar and Sargent, September 27, 1912.

Crataegus dunbarii Sargent

Proc. Rochester Acad. Sci. IV. 126 (1903); N. Y. State Mus. Bul. 122. 76 (1908).

Rochester, Hemlock lake, Adams Basin and Buffalo.

Crataegus inopinata Sargent

N. Y. State Mus. Bul. 122. 108 (1908).

Coopers Plains.

Crataegus scabrida Sargent

Rhodora III. 29 (1901); Silva N. Am. XIII. 133, t. 677; N. Y State Mus. Bul. 122. 76 (1908).

Albany, Little Falls, New Hartford, Mohawk, near Utica, Hemlock lake, Belfast; also in New England, the Province of Quebec and southern Ontario.

Crataegus affinis Sargent

Ontario Nat. Sci. Bul. 4. 71 (1908).

Piseco, Hamilton co.; also near Toronto, Ontario.

Crataegus misella n. sp.

Leaves rhombic to obovate, acuminate and long-pointed at the apex, gradually narrowed and cuneate at the entire base, finely doubly serrate above with straight glandular teeth, and divided above the middle into three or four pairs of small acuminate spreading lobes; nearly fully grown when the flowers open at the end of May and then thin, yellow-green, roughened above by short white hairs and glabrous below, and at maturity thin, yellow-green, scabrate on the upper surface, paler on the lower surface, 5 to 6 cm long and 3.5 to 4 cm wide, with slender midribs, and thin primary veins extending obliquely to the points of the lobes; petioles slender, narrowly wing-margined at the apex, villose on the upper side while young, soon glabrous, 2 to 2.5 cm in length; leaves on vigorous shoots narrowed and rounded at the base, coarsely serrate, more deeply lobed and sometimes 6 cm long and 5 cm wide. Flowers 1.5 to 1.7 cm in diameter, on slender slightly villose pedicels, in 6–15-flowered corymbs, the lower peduncles from the axils of upper leaves; calyx-tube narrowly obconic, glabrous or slightly villose, the lobes slender, acuminate, glandular-dentate, glabrous on the outer, villose on the inner surface, reflexed after anthesis; stamens five to seven; anthers rose color; styles three or four, surrounded at the base by a ring of pale hairs. Fruit ripening the middle of September on red pedicels, in erect clusters, short-oblong, rounded at the ends, crimson, marked by small pale dots, 1.2 cm long and 1 cm in diameter; calyx little enlarged with a deep cavity pointed in the bottom, and spreading closely appressed lobes; flesh thin, yellow, firm and bitter; nutlets three or four, rounded at the ends, broader at the base than at the apex, rounded and ridged on the back with a broad high ridge, usually irregularly depressed on the inner faces, 6 to 7 mm long and 3 to 4 mm wide, the narrow hypostyle extending nearly to the base of the nutlet.

A shrub 3 to 4 m high, with ascending stems and branches, and slender glabrous slightly zigzag branchlets tinged with red and marked by pale lenticels when they first appear, becoming chestnut-brown and lustrous at the end of their first season and dull gray-brown the following year, and armed with stout slightly curved chestnut-brown shining spines 4 to 5 cm long.

On hillsides in clay soil, near Belfast, Allegany county; Baxter and Dewing (no. 216, type), September 14, 1904, May 28 and September 17, 1905.

Crataegus asperifolia Sargent

Rhodora III 31 (1901); N. Y. State Mus. Bul. 105. 64 (1906).

Near Albany, Little Falls, Buffalo, Coopers Plains; also in New England, southern Ontario and the Province of Quebec.

Crataegus singularis Sargent, N. Y. State Mus. Bul. 122. 106 (1908), with more deeply lobed leaves can not otherwise be distinguished from Crataegus asperifolia and probably should be referred to that species.

Crataegus repulsans Sargent

N. Y. State Mus. Bul. 122. 107 (1908).

Coopers Plains.

Crataegus floridula Sargent

N. Y. State Mus. Bul. 122. 126 (1908).

Piseco.

Crataegus knieskerniana n. sp.

Glabrous with the exception of the hairs on the young leaves and calyx-lobes. Leaves ovate, acuminate, cuneate at the entire base, coarsely doubly serrate above with straight glandular teeth, and divided into five or six pairs of narrow acuminate lateral lobes; about one-third grown when the flowers open the end of May and then thin, dark yellow-green and roughened above by short white hairs and pale bluish green and glabrous below, and at maturity thin, yellow-green, smooth and lustrous on the upper surface, paler on the lower surface, 6 to 7 cm long and 4.5 to 5 cm wide, with thin midribs, and slender primary veins extending obliquely to the points of the lobes; pedicels slender, slightly wing-margined at the apex, red in the autumn, 2.5 to 3 cm in length; leaves on vigorous shoots ovate, acuminate, rounded, subcordate or occasionally cuneate at the broad base, coarsely serrate, more deeply lobed, 8 to 9 cm long and wide with glandular petioles. Flowers 1.5 to 1.8 cm in diameter, on long slender pedicels, in wide lax mostly 10–13-flowered corymbs, the thin much elongated lower peduncles from the axils of upper leaves; calyx-tube narrowly obconic, the lobes long, slender, acuminate, entire, slightly dentate near the middle, glabrous on the outer, villose on the inner surface, reflexed after anthesis; stamens ten; anthers rose color; styles three or four. Fruit ripening in October on slender drooping pedicels, short-oblong, rounded at the ends, scarlet, lustrous, marked by large pale dots, 1.3 to 1.4 cm long, 1 to 1.1 cm in diameter; calyx little enlarged, with a deep narrow cavity

pointed in the bottom and spreading closely appressed lobes; flesh thin, yellow, dry and mealy; nutlets three or four, pointed at the apex, broader and rounded at the base, rounded and slightly ridged on the back, conspicuously depressed on the inner faces, 7 to 8 mm long and 4 to 5 mm wide, the narrow hypostyle extending nearly to the base of the nutlet.

A broad-topped shrub 2 to 4 m high, with stout stems covered with dark gray bark, and slender only slightly zigzag branchlets, light orange-brown and marked by pale lenticels when they first appear, becoming dark chestnut-brown and lustrous at the end of their first season and dull brown the following year, and armed with many slender straight or slightly curved chestnut-brown shining spines 3.5 to 5 cm long.

In gravelly soil along the top of the cliffs of West Canada creek north of East Herkimer; J. V. Haberer (no. 2524, type), May 28 and October 3, 1912.

This species differs from the other described species of Anomalae in the broad rounded or subcordate base of the leaves on the vigorous shoots. It is named in memory of Peter D. Knieskern (1798–1871), at one time a resident of Oriskany, New York, author of "A Catalogue of the Plants found in Oneida County," "an indefatigable collector, a keen observer, unsurpassed by few botanists in his knowledge of the plants of the region in which he resided."

TOMENTOSAE

Crataegus tomentosa Linnaeus

Spec. 467 (1753). Sargent, Silva N. Am. IV. 101, t. 183.

Watervliet, near Elmira, Ithaca, Chapinville, Hemlock lake, Coopers Plains, Geneseo, Buffalo, Salamanca; also to Missouri and North Carolina.

Crataegus efferata Sargent

N. Y. State Mus Bul. 122. 128 (1908).

Hemlock lake.

Crataegus diversa Sargent

N. Y. State Mus. Bul. 122. 109 (1908).

Coopers Plains.

Crataegus finitima Sargent

N. Y. State Mus. Bul. 122. 78 (1908).

Ithaca, near Utica, Belfast, Tuscarora and Niagara Falls.

Crataegus spinifera Sargent

N Y. State Mus. Bul. 122. 118 (1908).

Canandaigua, Coopers Plains and Hemlock lake.

Crataegus menandiana Sargent

N. Y. State Mus. Bul. 105. 68 (1906).

Albany.

Crataegus structilis Ashe

Jour. Elisha Mitchell Sci. Soc. XIX. 12 (1903). Sargent, N. Y. State Mus. Bul. 122. 77 (1908).

Chapinville, Rochester, Hemlock lake, Coopers Plains, Salamanca; also in eastern Pennsylvania, southern Ontario and in Michigan.

Crataegus comans Sargent

N. Y. State Mus. Bul. 122 112 (1908).

Coopers Plains.

Crataegus truculenta n. sp.

Leaves obovate, acuminate, gradually narrowed to the entire base, finely doubly serrate above with straight glandular teeth, and divided above the middle into four to six pairs of small broad acute lobes; nearly fully grown when the flowers open the first week of June and then yellow-green and scabrate above, paler and soft pubescent below, and at maturity thick, dark yellow-green and nearly smooth on the upper surface, pale yellow-green and slightly villose along the thin midribs and primary veins on the lower surface, 5.5 to 6 cm long and 3.5 to 4 cm wide; petioles slender, wing-margined at the apex, villose on the upper side early in the season, becoming glabrous, 1 to 1.2 cm in length; leaves on vigorous shoots broadly ovate to elliptical, acuminate, gradually narrowed and rounded or cuneate at the base, more coarsely serrate and more deeply lobed, and 6.5 to 8 cm long and 6 to 6.5 cm wide, their petioles stout, broadly wing-margined to below the middle, 1 to 1.2 cm in length. Flowers 1.2 to 1.4 cm in diameter, on long slender villose pedicels, in wide 20–25-flowered corymbs, the much elongated lower peduncles from the axils of upper leaves; calyx-tube narrowly obconic, coated at the base with long white hairs, the lobes long, broad, acuminate, laciniately divided, glabrous on the outer surface, slightly villose on the inner surface, reflexed after anthesis; stamens twenty; anthers yellow; styles two or three. Fruit on erect nearly glabrous

pedicles, in board 5–15-fruited clusters, subglobose, dark red, marked by large pale dots, 7 to 8 mm in diameter; calyx prominent, with a wide shallow cavity broad in the bottom, and spreading and reflexed enlarged persistent lobes; flesh thin, firm and dry; nutlets two or three, pointed at the apex, rounded at the base, ridged on the back with a broad grooved ridge, penetrated on the inner faces by deep narrow cavities, 6 to 7 mm long and 3 to 5 mm wide.

A shrub 4 to 5 m high, with erect gray stems and branches, and slender, glabrous branchlets tinged with red and marked by pale lenticels when they first appear, becoming bright chestnut-brown and lustrous, and armed with numerous slender straight or slightly curved dark chestnut-brown shining spines 3.5 to 6 cm long.

In thickets in heavy clay soil, near Belfast, Allegany county, Baxter and Dewing (no. 214, type), May 30, 1903, September 14, 1904, September 19, 1905.

Crataegus ambrosia Sargent

N. Y. State Mus. Bul. 105. 69 (1906).

Albany.

Crataegus rhombifolia Sargent

Rhodora V. 183 (1903); N. Y. State Mus. Bul. 105. 71 (1906).

Crown Point, Whitehall, near Albany; also in western and southern New England.

Crataegus deweyana Sargent

Proc. Rochester Acad. Sci. IV. 133 (1903).

Ithaca, Rochester, Rush, Portage, Castile and Silver Springs.

Crataegus cupulifera Sargent

Proc. Rochester Acad. Sci. IV. 129 (1903).

Crataegus simulans Sargent. N. Y. State Mus. Bul. 122. 125 (1908).

Chapinville, Rochester, Hemlock lake and Coopers Plains.

Crataegus balkwillii Sargent

Ontario Nat. Sci. Bul. 4. 80 (1908).

Chapinville; also in southern Ontario.

Crataegus microsperma Sargent

Ontario Nat. Sci. Bul. 4. 82 (1908)

Little Falls, Coopers Plains; also in southern Ontario.

Crataegus flagrans Sargent

N. Y. State Mus. Bul. 105. 71 (1906).

North Greenbush.

Crataegus venustula Sargent

N. Y. State Mus. Bul. 122. 79 (1908).

Niagara Falls, Buffalo; also in southern Ontario.

Crataegus laneyi Sargent

Trees and Shrubs. I. 5, t. 3 (1902); Proc. Rochester Acad. Sci. IV. 136 (1903).

Near Herkimer, Rochester and Coopers Plains.

Crataegus succulenta Link

Handbook II. 76 (1811). Sargent, Silva N. Am. XIII. 139, t. 131.

Chapinville, Rochester, Belfast, Niagara Falls, Buffalo, Palmyra, Salamanca; also in southern New England, eastern and western Pennsylvania and southern Ontario.

Crataegus gemmosa Sargent

Bot. Gazette XXXIII. 119 (1902); Silva N. Am. XXIII. 141, t. 686; N. Y. State Mus. Bul. 105. 72 (1906).

Near Albany, Rochester, Hemlock lake; also in southern Ontario, Ohio and Michigan.

Crataegus calvinii Sargent

N. Y. State Mus. Bul. 122. 81 (1908).

Chapinville and Canandaigua.

Crataegus sonnenbergensis n. sp.

Leaves obovate, abruptly narrowed and acute at the apex, gradually narrowed and cuneate at the entire base, finely often doubly serrate above with straight teeth pointing toward the apex of the leaf, and slightly and irregularly divided above the middle into short acute lobes; more than half grown when the flowers open during the first week in June and then thin, glabrous and lustrous above and pale and covered below with short soft hairs most abundant on the midribs and veins, and at maturity 6 to 7 cm long and 4.5 to 5 cm wide, thick, dark blue-green and lustrous on the upper surface,

pale blue-green and still slightly villose below along the prominent midribs, and six to eight pairs of thin conspicuous primary veins extending obliquely to above the middle of the leaf; petioles stout, narrowly wing-margined often to below the middle, tinged with red late in the season, 1.5 to 2.5 cm in length. Flowers 1.5 cm in diameter, on long slender villose pedicels, in lax few-flowered slightly hairy corymbs, the lower peduncles from the axils of upper leaves; calyx-tube narrowly obconic, covered with long pale hairs, the lobes slender, acuminate, glandular-serrate, glabrous on the outer, puberulous on the inner surface, reflexed after anthesis; stamens twenty; anthers pink; styles two. Fruit ripening the middle of October, on long slender red pedicels slightly villose near the apex, subglobose to short-oblong, crimson, lustrous, about 1 cm in diameter; calyx little enlarged, with a deep narrow cavity pointed in the bottom, the lobes generally deciduous from the ripe fruit; flesh yellow, becoming soft and succulent when the fruit is fully ripe; nutlets two, rounded at the obtuse ends, ridged on the back with a low rounded ridge, about 5 mm long and 3 mm wide, penetrated on the inner face by deep narrow cavities.

An arborescent shrub with stems spreading into great clumps, 5 to 10 m high, 30 cm in diameter and covered with very dark brown bark broken into small closely appressed scales, ascending branches, and slender glabrous branchlets pale yellow-green early in the season, becoming bright reddish brown before autumn, and armed with stout slightly curved spines 4 to 5 cm long.

Open pastures in heavy soil on Sonnenberg, the beautiful Thompson estate at Canandaigua, Ontario county; R. H. Slavin (no. 51, type), June 3 and October 15, 1909.

Crataegus frutescens Sargent

N. Y. State Mus. Bul. 122. 113 (1908).

Coopers Plains.

Crataegus honeoyensis Sargent

N. Y. State Mus. Bul. 122. 129 (1908).

Honeoye lake, Hemlock lake and Campbell.

Crataegus admiranda Sargent

N. Y. State Mus. Bul. 122. 80 (1908).

Niagara Falls.

Crataegus spinea n. sp.

Glabrous with the exception of the hairs on the inner surface of the calyx-lobes. Leaves rhombic, acute at the ends, finely serrate, often only above the middle, with straight glandular teeth, and slightly divided into three or four pairs of broad acuminate lobes; nearly fully grown when the flowers open at the end of May and then light yellow-green above and pale blue-green below, and at maturity thick, dark green and lustrous on the upper surface, pale on the lower surface, 4 to 5 cm long and 2 to 3 cm wide, with prominent midribs and veins deeply impressed on the upper side; petioles slender, wing-margined nearly to the base, 7 to 10 mm in length. Flowers 1.3 to 1.8 cm in diameter, on long slender pedicels, in lax 15–22-flowered corymbs, the elongated lower peduncles from the axils of upper leaves; calyx-tube narrowly obconic, the lobes gradually narrowed from the base, wide, acuminate, laciniately glandular-serrate, reflexed after anthesis; stamens twenty; anthers small, rose color; styles two to four, mostly two or three. Fruit on erect pedicels, in broad clusters, subglobose to short-oblong, dark red, lustrous, marked by dark spots, 6 to 7 mm in diameter; calyx prominent with a short tube, a wide shallow cavity pointed in the bottom, and reflexed persistent lobes dark red on the upper side below the middle; flesh yellow, dry and mealy; nutlets usually two or three, rounded at the ends, ridged on the back with a narrow rounded ridge, penetrated on the inner faces by long deep narrow cavities, 4 to 4.5 mm long and 3 to 3.5 mm wide, the narrow hypostyle extending to the middle of the nutlet.

A round-headed shrub 3 to 4 m high, with stout stems spreading into large clumps and covered at the base with dark gray-brown checkered bark, ascending branches, and stout nearly straight branchlets orange-green and marked by large pale lenticels when they first appear, becoming light chestnut-brown and lustrous at the end of their first season and dull red-brown the following year, and armed with numerous slender straight dark chestnut-brown shining spines 5 to 7 cm long.

Low moist hillsides near Campbell; G. D. Cornell (no. 124, type), October 5, 1907, May 26, 1908.

Crataegus halliana Sargent

N. Y. State Mus. Bul. 105. 73 (1906).

Near Albany.

Crataegus conspicua Sargent

N. Y. State Mus. Bul. 105. 74 (1906).

Near Albany; also in western Vermont.

Crataegus beckiana Sargent

N. Y. State Mus. Bul. 105. 75 (1906).

North Greenbush.

Crataegus ogdensburgensis n. sp.

Leaves ovate to obovate, acute or acuminate, gradually narrowed and concave-cuneate at the entire base, sharply doubly serrate above with straight glandular teeth, and slightly divided above the middle into small acuminate lobes; fully grown when the flowers open in the first week of June and then thin, yellow-green, covered above by soft hairs and slightly villose along the midribs and veins below, and at maturity thick, dark green, smooth and lustrous on the upper surface, pale and nearly glabrous on the lower surface, 5 to 7 cm long and 4 to 5 cm wide, with stout rose colored midribs, and slender primary veins extending obliquely to the points of the lobes; petioles stout, wing-margined to the base, slightly villose on the upper side early in the season, soon becoming glabrous, 1 to 1.5 cm in length; stipules lanceolate, acuminate, slightly falcate, glandular-serrate, often persistent until the flowers open; leaves on vigorous shoots broadly ovate, often 9 to 10 cm long and 6 to 7 cm wide. Flowers 1.5 to 1.7 cm in diameter, on long slender slightly villose pedicels, in wide lax mostly 16–18-flowered corymbs, the lower peduncles from the axils of upper leaves; calyx-tube narrowly obconic, the lobes broad, long-acuminate, laciniately glandular-serrate, glabrous on the outer surface, villose on the inner surface, reflexed after anthesis; stamens ten; anthers pale pink; styles two or three. Fruit ripening the end of September on long pedicels, in wide drooping many-fruited clusters, subglobose to short-oblong, rounded at the ends, crimson, lustrous, marked by large pale dots, 9 to 11 cm in diameter; calyx prominent, with a short tube, a wide shallow cavity pointed in the bottom, and reflexed closely appressed persistent lobes dark red on the upper side below the middle; flesh thick, soft and succulent; nutlets two or three, rounded at the ends, rounded and slightly ridged on the back, penetrated on the inner faces by short narrow cavities, 6 to 7

mm long and 3 to 3.5 mm wide, the narrow hypostyle extending to below the middle of the nutlet.

A shrub 3 to 4 m high, with spreading ashy gray branches forming an open head, and stout slightly zigzag glabrous branchlets light orange-green when they first appear, becoming light chestnut-brown, lustrous and marked by pale lenticels at the end of their first season and unarmed or armed with occasional spines.

Rich pastures near Ogdensburg; J. Dunbar (no. 71, type), September 28, 1907, June 5, 1908.

Crataegus ferentaria Sargent

Proc. Rochester Acad. Sci. IV. 135 (1903); N. Y. State Mus. Bul. 105. 77 (1906).

Fort Ann, Albany, Frankfort, near Utica, Canandaigua, Rochester, Belfast, Coopers Plains, Buffalo; also in New England.

Crataegus hystricina Ashe

Bot. Gazette XXXV. 433 (1903). Sargent, N. Y. State Mus. Bul. 105. 77 (1906).

Near Albany; also in southern Connecticut.

Crataegus macracantha Koehne

Deutsche Dendr. 236 (1893). Sargent, Silva N. Am. XIII. 147, t. 689; Proc. Rochester Acad. Sci. IV. 135 (1903).

Ithaca, Rochester; also in New England and eastern Pennsylvania.

EXPLANATION OF PLATES

Plate 131

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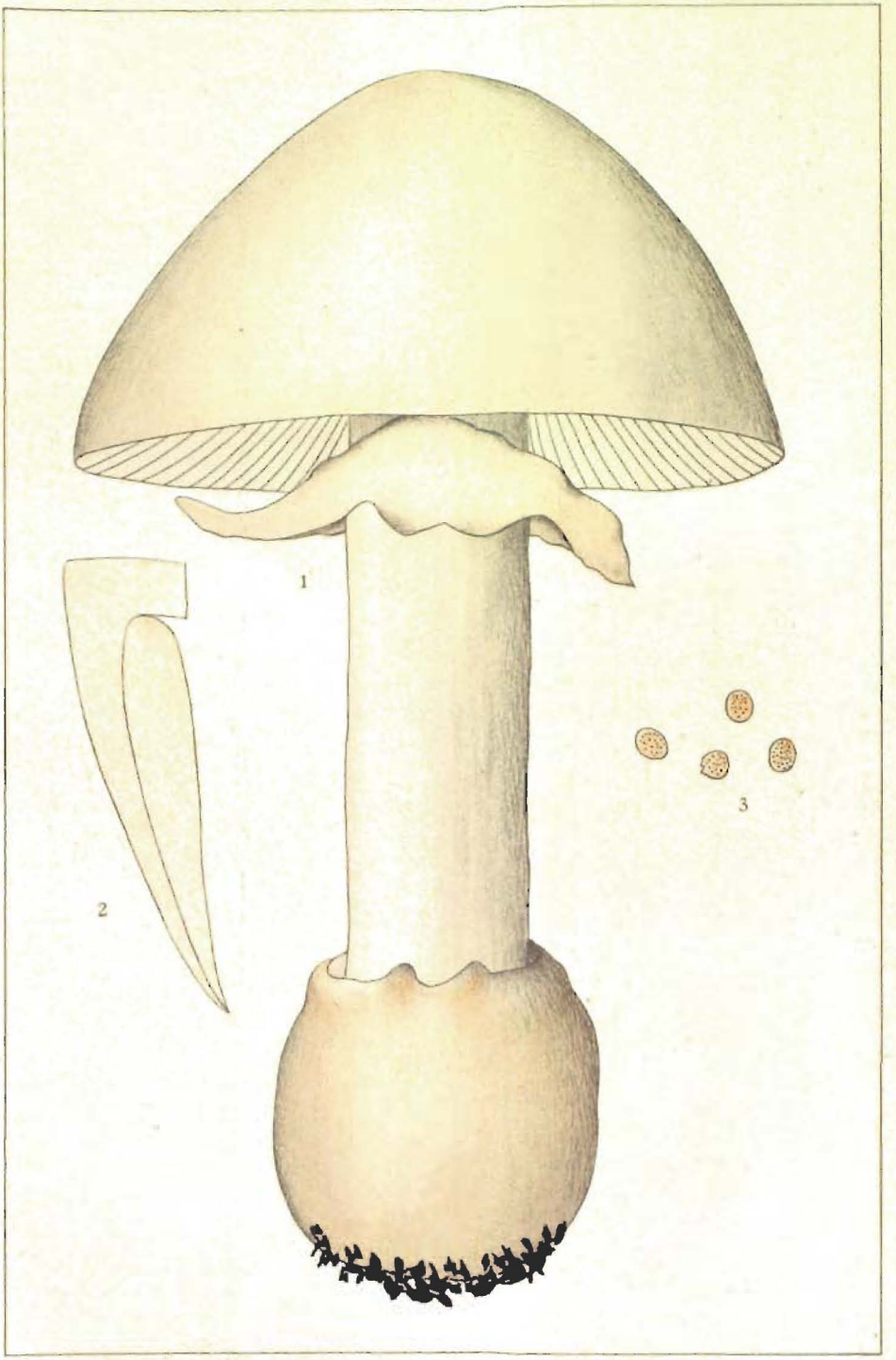
Amanita ovoidea Bull.

OVOID AMANITA

1 Plant with cap beginning to expand. About ½ natural size
2 Half vertical section of a pileus. About ½ natural size
3 Four spores x 400



AMANITA OVOIDEA BULL.
OVOID AMANITA

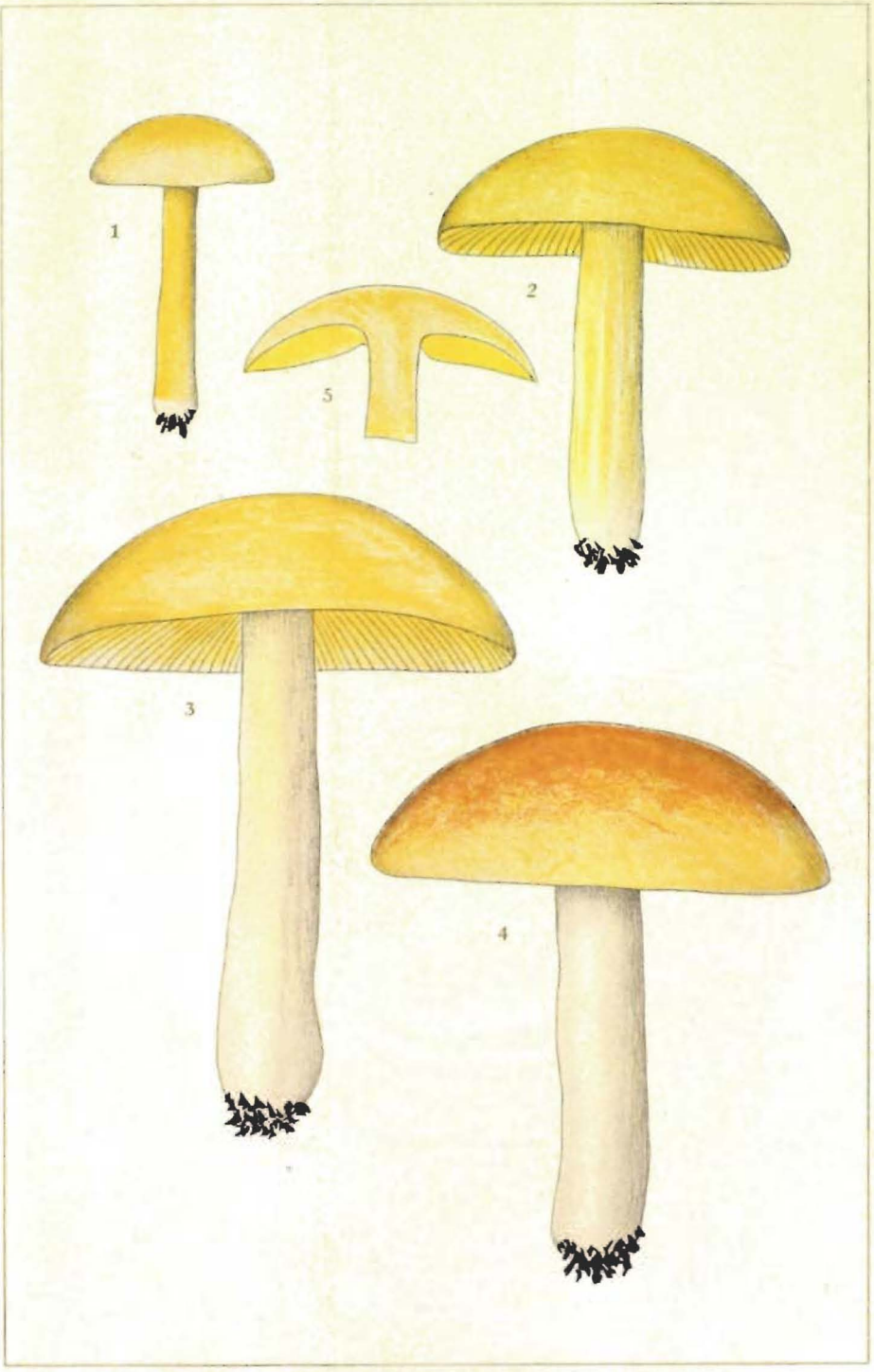
Document P. 126

Plate 132

Tricholoma chrysenteroides Pk.

GOLDEN FLESH TRICHOLOMA

1, 2 Immature plants
3 Mature plant
4 Old plant
5 Vertical section of the upper part of an immature plant
6 Four spores x 400



TRICHOLOMA CHRYSENTEROIDES PK.
GOLDEN FLESH TRICHOLOMA

Plate IX

Russula ballouii Pk.

BALLOU RUSSULA

1 Plant showing upper surface of pileus and stem
2 Plant showing both upper and lower surface of pileus and stem
3 Vertical section showing half of the upper part of a plant
4 Four spores x 400

Tricholoma latum Pk.

BROAD CAP TRICHOLOMA

5 Immature plant
6 Mature plant
7 Vertical section of the upper part of an immature plant
8 Four spores x 400

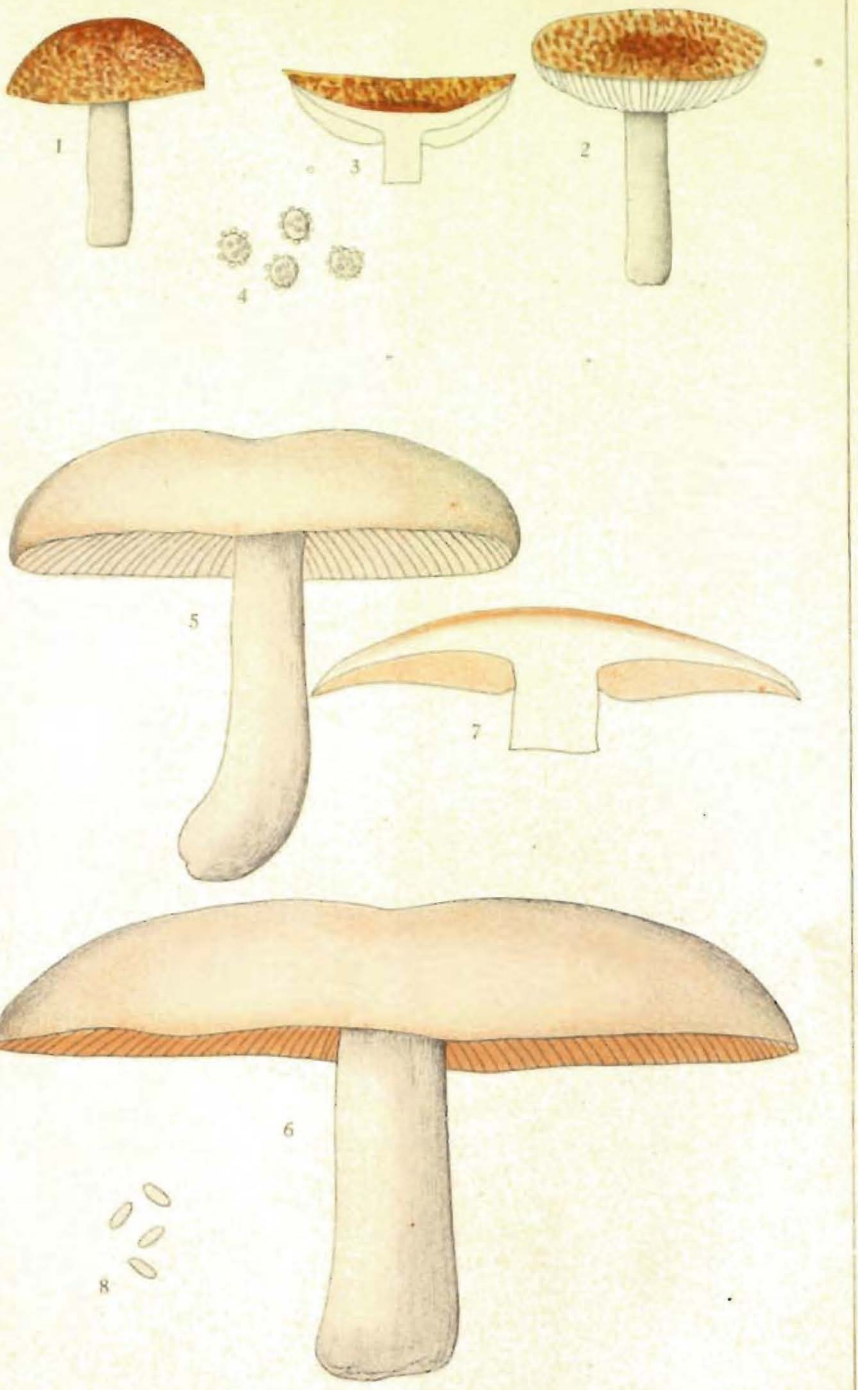


FIG. 1-4
RUSSULA BALLOUII PK.
BALLOU RUSSULA

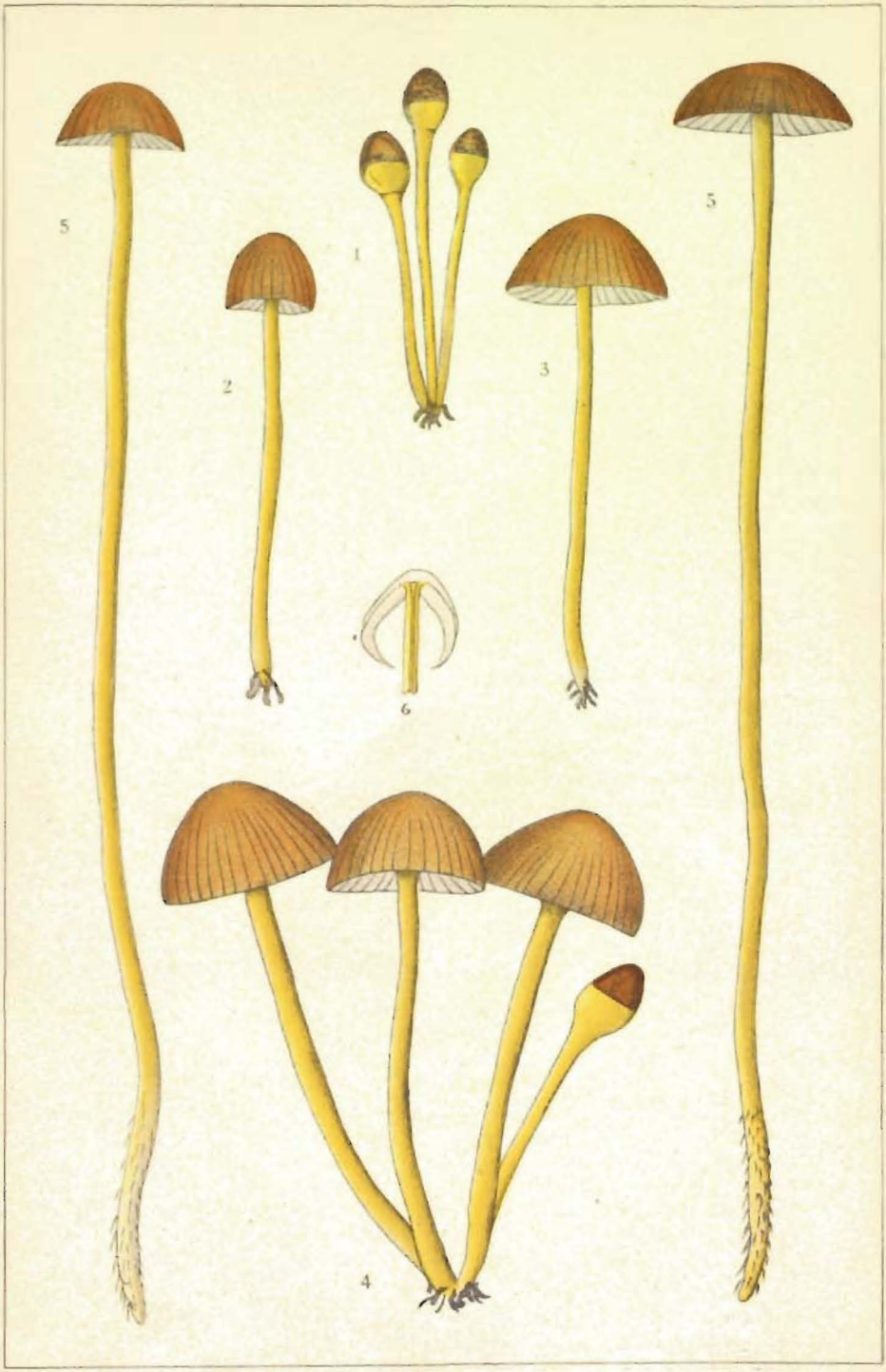
FIG. 5-8
TRICHOLOMA LATUM PK.
BROAD CAP TRICHOLOMA

Plate X

Mycena splendidipes Pk.

POISON MYCENA

1 Tuft of three very young plants
2 Immature plant
3 Single mature plant
4 Tuft of three mature plants and one very young plant
5 Mature plants with very long stems
6 Vertical section of the upper part of an immature plant



MYCENA SPLENDIDIPES Pk.
POISON MYCENA

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