GEOLOGICAL AND NATURAL HISTORY SURVEY OF MINNESOTA.
N. H. WINCHELL, STATE GEOLOGIST.

BULLETIN No. 3.

REPORT

ON

BOTANICAL WORK IN MINNESOTA

FOR THE YEAR 1886.

BY J. C. ARTHUR.

ASSISTED BY MR. WARREN UPHAM, PROF. L. H. BAILEY, JR.,
MR. E. W. D. HOLWAY, AND OTHERS.

DISTRIBUTED OCTOBER 1, 1887.

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NARRATIVE.

The admirable collection of information on the flowering plants and vascular cryptogams, which Mr. Upham embodied in his *Catalogue of the Flora of Minnesota*, published in 1884, made available essentially all that was at that time procurable regarding the Minnesota flora, with the exception of a comparatively small amount pertaining to the lower cryptogams. Mr. Upham has brought this catalogue up to date in a supplement included in the present report.

Were botanical science stable and mature instead of changeable and growing, and could one always rely upon the determination of plants made by various observers, it would be only necessary to add to this excellent beginning such additional names as might be reported from time to time, until all the plants of the state had been enumerated, when a final revision would afford a complete flora. But such conditions do not exist, and the only satisfactory method of overcoming the sources of error accompanying the alternative, especially when the work extends through a number of years, as proposed for the Minnesota survey, is to provide a substantial basis in the form of a suitable herbarium, so that in the final enumeration a critical and comparative study of material actually in hand may serve to point out former mistakes, and enable the whole to be revised according to the latest developments of the science.

In more formally opening up the botanical work of the survey it is proposed, in accordance with these views, to emphasize at first two mutually supplementary features, the preservation of a herbarium to serve as a basis for study, and the systematic exploration of the less known parts of the state; at the same time data will be gathered, as far as possible, upon all questions of interest connected with the state flora, which will be embodied in reports as occasion requires. It is not intended to interrupt the general enumeration of plants already referred to, a part of the survey originated and prosecuted by Mr. Upham, with the co-operation of many local collectors, including several specially enthusiastic students of field botany.

The locality selected for exploration for the season of 1886 was Vermilion lake and vicinity, a region lying between the north shore of lake Superior and the International Boundary. The botanical party reached Vermilion lake July 17th, and went into

camp with the geologists already on the spot, near the village of Tower. The endeavor had been to form a small party of specialists, who were adepts at collecting plants in general, and also able to exert unusual powers of observation toward certain groups, and thus insure more important results than could be hoped for from the ordinary collector. The survey was fortunate in securing the assistance of Professor L. H. Bailey, Jr., of the Agricultural College of Michigan, well known for his critical study of the difficult genus *Carex*, and of Mr. E. W. D. Holway, of Decorah, Iowa, an acute observer, and especially interested in the pyrenomycetous fungi and the slime moulds. These two and the writer, with the necessary assistants, spent nearly two weeks in botanical exploration of the region already indicated.

The camp was situated at the southern end of Vermilion lake, at about 48° north latitude, and daily excursions were made within a radius of some half a dozen miles from camp. On the twenty-third of the month the point was visited where the Iron Range railroad crosses the head waters of the St. Louis river, a distance southward of about thirty miles, and all plants gathered upon that excursion are marked accordingly. On the twenty-fourth Professor Bailey, with an assistant and an Indian guide, started on a five days' trip to the British boundary at Hunter's island. Collections were made at intermediate points, given in the catalogue as Mud river, Mud lake, Burntside lake, Long lake, Fall lake, and Basswood lake. Collections were also made, although not large ones, at Duluth and Two Harbors (Agate bay), on the north shore of lake Superior, both in going and coming.

The vegetation of this region appeared ample enough when looked at casually, but a systematic search showed a discouraging paucity of species, doubtless aggravated at the time of our stay by the rather severe drought which was prevailing. The lower plants were especially meagre, and none more so than the pileated fungi. Although but a few days were occupied in this exploration, yet so thorough was the search, that it is believed a large proportion of the flowering plants were secured and are included in the following list, some of them being necessarily gathered in fruit or only in leaf, with a fair showing also of the less conspicuous part of the flora, the mosses, liverworts, fungi and algæ, including many microscopic plants.

The region has only been inhabited by Indians and hunters till about three years ago, when the opening of iron mines near the southern shore of Vermilion lake, and the construction of a

railway from that point to the north shore of lake Superior for the transportation of ore, brought in many miners, shop-keepers and adventurers, and has built up the village of Tower to about a thousand inhabitants. The summer season is so short and uncertain that almost the only crop which can be safely grown is that of potatoes. Owing to the recent and limited settlement, and to the great restriction of agricultural operations, the introduced weeds of the region are necessarily few; careful attention was given to their collection, and the result is shown in the general list. It is worth mentioning that the introduced and cultivated plants were accompanied by their usual fungous parasites—abundance of *Peronospora* occurred upon *Chenopodium album*, and of *Cystopus* upon *Amarantus retroflexus*, while the small patches of very dwarf Indian corn bore quite as much *Puccinia* as usually prevails in a more congenial climate.

Other features of the flora of the region are mentioned by Professor Bailey in the following article.

SKETCH OF THE FLORA OF VERMILION LAKE AND VICINITY.

BY L. H. BAILEY, JR.

In some respects the flora of this region is anomalous. In most of its features it differs little from that of central Michigan six degrees to the southward. This southern cast to the flora finds a ready explanation, however, in the fact that Vermilion lake is separated from the cooling influences of lake Superior by a degree of primeval forest. It is probably not so much the character of the winters as that of the summers which influences the distribution of plants in these latitudes. The snow must afford great protection to all vegetation at this place, and the summers, although short, are warm and the atmosphere is dry. All herbs of a more southern range find ample time to reach maturity, and the ligneous vegetation simply makes a smaller growth. This latter statement is confirmed by the small size of nearly all forest trees. Large sawing timber is not common. In an apparently primeval pine forest, we found few trees above eight or ten inches in diameter, and one measuring some six or seven inches was about a hundred years old. There are almost no distinctively northern or sub-boreal plants in the flora. The most conspicuous ones are *Rosa acicularis*, *Alnus viridis*, *Sparanium simplex* var. *fluitans*, *Salix balsamifera*, *Lycopodium*

annotinum var. pungens, *Mertensia paniculata*, *Betula glandulosa*, *Vaccinium vitis-idaea* and *Carex vaginata*. Even of these, *Betula glandulosa* and *Vaccinium vitis-idaea* were found on the St. Louis river nearly thirty miles south of Vermilion lake and more directly within the influence of lake Superior; and *Alnus viridis* was not observed south of Long lake, some miles northward, if we except its occurrence on the cliffs of lake Superior at Agate bay.

One of the most striking features of this flora is its monotony. Although the expedition has good reason to believe that it collected four-fifths of the flowering plants and vascular cryptogams common to the region, the collection from lake Superior to the International Boundary, did not much exceed 100 species. The flora of a similar area six degrees southwards would comprise from 1,000 to 1,200 species. Here is an illustration of the law that species decrease with the increase of latitude. I took pains to count the number of species growing upon given areas. Upon an area similar to that which would give from thirty to fifty species at Lansing, Mich., I counted from a dozen to twenty species. One of these areas, some four or more square rods, comprised the following :

Aspen — *Populus tremuloides*.

Birch — *Betula papyrifera*.

Willow — *Salix rostrata*.

Bush honeysuckle — *Diervilla trifida*.

Dogwood — *Cornus stolonifera*.

Bird cherry — *Prunus pennsylvanica*.

Epilobium — *E. spicatum*.

Plantain — *Plantago major*.

Strawberry — *Fragaria virginiana*, var. *illinoensis*.

Antennaria — *A. plantaginifolia*.

White clover — *Trifolium repens*.

Rush — *Juncus tenuis*.

Vetches — *Lathyrus venosus* and *L. paluster*.

Aster — *A. paniculatus*.

Carex — *C. stipata*.

Red-top — *Agrostis vulgaris*.

Brake — *Pteris aquilina*.

Moreover, most of these plants existed only as single specimens, and the character of the flora was determined by a half dozen species.

A few very rare or local plants were found, as follows :

Sparganium simplex, var. *fluitans*, abundant.

Nuphar advena, var. *minor*, known heretofore only from Litchfield, N. Y.

Potamogeton obtusifolius.

Carex houghtonii, abundant.

Monotropa hypopitys.

Juncus stygius.

Aspidium fragrans, at Basswood lake.

Littorella lacustris, at Basswood lake, just inside the International Boundary.

To these may be added *Carex pinguis* *n. sp.*, (*C. adusta*, var. *glomerata*), *C. areolata* $\times$ *flexilis* (*C. knieskernii*), and *Salix lucida* var. *serissima*, *n. var.* This variety of *Salix lucida* occurs at Lansing, Mich., and Ithaca, New York.

The leading forest trees of the region are:

Red pine—*Pinus resinosa*.

Arbor vitae—*Thuya occidentalis*.

White pine—*Pinus strobus*.

Balsam poplar—*Populus balsamifera*.

Aspen—*P. tremuloides*, more arboreal than I have ever seen it elsewhere.

Ashes—*Fraxinus americana* and *F. pubescens*, always small.

Sugar maple—*Acer saccharinum*, local.

Red and silver maples—*A. rubrum* and *A. dasycarpum*, rare and small.

Burr oak—*Quercus macrocarpa*, local and small.

Basswood—*Tilia americana*, not common.

Elm—*Ulmus americana*, not common.

Tamarack—*Larix americana* and

Black spruce—*Abies nigra*, are common everywhere in swamps.

Paper birch—*Betula papyrifera*, very abundant.

Yellow birch—*Betula lutea*, a single tree found midway between Vermilion lake and the International Boundary; it is rather common southwards toward Agate bay.

The fruits of the region are few, and mostly poor. The best are the blueberries, chiefly *Vaccinium pennsylvanicum*, which grow very large and are tender and aromatic. On Hunter's island, in the International chain, fruits of this plant often measured one and two-thirds inches in circumference and the plants were wonderfully productive. The true *Fragaria virginiana* is occasionally met with, and its fruits are always large and

very sweet. Its var. *illinoensis* and *F. vesca* are more common, but their fruits, especially of the latter, are very poor. Various forms of the June-berry are esteemed by the Indians. The best of these forms, though not the commonest, is *Amelanchier canadensis* var. *oligocarpa*. This occurs nearer the Boundary. The small gooseberry, *Ribes oxyacanthoides*, occurs occasionally, but apparently is not abundant enough to furnish any considerable article of food. The dry, almost inedible fruits of a hawthorn (typical *Crataegus tomentosa*) are also eaten. The only members of the genus *Prunus* are the choke-cherry (*P. virginiana*) and the bird cherry (*P. pennsylvanica*). The fruits of the former are sometimes eaten. Red raspberries are abundant, even on Hunter's island. Black raspberries, blackberries and dewberries do not occur. Grapes are not found, and they appear to be entirely unknown to the Indians.

PLANTS COLLECTED BETWEEN LAKE SUPERIOR AND THE INTERNATIONAL BOUNDARY, JULY, 1886.

By J. C. ARTHUR, L. H. BAILEY, Jr. and E. W. D. HOLWAY.

To facilitate the work of collecting each of the three members of the party devoted his chief attention to a particular part of the flora, and numbered his specimens consecutively as gathered, prefixing his initial. Each number in this list, therefore, represents a specimen deposited in the herbarium of the survey, bearing a corresponding number. This renders it possible to verify or revise the list at any time, by the use of the original material.

The catalogue comprises some 374 genera and about twice as many species, somewhat equally divided between the flowering and flowerless plants. There are observations and critical remarks appended to many of the species, and the following new species and varieties are described:

Anthostoma flavo-viride Ellis & Holway.

Boletus americanus Peck.

Carex pinguis Bailey.

Ciboria tabacina Ellis & Holway.

Nectria perforata Ellis & Holway.

Peziza borealis Ellis & Holway.

Peziza olivatra Ellis & Holway.

Puccinia heleniae Arthur & Holway.

Puccinia ornata Arthur & Holway.

Ramularia variegata Ellis & Holway.

Synchytrium asari Arthur & Holway.

Zygodesmus sublilacinus Ellis & Holway.

Boletus scaber Fr., var. **mutabilis** Peck.

Cosmarium speciosum Lund., var. **abbreviatum** Wolle.

Salix lucida Muhl., var. **serissima** Bailey.

Although the list does not conform to a uniform standard of classification, the arrangement of the classes and orders is approximately that which has most recently found favor with American systematists, while the genera and species are placed alphabetically in their respective groups, to facilitate reference. An index of genera will also assist in locating any particular genus.

Thanks are due to Professor Bailey and Mr. Holway for their energetic assistance in collecting, and for after work, by no means inconsiderable, in determining and arranging the material gathered. Acknowledgment is also due to the following eminent specialists for kindly determining or verifying specimens sent them, as stated at proper places in the list: Dr. Asa Gray, Dr. Sereno Watson, Prof. D. C. Eaton, Dr. W. J. Beal, Dr. John M. Coulter, Dr. Charles R. Barnes, Mr. Walter Deane, Rev. Thomas Morong, Mr. M. S. Bebb, Dr. Lucian M. Underwood, Mr. Henry Willey, Rev. Francis Wolle, Mr. J. B. Ellis, Mr. Charles H. Peck, Mr. B. W. Thomas, Dr. William Trelease and Dr. Geo. A. Rex.

PHANEROGAMIA.

RANUNCULACEÆ.

Actæa alba Bigel.—B 119, Vermilion lake.

Actæa spicata L., var. **rubra** Ait.—B 291, St. Louis river.

Anemone dichotoma L.—B 385, Mud lake.

Anemone virginiana L.—A 163, Vermilion lake.

Aquilegia canadensis L.—B 293, St. Louis river.

Coptis trifolia Salisb.—B 312, St. Louis river.

Ranunculus aquatilis L.—B 318, St. Louis river.

Ranunculus multifidus Pursh, var. **terrestris** Gr.—B 95a, Vermilion lake. Much reduced. (Determined by Gray.) B 441, Fall lake. Also much reduced, creeping in moist cool places.

Ranunculus pennsylvanicus L.f.—B 71, Vermilion lake.

Thalictrum purpurascens L.—A 68, A 158, Vermilion lake. (Determined by Trelease.) B 448, Mud lake. B 460, Agate bay.

NYMPHÆACEÆ.

Nuphar advena Ait., var. **minor** Morong.—B 93, Vermilion lake. (Determined by Morong.)

Nuphar kalmianum Ait.—B 147, B 153, Vermilion lake. (Determined by *Morong*.)

Nymphaea tuberosa Paine.—B 138, Vermilion lake.

SARRACENIACEÆ.

Sarracenia purpurea L.—B 288, St. Louis river.

PAPAVERACEÆ.

Sanguinaria canadensis L.—A 157, Vermilion lake.

FUMARIACEÆ.

Corydalis aurea Willd.—B 508, Agate bay. High bluffs of the lake.

Corydalis glauca Pursh.—B 114, Vermilion lake. B 333, St. Louis river. The latter along the railroad track; appearing as if introduced.

CRUCIFERÆ.

Brassica campestris L.—B 279, St. Louis river. Near the railroad track.

Cardamine hirsuta L.—B 405, Burntside lake.

Lepidium intermedium Gr.—B 132, Vermilion lake. B 524, Agate bay.

VIOLACEÆ.

Viola blanda Willd.—B 455, Mud lake.

Viola blanda Willd., var. **palustriformis** Gr.—B 105, Vermilion lake.

Viola blanda Willd., var. **renifolia**, Gr.—B 382, Mud lake.

Viola pubescens Ait.—B 236, Vermilion lake.

Viola striata Ait. (?)—B 378, Mud lake.

CARYOPHYLLACEÆ.

Cerastium vulgatum L. (of Gray's Manual.)—B 472, Agate bay. But one specimen seen.

Saponaria vaccaria L.—B 336, St. Louis river. Along railroad track.

Stellaria longifolia Muhl.—B 102, Vermilion lake.

HYPERICACEÆ.

Elodia campanulata Pursh.—B 55, Vermilion lake.

Hypericum canadense L.—B 428, Longlake. (Determined by *Coulter*.)

TILIACEÆ.

Tilia americana L.—B 224, B 249, Vermilion lake.

GERANIACEÆ.

Geranium carolinianum L.—B 199, Vermilion lake.

Impatiens fulva Nutt.—A 7, B 118, Vermilion lake.

CELASTRACEÆ.

Celastrus scandens L.—B 235, Vermilion lake.

RHAMNACEÆ.

Rhamnus alnifolia L'Her.—B 459, Mud lake.

SAPINDACEÆ.

Acer dasycarpum Ehrh.—B 109, Vermilion lake. Not very common.

Acer rubrum L.—B 186, Vermilion lake. Rare.

Acer saccharinum Wang.—B 225, Vermilion lake. Rare.

Acer spicatum Lam.—B 228, Vermilion lake.

ANACARDIACEÆ.

Rhus glabra L.—A 43, B 230, B 254, Vermilion lake. Flowering when a foot high.

LEGUMINOSÆ.

Lathyrus ochroleucus Hook.—A 63, B 187, Vermilion lake. The first with white flowers.

Lathyrus paluster L.—B 443, Long lake.

Lathyrus venosus Muhl.—B 186a, Vermilion lake.

ROSACEÆ.

Agrimonia eupatoria L.—A 164, B 191, Vermilion lake.

Amelanchier canadensis T. & G., var. **oligocarpa** T. & G.—B 407, Burntside lake. (Determined by *Watson*.)

Amelanchier canadensis T. & G., between var. *rotundifolia* T. & G. and var. *botryapium* T. & G.—B 2, B 487, Vermilion lake. (Determined by *Watson*.)

Crataegus coccinea L.—B 449, Mud lake.

Crataegus tomentosa L.—B 57, Vermilion lake. Type. (Determined by *Watson*.)

Fragaria vesca L.—B 45, Vermilion lake.

Fragaria virginiana Duch.—B 36, Vermilion lake.

Geum macrophyllum Willd.—B 253, Vermilion lake.

Geum rivale L.—A 67, Vermilion lake. B 350, Mud river.

Pirus americana DC.—B 315, St. Louis river.

Pirus sambucifolia C. & S.—B 18, B 22, Vermilion lake.

Potentilla fruticosa L.—B 495, Agate bay.

Potentilla norvegica L.—B 278, St. Louis river. Very large. B 469, Agate bay.

Potentilla palustris Scop.—B 142, Vermilion lake.

Potentilla pennsylvanica L.—B 512, Agate bay.

Potentilla tridentata Sol.—B 425, Fall lake. B 513, Agate bay.

Prunus pennsylvanica L.f.—B 169, Vermilion lake. B 351, Mud river.

Prunus virginiana L.—B 238, Vermilion lake. Not common. B 419, Long lake.

Rosa acicularis Lindl.—B 84, B 223, Vermilion lake. (Determined by *Watson*.)

Rosa arkansana Porter, var.—B 34, Vermilion lake. (Determined by *Watson*.)

- Rosa sayi** Porter—A 81, Agate bay. (Determined by *Watson*.)
Rubus hispidus L.—B 182, Vermilion lake.
Rubus nutkanus Moc.—B 518, Vermilion lake. High banks.
Rubus strigosus Michx.—B 170, Vermilion lake. Very abundant and fruitful.
Spiraea salicifolia L.—B 95, Vermilion lake.

SAXIFRAGACEÆ.

- Heuchera hispida** Pursh.—B 431, Basswood lake.
Mitella nuda L.—B 88, Vermilion lake. B 388, Mud lake.
Ribes floridum L'Her.—B 77, B 108, Vermilion lake.
Ribes prostratum L'Her.—B 94, Vermilion lake. B 506, Agate bay.
Ribes rubrum L.—B 115, B 222, Vermilion lake. B 454, Mud lake.
Saxifraga pennsylvanica L.—B 329, St. Louis river.

DROSERACEÆ.

- Drosera rotundifolia** L.—B 136, Vermilion lake.

HALORAGACEÆ.

- Hippurus vulgaris** L.—B 134, Vermilion lake.
Myriophyllum verticillatum L.—B 368, Mud river.

ONAGRACEÆ.

- Circæa alpina** L.—H 28, B 207, Vermilion lake.
Epilobium coloratum Muhl.—B 157, Vermilion lake. B 461, B 516, Agate bay.
Epilobium palustre L., var. **lineare** Gr.—B 70, Vermilion lake. B 307, B 320, St. Louis river.
Epilobium spicatum Lam.—B 9, A 153, Vermilion lake. The latter with white flowers.
Oenothera biennis L.—B 260, Vermilion lake. B 502, Agate bay.

UMBELLIFERÆ.

- Cicuta maculata** L.—B 251, Vermilion lake.
Sanicula marylandica L.—B 216, Vermilion lake.
Sium cicutæfolium Gmel.—B 420, Long lake.

ARALIACEÆ.

- Aralia hispida** Vent.—A 47, Vermilion lake. B 341, St. Louis river.
Aralia nudicaulis L.—A 41, B 227, Vermilion lake.

CORNACEÆ.

- Cornus canadensis** L.—A 15, B 287, Vermilion lake.
Cornus circinata L'Her.—B 234, Vermilion lake.
Cornus stolonifera Michx.—B 12, B 250, Vermilion lake. Several specimens of *Cornus* were collected, which are evidently to be referred to this species, although they differ from all more southern forms with which I am acquainted, in several particulars. The leaves are mostly very broad, very white beneath, and the twigs are not conspicuously reddish. The berries are uniformly white. *Cornus stolonifera* is apparently a very complex species.—*Bailey*.

CAPRIFOLIACEÆ.

- Diervilla trifida** Mench.—B 167, Vermilion lake.
Linnaea borealis Gron.—B 48, Vermilion lake.
Lonicera ciliata Muhl.—B 243, Vermilion lake.
Lonicera hirsuta Eaton.—B 61, B 123, Vermilion lake.
Lonicera oblongifolia Hook.—B 390, Vermilion lake.
Symphoricarpus racemosus Michx., var. **pauciflorus** Robbins.—
 B. 415, Burntside lake.
Viburnum opulus L.—A 174, Vermilion lake.
Viburnum pubescens Pursh.—B 62, Vermilion lake.

RUBIACEÆ.

- Galium asprellum** Michx.—A 72, Vermilion lake. B 356, Mud river.
Galium trifidum L.—A 10, B 73, Vermilion lake. B 275, B 297, St.
 Louis river.
Galium triflorum Michx.—B 44, B 210, Vermilion lake. In pine woods.
 B 330, St. Louis river. B 505, Agate bay.
Houstonia purpurea L., var. **longifolia** Gr.—B 474, Agate bay.
 Rocks.

COMPOSITEÆ.

- Achillea millefolium** L.—B 159, Vermilion lake.
Adenocaulon bicolor Hook.—B 296, St. Louis river. Leaves only.
 (Determined by *Deane*.)
Anaphalis margaritacea B. & H.—B 160, Vermilion lake.
Antennaria plantaginifolia Hook.—B 218, Vermilion lake.
Aster azureus Lindl. (?)—B 507, Agate bay.
Aster longifolius Lam.—B 266, St. Louis river. (Determined by *Gray*.)
Aster macrophyllus L.—B 190, B 197, B 245, Vermilion lake. B 462,
 B 503, Agate bay.
Aster paniculatus Lam. (?)—B 217, Vermilion lake. Too young.
Aster ptarmicoides T. & G.—B 517, Agate bay. Rocks near the lake.
Aster sagittifolius Willd.—B 213, B 269, Vermilion lake. B 458,
 Mud lake. (Determined by *Gray*.)
Aster umbellatus Mill., var. **pubens** Gr.—B 198, A 66, Vermilion
 lake. B 337, St. Louis river. B 473, Agate bay.
Bidens beckii Torr.—B 541, Long lake.
Bidens frondosa L. (?)—B 72, Vermilion lake.
Cnicus muticus Pursh.—B 33, Vermilion lake.
Erigeron canadensis L.—B 271, St. Louis river.
Erigeron philadelphicus L.—A 65, B 285, Vermilion lake.
Erigeron strigosus Muhl.—B 161, Vermilion lake.
Eupatorium purpureum L.—A 64, Vermilion lake.
Helianthus giganteus L.—B 456, Mud lake.
Hieracium canadense Michx.—B 522, Agate bay.
Hieracium scabrum Michx.—A 166, Vermilion lake. B 308, St.
 Louis river.
Lactuca canadensis L.—B 196, Vermilion lake.
Lactuca leucophæa Gr.—B 457, Mud lake.

Lactuca pulchella DC.—B 4, Vermilion lake.

Petasites palmata Gr.—B 310, St. Louis river. B 501, Agate bay.
Dryish ground.

Prenanthes alba L.—B 399, Mud lake. B 481, Agate bay.

Rudbeckia hirta L.—B 303, near St. Louis river; along the railroad track.

Senecio aureus L., var. **balsamitæ** T. & G.—A 50, Vermilion lake.

Solidago bicolor L.—B 387, Mud lake. (Determined by *Gray*.)

Solidago canadensis L.—B 168, Vermilion lake. B 533, Mud lake.

Solidago juncea Ait.—B 31, Vermilion lake. (Determined by *Gray*.)

Solidago lanceolata L.—B 255, Vermilion lake.

Solidago uliginosa Nutt. (?)—B 470, Agate bay. Immature.

LOBELIACEÆ.

Lobelia dortmanna L.—B 537, Burntside lake.

Lobelia kalmii L.—B 479, Agate bay. Flowers sometimes white.

CAMPANULACEÆ.

Campanula aparinoides Pursh.—B 110, Vermilion lake. B 272, B 321, St. Louis river.

Campanula rotundifolia L.—B 475, Agate bay.

ERICACEÆ.

Andromeda polifolia L.—B 280, Vermilion lake. B 295, St. Louis river.

Cassandra calyculata Don.—B 258, Vermilion lake.

Chimaphila umbellata Nutt.—B 189, Vermilion lake. B 416, Long lake.

Gaultheria procumbens L.—B 174, Vermilion lake.

Kalmia glauca Ait.—B 201, Vermilion lake.

Ledum latifolium Ait.—B 257, Vermilion lake.

Moneses uniflora Gr.—A 161, Vermilion lake. B 379, Mud lake.

Monotropa hypopitys L.—B 239, Vermilion lake.

Monotropa uniflora L.—B 156, Vermilion lake.

Pyrola chlorantha Swz.—B 173, Vermilion lake. A form with leaves very short petioled.

Pyrola rotundifolia L., var. **asarifolia** Hook.—A 42, Vermilion lake.

Pyrola secunda L.—A 14, B 78, B 166, Vermilion lake.

Vaccinium canadense Kalm.—B 141, Vermilion lake.

Vaccinium oxycoccus L.—B 332, St. Louis river.

Vaccinium pennsylvanicum Lam.—B 178, Vermilion lake. B 453, Mud lake. A form growing a foot high in crevices of rocks, and bearing good black berries which have a very light bloom.

Vaccinium vitis-idaea L.—B 299, St. Louis river.

PRIMULACEÆ.

Lysimachia stricta Ait.—B 11, Vermilion lake. B 463, Agate bay.

Lysimachia thyrsoflora L.—B 421, Long lake.

Primula mistassinica Michx.—B 477, Agate bay.

Steironema ciliatum Raf.—A 71, Vermilion lake.

Trientalis americana Pursh.—B 244, Vermilion lake.

OLEACEÆ.

Fraxinus pubescens Lam.—B 56, B 58, Vermilion lake.

Fraxinus sambucifolia Lam.—B 340, St. Louis river.

Fraxinus viridis Michx. f.—B 117, Vermilion lake.

APOCYNACEÆ.

Apocynum androsaemifolium L.—B 131, B 185, Vermilion lake.
The latter with flowers striped with red.

Apocynum cannabinum L.—B 214, Vermilion lake.

GENTIANACEÆ.

Gentiana andrewsii Griseb.—B 355, Mud river.

Halenia deflexa Griseb.—A 51, B 192, Vermilion lake. B 191, Agate bay.

Menyanthes trifoliata L.—B 282, St. Louis river.

BORRAGINACEÆ.

Echinosperrum ——?—B 248, Vermilion lake.

Mertensia paniculata Don.—B 268, Vermilion lake.

CONVOLVULACEÆ.

Cuscuta groenovii Willd.—B 180, Vermilion lake. On *Epilobium spicatum*.

SOLANACEÆ.

Physalis grandiflora Hook.—B 242, Vermilion lake.

SCROPHULARIACEÆ.

Castilleja coccinea Spreng.—B 302, St. Louis river. Rare.

Chelone glabra L.—B 327, St. Louis river.

Euphrasia officinalis L.—B 485, Agate bay. On rocks by the lake.

Melampyrum americanum Michx.—B 193, Vermilion lake.

Mimulus ringens L.—B 111, Vermilion lake.

Veronica scutellata L.—B 99, Vermilion lake.

LENTIBULARIACEÆ.

Pinguicula vulgaris L.—B 478, Agate bay.

Utricularia vulgaris L.—A 62, B 75, B 146, Vermilion lake.

LABIATÆ.

Brunella vulgaris L.—B 188, Vermilion lake.

Calamintha clinopodium Benth.—B 59, Vermilion lake.

Dracocephalum parviflorum Nutt.—B 53, Vermilion lake.

Lophanthus anisatus Benth.—B 49, Vermilion lake.

- Mentha canadensis** L. — B 3, Vermilion lake.
Scutellaria galericulata L. — B 76, Vermilion lake.
Scutellaria lateriflora L. — B 52, Vermilion lake.
Stachys aspera Michx. — B 14, Vermilion lake.

PLANTAGINACEÆ.

- Littorella lacustris** L. — B 437, Basswood lake.
Plantago major L. — B 258a, St. Louis river.

CHENOPODIACEÆ.

- Chenopodium album** L. — B 523, Agate bay.
Chenopodium hybridum L. — B 54, B 241, Vermilion lake.

POLYGONACEÆ.

- Polygonum acre** HBK. — B 370, Mud river.
Polygonum dumetorum L., var. **scandens** Gr. — B 51, Vermilion lake.
Polygonum hartwrightii Gr. — B 417, Long lake.
Polygonum muhlenbergii Wats. — B 366, Mud river.
Rumex acetosella L. — B 544, Mud lake. In a cold swamp by a trail ; but one specimen found on the whole journey.
Rumex britannicus L. (*R. orbiculatus*, Gr.) — B 328, St. Louis river.
Rumex crispus L. — B 204, Vermilion lake. Near an Indian settlement.
Rumex salicifolius Weinm. — B 1, Vermilion lake.

ARISTOLOCHIACEÆ.

- Asarum canadense** L. — A 159, Vermilion lake.

CALLITRICHACEÆ.

- Callitriche verna** L. — B 367, Mud river. B 400, Mud lake.

URTICACEÆ.

- Ulmus fulva** Michx. — B 237, Vermilion lake.
Urtica gracilis Ait. — B 267, Vermilion lake. Rare.

MYRICACEÆ.

- Comptonia asplenifolia** Ait. — B 409, Burntside lake.
Myrica gale L. — B 13, Vermilion lake.

BETULACEÆ.

- Alnus incana** Willd. — B 152, Vermilion lake.
Alnus viridis DC. — B 445, Long lake. B 515, Agate bay.
Betula glandulosa Michx. — B 300, St. Louis river.
Betula lutea Michx. f. — B 552, Fall lake.

CUPULIFERÆ.

- Corylus rostrata** Ait. — B 229, Vermilion lake.
Ostrya virginica Willd. — B 232, Vermilion lake.
Quercus macrocarpa Michx. — B 534, Mud lake.

SALICACEÆ.

Populus balsamifera L. — B 162, Vermilion lake. Common.

Populus tremuloides Michx. — B 158, Vermilion lake.

Salix balsamifera Bar. — B 16, B 140, Vermilion lake. B 480, Agate bay. (Determined by *Bebb.*)

Salix candida Willd. — B 360, Mud river. B 392, Mud lake. (Determined by *Bebb.*)

Salix humilis Muhl. — B 130, B 221, B 286, Vermilion lake. B 408, Burutside lake. (Determined by *Bebb.*)

Salix lucida Muhl. — B 358, Mud river. (Determined by *Bebb.*)

Salix lucida Muhl., var. **serissima** Bailey (*n. var.*). Differs from the species in fruiting very late. It occurs at Lansing, Mich., where its fruit matures in September, assuming a bright red color in the sun. It is one of the most ornamental of the willows. B 357, Mud river; in fruit.

Salix myrtilloides L., — B 317, St. Louis river. (Determined by *Bebb.*)

Salix myrtilloides L., var. **pedicellaris** Carey. — B 137, Vermilion lake. (Determined by *Bebb.*)

Salix petiolaris Smith. — B 359, Mud river. (Determined by *Bebb.*)

Salix petiolaris Smith, var. **gracilis** And. — B 143, Vermilion lake. B 361, Mud river. (Determined by *Bebb.*)

Salix petiolaris × **candida** — B 362, B 363, B 364, Mud river. (Determined by *Bebb.*)

Salix rostrata Rich. — B 212, B 284, Vermilion lake. Growing fifteen feet high. B 334, St. Louis river. (Determined by *Bebb.*)

Salix —? — B 365, Mud river.

ORCHIDACEÆ.

Corallorhiza innata R. Br. — B 89, B 247, Vermilion lake.

Corallorhiza multiflora Nutt. — A 48, Vermilion lake.

Goodyera repens R. Br. — H 29, B 177, Vermilion lake. B 304, St. Louis river. B 373, Mud lake.

Habenaria dilatata Gr. — B 290, B 324, St. Louis river.

Habenaria hookeri Torr. — B 194, Vermilion lake.

Habenaria hyperborea R. Br. — A 18, B 43, Vermilion lake. B 384, Mud lake.

Habenaria obtusata Rich. — A 160, Vermilion lake. B 380, Mud lake.

Habenaria orbiculata Torr. — H 31, Vermilion lake. B 377, Mud lake. B 560, St. Louis river.

Habenaria psycodes Gr. — B 429, Fall lake.

Orchis rotundifolia Pursh. — B 433, Basswood lake.

Spiranthes cernua Rich. — B 354, Mud river. B 444, Long lake. B 559, Vermilion lake.

Spiranthes gracilis Bigel. — B 15, B 181, Vermilion lake.

IRIDACEÆ.

Iris versicolor L. — B 220, Vermilion lake.

Sisyrinchium mucronatum Michx. — B 435, Basswood lake. B 493 Agate bay.

LILIACEÆ.

- Clintonia borealis** Raf.—A 46, B 120, Vermilion lake.
Lilium philadelphicum L.—B 386, Mud lake.
Maianthemum canadense Desf.—B 246, Vermilion lake.
Smilacina trifolia Desf.—B 289, St. Louis river.
Streptopus roseus Michx.—B 208, Vermilion lake.
Trillium erectum L., var. **declinatum** Gr.—A 103, B 231, Vermilion lake.
Uvularia grandiflora Smith.—B 223, Vermilion lake.

JUNCACEÆ.

- Juncus articulatus** L.—B 322, St. Louis river. B 374, Mud lake. B 483, Agate bay.
Juncus canadensis J. Gay.—B 276, Vermilion lake.
Juncus effusus L.—B 520, Agate bay.
Juncus filiformis L.—B 17, Vermilion lake.
Juncus pelocarpus E. Meyer.—B 438, Basswood lake.
Juncus stygius L.—B 314, St. Louis river. Rare.
Juncus tenuis Willd.—B 125, Vermilion lake.
Juncus ———? —B 468, B 486, Agate bay.
Luzula pilosa Willd.—B 383, B 401, Mud lake.

TYPHACEÆ.

- Sparganium simplex** Huds., var. **fluitans** Gr.—B 85, Vermilion lake.
Sparganium simplex Huds., var. **nuttallii** Gr.; nearly.—B 179, Vermilion lake.

ARACEÆ.

- Acorus calamus** L.—B 50, Vermilion lake.
Arisæma triphyllum Torr.—A 156, Vermilion lake.
Calla palustris L.—B 98, Vermilion lake.

ALISMACEÆ.

- Sagittaria heterophylla** Pursh.—B 542, Long lake. (Determined by *Watson*.)
Sagittaria variabilis Eng.—B 154, Vermilion lake. Leaves floating.
Sagittaria variabilis Eng., var. **angustifolia** Eng.—B 151, Vermilion lake.

NAIADACEÆ.

- Najas flexilis** R. & S.—B 389, Mud lake.
Potamogeton claytonii Tuck.—B 410, Burntside lake. B 540, B 546, B 550, Long lake. (Determined by *Morong*.)
Potamogeton gramineus L.—B 46, Vermilion lake. (Determined by *Morong*.)
Potamogeton gramineus L., var. **maximus** Morong.—B 69, Vermilion lake. B 403 in part, Burntside lake. (Determined by *Morong*.)
Potamogeton gramineus L., var. **elongatus** Morong.—B 447, B 448, B 449, Long lake. (Determined by *Morong*.)

Potamogeton mucronatus Schrad.—B 369, Mud river. A slender form. (Determined by *Morong.*)

Potamogeton natans L.—B 86, Vermilion lake. B 391, Mud lake. (Determined by *Morong.*)

Potamogeton obtusifolius M. & K.—B 155, Vermilion lake. (Determined by *Morong.*)

Potamogeton pectinatus L.—B 124, Vermilion lake. (Determined by *Morong.*)

Potamogeton perfoliatus L., var. **lanceolatus** Rob.—B 47, B 149, Vermilion lake. (Determined by *Morong.*)

Potamogeton praelongus Wulf.—B 404, Burntside lake. (Determined by *Morong.*)

Potamogeton pusillus L. (?)—B 394, Mud lake. (Determined by *Morong.*)

Potamogeton pusillus L., var. **tenuissimus** M. & K.—B 538, Long lake. (Determined by *Morong.*)

Potamogeton robbinsii Oakes.—B 393, Mud lake. B 442, Fall lake. The latter in fruit! (Determined by *Morong.*)

Potamogeton rufescens Schrad.—B 402, Burntside lake. B 551, Mud lake. (Determined by *Morong.*)

Potamogeton spirillus Tuck.—B 414, B 539, Long lake. (Determined by *Morong.*)

Potamogeton zosterifolius Schum.—B 403 in part, Burntside lake. B 545, Long lake. (Determined by *Morong.*)

Scheuchzeria palustris L.—B 305, St. Louis river.

Triglochin maritimum L.—B 326, St. Louis river.

ERIOCAULONACEÆ.

Eriocaulon septangulare With.—B 536, Burntside lake.

CYPERACEÆ.

Carex adusta Boott.—B 7, Vermilion lake. B 283, St. Louis river. B 558, Long lake. B 464, B 526, B 531, Agate bay.

Carex aquatilis Wahl.—B 145, Vermilion lake.

Carex arctata Boott.—B 211, Vermilion lake. B 556, Mud lake.

Carex arctata × **flexilis** Bailey.—B 554, B 555, Long lake. See *Bot. Gazette*, vol. XI, 1886, p. 328, for a description and illustration of this hybrid.

Carex arctata × **flexilis** or **arctata** × **vaginata**.—B 375, Mud lake.

Carex aurea Nutt.—B 30, Vermilion lake.

Carex buxbaumii Wahl.—B 471, Agate bay.

Carex canescens L., var. **polystachya** Boott.—B 74, B 100, Vermilion lake.

Carex crinita Lam.—B 107, Vermilion lake.

Carex deweyana Schw.—B 37, Vermilion lake.

Carex echinata Murr., var. **microstachys** B.—B 482, Agate bay.

Carex filiformis L.—B 200, Vermilion lake.

Carex flexilis Rudge.—B 557, Long lake.

Carex houghtonii Torr.—B 206, Vermilion lake. Abundant. B 509, Agate bay.

Carex intumescens Rudge.—B 68, Vermilion lake.

Carex laxiflora Lam., var. **intermedia** Boott.—B 116, Vermilion lake. B 335, St. Louis river.

Carex lenticularis Michx.—B 406, Burntside lake; in water. B 465 Agate bay.

Carex limosa L.—B 294, St. Louis river.

Carex magellanica Lam.—B 90, Vermilion lake. B 298, St. Louis river.

Carex monile Tuck.—B 274, St. Louis river. B 423, Fall lake.

Carex pauciflora Lightf.—B 203, Vermilion lake.

Carex pinguis Bailey (*n. sp.*). (*C. adusta* Boott, var. *glomerata* Bailey.) I collected this sedge in quantity in several places, and observed its habits. It appears to be specifically distinct from *C. adusta*. From that species it differs in its stiff culm, dense broad head of which some spikes, or at least the lowest one, are subtended by a short and very broad-based, nerved and pointed bract, and very plump perigynium which is nearly filled by the achenium, flat or convex and nerveless or very nearly so on the inner face, wingless or slightly margined above. It grows in dense tufts in dry soil. Slender and immature specimens strongly resemble *C. adusta*, but they are always readily distinguished by the perigynium.—B 6, Vermilion lake. B 325, St. Louis river. B 530, Agate bay.

Carex polytrichoides Muhl.—B 29, Vermilion lake. B 316, St. Louis river.

Carex retrorsa Schw.—B 67, B 101, Vermilion lake.

Carex rostrata With.—B 144, Vermilion lake.

Carex rostrata With., var. **utriculata** Bailey.—B 112, Vermilion lake.

Carex scoparia Schk.—B 8, B 60, Vermilion lake; the latter a conglomerate form. B 301, St. Louis river. B 466, B 492, Agate bay; a small form.

Carex stipata Muhl.—B 521, Agate bay.

Carex straminea Schk., var. **mirabilis** Tuck.; nearly.—B 41, Vermilion lake.

Carex tenella Schk.—B 30, Vermilion lake.

Carex tenuiflora Wahl.—B 281, St. Louis river. Slender form.

Carex tribuloides Wahl., var. **cristata** Bailey.—B 259, Vermilion lake.

Carex tribuloides Wahl., var. **reducta** Bailey.—B 35, B 92, B 184, Vermilion lake. B 418, Long lake; not quite typical. B 525, Agate bay.

Carex tribuloides Wahl., between vars. *cristata* and *reducta*.—B 270, Vermilion lake.

Carex trisperma Dew.—B 91, Vermilion lake.

Carex tuckermani Boott.—B 104, Vermilion lake.

Carex vaginata Tausch.—B 352, Mud river. B 543, Long lake.

Eleocharis acicularis R. Br.—B 150, Vermilion lake.

Eleocharis palustris R. Br.—B 19, Vermilion lake. B 535, Long lake.

Eleocharis pygmaea Torr.—B 149, Vermilion lake.

Eriophorum polystachyon L.—B 202, Vermilion lake.

Rhynchospora alba Vahl.—B 319, St. Louis river.

Scirpus caespitosus L.—B 467, Agate bay. Growing in crevices of rocks.

Scirpus eriophorum Michx.—B 164, Vermilion lake.

Scirpus fluviatilis Gr.—B 21, Vermilion lake.

Scirpus laeustris L.—B 219, Vermilion lake.

Scirpus subterminalis Torr.—B 412, Burntside lake.

GRAMINEÆ.

The grasses determined by Dr. W. J. Beal.

Agropyrum caninum R. & S.—B 42, Vermilion lake.

Agropyrum repens L.—B 511, Agate bay.

Agropyrum violaceum Lange.—B 494, Agate bay.

Agrostis alba L.—B 127, Vermilion lake.

Agrostis scabra Willd.—B 129, Vermilion lake.

Brachelytrum aristatum P. B.—B 397, Mud lake.

Bromus ciliatus L.—B 5, Vermilion lake.

Cinna pendula Trin.—B 323, St. Louis river.

Deschampsia caespitosa P. B.—B 424, Fall lake.

Deyenia canadensis Hook.—B 10, B 256, Vermilion lake. B 529, Agate bay.

Deyenia langsдорffii Kunth.—B 519, Agate bay.

Eatonia pennsylvanica Gr.—B 32, Vermilion lake.

Elymus virginicus L.—B 265, St. Louis river.

Festuca ovina L.—B 450, Mud lake.

Festuca ovina L., var.—B 489, Agate bay.

Glyceria arundinacea Kunth.—B 97, B 263, Vermilion lake.

Glyceria canadensis Trin.—B 264, B 273, Vermilion lake.

Glyceria fluitans R. Br.—B 20, Vermilion lake.

Glyceria nervata Trin.—B 103, Vermilion lake. B 349, Mud river.

Hierochloa borealis R. & S.—B 451, Long lake.

Hordeum jubatum L.—B 128, Vermilion lake.

Muhlenbergia mexicana Trin.—B 422, Long lake.

Phalaris arundinacea L.—B 446, Mud river.

Phalaris canariensis L.—B 528, Two Harbors; in the town.

Phleum pratense L.—B 292, St. Louis river. Scattered from the railroad.

Poa caesia Sm., var. *strictior* Gr.—B 469, B 514, Agate bay.

Poa compressa L.—B 527, Agate bay.

Poa levis Vasey.—B 439, Basswood lake.

Poa nemoralis L.—B 183, Vermilion lake. Along a trail in woods, B 426, Fall lake. B 434, Basswood lake.

Poa pratensis L.—B 488, Agate bay. Tall and slender form.

Poa serotina Ehrh.—B 510, Agate bay.

Trisetum subspicatum P. B., var. *molle* Gr.—B 490, Agate bay.

CONIFERÆ.

Juniperus communis L.—B 411, Burntside lake.

Picea nigra Link.—B 171, Vermilion lake.

Pinus resinosa Ait.—B 96, Vermilion lake.

Pinus strobus L.—B 240, Vermilion lake.

Taxus baccata L., var. **canadensis** Gr. — B 165, Vermilion lake.

Thuya occidentalis L. — B 83, B 133, Vermilion lake. B 381, Mud lake; seedlings.

PTERIDOPHYTA.

ISOET.E.

Isoetes echinospora Durieu, var. **braunii** Engelm. — B 81, Vermilion lake. Submerged on stones. B 413, Long lake. (Determined by *Watson*.)

SELAGINELLE.E.

Selaginella rupestris Spring. — A 171, Duluth. On rocks. B 447, Mud lake.

LYCOPODIACE.E.

Lycopodium annotinum L. — A 162, Vermilion lake. B 311, St. Louis river.

Lycopodium annotinum L., var. **pungens** Desv. — B 135, Vermilion lake.

Lycopodium clavatum L. — A 31, A 98, Vermilion lake.

Lycopodium complanatum L. — A 99, Vermilion lake.

Lycopodium dendroideum Michx. — A 40, Vermilion lake.

Lycopodium lucidulum Michx. — B 309, St. Louis river.

OPHIOGLOSSACE.E.

Botrychium virginianum Swz. — B 38, Vermilion lake.

FILICES.

Aspidium cristatum Swz. — A 155, Vermilion lake. B 353, Mud river.

Aspidium fragrans Swz. — B 430, Basswood lake. Growing on rocks.

Aspidium spinulosum Swz. — B 106, Vermilion lake. B 432, Basswood lake. B 440, Fall lake.

Aspidium spinulosum Swz., var. **intermedium** Eaton. — B 252, Vermilion lake.

Asplenium filix-fœmina Bernh. — A 152, A 163, Vermilion lake. B 339, St. Louis river. B 396, Mud lake. B 553, Fall lake; an aberrant form. (The last determined by *Eaton*.)

Onoclea sensibilis L. — A 154, Vermilion lake.

Onoclea struthiopteris Hoffm. — A 165, Vermilion lake.

Osmunda claytoniana L. — B 175, Vermilion lake.

Osmunda regalis L. — B 338, St. Louis river.

Phegopteris dryopteris Fee. — A 32, Vermilion lake. B 398, Mud lake.

Phegopteris polypodioides Fee. — B 209, Vermilion lake. B 436, Basswood lake. B 504, Agate bay.

Polypodium vulgare L. — B 176, Vermilion lake.

Pteris aquilina L. — B 215, Vermilion lake.

Woodsia ilvensis R. Br. — A 151, Duluth. B 452, Long lake. B 476, B 484, Agate bay.

EQUISETACEÆ.

Equisetum arvense L.—B 172, B 262, Vermilion lake. Common; the latter is the var. *serotinum* Meyer.

Equisetum limosum L.—B 139, Vermilion lake.

Equisetum sylvaticum L.—B 28, B 261, Vermilion lake. Common.

BRYOPHYTA.

The mosses determined by Dr. Charles R. Barnes, the liverworts by Dr. Lucian M. Underwood.

SPHAGNACEÆ.

Sphagnum acutifolium Ehrh.—A 11, A 33, A 59, A 61, A 60, Vermilion lake. The last is near var. *fuscescens* Schimper.

Sphagnum cymbifolium Ehrh.—A 13, Vermilion lake.

Sphagnum squarrosum Pers.—A 12, A 36, Vermilion lake.

BRYACEÆ.

Atrichum undulatum Beauv.—A 96, Vermilion lake. Not common.

Aulacomnium palustre Schwag.—B 25, Vermilion lake.

Bryum argenteum L.—B 500, Agate bay,

Bryum bimum Schreb.—A 5 in part (?), B 23 (?), Vermilion lake. B 427, Fall lake.

Bryum intermedium Brid.—A 2, Vermilion lake.

Ceratodon purpureus Brid.—B 80, Vermilion lake, B 499, Agate bay.

Climacium dendroides W. & M.—A 21, Vermilion lake.

Dicranum drummondii Muller.—B 24, Vermilion lake.

Dicranum flagellare Hedw.—A 95, Vermilion lake.

Dicranum scoparium Hedw.—B 346, St. Louis river.

Dicranum undulatum Turn.—A 102, Vermilion lake. B 306, St. Louis river.

Fontinalis lescurii Sull., var. *gracilescens* Sull.—A 30, B 82, Vermilion lake.

Funaria hygrometrica Sibth.—B 121, Vermilion lake. A 146, B 343, St. Louis river.

Hypnum crista-castrensis L.—A 91, Vermilion lake. A 128, B 313, St. Louis river.

Leptobryum pyriforme Schimp.—B 26, Vermilion lake. A 147 in part, B 342, St. Louis river.

Leucobryum vulgare Hampe.—A 127, St. Louis river.

• **Mnium affine** Bland.—B 372, Mud lake.

Mnium cinclidioides Hub.—A 3, Vermilion lake. This species has not been heretofore recorded as occurring outside of New England.

Mnium cuspidatum Hedw.—A 113, A 116, Vermilion lake.

Mnium punctatum Hedw.—A 177, Vermilion lake.

Mnium serratum Laich.—A 5 in part, Vermilion lake.

Neckera oligocarpa Br. & Schr.—A 35, Vermilion lake. Beautiful fruiting specimens of this rather rare species, which is recorded only from the White mountains, Colorado and New Mexico. The plants form numerous shelf-like projections from the tree trunks.

Orthotrichum strangulatum Beauv.—A 8, A 117, Vermilion lake. The first is a form in which the capsule is not strangulate or ribbed when dry; otherwise identical with A 117, which is typical.

Philonotis fontana Brid.—B 497, B 498 (male), Agate bay.

Polytrichum commune L.—A 81, A 129, Vermilion lake. The latter varies from the type.

Polytrichum juniperinum Willd.—B 345 in part, St. Louis river.

Polytrichum piliferum Schreb.—A 143, Duluth. On exposed rocks.

Pylaisæa intricata Br. & Schr.—A 39, Vermilion lake.

Tetraphis pellucida Hedw.—A 178, A 179, Vermilion lake.

Webera nutans Hedw.—A 16, Vermilion lake.

MARCHANTIACEÆ.

Conocephalus conicus Dum.—A 100, Vermilion lake. Sterile.

Marchantia polymorpha L.—A 69, B 113, Vermilion lake. Very common.

JUNGERMANIACEÆ.

Blepharostoma trichophylla Dum.—A 126 in part, St. Louis river.

Blepharozia ciliaris Dum.—A 70, Vermilion lake.

Frullania eboracensis Got.—A 29, A 44, Vermilion lake.

Jungermania inflata Huds.—A 126 in part, St. Louis river. On rotten logs.

Jungermania schraderi Mart.—A 126 in part, St. Louis river.

Madotheca platyphylla Dum.—A 114, Vermilion lake. On tree trunks.

Pellia epiphylla Nees.—A 175, Vermilion lake. Sterile.

CARPOPHYTA.

HYMENOMYCETES.

Agaricus (Amanita) **muscarius** L.—A 135, Vermilion lake. (Determined by Peck.)

Agaricus (Collybia) **confluens** Pers.—A 74, A 195, Vermilion lake. (Determined by Peck.)

Agaricus (Inocybe) **eutheles** B. & Br.—A 185, Vermilion lake. (Determined by Peck.)

Agaricus (Omphalia) **campanella** Batsch.—A 55, A 75, A 173, Vermilion lake. (Determined by Peck.)

Agaricus (Omphalia) **gracillimus** Weinm.—A 194, Vermilion lake. (Determined by Peck.)

Agaricus (Pholiota) **squarrosus** Mull. (?)—A 140, Vermilion lake. Not mature. (Determined by Peck.)

Agaricus (Pleurotus) **sapidus** Kalchb.—A 110, Vermilion lake. A very small specimen. (Determined by Peck.)

Agaricus (Pluteus) **cervinus** Schoeff.—A 150, Vermilion lake. (Determined by Peck.)

Agaricus (Pluteus) **nanus** Pers.—A 111, A 119, Vermilion lake. Determined by Peck.)

Boletus americanus Peck, *ined.*—A. 182, Vermilion lake. "This has generally been referred to *B. flavidus* Fr., but my more recent investigations lead me to believe it is distinct."—*Chas. H. Peck.*

Boletus granulatus L.—A. 125, Vermilion lake. (Determined by Peck.)

Boletus scaber Fr.—A 139, Vermilion lake. (Determined by Peck.)

Boletus scaber Fr., var. **mutabilis** Peck, *ined.*—A 120, Vermilion lake. "The change of color in the flesh on exposure to the air leads me to separate this as a variety; I detect no other essential difference."—*Chas. H. Peck.*

Cantharellus cibarius Fr.—A 108, Vermilion lake. (Determined by Peck.)

Clavaria flaccida Fr.—H 82, Vermilion lake. On rotten logs. (Determined by Ellis.)

Clavaria ligula Schaff.—B 373a, Mud lake. (Determined by Ellis.)

Corticium amorphum (Pers.) Wint. (*Aleurodiscus amorphus* Rabh.)—H 180, St. Louis river. On tamarack. (Determined by Ellis.)

Corticium corrugatum Fr. (*Hymenochaete corrugata* Berk.)—H 158, Vermilion lake.

Corticium epichlorium B. & C.—H 155, Vermilion lake. (Determined by Ellis & Cooke.)

Corticium giganteum Fr.—H 175, Vermilion lake. On tamarack.

Corticium ochroleucium Fr., var. **spumum** B. & R.—H 138, Vermilion lake. On logs.

Corticium salicinum Fr.—H 42, Vermilion lake. On *Salix discolor*.

Cyphella fulva B. & Rav.—H 226, Vermilion lake. On dead limbs of *Alnus*.

Dædalea unicolor Fr.—H 201, Vermilion lake.

Favolus europæus Fr.—H 142, Vermilion lake.

Gleoporus conchoides Mont.—H 257, Vermilion lake. On logs.

Hygrophorus cantharellus Schw.—A 73, Vermilion lake. (Determined by Peck.)

Hydnum adustum Schw.—H 263, Vermilion lake. (Determined by Ellis.)

Hydnum auriscalpium L.—H 196, St. Louis river. In swamps. (Determined by Ellis.)

Hydnum caryophyllum B. & C.—H 252, Vermilion lake. On poplar log.

Hydnum ferruginosum Fr.—H 87, Vermilion lake. On rotten log. (Determined by Ellis.)

Hydnum membranaceum Bull.—H 184, Vermilion lake.

Irpex tulipifera Schw.—H 239, Vermilion lake.

Lactarius pyrogalus Fr. (?)—A 107, Vermilion lake. No note was made at the time of collection of the presence or absence of a milky juice, which necessarily leaves some doubt about the determination. (Determined by Peck.)

Lentinus betulina Fr.—H 132, Vermilion lake. On stumps.

Lentinus lecontei Fr.—H 106, Vermilion lake. On logs.

Lentinus lepideus Fr.—A 53, Vermilion lake. (Determined by Peck.)

Lentinus strigosus Schw.—A 106, A 124, Vermilion lake. (Determined by Peck.)

Lenzites sepiaria Fr.—H 80, Vermilion lake. On dead *Abies alba*.

Lenzites saepiaria Fr., var. **porosa** Pk.—H 73, Vermilion lake. On log of Abies. (Determined by *Ellis*.)

Marasmius ———?—H 65, Vermilion lake. In swamps. Appears to be undescribed, *fide Ellis*, but the material too scant for description.

Merulius aureus Fr.—H 204, Vermilion lake. On old log.

Odontia fimbriata Pers.—H 147, Vermilion lake. On fallen limbs.

Panus levis B. & C.—A 141, Vermilion lake. (Determined by *Peck*.)

Phlebia merisnoides Fr.—H 249, Vermilion lake. On logs. (Determined by *Ellis*.)

Phlebia spilomea B & C.—H 104, H 250, Vermilion lake. On *Populus tremuloides*.

Polyporus abietinus Fr.—H 79, Vermilion lake. Resupinate form. On log of fir. (Determined by *Ellis*.)

Polyporus applanatus Fr.—H 238, Vermilion lake. On logs.

Polyporus carneus Nees.—H 172, Vermilion lake. On logs; common. (Determined by *Ellis*.)

Polyporus conchatus Fr.—H 211, Vermilion lake. On logs.

Polyporus fomentarius Fr.—H 255, Vermilion lake. On birch.

Polyporus ignarius Fr.—H 237, Vermilion lake. On birch.

Polyporus loricatus Pers., var.—H 221, Vermilion lake.

Polyporus nitidus Fr.—H 203, Vermilion lake.

Polyporus perennis Fr.—H 66, Vermilion lake. On the ground.

Polyporus pergamenus Fr.—H 183, St. Louis river. On birch.

Polyporus picipes Fr.—H 220, Vermilion lake. On logs.

Polyporus pinacola Fr.—H 91, Vermilion lake. On pine logs. (Determined by *Ellis*.)

Polyporus schweinizii Fr.—A 138, St. Louis river. (Determined by *Peck*.)

Polyporus scutellatus Schw.—H 219, Vermilion lake. On Alnus.

Polyporus spissus Fr.—H 145, Vermilion lake. On birch. (Determined by *Ellis*.)

Polyporus subspadiceus Fr.—H 246, Vermilion lake.

Polyporus vaporarius Fr.—H 154, Vermilion lake. On rotten limbs. (Determined by *Ellis*.)

Polyporus varius Fr.—H 24, H 222, Vermilion lake. On fallen logs and limbs.

Polyporus velutinus Fr.—H 161, Vermilion lake. On fallen limbs.

Polyporus violaceus Fr.—H 234, Vermilion lake. On fir. (Determined by *Ellis*.)

Polyporus vulgaris Fr.—H 70, H 253, Vermilion lake. On dead Abies. (Determined by *Ellis*.)

Russula fragilis Fr.—A 183, Vermilion lake. (Determined by *Peck*.)

Schizophyllum commune Fr.—H 69, Vermilion lake. On old stumps.

Solenia poriaeformis (Pers.) Wint. (*Peziza pruniata* Schw.)—H 254, Vermilion lake. On rotten log. (Determined by *Ellis*.)

Stereum radiatum Pk.—H 240, Vermilion lake. (Determined by *Ellis*.)

Stereum rugosum Fr.—H 197, Vermilion lake. On birch.

Stereum spadiceum Fr.—H 218, Vermilion lake. (Determined by *Ellis*.)

Trametes cinnabarina (Jacq.) Wint. (*Polyporus cinnabarinus* Fr.)
— H 117, Vermilion lake. A 189, Agate bay.

Trametes sepium Bk.— H 72, Vermilion lake.

Trogia crispa Fr.— H 140, Vermilion lake. On dead *Betula papyracea*.

Typhula muscicola Fr.— H 235, Vermilion lake. On moss. (Determined by *Ellis*.)

TREMELLINEÆ.

Exidia glandulosa Fr.— H 43, Vermilion lake. On *Salix discolor*.

Hirneola auricula-judæ Berk.— H 185, Vermilion lake. On dead limbs.

Tremella mesenterica Fr.— H 190, St. Louis river. On tamarack.

GASTEROMYCETES.

Geaster triplex Jungh.— A 142, Vermilion lake. (Determined by *Peck*.)

Lycoperdon pyriforme Schaefl.— A 104, A 136, A 193, Vermilion lake. On the ground in woods. (Determined by *Trelease*.)

Lycoperdon wrightii B. & C. (?)— A 144, Vermilion lake. An immature specimen, growing on a rotten log. (Determined by *Trelease*.)

USTILAGINEÆ.

Entyloma compositarum Farl.— H 243, Vermilion lake. On *Lactuca canadensis*.

UREDINEÆ.

Coleosporium sonchi-arvensis (Pers.) Lev.— H 83, H 102, H 165, H 251, Vermilion lake. II. On *Aster*, the first on *A. umbellatus*, and the second on *A. corymbosus*.

Melampsora epilobii (Pers.) Wint.— H 49, H 89, Vermilion lake. II. On *Epilobium palustre*, var. *lineare*, and *E. coloratum*. H 35, Duluth. II. On *E. coloratum*.

Melampsora populina (Jacq.) Wint.— H 198, Vermilion lake. II. On *Populus tremuloides*.

Melampsora salicis-capreae (Pers.) Wint.— H 101, Vermilion lake. II. On *Salix discolor*. H 166, St. Louis river. II. On *Salix myrtilloides*.

Phragmidium rubi-idaei (Pers.) Wint.— H 205, Vermilion lake. II. & III. On *Rubus strigosus*.

Phragmidium subcorticium (Schränk.) Wint.— H 247, Vermilion lake. III. On *Rosa acicularis*. H 187, Vermilion lake. II. & III. On *Rosa sayi*. H 3, St. Louis river. II. On *Rosa*——.

Puccinia asteris Duby.— H 37, Duluth. On *Aster macrophyllus*. H 273, Agate bay. On *Aster*——.

Puccinia calthæ Lk.— H 96, Vermilion lake. II. On *Caltha palustris*.

Puccinia caricis (Schum.) Reb.— H 162, St. Louis river. III. On *Carex adusta*. H 217, Vermilion lake. II. & III. On *C. intumescens*.

Puccinia circææ Pers.— H 214, Vermilion lake. On *Circea alpina*.

Puccinia flosculosorum (A. & S.) Roehl.— H 270, Agate bay. On *Hieracium canadense*.

Puccinia galii (Pers.) Wint.— H 94, Vermilion lake. On *Galium asprellum*.

Puccinia grossulariæ (Gm.) Wint.—H 213, Vermilion lake. On *Ribes rubrum*.

Puccinia haleniae Arthur & Holway (*n. sp.*). III. Sori irregularly confluent in indefinite groups on the stems and upper surface of the leaves, black, polished, solid, minutely papillose, remaining covered by the epidermis or sometimes tardily naked; teleutospores linear or cuneate-linear, smooth, brown with darker apex, 42–52 by 8–9 μ ., epispore thin, apex squarely or obliquely truncate, or irregularly blunt, little or not at all thickened, pedicel very short, colored.—H 100, Vermilion lake. On *Halenia deflexa*.

To the unaided eye this bears more resemblance to some pyrenomycetous fungi than to the rusts.

Puccinia maydis Carr.—H 136, Vermilion lake. II. On *Zea mays*.

Puccinia menthæ Pers.—H 236, Vermilion lake. II. On *Mentha canadensis*.

Puccinia mesomegala B. & C.—H 18, Vermilion lake. On *Clintonia borealis*.

Puccinia nardosmii E. & E.—H 232, Vermilion lake. On *Petasites palmata*.

Puccinia ornata Arthur & Holway (*n. sp.*) III. Sori hypophyllous, papilliform, prominent, circinately clustered on bright reddish-purple spots 5–10 mm. in diameter, often forming a wart-like cluster at the centre, chocolate-brown; teleutospores elongated oval or oblong, smooth, uniformly brown, somewhat constricted at the septum, 33–50 by 15–22 μ ., epispore rather thin, apex obtuse or rounded, slightly or not at all thickened, base rounded or somewhat narrowed, pedicel thick, slightly colored, once to twice the length of the spore.—H 223, Vermilion lake. On *Rumex britannica* L. (*R. orbiculatus* Gray.)

This belongs to the section *Leptopuccinia*; the germinating spores give a whitened or moldy appearance to the central sori of each cluster.

Puccinia phragmitis (Schum.) Korn.—H 137, Vermilion lake. II. & III. On *Phragmites communis*.

Puccinia polygoni-amphibii Pers.—H. 48, H. 50, Vermilion lake. On *Polygonum mühlenbergii*.

Puccinia porphyrogenita Curt.—H 108, Vermilion lake. On *Cornus canadensis*.

Puccinia tanacetii DC.—H 133, Vermilion lake. II. On *Helianthus giganteus*.

Puccinia tiarella B. & C.—H 62, Vermilion lake. On *Mitella nuda*.

Puccinia tomipara Trel.—H 12, Vermilion lake. II. On *Bromus ciliatus*.

Puccinia violæ (Schum.) Wint.—H 131, Vermilion lake. II. & III. On *Viola blanda*.

Triphragmium clavellum Berk.—H 17, Vermilion lake. On *Aralia nudicaulis*.

Uromyces orobi (Pers.) Wint.—H 25, Vermilion lake. II. On *Vicia americana*.

Uromyces polygoni (Pers.) Fekl.—H 5, H 113, H 116, Vermilion lake. II. & III. On *Polygonum aviculare*.

Uromyces trifolii (A. & S.) Wint.—H 34, Duluth. I. & II. On *Trifolium repens*.

Isolated imperfect forms.

- Aecidium compositarum*** Mart.—H 141, Vermilion lake. On *Solidago*.
Aecidium lycopi Ger.—H 216, Vermilion lake. On *Lycopus virginicus*.
Aecidium porosum Pk.—H 14, Vermilion lake. On *Vicia americana*.
Aecidium ramunculacearum DC.—H 212, Vermilion lake. On *Ranunculus abortivus*.
Aecidium thalietri Grev.—H 210, Vermilion lake. On *Thalictrum purpurascens*.
Caoma agrimoniae Schw.—H 209, Vermilion lake. On *Agrimonia eupatoria*.
Peridermium abietinum (A. & S.) Thum., var. ***decolorans*** Thum.—H 93, Vermilion lake. On *Picea nigra*.
Peridermium balsameum Pk.—H 208, Vermilion lake. On *Abies balsamea*.
Uredo pyrolæ (Gm.) Wint.—H 27, Vermilion lake. On *Pyrola secunda*.

LICHENES.

Determined by Mr. Henry Willey, except Nos. B 24a, B 39, B 40, and B 195, which were determined by Prof. F. Le Roy Sargent.

- Alectoria jubata*** (L.) Tuck.—A 168, St. Louis river.
Buellia parasema (Ach.) Kbr.—A 87, Vermilion lake. On birch.
Cetraria lacunosa Ach.—A 181, Vermilion lake.
Cladonia cristatella Tuck.—A 123, Vermilion lake.
Cladonia gracilis (L.) Nyl., var. ***elongata*** Fr.—A 122, Vermilion lake.
Cladonia gracilis (L.) Nyl., var. ***verticillata*** Fr.—A 17, A 19, B 40, Vermilion lake.
Cladonia rangiferina (L.) Hoffm.—B 24a, A 121, Vermilion lake.
Collema cyrtaspis Tuck.—A 45, Vermilion lake. On standing tree trunks.
Collema nigrescens (Huds.) Ach.—A 27, A 97, Vermilion lake.
Endocarpon miniatum (L.) Schr., var. ***aquaticum*** Schr.—A 132, St. Louis river. On partially submerged rocks.
Evernia prunastri (L.) Ach.—A 115, Vermilion lake.
Graphis scripta (L.) Ach.—A 39, A 169, Vermilion lake.
Lecanora subfusca (L.) Ach., var. ***distans*** Ach.—A 79, Vermilion lake.
Lecidea enterolenca Ach.—A 23, A 170, Vermilion lake.
Leptogium myochroum (Ehr., Schar.) Tuck., var. ***saturnium*** Schar.—A 37, Vermilion lake. On dead tree trunks.
Parmelia caperata (L.) Ach.—A 25, Vermilion lake.
Parmelia olivacea (L.) Ach.—A 80, Vermilion lake.
Parmelia physodes (L.) Ach.—A 28, Vermilion lake.
Parmelia tiliacea (Hoffm.) Flk.—A 26, Vermilion lake.
Peltigera aphthosa (L.) Hoffm.—B 39, Vermilion lake. (Determined by Sargent.)
Peltigera canina (L.) Hoffm.—A 6, Vermilion lake. On the ground.
Peltigera polydactyla (Neck.) Hoffm.—A 131, St. Louis river. On the ground.

Physcia caesia (Hoffm.) Nyl.—A 171, Vermilion lake. On rocks.

Physcia stellaris (L.)—A 24, Vermilion lake.

Placodium aurantiacum (Lightf.) Nag. & Hepp.—A 145, Vermilion lake. On poplar.

Placodium cerinum (Hedw.) Nag. & Hepp.—A 93, Vermilion lake. On poplar.

Placodium elegans (Lk.) DC.—A 171, Vermilion lake.

Pyrenula —?—A 105, Vermilion lake. On poplar.

Sticta amplissima (Scop.) Mass.—A 38, Vermilion lake.

Sticta pulmonaria (L.) Ach.—A 34, Vermilion lake.

Theloschistes chrysophthalmus (L.) Norm.—A 85, Vermilion lake.

Theloschistes concolor (Dicks.) Tuck.—A 94, Vermilion lake. On living *Populus tremuloides*.

Usnea barbata (L.) Fr., var. **cavernosa** Tuck.—A 167 in part, St. Louis river.

Usnea barbata (L.) Fr., var. **dasypoga** Fr.—A 167 in part, St. Louis river.

Usnea barbata (L.) Fr., var. **florida** Fr.—A 53, Vermilion lake. Sterile.

Usnea barbata (L.) Fr., var. **plicata** Fr.—B 195, Vermilion lake. (Determined by *Sargent*.)

PYRENOAMYCELES.

Anthostoma flavo-viride Ellis & Holway (*n. sp.*) Stroma effused, thin, extending for two or more inches in length and one-half inch or more in width, covered at first with a thin coat of greenish-yellow, short, matted hyphae, producing small (1-1½ mu), subglobose, subhyaline conidia, but finally bare and black. Perithecia membranaceous, black, globose (½ mm.), sunk in the scarcely altered substance of the wood, contracted above into a narrow neck which penetrates the thin stroma with a black papilliform ostium. Asci (spore bearing part) 75 by 6-7 mu, or including the slender base 120 mu long. Sporidia uniseriate, narrow elliptical, continuous, nearly hyaline at first, becoming dark, 10-12 by 4-4½ mu. The stroma is limited in the substance of the wood by a dark circumscribing line.—H 266, Vermilion lake. On decaying wood of *Populus tremuloides*.

Chilonectria cucurbitula (Curr.) Sacc.—H 178, Vermilion lake. On *Abies*. H 182, St. Louis river. On tamarack.

Claviceps —?—A 134, St. Louis river. On *Deyeuxia canadensis*.

Daldinia concentrica (Bolt.) C. & De N.—H 256, Vermilion lake. On dead *Alnus*.

Diatrype stigma Fr.—H 120, H 112, Vermilion lake. The first on *Alnus*, the second on birch.

Diatrype tocciana De Not.—H 55, Vermilion lake. On *Alnus*. (Determined by *Ellis*.)

Diatrypella betulina Pk.—H 39, H 90, Vermilion lake. The first on *Betula papyracea*, the second on *B. pumila*.

Eutypella cerviculata (Fr.) Sacc.—H 75, H 76, Vermilion lake. The first on *Alnus incana*, the second on *Betula papyracea*.

Gnomoniella coryli (Batsch.) Sacc.—H 139, Vermilion lake. On *Corylus rostrata*.

Hypocrea citrina (Pers.) Fr.—H 146, H 245, Vermilion lake. The first on *Exidia*, the second on *Polyporus*. (The latter determined by *Ellis*.)

Hypocrea richardsoni Berk. & Mont.—H 45, Vermilion lake. On poplar.

Hypomyces aurantius (Pers.) Fekl.—H 115, Vermilion lake. On *Polyporus*. (Determined by *Ellis*.)

Hypomyces lactifluorum (Schw.) Tul.—H 143, Vermilion lake. On *Lactarius*.

Hypomyces rosellus Tul.—H 230, Vermilion lake. On *Polyporus loricatus*. (Determined by *Ellis*.)

Hypoxylon commutatum Nitsch.—H 144, Vermilion lake. On *Alnus*. (Determined by *Ellis*.)

Hypoxylon commutatum Nitsch., var. **holwayanum** Sacc.—H 248, Vermilion lake. On *Alnus*.

Hypoxylon ferrugineum Fr.—H 193, St. Louis river. On old logs. (Determined by *Ellis*.)

Hypoxylon fuscum (Pers.) Fr.—H 119, H 151, Vermilion lake. On *Alnus incana*.

Hypoxylon morsei B. & C.—H 99 Vermilion lake. On *Alnus*.

Hypoxylon multifforme Fr.—H 262, Vermilion lake. On *Betula papyracea*.

Hypoxylon serpens (Pers.) Fr.—H 265, Vermilion lake. On poplar log. (Determined by *Ellis*.)

Hypoxylon transversum Schw.—H 41, Vermilion lake. On *Betula papyracea*.

Hysterium angustatum A. & S.—H 177, Vermilion lake. On *Betula*.

Hysterographium gerardii (C. & P.) Sacc.—H 200, Vermilion lake. On old board. (Determined by *Ellis*.)

Hysterographium fraxini De Not.—H 224, Vermilion lake. On *Fraxinus*.

Lasiosphaeria hirsuta (Fr.) C. & De N.—H 40, Vermilion lake. On rotten log.

Lasiosphaeria ovina (Pers.) C. & De N.—H 148, Vermilion lake. On rotten wood.

Lophodermium maculare (Fr.) De N.—H 74, Vermilion lake. On fallen leaves of *Ledum*. (Determined by *Ellis*.)

Lophodermium pinastri (Schrad.) Chev.—H 107, Vermilion lake. On leaves of *Pinus resinosa*.

Melanconis alni Tul.—H 268, Vermilion lake. On *Alnus incana*.

Melanconis stilbostoma (Fr.) Tul.—H 63, Vermilion lake. On *Betula pumila*.

Nectria episphaeria Fr.—H 111, Vermilion lake. On *Diatrype stigma*.

Nectria perforata Ellis & Holway. (*n. sp.*) Perithecia gregarious and subconfluent, $\frac{1}{2}$ – $\frac{3}{4}$ mm. in diameter, subtuberculose roughened and pruinose furfuraceous, pale at first, becoming orange-red, depressed-globose, ostiolum papilliform, collapsing when dry so that the perithecia appear broadly perforated above. Asci clavate-cylindrical, 75 by 7–8 μ , without paraphyses. Sporidia obliquely uniseriate, elliptical or subovate, smooth, uniseptate, hyaline or with a faint tinge of rose-color.—H 260, Vermilion lake. On a decaying *Agaricus* of the section *Pleurotus*.

Plowrightia morbosa (Schw.) Sacc.—H 163, Vermilion lake. On *Prunus pennsylvanicus*.

Valsa nivea Fr.—H 103, Vermilion lake. On *Populus tremuloides*.

Valsa salicina Fr.—H 77, Vermilion lake. On *Salix discolor*. (Determined by Ellis.)

Isolated imperfect forms.

Bactridium ellisii Berk.—H 109, Vermilion lake. On rotten wood.

Cercospora leptosperma Pk.—H 152, Vermilion lake. On *Aralia nudicaulis*.

Didymaria ungeri Cda. (*Ramularia didyma* Ung.)—H 88, Vermilion lake. On *Ranunculus pennsylvanicus*.

Fusarium berenice (B. & C.) Sacc.—H 67, Vermilion lake. On *Abies balsamea*.

Glomerularia corni Pk.—H 2, Vermilion lake. On *Cornus canadensis*.

Melanconium betulinum Schm. & Kze.—H 97, Vermilion lake. On *Betula papyracea*. H 85, Vermilion lake. On *Betula pumila*.

Melanconium bicolor Nees.—H 95, Vermilion lake. On *Betula papyracea*.

Oidium radiosum Lib.—H 272, Agate bay. On *Populus balsamifera*.

Ramularia tulasnei Sacc.—H 206, Vermilion lake. On *Fragaria virginiana*.

Ramularia urticae Ces.—H 164, Vermilion lake. On *Urtica gracilis*.

Ramularia variabilis Fekl.—H 9, Duluth. On *Verbascum thapsus*.

Ramularia variegata Ellis & Holway (*n. sp.*) Spots amphigenous, large, indefinite, $\frac{1}{2}$ -1 cm. in diameter, above reticulately spotted with white or brown, less distinctly so below. Hyphae amphigenous, but mostly hypophyllous, fasciculate, hyaline, simple, toothed above, 15-25 by 4 μ . Conidia oblong-cylindrical, hyaline, uniseptate, and often constricted at the septum, 20-35 by $3\frac{1}{2}$ -4 $\frac{1}{2}$ μ .—H 233, Vermilion lake. On living leaves of *Petasites palmata*.

Septoria astragali Desm.—H 60, Vermilion lake. On *Lathyrus ochroleucus*.

Septoria coptidis B. & C.—H 231, Vermilion lake. On *Coptis trifoliata*.

Septoria corylina Pk.—H 207, Vermilion lake. On *Corylus rostrata*.

Septoria mimuli E. & K.—H 105, Vermilion lake. On *Mimulus ringens*.

Septoria polygonorum Desm.—H 153, Vermilion lake. On *Polygonum cilinode*.

Septoria rubi West., var. *pallida* E. & H.—H 47, Vermilion lake. On *Rubus hispidus*.

Stilbum tomentosum Schr.—H 114, Vermilion lake. On some myxogaster.

Trichothecium roseum (Pers.) Lk.—H 181, St. Louis river. On tamarack.

Zygodesmus sublilacinus Ellis & Holway (*n. sp.*). Forms a continuous, thin, felt-like stratum of a dirty lilac color on rotten wood (of some deciduous tree) and on birch bark. Margin slightly paler. Main hyphae coarse, much branched, the tips of the branches enlarged and bearing the coarsely echinulate, rather irregularly shaped spores, about 7 μ in diameter,

on distinct spicular sporophores.—H 188, Vermilion lake. The same thing has been found at Newfield, N. J., on bark of pine log.

HELVELLACEÆ.

Cenangium cerasi Fr.—H 157, Vermilion lake. On *Prunus pennsylvanica*.

Chlorosplenium versiforme Fr.—H 267, Vermilion lake. On old stumps.

Giboria tabacina Ellis & Holway (*n. sp.*). Stem slender, almost filiform, slightly enlarged above, $\frac{1}{2}$ -1 $\frac{1}{2}$ cm. long, and like the outside of the perithecium, yellowish tobacco-brown. Perithecia cupulate-patelliform, 1 $\frac{1}{2}$ -2 $\frac{1}{2}$ mm. in diameter, subrugulose beneath, margin entire and even, only slightly incurved. Disk slate-color, concave. Asci cylindrical, 100-115 by 9-11 mu. Paraphyses stout, yellowish, gradually but only slightly thickened above. Sporidia uniseriate, elliptical, mostly with a single large nucleus, yellowish-hyaline, 9-12 by 4-5 mu.—H 68, Vermilion lake. On decaying petioles.

C. Sydowiana Rehm. grows also on petioles, and has much the same microscopical characters except that the sporidia are broader (5-7 mu) and somewhat curved, but the stem is much shorter and thicker, the perithecium subcyathoid, and the whole plant pale. *C. calopus* Fekl. is of a different color, and has the asci and sporidia larger, and so of *C. firma* Pers., to both of which species the Minnesota plant bears some resemblance, though its peculiar color and neat appearance enable one to distinguish it even with the naked eye. The measurements of the stem, etc., and notes of color, are from the dry specimens.

Exoascus alnitorquus (Tul.) Sad.—H. 215, Vermilion lake. On *Alnus incana*.

Geoglossum luteum Pk.—H 195, St. Louis river. In swamps.

Habrostictis ocellata Fekl. (*Stictis lecanora* Fr.)—H 38, Vermilion lake. On *Salix discolor*. (Determined by Ellis.)

Heliotium citrinum Fr.—H 228, Vermilion lake. More distinctly stipitate than usual. (Determined by Ellis.)

Patellaria fenestrata C. & P.—H 118, Vermilion lake. On dead twigs of *Populus tremuloides*.

Peziza agassizii B. & C.—H 179, St. Louis river. On tamarack.

Peziza (Dasys) borealis Ellis & Holway (*n. sp.*). Briefly stipitate, about 1 mm. in diameter, globose when dry and nearly closed, densely shagged and fringed with gray hairs, the marginal ones 80-100 mu long, and 2 $\frac{1}{2}$ mu thick. Disk pale. Asci cylindrical, sessile, 75-80 by 7-8 mu. Paraphyses stout (2 $\frac{1}{2}$ mu thick), pointed above and slightly exceeding the asci. Sporidia clavate-fusoid, nucleolate, hyaline, straight or a little curved, 2-seriate, 20-22 by 3-4 mu.—H 264, Vermilion lake. On rotten wood, which is overspread with a brown *Zygodesmus*. We can not say whether the *Zygodesmus* is accidental or of the nature of a subiculum. When dry it much resembles *Cyphella ravenelii* B.

Peziza carbonaria A. & G.—H 191, St. Louis river. On the ground. (Determined by Ellis.)

Peziza cupressi Batsch.—H 225, Vermilion lake. On fallen leaves of *Thuja*.

Peziza dehnii Rabb.—H 176, Vermilion lake. On living *Potentilla*.

Peziza fusco-carpa Ellis & Hol.—H 189, St. Louis river. On logs.

Peziza hemispherica Wigg.—H 159, Vermilion lake. On rotten wood.

Peziza macropus Pers. (*P. subclavipes* Phil. & Ellis.)—H 227, Vermilion lake. (Determined by Ellis.)

Peziza (*Humaria*) **olivatra** Ellis & Holway (*n. sp.*). Carnose, about 2 mm. across, attached by a central point, smooth and blackish outside, with the thin margin lighter. Disk concave, dark olive when dry. Asci clavate-cylindrical, 70-75 by 6-7 μ , subsessile. Paraphyses, yellowish-brown, about as long as the asci, scarcely thickened above. Sporidia biseriate, oblong, yellowish-hyaline, rounded at the ends, 6-7 by $1\frac{1}{2}$ -2 μ . The margin, when dry, is more or less undulate, but not strongly incurved.—H 269, Vermilion lake. On old stumps.

Peziza repanda Wahl.—H 258, Vermilion lake. On rotten wood.

Peziza scutellata L.—H 149, Vermilion lake. On old logs.

Rhytisma andromeda Fr.—H 186, Vermilion lake. On *Andromeda polifolia*.

Spathularia flavida Pers.—H 194, St. Louis river. In swamps.

PERISPORIACEÆ.

Erysiphe aggregata (Pk.)—H 51, Vermilion lake. On *Alnus incana*.

Erysiphe cichoraceorum DC.—H 78, Vermilion lake. On *Echinopspermum virginicum*.

Microspheera dubi Lev.—H 150, H 242, Vermilion lake. The latter on an undetermined species of *Lonicera*; the first on *L. hirsuta*.

Sphærotheca castagnei Lev.—H 46, Vermilion lake. On *Rubus hispidus*.

Sphærotheca pannosa Lev.—H. 84, Vermilion lake. On *Ribes floridum*.

OOPHYTA.

PERONOSPOREÆ.

Cystopus bliti (Bivon) Lev.—H 134, Vermilion lake. On *Amarantus retroflexus*.

Cystopus candidus (P.) Lev.—H 244, Vermilion lake. On *Capsella bursa-pastoris*.

Cystopus cubicus (Strauss) Lev.—H 241, Vermilion lake. On *Cnicus*.

Peronospora arthuri Farl.—H 271, Agate bay. On *Oenothera biennis*.

Peronospora effusa (Grev.) Rabh., var. **minor** Farl.—H 135, Vermilion lake. On *Chenopodium album*.

Peronospora gangliiformis (Bk.) DeB.—H 81, Vermilion lake. On *Mulgedium leucophæum*.

Peronospora potentillæ De B.—H 86, Vermilion lake. On *Geum macrophyllum*.

VOLVOCINEÆ.

Volvox globator L.—A 52, Vermilion lake. In water among moss in a low grassy spot. (Determined by Wollc.)

CONFERVACEÆ.

Chaetophora endiviaefolia Ag., var. **ramosissima** Rab.—A 78, Vermilion lake. (Determined by Wolle.)

Chaetophora pisiformis Ag.—A 191 in part, St. Louis river. In running water. (Determined by Wolle.)

Conferva tenerrima Kg.—A 57, Vermilion lake. (Determined by Wolle.)

ZYGOPHYTA.

MESOCARPEÆ.

Mesocarpus scalaris Has. (?)—A 173 in part, St. Louis river. Clear running water; sterile. (Determined by Wolle.)

DIATOMACEÆ.

Determined by Mr. B. W. Thomas, from a single gathering taken from the running water of a ditch in a sphagnous swamp.

Eunotia lunaris Grun.—A 172 in part, Vermilion lake.

Eunotia prærupta, var. **bidens** Grun.—A 172 in part, Vermilion lake.

Melosira varians Ag.—A 172 in part, Vermilion lake.

Navicula limosa K.—A 172 in part, Vermilion lake.

Navicula limosa K., var. **subinflata** Grun.—A 172 in part, Vermilion lake.

Navicula major K.—A 172 in part, Vermilion lake.

Navicula parva Ralfs.—A 172 in part, Vermilion lake.

Navicula viridis K.—A 172 in part, Vermilion lake.

Stauroneis anceps E.—A 172 in part, Vermilion lake.

Stauroneis phœnicenteron E.—A 172 in part, Vermilion lake.

Tabellaria fenestrata K.—A 172 in part, Vermilion lake.

Tabellaria flocculosa K.—A 172 in part, Vermilion lake.

DESMIDIÆ.

Determined by Rev. Francis Wolle.

Closterium dianæ Ehrb.—A 190 in part, Vermilion lake. Ditch in sphagnous swamp.

Closterium parvulum Nag.—A 184 in part, A 190 in part, Vermilion lake. In sphagnous swamp.

Closterium striolatum Ehrb.—A 149 in part, St. Louis river. A 190 in part, Vermilion lake.

Closterium venus Kg.—A 184 in part, Vermilion lake. In cold sphagnous swamp.

Cosmarium botrytis Menegh.—A 184 in part, Vermilion lake.

Cosmarium cucumis Cda.—A 184 in part, Vermilion lake.

Cosmarium nasutum Nord.—A 189 in part, St. Louis river. In open sphagnous swamp.

Cosmarium nitidulum De Not.—A 187 in part, St. Louis river. In sphagnous swamp.

Cosmarium ornatum Ralfs.—A 173 in part, St. Louis river.

Cosmarium speciosum Lund., var. **abbreviatum** Wolle (*n. var.*). Differs from the type-form in being only about one-tenth longer than broad; not one-half longer, as described by Lundell, and as hitherto found.—A 149 in part, A 173 in part, St. Louis river. In clear water running through a ditch in a sphagnous swamp.

Cosmarium tetraophthalmum (Kg.) Breb.—A 184 in part, Vermilion lake. A 189 in part, St. Louis river.

Docidium trabecula (Ehrb.) Nag.—A 149 in part, St. Louis river. A 190 in part, Vermilion lake.

Euastrum ansatum (Ehrb.) Ralfs.—A 190 in part, Vermilion lake.

Euastrum crassum (Breb.) Kg.—A 196 in part, St. Louis river. In clear water running through sphagnous swamp.

Euastrum elegans Kg.—A 189 in part, St. Louis river.

Euastrum oblongum Ralfs.—A 149 in part, St. Louis river. A 190 in part, Vermilion lake.

Euastrum verrucosum (Ehrb.) Ralfs.—A 173 in part, St. Louis river.

Penium closterioides Ralfs.—A 192 in part, St. Louis river. In clear water in a sphagnous swamp.

Penium oblongum De B.—A 187 in part, A 188, St. Louis river.

Staurastrum alternans Breb.—A 149 in part, St. Louis river.

Staurastrum brevispina Breb.—A 192 in part, St. Louis river.

Staurastrum dejectum Breb.—A 190 in part, St. Louis river.

Staurastrum dickiei Ralfs.—A 149 in part, St. Louis river.

Staurastrum furcigerum Breb.—A 190 in part, Vermilion lake.

Staurastrum hirsutum (Ehrb.) Breb.—A 173 in part, St. Louis river.

Staurastrum orbiculare (Ehrb.) Ralfs.—A 190 in part, Vermilion lake.

Staurastrum rugulosum Breb.—A 184 in part, Vermilion lake.

Staurastrum scabrum Breb.—A 191 in part, St. Louis river. Clear water in sphagnous swamp.

Staurastrum spongiosum Breb.—A 190 in part, Vermilion lake.

Staurastrum subarcuatum Wolle.—A 190 in part, Vermilion lake.

Staurastrum teliferum Ralfs.—A 184 in part, Vermilion lake. A 190 in part, St. Louis river.

PANDORINEÆ.

Pandorina morum Bory.—A 54, Vermilion lake. (Determined by Wolle.)

PROTOPHYTA.

PALMELLACEÆ.

Tetraspora lubrica Ag., var. **lacunosa**, Chauv.—A 192 in part, St. Louis river. In clear flowing water. (Determined by Wolle.)

CHROOCOCCACEÆ.

Merismopedia elegans A. Br. (?)—A 190 in part, Vermilion lake. (Determined by Wolle.)

OSCILLARIACEÆ.

Leptothrix ochracea Kg. (*Lyngbya ochracea* Thur.)—A 58, Vermilion lake. (Determined by Wollé.)

Oscillaria gracillima Kg.—A 56, Vermilion lake. (Determined by Wollé.)

Oscillaria tenerrima Kg.—A 76, A 109, Vermilion lake. (Determined by Wollé.)

RIVULARIACEÆ.

Glœotrichia nataus Thur.—A 186, Vermilion lake. Floating in the water of the lake; from the size of a pea to two inches in diameter. (Determined by Wollé.)

Glœotrichia pisum Thur. (*Rivularia fluitans* Cohn.)—A 77, Vermilion lake. Floating in the lake in small quantity; not found attached. This is the same plant that has attracted so much attention at Waterville, Minn., and vicinity, on account of its supposed poisonous effects upon cattle—a supposition that has not been substantiated.

NOSTOCACEÆ.

Nostoc lichenoides Vauch.—A 148, St. Louis river. On the ground among moss. (Determined by Wollé.)

MYXOMYCETES.

Arcyria cinerea (Bull.) Rostf.—H 124, Vermilion lake. (Determined by Rex.)

Arcyria nutans Bull.—H 64, Vermilion lake.

Arcyria œrstedii Rostf.—H 92, Vermilion lake. (Determined by Rex.)

Arcyria punicea Pers.—H 7, Duluth.

Chondrioderma michelii (Lib.) Rostf., var. **sessilis** Rostf.—H 167, Vermilion lake. (Determined by Rex.)

Clathroptychium rugulosum (Wall.) Rostf.—H 261, Vermilion lake.

Comatricha pulchella Bab.(?)—H 126, Vermilion lake. (Determined by Rex.)

Cribraria argillacea Pers.—H 170, Vermilion lake. (Determined by Rex.)

Diachæa leucopoda (Bull.) Rostf.—H 6, Duluth.

Dictydium cernuum (Pers.)—H 129, Vermilion lake.

Hemiarcyria clavata (Pers.) Rostf.—H 174, Vermilion lake.

Hemiarcyria rubiformis (Pers.) Rostf.—H 199, Vermilion lake.

Lamproderma arcyrioides (Somf.) Rostf.(?)—H 123, Vermilion lake. (Determined by Rex.)

Lycogala epidendrum Brex.—H 56, Vermilion lake. On decayed wood.

Stemonites dictyospora Rostf.—H 33, Vermilion lake.

Stemonites ferruginea Ehr.—H 168, H. 169, Vermilion lake. The latter has spores unusually small. (Determined by Rex.)

Tilmadoche nutans Pers.(?)—H 127, Vermilion lake. (Determined by Rex.)

Trichia chrysosperma Bull.—H 121, H 202, Vermilion lake. The latter varies considerably from the typical form.

Tubulina cylindrica Bull.—H 171, St. Louis river.

CHYTRIDINEÆ.

Synchytrium asari Arthur & Holway (*n. sp.*). Spots indistinct; galls flattened hemispherical, scattered; resting spores solitary, spherical, .10-.12 mm. in diameter; epispore dark brown, smooth.—A 86, Vermilion lake. On leaves and petioles of *Asarum canadense*.

The galls are formed by the swollen epidermal cells surrounding the host-cell, and are depressed in the centre, apparently forming a pore. They are thickly scattered over the petiole and both surfaces of the leaf, either over the whole leaf, which is the usual way; or over definite portions of it. The color of the leaf is scarcely altered, but the affected leaves are made conspicuous by the minutely blistered and somewhat distorted appearance given by the parasite. The spores are very uniform in size and shape.

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PLANTS COLLECTED OR OBSERVED ON THE BLUFF
AT DULUTH, JULY 17, 1886.

BY L. H. BAILEY, JR.

The following plants were observed upon the high receding bluff just back of Duluth. The original timber has long been removed, the present ligneous plants consisting of scattered clumps of bushes.

Juncus bufonius L.

Juncus tenuis Willd.

Anaphalis margaritacea Benth. & Hook.

Cerastium viscosum L.

Taraxacum officinale W.

Cornus canadensis L.

Quercus rubra L.

Thuja occidentalis L.

Acer saccharinum Wang.

Acer spicatum Lam.

Corylus rostrata Ait.

Abies, species undeterminable. A few small plants.

Fragaria vesca L. Common.

Fragaria virginiana Ehrh. Not common.

Potentilla norvegica L.

Achillea millefolium L.

Trifolium repens L.

Trifolium pratense L.

Polygonum aviculare L.

Plantago major L.

Pteris aquilina L.

Rumex acetosella L.

Aquilegia canadensis L.

Rubus strigosus Michx.

Rubus nutkanus Moc. Common.

Salix discolor Muhl.

Epilobium coloratum Muhl.

Epilobium spicatum Lam.

Capsella bursa-pastoris Mærch.

Verbascum thapsus L.

Chenopodium album L.

Prunus pennsylvanica L. Much attacked by the fungus *Plow-rightii morbosa* Sacc.

Diervilla trifida Mærch.

- Ranunculus abortivus* L.
Geranium robertianum L.
Cnicus lanceolatus Hoffm.
Amarantus albus L.
Galium aparine L.
Cornus alternifolia L.
Heracleum lanatum Michx.
Sambucus canadensis L.
Betula papyrifera Marshall.
Tilia americana L.
Carex deweyana Schur.
Carex arctata Boott.
Carex pennsylvanica Lam.
Carex tenella Schk. In sunny, dry places.
Agrostis scabra Willd.
Phleum pratense L.
Polygonum cilinode Michx.
Juncus bufonius L.
Galeopsis tetrahit L.
Lathyrus paluster L.
Poa compressa L.
Stellaria borealis Bigelow.
Polygonum aviculare L. A singular, erect, short-jointed form.

SUPPLEMENT TO THE FLORA OF MINNESOTA.

BY WARREN UPHAM.

The following notes, chiefly received from the botanists named on pages 10 and 181 of my *Flora of Minnesota*, show the accessions to the known flora of this state, and to knowledge of the geographic range of species, since the publication of that report two years ago, without, however, including the plants collected at Vermilion lake and vicinity by the botanical party of the State Survey, during the season of 1886. Twenty-two localities are added on the authority of Mr. L. R. Moyer and sister, of Montevideo, who have furnished a catalogue of species growing in Chippewa county.

Descriptions of the plants added are found either in Gray's *Manual* or in Coulter's *Manual of Rocky Mountain Botany*, excepting three, of which descriptions are here given.

ACCESSIONS.

Anemone nudicaulis, Gray. "I wish to direct the attention of any of our own botanists, who may next summer be visiting lake Superior, to a singular Anemone which grows in bogs and on banks near the water at Sand bay, Minnesota, very near lat. 48° , and in or near the Canadian boundary. All I know of it is from a specimen sent to me in a letter, dated August 8, 1870, from Mr. Joseph C. Jones, then of the U. S. Steamer *Search*. He wrote that the plant was found growing in mossy ground, close to the water's edge, and also in bogs, and that it grows in the manner of *Coptis trifolia*. I believe it has filiform rootstocks, like those of *Anemone Richardsoni*, and the radical leaves are so like those of that species that I inadvertently mistook the plant for that species. But the involucre consists of a single petiolate leaf, very like the radical, or else is wholly wanting. And the akenes are tipped with rather short and hooked styles, very unlike the long ones of the aforesaid Arctic species. A flowering specimen is a desideratum."—*Asa Gray in Botanical Gazette*, xi, 17, Jan., 1886.

Arabis patens, Sullivant. Rock Cress.

Nicollet county, in a deep ravine beside a water-fall near the Minnesota river, five miles above Mankato, *Leiberg*.

Crotalaria sagittalis, L. Rattle-box.

Shore of a little pond close to Mahtomedi station, *Miss Butler*.

Trifolium agrarium, L. Yellow Clover. Hop Clover.

Ramsey county, *Oestlund*.

Trifolium procumbens, L., var. *minus*, Koch. Smaller Yellow or Hop Clover.

Stearns county, *Campbell*; becoming abundant in some parts of southern Minnesota, specially observed near Winnebago City (displacing Mayweed and other weeds, "even more rapidly than white clover"), *Gedge*; Pipestone City, *Mrs. Bennett*.

Rosa blanda, Ait. (Including var. *pubescens*, Crepin.) Wild Rose.

Duluth, *Engelmann*. Probably frequent in eastern and northern Minnesota, "on rocks and rocky shores of rivers and lakes." It ranges from Newfoundland, Hudson bay and lake Winnipeg, south to Vermont, northern New York, Illinois and Wisconsin. *Watson in Proc. Am. Acad. of Arts and Sciences*, xx, 339, Jan., 1885. Winona county, *Holzinger*.

Rosa Sayi, Schweinitz. Wild Rose.

Surely in northern Minnesota. Frequent in the Rocky mountains from Colorado to British America, and on the south and north shores of lake Superior and northward. *Watson*, l. c., 340.

Rosa Arkansana, Porter. (*R. blanda*, Ait., var. *setigera*, Crepin.) Wild Rose.

Very frequent in the mountains from western Texas and New Mexico to British America, and eastward to the upper Mississippi and Saskatchewan.

The most pubescent form of this species is common upon dry prairies from the upper Mississippi westward and to the Saskatchewan. The flowers are here sometimes white. In eastern Minnesota and Iowa it occurs with the receptacle more or less hispid. *Watson*, l. c., 341. Winona county, *Holzinger*.

Rosa Woodsii, Lindl. Wild Rose.

Missouri to Colorado and northward to western Montana, the Saskatchewan and Slave lake, chiefly on the plains and in the valleys.—Minnesota, *Sykes*, near Minneapolis, *Miss Butler*; Dakota, *Nicoll*, at Mandan, *Mechan*; Montana, on Tongue river, *Roberts*, etc. *Watson*, l. c., 345.

[The four preceding species take the place of the two varieties of *R. blanda*.]

Oenothera biennis, L., var. *cruciata*, Torr. & Gray. Evening Primrose.

Willow brook, between Glyndon and Muskoda, Clay county, *Gedge*.

Erigenia bulbosa, Nutt. Harbinger-of-Spring. Pepper-and-salt.

Lake City, *Miss Manning*. Southeast.

Petasites palmata, Gray. (*Nardosmia palmata*, Hook.) Sweet Coltsfoot.

Tower, Vermilion lake, and Agate bay on lake Superior, *Sandberg*; near Duluth (abundant), *W. H. Stultz*; Leech lake and White Earth, *Dr. C. P. Allen*; Detroit, *W. W. Cooke*. North.

Aster acuminatus, Michx. Aster.

White Earth, *Dr. C. P. Allen*. North.

[*Cacalia suaveolens*, L., is found at Hesper, Iowa, close to the south line of Fillmore county, Minnesota, by *Mrs. Carter*.]

Senecio aureus, L., var. *borealis*, Torr. & Gray. Golden Ragwort.

Northwest angle of the Lake of the Woods, at the extreme northern point of Minnesota, *Macoun*. North.

Crepis runcinata, Torr. & Gray. Crepis.

Red river prairie and westward, *Dawson*, *Macoun*. West.

Lactuca Ludoviciana, DC. Wild Lettuce.

Winona county, *Holzinger*.

Campanula rotundifolia, L., var. *arctica*, Lange. (var. *linifolia*, Gray.) Harebell. Bluebell.

North shore of lake Superior, *Roberts*; Clay county, *Gedge*; "quite common in the whole prairie region extending from Manitoba to the Rocky mountains," *Macoun*.

Plantago major, L., var. *asiatica*, Decaisne. Plantain.

Plentiful in the Red river valley, *Upham*, *Leiberg*. Northwest. Capsule

usually more broadly ovoid; circumscissile near the base and much within the calyx. A very large indigenous form, perhaps a distinct species.—*Gray's Synoptical Flora of N. A.*

Pentstemon cristatus, Nutt. Beard-tongue.

Rising ground, Red river prairie and westward, *Dawson*. *Macoun's Catalogue of Canadian Plants*. West.

Pentstemon gracilis, Nutt. Beard-tongue.

On the 49th parallel near Emerson, Manitoba, and westward, *Burgess*, *Richardson*, etc. *Macoun's Catalogue*. West. Winona, *Holzinger*.

Monarda fistulosa, L., var. **mollis**, Benth. Wild Bergamot.

Red river valley, *Macoun*. West.

Gentiana Amarella, L., var. **stricta**, Watson. Gentian.

Frequent, or common, in northeastern Dakota, extending south to the Northern Pacific railroad, *Upham*; surely also extending into Minnesota. Northwest. "Frequent on open, grassy prairies from Winnipeg westward to the Rocky mountains. Easily distinguished by its strict habit and usually copious and light-colored flowers." *Macoun's Catalogue*.

Atriplex patula, L., var. **hastata**, Gray. Atriplex.

Common, or frequent on alkaline land in the Red river valley, *Upham*; determined by *Mr. Watson*.

Atriplex argentea, Nutt. Atriplex.

With the preceding, *Upham*; also determined by *Mr. Watson*. West.

Suaeda depressa, Watson, var. **erecta**, Watson. Sea Blite.

Common, or frequent, on alkaline land in the Red river valley, *Upham*. Northwest.

Rumex obtusifolius, L. Bitter Dock.

Winona county, *Holzinger*.

Euphorbia platyphylla, L. *Spurge*.

Lake City (rare.), *Miss Manning*.

Salix cordata, Muhl., var. **vestita**, Anders. Diamond Willow.

Frequent, especially in the Red river valley. *Mr. Bebb* writes: "Prof. L. F. Ward and myself are utterly unable to account for the arrest of wood growth at the base of the atrophied twigs." This is not regarded by *Mr. Bebb* as worthy of a distinct varietal name. It is, however, very well known in many localities because of its diamond-shaped gnarls, which give its name, and make it a curiosity when used for canes or ornamental work.

Typha angustifolia, L. Narrow-leaved Cat-tail.

Rare on north shore of north half of Red lake (leaves $\frac{1}{4}$ to $\frac{1}{2}$ inch wide; staminate and pistillate parts of spike separated by $\frac{3}{4}$ inch of naked stem), *Upham*.

Sisyrinchium anceps, Cav. Blue-eyed Grass.

Sisyrinchium mucronatum, Michx. Blue-eyed Grass.

Prof. Coulter writes: "Our *Sisyrinchiums* are unquestionably two species. Very likely Miller's name should be substituted for one of them, but it is impossible without a half day's work in the library to tell which. They are both undoubtedly distinct from the Jamaica plant."

Carex gynocrates, Wormskjöld. Sedge.

Becker county, *Simmons*; determined by *Prof. Arthur*. North.

* Prof. L. H. Bailey, Jr., authorizes a correction in his *Synopsis of North American Carices*, in which Minnesota is credited with *Carex variflora*, Smith (p. 94), and *C. pratensis*, Drej. (p. 147). Further examination of the specimens from the Minnesota localities cited shows that an error was made in the original determinations, and the citations should therefore be erased.

Carex pauciflora, Lightfoot. Sedge.

Tower, Vermilion lake, and Agate bay, *Sandberg*. North.

Carex rosea, Schk., var. **radiata**, Dewey. Sedge.

Saint Cloud, *Campbell*; determined by *Mr. William Boott*. "More common than the species," *Bailey*.

Carex stenophylla, Wahl. Sedge.

Red river valley, *Leiberg*; determined by *Mr. Boott*. Emmet county, Iowa (rare), *Cratty*; determined by *Prof. Bailey*. West.

Carex adusta, Boott, var. **glomerata**, *Bailey*. Sedge.

Northern Minnesota, *Bailey*. Spikes few-flowered, aggregated into a loose, mostly tawny head; perigynium large, almost wingless, nearly filled by the large dark achenium.—*Bailey's Preliminary Synopsis of North American Carexes*.

Carex straminea, Schk., var. **mirabilis**, Tuckerman. (*C. cristata*, Schk., var. *mirabilis*, *Gray's Manual*.)

Chisago county, *Sandberg*.

Carex flava, L. Sedge.

Saint Cloud, *Campbell*; determined by *Mr. Boott*.

Carex trichocarpa, Muhl. Sedge.

Chisago county, *Sandberg*.

Carex vesicaria, L. Sedge.

Red river valley, *Leiberg*; determined by *Mr. Boott*. Northwest.

Carex Tuckermanni, Boott. Tuckerman's sedge.

Chisago county, *Sandberg*.

Carex rupestris, All. Sedge.

Red river valley, *Leiberg*; determined by *Mr. Boott*. North.

Stipa viridula, Trin. Feather-grass.

Frequent on alluvial soil in northeastern Dakota, from Grand Forks county northward, *Upham*; doubtless also reaching into Minnesota. West.

Milium effusum, L. Millet-grass.

Hennepin county, *Oestlund*.

ERASURES.

The following should be erased:

Thalictrum Cornuti, L. The range of this species (*T. polygamum*, Muhl.) is stated by Prof. Trelease (*Botanical Gazette*, xi, 92) as "west to Ohio, but mostly confined to the Atlantic states;" it is probably not found in Minnesota. The specimens heretofore referred here belong to *T. purpurascens*, L.

Cardamine rotundifolia, Michx., in appendix. The *C. rhomboidea*, DC., var. *purpurea*, Torr., placed under this name, belongs with the typical *C. rhomboidea*.

Fragaria Virginiana, Duchesne. Our form of this is the var. *Illinoensis*, Gray. "The species seems to be confined to the Atlantic states," Coulter's *Manual*.

Crataegus tomentosa, L., var. *pyrifolia*, Gray. This variety is included with the typical species by Sargent's *Forest Trees of N. A.*

Gaillardia pinnatifida, Torr. The specimens referred here were undoubtedly *G. aristata*, Pursh.

Trillium erectum, L., var. *album*, P. Transfer the locality "Winona, *Holzinger*" from this species to *T. grandiflorum*, *Salish*.

Carex straminea, Schk., var. *Crawei*, Boott. This variety is included with the typical species by Bailey's *Synopsis of N. A. Carices*.

ADDITIONAL LOCALITIES.

Ranunculus affinis, R. Br., Two Harbors, lake Superior, *A. W. Jones*.

Ranunculus repens, L., var. *hispidus*, Torr. & Gray. Frequent in Blue Earth county, *Leiberg*.

Corydalis glauca, Pursh. Brown county, *Juni*.

Arabis kevigata, Poir. White Earth, *Dr. C. P. Allen*.

Sisymbrium Thaliana, Gay. Brown county, *Juni*.

Draba Caroliniana, Walt., var. *micrantha*, Gray. Common in Blue Earth county, *Leiberg*.

Vesicaria Ludoviciana, DC. Montevideo, Chippewa county, *Moyer*.

Viola lanceolata, L. Near the international boundary northeast of Vermilion lake, *A. W. Jones*. The northern limit of this species, as stated by *Dr. Gray*, is "from Nova Scotia to lake Superior," *Bot. Gaz.*, xi, 255.

Viola palmata, L.

Gray's revision of the violets (*Botanical Gazette*, xi, p. 254) makes it necessary to transfer the localities under *V. cucullata*, var. *palmata* of the catalogue to this species, to which should be added Winona county, *Holzinger*.

Viola palmata, L., var. *cucullata*, Gray. This name should be used instead of *V. cucullata*, *Gray, l. c.*

Viola sagittata, Ait. Leech lake, *Allen*.

Viola Canadensis, L. Abundant near Cannon lake, Rice county, *Miss Beane*. Quite plentiful in timbered bottoms, some varieties nearly white, Chippewa county, *Moyer*.

Viola pubescens, Ait., var. *eriocarpa*, Nutt. The prevailing form of this species in copses throughout the prairie part of the state, *Leiberg*.

Hudsonia tomentosa, Nutt. Sandy lake, close northeast of Minneapolis, *Simmons*.

Lechea minor, Walt. Common at Red lake, *Upham*.

Hypericum ellipticum, Hook. Dellwood, Ramsey county, *Kelley*.

Hypericum corymbosum, Muhl. Red Wing, *Sandberg*.

Arenaria Michauxii, Hook. White Earth, *Allen*.

Stellaria crassifolia, Ehrh. Lake City, *Miss Manning*.

Cerastium oblongifolium, Torr. Montevideo, Chippewa county, *Moyer*.

Malva sylvestris, L. Montevideo, Chippewa county, *Moyer*.

Linum perenne, L. Mahtomedi, Ramsey county, *Miss Butler*.

Ptelea trifoliata, L. Faribault, *Miss Beane*.

Rhus typhina, L. Red lake, near the Agency, *Upham*.

Rhus glabra, L. Plentiful near Tower, Vermilion lake, *A. W. Jones*.

Acer rubrum, L. Montevideo, Chippewa county, *Moyer*.

Trifolium arvense, L. Minneapolis, *Simmons*.

Trifolium hybridum, L. Near Duluth, *David F. Day*.

Melilotus alba, Lam. "Spreading along the roadsides in some parts of Cottonwood county to the exclusion of every other plant," *Juni*.

Dalea alopecuroides, Willd. Worthington, becoming plentiful as a weed beside roads in 1885, but rare in 1886, *Foote*.

- Petalostemon villosus*, Nutt. Winona county, *Mrs. Dice*.
Astragalus flexuosus, Dougl. Montevideo, Chippewa county, *Moyer*.
Hedysarum boreale, Nutt. White Earth, *Allen*.
Lathyrus maritimus, Bigelow. North half of Red Lake, *Upham*.
Lathyrus paluster, L., var. *myrtifolius*, Gray. Chippewa county, *Moyer*.
Phaseolus perennis, Walt. Lake City, *Miss Manning*.
Crataegus Crus-galli, L. Montevideo, Chippewa county, *Moyer*.
Ribes gracile, Mx. Chippewa county, *Moyer*.
Gaura coccinea, Nutt. Brown county, *Juni*. Chippewa county, *Moyer*.
Oenothera fruticosa, L. Lake City, *Miss Manning*.
Oenothera albicanlis, Nutt. Quite abundant, probably introduced, between Glyndon and Muskoda, *Gedde*; a frequent weed along railroads and in wheat-fields in northeastern Dakota, *Upham*.
Ludwigia palustris, Ell. Lake City, *Miss Manning*.
Opuntia fragilis, Haw. Lake of the Woods, in numerous localities, as reported by *Prof. Macoun* in letter, Dec. 2, 1884. (See note under *O. Rafinesquii*.)
Sicyos angulatus, L. Red lake, *Upham*.
Polytenia Nuttallii, DC. Dellwood, Ramsey county, *Kelley*.
Archemora rigida, DC. Winona county, *Holzinger*.
Pimpinella integerrima, Benth. & Hook. Leech lake, *Allen*.
Cryptotenion Canadensis, DC. White Earth, *Allen*; frequent in northeastern Dakota, *Upham*.
Aralia racemosa, L. Abundant at Leech lake and White Earth, *Allen*.
Cornus florida, L., in appendix. *Mr. J. S. Harris* reports that at least one tree of this species formerly grew in Houston county.
Lonicera Sullivantii, Gray. Leech lake and White Earth, *Allen*; Manitoba, *Macoun*.
Adoxa Moschatellina, L. Duluth, *W. H. Stultz*; determined by *Prof. T. C. Porter*.
Galium Aparine, L. White Earth, *Allen*.
Galium trifidum, L., var. *pusillum*, Gray. Vermilion lake, *A. W. Jones*.
Houstonia purpurea, L., var. *longifolia*, Gray. Chippewa county, *Moyer*.
Houstonia purpurea, L., var. *ciliolata*, Gray. Moose lake, Northern Pacific Junction, and Agate bay, *Sandberg*.
Liatris spicata, Willd. Chippewa county, *Moyer*.
Liatris punctata, Hook. Lake Calhoun, Minneapolis, *Miss Butler*; Lake City (rare), *Miss Manning*. Chippewa county, *Moyer*.
Kuhnia eupatorioides, L. Leech lake, *Allen*. Chippewa county, *Moyer*.
Kuhnia eupatorioides, L., var. *corymbulosa*, Torr. & Gray. Common in the prairie region of the state, *Leiberg*.
Eupatorium perfoliatum, L. Common at Red lake, *Upham*.
Petasites sagittata, Gray. White Earth, *Allen*; abundant near Hollson, Pembina county, Dakota, *Upham*.
Aster patens, Ait. Lake City (rare), *Miss Manning*.
Aster cordifolius, L. Rare or absent in the north part of the Red river valley, but frequent at Red lake, *Upham*, that being near its northwestern limit; Leech lake and White Earth, *Allen*.
Aster puniceus, L. White Earth, *Allen*; common at Saint Hilaire and frequent at Red lake and in northeastern Dakota, *Upham*; doubtless also frequent

in the Red river valley. Its range extends west to the Rocky mountains in British America, *Macoun*.

Aster oblongifolius, Nutt. White Earth, *Allen*; Northeastern Dakota, *Upham*. Infrequent. South and west. Chippewa county, *Moyer*.

Aster linariifolius, L. Lake City, *Miss Manning*.

Solidago Missouriensis, Nutt. Montevideo, Chippewa county, *Moyer*.

Aplopappus spinulosus, DC. Abundant on dry, gravelly soil, as the beaches of lake Agassiz, in northeastern Dakota, *Upham*. West.

Polymnia Canadensis, L. Winona county, *Holzinger*.

Lepachys columnaris, Torr & Gray. Chippewa county, *Moyer*.

Coreopsis tinctoria, Nutt. Dellwood; Ramsey county, *Kelley*.

Coreopsis trichosperna, Michx. Lake City, *Miss Manning*.

Bidens Beckii, Torr. Vermilion lake, *A. W. Jones*; Lake City (rare), *Miss Manning*.

Artemisia frigida, Willd. Winona county, *Holzinger*.

Cacalia atriplicifolia, L. Lake City, *Miss Manning*.

Senecio aureus, L., var. *obovatus*, Torr & Gray. Vermilion lake, *A. W. Jones*.

Senecio canus, Hook. "Very abundant on many parts of the prairie region from the eastern part of Manitoba to the Rocky mountains," *Macoun*.

Cnicus undulatus, Gray. Chippewa county, *Moyer*.

Prenanthes crepidinea, Michx. Lake City, *Miss Manning*.

Lobelia Dortmanna, L. Burntside lake, Saint Louis county, *A. W. Jones*.

Campanula aparinoides, Pursh. The large-flowered form occurs at Vermilion lake, *A. W. Jones*.

Gaylussacia resinosa, T. & G. Winona county, *Holzinger*.

Epigaea repens, L. Near Red lake (rare), *Upham*; also, at an isolated locality in Plainview, Wabasha county, *Miss Manning*.

Kalmia glauca, Ait. Agate bay, lake Superior, and Vermilion lake, *Sandberg*.

Pyrola rotundifolia, L., var. *incarnata*, DC. Leech lake, *Allen*; common in swamps, Vermilion lake, *A. W. Jones*.

Pyrola rotundifolia, L., var. *uliginosa*, Gray. Common at Vermilion lake, *A. W. Jones*.

Monotropa uniflora, L. Rare northwestward; only one specimen found at White Earth, none about Red and Leech lakes, *Allen*.

Anagallis arvensis, L. Lake City (rare), *Miss Manning*.

Pentstemon grandiflorus, Nutt. Goodhue county, *Mrs. Richardson*.

Pentstemon acuminatus, Dougl. Chippewa county, *Moyer*.

Gerardia Skinneriana, Wood. Dellwood, Ramsey county, *Kelley*.

Phryma Leptostachya, L. White Earth, *Allen*.

Monarda punctata, L. Winona county, *W. C. Scott*.

Scutellaria versicolor, Nutt. Minnesota side of lake Pepin, 1885, *Miss Manning*.

Leonurus cardiaca, L. Leech lake, *Allen*.

Onosmodium Carolinianum, DC., var. *molle*, Gray. Frequent in northeastern Dakota, *Upham*, and in Manitoba, *Macoun*.

Mertensia paniculata, Don. Vermilion lake, *A. W. Jones*.

Myosotis verna, Nutt. Redstone, near New Ulm, *Juni*.

Gilia linearis, Gray. (*Collomia linearis*, Nutt.) Fort Francis on rainy river, and westward, *Macoun*; Red river prairie, *Dawson*; also, much east from its principal range, at Cannon Falls and Red Wing, *Sandberg*.

Calystegia sepium, L., var. *repens*, Gray. Lake of the Woods and westward, *Dawson*.

Physalis Virginiana, Mill., var. *ambigua*, Gray. Plentiful on sandy land between Mankato and Minneapolis falls, *Leiberg*.

Nicandra physaloides, Gaertn. Red Wing, *A. W. Jones*; Chippewa county, *Moyer*.

Asclepias speciosa, Torr. East side of Loon lake, Blue Earth county, *Geddes*; Chippewa county, *Moyer*.

Chenopodium rubrum, L. Frequent on alkaline land in the Red river valley, *Upham*; determined by *Mr. Watson*. Our plant is the typical species, not the var. *humile*.

Salicornia herbacea, L. Infrequent, but in some places plentiful, on salty and alkaline moist land in the northern part of the Red river valley, *Upham*.

Amarantus blitoides, Watson. Lake City, *Miss Manning*.

Rumex salicifolius, Weinman. Vermilion lake, *A. W. Jones*; Chippewa county, *Moyer*.

Rumex verticillatus, L. Lake City, *Miss Manning*.

Ceratophyllum demersum, L. Red river valley, *Leiberg*.

Euphorbia glyptosperma, Engelm. Winona county, *Holzinger*.

Bœhmeria, cylindrica Willd. Dellwood, Ramsey county, *Kelley*.

Betula nigra, L. The first three localities given for this should be transferred to *B. lutea*.

Pinus Banksiana, Lamb. Rev. F. W. Smith of Red Lake Agency states that "watab" (see under *Larix Americana*) is mainly roots of this species of pine; but he says that roots of both tamarack and arbor vitæ are also used in the same way, all being alike called "watab." Watab river and township no doubt refer to the "jack pines" there.

Juniperus communis, L. Red lake (rare), *Upham*.

Zannichellia palustris, L. Doubtless common throughout the state, but overlooked, *Leiberg*.

Potamogeton Claytonii, Tuckerman. Vermilion lake, *A. W. Jones*.

Potamogeton lonchites, Tuckerman. Winona county, *Holzinger*.

Triglochin maritimum, L., var. *elatum*, Gray. Frequent at Saint Hilaire and northwestward, *Upham*.

Habenaria tridentata, Hook. White Bear lake, *Bailey*.

Spiranthes Romanzoffiana, Chamisso. Lake City, *Miss Manning*.

Arethusa bulbosa, L. Aitkin, *Miss Beane*; Lake City, *Miss Manning*.

Cypripedium arietinum, R. Br. Lake City, *Miss Manning*.

Uvularia grandiflora, Smith. Common at mouth of Pike river, Vermilion lake, *A. W. Jones*.

Uvularia perfoliata, L. White Earth, *Allen*.

Juncus bufonius, L. Sandy lake, close northeast of Minneapolis, *Simmons*.

Eriocaulon septangulare, With. White Bear lake, Ramsey county, *Kelley*; in a little pond close to Mahtomedi station (plentiful), *Miss Butler*.

Eleocharis pauciflora, Watson. Red river valley, *Leiberg*; determined by *Mr. Boott*.

Scirpus Torreyi, Olney. White Bear lake, *Bailey*.

Scirpus debilis, Pursh. Saint Cloud, *Campbell*; determined by *Mr. Boott*.

Carex crus-corvi, Shuttleworth. Chisago county, also Red Wing, *Sandberg*.

Carex oligosperma, Michx. Chisago county, *Sandberg*; White Bear lake, *Bailey*.

Cinna pendula, Trin. Swamps in wet woods along the Minnesota river, in Blue Earth county, *Leiberg*.

Brachyelytrum aristatum, Beauv. Minneapolis, *Simmons*.

Oryzopsis melanocarpa, Muhl. Saint Cloud, *Campbell*.

Phalaris Canariensis, L. Winona county, *Holzinger*.

Azolla Caroliniana, Willd. Winona county *Holzinger*.

PLANTS COLLECTED OR OBSERVED ON HUNTERS'
ISLAND, BRITISH AMERICA,
JULY 26 AND 27, 1886.

BY L. H. BAILEY, JR.

- Galeopsis tetrahit* L. About the ruins of the block house.
Cornus stolonifera Michx. Singular forms.
Scirpus eriophorum Michx.
Carex lenticularis Michx. Along the shore, in clumps.
Carex tribuloides Wahl., var. *reducta* Bailey. Very small form.
Nasturtium palustre DC.
Fragaria virginiana Ehrh., var. *illinoensis* Gray.
Melampyrum americanum Michx.
Ranunculus aquatilis L. In clear lake water, from a hard bottom.
Solidago canadensis L., var. *procera* T. & G.
Agrimonia eupatoria L.
Aster macrophyllus L.
Spiranthes gracilis Bigelow.
Alnus viridis DC.
Scutellaria lateriflora L.
Elymus canadensis L.
Geum nivale L.
Fraxinus americana L.
Fraxinus pubescens Lam.
Acer dasycarpum Ehrh.
Amelanchier —?
Habenaria orbiculata Torr.
Lycopus virginiana L.
Oenothera biennis L.
Vaccinium pennsylvanicum Lam. Berries abundant and delicious.
Oryzopsis melanocarpa Muhl.
Oryzopsis canadensis Torr.
Poa serotina Ehrh.
Poa compressa L.
Agropyrum violaceum Vasey.
Muhlenbergia mexicana Trin.
Danthonia spicata Beauv.
Glyceria nervata Trin.
Glyceria fluitans R. Br.
Deyeuxia —?
Agrostis scabra Willd.
Lysimachia stricta Ait.

- Alnus incana Willd.*
Gaultheria procumbens L.
Solidago lanceolata L.
Myrica gale L.
Carex retrorsa Schw.
Populus tremuloides Michx.
Populus grandidentata Michx.
Populus balsamifera L.
Betula papyrifera Marshall.
Hordeum jubatum L.
Phleum pratense L.
Epilobium coloratum Muhl.
Epilobium spicatum Lam.
Agrostis vulgaris With.
Rubus strigosus Michx. Common and productive.
Chenopodium album L.
Chenopodium hybridum L.
Erigeron canadense L.
Pteris aquilina L.
Apocynum androsæmifolium L.
Diervilla trifida Mœnch.
Prunus pennsylvanica L. Very common.
Prunus virginiana L. Not common.
Corylus rostrata Ait.
Bromus ciliatus L.
Rhus glabra L.
Arctostaphylos uva-ursi Spreng.
Antennaria plantaginifolia Hook.
Anaphalis margaritacea B. & H.
Pinus resinosa Ait. Evidently the original timber.
Pinus strobus L. Not so common as the last.
Thuya occidentalis L. Mostly destroyed.
Linnaea borealis Gronov.
Eupatorium purpureum L.
Cicuta maculata L.
Pyrola chlorantha Swartz.
Polygonum cilinode Michx.
Salix rostrata Rich.
Salix humilis Marshall.
Salix petiolaris Smith.
Hypericum canadense L. Very small form.
Rosa sayi Schw.
Rosa blanda Ait.