

EARLY INTERVALE FLORA OF EASTERN NOVA SCOTIA.—BY
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Information regarding the distribution of several of our most interesting specimens of flowering plants has been so greatly extended of late, especially through the increased attention given to this subject in the public schools, that some generalizations are becoming possible, and it will be the aim of this paper to attempt a modest beginning along these lines in the case of one society of plants, that composed of the earlier blooming species of the intervale flora of Eastern Nova Scotia.

Even in Macoun's Catalogue only two references each for the entire Province, are given to *Sanguinaria Canadensis* L., *Bicuculla Cucullaria* (L.), Millsp., and *Erythronium Americanum*, Ker. Now, all three of these species grow abundantly, either upon the intervalles themselves or still more commonly on shaded banks bordering them, in the case of each of the three rivers flowing into Pictou harbor, beginning just beyond the farthest point reached by the tide and continuing towards their head-waters as far as any observations have been made.

Nor are these exceptional cases. While no school in the Coast belt of Cumberland reported in 1901 any of these three, seven, possibly eight, in the Lowland belt record *Erythronium*, and four of these in additional observations include at least one of the others.

Of the eleven Cumberland Highland Stations sending in schedules no less than six have credible dates for *Erythronium*, though none have noted either of the others. It should be stated that while *Erythronium* is among the plants listed for observation, the others are not, so that, in view of the facts elsewhere, such negative evidence is of little, perhaps of no value.

In West Colchester four out of six Coast and three out of seven Highland Stations report *Erythronium*. In Northern Colchester (Stirling) only one Coast and no Lowland Stations

assign a date to *Erythronium*, though one of the latter notes *Bicuculla*, but in the Highlands this is changed, as four out of five report at least two and one of them all three species.

Only one Coast Section in Pictou County records any of these, but it has two, *Erythronium* and *Sanguinaria*. An interesting isolated fact may be related here. At Brown's Point, on the I. C. R., just outside Pictou, *Erythronium* grows in the open, and not one hundred yards from salt water. It is supposed to have been accidentally introduced by students bringing specimens from their homes on East or West River for class examination at the Academy.

Two Pictou Lowland Stations report *Sanguinaria*, one the others also; but nine out of fifteen Highland Sections have *Erythronium*, and six of these at least one of the others.

East of Pictou County it is very doubtful whether these species are any longer co-existent. From Antigonish the only reference to *Erythronium* is clearly an error for *Clintonia*, while beyond the Strait there is not at present any sufficient proof of its occurrence.

One of the Highland Districts of Antigonish reports *Sanguinaria* and *Bicuculla Cucullaria*, another *Sanguinaria* and *B. Canadensis* (Goldie) Millsp. The latter is very likely to have been the more common species, as this error is rather frequent. But from Richmond and Cape Breton Counties there is no mention of any of these, though four out of the five Inverness stations on the Bras d'Or Slope report *Bicuculla* and one of these *Sanguinaria* as well, and one of the two Victoria schools to send in a schedule assigns a date to *B. Canadensis*.

Finally on the Gulf Slope, the only Lowland and one of the three Coast sections report *Bicuculla*, the former *Sanguinaria* also.

These facts seem to warrant the conclusion that, with the exception noted, all three of these species are regularly found upon most of the river intervals in this district, beyond the reach of salt water. In most of the Coast and many of the Lowland districts cultivation has so far proceeded that they must

often have been exterminated; but, in addition to this, the conditions prevailing in the more hilly districts seem to favor their growth. Indeed, the more probable presence of a shaded hillside beside the stream would go far in itself to explain this.

These species have been chosen as both eminently typical and likely to have been noticed. With them would almost everywhere be found the Spring Beauty (*Claytonia Caroliniana*, Michx.), but its distribution is very much wider, as it is found in rich woods even on the summits of some of our highest hills.

Just outside the limits of shade will nearly always be found the Downy Yellow Violet, *Viola scabriuscula* (T. & G.), Schwein, which is widely reported throughout the district from Cumberland to Cape Breton. *V. rotundifolia*, Michx., is said to occur in several localities, all such, however, that the preceding species would be expected, and to it these references probably belong. *V. Labradorica*, Schrank, and *V. arenaria*, D. C., are likely found throughout the district, the latter on drier sandy soil, and apparently the commoner in Pictou Co.

Uvularia sessilifolia, L. has been noticed by a much smaller number of observers, but it is widely distributed, and probably on the whole nearly as common as the others.

To complete this list, so far as the common earlier flowers are concerned, there should be added *Ranunculus abortivus*, L., *Actaea rubra* (Ait.) Willd, and *Dentaria diphylla*, Michx., though none of these is strictly restricted to such localities. Prof. Macoun, (Catalogue, Part III., p. 480), states that his N. S. specimens of *R. abortivus* belong to *Var. Micranthus*, as then understood. Careful study of plants gathered at various points along West River, Pictou, where they are abundant, leaves no doubt that they at least should be referred to *R. abortivus*.

Panax trifolium, L. is less often reported, and is certainly not found in some localities where all of the preceding are common, but its distribution is probably pretty general.

Interesting and beautiful, but rare, is *Hepatica Hepatica* (L.), Karst, not certainly known except from the East River of

Pictou and Antigonish. Equally so is *Primula Mistassinica*, Michx., found in only two places.

The Northern Inverness stations are responsible for the addition of *Caltha palustris*, L. *Anemone Americana*, L. is another contribution from this district, but blooms later.

Much more common is *Trillium cernuum*, L., but it grows also in other situations. Moreover, on the West River of Pictou there occur some unusual forms, which seem intermediate between this species and *T. erectum*. Some Antigonish references to *T. grandiflorum* may indicate a similar fact.

The trees and shrubs first to bloom in such localities are the Elm (*Ulmus Americana*), which has everywhere been left on account of its striking beauty, and the Beaked Hazel (*Corylus rostrata*.) But still more typical, though later blooming, are the species of *Cratægus*, which so often occur along the banks, forming in many cases almost impenetrable thickets. Until recently these have all been referred to *C. coccinea*, L., but it is now known that there are several species, at least five and probably six, including some new to science, *C. coccinea* being, however, the commonest and in the greatest numbers where found, *C. acutiloba*, the next in order of frequency, being hardly an intervale plant.

During June the intervalles become covered with verdure, including most of the plants of field and roadside, whether native or introduced. But there are again some rather typical forms. Among them should first be noted *Sanicula Marilandica*, L.; *Washingtonia Claytoni* (Michx.), Britton; *W. longistylis* (Torr), Britton, (which is much commoner than usually supposed); *Geum Virginianum*, L.; *G. Canadense*, Jacq.; *Heracleum lanatum*, Michx., which seem to be found nearly everywhere. Some others call for more particular attention. *Ranunculus recurvatus*, Poir, is known from two localities on West and one on East River, Pictou County. *Thalesia uniflora* (L.), Britton, is found at nearly the same places. The former has recently been reported from Inverness.

Triosteum perfoliatum, L., occurs at Riverton, and near it is *Anemone Virginiana*, L. *Polygonatum biflorum* (Walt.), Ell., which is widely though sparingly reported, prefers the shade, as does *Juncoides pilosum* (L.), Kuntze, while on steep, stony banks *Rhus radicans* is frequent. Rough places beside the stream are almost sure to contain *Senecio obovatus*, Muhl., *S. Balsamitae*, L., and *Apocynum cannabinum*, L.; *A. androsaemifolium*, L., being even commoner, but in richer soil. With them on each of the three Pictou rivers will be seen the leaves of *Meibomia Canadensis* (L.), Kuntze, the flowers not appearing before the middle of July. It is, however, hardly too much to say that the distribution of almost all of these species is as yet insufficiently known.

Many plants found in other locations are also frequent here. Such are *Habenaria dilatata* (Pursh), Hook, *Vagnera racemosa*, L., *Myrica Gale*, L., and *Ranunculus reptans*, L., but it has not been the purpose of this paper to enumerate them.

Why this, the richest and most interesting division of our flora, should have received such scanty attention is, perhaps, a puzzle, and even yet not enough is known of the later species to make many general statements. It is, of course, a matter of common knowledge that the most characteristic plant during the middle of July is *Lilium Canadense*, L., which later gives way to *Clematis Virginiana*, L., and this in its turn to the Asters, but much more work must be done before the subject can be accurately treated.