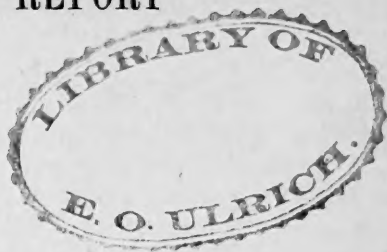


EIGHTEENTH ANNUAL REPORT

OF THE



Regents of the University of the State of New-York,

ON THE CONDITION OF THE

STATE CABINET OF NATURAL HISTORY.

AND THE

HISTORICAL AND ANTIQUARIAN COLLECTION ANNEXED THERETO.

Made to the Legislature, March 22, 1865.

ALBANY :
C. WENDELL, LEGISLATIVE PRINTER.
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State of New York.

No. 90.

IN SENATE,

March 22, 1865.



EIGHTEENTH ANNUAL REPORT

OF THE REGENTS OF THE UNIVERSITY OF THE STATE OF NEW-YORK, ON THE CONDITION OF THE STATE CABINET OF NATURAL HISTORY, AND THE HISTORICAL AND ANTIQUARIAN COLLECTION ANNEXED THERETO.

UNIVERSITY OF THE STATE OF NEW-YORK :

OFFICE OF THE REGENTS, ALBANY, MARCH 16, 1865.

To the Hon. THOMAS G. ALVORD,
Lieutenant-Governor and President of the Senate.

SIR :

I HAVE the honor to transmit the Eighteenth Annual Report of the Regents of the University, on the State Cabinet of Natural History and the Historical and Antiquarian Collection annexed thereto.

I remain, very respectfully,

Your obedient servant,

JOHN V. L. PRUYN,
Chancellor of the University.

REGENTS OF THE UNIVERSITY.

JOHN V. L. PRUYN, LL.D., *Chancellor.*

GULIAN C. VERPLANCK, LL.D., *Vice-Chancellor.*

EX OFFICIO :

REUBEN E. FENTON, *Governor.*

THOMAS G. ALVORD, *Lieutenant-Governor.*

CHAUNCEY M. DEPEW, *Secretary of State.*

VICTOR M. RICE, *Superintendent of Public Instruction.*

ERASTUS CORNING.

ISAAC PARKS, D.D.

PROSPER M. WETMORE.

LORENZO BURROWS.

GIDEON HAWLEY, LL.D.

ROBERT S. HALE.

ROBERT CAMPBELL.

ELIAS W. LEAVENWORTH.

SAMUEL LUCKEY, D.D.

J. CARSON BREVOORT.

ROBERT G. RANKIN.

GEORGE R. PERKINS, LL.D.

ERASTUS C. BENEDICT.

ALEXANDER S. JOHNSON, LL.D.

GEORGE W. CLINTON, LL.D.

GEORGE W. CURTIS.

WILLIAM H. GOODWIN, D.D.

SAMUEL B. WOOLWORTH, LL.D., *Secretary.*

STANDING COMMITTEE OF THE REGENTS,

Specially charged with the Care of the State Cabinet.

1865.

The Governor (Mr. FENTON).

Mr. CORNING,

Mr. CLINTON,

Mr. JOHNSON,

Mr. LEAVENWORTH.

CURATOR :

EZEKIEL JEWETT, Ph. D.

R E P O R T .

TO THE LEGISLATURE OF THE STATE OF NEW-YORK.

The Regents of the University respectfully report :

The contents of the Cabinet are, in general, in excellent condition. The additions to it during the past year, by gift and by purchase, are set forth in the accompanying schedules. But the Regents discharge a pleasing duty in making special mention of the munificent donation of CHARLES F. WADSWORTH, Esq. of Buffalo, consisting of casts of fossil animals. A descriptive list, with an account of the supposed habits of the most remarkable of these animals, prepared by Professor WARD of the Rochester University, the maker of the casts, accompanies this report. It is also due to Mr. WADSWORTH to mention that he paid all the expenses of transportation, and of setting up, incasing and inclosing these casts; and to Professor WARD, to acknowledge the obligations of the Regents to him for the taste and elegance with which they are arranged.

The Circular issued last year by the Regents, inviting the aid of the naturalists of the State in supplying the deficiencies of the Cabinet, has produced some fruit, and promises to be productive of much more.

A very large proportion of the deficiencies of the State Herbarium has been supplied, and the Regents have received valuable material for a full catalogue of the Plants of the State. The names of the contributors to the Herbarium, and the general nature of their contributions, are added in a schedule. We are glad, however, to notice the fact that the venerable CHESTER DEWEY, that excellent gentleman and distinguished caricographer, has contributed a large number of the Carices of the State. This gift imparts to the Herbarium a new and peculiar value. We also mention, that as the foundation of a collection of our Mosses, Mr. CHARLES H.

PECK of Albany has presented the Herbarium with excellent specimens of 144 native species, all collected by himself. It is estimated that the whole number of mosses growing within the State does not exceed 250. A list of those presented by Mr. PECK forms one of the schedules of this Report.

The Rev. JOHN A. PAINE jun., at present of Utica, has prepared a most interesting Catalogue of the Plants of Oneida county and of several neighboring counties, with valuable notes as to the habits and stations of the rarer ones. We do a service to science in annexing the catalogue to our report.

In the Class Book of Botany by Professor WOOD, the *Schizæa pusilla* of PURSH is attributed, on the authority of TIMOTHY WETMORE, to the western part of the State. Mr. WETMORE, who died several years ago, was distinguished as an agricultural writer, and his death was a loss to literature and science. His herbarium was collected while pursuing his education in 1841 - 43, with no instructor in botany and no reliable books. The family of Mr. WETMORE kindly submitted his herbarium to the inspection of one of our number, and gave the three specimens therein, labelled by him *Schizæa pusilla*, to the Herbarium of the State : they are a BOTRYCHIUM ; probably a mere form of *Botrychium virginicum*. They will be authentically labelled by Professor DANIEL C. EATON of Yale College, and then placed in the Herbarium.

A necessarily imperfect list of the plants found growing spontaneously in the State since the publication of the Catalogue of 1853, and not included therein, and lists of coast plants found growing in and about the Onondaga lake and on the shores of Lake Erie, and of some plants not found in the State, but so near it as to justify the expectation that they exist within it, are hereto appended in a paper entitled "Facts and Observations touching the Flora of the State."

The Herbarium of the State Cabinet, which, as an accompaniment of its Flora by Dr. TORREY, cannot be overvalued—ought to be most carefully preserved. The Regents have taken measures to have it put in a proper case, where it will be secure from dust, from insects, and from the injuries attendant upon careless handling.

The Herbarium of the late LEWIS C. BECK, now the property of the State, is rich in plants of the West, of the South Pacific Ocean, and of Europe and the Indies. It is rich also in the labels of MUHLENBERGH, and of many eminent botanists of this country and

of Europe. This herbarium will also be put in order, and secured in a proper case.

The Regents hope also to be able, during the present year, to commence a General Herbarium; one which will admit within it the plants of all climes and countries.

The Regents find much difficulty in initiating effective measures for the formation of a collection expressive of the economic geology of the State, in consequence of the want of an adequate appropriation for the purpose. For this they must rely on the wise liberality of the Legislature.

It is hoped that by the voluntary aid of Entomologists, the the Regents may be able during the current year to commence a collection of the Insects of the State, and especially of those which are injurious to the farmer, the horticulturist and the forest.

In the Natural History of New-York, Dr. DEKAY mentions that the Great White Pelican (*Pelecanus trachyrhincus*) was once abundant in portions of the State, but had, as he believed, wholly disappeared. It is therefore worthy of record that one of these birds was killed, last May, on the Seneca lake.

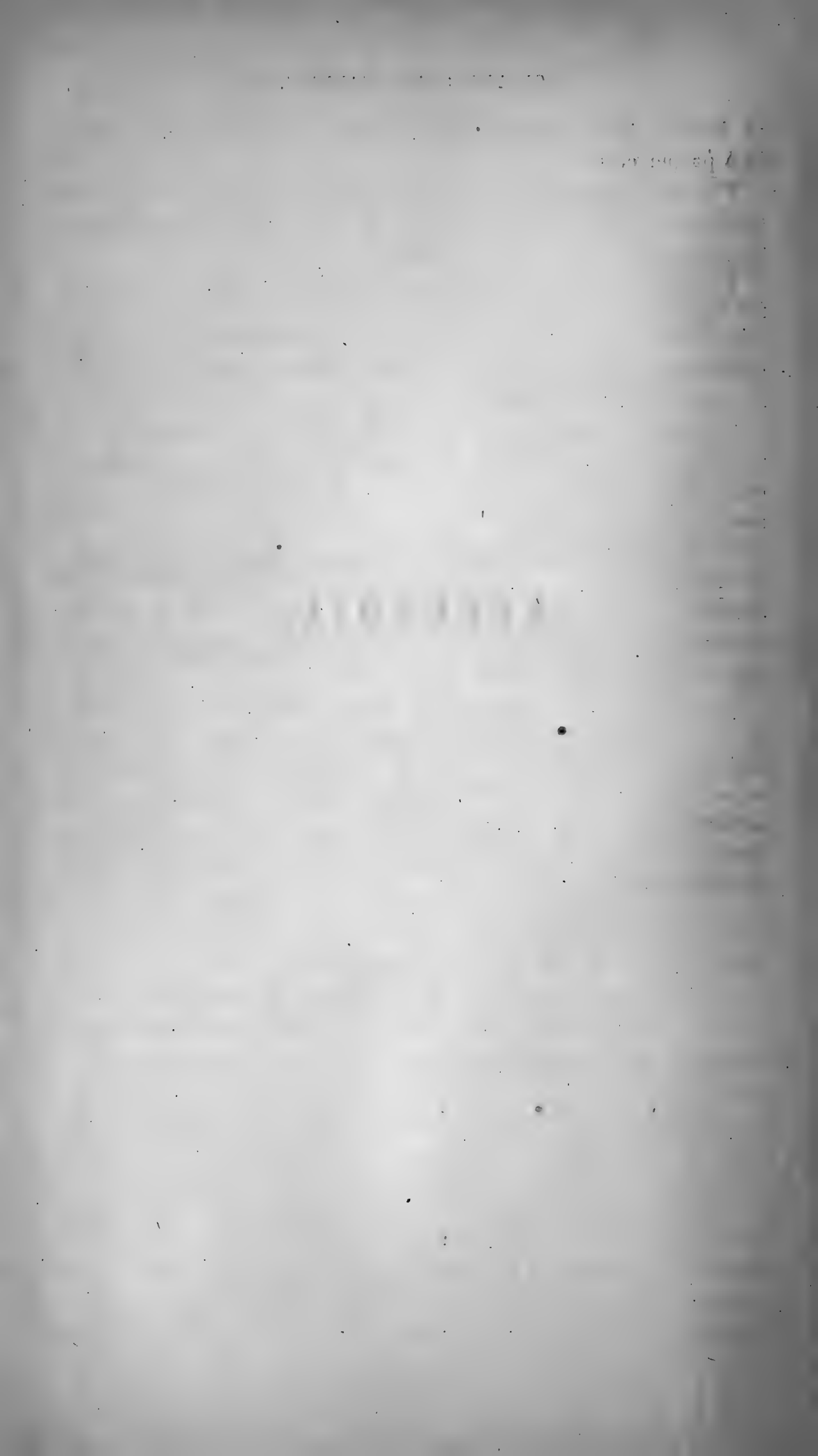
The Regents note with pleasure the fact that the State Cabinet has been visited the past year by unprecedented numbers of people, and has, they believe, yielded more pleasure and instruction than at any previous period. It reflects honor upon the State; and its importance to science, and its healthful influence upon the public seem to demand our most strenuous efforts to enlarge and perfect its collections.

Respectfully submitted,

By Order of the Regents.

JOHN V. L. PRUYN,

Chancellor of the University.



APPENDIX.

CONTENTS OF THE APPENDIX.

- A. Additions to the State Cabinet during 1864 :
1. By donation ;
 2. By purchase.
- B. Description of the Wadsworth Gallery of Casts of Fossil Animals : By Prof. HENRY A. WARD, Rochester.
- C. Catalogue of Plants found in Oneida county and vicinity : By JOHN A. PAINE.
- D. Catalogue of Mosses : By CHARLES H. PECK.
- E. Facts and Observations touching the Flora of the State of New-York : By one of the Regents.
- F. Results of Meteorological Observations :
1. Meteorological Synopsis for 1864 : By J. B. TREMBLEY, Toledo, Ohio ;
 2. Abstract of Observations for 1864 : By DAVID JOHNSON, Newbury, Vermont.
 3. Annual Abstracts for 1863 and 1864, Union Hall Academy, Jamaica, L.I. : By JOHN N. BRINCKERHOFF ;
 4. Results for 1864, and for 28 years now ended : By CHESTER DEWEY, D.D., Rochester.
- G. Contributions to Palæontology : By JAMES HALL.
1. Account of some new or little known species of Fossils from rocks of the age of the Niagara group, with Observations on the geographical distribution of the species of this epoch, etc.
 2. Observations on the Genus STREPTORHYNCHUS, continued from the Sixteenth Report.
 3. On the Genus STROPHODONTA.
 4. On the Genus CHONETES, with a list of the species known in the New-York formations.
 5. On the Genera PRODUCTUS, STROPHALOSIA, AULOSTEGES and PRODUCTELLA.
 6. On the Genus TROPIDOLEPTUS.
 7. On the Genus EICHWALDIA.
 8. Miscellaneous.
 9. Introduction to the Study of the GRAPTOLITIDÆ, with a list of the species known in the Palæozoic formations of Canada and the United States.
 10. Index to geological and palæontological subjects in the Reports on the State Cabinet.

(A.)

ADDITIONS TO THE STATE CABINET DURING 1864.

I. BY DONATION.

I. *To the Zoological Department.*

From Hon. A. S. JOHNSON, Albany.

A remarkably fine pair of DEER'S (*Cervus virginianus*) HORNS.

From the Buffalo Society of Natural Sciences.

Menopoma alleghaniensis. One specimen, alive.

II. *To the Botanical Department.*

From Rev. CHESTER DEWEY, D.D., Rochester.

A invaluable package of CARICES.

From the Buffalo Society of Natural Sciences.

A package of PLANTS.

From Rev. JOHN A. PAINE JUNIOR, Utica.

A package of PLANTS.

From Rev. L. HOLZER, Rochester.

A package of PLANTS, with many valuable suggestions. It probably contains one or two species not before found in this State; but the determination of the question cannot be made at present.

From T. F. ALLEN, M.D., New-York.

A large and very interesting package of PLANTS. Dr. ALLEN has done much for Botany in this State, as this package proves; and promises to be a still larger contributor to our State Flora.

From Miss RHODA WATERBURY, Schoharie.

Some fine specimens of PLANTS, beautifully prepared.

From ELLIOTT C. HOWE, M.D., Fort-Edward.

Some specimens of PLANTS.

From Prof. E. J. PICKETT, People's College.

Specimens of *Duvillea rupestris*, Sull't, a species of MARCHANTIACEÆ, not before found in the United States.

From CHARLES H. PECK, Albany.

A large collection of MOSSES, 144 species. See Appendix D.

III. *To the Geological and Mineralogical Departments.*

From the SMITHSONIAN INSTITUTION.

Specimens of Rocks and Building Stones :

GRANITE : Dix Island, Me.

Used for front of Treasury building, Washington.

MICA SCHIST (Potomac Blue rock) : Washington, D.C.

Foundation of Treasury building.

GRANITE : Baltimore county, Md.

Basement of Treasury building.

GRANITE, MICA SCHIST (Blue rock) : Dix island, Me.

Foundation of Treasury building, Smithsonian Institution & Patent Office.

WHITE CRYSTALLINE LIMESTONE (White Marble) : Baltimore co.

Post-Office building.

[Md

WHITE LAMELLAR LIMESTONE : Texas, Md.

Washington Monument and Post-Office.

MICA SCHIST (Blue rock) : District of Columbia.

Foundations of the Capitol and Post-Office.

RED SANDSTONE (Seneca Brownstone) : Seneca, Md.

Smithsonian Institution and Georgetown Aqueduct.

SANDSTONE (Potomac Sandstone) : Aquia creek, Va.

Old Treasury building, Old Capitol and Executive Mansion.

COMPACT LIMESTONE (Calico Marble) : Montpelier, Vt.

Decorations of House of Representatives and Treasury.

SACCHAROIDAL LIMESTONE (White Marble) : North-Lee, Mass.

Capitol Extension.

SACCHAROIDAL LIMESTONE (White Marble) : Plains of Marathon,

CANAANITE : Canaan, Conn.

[Greece.

MAGNETITE : Iron mountain, Miss.

FRANKLINITE and ZINCITE : Franklin, N.J.

CHALYBITE : Litchfield, Conn.

MAGNETITE : Essex county, N.Y.

GRAPHIC GRANITE (Pegmatite) : New-Bedford, Mass.

NATIVE COPPER in Vein-stone or Trap : Lake Superior.

GRAY SULPHURET of COPPER : Lake Superior.

From C. S. WOODWARD, Mount Hope, Orange county.

SULPHURET of LEAD, from Erie Mine.

do. from Mount Hope Empire Mining Company.

SULPHURET of COPPER, from Otisville Mining Company.

From CHARLES F. WADSWORTH, Buffalo.

Gallery of Casts of FOSSIL ANIMALS. See Prof. WARD's Paper (B).

IV. *To the Historical and Antiquarian Department.*

From E. COCHRAN, Coxsackie.

Ten ARROWHEADS of CHERT, found at Coxsackie.

II. ADDITIONS BY PURCHASE.

To the Zoological Department.

Rangifer tarandus, the Reindeer : Skulls with the horns, male & female.

Ovibos moschatus, the Musk-ox : A skull.

EGGS of the following Domestic and Foreign BIRDS :

I. EGGS OF DOMESTIC BIRDS.

CATHARTES AURA, Illig.	<i>Turkey Buzzard.</i>
TINNUNCULUS SPARVERIUS, Vieill.	<i>Sparrow Hawk.</i>
ASTUR ATRICAPILLUS, Bonap.	<i>Goshawk.</i>
ACCIPITER COOPERI, Bonap.	<i>Cooper's Hawk.</i>
ACCIPITER FUSCUS, Bonap.	<i>Sharpshinned Hawk.</i>
BUTEO LINEATUS, Jardine.	<i>Redshouldered Hawk.</i>
BUTEO PENNSYLVANICUS, Bonap.	<i>Broadwinged Hawk.</i>
CIRCUS HUDSONIUS, Vieill.	<i>Marsh Hawk.</i>
PANDION CAROLINENSIS, Bonap.	<i>Fish Hawk.</i>
POLYBORUS THARUS, Cassin.	<i>Caracara Eagle.</i>
CRAXIREX UNICINCTUS, Cassin.	<i>Harris's Buzzard.</i>
STRIX PRATINCOLA, Bonap.	<i>Barn Owl.</i>
SCOPS ASIO, Bonap.	<i>Mottled Owl.</i>
GEOCOCCYX CALIFORNIANUS, Baird.	<i>Paisano : Chaparral Cock.</i>
COCCYGUS AMERICANUS, Bonap.	<i>Yellowbilled Cuckoo.</i>
COCCYGUS ERYTHROPHthalmus, Bp.	<i>Blackbilled Cuckoo.</i>
PICUS VILLOSUS, Linn.	<i>Hairy Woodpecker.</i>
MELANERPES FORMICIVORUS, Bon.	<i>California Woodpecker.</i>
COLAPTES AURATUS, Swainson.	<i>Yellowshafted Flicker.</i>
TROCHILUS COLUBRIS, Linn.	<i>Hummingbird.</i>
ANTROSTOMUS VOCIFERUS, Bonap.	<i>Whippoorwill.</i>
CHORDEILES POPETUE, Baird.	<i>Nighthawk.</i>
CHORDEILES HENRYI, Cassin.	<i>Western Nighthawk.</i>
MILVULUS TYRANNUS, Bonap.	<i>Forktailed Flycatcher.</i>
MILVULUS FORFICATUS, Sw.	<i>Scissortail.</i>
TYRANNUS CAROLINENSIS, Baird.	<i>Kingbird, Beebird.</i>
TYRANNUS VERTICALIS, Say.	<i>Arkansas Flycatcher.</i>
MYIARCHUS CRINITUS, Cab.	<i>Greatcrested Flycatcher.</i>
SAYORNIS FUSCUS, Baird.	<i>Pewee.</i>
CENTOPUS VIREUS, Cab.	<i>Wood Pewee.</i>
TURDUS MIGRATORIUS, Linn.	<i>Robin.</i>
SIALIA SIALIS, Baird.	<i>Bluebird.</i>
SIALIA ARCTICA, Swains.	<i>Rocky-mountain Bluebird.</i>
ANTHUS LUDOVICIANUS, Licht.	<i>Titlark.</i>
GEOTHLYPIS TRICHAS, Cab.	<i>Maryland Yellowthroat.</i>
ICTERIA VIRIDIS, Bonap.	<i>Yellowbreasted Chat.</i>
DENDROICA STRIATA, Baird.	<i>Blackpoll Warbler.</i>
DENDROICA ÆSTIVA, Baird.	<i>Yellow Warbler.</i>
SETOPHAGA RUTICILLA, Sw.	<i>Redstart.</i>
HIRUNDO HORREORUM, Barton.	<i>Barn Swallow.</i>
HIRUNDO LUNIFRONS, Say.	<i>Cliff Swallow.</i>
COTYLE RIPARIA, Boié.	<i>Bank Swallow.</i>
PROGNE PURPUREA, Boié.	<i>Purple Martin.</i>
COLLYRIO BOREALIS?, Baird.	<i>Great Northern Shrike.</i>
COLLYRIO LUDOVICIANUS, Baird.	<i>Loggerhead Shrike.</i>
VIREO GILVUS, Bonap.	<i>Warbling Flycatcher.</i>
VIREO NOVEBORACENSIS, Bonap.	<i>White-eyed Vireo.</i>
MIMUS CAROLINENSIS, Gray.	<i>Catbird.</i>
HARPORHYNCHUS LONGICAUDA, Bd.	<i>Longtailed Thrush.</i>
THRYOTHORUS BERLANDIERI?, Couch.	<i>Berlandier's Wren.</i>
THRYOTHORUS BEWICKII?, Bonap.	<i>Bewick's Wren.</i>
CISTOTHORUS PALUSTRIS, Cab.	<i>Longbilled Marsh Wren.</i>
TROGLODYTES ÆDON, Vieill.	<i>House Wren.</i>
TROGLODYTES PARKMANNI, Aud.	<i>Parkman's Wren.</i>

LOPHOPHANES ATRICRISTATUS, Cass.	<i>Blackcrested Tit.</i>
PARUS ATRICAPILLUS, Linn.	<i>Blackcap Titmouse.</i>
CHRYSOMITRIS TRISTIS, Bonap.	<i>Yellowbird.</i>
POCETES GRAMINEUS, Baird.	<i>Grass Finch.</i>
AMMODROMUS CAUDACUTUS, Sw.	<i>Sharptailed Finch.</i>
AMMODROMUS MARITIMUS, Sw.	<i>Seaside Finch.</i>
CHONDESTES GRAMMACA, Bonap.	<i>Lark Finch.</i>
ZONOTRICHIA GAMBELII, Gambel.	<i>Gambel's Finch.</i>
SPIZELLA MONTICOLA, Baird.	<i>Tree Sparrow.</i>
SPIZELLA SOCIALIS, Bonap.	<i>Chipping Sparrow.</i>
MELOSPIZA MELODIA, Baird.	<i>Song Sparrow.</i>
ZUSPIZA AMERICANA, Bonap.	<i>Blackthroated Bunting.</i>
CYANOSPIZA CYANEA, Baird.	<i>Indigo-bird.</i>
PIPILO ERYTHROPHthalmus, Vieill.	<i>Ground Robin, Towhee.</i>
DOLICHONYX ORYZIVORUS, Sw.	<i>Boblink, Reedbird.</i>
MOLOTHRUS PECORIS, Sw.	<i>Cowbird.</i>
AGELAIUS PHENICEUS, Vieill.	<i>Redwinged Blackbird.</i>
XANTHOCEPHALUS ICTEROCEPHALUS,	<i>Yellowheaded Blackbird.</i>
TRUPIALIS MILITARIS, Bonap.	<i>Redbreasted Lark.</i>
STURNELLA NEGLECTA, Aud.	<i>Western Lark.</i>
ICTERUS SPURIUS, Bonap.	<i>Orchard Oriole.</i>
ICTERUS BALTIMORE, Daudin.	<i>Baltimore Oriole.</i>
ICTERUS BULLOCKII, Bonap.	<i>Bullock's Oriole.</i>
QUISCALUS MACROURA, Sw.	<i>Longtailed Grackle.</i>
QUISCALUS MAJOR, Vieill.	<i>Boattailed Grackle.</i>
QUISCALUS VERSICOLOR, Vieill.	<i>Crow Blackbird.</i>
CORVUS CARNIVORUS, Bartram.	<i>American Raven.</i>
CORVUS AMERICANUS, Aud.	<i>Common Crow.</i>
CORVUS OSSIFRAGUS, Wilson.	<i>Fish Crow.</i>
PICA HUDSONICA, Bonap.	<i>Magpie.</i>
CYANURA CRISTATA, Sw.	<i>Blue Jay.</i>
ECTOPISTES MIGRATORIA, Sw.	<i>Wild Pigeon.</i>
ZENAIDURA CAROLINENSIS, Bonap.	<i>Common Dove.</i>
CHAMÆPELIA PASSERINA, Sw.	<i>Ground Dove.</i>
MELEAGRIS GALLOPAVO, Linn.	<i>Wild Turkey.</i>
TETRAO CANADENSIS, Linn.	<i>Spruce Partridge.</i>
CENTROCERCUS UROPHASIANUS, Sw.	<i>Sagecock.</i>
PEDIORCETES PHASIANELLUS, Bd.	<i>Sharptailed Grouse.</i>
CUPIDONIA CUPIDO, Baird.	<i>Prairie-hen.</i>
BONASA UMBELLUS, Steph.	<i>Ruffed Grouse.</i>
ORTYX VIRGINIANUS, Bonap.	<i>Partridge, Quail.</i>
ORTYX TEXANUS, Lawr.	<i>Texas Quail.</i>
OREORTYX PICTUS?, Baird.	<i>Mountain Quail.</i>
LOPHORTYX CALIFORNICUS, Bonap.	<i>California Quail.</i>
GRUS CANADENSIS, Temm.	<i>Sandhill Crane.</i>
DEMIEGRETta LUDOVICIANA, Bd.	<i>Louisiana Heron.</i>
GARZETTA CANDIDISSIMA, Bonap.	<i>Snowy Heron.</i>
ARDEA HERODIAS, Linn.	<i>Great Blue Heron.</i>
AUDUBONIA OCCIDENTALIS, Bonap.	<i>Great White Heron.</i>
FLORIDA CÆRULEA, Baird.	<i>Blue Heron.</i>
ARDETTA EXILIS, Gray.	<i>Least Bittern.</i>
BOTAURUS LENTIGINOSUS, Steph.	<i>Bittern, Stakedriver.</i>
BUTORIDES VIRESCENS, Bonap.	<i>Green Heron</i>
NYCTIARDEA GARDENI, Baird.	<i>Night Heron.</i>
IBIS ALBA, Vieillot.	<i>White Ibis.</i>
ÆGIALITES VOCIFERUS, Cassin.	<i>Killdeer.</i>

ÆGIALITES WILSONIUS, Cassin.	<i>Wilson's Plover.</i>
ÆGIALITES SEMIPALMATUS, Cab.	<i>Semipalmated Plover.</i>
ÆGIALITES MELODUS, Cab.	<i>Piping Plover.</i>
HÆMATOPUS PALLIATUS, Temm.	<i>Oystercatcher.</i>
HÆMATOPUS NIGER?, Pallas.	<i>Bachman's Oystercatcher.</i>
HIMANTOPUS NIGRICOLLIS, Vieill.	<i>Blacknecked Stilt.</i>
PHILOMELA MINOR, Gray.	<i>American Woodcock.</i>
SYMPHEMIA SEMIPALMATA, Hartl.	<i>Willet.</i>
NUMENIUS LONGIROSTRIS, Wils.	<i>Longbilled Curlew.</i>
RALLUS ELEGANS, Aud.	<i>Marsh-hen.</i>
RALLUS CREPITANS, Gm.	<i>Clapper Rail.</i>
RALLUS VIRGINIANUS, Linn.	<i>Virginia Rail.</i>
FULICA AMERICANA, Gmelin.	<i>Coot.</i>
BERNICLA CANADENSIS, Boié.	<i>Canada Goose.</i>
DENDROCYGNA AUTUMNALIS, Eyton.	<i>Longlegged Duck.</i>
ANAS BOSCHAS, Linn.	<i>Mallard.</i>
ANAS OBSCURA, Gm.	<i>Black Duck.</i>
DAFILA ACUTA, Jenyns.	<i>Sprigtail, Pintail.</i>
NETTION CAROLINENSIS, Baird.	<i>Greenwinged Teal.</i>
QUERQUEDULA DISCORS, Steph.	<i>Bluewinged Teal.</i>
HISTRIONICUS TORQUATUS, Bonap.	<i>Harlequin Duck.</i>
HARELDA GLACIALIS, Leach.	<i>South Southerly.</i>
MERGUS SERRATOR, Linn.	<i>Redbreasted Merganser.</i>
PELECANUS FUSCUS, Linn.	<i>Brown Pelican.</i>
SULA BASSANA, Briss.	<i>Gannet.</i>
TACHYPETES AQUILA, Vieillot.	<i>Man-of-war-bird.</i>
GRACULUS CARBO, Gray.	<i>Common Cormorant.</i>
GRACULUS FLORIDANUS, Bonap.	<i>Florida Cormorant.</i>
GRACULUS PENCILLATUS, Bonap.	<i>Brandt's Cormorant.</i>
GRACULUS VIOLACEUS, Gray.	<i>Violet-green Cormorant.</i>
PLOTUS ANHINGA, Linn.	<i>Snakebird, Water Turkey.</i>
THALASSIDROMA LEACHII, Temm.	<i>Leach's Petrel.</i>
PUFFINUS OBSCURUS, Lath.	<i>Dusky Shearwater.</i>
LARUS GLAUCUS, Brünn.	<i>Burgomaster.</i>
LARUS ARGENTATUS, Brünn.	<i>Herring Gull.</i>
CRICOCEPHALUS ATRICILLA, Linn.	<i>Laughing Gull.</i>
STERNA ARANEA, Wils.	<i>Marsh Tern.</i>
STERNA REGIA, Gambel.	<i>Royal Tern.</i>
STERNA FULIGINOSA, Gmelin.	<i>Sooty Tern.</i>
STERNA WILSONI, Bonap.	<i>Wilson's Tern.</i>
STERNA MACROURA, Naum.	<i>Arctic Tern.</i>
STERNA FORSTERI, Nutt.	<i>Forster's Tern.</i>
STERNA FRENATA, Gambel.	<i>Least Tern.</i>
ANOUS STOLIDUS, Leach.	<i>Noddy Tern.</i>
RHYNCHOPS NIGRA, Linn.	<i>Black Skimmer.</i>
COLYMBUS TORQUATUS, Brünn.	<i>Loon.</i>
COLYMBUS SEPTENTRIONALIS, Linn.	<i>Redthroated Diver.</i>
PODILYMBUS PODICEPS, Lawr.	<i>Carolina Grebe.</i>
ALCA TORDA, Linn.	<i>Razorbilled Auk.</i>
MORMON CIRRHATA, Bonap.	<i>Tufted Puffin.</i>
MORMON CORNICULATA, Naum.	<i>Horned Puffin.</i>
MORMON ARCTICA, Illiger.	<i>Arctic Puffin.</i>
URIA GRYLLE, Latham.	<i>Black Guillemot.</i>
URIA COLUMBA, Cassin.	<i>Western Guillemot.</i>
URIA LOMVIA, Brünnich.	<i>Foolish Guillemot.</i>
URIA RINGVIA, Brünnich.	<i>Murre.</i>

II. EGGS OF FOREIGN BIRDS.

STRUTHIO CAMELUS,	<i>African Ostrich.</i>	
CASUARIUS,	<i>Cassowary.</i>	New-Holland.
RHEA AMERICANA,		South-America.
TINNACULUS ALAUDARIUS,	<i>Kestrel.</i>	England.
ACCIPITER NISSUS,	<i>Sparrowhawk.</i>	Germany.
CORVUS CORONE,	<i>Carrion Crow.</i>	Europe.
CORVUS MONEDULA,	<i>Jackdaw.</i>	do
CORVUS CORAX,	<i>Raven.</i>	do
CORVUS FUGILEGUS,	<i>Rook.</i>	France.
CORVUS PICA,	—	do
FRINGILLA DOMESTICA,	<i>House Sparrow.</i>	England.
LANIUS EXCUBITOR,	<i>Cinereous Shrike.</i>	do
STERNUS VULGARIS,	<i>Starling.</i>	do
PERDIX AUSTRALIS,	<i>Australian Partridge.</i>	
	<i>Silky-fowl.</i>	Japan.
PERDIX CINEREA,	<i>Common Partridge.</i>	England.
PHASIANUS COLCHICUS,	<i>Pheasant.</i>	do
PERDIX PECTORALIS,		Australia.
GALLINULA CHLOROPUS,	<i>Moor-hen.</i>	England.
COTURNIX COMMUNIS,	<i>Quail.</i>	do
VANELLUS CRISTATUS,	<i>Common Lapwing.</i>	do
TURDUS PALUSTRIS,	<i>Fieldfare.</i>	do
TURDUS MUSICUS,	<i>English Thrush.</i>	do
TURDUS MERULA,	<i>Blackbird.</i>	do
	<i>Fauvette grisette.</i>	France.
GARRULUS GLANDINOSA,	<i>Jay.</i>	England.
ALAUDA SYLVICOLA,	<i>Woodlark.</i>	do
SYLVIA HORTENSIS,	<i>Whitethroat.</i>	do
ROSSIGNOL DEMMEALLIS,		France.
ANTHUS AQUATICUS,		do
LANIUS COLUBRIS,		do
	<i>Gray Hedge Sparrow.</i>	England.
	<i>Mirange petite.</i>	France.
FRINGILLA CANNABINA,	<i>Linnet.</i>	England.
SYLVIA RUBICULA,	<i>Redthroat.</i>	France.
LANIUS RUTILLUS,		do
ALAUDA MONTANA,		do
PARUS CÆRULEUS,	<i>Tomtit.</i>	England.
	<i>Petite faulouse.</i>	France.
CAUDA RUBINA,	<i>Redtail.</i>	England.
COCCOTHAUSTES CHLORIS,	<i>Green Linnet.</i>	do
FRINGILLA CŒLEBS,	<i>Goldfinch.</i>	do
FRINGILLA CARDUELIS,	<i>Thistlefinch.</i>	do
PARUS DOMESTICUS,	<i>Common Sparrow.</i>	do
LANIUS MINOR,		France.
EMBERIZA CITRINELLA,	<i>Yellow Bunting.</i>	England.
	<i>Poulet chantre.</i>	France.
		do
SYLVIA HIPPOPAIS,	<i>Turtle Dove.</i>	England.
COLUMBA TURTUS,	<i>Swallow.</i>	France.
HIRUNDO RUSTICUS,		do
PYRRHULA VULGARIS,	<i>Ring Sparrow.</i>	England.
FRINGILLA CORONIA,	<i>Wren.</i>	France.
TROGLODYTES VULGARIS,	<i>Pied Wagtail.</i>	England.
MOTACILLA ALBA,		France.
ERYTHRACA RUBICULA,		do
SYLVIA CINEREA,		do
PARUS MAJOR,		do
CORICA ATRICAPILLA,	<i>Blackcap.</i>	do

(B.)

WADSWORTH GALLERY
OF
CASTS OF FOSSIL ANIMALS.

IT is a subject of congratulation, and an evidence of the advance of liberal sentiments in regard to the importance of Natural Science in our country, that the most valuable addition to the State Cabinet has been made during the past year. We refer to the unique and magnificent Museum of Casts in the east end of the large hall. It was the accession most needed. Preëminently rich in many departments of fossil zoology, the State Collection was, for an obvious reason, deficient in representing those lords of creation, the VERTEBRATES. But the splendid contribution just made, completes the picture of animal life; and, in doing that, it raises the Collection to the first rank among American Cabinets. For this noble and timely gift, the State is indebted to the munificence of CHARLES F. WADSWORTH, Esq. of Buffalo; and the act receives double interest from the fact that the Museum, of the highest intrinsic value in itself, was donated by the son of a former Regent of the University, whom, for his patriotic devotion to her in her hour of need, the nation delighted to honor. The specimens number 117; and they represent many of the rarest and most extraordinary fossil forms known to geologists. As the majority of the originals are confined to the royal and imperial museums of Europe, and are therefore inaccessible to the American public, these copies will be welcomed as a most important addition. Many of them are known in our colleges only through vague descriptions and incorrect engravings. Indeed the Collection has no parallel on either side of the Atlantic; for the objects have never before been grouped together in any one museum. Regarded as a part of the System of Education in our commonwealth, the State Cabinet is rendered far more attractive and instructive to both students and visitors, by opening to our fellow-citizens the treasures of foreign science. The benefaction will be an enduring monument to the donor; while it will be gratefully remembered wherever princely liberality is appreciated, and will be a source of national pride to every one who desires to see in the State Capital a satisfactory exposition of Natural History.

The specimens were prepared by Professor HENRY A. WARD of Rochester, N. Y., and with such fidelity and skill that it is not easy to distinguish them from the originals. The colossal size of some, and the beauty of execution of all, throw a flood of light on the inhabitants of a former world. Many of them seem instinct with life, so natural is their representation; and the observer is carried by imagination down the flight of ages to that Pre-Adamite period when monsters, long ago extinct, ruled the Earth.

Megatherium cuvieri.

This gigantic fossil was first made known to the scientific world in 1789. It was discovered on the banks of the River Luxan near the city of Buenos Ayres, and was subsequently transmitted to Madrid, where, for half a century, it excited the most lively speculations among all European naturalists who were so fortunate as to see it. The original bones, of which the specimen in the Wadsworth Collection is a copy, were found in the same Pampean deposit between the years 1831 and 1838, and belong partly to the Hunterian Museum of the Royal College of Surgeons, and partly to the British Museum. To give to the singular quadruped its proper position in the Animal Kingdom, was for many years a problem in comparative anatomy which the *savans* of Europe could not solve. Led astray by the huge carapace of the Glyptodon, found near it, the majority called it a mammoth Armadillo. CUVIER, who gave it its generic title, thought it combined the characters of the Sloth, Anteater and Armadillo. The merit of throwing a flood of light on the nature and structure of this most remarkable of all fossil mammals, was reserved for the celebrated English Geologist, Professor OWEN. He conclusively proves that the Megatherium was a "Ground Sloth," feeding on the foliage of trees which it uprooted by its strength.

The extreme length of the mounted skeleton¹ is 17 feet and 9 inches : its height, from the pedestal to the top of the spinous process of the first dorsal vertebra, is 7 feet. No other fossil so exceeds its modern representative, as the lordly Megatherium surpasses the pigmy remnant of the Tardigrade race; for the largest living Sloth does not exceed 2 feet in length. One is tempted to join the Spanish naturalist who objected to the place assigned to the Megatherium, because "all the other Edentates could dance in his carcase." But that there is the closest affinity between it and the diminutive arboreal Sloth, is now undeniable. The number of the teeth, their deep insertion, equable breadth and thickness, deeply excavated base, inner structure and unlimited growth, and the absence of canines, are characters common to both. Both have the peculiar zygomatic arch to the skull : the alveoli of the jaws correspond in number, position and relative depth. There is the same anomalous shortness of face; a similar development of air cells surrounding the cerebral cavity; the like scapula, clavicle, ossified sternal ribs; the identically expanded ilia; the flattened femur; and an equal number of sacral vertebræ. The part in which the Megatherium least resembles the Sloth, is the tail; and, as a general rule, in those modifications of structure in which it differs from its living analogue, it approximates to the Anteater; e. g. in the number and structure of the true vertebræ.

The astragalus is the most characteristic single bone in the skeleton; its upper surface being so hollowed on one side, with a wide crescentic groove, as to throw the whole weight of the leg upon the inner side of the foot. The ankylosis of the tibia and fibula is known among existing quadrupeds only in armor-bearing Edentates.

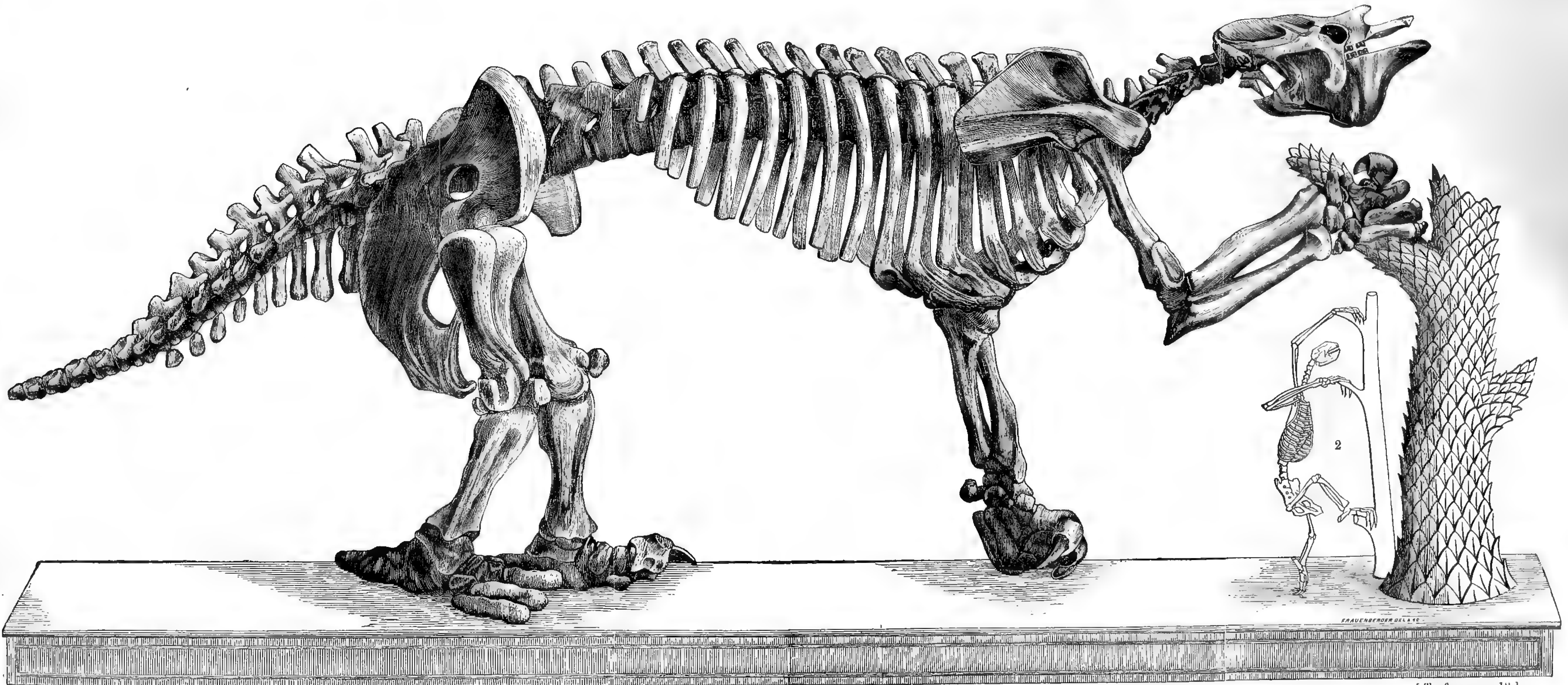
DYPUS TRIDACTY



e inch to the foot.

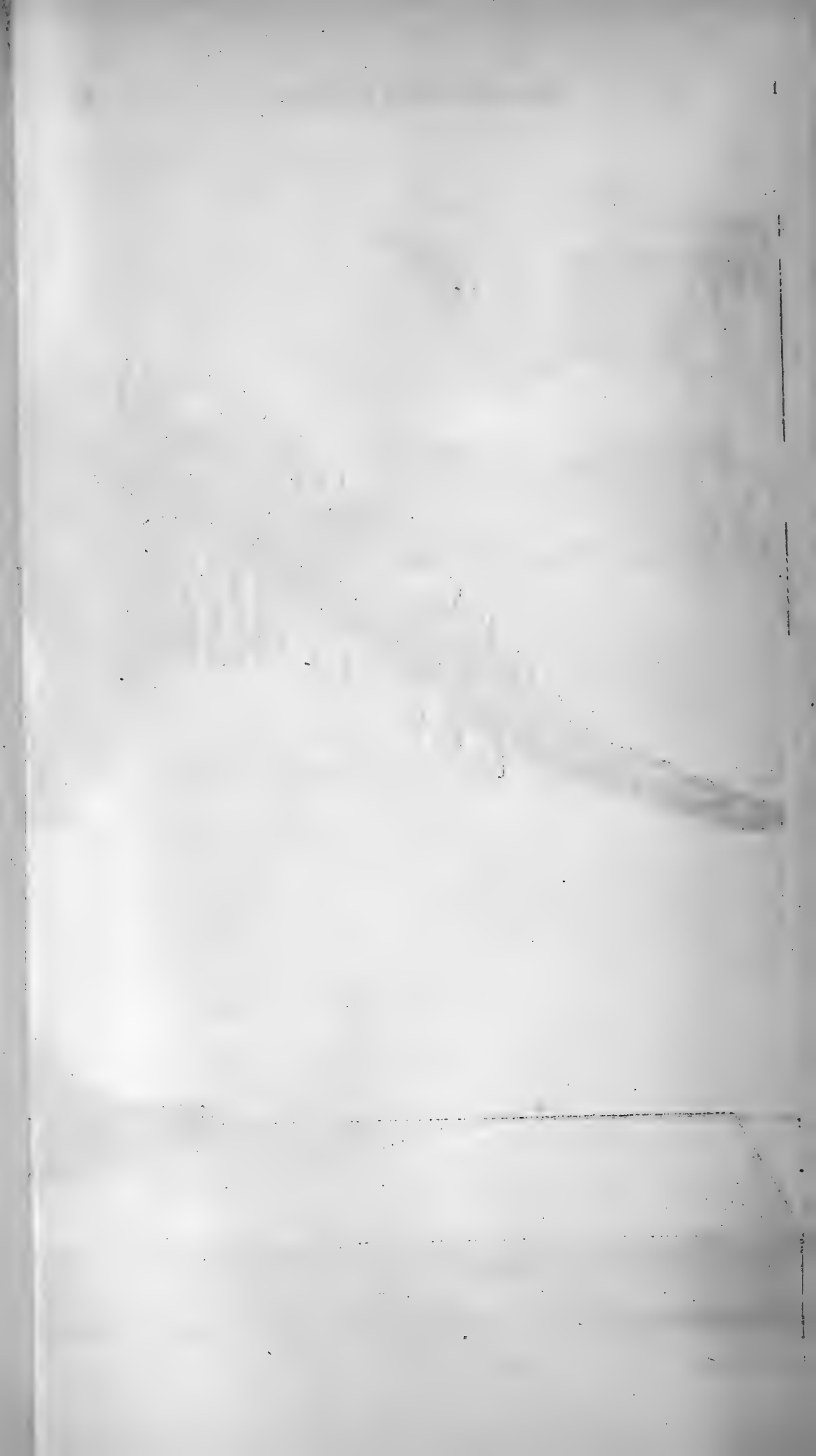


1.— Skeleton of MEGATHERIUM CUVIERI. 2.— BRADYPUS TRIDACTYLUS (Sloth).

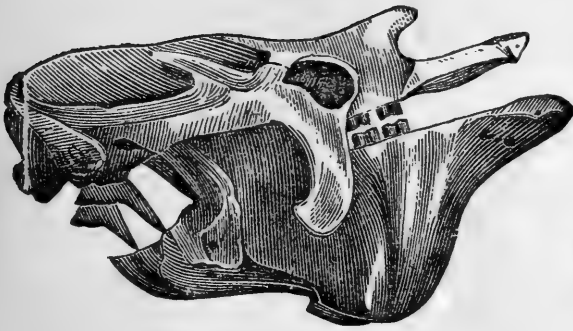


Scale 1 - 14; about one inch to the foot.

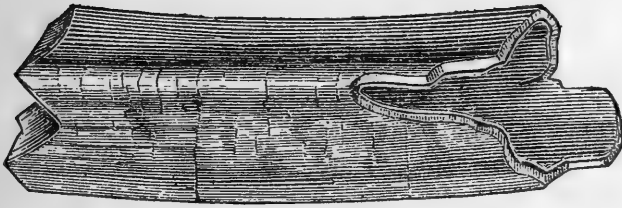
[To face page 18.]



2.



3.



The head² of the *Megatherium* is remarkable for its relatively small size, for the extraordinary depth of the lower jaw, and for the great size of the zygomatic processes. The length of the skull is 31 inches : 3 inches less than that of the Asiatic Elephant. The formation of the muzzle indicates the possession of a short protoscis. The dental formula is $\frac{5}{4} - \frac{5}{4} = 18$. The teeth are prismatic and slightly curved, and measure from eight to ten inches in length, and between two and three inches in breadth.³ In composition, a central axis of vascular dentine is inclosed by a

wall of unvascular dentine, and this by one of cement.

The spinal column consists of seven cervical, sixteen dorsal, three lumbar, five sacral and eighteen caudal vertebræ, and measures fifteen feet in length, or three feet more than the Elephant. The circumference of the skeleton, at the eighth rib, is eleven feet.

In no respect does the *Megatherium* differ more strikingly from existing quadrupeds of corresponding bulk, than in the vast proportions of its anterior extremities. Its clavicle, fifteen inches long, is the longest known. The foreleg bespeaks enormous strength ; with the foot, it is seven feet and four inches in length.⁴

The posterior extremities are shorter than the anterior. The pelvis is the largest bone in any land animal, living or extinct : it is upwards of five feet broad. The rugged ilium and spinal crest show that it was the centre of muscular bundles of enormous power, which diverged to act upon the trunk, the tail and the hindlegs. These muscles, judging from the size of the spinal cord, which in this region is four inches in diameter, must have been characterized by the extreme energy of their vital contractibility. The acetabulum is excavated in a very exceptional manner, its concavity facing directly downward. This gave increased strength for sustaining vertical pressure at the expense of rapid motion.

The hindlegs appear more like columns for support than organs for locomotion, and, with the hindfeet, are models of massive organic masonry.⁵ The heel-bone alone has the extraordinary length of seventeen inches, and a circumference of twenty-eight inches. The monster walked, like the Ant-eater, on the outside edge of its foot, on a marginal hoof-like callosity. The middle toe of the hindfoot, and likewise the second, third and fourth digits of the forefoot, were armed with powerful claws. The magnitude of the tail fills the observer with wonder : when clothed with flesh, it must have been more than six feet around at the greater end. With the hindlegs, it formed a tripod upon which the animal rested when obtaining its food.

It would be interesting to know something of the daily life of an animal whose colossal size was united to such strange anatomy. As the brain of the *Megatherium* was less by nearly one-half than that of the Elephant, we infer that he was a creature of fewer instincts. Nevertheless his cotemporary quadrupeds must have acknowledged him as the head of the Animal King-

4.



Fore extremity of the MEGATHERIUM.

5.



Hind extremities of the MEGATHERIUM.

dom. To the tongue of a Giraffe and the proboscis of a Tapir, there was added the power of rotating the bones of the forearm. These prehensile organs were suited to a leaf-feeder. That the animal was not carnivorous, is settled by the structure of its molar teeth : it lacks incisors ; therefore it was not a Ruminant. But if the great animal fed on foliage, how did it obtain it? The Elephant gathers its food with a long proboscis. The Giraffe, standing on stilt-like forelegs, and reaching out its attenuated neck, plucks the high branches with long flexible lips and muscular tongue. The Megatherium could imitate neither. Did it climb like the Sloth? Such was the conjecture of the Danish Naturalist, Dr. LUND ; but the clumsy make and the immense bulk and weight of the creature forbid it. The structure of the forefeet, moreover, militates against the theory ; for the outer digit is hoof-like, as if made for terrestrial progression. The hindlegs, too, are much shorter than the forelegs ; and the tail is too short and thick for prehensile purposes.

The fossorial hypothesis, too, has no better foundation than the scansorial. In burrowing animals, as the Mole, the pelvis is remarkably slender, and the claws form a continuous plane with the palm of the foot ; while in the Megatherium the pelvis is remarkably large, and not one of the claws can be brought into a line with the metacarpus. The fore-arms were plainly formed for grasping, not climbing nor digging : they were instruments of tremendous strength, evidence of which is furnished by the deep grooves and sharp ridges on the radius and ulna, the starting points of stout tendons and muscles. The moment we estimate this force, the colossal proportions of the hind-extremities lose their anomaly and harmonize with the front. The application of the fore-arms to the work of tearing down a tree would demand a corresponding fulcrum, such as we find in the heavy pelvis, the ponderous tail and the massive hindlegs.

The Megatherium needed not agility for securing prey, for it was not carnivorous ; nor for flight, for its size alone must have been a protection against any living foe. Had we beheld it living on its native plains, its slow movement would have excited our wonder as much as its bulk. It was doubtless a solitary animal. The gathering together in herds was not required for self-defence : indeed, the necessities of the creature to obtain an enormous daily supply of food would not have allowed it, unless the vegetation of that day were far more dense than is the modern vegetation of the same region. When stripping the trees it had prostrated, its position was probably a reclining one ; and Professor AGASSIZ has ventured the opinion that this crouching attitude was constant to the animal, and that it crept along with the full length of its fore-arm resting upon the ground.

The Pampas, where the remains of the great fossil have been chiefly found, are vast plains, stretching from the mountains of Brazil to Tierra del Fuego. Palms grow at one end, while snow covers the other almost the entire year. The soil is chiefly a dull-reddish slightly-indurated argillaceous earth, with here and there calcareous concretions : underneath are beds of stratified gravel and conglomerate. These deposits constitute the Pampean formation, which varies in depth from twenty to one hundred feet. They were slowly formed at a time when the Atlantic reached far westward to the foot of the central mountain chain, down whose flanks the rivers brought the detritus and spread it beneath the waters in level layers at some distance from the shore. Carcasses of animals floated down upon the same streams, and, reaching the quiet waters, sank down in their muddy bed. The whole area has since been elevated ; the estuary mud has been converted into wide and level plains, and the shores and submarine banks of a former sea now form low headlands along the present coast. It was in this recent formation

— referable to the Pleistocene period, because most of its shells are still living in the ocean — that the Megatherium was entombed. Its bones are almost exclusively found in the cliffs and steep banks of rivers; thus far, the Rivers Salado and Luxan. The race was not exterminated by some great cataclysm; for the small bones, like the kneecap, of a cotemporary mammal were discovered by DARWIN in the same deposit, all lying in their proper relative position. Like the Aborigines of our own continent, like the Dodo of Mauritius, the Edentate giants perished one after another, in the lapse of infinite ages, by those changes of circumstances in the organic and inorganic world which are always in progress.

The Megatherium was buried in a hecatomb of extinct monsters. By its side we find the bones of the kindred Mylodon, Megalonyx and Scelidotherium, all of them Sloths; the Glyptodon and Schistopleurum, the Toxodon and Mastodon, the Machairodus and Macrauchenia. The Megatherium and its associates have been discovered in the Pleistocene deposits of the United States; but South-America was then, as it is now, the metropolis of the Edentates.

The great skeleton is surrounded by a beautiful iron railing, the columns of which support bronze figures of ten representative forms from the natural order (EDENTATA) to which the fossil belongs. They are the Mylodon (*M. robustus*), Megalonyx (*M. jeffersoni*), Glyptodon (*G. clavicaudatus*), Sloth (*Bradypus didactylus*), Great Anteater (*Myrmecophaga jubata*), Little Anteater (*M. didactyla*), Armadillo (*Dasypus peba*), Aard Vark (*Orycteropus capensis*), Pichiciego (*Clamyphorus truncatus*), and Longtailed Manis (*M. longicaudatus*). The animals of this series, by their similarity in certain parts, illustrate well the law of adherence to type or pattern, which Nature followed in their construction; while their differences illustrate the other great law by which organic structures are specially adapted to special modes of life.

Schistopleurum typus.

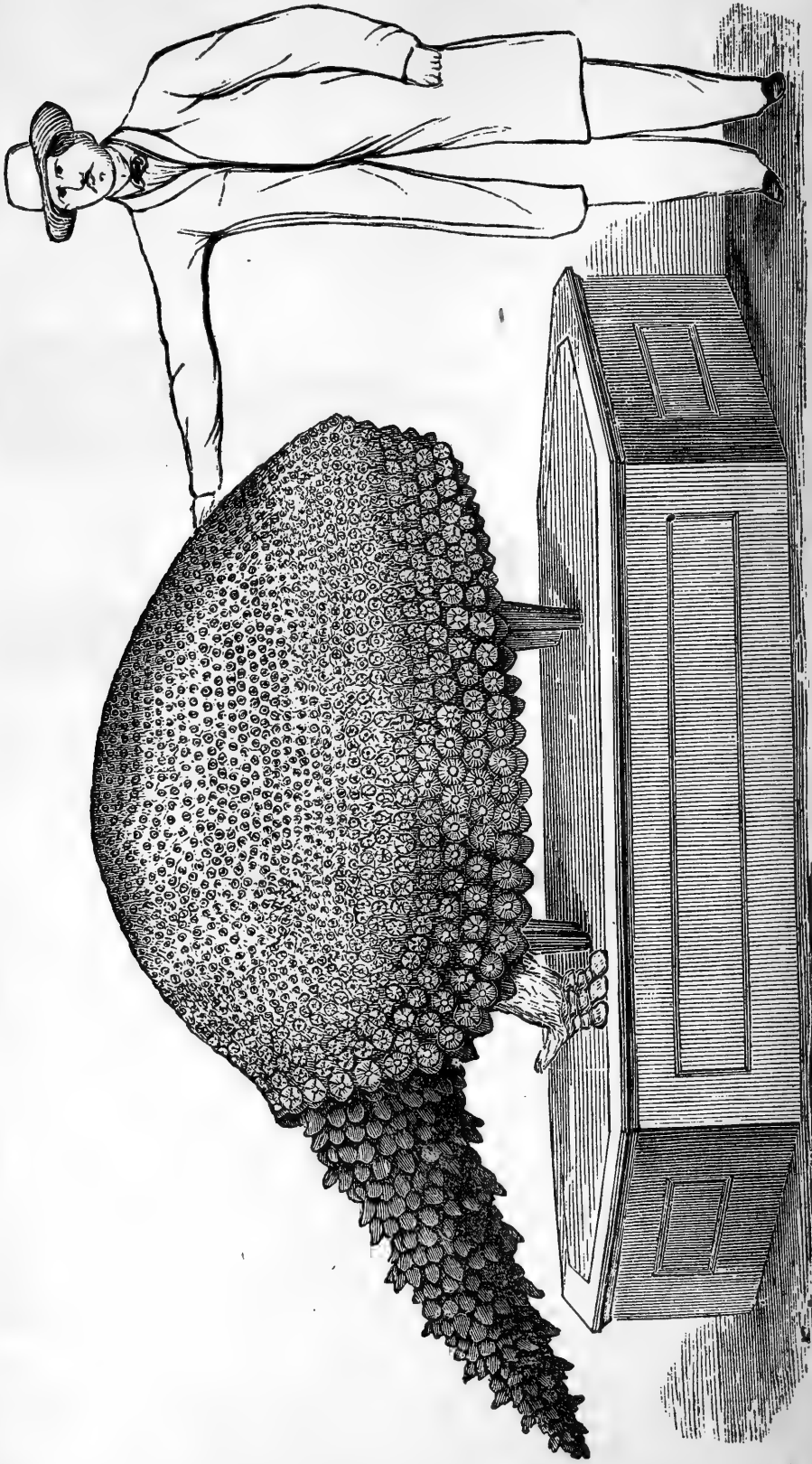
In front of the Megatherium, and hardly less imposing, is the great fossil Armadillo from the same Pampean deposit, the *Schistopleurum typus*.⁶ The original was found near Montevideo in 1846, on the borders of the River Luxan, by Dr. F. X. NUMEZ; and presented, by order of the Dictator ROSAS, to Vice-Admiral DUPOTEL, who gave it to the Museum of Dijon, his native city. M. NODOT, Curator of the Museum, describes it in the Memoirs of the Academy of Dijon in 1856. Like the Megatherium, it belonged to an age when nearly all families of mammals were represented by larger forms than at the present day.

The body is covered by a ponderous coat of mail (the original weighs about 4000 lbs.) formed by polygonal plates,* none of which are disposed in bands as in the living Armadillo, but which were all firmly articulated to each other: the animal, therefore, could not contract or bend its body into a ball as does its modern puny representative. This specimen received its generic title because it seemed to show the beginning of such a division: the carapace is much warped, and, in several places, indented, probably during the life of the animal. It measures six feet eight inches in length and nine feet two inches across, following the curve, at the middle of the back. The skull was likewise defended by a tessellated bony casque, and is also remarkable for the long backward-curved apophysis descending from the zygoma as in the Megatheroids.† The animal possessed a clavicle, yet seized

* In the Schistopleurum, these plates or ossicles are mostly hexagonal; in the Glyptodon, pentagonal.

† The skull is wanting in this cast, but will soon be added.

6.



SCHISTOPLEURUM TYPUS.

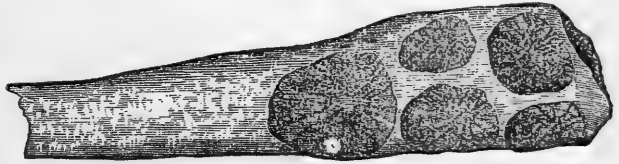
its food with its lips and tongue. All the Pleistocene Armadillos had fluted teeth, and were phytophagous: the modern species, except the *Apara* of the Pampas, are carnivorous. The tail had its independent osseous sheath, supported by the vertebræ within, and was well suited to strike a severe blow. The femur is flattened in front and behind, and widens out laterally as in the *Megatherium*.

7.



The tibia and fibula⁷ are soldered together, and, with the massive club-like foot, formed a firm support while the creature used its forelegs. The heavy tail served, at the same time, as a prop or an anchor.

8.



8.

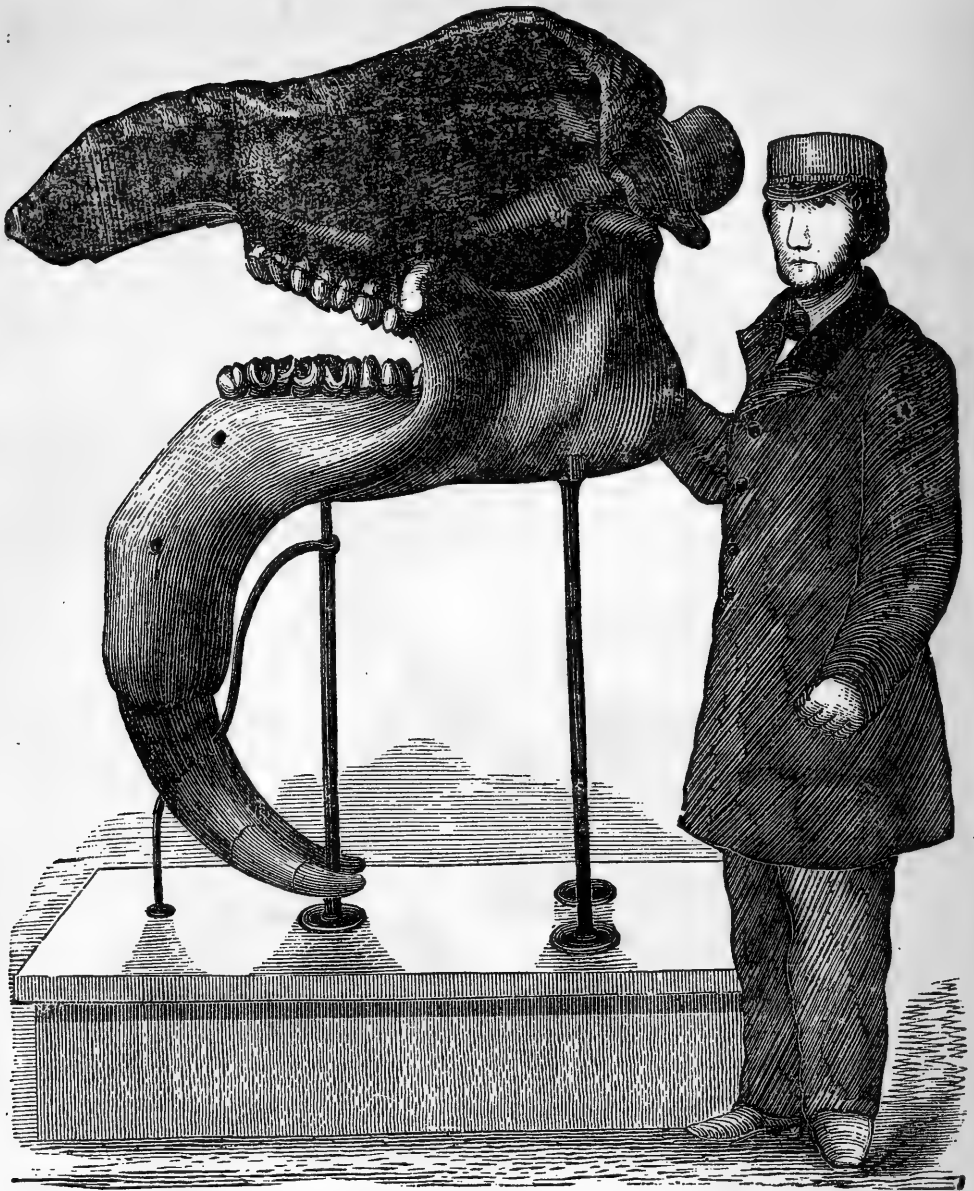


Lying on the same pedestal are the tails of the *Glyptodon clavicaudatus* and *G. clavipes*,⁸ the latter showing the vertebræ at the upper end, and exemplifying finely the relation of the endo- and exo-skeletons. They are each three feet long.

Dinotherium giganteum.

On the left of the observer, as he faces the *Megatherium*, are the largest fossil skulls thus far discovered. The one whose enormous down-curving tusks remind one of the Walrus, belongs to the *Dinotherium giganteum*.⁹ The original was discovered by Dr. KLIPSTEIN, near Eppelsheim, in a bed of sand and marl of the Miocene Tertiary containing marine shells, and is now preserved in the Museum at Darmstadt. It was first described by Prof. KAUP. The teeth had previously been found in France, Bavaria and Austria; and, from their close analogy with those of the Tapir, were described by CUVIER as belonging to an extinct colossal animal of that genus. Fragments of the same mammal have been discovered also in America in the Miocene deposits of Perim island, Gulf of Cambay, and in Tertiary formation limestone at the foot of the Pyrenees. The remains are associated with the Hippopotamus, Rhinoceros, Mastodon, Palæotherium, Anoplotherium, Machairodus, Horse, Ox, Antelope, Ape, Hog, Dog, Wolf, Cat, Leamantine, Morse, Seacalf and Dolphin, all of extinct species.

The skull is three feet eight inches in length: it is characterized by a very flat occipital bone (approximating in form the occiput of Cetacea), large nasal aperture opening above, and large suborbital fossæ, which, together with the form of the nose, seem to indicate the presence of a short proboscis. The teeth $\frac{5}{5}$ — $\frac{5}{5}$ are all molars, and belong to the bilophodont or two-ridged type, as in the Tapir, *Megatherium*, Kangaroo and Manatee. The large deflected tusks are, in fact, two huge recurved incisors implanted in a pro-



Head of the DINOETHERIUM.

longation of the symphysis of the lower jaw. The skull, scapula, femur and pelvis(?) are the only parts yet discovered. The scapula resembles that of a Mole. The femur, which lies on the pedestal under the head, is the largest thigh-bone known to naturalists; measuring five feet in length, and two feet four inches in greatest circumference of shaft. CUVIER and KAUP calculated that the animal must have attained the extraordinary length of eighteen feet.

Professor KAUP regards the Dinotherium as intermediate between the Mastodon and Tapir, and truly terrestrial; while MM. DEBLAINVILLE and PICTET consider it an aquatic herbivore resembling the Lamantin, and inhabiting the embouchures of great rivers. In the general shape of the skull and aspect of the nostrils, according to OWEN, the Dinotherium most resembles the Manatee or Dugong; "but bones of limbs have been found so associated with teeth as to determine the Dinotherium to be a hoofed quadruped, of probably aquatic habits, and transitional, as it would seem, between the large Lophiodorus and the huger proboscideans."

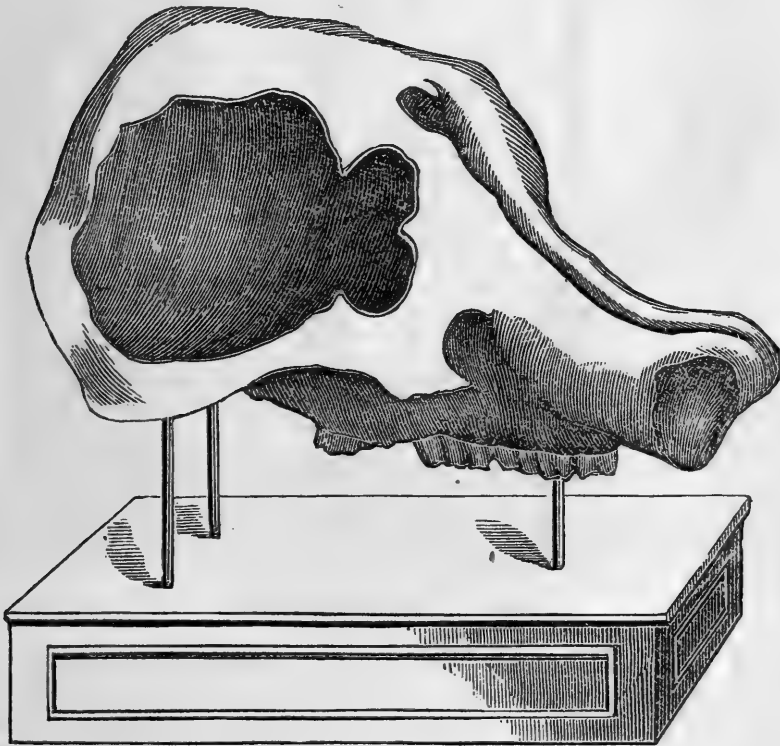
In the last number (November 1864) of the American Journal of Science

is noticed briefly the discovery, in the Department of the Haute-Garonne in Southern France, of an immense fossil pelvis, supposed to belong to the *Dinotherium*. This is five feet eleven inches from one crest to the other of the iliac bones, and four feet three inches in a line cutting it vertically. In its lower portion are two subtriangular depressions which are evidently articulating cavities, in which fitted *marsupial* bones. This discovery renders it very probable that the *Dinotherium* was a marsupial animal; although it is still as uncertain as before to what exact order of animal this didelphic feature was, in this case, added.

Mastodon giganteus.

By the side of the *Dinotherium*, enclosed by the same railing, is the head of the *Mastodon giganteus*, disinterred from a post-glacial fluviatile deposit in Orange county, N.Y. It is the largest elephantoid skull that has ever been discovered.¹⁰ The cranium is convex and cellular; and from the great

10.



cavities in front, once protruded enormous tusks. The teeth are composed of dentine with enamel spread over the crown, which is divided into several transverse tubercles, each of which is subdivided into two obtuse points, the transverse furrows not being filled up with cement as in the Elephant. The dental formula is as follows, *d* standing for deciduous :

$$d\ i, 1-1; i, 1-1; c, 0-0; d\ m, \frac{3}{3}-\frac{3}{3}; p, 1-1; m, \frac{3}{3}-\frac{3}{3} = 34.$$

The molars progressively increase in size, and most of them in complexity, and in their growth follow each other from behind forwards. Not more than three were in use at any period on one side of either jaw. All, save the penultimate, were shed by the time the crown of the last had cut the gum.

Beneath the skull,^{10½} on the pedestal, are the tusk of another specimen
10½.



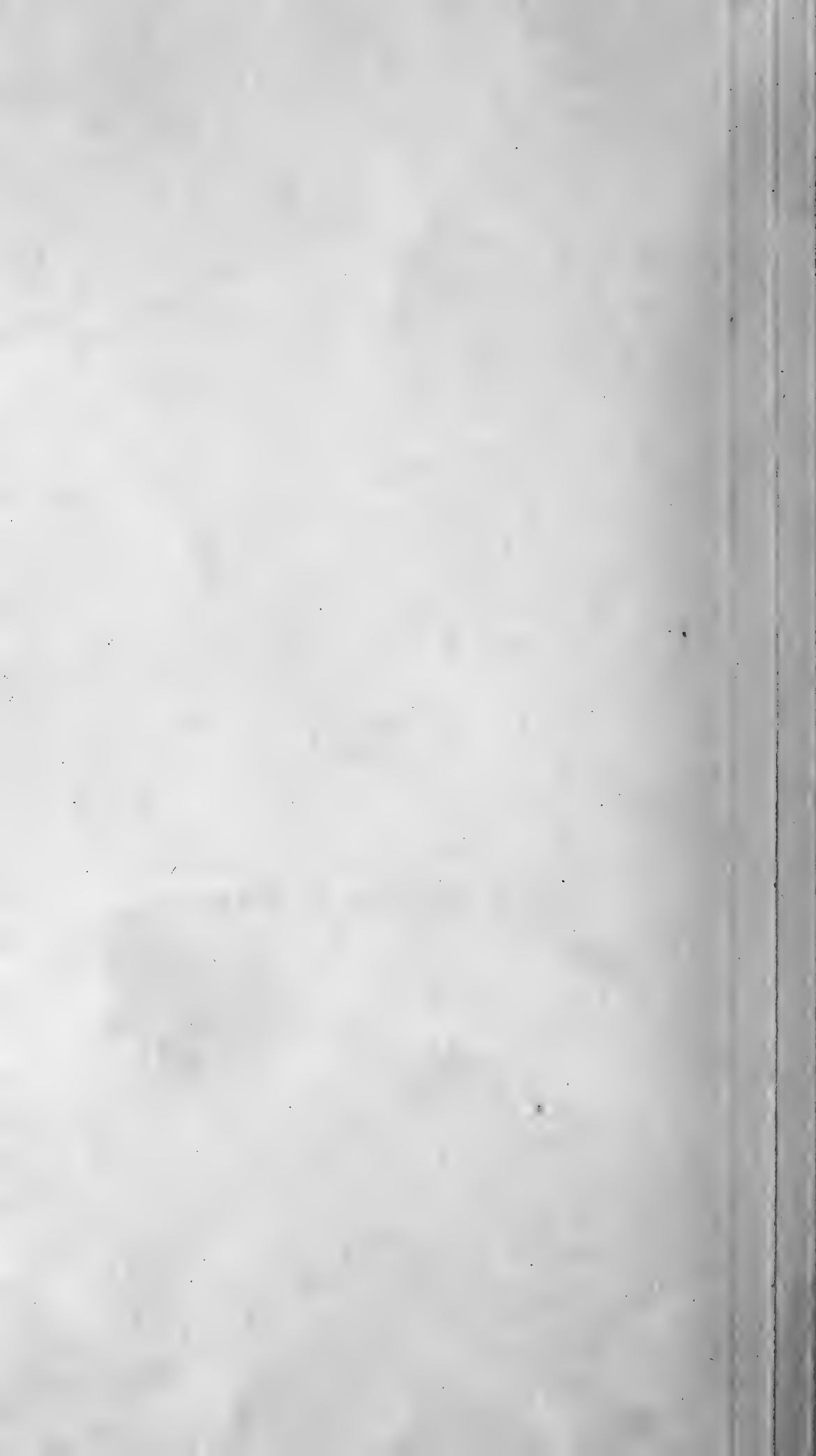
from St. Catharines (Canada), and a portion of a lower jaw and teeth from Missouri. There is hardly a portion of the United States, or indeed of the North-American continent, which has not offered some remains of this elephantoid animal which once roamed its surface in vast herds.

Elephas ganesa.

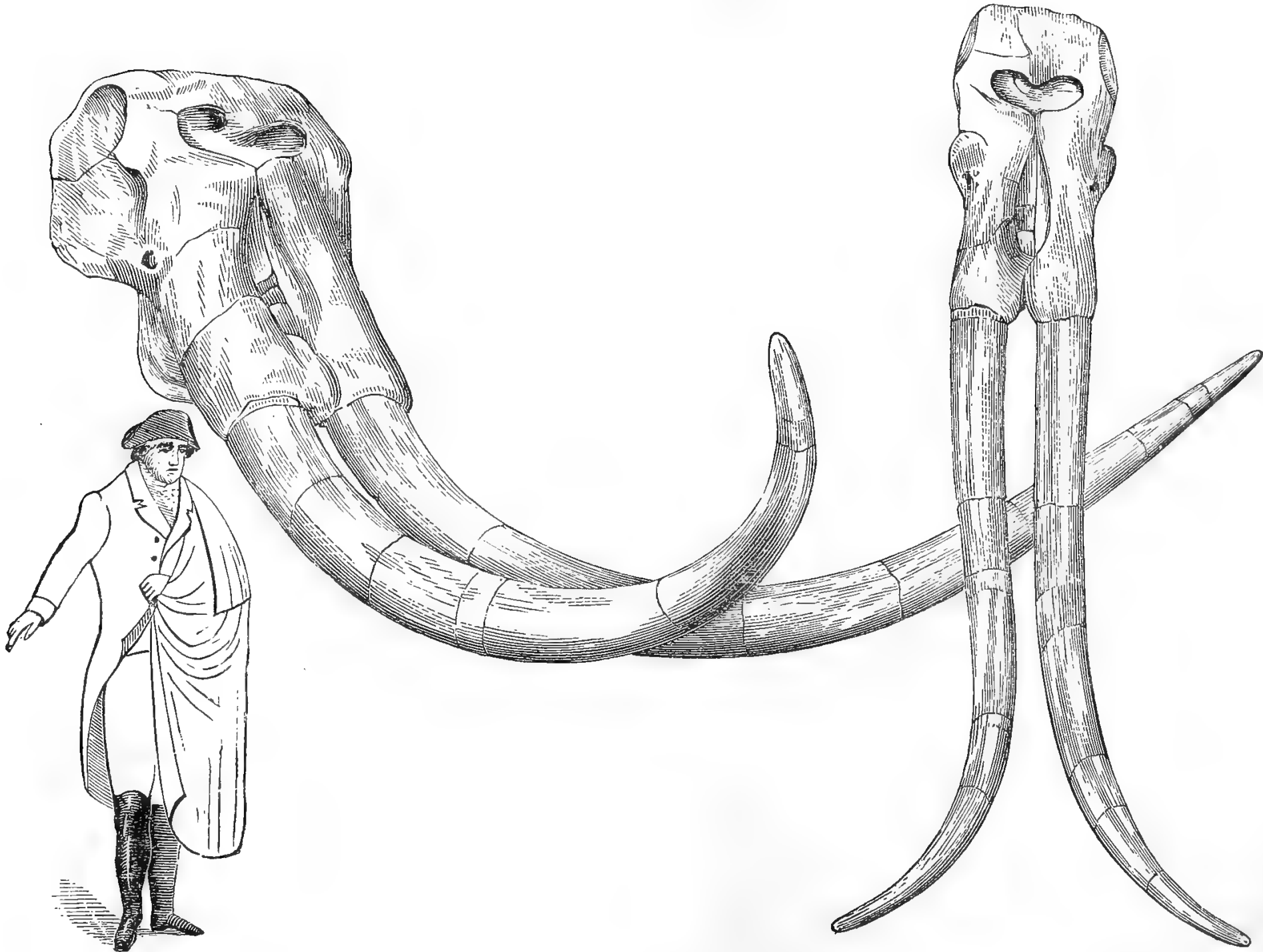
In the east window, on a long pedestal, is mounted a very perfect head of the *Elephas ganesa*, a fossil Mammoth from the Sewalik hills, outliers of the Himalaya mountains in India. The original, preserved in the British Museum, was obtained by Dr. FALCONER and Major CAUTLEY. The Tertiary deposit, in which it was discovered, consists of concretionary grit, conglomerate, sandstone and loam; and contains lignite, trunks of dicotyledonous trees, and land and freshwater shells.

The length of the skull¹¹ is four feet two inches; width, twenty-nine inches. The tusks are ten feet six inches long, and twenty-six inches in circumference at the base. In consequence of their slight curvature, they project eight feet five inches in front of the head. Their apparent disproportion to the size of the skull is truly extraordinary, and exemplifies the maximization of dental development. The weight which they, by their great leverage, must have added to the skull of the living animal, can hardly be estimated at less than two thousand pounds!

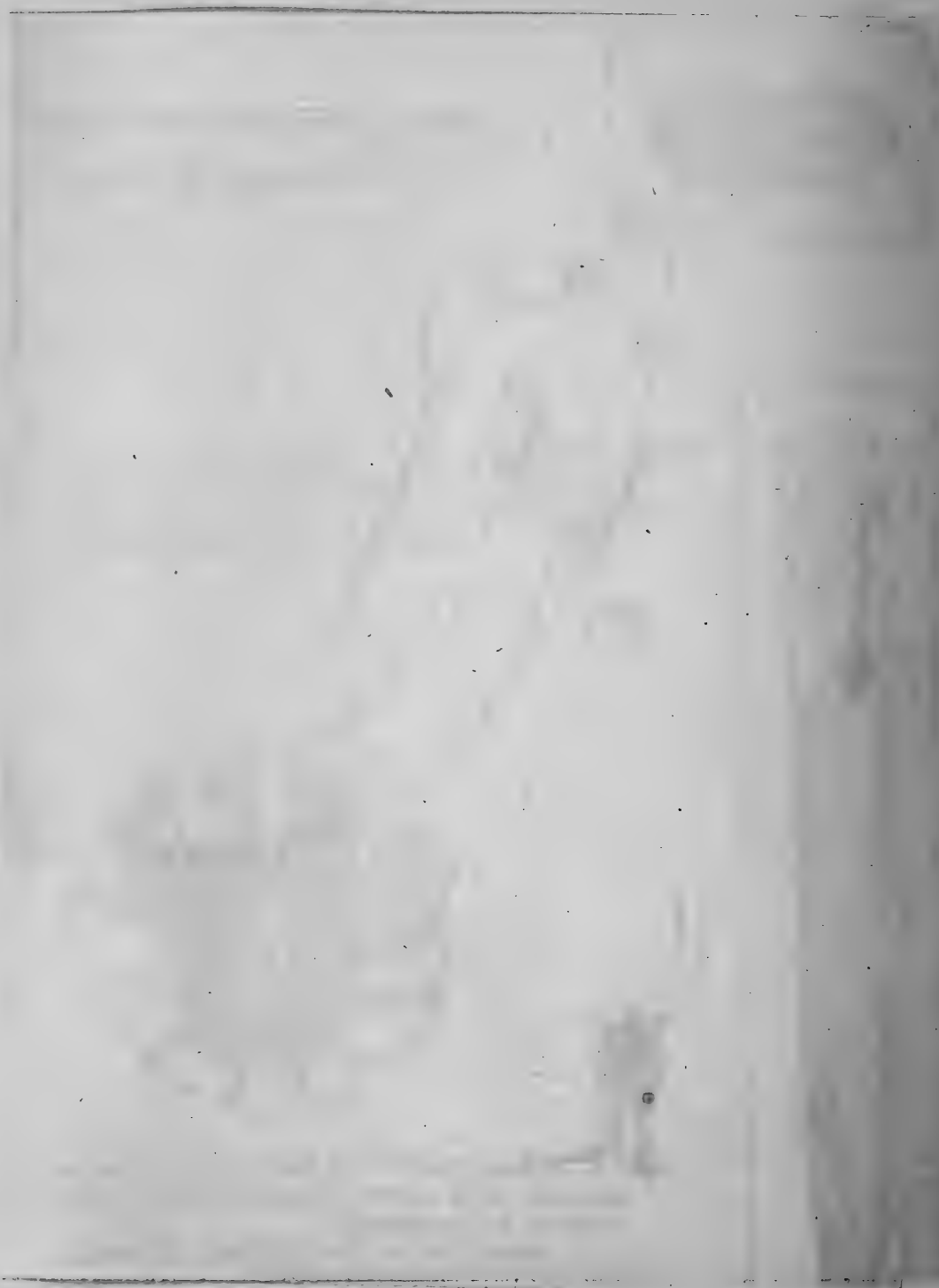
At either end of the Gallery, in the recesses formed by the windows, are four handsome cases with glazed top and front, in which, on receding shelves, are exhibited a numerous series of smaller fossils arranged with a zoological grouping. In the first case (on the north wall) are twenty-eight



11.—Skull of the ELEPHAS GANESA.



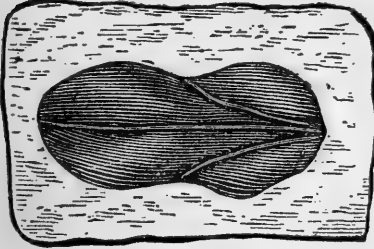
[To face page 28.]



Fossil Articulates, Mollusks and Radiates.

They are as follows :

12.



No. 1. *Beloteuthis subcostata*.¹² Internal bone of fossil cuttlefish.

Lias: Holzmaden, Wirtemberg.

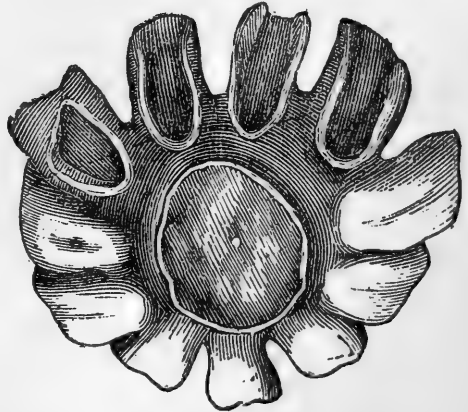
13.



No. 2. *Belemnites oweni*.¹³ Specimen showing the "phragmocone" or chambered float, in place, in the upper end or alveolar cavity of the "guard".

Oxford clay: Chippenham, England.

14.

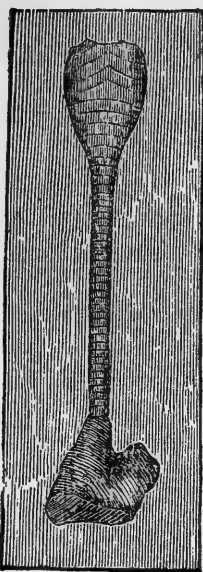


No. 3. *Amorphoczum*?¹⁴ A fossil sponge a foot in diameter, with eleven beautifully radiating and recurved hollow fingers.

Lower Silurian: Franklin county, Kentucky.

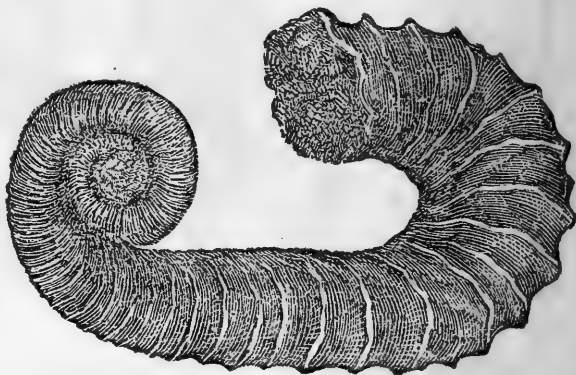
(☞ Specimen still undescribed.)

15.



No. 4. *Apiocrinus parkinsoni*,¹⁵ Pear Encrinite. Specimen with calyx, stem and root complete.
Great Oolite: Hampton, England.

16.



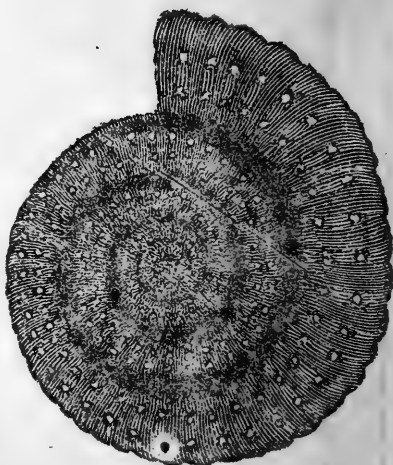
No. 5. *Ancyloceras (Scaphites) gigas*.¹⁶ A full-grown and unusually perfect specimen.
Lower Greensand: Atherfield, Isle of Wight, England.

17.



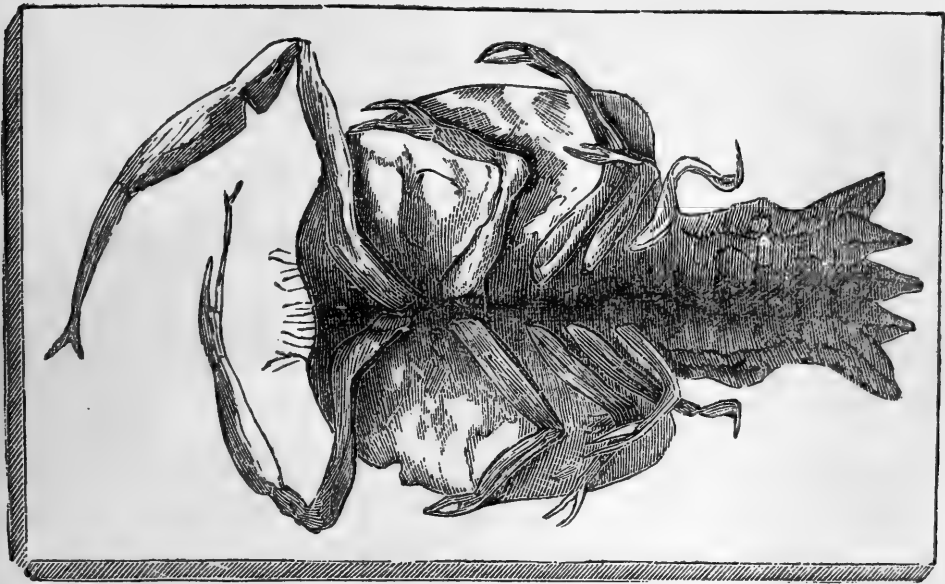
No. 6. *Dalmania nasuta*.¹⁷ Specimen showing the bifurcated frontal process.
Lower Helderberg: Schoharie, N.Y.

18.



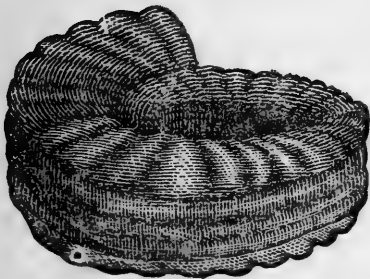
No. 7. *Ammonites birchii*.¹⁸
Lias: Lyme Regis, England.

19.



No. 8. *Eryon propinquus*.¹⁹
Lithographic limestone (Upper Oolite): Solenhofen, Bavaria.

20.

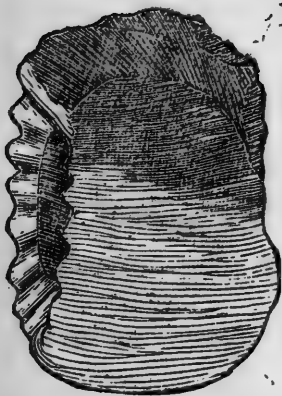


No. 9. *Ammonites bucklandi*²⁰ (Group "Arietes"
of VON BUCH).

Lias: Boll, Wirtemberg.

No. 10. *Cancrinus latipes*.
Lithographic limestone (Upper Oolite):
Eichstädt, Bavaria.

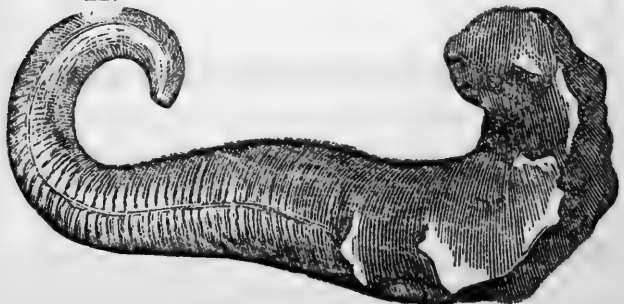
21.



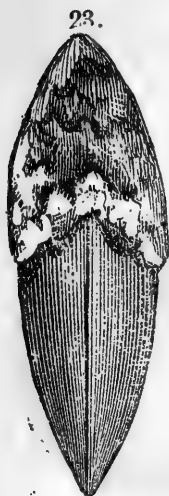
No. 11. *Ammonites blagdeni*²¹ (Group "Coronarii" of
VON BUCH).

Great Oolite: Yorkshire, England.

22.



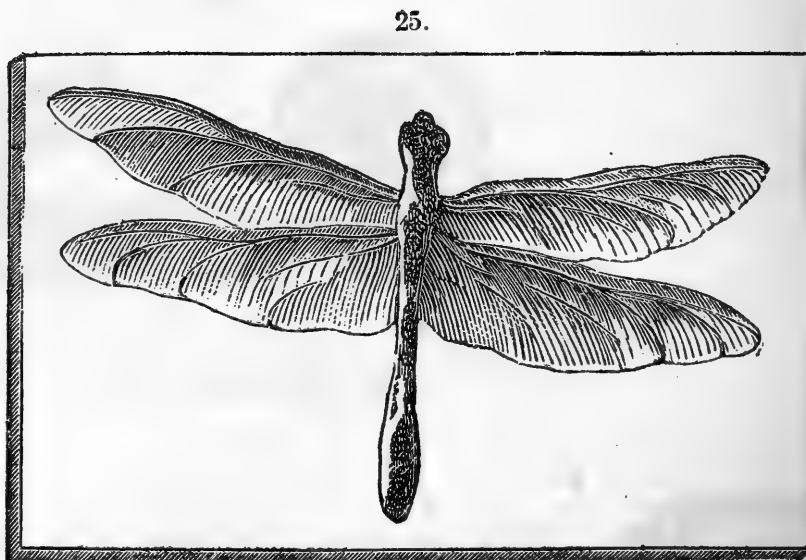
No. 12. *Ancyloceras andouli*.²²
Lower Greensand: Cheiron, France.



No. 13. *Ammonites* ———²³ (Group "Falciferi" of VON BUCH).
Oolite: France.



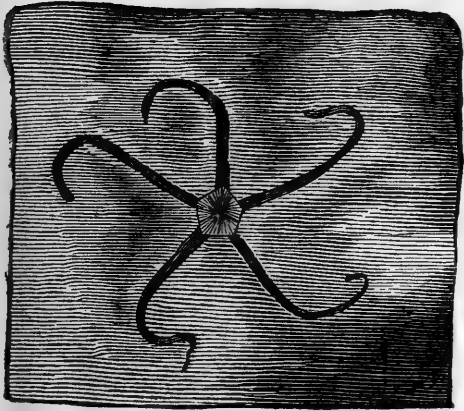
No. 14. *Calymene blumenbachii*.²⁴
Upper Silurian: Dudley, England.



No. 15. *Æschna eximia*.²⁵ Beautiful fossil Libellula or Dragonfly, with wings spreading six inches.
Lithographic limestone (Upper Oolite): Solenhofen, Bavaria.

No. 16. *Ammonites rothomagensis?* Interior cast of portion of outer whorl, showing the lobed edges of septa. Chalk marl: Rouen, France,

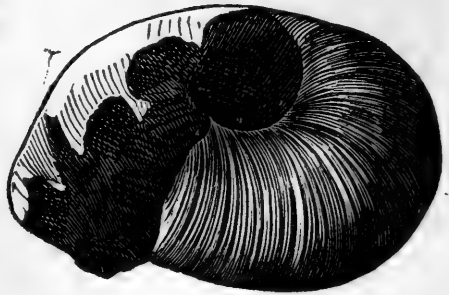
25½.



No. 17. *Ophioderma egertoni*.²⁵ One of the most perfect and beautiful of the Ophiuridæ.

Lias: Lyme Regis, England.

26.



No. 18. *Ammonites macrocephalus*²⁶ (Group "Macrocephali" of VON BUCH).

Oxford clay: Wiltshire, England.

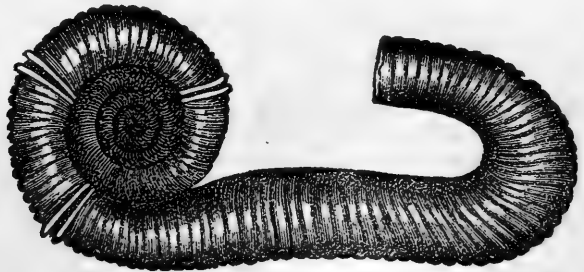
27.



No. 19. *Toxoceras moutonianus*.²⁷ Very perfect specimen, over two and a half feet long.

Lower Greensand: Escragnolles, France.

28.



No. 20. *Scaphites ivani*.²⁸ Specimen with the whorls of the early age of the shell quite distinct.

Lower Greensand: Barrême, France.

29.



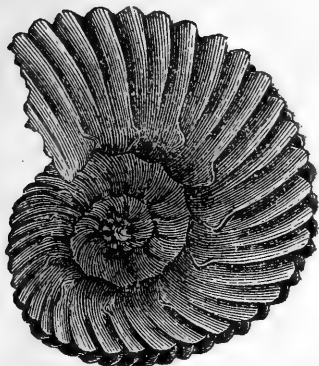
No. 21. *Cidaris blumenbachii*.²⁹ Specimen with the spines still adhering.

Coral Rag: Wiltshire, England.

No. 22. *Hippurites radiosa*. Lower valve.

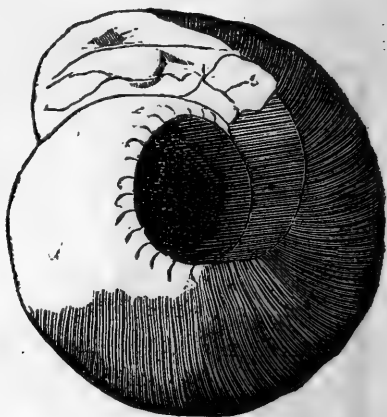
White Chalk: Vache-Perdue, France.

30.



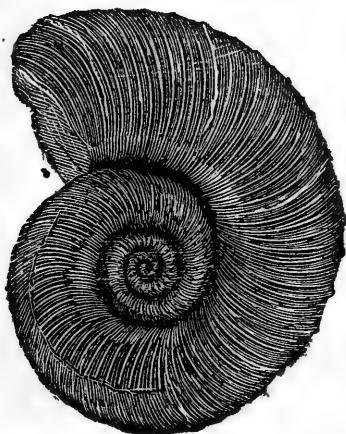
No. 23. *Ammonites lautus*³⁰ (Group
"Dentati" of VON BUCH).
Gault: Folkestone, England.

31.



No. 24. *Ammonites modiolaris*³¹
(Group "Coronarii" of VON
BUCH).
Oxford Clay: Chippenham, England.

32.



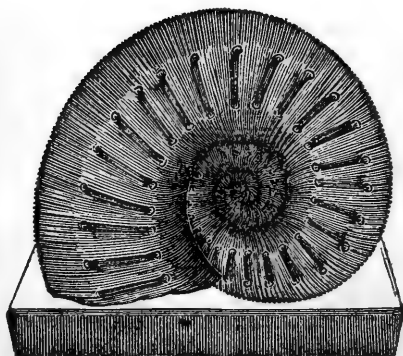
No. 25. *Ammonites fimbriatus*³² (Group "Ligati" of D'ORBIGNY).
Lias: Lyme Regis, England.

33.



No. 26. *Siphonia (Halirhoa) lobata*.³³
Upper Greensand: Warminster, Wiltshire, Eng.

34.



No. 27. *Ammonites henleyi*.³⁴
Lias: Lyme Regis, England.

35.



No. 28. *Encrinus liliiformis*.³⁵ A very interesting Crinoid, showing with beautiful distinctness the discs, which, standing on each other with articulating surfaces, form the supporting column; also the several pieces of the calyx, and the many thousand ossicles which enter into the composition of the ten arms.

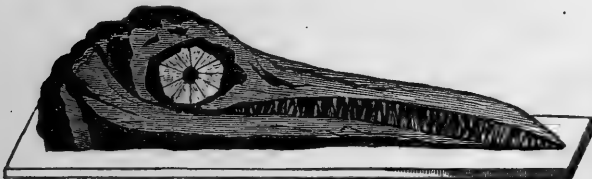
Species confined to the Muschelkalk (Middle Trias).
Brunswick, Germany.

The second window-case. east of the one already noticed, contains

Fossil Reptiles and Fishes.

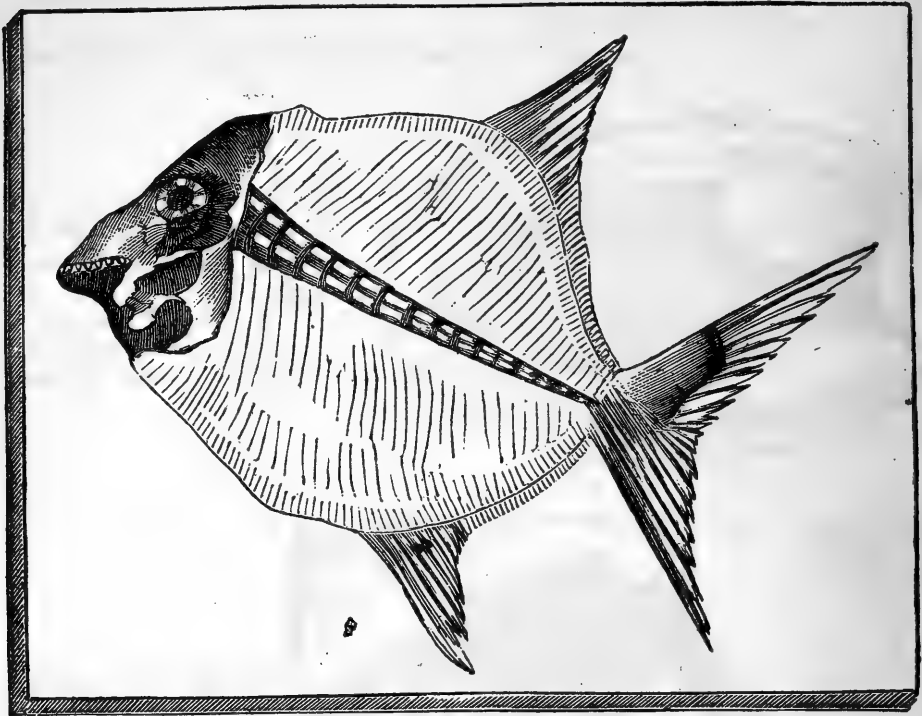
They are :

36.



No. 29. *Ichthyosaurus communis*.³⁶ A fine head, having all the bones and teeth complete and in true position, and showing well the sclerotic plates which defended the eye.

Lias: Barrow-on-Soar, England.

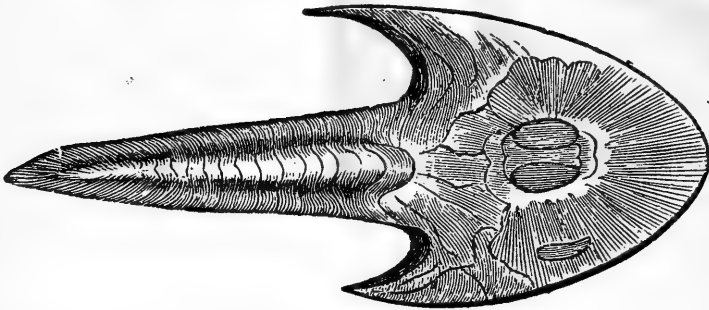


No. 30. *Microdon (Pycnodus) elegans*.³⁷ A beautiful Ganoid fish, with homocercal tail and long pointed dorsal and anal fins.

Lithographic limestone (Upper Oolite): Bavaria.

No. 31. *Sapheosaurus laticeps*. Small fossil Lizard; body and extremities complete. Lithographic limestone (Upper Oolite): Kelheim, Bavaria.

38.

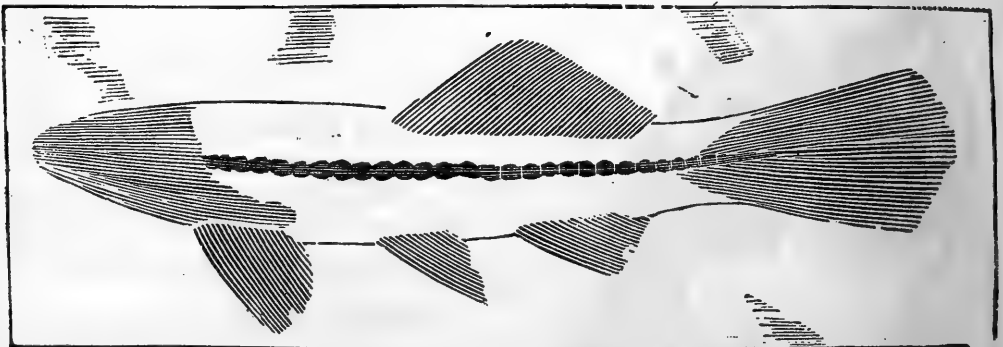


No. 32. *Cephalaspis lyelli*.³⁸ A well-known

Ganoid fish, with buckler head, thin triangular body and heterocercal tail.

Old Red Sandstone (Devonian): Glammiss, Forfarshire, Scotland.

39.



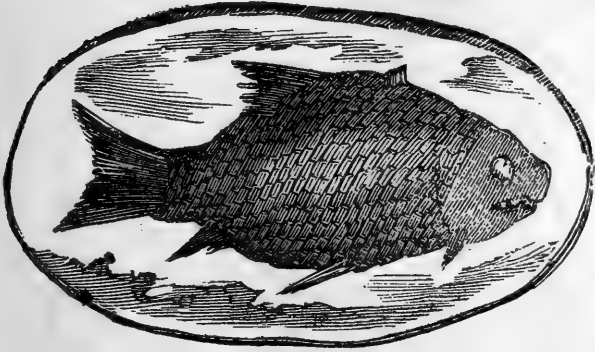
No. 33. *Megalurus elegantissimus*.³⁹ Small Ganoid fish, with largely expanded tail.

Lithographic limestone (Upper Oolite): Solenhofen, Bavaria

No. 34. *Undina striolaris*. Ganoid fish of the family of "Coelocanthus," or those with hollow bones.

Lithographic limestone (Upper Oolite): Kelheim, Bavaria.

40.



No. 35. *Lepidotus minor*.⁴⁰ A fine Ganoid fish, with homocercal tail & bright-shining scales.

Purbeck limestone
(Upper Oolite):

Isle of Portland, England.

41.



No. 36. *Pterodactylus crassirostris*.⁴¹ Copy of the most perfect specimen of this fossil that has ever been found.

Lithographic limestone
(Upper Oolite):
Solenhofen, Bavaria.

42.



No. 37. *Placodus gigas*.⁴² Skull entire, with both maxillary and palatal series of teeth. These latter are, relatively, larger than those of any other known animal, living or fossil. No part of the animal, save the head, is known; but it is believed to have been a marine saurian, which frequented the seashores and fed upon the hard-shelled mollusks, crushing them between its hard rounded teeth.

Muschelkalk (Middle Trias):
Lainek. Bavaria.

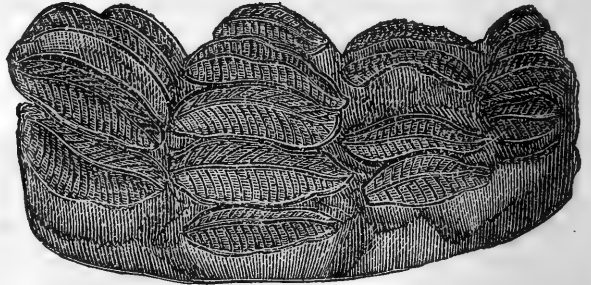
43.



No. 38. *Andrias tschudi*.⁴³ Fossil Salamander. It was a larger adult specimen of this fossil which was erroneously supposed by SCHEUZER to be a human skeleton, and was described by him, nearly a century and a half ago, as "*Homo diluvii testis*"!

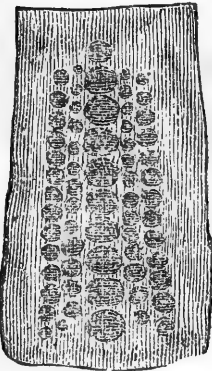
Miocene Tertiary: Eningen, Switzerland.

44.



No. 39. *Acrodus nobilis*.⁴⁴ Palatal teeth, with their peculiar surface linings.
Lias: Lyme Regis, England.

45.



No. 40. *Gyrodus umbilicus*.⁴⁵ A fine series of palatal teeth.
Upper Oolite: Durrheim, Duchy of Baden.

No. 41. *Pycnodus platessus*. Fossil fish.
Eocene Tertiary: Monte Bolca, Lombardy.

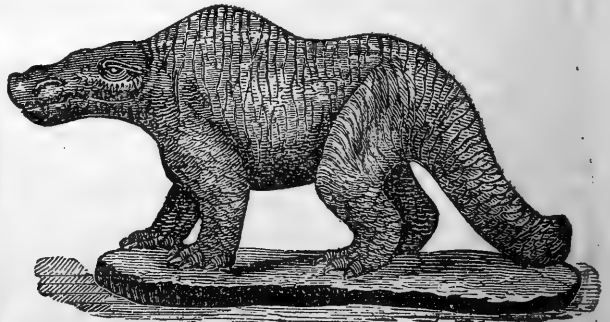
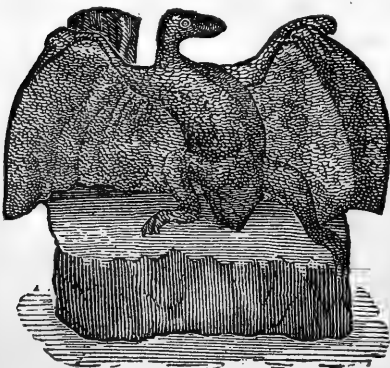
No. 42. *Mesturus verrucosus*. Fossil fish nearly two feet long.
Lithographic Limestone: Eichstätt, Bavaria,

In the recess of the southeast window is a case of

Fossil Reptiles.

No 43. PTERODACTYLE : fig. 46.

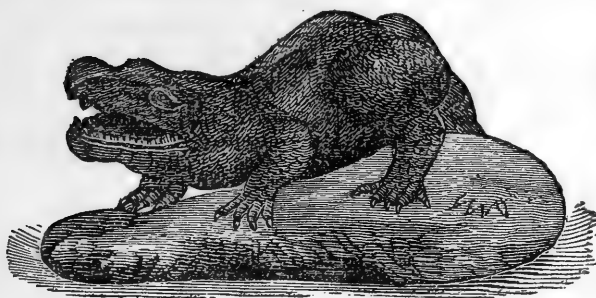
No. 44. MEGALOSAURUS : f. 47.



No. 45. IGUANODON : f. 48.



No. 46. LABYRINTHODON : f. 49.



No. 47. ICHTHYOSAURUS : f. 50.



Nos. 43 - 49 (figs. 46 - 50) are restorations of the *Pterodactyle*, *Megalosaurus*, *Iguanodon*, *Labyrinthodon*, *Ichthyosaurus*, *Plesiosaurus dolichodeirus* and *P. macrocephalus*. They are reduced (one inch to the foot) from the gigantic models in the Crystal Palace, London; constructed to scale by B. WATERHOUSE HAWKINS, F.G.S., F.L.S., from the form and proportions of the fossil remains, and in strict accordance with the scientific deductions of the British Cuvier, Professor OWEN. Preliminary drawings, with careful measurements of the originals in the Royal College of Surgeons, British Museum and Geological Society, were prepared, and sketch models made at a fraction of the natural size, and submitted to the above high authority. Clay models were then made of the natural size.

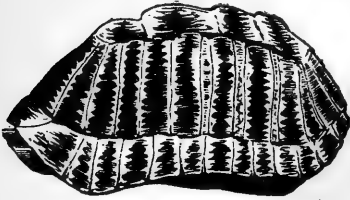
To give an idea of these monster Saurians, Mr. HAWKINS states that the Iguanodon, as it now stands in the Crystal Palace, is composed of four iron columns 9 feet long by 7 inches in diameter, 600 bricks, 1550 tiles, 38 casks of cement, 90 casks of broken stone, with 100 feet of iron hooping and 20 feet of cube inch bar. It was modelled after the great Horsham specimen; and the mold was afterward converted into a *salle à manger*, in which Prof OWEN, Prof. FORBES and twenty other scientific gentleman sat down to dinner. The beautiful restorations in the Wadsworth Collection are faithful copies, in miniature, of the gigantic group in London. Fossil re-

mains, for the most part, are found only in a fragmentary state. When then the dry bones are thus seemingly clothed with flesh, a more accurate knowledge of the wonders of Creation is communicated to the mind than by any scientific description.

No. 50. *Teleosaurus minimus*. Head of the smallest individual of the genus yet described, showing well the orbital sockets and the nasal fossæ.

Lias : Wirtemberg.

51.



No. 51. *Emys hamiltonoides*.⁵¹ Turtle : carapace and plastron complete.

Miocene Tertiary : Sewalik hills, India.

52.



No. 52. *Nothosaurus mirabilis*.⁵²

Muschelkalk : Bayreuth, Bavaria.

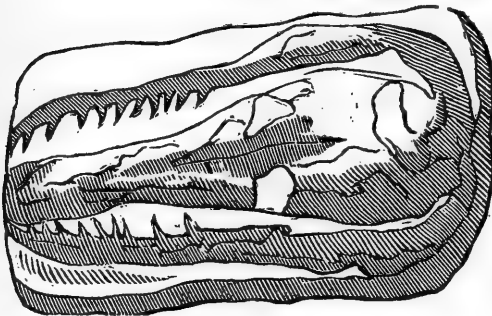
Skull, with finely preserved teeth.

No. 53. *Ichthyosaurus communis*. Skull, with jaws and teeth complete.

Lias : Lyme Regis, England.

No. 54. *Crocodylus spenceri*. Skull. Eocene Tertiary : Isle of Sheppey, England.

53.



No. 55. *Archegosaurus decheni*.⁵³

Head complete.

Coal measures : Saarbrück, Rh. Prussia.

In the fourth window-recess, on the south side of the room, is a final window-case, which contains

Fossil Mammals and Birds.

They are

54.

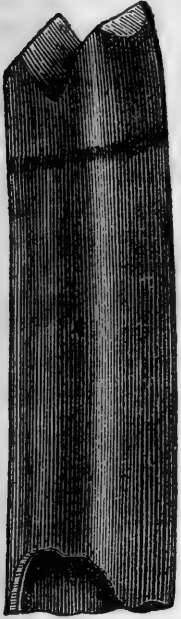


No. 56.

Anoplotherium communis.⁵⁴ A very perfectly preserved head of this interesting animal, which was thought by CUVIER, who first described it, to hold an intermediate position between the Rhinoceros & Horse. The most remarkable

feature of the skull, and that from which the genus took its name, is the full dentition ; six incisors in each jaw, without any interval between them and the molars.
Eocene Tertiary: Paris, France.

55.



No. 57. *Megatherium cuvieri*.⁵⁶ Molar tooth, showing pulp cavity and bilophodont crown.
Pleistocene: Buenos Ayres.

56.



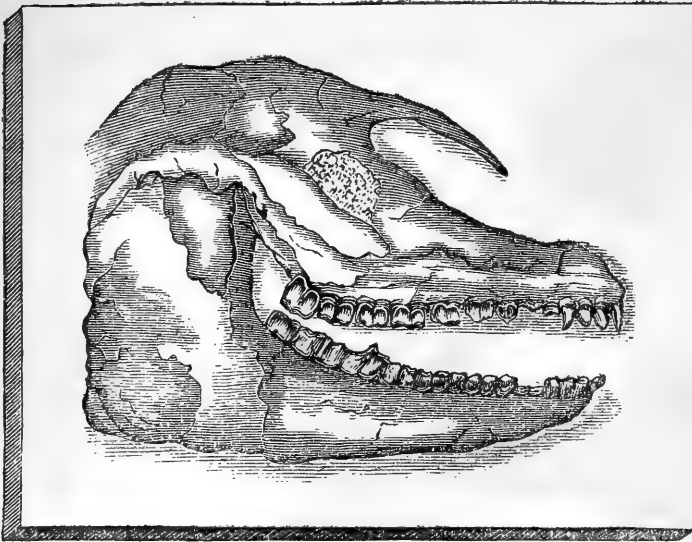
No. 58. *Bootherium bombifrons*.⁵⁶ Skull with horns ; very well preserved.
Pleistocene: Big-bone Lick, Kentucky.

57.



No. 59. *Zeuglodon cetoides*.⁵⁷ Molar tooth.
Eocene Tertiary: Claiborne, Alabama.

58.

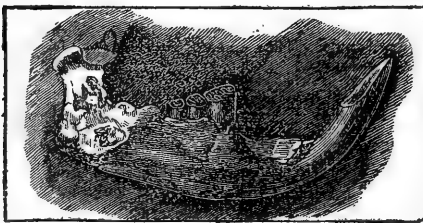


No. 60. *Palæotherium crassum*⁵⁸ Perfectly preserved head. Specimen first described by CUVIER.

Eocene Tertiary:
Paris, France.

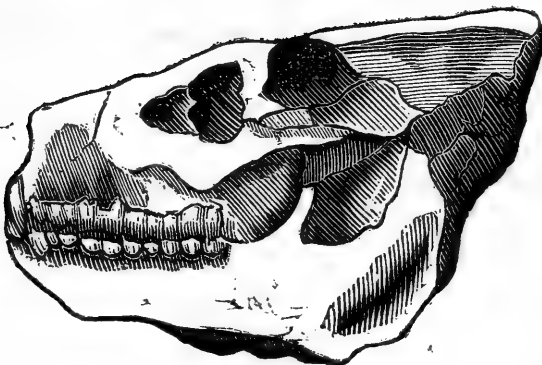
No. 61. *Tapirus auvernensis*. Portion of skull of fossil Tapir.
Pliocene Tertiary: Auverne, Central France.

59.



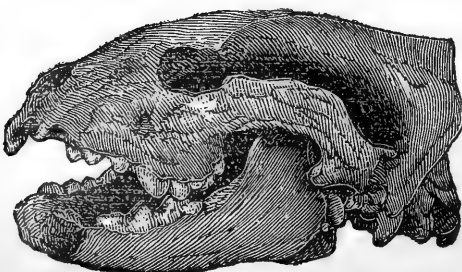
No. 62. *Trogonotherium cuvieri*.⁵⁹ Lower jaw (left ramus) of fossil Beaver.
Pliocene Tertiary: Norfolk, England.

60.



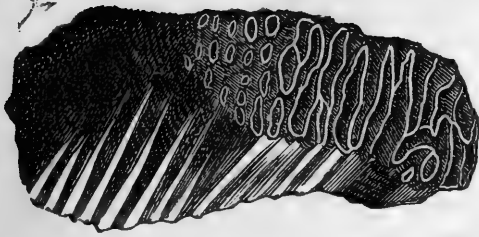
No. 63. *Oreodon culbertsoni*.⁶⁰
Skull entire.
Eocene Tertiary:
Mauvaises Terres, Nebraska.

61.



No. 64. *Gulo spelæus*.⁶¹ Head of fossil Glutton.
Cavern deposit (Pleistocene):
Gailenreuth, Germany.

62.



No. 65. *Elephas americanus*.⁶² Tooth of Mammoth.
Pleistocene:
St. Catharines, Canada West.

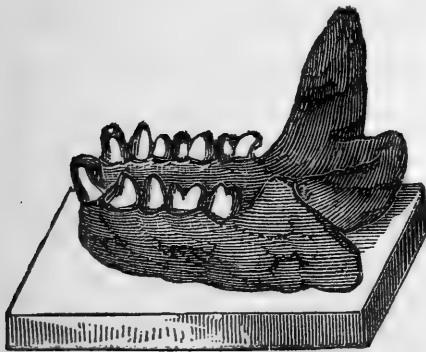
63.



No. 66. *Dodo ineptus*.⁶³ Head. This specimen is of the highest interest; belonging, as it does to a species which has become extinct during the present or historical period.
Pleistocene:
Island of Mauritius.

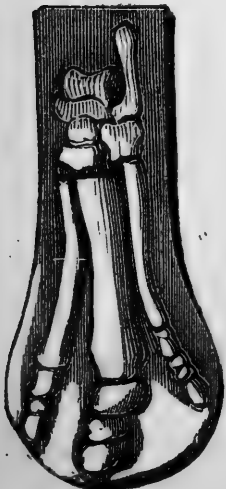
No. 67. *Sivatherium giganteum*. Lower jaw; left ramus.
Miocene Tertiary: Sewalik hills, India.

64.



No. 68. *Pliopithecus antiquus*.⁶⁴ Lower jaw of fossil Monkey.
Miocene Tertiary:
Auvergne, Central France.

65.



No. 69. *Palaeotherium crassum*.⁶⁵ Left hindfoot.
Eocene Tertiary: Paris, France.

66.



No. 70. Human Skull,⁶⁶ discovered in 1857, in a limestone cave in the Neanderthal, between Düsseldorf and Elberfeld. The rest of the skeleton was found with it. The part of the cranium preserved consists of the portion above the roof of the orbits, and the superior occipital ridges. It includes almost the whole of the frontal bone, both parietals, a small part of the temporals, and the upper part of the occipital. The surface of the original is covered with delicate dendrites. It is the most pithecoïd of human crania yet discovered, and has a very small cerebral development. The posterior cerebral lobes must have projected considerably beyond the cerebellum; thus showing a similarity to certain Australian skulls. The conclusions of Prof. HUXLEY are:

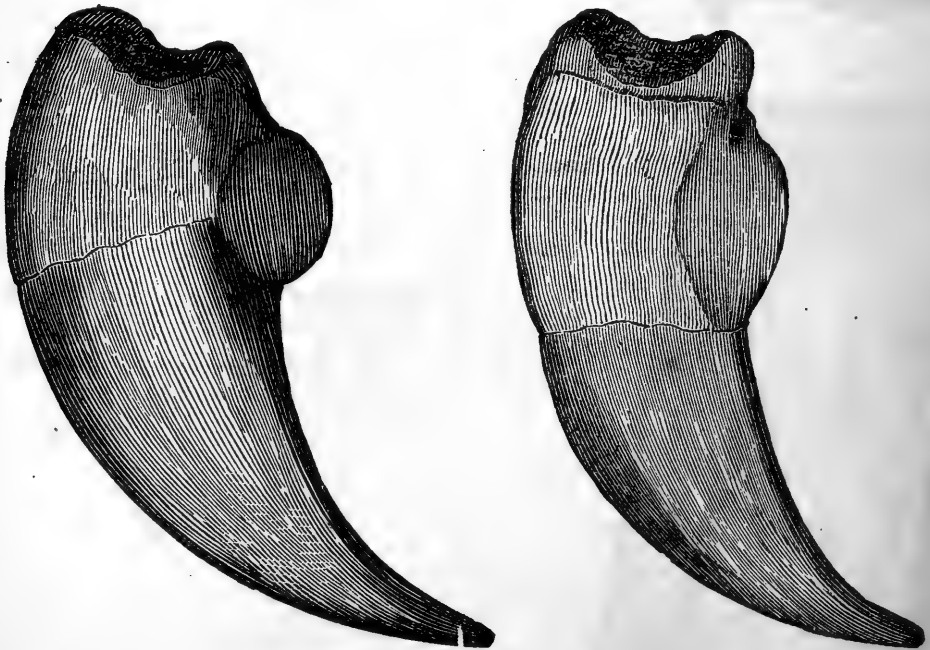
First, that the extraordinary form of the skull is due to a natural conformation, hitherto not known to exist even in the most barbarous races; secondly, that it belongs to a period antecedent to the time of the Celts in Germany, and was in all probability derived from one of the wild races of Northwestern Europe (*autochthonus*); and thirdly, that it is beyond doubt traceable to a period at which the latest animals of the diluvium still existed. Further facts on the subject may be found in LYELL'S *Antiquity of Man*.

No. 71. *Dodo ineptus*. Foot; skin still covering. Pleistocene: Isle Mauritius.

No. 72. *Rhinoceros* ——. Lower jaw; right ramus. Pliocene: Central France.

No. 73. *Rhinoceros minutus*. Last molar tooth. Miocene: Steinheim, Wirtemberg.

67.



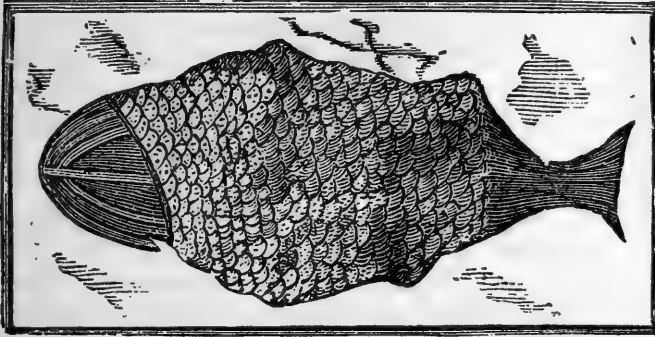
No. 74. *Megalonyx jeffersoni*.⁶⁷ Ungual phalanges. Pleistocene: Cave in Greenbrier co., Western Virginia.

No. 75. *Anchitherium bairdii*. Head. Eocene: Mauvaises terres, Nebraska.

No. 76. *Palaeotherium crassum*. Lower jaw. Eocene Tertiary: Paris. France.

The series is next continued in the wall-case, immediately to the right of the window-case just noticed :

68.



No. 77.
Holoptychius nobilissimus.
Very perfect and well-
preserved Ganoid fish.⁶⁸
Old Red Sandstone
(Devonian):
Clashbennie, Scotland.

No. 78. *Testudo* ——. Turtle, 23 inches long and 18th inches broad ;
carapace and plastron complete.

Miocene Tertiary: Sewalik hills, India.

69.



No. 79. *Labyrinthodon jægeri*.⁶⁹ Head, with lower
jaw firmly closed. The portions of this most singu-
lar fossil which have thus far been found, show
that it belonged to the order of Batrachia, and
was most nearly allied to the Frogs among living
animals. Its length, as estimated by OWEN, was
about nine feet.

Upper Trias (Keuper): Wirtemberg.

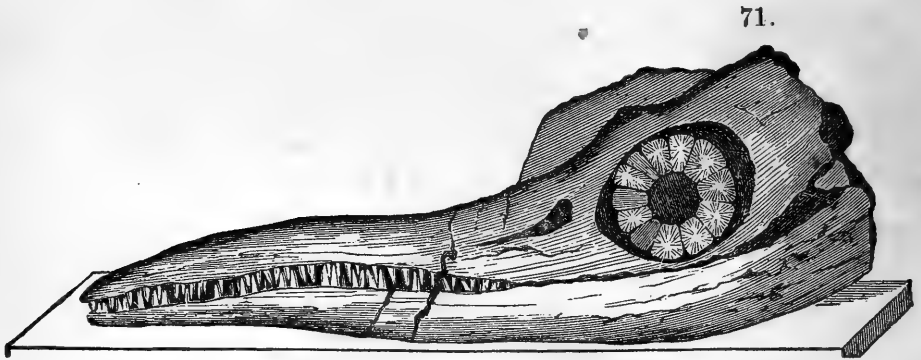
70.



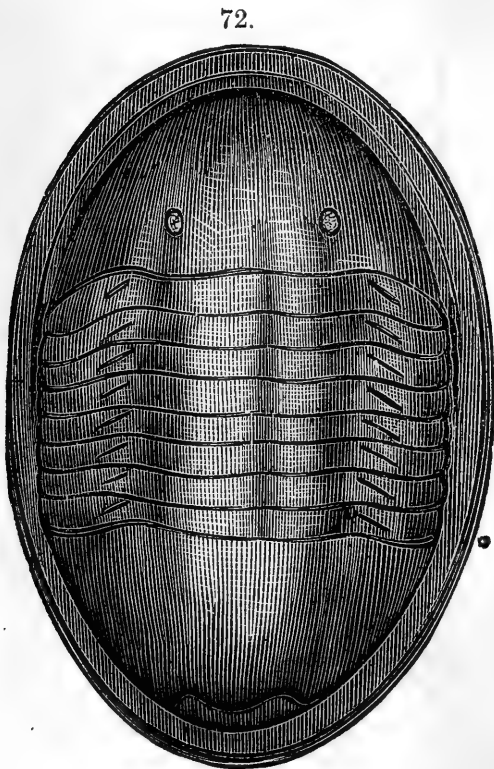
No. 80. *Anomæpus major*.⁷⁰ Tracks of
hind-feet, with impressions made by coc-
cygeal bone (See HITCHCOCK'S *Ichnology*
of *Massachusetts*, pp. 59 & 60).

Trias? Greenfield, Massachusetts.

No. 81. ———.



No. 82. *Ichthyosaurus platyodon*.⁷¹ This head, five feet in length, is the largest which has ever been found of this huge fossil Enaliosaurian, or Marine Lizard. The muzzle is entire, and armed with many score of formidable teeth. The eye, seven and a half inches in diameter, is cased by an armor of sclerotic plates, which protected it against the many injuries to which it was subject in the fierce encounters in which the animal engaged. The original head, which must have belonged to an individual over sixty feet in length, was found in the beds of Lias, Lyme Regis, England.



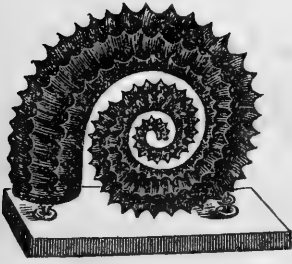
No. 83. *Isotelus megistus*.⁷² This specimen, 22 inches in length, is a restoration, by aid of actual fragments which have been found. It shows well the head and tail-shields, and the intervening movable segments by means of which the animal could fold or double its body together.

Lower Silurian: Cincinnati, Ohio.



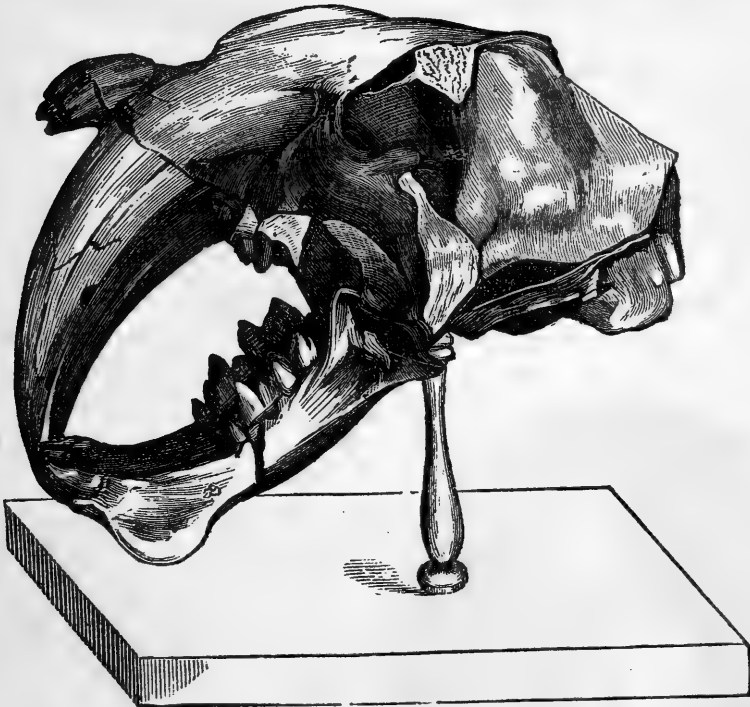
No. 84.
Leptorhynchus giganteus.⁷³
The muzzle, two feet long, of a huge Gavial-like Saurian.
Miocene Tertiary:
Sewalik hills, India.

74.



No. 85. *Crioceras humboldtianus*.⁷⁴ An interesting Cephalopod shell, whose open whorls are covered on every side with sharp conical spines.
Lower Cretaceous? Santa Fé de Bogota, S. America.

75.



No. 86. *Machairodus neogæus*.⁷⁵ The head of this fossil Lion is armed with two trenchant sabre-like teeth, which gave it, while living, most terrible powers of destruction. Bone Caverns (Pleistocene): Brazil

76.



No. 87. *Ursus spelæus*.⁷⁶ Skull of Great Cavern Bear. Cavern Deposit (Pleistocene): Gailenruth, Germany.

No. 88. *Ichthyosaurus intermedius*. Posterior half of skull, with the eye and sclerotic plates deeply dissected out. Lias: Lyme Regis, England.

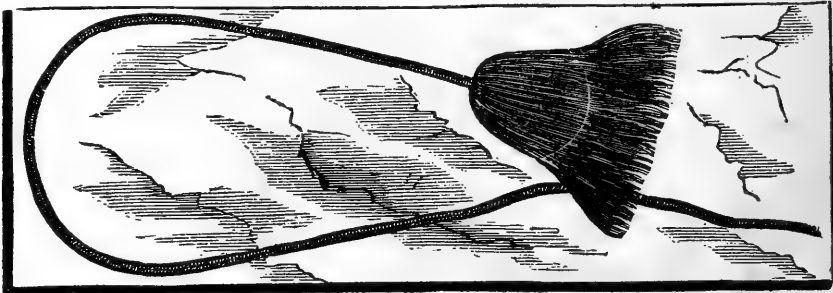
77.



No. 89. *Zeuglodon hydrarchus*.⁷⁷ A skull nearly three feet long.
Eocene Tertiary: Claiborne, Alabama.

No. 90. *Rhinoceros palæindicus*. Skull. Miocene Tertiary: Sewalik hills, India.

78.



No. 91. *Pentacrinus subangularis*.⁷⁸ A very perfect specimen of this interesting Crinoid, with the arms expanded nearly a foot, and the stem over seven feet long.
Lias: Boll, Wirtemberg.

79.



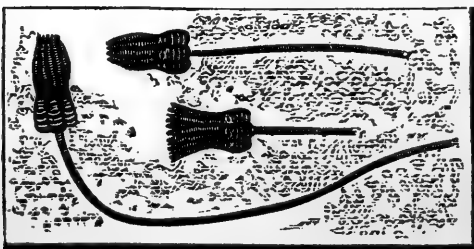
No. 92. *Elephas primigenius*.⁷⁹ Perfect lower jaw of a young individual, with the molar teeth still in place.

Pleistocene: Lippethal, Rhenish Prussia.

No. 93. *Rhinoceros schleyermacheri*. Lower jaw, left ramus of adult specimen.
Miocene Tertiary: Germany.

No. 94. *Pterodactylus rhamphastinus*. Skeleton nearly entire; on a slab. Lithographic limestone (Upper Oolite): Darting, Bavaria.

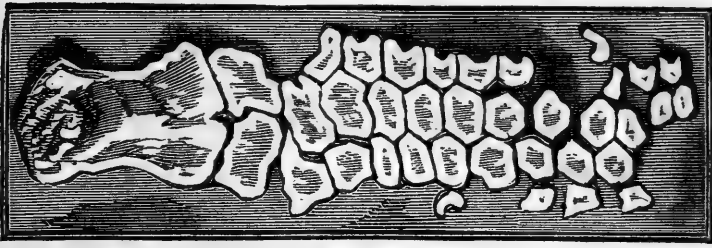
80.



No. 95. *Encrinus liliiformis*.⁸⁰ Slab (17 inches by 9), with three very perfect heads and stems.

Muschelkalk (Middle Trias):
Brunswick, Germany.

81.



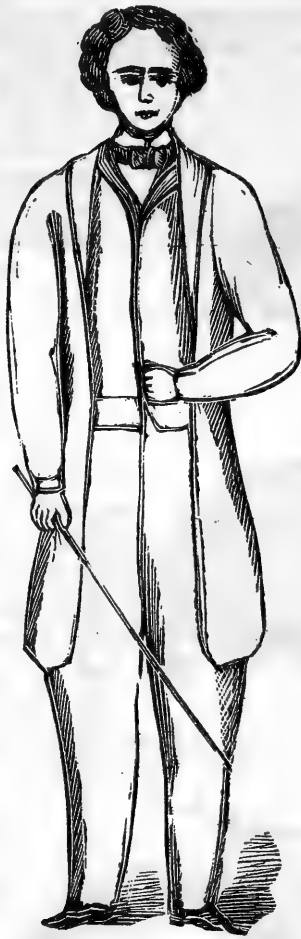
No. 96. *Ichthyosaurus platyodon*.⁸¹ Paddle, three and one-half feet long.
Lias: Glastonbury, Somersetshire, England.

82.



No. 97.
Eurysternum wagleri.⁸²
Small fossil Turtle, with
extremities projecting
beyond carapace.
Lithographic limestone
(Upper Oolite):
Solenhofen, Bavaria.

83.

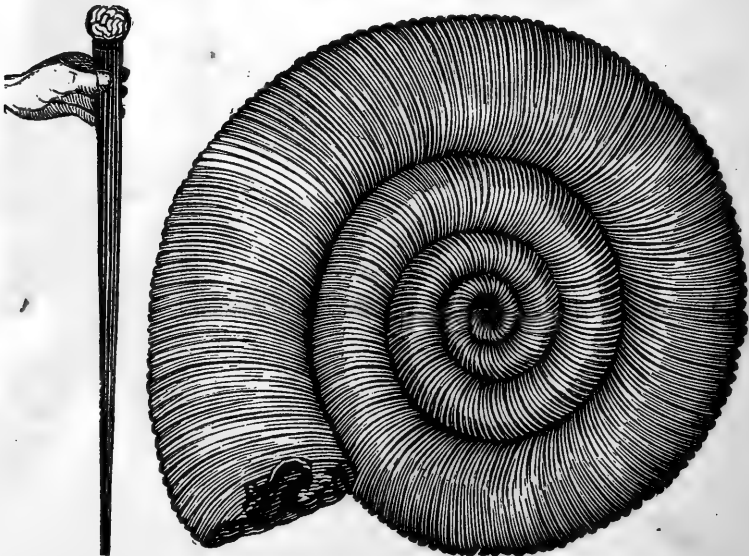


No. 98. *Cheirotherium barthi*.⁸³
 Slab six feet in length, covered
 with large hand-shaped tracks,
 which have been referred to an
 extinct reptile provisionally
 termed *Cheirotherium* (hand-
 animal), but very probably identi-
 cal with the *Labyrinthodon*
 (No. 79), whose remains have been
 found in the same locality.
 New Red Sandstone (Lower Trias):
 Jena, Germany.

No. 99. *Anoplotherium commune*. Hind-foot. Eocene Tertiary: Paris, France.

The remainder of the casts are to the left, in the wall-case
 between the third and fourth window-cases. They are :

84.

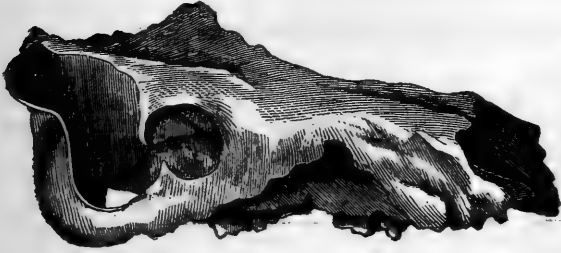


No. 100. *Ammonites giganteus*.⁸⁴ A perfectly preserved specimen of extra-
 ordinary size, being no less than two feet two inches in diameter.
 Upper Oolite: Isle of Portland, England.

No. 101. *Gyrodus circularis*. Large Ganoid fish, perfectly preserved in all its parts; two feet six inches long.

Lithographic limestone (Upper Oolite): Wirtemberg.

85.



No. 102.

Hexaprotodon (Hippopotamus) sivalensis.⁸⁵ Skull two feet long.

Miocene Tertiary:
Sewalik hills, India.

86.

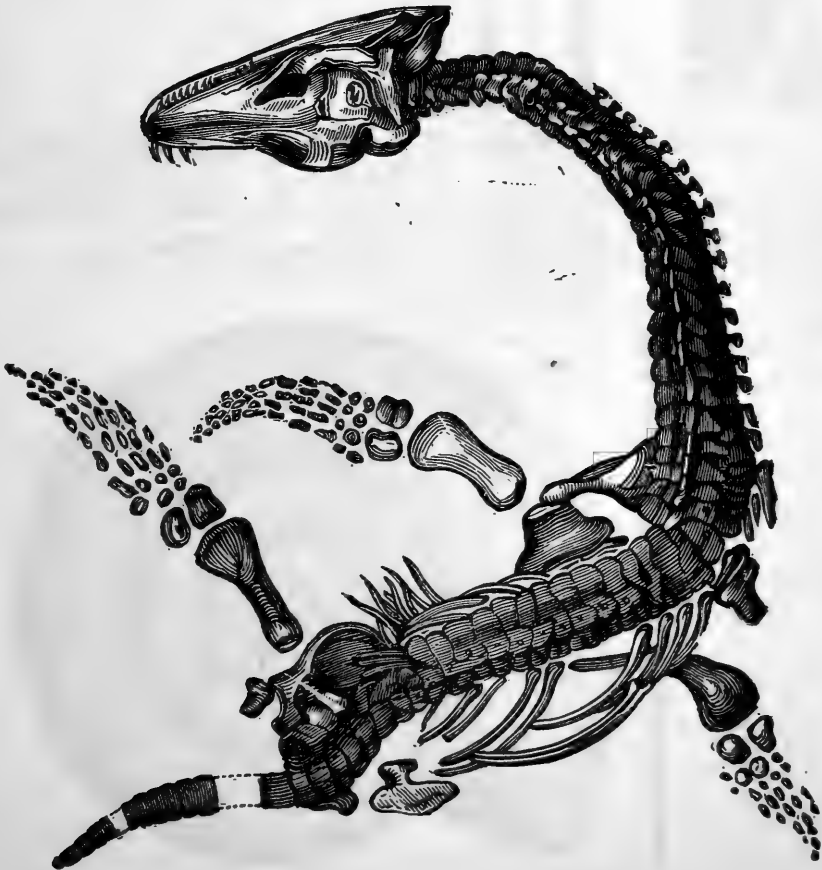


No. 103.

Megalonyx jeffersoni.⁸⁶ Skull. This extinct Sloth, a congener of the Megatherium and Mylodon, formerly inhabited many parts of the United States south of the Ohio. It was first discovered and described (1797) by

THOMAS JEFFERSON,
President of the United States.
Pleistocene: Natchez, Mississippi.

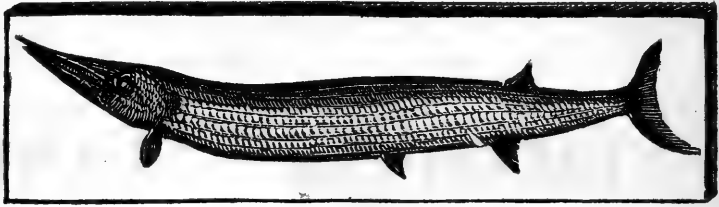
87.



No. 184. *Plesiosaurus macrocephalus*.⁸⁷ A very perfect specimen of this

long-necked Saurian, with its body bowed or bent around; on a slab 2 feet 11 inches, by 1 foot 5 inches. Lias: Lyme Regis, England.

88.



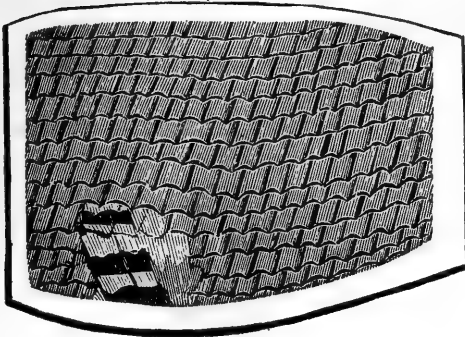
No. 105. *Aspidorhynchus speciosus*.⁸⁸ Fossil Fish.
Lithographic limestone (Upper Oolite): Eichstaedt, Bavaria.

89.



No. 106. *Phytosaurus (Belodon) kapffii*.⁸⁹ Skull.
Keuper (Upper Trias): Stuttgart, Wirtemberg.

90.



No. 107. *Lepidotus maximus*.⁹⁰
Fragment, 18 inches broad by 30 inches
long, showing finely the ganoid style
of scales.
Lithographic limestone (Upper Oolite):
Solenhofen, Bavaria.

(C.)

CATALOGUE OF PLANTS

FOUND IN

ONEIDA COUNTY AND VICINITY.

BY JOHN A. PAINE, JR.

NOTE.

THIS Catalogue is designed to be a record of the observations of botanists who have resided in the central part of the State. Many names are given fully; others, of the most active, of necessity are abbreviated and without titles, but are well known in this branch of science:—Prof. CHESTER DEWEY, D.D., LL.D., of Rochester; Prof. JAMES HADLEY, M.D., of Buffalo; PETER D. KNIESKERN, M.D., of Shark-river N.J.; HENRY P. SARTWELL, M.D., Ph.D., of Penn-Yan; SAMUEL B. BRADLEY, M.D., of West-Greece; ITHAMAR B. CRAWE, M.D., formerly of Watertown; Professor ASA GRAY, M.D., LL.D., of Cambridge, Mass.; Hon. GEORGE W. CLINTON, LL.D., of Buffalo; Professor JONATHAN PEARSON, of Schenectady; WILLIAM A. WOOD, M.D., formerly of Dexter; GEORGE VASEY, M.D., of Ringwood, Ill.

When names are given, they are authority for all localities of the sentence in which they stand, but extend to no other sentence either preceding or following. When no name is given, the reference is founded on observation by the writer.

UTICA, December, 1864.

PHÆNOGAMIA.

Flowering Plants.

I. DICOTYLEDONÆ.

Dicotyledons.

1. ANGIOSPERMÆ.

Angiosperms.

A. POLYPETALOUS EXOGENS.

RANUNCULACEÆ.

Crowfoots.

ATRAGENE, L.

AMERICANA, *Sims.*

American Atragene.

Shady rocks, woods and hillsides. Helderberg mountains, *Pearson*. Otsego county, *B. D. Gilbert*. Littlefalls, Herkimer county, south side of the Mohawk, along the cliff. Yates county, *Sartwell*. Frequent. May.

- CLEMATIS, L. *Virgin's Bower. Traveller's Joy.*
 VIRGINIANA, L. *Virginian Clematis.*
 Open woods occasionally, often along fences, walls; common on the banks of streams. July - September.
- ANEMONE, L. *Anemone. Wind-flower.*
 MULTIFIDA, DC. *Many-parted-leaved Anemone.*
 On limestone rocks along the Black river at Watertown, *Crave, Gray in Rare plants of Northern N.Y.* On the rocky banks of the river at Watertown, just by the bridge of the Brownville road, *Gray.* Along the river-cliffs between Brownville and Dexter, *Vasey.* To be looked for on the Thousand Islands of the St. Lawrence, *Gray.* Rare. June.
- CYLINDRICA, *Gray.* *Cylindrical-headed Anemone.*
 In dry pine barrens, near Oneida lake, New-York, *Gray in Rare plants of Northern N.Y.* Pine plains, one mile north of New-London; abundantly a few miles above Watertown, *Knieskern.* Along the north side of the Black river, between Watertown and Dexter. Rare. May, June.
- VIRGINIANA, L. *High Anemone.*
 Barren hillsides, along fences, in ravines. Abundant. June - August.
- PENNSYLVANICA, L. *Round-headed Anemone.*
 Flats and banks of streams. Meadows of the Mohawk. Fish creek. Shores of the lakes. Abundant. June, July.
- NEMOROSA, L. *Wood Anemone.*
 Rich shady woods. Schenectady, *Pearson.* Holland Patent, *Miss J. E. Johnson.* Deerfield. Frankfort hill, *J.G.Crocker.* Fish creek. Infrequent. May.
- HEPATICICA, *Dillenius.* *Hepatica. Liver-leaf.*
 TRILOBA, *Chaix.* *Three-lobed-leaved Hepatica.*
 Shady woods and ravines. Frequent.
- ACUTILOBA, DC. *Acute-leaved Hepatica.*
 Rich woods. Common. March, April.
- THALICTRUM, *Tourn.* *Rue.*
 ANEMONOIDES, *Michx.* *Rue Anemone.*
 Open woods. Albany, *herb. Bradley.* Schenectady, *Pearson.* Common in a few localities near New-London, *Knieskern.* Uncommon. April - June.
- DIOICUM, L. *Early Rue. Dixcious Rue.*
 Rocky banks and sides of ravines. Frequent. April, May.
- CORNUTI, L. *Meadow Rue. Discovered by CORNUTI.*
 Wet meadows, low grounds and rich woods. Common. June - August.
- RANUNCULUS, L. *Crowfoots. Buttercups.*
 AQUATILIS, L., var. DIVARICATUS, *Gray.* *Water Crowfoot.*
 Cold streams. Schenectady, *Pearson.* Abundant in the raceway at Oriskany. Two miles east of Rome, along the railroad, in a spring-brook. Fish creek, Vienna, *Knieskern.* Gorham, *Sartwell.* Infrequent. June - August.
- PURSHII, *Richards.* *Floating Buttercup. Determined by PURSH.*
 Still water, bogs, in mud along rivulets.
 "HOOKER, *Fl. Bor. Am. a. foliis omnibus capillaceo-multifidis, flore majore, caule fistuloso.* In stagnant water, throughout the western and northern portions of the State:
 β. *foliis submersis capillaceo-multifidis, natantibus reniformibus palmato-multifidis.* In muddy pools near Oneida lake:

γ. repens, foliis inferioribus lineari-multipartitis, superioribus reniformibus palmato-multifidis. In marshes, Watertown, Jefferson county:" Gray in *Rare plants of Northern N.Y.*

Brandy brook, three miles north of Verona, *Knieskern*. Seneca lake, *Sartwell*. Scarce. May - July.

ALISMÆFOLIUS, *Geyer*.

Water-Plantain-leaved Crowfoot.
Greater Spearwort.

Overflowed banks. Western counties, *Knieskern in herb. Vasey*. Crooked lake, *Sartwell*. Rare. June - August.

FLAMMULA, *L.*

Flame Crowfoot. Lesser Spearwort.

Shore of Lake Ontario, *Gray bot.* Lake Erie, *Gray in herb. Ham. Coll.*
Rare. June - August.

var. **REPTANS**, *Gray*.

Creeping Spearwort.

Sandy shores. At the water-line along the shores of the Eight lakes, north Herkimer county. Shore of Lake Ontario, *Vasey*. Sackett's-harbor; mouth of Oneida creek on the Lake shore; Chenango county, *Knieskern*. Marshy edge of Owasco lake outlet, *I. H. Hall*. Uncommon. July - September.

CYMBALARIA, *Pursh*.

Seaside, Cymbal-leaved Crowfoot.

Salt-marshes and shores. On the borders of Onondaga lake, about the head at Salina and along the eastern sides. Abundant there: the only habitat given by *Pursh*. A very singular plant, first detected by *PURSH* near the salt-works of Onondaga, New-York, *Hooker*. Local. June - September.

ABORTIVUS, *L.*

Abortive Buttercup.

Damp woods, wet places.

Common. May, June.

SCCELERATUS, *L.*

Noxious Buttercup.

Ditches, muddy grounds. Mud creek west of Rome. Salina.

Infrequent. May - July.

RECURVATUS, *Poiret*.

Hook-fruited Buttercup.

Shady wet woods.

Frequent. May - July.

PENNSYLVANICUS, *L.*

Bristly Buttercup.

Brook-sides, ditches.

Abundant. July - September.

FASCICULARIS, *Muhl.*

Early, Bundle-rooted Buttercup.

Dry hillsides. Gravelly banks of the Black river below Watertown. Gorham, *Sartwell in herb. Ham. Coll.*

Not common. April - June.

REPENS, *L.*

Running Buttercup.

Overflowed places, along ditches, brooks, rivers. Common. May - August.

CLINTONII, *Beck*.

Dedicated to G. W. CLINTON.

"Leaves ternate, 3-cleft, hairy, hairs close-pressed; extreme upper leaflets lanceolate: stem entirely prostrate, creeping, zigzag: petals obovate, sub-retuse: calyx caducous; seed compressed, margined: beak hooked. Flowers large, resembling those of the *repens*. In Oneida county, between Rome and Oriskany, near the Erie canal, patches of ground, several yards in extent, are often covered with this species. The flowers are rarely elevated more than 8 or 10 inches above the ground, though the stem creeps more than a yard from the root. I discovered this plant in the summer of 1824." *Eaton bot.*

"Somewhat hairy; stems creeping and rooting at each of the joints; lower leaves on long petioles, ternate; leaflets toothed and incised, cuneate, terminal one petioled; floral leaves incised or linear; peduncle 1 - 3-flowered; petals rounded; calyx spreading; carpels margined, with a short uncinat style. Banks of the canal, near Rome, Oneida county, N.Y. Much smaller than *R. repens*, in all its parts except the flower, which is of a bright yellow and about as large as that of *R. acris*. Leaves seldom more than 1½ inches in length, and about the same in breadth. Stems distinctly creeping like those of *R. reptans*: flowering ones 6 - 8 inches high. Style short and hooked." *Beck bot.*

The peculiar habit of the plant carpeting the ground in patches, its prostrate flowering stems, the low flowers, beaked fruit, small thick dark green leaves, distinguish the species. Local. May - July.

BULBOSUS, L.*Bulbous Buttercup.*

Roadsides, pastures, borders of woods. Schenectady county, abundant on the hillsides south of the Mohawk. Chenango county. Scarce. May - July.

ACRIS, L.*Yellow-weed. Acrid Buttercup.*

Way-sides, meadows, everywhere.

Common. June - November.

CALTHA, L.*Spring Cowslip.***PALUSTRIS, L.***Marsh Marigold.*

Wet meadows and swamps.

Common. April - June.

TROLLIUS, L.*American Globe-flower.***LAXUS, Salisbury.***Spreading Trollius.*

Frequent in arbor-vitæ swamps on the south range of hills, from Summit lake, Otsego county, through the cedar swamps of south Herkimer county. Bridgewater and along the Oriskany creek, below Clinton, *Gray*. Three miles west of Utica, near the Chenango canal, in abundance.

In exposed places, the American is not inferior in size or beauty to the European Globe-flower. It stands from two to three feet high, has dark green leaves, and bears flowers frequently two and a half inches in diameter, which, in the sun, are deep golden yellow, veined above and tinged beneath with green. A few flowers are sent up in autumn, but are cut down by the first frost; yet perfectly formed flowers and leaves lie near the surface of the ground during winter, enclosed in radical sheaths. In early spring, these appear and expand fully at the height of two or three inches. Later, the plants crowd in hemispherical clusters, which are covered with flowers: at this height, twelve to fifteen inches, these are largest and most beautiful. Others rise, until the last and highest about the middle of May, so that the plant is in bloom during a month or more. April, May.

COPTIS, Salisbury.*Goldthread.***TRIFOLIA, Salisb.***Three-leaved Coptis.*

Moist woods under evergreens.

Abundant. May, June.

AQUILEGIA, Tourn.*Columbine.***CANADENSIS, L.***American Columbine.*

Clefts of rocks, rocky hillsides, and even in sandy soil.

Common. April - October.

ACONITUM, Tourn.*Aconite. Monkshood.***UNCINATUM, L.***Hook-helmeted Monkshood.*

In wet places on mountains. Chenango county, *Major J. LeConte, Torrey Cat. and Fl. N.Y.*

Local. July, August.

ZANTHORHIZA, Marshall.*Shrub Yellow-root.***APIIFOLIA, L'Héritier.***Celery-leaved Zanthorhiza.*

In a deep ravine, Sherburne, eleven miles south of Hamilton, *J.S. Douglass, Torrey Fl. N.Y., Gray bot.* Cultivated by Prof. O. Root, in a ravine on College Hill, Clinton, where it flourishes: remains long in flower.

April - June.

HYDRASTIS, L.*Herb Yellow-root.***CANADENSIS, L.***Orange-root.*

Moist woods and wet meadows. Clinton, *Dr. Seth Hastings*. Oneida county and vicinity; Greece, *Bradley*. Yates county, rare, *Sartwell*. Abundant in open woods in Niagara county, *Kniiskern*.

Rare. April, May.

ACTÆA, L.

Baneberries.

SPICATA, L.

*Spicate Actæa.*var. RUBRA, *Michaux.**Red Baneberry.*

Ravines, borders of thickets.

Frequent. May.

var. ALBA, *Michaux.**White Baneberry.*

Flats of streams, moist open woods.

Abundant. May.

CIMICIFUGA, L.

*Snakeroot.*RACEMOSA, *Elliott.**Black-rooted, Racemed Cimicifuga.*

Rich woods, rocky shaded hillsides. Helderberg mountains, *Pearson*. Abundant along the Chenango valley, especially near Binghamton, on dry gravelly hills, *Knieskern*. Rocky banks of Seneca lake, near Starkey, Yates county, *Vasey*. Greece, on the banks of Genesee river, *Bradley*.

Frequent. July, August.

MAGNOLIACEÆ.

Magnolias.

MAGNOLIA, L.

Magnolia.

ACUMINATA, L.

Cucumber-tree. Pointed-leaved Magnolia.

Fertile soil. Near Ithaca, *Knieskern*, *Vasey*. Dundee, Yates county, *Wright in herb. Vasey*. Penn-Yan, *Surtwell*. Open woods in Niagara county, *Knieskern*.

Rare. June.

LIRIODENDRON, L.

Whitewood. Tulip-tree.

TULIPIFERA, L.

Tulip-bearing Liriodendron.

Sunny hillsides, rich woods. Schenectady, *Pearson*. Littlefalls, south side of the Mohawk; Whitesborough; Oriskany; frequent about Oneida lake; Onondaga county. About Auburn, *I. H. Hall*. Broome county, *H. Lathrop*.

Infrequent. June.

ANONACEÆ.

*Custard-apples.*ASIMINA, *Adanson.**North-American Papaw.*TRILOBA, *Dunal.**Three-lobed-calyxed Asimina.*

Rich banks. Greece and Parma, Monroe county, *Bradley*. Shore of Lake Erie, near Barcelona, Chautauqua county, *Knieskern*.

Rare. April, May.

MENISPERMACEÆ.

Moonseeds.

MENISPERMUM, L.

Moonseed.

CANADENSE, L.

Canadian Menispermum.

Woods, thickets, especially along streams. Abundant in the valley of the Mohawk.

Frequent. June.

BERBERIDACEÆ.

Berberids.

BERBERIS, L.

Barberry.

VULGARIS, L.

Common Berberis.

Naturalized sparingly by roads, hedges, borders of woods. New-Hartford.

May.

CAULOPHYLLUM, *Michaux.**Blue Cohosh. Pappoose-root.*THALICTROIDES, *Michx.**Rue-like Caulophyllum.*

Woods, fences, ravine bottoms.

Abundant. April, May.

JEFFERSONIA, *Barton.**Jeffersonia.*DIPHYLLA, *Persoon.**Twin-leaf.*

Rich woods, limestone rocks. About three miles west of Dexter, Jefferson county, *Vasey*. Near Geneva, *Sartwell in herb. Ham. Coll.* Rare. April.

PODOPHYLLUM, *L.**Mandrake. May-apple.*PELTATUM, *L.**Peltate Podophyllum.*

Fences, meadows, borders of woods, flats of streams. Abundant. May.

NELUMBIACEÆ.

*Sacred Bean.*NELUMBIUM, *Jussieu.**Nelumbo. Lotus.*LUTEUM, *Willd.**Yellow Nelumbium.*

Lake Ontario, Big Sodus bay, Wayne county, near the road just north of the bridge, *Sartwell*. Local. June, July.

CABOMBACEÆ.

*Water-shields.*BRASENIA, *Schreber.**Water-target.*PELTATA, *Pursh.**Peltate Brasenia.*

Still water, ponds, lakes. Abundant in the lakes of the north woods. Stagnant ponds in Verona, *Knieskern*. Mill-pond two miles northwest of New-London. Lebanon, Madison county, *Bradley*. Schuyler's lake, Otsego county, *G. W. Clinton*. Crooked lake, *Sartwell*. Rare. June - September.

NYMPHÆACEÆ.

*Water-lilies.*NYMPHÆA, *Tourn.**Water-nymph.*ODORATA, *Aiton.**Fragrant Water-lily.*

Slow streams, ponds, borders of lakes; sometimes in mud, with erect leaves and flowers. Common in the lakes of the north woods; Oneida lake; Oneida creek; Cedar lake and Hidden lake, south Herkimer county. Otsego county, *H. Lathrop*.

The variety with rose-colored flowers, in Raquette lake, north Hamilton county.

The variety with inodorous flowers, in an inlet of Lake Ontario, a mile or two north of Oswego: plant very large in all its parts; flowers, six or seven inches in diameter; leaves, eight to ten. Not common. June - September.

NUPHAR, *Smith.**Yellow Pond-lily. Spatterdock.*ADVENA, *Aiton.**Stranger (to the old world) Nuphar.*

Ponds, pools, ditches.

Very common. May - August.

KALMIANA, *Pursh.**Small Yellow Nuphar. Discovered by KALM.*

Tranquil water. Sanders's lake, Glenville, *Pearson*. Mouth of Oneida creek, *Knieskern*. Abundant in Black brook, near Oneida lake. Flint creek, Yates county, *Sartwell*. Rare. May - July.

SARRACENIACEÆ.

*Water-pitchers.*SARRACENIA, *Tourn.**Huntsman's-cup. Pitcher-plant.*PURPUREA, *L.**Purple-flowered Sarracenia.*

Swamps, especially in sphagnum. Abundant in the north woods. Schenectady, on the Pine plains, *Pearson*. Paris hill; Graefenberg hill. Oriskany swamp, *Vasey*. About Oneida lake. Frequent. June, July.

HETEROPHYLLA, *Eaton.**Varying-leaved Sarracenia.*

Flowers greenish yellow; leaves variable, green, veinless. Sphagnous swamp. Junius, Seneca county, *Sartwell*. Local. June.

PAPAVERACEÆ.

CHELIDONIUM, L.

MAJUS, L.

About houses, walls, waysides.

Poppies.

Celandine.

Great Chelidonium.

Common. May - September.

SANGUINARIA, *Dillenius*.

CANADENSIS, L.

Along fences, open woods, sides of ravines.

Bloodroot.

Canadian Sanguinaria.

Abundant. May.

FUMARIACEÆ.

Fumitories.

ADLUMIA, *Rafinesque*.CIRRHOSA, *Raf*.Moist shady places in rich woods. Helderberg mountains, *Pearson*. About Otsego lake, *Miss S. Cooper*: *H. Lathrop*: *B.D. Gilbert*. *Junius, Sartwell* in *herb. Ham. Coll.* Greece, *Parma, Bradley*.

Climbing Fumitory.

Alleghany-vine. Tendrilled Adlumia.

Rare. June - September.

DICENTRA, *Borkhausen*.CUCULLARIA, *DC.*

Moist rich soil.

Dutchman's Breeches. Hooded-spurred Dicentra.

Common. April, May.

CANADENSIS, *DC.*

Shady woods, ravine-sides.

Squirrel-corn

Abundant. March - May.

EXIMIA, *DC.*Rocky woods. Wayne county, not far from Sodus bay, *Sartwell*.

Purple, Choice Dicentra.

Local. May - August.

CORYDALIS, *Vent.*AUREA, *Willd.*Among shaded rocks. Along the north side of Black river, between Watertown and Brownville. Rich soil near Oriskany, *Knieskern*.

Corydalis.

Golden Corydalis.

Rare. May - July.

GLAUCA, *Pursh.*Rocks. Littlefalls, south side of the Mohawk; Bald-rock, north Herkimer county. Recently burnt-over ground near Oriskany, *Knieskern*.

Glaucous Corydalis.

Frequent. May - August.

FUMARIA, L.

OFFICINALIS, L.

A weed in gardens and cultivated grounds.

Garden Fumitory.

Official Fumaria.

Frequent. Flowers throughout the season.

CRUCIFERÆ.

Crucifers.

NASTURTIUM, *R. Brown*.OFFICINALE, *R. Br.*Cold streams. Springy hillside at the head of the raceway, Oriskany. Jacob's brook, Yates county, *Sartwell*.

Cresses. Nasturtia.

European, Official Watercress.

Scarce. May - July.

PALUSTRE, *DC.*Overflowed places, ditches, muddy shores. Common. The typical form, Yates county, *Sartwell*.

Marsh Cress.

June - August.

HISPIDUM, *DC.*Inundated banks of rivers. Along the Mohawk. Penn-Yan, *Sartwell*.

Hispid Cress.

Infrequent. June - August.

LACUSTRE, *Gray.**Lake Cress.*

Muddy banks, streams, lakes. In the St. Lawrence river near Ogdensburgh, *Crawe*. *Gray in Rare plants of Northern N. Y.* Jefferson county, *Crawe in herb. Ham. Coll.* Oneida lake, where it is very abundant in water two to five feet deep, *Gray*. Along the shore of Oneida creek near its mouth, growing erect twelve to eighteen inches. Rare. June - August.

ARMORACIA, *Fries.**Horseradish. Water-side Nasturtium.*

Waste places, walls, along water-courses. Frequent on the banks of the Mohawk. Extensively naturalized. May - July.

DENTARIA, *L.**Toothworts. Pepper-roots.*DIPHYLLA, *L.**Two-leaved Dentaria.*

Moist woods.

Common. May.

MAXIMA, *Nuttall.**Many-leaved, Great Dentaria.*

Shady ravines. Western part of the State of New-York, *Nuttall*. Watertown, N. Y., *Crawe, Gray bot.* Abundant in the ravine of Deerfield creek, north of Utica, in deep moist soil. Among the headwaters of this creek on the hills, along wooded rivulets, the flowers are purple and racemes elongated. Leaves three, alternate, distant: root deeply interrupted. Rarely from the axil of the highest leaf a smaller secondary stem springs, having two leaves and a raceme. Rich bottoms of Starch-factory creek, east of Utica; the true form. On the west side, along the border of the gulf, in moist places, a form occurs between this species and *D. diphylla*; having denticulate rootstalks, three alternate remote leaves and white flowers. Both forms usually send up a radical leaf, beside the stem. Rare. Early in May.

LACINIATA, *Muhl.**Necklace Pepper-root. Cut-leaved Dentaria.*

Rich shady woods.

Frequent. April.

HETEROPHYLLA, *Nuttall.**Variable-leaved Dentaria.*

Deep woods. Near Watertown, Jefferson county, *Knieskern*. Along bottoms of gulf-sides in Deerfield creek, and woodland ravines on the hills. Leaves two, sometimes four, alternate, remote, deeply divided into narrow lobes, slightly toothed. Root moniliform, frailly connected. Rare. May.

CARDAMINE, *L.**Spring Cresses.*RHOMBOIDEA, *DC.**Rhomblike-leaved Cardamine.*

Wet meadows and miry places in woods.

Abundant. May, June.

var. PURPUREA, *Torr.**Purple-flowered Cardamine.*

Low grounds along shaded streams.

Frequent. April, May.

PRATENSIS, *L.**Cuckoo-flower. Meadow Cardamine.*

Swamps in the western part of the State, particularly in Oneida county, *Torr. Fl. N. Y.* Wet meadows and bogs on the flats of the Mohawk. Oriskany swamp, *Vasey*. Plenty on Hidden lake, Litchfield, Herkimer county. Seneca and Gorham, Ontario county, *Sartwell*. Rare. April - June.

HIRSUTA, *L.**Bitter Cress. Hairy Cardamine.*

Rocks, hillsides, springs, ditches brooks, swamps, muddy places in woods. Very common. Throughout the season.

ARABIS, *L.**Wall-cresses. Rock-cresses.*LYRATA, *L.**Lyrate-root-leaved Rock-cress.*

Clefts of rocks. Abundant on the cliffs at Littlefalls. Trenton falls, *Knieskern*. Frequent. April - October.

DENTATA, *Torr. & Gr.**Dentate-leaved Rock-cress.*Banks of streams. Near Utica, *Gray, Torr. Fl. N. Y.*

Rare. May.

- HIRSUTA**, *Scopoli*. *Hairy Rock-cress*.
Rocky banks. Helderberg mountains, *Pearson*. Trenton falls, *Knieskern*. Watertown, N.Y., *Gray in herb. Ham. Coll.* Along the Black river below Watertown. Bluff point, Yates county, *Sartwell*. Rare. May, June.
- LÆVIGATA**, *DC.* *Smooth Rock-cress*.
Shaded rocks, thickets along water-courses. Schenectady, *Pearson*. Cliffs and steeps at Spraker's, Montgomery county; Little falls of the Mohawk; Trenton falls; banks of Fish creek, near the crossing of the Oswego county turnpike. Vienna, *Knieskern*. Frequent. May - July.
- CANADENSIS**, *L.* *Sickle-pod*.
Rocks, wooded hillsides. Rocks along the College brook, Schenectady, *Pearson*. Southern tier of counties from Binghamton westward, on dry gravelly hillsides, rare, *Knieskern*. Yates county, *Sartwell*. Scarce. June - August.
- TURRITIS**, *Dillenius*. *Tower Mustard*.
GLABRA, *L.* *Smooth Tower-mustard*.
Rocky banks, woods, fields. Watertown, N.Y., *Torrey & Gray*; *Knieskern in herb. Ham. Coll.* Along the north bank of Black river between Watertown and Brownville, among rocks. Dexter, N.Y., *Wood in herb. Ham. Coll.* Scarce. May, June.
- STRICTA**, *Graham*. *Straight-podded Tower-mustard*.
Wooded banks of streams. Dexter, N.Y., *Wood in herb. Ham. Coll.* Watertown, Jefferson county, where it was first found by *Crawe*. Lebanon, Chenango county, *J. S. Douglass*, *Torrey Fl. N. Y.* Along Fish creek near Humaston's, Rome, *Vasey*. Rare. May.
- BARBAREA**, *R. Brown*. *Winter Cress*.
VULGARIS, *R. Br.* *Yellow Rocket. Common Winter-cress*.
Wet grounds, roadsides, ditches, woods. A common weed. All the season.
- ERYSIMUM**, *L.* *Treacle Mustard*.
CHEIRANTHOIDES, *L.* *Wallflower-like Mustard*.
Moist ground, along streams, clefts of rocks. Sparingly in Oriskany along the creek, *Vasey*. Mohawk flats. Rocks at Chittenango falls. Penn-Yan, *Sartwell*. Abundant. June - September.
- SISYMBRIUM**, *L.* *Hedge Mustard*.
OFFICINALE, *Scopoli*. *Officinal Hedge-mustard*.
Waste places. Very common. The season throughout.
- SINAPIS**, *Tourn.* *True Mustard*.
ARVENSIS, *L.* *Charlock. Wild Mustard*.
Waste places, roadsides, cultivated fields. Common. June - August.
- NIGRA**, *L.* *Black Mustard*.
About gardens and cultivated grounds. Common. May - August.
- DRABA**, *L.* *Whitlow-grass*.
ARABISANS, *Michx.* *Arabis-like Draba*.
Ledges, rocks, river-banks. Borders of small lakes in the northern part of the State, *Torrey & Gray*. St. Lawrence county. *Gray in herb. Ham. Coll.* Crevices of rocks at the mouth of Black river, *Vasey*. Sackett's-harbor, *Knieskern in herb. Ham. Coll.* Rare. May - June.
- VERNA**, *L.* *Whitlow-grass. Early Draba*.
Rocks, hillsides, old fields. Received from Jefferson county, *Sartwell*. Hackney falls, near Auburn, *I. H. Hall*. Rare. March - May.

- CAMELINA**, *Crantz.* *False Flax. Gold of Pleasure.*
SATIVA, *Crantz.* *Cultivated Camelina.*
 Along railroads. In flax, *Knieskern.* Penn-Yan, frequent, *Sartwell.*
 May - July.
- LEPIDIUM**, *L.* *Peppergrass.*
VIRGINICUM, *L.* *Virginian Pepperwort.*
 Streets, railroads. Common. June - August.
- CAPSELLA**, *Vent.* *Shepherd's-purse.*
BURSA-PASTORIS, *Moench.* Everywhere common. April - October.
- THLASPI**, *Dillenius.* *Pennycress.*
ARVENSE, *L.* Stony fields. State of New-York; rare. *v. v.*, *Pursh.* Naturalized in St. Lawrence county. June, July.
- RAPHANUS**, *L.* *White Charlock. Wild Radish.*
RAPHANISTRUM, *D.* *Jointed-podded Raphanus.*
 Waste places on the banks of the Mohawk. Scarce. June, July.
- CAPPARIDACEÆ.** *Capers.*
- POLANISIA**, *Rafinesque.* *Polanisia.*
GRAVEOLENS, *Raf.* *Heavy-scented Polanisia.*
 River-banks, shores of lakes. Schenectady, *Pearson.* Borders of Oneida lake near Constantia, *Vasey.* Cayuga bridge, *Bradley.* Beach of Crooked lake, *Sartwell.* Scarce. June - August.
- RESEDACEÆ.** *Mignonetts.*
- RESEDA**, *L.* *Mignonette.*
LUTEOLA, *L.* *Dyer's-weed. Yellow Reseda.*
 Roadsides in Western New-York, *Gray bot.* Fairfield? Herkimer county, in herb. *Hadley.* Rare. June - August.
- VIOLACEÆ.** *Violets.*
- SOLEA**, *Ging.* *Green Violet.*
CONCOLOR, *Ging.* *Uniform-colored Solea.*
 Shady woods. Near a small pond one mile east of Utica, in company with *Fedia fagopyrum*; near Vernon, *J.S. Douglass,* *Knieskern.* Near Penn-Yan, *Sartwell.* Rare. May.
- VIOLA**, *L.* *Violets.*
ROTUNDIFOLIA, *Michaux.* *Round-leaved Violet.*
 Rich woods, sides of ravines, shade of evergreens. Abundant. March - May.
LANCEOLATA, *L.* *Lance-leaved Violet.*
 Marshes, shores of streams. Albany, *Beck bot.* Schenectady, half a mile east of Coon Chisholm's, *Pearson.* Clinton, *Bradley.* Rare. May, June.
PRIMULÆFOLIA, *L.* *Primrose-leaved Violet.*
 Wet meadows. Infrequent. April - June.
BLANDA, *Willd.* *Pretty Violet.*
 Wet woods, low grounds, along rivulets. Common. April - June.

SELKIRKII, *Goldie*.SELKIRK'S *Violet*.

Clayey hillsides, open woodlands, pastures, about stumps and old logs, under young evergreens, and in deep mossy ravines. Abundant.

Oneida county appears to be one of the favorite abodes of this rare species. It is as beautiful as *V. blanda*, and more interesting. In color, it is usually deep blue, sometimes purple. In form, the flowers are like those of *V. pedata*, with a long spur, and the leaves like those of *V. blanda* crenulated. It prefers the north side of hills; and sometimes occurs exceedingly minute, an inch high, leaves half as broad and smaller. The flowers are almost ephemeral; they can be found only during four or five days in April.

CUCULLATA, *Aiton*.*Hooded-leaved Violet*.

Waysides, wet meadows and woods. Common.

Flowers with stripes of purple and white, along the rocky steep at Spraker's, Montgomery county.

Flowers pure white, up the ravine of Deerfield creek, and along brooks on the Litchfield hills. May - July.

var. PALMATA, *Gray*.*Hand-leaved Violet*.

Swamps. Along Tan-house creek, Schenectady, *Pearson*. Near Oriskany, *Knieskern*. Crooked lake outlet, *Sartwell*. Rare. May - June.

SAGITTATA, *Aiton*.*Arrow-leaved Violet*.

Dry hillsides, copses, pastures. Plains of Rome. Frequent. April, May.

PEDATA, *L*.*Foot-leaved Violet*.

Gravelly woods, sandy plains. On the Pine plains near the Gunsaul road, Schenectady, *Pearson*. Rare. May - September.

ROSTRATA, *Pursh*.*Beaked-spurred Violet*.

Moist woods, rich flats along streams.

Abundant. May, June.

MUHLENBERGII, *Torrey*.*Determined by MUHLENBERG*.

Ravines and swamps.

Common. April - June.

STRIATA, *Aiton*.*Veined-flowered Violet*.

Rich open woods. Banks of the Mohawk opposite Whitesboro Seminary. Oriskany, *Vasey*. Clark's mills. Clinton; Franklin, *Miss L. W. Shattuck*.

Rare. April - September.

CANADENSIS, *L*.*Canadian Violet*.

Groves and moist shady hillsides. Abundant. Completely covering the ground in many woods. Flowers throughout the season.

PUBESCENS, *Aiton*.*Downy Yellow Violet*.

Open woods, ravines, pastures.

Common. April - June.

var. ERIOCARPA, *Nuttall*.*Woolly-fruited Violet*.

Dry woodlands.

Frequent. May.

var. SCABRIUSCULA, *Torr. & Gr*.*Rough-leaved Violet*.

Copses. Albany, *Beck bot*. Oneida county, *Knieskern*.

Infrequent. May, June.

CISTACEÆ.

Rock-roses.HELIANTHEMUM, *Tourn*.*Sun-roses*.CANADENSE, *Michx*.*Frost-plant*.

Rocks, sand. Everywhere in Schenectady, *Pearson*. Dry sandy plains near Oneida lake, *Knieskern*. Common on our sandy knolls, *Sartwell*.

Infrequent. June - August.

LECHEA, L.

*Lecheas.*MAJOR, *Michaux.**Greater Lechea.*Sterile soil. Pine plains, Schenectady, *Pearson.* Yates county; Avon, *Sartwell in herb. Ham. Coll.* Rare. July.MINOR, *Lamarck.**Pinweed. Lesser Lechea.*

Dry fields and pastures.

Common. June - August.

DROSERACEÆ.

Sundews.

DROSER, L.

Sundews.

ROTUNDIFOLIA, L.

Round-leaved Sundew.

Around springs, wet bogs, sphagnum swamps. Frequent. July, August.

LONGIFOLIA, L.

*Spatulate-leaved Sundew.*Sphagnous bogs. Borders of cold ponds near the chain of Eight lakes, north Herkimer county; doubtless abundant throughout the north woods. Near Dexter, Jefferson county, *Vasey.* Cedar swamp, Gorham, *Sartwell.*

Rare. June, July.

PARNASSIACEÆ.

*Parnassias.*PARNASSIA, *Tourn.**Grass of Parnassus.*CAROLINIANA, *Michx.**Carolinian Parnassia.*

Springy banks and along streams. In the spray from the High falls, Trenton falls; below the falls, near the lower dam, abundant. Wet cliffs on the east branch of Fish creek, at Fall brook, abundant there; along the banks of the creek below Taberg station. Infrequent. August, September.

HYPERICACEÆ.

St. John's-worts.

HYPERICUM, L.

*Hyperica.*PYRAMIDATUM, *Aiton.**Pyramidal-flowered Hypericum.*River bottoms. Frequent in the valley of the Mohawk. Schenectady, *Pearson.* Littlefalls, *Vasey.* Two miles above Utica, on the north bank of the river. Near Flint-hill, between the canal and the Mohawk; along Fish creek near Taberg, *Knieskern.* Rare. July, August.

PERFORATUM, L.

Perforated Hypericum.

Roadsides, fields, pastures. Everywhere common. June - September.

CORYMBOSUM, *Muhl.**Corymbed Hypericum.*

Borders of woods, swamps. Frequent. June - August.

ELLIPTICUM, *Hooker.**Elliptical-leaved Hypericum.*

Low grounds, wet shady banks of streams and lakes in the northern part of Herkimer county. Infrequent. July, August.

MUTILUM, L.

Diminutive-flowered Hypericum.

Wet ground. Common. July - September.

CANADENSE, L.

Canadian Hypericum.

Along streams, swamps. Trenton falls. North woods. Uncommon. June - September.

ELODEA, *Pursh.**Marsh St. John's-wort.*VIRGINICA, *Nuttall.**Purple Elodea.*

Along brooks, swamps, sphagnum. Common. July - September.

ELATINACEÆ.

Water-worts.

ELATINE, L.

*Water-wort.*AMERICANA, *Arnott.**American Water-wort.*Muddy banks of streams. Albany, *Beck.*

Rare. July - September.

CARYOPHYLLACEÆ.

Pinks.

SAPONARIA, L.

Soap-wort.

OFFICINALIS, L.

Official Saponaria.

Dooryards, roadsides, railroads.

Common. July - October.

SILENE, L.

*Catchfly. Campion.*STELLATA, *Aiton.**Starry Campion. Stellate-leaved Silene.*Wooded hillsides. Near Sleepy-hollow, Tarrytown; and abundantly on the mountain-side above Nyack, *I. H. Hall.* Near Oriskany, *Knieskern.* Frequent on the banks of Crooked lake, *Sartwell.* Rare. July - September.INFLATA, *Smith.**Bladder Campion. Inflated-calyxed Silene.*Dry gravelly soil. Verona, not common, *Knieskern.* Rare. July, August.PENNSYLVANICA, *Michx.**Wild Pink.*Rocky soil. Cliffs near Tarrytown, *I. H. Hall.* Amenia, Dutchess county, *Dow.* Schenectady, *Pearson.* Rare. May - July.

VIRGINICA, L.

*Fire Pink.*Open woods. Yates county, *Sartwell.*

Rare. June, July.

ARMERIA, L.

*Sweet-william Catchfly.*Escapes occasionally, sometimes troublesome, *D. S. Heffron.*

July - September.

ANTIRRHINA, L.

Snapdragon Catchfly.

Roadsides, barren soil. Banks of Black river. Frequent. June - September.

NOCTIFLORA, L.

Night-flowering Catchfly.

Borders of woods, fences, cultivated fields. Common. June - September.

LYCHNIS, *Tourn.**Diaceous Pink.*VESPERTINA, *Sibthorpe.* *White Campion. Evening-opening Lychnis.*Hedges, waste places. Elmira, Chemung county, *Gray add. bot.*

Rare. June - September.

AGROSTEMMA, L.

Cockle. Crown of the Field.

GITHAGO, L.

Black-seeded Agrostemma.

Grain-fields and their borders.

Common. June, July.

ALSINE, *Wahl.**Grove Sandwort.*MICHAUXII, *Fenzl.**Discovered by MICHAUX.*Dry rocky hills and banks. Thousand Islands of the St. Lawrence. Abundant along the Black river, from Lewis county to the lake. On sandy knolls two miles above Utica, on the north side of the Mohawk, *Miss J. E. Johnson.*

Rare. May - July.

ARENARIA, L.

Sandwort.

SERPYLLIFOLIA, L.

Thyme-leaved Sandwort.

Rocky banks, barren soil. ledges. sandy plains. Abundant. May - August.

[Senate No. 90,]

- MÖHRINGIA, L.** *Mähringia.*
- LATERIFLORA, L.** *Side-flowering Mähringia.*
 Along rivulets, shady wet woods. Schenectady, *Pearson*. Near Sackett's harbor, not far from the lake shore; sandy woods near Oneida lake, *Knieskern*. Along the Black river and on the banks of the Mohawk, a very small form occurs in exposed stations. Infrequent. May, June.
- STELLARIA, L.** *Starworts.*
- MEDIA, Smith.** *Intermediate-leaved Stellaria.*
 Waste places. A common weed. April - November.
- LONGIFOLIA, Muhl.** *Long-leaved Stellaria.*
 Brook-sides and meadows. Common. June - August.
- LONGIPES, Goldie.** *Long-pedicelled Stellaria.*
 Barren rocky ground near Dexter, Jefferson county, *Vasey*. Dexter, N.Y., *Wood in herb. Ham. Coll.* Rare. June, July.
- BOREALIS, Bigelow.** *Northern Stellaria.*
 Wet meadows, grassy swamps. Oriskany; Whitestown; Rome. Infrequent. June - August.
- CERASTIUM, L.** *Mouse-ear Chickweed.*
- VULGATUM, L.** *Common Chickweed.*
 Pastures, stony ground. May - October.
- VISCOSUM, L.** *Clammy Chickweed.*
 Meadows, fields, walls. April - July.
- NUTANS, Rafinesque.** *Nodding-fruited Chickweed.*
 Cold springs and rivulets. Below Watertown, along the Black river. Rare. May - July.
- ARVENSE, L.** *Cornfield Chickweed.*
 Rocky ground, cultivated fields. Helderberg mountains, *Pearson*. Infrequent. May - August.
- SAGINA, L.** *Pearlwort.*
- PROCUMBENS, L.** *Procumbent Sagina.*
 Wet sandy banks and shores. Rare. June - August.
- SPERGULA, L.** *Spurrey.*
- ARVENSIS, L.** *Grain-field Spergula.*
 Along railroads, roadsides, fields. Among flax, *Knieskern*. Frequent. June - September.
- ANYCHIA, Michx.** *Forked Chickweed.*
- DICHOTOMA, Michx.** *Dichotomous-stemmed Anychia.*
 Dry hillsides. Schenectady, *Pearson*. Pine plains of Rome, *Vasey*. Frequent in Yates county, *Sartwell*. Uncommon. June - August.
- SCLERANTHUS, L.** *Knawel.*
- ANNUUS, L.** *Annual Scleranthus.*
 Damp sandy or gravelly places. Pine plains of Schenectady, *Pearson*. Waste places in Oneida county, *Knieskern*. Scarce. May - August.
- MOLLUGO, L.** *Indian Chickweed.*
- VERTICILLATA, L.** *Carpet-weed. Whorled-leaved Mollugo.*
 Roadsides, shores. Sandy shore of Oneida lake. Rare. June - September.

PORTULACACEÆ.

*Purslanes.*PORTULACA, *Tourn.**Purslane.*

OLERACEA, L.

Garden Portulaca.

Waste places; a weed in cultivated grounds.

June - August.

CLAYTONIA, L.

Spring-beauties.

VIRGINICA, L.

*Linear-leaved Clatonia.*Rich river bottoms. Along the Mohawk below Utica; abundant opposite Whitesboro. Fish creek, *Knieskern*.

Rare. May.

CAROLINIANA, *Michx.**Broad-leaved Clatonia.*

Everywhere in woods, groves, copses, swamps. Common. March, April.

MALVACEÆ.

Mallows.

MALVA, L.

True Mallows.

ROTUNDIFOLIA, L.

Round-leaved Mallow.

Dooryards, streets, waste places.

Common. May - September.

SYLVESTRIS, L.

Woodland Mallow.

Borders of woods and roadsides remote from gardens. Everywhere scattered and abundant.

May - September.

MOSCHATA, L.

Musk-scented Mallow.

Way-sides; well established as the former, and often with it. Abundant in many places.

May - August.

ABUTILON, *Tourn.**Velvet-leaf. Indian Mallow.*AVICENNÆ, *Gærtner.**Dedicated to AVICENNA.*

Gardens, roadsides, waste-places.

Frequent. July - September.

HIBISCUS, L.

Mallow-rose.

MOSCHEUTOS, L.

*Musk Hibiscus.*Marshes, both of salt and of fresh water. Plentifully in the marshes around the Salt lake, Onondaga, New-York, *Pursh*. Abundant in the marshes along the outlet of Cayuga lake. Around Irondequoit bay, Monroe county, *C. M. Booth*.

Rare. July - October.

TILIACEÆ.

Lindens.

TILIA, L.

Linden-trees.

AMERICANA, L.

Basswood.

Rich woods. Common.

June, July.

LINACEÆ.

Flaxes.

LINUM, L.

Flax.

VIRGINIANUM, L.

*Wild Yellow Flax.*Dry hills. Tarrytown in open rocky woods, *I. H. Hall*. Schenectady county, *E. W. Paige*. Yates county, *Sartwell*. Roadsides in the southern tier of counties, *Knieskern*.

Rare. June - August.

USITATISSIMUM, L.

Cultivated, Useful Flax.

Borders of fields, waysides. Abundant all along on the Central railroad.

June - August.

OXALIDACEÆ.

Sorrels.

OXALIS, L.

Wood-sorrel.

ACETOSELLA, L.

American Wood-sorrel.

Moist rich woods. Most abundant on the hills. Common. May - August.

VIOLACEA, L.

Violet-colored-flowered Wood-sorrel.

Shaded rocks and rich woods. Charlton near Schenectady, *Pearson*. Vicinity of Oriskany, *Vasey*. Rare. April - August.

STRICTA, L.

Upright Yellow Sorrel.

Along roads, walls, streams.

Common. May - September.

GERANIACEÆ.

Gerania.

GERANIUM, L.

Wild Geraniums.

MACULATUM, L.

Crane's-bill. Spotted-leaved Geranium.

Moist woods, meadows.

Abundant. May - July.

CAROLINIANUM, L.

Field Geranium.

Rocky barren soil, waste grounds. Schenectady, *Pearson*. Littlefalls, south side of the Mohawk, on the rocks. About Dexter factories, Oriskany, *Knieskern*. High dry banks along the Black river below Watertown. Frequent in Yates county, *Sartwell*. Uncommon. May - July.

PUSILLUM, L.

Small-flowered Geranium.

Gravelly or sandy soil. Waste-places in Clinton. Roadsides a few miles east of Constantia, north shore of Oneida lake, *Vasey*; Gorham, *Sartwell*.

Infrequent. May - September.

ROBERTIANUM, L.

Herb Robert.

Shady woods, rocky sides of ravines.

Common. May - November.

ERODIUM, L' Héritier.

Heron's-bill.

CICUTARIUM, L' Héritier.

Water Hemlock-leaved Erodium.

Naturalized about Dexter factory, Oriskany, *Knieskern*. On the island opposite Constantia; along the north shore of Oneida lake near Constantia, *Vasey*. Rare. June - August.

BALSAMINACEÆ.

Balsams.

IMPATIENS, L.

Touch-me-not. Jewel-weeds.

PALLIDA, Nuttall.

Pale-flowered Impatiens.

Rich moist woods and ravines; forming thickets. Abundant. June - Sept.

FULVA, Nuttall.

Fulvous-flowered Impatiens.

Wet shady woods, along streams.

Common. June - August.

LIMNANTHACEÆ.

Limnanths.

FLÆRKEA, Willd.

False Mermaid.

PROSERPINACOIDES, Willd.

Mermaid-weed-like Flærkea.

Low river-banks. Abundant in wet woods on the flats of the Mohawk, three miles below Utica. Banks of Unadilla river, *Gray*. Auburn, this plant grows in the wet part of the wood; where my *Carex* grows, *J. Carey in herb. Ham. Coll.* Rare. May, June.

RUTACEÆ.

Rues.

ZANTHOXYLUM, *Golden.**Prickly Ash.*AMERICANUM, *Miller.**Toothache Tree.*

Water-courses, shores, low rich woodlands. Mohawk river. Along Wood creek, and in neighboring swampy woods. Black river. Abundant about the lakes of the north woods. Otsego county, *H. Lathrop.*

Frequent. March, April.

ANACARDIACEÆ.

Cashews.

RHUS, *L.*

Sumachs.

TYPHINA, *L.**Staghorn, Fever Sumach.*

Rocky woods, copses, hillsides.

Frequent. June.

GLABRA, *L.**Scarlet, Smooth Sumach.*

Barren grounds, rocks.

Common. July.

COPALLINA, *L.**Mountain, Copal-like Sumach.*

Rocks and dry localities. Otsego county, *B. D. Gilbert.* Pine plains and near Oneida lake, *Knieskern.*

Infrequent. July, August.

VENENATA, *DC.**Poison Sumach.*

Swamps, open woods, water-sides. Rotterdam, *Pearson.* Otsego county, *H. Lathrop.* Oriskany swamp, *Knieskern.* Yates county, *Sartwell.* Rare. June.

RADICANS, *L.**Climbing Poison Ivy.*

Ascending trees, covering walls, fences.

Common. June.

TOXICODENDRON, *L.**Tree-like Poison Ivy.*

Borders of woods, river-banks, waysides.

Common. July.

AROMATICA, *Aiton.**Fragrant Sumach.*

Barren rocky grounds. Banks of the Black river below Watertown. In the southern tier of counties, from Binghamton westward, *Knieskern.* Abundant on the banks of Crooked lake, *Sartwell.*

Infrequent. April, May.

VITACEÆ.

Vines.

VITIS, *L.**Grape-vines.*LABRUSCA, *L.**Wild Grape.*

Woods, thickets, banks of streams.

Frequent. May.

ÆSTIVALIS, *Michaux.**Summer Grape.*

Woods, high on trees, river banks.

Frequent. May.

CORDIFOLIA, *Mich.**Frost, Heart-leaved Grape.*

Fence-thickets, borders of woods, brows of ravines, water-courses.

Common. June.

AMPELOPSIS, *Michaux.**Ivy. False Woodbine.*QUINQUEFOLIA, *Michx.**Five-leaved Ampelopsis.*

Moist woods, copses, walls.

Common. June. July.

RHAMNACEÆ.

Buckthorns.

RHAMNUS, *Tourn.**Common Buckthorn.*CATHARTICUS, *L.**Purging Buckthorn.*Highlands of the Hudson, *Barratt in herb. Ham. Coll.* Common in hedges.

May, June.

ALNIFOLIUS, *L'Héritier*.*Adder-leaved Buckthorn.*

Cold swamps. Summit lake, Otsego county. Abundant in the high marshes of Litchfield, State swamp and on Hidden lake. Formerly in the Oriskany swamp. *Vasey*. Frequent in the marshes of the northern part of the county, and the north woods. Yates county, *Sartwell*. Bergen swamp, northwestern Genesee county. Uncommon; June.

CEANOTHUS, *L.**Red-root.*AMERICANUS, *L.**New-Jersey Tea. American Ceanothus.*

Dry open woods. Schenectady. Alexandria bay. Western counties, *Knieskern*. Frequent. July - August.

OVALIS, *Bigelow*.*Long-leaved Ceanothus.*

Rocky shores. Clefts of rocks on the banks of Black river, opposite Watertown, Jefferson county; along the river between Watertown and Dexter. Rare. May, June.

CELASTRACEÆ.

*Staff-trees.*CELASTRUS, *L.**Bittersweet. Wax-work.*SCANDENS, *L.**Climbing Celastrus.*

Woodlands, thickets, streams.

Common. June.

EUONYMUS, *Tourn.**Wahoo. Burning-bush.*ATROPURPUREUS, *Jacq.**Dark-purple-flowered Euonymus.*

Thickets. Oneida county, *H. Lathrop*. Greece, Monroe county, *Bradley*.

Rare. June.

AMERICANUS, *L.**Strawberry-bush. American Euonymus.*

Woods, streams. Western part of the State, *Torrey Fl.* Western counties, *Knieskern*. Genesee river, *Sartwell in herb. Ham. Coll.* Rare. June.

SAPINDACEÆ.

*Soapberries.*STAPHYLEA, *L.**Bladder-pod.*TRIFOLIA, *L.**Three-leaved Staphylea.*

Copses, thickets, river-banks. Common along the Mohawk.

Frequent. May, June.

ACER, *Tourn.**Maples.*PENNSYLVANICUM, *L.**Striped Maple.*

Moist woodlands, ravines.

Abundant. May.

SPICATUM, *Lamarck.**Spiked-flowered Maple.*

Thickets, steep rocky banks.

Abundant. June.

SACCHARINUM, *L.**Hard, Sugar Maple.*

Woods. Common.

May.

var. *NIGRUM, Gray.**Black Maple.*

Hilly woods. Occasional. Often as a shade tree.

May.

DASYCARPUM, *Ehrhart.**White, Silver Maple.*

Along streams. Banks of the Mohawk river throughout its length. The most common shade tree in the streets of cities, villages. Infrequent. April.

RUBRUM, *L.**Red Maple.*

Swamps. Common.

March, April.

POLYGALACEÆ.

*Milkworts.*POLYGALA, *Tourn.**Milkworts. Polygalas.*SANGUINEA, *L.**Crimson Polygala.*

Damp meadows. Fairfield, Herkimer county, *in herb. Hadley.* Southern counties, *Knieskern.* Greece, Monroe county, *Bradley.*

Rare. August, September.

VERTICILLATA, *L.**Whorled-leaved Polygala.*

Dry hillsides.

Frequent. June - September.

SENEGA, *L.**Seneca Snakeroot.*

Rocks and dry woods. Schenectady. *Pearson.* On the sides of Black river below Watertown. Genesee valley, Greece, *Bradley.* Penn-Yan, *Sartwell.*

Rare. June, July.

POLYGAMA, *Walter.**Polygamous Polygala.*

Barrens, sandy woods. Pine plains west of Rome, *Vasey.* One mile north of New-London, *Knieskern.* Oneida lake, *Gray.*

Rare. July, August.

PAUCIFOLIA, *Willd.**Gay-wings. Fringed Milkwort. Few-leaved Polygala.*

Abundant at Cooperstown, in low meadows and borders of woods, *Miss S. Cooper.* Schoharie county, rare, *Knieskern.* Pine plains of Rome, *Vasey.* Evergreen woods on the banks of Black river below Watertown.

With white flowers, at Schenectady, *Pearson*; and Otsego county, *Mrs. J. Shaw.*

Uncommon. May, June.

LEGUMINOSÆ.

*Legumes.*LUPINUS, *Tourn.**Wild Lupine.*PERENNIS, *L.**Perennial Lupine.*

Sandy banks, pine woods. Plains of Schenectady, *Pearson.* Pine plains of Rome and Oneida lake, abundant. Near Owasco lake, *I. H. Hall.*

Infrequent. June.

CROTALARIA, *L.**Rattlebox.*SAGITTALIS, *L.**Arrow-leaved Crotalaria.*

Rocks, sand. Rocks, Kingsbridge, N.Y., *Carey in herb. Ham. Coll.* Troy, *Beck in herb.*

Rare. June, July.

TRIFOLIUM, *L.**Clovers. Trifolia.*ARVENSE, *L.**Hare's-foot Trefoil. Field Clover.*

Dry or gravelly soil. Schenectady *Pearson.* Along the Central railroad. Dry borders of Oneida lake, *Knieskern.*

Uncommon. July - September.

PRATENSE, *L.**Red, Meadow Clover.*

Roadsides and fields. Naturalized and cultivated. Common. May - October.

REFLEXUM, *L.**Reflexed-flowered Clover.*

Open woods. In the neighborhood of Utica, *Knieskern.* Near Salina lake, *Sartwell, Torrey Fl. N.Y.*

Rare. June, July.

REPENS, *L.**White, Creeping Clover.*

Waysides, pastures, deep woods. Everywhere common. May - October.

AGRARIUM, *L.**Yellow, Agrarian Clover.*

Sandy fields, gravelly banks. Schenectady, *Pearson.* Along the Central railroad. Hillsides opposite Utica. Shore of Lake Ontario at Sackett's-harbor, *Knieskern, Torrey Fl.* Abundant in the cleared swamp west of Fort Bull, Rome.

Frequent. July - September.

- PROCUMBENS*, L. *Hop, Procumbent Clover.*
Hillsides. Tarrytown, frequent; also along the Central railroad at Skaneateles lake outlet, *I. H. Hall.* Scarce. August.
- MELILOTUS*, *Tourn.* *Sweet Clover.*
OFFICINALIS, Willd. *Yellow, Official Melilot.*
River-banks and roadsides. Not infrequent throughout the valley of the Mohawk. Troy. Schenectady, *Pearson.* Fort-Plain, *B. D. Gilbert.* Little-falls; Utica; Deerfield. Uncommon. July - September.
- ALBA*, Lamarck. *White-flowered Melilot.*
Roadsides and railroads. Utica. Syracuse. Auburn, *Hall.* Frequent. July - October.
- MEDICAGO*, L. *Nonesuch. Black Medick.*
LUPULINA, L. *Hop-like Medicago.*
Waste places, streets, railroads. Common. May - November.
- MACULATA*, Willd. *Spotted-leaved Medicago.*
Barren grounds. About the Dexter factories, Oriskany, introduced among wool, *Vasey.* Scarce. June - September.
- AMORPHA*, L. *False Indigo.*
FRUTICOSA, L. *Shrubby Amorpha.*
var. *LEWISII.* *Collected by LEWIS.*
Gravelly banks, along the Hudson river railroad, Tarrytown, well established, *I. H. Hall.* June, July.
- ROBINIA*, L. *Locusts.*
PSEUDACACIA, L. *False-acacia Robinia.*
A common shade tree. Banks of the Hudson near Troy, *Beck in herb.* Extensively cultivated along the Central railroad, between Utica and Schenectady, for timber. May, June.
- TEPHROSIA*, *Pers.* *Hoary Pea.*
VIRGINIANA, *Person.* *Virginian Tephrosia.*
Sterile hills and sandy woods. Schenectady plains, *Pearson.* Fairfield, Herkimer county, *in herb. Beck.* Junius, Seneca county, *Sartwell in herb. Ham.* Coll. Greece, Monroe county, *Bradley.* Rare. June - August.
- ASTRAGALUS*, L. *Milk-vetch.*
CANADENSIS, L. *Canadian Astragalus.*
Banks and shores. Along the east side of Onondaga lake. Seneca lake, *Sartwell in herb. Ham. Coll.* Rare. June, July.
- COOPERI*, *Gray.* *Discovered by WILLIAM COOPER.*
Gravelly sides of lakes. Slopes along Onondaga lake between Salina and Liverpool. Rare. July, August.
- DESMODIUM*, *DC.* *Tick-trefoils. Desmodia.*
NUDIFLORUM, *DC.* *Naked-flower-stemmed Desmodium.*
Open woods, along streams. Schenectady, *Pearson.* Valley of the Mohawk. Frequent. July - August.
- ACUMINATUM*, *DC.* *Acuminate-leafleted Desmodium.*
Rich moist woods, bottoms of ravines. Common August.

- ROTUNDIFOLIUM, DC.** *Round-leafleted Desmodium.*
Dry rocks and sand. Pine plains of Rome, *Knieskern*. Woods north of Auburn, *Hall*. Junius, *Sartwell in herb*. Oak openings of Greece, *Bradley*.
- CANESCENS, DC.** *Canescent Desmodium.*
Damp woods, thickets Schenectady, *Pearson*. Seneca lake, *Beck in herb*. Gorham, Ontario county, *Sartwell in herb*. *Ham. Coll.* Rare. July, August.
- CUSPIDATUM, Torr. & Gr.** *Cuspidate-bracted Desmodium.*
Shaded streams. Fort Hill Cemetery, Auburn, in a deep rich glen, *I. H. Hall*. Schenectady, *Beck in herb*. Yates county, *Sartwell in herb*. *Ham. Coll.* Rare. August.
- VIRIDIFLORUM, Beck.** *Green-flowered Desmodium.*
Sandy woods, copses. Cemetery of the old Dutch Church and along the river, Tarrytown, *Hall*. Plains of Schenectady, *Pearson*. Herkimer county, *Beck in herb*. Seneca lake. *Sartwell*. Rare. July - September.
- DILLENII, Darlington.** *DILLENIUS'S Desmodium.*
Copses, dry woods and fields. Tarrytown, *I. H. Hall*. Penn-Yan, Yates county. *Sartwell*. Scarce. July, August.
- PANICULATUM, DC.** *Panicled Desmodium.*
Open woodlands, borders of thickets. Dexter, Jefferson county, *Vasey*. Frequent. August.
- CANADENSE, DC.** *Canadian Desmodium.*
Dry woodlands. Otsego county, *H. Lathrop*. Near Oriskany, *Knieskern*. Auburn and Elbridge, *Hall*. Frequent. August.
- CILIARE, DC.** *Fringed Desmodium.*
Sands. Pine plains of Rome, *Knieskern*. Yates county, *Sartwell*. Uncommon. July, August.
- MARILANDICUM, Boott.** *Maryland Desmodium.*
Sandy fields, borders of thickets. Schenectady plains, *Pearson*. Southern counties, *P. D. K. in herb. Ham. Coll.* Yates county, *Sartwell*. Infrequent. August.
- LESPEDEZA, Michx.** *Bush Clovers.*
- PROCUMBENS, Michx.** *Reclining Lespedeza.*
Dry sandy woods and open fields. Tarrytown, *I. H. Hall*. Pine plains of Schenectady, *E. W. Paige*. Yates county, *Sartwell*. Rare. August.
- REPENS, Torr. & Gr.** *Prostrate Lespedeza.*
Common in sandy soil about Tarrytown, not always in dry places, *I. H. Hall*. Rare. June - August.
- VIOLACEA, Persoon.** *Violet-flowered Lespedeza.*
Gravelly banks, thickets. Alexandria bay. Penn-Yan, Yates county, *Sartwell*.
- var. **DIVERGENS, Torr. & Gr.** *Loose-flowering Lespedeza.*
Junius, Seneca county, *Sartwell in herb. Ham. Coll.*
- var. **SESSILIFLORA, Torr. & Gr.** *Close-flowering Lespedeza.*
Schenectady, *Pearson*.
- var. **ANGUSTIFOLIA, Torr. & Gr.** *Narrow-leaved Lespedeza.*
Near the Aqueduct, Schenectady, *Pearson*. Frequent. July - September.
- STUVEI, Nuttall.** *Discovered by W. STUVE.*
Sandy woods east of Tarrytown, not common, *I. H. Hall*. Rare. August.

- HIRTA**, *Elliott*. *Hairy Lespedeza*.
Rocks and woods near the river. Tarrytown, *Hall*. Schenectady, *Pearson*.
Alexandria bay. Yates county, *Sartwell in herb. Ham. Coll.*
Infrequent. August, September.
- CAPITATA**, *Michx.* *Capitate-flowering Lespedeza*.
Hillsides. borders of woods. Tarrytown, *I. H. Hall*. Albany, *Beck in herb.*
Plains of Schenectady, *Pearson*. Pine barrens of Rome, *Vasey*. Alexandria
bay, Jefferson county. Abundant. August, September.
- VICIA**, *Tourn.* *Tares. Vetches*.
SATIVA, *L.* *Cultivated Vetch*.
Borders of fields, along ditches. Common through the valley of the Mohawk.
June, July.
- TETRASPERMA**, *L.* *Four-seeded Vetch*.
Banks of the Hudson in the shade, Tarrytown, *Hall*. Albany, *Beck in herb.*
Rare. June - August.
- CRACCA**, *L.* *Cracca Vetch*.
Plains of Schenectady, *Pearson*. Sandy fields on Paris hill. Between Oris-
kany and Rome, along the Central railroad. Rare. June - September.
- CAROLINIANA**, *Walter*. *Carolina Vetch*.
Brooksides along the Mohawk. Below Utica. Yates county, *Sartwell*.
- AMERICANA**, *Muhl.* *American Vetch*.
Shady places along streams. Seneca lake, *Gray*. Penn-Yan, *Sartwell*.
Greece, *Bradley*. Scarce. June.
- LATHYRUS**, *L.* *Vetchling*.
MARITIMUS, *Bigelow*. *Beach Pea. Seaside Lathyrus*.
Sandy shores of Oneida lake, *Knieskern*. Shore of Lake Ontario, *Gray*.
Rare. June, July.
- OCHROLEUCUS**, *Hooker*. *Cream-colored-flowered Lathyrus*.
Shaded banks. Watertown, Jefferson county, *Crawe*; Gorham, Ontario
county, *Sartwell*; *Gray in Rare plants of Northern N.Y.* Monroe county,
C. M. Booth. Rare. June, July.
- PALUSTRIS**, *L.* *Marsh Lathyrus*.
Borders of marshes, rivers, lakes. Banks of the Mohawk; and of the St.
Lawrence at Alexandria bay. Genesee river below Rochester, *Sartwell*.
Scarce. July - September.
- var. **MYRTIFOLIUS**, *Gray*. *Myrtle-leaved Lathyrus*.
Shores. Northern N.Y., *Gray in New and Rare plants*. Seneca lake, *Sart-
well in herb. Ham. Coll.* Rare. July, August.
- PHASEOLUS**, *L.* *Kidney Bean*.
PERENNIS, *Walter*. *Perennial Phaseolus*.
Hillsides. Tarrytown, *Hall*. Yates county, *Sartwell*. Rare. July, August.
- APIOS**, *Boerhaave*. *Glycine. Ground-nut*.
TUBEROSA, *Mench.* *Tuberous Apios*.
Thickets near water. West of Schenectady, *Pearson*. West bank of Otsego
lake, *Miss S. Cooper*. Banks of the Mohawk river. Oriskany swamp, *Knies-
kern*. Alexandria bay, Jefferson county. Abundant on Owasco lake outlet,
I. H. Hall. Greece, Monroe county, *Bradley*. Frequent. July - September.

- AMPHICARPÆA**, *Elliott*. *Ground Peanut.*
MONOICA, *Nuttall*. *Monœcious Amphicarpæa.*
 Damp thickets, rich wet woods. Common. July - October.
- BAPTISIA**, *Ventenat*. *Wild Indigo.*
TINCTORIA, *R. Brown*. *Dyeing Baptisia.*
 Dry woods and sandy soil. Between Schenectady and Amsterdam. *Pearson*.
 Saratoga county, *L. Collins*. Junius, Seneca county. *Sartwell in herb. Ham.*
Coll. Greece, Monroe county, *Bradley*. Vicinity of Rochester, *C.M. Booth*.
 Scarce. June - August.
- CASSIA**, *L.* *Wild Senna.*
MARILANDICA, *L.* *Maryland Cassia.*
 Rich moist banks. Abundant about Ballston lake, *Pearson*. Chenango val-
 ley, *Knieskern*. Uncommon. July, August.
- CHAMÆCRISTA**, *L.* *Dwarf, Ground-touching Cassia.*
 Sandy hills and grounds. Albany, *Beck in herb.* Whitesboro, *Dr. Gates in*
herb. Beck. Often introduced into gardens. July - October.
- NICTITANS**, *L.* *Sensitive-plant. Closing Cassia.*
 Banks of gravel or sand. Common at Tarrytown, *I. H. Hall*. From the
 North river, *Sartwell in herb. Ham. Coll.* Troy, *Beck in herb.*
Rare. July - September.
- GYMNOCLADUS**, *Lamarck*. *Coffee-tree.*
CANADENSIS, *Lam.* *Canadian Gymnocladus.*
 Rich bottoms along streams and shores. Near Cayuga lake, *Thompson in*
Torrey Fl. N.Y. Ithaca, *in herb. Van Duzee*. Seneca lake, *Sartwell in herb.*
Ham. Coll. Rare. May, June.
- ROSACEÆ**. *Roses.*
- PRUNUS**, *L.* *Plums. Cherries.*
AMERICANA, *Marshall*. *Wild Plum.*
 Thickets on river-banks, along fences. Common over the flats of the Mo-
 hawk. April.
- SPINOSA**, *L.* *Thorny Plum.*
 Roadsides and old fields. Frequent. April.
- DOMESTICA**, *L.* *Garden Plum.*
 Common in the northern part of the county, spontaneous on edges of gar-
 dens, dooryards, and forming thickets along fences. May.
- PUMILA**, *L.* *Dwarf Cherry.*
 Sterile rocks and sand. On the plains of Schenectady, *Pearson*. Clefts of
 rocks by the side of Black river opposite Watertown, Jefferson county.
Rare. April, and early in May.
- PENNSYLVANICA**, *L.* *Bird, Red Cherry.*
 Abundant in clearings and ground recently burned over. Common in the
 fields of the north woods reverting to wilderness. The worthless successor of
 the noble Spruce and valuable Pine. There is, however, only one generation :
 after a few years, having attained the height of about thirty feet, they die
 and fall, to be replaced by the hard woods. May.
- VIRGINIANA**, *L.* *Calinet, Choke Cherry.*
 Borders of woods, thickets, river-banks. Common. June.

- SEROTINA, *Ehrhart.* *Black, Late Cherry.*
Woods, fences and water-courses. Formerly abundant, now scarce. June.
- VULGARIS, *Miller.* *Common, Sour Cherry.*
Frequent beside gardens, walls, roadsides. April.
- SPIRÆA, *L.* *Meadowsweet.*
OPULIFOLIA, *L.* *Opulus-leaved Spiræa.*
Rocky woods and water-sides. Albany, *Beck in herb.* Banks of Norman's kill, Schenectady county *E. W. Paige.* Otsego county, *H. Lathrop.* Ithaca, Tompkins county, *Sartwell in herb. Ham. Coll.* Rare. June, July.
- SALICIFOLIA, *L.* *Willow-leaved Spiræa.*
Swamps, meadows, banks of brooks. Common throughout the valley of the Mohawk. Borders of lakes, along streams and in beaver meadows of the north woods. Alexandria bay on the St. Lawrence. Frequent. July - Sept.
- TOMENTOSA, *L.* *Hardhack. Tomentose Spiræa.*
Sterile soils, pastures. Schenectady. *Pearson.* Saratoga county, *L. Collins.* Otsego county, *H. Lathrop.* Low grounds in the northern part of the State. Scarce. July - September.
- GILLENIA, *Mænych.* *Indian Physic.*
TRIFOLIATA, *Mænych.* *Trifoliate Gillenia.*
Rich open woods and thickets. Bridgewater, *Gray in herb. Beck.* Near Waterville *Miss J. E. Johnson.* Sides of the Oriskany valley from Clinton southward, *Dr. John A. Paine.* Banks of Seneca lake, *Vasey.* Rare. June.
- AGRIMONIA, *Tourn.* *Common Agrimony.*
EUPATORIA, *L.* *The Ancient Eupatorion.*
Waysides, ravine-bottoms. Common. June - September.
- SANGUISORBA, *L.* *Burnet.*
CANADENSIS, *L.* *Canadian Sanguisorba.*
Wet rocks, low meadows, swamps. Wet flats of the Mohawk between Utica and Frankfort. Cedar swamp, Oriskany, *Knieskern.* Above Trenton falls towards Prospect, rocks near the creek. Deep cedar swamp on Paris hill. Borders of Hidden lake, Litchfield. Fish creek. Victor, Ontario county, *Bradley.* Scarce. July - October.
- GEUM, *L.* *Avens. Geum.*
ALBUM, *Gmelin.* *White-flowered Avens.*
Damp woods and their borders. Abundant. June - August.
- VIRGINIANUM, *L.* *Virginian Avens.*
Common in swamps on the flats of the Mohawk, especially in the damp cleared grounds; also in the thickets along the river-banks. Rare elsewhere. June, July.
- STRICTUM, *Aiton.* *Yellow, Upright Avens.*
Swamps, woods, low pastures, fences. Common. June - August.
- RIVALE, *L.* *Nodding, Purple, Rivulet Avens.*
Cedar swamps and wet meadows. Common. May - July.
- TRIFLORUM, *Pursh.* *Three-flowered Avens.*
On rocks, Watertown, Jefferson county; very rare, *Crawe, Torrey Fl. N.Y.* May, June.

- WALDSTEINIA, *Willd.* *Barren Strawberry.*
 FRAGARIOIDES, *Trattinick.* *Strawberry-like Waldsteinia.*
 Dry woods under the shade of hemlocks or arbor vitæ, hillsides of streams, sometimes in swamps. Frequent. May - August.
- POTENTILLA, *L.* *Cinquefoils.*
 NORVEGICA, *L.* *Norwegian Potentilla.*
 Roadsides, fields, pastures. Common. June - August.
- CANADENSIS, *L.* *Canadian Potentilla.*
 Sandy wastes. Common at Schenectady, *Pearson*. Pine plains, Rome, and sandy fields near the head of Oneida lake, *Knieskern*. Frequent. May - September.
- var. PUMILA, *Torr. & Gr.* *Dwarf Potentilla.*
 Old pastures. Common. April - June.
- var. SIMPLEX, *Torr. & Gr.* *Simple-stemmed Potentilla.*
 Copses and clearings. Abundant. May - August.
- ARGENTEA, *L.* *Silvery Potentilla.*
 Chiefly on rocks and gravelly banks. Schenectady. Littlefalls. Below Waretown. About Oneida lake. Frequent. May - September.
- ARGUTA, *Pursh.* *Sharp-serrated-leaved Potentilla.*
 Open rocky hills, Tarrytown, *I. H. Hall*. Sides of Wolf hollow, Schenectady county, *E. W. Paige*. Rare. June - August.
- ANSERINA, *L.* *Silverweed. Goose Potentilla.*
 Shores of rivers and lakes. Near Sanders's lake, *Pearson*. Borders of Otsego lake, *B. D. Gilbert*. Common all round Onondaga lake. Crooked lake, *Sartwell*. Rare. June - November.
- FRUTICOSA, *L.* *Shrubby Potentilla.*
 Cold swamps. Summit lake, on the hill-top between Fort-Plain and Cooperstown, source of the Susquehanna, where it covers acres of open marsh land. Abundant on the cliffs of Fish creek from Taberg, northward; especially near Fall brook, hanging from the clefts of the rocks as far and as high as the eye can reach. It has been found also at Junius, Seneca county, by *Sartwell*; at Greece, Monroe county, by *Bradley*; at Bergen, Genesee county, by *G. T. Fish*; and at Avon, Livingston county, by *G. W. Clinton*. Rare. June - August.
- PALUSTRIS, *Scopoli.* *Marsh Potentilla.*
 Cold marshes. Summit lake, Otsego county. Hidden lake. Litchfield. Swamp west of Fort Bull, Rome. Abundant in the streams and low lands at the head of Oneida lake. Common on the marshes in the northern part of the county, and about the lakes of the north woods. Rare. May - September.
- FRAGARIA, *Tourn.* *Strawberries.*
 VIRGINIANA, *Ehrhart.* *Wild Strawberry.*
 Woods, pastures, meadows. Everywhere. April - October.
- VESCA, *L.* *Alpine, Edible Strawberry.*
 Rocks, around old stumps and logs, evergreen woods. Common. May.
 A variety with different leaves and bearing white fruit, occurs rarely in the north woods. Trenton falls, borders of the wood south of Moore's Hotel, *William Calverly*. Also Delaware county, *B. D. Gilbert*. June.
- DALIBARDA, *L.* *Dewdrop. False Violet.*
 REPENS, *L.* *Creeping Dalibarda.*
 Moist banks, evergreen woods and swamps. Common. May - August.

- RUBUS, L.** *Brambles. Raspberries. Blackberries.*
ODORATUS, L. *Rose-flowering, Fragrant Raspberry.*
 Cliffs, steep banks and ravine sides. Common. June - September.
- TRIFLORUS, Richardson.** *Dwarf, Three-flowered Raspberry.*
 Damp shaded woods and swamps. Common.
 A form with pink-colored flowers grows on the cliffs of Fish creek, where the rocks are constantly wet. June.
- STRIGOSUS, Michx.** *Red, Strigose Raspberry.*
 Roadsides, fences, borders of woods. Common on clearings. May - July.
- OCCIDENTALIS, L.** *Black, Western Raspberry.*
 Waysides, walls, thickets. Common. May, June.
- VILLOSUS, Aiton.** *High, Villous Blackberry.*
 Open woods and cleared land. Common.
 var. **FRONDOSUS, Torrey.** *Leafy-bracted Blackberry.*
 Littlefalls, *Gray in herb. Ham. Coll.*
 var. **HUMIFUSUS, Torr. & Gr.** *Trailing Blackberry.*
 Yates county, *Sartwell in herb. Ham. Coll.*
 var. *The White Blackberry,*
 is found growing spontaneously near Cooperstown, Otsego county, by *Dr. Horace Lathrop.* May, June.
- CANADENSIS, L.** *Dewberry. Canadian Blackberry.*
 Barren banks and borders of swamps. North woods. Frequent. May.
- HISPIDUS, L.** *Swamp, Hispid Blackberry.*
 Wet woods and sphagnum swamps. Common. June, July.
- ROSA, Tourn.** *Wild Roses.*
SETIGERA, Michx. *Bristle-bearing Rose.*
 Thickets on the rocky plains, above the cliff below the village of Littlefalls. Ravine of Chittenango creek below the falls. Penn-Yan, *Sartwell.*
 Escapes occasionally. July, August.
- CAROLINA, L.** *Swamp Rose.*
 Borders of swamps, and grassy bogs along streams. Common. July - September.
- LUCIDA, Ehrhart.** *Dwarf, Bright-leaved Rose.*
 Old fields and sandy open woods. Schenectady, *Pearson.* Otsego county, *Miss S. Cooper.* Yates county, *Sartwell.* Uncommon. June, July.
- BLANDA, Aiton.** *Early, Thornless Rose.*
 Abundant on banks and knolls on the flats of the Mohawk. About Otsego lake, *Miss S. Cooper.* Coon Chisholm's, Schenectady, *Pearson.* Frequent. May, June.
- RUBIGINOSA, L.** *Sweetbrier. Eglantine. Rusty Rose.*
 Uncultivated fields, pastures. Common. June, July.
- CINNAMOMEA, Besler.** *Cinnamon Rose.*
 var. **FECUNDISSIMA, Lindley.** *Double Cinnamon Rose.*
 Forming thickets about dwellings, fences, roadsides. Common. May - July.

- CRATÆGUS, L.** *Thorn-bushes.*
- OXYACANTHA, L.* *Hawthorn. Sharp-spined White Thorn.*
Hedges and fields. Frequent. May.
- COCCINEA, L.* *Scarlet-fruited Thorn.*
Borders of sandy or rocky woods. Abundant. May, June.
- TOMENTOSA, L.* *Black, Woolly Thorn.*
Thickets, old pastures. Along fences and ditches on the flats of the Mohawk. Common. May.
- var. *PYRIFOLIA, Gray.* *Pear-leaved Thorn.*
Thickets on sandy or gravelly soil. Schenectady, *Pearson.*
Scarce. May. June.
- var. *PUNCTATA, Gray.* *Dotted-fruited Thorn.*
Open low bottoms of streams on the flats of the Mohawk, forming thickets with the willows. Common. May.
- CRUS-GALLI, L.* *Cockspur Thorn.*
Hedges, roadsides, banks of streams. Abundant. June.
- PYRUS, L.** *Apple. Pear.*
- CORONARIA, L.* *Fragrant Crab-apple. Garland Pyrus.*
Open woods about Oriskany, *Knieskern.* Yates county, indigenous, *Sartwell.*
Rare. May.
- MALUS, L.* *Common Apple. The Classical Malus.*
Neglected fields, borders of woods. A stunted form in old pastures, roadsides. Frequent. May.
- ARBUTIFOLIA, L.* *Arbutus-leaved Pyrus.*
Borders of swamps. Common.
- var. *ERYTHROCARPA, Torr. & Gr.* *Red-fruited Chokeberry.*
Sphagnum swamps, water-sides.
- var. *MELANOCARPA, Torr. & Gr.* *Black-fruited Chokeberry.*
Sandy plains and on rocks. May.
- AMERICANA, DC.* *Mountain-ash. American Pyrus.*
Cold swamps. Graefenberg hill, southeast of Utica. Swamps on the Pine plains; low deep woods near Oneida lake. Abundant along the streams and lakes of the north woods, where it is a high tree. June.
- AMELANCHIER, Medik.** *Juneberry.*
- CANADENSIS, Torr. & Gr.* *Shadbush.*
River banks, ravine-sides, low thickets. Common.
- var. *BOTRYAPIUM, Torr. & Gr.* *Pyriiform-clustered-flowered Juneberry.*
Sandy or rocky woods. Abundant.
- var. *OBLONGIFOLIA, Torr. & Gr.* *Long-leaved Juneberry.*
Borders of woods, and streams. Common.
- var. *ROTUNDIFOLIA, Torr. & Gr.* *Round-leaved Juneberry.*
Low sandy woods. Borders of Crooked lake, *Sartwell.* Uncommon.
- var. *OLIGOCARPA, Torr. & Gr.* *Few-fruited Juneberry.*
Wet mountain swamps, New-York, *Torrey & Gray.* On mountains in the northern part of the State, *Torrey Fl. N.Y.* Rare, April, May,

MELASTOMACEÆ.

Melastomas.

RHEXIA, L.

Deer-grass. Meadow Beauty.

VIRGINICA, L.

Virginian Rhexia.

Low sands and shores. About Oneida lake near Constantia, *Vasey*. Between the mouth of Fish creek and Rotterdam, near the latter place, *Knieskern*. Rare. June - September.

LYTHRACEÆ.

Loosestrifes.

LYTHRUM, L.

True Loosestrife.

SALICARIA, L.

Spiked, Willow-like Loosestrife.

Swamps. Junius, Wayne county, *Sartwell in herb. Ham. Coll.* Rochester, *C. Dewey*. Rare. July, August.

NESÆA, *Comm.**Swamp Loosestrife.*

VERTICILLATA, H. B. K.

Whorled-flowered Loosestrife.

Lake shores; borders of ponds in sphagnum swamps. Ballston lake, *Pearson*. Fairfield, *Hadley in herb.* Wetmore's sphagnum pond, Frankfort hill. Marsh at the head of Oneida lake, *Knieskern*. Uncommon. August.

CUPHEA, *Jacquin.**Cuphea.*VISCOSISSIMA, *Jacq.**Very-clammy Cuphea.*

Old fields and gravelly places, northern part of the State, *Stevenson and Knieskern, Torrey Fl. N.Y.* Rare. August.

ONAGRACEÆ.

Evening Primroses.

EPILOBIUM, L.

Willow-herbs. Epilobia.

ANGUSTIFOLIUM, L.

Narrow-leaved Epilobium.

Copses and new lands : even in the north woods, springing up abundantly after fires. Common. July - September.

PALUSTRE, L. : var. LINEARE, *Gray.**Linear-leaved Epilobium.*

Cold mossy swamps. Litchfield, near Jerusalem hill; Hidden lake, on its borders, under cedars and tamaracks. Abundant in the sphagnum swamps and beaver meadows of the north woods.

The small few-flowered form, *E. oliganthum*, *MICHAUX*, on the hills about Oriskany, *Vasey*. Scarce. July - September.

MOLLE, *Torrey.**Downy Epilobium.*

Wet banks. Hungry kill beyond Coon Chisholm's, Schenectady, *Pearson*. Summit lake, Otsego county. Hidden lake, south Herkimer county. Bridge-water, *Gray in herb. Ham. Coll.* Damp meadows near Oriskany, *Knieskern*. Common on cold marshes in the northwestern part of the county, near Fish creek and Point of Rock lake. Common. August, September.

COLORATUM, *Muhl.**Colored-leaved Epilobium.*

Low grounds, brook-sides.

Frequent. July - October.

ŒNOTHERA, L.

Evening Primroses.

BIENNIS, L.

Biennial Evening-primrose.

Railroads, roadsides, waste fields.

var. MURICATA, *Torr. & Gr.**Prickly Evening-primrose.*

Schenectady, *Pearson*.

var. GRANDIFLORA, *Torr. & Gr.**Large-flowered Evening-primrose.*

Low grounds. Flats of the Mohawk.

Common. June - August.

FRUTICOSA, L. *Shrubby Evening-primrose.*
Open sandy woods. Schenectady, *Pearson*. Delaware county, *B. D. Gilbert*.
Near Rochester, *C. M. Booth*. Infrequent. July.

CHRYSANTHA, Michx. *Golden-flowered Evening-primrose.*
Rocky woods and banks of streams. Ravine between New-Hartford and
Paris hill. Bridgewater, *Gray*, and Perch lake, *W. A. Wood* in herb. *Ham.*
Coll. Near Oswego, *Knieskern*, *Torrey Fl. N.Y.* Frequent. July, August.

PUMILA, L. *Dwarf Evening-primrose.*
Sandy fields, cleared uncultivated land, poor meadows.
Common. June, July.

GAURA, L. *Gaura.*
BIENNIS, L. *Biennial Gaura.*
Dry fields and river-banks. Along the Mohawk at Fort-Plain, *B. D. Gilbert*.
In a berry field on Graefenberg hill, *J. G. Crocker*. Banks of Seneca lake,
Gray in herb. *Beck*, *Sartwell* in herb. *Ham. Coll.* Owego, Tioga county,
Knieskern. Parma, Monroe county, *Bradley*. Scarce. August - October.

LUDWIGIA, L. *False Loosestrifes.*
ALTERNIFOLIA, L. *Seedbox. Alternate-leaved Ludwigia.*
Borders of swamps in Tarrytown and wet woods in Westchester, *Hall*. Al-
bany, *G. W. Clinton* in herb. *Beck*. Schenectady, on the banks of the Mo-
hawk, *Pearson*. Rare. July, August.

PALUSTRIS, Elliott. *Marsh Ludwigia.*
Muddy edges of pools and streams. Common. June - October.

CIRCÆA, Tournefort. *Enchanter's Nightshade.*
LUTETIANA, L. *Mignonette-like Circæa.*
Damp woods. Common. June, July.

ALPINA, L. *Mountain Circæa.*
Shaded springy banks, ravine-sides. Common. July, August.

PROSERPINACA, L. *Mermaid-weeds.*
PALUSTRIS, L. *Marsh Mermaid-weed.*
Stagnant water, ponds. Albany, *Beck* in herb. In a beaver meadow south
of Vernon, *J. S. Douglass*, *Knieskern*. Gorham marshes, Ontario county,
Sartwell. Scarce. July, August.

PECTINACEA, Lamarck. *Pectinate-leaved Mermaid-weed.*
Ditches in a beaver meadow near Vernon village, *J. S. Douglass*, *Knieskern*
cat. Rare. July.

MYRIOPHYLLUM, Vaillant. *Water-milfoils,*
SPICATUM, L. *Spiked-flowered Myriophyllum.*
Ponds, lakes. Yates county, *Sartwell* in herb. *Ham. Coll.* Irondequoit bay,
Monroe county, *C. M. Booth*. Rare. July, August.

VERTICILLATUM, L. *Whorled-flowered Myriophyllum.*
Still waters. Sander's lake, *Pearson*. Oneida county, *Knieskern*.
Uncommon. July - September.

HETEROPHYLLUM, Michx. *Variable-leaved Myriophyllum.*
Pools and marshes. Borders of the Irondequoit bay of Lake Ontario, *C. M.*
Booth. Scarce. June - August.

TENELLUM, *Bigelow*. *Slender Myriophyllum*.
Gravelly bottoms of ponds in shallow water. Northern part of the State,
Torrey Fl. N.Y. Rare. July, August.

HIPPURIS, *L.* *Mare's-tail*.

VULGARIS, *L.* *Common Hippuris*.
Lakes. Sander's lake, Scotia, *Pearson*. Schuyler's lake, Otsego county;
Alexandria bay, *G. W. Clinton*. Cayuga lake, *J. Smith in herb. Ham. Coll.*
Rare. June - August.

CACTACEÆ. *Cactus*.

OPUNTIA, *Tourn.* *Prickly Pear. Indian Fig*.

VULGARIS, *Miller*. *Common Opuntia*.
Rocks and sands. The most northern locality in the State is Fairfield, Her-
kimer county, where it was found by Prof. HADLEY, *Torrey Fl. N.Y.* In
herb. Hadley, without habitat. June, July.

GROSSULACEÆ. *Currants*.

RIBES, *L.* *Gooseberries. Currants*.

CYNOSBATI, *L.* *Prickly, Dog-bramble Gooseberry*.
Hillsides. Common. May.

HIRTELLUM, *Michx.* *Hairy Gooseberry*.
Rocky woods. Steep banks near Utica. Yates county, *Sartwell in herb.*
Ham. Coll. Frequent. May.

ROTUNDIFOLIUM, *Michx.* *Smooth, Round-leaved Gooseberry*.
Cold swamps. Abundant in the State swamp near Jerusalem hill. Hidden
lake. June.

LACUSTRE, *Poiret*. *Swamp Gooseberry*.
Upland swamps, northern part of the State, *Torrey Fl. N.Y.* Hanging from
wet rocks, in the spray from Fall brook, four miles north of Taberg. More
above, along Fish creek. Rare. May, June.

PROSTRATUM, *L'Héritier*. *Prostrate Currant*.
Common in cold cedar swamps, and along woodland brooks on the hills. May.

FLORIDUM, *L'Héritier*. *Flowering Currant*.
Wet woods and open grounds. Common. May.

RUBRUM, *L.* *Red Currant*.
Swampy woods, low shaded flats of streams, hillsides and ravines. Frequent.
The true native variety, along a small stream on hills north of Salmon
falls: different from the Red Currant of the gardens, *Vasey*. May.

CUCURBITACEÆ. *Cucumbers*.

SICYOS, *L.* *Single-seeded Cucumber*.

ANGULATUS, *L.* *Angular-leaved Sicyos*.
Waste places in and near cities; occasional along streams. Common in Utica.
July - October.

ECHINOCYSTIS, *Torr. & Gr.* *Prickly Cucumber. Balsam-apple*.

LOBATA, *Torr. & Gr.* *Lobed-leaved Echinocystis*.
River-bottoms. Common throughout the valley of the Mohawk, on all parts
of the flats, from the river banks, along fences and brooks to the hills.
July, August.

CRASSULACEÆ.

SEDUM, L.

TERNATUM, *Michx.*

Takes possession of shaded banks in gardens and lawns. May - July.

TELEPHIOIDES, *Michx.*

High on the cliffs at Chittenango falls; where it hangs from clefts and seats of the rocks, within reach of the spray. June.

TELEPHIUM, L.

Gravelly banks and shores. Common down the valley of the St. Lawrence; on the Thousand Islands, at Alexandria bay. Escapes into roads, fences, banks. Littlefalls. Trenton. Utica. Frankfort hill. August - September.

PENTHORUM, *Gronovius.*

SEDOIDES, L.

Roadsides, ditches, swamps.

SAXIFRAGACEÆ.

SAXIFRAGA, L.

AIZOIDES, L.

Wet cliffs on the east branch of Fish creek. Discovered many years ago, by *Knieskern and Vasey*, at its lowest station between the Railroad and Taberg, on an upright rocky side, wet by a brook pouring over into the creek; in company with *Primula mistassinica*. Here, however, there are only a few plants, on the space of a few square feet, wanderers from the multitude above. The creek comes from the north for many miles through a deep ravine, and, flowing from one side to the other, causes upright rocky precipices, which vary in height from fifty to one hundred and twenty-five, and in length from one hundred to one thousand feet. The woods still remain above, so that these precipices are always wet with dripping water. On these cold wet rocks, in shade or looking towards the north, the *Yellow Mountain Saxifrage* abounds, frequently in mats. It bears many flowers, and the golden clusters, visible at a distance, may be found in June. Local.

VIRGINIENSIS, *Michx.*

Rocks. Little falls; Trenton falls; Fish creek; Chittenango falls; Black river; Alexandria bay. Frequent. April, May.

PENNSYLVANICA, L.

Low borders of streams, swamps.

MITELLA, *Tourn.*

DIPHYLLA, L.

Woods and ravine-sides.

NUDA, L.

Arbor-vitæ swamps. Common about decaying stumps and logs, overrunning them, in damp moss and deep shade, with *Listera cordata* and *Corallorhiza innata*, a beautiful and interesting plant. Frequent. May, June.

TIARELLA, L.

CORDIFOLIA, L.

Hilly woods.

CHRYSOSPLENIUM, *Tourn.*AMERICANUM, *Schweinitz.*

Swamps, springy places, rivulet borders, in the shade.

*Orpines.**Stonecrop.**Ternate-leaved Sedum.**Orpine-like Sedum.**Orpine. The Ancient Telephion.**Ditch Stonecrop.**Sedum-like Penthorum.*

Common. July - September.

*Saxifrages.**Aizoon-like Saxifraga.**Early, Rock Saxifraga.**Swamp Saxifraga.**Fringe-cup. Mitre-wort.**Two-leaved-stemmed Mitella.*

Common. April, May.

*Leafless-stemmed Mitella.**Bishop's-cap.**Cordate-leaved Tiarella.*

Common. May.

*Golden Saxifrage.**American Chrysosplenium.*

Common. April, May.

HAMAMELACEÆ.

Witch-hazels.

HAMAMELIS, L.

Witch-hazel.

VIRGINICA, L.

Virginian Hamamelis.

Low woods and thickets; sides and bottoms of ravines.

Common. September - November.

UMBELLIFERÆ.

*Umbellifers.*HYDROCOTYLE, *Tourn.**Water Pennywort.*

AMERICANA, L.

American Hydrocotyle.

Springy banks, brooks, wet rocks.

Common. June - September.

UMBELLATA, L.

*Umbellate Hydrocotyle.*Springs and shores. Near Albany, *Beck and Tracy, Torrey Fl. N. Y.*

Rare. June - August.

SANICULA, *Tourn.**Sanicles.*

CANADENSIS, L.

Canadian Sanicula.

Dry woods and thickets.

Infrequent. June, July.

MABLANDICA, L.

Maryland Sanicula.

Swamps, damp woodlands.

Common. June - August.

DAUCUS, *Tourn.**Wild Carrot.*

CAROTA, L.

*Common Carrot.*Railroads, roadsides, waste places. Banks of the Mohawk, *Pearson.* Near Utica. Auburn, *I. H. Hall.*

Uncommon. June - September.

HERACLEUM, L.

*Cow Parsnip.*LANATUM, *Michx.**Woolly Heracleum.*

Flats of streams, low meadows. Common in the valley of the Mohawk. June.

PASTINACA, *Tourn.**Wild Parsnip.*

SATIVA, L.

Common, Sowed Pastinaca.

Roadsides, fences, banks of streams.

Common. July.

ARCHANGELICA, *Hoffmann.**Archangelicas.*HIRSUTA, *Torr. & Gr.**Downy Archangelica.*Borders of woods. Albany, *Beck in herb.* Yates county, *Sartwell in herb.* *Ham. Coll.* About Rochester, *C. M. Booth.*

July, August.

ATROPURPUREA, *Hoffm.**Dark-purple-stemmed Archangelica.*

Common on the flats of the Mohawk throughout.

June.

CONIOSELINUM, *Fischer.**Hemlock Parsley.*CANADENSE, *Torr. & Gr.**Canadian Conioselinum.*Cold swamps, in shade. Oriskany swamp, a very rare plant, *Knieskern.* On the banks of Chenango river, *Knieskern, Torrey Fl. N. Y.*

Rare. August, September.

ÆTHUSA, L.

Fool's Parsley.

CYNAPIUM, L.

Dog's-poison Æthusa.

Waste places in cities, villages. Common in Clinton.

July, August.

- THASPIUM, Nuttall.** *Meadow Parsnip.*
BARBINODE, Nuttall. *Fringed-jointed Thaspium.*
 Borders of woods and rivers. Valley of the Chemung river, *Knieskern*,
Torrey Fl. N.Y. Genesee valley, abundant, *C. M. Booth*.
 Scarce. June, July.
- AUREUM, Nuttall.** *Golden-flowered Thaspium.*
 Wet meadows and along streams.
 var. **APTERUM, Gray.** *Wingless-fruited-sharp-leaved Thaspium.*
 Open woods and damp meadows, Oriskany, *Knieskern*.
 Frequent. May, June.
- TRIFOLIATUM, Gray.** *Three-parted-leaved Thaspium.*
 var. **APTERUM, Gray.** *Wingless-fruited-round-leaved Thaspium.*
 Meadows. Yates county, *Sartwell in herb. Ham. Coll.* Rare. May.
- ZIZIA, DC.** *Zizia.*
INTEGERRIMA, DC. *Perfectly-entire-leaved Zizia.*
 Dry woods and rocks. Abundant in the pine woods of Schenectady county.
 Gravelly borders of Oneida lake, *Knieskern*. Rocky banks of the Black river
 below Watertown. Scarce. May, June.
- CICUTA, L.** *Water Hemlock.*
MACULATA, L. *Spotted-stemmed Cicuta.*
 Wet meadows, streams, swamps. Common. July, August.
- BULBIFERA, L.** *Bulb-bearing Cicuta.*
 Borders of marshes, creeks, lakes. Common in the north woods.
 Frequent. August.
- SIUM, L.** *Water Parsnip.*
LINEARE, Michx. *Linear-leaved Sium.*
 Shady swamps. Common. July, August.
- CRYPTOTÆNIA, DC.** *Honewort.*
CANADENSIS, DC. *Canadian Cryptotænia.*
 Shaded places; about dwellings, orchards. Frequent in rich woods, and
 common in thickets on the banks of the Mohawk. Abundant. June - Aug.
- OSMORRHIZA, Rafinesque.** *Sweet Cicely.*
LONGISTYLIS, DC. *Long-styled Osmorrhiza.*
 Fertile open woods. Uncommon. June, July.
- BREVISTYLIS, DC.** *Short-styled Osmorrhiza.*
 Rich woods, ravines. Common. June - August.
- CONIUM, L.** *Poison Hemlock.*
MACULATUM, L. *Spotted-stemmed Conium.*
 Fences, waste places, damp banks. Frequent in towns, roadsides. Common
 on the banks of the Erie canal; Schenectady; Littlefalls; Herkimer; Utica:
 often forming thickets. July.
- CARUM, L.** *Caraway.*
CARUI, L. *Common Carum.*
 Roadsides, remote from dwellings, naturalized. Frequent. May - July.

ARALIACEÆ.

*Aralias.*ARALIA, *Tournefort.**Sarsaparilla.*RACEMOSA, *L.**Spikenard. Racemose Aralia.*

Fertile woodlands; sides and bottoms of ravines. Abundant. July, August.

HISPIDA, *Michx.**Bristly Aralia.*

Rocks and swamps. Littlefalls. Sides of the Black river. Abundant in the sandy swamp west of Fort Bull, Rome. Frequent. June, July.

NUDICAULIS, *L.**Leafless-stemmed Aralia.*

Woods, both high and low. Common. May, June.

QUINQUEFOLIA, *Gray.**Ginseng. Five-leaved Aralia.*

Ravines and thickets, where it has eluded the hunter; exhausted in many regions, but common in the remote woods. June, July.

TRIFOLIA, *Gray.**Groundnut. Three-leaved Aralia.*

Moist woods and their borders, in deep soil. Common. April, May.

CORNACEÆ.

*Cornels.*CORNUS, *Tournefort.**Dogwoods.*CANADENSIS, *L.**Dwarf Cornel. Canadian Cornus.*

Shaded sandy woods. Common. May, June.

FLORIDA, *L.**Flowering Cornus.*Hilly woods. Schenectady, along the Platte kill, *Pearson*. Otsego county, *H. Lathrop*. Banks along the outlet of Owasco lake, *I. H. Hall*. Abundant in Yates county, *Sartwell*. Monroe county, *Bradley*. Uncommon. May.CIRCINATA, *L'Heritier.**Rounded-leaved Cornus.*Borders of woods and thickets near water. Pine woods of Schenectady county. Oneida county, *Knieskern*. Trenton falls, *Hadley in herb*. Alexandria bay, on the islands of the river. Frequent. June.SERICEA, *L.**Silky Cornus.*Swamps and water-sides. Summit lake, Otsego county. About Onondaga lake. Alexandria bay. Lake marshes, Yates county, *Sartwell*. Infrequent. June.STOLONIFERA, *Michaux.**Stolon-bearing Cornus.*

Wet flats of streams. Abundant. May, June.

PANICULATA, *L'Heritier.**Panicled Cornus.*

Thickets along the sides of streams. Banks of the Mohawk. Frequent. June, July.

ALTERNIFOLIA, *L.**Alternate-leaved Cornus.*

Open woods. Common. May.

NYSSA, *L.**Tupelo. Pepperidge.*MULTIFLORA, *Wangenheim.**Many-flowered Nyssa.*Occasional on the flats of the Mohawk. Borders of Otsego lake. *Miss S. Cooper*. Near Vernon, *Prof. O. Root*. Near Oneida lake, *Knieskern*. Infrequent. April, May.

B. MONOPETALOUS EXOGENS.

CAPRIFOLIACEÆ.

Honeysuckles.

LINNÆA, *Gronovius*.

Twin-flower.

BOREALIS, *Gronov*.

Northern Linnæa.

Shady banks and arbor-vitæ swamps. Common in all the cold marshes on the highlands south of the Mohawk, Summit lake, Mud lake, State swamp, Hidden lake. Little falls above the south cliff. Springy wooded slopes on the flats of the Mohawk between Frankfort and Utica. Ravine sides in Deerfield and Marcy. Cedar swamp on Paris hill. Sides of the Black river below Watertown, in evergreen shade. Frequent. June - August.

SYMPHORICARPUS, *Dillenius*.

Snowberry.

RACEMOSUS, *Michx*.

Racemose Symphoricarpus.

Rocky banks. Helderberg Prospect rock, *Pearson*. Otsego county, *H. Lathrop*. Along the Black river between Watertown and Dexter. Genesee falls, *Carey in herb. Ham. Coll.* Genesee river banks, Greece, *Bradley*. Rare. June, July.

VULGARIS, *Michx*.

Coral-berry. Common Symphoricarpus.

Borders of Seneca lake, *Sartwell in herb. Ham. Coll.* Occasionally admitted into gardens and ornamental grounds. July - September.

LONICERA, *L*.

Honeysuckles.

SEMPERVIRENS, *Aiton*. Trumpet-honeysuckle. Evergreen Lonicera.

Banks near the river, Tarrytown and on the hills eastward, *I. H. Hall*. Thickets along the borders of Otsego lake, *B. D. Gilbert*: *H. Lathrop*. Rare. June, July.

GRATA, *Aiton*.

True Woodbine. Pleasant Lonicera.

Rocky hillsides. Otsego county, *H. Lathrop*. Shore of Lake Ontario, two miles northeast of Oswego. Rare. May.

PARVIFLORA, *Lamarck*.

Small-flowered Lonicera.

Rocks and damp banks. Schenectady. Littlefalls. Swamps about Oriskany, *Knieskern*. Beyond Fort Bull, Rome. Along Wood creek. Rocky ravine-sides of Fish creek. Borders of Onondaga lake. Rocky banks of the Black river. Frequent. May.

HIRSUTA, *Eaton*.

Hairy Lonicera.

Rocks and shaded woods. Helderberg mountains, *Pearson*. Otsego county, *Miss S. Cooper*. Fairfield, Herkimer county, *Eaton bot*. On the berm bank of the Erie canal about halfway between Oriskany and Rome, in low grounds, *Knieskern*. Rocky woods down the Black river below Watertown. Potter, Yates county, *Sartwell*. Rare. July.

CILIATA, *Muhl*.

Fly-honeysuckle. Ciliate-leaved Lonicera.

Ravine-sides and shady swamps.

Common. April, May.

CÆRULEA, *L*.

Mountain-honeysuckle. Blue-berried Lonicera.

Cold swamps. Near Vernon, *J. S. Douglass*; *Knieskern*. Phelps, Ontario county, *Sartwell*. Rare. May, June.

OBLONGIFOLIA, *Muhl*. Swamp-honeysuckle. Oblong-leaved Lonicera.

Upland swamps on the range of hills south of the Mohawk valley. Headwaters of the Susquehanna river: abundant at Summit lake, Springfield, Otsego county; and at Mud lake, south Herkimer county. Headwaters of the Unadilla river: borders of Hidden lake, Litchfield, and the deep State marsh near Jerusalem corners. Scarce. June.

- DIERVILLA, *Tournefort.* *Bush-honeysuckle.*
 TRIFIDA, *Mænx.* *Three-parted-peduncled Diervilla.*
 Cliffs and ravine-sides. Common. June, July.
- TRIOSTEUM, *L.* *Fever-wort.*
 PERFOLIATUM, *L.* *Perfoliate Triosteum.*
 Shaded rocks and copses on deep soil. Little falls. Oneida county, *Knieskern.*
 Penn-Yan, *Sartwell.* Uncommon. May - July.
- SAMBUCUS, *Tournefort.* *Elders.*
 CANADENSIS, *L.* *Canadian Sambucus.*
 Roadsides, fences, neglected fields. Common. June.
 PUBENS, *Michx.* *Downy Sambucus.*
 Borders of woods, thickets, ravines. Common. May.
- VIBURNUM, *L.* *Arrow-woods. Viburna.*
 NUDUM, *L.* *Withe-wood. Naked-cymed Viburnum.*
 Swamps on the Mohawk flats. Common. June.
 LENTAGO, *L.* *Bending-branched Viburnum.*
 Open woods and banks of streams. Abundant. May.
 DENTATUM, *L.* *Arrow-wood. Toothed-leaved Viburnum.*
 Copses on the flats and banks of the Mohawk. Low lands about Onondaga
 lake. Frequent. June.
 PUBESCENS, *Pursh.* *Downy Viburnum.*
 Rocky banks of streams. Along the College brook, Schenectady, *Pearson.*
 Dexter, Jefferson county, *Vasey.* Borders of Crooked lake, *Sartwell in herb.*
Ham. Coll. Banks of the Genesee below Rochester, *C. M. Booth.*
 Rare. June.
 ACERIFOLIUM, *L.* *Maple-leaved Viburnum.*
 Hilly woods. Common. May, June.
 OPULUS, *L.* *Cranberry-tree. Opulus, Poplar-leaved Viburnum.*
 River-banks. Shores of the Mohawk river, and in low grounds over the flats.
 Abundant. June.
 LANTANOIDES, *Michaux.* *Hobblebush. Lantana, Wayfaring-tree-like*
Viburnum.
 Damp, sandy or hilly woods. Frequent in ravines and abundant on the hills:
 Graefenberg hill, Paris hill. In full force in the North woods, often so com-
 pletely covering the ground as to render the forests impassable.
 May, June.
- RUBIACEÆ. *Madders.*
- GALIUM, *L.* *Cleavers. Galia.*
 APARINE, *L.* *The Ancient Aparine.*
 Shaded swamps. Frequent. June.
 ASPRELLUM, *Michx.* *Rough Galium.*
 Wet meadows and low woods. Common on the flats of the Mohawk. July.
 TRIFIDUM, *L.* *Three-parted-peduncled Galium.*
 Cold grassy and mossy swamps. Summit lake, Otsego county. Mud lake,
 Hidden lake, and the State marsh, south Herkimer county. Spring bogs near
 Fish creek and Point of Rock. Rare.

- var. *TINCTORIUM*, Torr. & Gr. *Dyer's Galium.*
Marshes. Abundant.
- var. *LATIFOLIUM*, Torr. *Broad-leaved Galium.*
Borders of marshes and streams. Uncommon. June, July.
- TRIFLORUM*, Michx. *Fragrant-drying, Three-flowered Galium.*
Damp groves. Common. July.
- PILOSUM*, Aiton. *Hairy Galium.*
Dry sandy plains near Oneida lake, *Knieskern*. Junius, Seneca county, *Sartwell in herb. Ham. Coll.* Scarce. June, July.
- CIRCÆZANS*, Michx. *Circœa-like Galium.*
Copses, borders of dry woods. Frequent. June.
- LANCEOLATUM*, Torr. *Lanceolate-leaved Galium.*
Wooded banks. Uncommon. June, July.
- BOREALE*, L. *Northern Galium.*
Cliffs, rocks, river-banks. Valley of the Mohawk from Schenectady to Littlefalls. Fairfield, *Hadley in herb.* Banks of Oneida creek, *Knieskern*. Rocks of the Black river. Sometimes in swamps; West-Bergen. Genesee county. Frequent. June - August.
- CEPHALANTHUS*, L. *Button-bush.*
OCCIDENTALIS, L. *Western Cephalanthus.*
Muddy swamps, borders of ponds, lakes. Abundant in the northeastern part of the State. Mud lake, south Herkimer county. Mohawk valley: Littlefalls; Below Utica on the flats, around a pond; opposite Whitesboro, a swamp full. Black brook and Oneida lake. About Onondaga lake. Outlet of Owasco lake, *I. H. Hall.* Abundant. July.
- MITCHELLA*, L. *Partridge-berry.*
REPENS, L. *Creeping Mitchella.*
Woods, moist and shady places. Common. June, July.
- OLDENLANDIA*, Plumier. *Bluets. Oldenlandias.*
PURPUREA, Gray. *Purple-flowered Oldenlandia.*
var. *LONGIFOLIA*, Gray. *Long-leaved Oldenlandia.*
Rocks and dry soils. Otsego county, *H. Lathrop*. Rocky islands in Black river at Rutland, Jefferson county, *J. G. Crocker*. Gravelly sides of the river between Watertown and Sackett's-harbor. Scarce. May, June.
var. *CILIOLATA*, Gray. *Fringed-leaved Oldenlandia.*
Gravelly hillsides along the shore of Lake Ontario. Sackett's-harbor and banks of Black river, *Knieskern*. Abundant on the hill-slopes around the Old Fort at Oswego. Genesee falls, *Aiken in herb. Sartwell Ham. Coll.* Rochester, *C. Dewey.* May, June.
- CÆRULEA*, Gray. *Blue-flowered Oldenlandia.*
Damp places on the banks of Black river, from Remsen, *Miss J. E. Johnson*, to Watertown and Dexter. Otsego county, *H. Lathrop*. May - September.

VALERIANACEÆ.

Valerians.

VALERIANA, *Tournefort.*SYLVATICA, *Banks.*

Woodland Valerian.

Very abundant in a sphagnous swamp in Wayne county, near the shore of Lake Ontario, where it was discovered in 1833 by Dr. SARTWELL, *Gray in Rare plants of Northern and Western N.Y.* Wayne county, *Sartwell in herb. Ham. Coll.* Common in all parts of the swamp in West-Bergen, north-western Genesee county. At this station the flowers are pure white always, both in the open marsh and its shady borders. Rare. June.

FEDIA, *Gærtner.*

Corn Salad.

OLITORIA, *Vahl.*

Garden Fedia.

Cultivated grounds, roadsides. Scottsville, Monroe county, *L. Holzer.* Rare. May.

FAGOPYRUM, *Torr. & Gr.*Buckwheat, *Fagopyrum Fedia.*

Mohawk flats near Utica, *Gray.* Borders of a long narrow mud-pond below the city, on the north side of the river, once the bed of the stream. Rare. May.

DIPSACEÆ.

Teasels.

DIPSACUS, *Tournefort.*

Fuller's Thistles.

SYLVESTRIS, *Miller.*

Wild Teasel. Wood Dipsacus.

Roadsides.

Common. July, August.

FULLONUM, *Miller.*

Fuller's Dipsacus.

Escaped from cultivation. Schenectady, *Pearson.* Auburn and Skaneateles, *I. H. Hall.* July.

COMPOSITÆ.

Composites.

VERNONIA, *Schreber.*

Iron-weed.

NOVEBORACENSIS, *Willd.*

New-York Vernonia.

Low grounds and drained swamps. Tarrytown, *I. H. Hall.* Wayne county, *Sartwell in herb. Ham. Coll.* Rare. August, September.

EUPATORIUM, *Tournefort.*Thoroughworts, Bonesets. *Eupatoria.*PURPUREUM, *L.*

Purple Eupatorium.

Banks of streams; low thickets.

Common. August.

HYSSOPIFOLIUM, *L.*

Hyssopus-leaved Eupatorium.

Dry hillsides. Nyack, on the Hudson river, *I. H. Hall.* Rare. August.

TEUCRIFOLIUM, *Willd.*

Teucrium-leaved Eupatorium.

Edges of low woods and swampy ground, near Tarrytown, *I. H. Hall.*

Rare. August.

SESSILIFOLIUM, *L.*

Sessile-leaved Eupatorium.

Wooded banks. Oneida county, *Gray in herb. Sartwell Ham. Coll.*

Rare. August.

PERFOLIATUM, *L.*

Common Boneset, Connate-leaved Eupatorium.

Open swamps and grassy bottoms of ravines. Common. July, August.

AGERATOIDES, *L.*

Ageratum-like Eupatorium.

Woods, streams,

Common. August - October.

- MIKANIA**, *Willd.* *Climbing Hemp-weed.*
SCANDENS, *L.* *Ascending Mikania.*
 Shaded swamps. Sleepy-hollow stream, Tarrytown, *I.H.Hall.* Low grounds near Oneida lake, *Knieskern.* Marshes around Onondaga lake.
 Infrequent. July - September.
- NARDOSMIA**, *Cassini.* *Sweet Coltsfoot.*
PALMATA, *Hooker.* *Hand-leaved Nardosmia.*
 Cold swamps. Near Saratoga, *Dr. Steele, Torrey & Gray Fl., Prof. Hitchcock, Torrey Fl. N.Y.* Dundee, N.Y., *Wright in herb. Sartwell Ham. Coll.* Valley of the Genesee river between Rochester and Lake Ontario, in a cleared swamp, *C. M. Booth.* Rare. May.
- TUSSILAGO**, *Tournefort.* *Common Coltsfoot.*
FARFARA, *L.* *From the ancient Farfarus. River-side Tussilago.*
 Brooksidés at the crossing of roads; flats of creeks; far up ravines in woods.
 Common. April.
- SERICOCARPUS**, *Nees von Esenbeck.* *White-topped Aster.*
CONYZOIDES, *Nees.* *Conyza-like Sericocarpus.*
 Copses, wooded hillsides. Infrequent. July, August.
- ASTER**, *L.* *Starworts. Asters.*
CORYMBOSUS, *Aiton.* *Corymbéd Aster.*
 Borders of woods. Common. July, August.
- MACROPHYLLUS**, *L.* *Large-leaved Aster.*
 Damp shaded banks. Abundant. August - October.
- PATENS**, *Aiton.* *Spreading Aster.*
 Dry hillsides. Frequent.
- var. PHLOGIFOLIUS**, *Torr. & Gr.* *Phlox-leaved Aster.*
 Shaded hillsides. Common at Tarrytown, *I.H.Hall.* Schenectady, *Pearson.*
 Infrequent.
- LÆVIS**, *L.* *Smooth Aster.*
 Thickets. Banks of the east side of Onondaga lake. Occasional.
- var. LÆVIGATUS**, *Torr. & Gr.* *Smooth-stemmed Aster.*
 Copses. Yates county, *Sartwell in herb. Ham. Coll.* Frequent.
- var. CYANEUS**, *Torr. & Gr.* *Azure Aster.*
 Open woods. Tarrytown, common, *I. H. Hall.* Penn-Yan. *Sartwell in herb. Ham. Coll.* Abundant.
- UNDULATUS**, *L.* *Wavy-leaved Aster.*
 Dry woodlands. Common.
- CORDIFOLIUS**, *L.* *Heart-leaved Aster.*
 Shaded hillsides. Common.
- SAGITTIFOLIUS**, *Willd.* *Arrow-leaved Aster.*
 Open banks. Auburn, common, *I. H. Hall.* Yates county, *Sartwell in herb. Ham. Coll.* Abundant.
- ERICOIDES**, *L.* *Heath-like Aster.*
 Roadsides; neglected, cleared land. Common.

- MULTIFLORUS, *Aiton.* *Many-flowered Aster*
Barren fields, dry hills, Abundant.
- DUMOSUS, *L.* *Bushy Aster.*
Copses, banks, along water-courses. Frequent.
- TRADESCANTI, *L.* *TRADESCANT'S Aster.*
Streams and damp woods. Tarrytown, *I. H. Hall.* Schenectady, *Pearson.*
Abundant.
- MISER, *L.* *Deficient-flowered Aster.*
Thickets, waste-places. Common.
var. GLOMERELLUS, *Torr. & Gr.* *Glomerate-spiked-flowered Aster.*
Yates county, *Sartwell in herb. Ham. Coll.*
var. DIFFUSUS, *Torr. & Gr.* *Diffuse-branched Aster.*
Yates county, *Sartwell in herb. Ham. Coll.*
A depauperate form of this variety abounds on the cold wet cliffs of Fish creek.
var. HIRSUTICAULIS, *Torr. & Gr.* *Hirsute-stemmed Aster.*
Albany, *Beck, Torrey & Gray Fl.* Wayne county, *Sartwell, Torr. & Gr. Fl. in herb. Ham. Coll.*
- SIMPLEX, *Willd.* *Simple-stemmed Aster.*
Ravines and shady swamps. Often.
- CARNEUS, *Nees von Esenbeck.* *Flesh-colored Aster.*
Low grounds Yates county, *Sartwell in herb. Ham. Coll.*
The old form *A. GREENII, Torrey & Gray,* between North and South Colleges, Schenectady, *Tuckerman, Pearson.* Rare.
- LONGIFOLIUS, *Lamarck.* *Long-leaved Aster.*
Low woods on islands in the Pocantico above Tarrytown, *I. H. Hall.* Jefferson county, *Crawe in herb. Sartwell Ham. Coll.* Rare.
- PUNICEUS, *L.* *Purple-stemmed Aster.*
Low grounds. Common.
var. VIMINEUS, *Torr. & Gr.* *Slender-stemmed Aster.*
Deep woods and swamps. Frequent.
- PRENANTHOIDES, *Muhl.* *Prenanthes-like Aster.*
Damp rich woods. Common in Oneida county, *Gray.* Western part of the State, *Torrey & Gr. Fl.; Knieskern and Sartwell, Torrey Fl. N.Y.* Watertown, *Crawe;* Dundee, Yates county, *Wright;* Penn-Yan, *Sartwell;* in *herb. Ham. Coll.* Abundant.
- NOVÆ-ANGLIÆ, *L.* *New-England Aster.*
Roadsides, streams, open swamps. Common.
- ACUMINATUS, *Michx.* *Acuminate-leaved Aster.*
Rocks, ravines and hills, in moisture and shade. Abundant.
- PTARMICOIDES, *Torr. & Gr.* *Ptarmica-like Aster.*
On the rocky banks of Black river, near Watertown, Jefferson county, where it is very abundant, and was first noticed by Dr. CRAWE, *Gray in Rare plants of Northern N.Y.* Rocky banks of the river at Watertown, near the bridge of the road to Dexter, *Gray.* Jefferson county, *Crawe in herb. Ham. Coll.* Banks of Genesee river below Rochester, *C. M. Booth.* Rare. August.

- ERIGERON, L.** *Fleabanes.*
- CANADENSE, L.** *Canadian Erigeron*
Roadsides, waste places; a field weed. Common. July - September.
- BELLIDIFOLIUM, Muhl.** *Daisy, Bellis-leaved Erigeron.*
Rocky hillsides and edges of thickets. Infrequent. May.
- PHILADELPHICUM, L.** *Philadelphia Erigeron.*
Borders of woods, swamps; wet rocks. Common. June, July.
- ANNUUM, Persoon.** *Annual Erigeron.*
Waysides, waste-places. Common. June - August.
- STRIGOSUM, Muhl.** *Hairy Erigeron.*
Neglected fields, poor meadows. Common. June, July.
- DIPLOPAPPUS, Cassini.** *Double-bristled Asters.*
- LINARIIFOLIUS, Hooker.** *Linaria-leaved Diplopappus.*
Rocky, gravelly or sandy soils. Schenectady, *Pearson, Gray.*
Infrequent. August - October.
- UMBELLATUS, Torr. & Gr.** *Umbelled Diplopappus.*
Open swamps. Abundant, especially on the hills. August, September.
- AMYGDALINUS, Torr. & Gr.** *Almond-leaved Diplopappus.*
Marshes. Gorham, Ontario county, *Sartwell.* Dundee, Yates county,
Wright, Vasey. Rare. August.
- CORNIFOLIUS, Darlington.** *Cornus-leaved Diplopappus.*
Open woods. Oswego, *Knieskern in herb. Sartwell Ham. Coll.*
Rare. July - September.
- SOLIDAGO, L.** *Goldenrods.*
- SQUARROSA, Muhl.** *Squarrose-involucered Solidago.*
Dry rocky soil and woods. Abundant at Alexandria bay, *G. W. Clinton.*
Penn-Yan, *Sartwell.* Mount Hope and banks of the Genesee below Roches-
ter, *C. M. Booth.* Rare.
- BICOLOR, L.** *Silver-rod. Two-colored Solidago.*
Hillsides and barren sandy copses. Abundant.
- LATIFOLIA, L.** *Broad-leaved Solidago.*
Shaded rocks and banks. Common.
- CÆSIA, L.** *Gray-purple-stemmed Solidago.*
Wooded hills, thickets. Frequent.
- PUBERULA, Nuttall.** *Downy Solidago.*
Top of a high hill near Tarrytown, *I. H. Hall.* Rare.
- STRICTA, Aiton.** *Willow-leaved, Wand-like Solidago.*
Sphagnum swamps. Oneida county, *Gray, Torrey Fl. N.Y.* Abundant in
the swamp on Paris hill. Rare. July.
- SPECIOSA, Nuttall.** *Showy Solidago.*
var. *ANGUSTATA, Torr. & Gr.*, or a depauperate form, on the
sides and summit of Bald rock, near Third lake, north Herkimer county.
Rare. August.
- OHIOENSIS, Riddell.** *Ohio Solidago.*
Low lands. Yates county, *Sartwell in herb. Ham. Coll.* In various parts of
Western N.Y., *Knieskern, Sartwell, G. W. Clinton, Torr. & Gr. Fl.* Rare.

- HOUGHTONII, *Torrey & Gray.* *Discovered by HOUGHTON.*
 Damp moss and marl bogs of the swamp in West-Bergen, Genesee county; in company with a number of lake shore plants, *Comandra livida*, *Juniperus sabina*, *Juncus balticus*, *Scirpus torreyi*, and others.
 Leaves sheathing opposite sides of the stem at its base, rigid, narrow, ciliate, all clasping, two to six inches in length, deep green; stems slender, purple; heads large, rays sometimes spreading three-fourths of an inch, in a drooping corymb. A peculiar and beautiful plant. Rare. July.
- NEGLECTA, *Torr. & Gr.* *Unnoticed Solidago.*
 Marshes. Bethel, Ontario county, *Sartwell in herb. Ham. Coll.* Uncommon.
- PATULA, *Muhl.* *Spreading Solidago:*
 Swamps. Common.
- ARGUTA, *Aiton.* *Sharp-serrated-leaved Solidago.*
 Borders of woods and fields. Frequent.
 var. JUNCEA, *Torr. & Gr.* *Reed-like Solidago.*
 Schenectady, *Pearson.* Frequent.
- MUHLENBERGII, *Torr. & Gr.* *Discovered by MUHLENBERG.*
 Bogs, shaded wet bottoms. Schenectady, *Pearson.* Penn-Yan, *Sartwell in herb. Ham. Coll.* Rare.
- LINOIDES, *Solander.* *Linum-like Solidago.*
 Marshes, sphagnum swamps. Junius, Seneca county, *Sartwell in herb. Ham. Coll.* Rare.
- ALTISSIMA, *L.* *High Solidago.*
 Along fences, bottoms of ravines. Common.
- ULMIFOLIA, *Muhl.* *Elm-leaved Solidago.*
 Thickets, river-sides. Frequent.
- ODORA, *Aiton.* *Sweet Goldenrod. Fragrant Solidago.*
 Open woods, hillsides. The earliest one in blossom, *Knieskern.* Rocky banks of Seneca lake, *Vasey.* Uncommon.
- NEMORALIS, *Aiton.* *Hoary Goldenrod. Woodland Solidago.*
 Barren soils. Common.
- CANADENSIS, *L.* *Canadian Solidago.*
 Roadsides, fences. Everywhere without limit.
 var. PROCERA, *Torr. & Gr.* *Towering Solidago.*
 Walls, banks, hills. Common.
- SEROTINA, *Aiton.* *Late-flowering Solidago.*
 Ravine-sides and thickets along streams. Frequent.
- GIGANTEA, *Aiton.* *Giant Solidago.*
 Meadow-fences, open bottoms of ravines. Common.
- LANCEOLATA, *L.* *Bushy Goldenrod. Narrow-leaved Solidago.*
 Flats and banks of the Mohawk. Abundant.
- INULA, *L.* *Enula Campana. Common Elecampane.*
HELENIUM, L. *The Ancient Helenion.*
 Roadsides, extensively naturalized. July, August.

- POLYMNIA, L.** *Leafcups.*
CANADENSIS, L. *Canadian Polymnia.*
 Shaded rocky sides of streams. About Vernon, *J. S. Douglass, Knieskern.*
 Ravine of Chittenango creek, below the falls. Hackney falls, Owasco lake
 outlet, *I. H. Hall.* Gorham, Ontario county, *Sartwell in herb. Ham. Coll.*
 Rare. July - September.
- UVEDALIA, L.** *In honor of ROBERT UVEDALE.*
 Deep ravine of Chittenango creek, at the water side. Borders of Seneca lake,
Sartwell in herb. Ham. Coll. Rare. August, September.
- AMBROSIA, Tournefort.** *Ragweed. Wormwood.*
TRIFIDA, L. *Three-parted-leaved Ambrosia.*
 Forming thickets along the banks of the Mohawk. Common. July, August.
- ARTEMISIÆFOLIA, L.** *Artemisia-leaved Ambrosia.*
 Waysides, waste places. Common. July - September.
- XANTHIUM, Tournefort.** *Cockleburs.*
STRUMARIUM, L. *Struma-healing Xanthium.*
 Yards, streets, waste grounds. Abundant on the low banks of the Mohawk.
 Common. August.
- SPINOSUM, L.** *Thorny Xanthium.*
 Around the Dexter factories, *Knieskern.* Hab. Oriskany, but rare, *P. D. K.*
in herb. Sartwell Ham. Coll. August - October.
- HELIOPSIS, Persoon.** *False Sunflower.*
LÆVIS, Pers. *Smooth Heliopsis.*
 Marshes and streams. Common. August - October.
- RUDBECKIA, L.** *Coneflowers.*
LACINIATA, L. *Deeply-parted-leaved Rudbeckia.*
 Bottoms of ravines, creeks, rivers. Common. July - September.
- FULGIDA, Aiton.** *Fulgent Rudbeckia.*
 Meadows, occasionally, but not permanent. July, August.
- HIRTA, L.** *Rough Rudbeckia.*
 Pastures, meadows and their borders. Common. June, July.
- HELIANTHUS, L.** *Sunflowers.*
GIGANTEUS, L. *Gigantic Helianthus.*
 Low river-banks and marshes of lakes. Frequent. August, September.
- STRUMOSUS, L.** *Tubercled-stemmed Helianthus.*
 Thickets on hillsides and river-banks. Abundant.
 var. **MOLLIS, Torr. & Gr.** *Downy-leaved Helianthus.*
 Penn-Yan, *Sartwell.* Greece, sides of Genesee river, *Bradley.*
- DIVARICATUS, L.** *Divergent Helianthus.*
 Open woods. Common.
- DECAPETALUS, L.** *Ten-rayed Helianthus.*
 Ravine-sides and bottoms. Infrequent.
 var. **FRONDOSUS, Torr. & Gr.** *Leafy-involucered Helianthus.*
 Shady stream-sides. Uncommon.

- TUBEROSUS*, L. *Artichoke. Tuberous Helianthus.*
Walls and fences. Occasional.
- ACTINOMERIS*, Nuttall. *Actinomeris.*
SQUARROSA, Nutt. *Squarrose-involucered Actinomeris.*
Borders of Crooked lake, Yates county, *Sartwell in herb. Ham. Coll.* Western New-York, *Torrey & Gray Fl.* Rare. August, September.
- BIDENS*, L. *Bur-marigolds.*
FRONDOSA, L. *Leafy Bidens.*
Walls, yards, waste places. Common. July - September.
CONNATA, Muhl. *Connate-leaved Bidens.*
Ditches, brooks. Uncommon.
CERNUA, L. *Nodding Bidens.*
Swamps. Frequent.
CHRYSANTHEMOIDES, Michx. *Chrysanthemum-like Bidens.*
Marshes, borders of streams. Abundant.
BECKII, Torrey. *Discovered by L. C. BECK.*
Sander's lake, Scotia, where it was discovered by Dr. BECK, *Pearson.* Canderaga lake, *Miss S. Cooper*: outlet of Schuyler's lake, *Gray.* Southern part of Oneida county *Crawe, Knieskern.* Ponds near Augusta, *J. S. Douglass, Torrey Fl. N.Y.* Oswego falls, *Aiken in herb. Sartwell Ham. Coll.* Sodus bay, *Eaton bot.* Rare. July, August.
BIPINNATA, L. *Bipinnate Bidens.*
Bordering gardens and fields. Seneca lake, *Sartwell.* Scarce.
- HELENIUM*, L. *Helenium.*
AUTUMNALE, L. *Autumnal Helenium.*
Flats of brooks and creeks. Common. September.
- MARUTA*, Cassini. *Mayweed.*
COTULA, DC. *Cup-involucered Maruta.*
Waste places, everywhere. June - September.
- ANTHEMIS*, L. *Camomile.*
ARVENSIS, L. *Field Anthemis.*
Cultivated land and neglected fields. Schenectady, *Pearson.* Sandy cleared grounds at the head of Oneida lake. Penn-Yan, *Sartwell in herb. Ham. Coll.* Rare. June, July.
- ACHILLEA*, L. *Yarrow.*
MILLEFOLIUM, L. *Milfoil Achillea.*
Roadsides, pastures, barren hillsides. On the rocks of Little-falls probably, and along the cliffs of Fish creek doubtless it is native. In the latter habitat, it abounds over the precipices from clefts of rock, in moist soil of ledges and near dripping water or falling streams; far up the creek, for many miles among the woods, above any means of introduction. Common.
var. ROSEA. Penn-Yan, *Sartwell in herb. Ham. Coll.* June - September.
- LEUCANTHEMUM*, Tournefort. *Oxeye Daisy.*
VULGARE, Lamarck. *Common Whiteweed.*
Meadows, pastures, roadsides. Common. June, July.

- TANACETUM, L.** *Tansy.*
VULGARE, L. *Common Tanacetum.*
 Way-sides, fences, in patches. Common. July - September.
- ARTEMISIA, L.** *Wormwoods.*
CANADENSIS, Michx. *Canadian Artemisia.*
 Sandy shores of lakes. Legit. Oneida county, *Knieskern in herb. Sartwell Ham. Coll.* Along Irondequoit bay, *L. Holzer.* Shore of Lake Ontario, Greece, *Bradley.* Rare. July, August.
- VULGARIS, L.* *Mugwort. Common Artemisia.*
 Roadsides in Verona, rare, *Knieskern.* August - November.
- ABSINTHIUM, L.* *Wormwood. The ancient Absinthion.*
 Roadsides. Naturalized in the northern part of the county, *Knieskern.* Waysides on the hills of Litchfield, east of Hidden lake, south Herkimer county. Infrequent. August.
- GNAPHALIUM, L.** *Everlastings.*
DECURRENS, Ives. *Decurrent-leaved Gnaphalium.*
 Old pastures, uncultivated cleared hills. Common. August - October.
- POLYCEPHALUM, Michx.* *Many-headed Gnaphalium.*
 Sandy fields and open woods. Pine plains of Rome, *Knieskern.* Schenectady, *Pearson.* Penn-Yan, *Sartwell.* Uncommon.
- ULIGINOSUM, L.* *Bog Gnaphalium.*
 Roadsides, ditches, low grounds. Common.
- ANTENNARIA, Gartner.** *Everlastings.*
MARGARITACEA, R. Brown. *Pearly Antennaria.*
 Roadsides, pastures, copses. Common. August.
- PLANTAGINIFOLIA, Hooker.* *Plantain-leaved Antennaria.*
 Tops of ravine-banks, dry pastures. Common. April, May.
- ERECHTHITES, Rafinesque.** *Fireweed.*
HIERACIFOLIA, Raf. *Hieracium-leaved Erechthites.*
 Damp woods, clearings; most common after fire. July - September.
- CACALIA, L.** *Indian Plantains.*
SUAVEOLENS, L. *Fragrant Cacalia.*
 Woodlands. Penfield, Monroe county, banks of a stream emptying into Irondequoit bay, *L. Holzer.* Greece, *Bradley.* Avon, Livingston county, *B. D. Greene, Torrey & Gray Fl.* Rare. August - October.
- ATRIPLICIFOLIA, L.* *Atriplex-leaved Cacalia.*
 Deep woods. Genesee river. *Sartwell in herb. Ham. Coll.* Near Rochester, *Z. H. Harris, Bradley.* Rare. July - September.
- SENECIO, L.** *Groundsel.*
VULGARIS, L. *Common Senecio.*
 Common on the Central railroad. Streets and gardens, Utica. Rochester. July - October.
- AUREUS, L.* *Golden Senecio.*
 Wet meadows, swampy woods. Common. May.

- var. *OBOVATUS*, Torr. & Gr. *Obovate-leaved Senecio.*
 Shaded steep between the top of the cliffs and the brow of the heights, at Littlefalls, south side of the Mohawk. Yates county, *Sartwell.*
 Infrequent. June.
- var. *BALSAMITÆ*, Torr. & Gr. *Balsamita Senecio.*
 Rocky banks of Black river opposite and below Watertown, Jefferson county. Abundant in the swamp of West-Bergen, Genesee county, where the whole plant is often very woolly.
 Rare. June.
- var. *LANCEOLATUS*, Oakes. *Long-leaved Senecio.*
 Bald rock near Third lake, north Herkimer county, in wet woods along its base.
 Rare. June, July.
- CNICUS**, *Vaillant.* *Blessed Thistle.*
BENEDICTUS, L. *Reputed Cnicus.*
 Roadsides and about houses. Schenectady, *Pearson.* Oneida county, *Knieskern.*
 Rare. June.
- CIRSIUM**, *Tournefort.* *Common Thistles.*
LANCEOLATUM, Scopoli. *Lanceolate-leaved Cirsium.*
 Pastures, roadsides. Common. June - September.
- DISCOLOR*, *Sprengel.* *Two-colored Cirsium.*
 Borders of woods and fields. Schenectady, *Pearson.* Meadows of the Mohawk between Littlefalls and Palatine bridge. Oneida county, *Knieskern.* Yates county, *Sartwell in herb. Ham. Coll.*
 Infrequent. August.
- MUTICUM*, *Michx.* *Awnless Cirsium.*
 Swamps, marshes, springy hillsides. Common. August - October.
- PUMILUM*, *Sprengel.* *Dwarf Cirsium.*
 Old pastures, uncultivated sandy fields. Schenectady, *Pearson.* Otsego county, *H. Lathrop.* Yates county, *Sartwell in herb. Ham. Coll.*
 Uncommon. July, August.
- ARVENSE*, Scopoli. *Canada Thistle. Field Cirsium.*
 Roadsides, cultivated fields. Common. Flowers white frequently.
 July - September.
- ONOPORDON**, *Vaillant.* *Cotton Thistle.*
ACANTHUM, L. *The ancient Acanthion.*
 Waysides, rocky banks. Fairfield, Herkimer county, *in herb. Hadley.* About Rochester and toward the Lake, *C. M. Booth.* Scarce. July - September.
- LAPPA**, *Tournefort.* *Burdock.*
MAJOR, Gærtner. *Larger Lappa.*
 Waste places. Common. July - October.
- CICHORIUM**, *Tournefort.* *Cichory.*
INTYBUS, L. *The classical Intubus.*
 Roadsides. Abundant in West-Albany, along the Central railroad. Willow vale, New-Hartford. Verona, *Knieskern.* Scarce. July - October.
- KRIGIA**, *Schreber.* *Dwarf Dandelion.*
VIRGINICA, *Willd.* *Virginian Krigia.*
 Dry sandy fields near Oneida lake, *Knieskern.* Rare. May - August.

- HIERACIUM, Tournefort.** *Hawkweeds. Hieracia.*
CANADENSE, Michx. *Canadian Hieracium.*
 Open hilly woods. Frequent. August.
- SCABRUM, Michx.** *Rough Hieracium.*
 Borders of thickets and fields. Common. August.
- GRONOVII, L.** *In honor of GRONOVIIUS.*
 Dry woods. Schenectady, *Pearson.* Near Oneida lake, *Knieskern.* Auburn,
I. H. Hall. Infrequent. July, August.
- VENOSUM, L.** *Veined-leaved Hieracium.*
 Sandy copses and evergreen woods. Schenectady. Common on the Pine
 plains of Rome. Abundant in Yates county, *Sartwell.* Greece, *Bradley.*
 Frequent. June, July.
- PANICULATUM, L.** *Panicled Hieracium.*
 Copses, shady banks. Common at Schenectady, *Pearson.* Oneida county,
Knieskern. North of Oswego on the Lake shore. Auburn, *I. H. Hall.* Yates
 county, *Sartwell in herb. Ham. Coll.* Greece, Monroe county, *Bradley.*
 Abundant. August, September.
- NABALUS, Cassini.** *Rattlesnake-roots.*
ALBUS, Hooker. *White Nabalus.*
 Woods. Common. July, August.
- ALTISSIMUS, Hooker.** *Lofty Nabalus.*
 Deep ravines. Frequent.
- var. **CORDATUS, Torr. & Gr.** *Cordate-leaved Nabalus.*
 Greece, Monroe county, *Bradley.*
- var. **DELTOIDEUS, Torr. & Gr.** *Deltoid-leaved Nabalus.*
 Penn-Yan, Yates county, *Sartwell in herb. Ham. Coll.* August, September.
- TARAXACUM, Haller.** *Dandelion.*
DENS-LEONIS, Desfontaines. *Lion-tooth-leaved Taraxacum.*
 In all grass lands. April - October.
- LACTUCA, Tournefort.** *Wild Lettuce.*
ELONGATA, Muhl. *Long-panicled Lactuca.*
 Open woods, thickets, along fences. Common. July, August.
- MULGEDIUM, Cassini.** *False Lettuce.*
LEUCOPHÆUM, DC. *Gray Mulgedium.*
 Moist woods, river-banks. Frequent. August, September.
- SONCHUS, L.** *Garden Sonchus.*
OLERACEUS, L. *Common. July - September.*
 Borders of cultivated grounds.
- ASPER, Villars.** *Spiny-leaved Sonchus.*
 Waste places, barnyards. Common. August, September.
- ARVENSIS, L.** *Field Sonchus.*
 Fields and water-sides. Oriskany, near the creek. Marshes on the west side
 of Onondaga lake. Waste fields, Auburn, *I. H. Hall.* Roadsides near Ro-
 chester, *L. Holzer.* Scarce. August - October.

LOBELIACEÆ.

Lobelias.

LOBELIA, L.

Lobelias.

CARDINALIS, L.

Crimson, Cardinal-flowered Lobelia.

Boggy woods, water-sides.

Abundant. July, August.

SYPHILITICA, L.

Blue, Large-flowered Lobelia.

Damp grassy woods, swampy rivulets.

Abundant. August.

INFLATA, L.

Indian Tobacco. Inflated-fruited Lobelia.

Meadows, pastures.

Common. July - September.

SPICATA, *Lamarck.*

Spike-racemed Lobelia.

Hillsides and open woods.

Scarce. July, August.

KALMII, L.

KALM'S Lobelia.

Limestone rocks, marl swamps. Frequent on wet rocks in the cliffs above Trenton falls, where it occurs in the regular form.

A larger plant, with all manner of variations, abounds in the limestone country south of Utica, beyond the hills around Cedar lake, on Hidden lake, the State marsh near Jerusalem hill, and Mud lake, southeastern Herkimer county.

Swamp at the foot of Owasco lake, *I. H. Hall.* Junius, *Sartwell in herb. Ham. Coll.* Banks of Genesee river, *C. M. Booth.* Rare. July - September.

DORTMANNA, L.

Water Lobelia. Dedicated to DORTMANN.

Sandy or gravelly bottoms along the borders of all the ponds and lakes in the north woods: abundant there.

Rare. July - September.

CAMPANULACEÆ.

Campanulas.

CAMPANULA, *Tournefort.*

Bellflowers.

ROTUNDIFOLIA, L.

Round-root-leaved Campanula.

Rocks, cliffs. Sandy banks between Albany and Schenectady Little falls. Trenton falls. Fish creek precipices. Chittenango creek cliffs. Ithaca, Tompkins county, *Sartwell in herb. Ham. Coll.*

Abundant where it occurs. July - October.

APARINOIDES, *Pursh.*

Galium, Aparine-like Campanula.

Grassy swamps and shores. Ballston lake, *Pearson.* Fairfield, *in herb. Hadley.* Oriskany thickets and swamps, *Knieskern.* Around Mud lake and the State marsh near Jerusalem hill, south Herkimer county. Near Crooked lake, *Sartwell.*

Scarce. July - September.

AMERICANA, L.

American Campanula.

Low rich woods. Chemung valley, *Knieskern, Torrey Fl N.Y.* In the vicinity of Seneca and Crooked lakes, *Sartwell in herb. Ham. Coll.*

Rare. July - September.

SPECULARIA, *Heister.*

Venus's Looking-glass.

PERFOLIATA, *A. DC.*

Perfoliate Specularia.

Gravelly hills and banks. Schenectady, *Pearson.* Sandy fields near Oneida lake, *Knieskern.*

Infrequent. May - July.

ERICACEÆ.

Heaths.

GAYLUSSACIA, *H. B. K.*

Whortleberries.

RESINOSA, *Torr. & Gr.*

Resinous Gaylussacia.

Swamps, sands and rocks. Most abundant on the low sand plains of Rome, and the Thousand Islands of the St. Lawrence.

Frequent. May, June.

- VACCINIUM, L.** *Cranberries. Blueberries.*
- OXYCOCCUS, L.** *Small Cranberry. Tart-fruited Vaccinium.*
Sphagnum swamps. Summit lake, Otsego county; Mud lake, Hidden lake, State marsh, Frankfort hill ponds, Herkimer county. Oriskany swamp; Paris hill; and abundant in the mossy marshes of the northwestern part of the county and the north woods. Frequent. June.
- MACROCARPON, Aiton.** *Common Cranberry. Large-fruited Vaccinium.*
Cranberry swamps, margins of ponds. Mud lake, Graefenberg hill Hidden lake, south Herkimer county. Common in the Rome swamps; west of Fort Bull; head of Oneida lake. Abundant. June, July.
- STAMINEUM, L.** *Deerberry. Long-stamened Vaccinium.*
Borders of woods. Abundant in the dry plains and pine woods of Schenectady county. I have seen Oneida county specimens, but not growing. *Knieskern.* Frequent in Yates county, *Sartwell.* Rare. June.
- PENNSYLVANICUM, Lamarck.** *Blueberry. Dwarf Vaccinium.*
Sandy fields, hillsides and rocks. The most common species. May.
- CANADENSE, Kalm.** *Downy Vaccinium.*
Cold cedar swamps. Mud lake. and the State marsh of Herkimer county. Bridgewater, *Gray.* Below Utica, in arbor-vitæ swamps on the flats of the Mohawk. Beyond Rome, on borders of deep sphagnum bogs. Rare. June.
- VACILLANS, Solander.** *Wavy-leaved Vaccinium.*
Borders of sphagnum swales. At Rome, common in open woods and sandy plains.
Near Oriskany, Dr. KNIESKERN found a var. with small lanceolate-elliptical leaves, *Torrey Fl. N.Y.* Infrequent. May.
- CORYMBOSUM, L.** *Corymbmed Vaccinium.*
Swamps and low open woods. Common.
- var. **ATROCOCCUM, Gray.** *Black-fruited Vaccinium.*
Borders of woods around bear pond on Frankfort hill. May, June.
- CHIOGENES, Salisbury.** *Creeping Snowberry.*
- HISPIDULA, Torr. & Gr.** *Hispidulous Chiogenes.*
Mossy swamps, under cedars and tamaracks; but on the hills and in the northern part of the county, it abounds in the soil of woods and rocky banks. Frequent. May.
- CALLUNA, Salisbury.** *Heath. Ling.*
- VULGARIS, Salisb.** *Common Calluna.*
Plants from Tewksbury, Mass., have been stationed on the sand plains of Rome; and in the north woods of Herkimer county, on a barren knoll in the beaver meadow beyond Bald rock, north of the Eight lakes, where they ought to flourish and multiply. July - November.
- ARCTOSTAPHYLOS, Adanson.**
- UVA-URSI, Sprengel.** *Bearberry.*
Sandy plains between Albany and Schenectady, *H. Seymour.* Dry sandy hills, pine plains north of New-London, *Knieskern.* Near Oneida lake, *Gray.* On the Thousand islands of the St. Lawrence at Alexandria bay. Rare. May.

- EPIGÆA, L.** *Trailing Arbutus.*
REPENS, L. *Creeping Epigæa.*
 Sandy banks and open woods. Between Albany and Schenectady. Otsego county, *Miss S. Cooper: B. D. Gilbert.* Common on the sands of Rome, completely covering knolls in the swamps, and abundant throughout the dry pine plains. Northern Oneida and Lewis counties, *H. Seymour.*
 Frequent. April, May.
- GAULTHERIA, Kalm.** *Wintergreen.*
PROCUMBENS, L. *Creeping Gaultheria.*
 Sandy woods, swamps, banks. Common. July.
- CASSANDRA, Don.** *Leatherleaf.*
CALYCVLATA, Don. *Bracted-calyxed Cassandra.*
 Peat bogs, borders of ponds. Abundant. April.
- ANDROMEDA, L.** *Andromedas.*
POLIFOLIA, L. *Polium-leaved Andromeda.*
 Sphagnum swamps. Bogs in the sand plains and on the Rotterdam hills of Schenectady county. Summit lake, Otsego county. Mud lake, State marsh, Hidden lake, Frankfort and Graefenberg hills, Herkimer county. South-Trenton; Paris hill; bogs on the pine plains of Rome; around Point of Rock lake. Abundant in the lake marshes of the north woods. Frequent May.
- LIGUSTRINA, Muhlenberg.** *Ligustrum-like Andromeda.*
 Low grounds, borders of woods. A mile or two northeast of Schenectady, and abundant in bushy swamps on the Rotterdam hills. Southern counties, *Knieskern in herb. Sartwell Ham. Coll.* Rare. July.
- KALMIA, L.** *American Laurels.*
LATIFOLIA, L. *Broad-leaved Kalmia.*
 Rocky hillsides near Leatherstocking's Cave, east of Otsego lake, *Misses Bowen.* Arbor-vitæ swamps on the flats of the Mohawk, between Utica and Frankfort; southwest of Utica, near the Chenango canal. Near Oriskany, *Knieskern.* Head of Crooked lake, *Sartwell.* Ithaca, Tompkins county, *Bradley.* Rare. June.
- ANGUSTIFOLIA, L.** *Narrow-leaved Kalmia.*
 Sandy plains and swamps. Schenectady, *Pearson.* Oriskany, *Knieskern.* Abundant throughout the plains of Rome. Junius, Seneca county, *Sartwell in herb. Ham. Coll.* Ithaca, Tompkins county, *Bradley.*
 Frequent. June, July.
- GLAUCA, Aiton.** *Glaucous-leaved Kalmia.*
 Sphagnum swamps and lake marshes. Charlton, Schenectady county, *Jackson.* Otsego county, *H. Lathrop.* South-Trenton. Oriskany swamp formerly, *Gray.* Abundant in the open swamps of Rome. Level mossy border around Point of Rock lake, northwestern part of the county. Northeastern Oneida county, *H. Seymour.* Common in the low borders of ponds and lakes in the north woods. Rare. May.
- AZALEA, L.** *Wild Azaleas.*
VISCOSA, L. *Clammy Azalea.*
 Borders of low woods, bushy swamps. Halfway between Schenectady and Albany, *Pearson.* Near Boonville, *Knieskern.* Rare. June.

NUDIFLORA, L.

Leafless-flowering Azalea.

Swamps and their borders; woods and dry hillsides. Rotterdam hills, Schenectady county. Otsego county, *Miss S. Cooper*. Frankfort and Graefenberg swamps. Whitesboro, *J. S. Gardner*. Common in southern Oneida county and southward, *Gray*. Around the South-Trenton sphagnum swale. Abundant in the low plains of Rome. Rocky banks of the Black river below Wawertown. Abundant. May.

RHODODENDRON, L.

Mountain Laurel.

MAXIMUM, L.

Greatest Rhododendron.

Swamps, sides of streams. Mohawk valley, Schenectady, *Pearson*: west of Oriskany, *Vasey*. Oriskany valley, a mile or two southeast of Clark's mills. Unadilla valley, four miles below Bridgewater, *Gray*. Italy hill, Yates county, *Sartwell*. Rare. July.

LEDUM, L.

Labrador Tea.

LATIFOLIUM, Aiton.

Broad-leaved Ledum.

Swamps on the hills. Cedar swamp adjoining Mud lake; around Wetmore's sphagnum pond, Frankfort hill, Herkimer county. Abundant in the Paris hill swamp. Wooded swamps beyond Rome. Common in the north woods, at the edges of ponds, lakes, and far up their banks into the forests. Scarce. May.

PYROLA, L.

Pyrolas.

ROTUNDIFOLIA, L.

Round-leaved Pyrola.

Rich woods.

Common. June, July.

var. ASARIFOLIA, Torr. & Gr.

*Asarum-leaved Pyrola.*Sandy hills. Near Utica. Yates county, *Sartwell*.

Infrequent.

ULIGINOSA, Torr. & Gr.

Swamp Pyrola.

Cold swamps. Very abundant in the marshes near Summit lake at the top of the hill south of the Mohawk, source of Otsquago creek and the Susquehanna river; where it often covers the surface in patches. Abundant also at Mud lake, south Herkimer county, in shade and wet moss. Sparingly in the Litchfield marshes. Formerly it flourished in the Oriskany swamp, where it was discovered. Leaves orbiculate, on long petioles; flowers many, loose in the raceme, deep purple, the most beautiful of the genus. Rare. June.

ELLIPTICA, Nutt.

Elliptical-leaved Pyrola.

Woods.

Common. June.

CHLORANTHA, Swartz.

Green-flowered Pyrola.

Sandy woods. Schenectady county pine woods, and along the Rolle-boom of the Rotterdam hills. East side of Otsego lake, *B.D. Gilbert*. Plains of Rome, *Knieskern*. Penn-Yan, *Sartwell in herb. Ham. Coll.* Rare. June.

SECUNDA, L.

Onesided-flowering Pyrola.

Dry woods and hillsides, in deep shade.

Common.

In the high cold cedar swamps of Summit lake; Mud lake, State swamp of south Herkimer county, a small form grows in wet moss under evergreens, with small round leaves, half an inch in diameter and less, nearly entire, very light-colored; flowers few, slender. Rare. July.

MONESES, Salisbury.

One-flowered Pyrola.

UNIFLORA, Gray.

Single-flowered Moneses.

Deep woods. Otsego county, *Miss S. Cooper*: *J. S. Douglass, Torr. Fl. N.Y.* Woods at Herkimer, *Gray*. Eaton, Madison county, *Bradley*. Penn-Yan, Yates county, *Sartwell in herb. Ham. Coll.* Rare. June.

- CHIMAPHILA, Pursh.** *Prince's-pine.*
UMBELLATA, Nuttall. *Umbellate Chimaphila.*
 Dry banks, in evergreen shade. Common. June.
- MACULATA, Pursh.** *Spotted-leaved Chimaphila.*
 Sandy woods. Otsego county, common, *Miss S. Cooper.* Pine plains of Rome, scarce. Near Verona, *Knieskern.* Auburn, *I. H. Hall.* Yates county, *Sartwell.*
 Usually with ovate leaves : lanceolate leaves are found in a cedar swamp southwest of Utica, on the Chenango canal. Rare. July.
- PTEROSPORA, Nuttall.** *Pine-drops.*
ANDROMEDEA, Nutt. *Andromeda-flowered Pterospora.*
 Dry shaded banks. Factory glen, and Jantepusche's berg, Rotterdam, six miles west of Schenectady, *Pearson.* Steep sides of Oriskany creek just above Dexter factory, where it was discovered by *VASEY.* Littlefalls, *Cooper;* Sackett's-harbor, *Wood;* Banks of Seneca lake, *Gray;* *Torrey Fl. N.Y.* Penn-Yan, *Sartwell in herb. Ham. Coll.* Rare. August.
- MONOTROPA, L.** *Indian Pipe.*
UNIFLORA, L. *One-flowered Monotropa.*
 Dry woods. Common. July, August.
- HYPOPITYS, L.** *Pine-parasite Monotropa.*
 Open woods of oak and pine. Helderberg mountains, three miles southeast of Knowerville, *Pearson.* Near Moss pond, Otsego county, *B. D. Gilbert.* Moist woods near Oneida lake, *Knieskern.* Yates county, *Sartwell.* Parma, Monroe county, *Bradley.* Scarce. July, August.
- AQUIFOLIACEÆ.** *Hollies.*
- ILEX, L.** *Winterberries.*
VERTICILLATA, Gray. *Verticillate-flowered Ilex.*
 Streams and swamps. Common. June.
- LÆVIGATA, Gray.** *Smooth-leaved Ilex.*
 Low thickets. Major Van Voost's fly, Schenectady, *Pearson.* Infrequent. June.
- NEMOPANTHES, Rafinesque.** *Mountain Holly.*
CANADENSIS, DC. *Canadian Nemopantes.*
 Cold swamps. Frankfort hill, around the sphagnum pond. Paris hill. Abundant in the swamps west of Rome. Dry woods along the summit of the Fish creek cliffs. Common in the north woods about ponds and lakes. Frequent. May.
- PLANTAGINACEÆ.** *Plantains.*
- PLANTAGO, L.**
MAJOR, L. *Common Plantain. Greater Plantago.*
 Damp grounds, waste places. June - August.
- LANCEOLATA, L.** *English Plantain. Lanceolate-leaved Plantago.*
 Roadsides and fields. Common. May - July.

PRIMULACEÆ.

Primroses.

PRIMULA, L.

MISTASSINICA, *Michaux.**From Lake Mistassinnie.*

Cliffs of Fish creek, from Taberg northward; in the crevices of dry rocks and on the surface of wet precipices, with, but outnumbering, *Saxifraga aizoides*. Near dripping water the plants grow most abundantly and largest, often eight or ten inches in height and bearing a cluster of as many flowers. These vary in color, from pure white, through different shades of pink, to deep blue. The leaves also vary in form, from round obovate to oblong lanceolate; often entire, commonly more or less toothed; usually smooth beneath, but frequently white mealy. A whole cliff-side scattered over with these variegated Primroses is one of the loveliest sights in all our flora.

It has been found also in the deep ravine of Hammondsport at the head of Crooked lake, Steuben county, by Dr. SARTWELL. These stations are the southern limits of the plant. In the northern part of the continent its range is extensive, from Labrador and Lake Mistassinnie, to the Rocky mountains and the Northwest coast; and northward to the Arctic circle.

Local. Latter part of May.

DODECATHEON, L.

American Cowslip.

MEADIA, L.

MEAD'S Dodecatheon.

Rich banks. Steuben county, *Sartwell in herb. Ham. Coll.* Rev. Mr. BOSTWICK, formerly of Hammondsport, found this on the Conhocton river below Bath, and introduced it to his garden, from which I collected specimens, *Sartwell.* Rare. May.

TRIENTALIS, L.

*May-star.*AMERICANA, *Pursh.**American Trientalis.*

Moist woods.

Common. May.

LYSIMACHIA, L.

*Loosestrifes.*STRICTA, *Aiton.**Upright Lysimachia.*

Marshy places.

June, July.

QUADRIFOLIA, L.

Whorled-leaved Lysimachia.

Open sandy woods; wet grass lands.

Abundant. June.

CILIATA, L.

Fringed Lysimachia.

Borders of streams, swamps. Common on the shaded banks of the Mohawk, in deep low woods, and cedar swamps on the hills. July, August.

NAUMBURGIA, *Mench.**Naumburgia.*THYRSIFLORA, *Reichenbach.**Thyrsoïd Naumburgia.*

Low meadows of the Mohawk, below Utica, below Oriskany. Swamps on the hills, from Summit lake to Cedar lake and Graefenberg hill. Paris hill. Abundant in the swamps of Rome. Frequent. June.

SAMOLUS, L.

*Water Pimpernel.*VALERANDI, L., var. AMERICANUS, *Gray.**American Samolus.*

Rivulet-sides, grassy marshes. Oriskany valley; Oriskany, Manchester. Abundant about Onondaga lake, along muddy banks, especially at its head, Salina. Infrequent. July - September.

HOTTONIA, L.

*Featherfoil.*INFLATA, *Elliott.**Inflated-peduncled Hottonia.*Still water. Two or three miles west of Dexter, Jefferson county, *Vasey.*

Rare. June.

LENTIBULACEÆ.

Bladderworts.

UTRICULARIA, L.

Utricularias.

VULGARIS, L.

Common Utricularia.

Ponds and their muddy borders. Below Utica, on the flats. Mud lake and Hidden lake, south Herkimer county. Bogs on the meadows of Fish creek above Humaston's. Black brook at the head of Oneida lake. Ponds near Oneida lake, *Knieskern*. Abundant. June, July.

MINOR, L.

Smaller Utricularia.

Swamps, Jefferson county, *Crawe, Gray in Rare plants of Northern N.Y.* Abundant on Hidden lake, among grass in standing water, or along borders of wide places in the rivulet. Scapes ten- to fifteen-flowered: flowers pale yellow, or flesh-colored. Rare. June, July.

CLANDESTINA, Nutt.

Stem-flowering Utricularia.

Pond borders. I have another species of *UTRICULARIA*, collected near Utica by Dr. *KNIESKERN*, which I am unable to determine from the dried and rather imperfect specimens. Its general appearance is that of *U. vulgaris*, but the flowers are scarcely one-third as large as in that species. The spur is short, thick, and very obtuse. At the base of the scape, and along the submerged stem, there are scattered one-flowered peduncles, *Torrey Fl. N.Y.* In a shallow mossy pool on the sphagnum border of Wetmore's pond, Frankfort hill, a few plants. Rare. July.

INTERMEDIA, Hayne.

Intermediate Utricularia.

In very wet swamps, Watertown, Jefferson county, *Crawe, Gray in Rare plants of Northern N.Y.* Jefferson county, *Crawe in herb. Sartwell Ham. Coll.* Wet places on Hidden lake, Litchfield, south Herkimer county, where it is abundant. Rare. June, July.

GIBBA, L.

Gibbous-spurred Utricularia.

In mossy sloughs on Hidden lake. Swamp west of Whitesboro, *Douglass Houghton in herb., G. W. Clinton.* Rare. August.

CORNUTA, Michx.

Horned Utricularia.

Swamps, bogs, shores. Abundant on Hidden lake in wet moss. Sphagnous swamp bordering Perch lake, Jefferson county, *Gray in Rare plants of Northern N.Y.* Frequent on sandy shores of lakes in the north woods. Swamps on the Pine plains of Rome, *Knieskern*. Junius, Seneca county, *Sartwell in herb. Ham. Coll.* Rare. June, July.

PINGUICULA, L.

Butterwort.

VULGARIS, L.

Common Butterwort.

Wet meadows below the falls of Genesee river at Rochester, *Dewey in herb. Union Coll.; Carey in herb. Sartwell Ham. Coll.; Z. H. Harris in herb. Bradley.* Exhausted at Rochester, but said to grow on the walls of the river above or below Portage, *Chester Dewey.* Rare. June, July.

OROBANCHACEÆ.

Broomrapes.

EPIPHEGUS, Nuttall.

Beechdrops.

VIRGINIANA, Barton.

Virginian Epiphegus.

Everywhere in beech woods. The whole plant in color pure golden yellow, in rich woods near Clark's mills. August, September.

CONOPHOLIS, Wallroth.

AMERICANA, Wallr.

American Conopholis.

Rich woods. Schoharie county, *Knieskern*: Oriskany, *Vasey, Torr. Fl. N.Y.* Chestnut woods east of Auburn, *I. H. Hall*. Seneca county, *Sartwell in herb. Ham. Coll.* Oak openings, Parma, Monroe county, *Bradley.* Rare. June.

APHYLLON, *Mitchell*.UNIFLORUM, *Torr. & Gr.**Single-flowered Aphyllon.*

Moist woods. Schenectady, *Pearson*. Shady banks of the Mohawk, *J. G. Crocker*. Pine plains of Rome, *Knieskern*. Infrequent. May, June.

SCROPHULARIACEÆ.

*Figworts.*VERBASCUM, *L.**Mulleins.*THAPSUS, *L.**Common Mullein. From the Ancient Thapsus.*

Roadsides, old fields.

Common. June, September.

BLATTARIA, *L.**Moth Mullein.*

Waysides, pastures, hills. Albany; Schenectady; Littlefalls; round about Utica: the form with white and purple flowers. The bright yellow flowers are abundant in Trenton. Common. June - October.

LYCHNITIS, *L.**White Mullein. The Ancient Lychnitis.*

Barren sandy fields and copses on a ridge at the head of Oneida lake, parallel with the shore, beyond which are swamps. It is most abundant around the mouth of Fish creek. Here are the ruins of an old fort, which may account for the introduction of the plant.

Two hybrids between this species and *V. thapsus*, one resembling the latter with a simple stem and yellow flowers, and the other the former with paniculate branches and white corollas, were observed by *Knieskern*.

Local. July, August.

LINARIA, *Tournefort*.*Toadflax.*VULGARIS, *Miller*.*Common Linaria.*

Roadsides and waste grounds.

Common. June - October.

ELATINE, *Miller*.*The Ancient Elatine.*

Sandy soils. Near Albany, *Beck*; and shores of Cayuga lake, *Gray, Torrey Fl. N.Y.* Formerly in the streets of Geneva, *Sartwell*. Rare. June, July.

SCROPHULARIA, *Tournefort*.*Figwort.*NODOSA, *L.**Nodose-rooted Scrophularia.*

Roadsides, river-banks.

Common. July - September.

COLLINSIA, *Nuttall*.*Collinsia.*VERNA, *Nutt.**Early Collinsia.*

Wet meadows on the flats of the Mohawk, just below Utica. Borders of a small pond near Utica, *Knieskern*. Near Utica, *Gray*; Ithaca, *Aikin, Torrey Fl. N.Y.* Rare. May.

CHELONE, *Tournefort*.*Snakehead.*GLABRA, *L.**Smooth Chelone.*

Grassy swamps.

Common. July - October.

PENTSTEMON, *Mitchell*.PUBESCENS, *Solander*.*Downy Pentstemon.*

Barren gravelly banks. Abundant along the Railroad west of Schenectady to Fort-Plain. Otsego county, *H. Lathrop*. Rocky sides of Black river below Watertown. Seneca lake, *Gray*. Greece, on oak openings, *Bradley*.

Frequent. June - August.

MIMULUS, *L.**Monkey-flowers.*BINGENS, *L.**Gaping-flowered Mimulus.*

Ditches, streams.

Common. July - September.

ALATUS, *Aiton.* *Winged-stemmed Mimulus.*
 Wet meadows, river-sides. Abundant in the western part of New-York,
Beck. Greece, Monroe county, *Bradley.* Lockport, *Sartwell.*
 Infrequent. July, August.

GRATIOLA, *L.* *Hedge-hyssop.*
 VIRGINIANA, *L.* *Virginian Gratiola.*
 Muddy banks, rivulets and overflowed places. Common. June - August.

ILYSANTHES, *Rafinesque.* *False Pimpernel.*
 GRATIOLOIDES, *Bentham.* *Gratiola-like Ilysanthes.*
 Water-sides. Near Oneida lake, *Knieskern, Gray.* Infrequent. July - Sept.

VERONICA, *L.* *Speedwells.*
 VIRGINICA, *L.* *Culver's-root. Virginian Veronica.*
 Borders of low woods, copses. Below Schenectady, *Pearson.* Clinton, *Brad-*
ley. Oriskany, *Knieskern.* Junius and Avon, *Sartwell in herb. Ham. Coll.*
 Infrequent. July.

ANAGALLIS, *L.* *Poor Man's Weatherglass-like Veronica.*
 Rivulets and ponds. Abundant about Cedarville, and down the Ilion creek
 to the Mohawk river: grows to an immense size in the mill-ponds, in deep
 water. Uncommon. June - August.

AMERICANA, *Schweinitz.* *American Veronica.*
 Streams, marshes. Common. June - September.

SCUTELLATA, *L.* *Little Shield-like-podded Veronica.*
 Wet meadows, swamps. Common. May - July.

OFFICINALIS, *L.* *Official Veronica.*
 Dry woods, hillsides, pastures. Common. June.

SERPYLLIFOLIA, *L.* *Thyme-leaved Veronica.*
 Moist grass lands. Common. May - August.

PEREGRINA, *L.* *Travelling Veronica.*
 Rocks, gardens, fields. Common. May, June.

ARVENSIS, *L.* *Cultivated-field Veronica.*
 Dry banks, hillsides, pastures. Frequent. April - August.

BUCHNERA, *L.* *Blue-hearts.*
 AMERICANA, *L.* *American Buchnera.*
 Wet meadows and along streams. Chenango valley and westward, *Knieskern.*
 Gorham, Ontario county, *Sartwell in herb. Ham. Coll.* Rochester, *Z. H.*
Harris in herb. Bradley. Banks of the Genesee river, Greece, *Bradley,*
Torrey Fl. N.Y. Rare. July, August.

GERARDIA, *L.* *Foxgloves. Gerardias.*
 PURPUREA, *L.* *Purple-flowered Gerardia.*
 Marshy water-sides. Shores of Lake Ontario and the St. Lawrence river,
 from Irondequoit bay, *L. Holzer,* to Alexandria bay. Rare. July - Sept.

TENUIFOLIA, *Vahl.* *Slender-leaved Gerardia.*
 Dry banks. Chenango valley and westward, *Knieskern.* Copses along the
 east side of Onondaga lake. Crooked lake, *Sartwell in herb. Ham. Coll.* Oak
 openings, Greece, *Bradley.* Frequent. August, September.

- FLAVA, L.** *Yellow-flowered Gerardia.*
Copses. Otsego county, *H. Lathrop.* Borders of Oneida lake, on sandy plains, *Knieskern.* Occasional. July, August.
- QUERCIFOLIA, Pursh.** *Oak-leaved Gerardia.*
Rocky woods; shady banks. Schenectady county, grove northeast of the College buildings, and copses on the Rotterdam hills. Near Oneida lake, *Gray.* Outlet of Owasco lake, *I. H. Hall.* Yates county, *Sartwell in herb. Ham. Coll.* Greece, on oak openings, *Bradley.* Scarce. August.
- PEDICULARIA, L.** *Pedicularis-leaved Gerardia.*
Open woods. Pine plains of Schenectady, *E. W. Paige.* Outlet of Owasco lake, *I. H. Hall.* Yates county, *Sartwell in herb. Ham. Coll.* Monroe county, *L. Holzer.* Infrequent. August, September.
- CASTILLEJA, Mutis.** *Painted-cup.*
COCCINEA, Spreng. *Scarlet-bracted Castilleia.*
Wet meadows, swamp borders. Oneida lake, *Gray.* Eaton, Madison county, *Bradley.* Penn-Yan, *Sartwell in herb. Ham. Coll.* Greece, Monroe county, *Bradley.* Infrequent. May, June.
- SCHWALBEA, Gronovius.** *Chaff-seed.*
AMERICANA, L. *American Schwalbea.*
Sandy banks. Found in the sandy plains near Albany, *Beck bot.* Between Albany and Schenectady, near Centre station. Rare. June - August.
- PEDICULARIS, Tournefort.** *Wood Betony.*
CANADENSIS, L. *Canadian Pedicularis.*
Rocky woods. Little falls. Fish creek. Frequent. May - July.
- LANCEOLATA, Michx.** *Lanceolate-leaved Pedicularis.*
Borders of swamps. Tarrytown, *I. H. Hall.* Glenville, Schenectady county; Madison county, *Pearson.* About Rochester, in several localities, *C. M. Booth.* Western counties, *Knieskern.* Rare. August, September.
- MELAMPYRUM, Tournefort.** *American Melampyrum.*
AMERICANUM, Michx. *American Melampyrum.*
Dry woods. Rotterdam hills, Schenectady county. Abundant in the rocky woods of Littlefalls, Herkimer county. Pine plains of Rome. Frequent. June - August.
- ACANTHACEÆ.** *Acanthus.*
- DIANTHERA, Gronovius.** *Water-willow.*
AMERICANA, L. *American Dianthera.*
Water-sides. Shallow water, Oneida lake, *Knieskern.* A mile or two south of Oswego, between the canal and the river. Scarce. July - September.
- VERBENACEÆ.** *Verbenas.*
- VERBENA, L.** *Vervains.*
HASTATA, L. *Hastate-leaved Verbena.*
Waste grounds, flats of streams. Common. July - September.
- URTICIFOLIA, L.** *Nettle-leaved Verbena.*
Roadsides, pastures. Common. July - September.
Hybrids with purple flowers are abundant.

- PHRYMA, L. *Lopseed.*
 LEPTOSTACHYA, L. *Slender-spiked Phryma.*
 Ravines and borders of woods. Common. July, August.
- LABIATÆ. *Mints.*
- TEUCRIUM, L. *Germander. Wood-sage.*
 CANADENSE, L. *Canadian Teucrium.*
 Banks of streams, marshes. Schenectady, *Pearson*. Banks of Fish creek, *Knieskern*. Ravine of Chittenango creek; borders of Onondaga lake. Island in the outlet of Owasco lake, *I. H. Hall*. Head of Seneca lake, with white flowers, *Sartwell in herb. Ham. Coll.* Infrequent. July - September.
- TRICHOSTEMA, L. *Blue Curls.*
 DICHOTOMUM, L. *Dichotomous Trichostema.*
 Rocks or barren hillsides. Littlefalls, south of the river, along the base of the cliffs. Scarce. July, August.
- ISANTHUS, *Michaux.* *False Pennyroyal.*
 CÆRULEUS, *Michx.* *Blue-flowered Isanthus.*
 River banks. Above Cohoes falls, *Gray*. Banks of the Erie canal between Albany and Schenectady, *Knieskern*; Jefferson county, *Crawe, Torrey Fl. N. Y.* Rare. July, August.
- MENTHA, L. *Mints.*
 VIRIDIS, L. *Spearmint.*
 Brooks, roadsides in damp places. Common. July, August.
- PIPERITA, L. *Peppermint.*
 Rivulets and their borders. Abundant. July, August.
- CANADENSIS, L. *Canadian Mint.*
 Low grounds. Common.
 var. GLABRATA, *Bentham.* *Smooth Mint.*
 Grassy swamps. Abundant. July, August.
- LYCOPUS, L. *Bugle-weed. Water Horehounds.*
 VIRGINICUS, L. *Virginian Lycopus.*
 Shaded low grounds. Frequent. July, August.
- EUROPÆUS, L. *European Lycopus.*
 var. SINUATUS, *Gray.* *Sinuuated-leaved Lycopus.*
 Overflowed marshes, standing water. Common. July, August.
- HYSSOPUS, L. *Hyssop.*
 OFFICINALIS, L. *Officinal Hyssopus.*
 Escapes from cultivation. Roadsides on the Litchfield hills, long established. Yates county, frequently, *Sartwell* June - September.
- PYCNANTHEMUM, *Michaux.* *Mountain-mints.*
 INCANUM, *Michx.* *Hoary Pycnanthemum.*
 Rocks and hillsides. Oneida county, *Knieskern*. Yates county, *Sartwell in herb. Ham. Coll.* Greece, Monroe county, *Bradley*. Frequent. July, August.

- CLINOPODIOIDES, *Torr. & Gr.* *Clinopodium-like Pycnanthemum.*
 Dry banks. Sleepy Hollow Cemetery, Tarrytown, *I. H. Hall.*
 Scarce. August, September.
- MUTICUM, *Persoon.* *Awnless Pycnanthemum.*
 Barren hillsides. Tarrytown, *I.H.Hall.* Brighton, Monroe county, *L.Holzer.*
 Rare. July, August.
- LANCEOLATUM, *Pursh.* *Lance-leaved Pycnanthemum.*
 Bushy banks along the east side of Onondaga lake. Greece, Monroe county,
Bradley. Infrequent. August, September.
- ORIGANUM, *L.* *Wild Marjoram.*
VULGARE, L. *Common Origanum.*
 Sandy or gravelly banks. Troy, *Aiken in herb. Sartwell Ham. Coll.*
 Rare. July - October.
- THYMUS, *L.* *Creeping Thyme.*
SERPYLLUM, L. *The Ancient Serpyllum.*
 Banks. Hackney falls on the outlet of Owasco lake, Auburn, certainly wild,
I. H. Hall. Rare. June, August.
- CALAMINTHA, *Mærch.* *Calaminth. Basil.*
CLINOPODIUM, Bentham. *Bed-foot Calamintha.*
 Copses. Common. July - September.
- MELISSA, *L.* *Balm.*
OFFICINALIS, L. *Officinal Melissa.*
 Roadsides, edges of woods, remote from gardens. Fairfield, *Hadley in herb.*
 Roadsides on the Litchfield hills. Woods near Schuyler, Herkimer county,
 on the hillside. East of Clinton. Frequent. July - September.
- HEDEOMA, *Persoon.* *Pennyroyal.*
PULEGIOIDES, Pers. *Pennyroyal-like Hedeoma.*
 Rich woods; barren sidehills and pastures. Common. July - September.
- COLLINSONIA, *L.* *Horse-balm.*
CANADENSIS, L. *Canadian Collinsonia.*
 Shady ravine-bottoms. Common. July, August.
- MONARDA, *L.* *Oswego Tea. Horse-mints.*
DIDYMA, L. *Two-whorled-flowered Monarda.*
 Wet meadows and ravines. Common. July, August.
- FISTULOSA, *L.* *Hollow-stemmed Monarda.*
 Rocky banks. Penn-Yan, *Sartwell in herb. Ham. Coll.* Abundant near Ro-
 chester, *Beck bot.* Infrequent. July, August.
- PUNCTATA, *L.* *Spotted-flowered Monarda.*
 Dry grounds. Jefferson county, *Vasey*; near Owego, Susquehanna valley,
Knieskern, Torrey Fl. N.Y. Rare. August, September.
- BLEPHILIA, *Rafinesque.* *Blephilia.*
HIRSUTA, Bentham. *Hairy Blephilia.*
 Low woodlands. Abundant throughout the northern and western portions of
 the State, *Gray in Rare plants of Northern N.Y.* Fairfield, Herkimer county,
Hadley, Gray. Richfield, Otsego county, *G. W. Clinton.* Bridgewater, *Gray*
in cat. Frequent. July, August.

- LOPHANTHUS, *Benth.* *Giant Hyssop.*
 NEPETOIDES, *Benth.* *Nepeta-like Lophanthus.*
 Thickets. Westport, Essex county, *G. T. Stephens.* Schenectady county,
E. W. Paige. Fairfield, *Hadley in herb.* Oneida county, *Knieskern.* Near
 Bridgewater, *Gray in cat.* Uncommon. July, August.
- SCROPHULARIÆFOLIUS, *Benth.* *Scrophularia-leaved Lophanthus.*
 Borders of woods. Yates county, *Sartwell in herb. Ham. Coll.*
Scarce. August.
- NEPETA, *L.* *Nepetas.*
 CATARIA, *L.* *Cat-mint.*
 Walls, yards, waste places. Common. July - September.
- GLECHOMA, *Benth.* *From the ancient Glechon.*
 Dooryards, hedges, grass lands : sometimes in deep woodland and ravines.
Abundant. May - August.
- DRACOCEPHALUM, *L.* *Dragonhead.*
 PARVIFLORUM, *Nutt.* *Small-flowered Dracocephalum.*
 Barren fields and woods. Watertown, Jefferson county, *Gray in Rare plants*
of Northern N. Y. Brownville, *Crave in herb. Sartwell Ham. Coll.* Rocky soil
 on the road between Watertown and Sackett's-harbor, *Knieskern.* Rocky
 banks of Black river, *Vasey.* Rocky banks of small lakes and rivers, St.
 Lawrence county, *Torrey Fl. N. Y.* Rare. May - August.
- BRUNELLA, *Tournefort.* *Selfheal. Healall.*
 VULGARIS, *L.* *Common Brunella.*
 Roadsides, meadows, deep woods. Common. June - August
- SCUTELLARIA, *L.* *Skullcaps.*
 PARVULA, *Michx.* *Dwarf Scutellaria.*
 Hillsides. St. Lawrence river; near Montreal, *Macrae in herb. Sartwell Ham.*
Coll. Shore of Lake Ontario, *Gray, Torrey Fl. N. Y.* Rare. May, June.
- GALERICULATA, *L.* *Hooded Scutellaria.*
 Swamps and flats of streams. Abundant. August.
- LATERIFLORA, *L.* *Side-flowering Scutellaria.*
 River-banks and wet woods. Common. July, August.
- MARRUBIUM, *L.* *Horehound.*
 VULGARE, *L.* *Common Marrubium.*
 Waysides, river-banks. Schenectady, *Pearson.* Penn-Yan, *Sartwell in herb.*
Ham. Coll. Infrequent. July, August.
- GALEOPSIS, *L.* *Hemp-nettle.*
 TETRAHIT, *L.* *Fourparted-flowered Galeopsis.*
 Damp waste places, river-banks. Common. July - September.
- STACHYS, *L.* *Hedge-nettle.*
 PALUSTRIS, *L.* *Marsh Stachys.*
 Wet grass lands. Common.
 var. ASPERA, *Gray.* *Rough Stachys.*
 Low grounds of streams. Frequent. July, August.

- LEONURUS, L.** *Motherwort.*
CARDIACA, L. *Cardiacal Leonurus.*
 Waysides, fences, waste places. Common. July - September.
- LAMIUM, L.** *Dead-nettle.*
AMPLEXICAULE, L. *Clasping-leaved Lamium.*
 Roadsides. Schenectady near the Saratoga railroad, in wet woods, *Pearson*.
 Fairfield, *Hadley in herb.* Near Bridgewater, *Gray in cat.*
 Uncommon. May - November.
- PHLOMIS, L.** *Jerusalem Sage.*
TUBEROSA, L. *Tuberous Phlomis.*
 Shore of Lake Ontario. Introduced and somewhat naturalized near Ro-
 chester, *Chester Dewey in herb. Sartwell Ham. Coll.* June, July.
- BORRAGINACEÆ.** *Borages.*
- ECHIUM, Tournefort.** *Blue-weed.*
VULGARE, L. *Common Echium.*
 Roadsides and fields. Nyack, Rockland county, *I. H. Hall.* Schenectady,
Pearson. Scarce. June, July.
- LYCOPSIS, L.** *Bugloss.*
ARVENSIS, L. *Cultivated-field Lycopsis.*
 Shores and waste grounds at Oswego. Rare. June - August.
- SYMPHYTUM, Tournefort.** *Comfrey.*
OFFICINALE, L. *Officinal Symphytum.*
 Waysides, flats of streams. Common. June - October.
- ONOSMODIUM, Michaux.** *False Gromwell.*
VIRGINIANUM, DC. *Virginian Onosmodium.*
 Dry hills. Saratoga county, *L. Collins.* Herkimer, *Gray.* Vernon, *Knies-*
kern. Seneca lake, *Sartwell.* Infrequent. June, July.
- CAROLINIANUM, DC.** *Carolinian Onosmodium.*
 Sandy grounds near Albany, *G. W. Clinton.* *Beck bot.* Stone creek, *Gray.*
 Rare. June - August.
- LITHOSPERMUM, Tournefort.** *Gromwell. Puccoon.*
ARVENSE, L. *Cornfield Lithospermum.*
 Hillsides, barren grounds. Along the Central railroad at Fort-Plain. Rocky
 banks of Black river. Frequent. May, June.
- OFFICINALE, L.** *Officinal Lithospermum.*
 Roadsides, pastures. Abundant June - September.
- LATIFOLIUM, Michx.** *Broad-leaved Lithospermum.*
 Copses. Yates county, *Sartwell in herb. Ham. Coll.* Scottsville, Monroe
 county, *L. Holzer.* Rare. June.
- HIRTUM, Lehmann.** *Hairy Puccoon. Rough Lithospermum.*
 Sandy sidehills near Irondequoit bay, Penfield, Monroe county, *L. Holzer:*
C. M. Booth. Rare. May, June.

CANESCENS, *Lehm.* *Hoary Puccoon. Soft Lithospermum.*
 Dry fields. Jonesville, Saratoga county, *L. Collins.* Auburn, Cayuga county,
I. H. Hall. Rare. May, June.

MERTENSIA, *Roth.* *Lungwort.*
 VIRGINICA, *DC.* *Virginian Mertensia.*
 Rich grounds along streams. Otsego county, *H. Lathrop.* Along Wood creek,
 near New-London, *Gray.* Banks of Oneida and Fish creeks, *Knieskern.*
 Steuben county, *Sartwell in herb. Ham. Coll.* Rare. May.

MYOSOTIS, *L.* *Forget-me-not.*
 PALUSTRIS, *Withering.* *Marsh Myosotis.*
 var. LAXA, *Gray.* *Spreading Myosotis.*
 Brook-sides. Abundant from Wood creek westward. May - September.

VERNA, *Nutt.* *Early Myosotis.*
 Stony fields, rocky banks. About Utica. Abundant on the barren sides of
 Black river below Watertown. Frequent. May - July.

ECHINOSPERMUM, *Swartz.* *Stickseed.*
 LAPPULA, *Lehmann.* *Bur Echinosperrnum.*
 Waste-grounds. Common along the Central railroad; and the Chenango
 canal, from Utica southward. Dry gravelly banks, Oneida-castle, *Knieskern.*
 Chittenango falls. Frequent. July - October.

CYNOGLOSSUM, *Tournefort.* *Hound's-tongue.*
 OFFICINALE, *L.* *Officinal Cynoglossum.*
 Roadsides, ravines. Common.
 var. ALBUM. *White-flowered Cynoglossum.*
 Penn-Yan, *Sartwell in herb. Ham. Coll.* June - September.

VIRGINICUM, *L.* *Virginian Cynoglossum.*
 Open woods. Near Vernon, *J. S. Douglass,* *Knieskern.* Yates county, *Sart-*
well. Greece, Monroe county, *Bradley.* Scarce. June - August.

MORISONI, *DC.* *MORISON'S Cynoglossum.*
 Wet thickets and wood borders. Common. July - September.

HYDROPHYLLACEÆ. *Waterleafs.*

HYDROPHYLLUM, *L.* *Waterleafs. Hydrophylla.*
 VIRGINICUM, *L.* *Virginian Hydrophyllum.*
 Woods and meadows. Common. June.

CANADENSE, *L.* *Canadian Hydrophyllum.*
 Deep woods and ravines. Abundant. July.

APPENDICULATUM, *Michx.* *Appendaged-calyxed Hydrophyllum.*
 Damp rich woods. Flats of the Mohawk near Utica, *Miss J. E. Johnson*
in herb. Parma, Monroe county, *Bradley.* Rare. June.

POLEMONIACEÆ.

*Polemonia.*POLEMONIUM, *Tournefort.**Greek Valerian.*CÆRULEUM, *L.**Blue-flowered Polemonium.*

Borders of a marsh three miles east of Charlottesville, Schoharie county, New-York. E. C. HOWE, *Gray addend. bot.* Delaware county, on the hills of Delhi, half a mile above the Salt-works; growing in great clusters along the marshy borders of a rivulet emptying into Elk creek, discovered by B. D. GILBERT. Rare. June, July.

PHLOX, *L.**Phloxes.*PANICULATA, *L.**Panicled Phlox.*

Cleared woodlands. Richfield, Otsego county, *G. W. Clinton.* Rare. July.

MACULATA, *L.**Spotted-stemmed Phlox.*

Escapes from cultivation. Roadsides in South-Trenton. June.

DIVARICATA, *L.**Divaricate-flowering Phlox.*

Ravines and shady banks; often covering the ground in groves. Common throughout the Mohawk valley, and for greater or less distances up its creeks and tributaries; far up the Starch-factory creek; Deerfield creek; Sauquoit creek, above New-Hartford; Oriskany valley to Clinton: thus appearing as if brought from the West somehow, long ago.

The flowers present all colors from white through many shades of pink and lilac, to deep blue. Petals entire frequently. The leaves also vary from long ovate to narrow lanceolate. May, June.

SUBULATA, *L.**Moss-pink. Awl-like-leaved Phlox.*

Rocky banks. Along the Genesee river below Rochester, east side, *C. M. Booth*; west side, *G. T. Fish.* Rare. May.

CONVOLVULACEÆ.

*Bindweeds.*CALYSTEGIA, *R. Brown.**Bracted Bindweeds.*SEPIUM, *R. Br.**Hedge Calystegia.*

Banks of the Mohawk.

Common. July, August.

var. REPENS, *Gray.*

Creeping Calystegia.

Dry hillsides. Embankments of the Central railroad. Slaton's bush, toward Graefenberg hill. Frequent. June, July.

SPITHAMÆA, *Pursh.**Span Calystegia.*

Sandy copses. Schenectady, *Pearson.* Pine plains of Rome, *Knieskern.* Banks of Genesee river, *L. Holzer.* Rare. June.

CUSCUTA, *Tournefort.**Dodders.*EPILINUM, *Weihe.**Flax Cuscuta.*

Parasitic chiefly on flax. Schenectady, *Beck bot.*

June, July.

GRONOVII, *Willd.**Dedicated to GRONOVIIUS.*

Thickets, swampy woods.

Common. July - October.

SOLANACEÆ.

*Nightshades.*SOLANUM, *L.**Solana.*DULCAMARA, *L.**Bittersweet Solanum.*

Along streams; uncultivated cleared lands; under stone walls.

Common. June - August.

NIGRUM, L.

Waste places and woods.

Black-fruited Solanum.

Frequent. July - September.

LYCOPERSICUM, *Tournefort.*

ESCULENTUM, Miller.

Escapes from cultivation into waste places. Marshes of Salina, at the head of the lake.

Love-apple. Tomato.

Esculent Lycopersicum.

July - September.

PHYSALIS, L.

VISCOSA, L.

Roadsides, fences, old fields. Schenectady, *Pearson.* Otsego county, *H. Lathrop.* Near Oneida lake, *Gray.* Penn-Yan, Yates county, *Sartwell.* Infrequent. July, August.

Ground-cherry.

Clommy Physalis.

ATROPA, L.

BELLADONNA, L.

Naturalized in Parma, Monroe county, *Bradley.*

Deadly Nightshade.

Fair-lady's Atropa.

Rare. June, July.

NICANDRA, *Adanson.*

PHYSALOIDES, Gærtner.

Neglected gardens and fields. Naturalized in Greece, *Bradley.* Infrequent. July - September.

Apple of Peru.

Physalis-like Nicandra.

HYOSCYAMUS, *Tournefort.*

NIGER, L.

Waste lots in cities. Abundant on waste banks and bottoms of Otsquago creek at Fort-Plain, Montgomery county. Otsego county, *H. Lathrop.* Oswego, about excavations. Infrequent. June - September.

Henbane.

Black Hyoscyamus.

DATURA, L.

STRAMONIUM, L. *Officinal Stramonium. White-flowered Datura.* Streets of Albany and Utica.

var. *TATULA*, Torrey.

Thorn-apple. Purple-flowered Datura..

Waste-places about Schenectady. Roadsides a mile or two below Utica. About Bridgewater, *Gray.* Scarce. July - September.

GENTIANACEÆ.

Gentians.

ERYTHRÆA, *Persoon.*

CENTAURIUM, Pers.

Meadows and pastures. Oswego, two miles northward near the Lake shore; two or three miles south of the city and east of the river, borders of woods. Local. July - September.

Centaury.

The Ancient Centaurion.

FRASERA, *Walter.*

CAROLINENSIS, *Walt.*

Open dry woods. Banks of the Genesee river, *Hadley*, which should be the reference in *Torrey Fl. N.Y.*, instead of West-Canada creek, *Gray.* East-Bloomfield, Ontario county, *Sartwell.* Penfield, Monroe county, *L. Holzer: C. M. Booth.* South of Moscow, Livingston county, *Bradley.* Rare. July.

American Columbo.

Carolinian Frasera.

GENTIANA, L.

QUINQUEFLORA, *Lamarck.*

Hillsides. Lake George and Fairfield, *Hadley in herb.* Factory glen; Rotterdam springs, *Pearson.* Bridgewater, *Gray in cat.* Borders of a beaver

Gentians.

Five-flowered Gentian.

meadow, Vernon, *J. S. Douglass, Knieskern*. Rise of ground south of Leland's pond, and east of the road from Bouckville to Eaton, Madison county; Greece, Monroe county, *Bradley*. Gorham, *Sartwell in herb. Ham. Coll.* Near Rochester, *C. M. Booth : G. T. Fish*. Rare. August - October.

CRINITA, *Frölich*.*Fringed-flowered Gentian.*

Meadows, banks, borders of woods. Pine plains of Schenectady, *Pearson*. Borders of beaver meadows, Vernon, *Douglass, Knieskern*. Eaton, Madison county, and Greece, *Bradley*. Penn-Yan, *Sartwell in herb. Ham. Coll.* Scarce. September, October.

ALBA, *Muhl.**White-flowered Gentian.*

Borders of streams. Abundant along the outlet of Owasco lake, *I. H. Hall*. Rare. August, September.

ANDREWSII, *Grisebach*.*Closed-flowered Gentian.*

Wet banks, borders of swamps. Schenectady, *Pearson*. Wood and Fish creeks, *Knieskern*. Owasco lake, *I. H. Hall*. Frequent. August - October.

SAPONARIA, *L.**Soapwort-leaved Gentian.*var. LINEARIS, *Gray*.*Linear-leaved Gentian.*

Abundant along the streams and lake shores in the north woods. August.

BARTONIA, *Muhlenberg*.TENELLA, *Muhl.**Slender Bartonia.*

Sandy woods and swamps. Pine plains of Rome, *Knieskern*. Deep swamps west of New-London. Infrequent. August, September.

MENYANTHES, *Tournefort*.*Buckbean.*TRIFOLIATA, *L.**Trifoliate Menyanthes.*

Cold swamps. Littlefalls. Mud lake. Hidden lake. Frankfort hill. Rome. Point of Rock lake. Abundant in the northern part of the county and the north woods. Frequent. May.

LIMNANTHEMUM, *Gmelin*.*Floating-heart.*LACUNOSUM, *Griseb.**Pitted-leaved Limnanthemum.*

Ponds, lakes. Oneida lake, *Knieskern*.

Rare. June, July.

APOCYNACEÆ.

*Dogbanes.*APOCYNUM, *Tournefort*.*Apocyna.*ANDROSÆMIFOLIUM, *L.**Androsæmum-leaved Apocynum.*

Hillsides, copses. Littlefalls. Open plains of Rome. Common. June, July.

CANNABINUM, *L.**Hemp Apocynum.*

Banks of streams. Abundant along the low banks of the Mohawk river. Fish creek.

var. PUBESCENS, *DC.**Pubescent-leaved Apocynum.*

Northern part of the State, *Gray*. Troy, *Aiken in herb. Sartwell Ham. Coll.*

var. HYPERICIFOLIUM, *Gray*. *Hypericum-leaved Apocynum.*

East- and West-Canada creeks, *Gray*. Penn-Yan, *Sartwell in herb. Ham. Coll.* Frequent. June - August.

ASCLEPIADACEÆ.

Milkweeds.

ASCLEPIAS, L.

- CORNUTI, *Decaisne.* *Dedicated to CORNUTI.*
Roadsides, fences, ravines. Common. June - August.
- PHYTOLACCOIDES, *Pursh.* *Pokeweed-like Asclepias.*
Open woods, shores. Ballston lake, *Pearson.* Otsego county, *H. Lathrop.*
Pine plains of Rome, and near Oneida lake, *Knieskern.* Greece, Monroe
county, *Bradley.* Frequent. June, July.
- PURPURASCENS, L. *Deep-purple-flowered Asclepias.*
Moist woods, along rivulets, water-sides. Banks of Sander's lake, Schenec-
tady county, *Pearson.* About Oneida lake, doubtless. Rare. July.
- QUADRIFOLIA, *Jacquin.* *Four-leaved Asclepias.*
Dry shady ground. In all pine woods of Schenectady county. Otsego county,
H. Lathrop. Penn-Yan, *Sartwell in herb. Ham. Coll.* Uncommon. June.
- OBTUSIFOLIA, *Michx.* *Obtuse-leaved Asclepias.*
Sandy plains. Between Albany and Schenectady, near Centre station.
Schenectady, *Pearson.* Infrequent. June, July.
- INCARNATA, L. *Flesh-colored-flowered Asclepias.*
Along streams and shores. Common. July.
- TUBEROSA, L. *Tuberous Asclepias.*
Hillsides and sandy plains. Abundant between Albany and Schenectady, and
west to Amsterdam. Otsego county, *H. Lathrop.* Pine plains and borders
of Oneida lake, *Knieskern.* Seneca county, *Sartwell.* Oak openings Greece,
Bradley. Uncommon. July, August.
- VERTICILLATA, L. *Whorled-leaved Asclepias.*
Dry banks. Schenectady county, *Pearson: Paige.* Penfield, Monroe county,
L. Holzer. Scarce. July - September.
- PERIPLUCA, L. *Periploca.*
- GRÆCA, L. *Grecian Periploca.*
Naturalized. Near Rochester, *Sartwell in herb. Ham. Coll.*
Rare. July, August.

OLEACEÆ.

Olives.

LIGUSTRUM, *Tournefort.*

Privet.

- VULGARE, L. *Common Ligustrum.*
Naturalized from hedges. College grounds, Schenectady, *Pearson.* Benton,
Yates county, *Sartwell in herb. Ham. Coll.* Occasional. June.

FRAXINUS, *Tournefort.*

- AMERICANA, L. *White, American Ash.*
Forests. Common. April, May.
- PUBESCENS, *Lamarck.* *Red, Pubescent Ash.*
Woods. Schenectady, *Pearson.* Yates county, *Sartwell in herb. Ham. Coll.*
Infrequent. May.
- SAMBUCIFOLIA, *Lamarck.* *Black, Elder-leaved Ash.*
Swamps. Common. April.

C. APETALOUS EXOGENS.

ARISTOLOCHIACEÆ.

*Birthworts.*ASARUM, *Tournefort.**Wild Ginger.*CANADENSE, *L.**Canadian Asarum.*

Ravine-sides.

Common. April, May.

PHYTOLACCACEÆ.

*Pokeweeds.*PHYTOLACCA, *Tournefort.**Pokeweed.*DECANDRA, *L.**Ten-stamened Phytolacca.*

Borders of woods, cleared lands.

Common. June - October.

CHENOPODIACEÆ.

*Chenopods.*CHENOPODIUM, *L.**Goosefoots. Chenopodia.*HYBRIDUM, *L.**Maple-leaved, Hybrid Chenopodium.*

Waste grounds.

Common. July, August.

URBICUM, *L.**Metropolitan Chenopodium.*var. RHOMBIFOLIUM, *Moquin.* *Wedge-leaved Chenopodium.*Streets, banks. Penn-Yan, *Sartwell fide Carey in herb. Ham. Coll.*

Rare. June, July.

ALBUM, *L.**White Chenopodium.*

Roadsides, gardens.

Common. July, August.

GLAUCUM, *L.**Oak, Glaucous-leaved Chenopodium.*

Abundant at Salina, and along the shores of Onondaga lake, where it is native, doubtless.

Rare. July - November.

BOTRYS, *L.**Jerusalem-oak. Clustered-fruited Chenopodium.*Waysides, sandy wastes. Schenectady, *Pearson.* Banks of Fish creek, Vienna, *Knieskern.* Seneca lake, *Gray.* Penn-Yan, *Sartwell in herb. Ham. Coll.* Rochester, *C. M. Booth.*

Infrequent. July - September.

AMBROSIOIDES, *L.**Ambrosia-like Chenopodium.*Roadsides. Salina. Penn-Yan, *Sartwell in herb. Ham. Coll.*

Uncommon. August, September.

BLITUM, *Tournefort.**Blites.*MARITIMUM, *Nutt.**Seashore Blite.*Marshes at Salina, southwest shore of the lake, *G. W. Clinton.*

Rare. August, September.

CAPITATUM, *L.**Strawberry, Capitata-fruited Blite.*Roadsides, cleared lands. Schenectady, *Pearson.* Otsego county, *Miss S. Cooper : H. Luthrop.* Oriskany, *Knieskern.* Rome, *Beck bot.* Bridgewater, *Gray in cat.* Penn-Yan, *Sartwell in herb. Ham. Coll.* Greece, Monroe county, *Bradley.*

Rare. June, July.

BONUS-HENRICUS, *Reichenbach.**Good-King-Henry Blite.*Waysides, dooryards, gardens. Common in Clinton and the Oriskany valley Oriskany, *Knieskern, Torrey Fl. N.Y. : in herb. Ham. Coll.*

Rare. June - September.

ATRIPLEX, *Tournefort.**Orache.*HASTATA, *L.**Hastate-leaved Atriplex.*

Common at Salina, roadsides, marshes, shores of the lake; with all manner of variations, from small erect simple plants, having rough brown seeds a line in diameter, through branching specimens with shining black seeds half a line in diameter, both light-green and covered with mealy scales; and a very large form with deep-green smooth leaves, seeds two lines in diameter, to

var. OBLONGIFOLIA.

Oblong-leaved Atriplex.

Leaves entire, broadest at the end.

August - November.

SALICORNIA, *Tournefort.**Samphire.*HERBACEA, *L.**Herbaceous Salicornia.*

Salt-marshes of Onondaga lake: common at Salina, and abundant on the west side of the lake opposite Liverpool.

Many of the low grounds are covered with this plant; and in autumn they are very beautiful, after a few frosts have turned them into fields of crimson.

August, September.

AMARANTACEÆ.

*Amaranths.*AMARANTUS, *Tournefort.*HYBRIDUS, *L.**Hybrid Amarantus.*

Waste grounds.

August - October.

RETROFLEXUS, *L.**Reflexed-haired Amarantus.*

Gardens and fields.

Common. July - September.

ALBUS, *L.**White Amarantus.*

Roadsides, yards.

August - October.

POLYGONACEÆ.

*Buckwheats.*POLYGONUM, *L.*ORIENTALE, *L.**Oriental Polygonum.*

About gardens, rubbish.

July - September.

AMPHIBIUM, *L.**Amphibious Polygonum.*

In the lakes of the North woods a form abounds, much larger than the next and apparently quite different, growing with it.

var. AQUATICUM, *L.**Water Polygonum.*

Sander's lake, *Pearson*. Oneida lake, *Knieskern*. East Dry-lot pond, south Herkimer county. In all the lakes and ponds from Otsego to Madison counties, *Gray*. Leland's pond, Eaton, Madison county, *Bradley*. Common in the lakes of the north woods.

var. TERRESTRE, *Torrey.**Shore Polygonum.*

Coon Chisholm's. Schenectady, *Pearson*. Borders of a millpond near Winfield. Along the outlet of Owasco lake, *I. H. Hall*. Cayuga lake, *Gray*.

Frequent. July - September.

NODOSUM, *Persoon.**Nodding Polygonum.*var. INCARNATUM, *Gray.**Flesh-colored Polygonum.*

Low banks of the Mohawk.

Infrequent. August - October.

PENNSYLVANICUM, *L.**Pennsylvanian Polygonum.*

Brooksides, marshes.

Abundant. July - October.

- CAREYI**, *Olney*. *Discovered by J. CAREY.*
Upland swamps. Abundant in the half-open mossy bogs north of Summit lake, Otsego county. Marshy borders of Mud lake, south Herkimer county. Rare. September, October.
- PERSICARIA**, *L.* *Peach-leaved Polygonum.*
Waste grounds, near dwellings. Common. July, August.
- HYDROPIPER**, *L.* *Water-pepper Polygonum.*
Ditches, marshy places. Common. August - October.
- ACRE**, *H. B. K.* *Pungent Polygonum.*
Water-sides. Abundant in the marshes along the outlet of Cayuga lake. Swamp near Owasco lake, *I. H. Hall.* Infrequent. July, August.
- HYDROPIPEROIDES**, *Michx.* *Water-pepper-like Polygonum.*
Wet banks. Shores of Onondaga lake. Uncommon. August - November.
- AVICULARE**, *L.* *Little-bird's Polygonum.*
Paths, yards. Common. June - September.
var. **ERECTUM**, *Roth.* *Upright Polygonum.*
Damp wastes. Common. July - October.
- ARTICULATUM**, *L.* *Jointed Polygonum.*
Sandy plains. West of Albany, *Eaton, Beck, Torrey.* Schenectady, *Pearson.* Shore of Oneida lake, *Gray, Torrey Fl. N.Y.* Sandy borders of Oneida lake, *Knieskern.* Rare. July - October.
- VIRGINIANUM**, *L.* *Virgate Polygonum.*
Rich woods, flats of streams. Common. July - September.
- ARIFOLIUM**, *L.* *Arum-leaved Polygonum.*
Wet thickets. Abundant. August, September.
- SAGITTATUM**, *L.* *Arrow-leaved Polygonum.*
Swamps. Common. July - October.
- CONVOLVULUS**, *L.* *Bindweed Polygonum.*
Barren and cultivated grounds. Common. July - September.
- CILINODE**, *Michx.* *Fringe-jointed Polygonum.*
Damp thickets, on the Deerfield hills. Infrequent. July, August.
- DUMETORUM**, *L.* *Thicket Polygonum.*
Banks of streams, bushes. Abundant. August, September.
- FAGOPYRUM**, *Tournefort.* *Buckwheat.*
ESCULENTUM, *Mœnch.* *Esculent Fagopyrum.*
Field-borders, woods, and often in deep swamps. Frequent. June - August.
- RUMEX**, *L.* *Docks.*
VERTICILLATUS, *L.* *Whorled-flowered Rumex.*
Bogs on the flats of the Mohawk. Throughout the upland swamps south of the Mohawk valley, *Gray.* Frequent. June, July.
- HYDROLAPATHUM**, *Hudson.* *Water-dock Rumex.*
var. **AMERICANUM**, *Gray.* *American Water-dock Rumex.*
Marshes, both on the hills, and in lowlands of rivers and lakes. Frequent. July.

- OBTUSIFOLIUS*, L. *Obtuse-leaved Rumex.*
Farmyards, fences, borders of woods. Common. June, July.
- CRISPUS*, L. *Curled-leaved Rumex.*
Ditches, fields. Common. May - July.
- SANGUINEUS*, L. *Bloody-veined Rumex.*
Barnyards, pastures. Scarce. June, July.
- ACETOSA*, L. *Garden-sorrel Rumex.*
Cultivated grounds. About gardens on Paris hill. Penn-Yan, introduced,
Sartwell in herb. Ham. Coll. Infrequent. June, July.
- ACETOSELLA*, L. *Sheep-sorrel Rumex.*
Barren meadows, pastures. Common. May - July.
- LAURACEÆ.** *Laurels.*
- SASSAFRAS*, *Nees von Esenbeck.* *Sassafras.*
OFFICINALE, *Nees.* *Officinal Sassafras.*
Sandy open woods. Abundant in the woods and copses of Schenectady
county. Pine plains of Rome, at the head of Oneida lake. Penn-Yan, *Sart-*
well in herb. Ham. Coll. Frequent. April, May.
- BENZOIN*, *Nees von Esenbeck.* *Spicebush. Feverbush.*
ODORIFERUM, *Nees.* *Fragrant Benzoïn.*
Damp copses, swamps. Common. April.
- THYMELEACEÆ.** *Daphnads.*
- DIRCA*, L. *Leatherwood.*
PALUSTRIS, L. *Marsh Dirca.*
Flats of streams, deep woods. Abundant. April.
- ELÆAGNACEÆ.** *Oleasters.*
- SHEPHERDIA*, *Nuttall.* *Shepherdia.*
CANADENSIS, *Nutt.* *Canadian Shepherdia.*
Ravine-sides, rocky banks of streams. Fairfield, Herkimer county, *Gray.*
Trenton falls, West-Canada creek, *Knieskern.* Deerfield creek opposite Utica,
high on the slaty sides of the gulf, from its entrance far up the headwaters
of the stream. East banks of Onondaga lake. Rocky sides of Black river.
Frequent. May.
- SANTALACEÆ.** *Sandalwoods.*
- COMANDRA*, *Nuttall.* *Umbellate Comandra.*
UMBELLATA, *Nutt.*
Dry rocky banks; open sandy woods and their borders. Throughout the
valley of the Mohawk, from Schenectady to Oneida lake. Frequent.
A form occurs in the swamp of West-Bergen, Genesee county, in open
places of damp moss or wet marl, in company with *Solidago ohioensis*, *S.*
houghtonii, and among the running stems of *Juniperus sabina*, having large
ovate obtuse glaucous leaves, often nearly two inches long by over half an
inch wide; bearing flowers and fruit on short pedicels, in a leafy terminal
simple raceme; berries large, fleshy, yellow or red, instead of the dry hard
black nutlets of the common plant.
It was first thought to be *C. livida*, but is still undetermined. June.

SAURURACEÆ.

*Saururads.*SAURURUS, *L.**Lizard's-tail.*CERNUUS, *L.**Nodding Saururus.*

Swamps and water-sides. Borders of Oneida lake, *Knieskern, Gray*. Low woods east of Onondaga lake. Swamps southeast of Oswego. Banks of streams between Syracuse and Savannah, Cayuga river marshes. Owasco lake outlet, *I. H. Hull*. Common along Clyde river. Frequent. July, August.

CERATOPHYLLACEÆ.

*Hornworts.*CERATOPHYLLUM, *L.**Hornwort.*DEMERSUM, *L.**Submerged Ceratophyllum.*var. ECHINATUM, *Gray.**Rough Ceratophyllum.*

Slow-flowing or still water. Outlet of Canaderaga lake, where it flowers and fruits readily. Penn-Yan, *Sartwell in herb. Ham. Coll.*

Infrequent. June, July.

CALLITRICHACEÆ.

*Water-starworts.*CALLITRICHE, *L.**Water-starwort.*VERNA, *L.**Vernal Callitriche.*

Still water beside streams, ponds.

Frequent.

forma TERRESTRIS, *Engelmann.**Moss Callitriche.*

Muddy banks. Millpond at Cedarville.

Uncommon, June - August.

AUTUMNALIS, *L.**Autumnal Callitriche.*

River borders. Borders of Canaderaga lake outlet. Alexandria bay, *G. W. Clinton*. Rare. August.

PODOSTEMACEÆ.

*River-weeds.*PODOSTEMON, *Michaux.**River-weed.*CERATOPHYLLUM, *Michx.**Horn-leaved Podostemon.*

Stony bottoms of streams. In flowing water, Watertown, Jefferson county, *Crave, Gray in Rare plants of Northern N.Y.* Watertown, *Crave in herb. Sartwell Ham. Coll.*

Rare. July, August.

EUPHORBIACEÆ.

*Spurges.*EUPHORBIA, *L.**Spurges. Euphorbia.*POLYGONIFOLIA, *L.**Polygonum-leaved Euphorbia.*

Shores. Mouth of Genesee river, *Sartwell in herb. Ham. Coll.* Lake shore at Charlotte, *C. M. Booth*.

Rare. July - September.

MACULATA, *L.**Spotted-leaved Euphorbia.*

Roadsides, banks of streams.

Common. July - October.

HYPERICIFOLIA, *L.**Hypericum-leaved Euphorbia.*

Damp gravelly places, hillsides.

Common. July - September.

HELIOSCOPIA, *L.**Sun-gazing Euphorbia.*

Shores of Onondaga lake; most abundant at its head, Salina.

Rare. July - October.

PLATYPHYLLA, *L.**Broad-leaved Euphorbia.*

Pastures, roadsides. Winfield, south Herkimer county. Paris hill. Clark's mills, towards Pratt's settlement.

Occasional. June - September.

- ACALYPHA, *L.* *Three-seeded Mercury.*
 VIRGINICA, *L.* *Virginian Acalypha.*
 Roadsides, moist grounds. Common. August - October.
- URTICACEÆ. *Nettles.*
- ULMUS, *L.* *Elms.*
 FULVA, *Michx.* *Slippery, Red Elm.*
 Open hilly woods along rivulets, and banks of streams. Common along the Mohawk. Frequent. April.
 AMERICANA, *L.* *White, American Elm.*
 Woods, hills and dales. Common. April.
 RACEMOSA, *Thomas.* *Corky, Racemed Elm.*
 Brows of ravines, river-banks. Abundant along the Mohawk and its tributaries. April.
- CELTIS, *Tournefort.* *Nettle-tree. Sugarberry.*
 OCCIDENTALIS, *L.* *Western Celtis.*
 Rocky woods and banks. Near Oneida lake, *Knieskern.* Gorham, Ontario county, *Sartwell.* Rare. April, May.
- MORUS, *Tournefort.* *Mulberries.*
 RUBRA, *L.* *Red Mulberry.*
 Open woods. Near the Aqueduct, Schenectady, *Pearson.* Penn-Yan, Yates county, *Sartwell in herb. Ham. Coll.* Scarce. May.
 ALBA, *L.* *White Mulberry.*
 Woods, and about houses, *Knieskern.* Frequent in Schenectady county, in thickets along road-fences, and often a tree. Penn-Yan, introduced, *Sartwell in herb. Ham. Coll.* Occasional. May.
- URTICA, *Tournefort.* *Nettles.*
 GRACILIS, *Aiton.* *Tall, Slender Nettle.*
 Fences, river-banks. Common. July, August.
 DIOICA, *L.* *Dioecious Nettle.*
 Waste places. Schenectady, *Pearson.* Oneida county, *Knieskern.* Gorham, Ontario county, *Sartwell.* Uncommon. June - August.
- LAPORTEA, *Gaudich.* *Wood Nettle.*
 CANADENSIS, *Gaud.* *Canadian Laportea.*
 Ravines and damp woods. Common. July.
- PILEA, *Lindley.* *Clearweed.*
 PUMILA, *Gray.* *Low Pilea.*
 Shaded springy banks; borders of streams in wooded ravines. Common. July, August.
- BŒHMERIA, *Jacquin.* *False Nettle.*
 CYLINDRICA, *Willd.* *Cylindric-fruited Bœhmeria.*
 Swamps and wet open woods. Frequent. July, August.
- PARIETARIA, *Tournefort.* *Pellitory.*
 PENNSYLVANICA, *Muhl.* *Pennsylvanian Parietaria.*
 Shady hillsides; rocky sides of streams. Ithaca, Tompkins county, *Sartwell in herb. Ham. Coll.* Rare. May - July.

CANNABIS, *Tournefort.*

SATIVA, L.

Waste lots in cities, towns.

*Hemp.**Cultivated Cannabis.*

Frequent. June - August.

HUMULUS, L.

LUPULUS, L.

Shaded banks of the Mohawk and Unadilla rivers.

Hop-vine.

Frequent. July.

PLATANACEÆ.

Sycamores.

PLATANUS, L.

OCCIDENTALIS, L.

Banks of creeks and rivers.

*Plane-tree. Button-ball-tree. Buttonwood.**Western-world Platanus.*

Common. May.

JUGLANDACEÆ.

Walnuts.

JUGLANS, L.

CINEREA, L.

Hilly woods; flats of streams.

Butternut. Gray Walnut.

Abundant. May.

NIGRA, L.

Fertile woodlands. Common around Seneca lake, *Sartwell.* Scarce. May.*Black Walnut.*CARYA, *Nuttall.**Hickories.*ALBA, *Nutt.*Fertile woodlands and vallies. Abundant in the valley of the Hudson about Albany. Around Otsego lake. *Miss S. Cooper.* Borders of Canaderaga lake. Valley of the Mohawk throughout, from the Hudson to Oneida lake.*Shag-bark, White Hickory.*

Frequent. May.

TOMENTOSA, *Nutt.*Rich woods. Schenectady county, *Pearson.* Oneida county, *Knieskern.**Mocker-nut. Downy Hickory.*

Infrequent. May.

GLABRA, *Torrey.*

Chiefly in meadows, pastures.

Smooth Hickory.

Abundant. May.

AMARA, *Nutt.*

Low woods, ravine-sides, streams.

Swamp, Bitter Hickory.

Common. May.

CUPULIFERÆ.

Oaks.

QUERCUS, L.

MACROCARPA, *Michx.*

Groves, water-sides. Abundant along the borders of Onondaga lake, west side.

Over-cup, Large-fruited Oak.

Scarce. Fl. May: Fr. September.

var. OLIVÆFORMIS, *Gray.* *Mossy-cup, Olive-formed Oak.*River-banks; of the Hudson above Albany, and in the western part of the State, *Michaux.* Glenville near Schenectady, *Pearson.* Dexter, Jefferson county, *Vasey.* Rare.OBTUSILOBA, *Michx.*Sandy woods. Schenectady, along the College brook; woods beyond the junction of the Central and Saratoga railroads, *Pearson.**Post, Round-lobed Oak.*

Rare.

ALBA, L.

Hilly woods.

White Oak.

Frequent.

- PRINUS, *L.*
 var. DISCOLOR, *Michx.* *Two-colored-leaved Oak.*
 Low woods. Flats of the Mohawk. West side of Onondaga lake. Abundant.
- CASTANEA, *Willd.* *Chestnut-leaved Oak.*
 Elevated woodlands. Chemung county, *Knieskern, Torrey Fl. N.Y.* Rare.
 var. MONTICOLA, *Michx.* *Mountain-dwelling Oak.*
 Rocky hillsides and banks. Schenectady county, *Pearson.* Highlands of the
 Mohawk, *E. W. Paige.* Penn-Yan, *Sartwell in herb. Ham. Coll.* Infrequent.
- PRINOIDES, *Willd.* *Chinquapin. Prinus-like Oak.*
 Pine plains of Schenectady, *Pearson.* Scarce.
- ILICIFOLIA, *Wangenheim.* *Scrub, Ilex-leaved Oak.*
 Pine plains of Rome. Abundant.
- TINCTORIA, *Bartram.* *Quercitron. Dyeing Oak.*
 Fertile woods. Schenectady, *Pearson.* Otsego county, *Miss S. Cooper : H.*
Lathrop. Yates county, *Sartwell in herb. Ham. Coll.* Uncommon.
- COCCINEA, *Wang.* *Scarlet Oak.*
 Hillsides. Schenectady, *Pearson.* Around Otsego lake, *Miss S. Cooper.*
 Penn-Yan, *Sartwell in herb. Ham. Coll.* Frequent.
- RUBRA, *L.* *Red Oak.*
 Woods. Common.
- PALUSTRIS, *Du Roi.* *Swamp Oak.*
 Borders of swamps, flats of streams. Schenectady, *Pearson.* Occasional.
- CASTANEA, *Tournefort.* *Chestnut.*
 VESCA, *L.* *Edible-fruited Chestnut.*
 Hillsides. Frequent. July.
- FAGUS, *Tournefort.* *Beech.*
 FERRUGINEA, *Aiton.* *Rusty-leaved Fagus.*
 Woods. Common. May.
- CORYLUS, *Tournefort.* *Filberts. Hazelnuts.*
 AMERICANA, *Walter.* *American Corylus.*
 Low woods, river-banks. Common in the valley of the Mohawk. April.
- ROSTRATA, *Aiton.* *Beaked Corylus.*
 Thickets along streams. Schenectady, Montgomery and Otsego counties.
 Rocky banks of Seneca lake, *Vasey.* Banks of Owasco lake outlet, *I. H. Hall.*
 Yates county, *Sartwell in herb. Ham. Coll.* Infrequent. April.
- CARPINUS, *L.* *Water Beech.*
 AMERICANA, *Michx.* *American Carpinus.*
 Ravine-sides. Common. April.
- OSTRYA, *Micheli.* *Hop-hornbeam. Lever-wood. Iron-wood.*
 VIRGINICA, *Willd.* *Virginian Ostrya.*
 Moist open woods. Common. May.

MYRICACEÆ.

Sweet-gales.

MYRICA, L.

Sweet-gale.

GALE, L.

Helmeted-fruited Myrica.

Cold marshes, near Summit lake, Springfield. Otsego county, where it abounds. Mud lake, south Herkimer county. Common on the margins of streams and lakes in the north woods.

April.

CERIFERA, L.

Bayberry. Wax-bearing-fruited Myrica.

Sandy shores. Junius, *Sartwell in herb. Ham. Coll.* Rochester, C. Dewey. Parma, Monroe county, *Bradley.* Abundant in the swamps of West-Bergen, northeastern Genesee county.

Rare. May.

COMPTONIA, Solander.

Sweet-fern.

ASPENIFOLIA, Aiton.

Asplenium-leaved Comptonia.

Hillsides and sandy plains. Pine woods of Schenectady county, *Pearson.* Otsego county, *Miss S. Cooper.* Plains of Rome and Oneida lake.

* Frequent. April, May.

BETULACEÆ.

Birches.

BETULA, Tournefort.

ALBA, var. POPULIFOLIA, Spach.

White, Poplar-leaved Birch.

Barren or sandy soils. Plains and swamps between Albany and Schenectady. Otsego county, *Miss S. Cooper.* Abundant on the pine plains of Rome. Dry banks of the Black river.

Frequent. April.

PAPYRACEA, Aiton.

Paper Birch.

Banks of streams. Helderberg mountains, *Pearson.* Along the Black river below Dexter, Jefferson county, *Vasey.*

Rare.

NIGRA, L.

Black Birch.

Banks of streams. Deerfield creek. Fish creek.

Scarce.

EXCELSA, Aiton.

Yellow, Lofty Birch.

Damp woods.

Common.

LENTA, L.

Cherry, Pliant Birch.

Ravines.

Frequent.

ALNUS, Tournefort.

Alders.

INCANA, Willd.

Hoary Alder.

Upland marshes on the hills south of the Mohawk valley. Summit lake, Springfield; where it is very low, only a foot or two high, on the open bog land. Borders of Canaderaga lake and its outlet, Exeter, Otsego county. From Mud lake, to the State marsh, south Herkimer county.

Infrequent. March, April.

SERRULATA, Aiton.

Serrulate Alder.

Streams, swamps.

Common.

VIRIDIS, DC.

Green Alder.

Northern watercourses. Among the headwaters and on the banks of Moose river, north Herkimer and Hamilton counties.

Rare.

SALICACEÆ.

Willows.

SALIX, *Tournefort.*

Salices.

CANDIDA, *Willd.*

Hoary Willow.

Cold swamps. Summit lake borders. Otsego county. Mud lake, State marsh, Hidden lake, Litchfield, south Herkimer county. Junius, Seneca county, *Sartwell.* West-Bergen, Genesee county. Rare. May.

TRISTIS, *Aiton.*

Mourning Willow.

Dry open woods.

Infrequent.

HUMILIS, *Marshall.*

Low Willow.

Borders of thickets and swamps. Pine plains of Rome.

Frequent.

DISCOLOR, *Muhl.*

Glaucous, Two-colored Willow.

Banks of streams.

Common.

SERICEA, *Marshall.*

Silky-leaved Willow.

Low grounds, water-sides. Borders of swamp-rivulets near Point of Rock pond, and in the northern part of the county. Yates county, *Sartwell in herb. Ham. Coll.* Scarce.

PETIOLARIS, *Smith.*

Petioled Willow.

River-banks. Occasional on the low alluvial banks of the Mohawk. Penn-Yan, *Sartwell in herb. Ham. Coll.* Uncommon.

CORDATA, *Muhl.*

Heart-leaved Willow.

Low river-banks. Penn-Yan, *Sartwell in herb. Ham. Coll.* Frequent.

ROSTRATA, *Richardson.*

Long-beaked Willow.

Borders of swamps. Steep springy banks of the Oriskany creek. Rome, *Knieskern, Torrey Fl. N.Y.* Infrequent.

ALBA, L.

White Willow.

Low grounds, wet banks.

Common.

FRAGILIS, L.

Brittle Willow.

Water-sides. Starch-factory creek. Headwaters of the Deerfield creek. Banks of the Mohawk and its tributaries. Uncommon.

NIGRA, *Marshall.*

Black Willow.

Banks of creeks, rivers. In force on the alluvial banks of the Mohawk.

Common.

LUCIDA, *Muhl.*

Shining Willow.

Low banks. Borders of Hidden lake, Litchfield, south Herkimer county; and all the cold marshes on the hills. Yates county, *Sartwell in herb. Ham. Coll.* Infrequent.

BABYLONICA, *Tourn.*

Weeping Willow.

Streets, lawns, graveyards.

Frequent.

LONGIFOLIA, *Muhl.*

Long-leaved Willow.

Sandy banks. Albany, *Beck in herb.* Genesee falls, *Aiken in herb. Sartwell Ham. Coll.* Scarce.

PEDICELLARIS, *Pursh.*

Pediceled-fruited Willow.

Sphagnum swamps. In the cold open bogs north of Summit lake, Otsego county. Abundant on the State marsh and around Hidden lake, Litchfield, south Herkimer county. Oriskany swamp formerly, *Knieskern.* Cold marshes in the northwestern part of the county, and throughout the north woods. Junius, Seneca county, *Sartwell in herb. Ham. Coll.* Rare.

POPULUS, *Tournefort.*TREMULOIDES, *Michx.*

Sides of hills and ravines.

*Poplars. Aspen.**Tremula-like Populus.*

Common. April.

GRANDIDENTATA, *Michx.*

Woods and river-banks. Most frequent on sandy soils. Abundant.

*Large-toothed-leaved Populus.*MONILIFERA, *Aiton.*Water-sides. Western part of the State, particularly near Oneida lake and along the Genesee river, *Torrey Fl. N.Y.* Pillar point near Dexter, Jefferson county, *Vasey.* Near Rochester, *C. M. Booth.**Cottonwood. Necklace-bearing Populus.*

Rare.

BALSAMIFERA, *L.*Water-courses, swamps. Near Oriskany, *Knieskern.**Balsam-bearing Populus.*

Scarce.

var. CANDICANS, *Gray.*

Streets and near dwellings; a common shade tree.

*White-leaved Populus.*NIGRA, *Michx.*Banks. Oriskany creek, and near Oneida lake, *Knieskern.**Black Populus.*

Rare.

DILATATA, *Aiton.*

Roadsides; near old farm-houses.

Lombardy Poplar. Dilated-leaved Populus.

Infrequent.

ALBA, *L.*

Occasional as a shade tree; extending by root, to fences and roadsides

White Populus.

Frequently.

2. GYMNOSPERMÆ.

Gymnosperms.

CONIFERÆ.

*Conifers.*PINUS, *Tournefort.**Pines.*RESINOSA, *Aiton.*Hills. Helderberg mountains three miles south of Knowerville, *Pearson.* Pine plains of Rome, *Vasey.* Yates county, *Sartwell in herb. Ham. Coll.**Red, Resinous Pine.*

May. Rare.

RIGIDA, *Miller.*

Sandy plains. Schenectady. Rome.

Pitch, Rigid Pine.

Common. May.

STROBUS, *L.*

Cold woods. Swamps on the flats of the Mohawk. Frequent in Schenectady, Montgomery and Otsego counties. Lingering still in marshes on the hills: formerly abounding throughout this region. Not yet exhausted in the swamps of Rome and Oneida lake. Common in the forests of the north woods. May.

*White Pine. From an ancient Fir.*ABIES, *Tournefort.**Spruces.*BALSAMEA, *Marshall.*

Cold swamps. Occasional in upland marshes, south of the Mohawk valley, from Summit lake and the outlet of Canaderaga lake, Otsego county, through the swamps near Jordanville, to the State marsh and Graefenberg swamp, south Herkimer county. Between Oriskany and Rome. Abundant in the northern part of the county; and common along streams and shores in the north woods, often nearly covered with long gray lichens.

Balsam-yielding Fir.

June.

CANADENSIS, *Michx.*

Dry woods.

Hemlock.

Common. May.

NIGRA, *Poiret.**Black Spruce.*

Deep woods on the hills: on the level borders of sphagnum ponds. Frequent along Fish creek, above the cliffs. Common in the northern forests.

The low dwarf form, in bogs and holes, is called by lumbermen *Bastard Spruce*. This and the *Tamarack* are the first trees that take root in shaking moss, either as it extends into the water of ponds, or after it has completed the covering. They are closely followed and displaced by *Arbor vitæ*; which at length develop the deep black soil-bottoms of cedar swamps.

Frequent. May.

ALBA, *Michx.**White Spruce.*

Open upland woods. Frankfort hill. Northern wilderness.

May.

LARIX, *Tournefort.**Larch. Tamarack.*AMERICANA, *Michx.**American Larix.*

Borders of swamps and marshes. Throughout the valley of the Mohawk, but more abundant along the south range of hills, around the ponds and lakes, or occasionally alone covering tracts of low land. Also from the northern part of the county, northward.

Abundant. May.

THUJA, *Tournefort.**Arbor-vitæ.*OCCIDENTALIS, *L.**American, Western Thuja.*

Cold swamps. From northern Otsego county, Summit lake; southern Herkimer county, Mud lake, Cedarville, Hidden lake, Cedar lake; Oneida county, throughout the valley of the Mohawk; Madison and Onondaga counties; northward.

Common. April.

JUNIPERUS, *L.**Junipers.*COMMUNIS, *L.**Common Juniper.*

Sandy woods, barren banks. North side of the Mohawk valley, from Schenectady to Littlefalls. Sides of the Black river below Watertown. Frequent in the north woods.

Scarce. May.

VIRGINIANA, *L.**Red Cedar.*

Rocky woods, dry sidehills. Abundant in the valley of the Mohawk, through Schenectady and Montgomery counties. Seneca lake, *Gray*. Greece, Monroe county, *Bradley*.

Frequent. April.

SABINA, *L.**European Savin.*

var. PROSTRATA.

Low Savin. Prostrate Juniperus.

Swamps and shores. Borders of cold ponds in the north woods. Chemung county, *Knieskern in herb. Sartwell Ham. Coll.* Banks of the Genesee river, Greece, *Bradley*. Abundant in the Bergen swamp, Genesee county; often covering the ground, and running to great length.

Leavds four-ranked, oval, acute; at the end of the stem, opposite, cuspidate: sterile flowers in erect ovoid catkins, borne on the ends of little branches: fertile catkins of several scales becoming fleshy and uniting in a berry, glaucous at first, blue-black when ripe, two- to four-seeded, borne on short recurved pedicels, which is the determining characteristic of the species.

In open places, stems run several feet, rooting as they go: branches curving upwards three to eight inches; but where the plants are crowded in patches, they rise twelve to eighteen inches.

Rare. May.

TAXUS, *Tournefort.**Yew.*BACCATA, *L.*, var. CANADENSIS, *Gray.**American Taxus.*

Moist banks of woods and ravines, in deep evergreen shade. Common.

Sometimes erect, with a tree-like stem and spreading branches, five or six feet in height; borders of the Paris hill swamp.

April.

II. MONOCOTYLEDONÆ.

Monocotyledons.

ARACEÆ.

*Arums.*ARISÆMA, *Martius.**Indian Turnip.*TRIPHYLLUM, *Torrey.**Three-leaved Arisæma.*

Ravine-sides, moist woods.

Common. May.

DRACONTIUM, *Schott.**Dragon Arisæma.*

Damp thickets on the flats of the Mohawk.

Frequent. May.

PELTANDRA, *Rafinesque.**Arrow-leaved Arum.*VIRGINICA, *Raf.**Virginian Peltandra.*

Swamps, sides of streams.

Frequent. June, July.

CALLA, *L.**Wild Calla.*PALUSTRIS, *L.**Marsh Calla.*

Bogs, streams ponds. Frequent. Common on Graefenberg hill.

Often with two, and sometimes three spathes surrounding one spadix.

May - August.

SYMPLOCARPUS, *Salisbury.**Skunk Cabbage.*FÆTIDUS, *Salisb.**Fetid Symplocarpus.*

Low meadows, swamps.

Common. March, April.

ORONTIUM, *L.**Golden-club.*AQUATICUM, *L.**Floating Orontium.*

Borders of a pond in Gilbertsville, Otsego county, *H. Lathrop in herb.* The specimen of this plant is clear, and that it was gathered within the limits of a botanical walk from this place is certain. The station, however, is wonderfully inland for a plant usually found around ponds near the coast and in river-marshes of tide-water, being nearly four hundred miles up the Susquehanna valley.

Rare. May.

ACORUS, *L.**Sweet-flag.*CALAMUS, *L.**Reed Calamus.*

Rivulet-marshes.

Common. June.

TYPHACEÆ.

*Typhads.*TYPHA, *Tournefort.**Cat-tails.*LATIFOLIA, *L.**Wide-leaved Typha.*

Swamps.

Common. June, July.

ANGUSTIFOLIA, *L.**Narrow-leaved Typha.*

Common around Onondaga lake and west of Syracuse.

June.

SPARGANIUM, *Tournefort.**Bur-reeds. Spargania.*EURYCARPUM, *Engelmann.**Broad-fruited Sparganium.*

Lake and river borders. Abundant along the outlet of Canaderaga lake, Exeter, Otsego county. Probably not uncommon on the flats of the Mohawk.

Its habit alone would distinguish this species, the plant being as large again in all its parts as the following.

August, September.

RAMOSUM, *Hudson.**Branched-headed Sparganium.*

Marshes along streams.

Common. July, August.

- SIMPLEX, *Hudson* *Single-headed Sparganium*
 Margins of ponds, lakes. Frequent. July.
- NATANS, *L.* *Floating Sparganium.*
 Slow-flowing brooks. On the flats of the Mohawk, a mile or two below Utica. Rare. July.
- ANGUSTIFOLIUM, *Michx.* *Narrow-leaved Sparganium.*
 Margins of cold springs and high ponds in the northern part of Herkimer county. Rare. July.

LEMNACEÆ. *Duckmeats.*

LEMNA, *L.*

- TRISULCA, *L.* *Ivy-leaved, Three-parted Lemna.*
 Still water. Pond on the flats below Utica, Alexandria bay. Gates, Monroe county, found in flower by *C. M. Booth.* Uncommon. June.
- MINOR, *L.* *Little Lemna.*
 Stagnant water. Common.
- POLYRRHIZA, *L.* *Many-rooted Lemna.*
 Ponds. Frequent.
- GIBBA, *L.* *Convex-leaved Lemna.*
 Ditches and stagnant waters; observed in flower, near Liverpool in the western part of New-York State, *Pursh.* Onondaga lake. Rare.

NAJADACEÆ. *Najads.*

NAJAS, *L.*

- MAJOR, *Allioni.* *Greater Najas.*
 Borders of Onondaga lake. Discovered by G. W. CLINTON, in October 1864, growing in a stream emptying into the lake near Liverpool.
 It abounds, however, in the lake. in water ten to twenty-five feet deep; most luxuriantly along the edge of a sudden descent of the bottom, at a distance from shore. When the water is clear and still, the plants can be seen growing on the bottom, branching in all directions from the root. But the best specimens come from the deepest water, out of sight; some clusters of which are three feet in length, and these only fragments broken off by storms.
 At least three forms occur. The common one is entirely unarmed, without spines either on stems or leaves; perhaps the var. *angustifolia*, BRAUN, observed by CHAMISSE at Oahu, Sandwich Islands.
 Another corresponds with the normal form described by Prof. ALEXANDER BRAUN: Stem sparingly beset with spines (10-40 in each internode); leaves broad-linear, each edge of the blade with 4-8 teeth, which are patent and not quite so long as the leaf is broad, the leaf at the back furnished with 1-4 spines; sheath of leaf with rounded lateral edges, and without teeth; fruit 5-8 millimetres long.—Florida, CABANIS.
 A small form occasionally appears, about half the size of the first in all the parts and fruit.
 The above habitats, with our own, are the only stations of this plant known on the American continents: it is widely distributed over the Old world.
Local. August - November.

- FLEXILIS, *Rostkov & Schmidt.* *Bending Najas.*
 Lakes, rivers. Outlet of Canaderaga lake, Otsego county. Lake Ontario. Cape Vincent, head of the St. Lawrence, *Bradley.* Abundant in the river south of Oswego. Crooked lake, *Sartwell.* Infrequent. July - September.

- ZANNICHELLIA, *Micheli.*** *Horned Pondweed.*
PALUSTRIS, L. *Marsh Zannichellia.*
 Rivulets; marshy shores. Salina and Onondaga lake. Near Penn-Yan, *Sartwell.*
 Rare. August - October.
- RUPPIA, L.** *Tassel Pondweed.*
MARITIMA, L. *Seaside Ruppia.*
 Borders of Onondaga lake along the east side. It is fruitful in shallow water, two to five feet in depth.
 In deep water, in company with *Najas major*, a very large form grows, many feet in length, bearing wide leaves, but flowerless and fruitless.
 This plant and its companion are new to the interior, having been known hitherto as exclusively maritime. Their presence here is proof, first, that the sea originally came up to or covered the place; and second, that these plants were flourishing at that time.
 July - November.
- POTAMOGETON, *Tournefort.*** *Pondweeds.*
PECTINATUS, L. *Pectinate-leaved Potamogeton.*
 Rivers and lakes. Albany, *Beck.* Schenectady. *Pearson.* Near Watertown, *Gray, Torrey Fl. N.Y.* Pools along Oriskany creek. Abundant in Onondaga lake. Crooked lake, *Sartwell.*
 Rare.
- ROBBINSII, *Oakes.*** *Discovered by ROBBINS.*
 Ponds. At the head of Onondaga lake, in the inlet of the creek. Rare.
- PUSILLUS, L.** *Small Potamogeton.*
 Borders of lakes, standing waters. East Dry-lot pond, south Herkimer county. Crooked lake, Yates county, *Sartwell.*
 Rare.
- PAUCIFLORUS, *Pursh.*** *Few-flowered Potamogeton.*
 Standing water along streams; canals. Common.
- COMPRESSUS, L.** *Flat-stemmed Potamogeton.*
 Slow waters. Outlet of Canaderaga lake, Otsego county, where it abounds. Sander's lake and the Mohawk, *Pearson.* River St. Lawrence at Alexandria bay. Yates county, *Sartwell in herb. Ham. Coll.*
 Uncommon.
- PERFOLIATUS, L.** *Perfoliate Potamogeton.*
 Canals, ponds. Common.
- PRÆLONGUS, *Wulfen.*** *Long-peduncled Potamogeton.*
 Still deep water. Alexandria bay, Jefferson county, at the mouth of the creek: peduncles eighteen inches in length. Scarce.
- LUCENS, L.** *Shining-leaved Potamogeton.*
 Bottoms of ponds in shallow water. Frequent.
 var. **FLUITANS, *Gray.*** *Floating Potamogeton.*
 Ponds in deep water. Abundant.
- NATANS, L.** *Swimming Potamogeton.*
 Lakes, rivers. Common.
- HETEROPHYLLUS, *Schreb.*** *Various-leaved Potamogeton.*
 Shallow ponds and borders of lakes. Head of Seneca lake, *Gray.* Common.
- ALISMACEÆ.** *Water-plantains.*
- TRIGLOCHIN, L.** *Arrow-grasses.*
PALUSTRE, L. *Marsh Triglochin.*
 Boggy borders of Onondaga lake; at Salina, and northward beyond Liver-pool. Abundant in water-covered places of moss or marl, in the West Ber-gen swamp, Genesee county.
 Rare. June - August.

MARITIMUM, *L.* *Seaside Triglochin.*
 Banks round Onondaga lake. most abundant on the south and east sides.
 Bogs in the swamp of West-Bergen. Rare. July - September.

ELATUM, *Nuttall.* *Tall Triglochin.*
 Cold high marshes among the hill-tops of the range south of the Mohawk valley. Most abundant at Mud lake, in the tamarack swamps near Jordanville, on the State marsh and Hidden lake, south Herkimer county.
 More lofty than the largest of the preceding species, sometimes nearly four feet in height. Rare. June - September.

SCHEUCHZERIA, *L.* *Scheuchzeria.*
 PALUSTRIS, *L.* *Marsh Scheuchzeria.*
 Moss swamps. Summit lake. Mud lake. Hidden lake. Wetmore's pond, Frankfort hill. Bog near Oriskany. Abundant in the swamps of Rome. Common in the marshes of the northern part of the county, Point of Rock lake, North pond, and the north woods. May.

ALISMA, *L.* *Water Plantain.*
 PLANTAGO, *L.*, var. AMERICANUM, *Gray.* *American Alisma.*
 Ditches, bogs. Common. July, August.

SAGITTARIA, *L.* *Arrowheads.*
 VARIABILIS, *Engelmann.* *Variable-leaved Sagittaria.*
 Low grounds, water-sides : with manifold variations. Common. July, August.

HETEROPHYLLA, *Pursh.* *Differing-leaved Sagittaria.*
 Muddy banks. Frequent.

GRAMINEA, *Michaux.* *Grass-leaved Sagittaria.*
 Shores of streams, ponds. Banks of Oriskany creek. Borders of Oneida lake, *Knieskern.* Abundant along the outlet of the Eight lakes, north Herkimer county; and on Fourth lake it grows deeply submerged, in patches over the sandy bottom, having only short triangular leaves. Scarce. July, August.

HYDROCHARIDACEÆ. *Frogbits.*

LIMNOBIUM, *Richard.* *American Frog's-bit.*
 SPONGIA, *Richard.* *Spongy-leaved Limnobium.*
 Floating in a part of Braddock's bay, Greece, *Bradley.* Braddock's bay, *Sartwell in herb. Ham. Coll.* Local. August.

ANACHARIS, *Richard.* *Water-moss.*
 CANADENSIS, *Planchon.* *Canadian Anacharis.*
 Still water; brooks, rivers, lakes. Otsego lake. Canaderaga lake and its outlet. Throughout the Mohawk, in side-waters of the stream. Lake Ontario and the St. Lawrence river, flowering abundantly and beautifully at Alexandria bay. Common. August.

VALLISNERIA, *Micheli.* *Tape-grass.*
 SPIRALIS, *L.* *Spiral-scaped Vallisneria.*
 Rivers and slow streams. Abundant in the Mohawk river. Outlet of Canaderaga lake. Occasional in the Chenango canal. Outlet of Crooked lake, *Sartwell.* Uncommon. August.

ORCHIDACEÆ.

Orchids.

ORCHIS, L.

SPECTABILIS, L.

Damp rich woods.

Showy Orchis.

Common. May.

GYMNADENIA, R. Brown.

TRIDENTATA, Lindley.

Shady swamps.

Three-toothed-lipped *Gymnadenia*.

Abundant. July.

PLATANThERA, Richard.

OBTUSATA, Lindl.

Mossy springy banks in the north woods, between Third lake and Bald rock, Herkimer county.

Obtuse-leaved *Platanthera*.

Rare. July.

ROTUNDIFOLIA, Lindley.

var. OBLONGIFOLIA.

Upland, open, sphagnous level at the head of Mud lake, south Herkimer county; under scattered tamaracks and arbor vitæ, either among clusters of the young evergreens or in shade of their north side, in cold damp moss: accompanied by *Calypso borealis*, *Cypripedium arietinum*, *Eriophorum alpinum*. To be looked for on the extensive tamarack swamps south of Jordanville.

Round-leaved *Platanthera*.Oblong-leaved *Platanthera*.

Roots three or four long toothed tubers : scape six to twelve inches high : leaf resting on the moss or settled in it, white cellular beneath as those of *P. orbiculata*, about ten-nerved, long elliptical or oblong, two inches broad by four to six in length; radical scapeless leaves still narrower, less than half as wide : spikes six- to twelve-flowered, bracts nearly as long as the ovaries : flowers large, lateral sepals spreading nearly three-fourths of an inch : spur shorter than the lip, slender, lying close to the capsule : lip half an inch long, sometimes oblong or rectangular and entire, with a wavy border, but usually more or less parted into lateral lobes and notched at the end, white with eight or ten purple spots : petals narrow, converging over the column, deep purple: lower sepals long ovate, white; upper one broad ovate, either curving over the petals or sometimes reflexed, veined and tinged with purple. A plant as beautiful as it is rare.

It has been found before only in Newfoundland, Isle of Anticosti at the mouth of the St. Lawrence, along the northeastern boundaries of Maine, and in the northern Rocky mountains; so that its presence south of latitude 43° is most remarkable.

Local. June, July.

ORBICULATA, Lindley.

Orbicular-leaved *Platanthera*.

Deep damp woods. Throughout the valley of the Mohawk. About Otsego lake, Miss S. Cooper : B. D. Gilbert. Most frequent on Frankfort hill, and among the headwaters of the Deerfield creek. Oriskany valley; Oriskany, Manchester, Clinton and College hill. Abundant in the north woods. Widely scattered, but scarce.

July.

HOOKERI, Lindl.

Dedicated to WILLIAM J. HOOKER.

Dry woods. Littlefalls, bushy cleared land on the summit of Fall hill, south of the Mohawk. Dense woods along hillsides east of Utica and Oriskany, *Knieskern*. Sandy evergreen-wooded ridges southwest of Whitesboro. Pine barrens along Wood creek, near New-London : abundant in Jefferson county, Gray.

Scarce.

var. OBLONGIFOLIA. Oblong-leaved *Hooker's Platanthera*.

Steep banks of Fall hill at Littlefalls, between the tops of the cliffs and the brow of the high land.

Leaves four to six inches in length by two wide, narrowing toward the base into a clasping sheath, as in the var. of *P. rotundifolia*. Local. June.

- BRACTEATA, Torrey.** *Long-bracted Platanthera.*
 Damp or wet woods. Along the Rolleboom of the Rotterdam hills, Schenectady county. Fairfield, Herkimer county, *Gray in Rare plants of Northern N. Y.* Frankfort hill. Not rare in southern Oneida county, Sangerfield; and Madison county, Brookfield, *Gray*. Yates county, *Sartwell in herb. Ham. Coll.* Infrequent. June.
- HYPERBORÆA, Lindl.** *Northern Platanthera.*
 Shady swamps. Common. July.
- DILATATA, Lindl.** *Dilated-lipped Platanthera.*
 Cold marshes. Summit lake, Otsego county. Common at Mud lake, in the Jordanville swamps, on Hidden lake and the State marsh, south Herkimer county. Wet banks of Fish creek. Level borders of Point of Rock lake; and in all the sphagnum bogs of the northern part of the county. Throughout the north woods and the northern portion of the State.
 Abundant. June – August.
- FLAVA, Gray.** *Yellow Platanthera.*
 Wet woods, borders of swamps. Frequent. July.
- CILIARIS, Lindl.** *Ciliate-lipped Platanthera.*
 Open swamps. West of Albany, *Beck bot.* Pine plains of Schenectady, *Pearson*. Junius, Seneca county, *Sartwell in herb. Ham. Coll.* Greece and Parma. Monroe county, *Bradley*. Infrequent. June, July.
- BLEPHARIGLOTTIS, Lindl.** *Lash-lipped Platanthera.*
 Sphagnous swamps. Frankfort hill, around Wetmore's pond. South Trenton. Borders of Point of Rock lake. Two and three feet high. Rare.
 var. **HOLOPETALA, Gray.** *Entire-petaled Platanthera.*
 Open moss bogs of the north woods, a foot or less in height: frequent there, but not observed south of North pond, Boonville. July.
- LACERA, Gray.** *Ragged Platanthera.*
 Wet meadows, streams, swamps. Frequent. July.
- PSYCODES, Gray.** *Butterfly-like-lipped Platanthera.*
 Swampy woods, and meadows. Common. July, August.
- FIMBRIATA, Lindl.** *Soldier's-plume. Fringed-lipped Platanthera.*
 Cold swamps. Delaware county, *B. D. Gilbert*. Otsego county, *Miss S. Cooper*. Marshes of northern Herkimer county, *W. Calverly*. Shady swamp west of Fort Bull, Rome.
 In all respects, of character, size and time of flowering, the same as the eastern form. Rare. June.
- GOODYERA, R. Brown.** *Rattlesnake Plantains.*
- REPENS, R. Br.** *Creeping Goodyera.*
 Dry ridges of ravines and their mossy sides, in the shade of hemlocks. Deerfield creek. Starch-factory creek. Cascade glen. South side of Point of Rock lake.
 Rarely it is found in Cedar swamps, from Mud lake, where it grows side by side with *Calypso borealis*, through similar localities on both the hills and flats of the Mohawk, to the cold boggy woods of Rome. Common in southern Oneida county. *Gray*.
 The same in size and character with the White mountain plant. Frequent. July, August.
- PUBESCENS, R. Br.** *Pubescent-spiked Goodyera.*
 Damp shaded hillsides. Schenectady county, *Pearson*. Otsego county, *B. D. Gilbert*. Schuyler hill, above Frankfort station. Banks of Oriskany creek, Pleasant valley. Abundant. July.

SPIRANTHES, *Richard.**Ladies'-tresses.*GRACILIS, *Bigelow.**Slender Spiranthes.*

Hillsides, dry open woods. Sides of the Mohawk valley from Schenectady to Littlefalls. Pine plains of Rome, *Knieskern*. Around Oneida lake, *Gray*. Banks of the hill near the old fort, Oswego. Oak openings. Greece, Monroe county, *Bradley*. Frequent. July, August.

LATIFOLIA, *Torrey.**Broad-leaved Spiranthes.*

Springy, grassy banks. Banks of West-Canada creek, Fairfield, Herkimer county, *Gray*. Oriskany, at the head of the raceway, along the sidehill. Opposite the village, on the north side of the Mohawk, scattered over the wet slope. Springy banks at the headwaters of Frankfort creek, between Wetmore's and Jerusalem hill. Rocky island in Black river, Rutland, Jefferson county, *J. G. Crocker*. Rare. June.

CERNUA, *Richard.**Nodding Spiranthes.*

Marshes and wet meadows.

Abundant. August, September.

LISTERA, *R. Brown.**Twayblade.*CORDATA, *R. Br.**Heart-leaved Listera.*

Swamps, in wet moss and deep shade. Mud and Hidden lakes, south Herkimer county. Cedar swamps on the flats of the Mohawk, and the pine swamps beyond Rome. Paris hill swamp. Southern part of the county, *Gray*. Abundant. May, June.

ARETHUSA, *Gronovius.**Arethusa.*BULBOSA, *L.**Bulbous Arethusa.*

Sphagnum marshes. Major Van Voost's fly, Schenectady, *Pearson*. Formerly on the flats of the Mohawk below Utica, and in the Oriskany swamp, *Gray*. In the extensive moss marsh beyond Fort Bull, and doubtless occasional throughout the swamps of Rome. Junius, Seneca county, *Sartwell in herb. Ham. Coll.* Borders of the West-Bergen swamp. Rare. May.

POGONIA, *Jussieu.**Pogonias.*OPHIOGLOSSOIDES, *Nuttall.**Ophioglossum-like Pogonia.*

Swamps of sphagnum.

Common.

A monstrosity of this plant has been gathered on Hidden lake, south Herkimer county. Several flowers were found, all having many petals nearly white, around three lips also white veined with purple, except their centers, which were covered with a heavy deep green beard.

The peculiarities of these flowers are that they have three labella, and that the column is resolved into small petaloid organs. The blossom is normal as to the proper perianth, except that the labellum is unusually papillose, bearded almost to the base. The points of interest are, first, that the two accessory labella are just in the position of the two suppressed stamens of the outer series, viz. of A^2 and A^3 , as represented in the diagram (*DARWIN, Fertilization of Orchids, p. 292*); and there is a small petaloid body on the other side of the flower, answering to the other stamen A^1 . Secondly, in one of the blossoms, and less distinctly in another, two lateral stamens of the inner series, a^1 and a^2 , are represented each by a slender naked filament. There are remaining petaloid bodies enough to answer for the third stamen of the inner series and for the stigmas, *Gray in Linn. Soc. Jour.* Also *Sill. Jour.*

Thus these developments, in some measure, reveal the complete or regular orchid structure. June, July.

PENDULA, *Lindl.**Pendulous-flowered Pogonia.*

Damp woods in rich mould. Pine plains of Rome, *Knieskern*. Eaton, Madison county, on the hill south of Leland's upper pond, *Bradley*. Sheldrake point, Cayuga lake, *Gray*. Gorham, Ontario county, *Sartwell in herb. Ham. Coll.* Geneva, *J. Smith fide Carey in herb. Sartwell Ham. Coll.* Parma, Monroe county, *Bradley*. Rare. August.

VERTICILLATA, *Nutt.* *Whorled-leaved Pogonia.*
 Shady swamps. Schenectady, in the pine plains, *Pearson*. Oriskany swamp, *Vasey*. Mossy bogs on the plains of Rome, along the Watertown railroad. Rare. May.

CALOPOGON, *R. Brown.* *Calopogon.*
 PULCHELLUS, *R. Br.* *Elegant Calopogon.*
 Sphagnous marshes. Common.
 White flowers occur in the swamp of West-Bergen, Genesee county. Rare. July.

CALYPSO, *Salisbury.* *Calypso.*
 BOREALIS, *Salisb.* *Northern Calypso.*
 Rich black soil on elevations in the arbor-vitæ swamp of Mud lake, south Herkimer county: probably the southern limit of the plant.
 From a swamp a mile or two north of Lowville, Lewis county, gathered by a party of students, *F. B. Hough*. In evergreen woods along the north side of Black river below Brownville, *Vasey*. In both these localities plants were gathered many years ago, but have not been detected since, in either place, by most diligent search.
 Hemlock woods bordering the extensive swamp in West-Bergen, Genesee county, *C. M. Booth*. Rare. May, June.

TIPULARIA, *Nuttall.* *Crane-fly Orchis.*
 DISCOLOR, *Nutt.* *Two-colored Tipularia.*
 Open woods on the Ridge-side, Parma, Monroe county, *Bradley*. Rare. July.

MICROSTYLIS, *Nuttall.* *Adder's-mouth.*
 MONOPHYLLOS, *Lindley.* *Single-leaved Microstylis.*
 Shady bogs. Tamarack swamps between Jordanville and Page's corners, south Herkimer county. Bridgewater. *Gray* in *Rare plants of Northern N. Y.* Between Clark's mills and New-York mills. Cedar swamp near the Chenango canal, three miles southwest of Utica. Shady borders of Hidden lake. Litchfield. Borders of West-Bergen swamp. Rare. July.

LIPARIS, *Richard.* *Twablade.*
 LILIFOLIA, *Richard.* *Lily-leaved Liparis.*
 Rich woods, banks of streams in shade. Rotterdam, Schenectady county, *Pearson*. Verona, *Knieskern*. Deep woods southeast of Clark's mills. Ovid, Seneca county, *Brewer et Chickering in herb. Sartwell Ham. Coll.* Scarce. June.

LÆSELII, *Richard.* *In honor of JOHN LÆSEL.*
 Water-sides, marshes. Borders of Mud lake; on the swamps near Jordanville; abundant in the shady borders and on the open marsh of Hidden lake; and wet banks of Cedar lake, south Herkimer county. Northwestern part of county, about Oneida lake, *Gray*. Rivulet-sides on the borders of the swamp in West-Bergen, Genesee county. Frequent. June, July.

CORALLORHIZA, *Haller.* *Coral-roots.*
 INNATA, *R. Br.* *Spurless Corallorhiza.*
 Wet moss in deep swamps, rarely in moist woods. Trenton falls. Cedar swamps on the flats of the Mohawk between Utica and Frankfort. Marsh on Starch-factory creek east of Utica. Swamps west of Whitesboro. Paris hill. Hidden lake borders. Tamarack marshes of Jordanville. Mud-lake moss swamp. Frequent. May, June.

MULTIFLORA, *Nutt.* *Many-flowered Corallorhiza.*
 Dry woods. Abundant. August.

ODONTORHIZA, *Nutt.**Tooth-rooted Corallorhiza.*

Deep rich woods. Otsego county, *B. D. Gilbert*. Ravine bottoms among the head streams of Deerfield creek. Infrequent. July.

APLECTRUM, *Nuttall.**Adam-and-Eve.*HYEMALE, *Nutt.**Winter-lasting Aplectrum.*

Damp woods in deep soil. College hill, Clinton. Foster's grove, New-Hartford. Woods on the Chenango canal, three miles southwest of Utica. Oriskany, *Knieskern*. Auburn, Cayuga county, *I. H. Hall*. Rochester, *C. Dewey*. Scarce. May.

CYPRIPEDIUM, *L.**Lady's-slippers. Cyripedia.*PUBESCENS, *Willd.**Downy Cyripedium.*

Rich oak woodlands; cedar and black ash swamps. Common. May.

PARVIFLORUM, *Salisb.**Small-flowered Cyripedium.*

Deep damp woods. Low woods on the flats of Oriskany creek, between Clinton and Manchester. Mohawk flats above Frankfort. Cedar swamp between Day's corners and Cedar lake, Litchfield; also the State marsh, Jerusalem, Herkimer county. Infrequent. May.

On the Rolle-boom of the Rotterdam hills, Schenectady county, a specimen has been gathered, having all parts of the flower single, except the lip, which is double. The two sacs are perfect, equal in form and of the usual size, with complete orifices; distinct above, the two inside margins keeping separate to the very point of attachment, the point of the sterile anther lying between them; but below, they adhere about one-third their length. Lower sepal entire. June.

CANDIDUM, *Muhl.**White-flowered Cyripedium.*

Damp borders of streams and swamps.

Near Cooperstown, Otsego county, *Horace Lathrop*. The specimen in the possession of *Dr. LATHROP*, gathered a few years ago, certainly has the form of this species; and he affirms that when growing, the flower was pure white.

And that its range commences in this part of the State, is not improbable. It ought to be looked for through the northern valley of the Susquehanna, and on the high marshes of its headwaters in south Herkimer county. The tamarack swamps south of Jordanville are almost identical in character with its habitat in the western part of the State, and contain many plants its companions there, including *Parnassia caroliniana* and *Valeriana sylvatica*.

On the open marsh of the Bergen swamp, Genesee county, but more abundant along the edges of low woods bordering; where it was first found by *C. M. Booth* and *G. T. Fish*. Rare. May.

SPECTABILE, *Swartz.**Showy Cyripedium.*

Cold swamps. Summit lake in the cedar woods at its head, Otsego county. Abundant in the marshes of Mud lake, Jordanville, Hidden lake, the State marsh, and cedar swamps on the flats of the Mohawk below Utica, south Herkimer county. Trenton falls, on the springy bank opposite the High falls; and in swamps on the road to Utica. Between Oriskany and Rome. Swamp on Paris hill.

In the last locality, and at Mud lake, the flowers are pure white frequently. Infrequent. July.

ACAULE, *Aiton.**Stemless Cyripedium.*

Sandy woods and swamps. Throughout Schenectady, Montgomery and Otsego counties. Tamarack marshes between Page's corners and Jordanville: Frankfort hill, south Herkimer county. Paris hill swamp. Common on the plains of Rome and Oneida lake. Above the cliffs along Fish creek. Sandy woods in South-Trenton, and in the groves of Trenton falls. Abundant in the northern part of the county, Lewis county, and the north woods. Frequent.

Flowers white, near Cooperstown, Otsego county, *Mrs. J. Shaw*. Rare. June.

ARIETINUM, *R. Br.**Ram's-head Cyripedium.*

Cold swamps, in moss and deep black soil. Summit lake, Otsego county, in the half-open sphagnum bog-land adjoining, within clumps of low tamaracks and arbor vitæ, or in their shade. In similar stations at Mud lake; but most abundant on the tamarack marshes near Jordanville, on the road to Richfield springs, Herkimer county. Usually growing singly or two or three together, but often in clusters of ten to twenty stems. Stems compressed, enclosed by three sheaths at base, clothed with minute down, knotted at the bases of leaves, twisted so that the leaves appear on all sides and not in opposite ranks as in other species. Leaves three to six, ciliate, smooth above and silvery-cellular beneath. Flower-bract large, ovate, leaf-like.

This species, which has proved to be so rare and transitory, in these stations appears both plenty and permanent. This is the more remarkable, because occurring so far south; the plant being a northern one, and this habitat one of its limits southward.

Formerly, it has been found along the Rolle-boom near the Platte-kill, Schenectady county, by *Pearson*; and near Oneida lake, by *Gray*; but the plants have disappeared, or the stations are lost. Rare. May.

AMARYLLIDACEÆ.

*Amaryllids.*HYPOXYS, *L.**Star-grass.*ERECTA, *L.**Upright Hypoxys.*

Borders of woods, damp grass lands.

Frequent. May - July.

IRIDACEÆ.

*Irids.*IRIS, *L.*VERSICOLOR, *L.**Color-varying Iris.*

Bogs and wet meadows.

Common. May, June.

VIRGINICA, *L.**Virginian Iris.*

Borders of marshes. Troy, *Beck in herb.*

Rare. June.

SISYRINCHIUM, *L.**Blue-eyed Grass.*

BERMUDIANA, *L.*, var. ANCEPS, *Gray.* *Sword-spathed Sisyrinchium.*

Waysides, pastures, meadows.

Common. May - July.

DIOSCOREACEÆ.

*Yam-roots.*DIOSCOREA, *Plumier.**Wild Yam-root.*VILLOSA, *L.**Downy Dioscorea.*

Wet woods and thickets. Low sandy woods near Owasco lake, Cayuga county, *I. H. Hall.*

Rare. July.

SMILACEÆ.

*Smilaces.*SMILAX, *Tournefort.**Greenbriers.*ROTUNDIFOLIA, *L.**Round-leaved Smilax.*

Woods, thickets, near water. Schenectady county, *E. W. Paige.* Oneida county, *Knieskern.* Penn-Yan, *Sartwell.* Rochester, *C. Dewey.*

Uncommon. June.

HISPIDA, *Muhlenberg.**Prickly Smilax.*

Low woods, shady swamps. Oriskany valley; wet woods between Clinton and Manchester; southeast of Clark's mills. In all damp thickets, and swamps on the flats of the Mohawk. Gorham, Seneca county, *Sartwell.*

Frequent. June.

HERBACEA, *L.**Herbaceous Smilax.*

Shaded banks of streams.

Uncommon. June.

- TRILLIUM, L.** *Trillia.*
SESSILE, L. *Sessile-flowered Trillium.*
 Rich woodlands. Near Irondequoit bay, Monroe county, *L. Holzer.*
 Rare. May.
- CERNUUM, L.** *Nodding Trillium.*
 Shady banks. Schenectady county, *Pearson: Paige.* Otsego county, *H. Lathrop.*
 Scarce. May.
- ERECTUM, L.** *Purple, Erect Trillium.*
 Ravines and moist banks. Common.
 var. **ALBUM, Pursh.** *White Trillium.*
 Valley of the Mohawk throughout: Frankfort: Utica. Valley of the Saquoit: New-Hartford. Valley of the Oriskany: Clinton: Lairdsville. Abundant.
 var. **FLAVUM, Eaton.** *Yellow Trillium.*
 Southern part of Lewis county. *J. G. Crocker.* Occasionally, with the normal form, in the vicinity of Utica. Banks of the Mohawk at Rome. *Vasey.* Hamilton, Madison county, and Norwich, Chenango county, *J. S. Douglass, Torrey Fl. N.Y.* Scarce. May.
- GRANDIFLORUM, Salisbury.** *Great-flowered Trillium.*
 Woods, cedar swamps, banks of streams. Abundant throughout the Mohawk valley. Frequent in the Sauquoit and Oriskany vallies. May.
- ERYTHROCARPUM, Michaux.** *Red-fruited Trillium.*
 Evergreen woods, open banks. Schenectady county, *Pearson.* Otsego county, *Miss S. Cooper.* Trenton falls. Banks of the Deerfield creek. Brows of the Starch-factory ravine. Frankfort hill. Paris hill. Sides of Oriskany creek, Pleasant valley. Common throughout the sandy woods of Rome. Valley of the Unadilla, *Gray.* Abundant. May.
- MEDEOLA, Gronovius.** *Cucumber-root.*
VIRGINICA, L. *Virginian Medeola.*
 Moist woods. Common. June.
- LILIACEÆ.** *Lilies.*
- ASPARAGUS, L.**
OFFICINALE, L. *Official Asparagus.*
 Pastures, ravines. Escapes frequently. June.
- POLYGONATUM, Tournefort.** *Solomon's-seals. Polygonata.*
BIFLORUM, Elliott. *Twin-flowered Polygonatum.*
 Ravine-sides, moist woods. Abundant. May.
- GIGANTEUM, Dietrich.** *Giant Polygonatum.*
 Banks of the Mohawk river, where it is common; but out of the valley it is rare. Along Wood creek sparingly. June, July.
- SMILACINA, Desfontaines.** *Smilacinas.*
RACEMOSA, Desf. *Racemed Smilacina.*
 Woods, thickets, hillsides. Common. May, June.
- STELLATA, Desf.** *Starry Smilacina.*
 Abundant on the banks of the Mohawk. Wood creek. Fish creek, *Knieskern.* In all arbor-vitæ swamps on the hills, from Summit lake westward to Hidden lake. Frequent. June.

TRIFOLIA, *Desf.* *Three-leaved Smilacina.*
 Swamps. Summit lake. Mud lake. Jordanville marshes. Frankfort hill, round Wetmore's pond. Paris hill. Southeast of Oriskany. South Trenton. Abundant in the swamps of Rome. Borders of Point of Rock lake. Common in the cold marshes of the north woods. Abundant. May.

BIFOLIA, *Ker.* *Two-leaved Smilacina.*
 Woods. Common. May.

CLINTONIA, *Rafinesque.* *Wild Lily of the Valley. Clintonia.*
 BOREALIS, *Raf.* *Northern Clintonia.*

Damp woods, and in all arbor-vitæ swamps. Cold marshes and borders of ponds on the hills, from Otsego county, through the high swamps of Warren and Litchfield to Cedar lake, south Herkimer county. Paris hill, and over the uplands of the southern part of the county. Cedar swamps on the flats of the Mohawk; between East-Canada creek and Littlefalls; below and above Frankfort; ravines near Utica; south of Whitesboro; west of Oriskany; north of Rome. Swamps west of Rome and around Oneida lake. About Point of Rock lake. Evergreen woods of South-Trenton. Sides of North pond. Common in the north woods. Abundant. May, June.

HEMEROCALLIS, *L.* *Day-lily.*

FULVA, *L.* *Fulvous Hemerocallis.*
 Roadsides; garden fences. Occasional. July.

ALLIUM, *L.* *Leeks.*

TRICOCCUM, *Aiton.* *Three-seeded Allium.*
 Moist woods. Common. June.

CERNUUM, *Roth.* *Drooping-flowered Allium.*

Damp banks. Seneca county, shores of the lake, *Gray.* Chemung valley, *Knieskern, Torrey Fl. N.Y.* Chemung county, *Sartwell in herb. Ham. Coll.* Rare. July, August.

VINEALE, *L.* *Vineyard Allium.*

Low meadows. Troy, *Aiken in herb. Sartwell Ham. Coll.* Schenectady county, *Pearson: Paige.* Near Utica, *Knieskern in cat.* Rare. June.

CANADENSE, *Kalm.* *Canadian Allium.*

Water-sides. Sander's lake near Schenectady, *Pearson.* Shady woods, Oneida county, *Knieskern.* Meadows on the flats of the Mohawk opposite Whitesboro. Uncommon. May, June.

LILIUM, *L.* *Lilies.*

PHILADELPHICUM, *L.* *Red Lily.*

Plains, banks, bushes. Schenectady. Littlefalls. Rome. Abundant. June.

CANADENSE, *L.* *Yellow Lily.*

Wet meadows, borders of swamps. Pine plains of Schenectady. Otsego county, *Miss S. Cooper.* Trenton falls, on the west bank opposite the High falls. Oneida county, *Knieskern.* Meadows of the Mohawk. Sandy woods of Rome. Yates county, *Sartwell in herb. Ham. Coll.* Frequent. June, July.

SUPERBUM, *L.* *Turk's-cap. Superb Lily.*

Low meadows and swamps. Common. July, August.

ERYTHRONIUM, *L.* *Adder's-tongues.*

AMERICANUM, *Smith.* *Yellow Erythronium.*

Damp woods and meadows. Common. April, May.

- ALBIDUM**, *Nuttall*. *White Erythronium.*
Wet meadows. Near Albany, *Eaton bot.* Albany, *Torrey Fl. N. Y.*: in herb. *Sartwell Ham. Coll.* Delaware county, common, *B. D. Gilbert.*
Rare. April, May.
- MELANTHACEÆ.** *Melanthia.*
- UVULARIA**, *L.* *Bellworts.*
GRANDIFLORA, *Smith.* *Large-flowered Uvularia.*
Flats of streams, damp woods. Common. May.
- PERFOLIATA**, *L.* *Small-flowered Uvularia.*
Gulf-sides, borders of thickets. Ravines on the Deerfield hills. Frankfort hill. Headwaters of the Sauquoit creek; of the Unadilla river; and southward. Infrequent. May.
- SESSILIFOLIA**, *L.* *Sessile-leaved Uvularia.*
Woods. Everywhere common. May.
- PROSARTES**, *Don.* *Prosartes.*
LANUGINOSA, *Don.* *Downy Prosartes.*
Rich open woods about Oriskany, *Knieskern.* Auburn, Cayuga county, *J. Carey in herb. Sartwell Ham. Coll.* Penn-Yan, Yates county, *Sartwell.* Near Rochester, *Eaton bot.*: *Z. H. Harris. Torrey Fl. N. Y.*: *C. M. Booth.* Greece, Monroe county, *Bradley.* Rare. May.
- STREPTOPUS**, *Michaux.* *Stem-clasping Streptopus.*
AMPLEXIFOLIUS, *DC.* *Rosy-flowered Streptopus.*
Cedar swamps. Fairfield, *Hadley, Torrey Fl. N. Y.* In most of the swamps on the heights of Frankfort, near the Graefenberg Watercure; and Litchfield, *Gray.* Paris hill. Rare. June.
- ROSEUS**, *Michx.* *Rosy-flowered Streptopus.*
Ravines and woods. Common. May.
- ZYGADENUS**, *Michaux.* *Glaucous Zygadenus.*
GLAUCUS, *Nuttall.* *Glaucous Zygadenus.*
On the gravelly banks of the St. Lawrence, in calcareous soil, *Nuttall.* Abundant in the marly portions of the West-Bergen swamp, northeastern Genesee county, chiefly in the shade of evergreens and throughout the arbor vitæ bordering the marsh: discovered by G. T. FISH. Rare. July.
- VERATRUM**, *Tournefort.* *American Hellebore.*
VIRIDE, *Aiton.* *Green-flowered Veratrum.*
Wet meadows and swamps. Common. June.
- CHAMÆLIRIUM**, *Willdenow.* *Blazing-star.*
LUTEUM, *Gray.* *Light-yellow-flowered Chamælirium.*
Meadows and low woodlands. Wet places in sandy woods near Owasco lake, Cayuga county, *I. H. Hall.* Yates county, *Sartwell in herb. Ham. Coll.* Rochester, *Z. H. Harris in herb. Bradley.* Rare. May, June.
- TOFIELDIA**, *Hudson.* *False Asphodel.*
GLUTINOSA, *Willd.* *Glutinous-stemmed Tofieldia.*
Wet moss and shallow bogs on the swamp of West-Bergen, Genesee county. In these moist stations, the plants are large and abundant; but sometimes they are found in nearly dry marly mud, in company with *Scleria verticillata* and *Carex crawei*, when they are dwarfed in size, flowering at the height of three to six inches. Rare. June, July.

JUNCACEÆ.

Rushes.

LUZULA, DC.

Wood-rushes.

PILOSA, Willd.

Hairy Luzula.

Damp shady banks of streams. Along Wood creek and near Oneida lake, *Knieskern*. Abundant on the wooded flats and rocky sides of Fish creek. Yates county, *Sartwell in herb. Ham. Coll.* Abundant. May.

CAMPESTRIS, DC.

Field Luzula.

Dry woodlands.

Common. May.

JUNCUS, L.

Rushes. Junci.

EFFUSUS, L.

Effuse Juncus.

Ditches, low meadows.

Common. June.

FILIFORMIS, L.

Filiform Juncus.

Sandy shores of lakes in the north woods. Head of Oneida lake, *Gray*. Lake Ontario near Sackett's-harbor, *Gray in Rare plants of Northern N.Y.* Rare. July.

BALTICUS, Willd.

Baltic Sea Juncus.

Gravelly shores of the St. Lawrence and of Lake Ontario, *Torrey Fl. N.Y.* Lake shore, Sackett's-harbor, *Knieskern*.

Common in the muddy portions of the swamp in West-Bergen, north-eastern Genesee county.

This plant appears out of place here. Its usual habitat is the border of the Lake; while this station is three hundred feet or more above the level of the Lake, and nearly twenty miles south of the shore and has been found still farther inland. Other shore plants accompany it; *Scirpus torreyi*, *Zygadenus glaucus*, *Solidago houghtonii* of which only one other station is known, on the northern shore of Lake Michigan: all depend on the water of the Lake for their establishment. Their presence at this place, therefore, indicates that the surface of the water has been so much higher, or the land so much lower, at some time past.

Furthermore, this is a seaside plant, native in the north of Europe and on our northern coasts. For its introduction to the Great Lakes, it is just as dependent on the ocean as are *Ranunculus cymbalaria*, *Atriplex hastata*, *Saliconia herbacea*, *Najas major*, *Ruppia maritima*, *Triglochin maritimum*, *J. bulbosus*, *Scirpus maritimus* and *Spartina stricta* for their existence at Onondaga lake, and *Lathyrus maritimus* on the beaches of Oneida lake. These localities are all nearly on the same level, which must have been the shore of a maritime bay, during some ancient period. This period cannot have been less remote than the Post-tertiary, and may have been among the epochs of the Tertiary itself.

So these stations prove these very species of plants to be very old; and because still identical in character, both inland and on the coast, that they have not varied in the least during so many ages and so great changes.

Rare. July.

SCIRPOIDES, Lamarck.

Scirpus-like Juncus.

Borders of ponds and streams. Low sandy points of lakes in the north woods. Shores of North pond near Alder creek. Shores of Lake Ontario, near Sackett's-harbor, *Gray in Rare plants of Northern N.Y.* Reoccurring on the hills south of the Mohawk valley. Along Canaderaga lake outlet, Otsego county. Southern Oneida and Madison counties, *Gray*. Yates county, *Sartwell in herb. Ham. Coll.* Frequent. July.

PARADOXUS, Meyer.

Remarkable-fruited Juncus.

Wet banks of rivulets, grassy marshes, around swamps, lakes, and all water-courses. Common. July, August.

DEBILIS, Gray.*Weak-stemmed Juncus.*

Muddy bottoms of shady swamps.

Its habit clearly distinguishes this species; the stems lying flat on the ground, radiating in all directions from the root, nearly two feet in length. Infrequent. August, September.

ACUMINATUS, Michx.*Sharp-fruited Juncus.*Marshes. Common along low shores in the north woods. In the swamps of Warren, south Herkimer county, between Jordanville and Richfield springs. Oneida county, *Knieskern*. Jefferson county, *Vasey*. Head of Seneca lake, *Gray*. Crooked lake, *Sartwell in herb. Ham. Coll.* Frequent on the southern borders of Bergen swamp, Genesee county. Abundant. July - September.**ARTICULATUS, L.***Articulate Juncus.*Water-sides. Dexter, Jefferson county, *Vasey*. Penn-Yan, *Sartwell in herb. Ham. Coll.*var. **PELOCARPUS, Gray.***Brown-fruited Juncus.*Shores. Onondaga lake, on all sides, in shallow water. Banks of Genesee river near Avon; mouth of the Genesee, *Sartwell in herb. Ham. Coll.*

Rare. August.

NODOSUS, L.*Knotted-leaved Juncus.*

Water-borders, muddy banks. North woods. Alder creek. Cedar lake, south Herkimer county. Onondaga lake. Abundant. July.

var. **MEGACEPHALUS, Torrey.***Great-headed Juncus.*Sandy shores of Lake Ontario, *Gray, Torrey Fl. N.Y.: bot.* Wet soil near the Lake shore, Monroe county, *L. Holzer.* Rare. July.**CONRADI, Tuckerman.***Determined by CONRAD.*Sandy shores. Albany, *Beck in herb.* Plentiful on the banks of Third and Fourth lakes, north Herkimer county; frequently viviparous. Rare. July.**STYGIUS, L.***Stygian Juncus.*In an extensive sphagnous swamp bordering Perch lake, Jefferson county; not previously known as a native of North America, *Gray in Rare plants of Northern N.Y.* Thirty years ago or so, it was found near the head of the lake, on a wet quaking bog which extended to the water. But the lake has been raised at its outlet, or lowered; either of which would destroy the locality. Others have tried for years, but have not rediscovered the plant, *Gray.*Specimens were taken from this station also by *Crawe: Wood: Vasey.*

The heads are not always single and terminal: many specimens have two, one to three inches apart. Local. July, August.

TENUIS, Willd.*Slender Juncus.*

Roadsides, damp grounds.

Common. June.

BULBOSUS, L., var. GERARDI, Gray.*Black-grass.*

Rivulet-sides and wet banks, east of Salina and west of Onondaga lake, in thick patches. Common there. Local inland. August.

BUFONIUS, L.*Toad Juncus.*

Ditches, shores.

Common. August.

PONTEDERIACEÆ.*Pickerel-weeds.***PONTEDERIA, L.***Common Pickerel-weed.***CORDATA, L.***Cordate-base-leaved Pontederia.*Shallow waters of lakes, ponds, rivers. Otsego lake, *Miss S. Cooper.* Lakes of the north woods. Oneida lake, *Knieskern.* Bays and inlets on Lake Ontario. Frequent.var. **ANGUSTIFOLIA, Gray.***Narrow-leaved Pontederia.*Borders of Canaderaga lake, Otsego county, *Gray.* July - September.

SCHOLLERA, *Schreber.**Water Star-grass.*GRAMINEA, *Willd.**Grass-leaved Schollera.*

Flowing water. Chenango canal, two miles southwest of Utica. Occasional in the Mohawk river throughout. Unadilla river common, *Gray*. Eaton Madison county, *Bradley*. Junius, Seneca county, *Sartwell in herb. Ham. Coll.* Genesee river and Irondequoit bay, *C. M. Booth*. Infrequent. August.

XYRIDACEÆ.

*Xyrids.*XYRIS, *L.**Yellow-eyed Grass.*BULBOSA, *Kunth.**Bulbous Xyris.*

Muddy edges of an elevated pond at the east end of Bald rock, north Herkimer county. Growing in clusters of many plants connected at the roots: very small in size, scapes two to six inches high, leaves one-half to two inches long. Rare. July, August.

ERIOCAULONACEÆ.

*Pipeworts.*ERIOCAULON, *L.*SEPTANGULARE, *Withering.**Seven-angled Eriocaulon.*

Lakes and ponds of the north woods, throughout and common. August.

CYPERACEÆ.

*Sedges.*CYPERUS, *L.**Cyperi.*DIANDRUS, *Torrey.**Two-stamened Cyperus.*var. CASTANEUS, *Torr.**Chestnut-colored Cyperus.*

Wet pastures, Oneida county, *Knieskern*. Common in southern Oneida and Madison counties, *Gray*. Marshy banks at Salina, and sandy shores beyond Liverpool, Onondaga lake. Yates county, *Sartwell*. Monroe county, *L. Holzer*. Abundant. August, September.

MICHAUXIANUS, *Schultes.**Discovered by MICHAUX.*

Waterside marshes. Borders of Oneida lake, *Knieskern*. Salina, New-York, *J. Carey*, *Torrey Cyp.* Wet banks at the head and east side of Onondaga lake, but scarce. Shores of Lake Ontario: Oswego. Crooked lake, *Sartwell*. Rare. August.

STRIGOSUS, *L.**Strigose-spiked Cyperus.*

Stream-sides, low sandy grounds. Valley of the Mohawk throughout, on springy hillsides and gravelly banks. Whitesboro, on the barren sand from the break of the Erie canal. Borders of swamps on the plains of Rome. Around Onondaga lake. Frequent. August.

INFLEXUS, *Muhl.**Recurved-scaled Cyperus.*

Sandy shores of rivers and lakes. Near Albany, *Tracy* and *Eaton*, *Torrey Cyp.* Near Oneida lake, *Gray Gram. & Cyp.* Shore of Oneida lake at the water's edge, a half mile north of Fish creek, plenty, *Knieskern*. Infrequent. August.

DENTATUS, *Torr.**Dentate-spiked Cyperus.*

Shores of Fourth lake in the chain of Eight, north Herkimer and Hamilton counties, on a sandy point of the north side, and at the head near the inlet from the upper lake: where it occurs in its abnormal state, with scales and spikes foliaceous. Rare. August, September.

PHYMATODES, *Muhl.**Many-tubered Cyperus.*

Damp banks. Low alluvial bottoms in the bed of the Mohawk river throughout its length, but chiefly from Schenectady to Littlefalls; also in ditches and bogs over the flats. Shores of Oneida lake, *Torr. Cyp.* Avon springs, Livingston county, *Sartwell in herb. Ham. Coll.* Common. August.

SCHWEINITZII, Torrey.*Discovered by SCHWEINITZ.*

Dry sandy banks along the shore of Lake Ontario. Sodus bay, *Sartwell in herb. Ham. Coll.* Near Greece, Monroe county, *Bradley, Torrey Cyp.* Beach of Lake Ontario near Braddock's bay, *Bradley.* Rare. August.

FILICULMIS, Vahl.*Filiform Cyperus.*

Barren fields and banks. Abundant in the sandy wastes at the head of Oneida lake. South shore of Oneida lake, *Knieskern.* Around Onondaga lake. Frequent. July, August.

DULICHIMUM, Richard.**SPATHACEUM, Persoon.***Sheathed Dulichium.*

Marshes, borders of lakes, frequent. In the north woods, common. August.

HEMICARPHA, Nees von Esenbeck.**SUBSQUARROSA, Nees.***Spreading-scaled Hemicarpha.*

Sandy shores. Northern parts of the State of New-York, *Stevenson*; western parts of the same State, *Gray; Torrey Cyp.* Near Oneida lake, New-York, *Gray Gram. & Cyp.* Shore of Oneida lake above the mouth of Fish creek, with *Cyperus inflexus, Knieskern.* Rare. July.

ELEOCHARIS, R. Brown.**OBTUSA, Schultes.***Obtuse-scaled Eleocharis.*

Marshes, low grounds.

Common. July.

PALUSTRIS, R. Br.*Marsh Eleocharis.*

Bogs, swamps, borders of ponds, lakes at the water's edge. Often very high when growing in shallow water.

Common. July.

var. **CALVA, Gray.***Skull-spiked Eleocharis.*

Western part of the State, *Torrey Fl. N.Y.* Watertown, *Crawe, Gray bot.* August.

COMPRESSA, Sullivant.*Compressed-culmed Eleocharis.*

Shallow borders of lakes, or at the water's edge, in the north woods. Wet mud-banks of a millpond at Cedarville, south Herkimer county. Brownville, Jefferson county, *W. A. Wood in herb. Sartwell Ham. Coll.* Scarce. August.

ROSTELLATA, Torrey.*Rostrate-fruited Eleocharis.*

Swamps. Junius, Seneca county, *Sartwell, Torrey Cyp.* and *Fl. N.Y.: Gray bot.: in herb. Sartwell Ham. Coll.* Common on the swamp of West-Bergen, Genesee county; in wet moss and water-covered marl.

This plant commonly bears fruitless culms two to four feet in length, which, bending over, root at the end.

August, September.

INTERMEDIA, Schultes.*Intermediate Eleocharis.*

Damp banks and shores. Jefferson county, *Crawe,* and Oneida county, *Gray, Torrey Cyp.* Shores of North pond, southwest of Boonville. Near Oriskany, *Knieskern.* Cedarville, covering the muddy banks of a millpond, and along the creek towards Iliion; marly shores of Cedar lake, with *Scirpus pauciflorus*; south Herkimer county. Southern Oneida and Madison counties, *Gray.* Benton, Yates county, *Sartwell in herb. Ham. Coll.* Infrequent. August.

TENUIS, Schultes.*Slender Eleocharis.*

Marshes. Mud lake, Jordanville, Cedar lake, Hidden lake, and Cedarville, south Herkimer county.

Frequent. August.

ACICULARIS, R. Br.*Needle Eleocharis.*

Rivulet-sides, wet banks and bottoms of mud. Common. June - August.

SCIRPUS, L.

Scirpi.

CÆSPITOSUS, L.

Tufted Scirpus.

Sphagnous bogs on mountain tops, and cold swamps. Mount Marcy, *Knieskern in herb. Sartwell Ham. Coll.* Common on the West-Bergen marsh, northeastern Genesee county; where it grows very high, fifteen to twenty inches.
Rare. June, July.

PAUCIFLORUS, *Lightfoot.**Few-flowered Scirpus.*

Marshes. Watertown near Lake Ontario, *Crawe, Gray addend. bot.* Hidden lake, Litchfield; where it abounds in the peculiar covering composed of *Hypnum scorpioides*, with *Carices chordorhiza, filiformis* and *limosa* chiefly: marly bogs around Cedar lake, most abundant on an old outlet of the pond, covering its surface: south Herkimer county. It also occurs very sparingly on the southern border of the swamp in Bergen, northeastern Genesee county, in marl mud.
Rare. July.

PLANIFOLIUS, *Muhl.**Flat-leaved Scirpus.*

Rocky woods and bogs. Ogdensburgh, St. Lawrence county, *Crawe, Torrey Cyp.*
Rare. June.

CLINTONII, *Gray.**Dedicated to G. W. CLINTON.*

Dry banks.

SCIRPUS PLANIFOLIUS, var. *brevifolius*. Leaves much shorter than the culm, very narrow, canaliculate, triquetrous towards the summit; scales shorter and scarcely acuminate. Culm a foot long, very slender. Leaves scarcely half a line wide, 1 - 3 inches long, almost subulate. Spike broadly ovate. Ogdensburgh, N. York, *Crawe: TORREY Cyp.*

Folio e vagina suprema involuto-filiformi culmo multum breviori, cæteris brevissimis vel subnullis; squamis capituli (præter infimam) carina vix prominula haud percurrente muticis; setis perigynii achenium superantibus: rel. ut in *S. planifolio: GRAY in Sill. Jour.* Rare. June.

SUBTERMINALIS, *Torrey.**Subterminal-fruited Scirpus.*

Deep still water. Inlet of a stream on the west side of First lake, north Herkimer county. Sphagnum pond adjoining North pond, north Oneida co.
Rare. August.

var. TERRESTRIS.

Emersed Subterminal-fruited Scirpus.

Wet moss on Hidden lake, south Herkimer county. Standing ten to twenty inches high, with one to three or four erect strong leaves and open round heads of fruit.
Local. August.

PUNGENS, *Vahl.**Pointed Scirpus.*

Lake borders, swamps. Shallow water of ponds in the north woods. Oneida lake, *Knieskern.* Western part of the State of New-York, *Gray Gram. & Cyp.* Water-sides near Onondaga lake.

At Salina a small form occurs, short, slender, and few-flowered.

Abundant. August.

TORREYI, *Olney.**Determined by TORREY.*

Margins of rivers, ponds. Abundant near the head of Fourth lake, Hamilton county, along the south shore, in shallow water on sandy bottoms. Also in quantity over the southern portion of the swamp of West-Bergen, Genesee county; in company with *Juncus balticus* and other Lake shore plants.

Rare. August.

LACUSTRIS, L.

Lake Scirpus.

Bogs, rivers, lakes.

Common. July.

DEBILIS, *Pursh.**Weak Scirpus.*

Sandy borders of lakes. Wet shores of Oneida lake, *Knieskern.* Shore of Lake Ontario near Sackett's-harbor, New-York, *Gray Gram. & Cyp.: Torr. Cyp.: in herb. Sartwell Ham. Coll.*

Rare. August.

- MARITIMUS, L.** *Seaside Scirpus.*
 Beaches, shore-marshes. Sandy banks at Salina and of Onondaga lake: where all manner of forms abound, from a depauperate one and the smallest size, up to the ordinary and highest states. Local inland.
- var. **MACROSTACHYOS, Michaux.** *Large-headed Scirpus.*
 Marshes of Salina at the head of the lake. Abundant here, but local. August - October.
- FLUVIATILIS, Gray.** *River Scirpus.*
 Lake and river-marshes. Gravelly shores of Canaderaga lake, Otsego county; where it was discovered by Dr. GRAY in the year 1832. Borders of Oneida lake, *Knieskern*. Common in the western parts of the State of New-York, *Gray, Torrey Cyp.* Yates county, *Sartwell in herb. Ham. Coll.* Irondequoit bay of Lake Ontario, *L. Holzer.* Rare. August.
- SYLVATICUS, L.** *Woodland Scirpus.*
 var. **ATROVIRENS, Gray.** *Dark-green Scirpus.*
 Low meadows, swamps. Common. July.
- POLYPHYLLUS, Vahl.** *Many-leaved Scirpus.*
 Borders of wet woods and thicket-swamps. Near Penn-Yan, Yates county: Lockport, Niagara county: *Sartwell.* Rare. July.
- LINEATUS, Michx.** *Line-scaled Scirpus.*
 Swamps. Ontario county, *Sartwell in herb. Ham. Coll.* Rare. July.
- ERIOPHORUM, Michx.** *Wool-bearing Scirpus.*
 Low grounds. Common.
- var. **CYPERINUS, Gray.** *Cyperus-like Scirpus.*
 Wet places on Bald rock, north Herkimer county.
- var. **LAXUS, Gray.** *Loose-fruited Scirpus.*
 Marshes of the north woods. Borders of Oswego river. August.
- ERIOPHORUM, L.** *Cotton-grasses. Eriophora.*
ALPINUM, L. *Alpine Eriophorum.*
 Cold moss marshes. Oriskany swamp, *Knieskern: Gray: Vasey.* Abundant on the extensive sphagnum swales beyond Rome, both sides of the Oswego county road. Tufts on the surface of Hidden lake, Litchfield; and on the borders of Mud lake; south Herkimer county. Rare. June.
- VAGINATUM, L.** *Sheathed-culmed Eriophorum.*
 Elevated swamps. Shaky sphagnum flats surrounding Wetmore's pond on Frankfort hill. Watertown and Utica, *Gray, Torrey Cyp.* Abundant in deep sphagnum swamps on the pine plains six miles west of Rome. Rare. June.
- VIRGINICUM, L.** *Virginian Eriophorum.*
 Sphagnum bogs. Frankfort hill. Paris hill. Oriskany. Rome. South Trenton. Near North pond. Common in the north woods. August.
- POLYSTACHYON, L.** *Many-spiked Eriophorum.*
 Wet meadows, grassy bogs. Common.
- var. **ANGUSTIFOLIUM, Gray.** *Narrow-leaved Eriophorum.*
 Cedar and moss-swamps. Western part of the State; Oriskany swamp; Brookfield, Madison county; *Gray.* Sphagnum bog southeast of Oriskany, on the hill. North Herkimer county marshes, at the edges of woods. Rare. July.

GRACILE, *Koch.* *Slender Eriophorum.*
 Mossy marshes. Open grassy bog, north of Summit lake, Otsego county. Cedar swamp bordering Mud lake : abundant on Hidden lake; south Herkimer county. Common on cold bogs west of Fort Bull, Rome, near the Erie canal. Pools in the sphagnous marsh adjoining North pond. Wet banks and along brooks in the north woods. Infrequent. June.

FIMBRISTYLIS, *Vahl.*

AUTUMNALIS, *Ræm. & Schultes.* *Autumnal Fimbristylis.*
 River-sides. Troy and Schenectady, *Pearson.* Infrequent. August, Sept.

CAPILLARIS, *Gray.* *Capillary Fimbristylis.*
 Dry sand. Pine plains of Schenectady, *E. W. Paige.* Sandy plains of Oneida lake, *Gray.* Uncommon. August, September.

RHYNCHOSPORA, *Vahl.*

Beaked Rushes.

FUSCA, *Ræm. & Schultes.* *Brown Rhynchospora.*
 Lake-shores and boggy margins of ponds in the north woods, Herkimer and Hamilton counties : abundant there. August.

ALBA, *Vahl.* *White Rhynchospora.*
 Marshes. Summit lake. Mud lake. Frankfort hill. State marsh. Hidden lake. Oriskany swamp, *Knieskern.* North pond, off Alder creek; and in all the bogs of the north woods. Common. August.

CAPILLACEA, *Torrey.* *Capillary Rhynchospora.*
 Bogs and wet rocks. Cranberry marsh at the head of Oneida lake, *Knieskern.* On limestone rocks, Watertown, New-York, *Gray Rhyn.* Junius, Seneca county, *Sartwell.* Crevices and seats of the wet cliffs below the falls of Genesee river, Rochester. West-Bergen swamp, Genesee county.
 A variety with twelve bristles is abundant on Hidden lake and the State marsh, Litchfield, south Herkimer county. Rare. July, August.

GLOMERATA, *Vahl.* *Clustered Rhynchospora.*
 Mossy level adjoining an elevated pond at the east end of Bald rock, north of Third lake, north Herkimer county. Rare. August.

CLADIUM, *Browne.*

MARISCOIDES, *Torrey.* *Mariscus-like Cladium.*
 Marshes and lake-shores. Abundant on Hidden lake, Litchfield. Oriskany swamp, *Gray : Knieskern.* Common on borders of lakes and ponds in the north woods. Infrequent. August.

SCLERIA, *L.*

Nut-rushes.

TRIGLOMERATA, *Michaux.* *Three-clustered Scleria.*
 Swamps, low copses. Plains of Rome, *Knieskern.* Yates county, *Sartwell.* Infrequent. July.

PAUCIFLORA, *Muhlenberg.* *Few-flowered Scleria.*
 Wet meadows, hillsides. Greece, Monroe county, *Bradley.* Rare. July.

VERTICILLATA, *Muhl.* *Whorled-fruited Scleria.*
 Marshes. Junius, Seneca county, *Sartwell, Torrey Cyp. : Gray Gram. & Cyp. : in herb. Sartwell Ham. Coll.* Abounding in the damp marl of the West-Bergen swamp, Genesee county.
 The fresh plant has a peculiar and agreeable fragrance. Rare. August.

CAREX, L.

Carices.

GYNOCRATES, *Wormskjold.**Strong-pistilled Carex.*

Swamps. Savannah, Wayne county, *Sartwell in herb. Ham. Coll.* Springy banks a few miles south of Rochester, west of the Genesee river, *Dewey.* Abundant in the swamp of West-Bergen, Genesee county, in moisture and shade, covering low mounds and decaying logs. Rare. June.

EXILIS, *Dewey.**Meagre-fruited Carex.*

Elevated bogs. Marshy borders of a pond off the east end of Bald rock, north of Third lake, north Herkimer county. Rare. June, July.

STERILIS, *Willdenow.**Barren-spiked Carex*

Cold bogs on the hills. Frankfort hill. Paris hill. Summit lake. Hidden lake. Sphagnous swamps between Rome and Oneida lake. West-Bergen, Genesee county. Infrequent. June.

BROMOIDES, *Schkuhr.**Bromus-like Carex.*

Marshes, water-sides. Common. May.

DISTICHA, *Hudson.**Two-ranked-fruited Carex.*var. SARTWELLII, *Dewey.**Discovered by SARTWELL.*

Swamps. Junius, Seneca county, *Sartwell.* Fruit not two-rowed. Rare. July.

DECOMPOSITA, *Muhlenberg.**Decomound-spiked Carex.*

Swamps. Junius, Seneca county, and Penn-Yan, Yates county, *Sartwell.* Rare. July.

PRAIREA, *Dewey.**Prairie Carex.*

Marshes on the hills south of the Mohawk valley. In the open mossy bog-land north of Summit lake, Otsego county. Edges of Mud lake; common on the tamarack swamps between Jordanville and Page's corners; abundant over the surface of Hidden lake; sparingly in the State swamp of Jerusalem hill, Litchfield; south Herkimer county. Yates county; *Sartwell.* West Bergen, Genesee county. Rare. July.

CEPHALOPHORA, *Willd.**Head-bearing Carex.*

Copses, sandy fields. Borders of thickets, north side of the river opposite Whitesboro. Mohawk valley. *Knieskern.* Greece, Monroe county, *Bradley.* Frequent. May, June.

MUHLENBERGII, *Schkuhr.**Discovered by MUHLENBERG.*

Rocky woods, fields. Valley of the Mohawk, *Knieskern.* Dry sandy hills near Irondequoit bay, *L. Holzer.* Braddock's bay, Monroe county, *Bradley: Sartwell: Dewey.* Rare. June.

CHORDORHIZA, L.

Cord-rooted Carex.

Cold swamps, lake and river borders. Hidden lake and Jerusalem marsh, abundant. Oriskany swamp, *Knieskern.* Junius, Seneca county, *Sartwell.* Boggy margins of lakes in the north woods, frequent. St. Lawrence river near Ogdensburgh, *Crawe, Eaton bot.* Rare. July.

CEPHALOIDEA, *Dewey.**Head-like Carex.*

Fields and hedges. Banks of the Mohawk between Oriskany and Rome, *Vasey.* Penn-Yan, *Sartwell in herb. Ham. Coll.* Infrequent. June.

SPARGANIOIDES, *Muhl.**Sparganium-like Carex.*

Wet meadows, low thickets. Common. June.

ROSEA, *Schkuhr.**Rose-like-headed Carex.*

Cedar swamps. Abundant. June.

var. RADIATA, *Dewey.**Radiate-fruited Carex.*

Meadows and open woods. Occasional. June.

- RETROFLEXA, *Muhl.* *Reflexed-fruited Carex.*
Wet woods, moss marshes. Frequent. June – August.
- DISPERMA, *Dewey.* *Two-seeded Carex.*
Swamps, especially those of arbor vitæ; abundant in all. May, June.
- VULPINOIDEA, *Michaux.* *Fox-like Carex.*
Ditches. Common. June, July.
- SCABRIOR, *Sartwell.* *Rougher Carex.*
Wood-borders, copses. Penn-Yan, Yates county, *Sartwell.* Rare. June, July.
- SETACEA, *Dewey.* *Awned-fruited Carex.*
Moist banks. Abundant at the head of Hidden lake, Litchfield, south Herkimer county. Infrequent. June, July.
- TERETIUSCULA, *Goodenough.* *Rounder-headed Carex.*
Swamps. Borders of Summit lake, and in the open marsh-land northward, Otsego county. Margins of Mud lake; in the State marsh; and on Hidden lake; south Herkimer county. Oriskany, *Knieskern.* Western part of the State, *Gray Gram. & Cyp.* Penn-Yan, *Sartwell.* Frequent. June, July.
- STIPATA, *Muhl.* *Crowded-spiked Carex.*
Wet meadows. Abundant. May, June.
- ALOPECOIDEA, *Tuckerman.* *Foxtail-like Carex.*
Grassy woods. Oneida county, *Vasey.* Yates county, *Sartwell.* Rare. June, July.
- STELLULATA, *Good.* *Star-like Carex.*
Deep swamps of cedar or sphagnum. Common. June.
- SCIRPOIDES, *Schkuhr.* *Scirpus-like Carex.*
Arbor vitæ swamps. Frequent. May.
- CURTA, *Good.* *Short-fruited Carex.*
Marshes. Frankfort hill, abundant around Wetmore's sphagnum pond. Oriskany. Rome. Swamps of the north woods. Frequent. June, July.
- TENELLA, *Ehrhart.* *Slender Carex.*
Bogs of Rome. Beyond Fort Bull, in low open woods. In the extensive swamp northwest of New-London, north side of Wood creek. Rare. June.
- DEWEYANA, *Schkuhr.* *Discovered by DEWEY.*
Shady ravines, damp woods. Around Mud lake, Warren: grove on the banks of Cedar lake, Litchfield: south Herkimer county. Rich bottoms of Starch-factory creek near Utica, and over the mossy sides of many deep ravines at its head. Shaded rocky banks of Fish creek, from Taberg northward. Scarce. July.
- TRISPERMA, *Dewey.* *Three-seeded Carex.*
Cedar and sphagnum swamps. Frankfort hill. On the flats of the Mohawk below Utica. Near Oneida lake, *Knieskern.* South-Trenton. North woods. Abundant. July.
- ARGYRANTHA, *Tuckerman.* *Silver-flowered Carex.*
Borders of low woods near the sphagnum swale of South-Trenton. Rare. June, July.
- TENUIFLORA, *Wahlenberg.* *Small-flowered Carex*
Open moss-swamp west of Fort Bull, Rome, south of the Erie canal, where it is abundant. Formerly in the Oriskany swamp, *Vasey*; but now all gone. Rare. June.

- STRAMINEA**, *Wahlenberg.* *Straw-colored Carex.*
Swamps and their borders. Frequent. May, June.
- MIRABILIS**, *Dewey.* *Notable Carex.*
Wet meadows. Bottoms of the Mohawk river. Flats of Fish creek.
Frequent. June.
- CRISTATA**, *Schweinitz.* *Plume-headed Carex.*
Low grounds. Abundant. June.
- LAGOPODIOIDES**, *Schkuhr.* *Hare's-foot, Lagopus-like Carex.*
Marshes, shady wet woods. Frequent. June, July.
- TENERA**, *Dewey.* *Pliant Carex.*
Swamps. Common. June.
- FESTUCACEA**, *Schkuhr.* *Festuca-like Carex.*
Meadows, copses. Uncommon. July.
- SCOPARIA**, *Schkuhr.* *Broom-like Carex.*
Roadsides, bogs. Common. July.
- SYCHNOCEPHALA**, *Carey.* *Clustered-headed Carex.*

Spicis androgynis inferne masculis crebris arcte capitato-aggregatis folioso-bracteatis; stigmatibus 2; perigyniis compressis e basi ovato-lanceolata abrupte contracta sessilibus longe sensimque rostratis apice bifidis margine scabris squamam hyalinam lanceolatam abrupte mucronatam paulo superantibus.

Hab. In Nov. Ebor. Comit. "Jefferson," ubi legerunt cl. I.B. Crawe, M.D., et cl. W.A. Wood, M.D.

Culm about a foot high, leafy, smooth; spikes sessile, densely clustered, forming a compound capitate spike subtended by 3 long unequal foliaceous bracts much exceeding the spike. Perigynium tapering from an abruptly contracted ovate base into a long and slender scabrous bifid beak, a little exceeding the lanceolate abruptly mucronate scale. Achenium ovate, compressed, crowned with the lengthened style.

This plant, which has a great resemblance to *C. cyperoides*, LINNÆUS, differs from that species in the nearly sessile perigynium, which tapers from a much wider and contracted (not attenuated) base into a shorter beak, of which the teeth are also shorter than in the European plant. The perigynia are more crowded on the rachis than in *C. cyperoides*, the spikes of which, owing to the greater length of the beaks, have a more comose appearance than in our plant. The scale is shorter, abruptly mucronate, and not gradually tapering as in *C. cyperoides*; and the achenium is ovate, not ovate-oblong as in that species: CAREY in *Sill. Jour.*

Moist banks, wet meadows. Borders of woods, roadside between Watertown and Adams, where it was discovered by *Knieskern* and *Vasey*, about the year 1844. Watertown, received from *Crawe, Dewey*. Littlefalls, above the village, between the canal and the river, in a low meadow, *Vasey*. Rare. June, July.

- LENTICULARIS**, *Michx.* *Lentil-fruited Carex.*
On an island in Lake Sanford, not far from the McIntyre Iron-works, *Knieskern*. Sandy shores of Fourth lake in the chain of Eight, north Herkimer county: only at the water's edge, often in shade, where it grows two feet high, but on exposed banks it bears full-sized spikes at the height of four or five inches: abundant there.
Rare. July, August.

- AUREA**, *Nuttall.* *Golden-fruited Carex.*
Wet rocks and banks. Ledges within reach of the spray from the upper falls, Trenton falls. West-Canada creek, *Gray*. Marshy slopes round Cedar lake: hillsides of Hidden lake, Litchfield: south Herkimer county. Low grass-lands along the road between Vanhornsville and Summit lake, Springfield, Otsego county. Banks of Oriskany creek, *Knieskern*. Scarce. June.

- TORTA**, *Boott*. *Curving-spiked Carex.*
 Low grounds of streams. Starch-factory creek Oriskany creek. Fish creek.
 Abundant in a few localities, Yates county, *Sartwell*.
Uncommon. May, June.
- VULGARIS**, *Fries*. *Universal Carex.*
 Swamp near Oriskany, *Knieskern*. Rare. June.
- STRICTIOR**, *Dewey*. *Close-leaved Carex.*
 Borders of ponds, swamps Frequent. May, June.
- STRICTA**, *Goodenough*. *Upright-leaved Carex.*
 Bogs. Common. May, June.
- ANGUSTATA**, *Boott*. *Narrow-leaved Carex.*
 Beaver-meadows and marshes of the north woods, abundant. Cold swamps
 on the south range of hills. Junius, Seneca county, *Sartwell*. Infrequent. July.
- AQUATILIS**, *Wahl*. *Water Carex.*
 Upland swamps. Around Summit lake, and over the open moss swamp above
 it, Otsego county. Borders of Mud lake, Warren; on Hidden lake, and the
 State marsh, Litchfield; south Herkimer county. Junius, Seneca county,
Sartwell.
 Filiform peduncles of fertile spikes, sometimes a foot in length, occasional-
 ly proceed from near the root. Scarce. July.
- GYNANDRA**, *Schweinitz*. *Double-spiked Carex.*
 Swamps. Rome, abundant west of Fort Bull. Frequent. June.
- CRINITA**, *Lamarck*. *Fringed-spiked Carex.*
 Stream-sides. Common. June, July.
- POLYTRICHOIDES**, *Muhl*. *Haircap-moss, Polytrichum-like Carex.*
 Cedar and moss swamps. Common. June.
- LEUCOGLOCHIN**, *Ehrhart*. *White-arrowheaded Carex.*
 Sphagnum swamps. Scarce about Wetmore's pond, Frankfort hill. Common
 on the swale of South-Trenton. Near North pond. Abundant in the north
 woods, in nearly all mossy lowlands. Near Watertown, *Gray Gram. & Cyp.*
Rare. June, July.
- PEDUNCULATA**, *Muhlenberg*. *Long-peduncled Carex.*
 Shady hillsides and rich ravine bottoms. Abundant. May.
- WILLDENOWII**, *Schkuhr*. *In honor of WILLDENOW.*
 Dry banks. Watertown, Jefferson county, *Crawe, Gray Gram. & Cyp.:*
Knieskern. Yates county, *Sartwell*. Rare. June.
- STEUDELII**, *Kunth*. *Discovered by STEUDEL.*
 Hilly woods. Jefferson county, New-York, *Wood*. Watertown, *Dr. W. A.*
Wood, Dewey. Rare. June.
- BACKII**, *Boott*. *Dedicated to BACK.*
 Rocky banks. On an island in Perch lake, *Crawe, Dewey*. About Water-
 town, *Knieskern*. Dexter, Jefferson county, *Vasey*. Rare. June.
- SQUARROSA**, *L*. *Squarrose-spiked Carex.*
 Bogs. Near Bath, Steuben county, *Knieskern: Sartwell*.
Scarce. June, July.
- VIRESCENS**, *Muhl*. *Green-spiked Carex.*
 Shady hillsides, moist woods. Frankfort hill. Cascade glen, southeast of
 Utica; abundant about the upper falls. Oriskany, *Knieskern*. Woodlands
 along the cliffs of Fish creek. Monroe county, *L. Holzer*.
Frequent. June, July.

- HIRSUTA**, *Willdenow.* *Hair-sheathed Carex.*
Wet meadows. Schenectady, northeast of College buildings; and along the brow of the Rotterdam hills. Littlefalls, flats of the Mohawk above the village, south side of the river. Penn-Yan, Yates county, *Sartwell.*
Frequent. June.
- BUXBAUMII**, *Wahlenberg.* *Honorary to BUXBAUM.*
Swamps. Junius, *Sartwell.* Banks of the Genesee river, Greece, *Bradley.* At the head of the swamp in West-Bergen, Genesee county. Rare. June.
- GRACILLIMA**, *Schweinitz.* *Slender Carex.*
Meadows, copses, woods. Common. June, July.
- FORMOSA**, *Dewey.* *Handsome Carex.*
Moist banks and woodlands. Site of old Fort Bull, Rome. *Vasey.* Penn-Yan, *Sartwell.* Infrequent. June.
- DAVISII**, *Torrey.* *Dedicated to E. DAVIS.*
Shaded banks. Utica, *Gray Gram. & Cyp.* Along the Mohawk banks opposite Whitesboro, under three butternut trees; below, on wooded hillsides bordering a *Cephalanthus* swamp. Oriskany, *Vasey.* Frequent. June.
- UMBELLATA**, *Schkuhr.* *Umbellate Carex.*
Rocks; sandy hills and plains. Over the river and above Utica. Oriskany, *Dewey: F. Boott.* Western part of the State, *Gray Gram. & Cyp.* Abundant on the dry plains of Rome. Tufts on the sides of Bald rock, north of Third lake, north Herkimer county. Penn-Yan, *Sartwell.* Abundant.
- var. **VICINA**, *Dewey.* *Near-headed Umbellate Carex.*
The form with one or two heads of fruit close beneath the sterile spike, is found on the barren ridges bordering the open sphagnum swamps beyond Rome, Frequently. June.
- EMMONSII**, *Dewey.* *Dedicated to E. EMMONS.*
Dry banks. Oriskany, Oneida county; Mount Hope, Rochester; *Dewey.* Abundant in a few localities, Yates county, *Sartwell.* Webster, Monroe county, *L. Holzer.* Infrequent.
- var. **ELLIPTICA**, *Boott.* *Long-fruited Carex.*
Spicis congestis; perigyniis longioribus ($1\frac{6}{10} - \frac{8}{10}$ lin. longis, $\frac{6}{10}$ latis) hirsutis squamam subduplo superantibus; achenio elliptico triquetro ($1\frac{1}{10}$ lin. longo, $\frac{1}{2}$ lin. lato), basi styli decidua. Tab. CCLXXXVII. New-York, *Knieskern.*
The var. has a longer body to the perigynium and a longer achenium, and the pubescence is softer and longer, and the proportionate length of the perigynium to the squamæ gives a peculiar aspect to the spike. It has not been noticed by authors: *F. BOOTT.*
Penn-Yan; Rochester; *Dewey.* Infrequent. July.
- PENNSYLVANICA**, *Lamarck.* *Pennsylvanian Carex.*
Shady banks and deep thickets. Sides of the Mohawk valley, from Schenectady to Littlefalls. Sandy ridges opposite Whitesboro, north side of the Mohawk. Common on the plains of Rome.
Radical peduncles of fertile spikes, in addition to the usual one below the sterile, appear frequently in specimens from the pine woods of Schenectady county; and from sand-ridges among the sphagnum swales west of Rome, between the Oswego county road and Wood creek. Abundant. May.
- NOVÆ-ANGLIÆ**, *Schweinitz.* *New-England Carex.*
Mountain streams. From Mount Marcy, N.Y., *Dewey.* Adirondac river, Essex county, *Knieskern, Torrey Fl. N.Y.* Lake Sanford, *Knieskern.* Rare. July.
- VARIA**, *Muhl.* *Variable-sized Carex.*
Dry rocks and banks, both open and shaded. Common. May.

VESTITA, *Willdenow.**Hair-clothed-fruited Carex.*

Sandy copses. Pine plains of Schenectady, *Knieskern*: *Pearson*: *Tucker-man*: *F. Boott*. Rare. June.

PUBESCENS, *Muhl.**Pubescent Carex.*

Open rich woods, river-bottom meadows. Banks of the Mohawk river opposite Whitesboro, on sandy sidehills. Meadows, Oriskany. *Knieskern*. Watertown, Jefferson county, *Gray Gram.* & *Cyp.*

Occasionally a specimen occurs having an additional fertile spike on a long slender peduncle, nearly radical. Infrequent. June.

FLAVA, *L.**Yellow Carex.*

Low grounds, meadows, swamps, shores; most abundant in limestone soils. Littlefalls; Mud lake; swamp of Cedarville; between Day's corners and Cedar lake; around Cedar lake; on Hidden lake and the State marsh, Litchfield; south Herkimer county. Utica, Oriskany, *Knieskern*. Swamps of Rome, west of Fort Bull. Trenton falls, on the rocks opposite the upper falls, in the spray; a small form. Abundant between Steuben station and Boonville; and common along the wet banks of North pond.

Frequent. June - August.

OEDERI, *Ehrhart.**Oederian Carex.*

Wet banks. Shore of Lake Ontario near Sackett's-harbor, *Crawe*, *Gray Gram.* & *Cyp.* Watertown, Jefferson county, *Vasey*. Abundant in the swamp of West-Bergen, Genesee county; a large form. Rare. June, July.

FOLLICULATA, *L.**Inflated-fruited Carex.*

Swamps. Frankfort hill, round Wetmore's bear-pond. Oriskany and Oneida lake, *Knieskern*. Western part of the State, *Gray in Rare plants of Northern N.Y.*: *Gram.* & *Cyp.* Abundant in the shady swamps of Rome, from old Fort Bull to New-London. Sphagnum swale adjoining North pond. Abundant on the borders of beaver-meadows and swamps of the north woods.

In marshes occasionally it occurs not over a span high, with two or three full-sized heads of fruit; and at the same time, within a few feet, on firmer ground, it grows to the height of four feet or more. Frequent. June, July.

ROSTRATA, *Michaux.**Rostrate-fruited Carex.*

Shores and elevated marshes. Overflowed sandy point on the south side of Fourth lake in the chain of Eight; abundant on the level marshes surrounding two ponds, at each end of Bald rock; north Herkimer county.

In bogs, dwarf forms are found, five or six inches high, with two or three perfect heads of fruit. Rare. June - August.

INTUMESCENS, *Rudge.**Swollen-fruited Carex.*

Wet meadows and swamps.

Common. June, July.

GRAYII, *Carey.**Discovered by GRAY.*

Spica mascula solitaria pedunculata; spicis foemineis globosis densi- (25 - 30-) floris exserte pedunculatis; stigmatibus 3; perigyniis deflexo-patentibus ovatis ventricosis multi-nervosis rostratis ore bifidis squamam ovatam hyalinam mucronatam triplo superantibus.

Hab. Ad ripas fluminum "Mohawk" et "Wood creek," Nov. Ebor. occident. detexit cl. A. Gray, M.D.

Culm 3 feet high, robust, triquetrous, smooth and leafy. Leaves taller than the culm, 4 - 5 lines broad, rough on the margin. Sterile spike $1\frac{1}{2}$ - 2 inches long: fertile spikes globular, occasionally single, but generally 2, quite distinct and separate, $1\frac{1}{2}$ inch in diameter. Perigynia crowded, deflexed, smooth and shining, 9 lines in length, 25 - 30-nerved, tapering into a long perfectly glabrous beak. Achenium obtusely triangular, minutely dotted under a lens, crowned with the long continuous style.

Dr. GRAY, who first detected this plant on the banks of the Mohawk at Utica, and described it as a variety of *C. intumescens*, RUDGE, remarks that

it "is characterized by its larger and coarser habit, and by its globose many-flowered pistillate spikes. It flowers a month later than the ordinary form of the species, and when young might readily be mistaken for *C. lupulina*." To this may be added, that *C. intumescens*, owing to the scarcely exerted peduncles, has the loose few- (5-8-) flowered spikes closely approximate, so as to be almost indistinguishable; and the perigynia are erect, much shorter (6-7 lines long), slightly serrulate towards the apex of the beak, and only 15-20-nerved. Though closely resembling *C. intumescens*, these constant characters, and a marked difference in aspect, appear to entitle this plant to rank as a species: CAREY in *Sill. Jour.*

This species was found by Dr. GRAY in meadows at Utica, and described, in 1834, in the *Ann. Lyc. N. York*, as a variety of *C. intumescens*. The large globular female spikes, the smooth perigynium with its gradual acumination into a short rostrum, its more copious nerves, stouter and smoother culm and broader leaves, sufficiently distinguish it: F. BOOTT.

Rich river-bottoms. On the flats of the Mohawk below Utica, in meadows, Gray. Above Utica and opposite Whitesboro. Oriskany, *Knieskern: Vasey*. Wood creek, *J. Carey*. Reappears in the valley of the Genesee river.

Frequent. July, August.

LUPULINA, *Muhlenberg*. *Hop-fruited Carex.*

Bogs on the flats of streams, borders of swamps. Common. July, August.

LUPULIFORMIS, *Sartwell*. *Hop-formed Carex.*

Cold marshes. Highlands of New-York, *Barratt, Gray Gram. & Cyp. Yates county, Sartwell.*

Uncommon. July.

TENTACULATA, *Muhl.* *Tentacle-fruited Carex.*

Marshy places. Common.

var. PARVULA. *Small Tentacle-fruited Carex.*

A form occurs on wet flats of the Mohawk from Littlefalls to Rome, which is much smaller and more slender than the common plant, with spikes and perigynia less than half the usual size, and of a red-brown color. The scales also are oblong-lanceolate, and nearly entire or even at the end.

var. ROSTRATA, *Sartwell. Large-beaked Tentacle-fruited Carex.*

Water-sides. Penn-Yan, Yates county, *Sartwell.* June, July.

PLANTAGINEA, *Lamarck.* *Plantain-leaved Carex.*

Ravine-sides and cedar swamps. Common. May.

CAREYANA, *Dewey.* *Discovered by CAREY.*

Dry woods. Jefferson county, *W. A. Wood*. Found near Auburn in 1832 by JOHN CAREY. Woods near the Genesee river, four or five miles above Rochester, *W. Boott: Dewey*. Copses in Henrietta, Genesee county.

Rare. May.

LAXIFLORA, *Lamarck.* *Loose-flowering Carex.*

Moist woods. Common.

var. INTERMEDIA, *Boott. Intermediate Loose-flowering Carex.*

Open woods. Oriskany, *Vasey, F. Boott.* About Utica, in all ravines, river-bottoms, copses. Yates county, *Sartwell.* Abundant. May, June.

var. PATULIFOLIA, *Dewey. Wide-leaved Loose-flowering Carex.*

Deep rich woods. Frequent.

PLATYPHYLLA, *Carey.* *Flat-leaved Carex.*

Limestone rocks and hillsides. Littlefalls, shady cliffs of Fall hill, south of the Mohawk. Litchfield, springy sloping meadows between Cedar lake and Hidden lake. Among loose rocks of the Chittenango creek ravine. Wooded sides of the Black river between Brownville and Dexter. Infrequent. June.

BLANDA, *Dewey.* *Delicate-formed Carex.*

Dry woods and meadows. Common. June.

- RETROCURVA**, *Dewey*. *Drooping-fruited Carex*.
Copses. Pleasant valley of Oriskany creek, above the dam, *Vasey*. Penn-
Yan, Yates county, *Sartwell*. Rare. June.
- CONOIDEA**, *Schkuhr*. *Conical-fruited Carex*.
Wet meadows. Schenectady, a mile or more northeast of the Colleges.
Western part of the State, *Gray Gram. & Cyp.* Frequent in Yates county,
Sartwell. Scarce. June.
- GRISEA**, *Wahlenberg*. *Gray-fruited Carex*.
Moist woods, thickets, banks. Common. June.
- DIGITALIS**, *Willdenow*. *Finger-length Carex*.
Shaded hillsides. Watertown, Jefferson county, *Crawe, Gray Gram. & Cyp.*
The true form from Jefferson county, *Dewey*. Dexter, *Vasey*. Yates county,
Sartwell. Frequent about Rochester, *C. M. Booth*. Wet meadows, Greece,
Monroe county, *L. Holzer*. Uncommon. June.
- EBURNEA**, *Boott*. *Ivory-scaled Carex*.
Cliffs. Helderberg mountains, *Pearson*. Abundant at Littlefalls, south side
of the river. Trenton falls. Fish creek precipices, on Hudson river sand-
stones. Western part of the State, *Gray Gram. & Cyp.* Watertown, N. Y.,
Crawe, Schwein. & Torrey Carices. All along Crooked lake outlet, *Sartwell*.
Wet woods. Shady borders of the swamp in West-Bergen, Genesee coun-
ty; in similar stations as those of *C. gynocrates* and *C. disperma*.
Scarce. June, July.
- GRANULARIS**, *Muhlenberg*. *Granular-spiked Carex*.
Wet meadows, along streams. Common.
var. **RECTA**, *Dewey*. *Straight-beaked Granular-spiked Carex*.
Sterile meadows at Schenectady, a mile or more northeast of Union College:
abundant there.
On the tops and sides of the Rotterdam hills occurs a form having short
wide root-leaves, broad foliaceous bracts, a single staminate spike sessile at
the base of and shorter than the highest fertile one, fertile spikes three or
four nearly sessile, perigynia long-ovoid and beakless. Rare. June.
- VAGINATA**, *Tausch*. *Sheathed-culmed Carex*.
*Spica mascula solitaria, pedunculata, oblonga, sub anthesi infracta, femi-
neis subbinis, ternisve, exserte pedunculatis, remotis, erectis, oblongis,
laxifloris; bracteis foliaceis, vagina dilatata patula; stigmatibus tribus;
utriculis squama apice carinata longioribus, oviformi-triangularibus, basi
attenuatis, glabris, rostro brevi, inæqualiter bidentato; culmo lævi, striato,
basi foliato; foliis margine sursum scabris; caudice stolonifero: KUNZE
Suppl. zu Schkuhr Riedgr.*
Plants growing in large patches, from creeping roots. Stolons three to
ten inches in length; invested with sheaths about as long as the nodes.
Leaves radical; very long, twelve to eighteen inches; very narrow, only
a line and a half wide; glabrous, but rough on the margin from base to
end; acuminate; light green. Culms one to two and a half feet in length,
usually about twenty inches; with one to three sheaths at base prolonged
into short leaves; compressed, flat; striate; smooth or harsh above on
the ridges; filiform, weak, leaning from the root with its spikes bending
over nearly to the ground, or the whole stem reclining on the leaves;
sheathed toward the end. Sheaths from knots of the culm, cylindrical for
about an inch, then open and ending as short narrow sharp bracts ciliate
or scabrous margined; enclosing the peduncles of the fertile spikes and
sometimes the fruit itself. Peduncles a little longer than the sheaths, rarely
four inches long if rising from near the root, slender, erect or when
elongated drooping with the fruit. Fertile spikes usually two, often only

one, rarely three; remote, three to five inches; cylindrical; about an inch long, loose-flowered, often much longer with scattered alternate fruit on a zigzag rachis. Perigynia rarely globose, with a short beak contracted from its base; commonly trigonal, narrowed below, bearing a distinct rostrum nearly a line in length, which is turned obliquely outward to a greater or less degree; or frequently long-oval tapering upward, two lines in length, bending with the short beak slightly to one side; nerved; quite smooth. Rostrum rarely bidentate, and hairy at the orifice or down the inside; usually entire and obliquely truncated. Achenium short, triquetrous, with sharp angles; tristigmatic; stigmas long, exerted one or two lines beyond the beak. Scales ovate, acute, shorter than the perigynia; with green keels and red margins. Staminate spike single, distant two to four inches from the highest pistillate one; long-elliptical; with lanceolate, nearly obtuse, brown scales; frequently having its peduncle bent at the base, or sometimes refracted even to a right angle.

Shady humid banks around the swamp in West-Bergen, Genesee county; chiefly within the circle of arbor vitæ, but among other low evergreens in half-open places and rivulet-sides on the southern border, sometimes in company with *C. gynocrates*.

This species has been found before in Northern America only at Rivière du Loup on the St. Lawrence recently by *W. Boott*, at Montreal formerly by *W. F. Macrae*, and in the Saskatchewan district long ago. In Europe it is an alpine plant, ranging from the Swiss Alps to Lapland and Iceland.

Local. June.

LIVIDA, Wahlenberg.

Livid Carex.

Cold marshes. Formerly in the Oriskany swamp, *Knieskern*: *Gray*: *Vasey*. Litchfield, south Herkimer county, nearly a mile southwest of Jerusalem hill, in the center of a deep swamp among the East dry-lots, one of the sources of the Unadilla river. The open lowest part is a marly bog, covered in many places or scattered over all, with this most rare and interesting species.

Local.

var. **RADICALIS.**

Radical-fertile-spiked Livid Carex.

With the typical form, on the State marsh, Litchfield. Spikes two, one staminate and one pistillate, on separate peduncles, both springing together from the root; that of the fertile spike nearly as long as the culm of the sterile, erect.

Specimens of this variety are very scarce, perhaps two or three occurring in a hundred of the regular species. The same variation has been observed by Dr. *KNIESKERN* in the swamps about Manchester, N.J. June, July.

TETANICA, Schkuhr.

Crooked-beaked Carex.

Swampy meadows. To be looked for on the upland marshes among the hill-tops of south Herkimer county. *Junius*, Seneca county, *Sartwell*.

Rare. June.

WOODII, Dewey.

Discovered by W. A. WOOD.

River-banks, shores. On an island in Perch lake, *Wood*: *Crave*: *Dewey*. *Dexter*, Jefferson county, *Vasey*.

Rare. June.

OLIGOCARPA, Schkuhr.

Few-fruited Carex.

Dry copses. Borders of sandy plains, Rome, *Knieskern*. Banks of Wood creek between New-London and Oneida lake, *Gray*: *Gram.* & *Cyp.* Penn-Yan, Yates county, *Sartwell in herb. Ham. Coll.*

Rare. June.

HITCHCOCKIANA, Dewey.

Dedicated to EDWARD HITCHCOCK.

Open woods. Watertown, Jefferson county, *Crave*, *Gray in Rare plants of Northern N.Y.*: *Gram.* & *Cyp.* Auburn, Cayuga county, *J. Carey*. Penn-Yan, Yates county, *Sartwell*. Sandy grove-lands on the Ridge road near Irondequoit bay, Monroe county, *L. Holzer*. Abundant south of Rochester, *Dewey*.

Infrequent, June.

DEBILIS, *Michx.**Weak-stemmed Carex.*

Damp woods, hills and hillsides. Abundant throughout the valley of the Mohawk. On Frankfort hill near Wetmore's pond. Site of old Fort Bull on Wood creek, Rome, *Vasey*. Borders of streams near Oneida lake, *Knieskern*. Common in the north woods, Lewis and north Herkimer counties.

A small form on the sides of Bald rock.

Frequent.

var. β ; *Boott.*

Long-scaled Weak-stemmed Carex.

Spicis 5 - 7 erectis, terminali mascula vel medio vel basi vel apice et basi mascula, foemineis linearibus angustis flosculis alternatim dispositis, inferioribus saepe basi compositis; perigyniis brevioribus, rostro rarius scabro, squama oblongo-ovata obtusa vel acuminata acuta mutica ciliata subæquilata longioribus. Hab. New-York, *Sartwell*.

Between *a* and β there are intermediate forms which insensibly unite them. The specimens figured approach *C. arctata*; but the scales and the sessile perigynium, with its acute base, at once distinguish them: F. BOOTT.

Rare. June.

GLABRA, *Boott.**Smooth Carex.*

Woods and plains.

Spicis 4 - 5 oblongis vel cylindricis pedunculatis pallidis, terminali apice vel basi vel apice et basi rarius omnino mascula, reliquis foemineis subdensifloris, superioribus approximatis inferioribus longe exserte pedunculatis nutantibus basi attenuatis laxifloris interdum compositis, infima remota; bracteis vaginatis culmum subæquantibus; stigmatibus 3; perigyniis triquetris turgidis lanceolato-ellipticis utrinque acutis vel rostellatis glabris, ore bidentato, (laciniis acutis) nervatis nervis prominentibus pellicide punctatis viridibus, squama ferruginea medio viridi nervata scabra ovato-lanceolata acuta vel mucronata rarius obtusa ciliata latioribus subduplo longioribus. (Tab. CCLXXV.) Hab. In America Sept.; New-York. *Knieskern*.

Culmus $1\frac{1}{2}$ - $2\frac{1}{2}$ pedalis, apice setaceus, scaber; pars spicas gerens 4 - 9 poll. longa. Folia $\frac{1}{2}$ lin. lata, supra vaginæque inferiores scabriusculæ. Bracteæ (nisi suprema) vaginatæ, culmum subæquant, vel infima nunc eo brevior. Vagina infima sub 2 poll. longa, scabriuscula. Pedunculi setacei, scabri, 2 - 3 poll. longi. Spicæ 8 - 21 lin. longæ, 2 lin. latæ. Squamæ ferrugineæ, medio viridi nervatæ, scabræ: masculæ lanceolatæ, obtusæ, muticæ, apice ciliatæ: foemineæ acutæ vel obtusæ, mucronatæ. Perigynium $2\frac{7}{10}$ - 3 lin. longum, $\frac{8}{10}$ - $\frac{9}{10}$ lin. latum, bidentatum, laciniis acutis (nec membranaceis), nervis usque ad apicem conspicuis. Achenium 1 lin. longum, $\frac{6}{10}$ lin. latum, ovali-triquetrum, stipitatum, basi styli apiculatum, flavidum.

A *C. oxylepide* differt culmo, foliis pedunculisque glabris (nec pilosis); perigyniis majoribus; squamis mucronatis; spicis inferioribus nutantibus, compositis.

A *C. formosa* differt spicis inferioribus, omnino foemineis, etc.

A *C. debili* differt perigyniis rostellatis, ore acuta bidentato nec hyalino, magis turgidis; nervis validioribus; squamis firmioribus.

I have received this species under the names of *C. formosa* and *C. debilis*. The absence of the subelongate rostrum, and of the hyaline obtuse orifice, separates it from *C. debilis* and its allies. It has hitherto escaped the notice of American botanists, and its value as a species must be determined by future observation: F. BOOTT.

Spicis distinctis cylindræis pedunculatis; terminali staminifera, interdum ad apicem vel basin pistillifera, vel in medio; spicis pistilliferis, 3 - 4, sublaxifloris, bracteatis, inferne longo-pedunculatis et nutantibus; fructibus tristigmaticis ovalibus subinflatis et inferne teretibus, superne conicis brevirostratis, bidentatis glabris nervosis, squamam oblongam subacutam vel lanceolatam multo superantibus; planta pallida et glabra.

Culm $1\frac{1}{2}$ foot high, slender, erect, leafy toward the root; staminate spike slender, sometimes with a few fruit at the apex, in the middle or at the base; pistillate spikes 3 - 4, cylindric, slender, rather loose-flowered, on slender peduncles with sheathing bracts which equal the culm nearly; stigmas 3; fruit oval, tapering below and conic above, smooth and glabrous, nearly twice longer than the oblong acutish scale which is white on the margin and green on the back : whole plant light green.

This plant is the well-known glabrous form of *C. flexuosa*, SCHKURR, the *C. debilis*, MICHAUX, and blended with it, till Dr. BOOTT separated them in 1860 : DEWEY in *Sill. Jour.*

The glabrous form of the old *C. flexuosa*; this was extended to *C. debilis*, MICHAUX, and then was remote from *C. glabra*, BOOTT : received from Rome or Oriskany, Dewey. Local. June.

ARCTATA, Boott.

Contracted-beaked Carex.

Shady banks. Littlefalls, south side of the river below the town. Ravine-bottoms and ridges, throughout the flats, and among the headwaters of Starch-factory creek. Frankfort hill, copses and groves near bear-pond; abundant on Jerusalem hill, bordering the cedar swamp of the State marsh; wooded sides of Hidden and Cedar lakes; south Herkimer county. Banks of Oriskany creek opposite the Dexter factories. Woodlands between Oriskany and Rome. Beyond Rome, cleared land west of Fort Bull, with *C. flexilis*. Valley of Fish creek north of Taberg, above the cliffs. Occasional in the north woods. Infrequent. May, June.

KNIESKERNII, Dewey.

Discovered by KNIESKERN.

Copses. Rome and Oriskany, from *Knieskern*, Dewey. In a shady field near Fort Bull, Vasey. Local. June.

FLEXILIS, Rudge.

Flexile Carex.

Low borders of woods. Litchfield, southwestern Herkimer county, Cedar lake, on the moist sloping banks scattered with young evergreens; where it was first observed in the United States, and received from the discoverer a far better name, *C. blepharophora*, GRAY in *Rare plants of Northern N.Y.* Old Fort Bull on Wood creek, *Knieskern* : Vasey. Abundant still in the clearings and swamps west of the fort and south of the Erie canal. Rare. May, and early in June.

RICHARDSONII, R. Brown.

Dedicated to RICHARDSON.

Dry woods, Parma, Monroe county, north side of the ridge, *Bradley*. Discovered in this locality long before the expedition to British America, Dewey. Rare. July.

TORREYI, Tuckerman.

Honorary to TORREY.

Spica mascula solitaria, fem. 2 - 3 incluse pedunculatis erectis, stigmatibus 3, fructibus subglobois obovatis obtusis nervosis glabris rostello brevi integro mucronatis, squama acuta mucronata duplo longioribus, caule foliis bracteis squamisque ad carinam pubescentibus. HAB. Nov. Ebor., Torr. in herb. Hook. (sub *C. pallescente*). Pedalis et sesquipedalis, omnino nisi fructus pubescens : TUCKERMAN *Enum. Car.*

Utica, Gray. Received from the central part of the State, Dewey.

Local. June, July.

CRAWEI, Dewey.

Discovered by CRAWE.

Limestone rocks and banks. Guffin's bay in Black river near Watertown, *Crave*, Dewey. At the mouth of Black river, Sackett's-harbor, Vasey. Cedar lake, Litchfield, south Herkimer county, south side, on moist marly slopes under young arbor vitæ. Barren spots of marl in the swamps of West-Bergen, Genesee county. Rare. June, July.

SCABRATA, Schweinitz.

Rough Carex.

Swamps, streams, cold bogs in meadows and woods. Common. June, July.

- PALLESCENS, L.** *Pale Carex.*
 Wet rocks and meadows. Common on the flats of the Mohawk. Trenton falls, on rocks wet by the spray from the upper falls. Cliffs of Fish creek above Taberg. Frequent. June.
- LIMOSA, L.** *Bog Carex.*
 Moss marshes. Litchfield, south Herkimer county, abundant on Hidden lake and the State marsh of Jerusalem hill; sphagnum borders of Wetmore's pond, Frankfort hill. North pond, southwest of Boonville. Common in the lake-marshes and mossy lowlands of the Northern wilderness. Frequent.
 var. **RADICALIS.** *Radical-fertile-spiked Bog Carex.*
 Level bogs. round Wetmore's sphagnum pond on Frankfort hill, south Herkimer county.
 An extremely rare state having two spikes only, the sterile at the top of the naked erect stout culm, the fertile drooping at the end of a filiform radical peduncle four to nine inches long.
 This is considered a variety, because the peduncles of both sterile and fertile spikes rise together from the root. Many other species bear fertile spikes on long peduncles nearly radical, in addition to their usual number on short peduncles just beneath the staminate; but these are regarded as intermediate forms merely. June, July.
- MAGELLANICA, Lamarck.** *From the Strait of Magellan.*
 Hab. In Europa et America septentrionali et australi. Lapland to Switzerland. Arctic America to Penn. I have adopted the name of LAMARCK, as I cannot see any specific distinction between the Fuegian and the European and American plant; but I have described the last as the typical form: F. BOOTT. *C. irrigua*, WAHL. HOPP. SMITH.
 Cold swamps. Arbor-vitæ and tamarack borders of Mud lake; abundant on the high marshes of Jordanville; south Herkimer county. Still lingering about the station where it used to flourish in the days of the old Oriskany swamp; over the south hill, in a sphagnum bog. Common in the Paris-hill marsh. Throughout the swamps and swales of Rome. About Point of Rock lake, and in all the moss-bogs of the northern part of the county.
 In the mossy lowlands of the north woods a tall form abounds, few-flowered and slender-fruited.
 In the swamp beyond Fort Bull, Rome, the form having additional spikes on long peduncles, nearly radical, occurs frequently. Rare. June.
- MILIACEA, Muhlenberg.** *Millet Carex.*
 Borders of streams, river-bottom meadows. Common. June.
- HYSTRICINA, Willd.** *Porcupine-fruited Carex.*
 Ditches, water-sides. Common. July.
- PSEUDO-CYPERUS, L.** *Cyperus-like Carex.*
 Marshes, water-courses. North of Summit lake, Otsego county. Shady mossy borders of Mud lake; abundant on the tamarack swamps of Jordanville; sparingly at the head of Hidden lake, Litchfield; south Herkimer county. Oriskany, raceway between the factories, *Knieskern*. In all the cold bogs east of Fish creek, around Point of Rock lake, and through the northern part of the county. Penn-Yan, Yates county, *Sartwell*. Scarce. July, August.
- COMOSA, Boott.** *Bristly-spiked Carex.*
 Bogs in meadows, woods, swamps, and stream-sides. Common. July, August.
- TRICHOCARPA, Muhl.** *Hairy-fruited Carex.*
 Banks of creeks, rivulets, low-lands. Abundant.
 var. β , *Boott.* *Smooth-fruited Carex.*
 Perigyniis glabris, rostro ad margines laciniisque scabris; vaginis scabris. Penn-Yan, *Sartwell*; F. BOOTT. June, July.

- LANUGINOSA**, *Michx.* *Woolly-fruited Carex.*
 Wet meadows. Littlefalls, flats of the Mohawk, south side of the river above the town. Dexter, Jefferson county, *Vasey*. Western part of the State, *Gray Gram. & Cyp.* Yates county, *Sartwell*. Infrequent. June.
- FILIFORMIS**, *L.* *Filiform-leaved Carex.*
 Cold marshes, banks, shores. Summit lake, northern Otsego county. About Mud lake; on the tamarack swamps between Page's corners and Jordanville, Warren; around Cedar lake; common on Hidden lake; State swamp near Jerusalem hill, Litchfield; south Herkimer county. Swamps just over the ridge along the head of Oneida lake. Bogs and lake-shores of the north woods. Frequent. June, July.
- STRIATA**, *Michx.* *Nerved-striate Carex.*
 Swamps and low grounds. Western counties, *Torrey Fl. N.Y.* Near Oriskany, *Vasey*. On an island in Lake Sanford, Essex county, *Knieskern*. Rare. June.
- RETROSA**, *Schweinitz.* *Recurved-fruited Carex.*
 Wet meadows, marshes. Around the lakes, and in all the cold swamps on the hills southward. Throughout the flats of the Mohawk. Frequent. June, July.
- SCHWEINITZII**, *Dewey.* *Complimentary to SCHWEINITZ.*
 Low rivulet-sides, flats of streams, cedar swamps. Sparingly at Oriskany, in marshy grounds along the railroad; and between Oriskany creek and the raceway. Bridgewater, and swamps in the southern part of the county, *Gray*. Common in the limestone region, from beyond Frankfort hill to Cedar lake, in all rivulet-banks, meadows, ravine-bottoms, swamps; also in the great swamp at Cedarville; south Herkimer county. Rare. June.
- MIRATA**, *Dewey.* *Admirable Carex.*
 Cold marshes. Discovered in June 1829, in Greece, Monroe county, on the banks of a small stream, by Dr. S. B. BRADLEY. The station was destroyed soon after; and the plant has not been rediscovered by most diligent search up the stream and down its length to the Lake, or by thorough exploration of the whole region. Local. June.
- LONGIROSTRIS**, *Torrey.* *Long-beaked Carex.*
 Dry banks. Littlefalls, two miles below the town, among the shaded rocks near the end of the north cliff. Fish creek, Rome, above the crossing of the Oswego county road, in thickets along the banks. Below the bridge, *Vasey*. Vienna, *Knieskern*. Scarce. Early in June.
- VASEYI**, *Dewey.* *Honorary to VASEY.*
 Wet banks.
 I find in Tuckerman's herb. specimens associated with *C. monile* from Penn-Yan (the *C. monile* No. 152 of SARTWELL'S Collection), which do not agree with the original description of *C. monile*, or with the Ohio specimens from which that description was made. They approach in aspect *C. vesicaria*; but differ from it, and from *C. monile*, in having a long cylindrical *serrated* rostrum, an oblong-ovate perigynium, with elongated sharp rough lacinia: F. BOOTT.
 These specimens were *C. vaseyi*, as are all gathered at Penn-Yan by *Sartwell*, DEWEY. Rare. July.
- HARTII**, *Dewey.* *Discovered by S. HART WRIGHT.*
 Spikes extremely variable: the sterile sometimes wanting, usually single, often two or three, frequently with fruit scattered along its sides or with a cluster of perigynia at its base, rarely both, the highest one longest and all slender-cylindric, with linear scales: the fertile, short cylindric, two to seven in number, commonly four; the upper one or two sessile with long leafy bracts, sometimes interrupted by staminate flowers or wholly

sterile at the end, closely fruited; middle ones oblong, short-pedunculate, often two or more springing from the same sheathing bract; the lowest on very long peduncles five to ten inches in length, rising from leaves near the root, recurved, loose-flowered particularly at base, staminiferous at summit occasionally. Stigmas three. Perigynia ovoid or conical, tapering into a long beak ending in diverging teeth, all spreading or somewhat retrorse, three or four times longer than the small lanceolate scale. Culm one to three feet high, erect, smooth nearly to the top. Bracts, sheaths long and narrow; the lower stem leaves extremely prolonged, sometimes twice the length of the culm; all only two or three lines wide, very scabrous on margin, and deeply striate with noded nerves.

Low grounds. Dundee, Yates county, *S. H. Wright*; Ludlowville, Tompkins county, *H. B. Lord*; along Seneca lake, *Dewey*. Abundant in the southwestern part of the State.

var. **BRADLEYI**, *Dewey*. *Discovered by S. B. BRADLEY.*

Smaller, the whole plant more slender and graceful. Staminate spikes simple, the stamens less scattered on fertile spikes. Perigynia shorter and narrower, with comparatively larger scales.

Along streams. Greece, Monroe county, *Bradley*. Found in searching for *C. mirata*. Near Penn-Yan, Yates county, *Sartwell*. Rare. July.

RIPARIA, *Goodenough*. *Lake-shore Carex.*

Marshes along streams, lakes. Abundant on the flats of the Mohawk, throughout its length; and occasionally ascending its creeks and head-streams. Near Oneida lake, *Knieskern*. Frequent. May, June.

ARISTATA, *R. Brown*. *Bearded-leaved Carex.*

River-banks. Watertown, Jefferson county, *Crawe*, *Gray in Rare plants of Northern N.Y.: Torrey Cyp.* Brook-side between Watertown and Adams, Jefferson county, *Vasey*. Local. June.

UTRICULATA, *Boott*. *Leathern-bottle-fruited Carex.*

Banks and shores. Abundant.

var. **SPARSIFLORA**, *Dewey*. *Loose-flowering Carex.*

Watertown, Jefferson county, *Crawe*, *Dewey*. Local.

var. **MINOR**, *Sartwell*. *Smaller Leathern-bottle-fruited Carex.*

Omnibus partibus minoribus, *F. BOOTT*.

Penn-Yan, Yates county, *Sartwell*; Ludlowville, Tompkins county, *H. B. Lord*. Sent from Jefferson county by *Crawe*, *Dewey*. Rare. June - August.

AMPULLACEA, *Good*. *Flask-fruited Carex.*

Level marshy borders of an elevated pond at the east end of Bald rock, north of Third lake, north Herkimer county. Borders of Cedar lake, south Herkimer county. Rare. July.

MONILE, *Tuckerman*. *Necklace-fruited Carex.*

Bogs and water-sides. Southern Lewis county, and about a mile south of Boonville, near the canal, around pools, *Knieskern*. Rare. June, July.

TUCKERMANI, *Boott*. *Discovered by TUCKERMAN.*

Low meadows, shady stream-sides. Common. July.

VESICARIA, *L.* *Bladder-fruited Carex.*

Swamps of the north woods near Third lake, Herkimer county. Rare. July, August.

BULLATA, *Schkuhr*. *Bubble-fruited Carex.*

Meadows, on the flats of the Mohawk river; at Littlefalls, and westward. Occasionally in upland marshes. Scarce. June.

- PHYSEMA**, *Dewey*. *Inflated-fruited Carex*.
Swamps. Utica, Rome, *Knieskern*. New-London and Bridgewater, *Gray*.
Penn-Yan, Yates county, *Sartwell*. Infrequent. June.
- OLIGOSPERMA**, *Michaux*. *Few-seeded Carex*.
Cold marshes. Oneida lake, *Knieskern*. Bogs in the sphagnum swales six
miles west of Rome. South-Trenton, in abundance. Common in the beaver
meadows, swamps, and pond-borders of north Herkimer and Hamilton
counties. Rare. June - August.
- GRAMINEÆ**. *Grasses*.
- LEERSIA**, *Solander*. *Cut-grass*. *White Grass*.
ORYZOIDES, *Swartz*. *Rice-like Leersia*.
Water-sides, low sandy shores. Common. August, September.
- VIRGINICA**, *Willdenow*. *Virginian Leersia*.
Marshes, moist woods. Infrequent. August.
- ZIZANIA**, *Gronovius*. *Indian Rice*.
AQUATICA, *L*. *Water Zizania*.
River and lake marshes. Lowlands of the Mohawk. Borders of Oneida lake,
Knieskern. Abundant round Onondaga lake. Oswego river, *Eaton bot*. Com-
mon in all the bays, inlets, marshes on the shore of Lake Ontario, from
several miles northeast of Oswego, through Sodus bay and the mouth of
Genesee river, to Braddock's bay, Monroe county.
Frequent. August, September.
- ALOPECURUS**, *L*. *Foxtail Grass*.
GENICULATUS, *L*. *Floating, Jointed Alopecurus*.
Wet meadows. Between Albany and Kenwood, *G. H. Peck*. Oriskany creek,
in pools above the factories Pleasant-valley, *Vasey*. Penn-Yan, Yates coun-
ty, *Sartwell*. Rare. July.
- ARISTULATUS**, *Michaux*. *Short-bearded Alopecurus*.
Flats of streams. Littlefalls, below the town. Borders of Canaderaga lake
outlet, Otsego county. Along Wood creek near Fort Bull, Rome, *Knieskern*.
Common in the valley of the Unadilla, *Gray*; western part of the State,
Gram. & Cyp. Shore of Lake Ontario on Sodus point, Wayne county. Penn-
Yan, Yates county, *Sartwell*. Infrequent. June.
- PHLEUM**, *L*. *Timothy*. *Herd's-grass*.
PRATENSE, *L*. *Meadow Phleum*.
Waysides, borders of fields, grass lands. Common. June.
- VILFA**, *Adanson*. *Rush Grass*.
VAGINÆFLORA, *Torrey*. *Sheath-flowering Vilfa*.
Barren banks. Watertown, Jefferson county, *Gray* in *Rare plants of Northern*
N. York. Abundant along the sandy shore of Sodus bay, inside the point,
Wayne county. Penn-Yan, Yates county, *Sartwell*. Rare. September.
- SPOROBOLUS**, *R. Brown*. *Drop-seed Grass*.
HETEROLEPIS, *Gray*. *Unequal-glumed Sporobolus*.
Dry soil of cliffs.
Foliis setaceis; panícula pyramidata, sparsiflora; gluma inferiore subuli-
formi, superiore ovata, cuspidata, subduplo breviori; valvulis periantho
subæqualibus, muticis, gluma extima paulo minori.
Root perennial. Culm 1 - 2 feet in height, smooth. Leaves convolute-

setaceous, with the margins hispidly scabrous upward; the lower ones equalling the culm; the upper ones much shorter. Lower sheaths pilose; upper ones smooth. Panicle pyramidal, spreading or subcontracted; branches solitary, nearly simple, few and loosely flowered. Glumes purplish; the outer one reduced to a subula, about one-half the length of the inner one, which is strikingly membranaceous in texture, ovate or ovate-oblong, one-nerved, with the nerve produced into a short cusp. Valves of the perianth oblong-lanceolate, rather obtuse, thin and membranaceous, a little shorter than the superior glume. Inferior valve obscurely one-nerved, slightly apiculate. Superior valve two-nerved, a little shorter than the outer one. Stamens 3. Anthers large, linear, orange-red. Stigmas 2, hairy. Styles very short. Caryopsis subglobose, coriaceous, smooth and shining.

HAB. On rocks, Watertown, Jefferson county, *Dr. Crawe*: GRAY in *Rare plants of Northern N.Y.* Rare. August, September.

CRYPTANDRUS, *Gray*.*Hidden-flowered Sporobolus.*

Panicle pyramidal, the base usually inclosed in the upper sheath, with spreading mostly alternate branches, which are hairy in the axils; spikelets racemose; flowers awnless; lower glume very short; the upper one as long as the nearly equal lanceolate acute paleæ; sheaths bearded at the throat: *Torrey Ann. Lyc. N.Y. Fl. N.Y.*

Sandy wastes. Shores of Onondaga lake, along the west side. Abundant on the beaches of Lake Ontario, from Sodus point, Wayne county, to Brad-dock's bay, Monroe county. Rare. August - October.

SEROTINUS, *Gray*.*Late-flowering Sporobolus.*

Moist banks. Shady water-sides at the head of Sodus bay, Wayne county. Rare. September.

AGROSTIS, *L.**Bent-grass.*PERENNANS, *Tuckerman*.*Perennial Agrostis.*

Damp shady woodlands. Half-open places in all deep arbor-vitæ swamps. On the flats of the Mohawk, and the hills of the southern part of this county and south Herkimer county. Near Bridgewater, *Gray*. Frequent in the north woods. Penn-Yan, Yates county, *Sartwell in herb. Ham. Coll.*

Scarce. August.

SCABRA, *Willdenow*.*Hair-grass. Rough-panicled Agrostis.*

Old fields, rocky woods, barren hillsides, dried swamps. Common at Little-falls, and on the south range of hills. Woods of north Herkimer county.

Abundant.

var. MONTANA, *Tuckerman*.*Mountain-side Agrostis.*

Exposed rocks. Bald rock, north of Third lake, in short tufts or turfs in the hollows of the surface: leaves very short, setaceous. Rare. August.

VULGARIS, *Withering*.*Common Agrostis.*

Meadows, fields, banks. Native near Oneida lake, *Gray in herb. Sartwell Ham. Coll.* Shore of Lake Ontario, at Sackett's-harbor, *Gray*. Frequent along the south side of the Lake, on sandbanks and ridges.

Everywhere naturalized.

August.

ALBA, *L.**White-panicled Agrostis.*

Low grass-lands, swamps.

Abundant. July.

var. ARISTATA, *Gray*.*Awned Agrostis.*

Sandy fields, near Oneida lake, *Knieskern*. Sandy field near the outlet of Oneida lake, *Torrey Fl. N.Y.*

Uncommon. June.

CINNA, L.

ARUNDINACEA, L.

Reed-like Cinna.

Inundated shady banks of streams, lakes. Along the Mohawk and its head streams. Outlets of lakes in the western parts of the State.

Sometimes in swamps. Abundant in the marshes on the west side of Onondaga lake. August, September.

var. PENDULA, Gray.

Drooping-flowered Cinna.

Cold damp woods. Frequent in the high woodlands on the hills south of the Mohawk valley, from Summit lake, Otsego county, to Hidden lake, south Herkimer county. Oriskany swamp, formerly, *Vasey*. Trenton falls, *Gray*. Alexandria bay, St. Lawrence county, *G. W. Clinton*. Rare. August.

MUHLENBERGIA, Schreber.

Dropseed-grass. Muhlenbergias.

SOBOLIFERA, Gray.

Shoot-bearing-rooted Muhlenbergia.

Hilly woods. Penn-Yan, Yates county, *Sartwell in herb. Ham. Coll.* Scarce. August, September.

GLOMERATA, Trinius.

Clustered-spiked Muhlenbergia.

Swamps. Abundant in all the upland marshes from Summit lake, Otsego county, to Hidden lake, Litchfield, south Herkimer county. Bridgewater region, *Gray*. Sandy plains, Oneida county, *Knieskern*. Frequent. August.

MEXICANA, Trinius.

Mexican Muhlenbergia.

Low banks of streams, meadows, fields, hedges. Common. August.

SYLVATICA, Torrey & Gray.

Woodland Muhlenbergia.

Borders of woods, open swamps. Abundant. August.

WILLDENOVII, Trinius.

Determined by WILLDENOW.

Rocks and hillsides. Shady banks below the cliffs at Bignose point on the Mohawk, Montgomery county. Along the stony sides of cliffs and brows of precipices at Littlefalls, Herkimer county. Sheldrake point, Cayuga lake, *Gray*. Yates county, *Sartwell*. Frequent. August.

DIFFUSA, Schreber.

Dropseed. Spreading Muhlenbergia.

Dry woods and fields. Sandy plains between Albany and Schenectady. Open rocky steeps at Spraker's, Montgomery county. Dry cliffs of Fish creek. Yates county, *Sartwell*. Infrequent. August, September.

BRACHYELYTRUM, Beauvois.

ARISTATUM, Beauv.

Awned Brachyelytrum.

Ravine-sides, rocky woods and hills. Frequent. June, July.

CALAMAGROSTIS, Adanson.

Blue-joint.

CANADENSIS, Beauvois.

Canadian Calamagrostis.

Marshes. Abundant on the hills south of the Mohawk valley. The grass of the beaver meadows of the north woods. Common. July, August.

CONFINIS, Nuttall.

Close-flowered Calamagrostis.

Swamps. In abundance near Penn-Yan, Yates county, *Sartwell*.

From the lowest sheaths of primary leaves of the usual width arise clusters of remarkably long filiform involute leaves, two feet in length, reaching nearly to the panicle. Rare. July, August.

ARENARIA, Roth.

Sand-reed Calamagrostis.

Barren beaches. Abundant on the shore of Lake Ontario, over the long bars against Round pond, Long pond, Cranberry pond and Braddock's bay, Monroe county; covering the ridges of clear sand, with *Cyperus schweinitzii*. Local, July = September

- ORYZOPSIS, *Michaux.* *Mountain Rice.*
 MELANOCARPA, *Muhlenberg.* *Black-fruited Oryzopsis.*
 Gulf-sides, rocky banks. In copses along the steep sidehills above Bignose point on the Mohawk, and among shaded talus of the cliffs themselves, Montgomery county. Rocky woods at Littlefalls, Herkimer county. Around Oneida lake, *Gray.* Ravine of Chittenango creek. Frequent. August.
- ASPERIFOLIA, *Michaux.* *Rough-leaved Oryzopsis.*
 Shady sandy sidehills. Abundant. May.
- CANADENSIS, *Torrey.* *Canadian Oryzopsis.*
 Sandy barrens. Pine plains of Rome, *Knieskern.* Near Oneida lake. New-York, *Gray Gram. & Cyp.* Yates county, *Sartwell.* Rare. May, June.
- ARISTIDIA, *L.* *Poverty-grass. Three-awned-grass.*
 DICHOTOMA, *Michaux.* *Base-branching Aristidia.*
 Sandy plains, dry hillsides. Barren fields in Rotterdam, Schenectady county, *E. W. Paige.* On the pine plains of Rome probably. Infrequent. July.
- SPARTINA, *Schreber.* *Marsh Grass.*
 CYNOSUROIDES, *Willdenow.* *Cynosurus-like Spartina.*
 Lake marshes. Watertown, Jefferson county, on the rocky banks of Black river; Oneida lake; *Gray.* Onondaga lake, all round. Cayuga marshes. Canandaigua lake, *Sartwell in herb. Ham. Coll.* Scarce. August-October.
- STRICTA, *Roth.* *Salt-marsh Grass.*
 var. ALTERNIFLORA, *Gray.* *Alternate-flowering Spartina.*
 Banks and marshes of Onondaga lake, chiefly along the west side. Rare. August, September.
- ELEUSINE, *Gærtner.* *Yard-grass.*
 INDICA, *Gært.* *Indian Eleusine.*
 Around dwellings. Waterloo, Seneca county, *Sartwell.* July-September.
- LEPTOCHLOA, *Beauvois.*
 FASCICULARIS, *Gray.* *Clustered-flowered Leptochloa.*
 Abundant at Salina, and on the springy slopes southeastward along the banks of Onondaga lake: short and spreading over wet shores, but erect and tall in grassy marshes. Rare. August-October.
- DACTYLIS, *L.* *Orchard Grass.*
 GLOMERATA, *L.* *Clustered-fruited Dactylis.*
 Fields, in shade. Frequent. June.
- EATONIA, *Rafinesque.* *Obtuse-glumed Eatonia.*
 OBTUSATA, *Gray.*
 Damp places in woods and fields, Oneida county, *Knieskern.* Western part of the State, *Gram. & Cyp.:* Seneca lake, *Gray.* Yates county, *Sartwell in herb. Ham. Coll.*
 A small form is occasional in deep shady swamps. Scarce. June, July.
- PENNSYLVANICA, *Gray.* *Pennsylvanian Eatonia.*
 Moist banks. Borders of marshes on the shore of Lake Ontario. Occasionally. July-September.
 var. MAJOR, *Torrey.* *Greater Pennsylvanian Eatonia.*
 Wet woods and borders of swamps. Frequent. June, July.

GLYCERIA, *R. Brown.**Manna Grass.*CANADENSIS, *Trinius.**Canadian Glyceria.*

Swamps. Near Oriskany, *Knieskern*. High bogs of Bridgewater; and Brookfield, Madison county, *Gray*. Western part of the State, *Gram. & Cyp.* Junius, Seneca county, *Sartwell in herb. Ham. Coll.* Infrequent. July, August.

ELONGATA, *Trinius.**Long-panicled Glyceria.*

Borders of woods and swamps. Throughout the valley of the Mohawk. Common in the southern part of the county, *Gray*. Western part of the State, *Gram. & Cyp.* Frequent. June, July.

NERVATA, *Trinius.**Nerved-flowered Glyceria.*

Wet meadows, rivulet-sides, swamps. Common. June.

PALLIDA, *Trinius.**Pale-flowered Glyceria.*

Water-margins, wet banks. Borders of Canaderaga lake outlet, Richfield and Exeter, Otsego county. Wood creek, near New-London, *Knieskern*. Abundant on the shore of Oneida lake, *Torrey Fl. N.Y.* Western part of the State of New-York, *Gray Gram. & Cyp.* Gorham, Seneca county, *Sartwell in herb. Ham. Coll.* Infrequent. July, August.

AQUATICA, *Smith.**Water Glyceria.*

Low meadows. Abundant. July, August.

FLUITANS, *R. Brown.**Floating Glyceria.*

Borders of ponds, streams. Infrequent. June - August.

ACUTIFLORA, *Torrey.**Sharp-flowered Glyceria.*

Wet woods and shores. Ithaca, Tompkins county, *Sartwell in herb. Ham. Coll.* Rare. June, July.

POA, *L.**Meadow Grass.*ANNUA, *L.**Annual Poa.*

Fields, waysides. Common. May - September.

BREVIFOLIA, *Muhlenberg.**Short-leaved Poa.*

Moist rocky places. Western part of the State, *Sartwell, Torrey Fl. N.Y.* Penn-Yan, Yates county, *Sartwell.* Rare. April, May.

ALSODES, *Gray.**Woodland Poa.*

Shady hillsides. Around Bald rock, north Herkimer county, and abundant on damp shaded banks of springs throughout the north woods. Utica, *Gray Gram. & Cyp.* Bridgewater, *Gray*. Moist rocky banks of Fish creek, and on wooded talus between the cliffs and the stream. Penn-Yan, Yates county, *Sartwell.* Infrequent. June.

DEBILIS, *Torrey.**Weak-stemmed Poa.*

Rocky banks. Watertown, Jefferson county, *Knieskern*: Penn-Yan, Yates county, *Sartwell, in herb. Ham. Coll.* Rare. May, June.

SEROTINA, *Ehrhart.**Late-flowering Poa.*

Wet meadows. Common. July, August.

TRIVIALIS, *L.**Roadside Poa.*

Low grass-lands. Occasionally in abundance. July.

PRATENSIS, *L.**Meadow Poa.*

Shady fields and flats of ravines. Common. May - July.

COMPRESSA, *L.**Flat-stemmed Poa.*

Dry banks. Sometimes on elevations in deep cedar swamps. Common, June - August.

ERAGROSTIS, Beauvois.

REPTANS, Nees von Esenbeck. *Creeping Eragrostis.*
 Banks of streams, lakes. Wood and Oneida creeks, *Knieskern*. Abundant over low sandy shores all along the head of Oneida lake. Cayuga lake, *Gray*. Potter, Yates county, *Sartwell*. Penfield, *L. Holzer*; Greece, Monroe county, *Bradley*. Frequent on the beaches of Lake Ontario, from Sodus point, Wayne county, to Braddock's bay, Monroe county. Scarce. July, August.

POÆOIDES, Beauvois. *Poa-like Eragrostis.*
 Sandy or gravelly places, Oriskany, *Knieskern*. Penn-Yan, Yates county, *Sartwell*. Rare. July, August.

var. **MEGASTACHYA, Gray.** *Large-spiked Eragrostis.*
 Sandy fields, banks. Ithaca, Tompkins county, *Gray*. Western part of the State, *Gram. & Cyp.* Scarce. August, September.

CAPILLARIS, Nees. *Capillary-panicled Eragrostis.*
 Hillsides, dry banks. Western part of the State, *Gray Gram. & Cyp.* Sterile fields along Clyde river, Wayne county. Bluff point, Crooked lake, *Sartwell*. Frequent. August.

FESTUCA, L.

TENELLA, Willdenow. *Slender Festuca.*
 Barren soils. Penn-Yan, Yates county, *Sartwell*. Monroe county, *C. M. Booth*. Uncommon. July.

OVINA, Gray. *Sheep Festuca.*
 var. **DURIUSCULA, Gray.** *Hard Festuca.*
 Dry banks. Dexter, Jefferson county, *Vasey*. Sandy fields near Irondequoit bay, *C. M. Booth*. Rare. June, July.

ELATIOR, L. *Tall Festuca.*
 Borders of fields, low river-banks. Common. June, July.

NUTANS, Willdenow. *Nodding Festuca.*
 Borders of woods. Abundant at Littlefalls, in shady rocky hillsides. Utica, *Gray Gram. & Cyp.* On the hills south of the Mohawk valley. Frequent.
 A depauperate form, bearing a slender instead of a branching panicle, occurs in cold cedar swamps. July.

BROMUS, L.

SECALINUS, L. *Rye Bromus.*
 Cultivated grounds, borders of fields. Common. July.

RACEMOSUS, L. *Raceme-panicled Bromus.*
 Roadsides, between New-Hartford and Paris hill. Uncommon. July.

KALMII, Gray. *KALM'S Bromus.*
 Banks of the Mohawk and Fish creek, *Knieskern*. Utica, *Gray*. Along the Black river at Dexter, Jefferson county, *Vasey*. Shores of the lake, Seneca county, *Gray*. Infrequent. June, July.

CILIATUS, L. *Fringed-flowered Bromus.*
 Stream-sides, rocky banks. Ravine of Ilion creek. Trenton falls. Sometimes in shady swamps. Frequent. July, August.

STERILIS, L. *Barren Bromus.*
 Penn-Yan, Yates county, *Sartwell in herb. Ham. Coll.* Rare. July.

PHRAGMITES, *Trinius*.

Reed.

COMMUNIS, *Trin.*

Common Phragmites.

Swamps, lake marshes. On the pine plains of Schenectady, *Pearson*. Summit lake, Otsego county. Oriskany, *Knieskern*. Common throughout the Cayuga marshes. Western part of the State, *Gram. & Cyp.*: head of Seneca lake, *Gray*. Foot of Crooked lake, *Sartwell*. In all bays and marshes along the shore of Lake Ontario. Abundant in the swamp of West-Bergen, Genesee county. Frequent. August, September.

LOLIUM, *L.*

Darnel.

PERENNE, *L.*

Perennial Lolium.

Meadows, pastures. Borders of fields on the flats of the Mohawk. Geneva, *Sartwell in herb. Ham. Coll.* Uncommon. June.

TEMULENTUM, *L.*

Injurious-fruited Lolium.

Among the rocks at Littlefalls, Herkimer county. Infrequent. July.

TRITICUM, *L.*

Wheat-grass.

VULGARE, *Villars*.

Common Wheat.

Banks of the Mohawk. Embankments of the Central railroad. Escapes frequently. July.

REPENS, *L.*

Creeping Triticum.

Rich meadows, fields, barren and waste places. Common.

var. NEMORALE, *Anderson*.

Woodland Triticum.

Thickets. On the verge of high cliffs along the Mohawk east of Spraker's, Montgomery county. Shaded upright steeps of Fall hill, Littlefalls, Herkimer county. Apparently native. Scarce. June - August.

CANINUM, *L.*

Bearded Triticum.

Rocky banks. Littlefalls, Herkimer county. Watertown, Jefferson county. Fields. Penn-Yan, Yates county, *Sartwell in herb. Ham. Coll.*

Swamps. Sparingly at West-Bergen, Genesee county. Infrequent. July.

HORDEUM, *L.*

Barley.

VULGARE, *L.*

Many-rowed, Common Barley.

Borders of fields, railroad banks. Frequent. July.

SECALE, *L.*

Rye.

CEREALE, *L.*

Cereal Secale.

Remains in old cultivated fields, Often. June, July.

ELYMUS, *L.*

Wild Rye.

VIRGINICUS, *L.*

Virginian Elymus.

Low flats of the Mohawk. Lake marshes. Frequent. July, August.

CANADENSIS, *L.*

Canadian Elymus.

River-sides. Swamps on the hills south of the Mohawk valley. Abundant.

var. GLAUCIFOLIUS, *Gray*.

Pale-leaved Elymus.

Shores. Borders of Seneca lake, *Gray*. Yates county, *Sartwell*. July, August.

STRIATUS, *Willdenow*.

Striate-stemmed Elymus.

Dry gravelly banks of streams. Oneida county, *Knieskern*.

var. VILLOSUS, *Gray*.

Villose-flowered Elymus.

Rocky hillsides. Bridgewater, *Gray*. Western part of the State, *Gram. & Cyp.* Penn-Yan, Yates county, *Sartwell*. Scarce. July

GYMNOSTICHUM, *Schreber.**Bottle-brush Grass.*HYSTRIX, *Schreb.**Porcupine Gymnostichum.*

Shady rocks and banks. Abundant in low grounds on the hills near Page's corners, south Herkimer county. Littlefalls; and along the Mohawk. Deep ravine-sides, frequent. July, August.

AIRA, *L.**Hair-grass.*FLEXUOSA, *L.**Bending Aira.*

Rocks and dry sandy plains. Littlefalls, Herkimer county. Rome, *Knieskern*. Dexter, Jefferson county, *Vasey*. Western part of the State, *Gray Gram. & Cyp.* Outlet of Crooked lake, abundant, *Sartwell*. Frequent. June.

CÆSPITOSA, *L.**Tufted Aira.*

Rocky river-banks, lake shores. Pine plains between Albany and Schenectady. Watertown, Jefferson county, *Gray Gram. & Cyp.* Dexter, *Vasey*. West-Canada creek, Fairfield, Herkimer county; on the banks of the Mohawk below Utica; *Gray*. Crooked lake outlet, in a few localities, *Sartwell*. Along the shore of Lake Ontario. Abundant in the dry marl along the southern border of the West-Bergen swamp, Genesee county. Rare. July.

DANTHONIA, *DC.**Wild Oat-grass.*SPICATA, *Beauvois.**Spicate Danthonia.*

Sany plains, dry hillsides, pine and hemlock woods.

Frequent. July.

TRISETUM, *Persoon.*SUBSPICATUM, *Beauvois.*var. MOLLE, *Gray.**Downy Trisetum.*

Sandy shores of the lakes, rocky river-sides. Borders of Irondequoit bay, of Lake Ontario. Monroe county, *L. Holzer: C. M. Booth*. Lake shore, Jefferson county, *Crawe: Gray*. Littlefalls, Herkimer county, *Gray Gram. & Cyp.*

The station of both this and the following species was on the rocky banks of islands in the river, above the town. They could not have been native here: they belong northward and west, and must have come down the Mohawk and had the Great Lakes for their source. Many similar indications of the flora our valley confirm the testimony of the rocks, that in some remote geological period it has been an outlet of the Lakes, or a channel of retreating waters. Rare. July.

PALUSTRE, *Torrey.**Marsh Trisetum.*

Shores and low meadows. Little falls of the Mohawk, *Gray*. Ithaca, Tompkins county, *Sartwell in herb. Ham. Coll.* Rare. June.

AVENA, *L.**Oat.*STRIATA, *Michaux.**Striate-sheathed Avena.*

Shady rocks, ravine-sides, banks of streams. Chiefly among the hills, both north and south of the Mohawk. Littlefalls. Near Wood creek, *Knieskern*. Gulf of Chittenango creek. Frequent. July.

SATIVA, *L.**Common Oat. Sown Avena.*

Railroads, field-borders, wood roads.

Self-sown often. June, July.

HOLCUS, *L.**Velvet-grass.*LANATUS, *L.**Downy Holcus.*

Moist banks.

Occasional and transient. June.

ANTHOXANTHUM, *L.**Vernal-grass.*ODORATUM, *L.**Fragrant Anthoxanthum.*

Roadsides, damp pastures.

Common. May - August.

- PHALARIS, L.** *Canary-grass.*
ARUNDINACEA, L. *Reed-like Phalaris.*
 Banks of streams, rivers, lakes. Frequent. July.
- MILIUM, L.** *Millet-grass.*
EFFUSUM, L. *Scattered Milium.*
 Borders of swamps, banks of streams. Utica; Bridgewater; Gray. Oriskany, *Knieskern*. Potter, Yates county, *Sartwell in herb. Ham. Coll.* June.
- PANICUM, L.** *Panic-grass.*
FILIFORME, L. *Filiform Panicum.*
 Sandy shore of Lake Ontario, from Sodus point to Braddock's bay. Rare. August, September.
GLABRUM, Gaudin. *Glabrous Panicum.*
 Barren sandy fields and banks. Common in uncultivated fields on sandy hills east of Black river, Lewis county. Banks of the Erie canal, *Knieskern*. Shores of Oneida lake. Damp bluffs along Lake Ontario. Frequent. August, September.
- SANGUINALE, L.** *Finger-grass. Blood-stained Panicum.*
 Waste grounds, roadsides, streets. Common. August - October.
- PROLIFERUM, Lamarck.** *Proliferous Panicum.*
 Lake marshes. Borders of Oneida lake, *Knieskern*. Salina, Onondaga county, *G. W. Clinton*. Infrequent. August, September.
- CAPILLARE, L.** *Capillary-panicled Panicum.*
 Cultivated fields, sandy copses. Common.
 A depauperate form, one to three inches high, not branched at base but standing upright, bearing short narrow leaves and a close few-flowered panicle, grows in exsiccated swamps.
 An intermediate form occurs on low shores. August.
- VIRGATUM, L.** *Virgate-panicled Panicum.*
 Sandy shores. On an island in Oneida lake, *Knieskern in herb. Sartwell Ham. Coll.* Borders of Cayuga marshes, Seneca county. Banks of Clyde river, Ontario county. Rare. August.
- LATIFOLIUM, L.** *Broad-leaved Panicum.*
 Moist woods, hillsides, banks of streams. Common. June - August.
- CLANDESTINUM, L.** *Clandstine-flowering Panicum.*
 Damp thickets, shady ravine-bottoms. Frequent.
var. PEDUNCULATUM, Gray. *Pedunculate Panicum.*
 Under the cliffs at Littlefalls, Herkimer county. Penn-Yan, Yates county, *Sartwell in herb. Ham. Coll.* July, August.
- XANTHOPHYSUM, Gray.** *Yellow-natured Panicum.*
 Culmo (simplici aut basi ramoso) panicula foliisque glabris; vaginis villosis, foliis lato-lanceolatis valde nervosis acutissimis, basi ciliatis; panicula simpliciuscula pauciflora, ramis erectis vel adpressis; spiculis globoso-obovatis pubescentibus; gluma inferiore flosculis subduplo brevior, superiore eosdem æquante 9-nervi; flore masculo bivalvi hermaproditum glabrum obovatum subæquante: GRAY *Gram. & Cyp.*
 Whole plant light green, becoming yellowish in drying. Root perennial. Culm simple or branching from the base, 12 - 15 inches high, glabrous. Leaves broad-lanceolate, 3 - 6 inches in length, 4 - 6 lines broad, acute, strongly nerved, ciliate at the base. Sheaths villose, shorter than the joints.

Peduncles elongated when old. Panicle sub-simple, few-flowered, with the branches appressed, nearly smooth; spikelets globose-obovate, as large as in *P. latifolium*. Glumes pubescent; the inferior one oblong, acutish, 3-nerved, about half the length of the 9-nerved superior one. Abortive floret stamiferous, 2-valved; inferior valve equalling the superior glume; superior valve shorter, membranaceous. Perfect floret cartilaginous, rather obtuse, smooth and shining, equalling the superior glume: GRAY in *Rare plants of Northern N. Y.*

Pine barrens, along Wood creek near Oneida lake, Gray. Hamilton, Madison county, J. S. Douglass: *Gray in Rare plants of Northern N. Y.*
Rare. June.

DICHOTOMUM, L. *Forking-panicled Panicum.*

Dry borders of woods, sandy plains, barren thicket-land. Common.

Many forms, smooth, shining, pubescent; one only two or three inches high, but full of fruit, on cold banks among lichens, in the north woods.
June - September.

DEPAUPERATUM, Muhlenberg. *Few-flowered Panicum.*

Shaded rocks and barren woodlands at Littlefalls, a large form. Sand-plains of Rome, *Knieskern*. Dry barren soil, western part of the State, Gray Gram. & Cyp. Penn-Yan, Yates county, *Sartwell in herb. Ham. Coll.* June.

CRUS-GALLI, L. *Cock's-foot Panicum.*

Shores, marshes, ditches, waste places. Common. August - October.

SETARIA, Beauvois. *Foxtail. Bottle-grass.*

GLAUCA, Beauv. *Glaucous Setaria.*

Waste-grounds, yards. Common. August.

VIRIDIS, Beauv. *Green Setaria.*

A weed in cultivated fields. Common. July.

CENCHRUS, L. *Bur-grass. Job's Comforters.*

TRIBULOIDES, L. *Tribulus-like Cenchrus.*

Dry sandy soils. Along the Central railroad, and in cultivated fields between Albany and Schenectady. Also in barren wastes of clear sand on the Pine plains, in advance of even *Cyperus filiculmis*. Rare. August, September.

ANDROPOGON, L. *Beard-grass*

FURCATUS, Muhlenberg. *Forked Andropogon.*

Pine barrens. Between Albany and Schenectady. Pine plains, Rome, *Knieskern*. Shore of Lake Ontario. Frequent. September.

SCOPARIUS, Michaux. *Broom-like Andropogon.*

Sterile ground, old fields. Common between Albany and Schenectady; west to Littlefalls. Steep ridge-sides of Irondequoit bay, Monroe county. Abundant. August, September.

VIRGINICUS, L. *Virginian Andropogon.*

Barren banks, drained swamps. Yates county, *Sartwell in herb. Ham. Coll.*
Rare. September.

SORGHUM, Persoon. *Wood-grass. Indian-grass.*

NUTANS, Gray. *Drooping-fruited Sorghum.*

Dry banks of the Mohawk valley, from Schenectady to Herkimer county. Sandy plains of Rome. *Knieskern*. Seneca lake, Gray. Penn-Yan, Yates county. *Sartwell in herb. Ham. Coll.* Shore of Lake Ontario, from Sodus bay to Braddock's bay, Monroe county. Frequent. August, September.

CRYPTOGAMIA.

Flowerless Plants.

III. ACROGENS.

Top-growers.

EQUISETACEÆ.

*Horsetails.*EQUISETUM, *L.**Equiseta.*ARVENSE, *L.**Field Equisetum.*

River and ravine-sides, low grounds along streams, embankments of railroads, sometimes in meadows. Common. April.

SYLVATICUM, *L.**Woodland Equisetum.*

Shady banks, wet woods, arbor-vitæ swamps. Abundant. May.

LIMOSUM, *L.**Mud Equisetum.*

Low river-banks, miry marshes. Throughout the valley of the Mohawk. Occasionally in swamps on the hills. Frequent. June.

HYEMALE, *L.**Winter-lasting Equisetum.*

Springy sidehills. Common. May.

VARIEGATUM, *Schleicher.**Variiegated-sheathed Equisetum.*

Sandy shores. Steep banks of the Oriskany creek above the Dexter factories, near the base of the slope, in shade. On an island in Owasco lake, Cayuga county, *I. H. Hall*. All along the shore of Lake Ontario, from Sodus point, Wayne county, to Braddock's bay, Monroe county. Rare. April, May.

SCIRPOIDES, *Michaux.**Scirpus-like Equisetum.*

Wet banks and cedar swamps. College-hill, Clinton. Near the Chenango canal, three miles southwest of Utica. On the flats of the Mohawk, in the deep swamp between Utica and Frankfort. Fairfield, Herkimer county; also common in many places in Bridgewater, *Gray*. Scarce. April.

FILICES.

*Ferns.*POLYPODIUM, *L.**Polypods.*VULGARE, *L.**Common Polypodium.*

Rocks, ravine-sides, swamps. Frequent. August - October.

PHEGopteris, *L.**Beech Fern. Wood Polypodium.*

Shady ravines, stream-bottoms, moist woods. Abundant. June, July.

HEXAGONOPTERUM, *Michaux.**Six-angled-winged Polypodium.*

Moist woodlands. Herkimer. *Gray*. Between New-Hartford and Paris hill. Auburn, Cayuga county, *I. H. Hall*. Lodi, Seneca county, *Gray*. Gorham, Ontario county, *Sartwell in herb. Ham. Coll.* Abundant in the valley of Genesee river. Scarce. July, August.

DRYopteris, *L.**Tree-like Polypodium.*

Moist banks along streams. Common in cedar swamps. Abundant. June, July.

- STRUTHIOPTERIS**, *Willdenow.* *Ostrich-fern.*
GERMANICA, *Willd.* *German Struthiopteris.*
 Flats of water-courses. Common throughout the vallies of the Mohawk and all its creeks and tributaries. Alluvial bottoms of Fish creek; where the sterile fronds form thickets five to seven feet high. August, September.
- ALLOSORUS**, *Bernhardi.* *Rock-brakes.*
GRACILIS, *Presl.* *Slender Allosorus.*
 Clefts of rocks in shade and moisture. Helderberg mountains, *L. Collins.* Littlefalls, *B. D. Gilbert.* Wooded ledges between Littlefalls and Mud lake, Herkimer county. Trenton-falls. On Sugar creek near Boonville, *Gray*; and along Black river below Watertown. Cliffs of the Chittenango ravine, where it flourishes remarkably, hanging often a foot in length from its hold in the rocks. Rare. July.
- ATROPURPUREUS**, *Gray.* *Dark-purple-stemmed Allosorus.*
 Limestone rocks. Helderberg mountains, *Pearson.* Rocky sidehills at Spraker's, Montgomery county. Dry hills along Crooked lake outlet, *Sartwell.* Ithaca, Tompkins county, falls of East creek, *Bradley.* Rare. July - October.
- PTERIS**, *L.* *Common Brake.*
AQUILINA, *L.* *Eagle-like-centered Pteris.*
 Old sandy fields, bush-lands. Common. June - August.
- ADIANTUM**, *L.* *Maidenhair.*
PEDATUM, *L.* *Pedately-branching Adiantum.*
 Woods, ravines. Common. July, August.
- WOODWARDIA**, *Smith.*
VIRGINICA, *Willdenow.* *Virginian Woodwardia.*
 Borders of swamps. Round Wetmore's pond on Frankfort hill. Swamps of Rome throughout. Junius, Seneca county, *Sartwell in herb. Ham. Coll.* Scarce. June - August.
- CAMPTOSORUS**, *Link.* *Walking-fern.*
RHIZOPHYLLUS, *Link.* *Rooting-fronded Comptonia.*
 Rocks in shade. swamps. Helderberg mountains, *Pearson.* Lofty cliffs of Bignose on the Mohawk, Montgomery county. Abundant at Littlefalls, both sides of the river: ledges on the hills southward, on the road to Warren: Herkimer county. Ravine of Chittenango creek.
 In a cedar swamp west of Onondaga lake it abounds on old logs, stumps, knolls; stretching frequently eighteen or twenty inches the first time, and running on to the third and fourth generation: fronds occasionally forking. On rocks west of Otsego lake an unusual form has been gathered by *B. D. Gilbert*, having lobes springing from each side of the base of the main one, at right angles, four or five inches in length. Rare. July - November.
- SCOLOPENDRIUM**, *L.* *Hart's-tongue.*
OFFICINARUM, *Swartz.* *Officinal Scolopendrium.*
 Ravine of Chittenango creek, Madison county, among loose rocks fallen from the cliffs. in moisture and shade.
 This remains the only known locality in the United States of this fern so frequent in England and Europe. Not many plants now are to be found; and they may be disappearing. Nature, however, well guards them from all danger and even access, save from the reckless and destructive botanist.
 Another station has recently been discovered on the outlet of Lake Simcoe, Canada West. There, too, as in our habitat, it occurs in a ravine below the falls of the stream, in the humid atmosphere. Local. July - October.

ASPLENIUM, L.

Spleenworts.

RUTA-MURARIA, L.

Wall-rue Asplenium.

Limestone cliffs. Helderberg mountains, *C. H. Peck*. Rocky steeps and cliffs all along between Fonda and Palatine bridge, Montgomery county, common on both sides of the Mohawk, especially from Littlenose to Spraker's, and on the cliffs of Bignose: growing remarkably large, whole clusters of fronds hanging over six inches in length and three in breadth. Abundant at Littlefalls, on the precipices of the south side of the river, both in shade and exposed seats of the rocks. Cliffs of Chittenango creek.

Rare. August - November.

TRICHOMANES, L.

Maidenhair Asplenium.

Clefts of rocks in shade. Helderberg mountains, *Pearson*. Cliffs on the east side of Otsego lake, *B. D. Gilbert*. Littlefalls, south side of the river: ledges of limestone rocks near the summit of the hills southward toward Mud lake, Warren: Herkimer county. Trenton falls. Fish creek precipices. Chittenango ravine rocks, Madison county.

Scarce. July - December.

EBENEUM, *Aiton.**Ebony Asplenium.*

Edges of rocks. Schenectady county, *Pearson*. Littlefalls, north side of the Mohawk. Chittenango creek, west side of the ravine. Hector, Tompkins county, *Gray*. Ithaca, Tompkins county, *Sartwell in herb. Ham. Coll.* Parma, Monroe county, *Bradley*.

Frequent. July - October.

ANGUSTIFOLIUM, *Michaux.**Narrow-fronded Asplenium.*

Rich woods and deep ravine-bottoms.

Abundant. July - September.

THELYPTEROIDES, *Michx.**Lady-fern-like Asplenium.*

Moist woods.

Abundant. August.

FILIX-FEMINA, *R. Brown.**Female Fern.*

Woods.

Common. July - September.

DICKSONIA, *L'Héritier.*PUNCTILOBULA, *Hooker.**Dotted-lobed Dicksonia.*

Damp woodlands.

Common. July.

WOODSIA, *R. Brown.**Woodsias.*OBTUSA, *Torrey.**Obtuse-lobed Woodsia.*

Rocky woods and banks. Cliffs along the east side of Otsego lake, *B. D. Gilbert*. Ithaca, Tompkins county, *Sartwell in herb. Ham. Coll.*

Infrequent. July.

ILVENSIS, *R. Br.**Isle of Elba Woodsia.*

Clefts and shelves of rocks. Cliffs of Otsego lake. Abundant at Littlefalls, on the cliffs of the north side of the river. Alexandria bay, Jefferson county. Ithaca, Tompkins county, *Sartwell in herb. Ham. Coll.* Uncommon. June.

GLABELLA, *R. Br.**Smooth Woodsia.*

High on the cliffs at Littlefalls, south of the Mohawk, in rock soil and evergreen shade: discovered at this station more than twenty years ago, by *VASEY*.

The rarest of our ferns, next to *Scolopendrium*, and more inaccessible. It is scattered along the brow of the lofty cliffs of Fall hill, nearly all out of reach. In delicacy, grace, beauty, it certainly has no rival. Local. June.

CYSTOPTERIS, *Bernhardi.*BULBIFERA, *Bernh.**Bulb-bearing Cystopteris.*

Ravine-sides and rocky banks.

Common. July - September.

FRAGILIS, *Bernh.* *Brittle Cystopteris.*
 Clefts of wet rocks, gravelly shores of streams, stony hillsides, and some-
 times in black-ash swamps. Abundant. July, August.
 var. DENTATA, *Hooker.* *Dentate-lobed Cystopteris.*
 Dry rocks. Below Utica, at the summit of the valley hillside, on outcropping
 sandstones in crevices of the barren surface. Rare. June.

ASPIDIUM, *Swartz.* *Shield-ferns. Aspidia.*
 THELYPTERIS, *Swartz.* *Lady-fern.*
 Fences, pastures, along streams, swamps. Common. July - October.

NOVEBORACENSE, *Willdenow.* *New-York Fern.*
 Marshes and shady moist woods. Abundant. July - September.

DILATATUM, *Willd.* *Broad Aspidium.*
 Deep woods and borders of high swamps. Also formerly gathered in Yates
 county by *Sartwell.* Infrequent. August.

SPINULOSUM, *Swartz.* *Spinulose Aspidium.*
 Ravines and woods. Common. August - November.

BOOTTII, *Tuckerman.* *Discovered by WILLIAM BOOTT.*
 Rather large, outline oblong, stipe chaffy; frond smooth; somewhat 3-
 pinnate; pinnules oblong-ovate, acutish, pinnatifid; segments sharply
 toothed, teeth mucronate; sori rather small, distinct, somewhat reniform:
TUCKERMAN in Hovey Mag.

Rich low woods on the Mohawk river-bottoms, a narrow form and one
 which is quite scarce. A shorter state of the same form has been gathered
 on the borders of swamps on the hills of Delaware county, by *B. D. Gilbert.*
 A form only a little larger than specimens from the original locality of this
 species is abundant in all deep rich woodlands. Frequent. August, Sept.

CRISTATUM, *Swartz.* *Shield, Crested Aspidium.*
 A long narrow form, the old *A. lancastriense*, is rare in arbor-vitæ bogs
 in the valley of the Mohawk. Around marshes in Delaware county, *B. D.*
Gilbert.

The broad-fronded plant is common in upland swamps. Borders of the open
 marsh-land north of Summit lake, Otsego county. Cedar swamp east of Mud
 lake; on the marshes of Jordanville, Warren; around Hidden lake, Litch-
 field; and in open bogs on Frankfort hill, near Wetmore's bear-pond; Her-
 kimer county. Frequent in the cold marshes east of Fish creek, and near
 Point of Rock lake, and throughout the northern part of the county.
Scarce. July, August.

var. MAJUS, *Eaton, ined.* *Greater Crested Aspidium.*
 Low rich woods: common on the flats of the Mohawk; and occasionally of
 the streams and creeks emptying into it. Frequent. August - October.

GOLDIEANUM, *Hooker.* *Discovered by GOLDIE.*
 Deep rich ravine-bottoms. Frequent. July, August.

MARGINALE, *Swartz.* *Marginal-fruited Aspidium.*
 Gulf-sides, rocks. Common. July - September.

ACROSTICHOIDES, *Swartz.* *Acrostichum-like Aspidium.*
 Wooded banks. Common.

var. INCISUM, *Gray.* *Incised-lobed Aspidium.*
 Shady swamps and stream-sides. Frequent.
 Fronds of this variety, having all the pinnæ fruitful, have been gathered
 along ravines two miles southeast of Utica; and on the sides of a gulf on
 College hill southwest of Clinton. Rare. July - November.

ONOCLEA, L.

SENSIBILIS, L.

Wet woods and swamps.

var. OBTUSILOBATA, *Torrey*.

Marshy woodlands east of Onondaga lake.

In herb. Sartwell Ham. Coll. is a fine specimen of this variety in full fruit, from Salem, Washington county, *J. Smith*. Also two other specimens from Penn-Yan. Yates county, *Sartwell*, of the same form, but without fruit. Many fronds of the same form with these, and corresponding exactly with each of the figures in *TORREY'S Fl. N. Y.*, having free veins and sometimes indusia, have been gathered in the swamps and woods near Salina.

The abnormal form having both sterile and fertile pinnæ on the same frond, often one side all sterile and the other all fertile, in the regular form, are not rare.

*Sensitive Fern.**Frost-sensitive Onoclea.*

Common. July.

Rounded-lobed Onoclea.

OSMUNDA, L.

REGALIS, L.

var. SPECTABILIS, *Gray*.

Wet meadows and swamps.

*Flowering Ferns.**Royal Osmunda.**Showy Osmunda.*

Common. June.

CLAYTONIANA, L.

Low grounds and damp woods.

Collected by CLAYTON.

Frequent. June.

CINNAMOMEA, L.

Swamps.

var. FRONDOSA, *Gray*.

Occasional in wet woods around Utica. Abundant on low sandy clearings west of Fort Bull, Rome.

Cinnamon-colored Osmunda.

Common.

Double-fronded Cinnamon-fern.

Frequent. May.

BOTRYCHIUM, *Swartz*.LUNARIOIDES, *Swartz*.

Sandy pastures and banks.

Among bushes, the fertile frond of this fern sometimes rises to the height of sixteen inches, with sterile frond nine inches high and six broad.

Plants of the ordinary size occasionally are found with two, and rarely with three perfect fertile fronds, all of the same size, springing together from the stipe of the sterile frond near the root.

var. DISSECTUM, *Gray*.

Grassy banks of a stream in a pasture near Fall brook, three miles north of Taberg.

*Moonworts. Botrychia.**Lunaria-like Botrychium.*

Common.

Cut-lobed Botrychium.

Rare. August - October.

VIRGINICUM, *Swartz*.

Moist woods.

Virginian Botrychium.

Common. June, July.

LANCEOLATUM, *A. gström*.*Narrow-lobed Botrychium.*

Roots many, thick and chordlike, dark brown. Stem enlarged at the base just above the roots, tapering upward into a stout erect stipe, bearing the fronds at its summit. Sterile frond either many times divided to the midrib into lanceolate lobes with its lobes incised, about an inch in width and length, triangular in outline, or in the largest specimens consisting of three branches springing together from the stipe or the lateral from the very base of the middle one, spreading an inch and a half, all parted widely into narrow lobes more or less cut upwardly. Fertile frond always similar to the sterile; terminating the stipe, or in the largest plants the stem forking into three branches, all about an inch long and parted into many fruit-lobes.

Sandy mounds in clearings and fields. In a pasture three miles north of Taberg.

Rare. June.

SIMPLEX, Hitchcock.

Simple-fronded Botrychium.

Fronde simple, 3-lobed or 3-cleft; segments unequal; spike subcompound, interrupted, unilateral, bearing sessile capsules of the size of a mustard seed.

Fronde solitary, from a torn membranous sheath, erect, two to four inches high, glabrous, pale green, consisting of a small spatulate leaf an inch long and one-third of an inch broad, usually divided into three, rarely four, unequal, somewhat rounded segments, with their margins a little notched. From the base of the leaf, about an inch from the ground, springs a stalk, twice or thrice the length of the leaf, bearing a subcompound unilateral interrupted spike of capsules, sub-tworowed. Root sending forth stout simple fibers: *HITCHCOCK in Sill. Jour.*

Most of the plants found in the following stations are of the lowest forms and extremely variable; from one to seven and a half inches high. Sterile frond usually remote and always separate from the spike; in the smallest specimens a minute spur just under a single spore-case terminating the short stem; in larger plants an oblong entire bract, lower on a stipe bearing a few sporangia; in ordinary forms springing from below the middle of the stipe, short-stalked, half an inch long, once incised or parted more or less deeply, with its fertile spike branching at base; in the largest specimens rising from the stipe near the root, long-stalked, an inch and a quarter in length, three-fourths of an inch broad, four times pinnately divided, the lowest lobes separate from the higher and all enlarged at the end, its fertile frond terminating the long stalk, two inches in length, having three or four pairs of branches, the lowest branching in turn. Stem slender, weak, bending with the fruit.

Cedar swamps: shady borders of the State marsh near Jerusalem hill, Litchfield, Herkimer county; on moss-covered bogs and mounds.

Pastures: near Fall brook, west of Fish creek. Rare. May, June.

OPHIOGLOSSUM, L.

Adder's-tongue.

VULGATUM, L.

Common Ophioglossum.

Fronde of all forms from orbicular and oval to elliptical-lanceolate; often four inches in length, stems sometimes over a foot high.

Spikes occasionally with only a few sporangia at base, above becoming a second frond, three or four lines wide, an inch and a half long.

Dwarf forms occur, having a very short stipe, and a spike only half as high as the frond is long.

Pastures east of Mud lake, Warren; damp banks among arbor vitæ on the shores of Cedar lake, Litchfield; south Herkimer county. Grassy ridges on the Deerfield hills, opposite Utica. Mossy bogs in the old Oriskany swamp. Copses and rich mounds near Fall creek, north of Taberg. Dry hills between Brownville and Dexter, Jefferson county. Marshes at the foot of Owasco lake, Cayuga county. Open woods in Henrietta, Genesee county.

The dwarf form at Exeter, Otsego county, *Torrey Fl. N.Y.*; and in the Fall brook pasture, west of Fish creek. Rare. June, July.

LYCOPODIACEÆ.

Club-mosses.

LYCOPODIUM, L.

Lycopodia.

LUCIDULUM, Michaux.

Shining Lycopodium.

Mossy banks, ravine-sides, moist woods. Common. August - December.

INUNDATUM, L.

Overflowed Lycopodium.

Bogs and marshy borders of ponds. North Herkimer county, on the wet flats surrounding elevated ponds at each end of Bald rock, north of the first three in the chain of Eight lakes, a form with short forking stems, and small narrow weak entire erect leaves.

Five miles west of Rome, at the border of the swamp, beside the Watertown railroad, along the base of a bank of excavation facing the north, on damp sand, a form with long straight stems and large broad rigid sharply-toothed spreading leaves; abundant, though of recent appearance in this a newly-made station.

Rare. September, October.

ANNOTINUM, *L.*

Year-marked Lycopodium.

Deep woods. Frequent, but more abundant on the hills.

August, September.

DENDROIDEUM, *Michaux.*

Tree-like Lycopodium.

Sandy fields and woods.

Common. August - November.

CLAVATUM, *L.*

Club-fruited Lycopodium.

Barren, old open thicket-fields.

Common. August - October.

COMPLANATUM, *L.*

Flattened-fronded Lycopodium.

Sidehills, sandy or rocky openings. Common. September - November.

SELAGINELLA, *Beauvois.*

Selaginellas.

RUPESTRIS, *Spring.*

Rock Selaginella.

Dry open rocks. Littlefalls, north side of the river. Alexandria bay, Jefferson county.

Rare. August - October.

APUS, *Spring.*

Stemless Selaginella.

Wet banks. Abundant round Cedar lake, Litchfield, south Herkimer county. Sandy borders of swamps, Rome, *Knieskern*. About Salina, under the Solar Salt-works.

Scarce. August.

MARSILEACEÆ.

Marsileads.

ISOETES, *L.*

Quillwort.

LACUSTRIS, *L.*

Lake Isoetes.

On rocks on the bottoms of rivers: New-York, in the Oswego river near the falls, *v. v. Pursh.*

This plant was so named when all forms were considered the same, and identical with *I. lacustris* of Europe. Among the species of our time, it must belong either to *I. echinospora* or to *I. braunii*, DURIÉU; closely allied species, the chief distinction being in the small needle-like projections of the spores, which in the former are compressed, somewhat flattened and very fragile; in the latter they are conoid and much firmer: both distinguished, by soft light green or even yellow leaves which are gradually subulate, from *I. lacustris*, whose leaves are dark green, rigid, and more linear throughout.

Rare. August, September.

AZOLLA, *Lamarck.*

CAROLINIANA, *Willdenow.*

Carolinian Azolla.

Stagnant water and miry banks. In all the side-waters of Lake Ontario, from the marshes five miles northeast of Oswego, to Braddock's bay, Monroe county: often completely covering the water with a purple velvet mantle.

Common near the shore, but not observed at any distance from the Lake.

August.

ADDENDA.

To **ATRAGENE AMERICANA**, p. 53, the stations :

Along the cliffs of Bignose point on the Mohawk, Montgomery county. On a hill above Unadilla-forks, Otsego county, *Gray*.

Before **CLEMATIS VIRGINIANA**, p. 54, the species :

OCHROLEUCA, *Aiton*.

Yellow-white-flowered Clematis.

Sandy hilly woods, westward of Crownpoint, Essex county; where it was discovered by G. T. STEVENS.

To **ANEMONE CYLINDRICA**, the stations :

Abundant on the Pine plains between Albany and Schenectady. Near Owasco lake, Cayuga county. *I. H. Hall*. Shore of Lake Ontario near Irondequoit bay, Monroe county.

To **A. PENNSYLVANICA**, the stations :

Marshes of Jordanville, Warren; and around the East Dry-lot pond, Litchfield, Herkimer county. These are localities without inlet or outlet, and have no connection with streams either northward or southward, on the summits of our highest hills: remarkable for a plant usually occurring along the largest streams and Lake shores.

Also frequent in southern Oneida county and the adjacent parts of Otsego and Madison counties, *Gray*.

To **RANUNCULUS AQUATILIS**, var. **DIVARICATUS**, the range :

Abundant in the inlets and bays of Lake Ontario, from Oswego to Braddock's bay, Monroe county.

To **R. PURSHII** :

This species received the name *R. lacustris* from L. C. BECK and J. G. TRACY a little earlier than the present one from RICHARDSON. This was given in the second edition of *Flora of the Polar regions*, of which the first edition was published in 1823.

One of the first papers read before the Albany Lyceum of Natural History was a description of this new species of *Ranunculus*; which afterward was published in the *New-York Medical and Physical Journal* for January 1823, as follows :

RANUNCULUS lacustris. Leaves all submerged, alternate, dichotomously divided into numerous capillary segments; with clasping membranaceous stipules. Peduncles emerging, dichotomous, slightly furrowed. Flowers terminal, large. Calyx spreading, hairy, fleshy, caducous. Petals five to eight, obovate, larger than the leaves of the calyx, and larger than those of *R. bulbosus*. Nectary petal-like, cucullate-tubular, nearly equaling the length of the filaments. Fruit oval. Stem floating, branched, glabrous, hollow, round, from two to four feet in length, extending radical fibres from the lower joints. Roots fibrous, short.

HABITAT. In a stagnant pond near Lansingburgh on the Hudson river, and in a similar situation near Lewiston on the Niagara.

On the appearance of *Hooker's Flora Boreali Americana*, which adopted *R. purshii*, these gentlemen reaffirmed their name, with another description and a plate, in the Transactions of the Albany Institute.

The plant also occurs in marshes east of Onondaga lake, and along the shore of Lake Ontario. In Sodus bay, it grows high on a sandy point, and changes its character for the place, having a creeping underground rootstalk, sending up erect stems bearing two to four petioled leaves, which are nearly half an inch broad and twice notched at the end, or the highest sessile, obovate, entire.

To **R. FLAMMULA**, p. 55, the station :

Abundant on a long peninsula running out into Sodus bay. just inside the point. covering low sandy banks in thick patches, with *Eleocharis olivacea* and *Scirpus pauciflorus*, in a grove of *Populus monilifera*. The small form : stems and carpels often downy.

To **MAGNOLIA ACUMINATA**, p. 57, the range :

Occasional throughout Cayuga, Wayne and Monroe counties; most frequently along streams or near the shores of lakes, but sometimes in high forests.

To **NELUMBIUM LUTEUM**, p. 58 :

More particularly the station of this noble plant at Sodus bay is near the head on the east side, above and below the ruins of an old bridge, extending down across the present ferry and on towards the wharf, covering an acre or more.

Most of it is near the marshy shore in shallow water, with leaves, flowers and fruit elevated above the surface by high rigid petioles and peduncles. The leaves have a peculiar velvety surface that cannot be made wet, on which, at morning, the dewdrops glisten brighter than gems in the sun, and present a most beautiful sight. The flowers are immense, nearly white, and are truly splendid. So indeed they are regarded by the numbers who go from far and near to gather them all summer. Yet the plants seem to be not only flourishing, but on the increase, spreading along the shore in both directions by its huge tuberous roots.

July - September.

To **BRASENIA PELTATA**, the range :

Frequent in the ponds and marshes bordering Lake Ontario, from north of Oswego, southward and westward.

After **NYPHÆA ODORATA**, the variety and species :

The remark "sometimes in mud, with erect leaves and flowers", "Cedar lake and Hidden lake", refers to

var. **MINOR**, *Sims*.

Smaller Fragrant Nymphæa.

N. MINOR : foliis cordatis integerrimis, subtus nervis venisque prominentibus, pedunculis petiolisque pilosiusculis, stigmatibus 16 - 20-radiato.

Rhizoma horizontale, repens, oblongum. Petioli teretes, pilosi. Folia glabra, superne intense viridia, subtus purpurea, cordata, obtusissima, auriculis magis divaricatis et acuminatis quam in *N. odorata*. Pedunculi pilosi. Flores minores quam *N. odorata*, extus rosei in planta spontanea ex cl. Purshio, albi in individuis cultis ex radicibus ab ipso Purshio in Angliam adportatis. Cl. hortulanus Anderson qui plurimas Nymphæaceas diu et feliciter coluit hanc speciem ab *odorata* distinctam pronunciavit, et ipse Purshius ab hac opinione non recedit : *DeCANDOLLE Systema*.

Plant small in all its parts. Leaves cordate, ovate, three to four inches in diameter, a little longer than broad, smooth both sides, green above, deep red-purple beneath, with prominent radiating veins, seven of which are basal and five from the midrib on each side; lobes approximate, frequently overlapping, rounded or often ending in a short point. Flowers diminutive and delicate, from one to two inches in length; sepals brown; petals white, or sometimes the outer tinged with pink externally, very fragrant, with the odor of honey. Ovary spherical, filled with light-colored loosely-arilled seeds. Upper part of the peduncles and petioles villose or thick downy, and more or less pubescent below. Stipules red, longer than broad, ovate, lacerate at end, thick-membranous with scarious margins. Rhizoma slender, three-fourths of an inch in diameter, covered with very fine dense hairy pubescence; branching frequently, of a dingy-pink color.

The Water-lily of Otsego, south Herkimer and Madison counties. On Hidden lake it inhabits shallow mossy pools, lifting its flowers and leaves above water by peduncles not more than a foot in length; but in deep water, its habit is the same with the typical plant.

In the north woods of Herkimer, Hamilton and Essex counties, all lakes ponds, marshes are full of a *Nymphæa*, which doubtless is this variety: if so, the true *N. odorata* has not been observed in this State west of the valley of the Hudson river.

June - August.

The plant referred to as "The variety with inodorous flowers", is the following:

TUBEROSA, *sp. nov.*

Tuber-bearing Nymphæa.

Rhizomate longe repente crasso e lateribus tuberifero; stipulis lunatis multum oblique decurrentibus ubique relictis; foliis orbiculatis subtus prominenter venosis, auriculis sæpissime acuminatis; floribus pæne inodori; connectivo staminum exteriorum supra antheram in cuspidem elongato; arillo seminum obsoleto vel brevi cupulæformi rarius completo.

Rhizoma deeply imbedded in mud, running horizontally, sending down in clusters long chord-like roots furnished with innumerable fibrous radicles, rarely branching, three to six feet long, one to two inches thick, varying in size but not regularly interrupted, with an uneven surface, somewhat compressed, scattered with short pubescence, bearing tubers from its sides, which are frailly connected by their bases narrowed into necks only one to three lines in diameter, usually short, often half an inch in length. Tubers oval, one to three inches long, half to three-fourths of an inch thick, with a rough tubercular surface, the tubercles elevated just back of the buds of elementary leaves, arranged in eight perpendicular series with five spiral rows in one direction to three in the other, bearing both roots and tubers when present; the tubers often in clusters from being repeatedly proliferous, sometimes occurring so frequently as to conceal the trunk, becoming separate plants when detached. Stipules in the axils of the petioles and embracing them by long lobes, shorter than broad, crescent-shaped, with thin wavy margins. Petioles and peduncles striate with nerves and crimson veins, often pubescent above in lines with long silky purple hairs. Leaves of two forms: submerged form short-petioled, thin and transparent, the lobes divaricate and forming a right-angle at base; floating leaves large, from eight to eighteen inches in diameter, exactly orbicular, sometimes retuse with sides contracted becoming angular, entire or undulate margined, green with a dark centre and even above, light-green or a little yellow below, with prominent nerves of which on each side twelve radiate from the centre and five to seven from the strong channelled midrib, sometimes having a few brown hairs along the veins and edges of the division; lobes approximate, parallel, or meeting in the largest forms, ending with an acute point and a sinus. Flowers two to four inches long, expanding four to seven, exhaling a slight vanilla-like fragrance at opening, but soon inodorous. Sepals four, green without, light within, as long as the flower. Petals many, the outer tinged with green externally, the inner snow-white, oblanceolate in outline, delicately straight-veined. Anthers yellow, long with converging cells, the connective elongated into a minute red cusp. Appendages of the stigma sixteen to twenty, short, obtuse, at first ascending and lying against the filaments, soon curving over as many rays of the disk. End of the central axis short, a line or more high, convex. Capsule globose or oblate, when maturing drawn to the bottom by the spiral coiling of the peduncle. Seeds acorn-shaped, red, with the usual raphe. Arillus defective, commonly a shallow cup surrounding the base of the seed, sometimes investing it halfway, or occasionally a mere rudiment, and rarely complete.

A larger plant than the other species, equal in beauty but wanting in fragrance. From *N. odorata*, var. *minor*, of course it is as remote as possible in every part. From *N. odorata* itself, it differs in its peculiar tubers, great leaves, large flowers of little odor, and imperfect arils. From *N. alba* of Europe, in addition to the tubers, it is separate by a continuous stem instead

of one vertical at first, leaves so highly veined, a slight odor of flower, and the usually incomplete arillus. So similar, however, is it to the latter, that it seems to have been considered the same by NUTTALL in the single locality he records. The root-stalks prolong themselves indefinitely, yet only short portions are vigorous supporting leaves and flowers, the old parts declining as fast as the young ends increase. The tubers, too, attain a certain size, then wait to be broken off or to be separated by decay. Their multiplication in clusters occurs only on remaining tubers; and all, if not by any cause removed, when they have reached maturity, do not grow any larger, remaining inactive until they die with the old root. But when liberated, they float about to some new bank; as soon as striking it, shooting down rootlets and sending out their already developed delicate submerged leaves, soon to be followed by others for the surface. These tubers, somewhat resembling those of *Helianthus tuberosus* or of *Boussingaultia baselloides*, are always present, sometimes few and single, usually frequent and abundant: as many as thirty have been counted on a section of rootstalk only six inches in length. By the slightest disturbance, they loosen and rise to the surface, and can be secured in place only by the greatest care in removal. The leaves would easily be recognized from others by their shape and appearance, as well as by their peculiar venation and remarkable size, largest in the bays of Lake Ontario, at Sodus bay rivalling even those of *Nelumbium luteum*; in imitation of which, also, both leaves and flowers rise high above the surface on stout stems in shallow water. The flowers may truly be termed magnificent, but their odor is faint and transient. The coiling of the flowerstems in deep water is more striking and complete than in the scapes of *Vallisneria spiralis*, though not so uniform; drawing the ovaries not only under water, but to the very ground; a habit that will be verified by any success of obtaining fruit in autumn. The trunks of this plant are soft and pliable, composed of a cellular or pithy substance which is very astringent. Cattle devour its immense leaves, venturing far into the water for them: in like manner, the deer of the north woods come down from the hills to the lakes at night to feed on the lily-pads so abundant there.

The Water-lily of Western New-York and the Great Lakes. It has been found: in St. Lawrence river, at Alexandria bay, Jefferson county: in Lake Ontario; filling all marshes beyond the shore for miles northeast of Oswego, where it was observed in 1861; in the bays of Wayne county, most abundant in the channels at the head of Big Sodus bay; plentiful in Irondequoit bay, throughout the swamps among the ends of ridges westward formed by streams setting back against bars thrown up by the waves, marshes of Charlotte in the mouth of the Genesee river, common in Round pond, Long pond, Cranberry pond, and Braddock's bay, Monroe county: in Niagara river below Buffalo, by G. W. CLINTON: in the Detroit river, by J. M. BIGELOW: in Western New-York; farthest east in Oneida lake, where it is abundant near its head a little west of South bay, in marshes of *Dianthera americana* and *Scirpus lacustris*; all along the sides of Oswego river; frequent in the outlet of Owasco lake, and occasionally in the lake itself; common in the marshes of Cayuga river and lake; Clyde river through Wayne county; at Branchport, foot of Crooked lake, by SARTWELL; in Canandaigua lake, more abundant however in its old closed outlet; in Genesee river above Rochester, by DEWEY.

Late-flowering; in the waters of Lake Ontario the flowers not appearing until August, and abundant throughout September; but inland earlier, July and August. Frequent.

To NUPHAR KALMIANA, the habitat:

Common in the marshes of Oneida lake, in deeper water, farther out than *Nymphaea tuberosa*.

Before CHELIDONIUM MAJUS, p. 59, the species:

ARGEMONE, L.

Prickly Poppy.

MEXICANA, L.

Mexican Argemone.

Frequently spontaneous in cultivated grounds and waste lots in Auburn. Cayuga county, I. H. Hall. July - September.

To NASTURTIUM LACUSTRE, p. 60, the range:

Common in all inlets and bays along the southern shore of Lake Ontario.

After *THLASPI ARVENSE*, p. 62, the species :

CAKILE, *Tournefort.*

AMERICANA, *Nuttall.*

Sea-rocket,

American Cakile.

Sandy beaches. Frequent on the shore of Lake Ontario, from a few miles north of Oswego, to Sodus point, Wayne county, where it is in force, and Braddock's bay, Monroe county.

July - October.

To *PARNASSIA CAROLINIANA*, p. 64, the stations :

Abounding in an extensive swamp among the hills of Warren, near Jordanville, south Herkimer county: the only station that has been observed south of the Mohawk valley.

Before *MEDICAGO LUPULINA*, p. 72, the species :

SATIVA. L.

Lucerne. Purple, Sown Medicago.

Gravelly banks, borders of grass-lands. Deerfield creek, in meadows on the flats and on sloping bases of the gulf-sides.

scarce. June, July.

After *PHASEOLIS PERENNIS*, p. 74, the species :

DIVERSIFOLIUS, *Persoon.*

Varied-leaved Phaseolus.

Shore of Lake Ontario between Irondequoit bay and Charlotte mouth of Genesee river, Monroe county, on a low sandy bar thrown up by the water, at the shady base of a ridge-side and along the end of a marsh near its outlet.

A small dwarfed state, only a foot and a half long, prostrate, having entire dark green leaves, peduncles shortened, no longer than the petioles, borne in the axils throughout the length of the stem, all bearing large deep-purple flowers with keels curving to one side : a singular and very pretty form.

Rare. August, September.

To *APIOS TUBEROSA*, the habitat :

Common on the borders of marshes northeastward of Oswego, and abundant westward near the Lake shore.

To *CASSIA MARILANDICA*, p. 75, the station :

Banks and hillsides west of Owasco lake, Cayuga county.

After *POTENTILLA NORVEGICA*, p. 77, the species :

PARADOXA, *Nuttall.*

Strange-fruited Potentilla.

Decumbent at the base, pubescent; leaves pinnate; leaflets 7-9, obovate-oblong, incised, the upper ones confluent; stipules ovate, mostly entire; peduncles (alar) solitary, recurved in fruit; calyx-segments all nearly equal, acute, about the length of the obovate petals; receptacle villous; achenia striate, 2-lobed, the lower portion (the enlarged base or insertion filled with starch) as large as the proper carpel : *NUTTALL, mss. in Torr. & Gray Fl.*

Specimens of ordinary size have single erect stems cymosely branching; but the largest plants send out two to five in addition, which are prostrate and spreading. Leaves all radical. Flowers small. Appendages to the achenia quite conspicuous.

Sandy shores. Beach of Lake Ontario at Braddock's bay, Monroe county; abundant on the point between the bay and the lake.

Rare. July - September.

Before *LYTHRUM SALICARIA*, p. 80, the species :

AMMANNIA, *Houston.*

Ammannia.

HUMILIS, *Michaux.*

Low Ammannia.

Bog-borders. Around sandy pools and banks of rivulets in the Pine barrens between Albany and Schenectady, near the Central railroad and Centre station,

Rare. July, August.

- To MYRIOPHYLLUM VERTICILLAUM, p. 81, the range :
Common in the lakes of the western part of the State and waters of Lake Ontario.
- On OPUNTIA VULGARIS, p. 82, the remark :
It is quite improbable that this plant ever was found native on the high cold hills of Fairfield. Professor GRAY regards it as altogether impossible : certainly he was perfectly acquainted with the flora of that region at the time of this reference, and would have known it had it been in existence there. Doubtless it is confined to the valley of the Hudson river, and its most northern locality may be West-Point, Orange county, or possibly Hudson, Columbia county.
- To VIBURNUM PUBESCENS, p. 88, the habitat :
Abundant on the rocky steeps between Yost's and Palatine bridge, Montgomery county.
- To VALERIANA SYLVATICA, p. 90, the station :
In extensive tamarack marshes among the hilltops of Warren, south Herkimer county; where it occurs in great quantity, often growing in patches.
- After ASTER SIMPLEX, p. 92, the species :
TENUIFOLIUS, L. *Narrow-leaved Aster.*
Swamps of Jordanville, south Herkimer county, where it abounds.
Rare. August.
- After SOLIDAGO SPECIOSA, p. 93, the species :
VIRGA-AUREA, L, var. HUMILIS, Gray. *Dwarf Goldenrod.*
Swamps on the hills south of the Mohawk valley. On the State marsh, Litchfield, Herkimer county. Rare. June, July.
- To S. OHIOENSIS, the station :
Common in the dry marly portions of the West-Bergen swamp, northeastern Genesee county.
- To BIDENS BECKII, p. 96, the station :
Outlet of Owasco lake, Cayuga county, I. H. Hall.
- After ARTEMISIA VULGARIS, p. 97, the species :
BIENNIS, Willdenow. *Biennial Artemisia.*
Barren banks. Oswego, G. W. Clinton. Adventive at all stations in this State. Rare. August - October.
- To ONOPORDON ACANTHIUM, p. 98, the station :
Ledges of limestone, and roadsides near Page's corners, on the hills of Warren, south Herkimer county.
- After CAMPANULA ROTUNDIFOLIA, p. 100 :
On dry steep sides of high ridges west of Irondequoit bay, Monroe county, has been gathered a *Campanula* of unusual size and character, having a strong rigid erect stem three to four feet in height, with linear leaves three to five inches in length, deeply channelled and curved, bearing in the axils clusters of smaller leaves, and, from the very root to the top of the stem, simple branches ending in long slender peduncles of one to three small nodding terminal flowers.
June - August.
- After PYROLA SECUNDA, p. 103 :
The plant referred to by the remark "In the high cold cedar swamps of Summit lake", &c., is thought worthy of being designated as
var. PUMILA. *Slender Onesided-flowering Pyrola.*
Stems three to five inches high, erect, not reclining at base. Leaves in two or three annual clusters; most always just circular, but sometimes broader

than long notched, and sometimes oval a little longer than broad obtuse, finely crenulate, quite thin, of an extremely light green color above, pale beneath; in marked contrast with the dark green, coriaceous, elliptical leaves of the common *P. secunda*, which merge into the petiole and are mucronate-acute at end. Scape slender; with two or three minute pointed bracts. Racemes strictly erect, three- to eight-flowered, very loose; flowers hanging usually on one side, narrowly cylindrical, pale green; anthers carried beyond the petals by long deep purple shining filaments; styles far exerted.

On damp moss under the shade of tamaracks and arbor vitæ, in all the large marshes among the hilltops between the vallies of the Mohawk and Susquehanna rivers, from above Summit lake, Otsego county, to the swamp near Cedar lake, south Herkimer county.

This remarkable diminutive variety, growing in moss of deep bogs, with thinner orbicular and more serrulate leaves of only half or three-fourths of an inch in diameter, much like those of *Moneses uniflora*, the slender scape only four- to nine-flowered, is very distinct in appearance, and must be the same with the "Varietas pumila biuncialis, foliis ad basin confertis orbiculatis in petiolum brevem decurrentibus serratis", of CHAMISSE, in LINNÆA, collected at Eschscholtz bay in Russian America, and which LEDEBOUR in *Flora Rossica* commends to further observation as to whether it may claim to be a distinct species. The leaves in the New-York specimens, however, are nearly all perfectly rounded at the base. Among the specimens in my herbarium, I find this form only from Labrador, *Dr. Storer*; North shore of Lake Superior, *C. G. Loring jr.*; and from the Northern Rocky mountains coll. *Bourgeau*: GRAY.

To UTRICULARIA GIBBA, p. 104 :

This plant differs remarkably from other species, in mode of inflorescence. Others continue to flower by prolonging their racemes; while the scapes of this species are only one- to three-flowered. Yet it remains longer in flower than any other, by sending up an indefinite series of scapes from a disk-like centre among the roots; so that on one side of the flowering stem may be found a decaying old one in fruit, and on the other a new one springing up, from June to September.

To POLEMONIUM CÆRULEUM, p. 115 :

This plant, so rare eastward, and remarkably separated from its home in the northwest and among the Rocky mountains, has again been found by Mr. GILBERT in Delaware county, among the hill-tops of Meredith, on the borders of several swamps.

All these stations prove the plant to be usual about the springs and marshes on the high cold hills between the headwaters of Oleout and Schoharie creeks, and southeastward between the Susquehanna and Delaware rivers. The lowest pass over the latter is 2150 feet above tidewater, and the heights of these rolling ranges of hills cannot be less than 2500 feet.

Thus this section, with the exception of mountains, is indicated to be the most elevated in the State, by the subalpine *Polemonium*, as well as actual measurements. The level of the northern wilderness is only from 1500 to 1800 feet above the sea: Raquette lake, the source of Raquette river flowing northward to the St. Lawrence, is elevated 1745 feet; the chain of Eight lakes, headwaters of Moose river, average about 1700 feet; the two lakes that give rise to Black river, emptying into Lake Ontario, stand 1820 feet; and Jock's lake, fountain of West-Canada creek and the highest lake in the woods, is 2188 feet. In the southwestern part of the State, the sources of Alleghany river are from 1290 (Chautauqua lake), to 2000 feet above the level of the ocean.

To GENTIANA QUINQUEFLORA, p. 116, the stations :

Along thicket-covered sidehills above the cliffs of Bignose on the Mohawk, Montgomery county. Banks of the outlet of Owasco lake, Cayuga county. Common on the sides of ridges ending on the shore of Lake Ontario, from Sodus bay, Wayne county, to the steep banks of Irondequoit bay, and the mouth of Genesee river, Monroe county.

After *G. CRINITA*, p. 117, the species :

DETONSA, *Fries.*

Shortened-fringed Gentian.

On the very verge of bluffs along Lake Ontario west of Irondequoit bay, and on shaded moist sides of ridges, with *Campanula rotundifolia* and *G. quinqueflora* : low, one to four inches high, one-flowered, most beautiful and delicate plants chiefly; but sometimes higher, and in all respects the same with the form on the wet rocks of Niagara falls. Rare. August, September.

On *G. ALBA*, the remark :

This plant, which is also abundant in marshes about Owasco lake, may be a white-flowered form of *G. andrewsii*.

After *POLYGONUM AVICULARE*, var. *ERECTUM*, p. 121, the species :

TENUIS, *Michaux.*

Slender Polygonum.

Common on the dry shady rocky steeps between Yost's and Palatine bridge, Montgomery county. Scarce. July - October.

To *P. ARTICULATUM*, the stations :

Abundant in wastes of clear sand between Albany and Schenectady, near Centre station, where sometimes the plants are very large, two feet high. At Oneida lake, it may be found along the shore near the mouth of Fish creek, in sandy copses. Oak openings of Charlotte, Monroe county, *Bradley.*

To *CERATOPHYLLUM DEMERSUM*, var. *ECHINATUM*, p. 123, the range :

Common in the waters of the western part of the State and Lake Ontario.

To *EUPHORBIA POLYGONIFOLIA*, the range :

This plant proves to be as common on the shore of Lake Ontario as on the Coast itself, from Oswego county to Braddock's point, Monroe county.

To *POPULUS MONILIFERA*, p. 129, the stations :

Common along the shore of Lake Ontario, from Sodus point, Wayne county, to Braddock's bay, Monroe county; always near the water, and occupying the narrow sandy elevations separating bays, ponds, inlets, marshes from the Lake.

On a low point running out into Sodus bay there is a long grove of these trees, of a medium height, however, and not over a foot in diameter. But over the ridge against Long and Cranberry ponds there are many fine lofty specimens fifty or sixty feet high, and more than three feet through.

A few trees occur, also, along the outlet of Canandaigua lake, Ontario county, having quite small deltoid leaves, the lower ones on the twigs as broad again as long sometimes; young branches one-half or three-fourths of an inch in diameter, slightly winged, and a red willow-like bark.

The species :

ANGULATA, *Aiton.*

Angled-stemmed Populus.

Replaces the common form at Braddock's bay, Monroe county; and appears quite frequently in the town of Gorham, Ontario county. Rare.

To *P. BALSAMIFERA*, the range :

Occasional from a few large trees at the mouth of Genesee river opposite Charlotte, to the base of Cranberry pond, Monroe county, where there are clusters of young and middle-sized growth.

To *TYPHA ANGUSTIFOLIA*, p. 131, the range :

Bogs along the berm-bank of the Erie canal in Montgomery county.

To *SPARGANIUM EURYCARPUM*, the range :

Common in the marshes of Lake Ontario, bordering all bays and inlets.

To *LEMNA GIBBA*, p. 132, the range :

Bays and inlets of Lake Ontario, from marshes northeast of Oswego to Braddock's bay, Monroe county, commonly covering the water in dense patches : easily distinguished by its thickness, being lens-shaped, arched above, below inflated and cellular.

To NAJAS MAJOR :

The statement that the habitats given are the only ones known on the Western Continent must be enlarged to include another, Irondequoit bay, Monroe county, where it was first detected by E. J. PICKETT.

The presence of a plant of so well-established maritime character, in a bay of a freshwater lake, is at once surprising and suspicious. But the mystery is easily cleared. The belt of Medina sandstone commencing just southwest of Utica, in two or three thin layers below the Oneida conglomerate, each crowded with the characteristic fossil the old *Fucoides harlani*, extending through the western part of this county, southern Oswego, along the shore of Lake Ontario in northern Cayuga, Wayne, Monroe counties and westward, is everywhere saliferous, abounding in springs and wells from some of which salt was manufactured in old times. A series of these springs, from Vernon, Oneida county, to the Niagara river, originate in the shales and marls of this rock wherever sufficiently near the surface to be subject to leaching by rains, and frequently yield so much saline matter as to affect vegetation. Many occur in Monroe county, along margins and beds of small streams, part of them emptying into Irondequoit bay, one of the largest being located near its head. The water from these springs is briny to the taste, and may accumulate in such a long landlocked inlet of the Lake in sufficient quantity to make the water brackish, just as the overflowings of salt springs affect Onondaga lake, thus supplying the necessary condition for this marine plant.

To PLATANHERA ROTUNDIFOLIA, var. OBLONGIFOLIA, p. 135 :

Mud lake, on whose damp mossy borders this plant has its station, is a small round pond in a depression among the very highest tops of the hills between the Mohawk and Susquehanna vallies, and is about 1500 feet above tide in the Hudson river.

To CYPRIPIEDUM ARIETINUM, p. 140 :

The height of Summit lake above tidewater is 1350 feet. Above its head is a large open moss bog, very shaky and full of sloughs, bordered by tamaracks and surrounded by an extensive arbor-vitæ swamp, the locality of many rare plants; the very source both of the Susquehanna river, and also of Ot-suago creek descending to the Mohawk.

To CHAMÆLIRIUM LUTEUM, p. 143, the station :

Springy rocky steeps just west of Bignose cliffs on the Mohawk, Montgomery county; on the open almost upright sides of the hill.

After ELEOCHARIS OBTUSA, p. 147, the species :

OLIVACEA, *Torrey*.*Olive-fruited Eleocharis.*

Culms filiform, often diffuse, compressed, sulcate, soft; spike ovate, somewhat obtuse, many-flowered; scales ovate, obtuse, membranaceous; bristles 6, nearly as long as the nut; style bifid; nut obovate, lenticular, dull; tubercle conical, rostrate, distinct: TORREY *Cyp*.

Culms cespitose, erect, diffuse or somewhat decumbent, usually about a span long and nearly a line in diameter, but often dwarfish and slender, of a soft flexible texture, with mucronate sheaths at the base. Spikes 3-4 lines long, 20-30 flowered, sometimes rather acute. Scales closely or somewhat loosely imbricated: one or two of the lowest shorter and bract-like; the others with a narrow scarious margin. Bristles pretty stout, retrorsely hispid. Stamens 3. Achenium smooth, sometimes a little shining, dark olive when ripe. Tubercle rather free around the base, acute or somewhat obtuse, about one-third the length of the achenium: TORREY *Fl. N. Y.*

On a sandy peninsula extending into Sodus bay just inside the point, where it is very abundant; equally common on the highest ground in the long Cottonwood grove, and on low banks with *Cyperus inflexus* and *Scirpus debilis*. Not before detected away from the Coast. July - October.

- To SCIRPUS PAUCIFLORUS, p. 148, the station :
Common at Sodus bay, Wayne county; all over the barren point against Lake Ontario, and scattered over the sandy peninsula in the bay with *Eleocharis olivacea*.
- To S. PLANIFOLIUS, the station :
Dry pine woods on the banks of the Hudson above Albany, and on the opposite side of the river, *C. H. Peck*.
- To PANICUM ZANTHOPHYSUM, p. 173, the station :
In a barren field east of East-Albany, *C. H. Peck*.

In addition to the *Flora* and later *Catalogue* of the plants of the State by Dr. TORREY, this catalogue includes the following native plants :

- | | |
|------------------------------|---------------------------|
| RANUNCULUS FLAMMULA. | SPARGANIUM EURYCARPUM. |
| NYMPHÆA ODORATA, var. MINOR. | SPARGANIUM NATANS. |
| NYMPHÆA TUBEROSA. | NAJAS MAJOR. |
| DENTARIA HETEROPHYLLA. | POTAMOGETON ROBBINSII. |
| TURRITIS GLABRA. | POTAMOGETON PRÆLONGUS. |
| LESPEDEZA STUVEI. | SAGITTARIA HETEROPHYLLA. |
| GEUM VIRGINIANUM. | SAGITTARIA GRAMINEA. |
| POTENTILLA PARADOXA. | PLATANThERA ROTUNDIFOLIA, |
| RIBES HIRTELLUM. | var. OBLONGIFOLIA. |
| RIBES RUBRUM. | CYPRIPEDIUM CANDIDUM. |
| DIPLOPAPPUS AMYGDALINUS. | TRILLIUM SESSILE. |
| SOLIDAGO PUBERULA. | TOFIELDIA GLUTINOSA. |
| SOLIDAGO SPECIOSA, | JUNCUS DEBILIS. |
| var. ANGUSTATA. | XYRIS BULBOSA. |
| SOLIDAGO HOUGHTONII. | ELEOCHARIS COMPRESSA. |
| SOLIDAGO LINOIDES. | SCIRPUS PAUCIFLORUS. |
| PYROLA SECUNDA, var. PUMILA. | SCIRPUS CLINTONII |
| DODECATHEON MEADIA. | SCIRPUS FLUVIATILIS. |
| UTRICULARIA CLANDESTINA. | CAREX PRAIREA. |
| UTRICULARIA GIBBA. | CAREX CEPHALOIDEA. |
| SCHWALBEA AMERICANA. | CAREX SCABRIOR. |
| LITHOSPERMUM HIRTUM. | CAREX TENELLA. |
| POLEMONIUM CÆRULEUM. | CAREX ARGYRANTHA. |
| CHENOPODIUM GLAUCUM. | CAREX SYCHNOCEPHALA. |
| ATRIPLEX HASTATA, | CAREX LENTICULARIS. |
| var. OBLONGIFOLIA. | CAREX STRICTIOR. |
| POLYGONUM NODOSUM, | CAREX GYNANDRA. |
| var. INCARNATUM. | CAREX EMMONSII. |
| POLYGONUM CAREYI. | CAREX ROSTRATA. |
| POLYGONUM ACRE. | CAREX GRAYII. |
| CALLITRICHE AUTUMNALIS. | CAREX LUPULIFORMIS. |
| URTICA GRACILIS. | CAREX RETROCURVA. |
| POPULUS ANGULATA. | CAREX VAGINATA. |
| JUNIPERUS SABINA, | CAREX WOODII. |
| var. PROSTRATA. | CAREX GLABRA. |

CAREX KNIESKERNII.
 CAREX RICHARDSONII.
 CAREX MIRATA.
 CAREX VASEYI.
 CAREX HARTII.
 CAREX AMPULLACEA.
 CAREX MONILE.
 CAREX VESICARIA.

CAREX PHYSEMA.
 AGROSTIS PERENNANS.
 WOODSIA GLABELLA.
 CYSTOPTERIS FRAGILIS,
 var. DENTATA.
 ASPIDIUM DILATATUM.
 ASPIDIUM BOOTTII.
 BOTRYCHIUM LANCEOLATUM.

Among many naturalized plants, the following are additional :

ARGEMONE MEXICANA.
 NASTURTIUM OFFICINALE.
 NASTURTIUM ARMORACIA.
 RESEDA LUTEOLA.
 SILENE INFLATA.
 LYCHNIS VESPERTINA.
 MALVA MOSCHATA.
 TRIFOLIUM PROCUMBENS.
 MEDICAGO MACULATA.
 PRUNUS SPINOSA.
 ROSA SETIGERA.
 FEDIA OLITORIA.
 ARTEMISIA BIENNIS.

ONOPORDON ACANTHIUM.
 HYSOPIUS OFFICINALIS.
 THYMUS SERPYLLUM.
 ATROPA BELLADONNA.
 PERIPLOCA GRÆCA.
 CHENOPODIUM URBICUM,
 var. RHOMBIFOLIUM.
 AMARANTUS RETROFLEXUS.
 RUMEX SANGUINEUS.
 RUMEX ACETOSA.
 HEMEROCALLIS FULVA.
 BROMUS RACEMOSUS.
 LOLIUM TEMULENTUM.

Five marine or coast plants are new to the interior :

ORONTIUM AQUATICUM.
 NAJAS MAJOR.
 RUPPIA MARITIMA.

ELEOCHARIS OLIVACEA.
 SPARTINA STRICTA,
 var. ALTERNIFLORA.

A few references to localities of rare plants out of the limits of the catalogue have been included, when they were the personal observations of the writer or of former Oneida county botanists, or when communicated for this purpose by others, being no other means of preserving the record.

Original descriptions not generally accessible, have been reproduced, of certain rare or interesting plants and others first found in this region.

Additions have been inserted during the last season while the printing has been in progress, through the great kindness of JOHN PATERSON, esquire; to whom also is to be referred the unusual accuracy and character of the typography of the work.

UTICA, October, 1865.

(D.)

CATALOGUE OF MOSSES

PRESENTED TO THE STATE OF NEW-YORK

BY CHARLES H. PECK.

ORDER MUSCI.

SUBORDER SPHAGNACEÆ.

1	SPHAGNUM CYMBIFOLIUM,	<i>Dill.</i>
2	“ SQUARROSUM,	<i>Pers.</i>
3	“ ACUTIFOLIUM,	<i>Ehrh.</i>
4	“ CUSPIDATUM,	“

SUBORDER ANDRÆACEÆ.

5	ANDRÆA PETROPHILA,	<i>Ehrh.</i>
6	“ RUPESTRIS,	<i>Turner.</i>

SUBORDER BRYACEÆ.

7	GYMNOSTOMUM CURVIROSTRUM,	<i>Hedw.</i>
8	WEISIA VIRIDULA,	<i>Brid.</i>
9	RHABDOWEISIA DENTICULATA,	<i>Br. & Sch.</i>
10	TREMATODON LONGICOLLIS,	<i>Rich.</i>
11	DICRANUM VIRENS,	<i>Hedw.</i>
12	“ VARIUM,	“
13	“ HETEROMALLUM,	“
14	“ FLAGELLARE,	“
15	“ LONGIFOLIUM,	“
16	“ INTERRUPTUM,	<i>Br. & Sch.</i>
17	“ SCOPARIUM,	} <i>L.</i>
	var. PALLIDUM,	
18	“ UNDULATUM,	<i>Turner.</i>
19	CERATODON PURPUREUS,	<i>Brid.</i>
20	LEUCOBRYUM GLAUCUM	<i>Hampe.</i>
21	FISSIDENS MINUTULUS,	<i>Sulliv.</i>
22	“ SUBBASILARIS,	<i>Hedw.</i>
23	“ ADIANTOIDES,	“
24	TRICHOSTOMUM TORTILE,	<i>Schrad.</i>
25	“ PALLIDUM,	<i>Hedw.</i>
26	“ GLAUCESCENS,	“

27	BARBULA UNGUICULATA,	<i>Hedw.</i>
28	“ CÆSPITOSA,	<i>Schwægr.</i>
29	“ MUCRONIFOLIA,	<i>Br. & Sch.</i>
30	DIDYMODON RUBELLUS,	“
31	POTTIA TRUNCATA,	“
32	TETRAPHIS PELLUCIDA,	<i>Hedw.</i>
33	ECALYPTA CILIATA,	“
34	ZYGODON LAPPONICUS,	<i>Br. & Sch.</i>
35	DRUMMONDIA CLAVELLATA,	<i>Hook.</i>
36	ORTHOTRICHUM STRANGULATUM,	<i>Beauv.</i>
37	“ LEIOCARPUM,	<i>Br. & Sch.</i>
38	“ LUDWIGII,	<i>Schwægr.</i>
39	“ HUTCHINSIÆ,	<i>Smith.</i>
40	“ CRISPUM,	<i>Hedw.</i>
41	SCHISTIDIUM APOCARPUM,	<i>Br. & Sch.</i>
42	GRIMMIA PENNSYLVANICA,	<i>Schwægr.</i>
43	RACOMITRIUM ACICULARE,	<i>Brid.</i>
44	“ MICROCARPUM,	“
45	HEDWIGIA CILIATA,	<i>Ehrh.</i>
46	BUXBAUMIA APHYLLA,	<i>Haller.</i>
47	DIPHYSCIUM FOLIOSUM,	<i>Web. & Mohr.</i>
48	ALTRICHUM UNDULATUM,	<i>Beauv.</i>
49	“ ANGUSTATUM,	“
50	POGONATUM BREVICAULE,	<i>Brid.</i>
51	POLYTRICHUM COMMUNE,	<i>L.</i>
52	“ FORMOSUM,	<i>Hedw.</i>
53	“ JUNIPERINUM,	“
54	“ PILIFERUM,	<i>Schreb.</i>
55	TIMMIA MEGAPOLITANA,	<i>Hedw.</i>
56	AULACOMNION HETEROSTICHUM,	<i>Br. & Sch.</i>
57	“ PALUSTRE,	<i>Schwægr.</i>
58	BRYUM PYRIFORME,	<i>Hedw.</i>
59	“ ANNOTINUM,	“
60	“ NUTANS,	<i>Schreb.</i>
61	“ ROSEUM,	“
62	“ WAHLENBERGII,	<i>Schwægr.</i>
63	“ ARGENTEUM,	<i>L.</i>
64	“ PSEUDO-TRIQUETRUM,	<i>Schwægr.</i>
65	“ CÆSPITICIUM,	<i>L.</i>
66	MNIUM AFFINE,	<i>Bland.</i>
67	“ PUNCTATUM,	<i>Hedw.</i>
68	“ SUBGLOBOSUM,	<i>Br. En.</i>
69	“ SERRATUM,	<i>Brid.</i>
70	“ SPINULOSUM,	<i>Br. En.</i>
71	“ CUSPIDATUM,	<i>Hedw.</i>
72	“ LYCOPODIOIDES,	<i>Br. En.</i>
73	MEESIA ULIGINOSA,	<i>Hedw.</i>
74	BARTRAMIA CÆDERI,	<i>Swartz.</i>
75	“ POMIFORMIS,	<i>Hedw.</i>
76	“ FONTANA,	<i>Brid.</i>
77	“ MUHLENBERGII,	“
78	FUNARIA HYGROMETRICA,	<i>Hedw.</i>
79	PHYSCOMITRIUM PYRIFORME,	<i>Br. & Sch.</i>
80	APHANORHEGMA SERRATA,	<i>Sulliv.</i>

81	FONTINALIS GIGANTEA,	<i>Sulliv. & Lesgt.</i>
82	“ NOVÆ-ANGLIÆ,	“
83	“ DALECARLICA,	<i>Br. En.</i>
84	DICHELYMA FALCATUM,	<i>Myrin.</i>
85	“ CAPILLACEUM,	<i>Br. En.</i>
86	LEUCODON BRACHYPUS,	<i>Brid.</i>
87	LEPTODON TRICHOMITRIUM,	<i>Mohr.</i>
88	ANOMODON OBTUSIFOLIUS,	<i>Br. & Sch.</i>
89	“ ATTENUATUS,	<i>Hub.</i>
90	LESKEA POLYCARPA,	<i>Hedw.</i>
91	“ OBSCURA,	“
92	“ ROSTRATA,	“
93	THELIA ASPRELLA,	<i>Sulliv.</i>
94	MYURELLA CAREYANA,	“
95	PYLAISÆA INTRICATA,	<i>Br. En.</i>
96	PTERIGYNANDRUM FILIFORME,	<i>Hedw.</i>
97	HOMALOTHECIUM SUBCAPILLATUM,	<i>Br. En.</i>
98	PLATYGYRIUM REPENS,	“
99	CYLINDROTHECIUM CLADORHIZANS,	“
100	“ SEDUCTRIX,	“
101	NECKERA PENNATA,	<i>Hedw.</i>
102	CLIMACIUM AMERICANUM,	<i>Brid.</i>
103	“ DENDROIDES,	<i>Web. & Mohr.</i>
104	HYPNUM TAMARISCINUM,	<i>Hedw.</i>
105	“ DELICATULUM,	<i>L.</i>
106	“ SCITUM,	<i>Beauv.</i>
107	“ ABIETINUM,	<i>L.</i>
108	“ PALUDOSUM,	<i>Sulliv.</i>
109	“ TRIQUETRUM,	<i>L.</i>
110	“ BREVIROSTRE,	<i>Ehrh.</i>
111	“ SPLENDENS,	<i>Hedw.</i>
112	“ ALLEGHANIENSE,	<i>C. Mull.</i>
113	“ HIANIS,	<i>Hedw.</i>
114	“ PILIFERUM,	<i>Schreb.</i>
115	“ STRIGOSUM,	<i>Hoffm.</i>
116	“ SERRULATUM,	<i>Hedw.</i>
117	“ RECURVANS,	<i>Schwagr.</i>
118	“ MOLLE,	<i>Dickson.</i>
119	“ SCHREBERI,	<i>Willd.</i>
120	“ CORDIFOLIUM,	<i>Hedw.</i>
121	“ UNCINATUM,	“
122	“ FILICINUM,	<i>L.</i>
123	“ CRISTA-CASTRENSIS,	“
124	“ IMPONENS,	<i>Hedw.</i>
125	“ REPTILE,	<i>Michx.</i>
126	“ CURVIFOLIUM,	<i>Hedw.</i>
127	“ MOLLUSCUM,	“
128	“ HALDANIANUM,	<i>Grev.</i>
129	“ RUGOSUM,	<i>Ehrh.</i>
130	“ SALEBROSUM,	<i>Hoffm.</i>
131	“ LÆTUM,	<i>Brid.</i>
132	“ RUTABULUM,	<i>L.</i>
133	“ VELUTINUM,	“
134	“ RIVULARE,	<i>Br. En.</i>

135	HYPNUM	NOVÆ-ANGLIÆ,	<i>Sulliv. & Lsgr.</i>
136	"	POLYMORPHUM,	<i>Br. En.</i>
137	"	HISPIDULUM,	<i>Brid.</i>
138	"	SUBTILE,	<i>Hoffm.</i>
139	"	ADNATUM,	<i>Hedw.</i>
140	"	RADICALE,	<i>Brid.</i>
141	"	ORTHECLADON,	<i>Beauv.</i>
142	"	RIPARIUM,	<i>Hedw.</i>
143	"	DENTICULATUM,	<i>L.</i>
144	"	MUHLENBERGII,	<i>Br. En.</i>

Of the 144 species named above, 104 were found in the town of Sandlake, Rensselaer county, N.Y. The remaining 40 species are partly from the vicinity of Albany, and partly from the Helderberg and the Catskill mountains.

(E.)

FACTS AND OBSERVATIONS

TOUCHING THE FLORA OF THE STATE OF NEW-YORK.

BY ONE OF THE REGENTS.

THE Regents, relying upon the sympathy and assistance of the botanists of the State, have commenced putting the State Herbarium in order, and propose to augment and perfect it, and to collect full and accurate materials for a new and complete catalogue of the plants of the State.

The contents of this paper will, it is hoped, sufficiently indicate the nature of the information which the Regents wish to acquire as materials for the proposed catalogue. Any addition to, or correction of, any one of the original lists contained in this paper, will be thankfully received. All plants intended for the herbarium, and all communications, should be addressed, as heretofore, to "S. B. WOOLWORTH, LL.D., Secretary of the Regents, Albany." Where a plant not indicated in TORREY'S Catalogue nor in the additional list herein given, or a new station of a rare plant, is discovered, the fact should be communicated, and the most perfect and best prepared specimens of the plant should be sent with the communication.

In 1853, the State published "A Catalogue of the Cabinet of Natural History of the State of New-York," &c. To this Dr. TORREY contributed Lists of the Plants described in the State Flora, and also a List of "Plants discovered and collected since the publication of the Flora." These lists compose what is herein meant by TORREY'S Catalogue, or the Catalogue of 1853, and includes 1537 species.

The last mentioned list—the list of plants discovered since the publication of the Flora, is not now easily accessible, and, therefore, is republished here.

ROBINIA VISCOSA.	SALIX ERIOCEPHALA.
VICIA CAROLINIANA.	SALIX ANGUSTATA.
STELLARIA LONGIPES.	MELANTHIUM HYBRIDUM.
TRIFOLIUM INCARNATUM.	CAREX STEUDELII.
PYRUS MALUS.	CAREX PANICULATA.
ŒNOTHERA RIPARIA.	CAREX VULGARIS.
GALIUM CONCINNUM.	CAREX TORTA.
PHLOMIS TUBEROSA.	CAREX GRISEA.
LITHOSPERMUM LATIFOLIUM.	CAREX PLATYPHYLLA.
ONOSMODIUM CAROLINIANUM.	CAREX COMOSA.
AMARANTHUS TAMARASCINUS.	PANICUM PAUCIFLORUM.
CHENOPODIUM MURALE.	AVENA SATIVA.
SALIX FRAGILIS.	SPARTINA POLYSTACHYA.
SALIX BABYLONICA.	CINNA PENDULA.

CINNA ARUNDINACEA.

The following species, inserted in the Flora on the authority of PURSH, have not been found in the State by any other botanist, and, probably, never existed therein.

1. SPIRÆA ARUNCUS, L.
2. SALVINIA NATANS, L.

The following species, once spontaneous in the State, and included in the catalogue, there is reason to fear have become extinct. Some of them have been diligently sought for; in vain, in the stations where they were originally found. The PINGUICULA has been extirpated at Rochester, but may exist at or near the upper waters of the Genesee river, and the writer is very confident that it will be found in the Adirondacks.

1. ACONITUM UNCINATUM, L.
2. ZANTHORHIZA APIIFOLIA, L'Hér.
3. TRIFOLIUM INCARNATUM, L.
4. PHLOMIS TUBEROSA, L.
5. PINGUICULA VULGARIS, L.

The following is a list of the plants, so far as is known to me, which have been found growing spontaneously in the State, and which are not included in the Catalogue. The name of the discoverer, or the authority for its insertion, the date of the discovery, and the station, are added to each species, whenever the same are known to me. Some of these plants are mere scapes, and, perhaps, are not entitled to a place in a catalogue of the plants permanently spontaneous in the State. It is believed that the valuable Catalogue of the Plants of Oneida county and vicinity, by the Rev. JOHN A. PAINE Jun., which will be published herewith, will add somewhat to this list, and also to the list of stations hereinafter given.

1. *Reseda luteola*, L. "Roadsides in Western New-York." GRAY'S Manual.
2. *Reseda odorata*, L. Buffalo, 1862 : Garden scape. G. W. C.
3. *Reseda alba*, L. Buffalo, 1862 : Garden scape. G. W. C.
4. *Nasturtium officinale*, L. Common on Long Island : T. F. ALLEN, M.D. Near Rochester : Rev. L. HOLZER. Caledonia, &c. G. W. C.
5. *Nasturtium sylvestre*, R. BR. Spontaneous about Flushing, Queens county : W. H. LEGGETT.
6. *Nasturtium armoracia*, FRIES. Rather common about Buffalo, and abundant on the banks of the Mohawk below Utica. It would seem that it must be diffused by its seed. G. W. C.
7. *Lepidium draba*, L. See Addenda to GRAY'S Manual : D. C. EATON.
8. *Lepidium sativum*. Buffalo, 1864 : Garden scape, and spontaneous in gardens. G. W. C.
9. *Lepidium ruderales*, L. Near Brooklyn : W. H. LEGGETT.
10. *Turritis glabra*, L. New-York city, on 86th-street, 1860 : W. H. LEGGETT. Buffalo, 1863 : DAVID F. DAY, Esq.
11. *Barbarea præcox*, R. BR. Lake Avenue, Rochester, 1864 : Garden scape. Rev. L. HOLZER.
12. *Brassica campestris*, L. Buffalo, on the marshy edge of the river ; only a few plants, 1863. G. W. C.
13. *Raphanus sativus*, L. Buffalo ; a common weed in grain-fields. G. W. C.
14. *Ascyrum crux-andreae*, L. New-Dorp, Staten Island, September 1864 : T. F. ALLEN, M.D.
15. *Silene inflata*, SMITH. Near Fort Richmond, Staten Island, 1860 : T. F. ALLEN, M.D. Abundant near Buffalo, on the Buffalo creek below the Sulphur spring, 1862. G. W. C.
16. *Silene armeria*, L. Buffalo ; spontaneous in gardens, but seldom escaping : D. F. DAY.
17. *Lychnis vespertina*, SIBTH. "Elmira, N.Y. : E. TATNALL." GRAY'S Manual, in the Addenda.
18. *Althæa rosea*, L. Buffalo ; garden scape, rare. G. W. C.
19. *Althæa ficifolia*, L. Buffalo ; garden scape, rare. G. W. C.
20. *Malva moschata*. Buffalo, Portage, Chautauqua county, Cattaraugus county, naturalized. G. W. C.
21. *Rosa setigera*, Mx. Several places near Rochester : C. M. BOOTH, M.D. Near Buffalo. G. W. C. Naturalized, if not native.
22. *Pyrus communis*, L. Grand Island, near Buffalo, in a grove of oak, a single tree ; in the same grove, is an apple tree ; and, as they were, until recently, remote from any dwelling, they are believed to be spontaneous.
23. *Ribes rubrum*, L. In a swamp on the Scajaquada creek, near Forest Lawn, Buffalo, 1863 : D. F. DAY, Esq. Not uncommon, as a garden scape, about Buffalo ; apparently native, in a wooded ravine, below Westfield, Chautauqua county, 1864. G. W. C.
24. *Sedum acre*, L. Buffalo, Williamsville, Niagara Falls, 1863 ; naturalized. G. W. C.
25. *Carum carui*, L. Naturalized, by roadsides and fences, in Erie and Chautauqua counties.
26. *Anethum fœniculum*, L. Buffalo ; garden scape : D. F. DAY.

27. *Coriandrum sativum*, L. Buffalo; garden scape, rare. G. W. C.
28. *Solidago bicolor*, L., var. *concolor*, GRAY. Washington county, Dr. E. HOWE.
29. *Helianthus annuus*, L. A frequent scape from gardens, but seems to become depauperate at once, and soon disappears.
30. *Galinsoga parviflora*, CAV. "Waste places, New-York," &c.: GRAY'S Manual. Brooklyn: A. WOOD. New-York and Flushing, 1864: T. F. ALLEN.
31. *Matricaria parthenium*, L. Garden scape; Buffalo.
32. *Matricaria balsamitæ*, WILLD. Buffalo; seems inclined to perpetuate itself in cemeteries, etc.
33. *Matricaria chamomilla*, L. Near Buffalo, 1864; spontaneous in a garden, and escaping: D. F. DAY & G. W. C.
34. *Tragopogon porrifolius*, L. On a gravelly bank of the Erie railroad, about a mile west of Salamanca, Cattaraugus county, remote from any garden or dwelling, abundant, 1864. G. W. C.
35. *Tragopogon pratense*. Rochester; a single plant: Rev. L. HOLZER.
36. *Artemisia abrotanum*, L. Buffalo, 1863; garden scape, firmly established in the sand of the opposite Canadian shore, by the ruins of a deserted house. G. W. C.
37. *Silybum marianum*. Buffalo; garden scape, 1862, D. F. DAY; 1863, G. W. C.
38. *Onopordon acanthium*, L. Albany, 1827; Queenstown, 1862: G. W. C. Rochester, 1864: C. M. BOOTH, M. D.
39. *Cirsium altissimum*, SPRENG. Buffalo, 1862. G. W. C.
40. *Lactuca sativa*, L. An occasional, but not enduring, garden scape. G. W. C.
41. *Cassiope hypnoides*, DON. "Alpine summits of the Adirondack mountains, Dr. PARRY:" GRAY'S Manual.
42. *Martynia proboscidea*, GLOX. Greenbush, Rensselaer county, 1827; Lewiston, Niagara county, 1863; an occasional garden scape. G. W. C.
43. *Linaria genistifolia*, MILL. "Roadsides, New-York, near the city: H. G. CLARK, LESQUEREUX." GRAY'S Manual.
44. *Lithospermum hirtum*, LEHM. Buffalo, 1862: G. W. C. Rochester, 1864: Rev. L. HOLZER.
45. *Polemonium cæruleum*, L. "Borders of a marsh three miles east of Charlottesville, Schoharie county, New-York: Dr. E. C. HOWE." GRAY'S Manual.
46. *Phlox paniculata*, L. Richfield Springs, Otsego county, in a bushy field; perhaps garden scapes, 1862. G. W. C.
47. *Ipomœa purpurea*, LAM. Buffalo, 1862-4; the outcast of gardens, on rubbish heaps, and, rarely, a scape. G. W. C.
48. *Cuscuta inflexa*, ENGELM. Youngstown, Niagara county, 1864: D. F. DAY & G. W. C. Salamanca, Cattaraugus county, 1864: G. W. C. This is the *C. umbrosa*, BEYR., of Dr. ENGELMANN in GRAY'S Manual; but whether it be the *C. umbrosa* of the State Flora, quære?
49. *Lycopersicum esculentum*, MILL. Buffalo; a frequent scape, almost naturalized. G. W. C.

50. *Physalis philadelphica*, LAM. Buffalo, 1863; brought by railroad trains? G. W. C.
51. *Physalis pubescens*, L. Buffalo, 1863. G. W. C.
52. *Lycium barbarum*, L. Suspension Bridge, Niagara county, 1864; more lushy, and more decidedly armed than when in cultivation. G. W. C.
53. *Gentiana andrewsii*. var. *albiflora*, GRAY ined. Salamanca, Cattaraugus county, 1862: G.W.C. Buffalo, 1864: D.F.DAY. Auburn, Rev. L. HOLZER.
54. *Periploca græca*, L. "Near Rochester, New-York." GRAY'S Manual.
55. *Corispermum hyssopifolium*, L. Buffalo, 1862. G. W. C.
56. *Chenopodium urbicum*, L. Westchester, Westchester county: A. A. ADEE.
57. *Chenopodium urbicum*, L., v. *rhombofolium*, MOQUIN. Buffalo, 1862; Salina, 1864: G.W.C. Rochester, 1854: D.F.DAY. Probably both the species and variety are common in the State.
58. *Chenopodium glaucum*, L. Salina, 1862; Albany, 1863; Buffalo, 1864: G. W. C. The Island of New-York, 1864: T.F.ALLEN.
59. *Rouliera multifida*, MOQUIN. "Waste places, New-York, in and around the city: G. CAREY." GRAY'S Manual.
60. *Amarantus polygonoides*, L. Albany, 1864: G. W. C. This is the *Amaranthus deflexus*, WILLD.? of the State Flora, as appears by the specimen in the State Herbarium. But *Euxolus deflexus*, RAF. (*Amarantus deflexus*, L.) is credited, by GRAY'S Manual, to waste places about the city of New-York.
61. *Montelia tamarascina*, GRAY. "I have another species of this section, collected by my friend Mr. G. CAREY in a swamp near Whitehall; but, owing to the confusion that exists in the genus, I am unable to determine without better materials than I can command at present" (State Flora, vol. 2, p. 145). The plant referred to, as appears by a specimen in the State Herbarium, is *Montelia tamarascina*, GRAY; the *Amaranthus tamarascinus* of the additional list of 1853.
62. *Polygonum incarnatum*, ELL. Buffalo, 1863: G. W. C. Rochester, 1854: Rev. L. HOLZER.
63. *Polygonum pennsylvanicum*, L., a var.? with greenish white flowers; Buffalo, 1863: G. W. C.
64. *Polygonum acre*, H. B. K. Buffalo, 1862; Cayuga marshes, 1864: G. W. C. Believed to be common throughout the State.
65. *Rumex altissimus*, WOOD. "Peekskill, MEAD:" GRAY'S Manual. Buffalo, 1864: G. W. C.
66. *Rumex hydrolapathum*, HUDSON, var.? *americanum*, GRAY. Buffalo, 1862; Cayuga marshes, 1864: G. W. C. Probably common in the western and northern parts of the State. It is not clear whether this, or the last species, is the *Rumex britannicus* of the State Flora.
67. *Callitriche autumnalis*, L. Alexandria bay, Jefferson county, 1863: G. W. C.
68. *Euphorbia lathyris*, L. Silver creek, Chautauqua county, 1863, nat.: G. W. C.

69. *Euphorbia pepus*, L. Received from W. M. BEAUCHAMP, Esq., of Skaneateles, 1864; a common garden weed there.
70. *Urtica gracilis*, AIT. Common in the State, at least in the western portion of it.
71. *Naias major*, ALLIONI. In the Onondaga lake, and in the mouth of a stream and pools on the beach of the lake at Liverpool, Onondaga county, September 1864. G. W. C.
72. *Potamogeton robbinsii*, OAKES. "White-Plains, New-York: H. G. CLARK." GRAY'S Manual.
73. *Potamogeton praelongus*, WULF. Niagara river, New-York: WOOD'S Class Book.
74. *Potamogeton niagarensis*, TUCK. Goat Island, just above Luna Island, Niagara Falls: Prof. TUCKERMAN.
75. *Sagittaria heterophylla*, PURSH. Common, in the western part of the State at least.
76. *Smilax glauca*, WALT. Staten Island, common, 1864: T. F. A.
77. *Smilax tamnoides*, L. Staten Island, 1864; one plant only: T. F. A.
78. *Trillium sessile*, L. Rochester, 1863; only one specimen collected: Rev. L. HOLZER.
79. *Hemerocallis fulva*, L. Buffalo; garden scape: G. W. C.
80. *Scirpus pauciflorus*, LIGHTFOOT. "Watertown, near Lake Ontario: Dr. CRAWE." GRAY'S Manual.
81. *Scirpus clintonii*, GRAY in Sill., vol. 38, p. 290. Buffalo, June 1864: G. W. C.
82. *Carex sychnocephala*, CAREY. "Jefferson county, VASEY & KNIESKERN; and Little-falls, New-York, VASEY." GRAY'S Manual.
83. *Carex rostrata*, MICHX. "Cold bogs; Mountains of New-York, New-Hampshire, northward." GRAY'S Manual.
84. *Carex grayii*, CAREY. "Low meadows on the banks of the Mohawk, and of Wood creek, New-York." GRAY'S Manual.
85. *Carex extensa*, GOOD. Coney Island, 1860, and again in 1864: T. F. ALLEN.
86. *Carex mirata*, DEW. "In Greece, eleven miles west of Rochester and six south of Lake Ontario, in 1829, by Dr. S. B. BRADLEY." DEWEY in Sill., vol. 38, p. 290.
87. *Aristida purpurascens*, POIR. Common in Suffolk county, and at High Bridge on the Island of New-York, 1864: T. F. ALLEN.
88. *Aristida tuberculosa*, NUTT. Coney Island, August 1864: T. F. ALLEN.
89. *Poa sylvestris*, GRAY. Buffalo, 1864: G. W. C.
90. *Bromus racemosus*, L. Buffalo, G. W. C.; and, probably, common in the State.
91. *Bromus mollis*, L. "Wheat-fields, New-York and Pennsylvania; scarce." GRAY'S Manual.
92. *Cynosurus cristatus*, L. Rochester and Buffalo, in lawns and court-yards, creeping into the streets, 1864. G. W. C.
93. *Lolium temulentum*, L. Buffalo, 1862: G. W. C.
94. *Triticum vulgare*, L. Common along railroads, and about flouring mills, etc.; very rarely in woods. Not naturalized.
95. *Hordeum distichum*, L. Same remarks.

96. *Secale cereale*, L. Commonish as a culture weed.
97. *Setaria italica*, KUNTH. Buffalo, 1862 : G. W. C.
98. *Equisetum palustre*, L. Squaw and Strawberry Islands, near Buffalo, 1862 : G. W. C.
99. *Woodsia glabella*, R. BROWN. Little-falls, Herkimer county : Dr. GEORGE VASEY.
100. *Aspidium cristatum*, var. *major*, EATON ined. Akron, Erie county, and Caledonia, Livingston county, 1864. G. W. C.
101. *Botrychium virginicum*, var. *simplex*, GRAY. Buffalo, 1864 ; a large form. G. W. C.
102. *Azolla caroliniana*, WILLD. Charlotte, Monroe county : Rev. L. HOLZER. Irondequoit Bay : E. G. PICKETT. Burnt-ship Bay at the foot of Grand Island, 1864 : G. W. C.
103. *Duvalia rupestris*, SULL. One of the HEPATICACEÆ, new to this country, until discovered in Schuyler county by Professor E. G. PICKETT of the People's College, in 1864.

Of the plants named in the foregoing list, it is feared that the following have disappeared from the State.

1. PERIPLOCA GRÆCA, L.
2. CAREX SYCHNOCEPHALA, *Carey*.
3. CAREX MIRATA, *Dewey*.

The following plants have been found growing so near the State, and under such circumstances, as to warrant the belief that they now are growing, or will soon extend themselves to and become natives of the State.

1. *Alyssum calycinum*, . Brock's Monument, Canada, 1863 : D. F. DAY & G. W. C.
2. *Glycyrrhiza lepidota*, NUTT. Canadian shore opposite Buffalo, 1862 : G. W. C.
3. *Dysodia chrysanthemoides*, LAG. On the Lake Huron railway in Canada, opposite Buffalo, 1863 : G. W. C.

The following plants, which are either maritime or principally affect the seacoast, have been found on or near the coast of Lake Erie, within or near the State.

1. *Cakile americana*, NUTT.
2. *Lathyrus maritimus*, BIGELOW.
3. *Euphorbia polygonifolia*, L.
4. *Myrica cerifera*, L. Erie, Pennsylvania, 1864 : G. W. C.
5. *Zannichellia palustris*, L.
6. *Scirpus maritimus*, L.
7. *Calamagrostis arenaria*, ROTH. Erie, Pennsylvania, 1864 : G. W. C.
8. *Tricuspis purpurea*, GRAY. Buffalo, 1862 : G. W. C.

The following plants, which are either maritime or affect the seacoast, have been found in, or in the marshes adjoining the head of, the Onondaga lake.

1. *Ranunculus cymbalaria*, PURSH.
2. *Blitum maritimum*, NUTT. 1864 : G. W. C.
3. *Atriplex hastata*, L.
4. *Salicornia herbacea*, L.
5. *Naias major*, ALLIONI. 1864 : G. W. C.
6. *Zannichellisa palustris*, L. 1864 : G. W. C.
7. *Ruppia maritima*, L. 1864 : Rev. JOHN A. PAINE jr.
8. *Triglochin maritimum*, L.
9. *Juncus bulbosus*, L. 1864 : G. W. C.
10. *Scirpus maritimus*, L.
11. *Leptochloa fascicularis*, GRAY. 1864 : G. W. C.
12. *Panicum proliferum*, LAM. 1864 : G. W. C.

The following are new stations of rare plants, or remarkable stations of common plants, and have not been hereinbefore given.

1. *Clematis ochroleuca*, AIT. New-Dorp, Staten Island. Flowers middle of May; in fruit in June, 1864 : T. F. ALLEN.
2. *Ranunculus pusillus*, POIR. New-Dorp, Staten Island, June 1864 : T. F. ALLEN, M.D.
3. *Nasturtium lacustre*, GRAY. Buffalo, 1863 : G. W. C.
4. *Turritis stricta*, GRAHAM. Lewiston, Niagara county, 1863 : G.W.C.
5. *Draba arabisans*, MICHX. "The counterfeiter's ledge," Akron, Erie county, 1864 : D. F. DAY & G. W. C.
6. *Polanisia graveolens*, RAF. Gravesend, Kings county : J.F.S.SMITH, M.D. ; W. H. LEGGETT, Esq.
7. *Euonymus americanus*, L. High Bridge, Island of New-York, 1860 : T. F. ALLEN.
8. *Desmodium lævigatum*, DC. Patchogue, Suffolk county, September 1864 : T. F. ALLEN.
9. *Viola selkirkii*, GOLDIE. Hanover, Chautauqua county, 1833 : D. F. DAY, Esq.
10. *Viola tricolor*, var. *arvensis*, DC. Buffalo, 1833 : G. W. C.
11. *Potentilla fruticosa*, L. Caledonia, Livingston county, 1834 : G.W.C.
12. *Conioselinum canadense*, T. & G. Portage, Wyoming county, 1863 ; Caledonia, Livingston county, 1864 : G. W. C.
13. *Lythrum salicaria*, L. Flushing, Queens county, August 1864 : T.F. ALLEN, M.D.
14. *Cuphea viscosissima*, JACQ. Fort Washington, Island of New-York, September 1864 : W. H. LEGGETT & T. F. ALLEN.
15. *Lonicera oblongifolia*, HOOK. Akron, Erie county, 1864 : D. F. DAY & G. W. C. Caledonia, Livingston county, 1864 : G. W. C.
16. *Eupatorium hyssopifolium*, L. Abundant in Suffolk county, 1864 : T. F. ALLEN.

17. *Aster spectabilis*, AIT. Suffolk county, 1864 : T. F. ALLEN.
18. *Aster concolor*, L. Suffolk county, 1864 : T. F. ALLEN.
19. *Aster ptarmicoides*, T. & G. Niagara county, near the Whirlpool, 1862 : G. W. C.
20. *Solidago tenuifolia*, PURSH. Common on New-York and Staten Islands : T. F. ALLEN.
21. *Rudbeckia hirta*, L. Common on Long Island : T. F. ALLEN. Diffused through the central portions of the State, from Chautauqua county to Albany, in meadows and pastures. G. W. C.
22. *Anthemis arvensis*, L. Fort Hamilton, Queens county, September 1864 : T. F. ALLEN. Bath, Long Island, September 1864 : W. LEGGETT. Rochester, a weed in nurseries : Rev. L. HOLZER.
23. *Cacalia suaveolens*, L. Rochester, 1864 : Rev. L. HOLZER.
24. *Sonchus arvensis*, L. Shore of the Cayuga lake, Tompkins county : H. B. LORD, Esq. Rochester, 1864 : G. W. C. Staten Island, 1864 : T. F. ALLEN.
25. *Pyrola uliginosa*, T. & G. Sphagnous swamp in the Tonawanda reservation, about five miles east of Akron, Erie county, 1864 : D. F. DAY & G. W. C.
26. *Pterospora andromedea*, NUTT. Portage, Wyoming county, 1863 : G. W. C. I have seen it at Niagara Falls, and in two or three places near Albany. So far as I have observed, it always grows under or very near *Pinus strobus*, L.
27. *Ilex monticola*, GRAY. Rock City, Cattaraugus county, 1864. G. W. C.
28. *Hottonia inflata*, ELL. Common on Long Island : T. F. ALLEN.
29. *Pycnanthemum muticum*, PERS. Rochester, 1864 : Rev. L. HOLZER.
30. *Convolvulus arvensis*, L. Buffalo, 1862 : D. F. DAY & G. W. C.
31. *Euphorbia ipecacuanha*, L. Common in Suffolk county, and about Flushing and Jamaica in Queens county : T. F. ALLEN.
32. *Alnus serrulata*, WILLD., was found by D. F. DAY, Esq., in 1863, on Squaw Island, near Buffalo, occupying a very limited station, and, so far as we know, is confined in this region to that station. *A. incana*, WILLD., is the common Alder of the vicinity of Buffalo.
33. *Zannichellia palustris*, L. Flushing, Queens county, 1864 : T. F. ALLEN. Buffalo, 1864 : Rev. L. HOLZER.
34. *Erythronium albidum*, NUTT. Banks of the Buffalo creek near Buffalo, 1863 : G. W. C.
35. *Festuca duriuscula*, L. Buffalo, 1864 : G. W. C.
36. *Eleocharis rostellata*, TORR. "Gathered by me about Flushing, and also about Springfield, Long Island. The form occurring here (as in New-Durham, N.J., where I first found it) is very remarkable for its long proliferous culms, which give it the appearance of grass beaten down by wind or rain ; and it entangles the feet." T. F. ALLEN, M.D.
37. *Carex subulata*, MICHX. Magnolia swamps, Long Island, August 1864 : T. F. ALLEN.

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
1950

RESEARCH REPORT
No. 100

BY
J. H. GOLDSTEIN

AND
M. L. HUGGINS

DEPARTMENT OF CHEMISTRY
UNIVERSITY OF CHICAGO
CHICAGO, ILLINOIS

1950

(F.)

RESULTS OF METEOROLOGICAL OBSERVATIONS.

I. METEOROLOGICAL SYNOPSIS FOR 1864 : TOLEDO, OHIO.

BY J. B. TREMBLEY, M.D.

OBSERVATIONS taken three times per day, by J. B. TREMBLEY, M.D., in the city of Toledo, Ohio : Latitude N. $41^{\circ} 38' 47''.04$; Longitude W. $82^{\circ} 22' 17''.15$.

BAROMETRICAL TABLE, showing the maximum and minimum height for the different months of the year 1864; also the mean monthly height, range, greatest and least daily variation; also the maximum, minimum, mean barometrical range, and greatest and least daily variation for the years 1864, 1863, 1862, 1861 and 1860.

MONTHS.	Maximum height.	Date.	Minimum height.	Date.	Mean height for the month.	Range for the month.	Greatest daily variation.	Rate.	Least daily variation.	Date.
January ..	29.68	2	28.94	13	29.346	0.74	0.38	1	0.02	22
February .	29.79	18	28.64	4	29.187	1.15	.47	1	.03	12
March ...	29.55	22	28.64	18	29.144	.91	.32	28	.03	16
April	29.52	28	28.88	10	29.194	.64	.29	27	.02	14
May	29.89	5	28.92	10	29.162	.47	.22	3	.01	14
June	29.61	28	28.90	9	29.344	.71	.27	8	.00	17
July	29.50	27	29.12	1	29.330	.38	.13	8	.00	27
August ...	29.49	7	28.92	26	29.258	.57	.14	23	.01	16
September	29.48	30	28.98	14	29.256	.50	.27	15	.02	27
October ...	29.62	31	28.93	27	29.200	0.69	.18	31	.02	7
November.	29.67	25	28.58	9	29.229	1.09	.40	9	.05	18
December,	29.85	9	28.63	27	29.185	1.22	0.39	9	0.03	16
1864.....	29.85		28.58		29.236	0.75	0.57		0.00	
1863.....	29.81		28.47		29.280	0.88	1.75		0.00	
1862.....	29.83		28.77		29.297	0.72	0.57		0.00	
1861.....	29.90		28.88		29.354	0.63	0.66		0.00	
1860.....	29.87		28.94		29.330	0.68	0.61		0.00	
Mean Barometer for 5 years, 29.279.										

TABLE showing the maximum, minimum, mean range, and greatest and least daily variation of the thermometer for each month of the year 1864; also the mean temperature of the warmest and coldest day in each month, with date of same.

MONTHS.	Maximum height.		Minimum height.		Mean temperature for the month.	Monthly range.	Greatest daily variation.		Least daily variation.		Mean temperature of the warmest day.		Mean temperature of the coldest day.	
	Date.		Date.				Date.		Date.		Date.		Date.	
January ..	68	28	-15	1	27.254	83.00	23	28	3	29	55.66	28	-11.66	1
February ..	59	23	-6	18	31.829	65.	24	19	3	12	49.00	23	-0.00	17
March ...	67	27	9	21	35.717	58.	37	27	4	30	53.00	23	15.33	20
April	62	21	36	19	46.118	23.	16	19	1	30	56.00	22	39.00	16
May	90	31	37	14	63.196	53.	16	7	3	10	78.22	31	43.00	11
June	98	23	50	1	70.409	38.	31	16	8	1	87.33	25	53.66	1
July	96	30	60	22	75.09	35.	24	5	2	9	83.33	19	65.00	22
August ...	96	11	49	30	71.10	47.	24	10	1	20	85.33	11	60.00	30
September	82	23	45	30	61.519	37.	24	23	6	27	71.00	23	50.00	30
October ..	65	5	23	9	48.006	37.	22	20	1	28	61.00	5	37.66	8
November,	70	29	13	13	41.641	57.	22	25	2	10	65.33	29	22.00	22
December.	54	2	1	9	27.64	53.	23	23	0	23	51.00	2	6.66	8
1854.....	93		-15		49.95	49.90	37		0		87.33		11.66	
1863.....	95		6		51.069	48.58	28		0		85.33		16.33	
1862.....	97		-2		51.316	45.25	35		1		87.00		16.33	
1861.....	95		-4		50.338	46.66	30		0		87.00		9.66	
1860.....	94		10		49.343	44.13	41		2		83.00		2.66	
Mean Temperature for 5 years, 50.41.														

TABLE showing the mean temperature of each month of the years 1860, 1861, 1862, 1863 and 1864; also the mean of each year.

MONTHS.	1860.	1861.	1862.	1863.	1864.
January	28.87	25.55	27.090	34.104	27.254
February	30.56	33.00	27.317	31.166	31.820
March	42.56	35.88	34.835	35.244	35.717
April	48.37	49.43	49.350	48.615	46.119
May	63.96	55.01	60.147	63.060	63.190
June	64.18	69.48	66.186	68.275	70.400
July	72.00	70.26	79.900	74.507	75.090
August	70.21	71.43	74.170	72.950	71.103
September	59.16	62.90	65.064	61.651	61.519
October	50.87	53.38	53.824	44.878	48.000
November.....	37.33	39.91	40.785	44.163	40.641
December.....	24.05	38.14	36.125	34.223	27.641
Mean for year.	49.343	50.368	51.316	51.069	49.900

TABLE showing the mean temperature of the seasons 1860, 1861, 1862, 1863 & 1864

SEASONS	1860.	1861.	1862.	1863.	1864.
Spring	51.63	46.77	47.977	48.973	48.008
Summer	68.79	70.40	73.418	71.91	72.164
Autumn	49.12	52.06	53.557	50.23	50.052
Winter	29.765	25.53	30.849	30.43	31.106

* Two months : January and February.

TABLE showing the depth of snow, and amount of melted snow and rain in inches precipitated during each month of 1864; also the aggregate amount for the years 1864, 1863, 1862 and 1861.

MONTHS.	Snow in inches.	Melted snow and rain in inches.
January	12.500	0.375
February	3.250	0.9375
March	7.750	1.9375
April	5.000	4.75
May .....	.....	2.1875
June .....	.....	3.5
July .....	.....	3.25
August .....	.....	4.211
September .....	.....	7.006
October	0.125	1.6875
November	6.500	5.8125
December	13.000	1.5
Year 1864	48.125	37.1545
“ 1863	86.813	33.837
“ 1862	63.000	43.998
“ 1861	41.370	39.664
Mean for 4 years.	59.827	38.6633

TABLE showing the direction from which the wind blew; number of clear, variable and cloudy days; number of days in which it rained and snowed during each month of the year; also the same for the years 1863, 1862, 1861 and 1860.

MONTHS.					No. of clear days.	No. of variable days.	No. of cloudy days.	No days which it rained.	No. days which it snowed.	Prevailing Winds.
	SW & W.	NW & W.	NE & E.	SE & S.						
January ..	66	10	12	5	8	7	16	2	9	Southwesterly and westerly.
February .	68	14	2	3	3	12	14	3	6	Southwesterly and westerly.
March	42	33	15	3	3	14	14	10	4	Southwesterly and westerly.
April	27	22	38	3	1	9	20	18	1	Westerly and northeasterly.
May	47	22	22	2	3	21	7	11	....	Southwesterly and westerly.
June	28	13	44	5	9	14	7	9	....	Northeasterly.
July	56	18	13	6	6	21	4	7	....	Southwesterly.
August ...	47	14	30	2	6	16	9	10	....	Southwesterly and northeasterly.
September	47	16	19	8	8	15	7	11	....	Southwesterly.
October ...	48	22	16	7	3	13	15	6	3	Westerly.
November.	68	8	7	7	4	11	15	7	5	Southwesterly.
December .	64	12	11	6	1	9	21	4	7	Southwesterly.
1864	608	204	229	57	55	162	149	98	35	Westerly.
1863	482	230	300	81	68	140	157	92	35	“
1862	520	202	282	88	80	143	142	103	46	“
1861	580	192	218	105	70	185	110	51	43	“
1860	501	217	229	148	127	78	161	100	34	“

II. ABSTRACT OF OBSERVATIONS FOR 1864: NEWBURY, VERMONT.—By DAVID JOHNSON.

1. METEOROLOGICAL SYNOPSIS.

MONTHS.	THERMOMETER.					WINDS.								WEATHER.									
	6 A.M.	12 M.	6 P.M.	Highest.	Lowest.	Range.	Mean heat	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Clear.	Cloudy.	Rain.	Snow.	Snow and rain.	Inches of snow.	Warmest day.	Coldest day.
January..	16.0	26.8	23.0	42	-16	58	21.8	...	...	...	1	...	28	...	10	13	2	5	1	16	24th	7th
February.	17.3	28.9	25.2	46	-28	74	24.1	...	...	4	...	...	...	2	10	10	2	4	...	14	24	19
March...	24.4	37.2	34.0	51	4	47	31.7	...	2	...	...	...	9	...	16	13	4	1	...	5	5	21
April....	32.7	50.7	45.4	64	22	42	42.9	...	10	...	3	...	8	...	8	10	7	...	3	9	27	5	
May.....	48.4	66.3	60.8	86	32	54	58.5	...	...	7	...	...	10	...	14	7	9	...	...	...	31	11
June.....	51.2	75.8	70.5	94	35	59	65.9	...	...	2	...	...	10	...	20	23	2	...	...	...	26	10
July.....	58.0	80.0	74.4	92	42	50	71.1	...	1	...	4	...	10	...	15	22	5	...	...	...	19	25
August...	61.2	79.0	71.2	98	48	50	70.5	...	1	...	...	...	19	...	10	11	9	...	...	...	1	30
September	46.5	63.3	58.2	75	34	41	56.3	...	1	...	1	...	15	...	13	10	6	...	...	...	24	26
October..	38.6	49.8	46.0	64	28	36	44.8	...	2	...	2	...	13	...	14	7	13	...	...	...	6	30
November.	31.5	39.2	37.3	61	14	47	36.0	...	1	...	2	...	13	...	12	6	15	...	2	...	10	24	
December.	18.4	26.6	24.0	42	-20	62	23.0	...	6	...	...	...	14	...	11	5	12	...	9	...	33	1
	37.2	51.9	47.5	98	-28	126	45.5	1	24	...	30	...	151	7	153	137	116	84	21	8	86		

2. APPEARANCE OF SPRING BIRDS, &c.

- March 22. Ground birds appeared.
- “ 25. Bluebirds and Robins appeared.
- “ 27. Blackbirds appeared.
- April 7. Frogs heard.
- “ 19. Larks appeared.
- May 6. Barn Swallows and Wrens appeared.
- “ 9. Red Plumtrees in blossom. Orioles appeared.
- “ 10. Bank Swallows and Eaves Swallows appeared.
- “ 10. Bobalinks came.
- May 11. Whippoorwills heard.
- “ 12. Martin-birds and Bumblebees came.
- “ 14. Brown Thrushes and Catbirds came.
- “ 15. Tree-toads heard.
- “ 18. Appletrees in blossom. Tulips in blossom.
- “ 19. Hummingbirds came.
- “ 20. Lilacs in blossom.
- “ 21. Cuckoos heard.
- “ 27. Yellowbirds appeared.

3. MEMORANDA OF THE APPEARANCE OF AURORAS, SOLAR AND LUNAR HALOS, PARHELIA, &c. AT NEWBURY, VERMONT, 1864.

- Febr. 9. Brilliant Aurora, 9 to 11 p.m.
 " 10. Parhelion west of the Sun, 3½ p.m.
 " 10. Bright Aurora, 8 to 10 p.m.
 " 17. Lunar Halo, 8 p.m.
- March 1. Snow-storm commenced at 9 p.m. This storm commenced at New-York city at 9 a.m. same day.
 " 4. Pale Aurora low in the north.
 " 5. Rain-storm commenced at 7 p.m., and rained till 9½ a.m. of the 7th; then rained and snowed till evening. Wind southwest the 5th, southeast the 6th, northwest the 7th.
 " 15. One Parhelion north of the Sun, and one south of it: noon.
 " 28. Slight Aurora, 10 p.m.
- April 3. Solar Halo, 5½ p.m.
 " 8. Aurora with small streamers, 9 p.m.; low in the north.
 " 9. Pale Aurora low in the north, 9 p.m.
 " 22. Lunar Halo, 10 p.m.
 " 24. Brilliant Aurora, 9 to 11 p.m.
- May 2. Solar Halo, 11 to 12 a.m.
 " 6. Slight Aurora, 9 p.m.
 " 10. First Thunder-shower, 4 to 5 p.m.
- August 7. Pale Aurora low in the north, 9 p.m.
 " 16. Rainbow in west, 8 a.m.
 " 19. Brilliant Aurora with streamers, 9 p.m.
 " 26. Top of Moose hillock white with snow.
 " 27. First frost this morning.
- Octo. 20. Bright Aurora low in north, 9 p.m.
 " 21. Bright Aurora low in north, 9 p.m.
- Nov. 19. Pale Aurora, evening.
- Dec. 20. Pale Aurora low in north, 9 p.m.
 " 21. At one o'clock p.m. a furious northeast snow-storm commenced, and continued to the morning of the 22d: twelve inches of snow fell.
 " 23. Mercury 20° below zero at eight o'clock a.m.

III. ANNUAL ABSTRACTS FOR 1863 & 1864 : UNION HALL ACADEMY, JAMAICA, L.I.

BY JOHN N. BRINCKERHOFF.

1863.		Jan.	Feb.	March	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	
Mean Temp. 1st half ..	37.15	31.28	27.25	40.60	49.54	66.33	72.32	79.29	70.64	68.48	53.54	44.55	34.81	
.. 2d half ..	33.30	31.87	34.76	51.35	58.27	68.70	74.95	70.64	54.48	49.64	42.54	42.54	31.62	
Monthly mean	35.22	31.57	31.00	45.97	53.95	67.51	73.63	74.96	61.48	51.59	43.54	43.54	33.21	
Highest degree	50°	52°	49°	70°	90°	95°	84°	96°	84°	84°	69°	64°	53°	
Lowest degree	12°	4°	12°	28°	39°	26°	60°	50°	50°	40°	32°	24°	10°	
Range	38°	48°	37°	42°	51°	69°	24°	46°	46°	44°	37°	40°	43°	
Warmest day	15	19	25	19	20	15	22	3	3	2	4	13	13	
Coldest day	18	4	13	7	5	6	1	29	29	28	25	30	23	
THERMOMETER	WINDS.	N	2	1½	2	½	2	2	1	2	½	2	1½	
		NE	8	6½	8½	5½	5	1½	1½	1½	0	1½	1	
		E	2½	1	1½	2	1	0	0	0	0	1	2½	1
		SE	3	2½	3	3	7	11	11½	9	10½	9	2½	3½
		S	1½	1	3	0	3	2½	5½	5½	1	½	0	1
		SW	3	2½	2	6½	7½	2	8	5½	2	2	1½	3½
		W	2½	3	1½	2	4	7½	1½	6	11½	14	12	11½
NW	10	9½	12	9	3	5½	2½	2½	2½	4½	6	7½		
Total of each month	31	28	31	30	31	30	31	31	31	31	31	30	31	
Prevailing wind	NW	NW	NW	NW	SW	SE	SE	SE	SE	W	W	W	W	
WEATHER	}	Clear	13	12½	16½	16½	20½	18	23	22½	22½	16½	21½	
		Cloudy	18	15½	14½	13½	10½	13	13	8	7½	8½	13½	9½
		Total	31	28	31	30	31	30	31	31	30	31	30	31
RAIN	6	7	8	6	6	7	9	7	7	3	5	10	6	
SNOW	2	3	4	1	0	0	0	0	0	0	0	1	2	
RAIN-GAGE	2.10	3.58	2.92	2.20	4.45	1.60	4.30	3.45	2.21	4.25	7.08	5.30	43.44	
Total fall of rain and snow.														

50.30 Annual mean.

96° Highest degree during the year.

4° Lowest degree during the year.

69° Greatest monthly range.

August 3 : Warmest day in the year.

February 4 : Coldest day in the year.

16½ days north wind in the year.

39½ .. northeast ..

15½ .. east ..

75 .. southeast ..

23 .. south ..

46 .. southwest ..

77½ .. west ..

72 .. northwest ..

365 Total.

W est, prevailing wind of the year.

223 clear days in the year.

142 cloudy days in the year.

365 Total.

80 days on which rain fell.

13 days on which snow fell.

43.44 inches : Total fall of rain and snow.

IV. METEOROLOGICAL RESULTS FOR 1864, AND FOR 28 YEARS NOW ENDED : ROCHESTER, NEW-YORK.

BY CHESTER DEWEY, D.D.

Observations taken at 7 A.M., and at 2 and 9 P.M.

TABLE I : THERMOMETER.

1864.								28 years.		
MONTHS.	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	
Jan.	{ 1st half .	18.38	25.72	34.33	1.33	39°	-4°	60°	25.92	25.51
	{ 2d half .	32.60		44.00	18.00	56	9		25.23	
Feb.	{ ..	30.17	28.46	39.00	10.33	43	8	56	24.24	25.70
	{ ..	26.87		44.00	1.00	54	-2		27.19	
March	{ ..	34.04	31.95	45.67	27.67	57	20	50	30.14	32.30
	{ ..	29.98		44.00	15.67	54	7		34.36	
April	{ ..	42.20	43.18	46.67	37.33	54	32	36	40.97	43.94
	{ ..	44.18		54.33	38.33	66	30		46.94	
May	{ ..	54.00	58.93	68.00	40.33	81	37	44	52.99	56.30
	{ ..	63.54		72.00	53.00	81	48		59.05	
June	{ ..	59.56	67.12	71.33	49.00	82	45	48	63.13	66.04
	{ ..	74.69		83.67	60.00	93	55		68.99	
July	{ ..	72.91	73.50	79.67	64.67	92	60	33	70.25	70.65
	{ ..	74.04		81.33	63.67	93	57		71.04	
Aug.	{ ..	74.93	70.91	83.33	65.00	92	62	44	70.12	68.63
	{ ..	67.15		77.33	55.67	85	48		67.23	
Sept.	{ ..	60.87	59.29	67.33	56.67	79	59	38	63.83	60.37
	{ ..	57.71		70.33	47.00	80	42		56.88	
Oct.	{ ..	49.13	46.50	65.33	37.33	72	34	40	51.32	48.07
	{ ..	44.04		49.00	40.00	54	32		45.08	
Nov.	{ ..	39.51	38.54	64.67	30.00	68	33	48	41.22	38.04
	{ ..	37.58		59.67	25.00	64	20		34.86	
Dec.	{ ..	29.77	28.72	48.67	13.67	54	6	48	30.96	28.65
	{ ..	27.73		41.67	10.67	47	7		25.73	

Mean of year 1864, 47.73 : Range of year, 97°. Mean of 28 years, 47.02.

This Table shows us, Column I, the average temperature for each half-month, and, II, of each month ; III & IV, the highest and lowest mean of each half-month ; V & VI, the highest and lowest temperature of each half, and, VII, the range of temperature in the month ; VIII, the average mean temperature of each half-month, and, IX, of each month for 28 years.

From the table is deduced, 1, the mean temperature of the year, 47°.73, and the range of temperature in this year, 97° ; and, 2, the average mean temperature for 28 years, 47°.02 : the .02 is in excess from the decimals.

In the order *a*, *b*, *c* & *d*,

(a).		(b).
Annual mean temperature.	Annual mean temperature.	
1837 45.72	1851 47.75	
8 45.10	2 47.09	
9 46.72	3 48.30	
1840 47.06	4 47.97	
1 46.36	5 46.76	
2 47.44	6 44.97	
3 44.70	7 45.94	
4 46.77	8 47.64	
5 47.01	9 47.32	
6 48.26	1860 47.58	
7 46.44	1 47.31	
8 47.94	2 47.18	
9 47.59	3 47.30	655.02
1850 47.97	1864 47.73	660.84
655.02	660.84	1315.86 for 28 years.
Mean 46.79 of 1st 14 years.	Mean 47.20 of 2d 14 years.	47.00 mean.

(c). The range of annual mean temperature is here seen to be from $44^{\circ}.7$ in 1843, to $48^{\circ}.3$ in 1853. The annual means, also, are only twice below 45° , and only twice above 48° .

(d). In the 28 years, the range has been, at the hours of observation, from 102° down to 20° below zero, or equal to 122° ; and the same night, at 3 a.m. was 25° below.

To show, on a moment's inspection. *the relative temperature* of any month or half-month, the following Table has been made with much care. The mean temperature of any month or half-month in the 28 years is simply compared with the general average of that time at the bottom. Thus, the general mean of the first half of January 1837 is $25^{\circ}.92$, while the mean of that half in 1837 is $17^{\circ}.02$, or very cold; in 1856, is $15^{\circ}.91$, still colder; in 1857, is $17^{\circ}.04$, less severe; in 1858, is $32^{\circ}.95$, warm for the season; and in 1838, is $36^{\circ}.67$, very warm for this half of January. So we see that both halves of January 1856 and 1857 were far below their general means; and that the first half-months of February 1856 and 1857 were also very cold, while the first half of February 1850 was $34^{\circ}.55$, very warm for the season, and of 1853 was $35^{\circ}.05$, still warmer. Also the general mean of the first half of December was $30^{\circ}.96$, and of that half in 1861 was $37^{\circ}.71$, very warm for the season, as many may recollect; for the mean temperature of some of its days was above 55° , and one exceeded 60° .

TABLE II : Mean Temperature of each half-month and of each month, and the mean of the whole for 28 years, 1837 to 1864 inclusive.

YEAR.	JANUARY.			FEBRUARY.			MARCH.		
	1st half.	2d half.	Month.	1st half.	2d half.	Month.	1st half.	2d half.	Month.
1837	17.02	23.31	20.16	21.64	24.45	23.04	26.36	32.89	29.62
1838	36.67	25.94	31.30	18.29	12.12	15.20	31.65	38.98	35.43
1839	32.02	18.60	25.31	20.22	35.00	27.61	28.71	35.96	32.33
1840	19.19	19.54	19.32	27.78	36.38	32.08	33.98	34.58	34.28
1841	25.85	28.12	27.02	19.62	27.14	23.38	23.82	33.63	28.83
1842	26.44	32.19	29.37	37.88	27.52	30.70	38.11	40.67	39.43
1843	29.69	33.22	31.38	16.88	17.22	17.05	20.29	23.62	22.02
1844	24.33	15.73	19.89	23.82	30.33	27.00	37.48	31.52	33.99
1845	28.15	25.70	26.89	17.48	36.99	27.24	35.40	39.23	37.38
1846	29.54	32.29	25.55	25.88	18.15	21.96	30.49	37.21	33.95
1847	27.67	20.31	23.87	25.93	22.95	24.44	25.20	30.00	27.68
1848	27.60	31.87	29.81	23.26	28.93	26.20	24.78	38.31	31.76
1849	18.67	25.69	22.29	20.94	23.35	22.15	31.58	37.81	35.12
1850	27.36	34.82	30.09	34.55	30.07	32.31	32.73	30.56	31.61
1851	30.06	25.65	27.79	26.60	36.33	31.46	32.20	41.13	36.81
1852	21.60	19.83	20.69	30.26	23.89	26.96	32.84	30.96	31.87
1853	29.69	22.17	25.86	35.05	27.25	31.15	30.53	37.16	33.95
1854	27.74	23.12	25.86	24.07	24.05	24.06	40.17	27.37	33.21
1855	32.22	23.25	27.59	14.79	20.86	17.82	30.47	29.90	30.17
1856	15.91	17.15	16.55	13.53	22.67	17.94	19.33	28.83	24.23
1857	17.04	13.00	14.96	29.12	38.02	33.57	22.07	37.48	30.02
1858	32.95	30.17	31.84	22.52	19.36	20.94	22.93	40.29	31.89
1859	25.67	30.87	28.35	24.37	35.64	30.00	37.02	41.44	39.30
1860	24.69	30.69	27.80	22.67	30.12	26.50	35.22	38.21	36.76
1861	22.36	24.65	23.51	27.05	32.10	29.57	30.98	31.56	31.28
1862	22.89	26.52	24.76	24.83	24.67	24.75	30.64	31.52	31.10
1863	33.33	28.35	30.76	23.36	28.88	26.12	25.02	31.35	28.29
1864	18.38	32.60	25.72	30.17	26.87	28.46	34.04	29.98	31.95
Means	25.92	25.23	25.51	24.24	27.19	25.70	30.14	34.36	32.30

YEAR.	APRIL.			MAY.			JUNE.		
	1st half.	2d half.	Month.	1st half.	2d half.	Month.	1st half.	2d half.	Month.
1837	39.64	43.37	41.50	54.27	55.06	54.68	66.64	64.84	65.74
1838	37.40	37.73	37.56	48.40	51.13	52.39	66.54	70.71	68.62
1839	49.04	50.12	49.58	52.96	56.13	54.54	57.89	61.29	59.59
1840	42.86	54.71	48.78	52.51	65.87	59.37	62.98	67.02	65.00
1841	35.24	45.15	40.20	44.98	63.04	54.30	69.55	69.51	69.53
1842	43.64	49.64	46.79	51.11	56.29	53.85	58.82	65.69	62.25
1843	39.88	49.42	44.65	54.69	52.99	53.82	56.13	69.27	62.70
1844	52.98	52.89	52.93	57.35	60.56	59.01	60.22	68.04	64.13
1845	38.13	54.46	46.29	55.55	51.75	53.66	67.12	63.92	65.02
1846	41.40	52.93	47.16	56.97	64.42	60.82	64.82	67.91	66.37
1847	40.69	41.62	41.15	55.98	62.45	59.32	60.98	66.44	63.71
1848	43.44	43.42	43.43	56.04	65.08	60.71	62.91	73.24	68.02
1849	43.26	43.33	43.80	48.69	58.46	53.73	64.47	73.26	68.86
1850	37.42	47.76	42.59	49.75	52.73	51.28	67.07	72.04	69.56
1851	41.36	46.31	43.83	54.35	61.75	58.27	60.56	70.64	65.60
1852	36.58	42.53	39.55	56.02	57.73	56.90	63.78	69.07	66.42
1853	39.27	48.13	43.70	52.46	58.83	55.75	70.62	73.20	71.91
1854	39.13	45.60	42.36	55.60	60.50	58.13	65.16	71.71	68.43
1855	37.31	53.02	45.17	53.22	59.82	56.66	59.11	68.16	63.63
1856	40.51	51.89	46.20	52.44	56.85	54.72	64.76	73.28	69.02
1857	37.33	39.23	38.28	47.64	59.27	53.62	60.93	66.56	63.74
1858	45.75	44.11	44.93	52.93	54.71	53.88	63.73	77.73	70.73
1859	40.93	42.13	41.03	59.71	61.83	60.81	59.55	67.31	63.43
1860	42.07	45.00	43.53	61.44	62.08	61.77	63.51	69.11	66.31
1861	42.18	48.91	45.54	49.20	54.35	51.86	66.89	65.95	66.42
1862	39.64	47.27	43.45	52.60	58.73	55.76	60.67	64.67	62.67
1863	37.95	48.47	43.21	50.85	64.63	57.96	62.69	66.47	64.58
1864	42.20	44.18	43.18	54.00	63.54	58.93	59.56	74.69	67.12
Means	40.97	46.94	43.94	52.99	59.05	56.30	63.13	68.99	66.04

TABLE II (Concluded).

YEAR.	JULY.			AUGUST.			SEPTEMBER.		
	1st half.	2d half.	Month.	1st half.	2d half.	Month.	1st half.	2d half.	Month.
1837	68.24	68.85	68.55	70.22	65.31	67.69	61.60	57.89	59.74
1838	74.49	71.04	72.74	69.31	67.46	68.64	60.40	58.71	59.55
1839	67.53	73.08	70.30	64.34	66.42	65.65	62.34	55.19	58.76
1840	69.07	70.40	69.75	65.89	71.19	68.62	60.51	55.09	57.80
1841	67.40	69.49	68.63	68.70	68.85	68.81	67.60	59.73	63.67
1842	66.46	71.23	68.96	65.93	69.21	67.63	63.09	53.13	58.11
1843	66.69	69.04	67.91	68.95	68.71	68.89	62.24	60.22	61.23
1844	68.69	68.89	68.79	66.93	64.21	65.53	65.60	54.94	60.27
1845	71.07	69.37	70.19	69.42	70.46	69.95	60.90	56.00	58.45
1846	70.75	70.67	70.70	74.24	67.54	70.78	72.07	58.71	65.39
1847	71.53	70.81	71.16	68.98	65.79	67.73	61.16	55.89	58.52
1848	68.84	71.77	70.39	72.13	69.60	70.85	62.20	52.42	57.31
1849	71.16	71.71	71.44	67.67	71.50	69.06	63.44	59.12	61.38
1850	73.69	71.79	72.71	71.78	67.29	69.46	62.15	58.73	60.44
1851	67.85	72.58	70.29	69.25	66.27	67.72	68.80	55.11	61.96
1852	72.90	70.64	71.69	66.20	69.95	68.14	65.53	55.36	60.44
1853	69.42	69.33	69.38	76.11	66.33	71.06	66.47	58.42	62.45
1854	72.55	76.90	74.80	70.02	71.31	70.69	68.24	58.29	63.26
1855	70.20	73.77	72.04	71.02	65.21	68.02	66.98	58.95	62.96
1856	70.84	76.04	73.52	69.80	63.30	66.44	65.13	54.76	59.94
1857	70.91	73.35	72.16	71.09	63.75	67.30	67.20	54.64	60.92
1858	73.22	69.37	71.21	73.47	64.37	68.67	66.27	56.20	61.23
1859	70.38	69.54	69.94	72.31	65.06	68.59	57.09	59.44	58.26
1860	65.71	67.75	66.76	67.93	67.81	67.87	60.02	54.87	57.44
1861	68.00	69.27	68.66	68.29	66.94	67.59	63.73	58.07	60.90
1862	71.80	69.31	70.52	72.89	66.73	69.71	64.25	60.60	62.42
1863	74.22	68.96	71.51	74.98	64.65	69.67	61.51	54.42	57.96
1864	72.91	74.04	73.50	74.93	67.15	70.92	60.87	57.71	59.29
Means	70.25	71.04	70.65	70.12	67.23	68.63	63.83	56.88	60.37

YEAR.	OCTOBER.			NOVEMBER.			DECEMBER.		
	1st half.	2d half.	Month.	1st half.	2d half.	Month.	1st half.	2d half.	Month.
1837	47.22	46.69	46.95	42.91	40.51	41.71	30.86	27.52	29.37
1838	50.73	39.12	44.74	38.29	27.04	32.66	26.53	18.83	22.56
1839	54.84	52.62	53.70	37.89	30.76	34.32	34.75	23.33	28.86
1840	53.33	42.15	47.56	42.29	31.86	37.07	29.33	21.21	25.14
1841	48.18	41.60	44.79	41.96	31.96	36.96	37.44	24.04	30.53
1842	52.68	45.91	49.19	42.19	28.22	35.20	29.63	25.98	27.74
1843	48.64	38.52	43.42	30.80	35.11	32.95	28.09	32.58	30.44
1844	47.13	40.36	43.63	39.20	30.46	34.83	29.95	26.23	28.03
1845	52.53	44.98	48.63	40.82	34.40	37.61	22.89	22.64	22.76
1846	52.67	39.94	46.06	47.31	36.35	41.83	28.84	28.31	28.57
1847	50.53	44.21	47.27	45.37	35.91	40.64	37.31	27.29	32.34
1848	46.72	47.06	46.90	35.42	36.22	35.82	37.22	31.16	34.10
1849	49.44	48.06	48.73	50.04	42.60	46.32	29.71	26.94	28.28
1850	49.33	47.02	48.14	45.84	37.84	41.84	29.04	21.85	25.66
1851	55.62	46.25	50.78	35.36	33.96	34.66	26.87	20.65	23.66
1852	56.38	47.79	51.95	39.31	33.11	36.21	37.02	31.75	34.30
1853	46.58	45.51	46.02	41.16	42.20	41.68	32.09	22.75	27.27
1854	55.67	49.77	52.52	39.38	35.84	37.58	25.56	23.79	24.71
1855	50.20	44.15	47.08	46.87	34.07	40.47	33.82	24.97	29.26
1856	57.79	45.04	48.31	40.93	36.44	38.69	38.20	20.12	24.03
1857	52.07	42.61	47.18	42.53	29.60	36.07	35.44	31.21	33.26
1858	51.22	50.35	50.77	37.98	31.93	34.96	32.09	27.83	29.89
1859	51.25	38.71	44.77	42.40	39.11	40.75	25.07	20.40	22.66
1860	48.78	52.08	50.49	44.91	34.38	39.64	25.31	26.85	26.11
1861	55.33	47.33	51.04	41.22	33.84	37.53	37.71	28.77	33.10
1862	58.04	44.31	50.96	39.38	36.91	38.14	33.60	30.37	31.93
1863	50.89	46.29	48.52	42.75	37.87	40.31	32.31	25.40	28.74
1864	49.13	44.04	46.50	39.51	37.58	38.54	29.77	27.73	28.72
Means	51.32	45.08	48.07	41.22	34.86	38.04	30.96	25.73	28.65

The mean annual temperature of

	Latitude.	Feet.	Years.	Mean.
Rochester,.....	43° 07'	516 above the sea.	28	47°.02
Albany	42 31	130 "	24	48.43
Potfdam	44 40	394 "	23	43.61
City of New-York	40 42	22 "	32	51.54
London, England	51 31	"	53	48.50
Washington, D.C.	38 53	50 "	12	56.14
Fort Sullivan, Maine ..	44 54	70 "	70	48.02
State of New-York, from all the two means.....			25 } 25 }	46.74 to 46.92

Other results follow.

TABLE III : Range of Half-monthly and Monthly Means for the 28 years.

Month.	First half, and its mean of 28 years.	Second half, and mean of 28 years.	Month, and mean of 28 years.
Jan.	15.9 to 36.7=20.8 25.92	13.0 to 34.8=21.8 25.23	15.0 to 31.8=16.8 25.5
Feb.	13.5 to 35.1=21.6 24.24	12.1 to 38.0=25.9 27.19	15.2 to 33.6=18.4 25.7
Mar.	19.3 to 40.2=20.9 30.14	23.6 to 41.4=17.8 34.36	22.0 to 39.4=17.4 32.3
April	35.2 to 53.0=17.8 40.97	37.7 to 54.7=17.0 46.94	37.6 to 52.9=15.3 43.9
May	45.0 to 61.4=16.4 53.00	51.7 to 65.9=14.2 59.05	51.3 to 61.8=9.5 56.3
June	56.1 to 70.6=14.5 63.13	61.3 to 77.7=15.4 69.00	59.6 to 71.9=12.3 66.0
July	65.7 to 74.5=8.8 70.25	67.7 to 76.9=9.2 71.04	66.7 to 74.8=8.1 70.6
Aug.	64.3 to 76.1=11.8 70.12	63.3 to 71.5=8.2 67.23	65.5 to 71.1=5.6 68.6
Sept.	57.1 to 72.1=15.0 63.83	52.4 to 60.6=8.2 56.88	57.3 to 65.4=8.1 60.4
Oct.	46.6 to 58.0=11.4 51.32	38.5 to 52.6=14.1 45.08	43.4 to 53.7=10.3 48.1
Nov.	30.8 to 50.0=19.2 41.22	27.0 to 42.6=15.6 34.86	32.7 to 46.3=13.6 38.0
Dec.	22.9 to 37.7=14.8 39.96	18.8 to 32.6=13.8 25.73	22.5 to 34.3=11.8 28.6
	Mean 47.09	Mean 46.88	Mean 47.0

The mean of the monthly means of the first half of the months, 47°.09, a little exceeds, and of the second half, 46°.88, falls a little below, the mean of the months, 47°.0. It is curious that the mean temperature of the two halves of the months differs so very little from the mean of the months.

In this Table, the difference in the means appears greater in the colder months than in the warmer months. This is chiefly owing to the fact that in the colder months the morning observations, and in part the evening observations also, are made at an hour nearer to the colder or coldest part of the day. Then, too, it is not consecutive temperature that is shown in these highest and lowest means of half-months in these 28 years. Thus we see, looking at the table for the first half of January, that the range of these half-monthly means is from 15°.9 to 36°.7, or 20°.8. Yet we may see in Table II that 15°.9 was the mean of this first half of January 1836, and 36°.7 belonged to 1838. So also the lowest and highest means of the means of the first half of July in the 28 years belonged to different years, 65°.7 in Table III to 1860, and 74°.5 to 1838; and here the range of the highest and lowest is only 8°.8.

This Table shows that the temperature of July is more equable than in any other month : the mean heat of the first half of July is 70°.25, and of the last half is 71°.04; or the means of the two halves for 28 years differ only four-fifths of a degree. August is the next month for equableness of temperature, and June is next to that.

The greatest difference in the means in Table III occurs in the last half of February; 12°.1 in 1838 being excessively low, and 38°.0 in 1857 being the other great extreme for the season.

TABLE IV : Amount of Variation of extreme cold in the winter months, and in March of each year.

DATE.	Zero or below.	Below all day.	Times below each month.	DATE.	Zero or below.	Below all day.	Times below each month.
1837 January ..	2 — 4°	d		1852 January ..	8 — 2°		
..	3 — 3		4	..	20 — 8		2
February .	13 — 2			1853 January ..	26 0		1
..	18 — 4		2	1854 December.	19 — 5		
1838 March ...	2 — 3			..	20 — 3		2
..	3 — 1		2	1855 February .	6 — 20	d	
1839 January ..	1 — 1			..	7 — 20		4
..	23 — 4			1856 January ..	8 — 2		
..	24 — 2	d	5	..	9 — 8	d	
February .	1 0		1	..	26 0		5
1840 January ..	3 — 3			February .	3 — 3		
..	4 — 2			..	6 — 1		
..	16 — 3			..	12 0		
..	17 — 2		4	..	13 — 6		
1841 January ..	3 — 1			..	14 — 8		
..	4 — 4			..	15 — 7		8
..	18 0		3	March ...	9 — 5		
February .	12 0		1	..	10 — 4		3
March ...	17 — 5		1	1857 January ..	16 — 3		
1842 Not below.				..	18 — 16	d	
1843 February .	17 0			..	22 — 6		
..	18 — 3		2	..	23 — 8		
1844 January ..	27 — 1			..	24 — 3		
..	28 0		2	..	26 — 5		10
1845 January ..	19 — 1		1	1858 February .	24 — 2		1
1846 February .	19 — 3		1	1859 January ..	9 — 6		
1847 February .	23 — 2			..	10 — 10	d	4
..	24 — 2			December.	23 0		
..	26 — 1		3	..	29 — 6		2
1848 January ..	10 0			1860 February .	3 — 4		1
..	11 — 2		2	December.	15 — 1		1
1849 January ..	9 — 12		1	1861 February .	7 — 12		
February .	13 — 1			..	8 — 11		2
..	16 — 5			1862 Not below.			
..	17 — 5		4	1863 February .	4 — 6		2
1850 December.	13 — 1			1864 January ..	1 — 1		
..	31 — 4		2	..	2 — 4		2
1851 January ..	30 — 6			February .	17 — 1		
December.	16 — 2			..	18 — 2		
..	17 — 1			..	19 — 2		3
..	26 — 6						
..	27 — 6		4				

On this Table it is seen that the observations, for twenty-eight years, at or below zero, were in January 47, in February 35, in December 11, and in March 6, equal to 99; and the sum of the three daily observations in these four months is 3395, and the proportion is $= \frac{99}{3395} = \frac{1}{34}$ nearly: that the proportion for January is $\frac{47}{868} = \frac{1}{17}$, for February $\frac{35}{791} = \frac{1}{22}$, for December $\frac{11}{868} = \frac{1}{79}$, and for March is $\frac{6}{868} = \frac{1}{144}$. March is rarely down to zero: December, nearly twice as many times. Near a week of severe weather in January 1857 must give a low average; and turning to a previous table, we see that the mean of the last of January 1857 was only thirteen degrees. The coldest was in 1855, or 20 degrees below zero at evening and next morning observations, in February, at the hours of observation; and at 3 $\frac{3}{4}$ a.m., 25° below. The mark d means that the temperature was all day below zero: only six instances in the twenty-eight years.

The extremes of cold have been greatest in the last half of the years of observation. This may be only the common varying change, and to be the contrary in the next 28 years; but is more probably due to the clearing off the forests, and exposing the country to the more powerful action of cold. When these observations were begun in 1837, the original forest stood on a great part of the land now in the city limits of Rochester. The change has been very great and extensive over Western New-York, in the removal of the forests. NOAH WEBSTER long since showed, in his Essay on Climate, the operation of this change, viz. to make the heat of autumn later, and also the cold of spring later; to freeze the earth to greater depth, and delay the advance of heat later in the spring; and to produce greater changes in the temperature.

To obtain these tabular results has taken in 28 years, with the leap-years, 10227 days; three observations a day, 30881 observations; one-third the sum of each day, besides the means of each half month and whole month, and of each year, etc. No wonder so few apply their time and study to such a stupid round, yet essential to desired results.

II. BAROMETER AND RAIN-GAGE.

IN the following Table are given the monthly average height, the highest and lowest mean, the highest and lowest observation, and the range in the month, all for 27 years; the water fallen in the month, and the monthly average for 28 years.

TABLE V.

MONTHS.	Mean.	Highest Mean.	Least Mean.	Highest.	Lowest.	Range.	Water.	Average 28 years
January ..	29.39	29.76	28.81	29.85	28.61	1.24	2.91	2.077
February ..	29.29	29.76	28.84	29.85	28.76	1.09	1.18	2.030
March	29.37	29.72	28.81	29.77	28.74	1.03	3.44	2.077
April	29.41	29.69	29.14	29.73	29.12	0.61	3.23	2.441
May	29.32	29.63	29.09	29.63	29.05	0.58	6.54	2.987
June	29.52	29.76	28.97	29.78	28.87	0.91	1.57	2.961
July	29.51	29.73	29.28	29.74	29.24	0.70	1.66	3.325
August ...	29.42	29.67	29.03	29.68	29.01	0.67	5.49	2.816
September	29.45	29.79	29.14	29.82	29.08	0.74	1.83	3.237
October ...	29.33	29.66	28.86	29.67	28.78	0.80	5.51	3.253
November.	29.40	29.90	28.65	29.93	28.48	1.45	2.66	2.756
December.	29.31	29.98	28.83	30.04	28.64	1.40	2.67	2.510
Mean.....	29.39			Range of year....		1.56	38.69	32.470

From this Table are deduced, 1° The height of the barometer for the year, 29.39 inches, and its range in the year, 1.56 inch; 2° The water fallen in the year, 38.69 inches, and the average of water for 28 years, 32.47 inches in depth. The water of 1864 far exceeds the average.

The average height of barometer from 1838 to 1864 inclusive is 29.53 inches, with a range varying from 28.24 inches to 30.47, and making the range of 2.23 inches for the 27 years.

The water fallen has a higher interest, as is shown in the annual amounts.

TABLE VI.

1837	30.61 inches.	1851	24.970 inches.	
8	25.46	2	35.065	
9	30.09	3	32.505	
1840	29.34	4	29.423	
1	30.53	5	33.913	
2	33.19	6	24.356	
3	30.21	7	42.591	
4	26.17	8	35.900	
5	34.44	9	31.300	
6	37.13	1860	29.779	
7	38.99	1	34.804	Sums.
8	32.03	2	37.590	
9	32.87	3	30.140	449.550
1850	38.49	1864	38.690	461.026
	<u>449.55</u>		<u>461.026</u>	<u>910.576</u>
Mean,	32.11 for 14 years.	Mean,	32.930 for 14 years.	Mean, 32.52 for 28 years;

and exceeds that in Table v by only $\frac{5}{1000}$ ths inch.

The range of water in these years is from 24.356 to 42.591 inches. In 1847 the water was 38.99, and in 1838 was 25.46. The water has not exceeded 39 inches but once in 28 years, and has been below 30 inches seven of the 28 years. The range is chiefly between 30 and 35 inches. Are we able to trace, to any definite results in vegetation, even the extreme annual differences of the water fallen?

III. INTERESTING FACTS AND SPECIAL PHENOMENA.

THE Year 1864 commenced with very severe weather in the Mississippi valley; the storm having begun on the last day of 1863, with a heavy rain, and snow, wind and cold towards evening. The Newyear was the coldest ever known at St. Louis; 19° to 24° below zero, and out of the city 25° below. The snowstorm was great all over the west: At Memphis, the cold was 10° below zero; at Cairo, 16° below; at Louisville, $9\frac{1}{2}^{\circ}$ below, though rain was falling there at noon the day before at 47° ; at Chicago, Newyear 22° below, in the suburbs 28° to 30° below, and below zero for seven days; at Bloomington, Illinois, Lat. $40\frac{1}{2}$, 20° to 30° below zero, and for the first nine days the average at sunrise was 15° below; at Milwaukee, 30 to 40° below; at Madison, Wisconsin, 34° below, and 39° below on January 2, so that the mercury congealed at the Hervey Hospital; at St. Paul, much below zero, 38° below on the 2d, 30° below on the 3d, and for three days not warmer than 10° below, while at Fort Snelling, and more exposed places in that vicinity, the cold of the 2d was -50° by the spirit thermometer; at Minneapolis, Minnesota, Lat. 45, 30° below and not above 20° below all day, 28° below on the 2d, and for three days not higher than 10° below; at Cincinnati, 8 to 10° below zero, while the day before (December 31) there was rain all over that section, when at 8 p.m. the western blast brought the snow and lowered the temperature 54° in three hours; at Indianapolis, 20° below, and two days of snowstorm; at Buffalo, the storm began at 4 a.m. with rain, and at 9 p.m. the cold was 9° below zero, the violent wind driving the waters of Lake Erie over the lower part of the city, and destroying the railroad, a greater flood than for 16 years; at Rochester, the storm began early, thermometer 32° at 7 a.m., fell to 1° below zero at 9 p.m., and was 4° below next morning (the 2d); at Toronto, very cold on the 2d; at Os-

wego, heavy storm of snow, and cold 8° below zero on the 2d; at Albany, 4° below zero on the 2d at 7 a.m.; at Philadelphia, 8° below on the 2d; at Pittsfield, Massachusetts, 3° below zero on the 2d, and less than 10° above all day, while at Boston the same day the cold was only 3° to 10° above, with westerly gale; at New-York, 10° , and as the cold wind poured upon the harbor, the rising vapor was suddenly condensed into a thick sweeping fog, presenting over the waters the appearance of a vast smoking furnace.

This storm was less severe in Ohio, and still less farther eastward. The belt of greatest cold passed from north of west to south of east, so that the cold was greater in Pennsylvania than in Massachusetts. The weather was cold at Washington and on the Potomac. The storm moved, like all our great storms, from west to east widening southwards. In some places, cattle, fowls, sheep, etc. were frozen to death: some men also perished.

If we recur to the "Cold Period" of February 7 to 16, 1861, which affected New-England and this State and along the Atlantic slope, the storm of 1864 was less severe as a whole, and shorter in duration, but much heavier in Western New-York and in Michigan, than was the storm of the former date. Then at Rochester the thermometer marked 12° below zero on February 7, and 11° below next morning; at Grandville, Michigan, 25° below; and, to mention no more, at New-York city, 9° below zero, and the Bay presented more strikingly and awfully the appearance of an immense smoking furnace than in January 1864.

The violent wind in the above-mentioned storm of January 1 & 2, 1864, extended from west of the Mississippi river eastwards over this State, diminishing in force especially in New-England. Here (at Rochester) it continued two days, and at the west still longer, and greatly aggravated the storm. It was not so terrific as in some of the tornados which will be mentioned. On the 31st December, the signs of storm were strong here: wind southeast, and some snow fell; in Ohio and over the west, rain from the east prevailed, till the wind came in its fury from the west. Several instances of storms, less violent, but of great extent, have occurred in the year, with similar characters. They all sustain the conclusion of ESPY on the course and progress of the storms in the United States.

The observations here for the twenty-eight years also show the great proportion of the general winds to be from the south of west; the storms beginning with an easterly or northeasterly, or sometimes southeasterly or southwesterly wind, and changing to some point between northwest and southwest, and thus the direction continues mostly from the south of west till another change. The direction of the clouds, and especially of the higher ones, shows this conclusively. The local and changeable winds of the surface are readily marked, and should be distinguished from those which even at the surface have the direction of the general wind. As this is a matter of great importance in observations, let it be illustrated in one or two cases*.

Thus in January 1864, of the 93 daily notices of the winds shown above by the clouds, 79 are between northwest and southwest, and only 13 from all other directions; and of these 13, even 10 are from the northeast, a general and not a local wind. In the column of surface winds, which differ from the direction as shown by the clouds, there are only 30 observations; showing that the surface and the cloud winds were in the same direction at 63 times of recording.

In the following February, of the 87 observations by the clouds, all but 5 were between northwest and southwest; and the surface winds differing

* Where there are two strata of clouds, which are shown by openings in the lower tier, the course of the upper is taken, and its direction is readily seen.

in direction from the cloud winds occurred only 32 times, while the surface and cloud winds were 55 times from the same point.

In the following August, of the 93 observations by the clouds, 83 were between northwest and southwest, and only 10 from different directions; and the surface winds from a different point than that of the clouds were 26.

January was colder than usual in England, France, &c. At Suez, Egypt, in latitude near 30° , a notice, dated January 26, 1864, states that ice was formed a few days before; a phenomenon previously unknown there.

February 17. Another cold period and storm from the west, and, like the preceding, colder at the west: Begun at Chicago on the 16th, snowstorm, 8° below zero; Muscatine, 7° below; Milwaukee, 10° below; Desmoines, 7° below; Springfield (Illinois), 2° below; at Rochester, on the 17th, 1° below, and 2° below on the 18th; on the 18th, reached Belfast, Maine, and the cold there was 15° below zero. The more severe weather in the valley of the Mississippi, beginning with the frost of August 1863, has continued in cold periods through 1864.

June 6. Snowstorm on Mount Washington, New-Hampshire; the snow 6 inches. June 11 & 12, some frost, slight.

The *Hot Period*, from June 16 to 26, was peculiar; not that the heat was so great in midday as often occurs in summer, but was great through the night as well as the day, so that this period was more like the hot weather of Virginia or Georgia. This hot period extended widely over the country, and was remarked at the south and west. At this city the heat at 2 p.m. ranged from 80° to 93° , the daily means varied from $71^{\circ}.3$ to $83^{\circ}.7$, and the average of the means was $78^{\circ}.3$. If the average exceeds 70° , the day is *warm*; if it exceeds 80° , *hot* or *very hot*, as the excess may be.

The hottest weather is commonly in the last half of June, in the month of July, or in the first half of August. For comparison, I give the following abstract (Table VII) for these three periods, of the highest mean, and the highest temperature at 2 p.m. (See next page).

In this Table, the variety and the uniformity of the hottest part of the summer are distinctly shown.

In the 28 years, the highest daily mean, or hottest day, was $85^{\circ}.7$, July 17, 1856; at 2 p.m., the mercury showed 102° , July 16, 1845; and for very hot days, the range below this varies from 99 to 90° .

In the 28 years, the hottest day in June, $85^{\circ}.0$, was the 30th in 1855;
 " " July, $85^{\circ}.7$, " 17th in 1856;
 " " August, $84^{\circ}.3$, " 12th in 1853.

In June 1864, the hottest day, $83^{\circ}.7$, was the 25th;
 July " " " $81^{\circ}.3$, " 31st;
 August " " " $83^{\circ}.3$, " 1st.

The hottest day in 85 years at Yale College in New-Haven, Connecticut, was June 26, 1864, being 102° at 2 p.m. It would probably have been the hottest day at Rochester, had not a thunder-shower at 8 p.m. with its wind and rain and hail, cooled the air several degrees. Hot indeed was this sabbath, the 26th; and had the temperature kept up in the evening only to that of the night before, it would have given the highest mean or hottest day in the 28 years; for it would have been 87° , while that of July 1856 was only $85^{\circ}.7$.

The hottest day at Amherst College in 28 years was August 1, 1864.

TABLE VII.

YEAR	Last half of June.		Month of July.		First half of August.	
1837	77°.	88°	77°.	91°	79°.	91°
8	74.7	87	81.7	93	80.3	88
9	69.7	81	78.3	90	69.7	78
1840	74.7	86	81.7	94	73.0	82
1	81.3	91	82.3	96	74.0	89
2	74.0	83	78.6	92	71.3	82
3	77.7	89	81.0	91	76.6	89
4	76.3	88	76.7	90	74.3	86
5	72.3	82	83.3	102	76.3	90
6	77.0	88	83.3	94	82.7	96
7	78.7	91	84.3	96	76.7	84
8	82.0	98	77.7	92	80.7	92
9	81.0	94	84.0	95	75.0	90
1850	82.3	94	82.3	95	78.0	89
1	81.3	92	78.3	92	75.7	82
2	80.0	88	85.3	97	74.7	86
3	84.3	92	77.0	92	84.3	98
4	80.0	90	84.0	96	82.7	88
5	85.0	95	84.7	95	77.7	86
6	84.3	93	85.7	95	79.0	87
7	77.0	86	82.3	93	78.0	87
8	83.0	93	83.3	94	76.7	86
9	82.3	91	83.7	96	79.7	91
1860	76.0	88	77.3	88	81.0	93
1	73.3	82	82.3	91	80.0	88
2	77.3	90	82.0	92	80.7	90
3	78.0	88	79.3	91	80.3	90
1864	83.7	93	81.3	93	83.3	92
	Mean 78.72		Mean 81.38		Mean 77.92	

The drouth of June and July was extensive and severe in this section: only 3.23 inches of water fell here in the whole of these two months. The drouth became injurious in the last half of June, and continued to the first day of August. Our rain began August 1 at 11 p.m.; and on the 4th, more than 2.00 inches of water had fallen. The effect of the drouth on grass and oats and potatos was destructive: of the first, the crop was greatly diminished; on the second, the effect was still more ruinous; and of the third, the early potato crop was almost an entire failure.

As August began with a heavy rain and poured down upon us 5.5 inches of water in the month, all vegetation seemed endued with unusual energy: the indian corn had advanced under the heat and drouth; the other crops at once improved, and that of autumnal potatos was abundant beyond all anticipation. Grass, for the fall feeding of cattle, came on plentifully. Of fruits, the peach crop was not large, but of excellent quality; that of apples, pears, berries, etc. exceeded the hopes of the people. So the Divine Providence wisely varies the course of the seasons, leads man thereby to feel his dependence, and finally crowns the year with his loving kindness and tender mercy. Who shall withhold gratitude, and praise, and worship!

The drouth was severe in England also, a little earlier in the season.

AURORA BOREALIS of August 24. This beautiful light appeared every month in 1864, but in this one instance only was it very remarkable in our latitude. A brief notice is all that is necessary.

A thunder-shower had passed north of Rochester over Lake Ontario, and exhibited a blaze of lightning from 7 to 8 p.m.; and at 9 p.m. another thunder-shower showed its glories south and southeast of us, but the sky cleared again by 9½ p.m. A little later, a beautiful white band, or belt of aurora borealis appeared, lying across the heavens a little north of the

zenith; and parallel to a line or arc from north of west to south of east. It moved slowly southwards; passed the zenith a little after ten o'clock, a magnificent band of the whitest cloud, so white that it seemed uncommonly near to the earth, with slightly jagged edges, yet well defined and slightly waving in its motion; began to leave the eastern horizon by a slow movement westward at 11 p.m., and ere long extended only from the meridian to the western horizon: soon after this, the band disappeared. Over the whole northern canopy was spread the most brilliant white light for an hour, that I had ever conceived of: never had I seen the equal to this evening. My thoughts turned to the Mount of Transfiguration, where the Shekinah outspoke the glorious display of his material heavens. It was more brilliant than the similar aurora of April 9, 1863. The lightning and thunder of the evening were not the source of this magnificent auroral arch; for it appeared where no thunder-showers were in the same horizon, even if they existed at all at the time.

September 2, 3 & 4, were very hot at the west. At St. Louis the heat was 104° at noon of the 2d, 106° at noon of the 3d, and 100° on the 4th. The highest here was only 76° .

September 26, in the evening, three thunder-showers arose: one, far over Lake Ontario; another, south of Rochester; and the last, directly from the west over us. Incessant lightning was displayed, though at a distance too great for much of the thunder to reach us. The last shower showed us its lightnings in flashes on the sky before a cloud could be seen. We observed once more that this *heat-lightning*, as it is named, and which was seen for an hour before the clouds appeared, *was only the flashes of lightning from clouds below our horizon*, and no longer the misnamed heat-lightning, since it revealed the clouds as its source and place. At $10\frac{1}{2}$ p.m. this shower was upon us with its wind, rain and hail, and the most terrific thunder that shook the earth and heavens and threatened destruction to our houses.

October 5. The awful tornado at Calcutta, sweeping the waters upon the city; so that 12000 lives were lost, 110 ships destroyed, and \$40000000 of property destroyed.

November 3. Snow six inches deep at St. Louis, say their papers.

November 6. First hard frost this autumn.

November 9. A violent tornado passed over Chester, and some adjacent towns in Randolph county, Illinois; very narrow in its path, but destructive to buildings and fatal to some lives. Great gale on the Lakes, on the 11th and 12th of this month.

November 19. So far no indian summer, but to-day there is a slight indication of it; but this fine period came not this year. The usual meteors of the 13th did not appear, perhaps hidden by the clouds.

December 10. Canal frozen, two days after the cold period of the 8th, when the temperature was 6° .

December 21. Snowstorm, begun here at $8\frac{1}{2}$ a.m.; at Pittsfield, Massachusetts, at 9 a.m.; at Boston, at 1 p.m.: a heavy storm, railroads blocked up and trains delayed. The snow here was about a foot deep, and sleighing good for a week.

The last half of December gave us the usual average heat of the period, though the mean temperature of the last day of 1864 was $21^{\circ}.3$, more than five degrees less than the general mean. The prospect was fair for a pleasant Newyear.

The health of the people of our State and country has been generally good throughout the year: another motive for gratitude to the Divine Author of our well-being.

IV. VIEW OF STORMS AND THEIR LAWS.

THE remarks before made on the course of some storms may render a more general discussion appropriate.

By the diurnal and annual revolutions of the earth, the sun's action upon our atmosphere must be very unequal and changeable : other causes cooperate, and atmospheric currents are the result. The directions of these currents may be much modified by the configuration of land and ocean, the course of mountain ranges, and the situation of deserts ; but atmospheric stability must be impossible, though the irregularities may be confined within moderate limits. Perfect stability would be complete stagnation ; a result which Divine Providence designed to prevent by the operation of established laws, and which we all see to be fully accomplished.

Over a large part of the United States between the Atlantic and the Rocky mountains, and of British America also east of the same range, the great storms and violent changes of weather begin with moderate wind from some point between northeast and southeast, and in some places southwest. Ultimately the course changes, and the strong westerly wind carries the storm to the east. The general or controlling current of our winds is thus shown to be from the west.

The same is shown by the direction of the clouds, and the more splendidly if there are two tiers of the higher clouds, and that too when there is no storm in action ; so that often, for some days after the storm, the high clouds come generally from some point a little south of west, whatever may be the surface current of the local winds. More than half the time the surface winds have the same, or nearly the same, direction as the clouds. This has been shown by thousands of observations over a great extent of country ; so that a width or zone of nearly thirty degrees of latitude, and extending to sixty degrees north latitude, is proved to have this general current of wind from the west or between northwest and southwest. These are great facts ; and the solution is clear. The observations collected by Professor COFFIN sustain his conclusion that this belt of westerly wind encircles the northern hemisphere. For the present, we need only the fact on this part of North America.

From the cause of the trade-winds within the tropics, their current sweeps across the Caribbean sea into the Gulf of Mexico, augmented by the wind from the northeast towards the equator, and by the wind from the southeast on the south side of the equator. Examination of the map of the northeast part of South America shows that coast to be most favorably situated for the easy ingress of the southern trade-wind to the Gulf of Mexico. This whole volume, below the mountain-tops, is arrested at the west by the high range which passes along the Isthmus west of the Caribbean sea and the Gulf of Mexico, and becomes the Rocky mountains of the north. This range is well situated to direct the winds from the Gulf considerably west of north towards British America, as its general course is from Lat. 20° N.

and Lon. 100° W. to Lat. 60° N. and Lon. 130° W. Ultimately this great body of atmosphere, moving from the southeast or south at the eastern base of the Rocky mountains, unites and mingles with the general current from the west, and together the whole passes eastward to the Atlantic, to supply the place of the atmosphere borne from the east into the Gulf of Mexico and over parts of the United States. In the southern part the current is from east to west, and in the northern from west to east, over the belt of land designated.

The wind from the ocean is commonly warmer than that coming from over land, and the former contains more vapor than the latter. Let equal volumes of two such currents intermingle, and cloud at once is formed : if both be nearly saturated with water, either rain or snow will be formed ; and if the change be extensive, one or the other will fall. When the vapor changes to water, a large quantity of heat is evolved, about one thousand degrees of heat from each pound of vapor. This heat or caloric expands the air which held the vapor, and it consequently rises through the colder air above, while the colder air falls, and thus increases the condensation of vapor into rain or snow. The storm, let it have commenced from any eastward point, meeting with the colder air and the condensation becoming more rapid, will have its direction changed from westward to eastward, and will be swept with the western current towards the Atlantic so long as the elements of storm continue their action. The barometer shows the atmosphere to be lightest at that point or line towards which the winds must blow on each side, so as to bring together the elements for the most powerful action, and produce the greatest changes of temperature.

The magnitude of the storm will evidently be greater or less according to the extent and power of the actions above indicated. In the great storm of January 1810, so extensive over the northern part of our country, the fall of the thermometer was from 60° at noon to 10 or 12° below zero at nine in the evening, and 20° or more below zero the next morning ; while the snow fell abundantly, and the wind was a tornado. So also in the storm at the beginning of the year 1864, when rain came from the eastward on the last day of December, both west and east of the Mississippi, the cold at St. Louis, and wide over that region, was 19 to 30° below zero, January 1 ; a change far greater at the west, than in the State of New-York and farther east. The snow and wind was like that of January 1810. In such cases, the higher and colder atmosphere seems to be precipitated upon the earth for the reason and in the way already mentioned. The great and sudden fall of temperature in many storms seems to require this transfer of atmosphere from a high and cold region to the earth's surface.

All considerable thunder-showers are a fair illustration of the statements above made. In our country their course is from west to east : they begin with a wind from the south or a little east of south, blowing the vapor and clouds northwards towards the great mass of thunder-heads which is capped by a close cirrose cloud, and is moving eastwards by the general upper current acting on the forming mass of the storm. The wind from the south

piles up and accumulates the elements of the incipient tempest : the lightnings fly and the thunders roll ; the warm and cold air are mingled, the temperature falls, and the rain, perhaps accompanied with hail, is poured upon the earth. The velocity of the storm is from twenty to thirty miles an hour ; and such a shower floods the country from west to east for many hundreds of miles, till its force is spent on the Atlantic, unless the disturbing elements fail at a shorter distance.

One of the most extensive thunder-storms of the present century occurred on the evening of January 17, 1817, and was probably confined to the Atlantic coast extending westward to the Alleghanies. The wind had been from the northeast, attended with rain, but with no indications of lightning. At length changes in the wind occurred, and the following appearances were recorded :

At Bowdoin College in Brunswick, Maine, "in the earlier part of the evening", say at 7½ p.m., rain and snow fell, with flashes of lightning. At Boston, rain from the northeast. At Andover, Vermont, in the southeast part of the State, after 10 p.m., snow and lightning with thunder continued to midnight. At Wilmington, thirty miles further south in Vermont, snow fell rapidly, attended with brilliant lightning and heavy thunder, after 10 p.m. At Williams College, northwest part of Massachusetts, perhaps forty miles west-southwest of the last-named place, rain from the northeast had been falling till after 10 p.m., when there came one brilliant flash of lightning with thunder that seemed to rock the mountains, followed by snow and wind from the west ; and in Richmond, twenty miles farther south, the phenomena were similar. At New-York, the northeast rain was changed to storm from the west a little later. The storm extended southwards, crossed Chesapeake bay near midnight, changing from rain to cold and snow from the west ; so that a vessel on the Bay, by the freezing of the sails and cordage, was rendered nearly unmanageable. The storm reached Savannah, Georgia, at 2 a.m. of the 18th, where it was a heavy thunder-storm (This last account was received from an intelligent friend then at Savannah, on his return to his New-England home).

These facts show the rapid lateral motion of this storm ; or, in other words, that the change from the west began on the eastern range of mountains, and extended on a line of one thousand miles from north to south at only a few hours difference in time. The accounts of such storms were then few and imperfect ; and even this one, so full of interest when recalled at this day, attracted attention chiefly to the fact, seen by so many on that night in New-England, of the electric fluid passing off into the atmosphere from the ends of sticks, branches of trees, masts of ships, heads of animals, hats and hands of men, etc. ; a fact so long known as a meteor under the name "*Fire of St. Elmo*", or "*Castor and Pollux*". A splendid instance of this meteor is described by Professor ESPY in his Fourth Meteorological Report, 1857, p. 182.

The extent of the great storms, which originate with an easterly wind, is very various. In some, the change of direction of the wind begins near the Rocky mountains ; and from that point the violent wind from the west first shows itself, as in the storm of January 1, 1864 : in others, the change

begins not far from the Mississippi river ; and yet in others, on the meridian of Lake Michigan or of Lake Erie. In well-known instances a northeast storm extends from the Atlantic only to the summit of the Allegany range of mountains, where it meets with the western general current strong enough to arrest its progress, and even to force the storm back to the Atlantic.

These storms often extend along the eastern coast of the United States to Nova-Scotia ; being more severe at the north or south, as the causes of change are more active and powerful. The equinoctial storm of September 23, 1815, was far more severe on the coast of New-England than south of New-York ; and the greatest damage was done to buildings, trees, and to vessels in ports, by the northeast wind, before the change from the northwest occurred. The violence of this particular northeast wind, even in the western part of Massachusetts 140 miles from the ocean on the east, is yet well remembered. It was shown too by another fact : the salt water of the ocean was blown inland forty miles in sufficient quantity to kill the foliage of trees, which, a few days after the storm, presented the appearance of scorched leaves.

Sometimes the northeast storm extends westward only to the summit of the Green mountains, or that part of the range lying in Massachusetts immediately west of the Connecticut river. On this range the northeast wind and rain meet the wind from the west bearing clouds to the summit of the range, but yielding no rain to Berkshire county or its western or even its middle portion. On the eastern side, on these occasions, a great deal of rain falls ; and in one such case on record, immense damage was done along the streams emptying eastwardly into the Connecticut river. The general west wind here supplied a part of the rain along the mountains ; the opposing currents mingling their vapor, and thereby producing a greater effect. This example shows the great power of the west wind in limiting the extent of a storm from the east, involving a great difference in the quantity of the materials acted upon. If it is urged that such a storm is only the ending of a more extensive one chiefly expending itself over the Atlantic ; even if this were admitted, it would be true that the storm would pass further west, were not the general current from the west the prevailing power.

Another fact demands attention, viz. that a northeast storm begins earlier at the south than further north. FRANKLIN long ago asserted that storms began three hours earlier at Philadelphia than at Boston. The general fact has been so often observed in the last fifty years, that it cannot be doubted ; but the time may vary from three hours, according as the violence is greater or less. The fact itself results from the direction of the eastern coast, and the several obvious differences between the land and ocean winds at the south and at the northern part of the United States.

Thus the direction of the coast is very nearly parallel to a line drawn from Cape Sable at the southern extremity of Florida, to Cape Race on the southeast point of Newfoundland ; or, better still, a line from the east coast of Florida, Lat. 30° N. and Lon. 80° W., to the north point of Newfoundland, Lat. $51\frac{1}{2}^{\circ}$ N. and Lon. 54° W., a course but little east of southwest.

Farther west as Charleston, South-Carolina, is than Boston, it will yet sooner feel the storm, for two reasons. The first is that the ocean-wind there is hotter in comparison with the land-air than it is at the north, so that their mixture will the soonest condense into rain-clouds ; and the second is that the sea-wind at the south commences earlier, is more nearly from the east there, and will sooner come to the storm-making point ; while at the north the sea-wind is more nearly from the northeast, and blows in a line nearly parallel to the coast, and hence must be longer in coming to the point of change requisite for storm. For these reasons, a northeast storm must begin at the south, and make its progress northward along the coast, as it is known generally to do.

The phenomena of our storms do not indicate that they have the form of *cyclones*, or are driven by a *rotatory wind on a line* ; but they appear to have their central line nearly straight and lying not much inclined to a meridian, with their forward direction on a parallel of latitude and somewhat inclined to it, but sometimes quite oblique to the north or south of such parallel. Such is ESPY'S representation in his Fourth Meteorological Report, 1857. His figures of numerous storms, drawn from the descriptions of various observers on the grounds they passed over, together with accounts of the winds, barometer and thermometer at the time, represent the width of the storms from north to south as very different (as already noticed in this paper), as well as their length from west to east. The width varied from 5 degrees of latitude, 300 miles, to 8, 10, 15 and 18 degrees of latitude, or the largest 1080 miles. The width of one, west of the Mississippi river, extended from near the Gulf of Mexico to Lake Superior. The length of the storm, or distance traversed from west to east, is also various. The last one just mentioned traversed from west of the Mississippi, laterally northwards across the States and beyond Nova-Scotia, the whole distance being probably above twelve hundred (1200) miles.

Finally : Let these facts and laws be admitted, and the question arises, Who will be able, with the aid of thermometer and barometer and all this knowledge, to *foretell* what the weather of to-morrow *will be and must be* ? The wisest among us know not yet the minute actions of the causes of change by which great ultimate results are produced. What and where are the activities, under the operation of which this stinging northwester after the snowstorm shall cease this night, and the warm southeaster breathe upon us to-morrow, and end by pouring its liquid treasures "alike upon the just and the unjust" ere the day closes ? — Though much has been attained, more is necessary ; and man must discover it.

MARSH, M.D.; CHARLES WINKLER, M.D.; and I. A. LAPHAM, LL.D.

58. W.	1859. W.&L.	1860. I.A.L.	1861. I.A.L.	1862. I.A.L.	1863. I.A.L.	1864. I.A.L.	No. of Years.	Mean of the whole.
.90	23.89	23.99	21.22	20.30	29.76	18.77	22	22.76
.83	26.96	27.44	27.78	18.35	26.88	25.92	20	25.30
.25	37.45	40.38	31.96	32.40	31.42	30.65	21	33.67
.51	39.50	43.76	44.82	41.60	44.95	40.12	20	43.98
.55	55.01	56.24	50.68	53.65	55.55	55.15	20	53.95
.23	60.35	64.17	64.53	60.84	63.70	65.22	20	64.27
.92	71.59	69.00	68.05	71.09	68.55	71.27	23	70.21
.85	70.80	66.82	69.21	70.63	69.03	69.75	21	68.11
.66	59.29	58.76	63.71	62.29	59.42	60.97	20	61.58
.30	48.16	50.00	50.11	51.00	43.45	45.67	20	48.65
.60	40.28	36.15	36.79	35.35	36.81	32.08	21	35.94
.86	19.67	24.80	31.11	30.74	29.16	20.13	22	25.77
.15	26.24	23.70	24.60	23.25	29.13	24.62	20	24.61
.10	43.99	46.79	42.49	42.55	43.93	41.97	20	43.87
.00	67.58	66.66	67.26	67.52	67.09	68.75	20	67.53
.19	49.24	48.30	50.71	49.55	46.56	46.24	20	48.72
.12	46.09	46.80	46.66	45.69	46.55	44.64	18	46.18

winter of 1856 and the spring of 1857 were the coldest. It will be noticed that no year was so cold, indicated by the table in antique figures, has an annual temperature of five years together, it will be seen that 1853 (46°.71), and with 1863 (46°.36), were very near to the coldest with 1857 was the coldest (42°.56); thus indicating a regular theory of cold and warm terms of years.

I. A. LAPHAM.



V. A TABLE*,

SHOWING the Monthly Mean Temperature of the open air in the shade at Milwaukee, Wisconsin, from 1837 to 1864, as observed by C. J. LYNDE, Esq.; E. S. MARSH, M.D.; CHARLES WINKLER, M.D.; and I. A. LAPHAM, LL.D.
(Lat. 43° 03' N.; Lon. 87° 56' W. Elevation above the sea, 600 feet.)

	1837.	1838.	1840.	1841.	1843.	1844.	1845.	1846.	1847.	1848.	1849.	1850.	1851.	1852.	1854.	1855.	1856.	1857.	1858.	1859.	1860.	1861.	1862.	1863.	1864.	No. of	Mean of
	I.A.L.	I.A.L.	C.J.L.	C.J.L.	E.S.M.	E.S.M.	E.S.M.	E.S.M.	E.S.M.	E.S.M.	M.&L.	I.A.L.	I.A.L.	I.A.L.	I.A.L.	C.W.	C.W.	C.W.	C.W.	W.&L.	I.A.L.	I.A.L.	I.A.L.	I.A.L.	I.A.L.	Years.	the whole.
January ..	18.45	19.00	.....	17.00	.....	24.66	31.46	34.63	18.06	30.86	19.36	27.65	27.25	20.72	.....	22.58	10.21	7.75	30.90	23.89	23.99	21.22	20.30	29.76	18.77	22	22.76
February	20.50	.....	31.49	33.09	28.43	28.49	29.19	19.37	28.84	31.26	28.03	.....	14.50	15.02	27.72	16.83	26.96	27.44	27.78	18.35	26.88	25.92	20	25.30
March	31.20	.....	36.67	41.77	36.87	30.97	35.47	35.94	32.02	39.38	31.98	36.17	27.97	24.10	27.03	35.25	37.45	40.38	31.96	32.40	31.42	30.65	21	33.67
April	55.20	50.90	53.05	47.50	46.20	41.21	40.03	43.64	38.17	43.65	46.70	43.68	33.32	41.51	39.50	43.76	44.82	41.60	44.95	40.12	20	43.98
May	58.27	59.47	58.87	53.64	58.57	49.36	50.10	52.15	54.65	54.24	53.67	51.05	49.19	49.55	55.01	56.24	50.68	53.65	55.55	55.15	20	53.95
June	62.39	67.19	64.79	64.49	68.22	64.75	65.59	63.20	65.66	65.50	59.71	66.76	61.01	67.23	60.35	64.17	64.53	60.84	63.70	65.22	20	64.27
July	65.00	73.00	.....	.....	70.88	70.88	73.88	71.08	73.88	67.63	67.68	72.59	69.02	70.32	74.13	67.69	68.88	68.89	70.92	71.59	69.00	68.05	71.09	68.55	71.27	23	70.21
August	67.09	67.59	69.69	68.12	66.39	67.86	64.98	69.58	67.26	68.13	71.81	65.41	63.91	67.48	68.85	70.80	66.82	69.21	70.63	69.03	69.75	21	68.11
September	66.34	63.04	63.14	64.17	64.14	57.81	.....	59.70	65.52	58.82	65.65	61.45	57.75	61.04	61.66	59.29	58.76	63.71	62.29	59.42	60.97	20	61.58
October	43.25	48.25	50.15	47.23	50.55	50.70	.....	49.35	49.51	53.12	54.13	44.61	47.60	46.81	49.30	48.16	50.00	50.11	51.00	43.45	45.67	20	48.65
November	35.76	31.26	36.16	34.39	39.16	34.56	44.41	41.95	34.45	33.42	37.79	36.61	34.12	29.57	33.60	40.28	36.15	36.79	35.35	36.81	32.08	21	35.94
December	24.90	.....	32.88	30.88	22.38	27.98	28.88	25.78	20.96	24.55	21.98	26.52	27.41	21.87	15.83	30.71	27.86	19.67	24.80	31.11	30.74	29.16	20.13	22	25.77
Winter	20.80	.....	29.68	31.81	28.48	24.84	29.64	21.50	25.82	27.69	23.58	.....	21.50	15.70	17.10	26.15	26.24	23.70	24.60	23.25	29.13	24.62	20	24.61
Spring	50.05	50.71	49.60	44.04	46.74	42.17	40.72	45.06	41.60	44.69	42.78	39.61	36.51	42.10	43.99	46.79	42.49	42.55	43.93	41.97	20	43.87
Summer	66.95	70.25	68.00	68.25	67.90	65.80	69.25	66.49	68.04	70.48	64.27	66.52	65.79	69.00	67.58	66.66	67.26	67.52	67.09	68.75	20	67.53
Autumn	48.55	47.52	49.82	48.60	51.18	47.69	.....	50.33	49.83	48.45	52.52	47.56	46.49	45.81	48.19	49.24	48.30	50.71	49.55	46.56	46.24	20	48.72
Year	48.38	49.94	49.05	47.18	47.74	.....	46.83	47.05	45.70	.....	43.56	41.57	42.55	46.12	46.09	46.80	46.66	45.69	46.55	44.64	18	46.18

* Received too late for reference in the Contents.

THE above Table, which has been compiled with great care from manuscript records in my possession, will be found valuable by enabling us to compare the climate of Milwaukee with that of other places. It will be seen that the general mean temperature, deduced from all the observations, is 46°.18; that the coldest year was 1856 (41°.57), differing 8°.37 from the warmest year 1845 (49°.94): the coldest month is January (22°.76), though in six cases February was the coldest. January, in 1857, was the coldest month known since the first settlement of the place, the mean temperature being only 7¾°. July is the warmest month (70°.21): June, in 1854, was the warmest month. The winter and spring of 1845 were the

most moderate in eighteen years; the winter of 1856 and the spring of 1857 were the coldest. The hottest summer, 1854, was followed by the mildest autumn. It will be noticed that no extreme of temperature, either of heat or cold, indicated by the table in antique figures, has occurred since 1857. If we take the mean annual temperature of five years together, it will be found that the terms ending with 1853 (46°.71), and with 1863 (46°.36), were very near the general mean, while the term ending with 1857 was the coldest (42°.56); thus indicating that there may be some truth in the popular theory of cold and warm terms of years.

I. A. LAPHAM.

VI. TABLE OF THE VARIATION OF THE NEEDLE*.

FOR Use in the Landoffice at Pierrepont Manor in Jefferson County, New York, in Lat. $43^{\circ} 43' 45''$ N. and Lon. $75^{\circ} 56' 57''$ W.; and to apply to Great Tracts N^o 4, 5 & 6, Macomb's Purchase, which were surveyed and allotted from 1795 to 1803.

Made 1823 September 18, and 1856 November 25 :

BY WILLIAM C. PIERREPONT.

VARIATION : Yearly, $5' 14''.4367$; Daily, $0''.86107$.

1797 October 1, no variation.		1840 Nov. 25, var. w. $3^{\circ} 46' 09''.10$	
1797 Nov. 25, var. w. $0^{\circ} 00' 48''.24$		1841	3 51 23.54
1801	0 21 45.99	2	3 56 37.98
1802	0 27 00.43	3	4 01 52.42
1803	0 32 14.87	4	4 07 06.86
1804	0 37 29.30	1845	4 12 21.30
1805	0 42 43.76	6	4 17 35.74
1806	0 47 58.17	7	4 22 50.18
1811	1 14 10.35	8	4 28 04.62
1816	1 40 22.54	9	4 33 19.06
1820	2 01 20.30	1850	4 38 33.50
1	2 06 34.74	1	4 43 47.94
2	2 11 49.19	2	4 49 02.38
3	2 17 03.62	3	4 54 16.82
4	2 22 18.06	4	4 59 31.26
1825	2 27 32.05	1855	5 04 45.70
6	2 32 46.94	6	5 10 00.14
7	2 28 01.38	7	5 15 14.58
8	2 43 15.82	8	5 20 29.02
9	2 48 30.26	9	5 25 43.46
1830	2 53 44.70	1860	5 30 57.90
1	2 58 59.14	1	5 36 12.34
2	3 04 13.58	2	5 41 26.78
3	3 09 28.02	3	5 47 41.22
4	3 14 42.46	4	5 52 55.65
1835	3 19 56.90	1865	5 58 10.10
6	3 25 11.34	6	6 03 24.54
7	3 30 25.78		
8	3 35 40.22		
9	3 40 54.66		

NOTE. The only *actual* observations *preserved* are, 1823 September 18 : $2^{\circ} 16' 05''$
 1847, 4 23
 1856 November 25, 5 10
 1860 July 15, 5 36
 1863, 5 44
 1864 April 12, 5 50
 1865 May 4, 6 00

Theodolite records only to minutes.

* Received too late for reference in the Contents.







NINETEENTH ANNUAL REPORT



OF THE

Regents of the University of the State of New York,

ON THE CONDITION OF THE

STATE CABINET OF NATURAL HISTORY,

AND THE

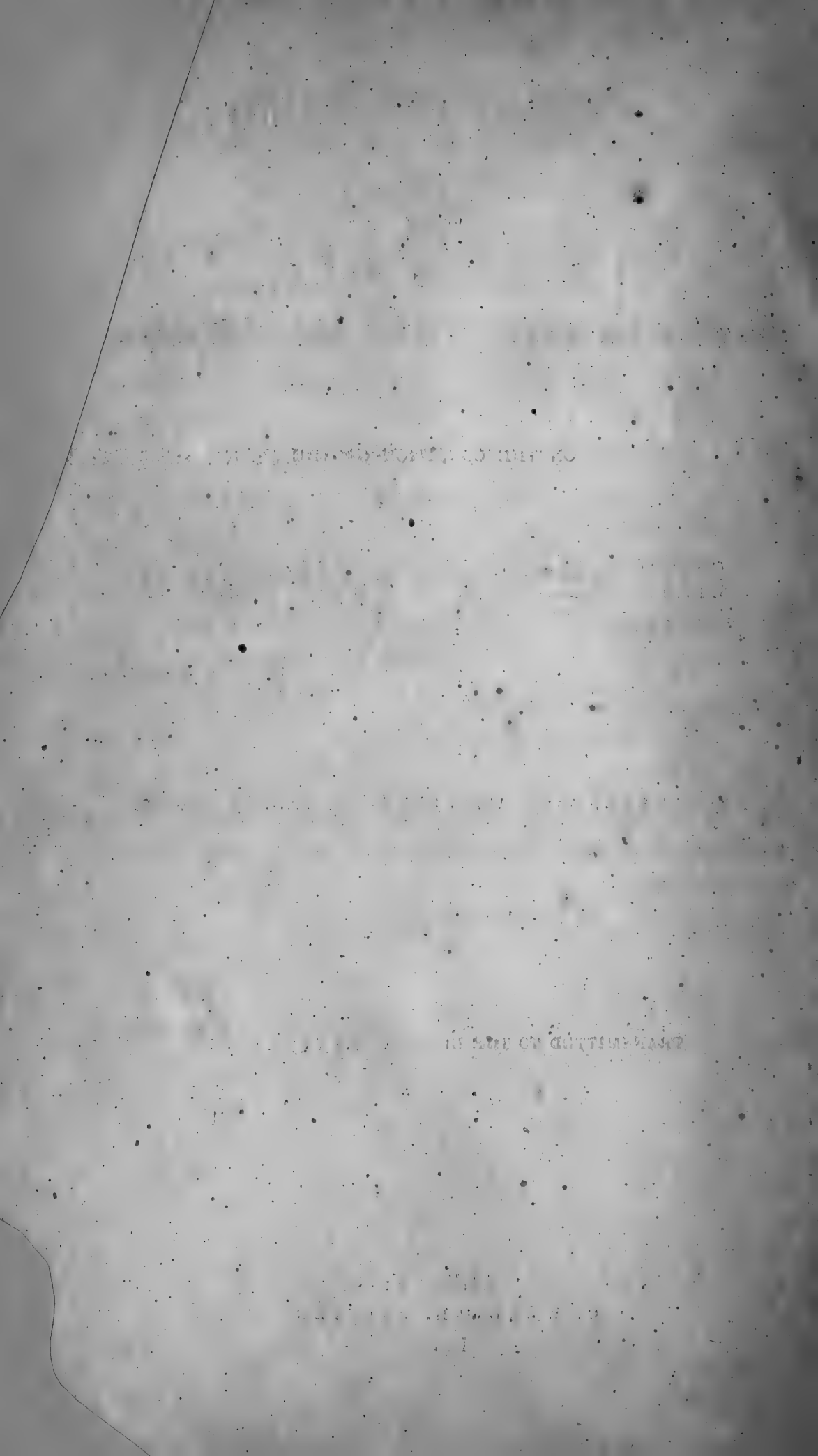
HISTORICAL AND ANTIQUARIAN COLLECTION ANNEXED THERETO.

TRANSMITTED TO THE LEGISLATURE APRIL 2, 1866.

ALBANY:

C. WENDELL, PRINTER.

1866.



State of New York.

No. 89.

IN SENATE,

April 2, 1866.

NINETEENTH ANNUAL REPORT

OF THE REGENTS OF THE UNIVERSITY OF THE STATE OF
NEW YORK, ON THE CONDITION OF THE STATE CABINET
OF NATURAL HISTORY, AND THE HISTORICAL AND ANTI-
QUARIAN COLLECTION ANNEXED THERETO.

UNIVERSITY OF THE STATE OF NEW YORK,

OFFICE OF THE REGENTS,
ALBANY, April 2, 1866.

To the Hon. THOS: G. ALVORD,

President of the Senate:

SIR—I have the honor to transmit the Nineteenth Annual Report of the Regents of the University, on the State Cabinet of Natural History and the Historical and Antiquarian Collection annexed thereto.

I remain, very respectfully,

Your obedient servant,

JOHN V. L. PRUYN,

Chancellor of the University.



REGENTS OF THE UNIVERSITY.

JOHN V. L. PRUYN, LL.D., *Chancellor.*

GULIAN C. VERPLANCK, LL.D., *Vice-Chancellor.*

EX OFFICIO.

REUBEN E. FENTON, *Governor.*

THOMAS G. ALVORD, *Lieutenant-Governor.*

FRANCIS C. BARLOW, *Secretary of State.*

VICTOR M. RICE, *Superintendent of Public Instruction.*

ERASTUS CORNING,

PROSPER M. WETMORE,

GIDEON HAWLEY, LL.D.,

ROBERT CAMPBELL,

SAMUEL LUCKEY, D.D.,

ROBERT G. RANKIN,

ERASTUS C. BENEDICT, LL.D.,

GEORGE W. CLINTON, LL.D.,

ISAAC PARKS, D.D.,

LORENZO BURROWS,

ROBERT S. HALE,

ELIAS W. LEAVENWORTH,

J. CARSON BREVOORT,

GEORGE R. PERKINS, LL.D.,

ALEXANDER S. JOHNSON, LL.D.,

GEORGE W. CURTIS,

WILLIAM H. GOODWIN, D.D.

SAMUEL B. WOOLWORTH, LL.D., *Secretary.*

STANDING COMMITTEE OF THE REGENTS,

Specially charged with the care of the State Cabinet.

1866.

(The Governor) Mr. FENTON,

Mr. CORNING,

(The Superintendent of Public Instruction) Mr. RICE,

Mr. CAMPBELL,

Mr. BREVOORT,

Mr. CLINTON,

Mr. JOHNSON.

CURATOR:

JAMES HALL, LL.D.

REPORT.

To the Honorable the Legislature of the State of New York:

The Regents of the University, as Trustees of the State Cabinet of Natural History, respectfully submit this their

NINETEENTH ANNUAL REPORT.

On the first day of November last, Col. Ezekiel Jewett resigned the Curatorship of the State Cabinet, and at the annual meeting of the Board, on the eleventh of January last, Professor James Hall was appointed to that office. Col. Jewett had discharged his duties with faithfulness and ability, and carries with him on his retirement the best wishes of the Board. The appointment of Prof. Hall seemed eminently proper, both on account of his conceded competency and scientific reputation, and the deep interest which he has taken in plans for enlarging the Cabinet and placing it in the condition required by the present advanced state of Geological science. He has entered on his duties with his characteristic zeal, and the Regents have no doubt that before the close of the year, the result of his labors will be seen in a generally improved condition of every department of the Cabinet. Should the plans for enlarging and improving the Cabinet, communicated by the Regents to the Legislature on the eighth of February last, in response to the resolutions of April twenty-fourth, eighteen hundred and sixty-five, be adopted, their execution will, to a great extent, necessarily be committed to Professor Hall, and will be specially due to him as their author.

A list of the additions made to the Cabinet during the year eighteen hundred and sixty-five, is hereto annexed.

A full collection of the rocks and minerals of the State, suitable for economic purposes, would be of great value in determining the materials proper to be employed in the construction of the proposed new Capitol. It would be a public calamity if, in a structure erected for ages to come, a single stone of a destructible nature should be used: This can only be avoided by a thorough

knowledge of the character of our building materials. Specimens of every such material in the State should be brought into one great depository, and subjected to careful comparison and the most thorough examination. The beginning of a collection has been made, and it will be continued to the extent of the means at the disposal of the Regents. In selecting materials for the great work proposed, the owners of quarries should be invited to furnish specimens of their stone, and these should be deposited for future reference and use in the Cabinet. Science, though of inestimable value in its abstractions, should in every possible way be placed under contribution for advancing civilization and contributing to the development of natural resources.

Dr. Torrey's Flora of the State does not include the Musci, Hepaticaceæ, Lichenes, Algæ and Fungi. To complete the Flora these orders must be added. The Regents are happy to know that our State has several zealous and successful students of these several orders, particularly of the first two named, and that they will be ready to the extent of their means to encourage and aid them.

Mr. Charles H. Peck, of Albany, has furnished valuable lists of the Mosses and Hepaticaceæ of the State, which we herewith submit. We have reason to expect that Mr. Peck will make yearly additions to these lists.

We also annex hereto a second paper, by one of the Regents, entitled "Facts and Observations touching the Flora of the State."

Professor Hall's contributions to Palæontology, intended for the last Report, but unavoidably omitted in the printing, have been very considerably extended, and are herewith communicated.

That veteran observer, Prof. Dewey, has continued his "Meteorological Results." Several other papers on that subject are also added.

Explorations in Natural History can never be pronounced complete. There is always reason to expect new discoveries in all its departments. There are details of our State Geology, such are the peculiar limits and connections of its strata and formations, which are probably not yet absolutely determined. The numerous additions to our Flora, contained in Mr. Paine's Catalogue of "Plants of Oneida County and its Vicinity," invite further search, and promise other valuable discoveries. Observers and explorers are few and scattered, and greatly need a leader and center of operations. Until they are increased in number, animated by the

public recognition of the dignity and utility of their pursuits, and led to cherish a proper State pride and to regard the State Cabinet as the great center of authentic information; there is no hope that the Natural History of the State will be fully known. The Regents therefore deem it their duty to foster local explorations and to extend the warmest encouragement to all who are engaged in them. They cherish the hope that collections, gathered by the united contributions of the naturalists of the State, will not only form one great central depository, but will place it in their power to furnish free gifts to the Colleges and Academies and to local Societies of Natural History. They deem it proper to add, that they have received from many eminent scientific men the most gratifying assurances that the communications accompanying their Annual Reports, and especially the more recent ones, are substantial contributions to science, and honorable to the State.

The Regents recommend that their answer to the resolutions of the Legislature, on the State Cabinet, with the correspondence annexed thereto, be printed as a part of this Report, and for that purpose it is herewith communicated.

Respectfully submitted,

By order of the Regents.

JOHN V. L. PRUYN,

Chancellor of the University.

ALBANY, *April 2, 1866.*

SPECIAL REPORT

OF THE REGENTS OF THE UNIVERSITY, IN RELATION TO
THE STATE CABINET OF NATURAL HISTORY.

UNIVERSITY OF THE STATE OF NEW YORK, }
OFFICE OF THE REGENTS, }
ALBANY, February 8, 1866.

To the Honorable the Legislature:

The Regents of the University, in response to a resolution of the Senate and Assembly, passed April 24, 1865, in regard to the State Cabinet of Natural History (a copy of which is hereto annexed), have the honor to

REPORT:

That on the receipt of a certified copy thereof, the resolution was referred to the standing committee on the State Cabinet, and that the accompanying report of that committee was adopted by the Regents on the 12th day of January, 1866, and ordered to be transmitted to the Legislature as the answer of the Board on the subject referred to them.

I have the the honor to be,

Very respectfully,

Your obedient servant,

JOHN V. L. PRUYN,

Chancellor of the University.

TO THE REGENTS OF THE UNIVERSITY:

The undersigned, to whom was committed the duty of preparing your answer to the resolution passed by the Senate and Assembly on the 24th day of April, 1865, respectfully Report:

That they thought it fit to obtain the views of gentlemen actively engaged in the prosecution of scientific researches, by way of aid in the discharge of the duty imposed upon them, and that they therefore addressed to a large number of gentlemen distinguished in the cultivation of natural sciences, the following circular letter:

OFFICE OF THE REGENTS OF THE UNIVERSITY OF THE }
STATE OF NEW YORK, ALBANY, June 1, 1865. }

Sir—The Senate and Assembly of the State of New York, on the 24th of April last, each adopted the following resolution:

WHEREAS, The collections in geology, mineralogy and other departments of natural history, made by the geological survey of the State, were committed to the charge of the Regents of the University by the act of the Legislature in 1845, and the reports published before and since that period

as the results of the survey, have conferred great credit upon the State of New York, both at home and abroad, and the nomenclature proposed by her geologists has been adopted by other States, and in the geological survey of Canada, and is well known, appreciated and recognized by the scientific men of Europe, and

WHEREAS, Great progress has been made since that period in geological investigations, both here and abroad, and it is due to science, as well as a suitable recognition of the great credit given to the state of New York, that her pre-eminence be sustained by keeping up the character and authenticity of her collections as a museum of practical and scientific geology; therefore be it

Resolved, That the Regents of the University report to the Legislature, at its next session, what means may be necessary, together with a plan, for placing the State Cabinet of Natural History in the condition required by the present state of science, to maintain it in full efficiency as a museum of scientific and practical geology and comparative zoology; and whether the establishment of a system of free lectures in connection with the cabinet is desirable, and if so, on what general plan the same should be founded.

The Regents of the University have committed the duty of preparing their answer to this resolution to their standing committee on the State Cabinet of Natural History.

In the discharge of this duty, the committee desire to avail themselves of the aid of those whose special studies relate to the subject of natural history in any of its branches, and of all who are interested in the increase and spread of knowledge. They trust that the general scientific and economic interests to be subserved by the action contemplated in the resolution, will induce cordial co-operation with them, on the part of those to whom this circular letter is addressed.

They will be obliged to you for the expression of your views and suggestions upon any or all of the following topics, or upon any branch of them:

1st. Plans for placing the State Cabinet of Natural History in the condition required by the present state of science, and for maintaining it in full efficiency as a museum of scientific and practical geology, and comparative zoology.

2d. The proper organization of a scientific staff to carry out such plans and estimates of the proper compensation thereof, and of the other expenditures, temporary or permanent, requisite to the attainment of the ends in view.

3d. The desirableness of a system of free lectures in connection with the cabinet, and if deemed desirable, a general plan for founding such a system of lectures.

Answers are requested as early at least as the 1st of September next, to be addressed to the undersigned at Albany.

I have the honor to be, sir,

Your obedient servant,

S. B. WOOLWORTH,

Secretary of the Regents,

On behalf of the Committee.

The committee are happy to say that they have received answers from a number of gentlemen, and among them Professor James D. Dana, of Yale College; Sir William Logan and Professor T. Sterry Hunt, of Montreal; Professor A. Winchell, of the University of Michigan; Professor Oren Root, of Hamilton College; Professor Alexander Agassiz, of Harvard University; Dr. Franklin B. Hough, of Albany; Professor A. A. Gould, of Harvard University; J. J. Thomas, of Union Springs, N. Y., and Professor James Hall, of Albany. These communications exhibit much laborious thought and careful consideration of the somewhat difficult questions involved in their inquiries. The committee take great pleasure in expressing their thanks to these gentlemen for their disinterested and able discussions of the subject, and they desire especially to note the fact that gentlemen not residing in this State, and connected with other institutions having the same general objects in view, and who might be supposed to be in situations where a feeling of rivalry might be engendered, have contributed their assistance as freely and heartily as if they were themselves responsible for the success of our institution.

The undersigned think it due to the kind efforts of these gentlemen, as well as to the ability and comprehensiveness of their views, that their communications should be submitted to the Legislature.

After a careful consideration of these different projects, they have come to the conclusion that the plan submitted by Professor James Hall, in the preparation of which he had the advantage of knowing all that has been proposed by the other gentlemen whose communications are given, will fully carry out the objects contemplated in the resolution of the Senate and Assembly. Your committee, therefore, recommend that the Board make answer to the resolution of the Senate and Assembly by a communication of this report and of the papers herewith submitted.

REUBEN E. FENTON,
ERASTUS CORNING,
ALEXANDER S. JOHNSON,
GEORGE W. CLINTON,
ELIAS W. LEAVENWORTH,

Committee on the State Cabinet.

NEW HAVEN, Sept. 12, 1865.

To the Board of Regents:

Gentlemen—In reply to the inquiries respecting the establishment of a school for paleontology, at Albany, I offer the following views:

There are many reasons why Albany is an excellent place for such a school. The principal are the following: that it now contains the best collection of fossils in the country, in those of Mr. Hall and the State; that these collections have already become a standard of reference for the world with regard to American species; that the position is on the border of the great paleontological region of New York.

The establishment of such a school implies the establishment of a school of zoölogy as well as of geology and mineralogy; for fossils, excluding fossil plants, are the remains of animals, and the subject cannot be properly taught without instruction in the fundamental principles and details of the animal kingdom. For this purpose zoölogical collections would be required, and instructors in its several departments. The plan adopted by Prof. Agassiz, at Cambridge, with reference to a museum in zoölogy, is a good model.

Instruction in geology would naturally constitute a prominent part of the system in such a school, as the relations of fossils to the strata, and therefore the relations of the strata themselves are subjects of fundamental importance. Mineralogy is also essential, as the rocks are made of mineral, and if mining could be added, the school would be all the more useful to the State and the country.

Instruction in these several departments would of course require courses of lectures, which might, in part, be given by persons not permanently on the ground. I am, however, strongly of the opinion that the school will not have much success unless it can command its professors through the year, and, also, unless recitations are added to the lectures.

It would greatly add to the efficiency of such a school if it could have a number (say half a dozen) of scholarships instituted, which would give a young man of promise three hundred dollars or so a year, and thus make it easy for him to remain a number of years. This would insure the making of thorough students in the different departments. Such paid students would help in the arrangement and labeling of collections as they should come in; moreover, they would make a corps to assist in instruction, or one from which assistants might be selected.

It is desirable that the collections should be arranged in part geographically. The rocks, fossils and living species, as well as minerals and ores of the State of New York, should make one independent collection. Besides this, there should be a general collection of all North American fossils and other specimens; also, another collection of fossils arranged zoölogically and forming a part of the general zoölogical cabinet. Collections in the same departments from all parts of the world are required for comparison with those of America, in order that the relations of American and foreign species may be fully understood, and thereby continental differences and resemblances be studied. Part of the American species are identical with those of Europe and other lands, and for the determination of the fact in such cases, the foreign species should be in the collections. In a word, the collections cannot be too comprehensive.

Very respectfully,

Your obedient servant,

JAMES D. DANA.

MONTREAL, CANADA, December 27, 1865.

To S. B. WOOLWORTH, Esq., *Secretary of the Regents of the University of the State of New York:*

Sir—In your circular dated June 1, 1865, you did us the honor to ask for our views as to the best plan for reorganizing the State Cabinet of Natural History, and in reply we beg leave to submit to you the following suggestions:

There should be established a general museum of Natural History, which should cover the ground occupied by the great scientific surveys of the State, as set forth in your published volumes. Inasmuch, as in these surveys the geological results took the first rank, and as the New York rocks have become the types for the geology of the continent, the science of *geology* should have the first place in the museum, and *botany* and *zoölogy* made subservient to it. To secure this end there should be,

First. A complete collection of rocks, minerals and fossils of the State, and for comparative study good collections of the rocks, minerals and fossils of other parts of the world. In view of the special importance of the organic remains of the New York rocks, and the volumes on paleontology published by the State, which have become classic throughout the scientific world, every means should be taken to make the paleontological collection as complete as possible. For this purpose we would recommend that there should be added to the present State collection that of Prof. James Hall, the most extensive and most valuable collection of fossils in America, and perhaps in the world. This collection possesses an additional importance from the fact that it contains many of the specimens upon which Professor Hall's descriptions have been founded. Other typical collections of fossils should also be procured by purchase or otherwise.

Second. Collections of all the recent plants and animals of the State should find a place in this museum, for the double purpose of a comparative study with the more recent fossil remains, and of illustrating the works on botany and zoölogy already published by the State.

Third. Explorers, collectors, and active investigators in the several departments already mentioned, should be employed, and the results of their labors published in the form of a bulletin or report, to be issued under the editorial care of the director of the museum. This person should be selected for his high scientific attainments and pre-eminent position as a naturalist, and should be one whose name would give a reputation to the museum throughout the scientific world. As geology is to take a pre-eminent position in this museum, the director should be above all a geologist. For his assistants he should have a zoölogist and botanist, who might perhaps be united in one person, and also a chemist and mineralogist to make original investigations, for which purpose he would require a chemical laboratory.

Fourth. Free courses of lectures on the various sciences illustrated by

the museum should be given by the director and his assistants, or by such men as it might be found expedient to invite from without.

The question of the expenditure necessary to the carrying out of this scheme, including the cost of buildings, a library for reference, and the salaries of the officers, is not one easy for us to fix. The salary of the director should, however, in our opinion, be not less than \$3,000 in gold, or its equivalent, while for his chief assistants two-thirds that sum might be paid.

It may be a question whether such a scheme as is here proposed could best be carried out at Albany, or whether the city of New York, the great metropolis not only of the State but of the Union, would not be the most desirable seat for a great scientific institution. It would there be more accessible, and would at the same time be in a position to take advantage of the services of scientific men already there established in the other institutions of the city.

We have the honor to be, sir,

Your most obedient servants,

W. E. LOGAN, F. R. S., F. G. S.,

Director of the Geological Survey of Canada.

T. STERRY HUNT, F. R. S.,

Chemist and Mineralogist to the Geological Survey of Canada.

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

Sir—In reply to the circular which I have had the honor to receive from you, dated Albany, June 1, 1865, I would beg leave to offer the following statements and views:

In considering the nature and organization of an institution to be engrafted upon the "State Cabinet of Natural History," which shall be most useful, appropriate and feasible, the following propositions seem to me to approach the nature of axioms. I shall at least assume them as postulates:

I. The plan must embrace adequate provision for the sacred preservation of the completeness and authenticity of the "State Cabinet of Natural History."

II. The plan should embrace the acquisition of the magnificent cabinet of Prof. Hall, which, besides being the grandest paleontological collection in America, has had bestowed upon it an immense amount of original investigation, and contains more type specimens of American species than can ever again be collected together. Its loss to the State—especially if its public Cabinet is to be maintained and made authentic—could never be repaired.

III. A mere museum, without memoirs, lectures, or instruction in any form, would be in great danger of degeneracy and decay. Activity is the universal law of life.

IV. No provision which is not of a character extraordinary in America will meet the demands of science, of the proud position of the State, or the expectations of the world in reference to the final results of the scientific surveys of the most opulent and enterprising State of the Union.

V. The organization contemplated might result in a university, or in an institution for the cultivation of natural history exclusively; or in an institute for public lectures only.

VI. To secure all the objects deemed desirable and win a success worthy the name of the State, the institution, if an educational one, must be extraordinary, either in its nature or resources. A mere multiplication of the average institutions of learning in the country is to be deprecated.

VII. The mere establishment of an annual course of free public lectures does not seem to present a phase sufficiently scientific to insure the end proposed in the first postulate.

VIII. The provision likely to be granted for a university is not such as would secure the supply of any public want not supplied by existing institutions, even after combining the State Cabinet with the existing law and medical schools, and the astronomical observatory. It would not guarantee sufficient prominence to the department of Natural History to insure the adequate preservation and perfection of the State Cabinet.

IX. An institution for natural history is the only alternative. This, however, should avoid occupying exactly the same field as the Museum of Comparative Zoölogy at Cambridge. At least its sphere should be viewed from a different stand-point—that of geology. The institution might be named “The Museum of Practical Geology.” This name would be adapted to the public taste, and using the term “practical” in its broadest and truest sense, its scope would admit all the highest scientific investigations; while geology at the same time holds the sciences of mineralogy, zoölogy and botany as legitimate accessories.

THE MUSEUM OF PRACTICAL GEOLOGY.

Assuming that an institution of the nature indicated in the last postulate has been decided upon, I proceed to offer a few suggestions under the following heads:

I. *The Collections.*

1. The existing Cabinet of Natural History should be restored in its authenticity to the condition in which it existed at the close of the public surveys. Especially in the departments of geology and paleontology should efforts be made to restore and preserve the original specimens.

2. The illustration of the natural history of the State of New York should be rendered complete in all its departments, and from every section of the State; so that every species, both recent and fossil, shall be represented in all its characters and phases. Especially in geology and paleontology, the museum should be made the standard cabinet of the United States.

3. The methods of arrangement and nature of details may well be left

to the judgment of the director of the museum. It may be mentioned, however, that modern science would demand the creation of the following series of collections:

A. Three series of geological specimens.

(a.) A lithological series, illustrating the succession of rocks with their fossils throughout the world.

(b.) A geographical series, in which the formations of each state or geological area should be exhibited.

(c.) An economical series in its fullest meaning.

B. A paleontological collection, embracing all genera and species of fossils, together with their living analogies, arranged for critical paleontological or zoological studies.

C. A zoological collection. This, besides being completed for the State, should be extended as far as practicable, especially in those classes and orders which afford most assistance in the investigation of fossil organisms. It should be well provided with skulls, skeletons, dissections and microscopic preparations.

D. A botanical collection, completed for the State and extended beyond this as far as practicable. All the vegetable productions and structures embraced in the museum of the State Agricultural Society, would be naturally included in this department. With a scientific view, this collection should be made rich in those orders which present the nearest approaches to the vegetable life of the ancient world.

4. The accumulation of stores of duplicates in every department of the museum should be a prominent object. Such accumulations are useful,

(a.) In determining the geographical range, and the specific variations caused by age, sex, locality, geological epoch or other causes, and thus settling upon the true specific characters, and especially in furnishing the materials for the solution of the higher problems of biological science.

(b.) For exchanges with other museums and with individuals. It would be useful to imitate the example of the Smithsonian Institution by sending out series of authentically labeled fossils to the museums of Europe and America.

5. It would be judicious for the museum, and extremely advantageous to the educational interests of the State, to take especial pains to distribute authentically labeled series of geological specimens to such colleges of the State as maintain a professor of geology and a geological cabinet. The same may be said of zoological and botanical specimens.

6. No student or officer connected with the operations of the museum should have the right to maintain a private cabinet.

7. Every specimen in the exhibition rooms should be so labeled as to convey to the visitor the greatest possible amount of information in the space allotted; and the rooms should be kept open to the public without charge during certain regular hours.

II. THE OPERATIONS.

1. The increase of the number of specimens in all the departments, but especially in geology and paleontology, and those families of zoölogy and botany most directly tributary.

2. The scientific investigation, description and cataloguing of the species and varieties; the arrangement of series for the illustration of species with their varieties; the making of sections and preparations, and the systematic arrangement of the specimens so as to be most convenient and instructive for the student and visitor.

3. Instruction and demonstrations for the benefit of such students as may be admitted to the working rooms of the museum.

4. An annual course of popular lectures might be given by members of the scientific corps and other authorized persons, the object of which should be to set forth the recent advances made in natural history and the applications of natural history to the common wants of mankind.

5. As the institution without the agency of the press would be comparatively mute and inefficient, provision should be made for a certain amount of printing and publication. Such publications might consist of:

(a.) An annual report to the Legislature, which, in view of the other publications, might be comparatively brief.

(b.) A bulletin, issued as often as the state of the work might require, setting forth with adequate pictorial illustrations the principal permanent results of the intervening period.

(c.) An annual volume of selections from the public lectures delivered.

In all publications of the museum no opportunity should be lost for exhibiting the applications of the results obtained to the economies of life, to education and to religion.

III. THE SCIENTIFIC STAFF.

1. The ultimate organization and perfection of the museum, and its operations, would require a scientific staff something like the following:

A director;

A professor of zoölogy and general paleontology;

A professor of botany and botanical paleontology;

A professor of mineralogy and chemical and lithological geology;

A professor of mines and mining;

A taxidermist, dissector and maker of preparations;

A draughtsman;

An engraver;

Collectors.

2. The most indispensable of these officers would be the director, taxidermist, draughtsman, engraver and collectors. The professorships of mineralogy and of mines and mining would address the popular appreciation, and it might be desirable to fill one or both of them among the first. The professorship of botany and botanical paleontology is farthest removed, perhaps unjustly, from the ordinary operations and aims of geology and mining.

3. It is obvious that in an institution which makes geology its specialty, the different chairs should be filled by men eminent in their several departments. The inducements which would command talent of the requisite description are:

(a.) Just pecuniary compensation.

(b.) Facilities for investigation. These consist of raw material, authentically labeled specimens, books, and a publication fund.

4. To secure unity and energy in the counsels and operations of the museum, all its scientific interests and relations, and all its internal affairs, whether scientific, prudential or governmental, should be left to the untrammelled judgment of the director, who should be the sole executive officer of the institution.

IV. THE EXPENSES.

1. The expenditures of the museum would be:

For salaries of the scientific corps;

For publications;

For library;

For making collections;

For incidentals.

2. The amount appropriated for publications would, to a great extent, return to the library in the form of exchanges. Sales in the public market would also reimburse the museum to a certain extent. A considerable share, also, of the amount appropriated for collecting duplicates would reappear in the form of exchanges, collected from localities not easily accessible to the collectors employed by the museum. The present expenditure for printing the "Appendix" to the Regents' Annual Report would be discontinued.

3. As soon as the museum should become sufficiently organized to justify the admission of students, a considerable and constantly increasing portion of the simpler kinds of labor would be performed by them free of charge. They would be glad, also, to engage in the collection of specimens during a part of the year, on the receipt of traveling expenses, or a trifle more.

4. The salary of the director, to command a geologist and naturalist of preëminent attainments, should not be less than \$3,000 per annum. The salaries of the professors should be duly proportioned to that of the director; say not less than \$2,800 each.

5. The whole annual expenditure of the institution on its initiation might be limited to \$10,000 or \$12,000. On attaining its full expansion, as contemplated in the foregoing programme, it would probably reach \$20,000 or \$30,000.

I have not taken the time to amplify or argue the several points presented. I believe that much could be said in favor of every feature of the institution as laid down above; but I have no doubt that your own information, or that of parties accessible to you, will supply the arguments

which, for brevity, I have omitted. I will only add, that I believe the founding of such an institution in America would render the names of the Board of Regents immortal.

I have the honor to be,

Very respectfully,

Your obedient servant,

A. WINCHELL,

Prof. Geol., Zool. and Bot., University of Michigan.

ANN ARBOR, 10th July, 1865.

HAMILTON COLLEGE,
CLINTON, N. Y, August, 1865. }

To the Committee of the Regents on the

State Cabinet of Natural History:

Gentlemen—In response to the circular of June, issued in your behalf, I would respectfully present the following:

In the suggestions I shall make, I assume that it is the desire of the Regents of the University to do whatever is needed to make the State capital the center of science as well as of legislation, and to render the State collections complete as collections and unrivaled as a means of scientific instruction, and this at whatever expense.

In the consideration of the topic first presented, I take the following as postulates:

1. The cabinet should be in a position to be valuable for *instruction* as well as display. To this end the collections must be scientifically arranged and labeled.

2. The collections of the different departments should each be developed to the greatest perfection, and therefore should be treated in some degree independently, though with reference to the other departments.

Each department should be brought down to the present state of the science, and then of necessity each would mate the others and be but a part of the whole.

3. To make this arrangement and development valuable for the present, and still more as a basis for future work, they should be scientific and thorough, on some well digested system which could be continued for succeeding years.

4. Scientific men in the different departments of natural history are the only men to form and execute the plans for such ends, and these men should be teachers of the sciences rather than amateurs, in order that they may make their *work* useful for learners as well as attractive for admirers.

5. The best plans can be devised only after a thorough examination of the material on hand, the means to be used, and the systems adopted by other large museums.

With these points in view, I would suggest the appointment of a *commission* composed of men of learning and experience in the several departments of natural history, and that the Regents intrust to them the work of preparing suitable plans for the development of the several departments, affording them proper facilities for comparison and time for their work.

In regard to the second topic presented, the same views as in the first would obtain.

A scientific staff should be organized in the same way, to carry out the plans and keep the collections up to the level of science. The reports of such a staff, made annually to the Regents, would be contributions to science worthy the State of New York, and of immense advantage to the scientific world.

Normal collections in all the various departments of natural history could be arranged by this staff, and these collections would obviate the necessity of gathering large cabinets in the colleges and academies of the State. Each institution would then require only small suites of characteristic specimens for the purpose of elementary instruction, and there would be a useful concentration of scientific effort to the one point, viz: the State museum.

The rate of compensation would depend upon the grade of men employed to do the work, which would also gauge the character of the work done.

As to the third topic—of the desirableness of a course of free lectures at the State capital, there can be no doubt. Were the proper scientific staff employed to make the State cabinet truly useful for scientific purposes, a part of their duty should be to give, at stated seasons, *lectures* for teaching, not rhetorical presentations of the popular points of science, but like those at the European universities, “practical teachings.” These could be attended by the teachers in our public schools and academies, who would thus become really qualified to teach the science as well as for other positions of influence, and at length the same work would be done here as was accomplished by the disciples of Linnæus in Sweden. Science in its accurate and proper form, not its general and undefined shape, would become in a manner popularized. Such lectures might be made of untold value to the State, and would render our State capital the “scientific center,” like the *Alcala* of the Moors, or the Berlin or Paris of our day.

In addition, scientific men of ability should be called upon to deliver courses of lectures designed for general rather than for special instruction.

In conclusion, allow me to express my gratification at the interest now manifested in the advancement of science, and my earnest hope that the great State of New York, with its boundless resources, may lay now a broad and secure foundation for scientific work, and a grand preëminence for the future.

All of which is respectfully submitted.

OREN ROOT.

MUSEUM OF COMPARATIVE ZOOLOGY, }
 CAMBRIDGE, Sept. 18, 1865. }

Dear Sir—I regret exceedingly father's absence, as he would most cheerfully have sent you all information in his power respecting the proposed organization of the New York State museum. At the suggestion of Prof. Hall, I write you a few lines in answer to your circular, which I should have done before had I not been absent from Cambridge. I shall not pretend to say anything more than what I know of father's views respecting such establishments.

The great danger in this country with colleges and all scientific establishments has been in their number. Means which, if concentrated, would have given to the United States two, or three at the utmost, great universities, endowed amply, and numbering among their teachers the best men of the country, have resulted in scattering over the country some two hundred small colleges, all of which repeat, to a certain extent, the same thing, are compelled to maintain expenditure identical in all, such as forty or fifty professors of the same branch, the same works repeated a great many times in their diminutive libraries; all this and many other things which will readily suggest themselves to you, preventing the intellectual development of any one of these colleges, and keeping them all down to a very low standard. Now that the natural sciences are claiming such a large share as an educational element, every institution which begins anew should attempt, as much as possible, to take at the outset some one branch not yet fully developed by any existing institution, and make that its specialty. Let the Smithsonian Institution devote itself mainly to the development of intercourse between scientific men of this country and Europe, and to fostering original investigations by assisting them with books, instruments, &c. Let the Philadelphia Academy, the Boston Society of Natural History, devote themselves to the publication of memoirs for the advancement of the natural history of this country. Let Philadelphia retain its preëminence in its collection of birds, and remain the center of ornithology for the United States. Let the Boston Society devote itself principally to develop in its memoirs the taste for natural history, and to give to working naturalists a place where they may have an opportunity of publishing their original researches. Let the museum at Cambridge be especially the great center of comparative zoölogy, making use of paleontology only so far as it is necessary to develop and contrast the former phases of existence on the surface of our globe. Give to Cambridge a more extended field. Let us here not be limited to one country, but extend our comparisons for any quarter of the globe; make it a *universal* exposition of comparative creations.

Let the State collection of New York take as its basis the collections of the geological survey, and make them the standard for all future geological surveys of the country. No geological survey can ever be executed which will not have to use as a standard for comparison the collections of New-

York, and in this, as in other standards, the greatest accuracy is of course necessary to preserve intact the information deposited with the specimens in the State collections. The collection should be the basis for studying the present creations from a geological and paleontological point of view, and thus would naturally become the great school for American geologists. It is, however, impossible at the present day to study paleontology and geology satisfactorily without constant reference to zoölogy. A small collection, carefully selected, of such animals now living which are particularly instructive to the paleontologist, is therefore an absolute necessity, and should be arranged with the paleontological collection in such a manner that they should be complimentary of each other. The collection should be, as far as possible, under the direction of a *single individual*, to whom all the details should be left, as well as the selection and appointment of the assistants. The assistants should be appointed once a year, and thus it would prevent the offices from becoming sinecures. The only check necessary for the director is that the assistants should be *confirmed* by a scientific faculty. This faculty should, if possible, be independent of the trustees, who have the pecuniary management of the institution, and have the sole charge of the appointing of the *scientific* head of the cabinet. This faculty would, if wisely selected, be more competent to administrate the scientific matters of the cabinet, and would of course be regulated in their action by the funds annually placed at their disposal by the trustees. The funds thus placed at the disposal of the faculty should be completely under the control (being only income) of the scientific head, for the necessary expenditures of keeping the collection in order, and he should quarterly render his accounts to the faculty. Owing to the great extent of scientific inquiry, it is hardly possible for one man to have more than a very limited acquaintance with the whole range of his department. He must have some specialty, and the number of assistants required for the proper care of such a cabinet must of course depend on the funds available. For a cabinet such as should be established for New York, besides the director of the museum there should be

One special assistant for mineralogy ;

do	do	geology ;
do	do	vertebrata (fossil) ;
do	do	invertebrata (fossil) ;
do	do	zoölogy, in its application to paleontology.

This is the least staff with which such an organization should be started. The assistants will all be engaged in arranging their respective departments, under the general direction of the director, to carry out a carefully laid plan. They will take care of the specimens which will surely be sent in from all quarters to such an institution—and that will be no small part of their labor—and can, during a certain part of the year, be sent off to collect at localities which are particularly interesting, or would fill gaps existing in the State cabinet. The special information the assistants pos-

sess should, of course, be made available by the director to the improvement of the collection, and give it thus an increased scientific value, while the director should himself give lectures on the general questions of paleontology and geology. The special assistants should, in their turn, develop, each in their department, the progress they have made in its application to the department under their charge. A most thorough and comprehensive course in geology and paleontology could thus be instituted, which would have, also, the advantage of alluring special students to attend any department they wish to follow, to the exclusion of the others. Let anything which is done be made in connection with a well fixed plan, capable of the utmost expansion, so that as the means of instruction expand, the working plan should expand naturally, and not cause any disturbance of the usual routine of the establishment. These are the main features of the organization of our museum at Cambridge, applied to a cabinet of practical geology and paleontology, which have, thus far, been found to work admirably.

I am, very respectfully,

Your obedient servant,

ALEX'R AGASSIZ.

S. B. WOOLWORTH, Esq., *Secretary of Regents of University of N. Y.*

P. S. To make the collection permanently useful in a scientific point of view, and preserve forever intact the records of the specimens, too great care and time cannot be expended in the preparation of the catalogue, which should eventually be published, and may be expanded very naturally to include any striking discovery made during the arrangement of the collections.

Hon. S. B. WOOLWORTH, *Secretary of Board of Regents.*

Sir—I have the honor to acknowledge the receipt of a circular from your office, dated June 1, 1865, containing resolutions of the Senate and Assembly of the State of New York, passed on the 24th of April last, having reference to collections in geology, mineralogy, and other departments of natural history, and asking for suggestions of plans tending to promote a knowledge of these sciences throughout the State.

The suggestions I have to offer will be limited to the sciences of geology and mineralogy, and to a plan which, if successfully carried into execution, would place an authentic and valuable collection within the reach of academic classes throughout the State, at moderate expense, and under circumstances tending to enhance the interest due to the study of these sciences.

There are at present within the State somewhat over two hundred incorporated academies, the greater part owning academic edifices, and collections of books and apparatus permanently devoted to purposes of instruction. Many of these academies possess mineral cabinets, the chief value of which will generally be found due to the enthusiasm and public spirit of

individual collectors. In a very few, if indeed in any of these collections, could we find a systematic series in which the specimens are carefully chosen and properly labeled by competent authority, and in such a manner as to present the characteristics of the specimens to the greatest advantage.

These two hundred academies are scattered throughout the State, and it may be safely assumed that there is no feature in the geology of the State depending upon characteristic fossils, and no locality of minerals interesting on account of their application to the arts, or their relations with science, that is not within reach of some of these academies.

In the localities where these characteristic fossils and these minerals occur, they can usually be collected with facility, or with but moderate expense, and the largest item of expense that would attend any enterprise for a collection would be that incident to traveling from one locality to another, and which would preclude the possibility of success except through the medium of a systematic exchange.

I would therefore suggest as the most effectual method for diffusing a correct knowledge of the sciences under consideration, that the several academies be invited to form collections of objects within their vicinity, previously designated by competent authority, and in sufficient number to furnish a general exchange.

It would be easy to designate some two or three subjects for collection by each academy, and the labor of obtaining these would, it is believed, be cheerfully undertaken by the classes interested in the study and at times devoted to recreation.

The specimens being carefully selected and securely packed, each kind by itself and with one general label, descriptive of the object, might be forwarded to the State Cabinet, and there unpacked, distributed, labeled and again sent back to the academies, affording to each a cabinet of from four to six hundred specimens. The series would present a complete systematic collection of the geological features and mineral wealth of the State, correctly marked by printed labels, and of the greatest authenticity and scientific value.

To give the highest practical value to such a cabinet, there should accompany each a descriptive catalogue, neatly bound, and in which the scientific description, chemical characters, geological relations or economical value of each specimen, according to its peculiarity, might be briefly stated.

I would assume that the expense of collecting and packing these specimens would in every case be defrayed by the academies participating in the enterprise, while that of freight both ways, and of asserting, labeling and repacking should be paid by the State. The descriptive catalogue, with suggestions for the arrangement and preservation of cabinets should also be printed at the public expense.

There are in certain localities, as for example in Orange and St. Lawrence counties, many interesting minerals, which are easily obtained on the spot, and in much greater number than would be due from the institutions

in their vicinity, while there are academies in cities and elsewhere remote from localities of special interest. In these cases an extra supply might be obtained through competent persons at a very moderate expense, to be defrayed by those participating in the distribution without otherwise contributing to the formation of these cabinets. It would be proper to estimate the expense of a sufficient number of duplicates thus procured at \$20 for each kind.

The cost of transportation of specimens to Albany, and of their return (as freight) would be less than \$10 for each academy, and the expense of receiving, labeling, assorting and repacking would not exceed that sum. The entire cost of placing cabinets of six hundred specimens in each of the two hundred academies, would thus be brought within four thousand or at most five thousand dollars, and it may be doubted whether so great a public benefit to the cause of science could be so cheaply purchased in any other manner.

Respectfully yours,

FRANKLIN B. HOUGH.

LOWVILLE, *June* 18, 1865.

BOSTON, *September* 7, 1865.

S. B. WOOLWORTH, Esq.:

I am not familiar with the collections at Albany, though I am able to form a good idea of them from the printed catalogues. I should regard the collection in geology and paleontology as of paramount importance—indeed they are of inestimable importance—to those branches of science in this country, inasmuch as they furnish the key to them, both on account of having been the earliest systematic collections, but derived from a region from which the geological series in this country must take their departure. I coincide with every expression of your preamble touching the great importance of the collection, and I am rejoiced that there is a disposition to have them properly arranged, completed and preserved. I trust that it will be done in the most liberal and scientific manner. It seems to me to be the peculiar province of the State of New York to build up these departments. In no place is there such variety and extent of rock, mineral and fossil material; and the State has it now in its power to compel the reference of the whole continent to this collection, and can do it in a manner which no other State could begin to approach. Zoölogical collections may be made elsewhere with equal and even greater facility than in New York, and it would hardly seem called for to compete with those now existing at Washington, Philadelphia and Cambridge; so that while it is desirable to have a full suite of the animals inhabiting the State, a general collection of animals would be of secondary importance.

I am not geologist enough to be a proper adviser as to the arrangement of the collection; but I shall never forget the satisfaction and instruction

I derived from examining the Museum of Practical Geology in Jermyn street, London, and I cannot conceive of a better plan than that. There should be, *first*, a display of all the rocks as such in succession; *second*, a series of the fossils characteristic of each formation in the order of succession; *third*, a series of fossils *zoologically* arranged, intermixed with representatives of existing species illustrative of their character; and finally (not very essential as it seems to me), a geographical series might be added. Above all, as the collection of most economical importance, and calculated to secure the interest and sanction of the public, specimens of rocks and minerals in all their forms and uses, in the rough state and modified by chemical and mechanical agents. In this should be included maps and models of important mineral regions, as well as mining machinery.

Of course a large amount of space would be required, and this should be carefully looked after in the outset, so that the whole ground necessary may be covered at first, and no subsequent shifting or crowding of specimens be requisite. Another consideration should be, to obtain at once all the material relating to the State which could be secured from all public and private sources. Better specimens would be selected, a great many useless subsequent additions for officers and incompetent individuals would be avoided, and better determinations of species would be made. With this same view, and that there may be as correct a historical display as possible, a representation of the progress of geological researches, and an identification of type specimens. The services of those who have been earliest and longest engaged should be secured; as many principal supervisors should be permanently employed as there may be principal departments, with some provision for subordinate assistants, for a time at least. The pay should be such as to be an inducement to make a life business of it; the office should be permanent, and *as far removed as possible from political favor or patronage*, and the incumbent should only be removed for obvious incompetence or negligence. To be always manœuvring to retain one's place, or to be forever in fear that before your plans are half carried out, some one will supersede you, and begin some new plan, must paralyze all enthusiasm and pride, and the result be but a Penelope's web. At the same time, incumbency should not be made so certain as to allow of apathy and negligence.

The coming interests of the country will inevitably be so involved in the development of mineral and agricultural wealth, that instruction in geology, mineralogy, mining, zoology, &c., will be of the greatest importance. There should be two kinds of lectures; one for those who desire to make these branches their life business, and one of a more popular character, intended simply to excite a general interest, and cultivate habits of observation among the people, as well as an appreciation of the labors of scientific men. Teachers of the common schools should be thus prepared to give a scientific turn to the studies of their pupils, so far as to give some general ideas of the structure of the earth and its parts, and of animal and vegetable forms

and life. The superintendents might do this in part, though for this duty to belong to them exclusively, would not be necessary or even advisable. Any one who gave evidence of competency and aptitude might have a chance, exactly as in the German universities, or rather as in the Lowell lectures, where the lecturers are selected, either solicited or approved by a board of trustees.

To make the collection as useful as possible, useful at all, indeed, to the multitude, complete and somewhat descriptive catalogues should be prepared and printed as fast as possible.

These are the ideas which came uppermost in reply to your questions, and which I am happy to be able to express. The proposed collection of rocks, minerals and fossils, if carried out as it may be, must command the attention of the world, and be more attractive than any yet made. As to a general collection of recent animals, that may better be left to Barnum, or to some of the existing societies elsewhere.

Very respectfully,

Your obedient servant,

AUGUSTUS A. GOULD.

UNION SPRINGS, CAYUGA CO., N. Y., 8th mo., 22, '65.

S. B. WOOLWORTH, *Secretary of Regents*:

Respected Friend—Some weeks ago I received thy circular in relation to increasing the State collection of natural history. Being unable to read, from diseased eyes, and supposing it to relate to the business of Friends' Academy, I handed it to one of the trustees, as I had been released. I have since learned its true import, and hasten to make a suggestion (although I fear too late), which I offer for what it is worth. I propose that a list be procured of all the energetic young naturalists throughout the State, or those who are interested in the natural sciences. Older ones would perhaps not be willing to undertake the labor. Request these young men to make collections of minerals and fossils, rare plants and animals, and send their contributions to Albany with the understanding that they are to receive exchange specimens in return—the number or value of these specimens to depend on the value, number, or rareness of those sent. In this way a very extensive exchange might be entered into, which would greatly stimulate young men in the study of natural science, encourage them by increasing their collections, and would afford an opportunity of adding to the State collection, by retaining the most rare and valuable specimens. This would still leave large opportunity to the contributors to receive many returns. I cannot but think that a department of exchange thus established would be widely beneficial, and promote the study of these sciences throughout the State.

Very respectfully,

J. J. THOMAS.

ALBANY, August 20, 1865.

S. B. WOOLWORTH, LL. D.,

Secretary of the Board of Regents, etc.:

Sir—In reply to a circular which I have had the honor to receive from you, dated Albany, June 1, 1865, I beg leave to offer the following suggestions:

I understand the resolution and your inquiries to refer to plans for perfecting the State museum and for bringing it up to the condition required by the present advanced state of science, and making it a museum of scientific and practical geology and comparative zoölogy.

My views would be, that, looking to the results of the geological survey of New York, the geological part of the museum should be made dominant, as in this the State will derive more credit—assuming the geological formations of New York as a basis for arranging and parallelizing the collections from all the formations of other parts of the country, and at the same time giving to each one its appropriate place. This would also give to the museum a distinctive character, and render it always a standard of reference and authority in geological science, while its development of the economic applications of the mineral products of the State will be at once and preëminently appreciated by the people.

The State cabinet of natural history was originally organized as the result of the geological survey of the State, and the collections deposited therein were derived from the investigations in that survey.

In this museum there was arranged in the geological department, for the first time in the history of American geology, a series of collections illustrating the order of sequence among the older formations. The plan of arrangement was adopted according to the best personal and collective knowledge of the four individuals to whom the geological survey had been assigned. It embraced,

1. A geological collection, illustrating the sequence of the formations;
2. A geographical collection, illustrating their distribution;
3. A paleontological collection;
4. An economical collection.

Of these the first collection, embracing the series and showing the order of the formations, was fully arranged and completed. The second, or geographical collection, was essentially completed, but of course to be increased. The paleontological collection was scarcely begun, and the economical collection was not attempted, although a few specimens with that object in view had been accumulated.

Beyond this, a collection in mineralogy had been arranged to illustrate the minerals of the State, and also one in zoölogy, with specimens in the several departments of that science; and also a botanical collection.

Although much progress has been made in geological investigations since that period, very little has been found to conflict with the arrangement which was then adopted; and in any reorganization of the museum, I con-

sider that the original plan and object should be returned to and kept in view. Among other points are to be considered the following:

The historical value of the original collections cannot be over-estimated, as these furnish authentic means of study and comparison. The plan therefore should embrace a provision for the restoration of the old arrangement, the preservation and authenticity of these collections as they existed at the close of the work by the geological surveyors.

Following this, the natural history of New York should be represented and illustrated by specimens in every department; deficiencies supplied; and provision made for special investigation among those classes or families of which we have but imperfect knowledge.

I. *Requirements of a Museum.*

The present condition of science would require in any general museum a series of collections which may be named in the following order:

1. Geological series proper, which should illustrate the nature and succession of all rocks with their accompanying characteristic fossils.

2. A geographical series, exhibiting the character of the formation in each geological area, and for the State, each county or group of counties occupying the same geological formation.

3. An economical collection in its fullest meaning, where all the products of the earth, applied to useful or ornamental purposes, shall be exhibited. This may be so extended as to show the results obtained in the several processes which the substances undergo in being prepared for their final uses.

4. A collection in paleontology, embracing all the genera and species of fossils, together with their living analogies, arranged for critical paleontological and zoölogical studies. This of course should be first carried out for the State, and extended as rapidly as possible to other portions of the country, and finally for the entire globe.

5. A collection in zoölogy proper, which after being completed for the State, should be extended over the United States, at least for certain classes and orders necessary in the study of comparative zoölogy. In this collection the external form alone should not be the final object, but *skulls, skeletons*, dissections and microscopic preparations should form a prominent part.

6. A botanical collection, complete for the State, and extended beyond in those forms which present the nearest analogy or aid in illustrating the extinct vegetable productions of former periods. Specimens of vegetable structures, tissues, etc., should be accumulated from all parts of the country and the world.

II. *Importance of Large Collections,*

A prominent object should be the acquisition of stores of duplicates in every department. This is necessary (1) in order to ascertain the geographical range of species, their variations in different localities, or as caused

by different surrounding physical conditions ; (2) for means of making exchanges with cabinets and institutions, both in America and Europe (as is done by the Smithsonian Institution at Washington and by the Museum of Comparative Zoölogy at Cambridge), and also with individuals engaged in scientific investigations both here and abroad ; (3) for the great advantages which might be extended to the educational interests of the State, in supplying to colleges and academies authentically labeled specimens for illustrating their courses of instruction.

III. *Cataloguing and Preparing Collections.*

(a.) An object of the first importance would be to obtain a catalogue of the materials in the cabinet as it at present exists. Until this be done, it is impossible to know in what direction efforts for its improvement are to be made.

(b.) The next object to be attained, and to be pursued simultaneously with the first, should be to fill up the deficiencies, more particularly in geology and paleontology, and whatever in other departments may contribute to their elucidation.

(c.) The collections accumulated should as rapidly as possible be submitted to scientific scrutiny and investigation, description and cataloguing. The arrangement would be first in series, illustrating each species, together with sections, dissections and preparations, to be followed by the systematic arrangement of the whole.

(d.) During the examination and preparation of collections, instruction and demonstration should be given for the benefit of such assistants and collectors as may be employed in the museum.

IV. *Publishing.*

The museum should have the means of publication, as the progress of work and investigation suggested will necessarily bring out results of great interest to the public. The publications might be similar to that now given by the Regents of the University, or that made by the Museum of Comparative Zoölogy at Cambridge. They would properly be :

An annual report to the Legislature, stating the general progress and result of the work carried on in the museum ;

A bulletin to be issued as often as the progress of the work should require, accompanied by proper illustrations, and may be the repository of the permanent results of the operations of the museum, both in scientific investigations and in their practical application to the pursuits of the community.

Should the course of free lectures be adopted, these should, to some extent, be published, either in connection with the annual report, or otherwise ; and since they would have reference mainly to the practical application of science, they would find an appropriate channel of distribution through the Legislature.

V. *Scientific Staff.*

The simplest form of organization at the outset would be as follows :

A director, competent for the general charge of the museum, and to carry on and direct investigations in the several departments ;

Two competent assistants ;

A taxidermist, competent to make dissections and preparations, and to mount skeletons ;

A draughtsman, competent for any department, and who should be able to aid in the general work of the museum, when his services are not otherwise required ;

An engraver ;

Collectors who may be temporarily or permanently attached to the museum.

In regard to the arrangement of materials and order of work, the Museum of the Geological Survey of Canada may furnish an admirable example. This museum in its arrangement was modeled after the original plan of that of New York, and has been carried out on the same plan. The organization of the Museum of Comparative Zoölogy at Cambridge (which has been commenced on a zoölogical basis), may likewise be taken as a guide in many things.

After the organization shall have been fairly established, a few students could be admitted, who, having made their preliminary studies, might desire to take up the study of a special department, and also, if competent and trustworthy, might for the time be entrusted with the collections belonging thereto ; not simply for their personal advantage, but that they might place them and leave them in perfect order, with notes of their condition, deficiencies, etc. By this means much work might be accomplished without cost to the museum. Many of the advanced students would doubtless be glad to avail themselves of the opportunity of making collections for the museum, by simply being allowed their traveling expenses, or with some small sum in addition. Thus large accessions could be made to the museum and stores of duplicates acquired.

As soon as the means of compensation can be obtained, a more complete organization is desirable. This should embrace, in addition to the officers already enumerated, the following :

A professor of chemistry, mineralogy and chemical lithology and geology ;

A professor of mines and mining engineering ;

A professor of zoölogy and general paleontology ;

A professor of botany and botanical paleontology.

The two first named departments have especial reference to the practical wants of the community, and the two last named may be made equally available in their practical application.

In order that the museum should take rank with similar institutions

in this country and in Europe, it is necessary that the services of men eminent in their several departments be secured.

For this object the museum must be able to offer facilities for investigation and publication, with materials at hand, and a scientific library, together with just and adequate compensation as an inducement for the best talent of the country to engage in its advancement.

In order to secure unity of purpose and energy of action in the operations of the museum, all its scientific purposes, relations and internal affairs should be left to the judgment of the director, while its general and pecuniary affairs should be administered by a committee, of which the director should be one.

VI. *Expenditures.*

Taking the organization in the simplest form which would produce a direct result, there will be the following sources of expenditure :

- For salaries ;
- For publication ;
- For library ;
- For making collections ;
- Incidentals.

By a judicious distribution of the publications of the museum, they could be made to return to the library much valuable matter, thus aiding to increase the library without direct expenditure.

The salary of the director should not be less than that of a professor in Columbia college. The salaries of professors and assistants would vary from \$1,500 to \$2,500 per annum.

The museum, on the initiation of the plan, might be conducted for a few years upon an annual expenditure of \$10,000 or \$12,000, while, as its operations become extended and the plan fully developed, an annual expenditure of \$25,000 or \$30,000 will be required.

VII. *Free Lectures.*

A course of free lectures, given during the winter season, would doubtless aid much in bringing the museum and its objects more prominently before the public, and in interesting the community therein. Such a course would in every way be advantageous, and by being addressed to many persons from different parts of the State, would thus enlist the interest and sympathy of the entire population, and be the means of making known the objects and plan of the museum to many persons who might not be reached by its publications.

The plan of the lectures might be similar to those given at the Smithsonian Institution during the winter months, and by adopting this arrangement you may secure a wide range of subjects, to be treated by the most eminent men in their several departments, and which could not be given by the permanent officers of the museum until its plan had been fully developed and its scientific staff completed.

Were it necessary for the present purpose, I might go further into the details of the operations to be undertaken by the museum according to the plan, but this does not appear essential at the present stage of the inquiry.

The foregoing general plan appears to me to embrace the points necessary for placing the State Cabinet of Natural History on an equality with similar institutions in Europe, and with the Museum of Comparative Zoölogy in Cambridge—that is, as stated in the resolution of the Legislature, for placing it “in the condition required by the present state of science, and for maintaining it in full efficiency as a museum of scientific and practical geology and comparative zoölogy.”

I am, very respectfully,

Your obedient servant,

JAMES HALL.

P. S. In connection with what has been said of the importance of an economical collection, and as an evidence of the public appreciation of information having strict reference to its economic bearings in relation to mines and mineral products, may be mentioned the success of the school of mines attached to Columbia college. This was commenced about the middle of December, 1864, and at the end of about one year numbered eighty students, all of whom, I am informed, are earnest workers.

At the same time the scientific school at Cambridge, commenced some fifteen years since, in all its departments, including civil engineering and zoölogy (which are not taught at the school of mines in New York), numbers but seventy-five students, and the scientific school in New Haven still fewer. Yet these schools have among their professors the most eminent men, some of whom have been long known as successful teachers and authors.

The school in New York offered to the community precisely that kind of knowledge which was wanted, and the need of which has long been seriously felt. To this I attributed its great success in the outset; while by pursuing the same course, with such extensions as may be found advantageous and necessary, it will doubtless become the leading school of mines in the United States.

ACCOUNT CURRENT,

With Appropriation for the State Cabinet of Natural History.

1864-5. — DR.

To balance from 1863 - 4	\$1,788 79	
To appropriation for 1864 - 5	800 00	
		<u>\$2,588 79</u>

CR.

By collections	\$4 50	
By chemicals	119 77	
By postage and stationery	40 31	
By cases	86 50	
By freight	6 00	
By contingents	39 75	
By balance to new account	2,291 96	
		<u>\$2,588 79</u>

[Vouchers 1 - 5.]

1870

1871

1872

1873

1874

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1877

1878

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1882

1883

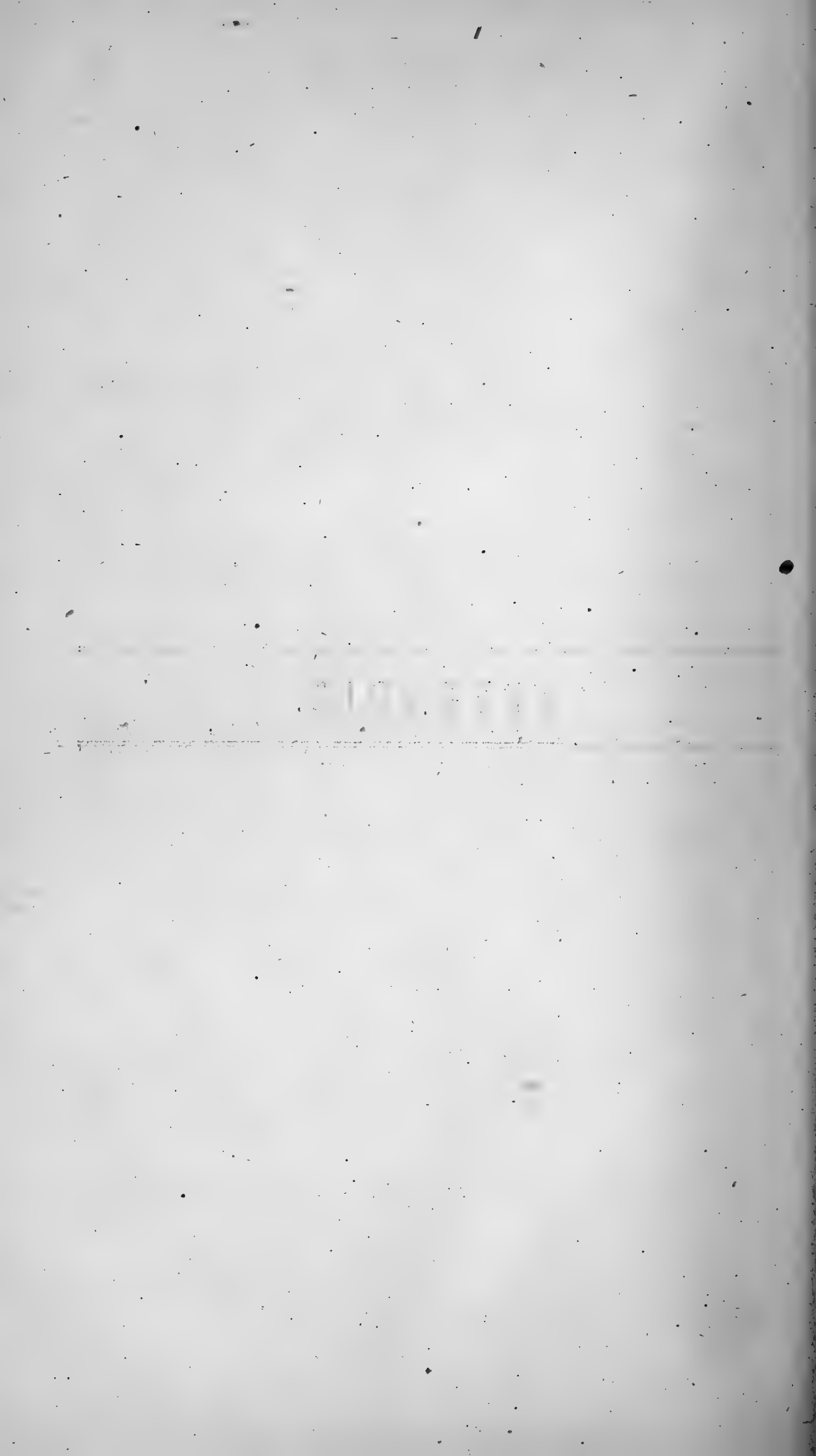
1884

1885

1886

1887

APPENDIX.



CONTENTS OF THE APPENDIX.

- A. Additions to the State Cabinet during 1865 :
1. By donation ;
 2. By purchase.
- B. Catalogue of Mosses: By CHARLES H. PECK.
- C. List of Plants for State Herbarium, collected in the vicinity of Ludlowville, Tompkins county: By HENRY B. LORD.
- D. Facts and Observations touching the Flora of the State of New York: By one of the REGENTS.
- E. Results of Meteorological Observations :
1. Annual Meteorological Synopsis for 1865.
 2. Rain Table, kept at Milwaukee, Wisconsin, during the years 1841-1865: By E. S. MARSH, M. D., CHARLES WINKLER, M. D., and I. A. LAPHAM, LL.D.
 3. Rain Table, kept at Pierrepont Manor, N. Y., during the years 1859-65: By W. C. PIERREPONT.
 4. Record (by Diagrams) of Thermometer and Barometer, for January, 1866, at Pierrepont Manor: By W. C. PIERREPONT.
 5. Monthly Results of Observations at Rochester, for the year 1865: By C. DEWEY, D.D.
- F. Local Climatology: By W. D. WILSON, D.D., Professor in Hobart College.
- G. Results obtained by the new method of recording Meteorological phenomena: By Prof. G. W. HOUGH, Director of Dudley Observatory.
- H. Observations on the internal appendages of the Genus *ATRYPA*, with a notice of discovery of a loop connecting the spiral cones: By R. P. WHITFIELD.
- I. Contributions to Palæontology: (1) By JAMES HALL.
1. Account of some new or little known species of Fossils from rocks of the age of the Niagara group, with Observations on the geographical distribution of the species of this epoch, etc. (2)

(1.) The communications announced under this head in the Contents of the Appendix to the Eighteenth Report on the State Cabinet, were postponed in consequence of the delay in printing that part of the Report issued, which was not completed till December, 1865. In the mean time it has been found desirable to intercalate some other matter, following *PRODUCTUS*, etc., both as being a more natural arrangement, and as following the order in which the subject has been treated in Volume V of the Palæontology of New York.

(2.) A part of this paper, to the 47th page inclusive, was published in advance of the Report, in December, 1864, and January, 1865.

I. Contributions to Palæontology—continued:

2. Observations on the Genus *STREPTORHYNCHUS*, continued from the Sixteenth Report.
3. On the Genus *STROPHODONTA*.
4. On the Genus *CHONETES*, with a list of the species known in the New York formations.
5. On the Genera *PRODUCTUS*, *STROPHALOSIA*, *AULOSTEGES* and *PRODUCTELLA*.
6. On the Genera *SPIRIFERA*, *CYRTINA* and allied genera.
7. On the Genera *ATHYRUS*, *MERISTA* and *MERISTELLA*.
8. Note upon the Genus *ZYGOSPIRA*, and its relations to *ATRYPA*.
9. On the Genera *PENTAMERUS* and *STRICKLANDIA*, and their supposed relations with *RENSSELAERIA*.
10. On the Genera *TEREBRATULA*, *CENTRONELLA*, *CRYPTONELLA*, etc.
11. On the Genus *TROPIDOLEPTUS*.
12. On the Genus *EICHWALDIA*.
13. Miscellaneous.
14. Introduction to the Study of the *GRAPTOLITIDÆ*, with a list of the species known in the Palæozoic formations of Canada and the United States.
15. Notes upon the Geology of some parts of Minnesota.
16. Note upon the structure of the mountain region in the northern parts of Georgia and Alabama, and the adjacent parts of Tennessee.
17. Note upon the Geological relations of the oil-bearing strata of Canada West.
18. Index to geological and palæontological subjects in the Reports on the State Cabinet.

(A.)

ADDITIONS TO THE STATE CABINET DURING 1865.

I. BY DONATION.

I. *To the Zoological Department.*

From WILLIAM C. JOHNSON, Newburyport, Mass.

A STAR FISH.

The EGG of the PEA HEN.

From the SMITHSONIAN INSTITUTION.

Forty-three specimens of FISHES in alcohol.

[List to be published in next Report.]

The following MARINE SHELLS selected by DR. CARPENTER:

[List to be published in next Report.]

II. *To the Botanical Department.*

From Miss RHODA WATERBURY, Schoharie.

Some very nicely prepared specimens, and among them the *Polemonium cæruleum*, L.

From Hon. HENRY B. LORD, Ludlowville.

Some rare CARICES (inclusive of two new varieties), and other PLANTS.

From W. W. DENSLOW, Esq., New-York.

A specimen of *Juglans regia*, from New-York Island.

From ELLIOTT C. HOWE, M. D., Fort-Edward.

A lot of PLANTS.

From the BUFFALO SOCIETY OF NATURAL HISTORY.

A valuable package of PLANTS.

From CHARLES H. PECK, Esq., Albany.

A number of MOSSES and HEPATICACEÆ.

From LEWIS FOOTE, Esq., Detroit, Mich.

A Specimen of *SCOLOPENDRIUM OFFICINARUM* from vicinity of Syracuse, discovered by Mr. FOOTE, March 3, 1865.

III. *To the Geological and Mineralogical Department.*

From the National Museum of Rio de Janeiro, presented through Hon. Mr. LISBOA, Envoy Extraordinary, &c., of Brazil.

MINERALS.	LOCALITIES.	PROVINCES.
SILICATE AND CARBONATE OF COPPER,	Sao Borja,	S. Pedro do Sul.
GALENA,	Allegrete,	do
BARYTA,	Cacapava,	do
AGATE,	Rio Jaguarao,	do
OLIGISTE,	Bagé,	do
OLIGISTE CONCRETIONARY,	Mina do Costa,	do
SACCHAROIDAL LIMESTONE,	Terra des Asperesas,	do
HEMATITE,	Bagé,	do
DISTHENE IN QUARTZ,	Misssoens,	do
PYROLUSITE,	S. Jeronymo,	do
STONE COAL,	Terra partido (Curral- Alto,	do
STONE COAL,	Do Herval,	do
do	Sandy,	do
do	Jaquarao,	do
MALACHITE,	Cacapava,	do
HYLALINE JASPER,	Lagoa dos Patos,	do
MAGNETIC IRON ORE,	Palmeria dos Indios,	Alageas.
MAGNETIC IRON ORE,	Camaragibe,	do
BITUMINOUS SCHIST,	do	do
LIGNITE,	Penedo,	do
SCHISTOSE SLATE,	Belem,	Para.
REFRACTORY SLATE,	Ega,	Amazona.
FIBROUS GYPSUM,	Tabatinga,	do
BITUMINOUS SCHIST WITH LIGNITE,	Manaos,	do
LIGNITE,	Belem,	do
MAGNESIAN SLATE,	Shores of the Amazon,	do
SCHISTOSE SLATE,	Rio Tocantins,	Prov's of Para & Goyas
ROLLED STONES,	Transp'd by the waters of the Rio Solimoes,	Amazona.
PUMICE,		
FETID-BITUMINOUS-CALCAREOUS-SLATY SCHIST, (DYSODYLE ?)	Da Chepada,	Maranhao.
HYDRAULIC LIMESTONE,	Apicum,	do
HYDRAULIC-ARGILLACEOUS LIMESTONE,	Bacanga,	do
OLIGISTE, IN PART HYDRATED,	Caxias,	do
FIBROUS GYPSUM,	Alcantara,	do
STONE COAL,	Laguna,	St. Catharina.
GRANITE,	Of the mountains of Rio de Janeiro.	
MARBLE (CALCAREO MARMORE),	De Campos,	do
FELDSPAR (PELUNZE),	Nichtervy,	do
KAOLIN,	do	do
BITUMINOUS-CALCAREOUS-SLATY SCHIST,	Ceara,	Ceara.
GYPSUM,	De Belmonte,	do
CALCAREOUS-CRYSTALLINE-SLATY SCHIST,	Baturite,	do
Do. CRYSTALLIZED INTERIORLY, and containing impression of fishes,	Milagres (Crato),	Ceara.
OLIGISTE,	Serra d'Araripe,	do
CARBONATE OF COPPER,	Rio Jauru,	Matto-Grosso.
STALACTITE,	Gruta do inferno,	do
GYPSUM,	Do Appody,	R. Grand do Norte.
OLIGISTE,	Cabaceiro,	do
ROSE QUARTZ,	Pedra lavrada,	do
PEROXIDE OF IRON,	Estancia,	Sergipe.
LIMESTONE (NEARLY MARBLE),	Vasa-barriz,	do
LAMELLAR OLIGISTE IN QUARTZ,	Serra da Gameleira,	Bahia.
ASPHALTIC LIMESTONE,	Maran (Ilheos),	do
PEROXIDE OF MANGANESE,	Nazareth,	do

MINERALS.	LOCALITIES.	PROVINCES.
LIGNITE,	Barcellos,	Bahia.
MICACEOUS OLIGISTE,	Itabira,	Minas.
MALACHITE, &C.,	Melancias,	do
AMIANTHUS,	Different places in	do
	Minas,	do
GALENA AND SULPHURET OF IRON,	Infecionado,	do
CINNABAR IN SCHIST,	Villarica,	do
CINNABAR, GRANULAR,	Corrego Trepuy,	do
KAOLIN,	Thesoureiro,	do
STALACTITIC IRON,	Itabira,	do
LAMELLOSE OLIGISTE,	Mine of Tente Casi- meiro,	do
	Serra de Nassouras,	do
CRICHTONITE (TITANIFEROUS OXIDE OF IRON),	Antonio Pereira,	do
NEOCTESE,	Torquirn,	do
AURIFEROUS PYRITES IN QUARTZ,	Itabira,	do
MICACEOUS OLIGISTE,	Ouro Preto,	do
ARDOSIA,	Cocaes,	do
CRYSTALS OF MAGNETIC IRON,		do
TOPAZES,		do
ACERDESE,	Macaulas,	do
do	Antonio Pereira,	do
OXIDE OF BISMUTH,	Catla Branca,	do
CARBONATE OF LEAD AND OF COPPER, GALENA,	Sette Lagoas,	do
AMETHISTS,	From different places,	do
AMPHIBOLITE AND AURIFEROUS ITABIRITE,	Itabira do Campo,	do
CASSITERITE IN GRANITE,	Rio Paraupeba,	do
FLUOR SPAR, WITH GALENA, &C.,	Itacolumy,	do
GROUP OF HYALINE QUARTZ,	Itambé,	do
do do	Brumado,	do
ERYTHRINE (ARSENICAL COBALT),	Antonio Pereira,	do
NATIVE ARSENIC,	Ouro Preto,	do
BLENDE, WITH AR. SUL., IN QUARTZ,	Alaéthé,	do
ACICULAR STIBNITE, IN TALCO-SCHIST,	Cattas-Altas,	do
PYRITES (MARCASSITE) &C. IN QUARTZ,	Timbopeba,	do
GRAPHITE,	Barreiras,	do
LIMESTONE (MARBLE),	Itabira do Campo,	do
CHRYSOBERYL,	Serra das Esmeraldas,	do
ITACOLUMITE (GRES FLESCIVEL),	Serra d' Itacolumy,	do
GALENA,	Taubaté,	St. Paulo.
MAGNETIC IRON ORE,	S. Jo. d' Ypanema,	do
LIMESTONE,	do do	do
BITUMINOUS SCHIST,	Sorocaba,	do
LIMONITE (SLATY),	Ceritiba,	Parana.
ARGENTIFEROUS GALENA,	Iporanga,	do

Nodules, calcareous, ferruginous and slaty ferruginous, which are found in extreme abundance, and from the size of a grown pea to that of a bomb shell of a gigantic mortar, in the interior of the Provinces of Pernambuco, Parahyla, Rio Grande do Norte, Ceara, Pianhy, Maranhao, Goyas, and Matto-Grosso.

Agates, Sexios rollados (Rolles stones), common in the Rio de S. Francisco do Norte.

II. ADDITIONS BY PURCHASE.

(None).

(B.)

LIST OF MOSSES

OF THE

STATE OF NEW-YORK.

—
BY CHARLES H. PECK.
—

The following list is intended to contain the names of all the Mosses hitherto detected in the State of New York. The habitat, and time of maturing the fruit are given, and, of the rarer species, the station also. It has been thought advisable to reproduce brief descriptions of those species not described in SULLIVANT'S Mosses of the United States, and to add occasional remarks concerning the peculiarities of certain species and the distinguishing characters of such as are closely related.

Grateful acknowledgments are rendered to that distinguished and experienced bryologist, LEO LESQUEREUX, Esq., of Columbus, Ohio, for much kind assistance in the preparation of this List. He has freely communicated the names, habitat, etc., of numerous species collected by him on the Adirondack Mountains, and in other parts of the State; and has authenticated a large number of the other species herein recorded.

Much aid has also been received from our own indefatigable botanist, the Hon. GEORGE W. CLINTON, of Buffalo, at whose suggestion this work was undertaken, and from whom contributions of many species from Western New-York and the vicinity of Niagara Falls have been received.

COE F. AUSTIN, Esq., of Closter, New-Jersey, has kindly contributed species both of Mosses and of Liverworts, from Orange county and the Shawangunk Mountains. To them and to others due credit is herein given; their names signifying the authority for the statements made in the particular sentences to which they are respectively annexed.

ORDER MUSCI.—*Mosses.*

SPHAGNUM, *Dill.*

S. CYMBIFOLIUM, *Ehrh.*

Peat bogs and marshes. Frequent and variable. July.

S. PYLAESII, *Brid.*

Humected surface of granite rocks, top of Mt. Marcy, Adirondack mountains; sterile, L. LESQUEREUX.

S. CYCLOPHYLLUM, *Sulliv. and Lesqx.*

Springs in granite rocks, Mt. Marcy, sterile, LESQX.

S. SQUARROSUM, *Pers.*

Peat bogs, especially on mountains. Common. July, August.

S. CUSPIDATUM, *Ehrh.*

Deep bogs and cranberry marshes. Frequent and very variable. July.

S. ACUTIFOLIUM, *Ehrh.*

Same habitat as the preceding. Also common and variable. July.

S. RIGIDUM, *Schp.* **S. COMPACTUM**, *Brid.*

Bogs and wet places. Catskill mountains, Adirondack mountains, LESQX.

S. SUBSECUNDUM, *Nees.* **S. CONTORTUM**, *Schultz.*

Deep bogs, Adirondack mountains, July, LESQX.

ANDRAEA, *Ehrh.***A. PETROPHILA**, *Ehrh.*

Damp faces of rocks on mountains. Not rare. July.

A. RUPESTRIS, *Turn.*

Same habitat as the preceding. Catskill mountains. Abundant about fifty rods north of the Mountain House. Not frequent. July.

A. CRASSINERVIA, *Brch.*

Humected rocks, top of Whiteface mountain, August, LESQX.

EPHEMERUM, *Hampe.***E. CRASSINERVIUM**, *Schwaegr.*

Moist grounds in fields, sides of ditches, etc. Not rare. Dec.—April.

ACAULON, *Mull.***A. MUTICUM**, *Schreb.*

On the ground. Brooklyn, C. F. AUSTIN. Buffalo, G. W. CLINTON.
December—April.

PHASCUM, *L.***P. CUSPIDATUM**, *Schreb.*

Waste fields near Saratoga; March, LESQX.

PLEURIDIUM, *Brid.***P. ALTERNIFOLIUM**, *Brid.*

Old fields. Very common. May, June.

GYMNOSTIMUM, *Hedw.***G. RUPESTRE**, *Schwaegr.*

Crevices of steep rocks and overhanging cliffs. Not rare. Sept., Oct.

G. CURVIROSTRUM, *Hedw.*

Wet rocks. Not uncommon. September, October.

Small forms of this species closely resemble the preceding. Both are variable.

WEISIA, *Hedw.*W. VIRIDULA, *Brid.*

Old fields, waste grounds, thin soil covering rocks. Frequent.
March - June.

RHABDOWEISIA, *Schp.*R. DENTICULATA, *Bryol. Europ.*

Crevices of rocks on mountains. Sand Lake.

SELIGERIA, *Brch. & Schp.*S. RECURVATA, *Bryol. Europ.*

Rocks in ravines. Devil's hole, Niagara county; Caledonia, G. W.
CLINTON.

S. CALCAREA, *Bryol. Europ.*

With the preceding, from which it differs chiefly in its shorter stem,
broader leaves, and somewhat turbinate capsule.

The discovery of this rare and minute species in our State (as well as
of the preceding) is due to the earnest and faithful researches of G. W.
CLINTON.

DICRANUM, *Hedw.*D. GRACILESCENS, *Web. & Mohr.*

On rocks; high peaks of the Adirondack mountains; Aug., LESQX.

D. SCHREBERI, *Hedw.*

Clay banks in mountains; Adirondack mountains, above Keene; very
rare; September, LESQX.

D. VIRENS, *Hedw.*

Old logs and rotten wood in shady damp places, especially in woods
on mountains. Variable. Not abundant. May, June.

D. VARIUM, *Hedw.*

Moist ground and banks, most common on clay soil. Frequent.
November - April.

D. HETEROMALLUM, *Hedw.*

On the ground in open woods, banks, about the roots of trees, moun-
tain and plain. Very common and variable. September, October.

D. SUBULATUM, *Hedw.*

Shaded rocks, Adirondack mountains; August, LESQX.

D. BLYTTII, *Bryol. Europ.*

Fissures of humected rocks, top of Mt. Marcy; August, LESQX.

D. STARKII, *Web. & Mohr.*

Same place as the preceding, LESQX.

D. MONTANUM, *Hedw.*

Decayed logs and stumps in pine and hemlock woods, especially on
mountains. Catskill mountains. Goat Island, Niagara Falls, LESQX.

July, August.

D. FLAGELLARE, *Hedw.*

Old logs and rotten wood. Very common. August.

D. INTERRUPTUM, *Bryol. Europ.*

Rocks, rarely on decaying wood, in hill and mountain woods. Com.
August.

D. LONGIFOLIUM, *Hedw.*

Trees in mountain woods. Sand Lake. Rocks; Adirondack mountains, LESQX. August, September.

D. SCOPARIUM, *L.*

Ground, rotten logs, rocks; base of Adirondack mountains, LESQX.
var. *pallidum*, *Mull.*

On the ground, rotten logs, rocks. Very common and variable.
July-September.

D. ELONGATUM, *Schwaegr.*

Fissures of humected rock, top of Mt. Marcy; August, LESQX.

D. CONGESTUM, *Brid.*

Decayed wood, sometimes on rocks, in mountain woods. Abundant on the Catskill and the Adirondack mountains.

D. SCHRADERI, *Schwaegr.*

Bogs and boggy places in mountains; Catskill and Adirondack mountains; August, LESQX.

Shawangunk mountains, C. F. AUSTIN.

D. SPURIUM, *Hedw.*

Sandy ground; Saratoga; July, LESQX.

Catskill mountains, T. P. JAMES, in *Proceed. Am. Phil. Soc.*, 1864.

D. UNDULATUM, *Turn.*

On ground wet or dry in woods, sometimes on rocks; mountain and plain.
Frequent. July.

D. DRUMMONDI, *C. Mull.*

On the ground on mountains. Abundant under small pine trees on the Catskill mountains, between the Mountain House and the lake.
Rare. July.

ARCTOA, *Brch. & Schp.*A. FULVELLA, *Bryol. Europ.*

Fissures of humected rock, Mt. Marcy; July, LESQX.

CAMPYLOPUS, *Brid.*C. VIRIDIS, *Sulliv. & Lesqx.*

Roots of trees, decayed logs, etc., in woods. Not rare. Sterile.

TREMATODON, *Rich.*T. AMBIGUUS, *Hedw.*

On the ground by roadsides. Sand Lake. Rare. July.

This is now regarded as a northern species, and T. LONGICOLLIS as a southern one. The latter probably does not occur within our limits.

LEUCOBRYUM, *Hampe.*L. GLAUCUM, *L.*

On the ground in woods, most often on knolls near swamps or water holes. Common. December.

FISSIDENS, *Hedw.*F. EXIGUUS, *Sulliv.*

Wet rocks along streams; Schoharie, Miss R. WATERBURY. July.

F. MINUTULUS, *Sulliv.*

Rocks and ground in ravines. Albany. Helderberg mountains,
C. F. AUSTIN. Buffalo, G. W. CLINTON. Scarce. Nov. - April.

F. BRYOIDES, *Hedw.*

Shaded ground in woods. Shaded ravines near Albany. Frequent
in conservatories, in and around flower pots. Nov. - April.

F. TAXIFOLIUS, *Hedw.*

Humected rocks and clay banks. Niagara Falls; December, LESQX.
Rockland county, C. F. AUSTIN.

F. SUBBASILARIS, *Hedw.*

Roots of trees. Poestenkill, woods west of the village. Fort-Edward,
E. C. HOWE. Not common. October - December.

F. ADIANTOIDES, *L.*

Moist ground and rocks, generally in woods. Frequent. Nov. - April.

F. OSMUNDIOIDES, *Hedw.*

Base of trees in swamps and mountains; Catskill mountains, LESQX.

F. GRANDIFRONS, *Brid.*

Humected perpendicular rocks; Niagara Falls; Caledonia creek,
where it grows submerged, G. W. CLINTON. Not uncommon in
Western New-York. Our plant bears pistillidia, but neither anthe-
ridia nor fruit.

CONOMITRIUM, *Mont.*C. JULIANUM, *Savi.*

On stones in mountain streams. Smoke's creek, G. W. CLINTON.
Shawangunk mountains, C. F. AUSTIN. Sterile.

BLINDIA, *Brch. & Schp.*B. ACUTA, *Dicks.*

Humected perpendicular rocks; Catskill mountains, near the Cauters-
kill; July, LESQX. Very rare.

• This interesting and rare moss has been found in no other locality
in the State.

Dioecious: pale green, loosely caespitose, varying in length from
half an inch to half a foot; stems filiform, naked near the base; leaves
erect-open, shining, lanceolate-subulate, pointed by the excurrent costa;
capsule pyriform, firm, with a rather long straight pedicel; peristome
of 16 equidistant teeth; lid large, with a straight or slightly inclined
beak; calyptra split to the point, covering the lid only; annulus,
none.

POTTIA, *Ehrh.*P. TRUNCATA, *L.*

On the ground in moist fields, and by roadsides. Common.
November - April.

DESMATODON, *Brid.*D. ARENACEUS, *Sulliv. & Lesqx.*

Stones; Devil's Hole and Caledonia, G. W. CLINTON. Rare. July.

BARBULA, *Hedw.*B. UNGUICULATA, *Hedw.*

Ground, claybanks. Variable and common. Nov. - April.

B. CAESPITOSA, *Schwaegr.*

On the ground in woods and about the roots of trees. Common.
June.

B. TORTUOSA, *L.*

Rocks. Goat Island, LESQX. Common about Niagara Falls, G. W. CLINTON. Helderberg mountains. Not frequent. June.

B. CONVOLUTA, *Hedw.*

Ground on mountains. Helderberg mountains, growing with *Bryum pyriforme*, on ground on which charcoal had been burned. Rare.

B. MUCRONIFOLIA, *Schwaegr.*

Roots of an elm subject to inundation, Schoharie, Miss R. WATERBURY. Stones; Devil's Hole and Portage, G. W. CLINTON. June.

B. FRAGILIS, *Wils.* TRICHOSTOMUM FRAGILE, *Hook.*

Humected rocks by waterfalls. Ausable river, near Lake Champlain; sterile, LESQX.

Closely caespitose; stems erect, simple or forked, tomentose at the base; leaves closely imbricated, erect, plane on the margin, rigid, very fragile, twisted when dry, lanceolate-subulate with an excurrent costa; areolation hyaline near the base, minute, chlorophyllose and papillose above; capsule erect, ovate-oblong, scarcely curved; lid obliquely long-beaked; teeth of the peristome convolute, very thin, fugacious; inflorescence dioecious.

TRICHOSTOMUM, *Hedw.*T. TORTILE, *Schrad.*

Sandy ground, banks by roadsides, etc. Common. Nov. - March.

T. VAGINANS, *Sulliv.*

On the ground; Shawangunk mountains, C. F. AUSTIN.

November - March.

T. PALLIDUM, *Hedw.*

Clayey ground, fields and open woods. Common. June.

T. GLAUCESCENS, *Hedw.*

Cliffs and crevices of precipitous rocks. Adirondack mountains.

Ravine south of Albany. Rare. June.

DIDYMODON, *Hedw.*D. RUBELLUS, *Roth.*

Rocks, especially in ravines. Catskill mountains. Greenbush, near Harlem R. R. bridge. Rare. June, July.

D. LURIDUS, *Hornsch.*

Niagara Falls, on a dry rock near the shore, one-eighth to one-quarter of a mile below the American staircase, G. W. CLINTON. October.

This fine species was found by DRUMMOND at Niagara Falls in 1818, but had not been detected since that time until 1865, when it was rediscovered as shown above.

D. CYLINDRICUS, *Brch.*

Catskill mountains. JAMES in Pr. Am. Phil. Soc.

CERATODON, *Brid.*

C. PURPUREUS, *L.*

Ground, rocks, rotten wood, old roofs. Common everywhere. May.

DISTICHIUM, *Brch. & Schp.*

D. CAPILLACEUM, *Bryol. Europ.*

Crevices of rocks, high summits of the Adirondack and the Catskill mountains, LESQX.

TETRAPHIS, *Hedw.*

T. PELLUCIDA, *Hedw.*

Decayed wood in woods. Frequent. June.

ENCALYPTA, *Schreb.*

E. CILIATA, *Hedw.*

Rocks and crevices of rocks on mountains. Sand Lake. Adirondack mountains. July.

E. STREPTOCARPA, *Hedw.*

Rocks. The Ledge; Akron, G. W. CLINTON. Niagara Falls. JAMES in Pr. Am. Phil. Soc. Helderberg mountains. Sterile.

ZYGODON, *Hook. & Tayl.*

Z. MOUGEOTI, *Bryol. Europ.*

Catskill mountains. JAMES in Pr. Am. Phil. Soc.

Z. LAPPONICUS, *Hedw.*

Crevices of rocks. Catskill mountains, below Cauterskill Falls. Adirondack mountains, LESQX.

ORTHOTRICHUM, *Hedw.*

O. ROGERI, *Brid.*

Bark of *Populus tremuloides*, near Lake Placid, Adirondack mountains; very rare; August, LESQX.

O. CUPULATUM, *Hoffm.*

Rocks and trees. Beech trees, Rosis Point, G. W. CLINTON. Rare. May, June.

O. ANOMALUM, *Hedw.*

Rocks, sometimes on trees. Limestone rocks, Niagara Falls, LESQX. On trees in the same locality, G. W. CLINTON. Not common. June.

O. STRANGULATUM, *Beauv.*

Trees, rocks and stone walls. Frequent. April, May.

- O. CANADENSE, *Schp.*
Trees, with the preceding. Less common. April, May.
- O. LEIOCARPUM, *Bryol. Europ.*
Trees. Adirondack mountains, LESQX. Sand Lake. Rare. June.
- O. HUTCHINSIÆ, *Hook. & Tayl.*
Granite rocks, mostly on mountains. Frequent. June.
- O. LUDWIGII, *Brid.*
Trees on hills and mountains. Common. June.
- O. CRISPUM, *Hedw.*
Trees, dead branches on the ground and shaded granite rocks, LESQX.
Catskill mountains. JAMES in Pr. Am. Phil. Soc. Sand Lake.
Hall's station, G. W. CLINTON. June.
- O. CRISPULUM, *Brch.*
Trees. Common. June.
- PTYCHOMITRIUM, *Brch. & Schp.*
- P. INCURVUM, *Schwaegr.*
Rocks. Rockland county, C. F. AUSTIN.
- DRUMMONDIA, *Hook.*
- D. CLAVELLATA, *Hook.*
Trees, on hills and mountains. Common. May, June.
- SCHISTIDIUM, *Schp.*
- S. APOCARPUM, *Hedw.*
Rocks, especially in ravines and along streams. Frequent and variable. November - April.
- S. CONFERTUM, *Funk.*
Same habitat as the preceding. Common. April.
- GRIMMIA, *Ehrh.*
- G. PENNSYLVANICA, *Schwaegr.*
Wet rocks on hills and mountains. Common. December - April.
- G. LEUCOPHCEA, *Grev.*
Sandstone rocks. Catskill mountains. JAMES in Pr. Am. Phil. Soc. June.
- G. OVATA, *Web. & Mohr.*
Naked, flat rocks, top of Mount Marcy; September, LESQX.
Pulvinate or caespitose; leaves lanceolate, pointed, the upper ones tapering into a hair point; capsule on a straight pedicel, exserted, ovate, solid; lid obliquely beaked; teeth of the peristome long, split to the middle, dark red; calyptra mitriform, lobate; inflorescence monoecious.
- G. OLNEYI, *Sulliv.*
Rocks. Catskill mountains. (Torrey legit) C. F. AUSTIN.
- G. DONNIANA, *Smith.*
Rocks. Adirondack mountains; rare, LESQX.

RACOMITRIUM, *Brid.*R. ACICULARE, *Brid.*

Rocks along mountain streams. Catskill mountains. Sand Lake. June.

R. SUDETICUM, *Funk.*

Moist rocks along streams. Adirondack mountains; Aug., LESQX. Catskill mountains. JAMES in Pr. Am. Phil. Soc.

R. MICROCARPUM, *Brid.*

Rocks, either moist or dry. On mountains. Common. May—June.

R. FASCICULARE, *Brid.*

Rocks near waterfalls. Adirondack mountains; Ausable river, etc., LESQX. Catskill mountains. JAMES in Pr. Am. Phil. Soc.

HEDWIGIA, *Ehrh.*H. CILIATA, *Dicks.*

Granite rocks and stone walls. Very rarely on decayed logs. Everywhere common. May.

SCHISTOSTEGA, *Mohr.*S. OSMUNDACEA, *Web. & Mohr.*

On dirt adhering to roots of overblown trees in deep woods, a short distance south of Cranberry marsh, Sand Lake. This is at present its only known locality in this country. August.

Very delicate, slender, simple or rarely bifurcate, 3"—6" long, growing from a shining, yellowish-green and persistent prothallium, rooting only at the base, two-shaped; sterile plants frondlike, with the leaves two-ranked, rhomboidal, ecostate, vertically inserted, confluent at the base; fertile plants frondiform below or with the stem nearly naked, bearing flowers and minute horizontal leaves of various forms at the top; flowers gemmiform; vaginula ovate-globose; capsule on a long slender pedicel, minute, nearly globose, without a peristome; operculum convex; calyptra minute, mitriform or dimidiate-conical, covering the operculum only; spores minute. A very rare little moss of peculiar habit and loose cellular structure, with a beautiful glaucous green color when fresh. First found in this country in 1865.

TETRAPLODON, *Bryol. Europ.*T. ANGUSTATUS, *Bryol. Europ.*

On the excrement of cows in a swamp near Lake Placid, Adirondack mountains; August, LESQX.

T. MNIOIDES, *L. fil.*

Excrement of some animal near the top of Mount Marcy; August, LESQX.

APHANORHEGMA, *Sulliv.*A. SEBRATA, *Sulliv.*

Moist ground in fields. Common. November.

PHYSCOMITRIUM, *Brid.*P. PYRIFORME, *L.*

Moist ground, especially on clayey soil. Common everywhere. May.

FUNARIA, *Schreb.*F. FLAVICANS, *Michx.*

Damp clayey soil in woods. Staten Island, A. A. ADEE. Buffalo, G. W. CLINTON. Rare. April - May.

This species is more common in the Southern States, and grows especially on ground where charcoal has been burned.

F. HYGROMETRICA, *Hedw.*

Ground wet or dry. Crevices of rocks, and in places burnt over in charring coal. Common everywhere. June.

Var. CALVESCENS, *Bryol. Europ.*

Wet springy places. Buffalo, G. W. CLINTON.

MEESIA, *Hedw.*M. ULIGINOSA, *Hedw.*

Moist sandy ground and marshy places. Along the railroad between West Albany and Center. Fort Edward, E. C. HOWE. Rare. June.

M. TRISTICHA, *Funk.*

Swamps and wet places. Fort Edward, E. C. HOWE. Rare. June.

BARTRAMIA, *Hedw.*B. FONTANA, *Brid.*

Wet rocks and springy places on mountains. Common. June.

B. MUHLENBERGII, *Schwaegr.*

Moist sandy or gravelly places. Along the railroad between West Albany and Center. Niagara Falls, G. W. CLINTON. Fort Edward, E. C. HOWE. June.

B. ITHYPHYLLA, *Brid.*

Fissures of rocks. Black mountain near Lake George; August, LESQX.

B. POMIFORMIS, *Hedw.*

On the ground in ravines and in the crevices of rocks. Frequent. May.

B. OEDERI, *Swartz.*

Rocks on hills and mountains. Helderberg and Adirondack mountains. Akron and Devil's Hole, G. W. CLINTON. Scholarie, Miss R. WATERBURY. Shawangunk mountains, C. F. AUSTIN. June.

CONOSTOMUM, *Swartz.*C. BOREALE, *Swartz.*

Crevices of rocks. Top of Mount Marcy; very rare; August, LESQX.

BRYUM, *Dill.*B. CERNUUM *Brch. & Schp.*

Crevices of rocks. Lake George; July, LESQX.

B. ACUMINATUM, Hoppe & Hornsch.

Fissures of rocks. Adirondack mountains, LESQX. Rock City, G. W. CLINTON. Very rare. September.

Very similar to the following species in appearance, leaves and capsules; but differs in having the flowers gemmaceous and terminal, and, the inner peristome without cilia.

B. ELONGATUM, Dicks.

Humected black soil in crevices of rocks. High summits of the Adirondack mountains; Whiteface mountain, etc., LESQX. - High Peak, Catskill mountains. Rare. July.

B. NUTANS, Schreb.

Low grounds. Crevices of rocks in mountains. Common. June.

Var. BICOLOR, Bryol. Europ.

Marshy places on mountains. Adirondack mountains, LESQX.

B. CRUDUM, Schreb.

Deep shaded crevices of rocks on mountains. Black mountain; Catskill and Adirondack mountains, LESQX. Fort Edward, E. C. HOWE. June.

B. ANNOTINUM, Hedw.

Moist banks by roadsides. Sand Lake. August.

B. WAHLENBERGII, Schwaegr.

Springy places and wet gravelly banks. Base of Helderberg mountains, fertile specimens. Rare in fruit. June.

B. PYRIFORME, Hedw.

Sandy soil, burnt ground, etc. Common. June.

B. INTERMEDIUM, Brid.

Thin soil covering rocks. Not rare. June.

B. BIMUM, Schreb.

Swamps and wet ground about roots of trees. Common. June.

B. PSEUDO-TRIQUETRUM, Schwaegr.

Wet rocks, especially on hills and mountains. Catskill mountains. Poestenkill. Not common. June, July.

B. ROSEUM, Schreb.

On the ground and about the roots of trees in woods. Rare in fruit. October.

B. CAPILLARE, Hedw.

Adirondack mountains, August, LESQX. Buffalo, G. W. CLINTON. Fort Edward, E. C. HOWE.

B. CYCLOPHYLLUM, Bryol. Europ.

Wet places. Caledonia creek at Green's, where it was found in 1865 by G. W. CLINTON, the first to discover it in this country.

Dioecious: loosely caespitose; stem branching by innovations from the top or emitting slender branches from the base; leaves bright green above, brown below, distant, half clasping the stem, spreading, ovate-suborbicular, obtuse, entire, concave, costate to near the apex; capsule ovate-pyriform, pendulous; operculum mammillate; annulus compound.

B. TURBINATUM, Hedw.

Humected rocks. Niagara Falls; very rare; July, LESQX.

B. CÆSPITICIUM, L.

Dry ground in fields and open places. Common. May.

B. ARGENTEUM, L.

Dry hard soil and thin earth covering rocks. Mountain and plain. Everywhere. June - November.

B. ATROPURPUREUM, Web. & Mohr.

Sandy soil. Buffalo (Forest Lawn); G. W. CLINTON. Very rare, and hitherto considered a Southern species. June.

MNIUM, Brch. & Schp.**M. PUNCTATUM, Hedw.**

Swamps and wet places in woods. Common and variable. November - April.

A very small form occurs in woods and ravines, especially on mountains, growing on wet ground and rocks, sometimes on rotten logs.

M. HORNUM, Hedw.

Humected granite rocks. Adirondack mountains; July, LESQX. Stones and banks along rivulets. Shawangunk mountains, C. F. AUSTIN.

M. SERRATUM, Brid.

Along rivulets. Greenbush. Smoke's creek, G. W. CLINTON. Not common. May.

M. LYCOPODIOIDES, Hook.

Moist rocks in woods on mountain slopes. Adirondack mountains; Black mountain near Lake George, LESQX.

Much like *M. SERRATUM*, but distinguished by its larger size, dioecious inflorescence, distant long ligulate acuminate leaves, with more numerous and acute double teeth on the margin and a more compact areolation, longer, elliptical or subcylindrical, slightly incurved capsule, and longer teeth of the peristome.

M. CUSPIDATUM, Hedw.

Ground, stones and old logs in woods. Frequent. May.

M. AFFINE, Bland.

Damp ground and rotten logs in woods and ravines. Common. May.

Var. ELATUM, Bryol. Europ.

Along deep shaded creeks in mountains. Black mountain, LESQX.

Var. RUGICUM, Bryol. Europ.

Same places as the former, LESQX.

M. SPINULOSUM, Bryol. Europ.

Ground in hemlock woods on mountains. Common on the Helderberg and Catskill mountains. June.

M. STELLARE, Hedw.

Deep shaded rocks above Keene; Adirondack mountains; rare; August, LESQX.

AULACOMNION, *Schwaegr.*A. TURGIDUM, *Schwaegr.*

Bogs near the top of Mount Marcy; sterile, LESQX.

A. PALUSTRE, *Schwaegr.*

Bogs. Marshy ground. Decayed vegetable matter in wet places.
Common. June.

A. HETEROSTICHUM, *Bryol. Europ.*

Moist shaded banks in ravines. Frequent. May.

TIMMIA, *Hedw.*T. MEGAPOLITANA, *Hedw.*

Ground in shaded ravines. Greenbush. Schoharie, Miss R. WATERBURY. May.

ATRICHUM, *Beauv.*A. UNDULATUM, *Beauv.*

Clayey soil, banks and ravines. Common. November - May.

A. ANGUSTATUM, *Beauv.*

Ground, roadsides and banks. Frequent. November - May.

POGONATUM, *Beauv.*P. BREVICAULE, *Brid.*

Clayey ground, roadsides, etc. Frequent. Sept. - November.

P. CAPILLARE, *Brid.*

Borders of gravelly torrents; slopes of Mount Marcy; Adirondack mountains, LESQX.

P. ALPINUM, *Brid.*

About ledges of rocks on mountains. Common on the Catskill mountains. July.

POLYTRICHUM, *Brid.*P. FORMOSUM, *Hedw.*

Ground and rotten logs in woods, especially on mountains. Common. July.

P. PILIFERUM, *Schreb.*

Dry hard soil overlying rocks, especially in mountainous regions.
Not rare. June.

P. JUNIPERINUM, *Hedw.*

Shaded ground in open woods and swamps. Common. June.

P. COMMUNE, *L.*

Ground in old fields. Borders of woods and bogs. Everywhere. June.

In mountain regions where the soil is poor, this moss quickly occupies the little knolls in pastures and meadows, thereby diminishing the grass crop and rendering renewed cultivation necessary.

BUXBAUMIA, *Haller.*B. APHYLLA, *Haller.*

Ground in open woods. Sand Lake. Helderberg mountains. Rare. November - April.

DIPHYSCIUM, *Web. & Mohr.*D. FOLIOSUM, *Web. & Mohr.*

Shaded banks and knolls in open woods. Not rare.

August, September.

FONTINALIS, *Dill.*F. ANTIPYRETICA, *L.* Var. GIGANTEA, *Sulliv.*

Attached to sticks and stones in mountain streams and lakes. Common but usually sterile.

Var. EATONI, *Sulliv.*

A slender form with narrow leaves. Catskill mountains, fruiting abundantly; July, LESQX.

The true F. ANTIPYRETICA has not yet been found in the State.

F. NOVÆ-ANGLIÆ, *Sulliv.*

Mountain lakes and sluggish streams. Bowman's Pond and Cranberry Creek, Sand Lake. Catskill mountains, LESQX.

F. LESCURII, *Sulliv.*

Streams and waterholes. Outlet of the lake between the Mountain House and the Laurel House, Catskill mountains; also the Adirondack mountains, LESQX.

F. DALECARLICA, *Bryol. Europ.*

Stones in mountain streams. Common.

August.

DICHELYMA, *Myrin.*D. CAPILLACEUM, *Dill.*

Streams, waterholes and lakes, attached to sticks and stones. Bowman's Pond and Cranberry Creek, Sand Lake. Sterile.

D. FALCATUM, *Hedw.*

Stones in mountain rivulets. In woods both sides of the road between the Mountain House and the Laurel House, Catskill mountains. Rare. July.

Fruiting specimens of this really beautiful moss were found in nearly dry rivulets in the locality given, which at present is its only known station in the State.

PTERIGYNANDRUM, *Hedw.*P. FILIFORME, *Timm.*

Rocks on mountains, especially along streams. Shaded granite rocks, Adirondack mountains, above Keene, LESQX. Common on the Catskill mountains. July, August.

LEUCODON, *Schwaegr.*L. JULACEUS, *Hedw.*

Trees. Common.

November, December.

L. BRACHYPUS, *Brid.*

Trees. Sometimes on rocks. Mostly on mountains. Common.

November, December.

LEPTODON, *Mohr.*L. TRICHOMITRION, *Mohr.*

Trees in woods. Sometimes on rocks. Common. Nov., Dec.

ANOMODON, *Hook. & Tayl.*A. VITICULOSUS, *L.*

Rocks. Goat Island, LESQX. Various localities about Niagara Falls, G. W. CLINTON. Schoharie, Miss R. WATERBURY. Abundant on the Helderberg mountains. Always sterile within our limits, the plant bearing pistillidia but no antheridia.

A. APICULATUS, *Bryol. Europ.*

Rocks and trees, mostly on mountains. Rocks, Akron, G. W. CLINTON. Trees, Poestenkill. November, December.

Resembles the following species, from which it may be distinguished by the slight apiculation at the apex of the leaves and the ciliate-papillate lobes at their base.

A. OBTUSIFOLIUS, *Bryol. Europ.*

Trees in woods. Especially on the maple, (*Acer saccharinum.*) Common. November, December.

A. ATTENUATUS, *Schreb.*

Base of trees, rocks and ground. Frequent. Nov., Dec.

A.? TRISTIS, *Cesati.*

Trees in woods. Poestenkill. Fruit unknown.

LESKEA, *Hedw.*L. POLYCARPA, *Ehrh.*

Trees in low grounds subject to inundations. Swamp south of Greenbush. July.

L. OBSCURA, *Hedw.*

Trunks and roots of trees on low banks of streams. Hudson below Albany. July.

L. NERVOSA, *Schwaegr.*

Rocks. Niagara Falls, G. W. CLINTON. Trenton Falls, JAMES.

The specimens are sterile, but believed to belong to this species.

L. ROSTRATA, *Hedw.*

Base of trees and on rocks. Very common. November.

THELIA, *Sulliv.*T. HIRTELLA, *Hedw.*

Base of trees. Common in Western New-York, G. W. CLINTON. November.

T. ASPRELLA, *Schp.*

Base of trees. Common. November.

This species is quite common in the vicinity of Albany, but *T. HIRTELLA*, which in most places is as plentiful as *T. ASPRELLA*, has not yet been observed here.

MYURELLA, *Schp.*M. CAREYANA, *Sulliv.*

Rocks and crevices mostly on mountains. Helderberg mountains. Greenbush. Chittenango, G. W. CLINTON. Shawangunk mountains, C. F. AUSTIN. Rare. Sterile.

It assumes two modes of growth; one, prostrate, forming thin mats; the other, upright and compact.

PYLAISAEA, *Schp.*P. SUBDENTICULATA, *Schp.*

Base of trees, usually white oak, in dryish woods. Helderberg mountains; Albany, C. F. AUSTIN. Rare. November.

P. INTRICATA, *Hedw.*

Trees in open woods, sometimes in old orchards. Frequent.

November - March.

P. VELUTINA, *Schp.*

Trees, mostly in mountain woods. Sand Lake. Catskill mountains. Rockland county, C. F. AUSTIN. October, November.

HOMALOTHECIUM, *Schp.*H. SUBCAPILLATUM, *Schp.*

Trees. Common but not abundant. November, December.

PLATYGYRIUM, *Schp.*P. REPENS, *Brid.*

Decaying wood, old logs, rails, stumps. Common. Nov., Dec.

CYLINDROTHECIUM, *Schp.*C. CLADORRHIZANS, *Hedw.*

Old logs in woods, rarely on stones. Common. Nov., Dec.

C. SEDUCTRIX, *Hedw.*

Roots of trees, stones and ground. Frequent. Nov., Dec.

C. BREVISETUM, *Schp.*

On leaning trunks, Shawangunk mountains, C. F. AUSTIN. Not common. November, December.

NECKERA, *Hedw.*N. PENNATA, *Hedw.*

Trees in woods. Frequent. November - April.

N. COMPLANATA, *L.*

Rocks, Catskill mountains, T. P. JAMES. Very rare. Sterile.

HOMALIA, *Brid.*H. JAMESII, *Schp.*

Catskill mountains, growing with N. COMPLANATA; T. P. JAMES.

CLIMACIUM, *Web. & Mohr.*C. AMERICANUM, *Brid.*

Moist ground and rotten wood in fields and in woods. Common but seldom found in fruit. November.

C. DENDROIDES, *L.*

Habitat as in the preceding. Cemetery woods, Sand Lake. Wet bank, Rensselaerville, Miss R. WATERBURY. Rare. Sept., Oct.

Distinguished from the preceding by the shorter capsule, shorter rostrum to the operculum, and less distinctly auricled base of the leaves.

HYPNUM, *Dill.*H. TAMARISCINUM, *Hedw.*

Ground and decayed logs in swamps and wet woods. Common. October - March.

H. DELICATULUM, *C. Mull.*

Ground and rocks in dry hilly woods. Not rare. Aug., Sept.

H. MINUTULUM, *Hedw.*

Base of trees and rotten wood in woods. Common. July - Oct.

H. PYGMÆUM, *Bryol. Europ.*

Rocks. Foster's Flat, G. W. CLINTON. Rare. August.

H. GRACILE, *Bryol. Europ.*

Ground and rotten logs in woods. Catskill mountains. Fort Edward, E. C. HOWE. July.

H. ABIETINUM, *L.*

Rocks. Goat Island, LESQX. Whirlpool wood, Niagara Falls, G. W. CLINTON. Helderberg mountains. Sterile.

H. BLANDOWII, *Web. & Mohr.*

Swamps and bogs. Caledonia, G. W. CLINTON. Warren, Herkimer county, J. A. PAINE, Jr. Rare. June.

Stems erect or ascending, 3'—4' long, simple or sparingly divided, pinnately branched, densely villous; branchlets attenuated, distichous, flexuous or recurved; leaves ovate and broad-ovate, short acuminate, more or less plicate, usually with a strong fold in the middle obscuring the costa which extends half way, reflexed on the margin and papillose on the back; with slender, branching filaments at the basal angles; areolation elongated; capsule oblong-cylindrical, sub-arcuated; operculum conic, acute; annulus broad. A dull yellowish-green moss resembling in appearance, both H. ABIETINUM and H. PALUDOSUM.

H. PALUDOSUM, *Sulliv.*

Swamps and bogs. Not uncommon. June.

H. SQUARROSUM, *L.*

Wet places, ground and stones. Catskill mountains, half way between the Mountain House and the Laurel House. Very rare. Sterile.

H. TRIQUETRUM, *L.*

Ground in woods and swamps. Common and variable. Dec. - Mar.

H. BREVIROSTRE, *Ehrh.*

Rocks and base of trees in mountains. Catskill mountains, below Cauterskill Falls. Middletown, Miss R. WATERBURY. Rare in fruit. November - April.

Fruiting specimens were found in the localities mentioned.

H. SPLENDENS, Hedw.

Ground, rotten logs and rocks in woods. Frequent. May, June.

H. UMBRATUM, Ehrh.

Ground in pine and hemlock woods on high mountains. Base of Mount Marcy, September, October, LESQX. Slopes of High Peak, Catskill mountains. Not common.

H. ALLEGHANIENSE, C. Mull.

Moist rocks along streams and clefts of rocks on mountains. Helderberg mountains. Devil's Hole, G. W. CLINTON. Sterile.

H. HIANS, Hedw.

Ground in open places, banks and ravines, especially on clayey soil. Not rare. November, December.

H. PILIFERUM, Schreb.

Ground and wet banks along streams in woods. Helderberg mountains, in a deep ravine southwest of Knowerville station. Fort Edward, woods back of the Institute, E. C. HOWE. Rare. November, December.

H. SULLIVANTII, Spruce.

Moist banks in woods. Base of Catskill mountains, LESQX. Ravine near Knowerville station.

H. TENELLUM, Dicks.

Found in small quantity growing with *H. PULCHELLUM* about the roots of an old stump, Helderberg mountains.

Monoecious: stems slender, irregularly branched, greenish-yellow, shining; leaves erect-spreading, narrowly lanceolate, nearly subulate, serrulate, costate to the apex; perichæatial leaves oblong acuminate, ecostate; capsule oval-oblong, horizontally inclined, annulate; operculum rostrate. A very small species first detected in this country in 1865.

H. STRIGOSUM, Hoffm.

Open woods, ravines and hill sides, on the ground. Variable and frequent. September, October.

H. DIVERSIFOLIUM, Bryol. Europ.

Ground. Buffalo, December, G. W. CLINTON. Rare.

H. BOSCHII, Schwaegr.

Shaded rocks, base of Catskill mountains, not common, sterile, LESQX.

H. SERRULATUM, Hedw.

Ground in open woods, sometimes about the roots of trees in wet or dry places. Frequent. June - November.

H. DEPLANATUM, Schp.

Wet stones, Shawangunk mountains, C. F. AUSTIN.

H. DEPRESSUM, Brch.

Shawangunk mountains, C. F. AUSTIN.

H. RUSCIFORME, Weis.

On stones in mountain streams, Catskill mountains, LESQX. Shawangunk mountains, C. F. AUSTIN. August - November.

H. DEMISSUM, *Wils.*

Moist surfaces of rocks on mountains. Catskill mountains. Rare.
July, August.

H. MICROCARPUM, *C. Mull.*

Rotten tree-roots in woods, Staten Island, A. A. ADEE.

The form here noticed is the variety with inclined capsules. It probably does not extend to the central and northern parts of the State.

H. CYLINDRICARPUM, *C. Mull.*

Old logs in woods. Base of the Helderberg mountains, near Know-
erville station. Rare. November, December.

A variety with capsules a little shorter than usual.

H. RECURVANS, *Schwaegr.*

Ground, old logs and rocks, especially on mountains. Very variable
and frequent. November, December.

H. ALBULUM, *C. Mull.*

Moist ground and base of shrubs about waterholes, Shawangunk
mountains, C. F. AUSTIN.

A southern moss which probably does not extend far within our
southern boundary.

H. EUGYRIUM, *Bryol. Europ.*

Rocks in shallow streams, base of Mount Marcy, LESQX. Cranberry
creek, Sand Lake. Dripping rocks, Catskill mountains. June.

H. MOLLE, *Dicks.*

Rocks in mountain streams. Catskill mountains. June.

H. OCHRACEUM, *Turn.*

Same habitat as the preceding. Adirondack mountains, August,
LESQX. Shawangunk mountains, C. F. AUSTIN. Sand Lake.

Sterile in the two localities last named.

H. MONTANUM, *Wils.*

Humected rocks, near the top of Mount Marcy, August, LESQX.

H. CUSPIDATUM, *L.*

Cranberry swamp near Port Kent, Lake Champlain, LESQX. Fort
Edward, E. C. HOWE. Sterile.

H. SCHREBERI, *Willd.*

Ground in open places and borders of woods. Frequent. Nov. - Dec.

H. CORDIFOLIUM, *Hedw.*

Swamps and waterholes. Not rare. June.

H. GIGANTEUM, *Schp.*

Cranberry swamp near Port Kent, LESQX. Caledonia, the creek
swamp, G. W. CLINTON.

Dioecious: stems robust, erect, 6'—10' long, thickly branched;
branchlets open, somewhat attenuated or cuspidate, becoming shorter
above; leaves usually imbricating, concave, broadly cordate-ovate,
entire, obtuse, costate nearly to the apex, with two or three rows of
large pellucid cellules at the excavated basal angles; capsule on a
long pedicel, oblong-cylindrical, horizontal, without an annulus;
operculum mammillate.

H. STRAMINEUM, *Dicks.*

Bogs near the top of Mount Marcy, August, LESQX.

H. UNGINATUM, *Hedw.*

Rocks, ground and rotten wood in woods, especially on mountains.

Common. July.

H. REVOLVENS, *Swartz.*

Bergen swamp, G. W. CLINTON. Sterile.

H. FLUITANS, *Hedw.*

Swamps and low ponds about Lake Champlain, common, July, LESQX.

H. ADUNCUM, *Hedw.*

Trout lake near Lake George, LESQX. Fort Edward, E. C. HOWE.

Var. GIGANTEUM, *Bryol. Europ.*

Big Bay, Strawberry Island, growing in water, G. W. CLINTON.

Waterholes, Jamesville, J. A. PAINE, Jr. Sterile.

Var. GRACILESCENS, *Bryol. Europ.*

Wet marshy ground; Buffalo, G. W. CLINTON. Sterile.

H. FILICINUM, *L.*

Wet springy places on the ground and on dripping rocks. Common and variable. Rare in fruit. May, June.

H. CRISTA-CASTRENSIS, *L.*

Ground and rotten logs, especially in mountainous districts. Not uncommon. September.

H. MOLLUSCUM, *Hedw.*

Ground in woods. Sand Lake. Helderberg mountains. Not common. November - April.

H. CUPRESSIFORME, *L.*

Bark of trees, Adirondack mountains, July, LESQX.

H. IMPONENS, *Hedw.*

Old logs and ground in woods. Frequent. November - April.

H. REPTILE, *Michx.*

Old logs in mountain woods. Common. August.

H. FERTILE, *Sendt.*

Decayed wood, sometimes on rocks, on mountains. Woods south shore of Bowman's Pond, Sand Lake. Catskill mountains. Rare. July.

Monoecious: stems creeping, 2'—3' long, pinnately branched; leaves oblong-lanceolate, long attenuate, strongly incurved-hooked, distantly serrulate toward the point, faintly bi-costate at the base; capsule on a long pedicel, cylindrical, cernuous-incurved, wide mouthed when dry; operculum convex-apiculate; annulus broad. A soft moss with yellowish-green foliage, distinguished from *H. REPTILE* by its long pedicels, operculum not rostellate, and leaves longer pointed and more strongly curved, giving to the plant its peculiar soft and almost crisped appearance.

H. CURVIFOLIUM, Hedw.

Wet ground in fields and by roadsides, old logs in woods, sometimes on rocks. Frequent and variable. June.

H. HALDANIANUM, Grev.

Ground and old logs in woods. Common and variable. Nov. – April.

H. PRATENSE, Koch.

Bogs around Lake George and Lake Champlain, sterile, LESQX.

H. RUGOSUM, Ehrh.

Exposed places on rocks. Goat Island, LESQX. Whirlpool wood, G. W. CLINTON. "Sun-set Rock," Catskill mountains. Rare. Sterile.

H. NITENS, Schreb.

Peat bogs near Port Kent, LESQX. Bergen swamp, G. W. CLINTON. Fort Edward, E. C. HOWE. May, June.

H. SALEBROSUM, Hoffm.

Decaying wood and sticks in pine and hemlock woods on mountains. Helderberg mountains. Catskill mountains. Scarce.

November – April.

H. LÆTUM, Brid.

Ground, banks, rocks, old logs in woods, roots of trees. Abundant everywhere.

November, April.

H. ACUMINATUM, Beauv.

Roots of trees and thin soil on rocks. Saratoga and Catskill mountains, LESQX. Portage and Chittenango, G. W. CLINTON.

November – April.

H. RUTABULUM, L.

Moist ground in woods and ravines. Common and variable.

November – April.

H. PLUMOSUM, L.

Rocks along mountain streams. Common. November – April.

H. POPULEUM, Hedw.

Ground in pine woods, Catskill mountains; also near Lake George, May, LESQX.

H. VELUTINUM, L.

Ground in pine and hemlock woods. Sand Lake and Helderberg mountains. Not common. March.

Stems creeping, closely entangled, irregularly pinnately branched, branches more or less contorted and curved at the apex; leaves loosely imbricating, spreading, subfalcate, lanceolate long acuminate, or gradually tapering from the base to the apex, the whole margin serrulate, distinctly costate beyond the middle; capsule oval-oblong, horizontal-incurved; operculum broad, short-conic; pedicel short, 5"–8" long, papillose. Forms thin mats on the ground in thick woods. Foliage deep green, sometimes with a yellowish tinge.

H. REFLEXUM, Web. & Mohr.

Stones in deep woods; slopes of Mount Marcy; August, LESQX.

H. STARKII, *Brid.*

Wet stones in woods; Lake Placid, Adirondack mountains, August, LESQX.

H. RIVULARE, *Brch.*

Wet rocks in mountain streams, swamps and ravines. Devil's Hole, G. W. CLINTON. Cemetery woods, Sand Lake. Rare in fruit.

November - April.

H. NOVÆ-ANGLIÆ, *Sulliv. & Lesqx.*

Wet rocks and damp ground, mostly on mountains. Common, but seldom fruits.

November - April.

H. STELLATUM, *Schreb.*

Bogs, Port Kent, LESQX. Bergen swamp, G. W. CLINTON. Sterile.

H. POLYMORPHUM, *Brch.*

Ground and rocks. Common and variable. June, July.

Var. MINUS, *Sulliv. & Lesqx.*

Old logs of *Thuja occidentalis*, base of Mount Marcy, LESQX.

H. HISPIDULUM, *Brid.*

Ground, roots of trees and decayed wood. Common. June, July.

H. SUBTILE, *Hoffm.*

Base of trees, especially *Acer saccharinum*. Helderberg mountains.

Whirlpool woods, G. W. CLINTON. September.

H. MINUTISSIMUM, *Sulliv. & Lesqx.*

Rocks; Counterfeiter's Ledge, Akron, G. W. CLINTON. Very rare.

August, September.

H. CONFERVOIDES, *Schwaegr.*

Near Lebanon Springs, JAMES in Pr. Am. Phil. Soc.

A. SPRUCEI, *Brch.*

Goat Island: JAMES in Pr. Am. Phil. Soc.

H. ADNATUM, *Hedw.*

Stones in open woods, roots and bark of trees. Frequent and variable. July - September.

H. SERPENS, *L.*

Decayed wood near the ground. Not rare. June.

H. RADICALE, *Brid.*

Roots of trees, rotten wood, etc. Common and variable. June, July.

H. ORTHOCLADON, *Beauv.*

Wet places on the ground, decayed wood, and stones in rivulets.

Frequent and variable. June, July.

H. NOTEROPHILUM, *Sulliv. & Lesqx.*

Springs and streams in limestone regions. Caledonia, G. W. CLINTON. Sterile. Rare.

H. RIPARIUM, *L.*

Swamps, borders of lakes, waterholes. Frequent and very variable.

June - September.

H. PULCHELLUM, *Dicks.*

Adirondack mountains, LESQX. Helderberg mountains, about the roots of an old stump Rare.

Stems short, irregularly branched, radiculose at base; leaves subsecund, slightly curved, rather loosely imbricating, concave, lanceolate and oblong-lanceolate, narrowly acuminate, entire, ecostate, with a narrow linear areolation; capsule oblong, slightly inclined; operculum convex-conic; annulus composed of two rows of narrow cells. A small species with delicate, shining, yellowish-green foliage.

H. DENTICULATUM, *L.*

Ground in woods, base of small trees in low grounds, rocks on mountains. Common. July, August.

H. MUHLENBECKII, *Hartm.*

Ground and rotten wood in woods. Common. June, July.

H. SULLIVANTIÆ, *Schp.*

Humected rocks, Catskill mountains, also near Lake George, July, LESQX. Shawangunk mountains, C. F. AUSTIN.

ORDER HEPATICÆ—*Liverworts.*

RICCIA, *Mich.*

R. NATANS, *L.*

Stagnant pools. Brooklyn, (Torrey legit) C. F. AUSTIN. Albany. Not common. June.

Var. TERRESTRIS, *Nees.*

Wet ground, borders of pools. With the preceding. Frond usually somewhat stellately lobed; lobes linear, diverging; passes into the typical form, C. F. AUSTIN.

R. LUTESCENS, *Schwein.*

Margins of pools, low muddy grounds. Common. Fruit unknown. Sometimes found floating, late in autumn, in pools exsiccated during summer.

R. FLUITANS, *L.*

Stagnant water, rocky rivulets. Not rare. Sterile.

ANTHOCEROS, *Mich.*

A. PUNCTATUS, *L.*

Wet banks, moist ground in fields. Common. September.

A. LÆVIS, *L.*

Wet ground and rocks in rivulets; common, Sept., C. F. AUSTIN.

NOTOTHYLAS, *Sulliv.*

N. VALVATA, *Sulliv.*

Damp ground in fields. Common. October.

N. MELANOSPORA, *Sulliv.*

With ANTHOCEROS PUNCTATUS and equally common, September, C. F. AUSTIN.

LUNULARIA, *Mich.*L. VULGARIS, *Mich.*

Common and spontaneous in conservatories; distinguished from MARCHANTIA POLYMORPHA, by the crescent-shaped, gemmæ-bearing receptacles; sterile; C. F. AUSTIN.

MARCHANTIA, *L.*M. POLYMORPHA, *L.*

Burnt ground, wet places, ditches, borders of swamps. Frequent. June - August.

PREISSIA, *Nees.*P. COMMUTATA, *Nees.*

Shaded wet places, ravines. Albany and Helderberg mountains. Niagara Falls, G. W. CLINTON. June.

FEGATELLA, *Raddi.*F. CONICA, *Corda.*

Wet banks, along streams; in swamps and ravines. Common. May.

REBOULIA, *Raddi.*R. HEMISPHERICA, *Raddi.*

Rocks along streams, May, C. F. AUSTIN.

R. MICROCEPHALA, *Tayl.*

Moist shaded banks and rocks; common; May, C. F. AUSTIN.

GRIMALDIA, *Raddi.*G. BARBIFRONS, *Raddi.*

Exposed rocky soil, Schoharie, Miss R. WATERBURY. April, May.

DUVALIA, *Nees.*D. RUPESTRIS, *Nees.*

Wet places in rocky ravines. Havana, Schuyler co., E. G. PICKETT.

METZGERIA, *Raddi.*M. FURCATA, *Nees.*

Rocks damp or dry, trees. Common, but seldom fruits.

M. PUBESCENS, *Raddi.*

Rocks among moss, High Peak, Catskill mountains. Rare. Sterile.

ANEURA, *Dumort.*A. SESSILIS, *Spreng.*

Decaying wood in swamps. Common.

A. PALMATA, *Nees.*

Old logs. Common.

A. MULTIFIDA, *Dumort.*

Old logs in swamps, wet ground in woods; frequently submerged; common, C. F. AUSTIN.

STEETZIA, *Lehm.*S. LYELLII, *Lehm.*

Wet ground, in springy, boggy places. Sand Lake. Shawangunk mountains, C. F. AUSTIN. Sterile.

PELLIA, *Raddi*.P. EPIPHYLLA, *Nees*.

Wet ground, borders of ditches. Frequent. April, May.

BLASIA, *Mich*.B. PUSILLA, *L*.

Wet gravelly or sandy banks. Albany. Not common. Sterile.

GEOCALYX, *Nees*.G. GRAVEOLENS, *Nees*.

Ground and old logs; common, C. F. AUSTIN.

CHILOSCYPHUS, *Corda*.C. POLYANTHUS, *Corda*.

Sticks and stones in streams and swamps; often submerged. Common but sterile.

LOPHOCOLEA, *Nees*.L. HETEROPHYLLA, *Nees*.

Ground and old logs. Common and variable. June.

SPHAGNOCETIS, *Nees*.S. COMMUNIS, *Nees*.

Rotten wood and old logs. Common but rarely fruits.

JUNGERMANNIA, *L*.J. TRICOPHYLLA, *L*.

Wet ground, damp rocks, among moss, etc. Common.

J. SETACEA, *Web*.

With the last and as common, C. F. AUSTIN.

J. CONNIVENS, *Dicks*.

Decayed wood and damp places on the ground. Frequent.

J. CURVIFOLIA, *Dicks*.

Old logs. Frequent and variable in color.

J. BICUSPIDATA, *L*.

Rotten wood and among moss. Sand Lake. Catskill mountains.

J. CATENULATA, *Hub*.

Ground and old logs in swamps; very common, C. F. AUSTIN.

Stems prostrate, rarely suberect, slightly compressed or subjulaceous. Leaves suborbicular, concave, obliquely clasping, nearly twice as wide as the stem, bifid, with an obtuse sinus and acute straight or connivent and more or less incurved lobes; amphigastria none; involucreal leaves subovate, 2-3-cleft, the lobes spinulose-dentate; perianth on a very short lateral branch, elongated, subcylindrical, the apex trigonal, sub-acute, whitish, the mouth ciliate-lobed, the lobes spinulose-dentate. Forms extensive olive-green patches.

J. SULLIVANTIANA. (n. s.)

Cold shaded ground, Orange county, C. F. AUSTIN.

"Amphigastria minute, ovate or sub-quadrata, sometimes emar-

ginate. Color light green. Stems 2-4 lines long, filiform, creeping, densely radiculose. Leaves scarcely wider than the stem, somewhat distant, subdistichous, erecto-patent, broadly and obtusely complicate-concave, under pressure broadly cuneate-triradiate, distinctly serrate-denticulate, $\frac{1}{2}$ -bifid; sinus broad and obtusish or sometimes acutish, lobes triangular-ovate, acute; areolation minute, for the most part quadrate, with the interstices narrow and hyaline. Involucral leaves 3, $\frac{1}{2}$ -connate, 2-3(?) lobed, spinulose-dentate. Perianth terminal on a longish, club-shaped branch, plicate to the base; apex obtusely triangular, white, deeply lacinate, the lobes sub-linear, truncate, their apex minutely denticulate."

AUSTIN MSS.

J. LESCURIANA. (n. s.)

On the ground in open woods, Orange county, C. F. AUSTIN.

"This is a larger species than the last with longer and more entangled sterile stems and subulate, sub-squarrose amphigastria. Fertile stems more clavate, erect, and crowded. Leaves more imbricated and the lobes more ovate, the lower not serrate. Involucral leaves numerous and crowded into roseate or capitulate heads which are at first terminal, but at length dorsal, the inner ones highly connate, scarious and eroded-denticulate on the margin above. Perianth broadly oval, nearly white, strongly and acutely plicate, and even in the young state deeply lacinate-lobed; the mouth denticulate. The leaves towards the apex of the fertile stems are less deeply bifid than the lower ones and often 2-5 papillate-dentate at the subtruncate apex of the lobes." AUSTIN MSS.

J. BICRENATA, Lindbg.

Ground in bleak open woods; Helderberg mountains, Shawangunk mountains, C. F. AUSTIN.

Color varying from pale green to reddish-brown. Stems short, thick, densely radiculose; leaves orbicular or subquadrate, very concave, closely imbricating, rather thick and firm, emarginate-2-toothed, with a lunate sinus and acute teeth; involucral leaves 2-3-toothed, serrate; perianth terminal, ovate, plicate, the mouth ciliate-denticulate; connivent.

J. INCISA, Schrad.

Old logs. Sand Lake. Not common.

J. BARBATA, Schreb.

Rocks and thin soil covering rocks in mountainous localities. Frequent and variable. Rarely fruits.

Var. ATTENUATA, Mart.

Rocks and ground; High Peak, Catskill mountains. Fertile.

Stems more slender than in the typical form, erect; lower leaves eroded-denticulate at the apex; upper leaves uniformly 3-toothed; amphigastria wanting.

J. MICHAUXII, Web.

Perpendicular faces of rocks on mountains. Sand Lake. Catskill mountains.

J. MINUTA, Crantz:

Rocks, Catskill mountains.

Amphigastria none; leaves complicate-concave, pectinate-spreading, $\frac{1}{4}$ - $\frac{1}{2}$ -bifid; the lobes subequal, ovate, acute or obtuse; inner involucreal leaves trifid; perianth oval-oblong, subcylindrical, the mouth plicate. Resembles the last, but is more slender, leaves not contorted, areolation more quadrate, C. F. AUSTIN.

J. SCUTATA, Web.

Old logs. Common.

J. SCUTATA is described as having the perianth terminal, and at length dorsal; in our plant (which may be a distinct species) the perianth is ventral as in SPHAGNOCETIS COMMUNIS; the amphigastria is smaller, C. F. AUSTIN.

J. PECKII. (n. s.)

Decayed wood, Sand Lake.

"A minute densely caespitose species of a light brownish-red color. Stems rigid—with the leaves—lanceolate in outline, the base densely radiculose and creeping, the apex ascending, microphyllous; rootlets very long and of a light pink color. Leaves imbricated, erecto-vertical, upwardly connivent, concave, rotund-quadrate, somewhat margined; the base obliquely clasping; the ventral margin almost connate with the amphigastria, the dorsal decurrent; the apex somewhat incurved, emarginate-bilobed; sinus acute or obtuse; lobes straightish or somewhat connivent and incurved; areolation large, subrotund; the cellules contiguous and poriform; interstices somewhat obscure; involucreal leaves small, unequal and unequally 2-3(?)-toothed. Perianth on a very short branch arising from the under side of the stem near the base, minute, ovate, somewhat oblique; the mouth oblique, subtruncate, minutely denticulate, at length fissured. Amphigastria minute, oblong-ovate, margined, entire; the apex incurved." AUSTIN MSS.

Differs from J. SCUTATA as follows: Plant smaller, color light red, stems lanceolate, leaves frequently obtusely bilobed, amphigastria smaller and entire, involucreal leaves small and unequal; perianth never terminal and areolation of the leaves larger, C. F. AUSTIN.

J. SCHRADERI, Mart.

Old logs and decayed wood. Frequent. August - October.

J. CRENULATA, Smith.

Ground, Shawangunk mountains, C. F. AUSTIN.

J. EXSECTA, Smith.

Rotten wood. Sand Lake and Catskill mountains.

SCAPANIA, *Lindbg.*S. NEMOROSA, *Nees.*

Ground, rotten wood, rocks, in wet or dry places, mountain and plain. Frequent. Rocks, Catskill mountains, fertile. June.

PLAGIOCHILA, *Nees & Mont.*P. SPINULOSA, *Nees & Mont.*

Rocks, High Peak, Catskill mountains. Rare.

P. ASPLENOIDES, *Nees & Mont.*

Rocks and banks along rivulets. Frequent and variable.

P. POBELLOIDES, *Lindbg.*

Roots of trees in swamps; common, C. F. AUSTIN.

SARCOSCYPHUS, *Corda.*S. EHRHARTI, *Corda.*

Rocks in rivulets, Catskill mountains. Shawangunk mountains, near Greenville, C. F. AUSTIN.

FRULLANIA, *Raddi.*F. GRAYANA, *Mont.*

Rocks and trees. Frequent. Abundant in swamps on balsam and tamarack trees where it is fertile.

F. HUTCHINSIÆ, *Nees.*

Rocks in rivulets, near Greenville, Orange county, C. F. AUSTIN.

F. VIRGINICA, *Gottsche.*

Trees and rocks. Common.

F. EBORACENSIS, *Gottsche.*

Trees and rocks. Frequent.

LEJUNIA, *Libert.*L. SERPYLLIFOLIA, *Libert.*

Rocks and trees in mountainous districts. Catskill mountains.

L. CALCAREA, *Libert.*

Stones and roots of trees, Orange county, C. F. AUSTIN.

MADOTHECA, *Dumort.*M. PLATYPHYLLA, *Dumort.*

Rocks and trees. Frequent and variable.

M. POBELLA, *Nees.*

Sticks and stones in streams. Sand Lake. • Sterile.

RADULA, *Nees.*R. COMPLANATA, *Dumort.*

Rocks and roots of trees. Very frequent and commonly fertile.

PTILIDIUM, *Nees.*P. CILIARE, *Nees.*

Old logs and ground in woods; mountain and plain. Very common and variable.

A large, erect, sterile form is found on the ground on high mountains.

SENDTNERA, *Endl.*S. JUNIPERINA, *Nees.*

Crevices of perpendicular rocks on mountains, Catskill mountains, High Peak and below Cauterskill Falls.

TRICHOCOLEA, *Nees.*T. TOMENTELLA, *Nees.*

Swamps and bogs. Common but seldom fruits.

MASTIGOBRYUM, *Nees.*M. TRILOBATUM, *Nees.*

Ground, rocks and much decayed wood in woods. Frequent. Rarely fruits.

M. DEFLEXUM, *Nees.*

Rocks and base of trees. Catskill mountains.

LEPIDOZIA, *Nees.*L. REPTANS, *Nees.*

Rotten logs and base of trees in woods, hills and mountains. Not rare.

CALYPOGEIA, *Raddi.*C. TRICHOMANIS, *Corda.*

Ground and old logs, often in wet places; common, C. F. AUSTIN.

In the foregoing List, 274 species of Musci and 66 species of Hepaticæ are recorded. It is believed that not a few species yet remain to be added to our Flora. It is the purpose of the writer to continue his efforts to perfect the List, and he would solicit contributions of specimens and facts from the bryologists of the State. It is well to note the habitat and time of fructification.

The following species of Moss doubtless occur within our limits, but have been omitted because they are not positively known to have been detected therein: *Ephemerum serratum*, *Astomum sullivantii*, *A. nitidulum*, *Bruchia flexuosa*, *Archidium ohioense*, *Dicranum refescens*, *Bryum lescurianum*, *Thelia lescurii*, *Hypnum scitum*, and *H. scorpioides*. Three species of moss new to this country, were detected the past season, and three new species of Liverwort are herein described. If we consider that the regions especially rich in species—the Catskill and the Adirondack mountains—have been but little visited by collectors, we must infer that many interesting species yet remain to reward future explorers.

ALBANY, December, 1865.

(C.)

LIST OF PLANTS FOR STATE HERBARIUM,

COLLECTED BY

HENRY B. LORD,

IN THE VICINITY OF LUDLOWVILLE, TOMPKINS COUNTY, 1865.

DENTARIA DIPHYLLA,	With root.
SINAPIS NIGRA,	Flower and fruit.
STELLARIA LONGIFOLIA,	do do
RHUS GLABRA,	do do
ACER SPICATUM,	Flower.
GEUM ALBUM,	Flower and fruit.
AGRIMONIA EUPATORIA,	do do
CIRCÆA ALPINA,	Flower.
THASPIUM TRIFOLIATUM(?),	do
CORNUS FLORIDA,	Fruit.
CORNUS PANICULATA,	do
SAMBUCUS PUBENS,	do
MITCHELLA REPENS,	Flower and fruit.
EUPATORIUM SESSILIFOLIUM,	Flower.
ASTER UNDULATUS (2 forms),	do
SOLIDAGO ARGUTA,	do
SOLIDAGO MUHLENBERGII,	do
HIERACIUM SCABRUM,	Flower and fruit.
SONCHUS OLERACEUS,	do do
SONCHUS ASPER,	do do
PYROLA ROTUNDIFOLIA,	Fruit.
PYROLA CHLORANTHA,	do
VERONICA OFFICINALIS,	Flower and fruit.
GERARDIA PEDICULARIA,	do do
LYCOPUS EUROPÆUS,	do do
LITHOSPERMUM OFFICINALE,	do do
ASARUM CANADENSE,	Fruit.
JUGLANS CINEREA,	do
CARYA ALBA,	Flower.
CARYA GLABRA,	do
CARPINUS AMERICANUS,	do
SMILACINA RACEMOSA,	Fruit.
UVULARIA GRADIFLORA,	Flower and fruit.
JUNCUS NODOSUS,	do do
CAREX TORTA.	
CAREX RETROCURVA.	
CAREX TRICHOCARPA.	
CAREX PLATYPHYLLA.	
CAREX ALOPECOIDEA.	
CAREX CEBERI.	
ADNOPOGRON FURCATUS.	
BOTRYCHIUM VIRGINICUM.	
ABALIA QUINQUEFOLIA,	Root.

FACTS AND OBSERVATIONS

TOUCHING THE FLORA OF THE STATE OF NEW YORK.

COLLECTED, MAINLY, IN 1865.

BY ONE OF THE REGENTS.

It is desirable that some one should contribute, annually, to this Report, a paper showing the progress of Botanical discovery in the State, and preparing the way for a perfect Catalogue or Flora of the State. Hoping that some one of more leisure and ability will, next year, undertake that duty, I resume its performance now.

The inevitable delay which occurs in the printing of the Regents' Reports to the Legislature, would enable me to include observations and facts made and ascertained in the season of 1866; but this is a record of those of 1865, and I prefer, in general, to keep it so.

Mr. PAINE's admirable Catalogue of the Plants of Oneida County and vicinity, which gives its chief grace and value to the last Report, contains the results of that gentleman's explorations in 1865, as well as in 1864 and previous years. It is to be regretted that he did not place authentic specimens of his discoveries in the State Herbarium; which, so far at least as its Flora is concerned, ought to be its great continent and illustrator. In drawing upon that Catalogue for materials for my Lists, I was, at first, in special cases, in doubt whether I could safely do so. I have concluded, however, to adopt the conclusions of that good botanist, for the purposes of this paper, with the occasional expression of dissent or doubt.

The following is a list of the plants, so far as known to me, which have been found growing spontaneously in the State, and which are not included in TORREY's Catalogue, nor in the additions thereto furnished in my paper appended to the last or Eighteenth Annual Report on the State Cabinet:

1. *Ranunculus flammula*, L. PAINE's Cat. p. 55, *vide* GRAY. If I correctly understand the distinction between it and var. *repens*, it is pretty common on the St. Lawrence.
2. *Ranunculus clintonii*, BECK. Mr. PAINE considers this a distinct species, though Dr. TORREY and Dr. GRAY, and botanists generally, regard it as a form of *R. repens*.

3. *Nymphaea tuberosa*, PAINE. Paine's Cat. p. 184. This species can hardly be considered as established. Dr. GRAY has undertaken its investigation, but it may not be premature for me to express my impression that, while the specific character given by Mr. PAINE will probably fail, the species is a good one.
4. *Nuphar kalmiana*, PURSH. *N. lutea* of the Flora.
5. *Nuphar variegatum*, ENGELM. In reference to this species, the venerable E. DURAND, under the date of March 10, 1866, writes me: "*Nuphar variegatum*. I found in Philadelphia, in Dr. SHORT'S herb., now in Academy of Nat. Sciences, a specimen marked New-York, from H. H. EATON'S Herb." It "is easily distinguished from *N. advena*, by its leaves always floating, with closed sinuses and winged petioles." I have just been informed, authentically, that Dr. ENGELMANN now doubts the distinctness of this species.
6. *Argemone mexicana*, L. PAINE'S Cat. p. 185.
7. *Dentaria heterophylla*, NUTT. PAINE'S Cat. p. 60.
8. *Cakile maritima*, SCOP.; var. *æqualis*, CHAPM. Coney Island, one plant, 1865: STEPHEN CALVERLEY. (*C. maritima* of the Flora = *C. americana*, NUTT.)
9. *Malva alcea*, L. Buffalo, 1862, Alden, 1865; roadsides. G. W. C. For the identification of this species, I am indebted to my friend DAVID F. DAY, Esq.
10. *Trifolium procumbens*, L. PAINE'S Cat. p. 72. Sent to me, from the vicinity of New-York, in 1864, by A. A. ADEE, Esq. Regarded by botanists in the southern and eastern portions of the State as common; but *Medicago lupulina* is often taken for it.
11. *Medicago maculata*, WILLD. PAINE'S Cat. p. 72.
12. *Lespedeza stuvei*, NUTT. PAINE'S Cat. p. 73.
13. *Geum album*, GMELIN. Common in the western part of the State, and, probably throughout it. The *G. virginianum* of the Flora is, probably, *G. album*; but our Flora includes both species.
14. *Prunus spinosa*, L. PAINE'S Cat. p. 75.
15. *Potentilla paradoxa*, L. NUTT. PAINE'S Cat. p. 186.
16. *Hydrangea arborescens*, L. In 1865, the Rev. L. HOLZER collected, on the hills near Corning, on the road to Blossburg, what I believe to be this plant, though it had no radiant flowers.
17. *Pimpinella anisum*, L. Buffalo, 1865: D. F. DAY and G. W. C. Spontaneous about gardens; hardly a scape.
18. *Lonicera parviflora*, var. *douglasii*, GRAY. On the verge of the chasm between Niagara Falls and Suspension Bridge, 1865. G. W. C.
19. *Galium mollugo*, var. γ . HOOK. & ARN. New-York Island, 1865. M. W. DENSLOW, Esq.
20. *Fedia olitoria*, VAHL. Abundant in a court-yard near Buffalo, and spreading, 1865. G. W. C.

21. *Aster azureus*, LINDL. Near the whirlpool of the Niagara river, on the top and edge of the bank, 1865. G. W. C.
22. *Solidago puberula*, NUTT. PAINE'S Cat. p. 93. New-York botanists write me that it has long been regarded as common on Long Island, etc.
23. *Solidago speciosa*, NUTT. Harlem, 1861, C. F. AUSTIN. Re-discovered there, in 1865, by Dr. BURNSTEAD and Dr. ALLEN.
24. *Solidago speciosa*, var. *angustata*, TORR. & GR. PAINE'S Cat. p. 93.
25. *Solidago houghtonii*, TORR. & GR. The open swamp in Bergen, 1865: Dr. C. M. BORTH and Mr. PAINE.
26. *Solidago linoides*, SOLANDER. PAINE'S Cat. p. 94.
27. *Lapsana communis*, L. Buffalo, 1865, and in a court-yard and the adjacent street. G. W. C.
28. *Pyrola secunda*, L. var. *pumila*. PAINE'S Cat. p. 187.
29. *Dodecatheon meadia*, L. PAINE'S Cat. p. 105. This seems very doubtful.
30. *Utricularia clandestina*, NUTT. PAINE'S Cat. p. 106.
31. *Utricularia gibba*, L. PAINE'S Cat. p. 106.
32. *Gerardia integrifolia*, GRAY. Salamanca, side of the hill opposite the railroad station, 1865. G. W. C.
33. *Schwalbea americana*, L. PAINE'S Cat. p. 109.
34. *Hyssopus officinalis*, L. PAINE'S Cat. p. 110.
35. *Thymus serpyllifolia*, L. PAINE'S Cat. p. 111.
36. *Atropa belladonna*, L. PAINE'S Cat. p. 116.
37. *Atriplex hastata*, L. var. *oblongifolia*. PAINE'S Cat. p. 120. This seems to be different from a narrow leaved form which I have found at Syracuse, and also about court-yards and gardens in Buffalo and Richfield Springs, and I have never seen it. If it be different, then Salina and Syracuse present four remarkably variant forms of *Atriplex hastata*.
38. *Amarantus retroflexus*, L. PAINE'S Cat. p. 120.
39. *Amarantus hypochondriacus*, L. Niagara Falls, 1865. G. W. C.
40. *Amarantus spinosus*, L. Along the Buffalo and State Line railroad, near Elk-street, Buffalo, 1865. G. W. C.
41. *Polygonum careyi*, OLNEY. PAINE'S Cat. p. 121.
42. *Rumex sanguineus*, L. PAINE'S Cat. p. 122. I fear that a redveined form of *R. obtusifolius* is taken for this species.
43. *Rumex acetosa*, L. PAINE'S Cat. p. 122.
44. *Callitriche austini*, ENGELM. "Staten Island, in shady by-ways on dry, hilly ground," June 1865. C. F. AUSTIN.
45. *Populus angulata*, AIT. PAINE'S Cat. p. 189.

46. *Juniperus sabina*, L. var. *prostrata*. PAINE'S Cat. p. 130. Long known to our botanists, but first identified as a var. of *sabina*, by Dr. ROBBINS.
47. *Sparganium eurycarpum*, ENGELM. PAINE'S Cat. p. 131.
48. *Sparganium natans*, L. PAINE'S Cat. p. 132.
49. *Sagittaria graminea*, MICHX. PAINE'S Cat. p. 134. Dr. ENGELMANN, about two years ago, wrote me that this species exists in the Niagara river, near Buffalo; but I have not been able to identify it to my satisfaction.
50. *Platanthera rotundifolia*, LINDL. var. *oblongifolia*. PAINE'S Cat. p. 135.
51. *Cypripedium candidum*, MUHL. PAINE'S Cat. p. 139.
52. *Tofieldia glutinosa*, WILLD. PAINE'S Cat. p. 143.
53. *Juncus debilis*, GRAY. PAINE'S Cat. p. 145.
54. *Xyris bulbosa*, KUNTH. PAINE'S Cat. p. 146.
55. *Eleocharis compressa*, SULLIVANT. PAINE'S Cat. p. 147.
56. *Scirpus fluviatilis*, GRAY. PAINE'S Cat, p. 149. Well known to botanists, since GRAY pointed out the distinction between it and *S. maritimus*, and included in several local catalogues, including my own.
57. *Carex prairea*, DEW. PAINE'S Cat. p. 151. (I may as well remark here, that I dare not interfere in the disputes touching the species of this extremely large genus; and, so far as I refer to it, I adopt the conclusions of Mr. PAINE'S Catalogue, without examination.) I suppose this to be *C. teretiusecula*, var. *major*, KOCH. Bergen swamp, 1865: G. W. C. PAINE'S Cat. p. 151.
58. *Carex cephaloidea*, DEW. PAINE'S Cat. p. 151.
59. *Carex scabrior*, SARTWELL. PAINE'S Cat. p. 152.
60. *Carex tenella*, EHRH. PAINE'S Cat. p. 152.
61. *Carex argyrantha*, TUCKERMAN. PAINE'S Cat. p. 152.
62. *Carex lenticularis*, MICHX. PAINE'S Cat. p. 153.
63. *Carex strictior*, DEWEY. PAINE'S Cat. p. 154.
64. *Carex gynandra*, SCHWEIN. PAINE'S Cat. p. 154.
65. *Carex emmonsii*, DEW. PAINE'S Cat. p. 155.
66. *Carex lupuliformis*, SARTW. PAINE'S Cat. p. 157.
67. *Carex retrocurva*, DEW. PAINE'S Cat. p. 158.
68. *Carex vaginata*, TAUSCH. PAINE'S Cat. p. 158.
69. *Carex woodii*, DEW. PAINE'S Cat. p. 159.
70. *Carex glabra*, BOOTT. PAINE'S Cat. p. 160.
71. *Carex knieskernii*, DEW. PAINE'S Cat. p. 161.

72. *Carex richardsonii*, R. BROWN. PAINE'S Cat. p. 161.
73. *Carex vaseyi*, DEW. PAINE'S Cat. p. 163.
74. *Carex hartii*, DEW. PAINE'S Cat. p. 163.
75. *Carex hartii*, var. *bradleyi*, DEW. PAINE'S Cat. p. 163.
76. *Carex ampullacea*, GOOD. PAINE'S Cat. p. 164.
77. *Carex monile*, TUCKERM. PAINE'S Cat. p. 164.
78. *Carex vesicaria*, L. PAINE'S Cat. p. 164.
79. *Carex physema*, DEW. PAINE'S Cat. p. 165. To these Carices must be added:
80. *Carex utriculata*, var. *minor*, the credit of the discovery of which is, I believe, due to the Hon. HENRY B. LORD.
81. *Carex œderi*, var. *prolifera*, LORD. This form is found by Mr. LORD near Ludlowville, Tompkins county, and he deems it worthy to be noted as a variety, under the above name. At least one of the spikes of each plant is proliferous; that is, from one of the perigynia issues a stalk bearing a spike.
82. *Carex lupulina*, var. *gigantoidea*, DEWEY in SILLIMAN'S Journal. Discovered by Mr. LORD, near Ludlowville, in 1865.
83. *Tripsacum dactyloides*, L. Hunter's Point, Long Island, 1865. Dr. T. F. ALLEN.
84. *Cystopteris fragilis*, var. *dentata*, HOOK. PAINE'S Cat. p. 178.
85. *Aspidium dilatatum*, WILLD. PAINE'S Cat. p. 178.
86. *Aspidium boottii*, TUCKERM. PAINE'S Cat. p. 178. These two forms of *A. spinulosum*, as they are commonly conceded to be, are not extremely uncommon in the State, and have long been known to its botanists.
87. *Botrychium lanceolatum*, ANGSTR. PAINE'S Cat. p. 179.
88. *Isœtes braunii*, DURIEU. The Niagara river, near Buffalo, at the mouth of the Little Bay of Strawberry Island, and along the head of Grand Island, 1865: G. W. C. This was determined by DURIEU, to whom specimens were sent, "with the same remark that Prof. BRAUN makes to Dr. ENGELMANN, that *I. braunii* and *echinospora* may probably prove to be forms of the same species." E. DURAND, in lit., Dec. 5, 1865.
89. *Isœtes macrospora*, DURIEU. This species "was established on an unique specimen in the herbarium of the Phil. Academy of Natural Sciences, which I sent to Prof. DURIEU three years ago. It was marked, 'found in a pond of the Catskill.' It is distinguished by its very large spores and androspores, larger than in any other known species." E. DURAND, in lit., Dec. 11, 1865. The station of this plant is believed to be one of the small ponds or lakes back of the Mountain House.

The following plants, which are either maritime or principally affect the sea coast, have, since the last Report, been found in the interior of the State:

1. *Orontium aquaticum*, L. "Borders of a pond in Gilbertsville, Otsego county, H. LATHROP *in herb.*" PAINE'S Catalogue.
2. *Eleocharis olivacea*, TORR. PAINE'S Catalogue.
3. *Calamagrostis arenaria*, ROTH. PAINE'S Catalogue.
4. *Spartina stricta*, var. *alterniflora*, GRAY. PAINE'S Catalogue.

The following list contains new stations of rare plants, or remarkable stations of common ones, and some corrections of reputed stations, and notable observations touching some of our plants:

1. *Ranunculus reptans*, L. On western edge of Strawberry Island, in the Niagara river, and off the Little Bay of that Island, in water from one to two feet deep.
2. *Adlumia cirrhosa*, RAF. Akron, Erie county, 1864: D. F. DAY and G. W. C.
3. *Nuphar kalmiana*, PURSH. Williams's Bridge, on the Harlem river, 1865. T. F. ALLEN.
4. *Dicentra eximia*, D.C. On recurring to my correspondence with DAVID THOMAS, in 1829, I find that he had not, as I supposed, then found this plant native in Cayuga county. Prof. PICKETT kindly communicated to me a letter of my dear friend, Dr. SARTWELL, dated June 23, 1865, in which he writes: "As to *Dicentra eximia*, I know not where it can be found. About twenty years ago, I found it in Wayne county, not far from Lyons; and DAVID THOMAS found it in Scipio, Cayuga county, about the same time, or before. I doubt whether it can be had, at this time, unless some one has it in his garden. I have no duplicate specimen."
5. *Lychnis vespertina*, SIBTH. New-York Island, 1865. W. W. DENSLOW.
6. *Vicia cracca*, L. Hanover, Chautauqua county, 1865: D. F. DAY. Mr. DAY informs me that it had taken possession of a farm in that town, and, being regarded as a weed, the farm had depreciated in value.
7. *Gymnocladus canadensis*, LAM. The Hon. HENRY B. LORD, of Ludlowville, Tompkins county, wrote to me, on the 15th of July 1865: "Too late for flowering specimens. I know of but one tree in this town, and two smaller growing near it, which I should take to be seedlings, only the flowers on the oldest tree are staminate. These trees are, apparently, spontaneous, growing outside of any enclosure, near the (Cayuga) Lake. They have been regarded with great curiosity by the people, no one knowing what to call them. The prevalent impression was that they were *mahogany* trees, and I have frequently had them pointed out to me as such; and, sometimes, the very interesting

incident was stated, that the largest tree (about 18 inches in diameter) was planted by a sailor, or rather the seed was planted which he brought with him from a voyage to the mahogany countries."

8. *Rosa setigera*, MICHX. In company with Dr. BOOTH, I found some bushes of this near Rochester, in 1864, on our way to Irondequoit Bay, and the Doctor informed me that there were other stations of it near Rochester. In the same year I found a single bush of it on the edge of a wooded swamp, remote from any garden, near Buffalo. In 1865, I found it abundant, on the banks of the Oak Orchard creek, at Albion. I am inclined, however, to the belief that, in all these stations, it was bird-sown, and that it is not indigenous to the State.
9. *Lythrum hyssopifolia*, L. Staten Island, 1865. W. H. LEGGETT.
10. *Epilobium molle*, TORREY. Buffalo, 1865. G. W. C.
11. *Opuntia vulgaris*, MILL. My venerable friend, Dr. JAMES HADLEY, now of Buffalo, wrote me, on the 23d of May 1866, as follows: "In answer to your inquiries I would state that I never found, and do not know that any one else ever found, *Opuntia vulgaris* at Fairfield. The statement of Dr. TORREY, in his Flora of the State, 'The most northern locality in this State is Fairfield, where it was found by Prof. HADLEY', is an error. I collected this plant at New-Haven, Connecticut; and it may be that a specimen, collected there, slipped in among some plants from Fairfield which I furnished to Doctor TORREY. I can imagine no other way in which the error could have occurred." My good friend, JAMES L. BENNETT, of Providence, R. I., in March 1866, wrote me that, in 1856 or 1857, he found the *Opuntia vulgaris* "in the neighborhood of Syracuse, in a southwestern direction from the city," and that "it appeared a native, and not an accidental interloper."
12. *Valeriana sylvatica*, RICHARDS. Bergen swamp, Genesee county, 1865. Dr. BOOTH, FISH, PAINE.
13. *Solidago ohioensis*, RIDDELL. Bergen swamp, 1865. BOOTH, FISH.
14. *Veronica anagallis*, L. Caledonia, Livingston county; and in the Tonawanda swamp, on the Oak Orchard creek, near Alabama, 1865. G. W. C. Near Bergen, 1865: L. HOLZER, FISH, BOOTH.
15. *Melissa officinalis*, L. Roadsides in Hamburg, Erie county, 1865. Naturalized, D. F. DAY.
16. *Blephilia hirsuta*, BENTH. "It grows along the Chemung river, west of the railroad bridge, outside of Corning, near the Painted Post station." Rev. L. HOLZER, 1865.
17. *Gentiana saponaria*, var. *linearis*, GRAY. Irondequoit Bay, 1863. GEO. W. FISH.
18. *Frasera carolinensis*, WALT. Under the date of "Greatfield, 2 mo. 2, 1828," DAVID THOMAS wrote me: "*Frasera carolinensis* is called a biennial, but I am satisfied that it is often triennial." It is abundant in rocky groves east of and near Buffalo. My friend, D. F. DAY, and myself have observed it closely in and

since 1861. In that year we found only radical leaves and a few old fruit stalks. In 1862 it flowered. In 1863 and 1864 it did not; but in 1865 it did flower.

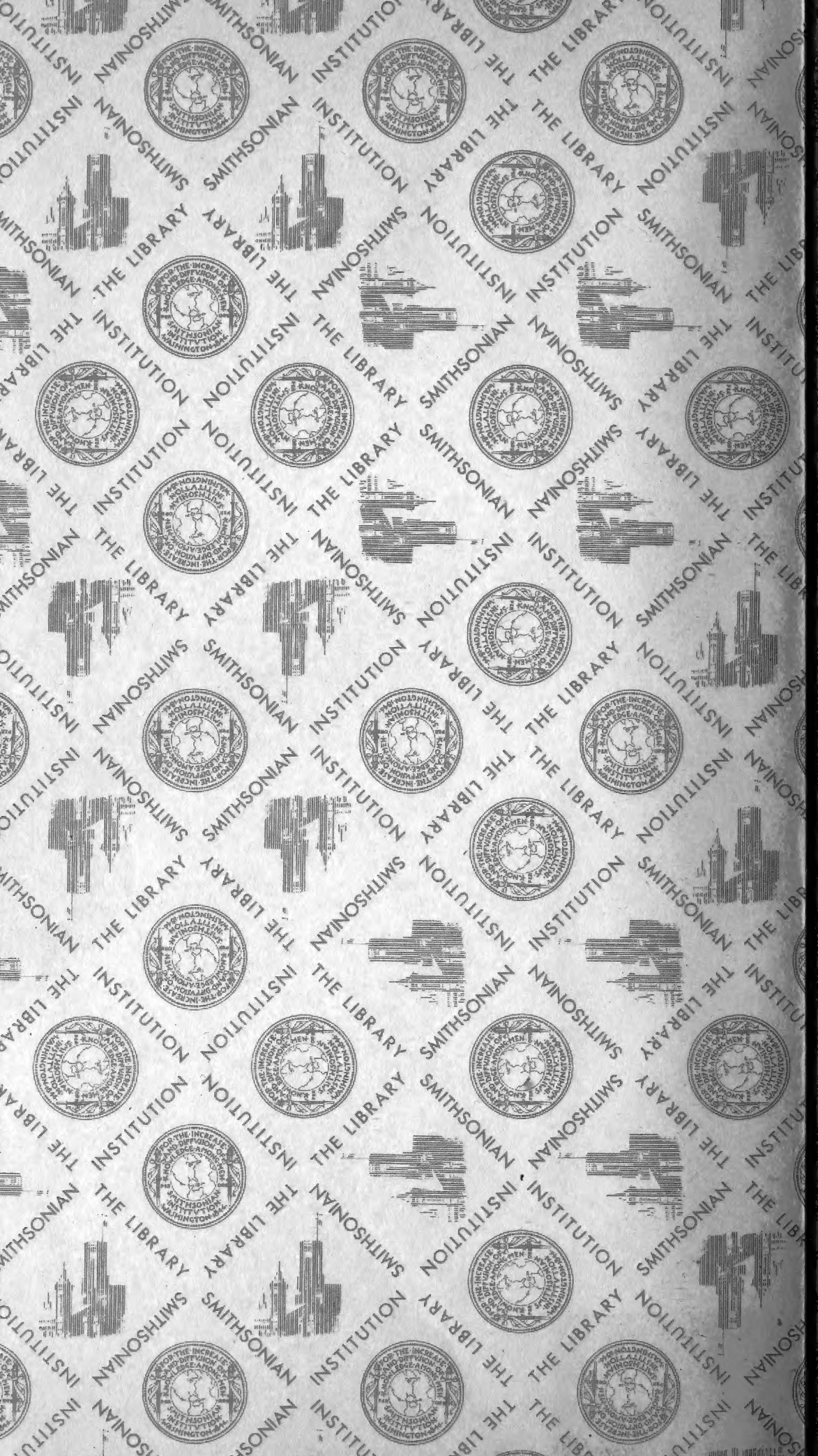
19. *Acerates viridiflora*, ELL. Staten Island, 1865. W. H. LEGGETT.
20. *Myrica cerifera*, L. Caledonia, and the Bergen swamp, common. 1865.
21. *Naias major*, ALLIONI. Irondequoit Bay, 1865. Prof. E. G. PICKETT.
22. *Zygadenus glaucus*, NUTT. Caledonia, 1865: G. W. C. Bergen swamp, 1865: FISH, BOOTH, PAINE, HOLZER.
23. *Tofieldia glutinosa*, WILLD. Bergen swamp, 1865: BOOTH, PAINE, FISH, HOLZER.
24. *Eleocharis rostellata*, TORREY. Bergen swamp, 1865: BOOTH, FISH, PAINE, HOLZER.
25. *Scirpus cœspitosus*, L. Bergen swamp, 1865: FISH, BOOTH, HOLZER, G. W. C.
26. *Scleria verticillata*, MUHL. Bergen swamp, 1865: CLINTON, BOOTH, FISH, PICKETT.
27. *Carex gynocrates*, WORMSKIOLD; *C. dioica* of the Flora. Bergen swamp, 1865: BOOTH, PAINE.
28. *Carex siccata*, DEWEY. Bergen swamp, 1865. G. W. C.
29. *Carex grayii*, CAREY. Rochester, BOOTH, ALDEN, 1865; HOLZER and G. W. C.
30. *Phalaris canariensis*, L. Buffalo, on rubbish heaps, 1865. D. F. DAY
31. *Scolopendrium officinarum*, SWARTZ. On the third day of March, 1865, LEWIS FOOTE, Esq., of Detroit, Michigan, discovered a new station of this fern, which, in a letter to me, he describes as being "about 200 feet from the track of the Syracuse & Binghamton R. R., about five miles from Syracuse and half a mile from Janesville, in a deep rocky ravine, through which a small stream empties into the Butternut creek." In noticing this interesting discovery, in the American Journal, Professor GRAY supposes that this may be PURSH's original station: But there is reason to believe that PURSH's was neither this nor the Chittenango Falls station. PURSH states that he found it "in shady woods, among loose rocks, in the western parts of New-York, near Onondaga, on the plantations of J. GEDDIS, Esq." The Hon. GEORGE GEDDES, the son of PURSH's "J. GEDDIS, Esq.," under the date of "Fairmount, March 31, 1866," very obligingly wrote me as follows, in answer to my inquiries: "I regret to have to say that my knowledge of botany is too limited to enable me to identify the fern commonly called the *Harts-tongue*. But it so happens that I remember many years since, when I was small boy, that my father set me looking for it in a gorge in the limestone precipice just south of my house, which is $4\frac{1}{2}$ miles west of the center of Syracuse. The gorge is within one mile of my house, and is quite like the locality on the Butternut creek and the locality on the Chittenango. I am very

familiar with all these three places. I very well remember that my father was anxious to secure a specimen of this fern, as the fact of its having been found here was *disputed*. Your letter, read in connection with my recollection of his having said that some noted botanist had found it in the gorge near here, and the dispute that had grown out of the report, leaves no doubt in my mind that the fern was found within one mile of here, and by the man you name, though not strictly on my father's land, but just off his property. This being so, it is safe for you to say that on the Chittenango, on the Butternut, and in the town of Onondaga, just at the base of the limestone cliff of one hundred feet high, this fern has been found. The first of these discoveries was the one in 1806, by PURSH. It would have gratified my father much, could he have shown that this fern grew in various places along the base of the limestone range, though he was unable to find a specimen here as late as the time when he set me looking for it, when I was carrying a gun over our hills about the year 1825."

On account of delay in the publication of this Report, the remaining Papers named in the Table of Contents, on pages 37, 38, will appear in the next Annual Report.









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