

ject of the *Diatomaceæ*, I have succeeded in detecting the mature sporangia of the *Gomphonema* therein mentioned, as well as those of *Gomphonema minutissimum*, Ag., and *Cocconema lanceolatum*, Ehrh. In these three species each conjugated pair of frustules gives origin to two subcylindrical, somewhat fusiform, transversely striated sporangia, which lie in a direction parallel to the empty frustules instead of across them, as in *Eunotia turgida*.

Around each conjugated pair of frustules is at first developed a considerable quantity of firm mucus or gelatine, which however gradually disappears as the sporangia become mature. The presence of this mucus affords the readiest means of detecting the conjugated state of *Gomphonema* and *Cocconema*, which is likely to escape observation owing to the great resemblance of their sporangia to frustules, especially to those of *Cocconema*: this resemblance is so striking in *Cocconema lanceolatum*, that the principal apparent difference between the sporangia and the frustules of this species consists in the far larger size of the former.

III.—*Notice of Plants collected in the line of the Rideau Canal, Canada West.* By PHILIP WHITESIDE MACLAGAN, M.D., Royal Canadian Rifle Regiment*.

THE plants were collected in May 1843 on the line of the Rideau Canal. This great work, which commences at Bytown on the Ottawa and terminates near Kingston on Lake Ontario, was constructed several years ago by the Royal Engineers in order to obviate the disadvantages of the frontier route from Upper to Lower Canada. Its length is 137 miles, but like our own Caledonian Canal its course is naturally marked out by a string of lakes and rivers, so that the extent of actual canal is very small, but there is a very extensive series of large locks and dams for rendering the shallow streams connecting the lakes navigable. The summit level of the canal is 290 feet above Bytown, so that there is not sufficient elevation to affect the character of the vegetation; but in other respects there is sufficient variety in soil and situation to produce a good deal of diversity in the botany of the different stations on the line. As I happened to be passenger in a very slow steamer which occupied nearly four days in the transit, I had an opportunity of examining a good deal of the country, and on several occasions, by walking on from one lock to the next, collected a good many plants before the vessel came up. The points which I examined most minutely were—Smith's Falls, about half-way between Bytown and Kingston; the Isthmus and Davies's Locks some miles further on; Jones's Falls,

* Read before the Botanical Society of Edinburgh, May 13, 1847.

thirty miles north of Kingston ; and Kingston Mills, within five miles of the latter town. At Bytown itself, although the banks of the Ottawa appear very promising, I could do little in the way of collecting. *Cupressus thyoides* was then new to me, and the common Juniper is abundant, but except these and one or two *Carices*, nothing of interest occurred. The prevailing rock here is a compact limestone with numerous large granite boulders on the surface.

For the first fifty or sixty miles from Bytown the line of canal is extremely uninteresting, passing through what is called drowned land, where the original forest has been killed by the damming up of the Rideau river. Nothing can be conceived more melancholy than the aspect of these extensive tracts of dead trees still erect, but devoid of bark and leaves. I do not know that the cause of death in these so-called drowned lands is well-ascertained, for one would hardly *à priori* anticipate that the immersion of a tree in water to a depth of three or four feet would prove fatal. The process of decay too, so far as I have seen, appears to be unusually rapid, especially as compared with what takes place after a tree has been killed by burning or girdling, *i. e.* removing a ring of bark near the ground. It was gratifying after passing two days of this dismal country to be allowed two or three hours' collecting among the woods near Smith's Falls—a large village in the Bathurst district. In a damp and rich wood there was a profusion of *Dentaria diphylla*, *Panax trifolium*, *Mitella diphylla*, and *Erythronium americanum*. *Mitella nuda*, a small delicate species, occurred on a mossy rock ; and in drier portions of the bush, *Phlox divaricata*, *Pedicularis canadensis*, *Trillium erectum*, *Trientalis americana* and *Waldsteinia fragarioides* occurred in plenty. The form of *Trillium erectum* which I found was constantly the dark purple variety, nor have I observed any other in Canada. *Trientalis americana* is hardly to be distinguished from the European species except by the more acute form of both the leaves and petals ; though it is possible that discriminating characters might be found on a more minute comparison of the two plants than I have been able to institute. *Waldsteinia fragarioides* appears to be rather a local species. I have never seen it either in Upper or Lower Canada except in the Kingston district. *Convallaria racemosa* and *pubescens* were found sparingly near Smith's Falls ; *Asarum canadense* in its favourite habitat, the darkest recesses of the wood, among rich black mould ; and *Actæa alba* and *Leontice thalictroides* in broken ground about the margin of the bush. Both these last species are popularly known under the name of *Cohoosh*—the former *white* and the latter *blue*. Blue cohoosh is in some parts of the province a popular remedy in acute rheumatism. The

season was too early for collecting aquatic plants. *Menyanthes trifoliata* and *Caltha palustris* were sparingly in flower. *Viola cucullata* and *Viola blanda*, both frequenting moist ground, were abundant everywhere, and there is likewise a pubescent variety of the former species on dry ground, the *V. congener* of some authors. Four other violets were picked in various situations around the village—*V. rostrata*, *V. pubescens*, *V. canadensis* and *V. Mullenbergii*, the latter nearly allied to *V. canina*. A few stunted trees of prickly ash, *Zanthoxylon americanum*, were observed just coming into flower, and this with the *Antennaria plantaginifolia* and *Aspidium marginale* nearly completes the list of my evening's gatherings. The rock at Smith's Falls appears to belong to the same series as that at Bytown—a member of the Silurian group. But a few miles further on, the primary rocks, granite, &c., appear, and at the Rideau and Indian lakes give quite a new character to the landscape. Several new plants likewise appear at the "Isthmus" and at Davies's Locks which serve to unite two of the lakes. *Corydalis glauca*, both here and at Kingston Mills, seems to confine itself entirely to the granite, but the other species here observed, e. g. *Saxifraga virginensis*, *Aquilegia canadensis*, and the beautiful little *Polygala paucifolia*, are not so particular. Here too I picked a species of *Turritis* which appears to come nearest to *patula*, though not entirely accordant with the character of that species. The siliquæ when I gathered it were rather depending than patulous, but after being confined in the vasculum for some hours they became nearly erect. It appears to me quite possible that some of the species of this section, whose characters depend very much on the direction of the seed-vessel, may ultimately prove to be not really distinct.

At Jones's Falls, where I remained upwards of an hour, the most striking plant was *Clematis verticillaris*, a handsome flowered species ascending the trees and rocks to a height of twenty or thirty feet. On a bare clay bank I observed a violet not elsewhere seen by me in Canada, which appears to be *V. ovata* of DeCandolle, which Torrey and Gray make a variety of *V. sagittata*. It presented a character unnoticed by these authors, viz. having the peduncles (previously erect) closely prostrate after flowering. A small variety of *Cardamine hirsuta* also grew there which is the *C. virginiana* of some authors, and may perhaps be a distinct species. *Hippophaë canadensis* appears to have a marked liking for the neighbourhood of waterfalls, this being the third or fourth such situation in which I have seen it, and here it grows in profusion along with *Ribes Cynosbati* and *floridum*, a species nearly allied to our common black currant. One of the few grasses in flower at this early season, *Utrachne asperifolia*, is rather a rare one, and the only other which I procured was

Milium pungens of Torrey. *Asplenium melanocaulon* closely resembling our *A. trichomanes* occurred here, and at several other places in crevices of the rocks.

Kingston Mills, the last station on the canal to which I referred, was not examined at all at this time, but as during a subsequent residence at Kingston in 1845-6, I had frequent opportunities of collecting in that neighbourhood, I mention the more interesting results here to render the account of the district more complete. At Kingston Mills the canal is carried through a deep glen, surrounded by rounded hills of granite protruding through the limestone strata, and then unites with the Cataragui river, a broad, sluggish stream with extensive marshy banks which bear a profusion of *Acorus Calamus*.

On one of the southern declivities of the granite with a very scanty covering of soil, the *Corydalis glauca* reappears in great profusion and beauty, accompanied by *Silene antirrhina*, *Aspidium rufidulum* and *Polygonum cilinode*, a remarkable species sending long runners to a distance of ten or twelve feet over the rocks. *Arabis hirsuta*, *Lepidium ruderales* and *Turritis stricta* were found more sparingly in the same situation. In the damp valley itself, among the under brush composed of *Lonicera* and *Ribes prostratum*, *Cornus canadensis* with *Anoplon biflorum* made their appearance. The latter, the *Orobanche uniflora* of older authors, occurs very sparingly; and of another uncommon species, the *Ranunculus fascicularis*, I only observed one small patch.

From this catalogue it will be observed that the vegetation of this district (which lies in about 76° W. longitude and between 44° and 45° N. lat.) resembles much more that of the lower or eastern than of the upper section of the province; and the rarity as well as the poor appearance of the *Podophyllum peltatum* and *Zanthoxylon americanum*, when they do occur—species abundant in Western Canada—show that they nearly reach their northern and eastern limit at the Rideau Canal.

IV.—Description of two new species of *Carabus* from Asia.

By T. TATUM, Esq.

CARABUS LITHARIOPHORUS.

ENTIRELY of a bright jet-black. *Head* rather large and smooth, with two deep indentations between the antennæ. *Palpi* with the extreme joints strongly securiform. *Antennæ* long and tapering, the last seven joints of a rusty brown colour. *Thorax* broad, rather flat and smooth except near the lateral and posterior mar-



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