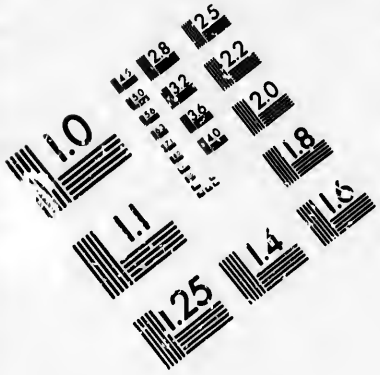

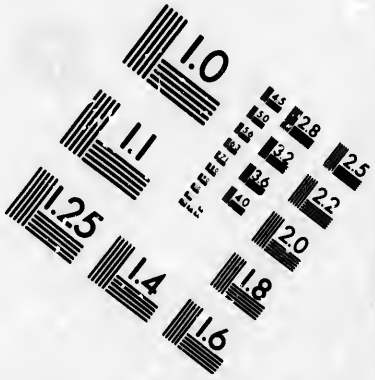

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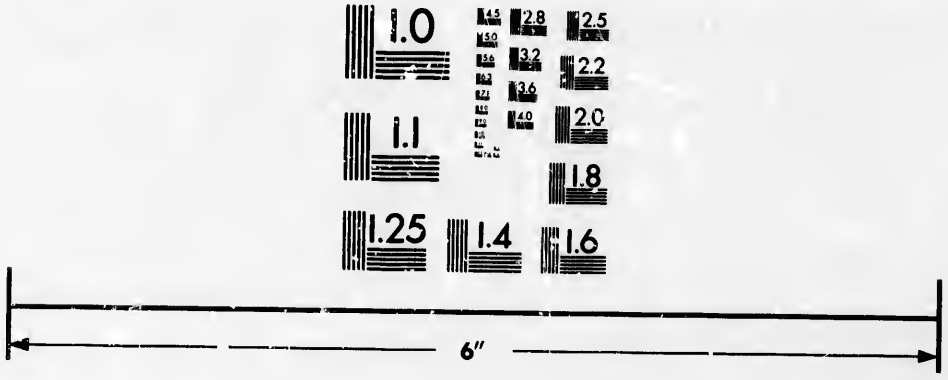

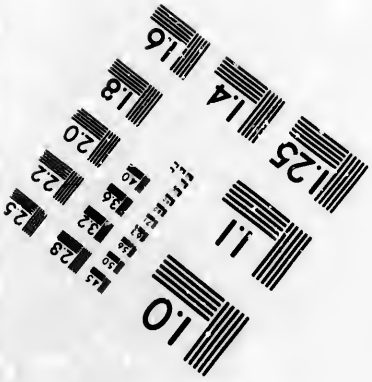

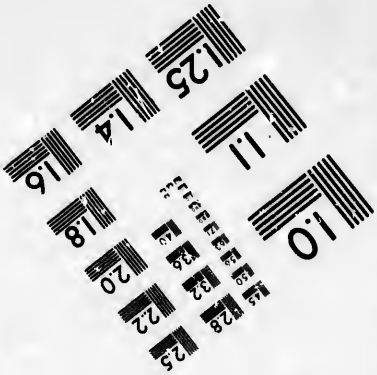

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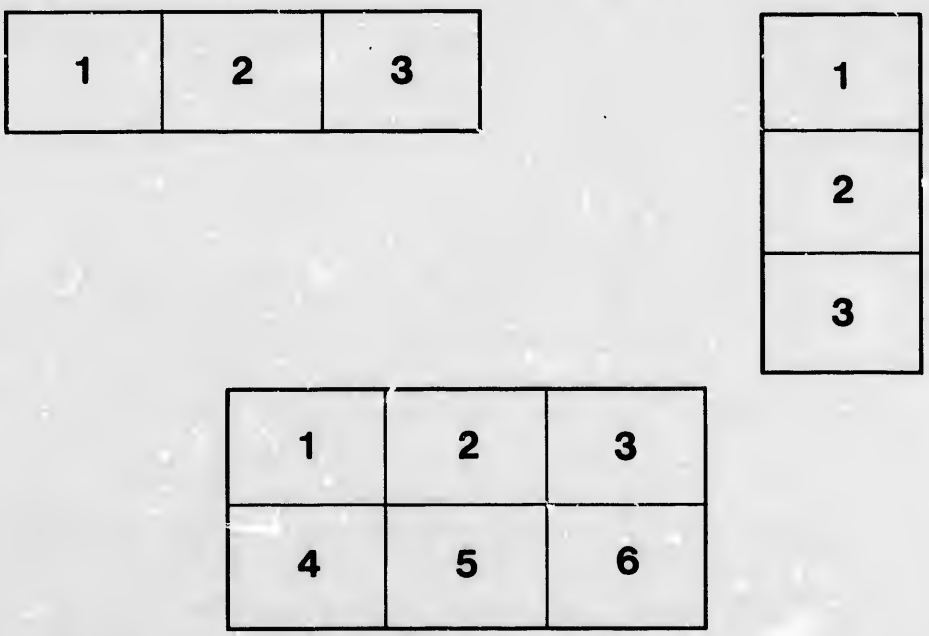

(From Proceedings Institute of Natural Science, vol. vi., part 1.)

Art. VIII. Notice of New and Rare Plants.

By George Lawson, Ph. D., Ll. D. *Professor of Chemistry and Mineralogy, Dalhousie College and University, Halifax. Nova Scotia.*

(Read 12th December, 1882.)

Part I. Plants collected at Blomidon, Bay of Fundy, King's County, Nova Scotia.

A familiar feature in the physical geography of Nova Scotia is the North Mountain, a table-topped ridge that runs for 80 miles in a straight, unbroken line along the south-eastern shore of the Bay of Fundy, from Annapolis Basin on the south-west to Minas Basin on the north-east, and thus shelters the fruitful valleys of the Annapolis and Cornwallis Rivers. One of the most attractive features in the scenery of Nova Scotia is the bold and strikingly picturesque promontory of Blomidon, rising to 400 feet in height, which forms the north-eastern termination of the North Mountain, and now looks down upon the fertile stretches of waving meadow, blossoming orchards, and scattered towns and villages, as it did in the olden time on the less ambitious hamlets and carefully cultivated fields of the French farmers. The physical and geological features of Blomidon,—its red sandstone strata, mostly covered by a debris-slope, and its continuous summit cliff or wall of dark trap—have often been depicted by pen and pencil, and its zeolites and other treasures of mineral species are shown in most of the public museums of America and Europe. It is not so well known that Blomidon is a rich pasture for the botanist.

In July last an excursion to Blomidon was undertaken, chiefly for the purpose of studying its ferns. The party consisted of Colonel Collingwood, R. A., and his son Percy; Dr. Catell, Deputy Surgeon General; Mr. P. Jack, Mr. Geo. Thomson, and myself. Having reached Canning the night before, we started early in the morning for Blomidon, sailing down with the tide in a yacht to a place called Big Eddy, which affords convenient anchorage.

The day was spent on the cliffs, and we returned in the evening laden with plants. Many of these have been planted in gardens for study. At present I wish merely to refer to a few of the more conspicuous and interesting species, with the view of promoting further search in what is obviously a very rich locality.

On the summit cliffs many unusual plants were collected, chiefly of northern or alpine type, such as *Saxifraga Aizoon* (Jacquin), which was first detected on Blomidon several years ago by Mr. JAMES H. HARRIS of the Halifax Nursery. It was found by our party in great quantity and in full flower, its masses hanging by its twine-like roots from the perpendicular faces of the trap cliffs, or nestling in cracks. A living plant was shown to the meeting, also dried specimens, illustrating its range, one from Prof. CARUEL, of Florence, collected "in Apenninis Etruriae," another from Snaehettan, Norway, (T. ANDERSON, M. D.) and a third from Point Rich, Newfoundland, (J. RICHARDSON). It is not a British species. It was introduced into English gardens in 1731, and has been long grown in collections of Alpine plants; but it has remained for Mr. POWER, Superintendent of the Halifax Public Garden, to bring it into use for decorative purposes. He is propagating it largely as an edging and bedding plant, and it will, no doubt, form an interesting feature in the artistic flower-beds next summer.

Sedum Rhodiola was also found in quantity and partially in flower, the male and female flowers being mostly on distinct plants. The plant was first found as a Nova Scotian species at Cape Split, some years ago, by Messrs. JACK, THOMSON and PAYZANT. The Rev. Mr. J. FRASER CAMPBELL (now in India) brought it from either Labrador or Cape Breton, and specimens are now on the table from Newfoundland and Orkney.

Cerastium arvense, although an introduced European plant in the United States, is a true native on the Blomidon cliffs, reminding one in its mode of growth there, of the *C. alpinum* of European mountains.

Tussilago Farfara affords every indication of being indigenous in this wild locality. It is not known to grow in cultivated

grounds nearer than Yarmouth, in the south-western extremity of the Province, and, as an introduced plant is rare in Nova Scotia. Its occurrence at Blomidon, under circumstances which indicate it to be indigenous, is of special interest to botanists. I have appended a few notes on this plant. *Campanula rotundifolia*, the blue bell of Scotland, is also quite indigenous here, although it grows as an introduced plant only near Twelve-mile House, Halifax county.

The bank of debris that slopes from the top cliffs of Blomidon to the shore, is covered in most places with a growth of birch and other common, chiefly hardwood, trees, beneath which, and especially near the top, in shelter of the cliff and huge masses of rock, there are scattered about magnificent clumps of ferns. *Struthiopteris germanica*, the ostrich plume fern, grows in great luxuriance; also *Polystichum angulare* var. *Braunii*, together with the more common Lady fern, *Athyrium filix femina*, and the *Lastrea dilata*, in many puzzling forms, one of which, var., *Blomidonensis*, with remarkably broad deltoid fronds of great size, is strikingly different from all other forms of this species.

Botrychium Virginicum was also found, not plentiful by any means, but some of the specimens were very fine. *Polypodium vulgare* hung in great green mantles over the bare rocks, and in stony places tufts of *Lastrea marginalis* were everywhere to be seen.

Cystopteris fragilis was found in many places on the lower part of the sloping bank where the rock appeared at the shore, but the specimens were larger and finer in the crevices of the upper cliff. The prevailing form was that described as variety *McKayii*, which differs greatly, in its distant, not approximate, pinnæ, and other characters, from all ordinary European forms, but is probably the most common form of the species in America. It is in fact so common here that American botanists not unnaturally look upon it as the normal state. *Woodsia Ilvensis* was also found extending up the face of the cliff. *Polypodium Dryopteris* and other more common ferns need not be specially noticed.

Returning to Canning in the evening, we started next morning, and botanized the gorge through which Dr. HAMILTON'S road winds up to the summit of the North Mountain. Here also there was a magnificent growth of ferns along the banks of the rill, composed principally of *Lastrea marginalis, L. dilatata (spinulosa), Polystichum acrostichoides, P. Braunii, Struthiopteris germanica,* not very plentiful, *Polypodium Phegopteris* and *Dryopteris,* with fine patches of var. *erectum* of the latter, *Athyrium Filix femina, Polypodium vulgare,* &c. Here, with var. *McKayii* of *Cystopteris fragilis,* we found a single tuft of a form with broad leafy approximate pinnæ like the ordinary European state of the plant. It was at this place that Mr. JACK found, some years ago, a tuft of *Woodsia obtusa,* a species which, although not so very rare in the United States, was not previously ascertained to be Canadian. It has indeed been regarded as a Canadian fern, but in my Synopsis, published some time ago, it was pointed out that there was then no evidence.

On the following day we visited the "Look Out," a favourite place of resort for visitors, from which there is a magnificent view of the Cornwallis Valley. Here we obtained a supply of *Woodsia Ilvensis* and also a very few specimens of *Asplenium Trichomanes,* which was very scarce, but was subsequently found on a cliff in a gorge to the westward of Canning, by Colonel COLLINGWOOD. Near the same place Master COLLINGWOOD found *Veronica Americana.* It is necessary to mention, in the interest of visitors to the Look Out, that there is, along the base of the cliff and amongst the stony debris, a great profusion of the Poison Ivy (*Rhus Toxicodendron*), which causes, on many persons, by simple contact, a disagreeable and even dangerous eruption on the skin.

It is remarkable that, with exception of a few local species, nearly all the ferns of Nova Scotia are to be found on the North Mountain.

Part II. Plants discovered at Woodstock, New Brunswick, by Peter Jack, Esq.

In September last Mr. JACK visited Woodstock, and there

made some very interesting discoveries. His attention was called, in the greenhouse in the garden of Mrs. CHARLES CONNELL, to a fern found by the gardener in the neighbourhood during the fall of 1881, whilst gathering leaf mould from under the snow. Mr. JACK, perceiving that the fern was *Scolopendrium vulgare*, an extremely rare species on the American Continent, for which we have only the one Canadian locality at Owen Sound, visited the place, some six miles distant, where the gardener had obtained it, but no trace of the plant could then be found. The plant in the greenhouse was a seedling, apparently of two or three years growth. The gardener (Mr. SUTTON) subsequently, however, succeeded, by diligent search, in finding two small plants, both of which have been forwarded to Halifax, and are now in Mr. JACK'S greenhouse. They came with the native moss and mould still attached to their roots, and effectually confirm one of the most interesting fern discoveries made for some years. Since then two more plants of larger size have been received by Mr. JACK, and a frond of one of them is now presented to the Institute. Whilst at Woodstock he visited the station for *Adiantum pedatum*, a wood six or seven miles distant, and found it to be abundant. But he found at the same place a much greater rarity, viz., *Aspidium Goldianum*, not previously known to exist in the Maritime Provinces; also:

Viola Canadensis, which had been found for the first time in New Brunswick by Mr. CHALMERS, of the Geological Survey, a few days before at another place. At Grand Falls Mr. J. found *Woodsia glabella*, which, so far as known, had only been ascertained to exist in one other place previously in New Brunswick, viz: Tunnel, at Restigouche. *Pellæa gracilis* was found in cleft of rock opposite Woodstock.

Part III. Localities for species of Botrychium.

I have to add the names of a few very interesting forms of Botrychium found during the past summer at Truemanville, in the County of Cumberland, by CHAS. H. TRUEMAN, a science student of Dalhousie College. These are *Botrychium lanceolatum*, Angstrom, and two forms of *B. matricariæfolium*, one

of them corresponding to the large state figured by Prof. EATON, from Utica, N. Y. S., the other to what he calls the commonest form.

Mr. JOHN BRITTEN, of Petitcodiac, N. B., writes me that he has found *B. matricariæfolium* in New Brunswick.

Mr. JAMES VROOM, of St. Stephen, N. B., writes me that both Mr. BRITTEN and Prof. BAILEY collected B. *simplex* at Petitcodiac in 1881, and that Prof. BAILEY found it in the College Grove at Fredericton about ten years ago. I have not seen the specimens.

Mr. H. H. BELL of Halifax, found *Botrychium Virginicum* on Partridge Island at Five Islands, in Colchester County, in July 1881. The Island is one of the five from which the place gets its name, is small but high, with very steep rocky sides, bare in most places; a path at one point leads to the top, which is thickly wooded. The fern grows on the top; found three or four specimens.

Part IV. Plants grown by Mr. Jack at Bellahill, from seeds collected by Mr. Howard Stokes, in Manitoba.

Mr. HOWARD STOKES, formerly of Halifax, collected seeds of a number of the Prairie flowers in the Pembina Mountain district in the summer of 1880, and sent them to his father, B. Stokes, Esq., formerly Storekeeper of H. M. Dockyard, now in Europe. The seeds were sown at Bellahill by Mr. JACK, who also gave portions to the Superintendent of the Public Garden. They flowered in the summer of 1882, and proved to be the following species:—

1. *Anemone cylindrica*, Gray. The Cylindrical or Long-Fruited Anemone, so named from its achenes being arranged spike-like on a much elongated receptacle. This plant is fully described in my Monograph of the Ranunculaceæ published in a former part of the Transactions of the Institute.

2. *Liatris scariosa*, Wild, a rather showy plant, and very variable in size and appearance. It extends from New England to Wisconsin and other Western States and southward, as well as into the British Territories; the specimens from the extreme

western part of Ontario and others collected by Senator SCHULTZ in several places in the North-West, show its extensive range.

3. *Gaillardia aristata.* The Gaillardias are all southern and western plants, none occurring east of the Mississippi, *G. picta* is a favorite in gardens. This one is quoted by TORREY and GRAY from Missouri, Saskatchewan and Oregon. But the form sent by Mr. STOKES is a large robust lanuginose plant that does not agree with any of the forms described in botanical works. Prof. MACOUN, to whom I showed specimens, informs me that this is the form the plant takes when grown on the prairie land after it has been ploughed.

4. *Helianthus giganteus* var. This is also a form of a very variable species.

5. *Heliopsis levis,* Persoon, a rather diminutive but neat broad-leaved perennial sunflower, the only sunflower, in fact, fit for a button hole, if any are. It derives its name from its resemblance to the true sunflower. It grows in Ontario as well as on the Western Prairies.

Physostegia Virginica var. *speciosa.* Gray, False Dragon Head. This is a robust, showy perennial, 4½ feet in height when in flower, with dark green lanceolate strongly serrated leaves, and large spikes of variegated purple flowers. This plant is different from the ordinary garden form of *Physostegia Virginica,* being much larger in all its parts, with larger, darker, almost coriaceous leaves, and long spikes of very bright coloured flowers. It is so different that it has been described as a distinct species. It is the *Dracocephalum speciosum* of SWEET'S British Flower Garden, t. 93, and *Physostegia imbricata* of Hook. Bot. Mag. t. 3386. It differs from the ordinary cultivated form of the species by its dense spikes of horizontal flowers, the spikes panicled; the flowers are also of a darker and richer colour.

Petasites vulgaris, a large English herb with leaves two feet across, City of St. John, where it was observed in vacant lots in the summer of 1881. It seems to have spread from a garden after the great fire, and is fairly naturalized. Additional particulars respecting this and some other plants will be given in a future paper.

A number of interesting localities for rare Ferns were also noticed, from information furnished by Mr. VROOM, including new stations in New Brunswick for *Adiantum*, *Asplenium thelypteroides*, *Cystopteris bulbifera* *Woodsia Ilvensis*, *Botrychium Virginicum*, and *Woodwardia Virginica*.

ART. IX. ON THE BONE IN THE HEART OF THE MOOSE. By J. SOMERS, M. D.

(Read January 8, 1883).

IN most ruminants, especially the larger kinds, there is a bent bone at the base of the heart, on the septal side of the origin of the *aorta*, and imbedded in the tendinous circle which gives attachment to the muscular fibres of the ventricle. In the giraffe this bone was two-thirds of an inch in length. Two such ossifications of the sclerous tissue have been met with. In oxen and red deer, an ossified and unossified piece of fibrocartilage is more commonly observed. In the horse these bodies at the septal side of the aortic ring, are rarely ossified until extreme age. *(Owen, Comp. Anat. Vol. 3, p. 523.)*

The fibrous structure of the heart consists of the firm rings which surround the auriculo-ventricular and great arterial orifices. All of these fibres are more strongly developed on the left side of the heart. The left auriculo-ventricular ring is firmly blended at the fore-part of its right margin with the fibrous structure surrounding the aortic orifice, and behind the aortic opening, between it and the two auriculo-ventricular openings there is found a fibro-cartilaginous mass, which is connected with the several fibrous rings, and to which the muscular substance is also attached. In some large animals, as in the ox and the elephant, there is a small piece of bone in this situation. *(Sharpey & Quain's Anat. Am. edition, 1849. Vol. 1, pp. 481-2.)*

The above quotations from OWEN, and SHARPEY and QUAIN refer to an anatomical peculiarity in the heart of ruminants and