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THE INTRODUCED
AND THE
SPREADING PLANTS
OF
ONTARIO AND QUEBEC.

By A. T. DRUMMOND, B.A., LL.B.

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Those members of our flora which have been introduced, or which have the habits of naturalized species, we may refer to one or other of five groups :—

- I. Incidental escapes.
- II. Adventive plants.
- III. Naturalized foreign plants.
- IV. Species which are both indigenous and naturalized.
- V. Native species which have the habits of introduced plants.

The first, second, and third groups are well known, and only require a passing notice.

The first group embraces species which have escaped from cultivated grounds, have propagated themselves in neglected gardens, or have been casually introduced with grain or grass-seed, or in other ways, and which are not in the least permanent. Stray plants of wheat, oats, corn, and other grains growing upon our country roadsides, and upon the tracks of the railways, are familiar to us. The little heartsease, the ragged robin, and morning glory are some of our garden plants, which, unaided by continued cultivation, have occasionally, for a brief period, struggled to retain their places in the neglected flower plots.

The term adventive has been applied to foreign plants which have permanently located themselves in the country, and yet are so dependent upon some of the accompaniments of civilization that were the country to resume its preadamite condition they would probably soon disappear. Adventive plants form a numerous class, embracing most of those weeds which confine themselves to the vicinity of dwellings and barns, and to cultivated grounds. The mustards and the corncockle, familiar pests on many eastern farms, and the flax, carrot, parsnip, and artichoke, illustrate the group.

Those introduced species, which have freely spread themselves throughout the settled parts of the country, and which, though domesticated through the agency of man, are probably quite

independent of him for existence, come under the category of naturalized plants. The buttercup, clover, Canada thistle and sheep sorrel, strikingly exemplify this extensive group.

The remaining groups require a more attentive consideration. All of the species referred to them are indigenous to this country; some to the settled, others to the remote districts. With many individual plants of some of the species it forms a question whether their introduced habit indicates a foreign origin or results from a tendency of the indigenous plant to abnormally spread. In certain instances the known limited distribution of the species, in its indigenous form, dispels any doubt. For example, around Lake Superior. Agassiz chronicles as native, or probably so, species whose habits, in the settled parts of the country, evince a decidedly exotic origin. Where, however, the range of both forms is extensive, indicating the limits of each is impracticable. It is indeed *possible* that not only have the rambles of the native species frequently placed them side by side with the domesticated plants, and probably quite undistinguishable from them, but that in some instances the species, though common to Europe and America, have no introduced representatives here; and that individuals of these species, which have the habits of exotics, are in reality indigenes which have wandered beyond their natural homes.

A question, replete with interest, arises in connection with these naturalized plants. Have changes of climate and of other conditions in the long lapse of years impressed new specific characters on the individuals of any species, or, if not, have they produced any permanent varieties? If even the latter were the case, it seems probable that not only might varieties be different on different continents, but the migration of these varieties might also lead to specific changes. Let the imagination trace the wanderings of one of these little plants under such circumstances. Probably of a spreading habit in its native country, it emigrates, through one of the innumerable channels constantly open, to a foreign clime, where it becomes established, and where, in consequence of a change of conditions, some slight but permanent alteration is effected in its characters. The plant thrives, and in the lapse of years becomes a widely distributed weed. Another emigration takes place thence to a country where climatal and other conditions are different from those of either its native country or last adopted home. A more marked variety results. In the course of long time this variety appears on another continent, to

be subjected to farther changes, which so destroy the identity of the plant that a botanist only acquainted with the species in its native clime, on seeing its wandering individuals here, hails the discovery of an allied plant requiring a place in specific nomenclature. It is, however, a suggestive enquiry whether if this new species or the variety were to find a footing in the country whence its progenitors came, it would retain its identity as a species or variety. The whole subject merits some investigation as to how far, in any respect, climatic or other differences produce permanent change. I cannot, however, help here recalling some analogous cases. The inland maritime plants, growing on the shores of the Great Lakes and elsewhere, have been subjected to a great change in their conditions of growth without any corresponding alteration in the distinctive characters of the species. Similar instances are recorded in the insect fauna of Lake Superior, and our attention has lately been drawn to *Pieris rapae*, an intruding butterfly from Europe, extensively naturalized in the Province of Quebec, which here even feeds on a plant different from that which constitutes its food on the other side of the Atlantic, and yet retains its specific features unchanged.

In enumerating, in the catalogue below, species which have both indigenous and introduced representatives in the country, I briefly indicate the provincial range and habits of each plant as far as known. Our knowledge of the habits and distribution of the grasses in Ontario and Quebec is, however, so limited that I enumerate, without any accompanying notes, such species as are probably referable to this catalogue. Indeed, with respect to both this and the other catalogues, I shall be glad to have the aid of botanical friends in rendering our knowledge of the habits and range of all of the spreading and naturalized plants more complete.

Ranunculus scleratus, L. This plant is frequent in railway and roadside ditches, and in wet places in old pastures and neglected grounds. In range it is common from the Detroit River and the southern shores of the Georgian Bay to the Lower St. Lawrence, and is native in the Hudson Bay Territory. In the two Provinces it probably chiefly occurs in the introduced state.

Barbarea vulgaris, R. Br., is often met with in gardens. Mr. Barnston (Canad. Nat. 1859) speaks of it as introduced or not according to locality. The varieties are indigenous from Lake Superior northward and westward. The plant is well known in

Ontario in its introduced form, but is apparently less familiar in Quebec.

Erysimum cheiranthoides, L., is a weed in gardens at Belleville (Mr. J. Macoun), but elsewhere I know it only as a native. In the Lake Erie districts and in Eastern Ontario it is frequent, and no doubt occurs in the Eastern Townships.

Draba cerna, L. This plant is little known here, and is only provisionally placed in this catalogue. Provancher cites Cap Tourmente as a station, and, according to Prof. Gray, it is not found north of the Province of Quebec. In the Southern United States and in Massachusetts it is introduced.

Turritis glabra, L. Mr. Macoun regards this as introduced around Belleville, where it occurs in newly seeded meadows. In the indigenous form its known range is from Lake Superior to Montreal and southward. In the Hudson's Bay Territory it is well diffused.

Sisymbrium Sophia, L., is occasionally met with from Prescott, in Ontario, eastwards. Whether it occurs in the indigenous state or not is open to doubt. In the Northern States it is still less known.

Cerastium viscosum, L. Torrey and Gray, in their flora, when referring to this species, as well as *C. vulgatum*, add an interrogation after "introduced." Macoun thinks it occurs in both the native and naturalized states at Belleville. It ranges from the northern shores of Lake Huron to those of the Lower St. Lawrence. Seeman notes its occurrence within the Arctic zone.

Arenaria serpyllifolia, L. Prof. Brunet says of this plant, "*Elle est certainement spontanée au Labrador.*" I have only seen it in the introduced state, but Macoun, whilst observing its occurrence in waste ground, thinks it may be indigenous at Belleville. Although distributed from the islands of Lake Huron (Dr. Bell) to Labrador, and southward to Lakes Erie and Ontario, it does not appear to be very common.

Trifolium repens, L. Most of the individuals of this widely-diffused species met with in these Provinces are probably introduced. Agassiz seems to question whether the Lake Superior plant may not be native. My esteemed correspondent, Mr. Macoun, in a note on it, says, "*T. repens* is certainly a native, but it is also an introduced plant. I have observed it in all my wandering, and noticed that it always makes its appearance in new clearings along with *Erigeron Canadense*."

Vicia cracca, L. From Belleville eastwards this species is not uncommon. Dr. Bell considers it introduced in Gaspé; in Ontario it is certainly indigenous. It appears among the introduced plants of Agassiz and Lowell—(Agassiz's Lake Superior.)

Potentilla Norvegica, L., forms one of those species which are frequently found on roadsides and in fields, and yet may not be introduced. In its undoubtedly native state it is common from the northern coast of Lake Superior to Labrador and Newfoundland.

Potentilla Argentea, L., is found abundantly in old sandy fields at Toronto, Port Colborne, Pieton and Gaspé. At Swampscott, near Boston, I obtained it on the roadside in sandy soil. It is questionably native.

Agrimonia Eupatoria, L., is frequently met with on roadsides. In Southern Africa it is a naturalized plant (D'Urban.) The indigenous form is well distributed over both Ontario and Quebec.

Galium Aparine, L. This plant, if it has not been overlooked, has a limited distribution. It occurs in the Erie district, and ranges thence to Montreal. I have only met with it in gardens, and Dr. Lawson, of Halifax, who has an extensive acquaintance with the flora of these Provinces, informs me that his experience is that the introduced form is not common except in gardens.

Taraxacum dens-leonis Desf. This is a plant of wide diffusion, extending northward to the Arctic zone. Wherever met with in the settled parts of Ontario and Quebec, its habit is that of an introduced plant.

Achillea millefolium, L., is another extensively-diffused species, which also ranges to the Arctic zone. It largely frequents roadsides and waste fields.

Xanthium strumarium, L., occurs in the Erie district, and thence eastward. Some forms of this species are indigenous in the United States—(Gray's Manual.)

Gnaphalium uliginosum, L. Most of the species of the genus *Gnaphalium* have a more or less introduced-like habit. Individuals of this species are frequently met with on roadsides and in fields. The range of the plant extends over the two Provinces, except in the extreme West, where, however, it is to be looked for.

Artemisia vulgaris, L., is a common roadside plant in eastern Ontario and Quebec. Torrey and Gray (Flora N. Amer.) refer

to it as indigenous in British North America. It occurs within the Arctic zone.

Cirsium arvense, Scop. In the settled districts *C. arvense* is decidedly naturalized, but some authors regard it as probably indigenous in the Hudson's Bay Territory. It is well diffused throughout Ontario and Quebec.

Plantago major, L., is very common everywhere amongst grass in fields and on roadsides. Agassiz thinks it indigenous on the north shore of Lake Superior, and Macoun has informed me of its occurrence, in the native state, on rocks along rivers in the northern part of the County of Peterborough, Ontario.

Veronica serpyllifolia, L., is a familiar field and wayside plant from the Detroit River to Gaspé and Newfoundland. Its habits are those of an introduced plant, but some observers have met with it in the native state.

Brucella vulgaris, L., is well distributed over the two Provinces. The naturalized state occurs abundantly in lawns and in pastures, and sometimes on roadsides.

Calamintha clinopodium, Benth., is well known throughout Ontario, but in Quebec does not seem to have been observed. At Kingston I think it is indigenous, and Macoun similarly regards the Belleville plant. The Lake Superior form Agassiz also considers native rather than naturalized.

Polygonum aviculare, L. This, the most common of weeds, almost everywhere meets the eye. I have only seen the introduced form, and have doubts whether it is, at any locality, indigenous. The variety *erectum* (*P. erectum*, L.) is an aboriginal, as also is var. *littorale* (*P. maritimum*, Ray.)

Humulus Lupulus, L., has escaped from cultivation, and somewhat permanently settled in some places. I have seen it around Montreal and at Lemnoxville. It is indigenous on the north shore of Lake Superior, and during the past summer I found it entwining itself among the shrubs which border Salmon Creek, in the Township of Melbourne, Province of Quebec. It can no longer be regarded as a plant of purely Western range.

Festuca ovina, Gray, var. *duriuscula*, Gray.

Poa compressa, L.

P. pratensis, L.

Agrostis vulgaris, With.

Panicum glabrum, Gaudin.

P. crusgalli, L.

Triticum repens, L.

T. caninum, L.

So intimately connected in their range and habits with the exotic plants of our fields and roadsides, are our native species in their abnormally diffused states that there seems a propriety in referring to them here. Their habits are instructive as they furnish an explanation of the circumstances which have led to the introduction of foreign plants into the country in our times. Native species, when they assume these rambling habits — as most, if perhaps not all, of our domesticated exotics to a greater or less extent have in the countries from which they have come — frequently stray into grain-fields, to roadsides, wharves, and other localities, whence their seeds are readily conveyed to foreign lands, along with grain, wool, packing, personal effects of emigrants, ballast, and other means of transmission, so amply afforded. Thousands of the seeds thus yearly brought to foreign shores probably never germinate, and of those which do, perhaps but a small proportion, representing some of these hardy species, and a few others, which find a congenial climate and soil, mature and perpetuate their existence. The recurring immigration, year after year, of the same as well as occasional other species, soon, however, gives a feature to the vegetation there. The spreading habits of any of the plants, in the countries from which they have come, will have hardened their natures, and nerved them for not only enduring the vicissitudes of, perhaps, dissimilar soils, and a more trying climate, but also of encroaching upon the domains of the native vegetation. In this manner has, I conceive, arisen in a large measure the distribution of the exotic flora of our roadsides and fields. And it further seems unquestionable that those members of our indigenous flora which have this spreading habit will not only be the most likely to migrate to and become naturalized in foreign lands, but of all species which may happen to be so naturalized from here will be the most hardy, and probably have, eventually, the widest range. *Erigeron Canadense* and *E. annuus* are familiar illustrations. With an extensive range in this country, they have migrated to Europe, where, in the naturalized state, they now have a wide distribution. *Oenothera biennis* affords an example of the same feature.

Illustrative of this last group there are some well-known plants. *Ranunculus abortivus*, L., is very common on road-sides in different

parts of the country. The range of the plant is from the Detroit River to the Lower St. Lawrence and Newfoundland. The variety *micranthus* occurs on the north shore of Lake Superior, and thence westward and south-westward.

Corydalis aurea, Willd. At Ottawa, I found this plant among the rocky debris on the banks of the river, along with introduced plants. Dr. Bell has observed a similar spreading tendency on the Manitoulin Islands. This habit is, as yet, but little developed, as elsewhere the species is only known in its normal state. It is well distributed over the two Provinces, except in the Erie district.

Ocalis stricta, L. At Kingston, this is common in gardens. Excepting on the north shore of Lake Superior, it is well diffused over Ontario and Quebec.

Oenothera biennis, L., is now a garden plant. It is sometimes found growing in rubbish and on road-sides. The distribution of the plant over the two Provinces is very general.

Sambucus Canadensis, L. This is exceedingly common in fence rows. It is a well-known species from the southern shores of the Georgian Bay and from the Detroit River to the Lower St. Lawrence. Its abnormal habits have been observed in the United States, and the question has been raised whether it is a native there or not.

Erigeron Canadensis, L., is a plant of wide distribution, both on this and other continents. Here it ranges over the greater portion of the two Provinces, and often occurs in neglected fields. Two other species of this genus *E. annuum*, Pers. and *E. strigosum*, Muhl. have also a tendency to become intruders.

Rudbeckia hirta, L., is a southern plant, indigenous in the Ontario peninsula, and eastwards as far as Belleville, but also frequent in grain fields around London and on St. Joseph's Island, Lake Huron, and spreading in the County of Northumberland.

Antennaria plantaginifolia, Hook. This plant is found everywhere throughout the Provinces, and beyond them extends to Hudson's Bay and the Rocky Mountains. Farm yards and the road-sides are favourite resorts of it. Among its near allies, the Gnaphaliums, there is also a tendency to spread.

Bidens frondosa, L. This, and perhaps one or two other species of the same genus, frequently stray into railway and roadside ditches. The known range of *B. frondosa* is from Lake Erie to the Lower St. Lawrence.

Lobelia inflata, L., a well distributed plant of both Provinces, occurs in grain fields in the Province of Quebec, and is thought to be the cause of some cases which have lately occurred of poisoning among cattle.

Hedeoma pulegioides, Pers. and *H. hispida*, Pursh—neither of which seems to range into the districts north of Lakes Huron and Superior and into the Province of Quebec—both have, Mr. Macoun informs me, spreading habits at Belleville.

Verbena hastata, L. is a frequent intruder on road-sides and in neglected fields. In the indigenous state it is common from the Manitoulin Islands to the neighbourhood of Quebec.

V. urticifolia, L. This species occurs in similar situations to *V. hastata*, and has a nearly analogous range.

Veronica peregrina, L. This is a well-known grass plant, occurring on lawns, in parks and elsewhere. Its recorded range is from Lake Erie to the vicinity of Quebec.

Urtica gracilis, Ait, Macoun remarks, has an introduced habit at Belleville. From Lake Superior to Anticosti this plant has been everywhere met with.

Polygonum Pennsylvanicum, L. In wet fields, road-sides, and railway ditches, this, and perhaps one or two more *Polygonums* are often found. *P. Pennsylvanicum* is known to range from the Manitoulin Islands to below Montreal.

Acalypha Virginica, L., is a familiar weed in some places. The species is distributed from the Erie district to about the City of Quebec.

Euphorbia maculata, L., is a known road-side plant, and is possibly an introduction from the United States. It ranges over a considerable portion of Ontario.

E. commutata, Engel., has been noticed at Shannonville, Ont., by Macoun, who remarks its introduced-like appearance.

Salix lucida, Muhl., is very common in the ditches and moist grounds on the sides of railway tracks. It is abundant throughout the two Provinces.

Panicum capillare, L.

When the Provinces were originally settled by the ancestors of the present French population, we can believe that many of the weeds of France found a home here. Immigration during succeeding years from the same country, and from Great Britain and Germany, not only repeated the introduction of many of these weeds, but largely swelled the number of introduced species.

At the present day, our close commercial relations with Great Britain and the United States are producing a yearly influx of these unwelcome visitors, and scattering them broadcast over the country. Though new forms only now and then make their appearance, there is an incursion—renewed every summer to a greater or less extent—of those familiar, self-made friends of ours. At the same time, not only are these very species—along with some members of our indigenous flora—migrating from here and obtaining a footing in other foreign lands with which we are in commercial intercourse, but they must frequently reappear among their native brethren, in the countries from which they originally came. Amongst those countries between which trade relations are intimate, there must be a constant interchange in this way.

Illustrative of this immigration from different countries, there may be cited: from tropical America, *Senebiera didyma*, Pers., which occurs at Gaspé, and Montreal, and which has, probably, been directly introduced, *Chenopodium ambrosioides*, L., species of *Amaranthus*, of which there is presumption that they have come by way of the United States, and *Nicotiana rustica*, L., which Dr. Gray considers a relic of cultivation by the Indians; from the United States, *Martynia proboscidea*, Glos., probably *Acalypha Virginica*, L., and some of the Euphorbias, and from Europe, in addition to many well-known plants, *Potentilla argentea*, L., *Leontodon autumnale*, L., *Plantago lanceolata*, L., *Rumex patientia*, L., and *Cynodon Dactylon*, Pers.

The large yearly influx of population from different parts of Europe aids materially in establishing species throughout the Provinces, and the facilities afforded for the subsequent distribution of these species are especially great in consequence of the long continuous lines of railway and water communication between the seaboard and all sections of the interior. Many introduced plants are thus of wide range. *Capsella bursa pastoris*, Mœnch, *Achillea millefolium*, L., *Maruta cotula*, D. C., *Cynoglossum officinale*, L., and *Polygonum persicaria*, L., for example, extend from Lake Superior to the Lower St. Lawrence. Others, again, are quite restricted in range. *Leontodon autumnale*, L., and *Senebiera didyma*, Pers., are limited to the seaports, and *S. coronopus*, D. C., is only known from Gaspé; *Veronica chamædrys* has not been observed elsewhere than at Quebec; *Sisymbrium sophia*, L., is uncommon in the Province of

Quebec and quite unknown west of Prescott, and *Plantago media*, L., has, as yet, only been observed at Toronto.

Currents may play a more important part in the introduction of exotic plants than is generally supposed. Our Canadian lake coasts supply illustrations of this agency at work. Coral islands are, it is well known, mantled with a vegetation largely resulting from the seeds carried to their shores through the medium of winds and currents. In the United Kingdom, the influence of the Gulf Stream is observable in the occurrence of *Eriocaulon septangulare*, With., *Sisyrinchium anceps*, Car., and *Najas flexilis*, Rostk, upon the western coasts. It seems, indeed, possible that the part played by this great current in the phenomena of distribution has not been brought into sufficient prominence. The evidence, though limited, suggests the enquiry whether, in addition to some local plants, others, common to the two continents, and fairly diffused, at the present day, in Europe, may not have had their starting points on its west shores, whither their seeds have been carried, by the Gulf Stream, from America, at stray times, during passing centuries, without destroying their vitality.