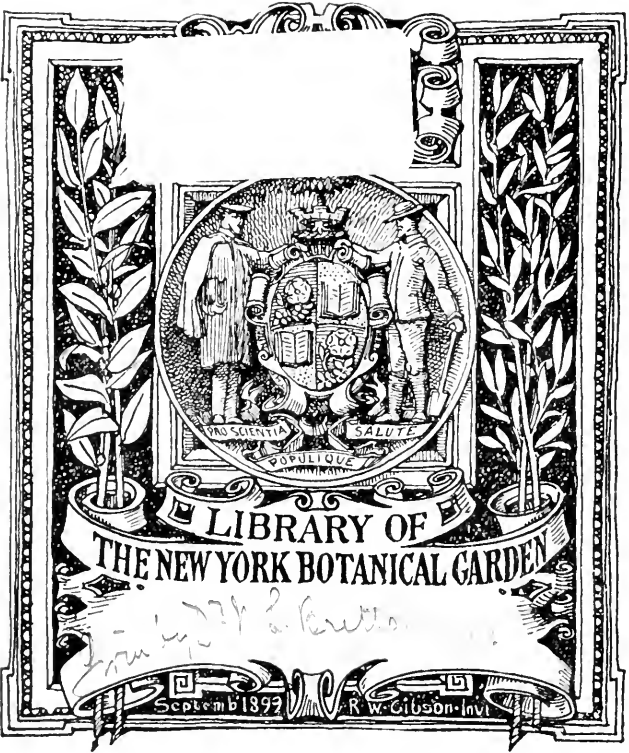


FLORA OF
WILLOUGHBY, VT.

GEO. G. KENNEDY



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Sept 1906

FLORA OF WILLOUGHBY, VERMONT.

GEORGE G. KENNEDY.

1884

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BOSTON, MASSACHUSETTS,

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WILLOUGHBY CLIFF FROM THE PASTURE.



WILLOUGHBY LAKE THROUGH THE NOTCH.

Rhodora

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FLORA OF WILLOUGHBY, VERMONT.

GEORGE G. KENNEDY.

THE approach to Willoughby Notch in old times was from the north; following up Barton River from Lake Memphremagog to the stream, named in Thompson's History of Vermont (1842) Willoughby's River, which flows from Willoughby's Lake between Mt. Pisgah and Mt. Hor. Who this Willoughby may have been I am unable to say, but his name has remained for the region and even the higher easterly mountain is now usually designated as Mt. Willoughby instead of by the older names, Pisgah or Annanance.

The notch lies in the southern corner of Orleans county and about at an equal distance, say 25 miles, from the Canada line on the north and the town of St. Johnsbury on the south: approximately, the latitude is $44^{\circ} 43'$ north, and the longitude is $72^{\circ} 2'$ west from Greenwich. The two mountains and the ridge at the south end of the lake divide the St. Lawrence waters from the Connecticut River tributaries; on the east and south sides of Mt. Willoughby, Mt. Hor and this ridge the streams unite for the Passumpsic river, and flow into the Connecticut; on the west and north sides the waters unite in Barton river, flowing to Lake Memphremagog and the St. Lawrence valley. The hotel and post office are on this ridge at the south end of the lake, three miles from the nearest house to the north, through the notch, and a mile from the next farm south.

The shortest distance to the railroad is to West Burke, a station on the Passumpsic division of the Boston and Maine. This drive of six miles follows the brook through a beautiful country of hill and valley with characteristic northern Vermont cedar (*Thuja occidentalis*) swamps. West Burke railroad station is 810 feet above the sea and

the following measurements of height are considered approximately trustworthy.

Willoughby Lake	1060 ft.
Hotel	1160 "
Pulpit Rock	1700 "
Summit of Mt. Willoughby	2650 "
North Outlook	2410 "
Long Pond	1710 "
Height of land on the Long Pond road N. E. of the mountain.	2170 "

The characteristic botanical features of Willoughby are the wet cliffs and slides on the southwest side of the mountain, and the sphagnous cedar swamps of the brooks, beginning close to the narrow ridge that makes the water-divide, and continuing at intervals for five miles southward. These cedar swamps are, I suppose, not different from others in northern Vermont, but the wet slopes of the notch are not paralleled except with Smuggler's Notch at Mount Mansfield; and yet while the two notches have so many peculiar plants in common, each has some that the other lacks. Of such Smuggler's Notch has *Lycopodium Selago*, L., *Arenaria verna*, L., var. *hirta*, Watson, *Gentiana Amarella*, L., var. *acuta*, Hook. f., *Castilleja pallida* Kunth, var. *septentrionalis* Gray. Willoughby Notch has *Asplenium Ruta-muraria*, L., *Scirpus pauciflorus*, Link, *Rhynchospora capillacea*, Torr., *Braya humilis*, Robinson, *Aster polyphyllus*, Willd.

The Willoughby plants, too, are to be found in a very limited area. It is safe to say that nine-tenths of the non-introduced species can be found in two square miles, having the ridge at the south end of the lake as a center: the northern square mile takes in the lake shore and slopes, ledges and woods of the mountains on either side of the lake; the southern square mile gives us the pastures, wet fields and swamps with their interesting orchids and carices.

The rocks of the district appear to be of calcareous-mica-slate of a coarse consistency in some places as if siliceous, and therefore crumbling in some parts, while in others they are of a firmer slaty texture. The cliffs and ledges of the mountain disintegrate in large or small masses, making a talus at the base of the cliff extending even into the lake. On this slope grow many of the cliff plants evidently torn in sods from the upper ledges. At the south end the talus is covered to a greater depth with humus and the vegetation is more



SHORE ROAD AT THE SOUTH END OF THE LAKE.



SHORE ROAD BEYOND ROARING BROOK.

abundant and the trees larger; in fact at this spot one thinks of the Virginian Alleghanies with beautiful *Viola Canadensis* and *Caulophyllum thalictroides*; while a few hundred feet further north on the slope the trees are smaller, the falling of rock from the cliff more frequent and the characteristic cliff plants appear at the roadside. Further up the road, at the "Devil's Den" the boulders are very large, say from 20 to 40 feet across.

There is considerable lime in the district, not to be noticed in the delicious drinking water so abundantly bursting forth on the southern part of the ridge, but seen here and there in white frosty patches under and about loose rocks, and in one part of the bog below the house spreading over a half-acre meadow to which the name Marl Pond has been given; a pond from four to six inches deep with the water gently moving over a flat bottom, which in all parts except one spot is as hard as a floor. The mosses, ferns and many flowering plants of the region are all more or less those of a limey district.

Slides of earth and rock from the upper part of the cliff have left a series of channeled gravel trails in the higher portion of the wooded talus of the cliff. In many of them water flows for the greater part of the summer, especially at the north and south ends of the precipitous walls; that is, not from the actual summit of the mountain, but from springs part way down the sides. These slides are old features of the mountain, the only recent one occurring about forty years ago near the north end of the cliff, obstructing the then new highway for several days, and made more memorable by happening on the 4th of July, for which reason the slide has always borne that patriotic name.

The so-called "Flower Garden" of the earlier botanists is at the base of the big cliff just referred to and here the wearing away of the mountain has somewhat lessened, and apparently the water which plays so large a part in the disintegration has sought other channels; for the garden of late years is neither so rich in flowers nor so cool a collecting place on a hot day as other parts of the cliff walk. In this respect it differs greatly from Smuggler's Notch where the slides are usually the result of very heavy rains and where the loss of earth on the mountain side has not left such relatively large bare cliffs, and where the mass of earth yet to come down is infinitely greater than at Willoughby. A slide in 1897 at Smuggler's Notch filled the highway with mud three or four feet deep; and the upper surface having in places dried hard enough to walk upon, the mass had a lava-like

consistency, being still soft and muddy below the surface. There is not enough earth at Willoughby for such a slide.

There is no roadway at the base of Mt. Hor on the west side of the lake. A highway was laid out and finished in 1856 on the east side at the base of Mt. Willoughby and is now the post road from West Burke to Westmore village at the outlet of the lake. This highway is certainly one of the most beautiful rural roads in New England, and is fully as much of a flower garden as the base of the cliffs above.

The Lake is some five miles long, a mile or more wide at its northern half and narrowing at its southern end in the notch between the two mountains. Few water plants have been collected in this south part, the precipitous walls of the notch extending apparently into deep water. The northern end has a beach half a mile in length and meadows extending to the water's edge: the prevailing northerly winds tend to drift water plants towards the south end of the lake and such plants have been thus gathered on the south lesser beach.

No mention is made of Willoughby in Wm. Oakes' elaborate catalogue of Vermont Plants,¹ nor have I heard that Oakes ever visited the northeastern part of the state; but in that catalogue Mr. Robbins is named as having collected at Lake Memphremagog and at Brownington, at which latter place in 1829 he obtained *Senecio aureus*, L., var. *lanceolatus*, Oakes, as noted in "Some rare plants of New England."² This is *Senecio Robbinsii*, Oakes, of the present list.

Mr. Carey is also named as collecting plants at Lyndon and Sutton on the south side of Willoughby and at Charleston on the north, and all within a dozen miles of the Notch. This Mr. Carey is John Carey, the friend and companion of Asa Gray on his North Carolina trip, who lived at Bellows Falls, Vermont, in 1835 and 1836, and died at an advanced age in England in 1879.³ How Mr. Carey could have collected *Botrychium simplex*, Hitchcock, at this early date at "Sutton, near the village, on the road leading to Burke,"⁴ and not visited the Willoughby Cliffs, however inaccessible they appeared, is to me a mystery.

¹ Oakes in Thompson, Nat. Hist. Vt. (1842) 173-208, reprint 1-36.

² Oakes, Hovey's Mag. Hort. vii. (1841) 183.

³ *Vide* Asa Gray, Biographical notice, Am. Jour. Sci., Ser. 3, xix. (1880) 422.

⁴ Oakes, Cat. Vt. Pl. l. c. 207 (35).



NORTH END OF THE CLIFFS, WILLOUGHBY MOUNTAIN.



FACE OF THE CLIFFS, WILLOUGHBY MOUNTAIN.

Alphonso Wood (1810–1881) was the first botanist to visit Willoughby and publish any names of plants there collected, and the only reference to his visit I have been able to find is in the second edition of his *Class Book of Botany*,¹ where under *Saxifraga aizoides*, L. and *S. oppositifolia*, L. he says he discovered these in August, 1845, in the clefts of rocks, Willoughby Mt., 500 feet above the lake.

In July, 1852, C. C. Frost and Rev. A. H. Clapp of Brattleboro, Vermont, visited Willoughby and their trip is described by John L. Russell of Salem, Massachusetts, in *Hovey's Magazine*, for November, 1852.² The mountain is there called Pisgah or Annance; the latter a name of "a chief of the St. Francis tribe of Indians." They say "the region had been explored some years previous by Mr. Wood, a botanist of merit, and through whose remarkable discoveries there, our tourist was induced to visit the spot." Forty-seven flowering plants and ferns and four mosses are mentioned as found at Willoughby and as this makes the first list of plants of the region I give it here — a list of names only, no authors cited — but here rearranged more nearly after modern methods.

Hypnum splendens	Rosa blanda
" crista-castrensis	Rubus occidentalis
" umbratum	" odoratus
" cupressiforme	" strigosus
Pteris atropurpurea	Rubus triflorus
Woodsia glabella	Hedysarum boreale
Cupressus thyoides	Phaca Robbinsii
Thuja occidentalis	Vitis cordifolia
Calamagrostis Canadensis	Helianthemum Canadense
Danthonia spicata	Circaea alpina
Lolium perenne	Oenothera fruticosa
Muhlenbergia sylvatica	Primula Mistassinica
Oryzopsis melanocarpa	Apocynum hypericifolium
Panicum depauperatum	Asclepias Cornuti
" nitidum	" quadrifolia
Carex eburnea	Lonicera ciliata
" scirpoidea	Campanula rotundifolia
Clintonia borealis	Achillaea Millefolium
Anemone cylindrica	Antennaria margaritacea
" Virginiana	Artemisia Canadensis
Clematis Virginiana	Cirsium lanceolatum
Arabis lyrata	Eupatorium ageratoides
Draba arabisans	" purpureum
Saxifraga aizoides	Solidago corymbosus
" oppositifolia	" lanceolatus
Fragaria Virginiana	

¹ Wood, *Class Book.*, ed. 2 (1847) 279.

² J. L. Russell, *Hovey's Mag. Hort.* xviii. (1852) 481–485.

Although some plants of this list cannot now be identified, it yet contains nearly all the characteristic cliff plants: but evidently no attention was paid to the woods or swamps, though the botanists' route led through rare orchid ground.

In the 1853 appendix to Thompson's History of Vermont, is a list of 105 additions to Wm. Oakes' Catalogue and 19 of these are credited to C. C. Frost from Willoughby. This list was prepared by Prof. Joseph Torrey of Burlington.

Other botanists followed, viz.: Wm. Boott, in 1854, Rev. Joseph Blake in 1861, Horace Mann in 1862, Edwin Faxon in 1873, and many others now living.

The second paper on the flora of Willoughby is by Mr. Chas. E. Ridler¹ giving an interesting account of the approach to the Notch from the north and describing the mountain and its flora. The third paper is by Walter Deane,² an account of his collecting trip in July, 1885, with J. R. Churchill. The only other paper I have seen is by Dr. H. H. Rusby reprinted from the Bulletin of Pharmacy, January, 1893, an account of his visit in July and August, 1892. This gives special attention to the oecological features of the district and to the ferns, a list of thirty-two being given.

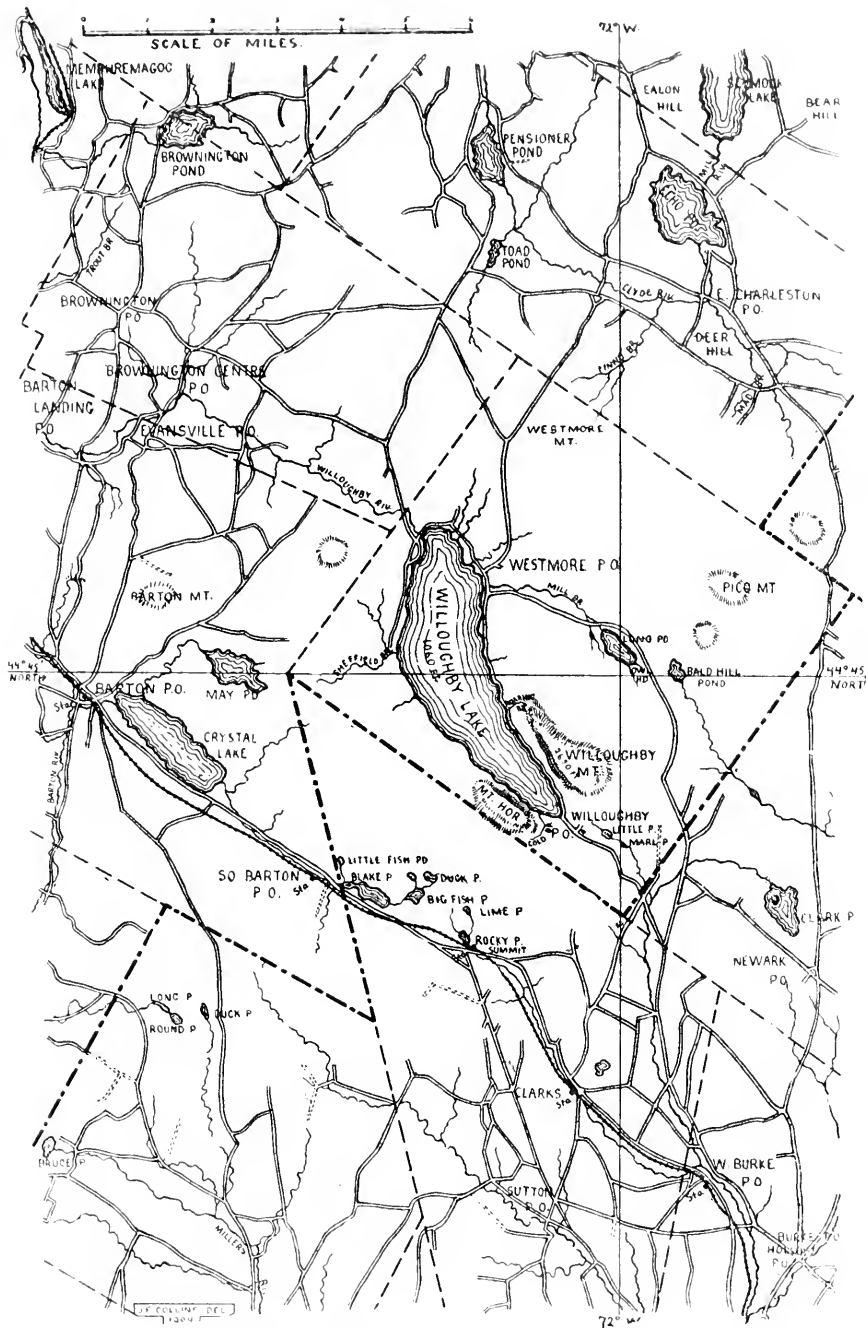
The present list of 690 names is quite as noteworthy for the plants that are not in it as for those that are. Many of the common things we expect everywhere have not yet been seen in this little area, and many plants have been collected only once, and of others only one or two stations are known. The introduced plants in the Notch itself do not tend to increase and now that the lumbermen have begun a crusade in the swamp region and on the mountain sides the possibility of the destruction of choice botanical areas is alarming. The ferns, orchids and carices of wet woods need the protection of forest trees and certain plants in the Willoughby region are sure to perish.

The map of Willoughby has been drawn by Mr. J. F. Collins of the Botanical Department of Brown University, Providence, Rhode Island, and is believed to be as accurate as the variable material at his disposal would allow.

Unless otherwise noted specimens of all these plants are in my Herbarium, and I shall be glad to receive any additions to this list.

¹ Ridler, *Appalachia*, iv. (1884) 64.

² Deane, *Bot. Gaz.* xi. (1886) 112.



MAP OF WILLOUGHBY REGION.

FLORA OF WILLOUGHBY, VERMONT.

PTERIDOPHYTA

OPHIOGLOSSACEAE

OPHIOGLOSSUM

O. vulgatum, L. In moist mowing land.

BOTRYCHIUM

B. simplex, Hitch.

B. matricariaefolium, A. Br.

B. ternatum, Swartz, var. *intermedium*, D. C. Eaton.

B. ternatum, Swartz, var. *obliquum*, Milde.

B. ternatum, Swartz, var. *dissectum*, Milde.

B. Virginianum, Swartz.

OSMUNDACEAE

OSMUNDA

O. regalis, L.

O. cinnamomea, L.

O. Claytoniana, L.

POLYPODIACEAE

ONOCLEA

O. sensibilis, L.

O. sensibilis, L., var. *obtusilobata*, Torr.

O. Struthiopteris, Hoffm.

WOODSIA

W. ilvensis, R. Br. Rocks near Roaring Brook.

W. hyperborea, R. Br. *W. alpina* (Bolton) S. F. Gray. Rare; on the cliffs.

W. glabella, R. Br. Common on the cliffs.

DICKSONIA

D. pilosiuscula, Willd. *D. punctilobula* (Michx.) Gray.

CYSTOPTERIS

C. bulbifera, Bernh.

C. fragilis, Bernh.

ASPIDIUM

A. acrostichoides, Swartz. *Dryopteris acrostichoides* (Michx.) Kuntze.

- A. *acrostichoides*, Swartz, var. *incisum*, Gray. *Dryopteris acrostichoides*, var. *Schweinitzii* (Beck) Underw.
- A. *aculeatum*, Swartz, var. *Braunii*, Koch. *Dryopteris Braunii* (Spencer) Underw. In deep rocky woods.
- A. *Noveboracense*, Swartz. *Dryopteris Noveboracensis* (L.) Gray.
- A. *Thelypteris*, Swartz. *Dryopteris Thelypteris* (L.) Gray.
- A. *cristatum*, Swartz. *Dryopteris cristata* (L.) Gray.
- A. *cristatum*, Swartz, var. *Clintonianum*, D. C. Eaton. In deep swamps.
- A. *Goldianum*, Hook. *Dryopteris Goldiana* (Hook.) Gray. Not rare in wet woods. Variable in form.
- A. *marginale*, Swartz. *Dryopteris marginalis* (L.) Gray.
- A. *spinulosum*, Swartz. *Dryopteris spinulosa* (Retz.) Kuntze. Deep woods near Cold Brook.
- A. *spinulosum*, Swartz, var. *intermedium*, D. C. Eaton. *Dryopteris spinulosa*, var. *intermedia* (Muhl.) Underw.
- A. *spinulosum*, Swartz, var. *dilatatum*, Hook.
- A. *Boottii*, Tuckerm. *Dryopteris Boottii* (Tuckerm.) Underw. In wet woods.

PHEGOPTERIS

- P. *polypodioides*, Fée. *P. Phegopteris* (L.) Underw.
- P. *Dryopteris*, Fée.

ASPLENIUM

- A. *Trichomanes*, L. Mt. Hor, *Edwin Faxon*, 1886.
- A. *viride*, Hudson. Cliffs, Mt. Hor, *Mrs. Condit*, 1887. Two fronds in Herb. C. E. Faxon.
- A. *Ruta-muraria*, L. Cliffs, Willoughby Mountain; not common.
- A. *thelypteroides*, Michx. *A. acrostichoides*, Swartz.
- A. *Filix-foemina*, Bernh.

ADIANTUM

- A. *pedatum*, L. Rapidly becoming rare from the rapacity of visitors.

PTERIS

- P. *aquilina*, L. Seldom simply ternate.

PELLAEA

- P. *gracilis*, Hook. *P. Stelleri* (S. G. Gmel.) Watt.
- P. *atropurpurea*, Link. Both species on the limestone cliffs.

POLYPODIUM

- P. *vulgare*, L. A form with forking frond, *W. A. Lorenz*. Another with very broad frond, *F. G. Floyd*.

EQUISETACEAE

EQUISETUM

- E. arvense*, L.
E. arvense, L., approaching forma *pseudo-sylvaticum* *vide* A. A. Eaton.
E. arvense, L., var. *nemorosum*, A. Br.
E. sylvaticum, L.
E. limosum, L. *E. fluviatile*, L.
E. hyemale, L. Not common.
E. scirpoides, Michx.

LYCOPODIACEAE

LYCOPODIUM

- L. lucidulum*, Michx.
L. inundatum, L.
L. dendroideum, Michx.
L. annotinum, L.
L. sabinaefolium, Willd. Top of the mountain, *A. W. Cheever*, 1903.
L. clavatum, L.
L. clavatum, L., var. *monostachyon*, Grev. & Hook.
L. complanatum, L., var. *flabelliforme*, Fernald. Often with peduncles stout, much branched and bearing from 3 to 13 spikes, which are frequently proliferous at the apex.
Lycopodium complanatum, L., var. *Wibbei*, Haberer in Herb. Gray. Branches with the aspect of var. *flabelliforme*, Fernald; strobile solitary, large (3.5 to 4 cm. long).—Swampy woodlands on hills about Utica, New York, September, 1900 (*J. V. Haberer* in Herb. Gray). Dedicated to the late Reverend Father J. Herman Wibbe of Schenectady. This striking plant, the counterpart in the *complanatum* series of *L. clavatum*, var. *monostachyon*, Grev. & Hook., was found in shady cold woods at Willoughby, October 1, 1903. The Willoughby specimens closely match those of Dr. Haberer.
L. tristachyon, Pursh. *L. complanatum*, var. *Chamaecyparissus*, D. C. Eaton.

ISOETACEAE

ISOETES

- I. macrospora*, Durieu. *Miss Annie Lorenz*. This species has been determined by Mr. A. A. Eaton.

GYMNOSPERMAE

PINACEAE

PINUS

- P. Strobus*, L. Very rare; hardly to be seen except planted.

LARIX

L. *Americana*, Michx. *L. laricina* (Du Roi) Koch.

PICEA

P. *alba*, Link. *P. Canadensis* (Mill.) B. S. P.

P. *nigra*, Link. Including *P. brevifolia*, Peck. *P. Mariana* (Mill.) B. S. P.

P. *rubra*, Link. The common "Lumber" Spruce.

TSUGA

T. *Canadensis*, Carr.

ABIES

A. *balsamea*, Mill.

THUYA

T. *occidentalis*, L. Some stumps of old growth cedars, more than three feet in diameter still remain in the Mt. Hor woods.

TAXACEAE

TAXUS

T. *Canadensis*, Willd. *Taxus minor* (Michx.) Britton

ANGIOSPERMAE

Monocotyledones

TYPHACEAE

TYPHA

T. *latifolia*, L.

SPARGANIACEAE

SPARGANIUM

S. *simplex*, Huds.

S. *simplex*, Huds., var. *angustifolium*, Engelm. Long Pond.

NAIADACEAE

POTAMOGETON

P. *amplifolius*, Tuckerm. Long Pond.

P. *alpinus*, Balbis. Little Pond.

P. *heterophyllus*, Schreb. Outlet of Long Pond.

P. *Spirillus*, Tuckerm. Little Pond.

P. *heterophyllus*, Schreb., var. *graminifolius*, Wats. & Coult.

- P. pusillus*, L. North part of Willoughby Lake.
P. diversifolius, Raf. Reported from Willoughby in Brainerd, Jones, & Eggleston, Fl. Vt., 1900, page 7, as collected by the late H. G. Jesup, but no specimen can be found in Prof. Jesup's collection nor in the Herbarium of Dartmouth College, Hanover, N. H.

NAIAS

- N. flexilis*, Rostk. & Schm. Little Pond.

ALISMACEAE

SAGITTARIA

- S. latifolia*, Willd.
S. arifolia, Nutt.
S. graminea, Michx.

VALLISNERIACEAE

VALLISNERIA

- V. spiralis*, L. In Bishop's Brook.

GRAMINEAE

PANICUM

- P. GLABRUM*, Gaudin. *Syntherisma linearis* (Krock) Nash.
P. capillare, L.
P. unciphyllum, Trin. *P. pubescens*, Lam.
P. CRUS-GALLI, L.

SETARIA

- S. GLAUCA*, Beauv. *Ixophorus glaucus* (L) Nash. In kitchen garden.
S. VIRIDIS, Beauv. *Ixophorus viridis* (L) Nash. In farm land.
S. ITALICA, Kunth. *Ixophorus Italicus* (L) Nash. Roadside.
S. ITALICA, Kunth, var. *GERMANICA*, Richter. Roadside near hotel.

PHALARIS

- P. arundinacea*, L.
P. ARUNDINACEA, L., var. *PICTA*, Gray. Roadside escape.

ANTHOXANTHUM

- A. ODORATUM*, L. Not common.

HIEROCHLOE

- H. borealis*, R. & S. Rare. Roaring Brook, 1901.

ORYZOPSIS

- O. asperifolia*, Torr.
O. melanocarpa, Muhl.

MILIUM

- M. effusum*, L. In woods.

MULLENBERGIA

- M. Mexicana*, Trin. In rocky woods.
M. glomerata, Trin. *M. racemosa* (Michx.) B. S. P.

BRACHYELYTRUM

- B. aristatum*, Beauv. *B. erectum* (Schreb.) Beauv.

PHILEUM

- P. PRATENSE*, L. Very variable in size.

SPOROBOLUS

- S. vaginaeflorus*, Vasey. On the slides near Cliff.

CINNA

- C. pendula*, Trin. *C. latifolia* (Trev.) Griseb.

AGROSTIS

- A. ALBA*, L. "A viviparous form occurs," *Jones*, Fl. Vt.
A. ALBA, L., var. *VULGARIS*, Thurb. "A small form occurs in cool pastures, sometimes having flowering glume awned" *Jones*, Fl. Vt.
A. scabra, Willd. *A. hyemalis* (Walt.) B. S. P.
A. scabra, Willd., var. *montana*, Tuckerm. On the ledges at top of the mountain.

CALAMAGROSTIS

- C. Canadensis*, Beauv.
C. Langsdorfii, Trin. *H. H. Rusby*, 1892; *vide* Revision of Calamagrostis by T. H. Kearney, 1898, p. 27.
C. hyperborea, Lange. *Boott*, 1862. *Pringle*, 1877. Including *C. inexpansa* of Brainerd, Jones, & Eggleston, Fl. Vt., not Gray, collected by Prof. L. R. Jones, 11 July, 1900.
C. hyperborea, Lange, var. *Americana*, Kearney. *C. stricta*, Gray, Man. Ed. 6, in part. The more common form.
C. hyperborea, Lange, var. *elongata*, Kearney, *E. & C. E. Faxon*, 1887, Herb. Gray.

TRISSETUM

T. subspicatum, Beauv., var. *molle*, Gray. Mountain slides.

AVENA

A. striata, Michx.

A. SATIVA, L. A roadside escape.

DANTHONIA

D. spicata, Beauv.

D. compressa, Aust.

EATONIA

E. Pennsylvanica, Gray.

DACTYLIS

D. GLOMERATA, L.

POA

P. pratensis, L.

P. pratensis, L., var. *angustifolia*, Smith. *Jones* in Fl. Vt.

P. nemoralis, L.

P. ANNUA, L.

P. serotina, Ehrh. *P. flava*, L.

P. alsodes, Gray. Herb. J. R. Churchill.

GLYCERIA

G. Canadensis, Trin. *Panicularia Canadensis* (Michx.) Kuntze.

G. elongata, Trin. *Panicularia elongata* (Torr.) Kuntze.

G. nervata, Trin. *Panicularia nervata* (Willd.) Kuntze.

G. grandis, Watson. *Panicularia Americana* (Torr.) Mac M.

G. pallida, Trin. *Panicularia pallida* (Torr.) Kuntze.

FESTUCA

F. ELATIOR, L.

F. ELATIOR, L., var. *PRATENSIS*, Gray.

BROMUS

B. ciliatus, L.

B. SECALINUS, L. Field opposite the Hotel.

LOLIUM

L. PERENNE, L.

AGROPYRON

A. REPENS, Beauv.

A. *Novae-Angliae*, Scrib. Very variable in size of spikelets.

A. *caninum*, R. & S.

A. *caninum*, R. & S., forma *caninoides*. Ramalley, *vide* C. W. Swan.

SECALE

S. CEREALE, L. Rye. Roadside escape.

HORDEUM

H. VULGARE, L. Common barley. In old fields.

H. VULGARE, L., var. *AEGICERAS*, Aitchis. Roadside south of the Hotel. (Hooker, *Flora British India* vii. 371, says cultivated under the name "Bald Barley.")

ELYMUS

E. *Canadensis*, L.

ASPRELLA

A. *Hystrix*, Willd.

CYPERACEAE

DULICHNUM

D. *spathaceum*, Pers. *D. arundinaceum* (L.) Britton.

ELEOCHARIS

E. *obtusa*, Schultes.

E. *palustris*, R. Br.

E. *tenuis*, Schultes.

E. *intermedia*, Schultes. Little Pond Bog.

E. *pygmaea*, Torr. Herb. W. Deane, 1885.

SCIRPUS

S. *pauciflorus*, Lightf. *Eleocharis pauciflora*, Link.

S. *validus*, Vahl. *S. lacustris*, Gray, Man. Ed. 6., not L.

S. *atrovirens*, Muhl.

S. *rubrotinctus*, Fernald.

S. *Peckii*, Britton.

S. *atrocinctus*, Fernald.

S. *atrocinctus*, Fernald, var. *brachypodus*, Fernald.

ERIOPIHORUM

E. *alpinum*, L.

E. *polystachyon*, L.

- E. polystachyon*, L., var. *latifolium*, Gray.
E. Virginicum, L.
E. gracile, Koch. *A. W. Cheever*, 1903.

RHYNCHOSPORA

- R. alba*, Vahl.
R. capillacea, Torr.

CLADIUM

- C. mariscoides*, Torr.

CAREX

- C. intumescens*, Rudge.
C. rostrata, Stokes. *C. utriculata*, var. *minor*, Boott.
C. Tuckermanni, Dewey. Herbaria of W. Deane and J. R. Churchill, 1885.
C. retrorsa, Schwein.
C. lurida, Wahl.
C. lurida, Wahl., var. *gracilis*, Bailey. *C. Baileyi*, Britton.
C. hystricina, Muhl.
C. hystricina, Muhl., var. *Dudleyi*, Bailey. The species and variety on same plant, *G. G. K.*, 1898.
C. scabrata, Schwein.
C. filiformis, L.
C. stricta, Lam.
C. lenticularis, Michx.
C. gynandra, Schwein.
C. gracillima, Schwein.
C. castanea, Wahl. Meadow by the Four Bridges, 1898.
C. arctata, Boott.
C. debilis, Michx., var. *Rudgei*, Bailey. *C. tenuis*, Rudge.
C. flava, L.
C. flava, L., var. *viridula*, Bailey. *C. viridula* Michx.
C. pallescens, L.
C. vaginata, Tausch. *C. saltuensis*, Bailey. *C. altocaulis* (Dewey) Britton.
 Swamp between West Burke and Willoughby, *Pringle*, 1878, Herb. Gray.
C. laxiflora, Lam.
C. laxiflora, Lam., var. *varians*, Bailey.
C. laxiflora, Lam., var. *patulifolia*, Carey.
C. plantaginea, Lam.
C. platyphylla, Carey.
C. aurea, Nutt.
C. eburnea, Boott. *C. setifolia* (Dewey) Britton.
C. pedunculata, Muhl.
C. communis, Bailey. *C. pedicellata* (Dewey) Britton.
C. albicans, Willd.
C. deflexa, Hornem.
C. scirpoidea, Michx. On the mountain sides and occasionally on Lake roadside.

- C. leptalea* Wahl. *C. polytrichoides*, Muhl.
C. stipata, Muhl.
C. teretiuscula, Gooden. Little Pond Bog.
C. vulpinoidea, Michx.
C. tenella, Schkuhr.
C. rosea, Schkuhr, var. *minor*, Boott.
C. rosea, Schkuhr, var. *radiata*, Dewey.
C. stellulata, Gooden., var. *angustata*, Carey. *C. sterilis*, Britt. & Brown, in part, not Willd. *C. echinata*, Murr., var. *angustata*, Bailey.
C. interior, Bailey.
C. canescens, L., var. *subloliacea*, Laest.
C. brunnescens, Poir. *C. canescens*, L., var. *alpicola*, Wahl.
C. trisperma, Dewey.
C. Deweyana, Schwein.
C. bromoides, Schkuhr.
C. Bebbii, Olney.
C. tribuloides, Wahl., var. *reducta*, Bailey. *C. tribuloides*, Wahl., var. *moniliformis* (Tuckerm.) Britton.
C. cristata, Schwein. *C. tribuloides*, Wahl., var. *cristata*, Bailey. *C. cristatella*, Britton.
C. scoparia, Schkuhr.
C. scoparia, Schkuhr, var. *condensa*, Fernald. *E. F. Williams*, 1894.
C. Crawfordii, Fernald.
C. mirabilis, Dewey.
C. mirabilis, Dewey, var. *tincta*, Fernald.

ARACEAE

ARISAEMA

- A. triphyllum*, Torr. In both wet and apparently dry soil.

CALLA

- C. palustris*, L.

ERIOCAULACEAE

ERIOCAULON

- E. septangulare*, Withering. At north end of Lake.

JUNCACEAE

JUNCUS

- J. effusus*, L.
J. bufonius, L. Of all shapes and sizes.
J. tenuis, Willd., var. *Williamsii*, Fernald.
J. Dudleyi, Wiegand.
J. nodosus, L.

- J. alpinus, Vill. Herb. W. Deane.
 J. articulatus, L.
 J. brachycephalus, Buchenau.
 J. brevicaudatus, Fernald.

LUZULA

- L. parviflora, Desv. L. spadicca, DC., var. melanocarpha, Meyer. *Juncoides parviflorum* (Ehrh.) Coville.
 L. campestris, DC., var. multiflora, Celakovsky. See RHODORA, vi, 38.

LILIACEAE

VERATRUM

- V. viride, Ait.

OAKESIA

- O. sessilifolia, Watson. *Uvularia sessilifolia*, L.

HEMEROCALLIS

- H. FULVA, L. Roadside.

ALLIUM

- A. tricoccum, Ait.
 A. SCHOENOPRASUM, L. 1899, new to New England, the Connecticut River valley plant being the larger var. *Sibericum*, Hartm.

LILIUM

- L. TIGRINUM, Ker. Roadside by an abandoned cellar.

ERYTHRONIUM

- E. Americanum, Ker.

CLINTONIA

- C. borealis, Raf.

SMILACINA

- S. racemosa, Desf. *Vagnera racemosa* (L.) Morong.
 S. stellata, Desf. *Vagnera stellata* (L.) Morong.
 S. trifolia, Desf. *Vagnera trifolia* (L.) Morong. Herb. J. R. Churchill.

MAIANTHEMUM

- M. Canadense, Desf. *Unifolium Canadense* (Desf.) Greene.

STREPTOPUS

- S. amplexifolius, DC.
 S. roseus, Michx.

POLYGONATUM

P. biflorum, Ell.

MEDEOLA

M. Virginiana, L.

TRILLIUM

T. erectum, L.

T. undulatum, Willd. *T. erythrocarpum*, Michx.

IRIDACEAE

IRIS

I. versicolor, L.

SISYRINCHIUM

S. angustifolium, Mill.

ORCHIDACEAE

CYPRIPEDIUM

C. acaule, Ait. Often with white flowers.

C. arietinum, R. Br. *Mrs. J. E. W. Thacher*, 1897.

C. spectabile, Salisb. *C. virginiae*, Walt. *E. & C. E. Faxon*, 1887; Herb. Gray.

C. pubescens, Willd. *C. hirsutum*, Mill. The *C. pubescens* of the woods is a different looking plant from the meadow and swamp form, which latter is almost exactly between *C. pubescens*, Willd. and *C. parviflorum*, Salisb.

ORCHIS.

O. spectabilis, L. Found some seasons in profusion and of wonderful beauty.

HABENARIA

H. Hookeri, Torr. *Lysias Hookeriana* (Gray) Rydb. *Dr. C. A. Cheever*, 1903.

H. orbiculata, Torr. *Lysias orbiculata* (Pursh) Rydb.

H. obtusata, Richardson. *Lysicella obtusata* (Pursh) Rydb.

H. hyperborea, R. Br. *Limnorchis hyperborea* (L.) Rydb.

H. dilatata, Gray. *Limnorchis dilatata* (Pursh) Rydb. *Limnorchis fragrans*, Rydb. is hardly to be separated except by its evident fragrance, and perhaps slender form.

H. bracteata, R. Br. *Cocloglossum bracteatum* (Willd.) Parl.

H. tridentata, Hook. *H. clavellata* (Michx.) Spreng.

H. psycodes, Gray. Occasional forms approach *H. fimbriata*, R. Br. but no typical *H. fimbriata* has yet been collected.

POGONIA

P. ophioglossoides, Nutt.

SPIRANTHES

S. Romanzoffiana, Cham. *Gyrostachys Romanzoffiana* (Cham.) MacM.

S. cernua, Richard. *Gyrostachys cernua* (L.) Kuntze.

S. gracilis, Bigel. *Gyrostachys gracilis* (Bigel.) Kuntze.

LISTERA

L. convallarioides, Nutt.

L. cordata, R. Br.

GOODYERA.

G. repens, R. Br., var. *ophioides*, Fernald. *Peramium repens* (L.) Britt. & Brown, not Salisb.

G. tessellata, Lodd.

MICROSTYLIS

M. monophyllos, Lindl. *Achroanthes monophylla* (L.) Greene. Very rare; on the side of Mt. Hor.

M. ophioglossoides, Nutt. *Achroanthes unifolia* (Michx.) Raf.

LIPARIS

L. Loeselii, Richard. *Leptorchis Loeselii* (L.) MacM. Meadow, rare.

CALYPSO

C. borealis, Salisb. *C. bulbosa* (L.) Oakes. In deep and cold cedar swamps.

CORALLORHIZA

C. innata, R. Br. Two specimens of *C. innata*, found June 4, 1901, in dense shade in swampy woods, show the condition known as irregular peloria. In this case a conversion of the petals into normal or nearly normal lips gives a remarkable appearance to the flowering spike. This is more common in cultivated orchids than in wild plants and I have to thank Mr. Oakes Ames for explaining to me the singular anomaly in these specimens.

C. multiflora, Nutt.

Dicotyledons.

JUGLANDACEAE

JUGLANS

J. cinerea, L.

MYRICACEAE

MYRICA

M. Gale, L.

SALICACEAE

POPULUS

P. balsamifera, L. The leaf-bud has a resinous odor of watchmakers' oil rather than the fragrant odor of var. *caudicans*, the Balm of Gilead.

P. tremuloides, Michx.

P. grandidentata, Michx.

SALIX

S. nigra, Marsh, var. *falcata*, Torr. North beach on Lake.

S. lucida, Muhl.

S. purpurea, L. Large clump on roadside towards Chemical Pond.

S. rostrata, Richardson. *S. Bebbiana*, Sarg.

S. humilis, Marsh.

S. discolor, Muhl.

S. petiolaris, Smith. On beach at north end of Lake, *Miss A. Lorenz*.

S. cordata, Muhl.

S. balsamifera, Barratt. Quite frequent.

CUPULIFERAE

OSTRYA

O. Virginica, Willd.

CORYLUS

C. rostrata, Ait.

BETULA

B. alba, L., var. *papyrifera*, Spach. *B. papyrifera*, Marsh.

B. alba, L., var. *cordifolia*, Fernald.

B. lenta, L.

B. lutea, Michx. f.

ALNUS

A. viridis, DC. *A. Alnobetula* (Ehrh.) K. Koch. Very common.

A. incana, Willd.

FAGUS

F. ferruginea, Ait. *F. Americana*, Sweet.

QUERCUS

Q. rubra, L. On "4th of July" and other slides ; not seen elsewhere.

URTICACEAE

ULMUS

U. Americana, L.

U. fulva, Michx. In the woods at base of the mountain.

HUMULUS

H. Lupulus, L. At Sutton Road corner.

LAPORTEA

L. Canadensis, Gaudichaud. *Urticastrum divaricatum* (L.) Kuntze.

ARISTOLOCHIACEAE

ASARUM

A. Canadense, L. Rare.

POLYGONACEAE

RHEUM

R. RHAPONTIUM, L. In a wild farm pasture, escaped.

RUMEX

R. ACETOSELLA, L.

R. CRISPUS, L.

R. OBTUSIFOLIUS, L.

FAGOPYRUM

F. ESCULENTUM, Moench.

F. TATARICUM, Gaertn.

POLYGONUM

P. PERSICARIA, L.

P. HYDROPIPER, L.

P. aviculare, L.

P. Convolvulus, L.

P. cilinode, Michx.

P. sagittatum, L.

CHENOPODIACEAE

CHENOPODIUM

C. ALBUM, L.

C. capitatum, Watson. *Blitum capitatum*, L. Near the farm-barn.

AMARANTHACEAE

AMARANTHUS

- A. RETROFLEXUS, L. Called Rag-weed and said to have come from the West, thus indicating a comparatively recent introduction.

PORTULACACEAE

CLAYTONIA

- C. Caroliniana, Michx.

PORTULACA

- P. OLERACEA, L.

CARYOPHYLLACEAE

AGROSTEMMA

- A. GITHAGO, L. *Lychnis Githago*, Scopoli.

SILENE

- S. CUCUBALUS, Wibel. *S. vulgaris* (Moench) Garcke. Roadside near Chemical Pond.
S. NOCTIFLORA, L. Near Picnic house at Lake.

LYCHNIS

- L. CHALCEDONICA, L. Escape at Sheffield Landing.

SAPONARIA

- S. OFFICINALIS, L.

- S. VACCARIA, L. *Vaccaria Vaccaria* (L.) Britton. Herb. Walter Deane, 1885.

DIANTHUS

- D. BARBATUS, L. Escape.

STELLARIA

- S. MEDIA, Cyrill. *Alsine media*, L.
S. GRAMINEA, L. *Alsine graminea* (L.) Britton.
S. borealis, Bigel. *Alsine borealis* (Bigel.) Britton.

CERASTIUM

- C. VULGATUM, L.

SPERGULA

- S. ARVENSIS, L.

NYMPHAEACEAE

NUPHAR

- N. advena*, Ait. f. *Nymphaea advena*, Soland.
N. advena, Ait. f., var. *hybridum*, Peck. *N. advena*, Ait. f., var. *minus*,
 Morong.
N. minimum, Smith. *Nymphaea Kalmiana* (Michx.) Sims.

NYMPHAEA

- N. ODORATA*, Ait. *Castalia odorata* (Dryand.) Woodv. & Wood. Planted
 in Little Pond.

RANUNCULACEAE

CALTHA

- C. palustris*, L. In both wet and apparently dry places.

COPTIS

- C. trifolia*, Salisb.

ACTAEA

- A. rubra* Willd.
A. alba, Bigel. Very variable as to pedicels and color of fruit.

PAEONIA

- P. OFFICINALIS*, Retz. Persistent in an old orchard.

AQUILEGIA

- A. VULGARIS*, L. Roadside escape.

ACONITUM

- A. NAPELLUS*, L. An escape on the Newark Road.

ANEMONE

- A. riparia*, Fernald. All the Anemone reports from Russell's in 1852 to the
 present time are now to be referred to Mr. Fernald's *A. riparia*.

HEPATICA

- H. acutiloba*, DC. *H. acuta* (Pursh) Britton.

CLEMATIS

- C. Virginiana*, L.
C. verticillaris, DC. *Atragene Americana*, Sims. Occasional.

RANUNCULUS

- R. abortivus, L.
 R. recurvatus, Poir.
 R. ACRIS, L.
 R. repens, L.
 R. septentrionalis, Poir.
 R. aquatilis, L., var. trichophyllus, Gray. *Batrachium trichophyllum* (Chaix) Bossch.

THALICTRUM

- T. polygamum, Muhl.

BERBERIDACEAE

CAULOPHYLLUM

- C. thalictroides, Michx. In mountain woods.

PAPAVERACEAE

SANGUINARIA

- S. Canadensis, L. Rare.

DICENTRA

- D. Cucullaria, DC. *Bicuculla Cucullaria* (L.) Millsp. In mountain woods.
 D. Canadensis, DC. *Bicuculla Canadensis* (Goldie) Millsp. On the mountain.

CRUCIFERAE

LEPIDIDIUM

- L. VIRGINICUM, L.

SISYMBRIUM

- S. OFFICINALE, Scop.

BRAYA

- B. humilis, Robinson. *Sisymbrium humile*, Meyer. Probably from its abundance on the Cliffs the *Arabis lyrata* of Mr. Russell's 1852 List.

BRASSICA

- B. JUNCEA, Cosson.
 B. SINAPISTRUM, Boiss. *B. arvensis* (L.) B. S. P.
 B. CAMPESTRIS, L.

RAPHANUS

- R. RAPHANISTRUM, L.

BARBAREA

B. STRICTA, Andrz. *B. vulgaris*, Gray, Man. Ed. 6, in part.

NASTURTIUM

N. terrestre, R. Br. *N. palustre*, DC. *Roripa palustris* (L.) Bess.

N. OFFICINALE, R. Br. *Roripa Nasturtium* (L.) Rusby.

N. ARMORACIA, Fries. *Roripa Armoracia* (L.) A. S. Hitchcock. Fruiting specimen in Herb. J. R. Churchill.

CARDAMINE

C. Pennsylvanica, Muhl.

DENTARIA

D. diphylla, L. Quite variable as to foliage, but always with the *diphylla* rootstock.

CAPSELLA

C. BURSA-PASTORIS, Moench. Very variable in size and foliage.

DRABA

D. incana, L.

D. incana, L., var. *arabisans*, Watson.

DROSERACEAE

DROSERA

D. rotundifolia, L.

CRASSULACEAE

SEDUM

S. TELEPHIUM, L. Escape by edge of woods, Cheney Place.

S. ACRE, L. On old wall.

SAXIFRAGACEAE

SAXIFRAGA

S. oppositifolia, L. Common on the cliffs.

S. aizoides, L. On the cliffs.

S. Aizoon, Jacq. On the upper portions of cliffs.

S. Virginiensis, Michx.

TIARELLA

T. cordifolia, L.

MITELLA

M. nuda, L.

CHRYOSPLENIUM

C. Americanum, Schwein.

PARNASSIA

P. Caroliniana, Michx. In wet pastures.

RIBES

R. Cynosbati, L.

R. oxyacanthoides, L.

R. lacustre, Poir.

R. prostratum, L'Hér.

R. floridum, L'Hér.

R. albinervium, Michx. *R. rubrum*, L., var. *subglandulosum*, Maxim. *R. rubrum*, Britt. & Brown, in part, not L.

ROSACEAE

SPIRAEA

S. latifolia, Borkh. *S. salicifolia*, Gray, Man. Ed. 6, in part, not L.

S. tomentosa, L.

RUBUS

R. odoratus, L.

R. Idaeus, L., var. *strigosus*, Maxim. *R. strigosus*, Michx.

R. occidentalis, L. Herb. Walter Deane, 1885; not common.

R. triflorus, Richardson. *R. Americanus* (Pers.) Britton.

R. setosus, Bigel.

R. Canadensis, L. *R. Millspaughii*, Britton.

DALIBARDA

D. repens, L. Not common.

FRAGARIA

F. Virginiana, Mill.

F. Americana, Britton. *F. vesca*, Gray, Man. Ed. 6, in great part.

POTENTILLA

P. Norvegica, L. *P. Monspeliensis*, L. Variable.

P. fruticosa, L. Not common.

P. Canadensis, L. A plant reported under this name was probably *P. simplex*, Michx.

GEUM

- G. rivale, L.
G. strictum, Ait.

AGRIMONIA

- A. striata, Michx. *A. Brittoniana*, Bickn.

ROSA

- R. blanda, Ait. On the cliffs, and rocky roadside.
R. Carolina, L., var. *setigera*, Crépin. In wet wood road.

PYRUS

- P. Americana, DC. *Sorbus Americana*, Marsh.
P. Sitchensis, Piper. *P. sambucifolia*, Gray, Man. Ed. 6, not Cham. & Schl.
Sorbus sambucifolia, Britt. & Brown, not Roem.
P. MALUS, L. Growing wild in many places.
P. arbutifolia, L., var. *melanocarpa*, Hook. *Aronia nigra* (Willd.) Britton.
Rare, Marl Pond bog.

AMELANCHIER

- A. oligocarpa, Roem.

CRATAEGUS

- C. media, Sarg.
C. flabellata, Bosc.

PRUNUS

- P. nigra, Ait.
P. Pennsylvanica, L. f. Very variable in size of tree and fruit.
P. Virginiana, L.
P. serotina, Ehrh.

LEGUMINOSAE

MELILOTUS

- M. ALBA, Desf.

TRIFOLIUM

- T. PRATENSE, L.
T. INCARNATUM, L.
T. HYBRIDUM, L.
T. REPENS, L.
T. AGRARIUM, L.

ROBINIA

- R. VISCOSA, Vent. Roadside tree near Sheffield Landing.

ASTRAGALUS

- A. *Blakei*, Eggleston. Common on the slides and down to Lake roadside ; different from *A. Robbinsii*, Gray.

HEDYSARUM

- H. *boreale*, Nutt. *H. Americana* (Michx.) Britton. On the slides.

OXALIDACEAE

OXALIS

- O. *Acetosella*, L.
O. *cymosa*, Small. *O. cornicula* and *O. stricta* of authors in part, not L.

LINACEAE

LINUM

- L. *USITATISSIMUM*, L. In field.

EUPHORBIACEAE

EUPHORBIA

- E. *CYPARISSIAS*, L.

CALLITRICHACEAE

CALLITRICHE

- C. *verna*, L. *C. palustris*, L.

ANACARDIACEAE

RHUS

- R. *typhina*, L. *R. hirta* (L.) Sudw.
R. *Toxicodendron*, L. *R. radicans*, L. Only on the mountain slides.

AQUIFOLIACEAE

ILEX

- I. *verticillata*, Gray.

NEMOPANTHIUS

- N. *fascicularis*, Raf. *Iliciodes mucronata* (L.) Britton.

CELASTRACEAE

CELASTRUS

- C. *scandens*, L. Not common.

ACERACEAE

ACER

- A. rubrum*, L.
A. Saccharum, Marsh. *A. saccharinum*, Wang., not L.
A. nigrum, Michx. Said to grow at the north end of the lake.
A. Pennsylvanicum, L.
A. spicatum, Lam.

BALSAMINACEAE

IMPATIENS

- I. biflora*, Walt. *I. fulva*, Nutt.
I. aurea, Muhl. *I. pallida*, Nutt. Only on Mt. Hor side of the Lake.

RHAMNACEAE

RHAMNUS

- R. alnifolia*, L'Her. In wet pastures.

VITACEAE

VITIS

- V. vulpina*, L. Abundant on the mountain slides.

AMPELOPSIS

- A. quinquefolia*, Michx. *Parthenocissus quinquefolia* (L.) Planch.

TILIACEAE

TILIA

- T. Americana*, L.

MALVACEAE

MALVA

- M. ALCEA*, L. Garden escape, Newark Road.
M. MOSCHATA, L. Frequent on Long Pond Road.

HYPERICACEAE

HYPERICUM

- H. PERFORATUM*, L.
H. maculatum, Walt.
H. boreale, Bickn.
H. mutilum, L.

H. *Canadense*, L.

H. *Virginicum*, L. *Elodes campanulata*, Pursh. *Triadenum Virginicum* (L.) Raf.

VIOLACEAE

VIOLA

V. *cucullata*, Ait.

V. *venustula*, Greene. Wet places on the slides. President Brainerd writes that this is hardly distinct from *V. affinis*, Le Conte.

V. *Selkirkii*, Pursh. Very variable; in more or less shaded places.

V. *blanda*, Willd.

V. *amoena*, Le Conte. *V. blanda*, var. *palustriformis*, Gray.

V. *renifolia*, Gray.

V. *rotundifolia*, Michx.

V. *pubescens*, Ait.

V. *scabriuscula*, Schwein.

V. *Canadensis*, L.

V. *conspersa*, Reichenb. *V. canna*, L., var. *Muhlenbergii*, Gray, Man. Ed. 6.

V. *TRICOLOR*, L. Well established in various places.

THYMELACEAE

DIRCA

D. *palustris*, L. On the big slide.

ONAGRACEAE

EPILOBIUM

E. *angustifolium*, L. *Chamaenerion angustifolium* (L.) Scop.

E. *lineare*, Muhl.

E. *strictum*, Muhl.

E. *coloratum*, Muhl.

E. *adenocaulon*, Haussk.

OENOTHERA

O. *biennis*, L. *Onagra biennis* (L.) Scop.

O. *pumila*, M. *Kneiffia pumila* (L.) Spach.

CIRCAEA

C. *Lutetiana*, L. Rare. *E. F. Williams*, 1894.

C. *alpina*, L.

HALORRHAGIDACEAE

HIPPURIS

H. *vulgaris*, L. Deep brook in swamp; submerged form.

ARALIACEAE

ARALIA

- A. racemosa, L.
 A. nudicaulis, L.
 A. hispida, Vent.

PANAX

- P. quinquefolium, L. *Aralia quinquefolia*, Dec. & Pl. Rare.

UMBELLIFERAE

HERACLEUM

- H. lanatum, Michx.

PASTINACA

- P. SATIVA, L. Escape.

SANICULA

- S. Marylandica, L.

OSMORRHIZA

- O. brevistylis, DC. *Washingtonia Claytoni* (Michx.) Britton.

ZIZIA

- Z. aurea, Koch. Very common.

LEVISTICUM

- L. OFFICINALE, Koch. Old garden on deserted farm near Green Tunnel.

CARUM

- C. CARUI, L. Very common.

CICUTA

- C. bulbifera, L. Little Pond bog.

HYDROCOTYLE

- H. Americana, L.

CORNACEAE

CORNUS

- C. Canadensis, L.
 C. circinata, L'Hér.
 C. stolonifera, Michx. Not so common as would be expected.
 C. alternifolia, L. f.

ERICACEAE

PYROLA

P. chlorantha, Swartz.

P. elliptica, Nutt.

P. rotundifolia, var. *uliginosa*, Gray. Little Pond Bog. *P. uliginosa*, Torr.

P. asarifolia, Michx. Lake roadside, 1901.

P. secunda, L.

P. secunda, L., var. *pumila*, Gray.

MONESES

M. grandiflora, Salisb. *M. uniflora* (L.) Gray.

CHIMAPHILA

C. umbellata, Nutt.

MONOTROPA

M. uniflora, L.

M. Hypopitys, L. *Hypopitys Hypopitys* (L.) Small.

KALMIA

K. angustifolia, L. Not common.

K. glauca, Ait.

LEDUM

L. Groenlandicum, Oeder. *L. latifolium*, Ait. Not common.

RHODODODENDRON

R. Rhodora, Don. *Rhodora Canadensis*, L. Rare.

ANDROMEDA

A. glaucophylla, Link. A large patch in dry field. *A. foliolosa* of Am. authors in part, not L.

CHAMAEDAPHNE

C. calyculata, Moench. *Cassandra calyculata*, Don. Common.

EPIGAEA

E. repens, L. Many people have noticed in the early autumn a sweet odor in the woods and have usually tried to find a late blossoming Epigaea or Linnaea as its source; but it is probably the Fragrant Fungus, *Lentinus*

suavissimus, Fries, a species identified for me by Prof. W. G. Farlow and occurring on willows, but observed by me at Willoughby on the common alder, *Alnus incana*, Willd.

GAULTHERIA

G. procumbens, L. Not common.

VACCINIUM

V. Canadense, Kalm. Not common.

V. Vitis-Idaea, L., var. *minus*, Loddiges. This interesting plant, recorded in Vermont only from the summits of Mansfield and Camel's Hump mountains, has increased its area at Willoughby since I first noticed it on June 4th, 1901.

V. Oxycoccus, L., var. *intermedium*, Gray. *Oxycoccus Oxycoccus* (L.) MacM.

CIIHOGENES

C. serpyllifolia, Salisb. *C. hispidula* (L.) T. & G.

PRIMULACEAE

PRIMULA

P. Mistassinica, Michx. Abundant on the ledges of the mountain and spreading in many wet fields.

LYSIMACHIA

L. stricta, Ait. *L. terrestris* (L.) B. S. P.

L. thyrsoiflora, L. *Naumbergia thyrsoiflora* (L.) Duby. Sheffield Landing.

STEIRONEMA

S. ciliatum, Raf.

TRIENTALIS

T. Americana, Pursh.

OLEACEAE

SYRINGA

S. vulgaris, L. Common on the roadside.

FRAXINUS

F. Americana, L.

F. nigra, Marsh. *F. sambucifolia*, Lam.

GENTIANACEAE

GENTIANA

G. linearis, Froel. In one meadow only.

MENYANTHES

M. trifoliata, L. Rare.

APOCYNACEAE

VINCA

V. MINOR, L. Abundant in one place in cold swamp near outlet of lake. A strange habitat.

APOCYNUM

A. medium, Greene.

A. cannabinum, L. Including the var. *glaberrimum*, DC.

ASCLEPIADACEAE

ASCLEPIAS

A. Syriaca, L. *A. Cornuti*, Dec.

CONVOLVULACEAE

CONVOLVULUS

C. sepium, L.

BORAGINACEAE

MYOSOTIS

M. palustris, Withering. Not common.

LABIATAE

SCUTELLARIA

S. lateriflora, L.

S. galericulata, L.

NEPETA

N. GLECHOMA, Benth. *Glechoma hederacea*, L. Old cellar wall by roadside.

LAMIUM

L. MACULATUM, L. *A. W. Cheever*, 1903.

PRUNELLA

P. vulgaris, L.

GALEOPSIS

G. Tetrahit, L. Flowers often white.

LEONURUS

L. Cardiacæ, L.

STACHYS

S. palustris, L. *Miss A. Lorenz*, 1900.

MONARDA

M. didyma, L. On Newark road; an escape.

CALAMINTHIA

C. Clinopodium, Benth. *Clinopodium vulgare*, L.

LYCOPUS

L. sinuatus, Ell. *L. Americanus*, Muhl.

L. rubellus, Moench.

L. uniflorus, Michx. *L. Virginicus*, in part, of authors.

MENTHA

M. viridis, L. *M. spicata*, L. In one place in a wet field.

M. piperita, L.

M. arvensis, L.

M. arvensis, L., var. *Canadensis*, Briquet. *M. Canadensis*, L.

SOLANACEAE

PHYSALIS

P. heterophylla, Nees. *P. Virginiana*, Gray Man. Ed. 6, not Mill.

SCROPHULARIACEAE

VERBASCUM

V. Thapsus, L.

LINARIA

L. vulgaris, Mill. *L. Linaria* (L.) Karst.

CHELONE

C. glabra, L.

VERONICA

- V. LONGIFOLIA, L. On roadside near Long Pond.
 V. Americana, Schw.
 V. serpyllifolia, L. var. borealis, Laestad.

LENTIBULARIACEAE

UTRICULARIA

- U. cornuta, Michx.
 U. clandestina, Nutt. Little Pond, 1896.
 U. intermedia, Hayne.

OROBANCHACEAE

OROBANCHE

- O. uniflora, L. *Thalesia uniflora* (L.) Britton. *Aphyllon uniflorum*, Gray.
 In great abundance in 1898 on Lake roadside, but not noted before or since.

EPIPIHEGUS

- E. Virginiana, Bart. *Leptamnium Virginianum* (L.) Raf. Common in beech woods.

PLANTAGINACEAE

PLANTAGO

- P. MAJOR, L. Often with leafy spikes, as noticed also in Canada.
 P. MAJOR, L., var. MINIMA, Dec. Very small and slender and of various forms.
 P. Rugelii, Dec.
 P. LANCEOLATA, L. Not common.

RUBIACEAE

MITCHELLA

- M. repens, L.

GALIUM

- G. lanceolatum, Torr.
 G. triflorum, Michx.
 G. trifidum, L.
 G. Claytoni, Michx.
 G. asprellum, Michx.

CAPRIFOLIACEAE

SAMBUCUS

- S. Canadensis, L.
 S. racemosa, L. *S. pubens*, Michx.

VIBURNUM

- V. alnifolium*, Marsh. *V. lantanoides*, Michx. Abundant.
V. Opulus, L. Not common.
V. cassinoides, L. Not common.

LINNAEA

- L. borealis*, L. *L. Americana*, Forbes.

SYMPHORICARPOS

- S. RACEMOSUS*, Michx. Escape by roadside.

LONICERA

- L. caerulea*, L.
L. oblongifolia, Muhl.
L. Canadensis, Marsh. *L. ciliata*, Muhl.

DIERVILLA

- D. trifida*, Moench. *D. Diervilla* (L.) MacM.

CUCURBITACEAE

ECHINOCYSTIS

- E. LOBATA*, T. & G. *Micrampelis lobata* (Michx.) Greene. Near the Hotel
 in field.

CAMPANULACEAE (incl. Lobeliaceae)

CAMPANULA

- C. rotundifolia*, L.
C. RAPIUNCULOIDES, L. Long Pond road.

LOBELIA

- L. Dortmanna*, L. At north end of Lake.
L. inflata, L.
L. Kalmii, L. On the slides and in wet fields.

COMPOSITAE

EUPATORIUM

- E. maculatum*, L.
E. perfoliatum, L.
E. ageratoides, L. This seems to be *E. boreale*, Greene.

SOLIDAGO

- S. latifolia*, L. *S. flexicaulis*, L.
S. bicolor, L.
S. bicolor L., var. *concolor*, T. & G. *S. hispida*, Muhl. Very abundant and the most noticeable roadside golden-rod.
S. macrophylla, Pursh. In woods on the mountain.
S. Virgaurea, L., var. *Randii*, Porter.
S. Virgaurea, L., var. *monticola*, Porter.
S. Virgaurea, L., var. *Redfieldii*, Porter.
S. Virgaurea, L., betw. var. *Randii* & var. *Redfieldii*.
S. Virgaurea, L., betw. var. *Randii* & var. *monticola*. The varieties of *S. Virgaurea* generally in exposed sunny situations.
S. humilis, Pursh. *S. Purshii*, Porter.
S. uliginosa, Nutt.
S. rugosa, Mill.
S. Canadensis, L., var. *glabrata*, Porter.
S. nemoralis, Ait.
S. lanceolata, L. *Enthamia graminifolia* (L.) Nutt.

ERIGERON

- E. hyssopifolius*, Michx. On the slides.
E. bellidifolius, Muhl. *E. pulchellus*, Michx.
E. Philadelphicus, L.
E. annuus, Pers.
E. strigosus, Muhl. *E. ramosus* (Walt.) B. S. P.
E. Canadensis, L. *Leptilon Canadense* (L.) Britton.

ASTER

- A. divaricatus*, L. *A. corymbosus*, Ait.
A. macrophyllus, L.
A. cordifolius, L.
A. polyphyllus, Willd. *A. Faxoni*, Porter. On the mountain ledges and even down to the roadside.
A. diffusus, Ait. *A. lateriflorus* (L.) Britton.
A. diffusus, Ait., var. *hirsuticaulis*, Gray.
A. paniculatus, Lam.
A. paniculatus, Lam., var. *lanatus*, Fernald, n. var. "Stem 1 m. high, white-villous or lanate: leaves elongate-lanceolate, long-acuminate, 1 to 1.5 dm. long, 1 to 1.5 cm. wide, scabrous above, glabrous beneath or slightly pubescent on the midribs, sharply serrate, as in the species: heads many, paniculate, as in typical *A. paniculatus*. — West Burke Road, Willoughby, Vermont, July 20, 1896 (*E. F. Williams*); Sutton Road, Willoughby, Sept. 4, 1896 (*G. G. Kennedy*); Punk Island, Lake Winnipeg, Manitoba, July 6, 1884 — type (*J. M. Macoun*). Distinctly a form of

A. paniculatus, but distinguished by its striking pubescence similar to that of *A. longifolius*, var. *villicaulis*, *A. cordifolius*, var. *Furbishiae*, and *A. tardiflorus*, var. *vestitus*."

- A. *paniculatus*, Lam., var. *bellidiflorus*, Burgess.
- A. *longifolius*, Lam. 1805. Rare, or some seasons not observed.
- A. *tardiflorus*, L.
- A. *tardiflorus*, L., var. *vestitus*, Fernald.
- A. *puniceus*, L.
- A. *umbellatus*, Mill. *Doellingeria umbellata* (Mill.) Nees.
- A. *acuminatus*, Michx. Including the form with chaffy scales instead of flowers.

ANTENNARIA

- A. *Canadensis*, Greene.
- A. *fallax*, Greene.
- A. *neodioica*, Greene.
- A. *neodioica*, Greene, var. *grandis*, Fernald.
- A. *neglecta*, Greene.
- A. *petaloidea*, Fernald.

ANAPHALIS

- A. *margaritacea*, Benth. & Hook. f.

GNAPHALIUM

- G. *polycephalum*, Michx. *G. obtusifolium*, L.
- G. *decurrens*, Ves.
- G. *uliginosum*, L.

INULA

- I. *HELENIUM*, L. A large plant beside brook on Long Pond Road which I have never seen in flower.

RUDBECKIA

- R. *HIRTA*, L.

HELIANTHUS

- H. *ANNUUS*, L.
- H. *TUBEROSUS*, L. In dooryard.

BIDENS

- B. *frondosa*, L.
- B. *cernua*, L.

ACHILLEA

- A. *Millefolium*, L. Flowers varying to deep red color.

CHRYSANTHEMUM

- C. *LEUCANTHEMUM*, L., var. *SCABERRIMULIDUM*, Fernald. (See REEDER, V. 1891.)
 C. *BALSAMIFOLIUM*, L., var. *TANACETIFOLIOIDES*, Boiss. A roadside escape.

TANACETUM

- T. *VULGARE*, L.
 T. *VULGARE*, L., var. *CRISPUM*, DC.

ARTEMISIA

- A. *Canadensis*, Michx. On the cliffs and slides.
 A. *ABROTANICUM*, L. A garden escape.
 A. *VULGARIS*, L. Said to be a recent introduction from Canada, one farmer said within 25 years.
 A. *PONTICA*, L. Garden escape on the Long Pond Road.

TUSSILAGO

- T. *FARFARA*, L. Abundant.

PETASITES

- P. *palmata*, Gray. Considered rare in the swamps, but appeared in 1901 in great abundance at the southern end of lake in the waste sawdust from an old and abandoned saw mill.

SENECIO

- S. *Robbinsii*, Oakes. Very Common.

ERECTHITES

- E. *prealta*, Raf. *E. hieracifolia*, Raf. Lake roadside, 1903. Not before reported in the neighborhood, but two plants were observed Oct. 1, 1903, near Roaring Brook after the building of a new lake wall at that part of the roadway. It will be interesting to note if the one plant left uncollected will establish a colony.

ARCTIUM

- A. *MINUS*, Benth.
 A. *LAPPA*, L. (*A. Lappa*, var. *majus*, Gray.)

CIRSIUM (Cnicus of many authors)

- C. *LANCEOLATUM*, Scop. *Carduus lanceolatus*, L.
 C. *MUTICUM*, Michx. *Carduus muticus* (Michx.) Pers.
 C. *ARVENSE*, Scop. *Carduus arvensis* (L.) Robs.

TRAGOPOGON

T. PRATENSIS, L. Herb. E. F. Williams, 1898.

HIERACIUM

H. AURANTIACUM, L. This plant, elsewhere a noxious weed, is apparently not spreading, as was feared.

H. scabrum, Michx.

TARAXACUM

T. OFFICINALE, Weber

SONCHUS

S. ASPER, Vill.

S. ARVENSIS, L. Mrs. Brucke, 1899.

LACTUCA

L. Canadensis, L.

L. Canadensis, L., var. integrifolia, Gray. *L. sagittifolia*, Ell.

L. hirsuta, Muhl.

L. leucophaea, Gray. *L. spicata* (Lam.) Hitchc.

PRENANTHES

P. trifoliolata, Fernald, var. nana, Fernald. *Nabalus nana* (Bigel.) DC. Collected by Dr. H. H. Rusby in 1892 on the top of Willoughby Mountain and not reported since that date. Herb. H. H. Rusby.

P. altissima, L. *Nabalus altissimus* (L.) Hook. Very common.

READVILLE, MASSACHUSETTS.

[Supplementary notes reprinted from RHODORA, Vol. 6, p. 148.]

ADDITIONAL NOTES FROM WILLOUGHBY.— Willoughby has its surprises even for one who has studied its Flora carefully, and in the last ten days of the present month I have collected some new plants and found stations for other rare ones and I therefore print this note.

Equisetum pratense, Ehrh. In wet pasture land, by the edge of woods, very near the Hotel. This plant as noted by Eaton (RHODORA, vi. 92) is rare in New England, having been found only in the Kennebec valley, Maine; and its occurrence at Willoughby is an interesting extension of range. Only sterile plants were found, but in considerable quantity and it may have been overlooked by summer botanists in the luxuriant growth of ferns and grasses. The rough ridges of the stem thickly set with fine spicula under a lens are so different from other New England *Equiseta* as to render its identification comparatively easy.

Carex deflexa, Hornem., var. *Deanei*, Bailey. On the beach at south end of the lake.

Rosa CINNAMOMEA, L. Grows in wild abundance in pasture by an old cellar wall.

Rosa blanda, Ait., which is very smooth without prickles when growing on the slides, shows frequent spines and prickles when gathered on the Lake roadside.

Carex vaginata, Tausch, found by Pringle, and *Smilacina trifolia*, Desf., collected by Churchill, and both plants unsuccessfully sought for by other botanists, were found growing in a cedar swamp, quite near the original stations below the Four Bridges.— George G. Kennedy.

May 31, 1904.



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