

the wants, and promote the happiness of his creatures,—the beneficent purposes for which he intended them. The laborious enquirer may toil up the ladder of knowledge, but, climb as high as he can, there will be still a step above him, and the more he becomes sensible of his inability, with his finite capacities, to reach the crowning summit in this world, the more firmly will he be convinced, (to use the appropriate words of one of the writers of the *Bridgewater Treatises*,) “that he is destined for a future state of existence, where his nature will be exalted, and his knowledge perfected, and where the great design of his Creator, commenced and left imperfect here below, will be completed.”

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ART. IX. ON THE FLORA OF CANADA. BY GEORGE LAWSON,  
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[*Read March 7, 1864.*]

THE author laid before the Institute a Synopsis of the Canadian Flora, embracing a list of all the flowering plants and ferns that had been observed in Canada, with habitats in detail, showing the distribution of each species separately. The list, which was too lengthy to be printed here, was prefaced by a few remarks on the general features of the Canadian flora. After a brief discussion of the question of origin of species, with reference to Mr. Darwin's theory, which Dr. LAWSON deemed insufficient to meet the wants of the case, it was observed:—

Humboldt, with his great power of generalization, and true appreciation of the poetry as well as the science of nature, summed up the results of all our botanical statistics when he said, “The carpet of flowers and of verdure spread over the naked crust of our planet is unequally woven; it is thicker where the sun rises high in the ever cloudless heavens, and thinner towards the poles, in the less happy climes where returning frosts often destroy the opening buds of spring or the ripening fruits of autumn. \* \* \* Thus we see variety and grace of form, mixture of colours, and generally

the perpetually youthful energy and vigour of organic life increase as we approach the tropics, although everywhere man finds some plants to minister to his support and enjoyment.”

The floral carpet depends for its thickness upon physical causes, but its intricate and ever-varying patterns lead us back to the mode of origin and subsequent diffusion of species. In Canada we have examples of the thinning of this carpet to the northward. In the south-western peninsula of Canada, there is a luxuriant vegetation, composed largely of species which have their head quarters farther south in the adjoining States. Here are magnificent tulip trees and black walnuts, the occidental plane, and such little southern plants as *Jeffersonia diphylla*, *azolla Caroliniana*, and *Erigenia bulbosa*. This is the peach country of Canada, and the part peculiarly adapted for the grape-vine, tobacco (now extensively cultivated,) and Indian corn, all of which require in Canadian latitudes a maximum of summer heat. Gooseberries do not thrive, and although the soil is peculiarly adapted for turnip culture, the climate is too warm and dry. In like manner, oats, broad beans and cabbages give way before wheat, potatoes, kidney beans and pumpkins, all of which enter largely into field culture.

In the south-western peninsula of Canada there are other plants that have a rather wider range northward and eastward; such are *lupinus perennis* (normal form), *ranunculus rhomboideus*, the painted cup, *castilleja coccinea*, *asplenium rhizophyllum*, the beautiful walking-leaf fern, *Woodwardia*, &c. *Viola sagittata* is common about Toronto, but rather a local than a southern or western plant, and *podophyllum peltatum* extends sparingly to Lower Canada.

The prevailing and characteristic trees of Upper Canada are the beech, maples, several species of oak, ash and birch, hickories, ironwood, bluebark, butternut, pines, hackmatack, cedars (white and red), hemlock, balsam fir, poplars and wild cherries; spruces increase to the eastward. Of essentially American species, which form the great mass of the Canadian flora, the solidagoes, asters, and other showy compositæ, are conspicuous. It is along the southern and south-western frontier of Canada that there exist the greatest numbers of plants of the true American flora, which is

a continental flora, developed chiefly inland, and decreasing toward the Atlantic seaboard. We have many examples of it in Nova Scotia, but here the preponderance of *northern* species is much greater than in corresponding latitudes in Canada, and many of our common plants are in western Canada, either entirely northern or strictly confined to the great swamps, whose cool waters and dense shade form a shelter for northern species. This effect of the swamps in modifying the distribution of species seems to have been hitherto overlooked.

The great numbers of aquatic plants furnished by the Lakes, were then referred to, as well as the numerous examples of the arctic or Scandinavian flora prevailing in the northern and eastern parts of Canada, and still further developed in the Hudson's Bay territory; and the means by which the various floras were brought together, so as to form the present composite flora of Canada, were discussed with reference to the views of Lyell, Watson, E. Forbes, J. Hooker, Dawson and Darwin.

Alluding to the circumstance that there was a remarkable sameness in the plants associated with boulders in different parts of the country, incidental reference was made to a very remarkable boulder, in the Trent valley, in Upper Canada, which was visited by Dr. LAWSON, in company with the Rev. W. Bleasdell, M. A., rector of Trenton, on 6th June, 1862, and which Dr. L. proposed to name the Bleasdell boulder. Mr. Bleasdell has kindly furnished the following measurements:—

Length, 44 feet; breadth, 24 do.; height, west end, 19 do.; height, east end, 22 do.; greatest width of base, 21 do.; longitudinal circumference, 114 do.; lateral do., 77 do.

It lies due east and west, and is surrounded by a grove of iron-wood, overtopped by maple and beech. The following plants were found growing upon this huge stone:—

*Rubus strigosus*, *ribes cynosbati*, *ribes rotundifolium*, *Silene Pennsylvanica*, *fragaria vesca*, *mitella diphylla*, *solidago Canadensis*, *abies balsamea*, *abies alba*, *lastrea marginalis*, *polypodium vulgare*, *adiantum pedatum*, *Hedwigia ciliata*, *leptobryum pyriforme*, *bryum roseum*, *scyphophorus pyxidatus*, *peltidia polydactyla*.

The most characteristic boulder plants in Canada are *Parmelia conspersa*, *P. cyanea*, *schistidium apocarpum*, *polypodium vulgare*, *Hedwigia ciliata* and *scyphophorus pyxidatus*.