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CANADIAN SPECIES OF THALICTRUM.—III.*

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A most difficult chapter in the past history of Canadian meadow-rues is that relating to the summer-blooming white-flowered kinds; tall plants, usually inhabiting wet meadows or banks, and not coming into flower until early summer, their panicles often ample and of a plummy whiteness, making their fine display at a time when the early kinds, always green-flowered and inconspicuous, have passed to the fruiting stage.

The whiteness of the panicles of these white-flowered kinds is due to the fact that the numerous filaments that make up the bulk of the flowers are flattened, or at least thickened above, and are of a pure white, thus resembling in some degree narrow petals; and they even stand upright, after the manner of petals, whereas the filaments of the vernal green-flowered sorts are finely capillary and altogether pendulous.

Some member of this white-stamened group appears to have been the first among American meadow-rues to gain a place in European gardens. As early as the year 1635 there grew and flowered in Paris a Canadian meadow-rue with upright white stamens, and the name of it as *Thalictrum Canadense* was published in that year, at Paris, in a book on Canadian plants with the Latin title: *Canadensium Plantarum Historia*. If the printing of the name had been accompanied by an adequate description of the plant, we should have had here the beginning of the written history of some one of the several white-stamened meadow-rues of Canada; for, by such description the competent botanist of to-day might have identified some one or another of them as the *T. Canadense* of Cornut. That early description is not, however, of the least help to us in that direction, and all for the reason that said author, at least as to the fruit, describes precisely that of a familiar white-stamened European species

* C. Ott. Nat. xliii. 17, 37.

long known as *T. aquilegifolium*. By some one's blunder, the fruit of the well known Old World plant was placed before the botanist for diagnosis instead of that of the new Canadian species. Presumably the two were growing side by side in that Paris garden, and, by the time the plants were in fruit, the one became mistaken for the other; but the result was that we can make no use of the rather full description of Cornut in our attempt to identify that particular Canadian *Thalictrum*.

As regards the plant itself, its fertility on Old World soil, its free dissemination to other gardens near to and far from Paris, and its universal recognition as an American and even a Canadian species, there is copious evidence. We trace it easily in the published records of various European gardens and in other prints, all the way from Cornut in 1635 to Moench in 1794, a period of 160 years. It is mentioned usually as *T. Canadense*, Cornut, in the works of Hermann, Tournefort and others on the continent, and in those of Parkinson, of Ray, of Morison and of Philip Miller in England. Meanwhile Linnæus had arbitrarily altered the name to *T. Cornuti*. It was in no respect more appropriate than the original, and in Linnæus's time already long established *T. Canadense*. A mere caprice often seems to have ruled the mind of that nomenclator, so that changes in nomenclature were made as if in sheer defiance of the principle of priority. But Philip Miller very soon restored the original name put forth by Cornut. Nevertheless so abject was the Linnæolatry of the after years that, until almost the end of the nineteenth century the name *T. Cornuti* was the one that stood in almost all the books, whether of American or of universal botany. Moench, indeed, in the year 1794, displaced both names, averse as he was to using either personal or geographic specific names. He called the plant from Canada *T. confertum*; and so a third appellation had been assigned, yet all the while no such description of the species had ever been published as would enable the most expert descriptive botanist to identify the plant. *T. Canadense*, *T. Cornuti* and *T. confertum* were all three little or no better than *nomina nuda*, names only, and therefore without any title whatsoever to adoption in any kind of systematic botany.

In respect only to the *T. Canadense* of Philip Miller will this comment of mine be likely to be called in question. Miller devotes quite a paragraph of his Dictionary to an informal account of the plant. It is the fifth of his meadow-rues, and he says of it:

"The fifth sort grows naturally in North America. This has a fibrous root of a dark colour. The stalks are smooth, of a purple colour, and rise three or four feet high, branching toward the top. The leaves are like those of the Columbine, of a

grayish colour, and smooth. The flowers are produced in large panicles at the top of the stalks; they are larger than those of the former sorts, and have five white petals which soon fall off, and a great number of white stamina with yellow summits. This flowers in June, and the seeds ripen in August."

As a description, this is specious rather than definitive; yet it comes twenty times nearer being definite than all which had ever been printed about the plant during the 135 years that had intervened between Cornut and Miller. Let us see what this description tells us that may help somewhat toward a placing of the plant. That its roots are fibrous and dark-coloured may assure us that it was not one of our numerous meadow-rues that are yellow-rooted. Its attaining the height of three or four feet is a statement that might be helpful; for, in Canada where this thing came from there are white-stamened kinds that commonly attain that height, and more, and there are others that are exceptionally large plants of their kind if two feet high. That its leaves were those of columbines is of no moment. Most American meadow-rues, and many of those of Europe and of Asia, are columbine-leaved. But when we are informed that the *T. Canadense*, Mill., has leaves that are "grayish" and also "smooth," we are compelled to picture in our minds a *Thalictrum* with glaucescent foliage, that is, if we are instructed as to the terms that were in use in Miller's day and earlier for designating that which we of a later time know as glaucous. There are white-stamened Canadian *Thalictrums* in plenty, the foliage of which is deep-green or dark-green, and one or two that are glaucescent-leaved. We have now the word of Miller that the real *T. Canadense*, involving *T. Cornuti*, Linn., is a plant with light blue-green foliage, and glabrous, at least above. Another very useful item in his account of the plant is, that its flowers are produced in large panicles. This definitely excludes several rather northerly Canadian meadow-rues the leafy stems of which can not be said to end in any panicle at all, but in an umbel of only two or three—sometimes solitary—large white-stamened flowers; yet all these manifestly distinct plants were formerly catalogued as *T. Cornuti*, which, by Miller's testimony, they can not be. And, finally, it is evident by the same authority that the plant as they had it in Europe in the seventeenth century and in the eighteenth was hermaphrodite, for the authority seems to say that stamens and pistils were in all the flowers. Miller's account does not indeed define anything. We can not, in the light of it, enable ourselves to say just what one of the Canadian white-stamened *Thalictrums* it was, though by the same token we can seem to see in the Canadian flora a number of members of that group which can not be referred thereto.

To most botanists of this generation the name *T. Cornuti* is unfamiliar. They meet with it nowhere in the newer books but in synonymy; and in the older herbaria they are apt to find it erased, and the name *T. polygamum* written in its stead. It had been in constant use among American botanists for more than a century when, late in the nineteenth century it was remanded to synonymy by Asa Gray. The condition of meadow-rue nomenclature was not thereby improved, for *T. polygamum* had been from the first a *nomen nudum*, that is, it had been printed in a catalogue, without any accompanying description. All that Dr. Gray was able to cite by way of diagnosis was "smooth, polygamous;" so that any kind of *Thalictrum* showing glabrous herbage and a tendency to polygamy would have to be *T. polygamum*. Yet despite all this, the author at once began to include in his own *T. polygamum* plants glabrous and plants pubescent, and that in several different ways. They who use the name *T. polygamum* use it on the mere dictum of authority. There is less reason for it than for the old name *T. Cornuti*. Yet even Muhlenberg, the inventor of the vacuous name *T. polygamum*, had admitted *T. Cornuti*, holding *T. polygamum*, whatever that may have been, to be distinct from it; thus by no means intending to make a name that should be substituted in place of *T. Cornuti*.

The discovery of the invalidity of the name *T. Cornuti* was not made by Dr. Gray. That point had been made clear by Augustin Pyramus De Candolle away back in 1818, long enough before the time of Gray; and De Candolle, suppressing the unauthenticated *T. Cornuti*, gave a new name, and therewith a description that is intelligible. I do not think I can do students of Canadian *Thalictrums* a better service here than to give them an English version of De Candolle's description; for the author says that his specimen was from Canada.

"*THALICTRUM CORYNELLUM*. Stem erect, terete, finely striate, hollow; leaves twice or thrice ternately divided, the segments oval, at apex obtusely 3-lobed, otherwise entire, upper face dark green, the lower glaucous, and beset with scattered hairs, especially on the veins and veinlets; panicle erect, subcorymbose; flowers dioecious erect; sepals oval; filaments clavate at summit; anthers oval-oblong; fruits 12 to 15, sessile, striate, oblong." [A. D.C. *Systema*, I. 172, 173].

M. De Candolle drew up the description from herbarium specimens. He does not seem to have known that the filaments are white. They seldom remain so in old specimens. The specimens were in the herbarium of Vaillant, and the plant was from Quebec, by Sarracenus. It is to be noted that he supposed the species to be dioecious; and so it is, in the main. Rarely

does the pistillate plant in flower show a stamen or two, or three, in some of the flowers; but the staminate plants appear to be always purely staminate. Truly hermaphrodite individuals are a rarity.

In the Herbarium of the Geological Survey *T. corynellum* is well represented, and I cite a few of the numbers: 32,763, from King's Co., N.B., A. P. Chadbourne, July, 1883; 66,630, Port à Persis, Que., 18 Aug., 1905, Macoun, pistillate plants, with no trace of stamens; Cache Lake, Algonquin Park, 5 July, 1900, two numbers, 23,260 a purely staminate plant with ample panicle, 23,259, several small panicles of truly hermaphrodite flowers, but stamens very few nevertheless; 32,755 is a sheet from Southern New Hampshire, by Miss M. A. Day, at Jaffray, 23 July, 1896. The two specimens are strictly male and female; and in two or three points they fall short of responding to De Candolle's diagnosis of *T. corynellum*, for the traces of pubescence in the lower face of the leaves are very faint, while the carpels, instead of being glabrous are distinctly though sparsely setulose-hairy; also they are fairly, though shortly stipitate, thus inclining to *T. dasycarpum*, to which, however, they do not seem to be referable.

THALICTRUM LEUCOCRINUM. Stout and large, the thick hollow stems both angled and striate, green and glabrous, the branches of the panicle sparsely and minutely setulose; lowest leaves not known; middle cauline sessile, not large, of a deep but not dark green above and beset with scattered short setulose hairs, underneath of a yellowish rather than glaucous green, and subtomentulose with yellowish hairs, these more copious along the veins; terminal leaflets hardly $\frac{3}{4}$ -inch long, round-obovate, obtuse at base, 3-lobed at apex, the lobes obtuse, the large middle one mucronate, lateral leaflets smaller, oval, entire; panicle of staminate plant ample, its branches ascending, copiously floriferous, the flowers large; sepals oval, obtuse; filaments strongly clavate, the outer series thicker at summit than their oblong obtuse anthers; panicle of pistillate plant smaller, compact; immature carpels slenderly fusiform, substipitate, sprinkled with a few minute setulose hairs, the stigmas straight.

Specimens in the herbarium of Mr. John Donnell Smith, collected by himself on Campobello Island, N.B., between 17 July and 20 Aug., 1888. They are labelled *T. purpurascens*, and for the usual reason, no doubt, that the plant is strictly dioecious, the clavate character of the stamens of course failing to be noted. The peculiar hue of the herbage, and the characteristic pubescence, this on both faces of the leaves, precludes our referring this to either *T. corynellum* on the one hand, or *T. dasycarpum* on the other.

THALICTRUM ZIBELLINUM. Usually a foot high, sometimes larger, slender but firm, with striate stem leafy to the summit, glabrous below the summit; leaves of a dull bluish green above, glaucous beneath, all except the floral glabrous on both faces, the floral with traces of some minute pubescence; terminal leaflets about $\frac{3}{4}$ -inch wide above the middle, the length a trifle less, rather deeply and not very unequally 3-lobed, the lobes broader than long and very obtuse, laterals smaller, oval, mostly entire; panicles small, rather compact; sepals of staminate plant round-ovate, very obtuse; filaments gradually clavellate from the base, at summit not approaching the width of the anthers, also not very long; anthers oblong, obtuse; sepals of pistillate plant oval, obtuse or abruptly acute, glabrous, deciduous; immature carpels short pubescent.

The type specimens of this small member of the white-stamened group are in Herb. Geol. Surv., No. 21,134, and were obtained on Sable Island, off Nova Scotia, July 26 to Aug. 8, 1899, by Mr. Macoun. These appear to represent a plant strictly dioecious.

HOUSE-FLIES AND THE PUBLIC HEALTH.*

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In a city like Ottawa and in many other Canadian cities the house-fly problem and the dangers resulting therefrom are of far greater and more vital importance than one is accustomed to find in other cities of less rapid growth and longer establishment. Certain facts, to which reference will be made later, are present which increase the potential danger, already very great, of these ubiquitous pests. Whether you penetrate the huts of the Lapps or swelter in the burning heat of an equatorial clime you will not be permitted to forget the existence of the "domestic" house-fly; there are no means of escape; by street-car, by Pullman or by liner it has a free pass. A fearless, dashing and careless mass of heat-infused vitality. Let the day be cool or dull *Musca domestica*, as the great name giver Linnæus described it, is obsessed with inertia, but an hour's sunshine or a warm room and it is as attentive as ever. The activities of most living beings, not excluding man, are dependent on the great source of energy, the sun, but the question of temperature is a matter of

* An abstract of a lecture delivered before The Ottawa Field-Naturalists' Club on Feb. 1st, 1910.



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