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THE OTTAWA NATURALIST

VOL. XXIV.

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No. 2

CANADIAN SPECIES OF THALICTRUM.—III.*

By EDWARD L. GREENE.

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. xxiii. 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 Cornu. in 1635 to Moench in 1794, a period of 160 years. It is mentioned usually as *T. Canadense*, Cornu., 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, sub-corymbose; 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 $\frac{7}{8}$ -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.*

BY C. GORDON HEWITT, D.Sc., F.E.S.,
Dominion Entomologist, Ottawa.

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 Linnaeus 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.

most vital import to the fly and to those stages of its life history through which it passes in hidden preparation for its great adventure, the crowning of its career, its emergence as a fly.

How many people are acquainted with the lives of the things around them? The house-fly is too humble, too common a creature to stimulate thought on its origin, use in life and destiny; we are too concerned, those of us who have time to be concerned, in these questions in their personal relations and the house-fly is dismissed with a word of comment on its power of provocation and possible unknown utility. But public interest does not always slumber. Science disguised as the Prince Charming has at last succeeded in awakening this Princess. The mantle of mystery and veil of ignorance have been torn off, and the house-fly stands alone, known and condemned with clear convincing proof that it must be classed with the mosquito as one of the scourges of man and destroyers of his children. Instead of being the harmless, bright little insect, though annoying by its attentions, it is the embodiment and emblem of filth swathed with the germs of decay.

What are the facts? They are that no house-fly can be caught indoors or out of doors that is not carrying on its legs and body bacteria of all kinds and the spores of moulds and other organisms which accompany decay. No living fly is free from germs: the existence of such would be more than a miracle. Its legs and body, proboscis and wings are covered with small hairs and bristles, so that its legs may be compared to fine bristle brushes; it frequents every kind of filth imaginable and besmirches itself with the microscopic bacteria and other decay-producing organisms of which it cannot possibly rid itself, and flies about a winged and wandering bundle of bacteria. All this might be expected as a result of reasoning alone, but such would not be proof, and the proof is astonishing in its vindication. Any house-fly, whether caught in one's room or out in the open and allowed to walk over a medium suitable for the growth of bacteria and moulds, will deposit the germs of these organisms in its tracks, which in a short time will yield colonies of bacteria and decay-producing fungi. This experiment has been performed times innumerable, and not only does this take place in the warm summer months, but I am able to show you a collection of bacterial fungal colonies obtained from the feet of a fly caught in one of my rooms at the Experimental Farm a few days ago. One of the most interesting and convincing experiments to prove that house-flies normally carry about the spores of fungi and bacteria was made by my friend and colleague, Mr. H. T. Gussow, who caught three flies, the first in his room (in London, England), the second in the street, and the third on a household dust bin.

From the first of these he obtained 30 colonies comprising six kinds of bacteria and six colonies of four species of fungi. From the second he obtained 46 colonies comprising 8 kinds of bacteria, and 7 colonies of four species of fungi, and from the fly caught on the dust bin he obtained 116 colonies comprising 11 kinds of bacteria, one of which is only found in the intestinal tract, and 10 colonies of six species of fungi.

It does not require any play of the imagination therefore, to appreciate the ability of house-flies, if they normally infect themselves in this manner and carry about such germs, to infect themselves with the bacilli of typhoid fever, tuberculosis, infantile diarrhoea, and other similarly infectious diseases. Typhoid bacilli have been obtained from flies frequenting places where the disease existed. It has been found that such flies will remain infected for some time, and also that typhoid and tubercular bacilli can pass through the digestive tract of the fly in a virulent condition and that their dejecta are infective. It has further been demonstrated that flies reared from maggots which have been bred in matter infected with typhoid bacilli are infected with the bacillus. In the South African and Spanish-American wars flies were responsible for more deaths than bullets. Enteric fever in those wars carried off its thousands, which was not to be wondered at, in view of the prevailing sanitary conditions with open latrines frequented by incipient cases of enteric and myriads of flies swarming indiscriminately about the latrines and the mess tents. On a smaller scale similar conditions occur in the unsanitary districts of our towns and cities where the house-flies frequent indiscriminately and in turn the privies and kitchen tables. Once typhoid establishes itself in such places the house-flies will account for the subsequent spread of the infection. The warmer the weather the more active will the flies be, and with greater ease and rapidity will the disease be spread.

An allied disease, infantile or summer diarrhoea, is responsible for the greatest mortality among young children during the summer months or third quarter of the year. The specific cause of this disease has not been satisfactorily determined as yet, but it is probably a germ allied to the typhoid bacilli, and, in the same way that we know that the mosquito carries the germ of yellow fever, although it has not as yet been discovered, it is fairly certain from statistical and circumstantial or epidemiological evidence that house-flies are the chief agents in the dissemination of this disease. I have prepared a chart extending over a period of twenty years and giving the number of deaths per thousand living due to this disease, and the mean temperature during the third quarter of the year in a large English city, and

it will be seen that with the exception of one year, wherever there has been a rise or fall in the mean temperature for the third quarter of the year, there has been a corresponding rise or fall in the number of deaths: associated with a rise or fall in the temperature would be an increase or decrease in the number of flies, as the two are intimately connected. A high temperature is responsible for a more rapid development of flies, and therefore for an increase in their numbers. The shortest time in which I and other investigators have been able to rear house-flies through all the stages of their life history, that is through the egg, larval or maggot and pupal stages, is slightly over eight days by keeping them at a constant high temperature. It was also found that in ten to fourteen days these flies could lay eggs. As each fly is capable of laying from 120 to 150 eggs in a single batch, and may lay six or even more batches of eggs during its life, it is an easy matter to understand how a single fly may be responsible for an incredible number of descendants during a single season, and in the light of these facts, the enormous number of flies present in a hot season ceases to be a matter of wonder, and still more so when it is learnt "where they all come from."

The chief and favourite breeding place of the house-fly is in stable refuse, which may sometimes be found to be literally alive with the "maggots" of the house-fly. In a city like Ottawa where stables are located behind houses in almost every street, and each single horse stable has its pile of refuse, is it to be wondered at that house-flies are so numerous? It is little use complaining about these pests, and potentially the most dangerous pests we have, while such conditions are allowed to exist. A single refuse heap will supply a whole street with flies; a single, unclosed, and not frequently emptied refuse bin will colonise a house, for they breed in incredible numbers in waste and decaying vegetable products, such as accumulate in the household refuse bin. All decaying and excremental substances, provided the temperature is suitable, serve as breeding places for house-flies, and in these facts lies the solution to the house-fly problem which we are compelled to face if we would reduce the infantile mortality rate and the death rate of typhoid fever. There are two ways of dealing with a nuisance, the one is to abolish it; the other to render it innocuous. Boards of health and local authorities should make it *illegal* to keep stable refuse exposed for more than *six days*, that is, a period of time less than that required by the fly to pass through its complete development from egg to fly. Within that time it should be compulsorily removed to well without the boundaries of the city. Refuse bins should be similarly treated. Refuse should

be burnt in public and municipal destructors, and it should be made compulsory to keep refuse receptacles closed, and consequently fly-proof. The alternative, to render such nuisances innocuous, can be accomplished by the provision of darkened fly-proof pits or chambers for the reception of stable refuse, to be frequently and periodically removed. Flies may be prevented from breeding in such refuse by treating it with such substances as chloride of lime or kerosene. By scattering chloride of lime over the refuse after each addition in the closed chamber, or spraying with kerosene (which is not so effective), the flies are prevented, should they have access, from breeding in the excremental or vegetable refuse. But the removal method is the most successful wherever it can be accomplished; and in the case of small stables this is not impossible.

These may seem somewhat utopian suggestions, but success has followed their adoption, and drastic initial measures are essential if it is desired to reduce, so far as is humanly possible, this evil in our midst. Until such measures are adopted the public must hold the offending parties responsible for the dangers resulting from the germ-carrying powers of the house-fly; and it is no small matter to be responsible for an unnecessarily high and reducible infantile mortality, not to mention the increased possibility of the rapid spread of outbreaks of typhoid fever, to which new and rapidly growing cities are especially liable. In houses it is not sufficient to provide fly screens to windows and doors, but such foods as milk and sugar, to which flies are especially attracted, and which are more than usually suited for the reception of whatever germs they are carrying, should be carefully covered with muslin. A fly should be regarded in its true light as a winged carrier of disease and decay. The sooner this is realized the more speedy will be the advent of more healthy and less dangerous conditions. Time was when the fly acted as a scavenger, its larvæ destroying by disintegration decaying substances. Its function has now been superseded by health and sanitary authorities, and now its sole function is that of a danger signal. Wherever flies abound in such places will refuse and decaying substances be found, and on such occasions it will serve as a disseminator of the germs which are associated with such substances. If we are to reduce the mortality from these infectious diseases and make our towns and cities more healthy, the house flies must be reduced. The time is past when these ideas were considered the alarmist croakings of scientific cranks: we have the facts before us which condemn in no unmeasured terms this most serious pest—the common house-fly.

WINTER BIRDS AT POINT PELEE, ONT.

By W. E. SAUNDERS, LONDON, ONT.

On February 1st, 1909, Mr. J. S. Wallace and the writer made an expedition to Point Pelee to determine what birds were passing the winter in that locality. This is the spot where a greater winter population may be expected than in any other part of the mainland of Ontario, on account of its being the most southerly extension, and although our observations were partly made during a cold blizzard, and the ground was snow covered during the entire visit, yet we found more than forty species, as detailed in a number of THE OTTAWA NATURALIST of last year.

The winter of 1909-1910 came on slowly, and there was really no very severe weather. The lowest temperature at London, up to the 19th of February, was about 10 below zero, and this would indicate that the lowest temperature at Point Pelee was about 10 above zero. This is approximately the same temperature that we met with last year on our winter trip. During the earlier parts of the present winter, the ground was comparatively free from snow, and yet, even in November, when winter had not yet begun, the dearth of birds, not only at Point Pelee, but all through Ontario, was striking.

During January and early February there was an unusual quantity of snow, and this is the only respect in which the winter has apparently been a difficult one for the birds. Moreover, snow itself is not supposed to be an inconvenience to many birds, except as it covers their food, and I noticed in November, as well as February, that the crop of berries at Point Pelee on the various species of *Cornus* and *Viburnum* was very large, so that food for a good many species must have been abundant. Nevertheless, we succeeded in recording only twenty-four species from February 11th to 14th, 1910, as against over forty in the first few days of February, 1909. The former winter was signalized by the influx of many northern species. Redpolls were abundant, and Crossbills, Evening Grosbeaks and others were seen; but along with them were found at the Point, Hermit Thrushes, Chewinks, and White-throated Sparrows in considerable numbers, which species were entirely absent during our visits in November, December, January, and February of the past winter. Robins, Bluebirds and Flickers, which were there in large numbers a year ago, were comparatively rare this year. Several other species which were seen the previous winter in small numbers, were absent, but this, of course, would be expected. The surprising part of the whole matter is

that nearly all of these birds vanished before November, and I have heard of only one Chewink having been seen in Ontario since the middle of last November, and absolutely none of many other species which were common at Point Pelee in the winter of 1908-1909.

These facts indicate that there is a great variation in the number of summer birds which are found there during the winter, or in other words, they prove that while Chewinks and other similar species may stay in considerable numbers during one winter, they may be entirely absent in the next, under circumstances which appear to us to be equally favorable.

Another peculiar feature of bird life on the Point, which was impressed on us very strongly during the recent trip, is that the birds change their location in a very decided and thorough manner, without reasons which appear adequate to the human observer. For instance, in our former visit, the Robins and Flickers were in the jungle, which is where the berries and grapes are to be found, and Bluebirds were in the open field nearby, feeding in the edge of the jungle, and around the mullein stalks. On our recent visit we found all that region to be absolutely deserted by such species, but they were living in a little section of Red Cedar forest, nearly three miles north of the old location, where their food was apparently limited to berries of *Celastrus* and Red Cedar.

Altogether, the visits of these two winters, instead of making migration and residence problems clearer, seem to have complicated them the more.

The list of birds noted in the four days of the last trip is as follows:—

Marsh Hawk.....	1	Blue Jay.....	5
Great Horned Owl.....	1	Prairie Horned Lark.....	25
Robin.....	20	Downy Woodpecker.....	20
Golden-crowned Kinglet..	10	Hairy Woodpecker.....	1
White-breasted Nuthatch.	8	Goshawk.....	1
Brown Creeper.....	12	Golden-eye Duck.....	38
Cedar Bird.....	80	Carolina Wren.....	20
Cardinal.....	15	Sharp-shinned Hawk.....	1
Song Sparrow.....	1	Crow.....	1
Junco.....	6	Purple Finch.....	10
Tree Sparrow.....	500	Flicker.....	4
Goldfinch.....	20	Snowflake.....	12

The numbers are taken from the day on which most were seen, and it is likely that these numbers include most, if not all, of those seen on the other days.

CONTRIBUTIONS FROM THE HERBARIUM OF THE
GEOLOGICAL SURVEY.

BY JAMES M. MACOUN.

SPERGULA SATIVA, Bœnn.

Common on Vancouver Island and the only species collected there. Collected by Prof. John Macoun at Victoria in 1908, No. 78,504 and Ucluelet, No. 78,505, in 1909; Klondike River, Yukon, No. 58,406. The specimens collected at Victoria in 1885 by Dr. Fletcher and recorded under *S. arvensis*, Macoun, Cat. Can. Plants I, 499, are this species. In *Rhodora*, Vol. VII, p. 151, Dr. Fernald writing of this species credits Dr. Fletcher with having collected it at Ottawa in July, 1892, distributed as *S. arvensis*, and in the last edition of Gray's Manual it is credited to Ontario. While it is possible that Dr. Fletcher collected *S. sativa* at Ottawa none of the specimens from Ottawa in the herbaria of the Central Experimental Farm or of the Geological Survey are this species, and it is more than probable that in distributing specimens Dr. Fletcher mixed those collected on the Pacific Coast with those collected at Ottawa, the former being *S. sativa*, the latter *S. arvensis*.

LYCHNIS CORONARIA, Desv.

Common in the streets of Nanaimo, Vancouver Island in July, 1908, Herb. No. 78,534. (*John Macoun*). Probably a recent introduction as it was not seen at Nanaimo in 1887 or 1893 by Prof. Macoun, and is not recorded elsewhere in Canada though found in several places in Washington and the Eastern States.

ROSA ALCEA, Greene, Leaflets II: 63.

Collected at Moose Jaw, Sask., in 1892 by Wm. Spreadborough and until recently in our herbarium without a name. Will probably be found in other localities in the dry prairie region. "Calyx-tube with not a few stout sharp spreading spines, but sepals quite densely glandular-prickly; corolla large, the petals obcordate."

HIBISCUS OPULIFOLIUS, Greene, Leaflets II: 65.

H. Moscheutos, Macoun, Cat. Can. Pl. I: 87.

This fine *Hibiscus* recently described by Dr. Greene and represented in our herbarium by specimens collected by Prof. John Macoun at Point Pelee, Lake Erie, in 1882, and at Leamington, Ont., in 1892, is probably to be found in suitable situations from Point Pelee west to Windsor, Ont., as *H. Moscheutos* has been recorded from the Detroit River.

PLEUROGNE FONTANA, A. Nels.

P. rotata, Macoun, Cat. Can. Pl. Vol. I, p. 325, in part.

Easily distinguished from *P. rotata* by its greater height, linear leaves, the lower of which are soon deciduous leaving the stem below almost naked. All our prairie specimens are this species. Very fine specimens 15 to 18 inches high were collected west of Battle River, Alta., in 1906, by Macoun and Herriot. Herb. No. 78,463.

PENSTEMON PROCERUS, Dougl.

St. Lazare near Fort Ellice, Man., No. 78,446. (*Macoun & Herriot*). Not recorded from Manitoba.

VERONICA TOURNEFORTHII, C. C. Gmel.

In waste places, Portage la Prairie, Man., No. 78,451. (*John Macoun*). Not recorded from west of Ontario.

NOTES ON WINTER BIRDS IN HOCHELAGA AND COMPTON COUNTIES.

BY L. McI. TERRILL, WESTMOUNT, QUE.

While at Robinson, Compton County, Que., during two weeks in the early part of December, 1909, I found birds fairly numerous, chiefly Woodpeckers, the unusual birds being two flocks of Goldfinches, one Pigeon Hawk and one Goshawk. The Goshawk, an immature bird, was brought to me alive, by a farmer who informed me that he had caught it in his barn in the act of devouring one of his fowl. He had been attracted there by the outcries of the other poultry.

Returning to Montreal I found a scarcity of birds beyond the ordinary. From the 15th of December, 1909, to the 6th of March, 1910, during weekly walks, I have noted only the following:—

Dec. 19, 1909—One Pigeon Hawk.

Jany. 1, 1910—Flock of 25 Snowbirds and a few Chickadees.

Jany. 2, 1910—One Pigeon Hawk.

Jany. 16, 1910—Flock of 25 Cedar Waxwings, mostly immature birds, feeding on Mountain Ash berries.

Jany. 30, 1910—One Pigeon Hawk.

Feb. 6, 1910—Flock of 15 Snowbirds.

March 3, 1910—One Crow.

March 5, 1910—Six Prairie Horned Larks in song; as they were paired they have probably been here a week; Fifteen Crows.

March 6, 1910—Chickadees numerous, heard notes "sweet-sugar"; Prairie Horned Larks noted abundantly in pairs; Crows numerous, saw upwards of 200.

Owing to the very mild weather this winter one might have expected to see something unusual in bird life, or at least an early spring arrival; but, as the foregoing list will show, not even a Crow has remained in this district, whilst conditions in the north were evidently favourable enough to retain most of our winter visitors, such as the Redpoll and Grosbeak, leaving us with only a few stragglers of the later migrants.

The following is a list of the birds observed in Compton County:—

DECEMBER 5TH TO 20TH, 1908.

- Can. Ruffed Grouse—These birds are fairly common in this district, but presumably on account of dark, stormy weather in December they keep well hidden, only coming out at dusk to feed in the birch tops.
- Downy Woodpecker—Common, noted daily.
- Hairy Woodpecker—Common, noted daily.
- Arctic Three-toed Woodpecker—Several seen.
- Pileated Woodpecker—Two heard.
- Canada Jay—One seen.
- Blue Jay—A few noted almost daily.
- Redpoll—Common.
- Pine Siskin—Numerous.
- Snowbird—Several small flocks.
- Am. Crossbill—Several flocks.
- Pine Grosbeak—Common; noted daily; one flock of 20 with several bright males.
- Brown Creeper—Several.
- White-breasted Nuthatch—Three seen.
- Red-breasted Nuthatch—Common; noted daily.
- B. C. Chickadee—noted daily.
- Golden C. Kinglet—Several small flocks seen.

DECEMBER 2ND TO 15TH, 1909.

- Goshawk—Examined one immature bird.
- Pigeon Hawk—One seen in flight.
- Barred Owl—Found remains of one in woods.
- Downy Woodpecker—A few seen.
- Hairy Woodpecker—Common.
- Arctic Three-toed Woodpecker—One or two seen almost daily.
- Pileated Woodpecker—Noted on four occasions.
- Blue Jay—Common; seen daily.

Am. Goldfinch—Saw a flock on each of two days, the 8th and 9th December.

Snowbird—Noted almost daily in small flocks.

Am. Crossbill—Saw two flocks in flight, presumably of this species.

White-breasted Nuthatch—One seen.

Red-breasted Nuthatch—Fairly common; seen on several occasions.

B. C. Chickadee—Fairly common; noted daily.

Golden C. Kinglet—Saw several flocks daily; apparently the most common bird here at this season.

Pileated Woodpeckers are a fairly common resident in this district; Canada Jays much less so, only an occasional pair remaining through the winter.

The feathers of a Barred Owl found on the crust in pine woods, pointed to an unusual tragedy; a hunter hunted. A clot of blood beneath the feather-laden limb of a large pine, almost proved that some carnivorous animal, possibly Pine Marten or Fisher, had crept out on the limb and caught the owl napping.

MEETING OF ENTOMOLOGICAL BRANCH.

Held at the residence of Mr. J. W. Baldwin, on the evening of the 7th April, 1910.

Mr. Baldwin had on exhibit most of his collection of local lepidoptera. This collection is becoming an interesting one and is considerably added to every season. Species of uncommon occurrence in the Ottawa District, and which had been collected during 1909, were pointed out. Among these the writer noted particularly, *Sphinx lucitiosa*, which is very rare at Ottawa, *Ampelophaga versicolor*, *Apantesis virguncula*, *Apateia retardata*, *Orthosia helva* and *Autographa rectangula*. Most of these specimens had been collected at the Electric Railway Power House on the Britannia line. The powerful electric lights at this place are wonderfully attractive to insects of many kinds and the above is, therefore, a favourite rendezvous for some of the local entomologists.

Mr. Groh showed two thorns of *Crataegus* on each of which a Lachnosternid beetle had been impaled, the work most probably of the Northern Shrike. These had been collected in June from a tree at Dow's swamp. This exhibit led to an interesting discussion on the attraction of certain plants to insects, as for instance Dogbane, Milkweed, Tarry Cockle or Sleepy Catchfly, etc.

Mr. Criddle exhibited a box of rare Manitoban lepidoptera, all taken at Aweme. Among these was an interesting Sphinx which had recently been determined as a variety of *S. gordius*. The form had a conspicuous blackish band near the outside margin of the primaries, and showed other differences from eastern specimens of *gordius*. Mr. Criddle hopes by getting eggs of the form and studying the larvæ to decide whether it really is a variety of the above named species. Other specimens of interest in the box were: *Polia aedon*, *Mamestra scapularis*, *Xylina fletcheri* and *Tapinostola variana*. The latter species, although identified by Dr. J. B. Smith, looked different from other examples also named by Dr. Smith, from the east. Mr. Criddle will try and get other specimens for study.

Mr. Gibson spoke of a recent visit he had made to the home of Mr. J. D. Evans, a well known entomologist, at Trenton, Ont. He described in brief the nature of Mr. Evans' collections, and of the perfect order of the arrangement and most of the specimens. The collection of coleoptera is a particularly rich one, containing many very rare species. Mr. Gibson also showed a box containing an interesting series of the Arctiid moth, *Phragmatobia assimilians*, var. *franconia*. These had been reared from larvæ sent by Mr. Horace Dawson, of Hymers, Ont. The species is an uncommon one and notes on its life-history will soon be published.

A. G.

EXCURSIONS.

The first excursion of 1910 was held at Rockcliffe on Saturday, 16th April, when about a dozen members spent the afternoon in gathering specimens representing the different branches of the Club's work. At five o'clock the parties met, and under the direction of Mr. Andrew Halkett, the president, exhibited and discussed the material collected. Miss A. L. Matthews referred to nature study from the poet's point of view and briefly showed by quotations how Burns, Wordsworth and Tennyson had gone to nature for their best inspirations.

Mr. Groh, reporting on the afternoon's work in botany, exhibited about fifteen plants already in flower, as follows: *Hepatica*, *acutiloba* and *triloba*, Spring Beauty, Blue Cohosh, Wild Ginger, Dutchman's Breeches, a low sedge, and, among shrubs and trees; the hazelnut, "pussy" willow, aspen, red maple, American elm and white cedar. *Shepherdia canadensis* in full flower was also collected by the party. Mr. Groh called attention to the fact that many of the trees blooming at this early date

produced their stamens in catkins, and depended on the wind to transmit the pollen to the pistillate flowers; while later on when the leaves become an obstruction, insects are the chief pollenizing agents. An interesting series of seedlings of the white cedar showed clearly the transition which this tree undergoes, from its earliest lance-shaped, spruce-like leaves to the scaly covered foliage with which most people are alone familiar. The curious, inconspicuous flowers of the cedar, terminating its branchlets, were also pointed out.

Mr. Criddle spoke briefly of the birds and insects observed. These were all comparatively common species but of interest on account of their indicating the advancement of the season in comparison with other years. Among birds, crows, sapsuckers, juncos, American goldfinches, a phoebe, song sparrow, and numerous purple finches were observed in the order named. Mention was made of the somewhat destructive habits of the yellow-bellied sapsucker which punctures the tree in search of sap, and eats the inner bark, in some cases the injury being sufficient to kill the tree. These birds, however, compensate for the injury they do, by destroying many noxious insects. Two butterflies—*Vanessa antiopa* and *V. milberti*—both hibernating species, were recognized. A few beetles were dislodged from beneath stones; these included a specimen of *Cicindela sexguttata*, which had undoubtedly reached maturity last fall and hibernated.

The president spoke of the habits of the red squirrel, which he observed in a pine tree. He also referred to several of the birds and insects mentioned by Mr. Criddle, and to the larvæ of several species of aquatic insects, including larvæ of caddice flies in their tubes or cases, made of little sticks and stones closely held together with silk.

The writer exhibited a number of well preserved fossils from the Black River and Trenton limestones of Governor's Bay and spoke briefly of the geological features of the park, referring specially to the granite boulders scattered over the surface of the ground.

W. J. W.

NOTES.

SHORT-EARED OWL.—Note on the flight of *Asio accipitrinus*, observed at the Eastern Sandbar, Toronto, September and October, 1909. During the period of migration the remains of forty-seven small birds were found on the beach. Enough feathers remained of the following to make identification possible:

Sora Rail, 1; Yellow-bellied Woodpecker, 3; Hermit Thrush, 1; Slate-colored Junco, 1; Tree Sparrow, 1; White-

throated Sparrow, 2; Myrtle Warb' : Long-billed Marsh Wren, 1; Olive-backed Thrush, 1.

The stomachs of four specimens examined contained pellets of feathers and bird bones. Numerous pellets picked up on the beach were also examined and found to consist of feathers and bird bones.

Following are the dates on which the owls were seen:—September 28th, 6 seen; October 2nd, 9 seen; October 3rd, 20 seen; October 6th, 2 seen; October 16th, 3 seen; October 24th, 4 seen; October 25th, 1 seen. J. A. MUNRO, Toronto.

PHALAROPES IN WESTERN ONTARIO.—These birds are sufficiently rare to make almost every occurrence worth recording. My collection contains only three skins from this part of the country, and it happens that these three are each of different species.

My Wilson's is the old one recorded in Macoun's catalogue, and I had no chance to add other Ontario specimens until the fall of 1906 when a friend at Rondeau sent me on October 10th a Northern Phalarope. This was followed on the 20th by a Red Phalarope, both in the juvenal plumage. This was a first record of either species for that district, although I have no doubt of their being there with as much regularity as can be expected from such stragglers from the north and west.

The Red Phalarope is a common breeder among the Arctic Islands of Northern Canada, but its migrations do not bring it this way, but take it out to sea.

W. E. SAUNDERS, London, Ont.

BRUNNICH MURRE, *Uria lomvia*.—One male bird was found in a dying condition in the snow, in the early part of December, 1908, near the village of Heaspeler, New Ontario, which is near the upper end of Lake Temiskaming, and sent by the one who found it, Mr. Levi Smith, to the undersigned to be mounted. It was a fine specimen; the stomach was quite empty. The bird had the appearance of having died from starvation.

On December 21st, 1894, I shot a Brunnich's Murre on the river at my place three miles below Port Sydney. The river is known as the north-east branch of the Muskoka River. It had been frozen over, but owing to a few mild days it had opened up down the centre, leaving a strip of ice along the shore about thirty feet wide. The Murre was sitting on the outer edge of this strip of ice when I shot it. On skinning it I found it to be in a very emaciated condition. This was the first Brunnich's Murre that I ever saw or heard of in these parts.

ALFRED KAY, Port Sydney, Ont.

YELLOW-FLOWERED VARIETY OF LARGE CORAL-ROOT.— Perhaps the finding of a yellow-flowered variety of *Corallorhiza multiflora* is a sufficiently rare occurrence to be of interest. I do not recall any Canadian record of it.

A very fine scape with thirty-two flowers was brought to me for identification by an artist associate here, and on going to the spot from which it had come I found a clump of about half a dozen scapes in very good condition and others bearing evidence of a considerable struggle with the dragged drift through which they had had to force their way.

The form is quite that of the common variety and the lip is similar in colour also—white with a few crimson spots, but the rest of the flower and the scape is a very definite but subdued yellow, such perhaps as one understands by "straw-colour," with only the faintest suspicion of green and without even a slight suspicion of the colour characteristic of the common *C. multiflora*. They were growing at the foot of a small hemlock in a dry pine wood, with Partridge Berry, Wintergreen and *Maianthemum canadense* among their nearest neighbours.

R. HOLMES, Toronto.

THE BLACK RAIL IN ONTARIO. In the April NATURALIST, Mr. C. W. Nash questions my conclusions regarding the Black Rail, as given in my review of Macoun's Catalogue of Canadian Birds.

I have a vague recollection of someone telling me that Mr. Nash now thought the Rails that he recorded as Black, were Young Virginia, but I could not say with whom the conversation took place, and on looking the matter up I find that the only published basis that I have for this conclusion is the statement in Fleming's list of the Birds of Toronto, (Auk, volume 23, page 453), under the heading Black Rail, that "Young Virginia Rails have been mistaken for this species." This, of course, does not necessarily refer to the specimens taken by Mr. Nash, nor have I authority to say that this statement was ever intended to refer to those specimens, but apparently I put two and two together, and made something out of them.

I was very glad to have Mr. Nash take this matter up, and will be still more pleased if he will tell us all that he knows and thinks about these Rails, recollecting that the Black Rail is about the size of the Song Sparrow, though a little shorter in length, with a bill of one-half an inch, whereas the Virginia has a bill of over an inch long.

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