

The distance between these two points is 10 miles and the difference in elevation is 425 feet. The railway would have obtained a route over the highland without this heavy grade by following up the Madawaska river from Arnprior, but it was more desirable to divert the line into the Bonnechere valley so as to secure the business of the towns and villages located there.

Although the ridges and valleys in the Laurentian highland taken in detail or in small groups appear

to have no definite arrangement or trend, yet it is clear that the main drainage streams are flowing in a valley or series of valleys in echelon, having a general northwest-southwest direction.

Railway lines have no difficulty when proceeding in these directions but the nature of the surface as indicated above is unfavorable to lines which depart from the trend of these controlling features.

(To be continued.)

RANDOM BOTANICAL NOTES.

II. L'ISLET COUNTY, QUEBEC.

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While engaged in studies preliminary to the building up of a detailed flora of Quebec, the writer felt very keenly the lack of information concerning the limit reached along the St. Lawrence river by a number of boreal and halophytic types.

He then proposed—and it was his good fortune to realize—a collecting trip to L'Islet, a small riverside town situated about fifty miles below Quebec city, and fifty miles above Rivière-du-Loup. Both Quebec and Rivière-du-Loup having been repeatedly visited by trained botanists, it was thought that a visit of a few days half-way between these two places would furnish valuable data on that semi-halophytic section of the St. Lawrence river. Consequently, the last week of August, 1916, was devoted to botanizing in the region.

The district consists of a narrow plain bordering the St. Lawrence river and limited on the southeast by a central highland which slopes gradually into the valley of the St. John river. The highland which has an average elevation of about 1000 feet above sea-level, is sharply separated from the plain by a prominent fault escarpment. The rocks are mainly red and green shales, black shists interbedded with quartzites, the assemblage of these being now known to geologists as the Islet formation.* Furthermore, the peculiar quartzites and conglomerates known as the Kamouraska formation are also represented by a few detached hills standing prominently over the country.

Botanically, it was found that the shore line and the occasional protruding Cambrian rocks thereon were unusually interesting, but in the interior of the country, on account of its being thickly settled at a very early period, little of interest was noted.

The waters of the St. Lawrence river are still practically fresh at L'Islet. Off shore, however, the sodium chloride is noticeable at high tide. I have heard it said that water drawn from the river does not freeze easily in winter and is worthless for skating rinks, these facts pointing to the presence of a small percentage of sodium chloride.

The beach flora as it could be observed at this late season was composed in the main of nearly pure strands of *Scirpus americanus* Vahl., and *Zizania aquatica* L., the former being especially important there as a turf-forming species. Among other hydrophytes of interest were noted the following:

Scirpus pauciflorus Lightf.,
Phragmites communis L.,
Juncus Dudleyi Wiegand,
Juncus nodosus L.,
Juncus bufonius L.,
Triglochin palustre L.,
Potamogeton bupleuroides Fernald.,
Potamogeton ephedrus Raf.,
Heteranthera dubia (Jack.) MacM.,
Iris versicolor L.

Iris versicolor as it occurs on the shores of L'Islet, Trois-Saumons and Saint-Jean-Port-Joli is a rather perplexing plant seeming to verge toward the American form of the boreal and coastal *Iris setosa* L. In these localities the range of both species may overlap and the hypothesis of hybridism naturally presents itself to the mind. However, Dr. M. L. Fernald tells us he has observed similar forms of *Iris versicolor* far from the range of *Iris setosa*.

As far as our observation goes the only halophytes to reach so far up the St. Lawrence river are the following:

Ligusticum scoticum L.,
Ranunculus Cymbalaria (Pursh.) Greene,
Solidago sempervirens L.

*Dresser, J. A., Reconnaissance along the Transcontinental Railway in Southern Quebec. Geological Survey, Memoir No. 25.